NSP
Network Services Platform
Release 24.8

Analytics Report Catalog

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Contents

About this document

Purpose

The *NSP Analytics Report Catalog* provides information about the reports that NSP Analytics can generate.

Document structure

In addition to Part I: “Getting started”, which explains how to use Analytics, the guide includes the following parts, each of which is named for an Analytics category; each chapter in a part describes a specific Analytics report dashboard:

- Part II: “Administration”
- Part III: “Application Assurance”
- Part IV: “Network and Service”
- Part V: “NSP”
- Part VI: “Custom”

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Part I: Getting started

Overview

Purpose

This part provides general NSP Analytics report information.

Contents

1 Using Analytics

1.1 What is Analytics?

1.1.1 Overview

NSP Analytics generates reports and dashboard views to represent network conditions. The reporting is based on various data types that the NSP collects. For example, raw data is used for evaluating current conditions, and aggregated data helps to identify patterns and trends. Analytics reports and views provide vital information about network status, traffic, application usage, and more.

This document describes NSP Analytics functions, including report generation and visualizations, and provides a reference of the available Analytics report catalogs. For information about configuring telemetry subscriptions, using baseline analytics, NSP indicators, OAM tests, metric customization, and network tests, see the *NSP Data Collection and Analysis Guide*.

Note: The term “NSP” in the guide refers to an NSP deployment that may or may not include an integrated NFM-P for classic management. The NFM-P is mentioned as a separate NSP component only in required contexts, for example, “NFM-P main server”, or content that describes NFM-P configuration.

Note: Some Analytics reports require a variety of statistics or data types. All data for a report must be collected using the same collection interval; otherwise, the report generation fails or produces erroneous results.

Note: Analytics reports cannot be exported while using a Firefox browser.

Aggregation reporting

The available data-aggregation levels, for example, Hourly, Daily, or Monthly, vary by report type and are selectable using the Granularity drop-down menu in the input prompt panel.

Aggregation-based reporting in NSP for MDM-mediated NEs and CN telemetry requires the configuration of data aggregation in the **Aggregation** view of **Data Collection and Analysis Management**. See the *NSP Data Collection and Analysis Guide*, and the Telemetry information on the Network Developer Portal.

For classically managed NEs, in order to create a report or dashboard based on aggregated data, you must enable and configure aggregation for the required statistics using the NFM-P Aggregation Manager, as described in 1.9 “How do I configure analytics aggregation?” (p. 29).

Telemetry reporting

Analytics includes reports based on collected telemetry data. The title of each such report includes “(NSP)” for differentiation from the equivalent legacy NFM-P report, which is based on classic mediation. The NSP reports are based on data from model-driven Nokia or multivendor NEs, and may also include classic mediation data.

Classic mediation reporting

Analytics reporting for classic mediation requires the configuration of auxiliary database collection parameters such as the following using the samconfig utility on each NFM-P main server:

- statistics type, such as OAM, Application Assurance (AA), or both
- format, for AA flow statistics
- storage parameters

See the *NSP Installation and Upgrade Guide* for configuration information.

Object counts in Analytics reports

You can select up to 1000 objects for a report by entering comma-delimited names at a report input prompt that has a % search in the associated text box. For example, you can specify a list of objects such as %203.0%,%MSS%,%113.71% at the Name or name pattern for NEs prompt, or in any other text box that supports % searches, including NE names, Port-LAG, port names, interface, service, SAP, and customer.

If reporting is required for more than 1000 objects, you can filter using report prompts to generate multiple reports. The Comprehensive reports described in Chapter 11, “Comprehensive reports” do not implement the 1000-object limit; reporting is limited only by the available system resources.

Because no 1000-object limit is imposed, a Comprehensive report may take longer to render, or may fail due to insufficient resources. In such cases, you can use the report prompts to reduce the number of selected objects. Alternatively, you can create an ad hoc report without the 1000-object limit, or contact Nokia professional services to create a custom report.

Analytics Data Dictionary

To ensure optimal reporting performance, a subset of network and service objects, for example, subscribers, services, or ports is copied from the main NSP database to the auxiliary database. Analytics synchronizes the data for all object create, update, and delete operations. To ensure that no operations are missed, the data dictionary is periodically resynchronized and is entirely rebuilt every 30 days.

NSP Analytics uses the dictionary data to populate report prompts; the data are also available for use in ad hoc reports. Deleted objects are retained for up to 30 days, so may appear in newer reports, depending upon the report design. You can use report prompts to exclude such objects.

Tests and subscriptions limitations

If the CFM Association and MEP has Admin Name set to "N/A", some of the CFM Associations and MEPs are not migrated from NFM-P to NSP.

When deleting a test suite, if the NE is in MD mode, CFM objects get deleted. If the NE is managed via NFM-P, CFM objects are not deleted even though the test suite and tests are deleted.

Model-driven OAM (MD-OAM) features within NSP’s data collection and analysis function are available in this release with the following limitations:

- MD-OAM is fully certified to be backwards-compatible with NSP 21.11 and newer OAM adaptors. OAM adaptors from release NSP 21.9 or older are not qualified.

- MD-OAM has been partially validated against multi-vendor NEs; however, certification with multi-vendor will continue over the next NSP releases.

MDM-OAM with classically managed NEs has the following additional restrictions:

- CFM Linktrace test execution is not supported.

1.1.2 Analytics API support

NSP Analytics functions are available for OSS using programmable APIs. For general information about developer support, see the Network Developer Portal. For API documentation, see the API documentation page.

1.1.3 Resource requirements

Analytics has significant data throughput and storage requirements that vary by the data type, such as telemetry, aggregated raw, or flow. An NSP deployment that includes Analytics reporting may require the following, based on the collected data types and volume:

- an NSP auxiliary database, for raw data collection and aggregation
- one or more enabled NSP installation options, for telemetry data collection
- NSP Flow Collectors and Flow Collector Controllers, for flow statistics collection using IPFIX
- NFM-P auxiliary servers, for additional classic mediation collection throughput

Note: The report characteristics table in a chapter indicates which system elements are required in order to collect the required report data. For example, the Source database row in the table for an aggregation-based report indicates that an NSP auxiliary database is required, and the NSP Flow Collector required row is present in a table that describes flow statistics collection.

If you intend to enable additional reporting that is not currently available in your deployment, see the *NSP Planning Guide*, which includes information about the NSP Analytics resource requirements, based on the managed network size, deployment scope, and other considerations.

1.1.4 Network domains for Application Assurance reports

NSP Analytics supports AA reporting for residential, business, Wi-Fi, and fixed wireless access subscribers. If needed, the network domain can be selected from the Domain drop-down menu in the input prompt panel.

Note: The use of “mobile” in this document implies fixed wireless access.

The domains are defined by the value of the Subscriber Type parameter in the AA Subscriber form, the Subscriber Scale parameter in the ISA AA group policy, or both:

- Residential / Wi-Fi (ESM)
  - Subscriber Type: ESM, ESM-MAC, or Transit

    These subscribers must have an associated ISA AA group policy with a Subscriber Scale setting of Residential.
- Business

- Subscriber Type: SAP, Spoke SDP Binding, or Prefix Transit

  These subscriber types must have an associated AA group policy with a Subscriber Scale setting of VPN.

- Mobile
  - Subscriber Type: Mobile
- Wi-Fi (DSM)
  - Subscriber Type: DSM

    The subscriber must have an associated ISA AA group policy with a Subscriber Scale setting of Lightweight-internet (LWI).

The following table describes the reports available for each domain.

Table 1-1 Application Assurance reports, by domain

Report type	Residential / Wi-Fi	Business	Wi-Fi (DSM)	Mobile
Business Subscribers	None	All	None	None
Devices and Domains	All	All	All	All
Firewall	None	All	None	All
Location and Congestion	None	None	All	All
Mobile Subscribers	None	None	None	All
Nodes	All	All	All	All
Performance	All	All	All	All
Subscribers	All	None	None	None

1.1.5 Baselining in Analytics reports

Some reports support the use of baselining. Baselining highlights deviations for the current period from the baseline data collected in the configured baseline period.

Note: Baselining in Analytics reports is different from baselines as seen in the **Data Collection and Analysis Management**, **Baselines** view.

For an Analytics report, NSP computes a baseline for data configured for reporting, for example, utilization and throughput for a port in a Port LAG Details report, or bandwidth and data for an application group in a Router Level Usage Summary report with Baseline.

A baseline configured in **Data Collection and Analysis Management**, **Baselines** provides near-real-time trend and anomaly detection from telemetry counters, for example, received-octets for the /telemetry:base/interfaces/interface telemetry type.

For more information about baselines in Data Collection and Analysis Management, see the *NSP User Guide* and the *NSP Data Collection and Analysis Guide* .

The following table describes how baseline data is presented.

Report granularity	Baseline definition	Baseline composition
Raw	Raw + Hour of Day	Baseline is composed of all data points in the Baseline Report Range for matching intervals to the hour and minute for any day of the week. For example if May 15 14:05 is in the Report Range, and the Baseline Report Range is April 1 00:00 - April 30 11:59, the baseline minimum, maximum, and average values are based on the 30 samples from 14:05 for every day of April. The same baseline calculation is made for other data points in the Report Range.
	Raw + Hour of Day + Day of Week	Baseline is composed of all data points in the Baseline Report Range for matching intervals to the hour and minute for the corresponding day of the week. In the above example, the baseline has 4 or 5 samples depending on the day of the week (as each day occurs 4 or 5 times per month).
Hourly	Hour of Day	Baseline is composed of all data points in the Baseline Report Range for matching hours for any day of the week. For example, if May 15 14:00 is in the Report Range, and the Baseline Report Range is April 1 00:00 - April 30 11:59, then the baseline minimum, maximum, and average values are based on the 30 samples from 14:00 for every day of April. The same baseline calculation is made for other data points in the Report Range.
	Hour of Day + Day of Week	Baseline is composed of all data points in the Baseline Report Range for matching hours for the corresponding day of the week. In the above example, the baseline has 4 or 5 samples depending on the day of the week (as each day occurs 4 or 5 times per month).
	Hour of Day + Day of Month	Baseline is composed of all data points in the Baseline Report Range for matching hours for the corresponding day of the month. In the above example, the baseline has 1 sample (note: a longer Baseline Report Range is recommended).
Daily	Day of Week	Baseline is composed of all data points in the Baseline Report Range for matching days of the week. For example, if May 15 is in the Report Range, and the Baseline Report Range is January 1 00:00 - April 30 11:59, the baseline minimum, maximum, and average values are based on the 17 or 18 samples for every day in those 4 months.
	Day of Week + Month of Year	Baseline is composed of all data points in the Baseline Report Range for matching hours for the corresponding day of the week for the matching months. In the above example, the baseline has 4 or 5 samples for each of the months of January-April.
	Day of Month	Baseline is composed of all data points in the Baseline Report Range for matching days of the month. In the above example, the baseline has 4 samples for the 15th day of January-April.
	Day of Month + Month of Year	Baseline is composed of all data points in the Baseline Report Range for the matching days and months of the year. In the above example, the baseline is empty as May 15th does not occur (a different Baseline Report Range is required).

Report granularity	Baseline definition	Baseline composition
Monthly	Month of Year	Baseline is composed of all data points in the Baseline Report Range for matching months. For example, if May is in the Report Range, and the Baseline Report Range is January 1 2020 - December 31 2022, the baseline minimum, maximum, and average values are based on the 3 samples for every month of May between 2020-2022.

1.1.6 Analytics report branding

Some reports support the inclusion of a logo. A logo image that you add is displayed at the top of each report page in an 80-pixel square. See 1.17 “How do I upload images for report branding?” (p. 36) for information.

1.2 What are reports and dashboards?

1.2.1 Analytics reports

Analytics reports enable a network operator to quickly determine the overall status of network functions and monitor trends. For example, you can identify the top subscribers in terms of overall network traffic, or based on application usage. Analytics allows a user to specify the reporting period, the objects on which to report, and the desired view. A report can be displayed in different formats such as a pie chart, trend diagram, or histogram.

You can schedule reports, or save them to be run again.

You can also export reports to files using the following formats:

- Excel (Paginated)
- Excel
- CSV
- DOCX
- RTF
- ODT
- ODS
- XLSX (Paginated)
- XLSX
- PPTX

1.2.2 Viewing reports

An NSP Analytics report consists of one or more charts and tables. By default, each chart or table is displayed on a separate page; you can select an option to display all on one page. To enhance the analysis, you can refine the chart display by clicking on a legend entry to include or exclude the data associated with the legend entry. Also, for increased granularity, you can click on any data portion in a chart to zoom in and view a chart that contains only the selected data portion.

From the report view, you can click on the menu items under the Repository menu to search results or configure schedules, custom dashboards, or ad hoc reports. To return to the report repository, click on Repository Top.

Note: When viewing a report, be aware of the number of objects in the dataset. The report may become unreadable if more than 10 to 20 data points are present.

Similarly, it may not be possible to create a drill-down report on a subset of data if the subset includes more than 1000 groups or services.

Report runtime error

If the report output involves a horizontally growing table (crosstab-based output), running the report without narrowing down the data using the input controls may generate one of the following error messages: “Crosstab bucket/measure limit (100,000) exceeded“ or “Please re-run the report with reduced report range or try again with different granularity". This is caused by the configured limit for crosstab components.

If you encounter this issue while running a report, re-run the report, narrowing down the result set. For example, instead of selecting all metrics available to report on, select a subset. Similarly select a subset of applications, select hourly or daily statistics instead of raw, or reduce the reporting period. If this fails, consider using a table which does not have this limit.

In-context launch

You can launch compatible reports from the Network Map and Health dashboard; see the *Network and Service Assurance Guide*.

Note: The top-level report opens with the parameters selected. If you drill down from this report you can change the parameters on the drill-down report.

Language localization

Analytics supports language localization. Wording that is in all reports, such as on the **Apply** button, the labels of the Reports and Administration areas, and page labels such as Repository and Search Results, are localized according to the NSP language localization configuration. Wording that is report-specific, such as an input parameter name, is in English only.

1.2.3 Dashboards

An NSP Analytics dashboard consists of multiple dashlets that are displayed on one page. Each dashlet displays a chart or table based on key performance indicators; collectively, the dashlets provide a high-level view of various network management conditions.

The entire dashboard display automatically refreshes at 15-minute intervals; you can choose to refresh the display of an individual dashlet on demand using the circle icon in the dashlet title bar, and can enlarge a dashlet for closer scrutiny using the double-arrow icon in the dashlet title bar.

1.2.4 Workspaces

The initial use of Analytics automatically creates a personal folder for the user in the Results folder. The Results folder also provides user access to a Shared subfolder, in which all Analytics users can share items such as reports, dashboards, and ad hoc reports.

Note: Because of a security limitation, an NSP user with Analytics access cannot have the following username:

samuser

Note: Deleting an Analytics user also permanently deletes the associated personal folder, workspace, and scheduled tasks.

Users with Administrator privileges have access to the Administrators subfolder in the Results folder, and can manage the folders of other users.

The Users and Security dashboard specifies which reports or resources a user group can access; see the *NSP System Administrator Guide*. Upgrade to the User Access Control (UAC) model is not supported.

1.2.5 Saving reports

Reports are saved in user-specific folders below the Results folder, and optionally in the Shared folder in the Results folder, as described in 1.2.4 “Workspaces” (p. 23). You can save a report with your inputs by clicking **Save As**, and later run the report using the saved input values. You can save multiple report versions that each use different input values, as required.

Within the Results folder, you can create custom folders to reflect report requirements, for example, a folder for use by a particular team; see 1.13 “How do I manage saved reports?” (p. 33).

Note: After an NSP system upgrade, some saved Analytics reports or scheduled reporting jobs may not be available, depending on the functional differences between the old and new NSP releases; see the *NSP Release Description* for the new release, and any intervening release, for information.

In such an instance, Nokia recommends that you delete the unavailable old reports and scheduled jobs before the upgrade, and then run, save, and reschedule the reports after the upgrade.

1.2.6 Exporting reports

Click on **Export** and choose your file format to export a report to your PC. You can export a report in the following formats:

- Excel (Paginated)
- Excel
- CSV
- DOCX
- RTF
- ODT
- ODS
- XLSX (Paginated)
- XLSX
- PPTX

Note: If you export a file to PDF, clicking **Download** from the PDF viewer may generate an error. To download a PDF, open the Print menu and choose **Save as PDF**.

1.2.7 Scheduled report creation

You can create reports on demand, or schedule regular report creation. To schedule a report, right-click on the report name in the Reports repository.

The following general guidelines match data-aggregation levels and time spans to enable the creation of meaningful reports.

- None—current raw data
- Hourly—5 to 7 days
- Daily—up to one month
- Monthly—up to six months

Scheduled report results are saved to the Results folder. You can create and manage subfolders in the Results folder as needed. See 1.2.4 “Workspaces” (p. 23) for more information about the Results folder.

Scheduled reports can be transferred to external systems using FTP or SFTP; on the Schedules view, enable the Output to FTP Server parameter and configure the required parameters. Additionally, scheduled reports can also be sent to an email address; see the *NSP System Administrator Guide*.

After an NSP system upgrade, scheduled reporting jobs created before the upgrade remain available and functional, but run the new report version.

1.2.8 Report purging

Saved reports that are no longer of interest consume database space unnecessarily. Reports that exceed a configured maximum number are purged automatically every 24 hours. The default maximum is 5000. You can configure the maximum number of reports, or run the purge operation manually from the System Settings form; see 1.11 “How do I configure application preferences?” (p. 31).

If you need to save more than 5000 reports at a time, Nokia recommends saving them to another location using the Output to FTP Server option when you create the report schedule.

1.2.9 Custom reporting

You can create and deploy custom reports and dashboards using your specifications, as described in Part VI: “Custom”. For information about custom reports created by Nokia, contact your support representative.

If the NSP has been upgraded, custom reports from the previous release cannot be run in the current release. Nokia recommends creating the reports again after the upgrade is completed.

1.3 When do I configure Analytics?

1.3.1 Overview

In order to enable the creation of Analytics reports and dashboards, an operator must:

- enable or disable the required types of data collection

- specify the statistics classes for data collection and aggregation
- specify how long to retain the data

1.4 How do I configure NSP Analytics for classic mediation?

1.4.1 Stages

1

Configure and enable the collection of the required statistics from NEs, as described in the *NSP NFM-P Statistics Management Guide*.

2

If the NSP deployment includes NSP Flow Collectors, configure and enable flow statistics collection, if required; see the *NSP Data Collection and Analysis Guide* for information about how to configure NSP flow collection, and Flow statistics collection in the *NSP Statistics Management Guide* for information about how to configure NFM-P flow collection.

3

Configure one or more NFM-P analytics rules that specify the statistics to collect; see 1.8 “How do I configure an NFM-P analytics rule?” (p. 29).

4

Configure one or more aggregation rules; see 1.9 “How do I configure analytics aggregation?” (p. 29).

5

Configure the time zone for the analytics session in the Select Report Time Zone menu. See 1.10 “How do I configure the Analytics session time zone?” (p. 31).

6

Configure report purging; see 1.11 “How do I configure application preferences?” (p. 31).

7

Configure scheduled reports, as required; see 1.14 “How do I schedule a report?” (p. 34).

1.5 How do I configure NSP Analytics for model-driven NEs?

1.5.1 Stages

1

Configure and enable the following for NSP data collection:

- subscriptions
- age-out policy

- aggregations

See the Telemetry information on the Network Developer Portal and in the *NSP Data Collection and Analysis Guide*.

2

Configure one or more analytics rules to specify the statistics to collect; see 1.8 “How do I configure an NFM-P analytics rule?” (p. 29).

3

Configure the time zone for the analytics session in the Select Report Time Zone menu. See 1.10 “How do I configure the Analytics session time zone?” (p. 31).

4

Configure report purging from the System Settings form. See 1.11 “How do I configure application preferences?” (p. 31).

5

Configure scheduled reports as needed; see 1.14 “How do I schedule a report?” (p. 34).

1.6 How do I prevent suspect-interval data spikes in classic management reports?

1.6.1 Purpose

Statistics counters continue to accumulate on the NE during suspect intervals, for example, during a communication outage between the NSP and the NE. In the first successful collection interval following the last suspect interval, the periodic counter value reflects the count of all suspect intervals. Consequently, an impossible value, such as a utilization greater than 100%, may be collected and result in a data spike in an Analytics chart.

Perform this procedure to help prevent such spikes by increasing the periodic time value for the first successful interval following the last suspect interval. See the *NSP Administrator Guide* for more information about managing suspect data records.

1.6.2 Steps

1

Choose Administration→System Preferences from the NFM-P main menu. The System Preferences form opens.

2

Click on the Statistics tab.

3

Enable the Accumulate time over suspect intervals parameter and configure all other required parameters.

4

Save your changes and close the form.

END OF STEPS

1.7 What are the auxiliary database retention times?

1.7.1 Auxiliary database retention information

You can specify how long aggregation data is stored in the auxiliary database by configuring the parameters in the Aggregation Retention Configuration panel on the Aggregation Rule tab of the Aggregation Manager form; see 1.9 “How do I configure analytics aggregation?” (p. 29).

The following table describes the auxiliary database retention times.

Data type	Periodic		Hourly		Daily		Weekly		Monthly	
	System default	Maximum	System default	Maximum	System default	Maximum	System default	Maximum	System default	Maximum
	Days		Days		Days		Weeks		Months	
Performance (SNMP) statistics	1	365	30	403	90	403	26	52	24	36
Accounting statistics	1	365	30	403	90	403	26	52	24	36
NetFlow v5/IPFIX statistics	7	403	30	403	90	403	26	52	24	36
OAM test results	30	365	30	403	90	403	26	52	24	36
Events	7	365	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AA accounting statistics	7	403	30	403	90	403	26	52	24	36
AA Cflowd statistics	7	403	30	403	90	403	26	52	24	36

Data type	Periodic		Hourly		Daily		Weekly		Monthly	
Telem-etry statistics	1	403	30	403	90	403	26	52	24	36

1.8 How do I configure an NFM-P analytics rule?

1.8.1 Purpose

Perform this procedure to enable or disable raw data collection, and to specify data retention, for a statistics class to be processed using NFM-P analytics. Raw data collection is enabled by default for each statistics class.

1.8.2 Steps

1

Choose Tools→Analytics→AA Collection Manager from the NFM-P main menu. The AA Collection Manager form opens with a list of analytics rules displayed.

2

Select the required analytics rule and click **Properties**. The Analytics Rule (Edit) form opens.

3

Select the Collection Enabled parameter.

4

Configure the Raw Data Retention Time (days) parameter.

5

Close the AA Collection Manager form.

END OF STEPS

1.9 How do I configure analytics aggregation?

1.9.1 Purpose

Perform this procedure to configure the following for a statistics class to be processed using Analytics:

- data aggregation level
- aggregation data retention

Note: You can also configure the aggregation rule for a statistics class from the properties form of the analytics rule associated with the statistics class.

1.9.2 Steps

1

Choose Tools→Analytics→Aggregation Manager from the NFM-P main menu. The Aggregation Manager form opens.

2

Select an aggregation time zone if needed. The aggregation time zone is the time zone used to define daily, weekly, or monthly aggregations, that is, the definition of midnight.

3

On the Aggregation Rule tab, select the required aggregation rule and click **Properties**. The Aggregation Rule (Edit) form opens.

4

Select the Enable Aggregation parameter.

5

Configure the Aggregation Sync Time parameter.

6

Configure the Aggregation Levels parameter. As you select or deselect an option, other options may be automatically selected or deselected, as the aggregation logic requires.

7

Configure the parameters in the Aggregation Retention Configuration panel to specify how long the aggregation data is stored.

8

Click **OK** to save your changes and close the form.

9

Close the Aggregation Manager form.

END OF STEPS

1.10 How do I configure the Analytics session time zone?

1.10.1 Purpose

Perform this procedure to configure the time zone for the analytics session. If no time zone is selected, the browser time zone is used for report generation.

The session time zone defines the current time displayed in Analytics. The time zone used for aggregation, that is, the definition of when a day ends, is the aggregation time zone. The session time zone and the aggregation time zone must be the same. See also 1.9 “How do I configure analytics aggregation?” (p. 29).

1.10.2 Steps

1

Open Data Collection and Analysis, Analytics Reports.

2

Click ⋮ (More actions), **Select Report Time Zone** at the top right of the Repository view. The Select Report Time Zone form opens.

3

Configure the Time Zone parameter.

4

Save your change and close the form.

END OF STEPS

1.11 How do I configure application preferences?

1.11.1 Purpose

When the number of reports in the Results folder exceeds the configured number of reports to keep, the oldest reports above the maximum number are permanently deleted. If you need to keep more than 5000 reports, Nokia recommends configuring your scheduled jobs to output to an FTP server, as described in 1.14 “How do I schedule a report?” (p. 34).

Perform this procedure to specify when to purge old Analytics reports, or to manually invoke a purge.

Note: The NSP performs a daily purge of older reports based on the value that you specify in the procedure.

1.11.2 Steps

1

Open Data Collection and Analysis Management, Analytics Server Management. The System Settings form opens. The default number of reports to keep is displayed.

2

Configure the Number of Analytic Reports to store parameter.

3

To purge the excessive older reports manually, click **Clear Storage**, and then click **OK**.

4

Save your changes and close the form.

END OF STEPS

1.12 How do I run a report?

1.12.1 Purpose

Before you can run a report, statistics collection and aggregation must be configured in the NFM-P. Report-specific prerequisites may apply.

1.12.2 Steps

1

Open Data Collection and Analysis Visualizations, Repository.

2

Expand the folders in Reports and Dashboards and choose the report to run.

3

Configure the required parameters and click **Apply**.

4

To save the report:

1. Select **Save As**.
2. Configure the required parameters.
3. Navigate to the subfolder in the list view and click **Save**.

5

To export the report, point to Export and select a file type.

END OF STEPS

1.13 How do I manage saved reports?

1.13.1 Purpose

You can save reports to the Results folder to make them available to run again with the same inputs. You can save different versions of the same report with different inputs, and organize them in subfolders as needed. Save reports directly to subfolders. See 1.2.4 “Workspaces” (p. 23) for more information about the Results folder.

Each report version is assigned a resource ID at the time of saving. The resource ID is based on the name that is entered in the Save As dialog when the report is saved. After the report is saved, the name field can be updated. This means that you can have two report versions with the same displayed name, because their resource IDs are unique in the folder.

Example If you want to save both a Port Throughput Summary and a SAP Throughput report for a set of inputs representing the Eastern region, you can save the reports as PTEast and STEast. This gives each report a unique resource ID. From the Results folder, edit the name of both report versions to Eastern. This will make it easy to identify that both report versions have the same inputs.

1.13.2 Steps

1

Open Data Collection and Analysis Visualizations, Repository.

2

Expand Results and choose a folder.

The list of reports with saved user-specified report inputs is displayed. Click the arrow beside a report to expand the list.

3

To run a saved report, you can either:

a. Click on the report name to open the report inputs. At the top of the inputs panel, choose the report to run.

b. Click on the report name.

4

To create a subfolder in the Results folder:

1. Right-click **Results/Shared** in the folder pane and choose Add Folder.
2. In the Add Folder dialog, enter a name for the folder and a description.

3. Click **Add**.

A personal subfolder within the Results folder is also created automatically when you first log into Analytics. Additionally, a user folder is also created when you access a report in-context from the NSP.

END OF STEPS

1.14 How do I schedule a report?

1.14.1 Purpose

Perform this procedure to configure a schedule. You can schedule reports to run once or to repeat.

1.14.2 Steps

1

Open Data Collection and Analysis Visualizations, Search Results.

2

From the Search page, right-click on a report or report version and choose Schedule. The Scheduled Jobs page opens.

3

In the Scheduled Jobs page, click **Create Schedule**. The New Schedule page opens.

4

In the Schedule panel, configure the scheduled start of the job, and the recurrence.

5

Click **Parameters** to set the input parameters for the scheduled report.

If you are scheduling a saved report version, the input parameters will already be set.

6

Click **Output Options** to set the report format, for example, PDF, and where it will be saved.

7

Click **Notifications** to configure notification of job status, success, or failure, or for email copies of the report to be sent.

8

Click **Save** to add your scheduled job to the Schedules page.

END OF STEPS

1.15 How do I edit, disable, or delete scheduled report jobs?

1.15.1 Purpose

You can edit or delete scheduled report jobs that you created, that is, jobs for which your username appears in the owner column on the Schedules page.

In order to edit or delete a job that you do not own, you must be signed in to the NSP as an administrator.

If a scheduled job is deleted, it is immediately removed from the list and no further reports will be run according to the schedule. If you want a scheduled job to stop running but remain in the list for future use, you can disable it.

Deleting the scheduled job does not delete results of previously run reports from the Results folder.

Scheduled jobs that were upgraded from a release prior to 18.6 are owned by samuser. These tasks can only be managed by the admin user.

1.15.2 Steps

1

Open Data Collection and Analysis Visualizations, Schedules and Alerts. The scheduled jobs are displayed on the Schedules page, with the (Edit) and (Delete) buttons at the right of the page

2

To disable a scheduled job, move the Pause/Activate slider to pause. The job will stop running but remain in the list.

3

To delete a scheduled job, click (Delete). The scheduled job is removed from the list.

4

To edit the scheduled job:

1. Click (Edit). The Scheduled Jobs page opens.
2. Configure the parameters as required.
3. Click **Save**.

END OF STEPS

1.16 How do I view, edit, or export an alert?

1.16.1 Purpose

Perform this procedure to view, edit, or export an alert for a report.

1.16.2

1

Open Data Collection and Analysis Visualizations, Schedules and Alerts.

2

Click **Alerts**. The Report Alerts page opens.

3

View the list of alerts, as needed.

4

To edit an alert:

1. Click (Edit) next to the alert that you wish to edit. The Edit Alert page opens.
2. Click **Condition** to configure the required parameters, and click **Apply changes**.
3. Click **Parameters** to view the parameters.
4. Click **Schedule** to configure the recurrence and start time of the alert, and click **Apply changes**.
5. Click **Notifications** to email copies of the alert, and click **Apply changes**.
6. Click **Output** to configure the report format and other required parameters, and click **Apply changes**.

5

To export an alert, click **Export as CSV** on the Report Alerts page. An Excel spreadsheet opens with the alarms listed.

END OF STEPS

1.17 How do I upload images for report branding?

1.17.1 Purpose

Some Analytics reports allow you to embed a logo for branding. The following steps describe how to upload images for branding Analytics reports.

Image files can be in any of the following formats, and are scaled to fit an 80-pixel square for display in the report:

- BMP
- GIF
- JPEG
- JPG
- PNG
- SVG

1.17.2 Steps

1

Open Data Collection and Analysis Visualizations, Repository.

2

Right-click on the Images folder.

3

Choose **Add Resource, File, Image**. The Add File page opens.

4

Click **Choose File** and navigate to the image file.

5

Configure the Name and Resource ID parameters.

Note: You are prompted for the Resource ID when adding the image to a report.

6

Click **Submit**. The file is saved to the Images folder.

END OF STEPS

1.18 How do I enable anonymization for Analytics reports?

1.18.1 Purpose

Data anonymization hashes specific sensitive information in the auxiliary database tables so that an NSP non-admin user with an anonymization role can access only encrypted information, such as the mobile subscriber name or ID.

Note:

- Reports do not return data when anonymized attributes are prompts in the report.
- Drill-down reports do not return data when the drill-down parameter is an anonymized attribute.

Contact your Nokia support representative for information about which tables or table columns to anonymize based on your privacy needs.

1.18.2 Steps

1

Enable anonymization for Analytics reports:

1. Log in as the root user on an auxiliary database station.

2. Enter the following:

   # **cd /opt/nsp/nfmp/auxdb/install/bin** ↵

3. Enter the following:

   ./auxdbAdmin.sh addAnonymization *schema table_name column_name* ↵

   For example:

   ./auxdbAdmin.sh addAnonymization samdb Analytics_cflowd_aa_mobile_volume_ag_r_day obsSubId

4. You are prompted for the samauxdb password.
5. Enter the password.

   The anonymization entry is added.

2

Configure and assign the anonymization role to the NSP user.

1. Log in to the main server station as the nsp admin user or a user with admin privileges.
2. Import NFM-P user groups since the user is from an outside NSP source; see the *NSP System Administrator Guide* .
3. Create a role with Analytics Reports access permissions and anonymization enabled, and assign it to an NSP non-admin user:
   - for Permissions, choose Read/Write/Execute for Analytics
   - enable the Enable Report Data Anonymization check box
   - enable access to the reports and data domains, as required

   See the *NSP System Administrator Guide* for more information.

3

Disable anonymization for Analytics reports, if required.

1. Log in as the root user on an auxiliary database station.
2. Enter the following:

   # **cd /opt/nsp/nfmp/auxdb/install/bin** ↵

3. Enter the following:

   ./auxdbAdmin.sh removeAnonymization *schema table_name column_name* ↵

   For example:

   ./auxdbAdmin.sh removeAnonymization samdb Analytics_cflowd_aa_mobile_volume_ag_r_day obsSubId

4. You are prompted for the samauxdb password.
5. Enter the password.

   The anonymization entry is removed.

4

Close the open console window.

END OF STEPS

1.18.3 Example

The following figures show the same report but with different outputs. The first report displays anonymized output, in this case, subscriber information, as seen by an anonymized user. The second report shows output in clear text for the subscriber information.

Figure 1-1 A report with anonymized output

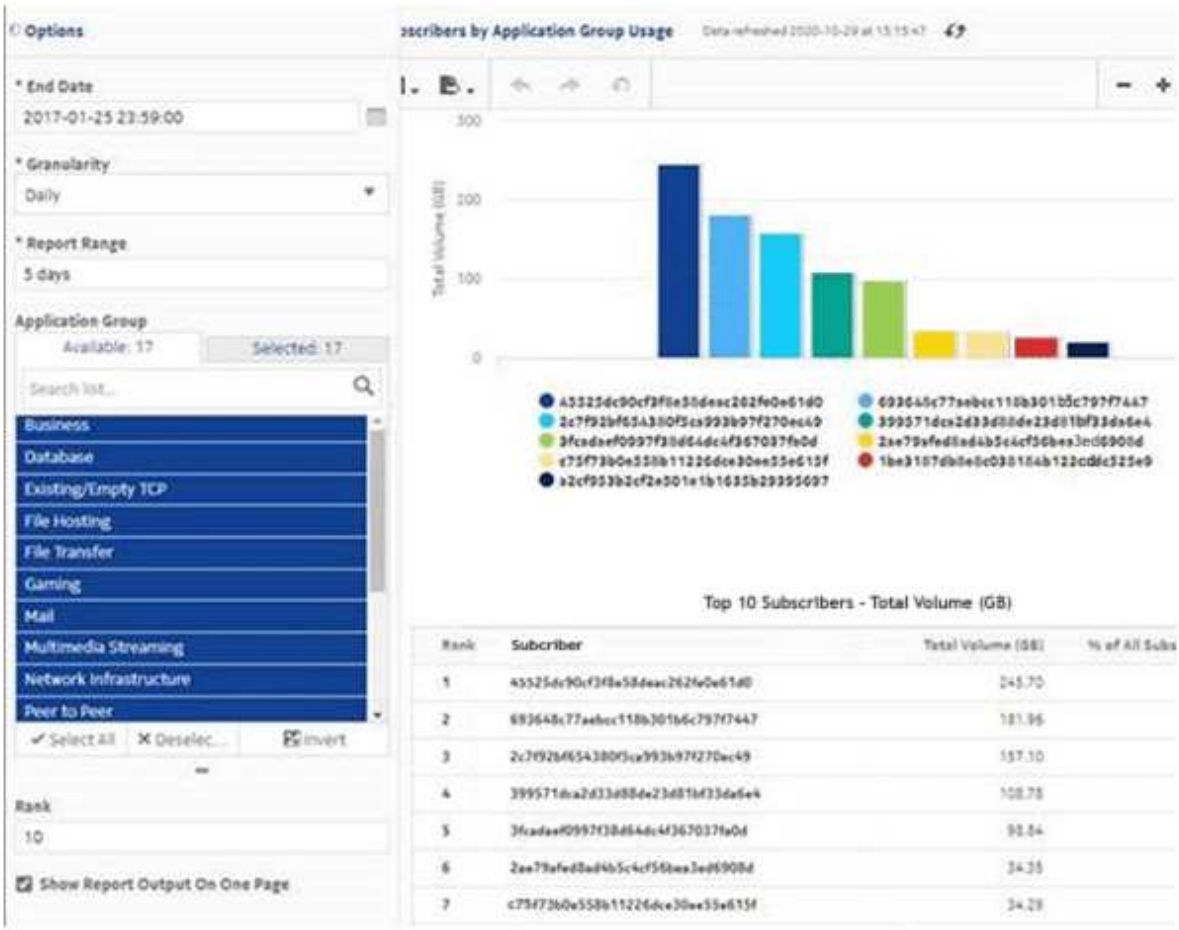
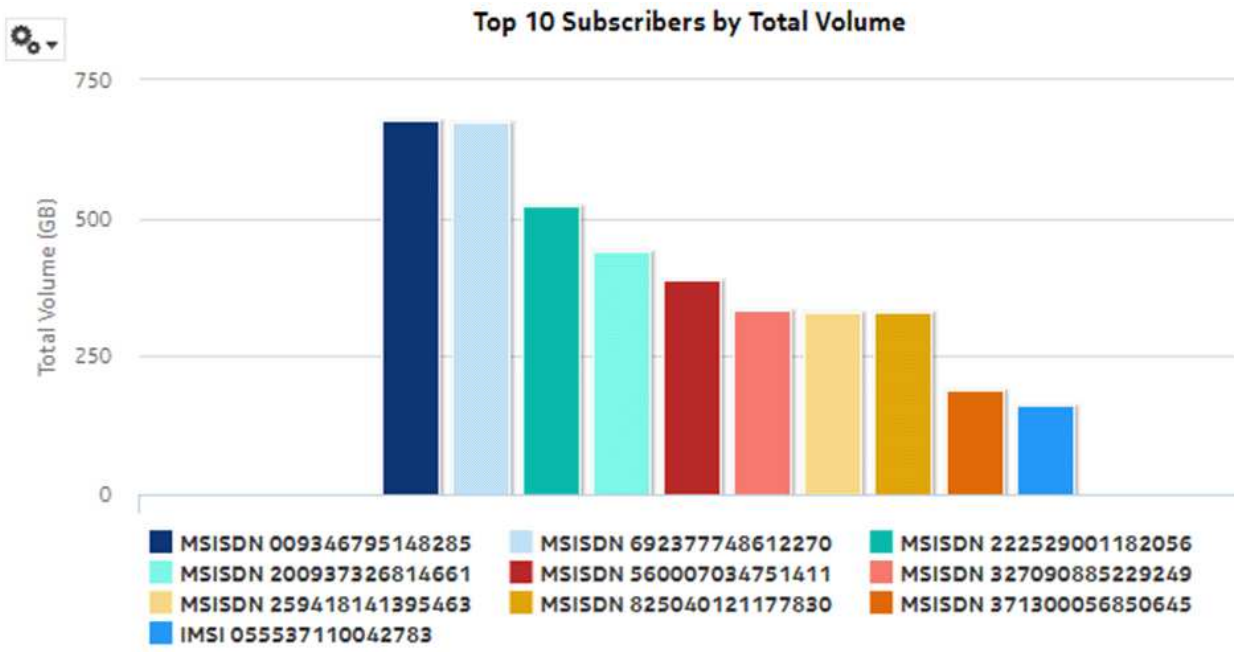


Figure 1-2 A report with clear text (non-anonymized) output



1.19 How do I delete an Analytics user?

CAUTION

Data Loss

Deleting an Analytics user permanently and irrevocably removes the user and the associated personal folders, workspace, and scheduled jobs.

Ensure that you are deleting only a user whose saved Analyttics reports and jobs are no longer required.

1.19.1 Steps

1

Open Data Collection and Analysis Management, Analytics Server Management.

2

Click **User Management**.

3

Select the users to delete.

4

Click **Delete**.

5

Confirm the deletion.

END OF STEPS

1.20 How do I format or filter a report?

1.20.1 How do I format or filter a report?

You can apply conditional formatting or filtering to report table columns by clicking on the column header to show filtering and sorting options. Conditional formatting and filtering of timestamps or duration columns uses Unix epoch format, as shown in the following figures.

Figure 1-3 Conditional formatting example

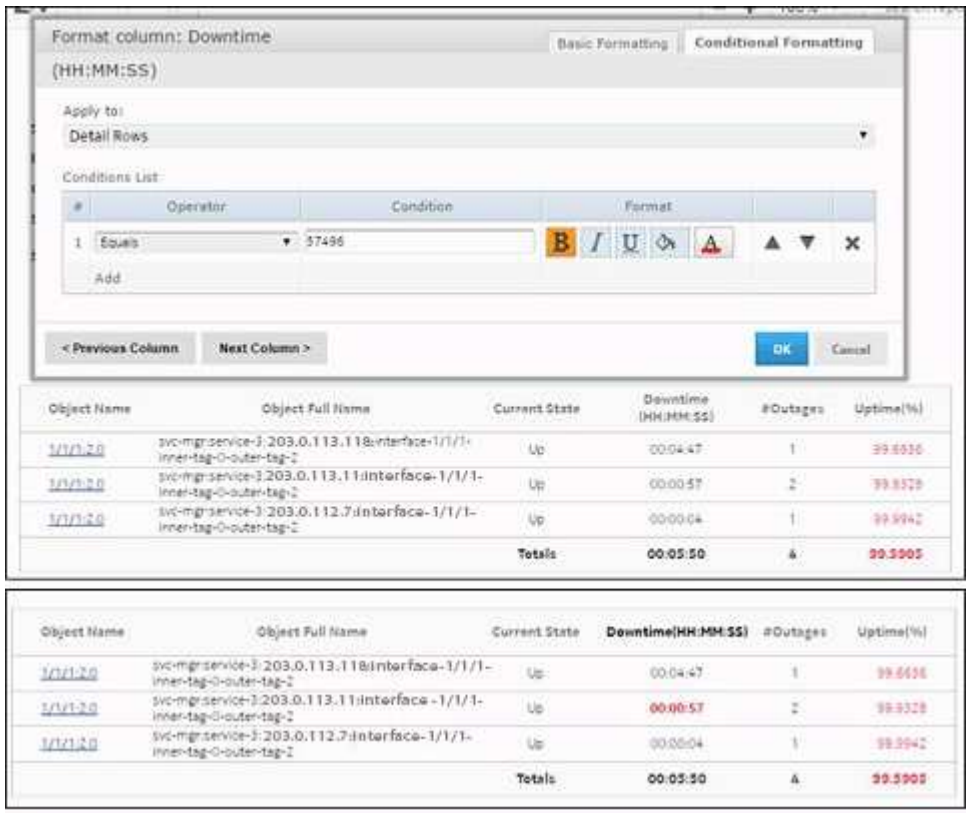
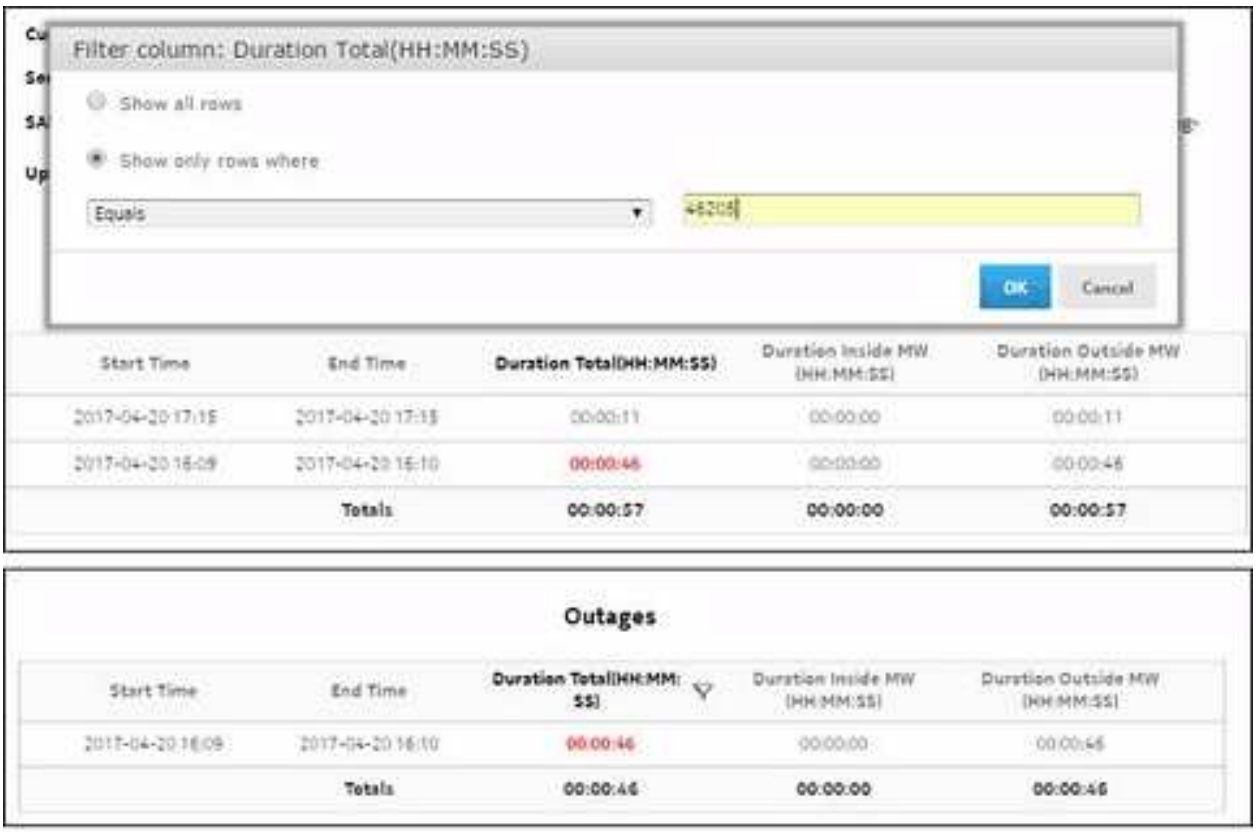


Figure 1-4 Filtering example



Part II: Administration

Overview

Purpose

This part describes the NSP Analytics reports in the Administration category.

Contents

2 Administration reports

2.1 Administration reports overview

2.1.1 General information

Administration reports track user activity; for example, reports are tracked along with the selected parameters run by individual users. Additionally, administration reports track Analytics resource utilization and gather configuration information for monitoring or troubleshooting purposes.

Use cases

Capacity planning—Use the report to:

- track user activity; for example, track reports along with the selected parameters run by individual users
- ensure effective Analytics resource utilization

Drill-down reports

All reports can be run from the main Administration folder under Reports and Dashboards by expanding the Audit or Diagnostic folder within the Administration folder and choosing a report.

Note: Using the Show Report On One Page option when creating reports as drill-downs may affect the report rendering time. Nokia recommends disabling the Show Report On One Page option when running the reports.

2.2 To enable or disable Analytics audit logging

2.2.1 Purpose

Perform this procedure to control Analytics audit logging. The audit data is used to create Analytics user transaction reports.

2.2.2 Steps

1

IS NOW DONE IN NSP GUI AS FOR OTHER SETTINGS - need procedure steps.

END OF STEPS

2.3 Resource Execution report

2.3.1 Resource Execution report overview

The Resource Execution report shows user activity; for example, track resources along with the selected parameters run by individual users.

Prerequisites

For the Resources Execution report to generate useful output, you must enable auditing; see 2.2 “To enable or disable Analytics audit logging” (p. 45).

Report characteristics

The following table lists the principal report characteristics.

Note: Nokia recommends that you use the default values for the report.

Table 2-1 Resource Execution report characteristics

Characteristic	Value	
Data type	Audit and monitoring log data statistics	
Source database	NSP main database	
Report inputs	*Prompt*	*Notes*
	Date between	The reporting period.
	Resource Type	The types of resources to be monitored or reported.
	Prop Type	The properties to be reported for the selected resource type.
	User Name	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Drill-down support	No	

2.3.2 Example

The following figure shows a report example.

Figure 2-1 Resource Execution report

Date	Time	Resource Type	Resource URI	Prop Type	Property Details	User Name
11/13/19	9:49:54 AM	ReportUnit	/Reports/Network_and_Service/Inventory/Card_Inventory	reportExecutionStartTime	2019-11-13 09:49:54	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertica/Inventory_Reports/SitesMultiSelect	inputControlParam	SitesMultiSelect=35.121.9.101 35.121.9.104 35.121.9.107 1.10.1.102 35.121.9.120 35.121.9.124 35.121.9.128	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertica/Inventory_Reports/SitesMultiSelect	inputControlParam	CriticalThreshold=90.0	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertica/Inventory_Reports/SitesMultiSelect	inputControlParam	SitesNamePattern=%	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertica/Inventory_Reports/SitesMultiSelect	inputControlParam	WarningThreshold=70.0	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertica/Inventory_Reports/SitesMultiSelect	inputControlParam	DisplayFNI=true	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertica/Inventory_Reports/SitesMultiSelect	inputControlParam	IS_IGNORE_PAGINATION=true	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertica/Inventory_Reports/NodeTypeMultiSelect	inputControlParam	CriticalThreshold=90.0	admin

2.4 NSP Analytics Server Diagnostic Snapshot

2.4.1 NSP Analytics Server Diagnostic Snapshot overview

The NSP Analytics Server Diagnostic Snapshot displays current Analytics utilization information for monitoring and problem diagnosis. The information includes internal settings for advanced troubleshooting by technical support.

Report characteristics

The following table lists the principal report characteristics.

Table 2-2 NSP Analytics Server Diagnostic Snapshot report characteristics

Characteristic	Value
Data type	Statistics
Source database	PostgreSQL database

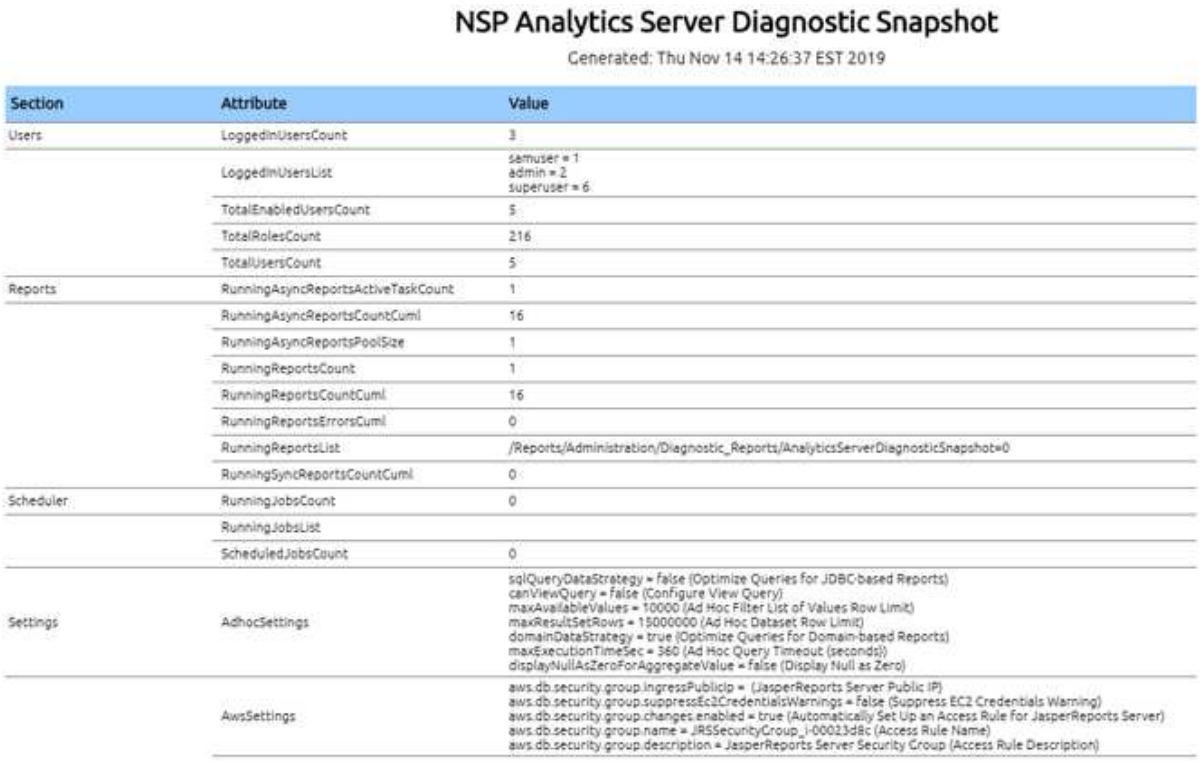
Table 2-2 NSP Analytics Server Diagnostic Snapshot report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Ignore Pagination	Choose Yes or No.
Drill-down support	No	

2.4.2 Example

The following figure shows a report example.

Figure 2-2 NSP Analytics Server Diagnostic Snapshot report



NSP Analytics Server Diagnostic Snapshot

Generated: Thu Nov 14 14:26:37 EST 2019

Section	Attribute	Value
Users	LoggedInUsersCount	3
	LoggedInUsersList	samuser = 1 admin = 2 superuser = 6
	TotalEnabledUsersCount	5
	TotalRolesCount	216
	TotalUsersCount	5
Reports	RunningAsyncReportsActiveTaskCount	1
	RunningAsyncReportsCountCuml	16
	RunningAsyncReportsPoolSize	1
	RunningReportsCount	1
	RunningReportsCountCuml	16
	RunningReportsErrorsCuml	0
	RunningReportsList	/Reports/Administration/Diagnostic_Reports/AnalyticsServerDiagnosticSnapshot=0
	RunningSyncReportsCountCuml	0
Scheduler	RunningJobsCount	0
	RunningJobsList	
	ScheduledJobsCount	0
Settings	AdhocSettings	sqlQueryDataStrategy = false (Optimize Queries for JDBC-based Reports) canViewQuery = false (Configure View Query) maxAvailableValues = 10000 (Ad Hoc Filter List of Values Row Limit) maxResultSetRows = 15000000 (Ad Hoc Dataset Row Limit) domainDataStrategy = true (Optimize Queries for Domain-based Reports) maxExecutionTimeSec = 360 (Ad Hoc Query Timeout (seconds)) displayNullAsZeroForAggregateValue = false (Display Null as Zero)
	AwsSettings	aws.db.security.group.ingressPublicIp = (JasperReports Server Public IP) aws.db.security.group.suppressEc2CredentialsWarnings = false (Suppress EC2 Credentials Warning) aws.db.security.group.changes.enabled = true (Automatically Set Up an Access Rule for JasperReports Server) aws.db.security.group.name = JRSSecurityGroup_i-00023d8c (Access Rule Name) aws.db.security.group.description = JasperReports Server Security Group (Access Rule Description)

Part III: Application Assurance

Overview

Purpose

This part describes the NSP Analytics reports in the Application Assurance category.

Data sources for reports

Application Assurance reports are based on application assurance (AA) information retrieved from file-based accounting records (AA accounting and/or ISA Performance) or from AA Cflowd records (IPFIX records augmented with application-level information). Unlike accounting-based data, AA Cflowd records are generated based on a sampling rate configured between 1:1 (no sampling – all flows are sampled and a record is created for each flow) to 1:N (where only one of N flows are sampled and one record created).

Sampling is a cost-effective method of collecting AA data for analysis – fewer resources are required to generate, collect, store and analyze the data. Reports that depend on AA sampled data are identified in this guide with “NSP Flow Collector required – Yes”. When the sampling rate is greater than 1:1 (for example, 1:10, 1:1000), the reports present data useful for approximations, comparisons (for example, Do I have proportionately more Netflix or Youtube traffic?), and identification of trends in subscriber activity, applications in use, volume of data consumed, and so on.

When report content must be representative of actual network and subscriber activity, then you must use only reports, ad hoc reports, or dashboards based on one of the following data sources:

- Accounting type records (AA accounting and/or ISA Performance)
- AA Cflowd records with 1:1 sampling rate

Note: AA Cflowd Analytics reports may fail to generate or may contain invalid data if the configuration of 7750 SR is modified via dynamic templates to exclude required fields.

Global policies

Application and application groups must be enabled with global policies, not local policies. When local policies are used, applications and application groups are not populated properly in report prompts, resulting in the inability to select specific applications or application groups correctly at report run time.

NSP accounting telemetry

Application Assurance file collection is not currently supported by NSP. If NSP is collecting accounting information from classic NEs, AA information is not available. If AA reporting is required, ensure that the NSP is not collecting accounting files from classic NEs; see the *NSP System Architecture Guide*.

Contents

3 Business Subscribers reports

3.1 Business Subscriber reports overview

3.1.1 General information

Business subscriber reports provide information about application and application group usage by subscribers.

Drill-down reports

All reports can be run from the main Business Subscriber reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Business Subscriber reports. Each level of indentation indicates a drill down.

Table 3-1 Available drill-downs for Business Subscriber reports

Top Application Groups by Volume	
	Application Group Usage Report
Top Applications by Volume	
	Application Usage Report

3.2 Application Bandwidth Distribution report

3.2.1 Application Bandwidth Distribution report overview

The Application Bandwidth Distribution report shows the distribution of application bandwidth for selected business subscribers. The default chart has columns showing the percentage of time in each bandwidth range and a line showing the average of the bandwidth across the ranges.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-2 Application Bandwidth Distribution report characteristics

Characteristic	Value
Statistics type	AA accounting business application

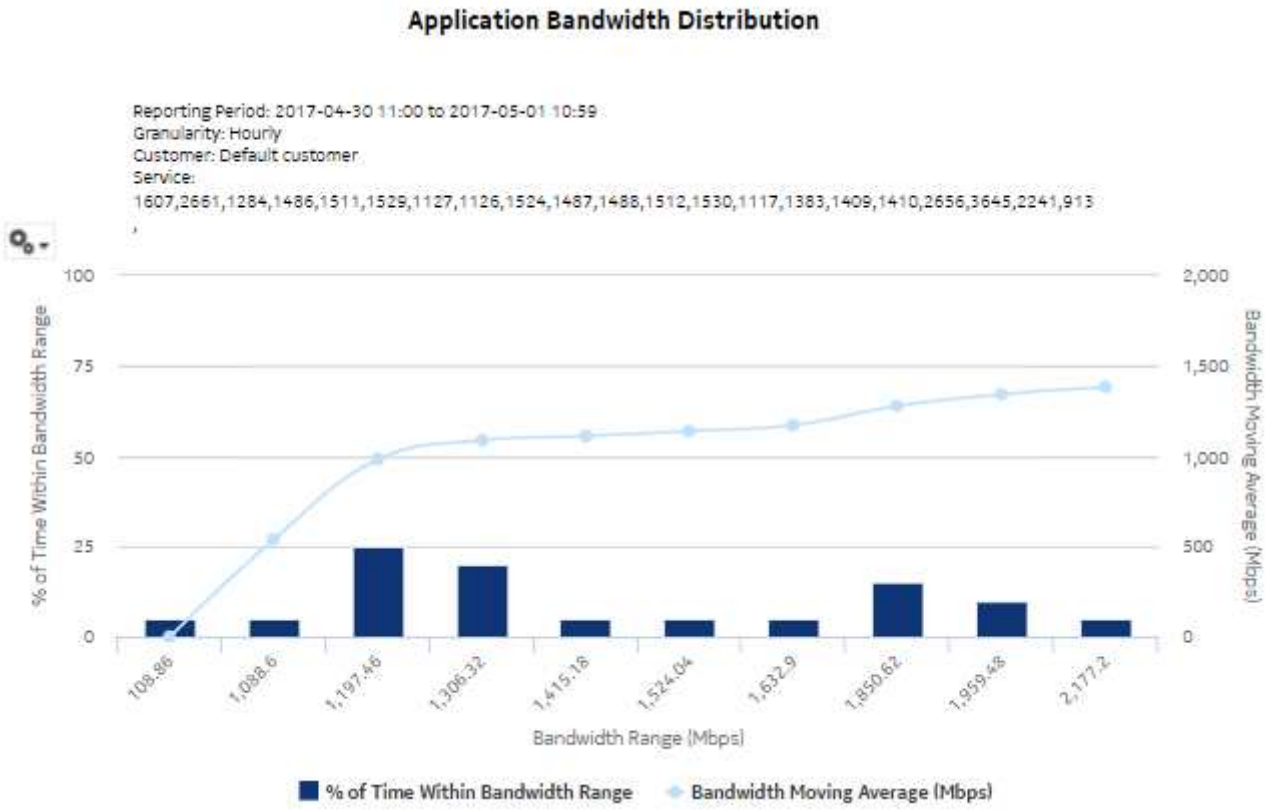
Table 3-2 Application Bandwidth Distribution report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application	Select individual applications or click **Select All**.
	Traffic Direction	Upload, download or total
Drill-down support	No	

3.2.2 Example

The following figure shows a report example.

Figure 3-1 Application Bandwidth Distribution report



3.3 Application Group Bandwidth Distribution report

3.3.1 Application Group Bandwidth Distribution report overview

The Application Group Bandwidth Distribution report shows the distribution of application group bandwidth for selected business subscribers. The default chart has columns showing the percentage of time in each bandwidth range and a line showing the average of the bandwidth across the ranges.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

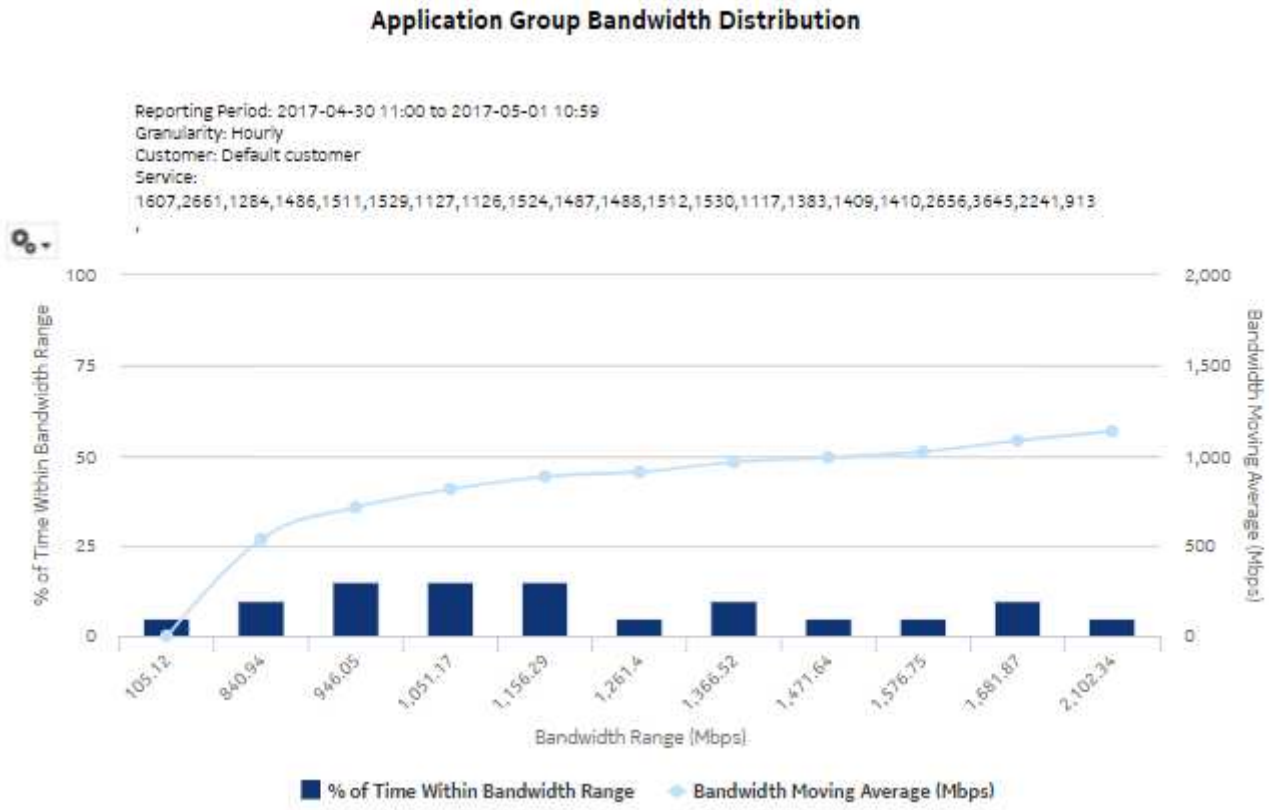
Table 3-3 Application Group Bandwidth Distribution report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click **Select All**.
	Traffic Direction	Upload, download or total
Drill-down support	No	

3.3.2 Example

The following figure shows a report example.

Figure 3-2 Application Group Bandwidth Distribution report



3.4 Application Group Inventory Report

3.4.1 Application Group Inventory Report overview

The Application Group Inventory Report shows a summary of traffic by application group and by business subscriber.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-4 Application Group Inventory Report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
Drill-down support	No	

3.4.2 Example

The following figures show a report example.

Figure 3-3 Application Group Inventory Report

Application Group Inventory Report

Reporting Period: 2017-05-01 to 2017-05-01
Granularity: Daily
Customer: Default customer
Service:
1607,2661,1284,1486,1511,1529,1127,1126,1524,1487,1488,1512,1530,1117,1383,1409,1410,2656,3645,2241,913
,
25,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,1201,2162,3452,1278,1,820,1132,208
6,2482,2089,2090,2091,881,2092,2093,2094,2101,920,2102,2103,2104,2105,2109,921,2111,922,923,924,2128,212

Per Application Group Traffic

Application Group	Download (GB)	Upload (GB)	Total (GB)	%
Web	1,961.71	561.21	2,522.92	36.53%
Multimedia Streaming	1,016.68	199.90	1,216.57	17.62%
Real-Time Communication	510.71	118.87	629.58	9.12%
Business	346.03	163.56	509.59	7.38%
Peer to Peer	324.32	67.02	391.34	5.67%
File Hosting	334.35	53.73	388.07	5.62%
Social Networking	284.28	65.14	349.42	5.06%
Mail	264.35	45.34	309.69	4.48%
Tunnel and Remote Access	247.91	46.53	294.45	4.26%
Existing/Empty TCP	243.00	50.90	293.89	4.26%
Total	**5,533.34**	**1,372.19**	**6,905.53**	**100%**

Figure 3-4 Application Group Inventory Report, Per Business Subscriber Traffic

Per Business Subscriber Traffic

Business Subscriber	Download (GB)	Upload (GB)	Total (GB)	%
192.0.2.1 BusTransPrefixSub20_2-2	3,501.96	792.58	4,294.54	62.19%
192.0.2.1 BusTransPrefixSub20_2-1	998.63	289.96	1,288.59	18.66%
192.0.1.1 1/2/3:12	506.86	127.23	634.10	9.18%
192.0.1.1 BusTransIP2_1-2	315.41	82.99	398.39	5.77%
192.0.2.1 1:4	210.45	79.43	289.88	4.20%
192.0.1.1 BusTransIP2_1-1	.03	.00	.03	.00%
Total	**5,533.34**	**1,372.19**	**6,905.53**	**100%**

3.5 Application Group Traffic Trending report

3.5.1 Application Group Traffic Trending report overview

The Application Group Traffic Trending report shows a summary of growth of traffic per application group and business subscriber for the last two months or two quarters.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-5 Application Group Traffic Trending report characteristics

Characteristic	Value
Statistics type	AA accounting business application group
NSP Flow Collector required	No

Table 3-5 Application Group Traffic Trending report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Compare	Last two months or Last two quarters
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click **Select All**.
	Direction	Upload, download or upload and download
Drill-down support	No	

3.5.2 Example

The following figures show a report example.

Figure 3-5 Application Group Traffic Trending report

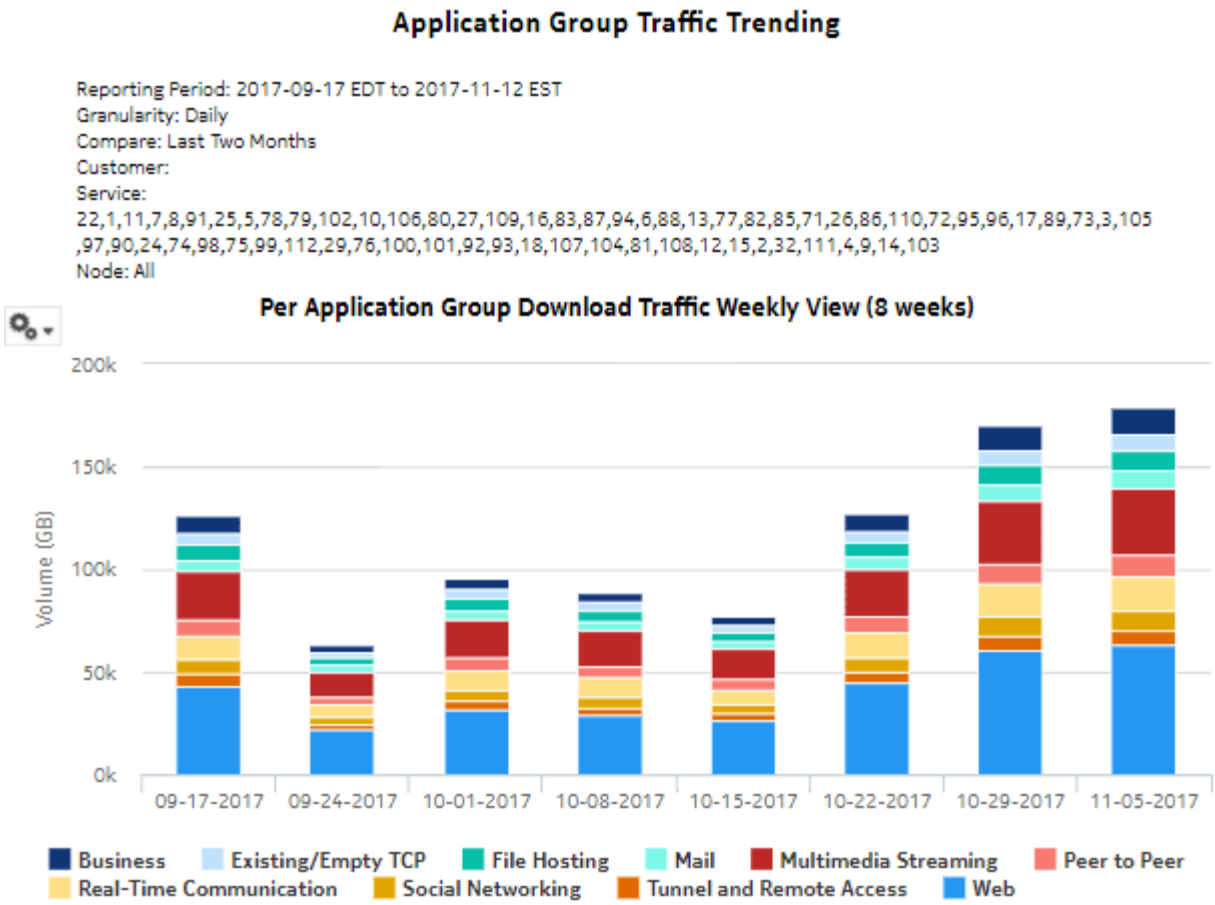


Figure 3-6 Application Group Traffic and Growth summary

Per Application Group Download Traffic and Growth Summary

Application Group	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
Web			4,177	36.34%		36.34%
Multimedia Streaming			2,110	18.36%		18.36%
Real-Time Communication			1,059	9.22%		9.22%
Peer to Peer			679	5.91%		5.91%
Business			673	5.86%		5.86%
File Hosting			662	5.77%		5.77%
Social Networking			595	5.18%		5.18%
Mail			552	4.80%		4.80%
Tunnel and Remote Access			499	4.34%		4.34%
Existing/Empty TCP			485	4.23%		4.23%
Total		**100%**	**11,496**	**100%**		**100%**

Figure 3-7 Business Subscriber Traffic and Growth summary

Per Business Subscriber Download Traffic and Growth summary

Business Subscriber	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
192.0.2.1 BusTransPrefixSub20_2-2			7,255	63.12%		63.12%
192.0.2.1 1:4			1,415	12.31%		12.31%
192.0.2.1 BusTransPrefixSub20_2-1			1,360	11.84%		11.84%
192.0.1.1 1/2/3:12			932	8.11%		8.11%
192.0.1.1 BusTransIP2_1-2			531	4.63%		4.63%
192.0.1.1 BusTransIP2_1-1			0	.00%		.00%
Total		**100%**	**11,496**	**100%**		**100%**

3.6 Application Group Usage Hourly Details report

3.6.1 Application Group Usage Hourly Details report overview

The Application Group Usage Hourly Details report shows upload or download traffic, or both, for a selected application group from or to a selected business subscriber during the reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-6 Application Group Usage Hourly Details report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Application Group	Select individual applications or click **Select All**.
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Traffic Direction	Upload, download or total
	Present Traffic (Bytes) As	KB, MB, or GB
Drill-down support	No	

3.6.2 Example

The following figures show a report example.

Figure 3-8 Application Group Usage Hourly Details report - download usage details

Application Group Usage Hourly Details

Reporting Period: 2017-04-30 11:00 to 2017-05-01 10:59
Customer: Default customer
Service Name:
1607,2661,1284,1486,1511,1529,1127,1126,1524,1487,1488,1512,1530,1117,1383,1409,1410,2656,3645,2241,913
,,,,

Download Usage Details (MB)

Download Volume (% of Overall Total)		File Hosting	Mail	Peer to Peer	Total	% of Overall Total
2017-04-30 (41.25%)	14:00:00	.00	.00	.00	.00	0.0%
	15:00:00	8,965.45	11,634.32	24,844.75	45,444.52	2.82%
	16:00:00	24,466.21	22,534.35	18,563.27	65,563.82	4.08%
	17:00:00	16,617.74	18,142.10	28,551.71	63,311.55	3.94%
	18:00:00	30,154.29	25,659.91	29,172.03	84,986.23	5.28%
	19:00:00	26,123.68	25,410.26	31,273.99	82,807.93	5.15%
	20:00:00	28,648.93	11,661.18	28,903.06	69,213.17	4.3%
	21:00:00	25,899.76	25,142.86	21,442.64	72,485.26	4.51%
	22:00:00	31,818.66	25,088.89	22,988.86	79,896.41	4.97%
	23:00:00	31,636.43	31,158.20	37,018.93	99,813.56	6.2%
	Total (2017-04-30)				663,522.45	41.25%
2017-05-01 (58.75%)	00:00:00	36,552.77	15,845.59	40,242.10	92,640.46	5.76%
	01:00:00	37,134.06	35,232.17	26,452.40	98,818.64	6.14%
	02:00:00	27,398.61	25,106.30	25,583.54	78,088.45	4.85%
	03:00:00	33,476.87	33,153.85	42,935.58	109,566.30	6.81%
	04:00:00	36,244.66	10,627.53	50,395.97	97,268.15	6.05%
	05:00:00	48,659.00	43,917.27	19,332.14	111,908.41	6.96%
	06:00:00	32,263.47	29,704.90	33,041.58	95,009.94	5.91%
	07:00:00	39,773.24	43,753.13	49,276.02	132,804.38	8.26%
	08:00:00	22,083.41	7,307.02	32,598.00	61,988.43	3.85%
	09:00:00	28,784.65	26,050.49	12,244.96	67,080.09	4.17%
	Total (2017-05-01)				945,173.26	58.75%
Overall Total		566,701.87	467,130.32	574,863.52	1,608,695.71	100.0%

Figure 3-9 Application Group Usage Hourly Details report - upload usage details

Upload Usage Details (MB)

Upload Volume (% of Overall Total)		File Hosting	Mail	Peer to Peer	Total	% of Overall Total
	14:00:00	.00	.00	.00	.00	0.0%
	15:00:00	3,493.78	3,057.13	3,362.72	9,913.63	3.42%
	16:00:00	3,970.35	3,386.47	3,095.92	10,452.75	3.6%
	17:00:00	3,752.75	3,215.77	4,731.44	11,699.96	4.03%
	18:00:00	2,892.54	2,568.60	4,707.14	10,168.28	3.51%
2017-04-30 (41.35%)	19:00:00	4,567.26	3,864.68	2,730.45	11,162.40	3.85%
	20:00:00	4,157.01	3,578.05	5,270.85	13,005.91	4.49%
	21:00:00	3,411.60	3,028.02	5,189.61	11,629.23	4.01%
	22:00:00	11,316.25	9,629.24	7,050.34	27,995.83	9.65%
	23:00:00	3,718.21	3,374.94	6,769.63	13,882.78	4.79%
	Total (2017-04-30)				119,910.77	41.35%
	00:00:00	6,503.64	5,503.19	3,194.55	15,201.38	5.24%
	01:00:00	6,716.97	4,696.74	7,215.40	18,629.11	6.42%
	02:00:00	5,790.09	5,087.82	2,250.06	13,127.97	4.53%
	03:00:00	6,724.16	5,696.52	6,818.95	19,239.63	6.63%
	04:00:00	2,538.89	2,390.66	6,861.69	11,791.23	4.07%
2017-05-01 (58.65%)	05:00:00	7,347.02	6,243.75	6,899.14	20,489.91	7.07%
	06:00:00	2,725.61	2,602.58	17,668.70	22,996.88	7.93%
	07:00:00	8,792.10	7,466.55	8,668.26	24,926.90	8.6%
	08:00:00	4,183.44	3,556.72	4,213.98	11,954.14	4.12%
	09:00:00	3,694.60	3,183.52	4,835.97	11,714.10	4.04%
	Total (2017-05-01)				170,071.25	58.65%
Overall Total		96,296.26	82,130.97	111,554.79	289,982.02	100.0%

3.7 Application Group Usage Report

3.7.1 Application Group Usage report overview

The Application Group Usage Report shows the pattern of usage for a selected application group for a specified reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-7 Application Group Usage Report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types • None (raw data) • Hourly • Monthly • Daily
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click **Select All**.
Drill-down support	No	

3.7.2 Example

The following figures show a report example.

Figure 3-10 Application Group Usage Report - total volume

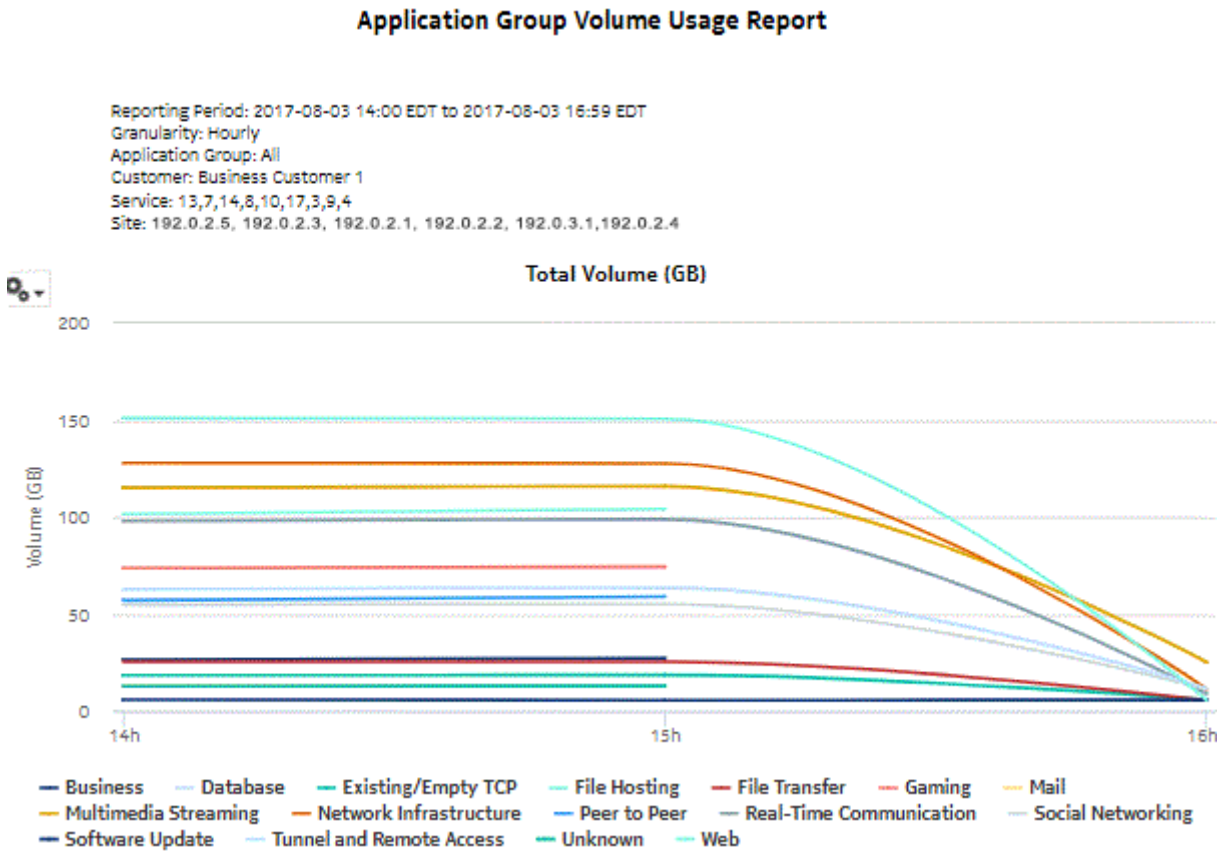


Figure 3-11 Application Group Usage report - download volume

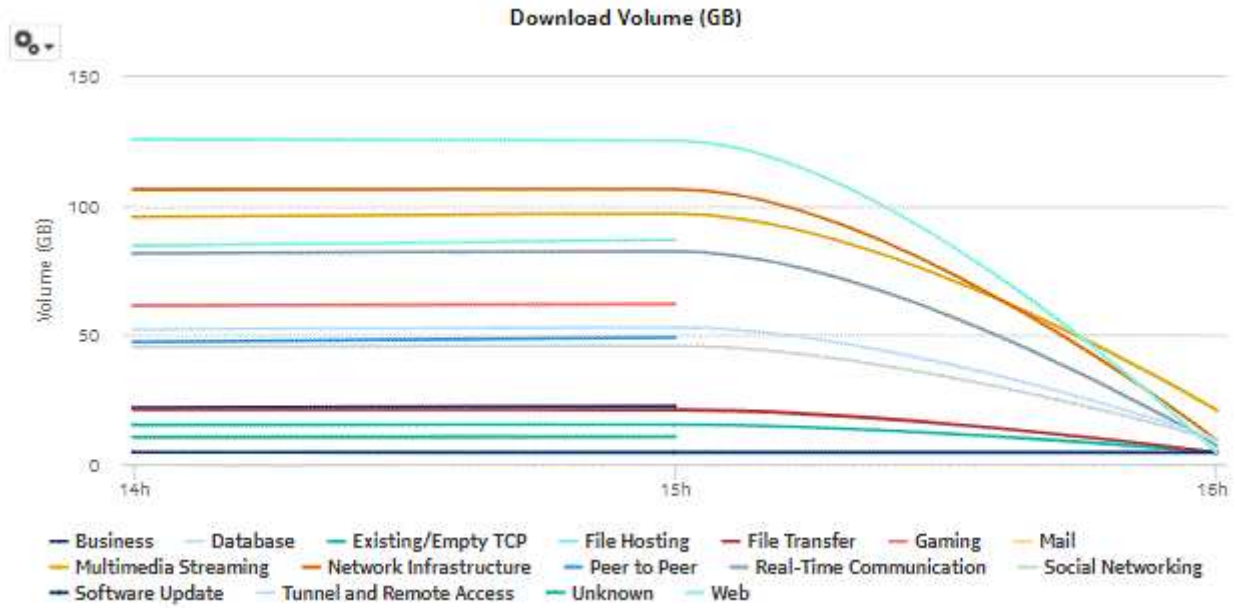
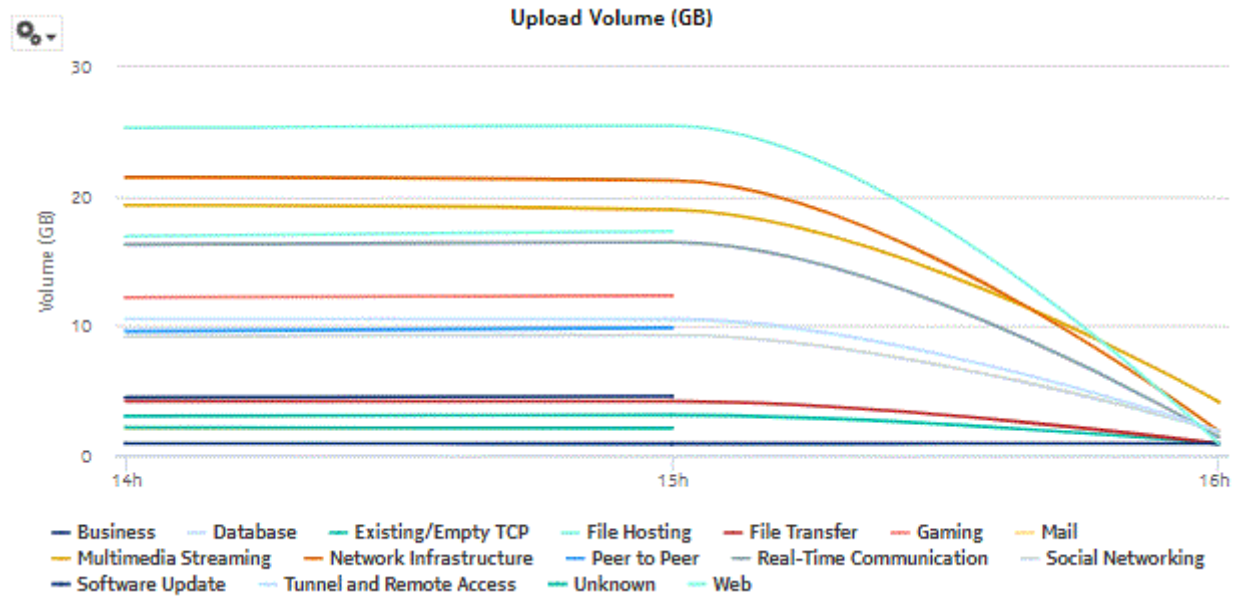


Figure 3-12 Application Group Usage report - upload volume



3.8 Application Inventory Report

3.8.1 Application Inventory report overview

The Application Inventory Report shows a summary of traffic by application and by business subscriber.

Use cases

Application pattern identification—Use the report to determine which applications consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-8 Application Inventory Report characteristics

Characteristic	Value	
Statistics type	AA accounting business application	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
Drill-down support	No	

3.8.2 Example

The following figures show a report example.

Figure 3-13 Application Inventory Report

Application Inventory Report

Reporting Period: 2017-05-01 to 2017-05-01
Granularity: Daily
Customer: Default customer
Service:
1607,2661,1284,1486,1511,1529,1127,1126,1524,1487,1488,1512,1530,1117,1383,1409,1410,2656,3645,2241,913
,
25,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,1201,2162,3452,1278,1,820,1132,208
6,2482,2089,2090,2091,881,2092,2093,2094,2101,920,2102,2103,2104,2105,2109,921,2111,922,923,924,2128,212

Per Application Traffic

Application	Download (GB)	Upload (GB)	Total (GB)	%
Wikipedia	433.41	88.13	521.54	6.38%
Flickr	430.98	86.78	517.76	6.33%
HTTPS Server	438.28	78.89	517.17	6.32%
Adobe Document Cloud	421.18	81.05	502.22	6.14%
PayPal	405.88	71.48	477.36	5.84%
Opera Mini	377.63	83.89	461.52	5.64%
BBC iPlayer	373.34	72.34	445.68	5.45%
Deezer	359.09	72.05	431.14	5.27%
Symantec Backup	346.61	72.54	419.16	5.13%
Microsoft	320.04	83.59	403.63	4.94%
Total	**3,906.44**	**790.75**	**4,697.18**	**100%**

Figure 3-14 Application Inventory Report, continued

Per Business Subscriber Traffic

Business Subscriber	Download (GB)	Upload (GB)	Total (GB)	%
192.0.2.1 BusTransPrefixSub20_2-2	4,032.77	823.23	4,856.00	59.38%
192.0.2.1 BusTransPrefixSub20_2-1	1,444.20	292.88	1,737.08	21.24%
192.0.3.1 1/2/3:12a	577.90	125.93	703.83	8.61%
192.0.3.1 BusTransIP2_1-2	395.12	79.57	474.69	5.81%
192.0.2.1	349.73	55.89	405.61	4.96%
192.0.3.1 BusTransIP2_1-1	.03	.00	.03	.00%
Total	**6,799.74**	**1,377.50**	**8,177.25**	**100%**

3.9 Application Traffic Trending report

3.9.1 Application Traffic Trending report overview

The Application Traffic Trending report shows a summary of traffic growth per application and business subscriber for the last two months or two quarters.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-9 Application Group Traffic Trending report characteristics

Characteristic	Value
Statistics type	AA accounting business application
NSP Flow Collector required	No

Table 3-9 Application Group Traffic Trending report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Compare	Last two months or Last two quarters
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application	Select individual applications or click **Select All**.
	Direction	Upload, download or upload and download
Drill-down support	No	

3.9.2 Example

The following figures show a report example.

Figure 3-15 Application Traffic Trending report

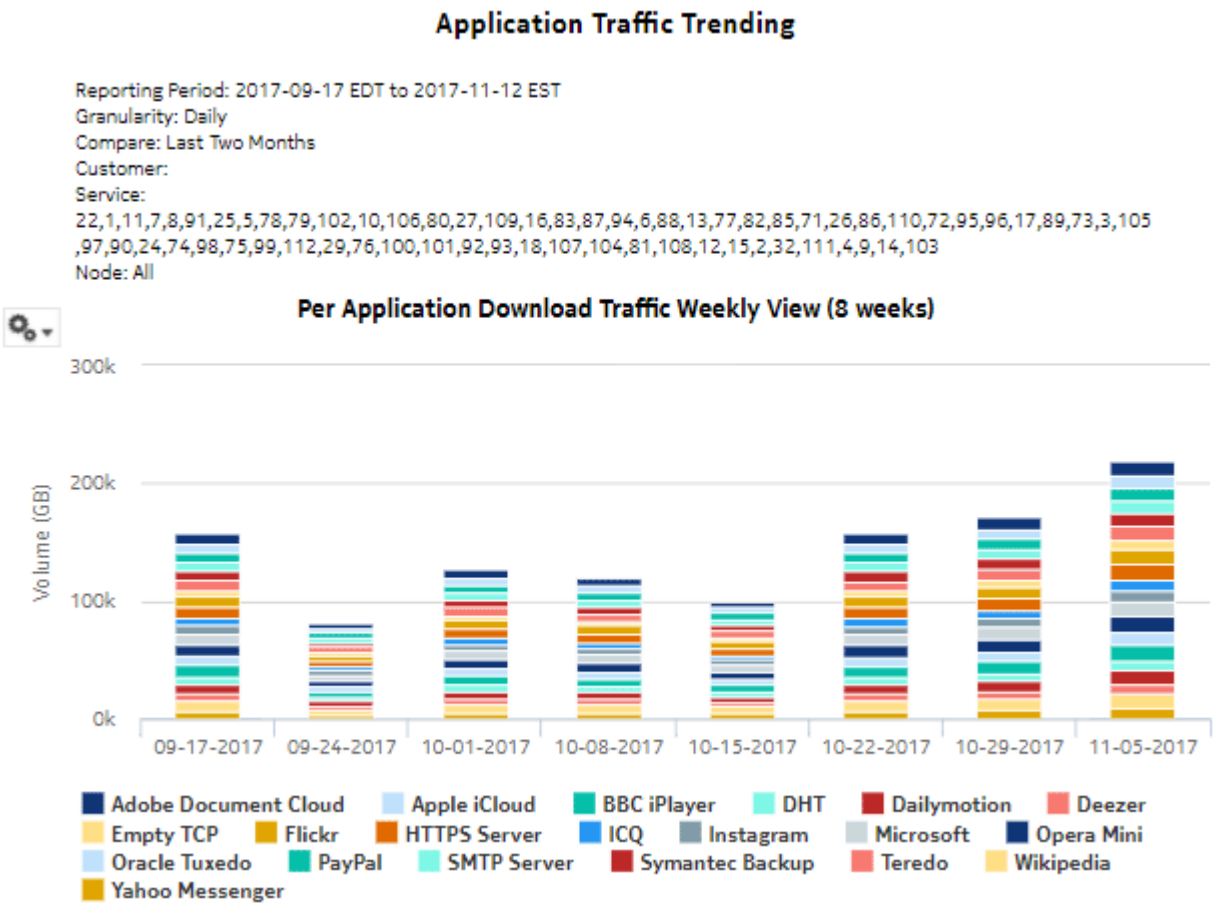


Figure 3-16 Application Download Traffic and Growth Summary

Per Application Download Traffic and Growth Summary

Application	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
Wikipedia			895	6.40%		6.40%
HTTPS Server			892	6.37%		6.37%
Adobe Document Cloud			875	6.25%		6.25%
Flickr			869	6.21%		6.21%
PayPal			816	5.83%		5.83%
Opera Mini			796	5.69%		5.69%
BBC iPlayer			773	5.53%		5.53%
Deezer			744	5.31%		5.31%
Symantec Backup			712	5.09%		5.09%
Oracle Tuxedo			694	4.96%		4.96%
DHT			679	4.86%		4.86%
Microsoft			676	4.83%		4.83%
Apple iCloud			662	4.73%		4.73%
Dailymotion			636	4.54%		4.54%
Total		**100%**	**14,002**	**100%**		**100%**

Figure 3-17 Business Subscriber Download Traffic and Growth summary

Per Business Subscriber Download Traffic and Growth summary

Business Subscriber	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
192.0.2.1 BusTransPrefixSub20_2-2			8,342	59.58%		59.58%
192.0.2.1 1:4			1,920	13.71%		13.71%
192.0.2.1 BusTransPrefixSub20_2-1			1,889	13.50%		13.50%
192.0.3.1 1/2/3:12			1,173	8.38%		8.38%
192.0.3.1 BusTransIP2_1-2			676	4.83%		4.83%
192.0.3.1 BusTransIP2_1-1			0	.00%		.00%
Total		**100%**	**14,002**	**100%**		**100%**

3.10 Application Usage Hourly Details report

3.10.1 Application Usage Hourly Details report overview

The Application Usage Hourly Details report shows upload and/or download traffic for a selected application from, or to, a selected business subscriber during the reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-10 Application Usage Hourly Details report characteristics

Characteristic	Value
Statistics type	AA accounting business application
NSP Flow Collector required	No

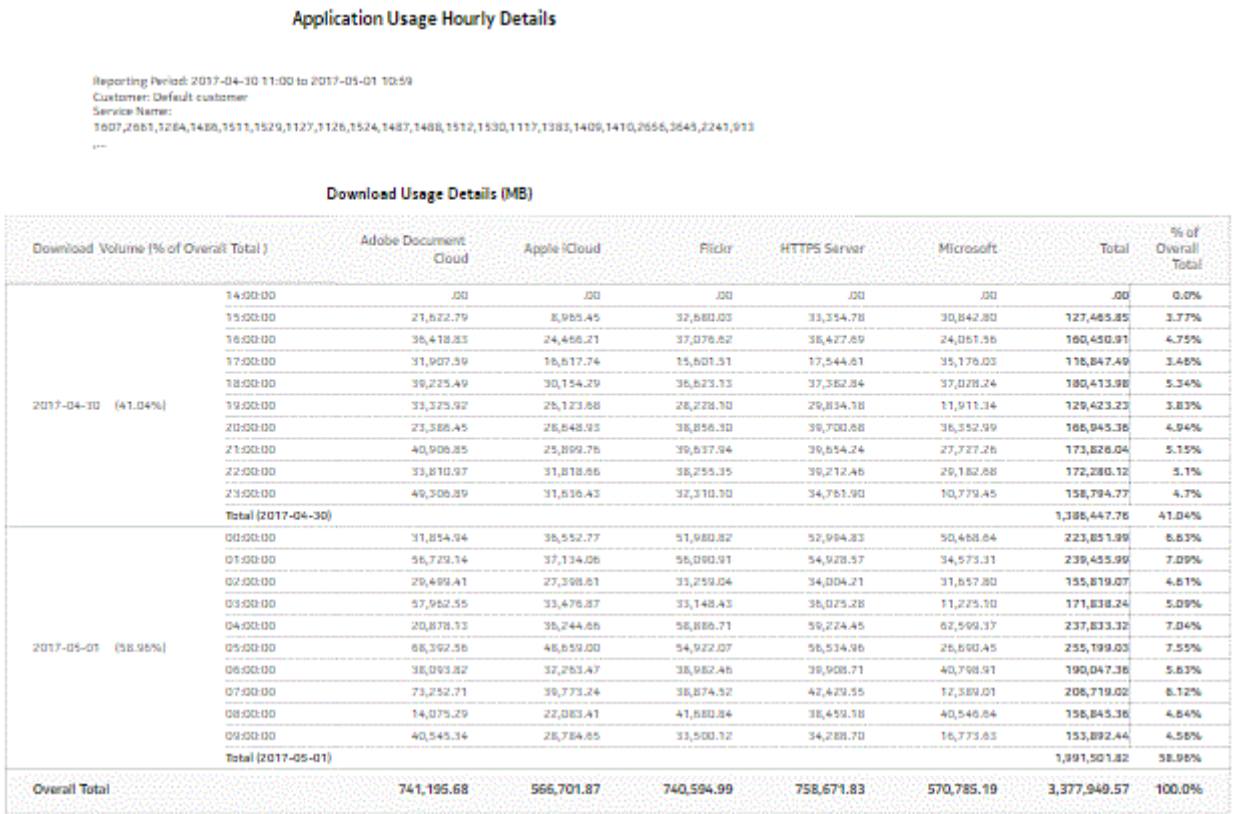
Table 3-10 Application Usage Hourly Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Application	Select individual applications or click **Select All**.
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Direction	Upload, download or upload and download
	Present Traffic (Bytes) As	KB, MB, or GB
Drill-down support	No	

3.10.2 Example

The following figures show a report example.

Figure 3-18 Application Usage Hourly Details report - download usage details



Application Usage Hourly Details

Reporting Period: 2017-04-30 11:00 to 2017-05-01 10:59
Customer: Default customer
Service Name:
1607,2661,1284,1488,1511,1529,1127,1126,1524,1487,1488,1512,1530,1117,1383,1409,1410,2656,3645,2241,913
...

Download Usage Details (MB)

Download Volume (% of Overall Total)		Adobe Document Cloud	Apple iCloud	Flickr	HTTPS Server	Microsoft	Total	% of Overall Total
2017-04-30 (41.04%)	14:00:00	.00	.00	.00	.00	.00	.00	0.0%
	15:00:00	21,622.79	8,985.45	32,680.03	33,354.78	30,842.80	127,485.85	3.77%
	16:00:00	36,418.83	24,466.21	37,076.62	38,427.69	24,061.56	160,450.91	4.75%
	17:00:00	31,907.59	16,617.74	15,601.51	17,544.61	35,176.03	116,847.49	3.46%
	18:00:00	39,225.49	30,154.29	36,623.13	37,382.84	37,028.24	180,413.98	5.34%
	19:00:00	33,325.92	25,123.88	28,228.10	29,834.18	11,911.14	129,423.23	3.83%
	20:00:00	23,386.45	28,648.93	38,856.30	39,700.88	36,352.99	166,945.36	4.94%
	21:00:00	40,906.85	25,899.75	39,637.94	39,654.24	27,727.26	173,826.04	5.15%
	22:00:00	33,810.97	31,818.66	38,255.35	39,212.46	29,182.68	172,280.12	5.1%
	23:00:00	49,306.89	31,636.43	32,310.10	34,761.90	10,779.45	158,794.77	4.7%
	Total (2017-04-30)						1,388,447.76	41.04%
2017-05-01 (58.96%)	00:00:00	31,854.94	36,552.77	51,980.82	52,994.83	50,468.64	223,851.99	6.63%
	01:00:00	56,729.14	37,134.06	56,090.91	54,928.57	34,573.31	239,455.99	7.09%
	02:00:00	29,499.41	27,398.61	33,259.04	34,004.21	31,657.80	155,819.07	4.61%
	03:00:00	57,962.55	33,476.87	33,148.43	36,025.28	11,225.10	171,838.24	5.09%
	04:00:00	20,878.13	36,244.66	58,886.71	59,224.45	62,599.37	237,833.32	7.04%
	05:00:00	68,392.56	46,659.00	54,922.07	56,534.96	28,690.45	255,199.03	7.55%
	06:00:00	38,093.82	32,263.47	38,982.46	39,908.71	40,798.91	190,047.36	5.63%
	07:00:00	73,252.71	39,773.24	38,874.52	42,429.55	12,389.01	206,719.02	6.12%
	08:00:00	14,075.29	22,083.41	41,880.84	38,459.18	40,546.84	158,845.36	4.84%
	09:00:00	40,545.34	28,784.65	33,500.12	34,288.70	16,773.63	153,892.44	4.58%
	Total (2017-05-01)						1,991,501.82	58.96%
Overall Total		741,195.68	566,701.87	740,594.99	758,671.83	570,785.19	3,377,949.57	100.0%

Figure 3-19 Application Usage Hourly Details report - upload usage details

Upload Usage Details (MB)

Upload Volume (% of Overall Total)		Adobe Document Cloud	Apple iCloud	Flickr	HTTPS Server	Microsoft	Total	% of Overall Total
2017-04-30 (39.61%)	14:00:00	.00	.00	.00	.00	.00	.00	0.0%
	15:00:00	2,557.84	3,493.78	4,975.07	5,784.49	4,933.36	21,744.55	3.34%
	16:00:00	5,462.47	3,970.35	5,471.78	5,495.86	5,326.18	25,726.65	3.95%
	17:00:00	5,636.24	3,752.75	4,545.36	5,055.99	4,212.76	23,203.10	3.56%
	18:00:00	2,234.22	2,892.54	6,029.19	5,422.87	5,945.85	22,524.67	3.46%
	19:00:00	5,972.36	4,567.26	4,794.34	5,633.67	5,104.54	26,072.12	4.0%
	20:00:00	6,329.56	4,157.01	4,417.32	5,083.86	4,046.67	24,014.42	3.69%
	21:00:00	7,370.85	3,431.60	6,882.98	4,723.25	6,799.60	29,188.28	4.48%
	22:00:00	13,509.88	11,316.25	3,854.19	12,989.29	3,982.08	45,451.69	6.98%
	23:00:00	7,703.15	3,718.21	10,589.76	7,433.23	10,527.02	39,971.37	6.14%
	Total (2017-04-30)						257,896.84	39.61%
2017-05-01 (60.39%)	00:00:00	7,833.25	6,505.64	7,307.87	7,888.28	7,099.68	36,812.71	5.62%
	01:00:00	3,442.35	6,716.97	5,274.65	7,003.66	4,692.11	32,129.74	4.93%
	02:00:00	7,959.00	5,790.09	17,516.58	13,923.24	17,511.99	62,800.90	9.64%
	03:00:00	3,707.47	6,724.16	4,472.44	7,080.88	3,744.18	30,729.13	4.72%
	04:00:00	7,597.66	2,538.89	9,862.76	6,734.82	9,800.02	36,534.14	5.61%
	05:00:00	7,437.79	7,347.02	10,235.16	9,991.04	10,159.97	45,220.98	6.94%
	06:00:00	15,804.51	2,725.61	15,066.12	7,777.45	14,191.58	55,565.28	8.53%
	07:00:00	9,845.53	8,792.10	10,712.18	11,880.89	10,586.88	51,817.59	7.96%
	08:00:00	5,257.02	4,183.44	2,378.77	5,620.72	1,962.34	19,402.29	2.98%
	09:00:00	4,105.61	3,894.60	5,888.01	2,902.46	5,846.15	22,436.83	3.45%
	Total (2017-05-01)						393,249.57	60.39%
Overall Total		139,766.75	96,296.26	140,224.54	138,385.92	136,472.95	651,146.41	100.0%

3.11 Application Usage report

3.11.1 Application Usage report overview

The Application Usage report shows the pattern of usage for a selected application group for a specified reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-11 Application Usage report characteristics

Characteristic	Value
Statistics type	AA accounting business application
NSP Flow Collector required	No

Table 3-11 Application Usage report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Monthly • Daily
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application	Select individual applications or click **Select All**.
Drill-down support	No	

3.11.2 Example

The following figures show a report example.

Figure 3-20 Application Usage report - total volume

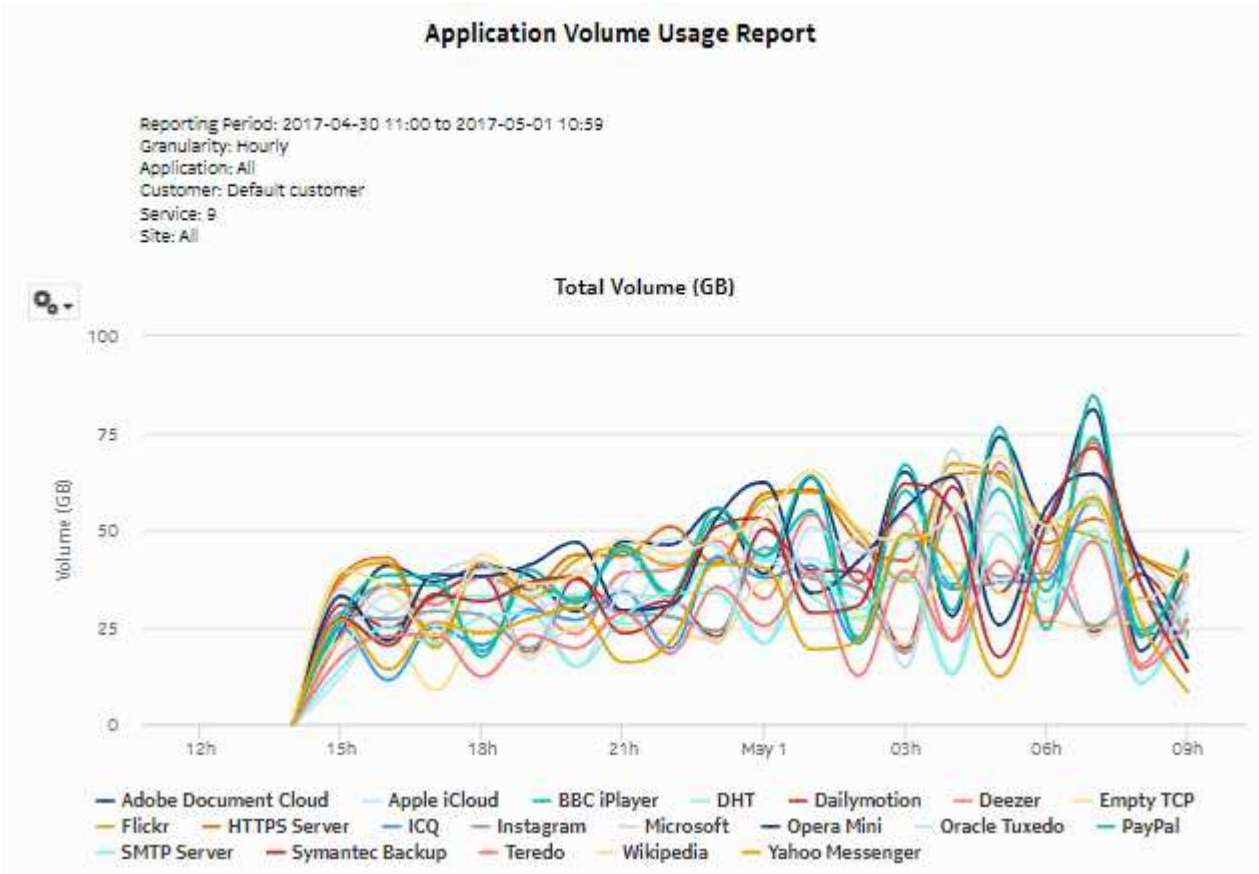


Figure 3-21 Application Usage report - download volume

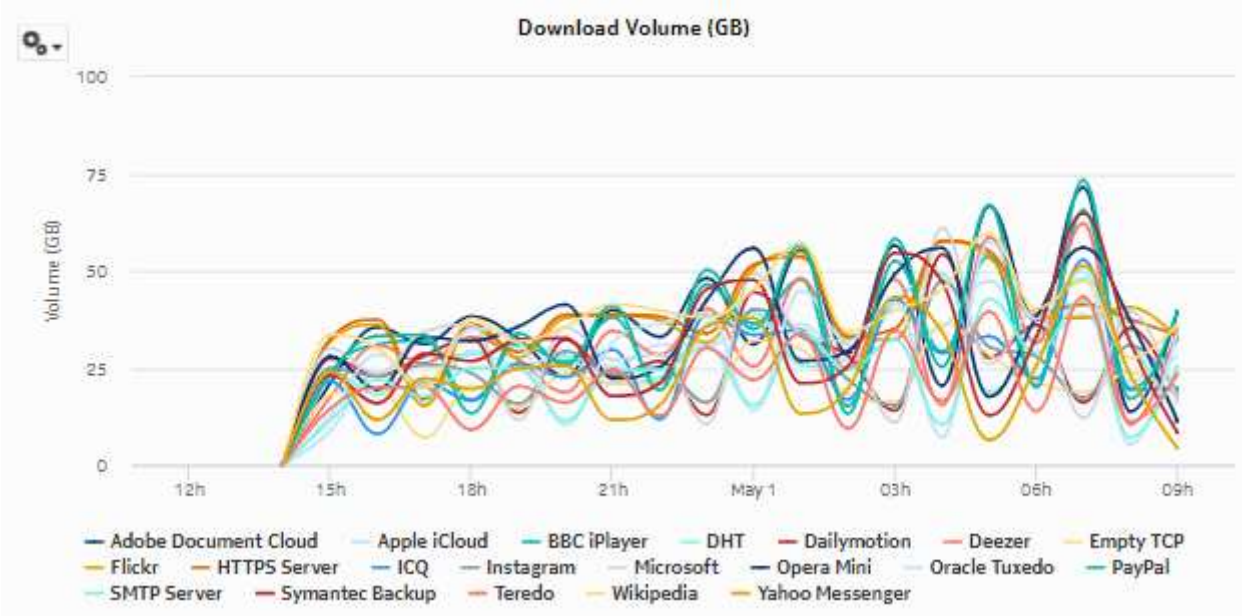
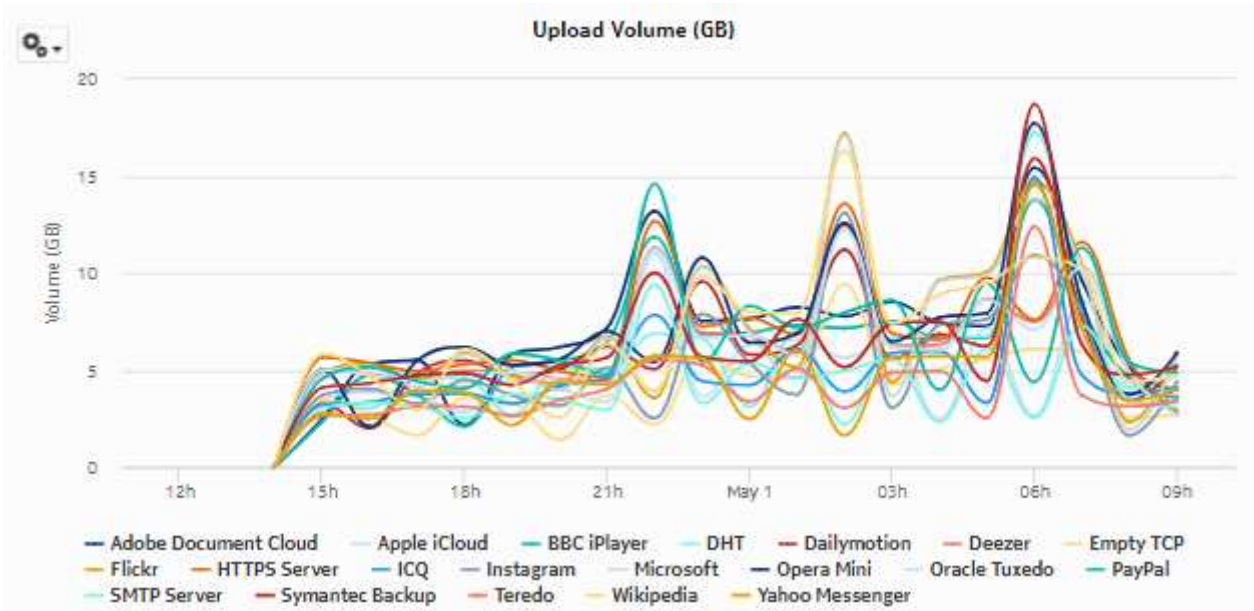


Figure 3-22 Application Usage report - upload volume



3.12 Top Application Groups by Volume report

3.12.1 Top Application Groups by Volume report overview

The Top Application Groups by Volume report shows the top application groups by volume for a selected customer, service, or business subscriber.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-12 Top Application Groups by Volume report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types • None (raw data) • Hourly • Monthly • Daily
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Rank	Number of application groups to report
Drill-down support	Yes—Open Application Group Usage Report for the selected application group. Note: Drilling down from the Others segment opens the Application Usage Report for all application groups, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

3.12.2 Example

The following figures show a report example.

Figure 3-23 Top Application Group Usage

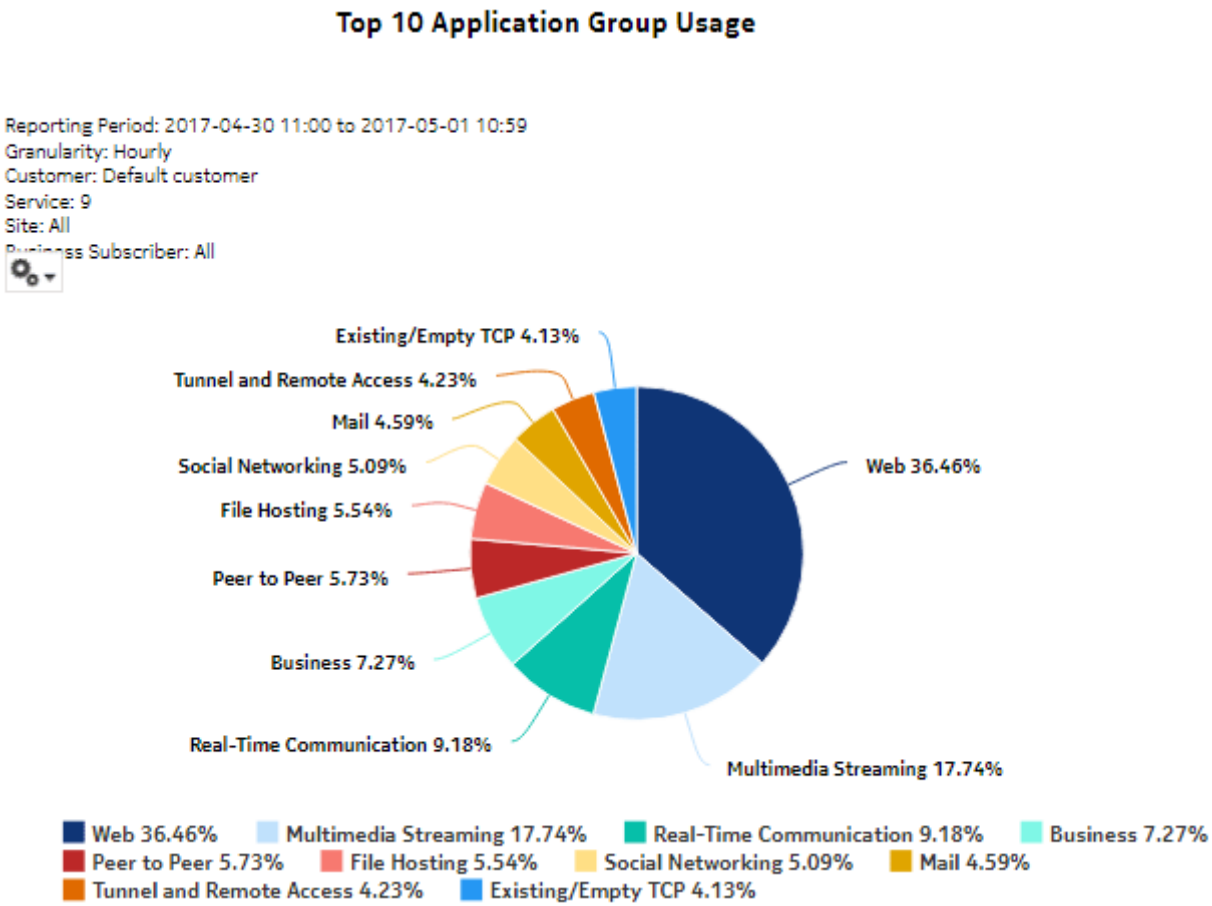


Figure 3-24 Top Application Groups—Total Volume (GB)

Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application Group
1	Web	4,259.71	36.46%
2	Multimedia Streaming	2,072.61	17.74%
3	Real-Time Communication	1,072.34	9.18%
4	Business	849.55	7.27%
5	Peer to Peer	670.33	5.73%
6	File Hosting	647.45	5.54%
7	Social Networking	594.79	5.09%
8	Mail	536.38	4.59%
9	Tunnel and Remote Access	494.43	4.23%
10	Existing/Empty TCP	483.45	4.13%
	Top 10 Application Group Subtotal	**11,681.09**	**100.00%**

Figure 3-25 Top Application Groups—Download Volume (GB)

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application Group
1	Web	3,439.10	36.16%
2	Multimedia Streaming	1,745.79	18.36%
3	Real-Time Communication	876.60	9.21%
4	Business	564.09	5.93%
5	Peer to Peer	561.39	5.90%
6	File Hosting	553.42	5.82%
7	Social Networking	491.82	5.17%
8	Mail	456.18	4.79%
9	Tunnel and Remote Access	415.38	4.36%
10	Existing/Empty TCP	404.89	4.25%
	Top 10 Application Group Subtotal	**9,508.66**	**99.99%**

Figure 3-26 Top Application Groups—Upload Volume (GB)

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application Group
1	Web	820.61	37.77%
2	Multimedia Streaming	326.82	15.04%
3	Business	285.47	13.14%
4	Real-Time Communication	195.74	9.01%
5	Peer to Peer	108.94	5.01%
6	Social Networking	102.98	4.74%
7	File Hosting	94.04	4.32%
8	Mail	80.21	3.69%
9	Tunnel and Remote Access	79.06	3.63%
10	Existing/Empty TCP	78.57	3.61%
	Top 10 Application Group Subtotal	2,172.43	99.99%

3.13 Top Applications by Volume report

3.13.1 Top Applications by Volume report overview

The Top Applications by Volume report shows the top application groups by volume for a selected customer, service or business subscriber.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-13 Top Applications by Volume report characteristics

Characteristic	Value
Statistics type	AA accounting business application

Table 3-13 Top Applications by Volume report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Monthly • Daily
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click **Select All**.
	Rank	Number of applications to report
Drill-down support	Yes—Open Application Usage Report for the selected application group. Note: Drilling down from the Others segment opens the Application Group Usage Report for all application groups, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

3.13.2 Example

The following figures show a report example.

Figure 3-27 Top Application Usage

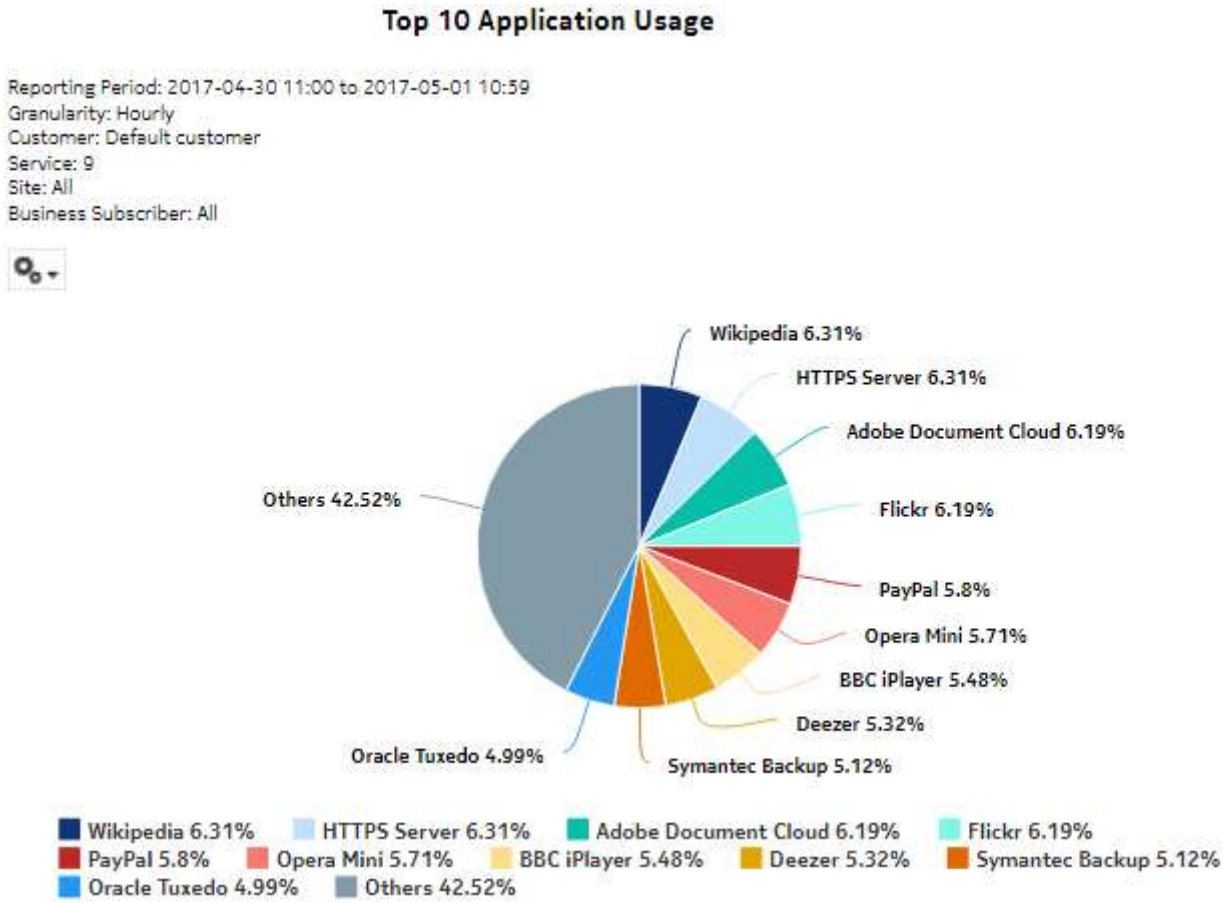


Figure 3-28 Top Applications—Total Volume (GB)

Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	Wikipedia	876.49	6.31%
2	HTTPS Server	876.03	6.31%
3	Adobe Document Cloud	860.31	6.19%
4	Flickr	860.17	6.19%
5	PayPal	805.49	5.80%
6	Opera Mini	793.86	5.71%
7	BBC iPlayer	761.27	5.48%
8	Deezer	739.12	5.32%
9	Symantec Backup	711.62	5.12%
10	Oracle Tuxedo	692.64	4.99%
	Top 10 Applications Subtotal	7,977.04	57.47%

Figure 3-29 Top Applications—Download Volume (GB)

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Application
1	Wikipedia	741.70	6.39%
2	HTTPS Server	740.89	6.38%
3	Adobe Document Cloud	723.82	6.23%
4	Flickr	723.24	6.23%
5	PayPal	679.67	5.85%
6	Opera Mini	657.13	5.66%
7	BBC iPlayer	640.32	5.51%
8	Deezer	615.72	5.30%
9	Symantec Backup	590.27	5.08%
10	Oracle Tuxedo	571.52	4.92%
	Top 10 Applications Subtotal	**6,684.29**	**57.61%**

Figure 3-30 Top Applications—Upload Volume (GB)

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Application
1	Flickr	136.94	6.01%
2	Opera Mini	136.73	6.00%
3	Adobe Document Cloud	136.49	5.99%
4	HTTPS Server	135.14	5.93%
5	Wikipedia	134.79	5.91%
6	Microsoft	133.27	5.85%
7	PayPal	125.82	5.52%
8	Deezer	123.40	5.41%
9	Symantec Backup	121.36	5.32%
10	Oracle Tuxedo	121.13	5.31%
	Top 10 Applications Subtotal	1,305.08	57.30%

4 Devices and Domains reports

4.1 Top Devices by # Subscribers

4.1.1 Top Devices by # Subscribers report overview

The Top Devices by # Subscribers report shows the most-used device types in terms of the number of subscribers.

Use cases

Network resource planning—Use the report to adjust bandwidth, for example, based on the availability of a new device OS version, and the projected mass download of the new OS.

Risk management—Use the report to apprise customers of the number of devices of a specific type, for example, when the devices are known to adversely affect traffic.

Report characteristics

The following table lists the principal report characteristics.

Table 4-1 Top Devices by # Subscribers report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive application group (per subscriber, per device, or per application group)
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-fi (DSM) Business

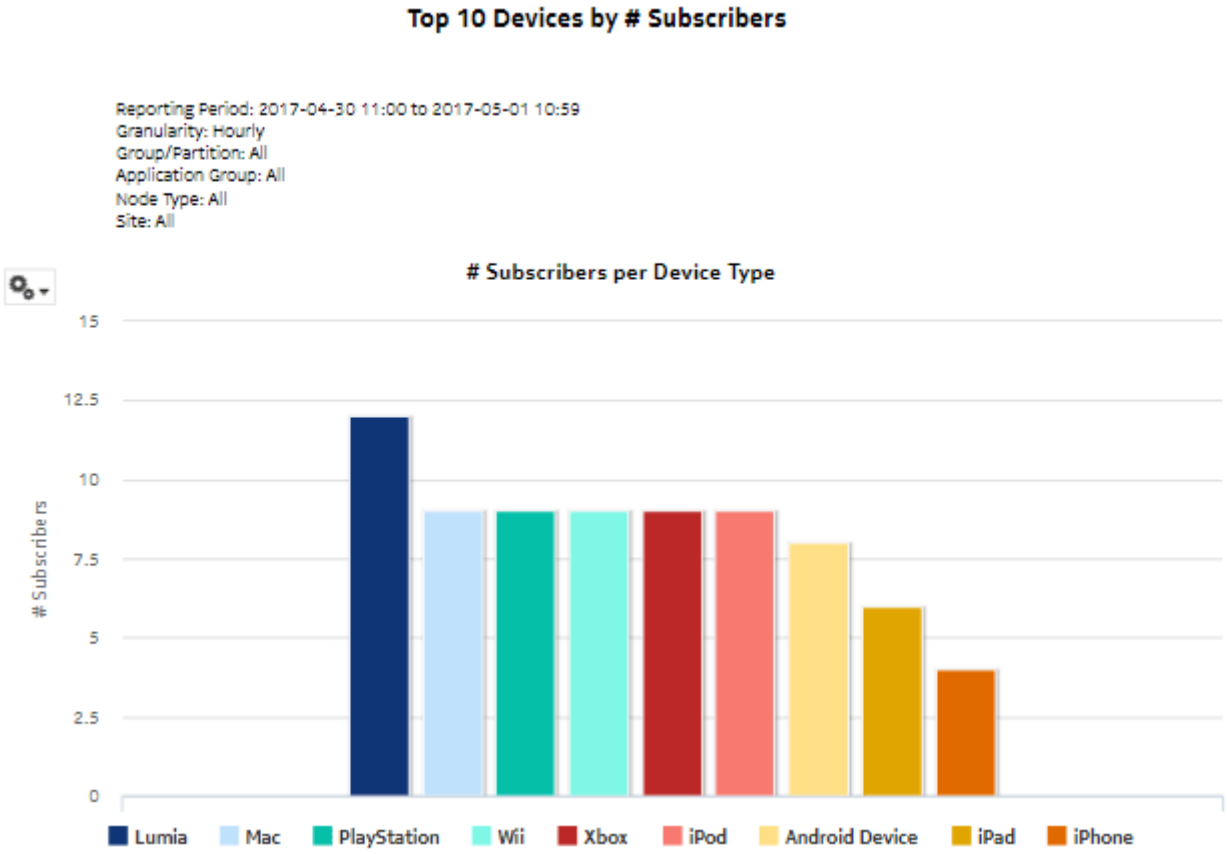
Table 4-1 Top Devices by # Subscribers report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Node Type	Search using partial names or wildcard (%).
	Node	
	Group/Partition	
	Application Group	Select individual application groups or click **Select All**.
	Rank	Number of devices to report
Drill-down support	No	

4.1.2 Example

The following figure shows a report example.

Figure 4-1 Top Devices by # Subscribers report



4.2 Top Devices by Device Usage report

4.2.1 Top Devices by Device Usage report overview

The Top Devices by Device Usage report shows the top device types based on traffic per device type for a selected application group.

Use cases

Network resource planning—Use the report to adjust bandwidth, for example, based on the availability of a new device OS version, and the projected mass download of the new OS.

Risk management—Use the report to apprise customers of the number of devices of a specific type, for example, when the devices are known to adversely affect traffic in some manner.

Report characteristics

The following table lists the principal report characteristics.

Table 4-2 Top Devices by Device Usage report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive application group (per device or per application group)	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Node Type	Search using partial names or wildcard (%).
	Node	
	Group/Partition	
	Application Group	Select individual application groups or click **Select All**.
	Metrics	Upload Traffic, Download Traffic, or Total Traffic
	Rank	Number of devices to report
Drill-down support	No	

4.2.2 Example

The following figure shows a report example.

Figure 4-2 Top Devices by Device Usage report

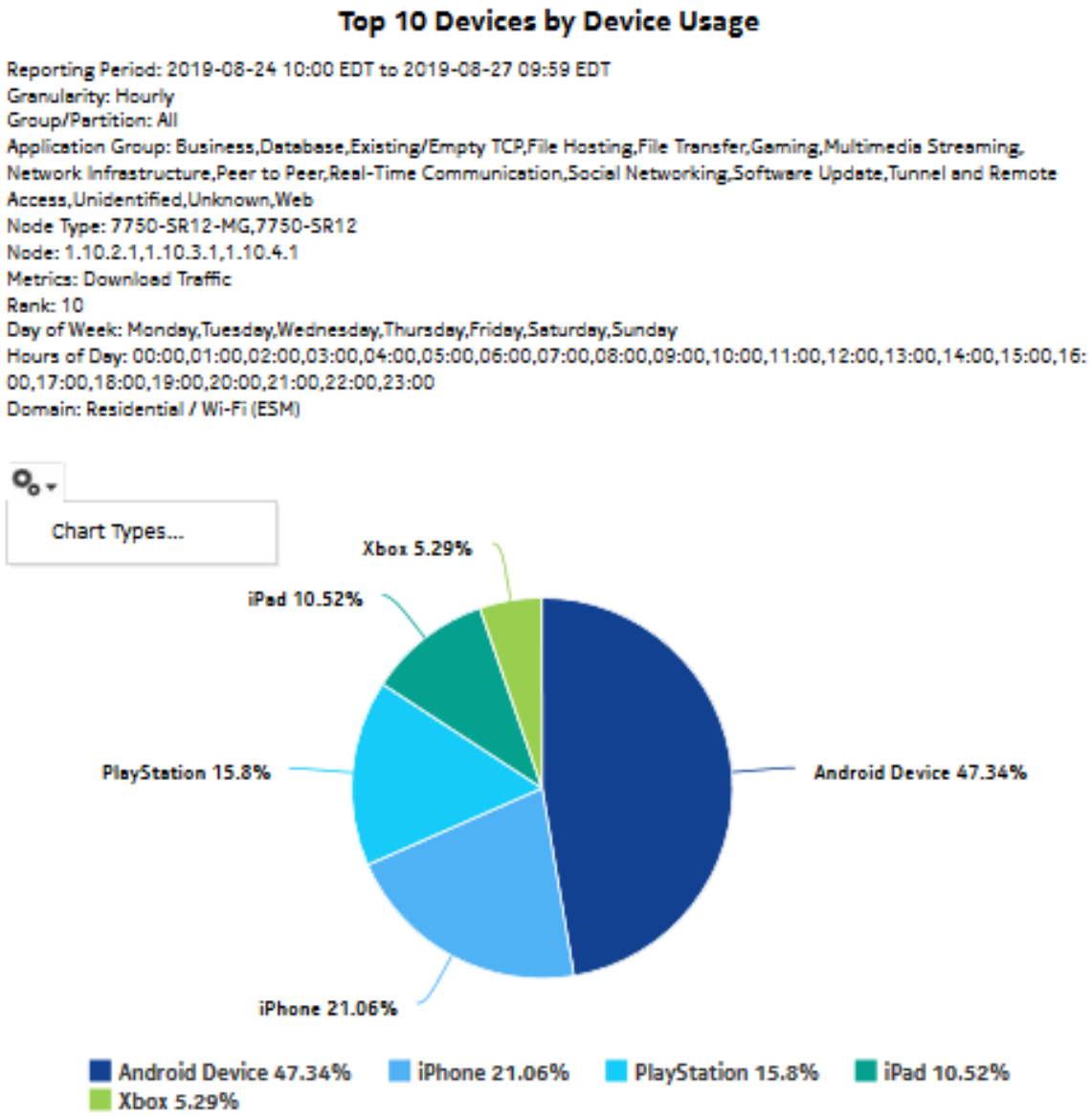
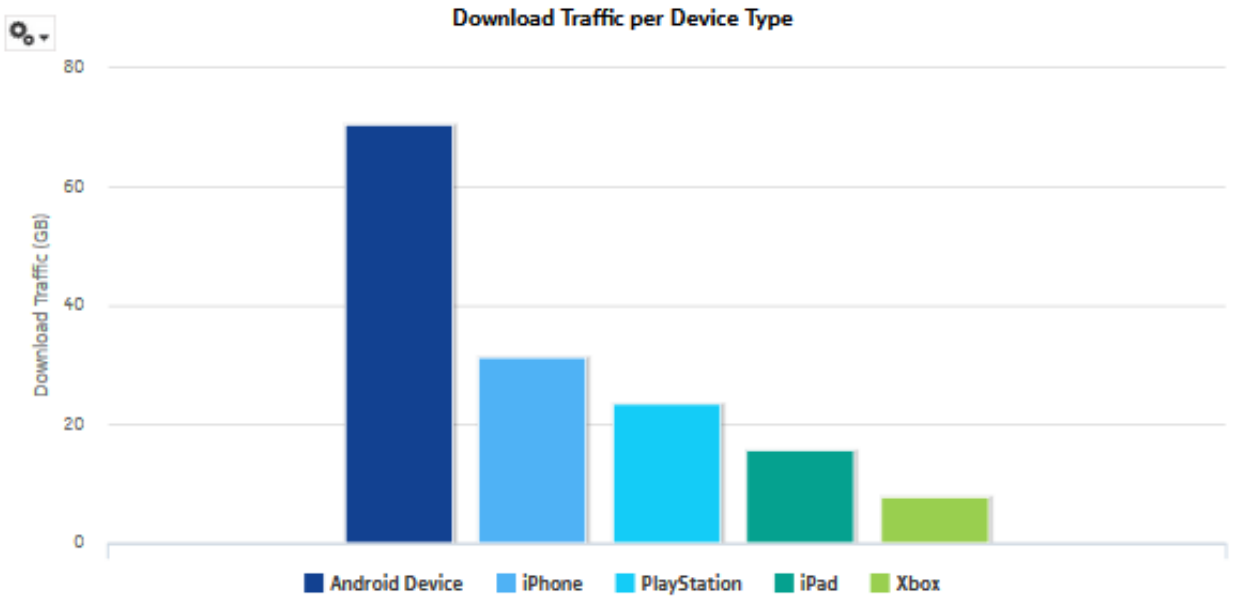


Figure 4-3 Top Devices by Device Usage report



4.3 Top HTTP Host Domain reports

4.3.1 Top HTTP Host Domains report overview

The Top HTTP Host Domains report shows the top HTTP host domains in a network that are accessed most frequently or have the most traffic.

Use cases

Top talkers—Use this report to identify which domains are accessed most in the network.

Report characteristics

The following table lists the principal report characteristics.

Table 4-3 Top HTTP Host Domains report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive application group (per host or per application group)
NSP Flow Collector required	Yes

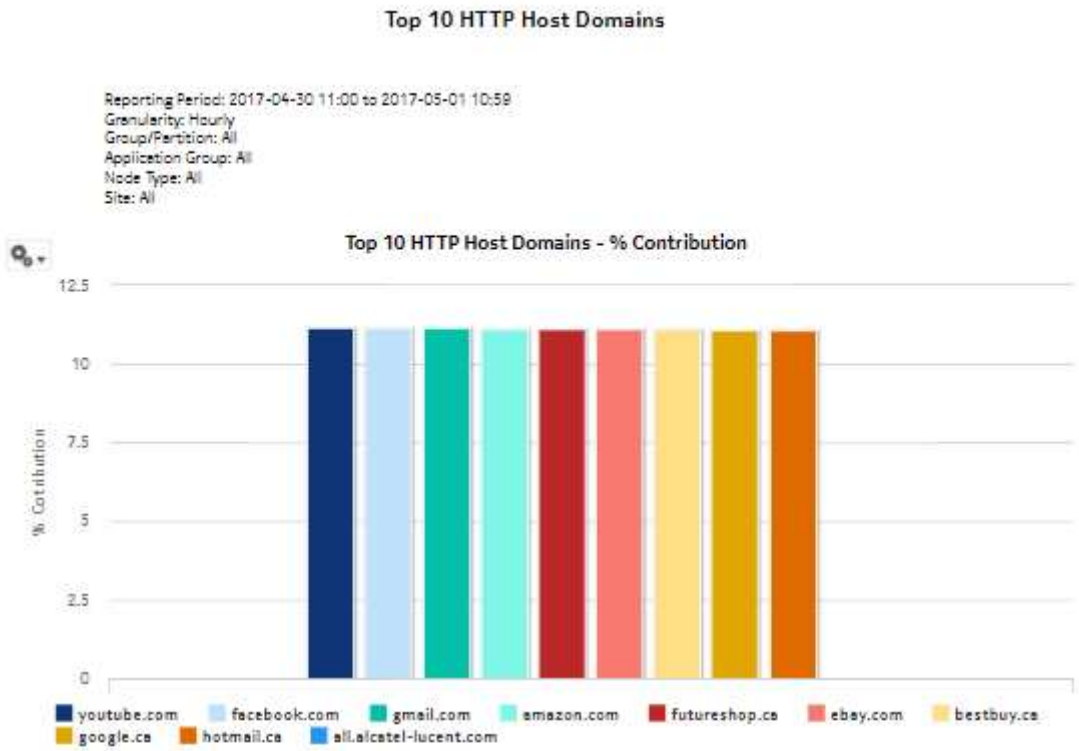
Table 4-3 Top HTTP Host Domains report characteristics (continued)

Characteristic	Value	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Node Type	Search using partial names or wildcard (%).
	Node	
	Group/Partition	
	Application Group	Select individual application groups or click **Select All**.
	Metrics	Download Traffic, Upload Traffic, or # Hits
	Rank	Number of host domains to report
Drill-down support	No	

4.3.2 Example

The following figures show a report example.

Figure 4-4 Top HTTP Host Domains report



Rank	Host Domain	Download Traffic (GB)	% of All Host Domains
1	youtube.com	27.27	11.16%
2	facebook.com	27.24	11.15%
3	gmail.com	27.21	11.14%
4	amazon.com	27.20	11.13%
5	futureshop.ca	27.11	11.10%
6	ebay.com	27.11	11.10%
7	bestbuy.ca	27.10	11.10%
8	google.ca	27.03	11.07%
9	hotmail.ca	27.00	11.05%
10	all.alcatel-lucent.com	.00	.00%
	Top 10 Host Domains Subtotal	244.27	100.00%

4.4 Traffic Distribution By Device Operating System report

4.4.1 Traffic Distribution By Device Operating System report overview

The Traffic Distribution By Device Operating System report shows the traffic distribution based on the end-user device OS.

Use cases

Network resource planning—Use the report to adjust bandwidth, for example, based on the availability of a new device OS version, and the projected mass download of the new OS.

Risk management—Use the report to apprise customers of the number of devices of a specific type; for example, when the devices are known to adversely affect traffic in some manner.

Report characteristics

The following table lists the principal report characteristics.

Table 4-4 Traffic Distribution By Device Operating System report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive application group (per device or per application group)
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 4-4 Traffic Distribution By Device Operating System report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Hours of day	Select individual hours or click **Select All**.
	Node Type	Search using partial names or wildcard (%).
	Application Group	Select individual application groups or click **Select All**.
	Device Operating System	Select individual OSs or click **Select All**.
	Metrics	Download Traffic, Upload Traffic, Total Traffic or # Hits
	Percentage Threshold for Chart	Specify the threshold to collapse an OS into the Other category. The default is 5%.
Drill-down support	No	

4.4.2 Example

The following figure shows a report example.

Note: A question mark (?) indicates that the device operating system version (major, minor, or dot) is not identified.

Figure 4-5 Traffic Distribution by Device Operating System report

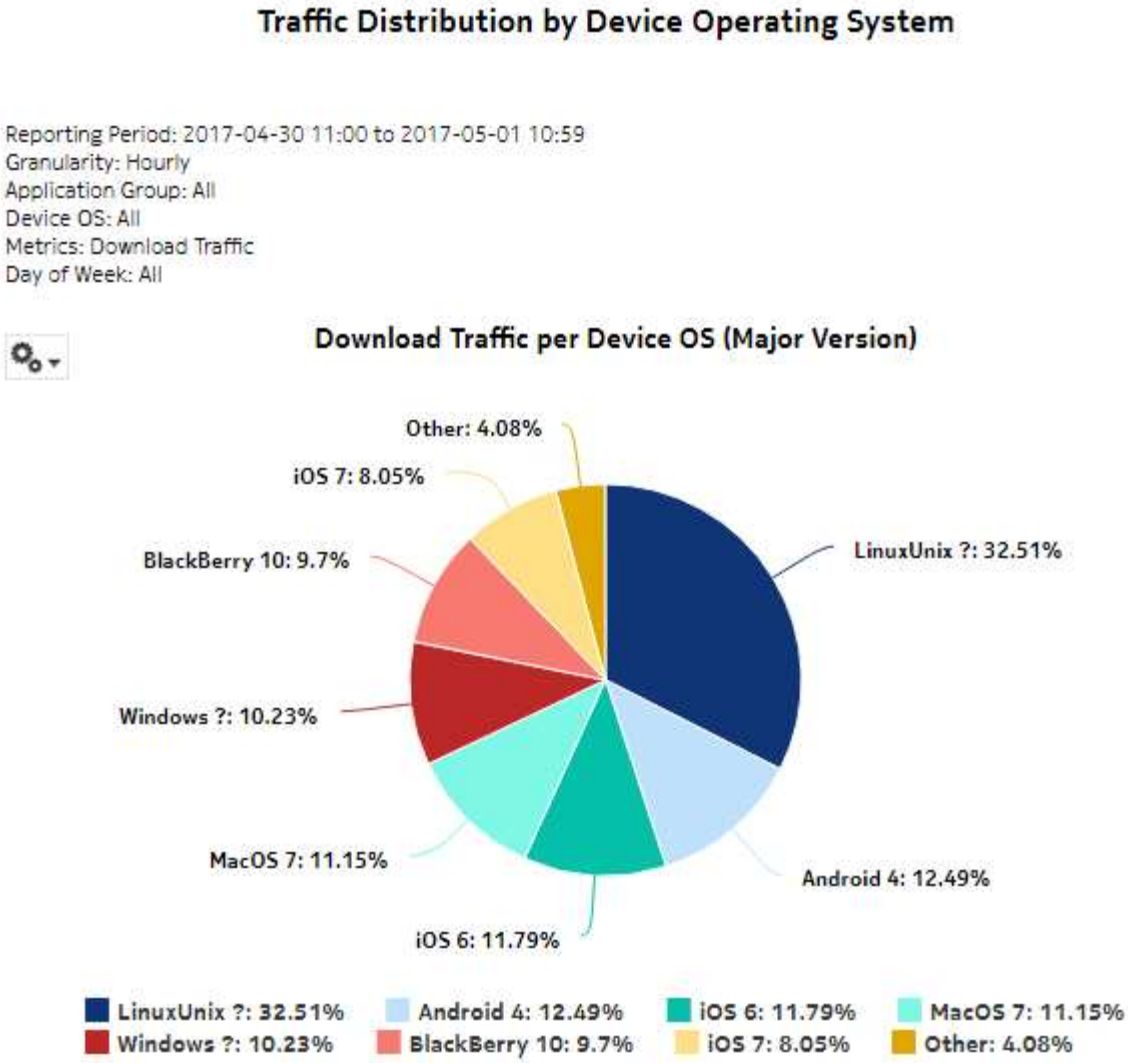


Figure 4-6 Traffic Distribution By Device Operating System report—download traffic breakdown

Download Traffic Breakdown per Device OS

OS Name (% of Overall Total)	OS Version - Major (% of OS)	OS Version - Minor (% of Major)	OS Version - Dot (% of Minor)	Download Traffic (GB)	Total	% of Overall Total
Android (12.49%)	4 (100.0%)	4.4 (100.0%)	4.4.3 (45.91%)	14.01		
			4.4.4 (54.09%)	16.51		
			Total (v4.4)		**30.51**	**(12.49%)**
		Total (v4)			**30.51**	**(12.49%)**
	Total (Android)				**30.51**	**(12.49%)**
BlackBerry (9.7%)	10 (100.0%)	10.3 (100.0%)	10.3.1 (100.0%)	23.71		
			Total (v10.3)		**23.71**	**(9.7%)**
		Total (v10)			**23.71**	**(9.7%)**
	Total (BlackBerry)				**23.71**	**(9.7%)**
LinuxUnix (32.51%)	? (100.0%)	0.0 (100.0%)	0.0.0 (100.0%)	79.46		
			Total (v0.0)		**79.46**	**(32.51%)**
		Total(?)			**79.46**	**(32.51%)**
	Total (LinuxUnix)				**79.46**	**(32.51%)**
MacOS (11.15%)	7 (100.0%)	7.1 (100.0%)	7.1.2 (100.0%)	27.25		
			Total (v7.1)		**27.25**	**(11.15%)**
		Total (v7)			**27.25**	**(11.15%)**
	Total (MacOS)				**27.25**	**(11.15%)**
Windows (10.23%)	1 (0.01%)	1.2 (100.0%)	1.2.3 (100.0%)	0		
			Total (v1.2)		**0**	**(0.0%)**
		Total (v1)			**0**	**(0.0%)**
	10 (0.0%)	10.1 (100.0%)	10.1.0 (100.0%)	0		
			Total (v10.1)		**0**	**(0.0%)**
		Total (v10)			**0**	**(0.0%)**
	? (99.99%)	0.0 (100.0%)	0.0.0 (100.0%)	24.99		
			Total (v0.0)		**24.99**	**(10.23%)**
		Total(?)			**24.99**	**(10.23%)**
	Total (Windows)				**24.99**	**(10.23%)**
iOS (23.92%)	6 (49.27%)	6.1 (100.0%)	6.1.1 (100.0%)	28.81		
			Total (v6.1)		**28.81**	**(11.79%)**
		Total (v6)			**28.81**	**(11.79%)**
	7 (33.66%)	7.1 (100.0%)	7.1.1 (100.0%)	19.68		
			Total (v7.1)		**19.68**	**(8.05%)**
		Total (v7)			**19.68**	**(8.05%)**
	8 (17.07%)	8.0 (100.0%)	8.0.1 (100.0%)	9.98		
			Total (v8.0)		**9.98**	**(4.08%)**
		Total (v8)			**9.98**	**(4.08%)**
	Total (iOS)				**58.47**	**(23.92%)**
Overall Total				**244.4**	**244.4**	**(100.0%)**

Note - A question mark (?) indicates the device operating system version (major, minor or dot) is not identified

5 Firewall reports

5.1 Firewall reports overview

5.1.1 General information

Firewall reports provide information about admit and drop counts for AA accounting add/drop statistics.

Drill-downs

All reports can be run from the main Firewall reports folder. Click on a report to show tables of the admit or drop counts per direction.

5.2 Firewall Drop Dashboard

5.2.1 Firewall Drop Dashboard overview

The Firewall Drop Dashboard shows the AA firewall packet-drop activity on selected AA partitions.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that policies are not dropping legitimate traffic.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 5-1 Firewall Drop Dashboard characteristics

Characteristic	Value
Statistics type	AA Accounting add/drop
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 5-1 Firewall Drop Dashboard characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Site	
	Group/Partition	
	Session Filter Direction	Upload and Download, Upload, or Download
	Policer Type	Subscriber Flow Count, Subscriber Flow Rate, System Flow Count, System Flow Rate
	Anomaly Type	Select individual items or click **Select All**.
	Anomaly Direction	Upload and Download, Upload, or Download
	TCP Validation Direction	
	Rank	Number of statistics to report
Drill-down support	Yes—Display tables of the session filter, policer, and anomaly drop counts per direction	

5.2.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 5-1 Top Session Filter Drop dashlet

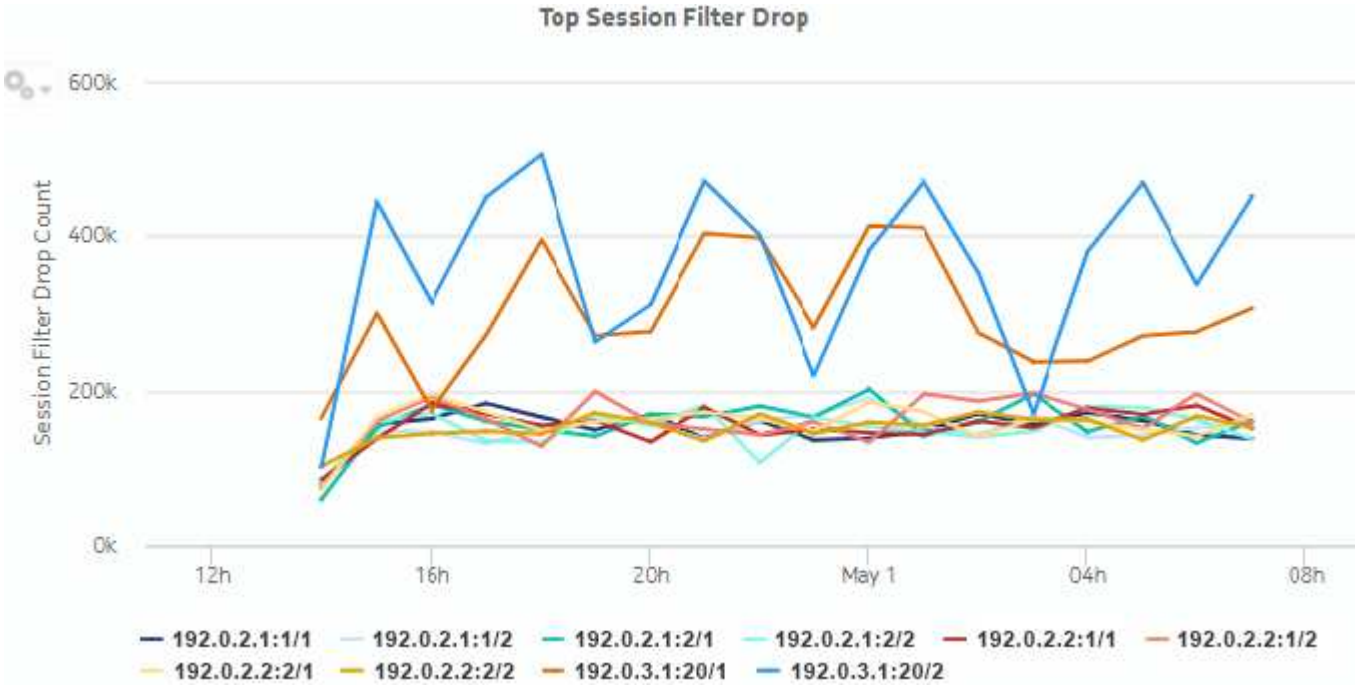


Figure 5-2 Top Session Filter Drop drill-down

Reporting Period: 2017-04-30 23:00 to 2017-04-30 23:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Go Back

Session Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
Session Filter 1/1	default-action	Upload Drop	25,828
		Download Drop	24,853
	entry 1	Upload Drop	5,702
		Download Drop	9,843
	entry 2	Upload Drop	10,239
		Download Drop	13,134

Figure 5-3 Top Policer Drop dashlet

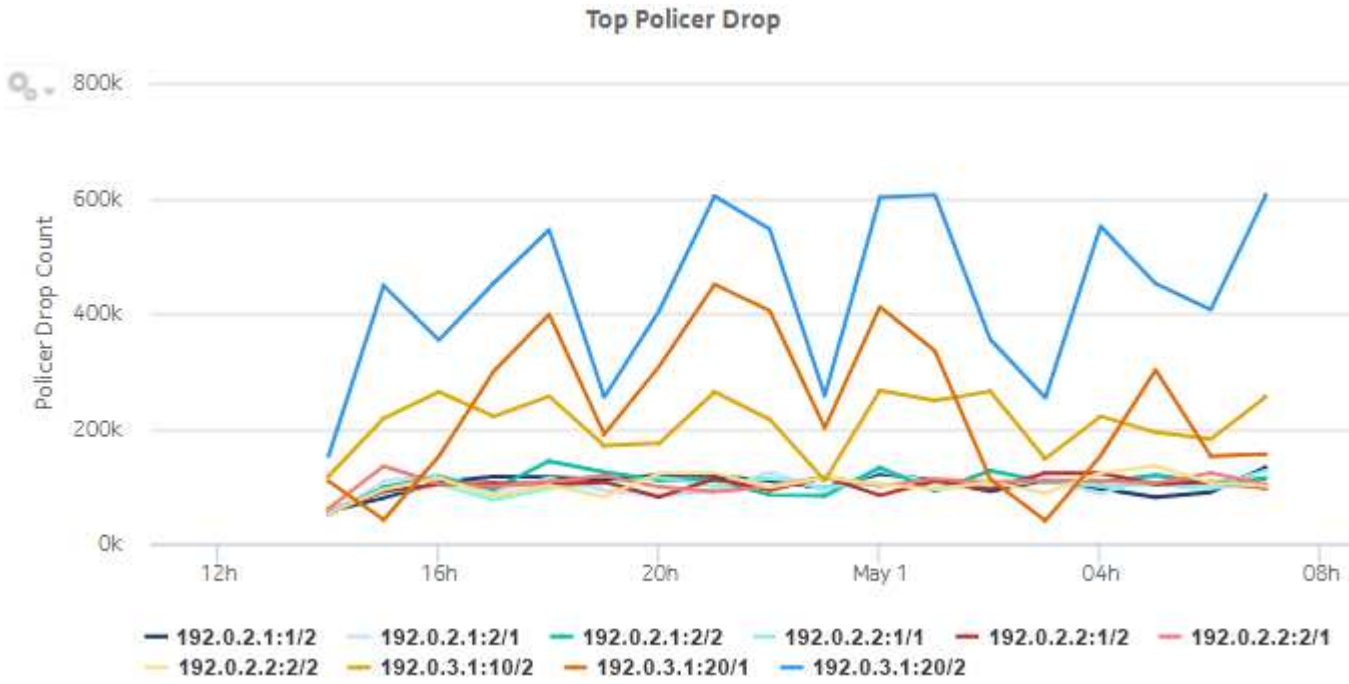


Figure 5-4 Top Policer Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59 Go Back
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/2

Policer Drop Sub-Report

Policer Type	Policer Entry	Direction	Drops
System Flow Rate	Policer 1 FRL/Sys	Upload Drop	14,766
	Subtotal		**33,158**
Subscriber Flow Rate	Policer 1 FRL/Sub	Upload Drop	14,922
	Subtotal		**29,095**
Subscriber Flow Count	Policer 1 FCL/Sub	Upload Drop	18,173
	Subtotal		**24,141**
System Flow Count	Policer 1 FCL/Sys	Upload Drop	13,177
	Subtotal		**23,126**
Total			**109,520**

Note: Counters with a sub-total of zero are not displayed.

Figure 5-5 Top Anomaly Drop dashlet

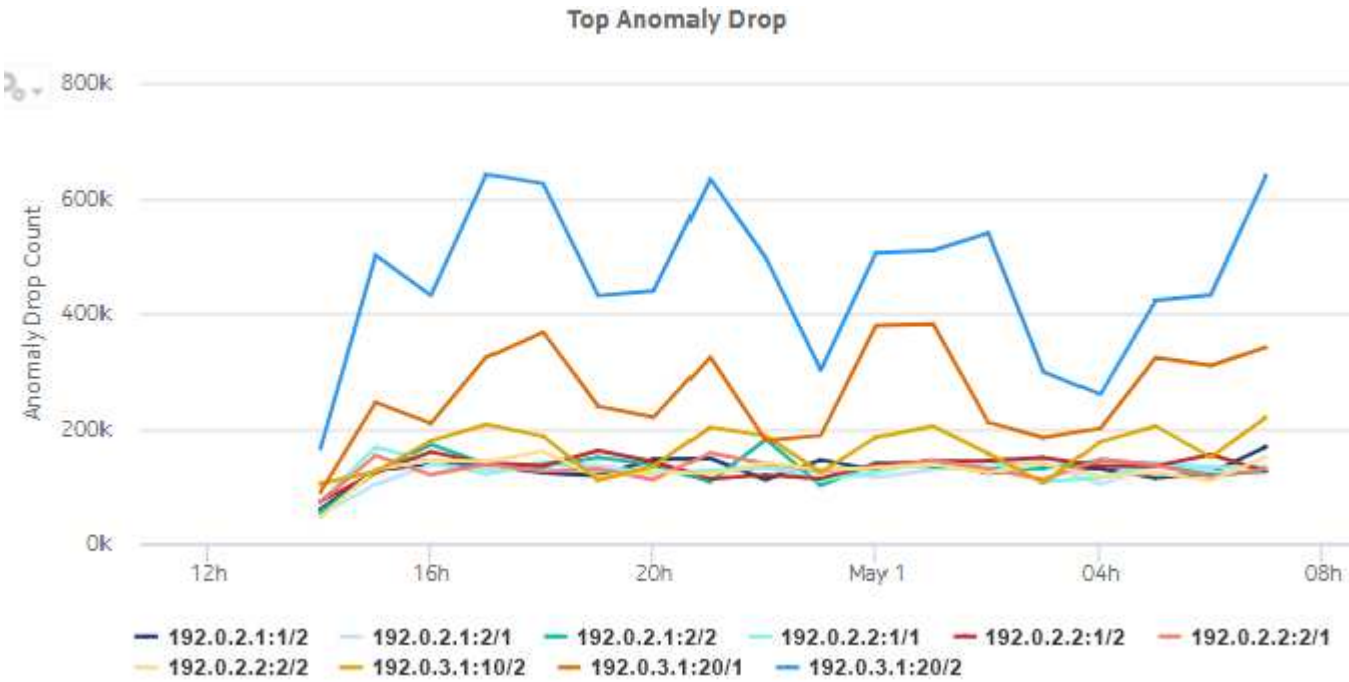


Figure 5-6 Top Anomaly Drop drill-down

Reporting Period: 2017-04-30 23:00 to 2017-04-30 23:59 Go Back
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Anomaly Drop Sub-Report

Anomaly	Direction	Drops
Error	Upload Drop	21,714
	Download Drop	18,538
	Subtotal	**40,252**
GTP Sanity	Upload Drop	20,612
	Download Drop	12,523
	Subtotal	**33,135**
Overload	Upload Drop	10,185
	Download Drop	17,493
	Subtotal	**27,678**
Out-of-order Fragments	Upload Drop	13,305
	Download Drop	9,372
	Subtotal	**22,677**
All Fragments	Upload Drop	11,299
	Download Drop	10,201
	Subtotal	**21,500**
Total		**145,242**

Note: Counters with a sub-total of zero are not displayed.

Figure 5-7 Top TCP Validation Drop dashlet

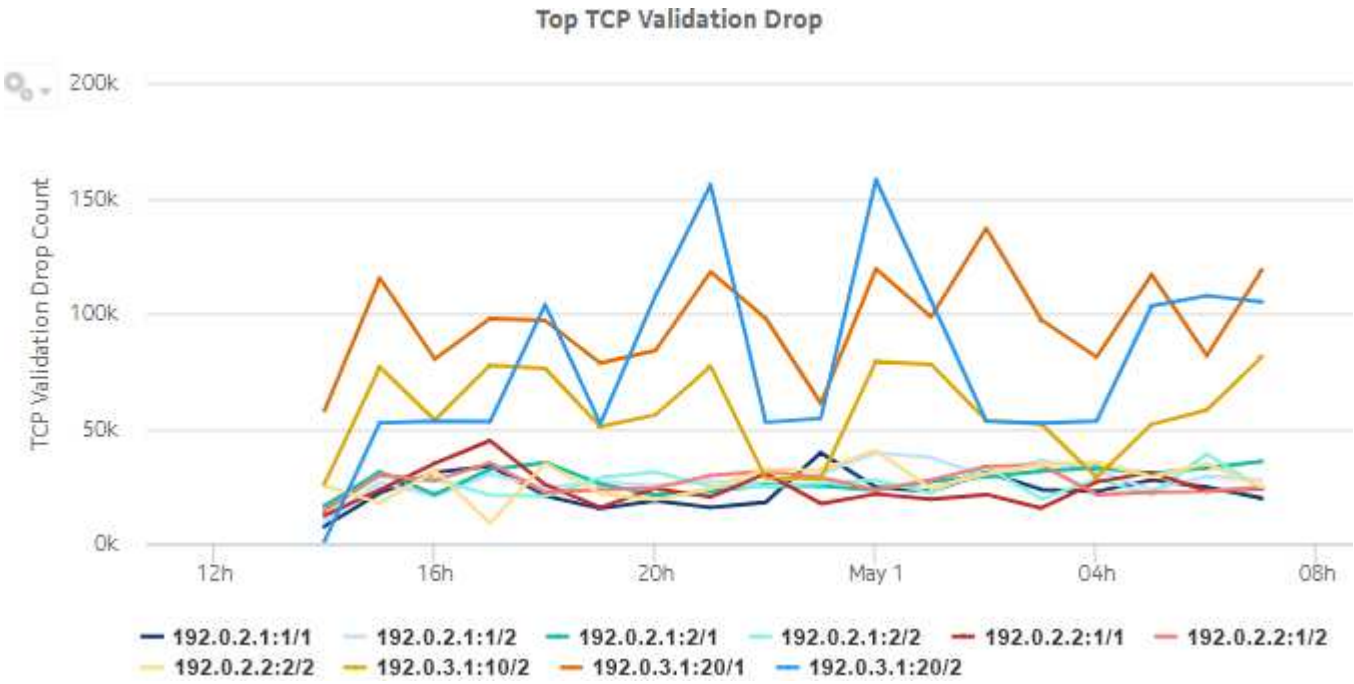


Figure 5-8 Top TCP Validation Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Go Back

TCP Validation Drop Sub-Report

TCP Validation Name	TCP Validation Entry	Direction	Drops
TCP Validation 1/1	tcp-validate	Upload Drop	13,092
		Download Drop	4,940
	Subtotal		**18,032**
Total			**18,032**

Note: Counters with a sub-total of zero are not displayed.

5.3 SecGW Drop Dashboard

5.3.1 SecGW Drop Dashboard overview

The SecGW Drop Dashboard shows the AA firewall packet-drop activity on selected AA partitions.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that policies are not dropping legitimate traffic.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 5-2 SecGW Drop Dashboard characteristics

Characteristic	Value
Statistics type	AA Accounting add/drop
NSP Flow Collector required	No
Domains	Residential

Table 5-2 SecGW Drop Dashboard characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Site	
	Group/Partition	
	Session Filter Direction	Upload and Download, Upload, or Download
	GTP Filter Direction	
	SCTP Filter Direction	
	Policer Type	Subscriber Flow Count, Subscriber Flow Rate, System Flow Count, System Flow Rate
	Anomaly Type	Select individual items or click **Select All**.
	Anomaly Direction	Upload and Download, Upload, or Download
	TCP Validation Direction	
	Rank	Number of statistics to report
Drill-down support	Yes—Display tables of the session filter, policer, and anomaly drop counts per direction	

5.3.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 5-9 Top GTP Filter Drop dashlet

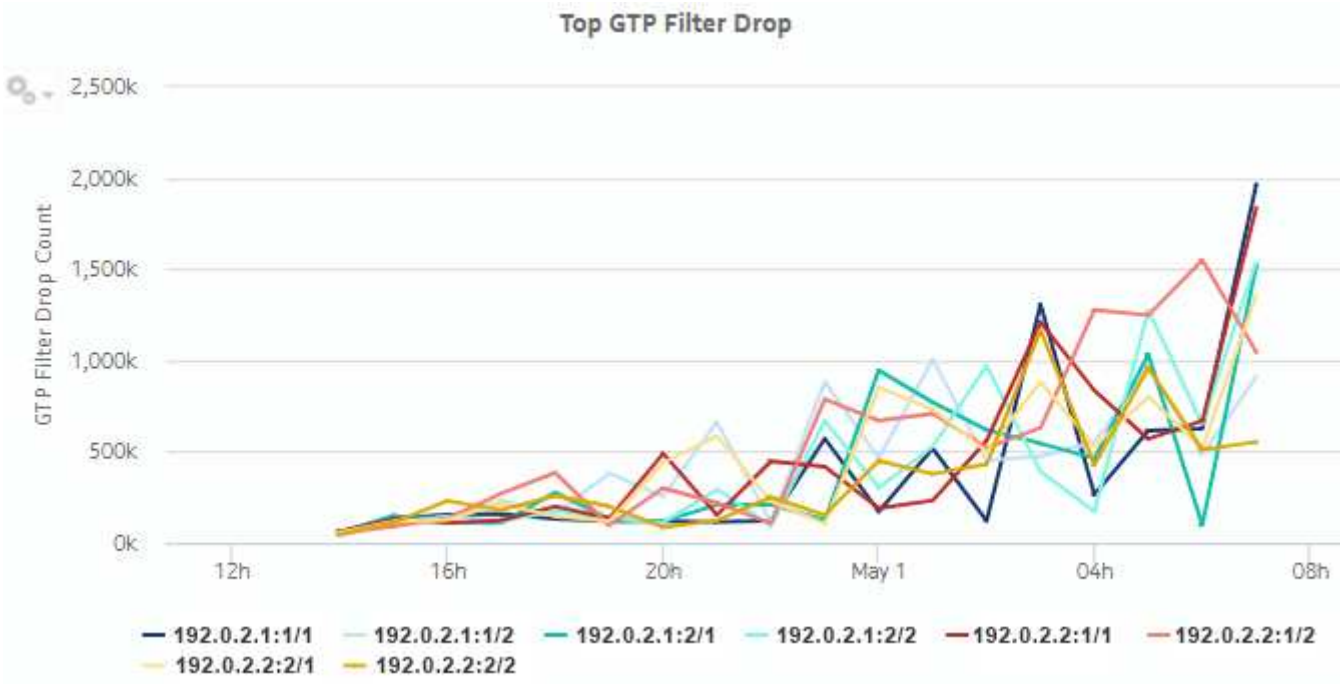


Figure 5-10 Top GTP Filter Drop drill-down

Reporting Period: 2017-05-01 00:00 to 2017-05-01 00:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Go Back

GTP Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
GTP Filter 1/1	default-action	Upload Drop	20,915
		Download Drop	15,517
	entry 1	Upload Drop	19,765
		Download Drop	17,264
	entry 2	Upload Drop	0
		Download Drop	0
	entry 3	Upload Drop	0
		Download Drop	0

Figure 5-11 Top SCTP Filter Drop dashlet

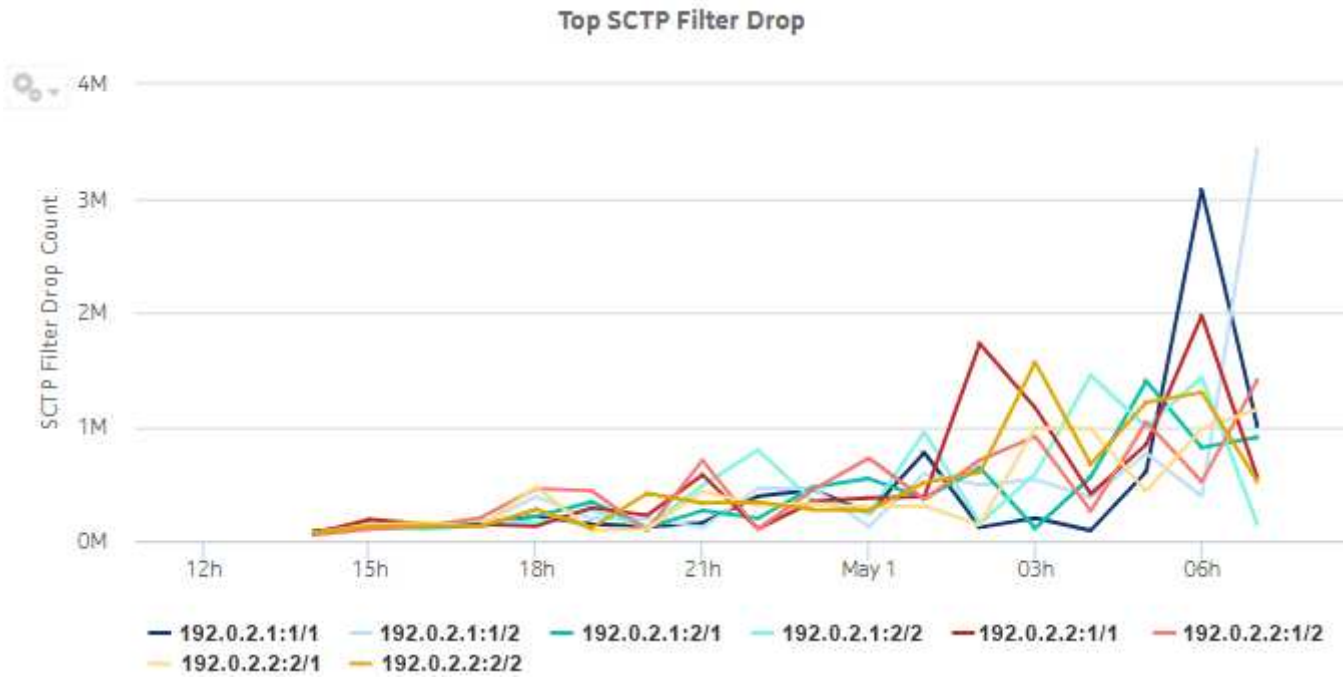


Figure 5-12 Top SCTP Filter Drop drill-down

Reporting Period: 2017-05-01 01:00 to 2017-05-01 01:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Go Back

SCTP Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
SCTP Filter 1/1	default-action	Upload Drop	17,434
		Download Drop	20,335
	entry 1	Upload Drop	0
		Download Drop	0
	entry 2	Upload Drop	92,985
		Download Drop	95,817
	entry 3	Upload Drop	230,194
		Download Drop	233,940

Figure 5-13 Top Session Filter Drop dashlet

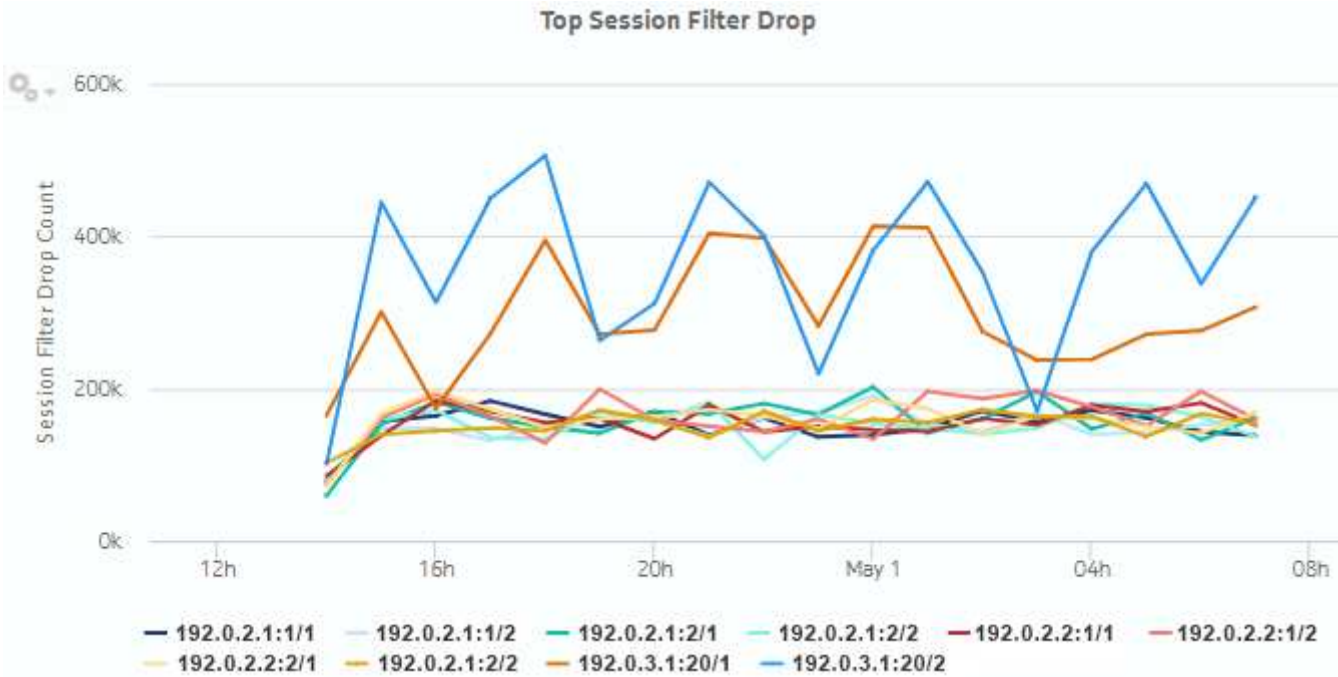


Figure 5-14 Top Session Filter Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Go Back

Session Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
Session Filter 1/1	default-action	Upload Drop	15,792
		Download Drop	18,001
	entry 1	Upload Drop	27,423
		Download Drop	22,264
	entry 2	Upload Drop	19,435
		Download Drop	18,284
	entry 3	Upload Drop	21,586
		Download Drop	18,522

Figure 5-15 Top Policer Drop dashlet

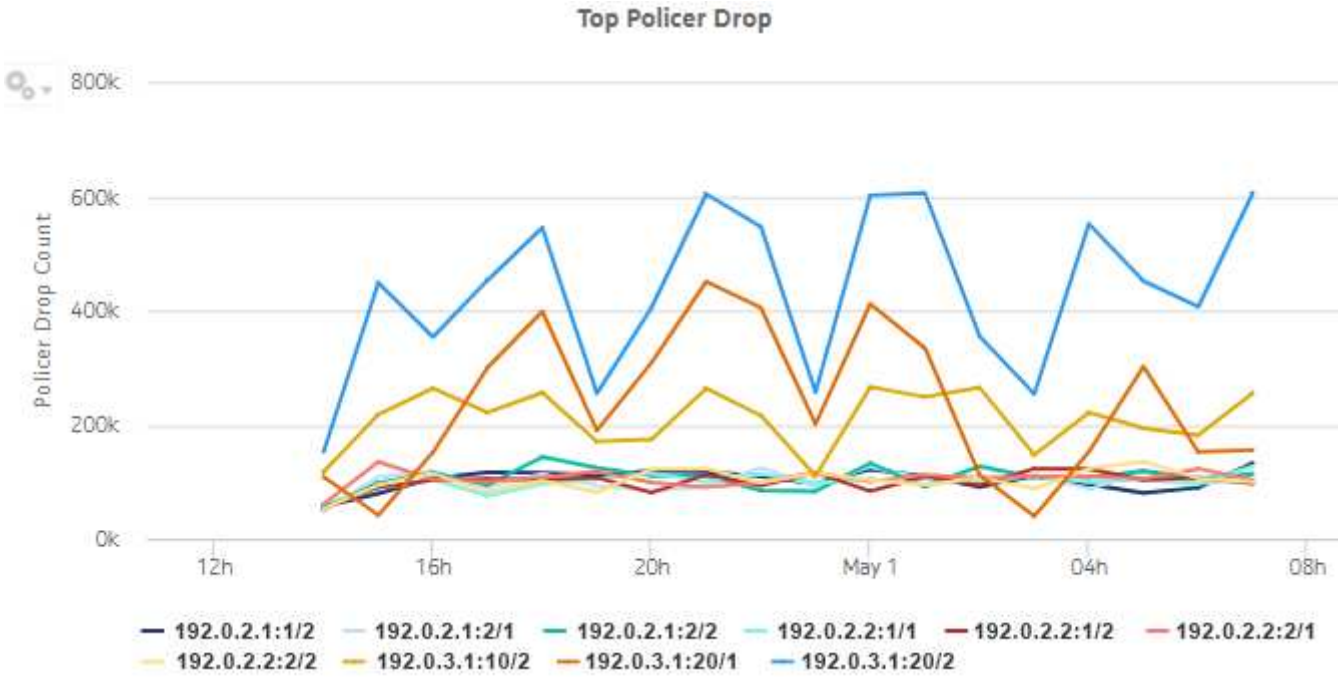


Figure 5-16 Top Policer Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/2

Go Back

Policer Drop Sub-Report

Policer Type	Policer Entry	Direction	Drops
System Flow Rate	Policer 1 FRL/Sys	Upload Drop	14,766
	Subtotal		**33,158**
Subscriber Flow Rate	Policer 1 FRL/Sub	Upload Drop	14,922
	Subtotal		**29,095**
Subscriber Flow Count	Policer 1 FCL/Sub	Upload Drop	18,173

Figure 5-17 Top Anomaly Drop dashlet

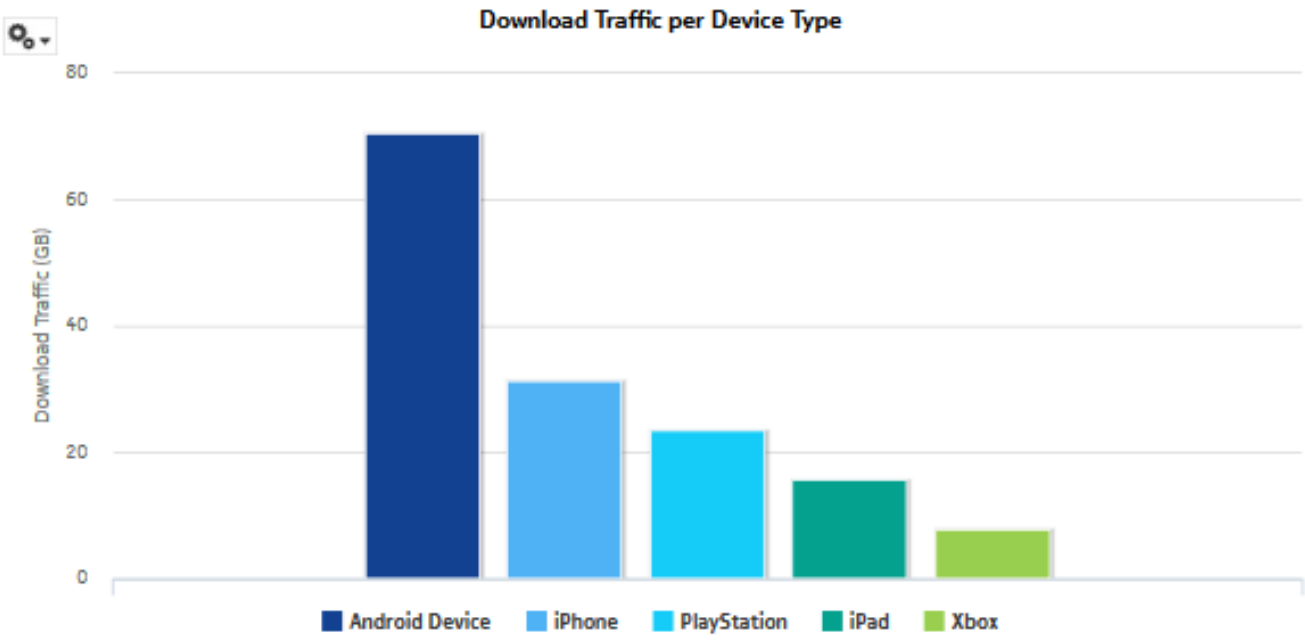


Figure 5-18 Top Anomaly Drop drill-down

Reporting Period: 2017-05-01 04:00 to 2017-05-01 04:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Go Back

Anomaly Drop Sub-Report

Anomaly	Direction	Drops
Out-of-order Fragments	Upload Drop	18,757
	Download Drop	12,995
	Subtotal	**31,752**
Error	Upload Drop	14,400
	Download Drop	15,663
	Subtotal	**30,063**
Overload	Upload Drop	9,173
	Download Drop	16,056

Figure 5-19 Top TCP Validation Drop dashlet

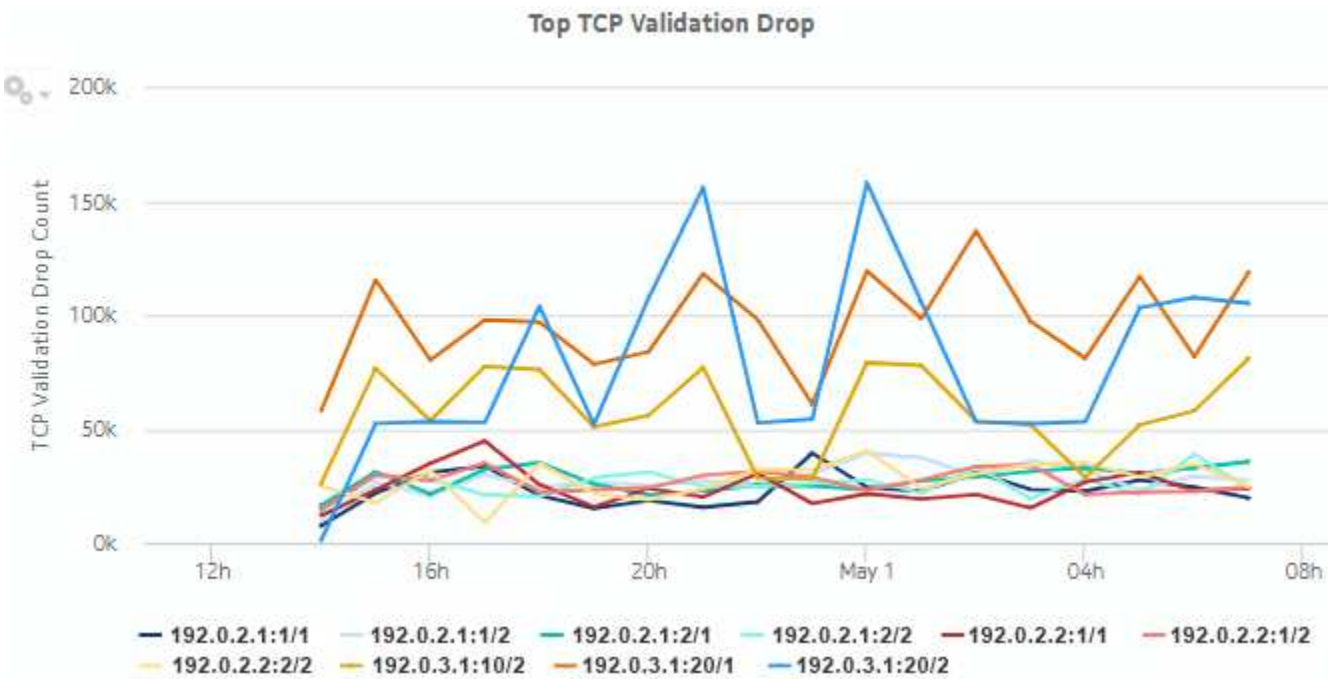


Figure 5-20 Top TCP Validation Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Go Back

TCP Validation Drop Sub-Report

TCP Validation Name	TCP Validation Entry	Direction	Drops
TCP Validation 1/1	tcp-validate	Upload Drop	13,092
		Download Drop	4,940
	Subtotal		**18,032**
Total			**18,032**

Note: Counters with a sub-total of zero are not displayed.

5.4 Top Filter Admit report

5.4.1 Top Filter Admit report overview

The Top Filter Admit report shows which AA session filters admit the most traffic.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that AA session filters are not admitting unexpected traffic.

Report characteristics

The following table lists the principal report characteristics.

Table 5-3 Top Filter Admit report characteristics

Characteristic	Value
Statistics type	AA Accounting add/drop
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 5-3 Top Filter Admit report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Filter Type	Session, GTP, or SCTP
	Group/Partition	Select individual items or click **Select All**.
	Direction	Upload and Download, Upload, or Download
	Rank	Number of statistics to report
Drill-down support	Yes—Display a table of the session filter admit counts per direction	

5.4.2 Example

The following figures show a report example.

Figure 5-21 Top Filter Admit report

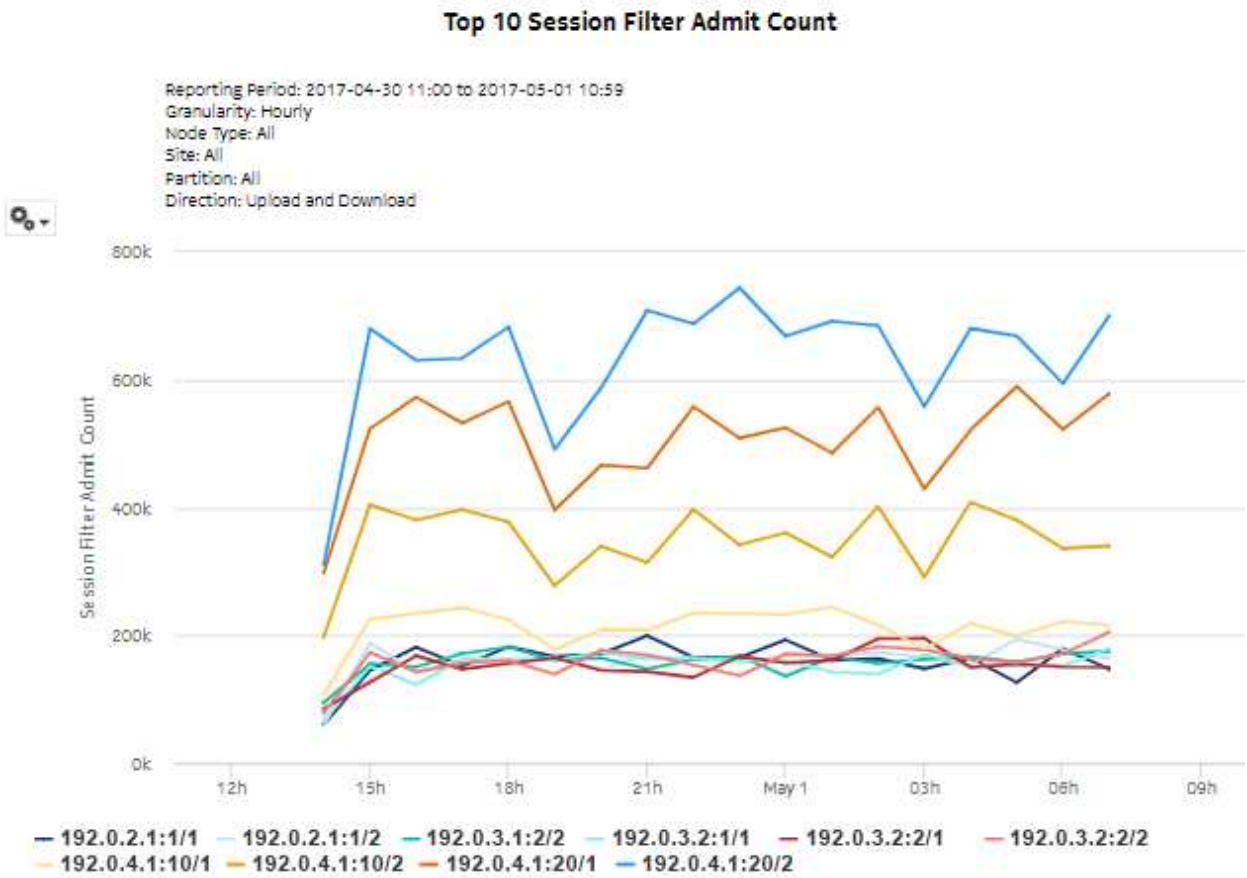
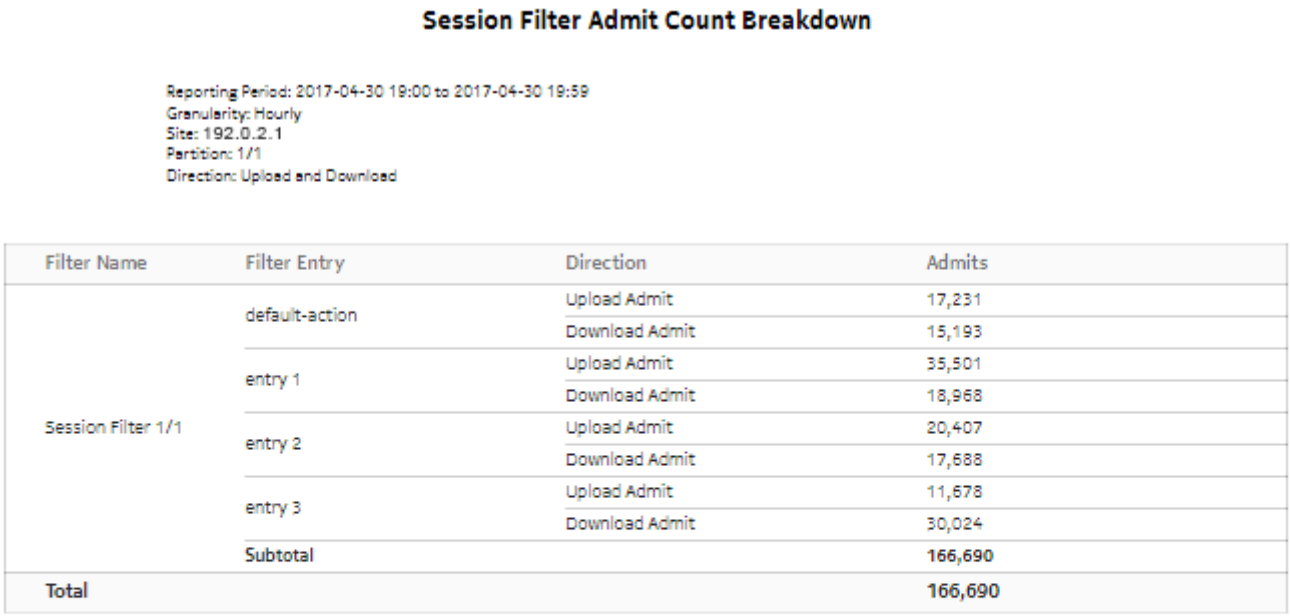


Figure 5-22 Top Filter Admit drill-down



Session Filter Admit Count Breakdown

Reporting Period: 2017-04-30 19:00 to 2017-04-30 19:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1
Direction: Upload and Download

Filter Name	Filter Entry	Direction	Admits
Session Filter 1/1	default-action	Upload Admit	17,231
		Download Admit	15,193
	entry 1	Upload Admit	35,501
		Download Admit	18,968
	entry 2	Upload Admit	20,407
		Download Admit	17,688
	entry 3	Upload Admit	11,678
		Download Admit	30,024
	Subtotal		**166,690**
Total			**166,690**

Note: Filters with zero subtotal admit is not displayed.

5.5 Top Policer Admit report

5.5.1 Top Policer Admit report overview

The Top Policer Admit report shows which AA policers admit the most traffic.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that AA policers are not admitting illegitimate traffic.

Report characteristics

The following table lists the principal report characteristics.

Table 5-4 Top Policer Admit report characteristics

Characteristic	Value	
Statistics type	AA Accounting add/drop	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	
	Policer Type	
	Rank	Number of statistics to report
Drill-down support	Yes—Display a table of the policer admit counts per direction	

5.5.2 Example

The following figures show a report example.

Figure 5-23 Top Policer Admit report

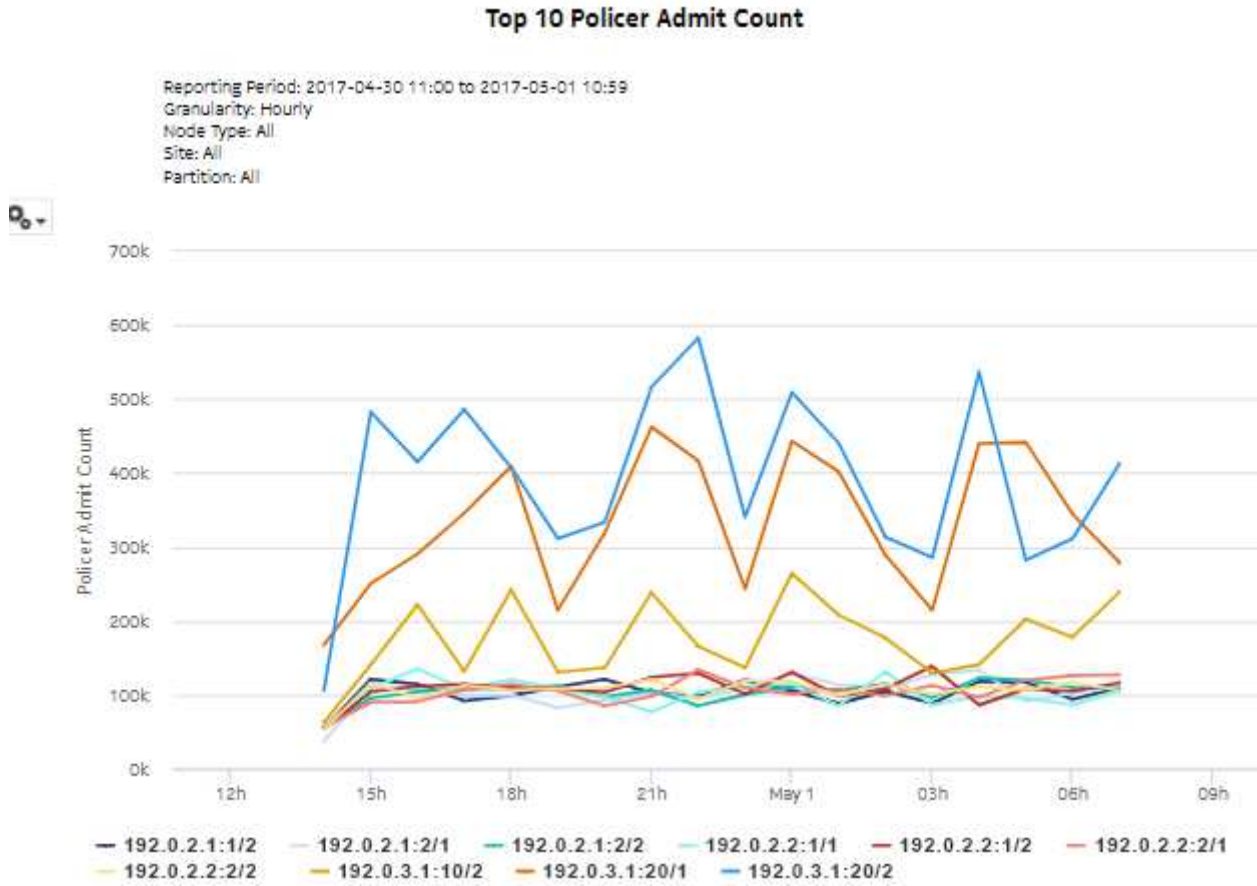


Figure 5-24 Top Policer Admit drill-down

Policer Admit Count Breakdown

Reporting Period: 2017-05-01 00:00 to 2017-05-01 00:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1
Direction: Upload and Download

Policer Type	Policer Entry	Direction	Admits
Subscriber Flow Rate	Policer 1 FRL/Sub	Upload Admit	15,163
	Subtotal		**33,182**
System Flow Count	Policer 1 FCL/Sys	Upload Admit	13,828
	Subtotal		**26,394**
System Flow Rate	Policer 1 FRL/Sys	Upload Admit	17,988
	Subtotal		**25,957**
Subscriber Flow Count	Policer 1 FCL/Sub	Upload Admit	15,630
	Subtotal		**20,198**
Total			**105,731**

Note: Policer with zero subtotal admit is not displayed.

6 Location and Congestion reports

6.1 Location and Congestion reports overview

6.1.1 General information

Location and Congestion reports provide information about loading and congestion at Access Network Locations (ANLs).

6.1.2 Use cases

Congestion control—Use the report to detect traffic congestion patterns. Once these patterns are understood, specific DEM congestion policies can be configured on the MS-ISA or VAA, and measured for their effectiveness in subsequent reports.

6.1.3 Drill-down reports

All reports can be run from the main Location and Congestion reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Location and Congestion reports. Each level of indentation indicates a drill down. For example, a Top Congested Access Network Locations Details report is a drill-down from a Top Congested Access Network Location report.

Table 6-1 Available drill-downs for Location and Congestion reports

Top Congested Access Network Location	
	Top Congested Access Network Locations Details
Top Congested Access Network Locations Details	
	Subscriber and Usage Details for Selected Access Network Location
Top Congested Access Network Locations Geographic Distribution	
	Subscriber and Usage Details for Selected Access Network Location
Top Loaded Access Network Locations	
	Top Congested Access Network Locations Details
Top Congested Access Network Locations Details	
	Subscriber and Usage Details for Selected Access Network Location

6.1.4 Custom table for ANL data

Location and Congestion reports are dependent on a custom table of ANL data on the auxiliary database, analytics_anl_details_table_ct. This table provides a link between MAC addresses and friendly names. The custom table is created automatically. It can be populated using the customData.bash script on the auxiliary database. See the *NSP Administrator Guide* for more information about using the CustomData script.

If Location and Congestion reports are run when the table is not populated, MAC addresses will appear instead of readable ANL names.

A Top Congested Access Network Locations Geographic Distribution report cannot be run if the analytics_anl_details_table_ct is not populated. Other Location and Congestion reports can be run, but they must be run using the ANL ID or Radio ID if applicable. If the ID is not typed correctly the report will have no data.

Custom table structure

Figure 6-1, “Sample analytics_anl_details_table_ct ” (p. 127) shows a sample table file for the analytics_anl_details_table_ct table. Table 6-2, “Custom table structure” (p. 128) provides information about the data to include in each column.

Figure 6-1 Sample analytics_anl_details_table_ct

```
 type, stateOrProv,city,name,id,subtype,radioVLAN,radioSSID,radioFreq,latitude,
longitude,manufacturer,model,swFw
1, Nova Scotia, Dartmouth, 4 Middle Street, 0001000200030000BCE0000000000000, 0,
0, 0, 0, 0.0, 0.0, 0, 0, 0
2, British Columbia, Victoria, 700 Victoria Street,
1001200230030000000000000000000000, 0, 0, 0, 0, 0.0, 0.0, 0, 0, 0
4, Ontario, Kanata, 600 March Road - AP, 10C12F52B7E70000000000000000000000, 1, 0,
00000000, 0, 100.78789, 10.12312, ApplesWorld, iphonesWorld, 0.0
5, British Columbia, Victoria, 700 Victoria_3g , 1001200230030000000000000000000000,
0, 0, 0, 0, 0.0, 0.0, 0, 0, 0
6, Ontario, Kanata, 600 March Road -4g, 10C12F52B7E70000000000000000000000, 0 , 0,
00000000, 0, 100.78789, 10.12312, ApplesWorld, iphonesWorld, 0.0
```

Table 6-2 Custom table structure

Column	Data type	Notes
type	integer	• 0 - Unknown • 1 - 3G Iub • 2 - 3G Cell • 3 - 4G Cell • 4 - Wi-Fi access point/radio • 5 - 3G-CELL-ULI Location information comes from ULI: ULI in this case is CGI (Applicable for Mobile domain) • 6- 4G-CELL-ULI Location information comes from ULI: ULI in this case is ECGI (Applicable for Mobile domain)
stateOrProv	variable character	The state or province where the ANL is located
city	variable character	The city where the ANL is located
name	variable character	The friendly name to assign the ANL

Table 6-2 Custom table structure (continued)

Column	Data type	Notes
id	variable character	The access point ID. The ID is 32 hex digits long, and is composed of the following: Access point MAC address (12 digits) + VLAN (4 digits) + 16 zeros (0) If there is no VLAN, enter four zeros (0000).
subtype	integer	For Wi-Fi (type 4), enter 1 for an access point and 0 for a VLAN. For all other types, the default value of 0 is correct.
radioVLAN	integer	VLAN number
radioSSID	variable character	Radio service set identifier
radioFreq	integer	Radio frequency
latitude	numeric	Latitude of the ANL location
longitude	numeric	Longitude of the ANL location
manufacturer	variable character	Device manufacturer, for example, Apple
model	variable character	Device model, for example, iPhone
swFw	variable character	Software firmware number

6.2 Active Subscribers and Congestion for Selected Access Network Location report

6.2.1 Active Subscribers and Congestion for Selected Access Network Location report overview

The Active Subscribers and Congestion for Selected Access Network Locations report shows the number of active subscribers and congested sessions at a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-3 Active Subscribers and Congestion for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion
NSP Flow Collector required	Yes

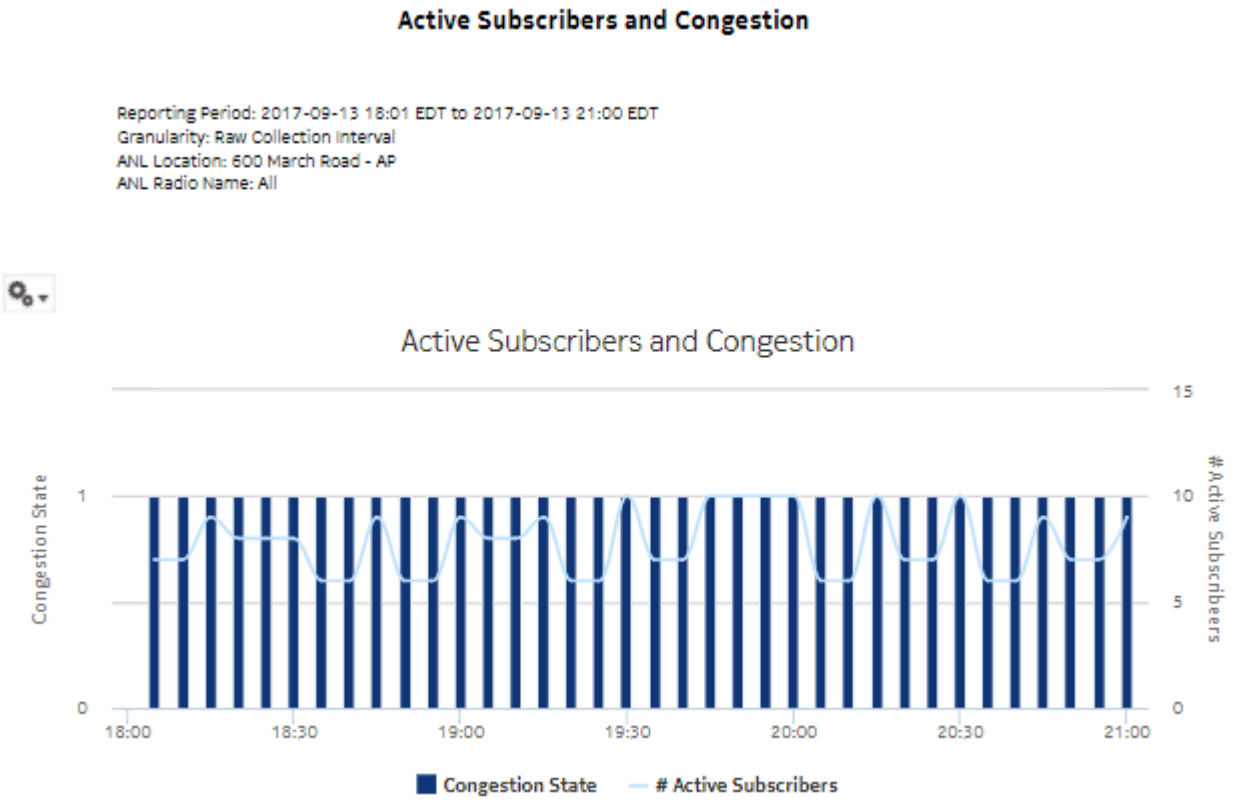
Table 6-3 Active Subscribers and Congestion for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
Drill-down support	No	

6.2.2 Example

The following figure shows a report example.

Figure 6-2 Active Subscribers and Congestion for Selected Access Network Location report



6.3 Application Group Usage for Selected Access Network Location report

6.3.1 Application Group Usage for Selected Access Network Location report overview

The Application Group Usage for Selected Access Network Locations report shows the pattern of application group usage for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-4 Application Group Usage for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

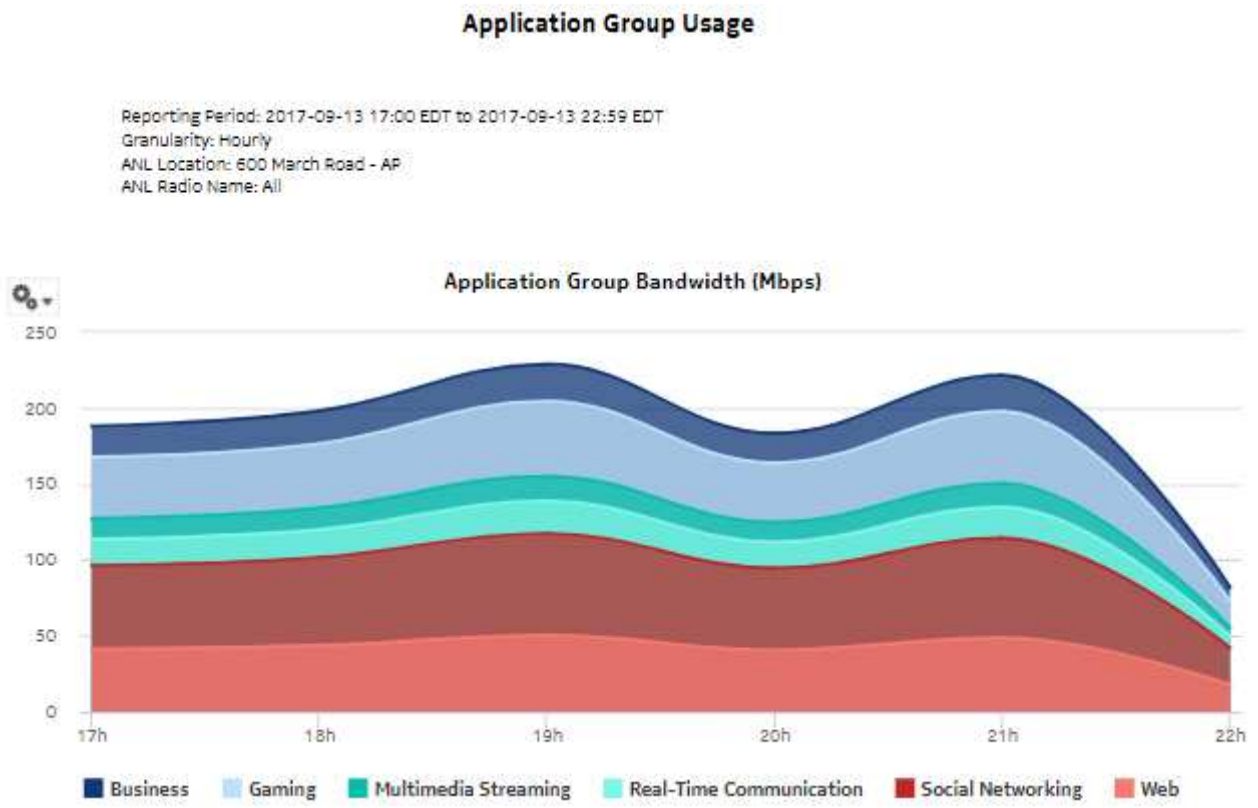
Table 6-4 Application Group Usage for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Group Usage Threshold	Threshold percentage for usage below which the application group will not appear in the report. The default is 2.
Drill-down support	No	

6.3.2 Example

The following figure shows a report example.

Figure 6-3 Application Group Usage for Selected Access Network Location report



6.4 Application Usage by Top Subscribers for Selected Access Network Location report

6.4.1 Application Usage by Top Subscribers for Selected Access Network Location report overview

The Application Usage by Top Subscribers for Selected Access Network Locations report shows the pattern of application usage by the top specified number of subscribers for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-5 Application Usage by Top Subscribers for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

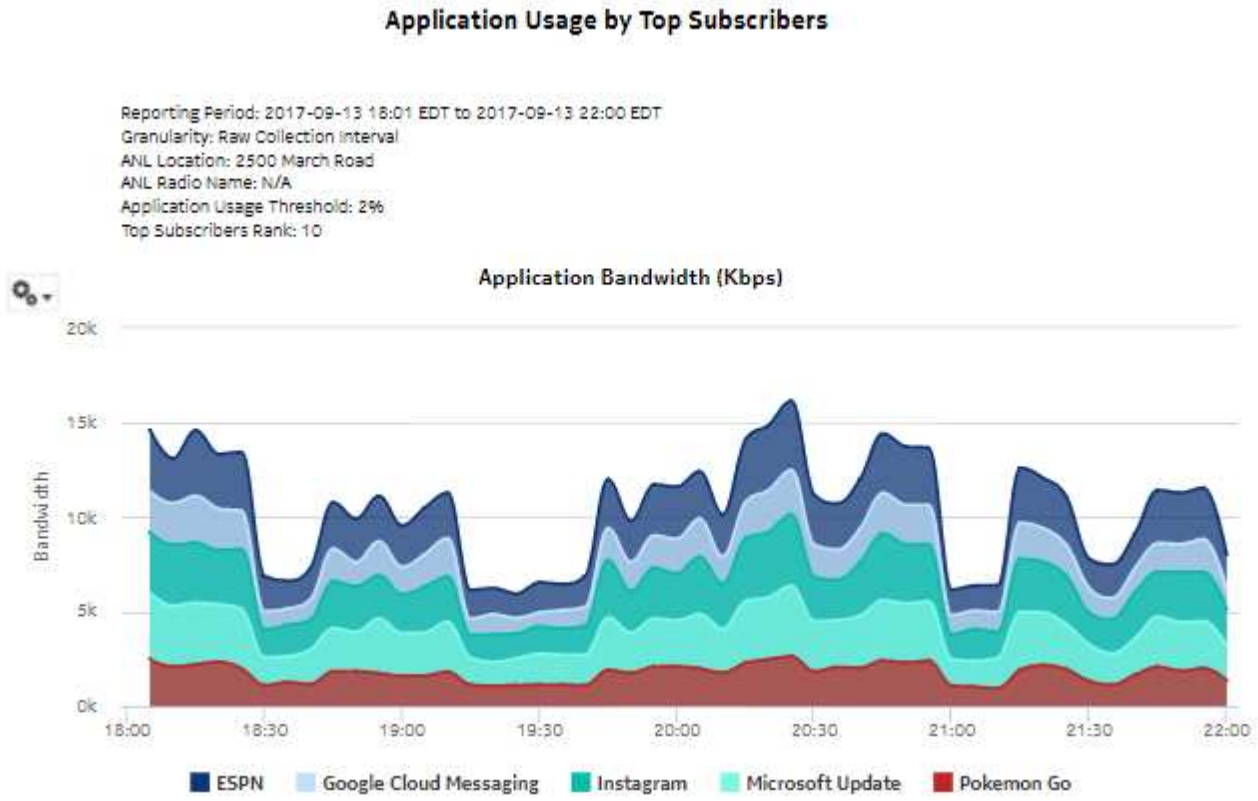
Table 6-5 Application Usage by Top Subscribers for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Usage Threshold	Threshold percentage for usage below which the application will not appear in the report. The default is 2.
	Rank	Number of top subscribers to report.
Drill-down support	No	

6.4.2 Example

The following figure shows a report example.

Figure 6-4 Application Usage by Top Subscribers for Selected Access Network Location report



6.5 Subscriber Congestion Summary report

6.5.1 Subscriber Congestion Summary report overview

The Subscriber Congestion Summary report shows a ranking of subscriber congestion information by application and application group. The default appearance is a timeline chart and a summary table.

The chart shows data on the following axes:

- Number of active subscribers in congestion
- Number of flows in congestion
- Percentage of flows in congestion
- Volume of congested traffic
- Percentage of the traffic volume that is in congestion

The summary table shows the congestion by application for applications with more than the configured threshold percentage of congested traffic. For each application and application group,

the table shows the volume of the congested traffic and the percentage of the total traffic (congested + not congested + unknown) that is in congestion.

Report characteristics

The following table lists the principal report characteristics.

Table 6-6 Subscriber Congestion Summary report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	Domain	Wi-Fi (DSM) or Mobile
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Access Network Location Type (with NLB support for Mobile Domain)	
	Group/partition	
	Application Group	
	Application	
	Congested Traffic Volume Percentage Threshold (Application Level)	Specify the minimum congestion percentage to report. The default is 1%.
	Congestion Direction	Download, Upload, or Upload and Download
Drill-down support	No	

6.5.2 Example

The following figures show a report example.

Figure 6-5 Subscriber Congestion Summary report

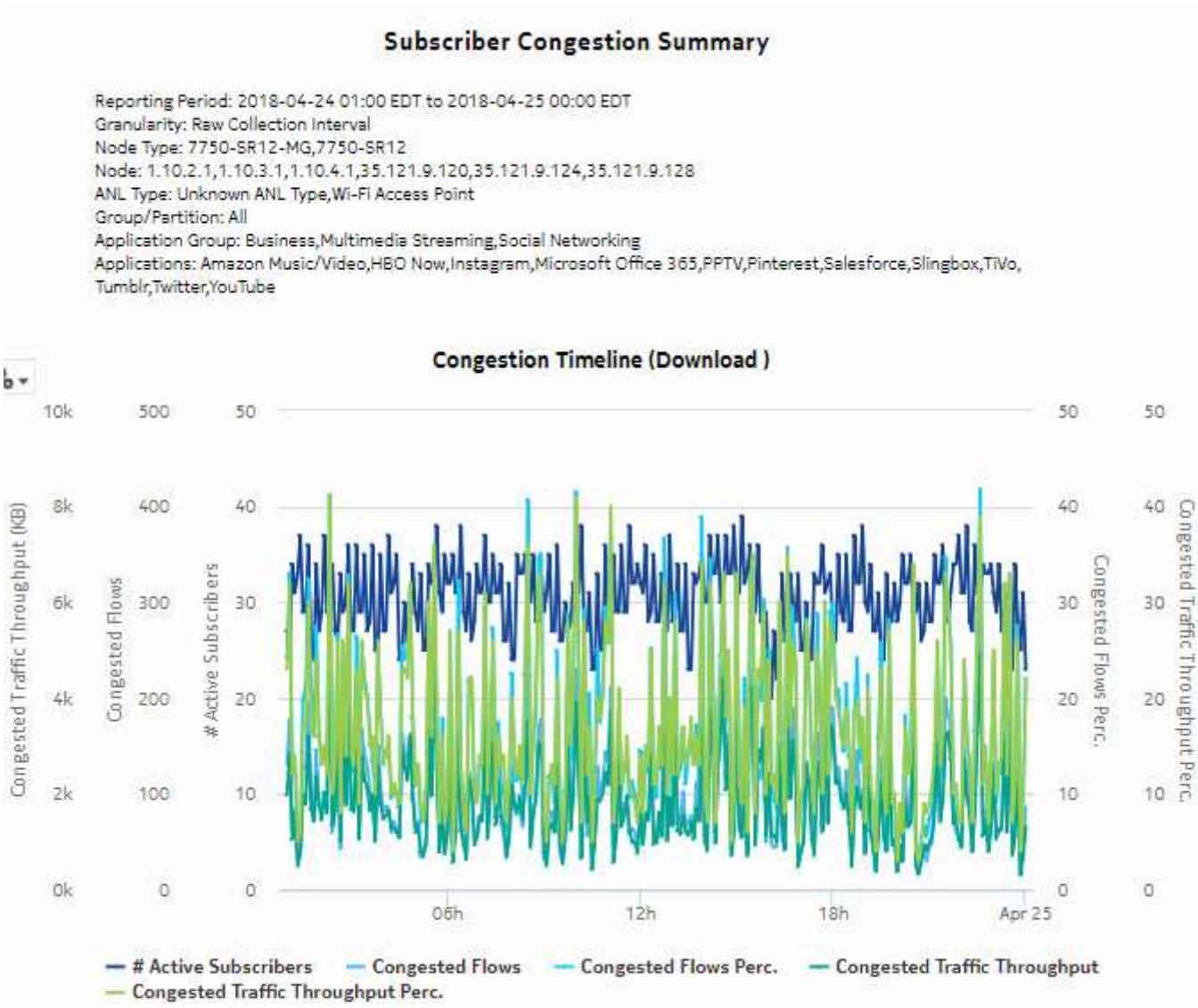


Figure 6-6 Subscriber Congestion Summary report, continued

Applications with more than 1.0% Congested Traffic

Application Group	Application	Congested Application Traffic - Download (MB)	Congested Application Traffic %	Congested Application Group Traffic - Download (MB)	Congested Application Group Traffic %
Business	Salesforce	29.54	19.18		
	Microsoft Office 365	44.38	16.47		
	Total (Business)			**73.92**	**17.46**
Social Networking	Instagram	88.69	18.23		
	Pinterest	35.55	17.29		
	Twitter	35.98	16.18		
	Tumblr	29.63	15.84		
	Total (Social Networking)			**189.85**	**17.23**
Multimedia Streaming	HBO Now	58.52	17.53		
	Slingbox	36.16	16.62		
	Amazon Music/Video	45.96	16.57		
	YouTube	33.14	15.68		
	TiVo	26.29	15.65		
	PPTV	22.96	10.91		
	Total (Multimedia Streaming)			**223.03**	**15.72**
Overall Total		**486.80**	**16.54**	**486.80**	**16.54**

6.6 Application Usage for Selected Access Network Location report

6.6.1 Application Usage for Selected Access Network Location report overview

The Application Usage for Selected Access Network Locations report shows the pattern of application usage for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-7 Application Usage for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

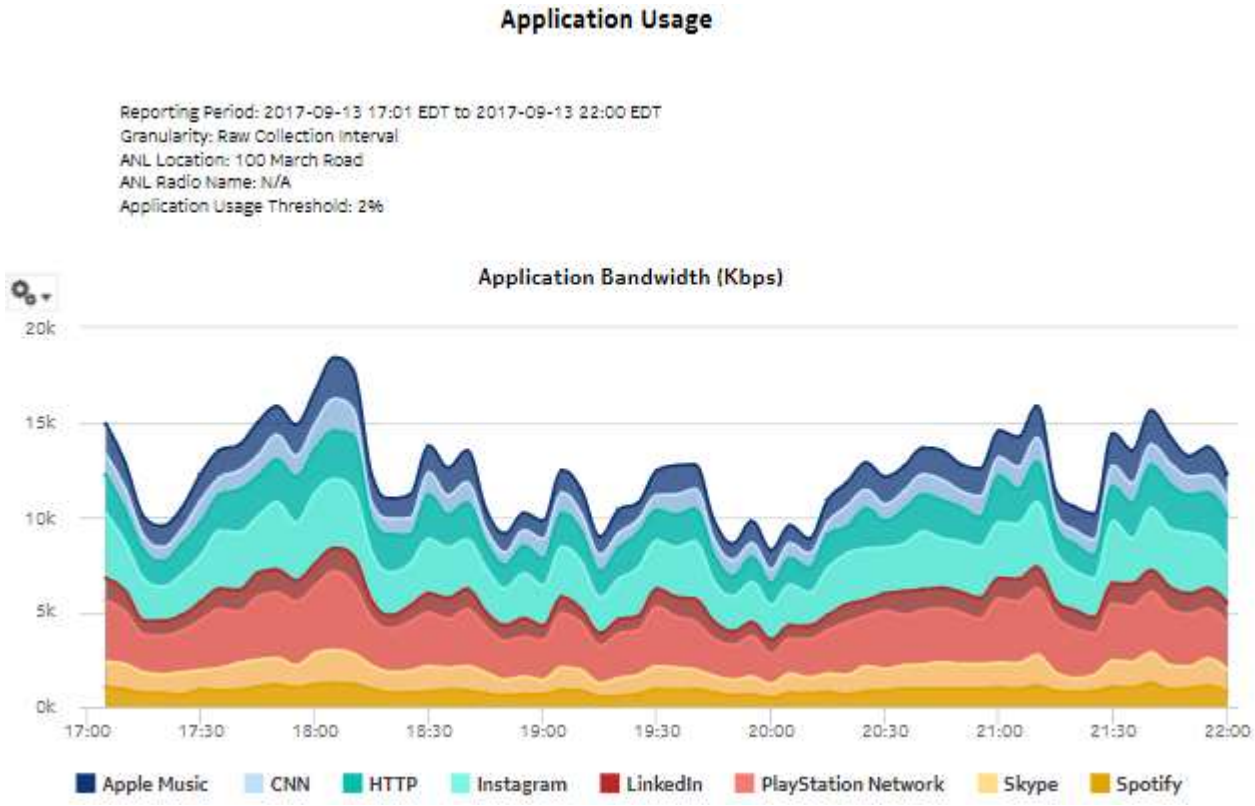
Table 6-7 Application Usage for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Usage Threshold	Threshold percentage for usage below which the application will not appear in the report. The default is 2.
Drill-down support	No	

6.6.2 Example

The following figure shows a report example.

Figure 6-7 Application Usage for Selected Access Network Location report



6.7 Subscriber and Usage Details for Selected Access Network Location report

6.7.1 Subscriber and Usage Details for Selected Access Network Location report overview

The Subscriber and Usage Details for Selected Access Network Locations report shows the pattern of subscriber and usage details for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-8 Subscriber and Usage Details for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

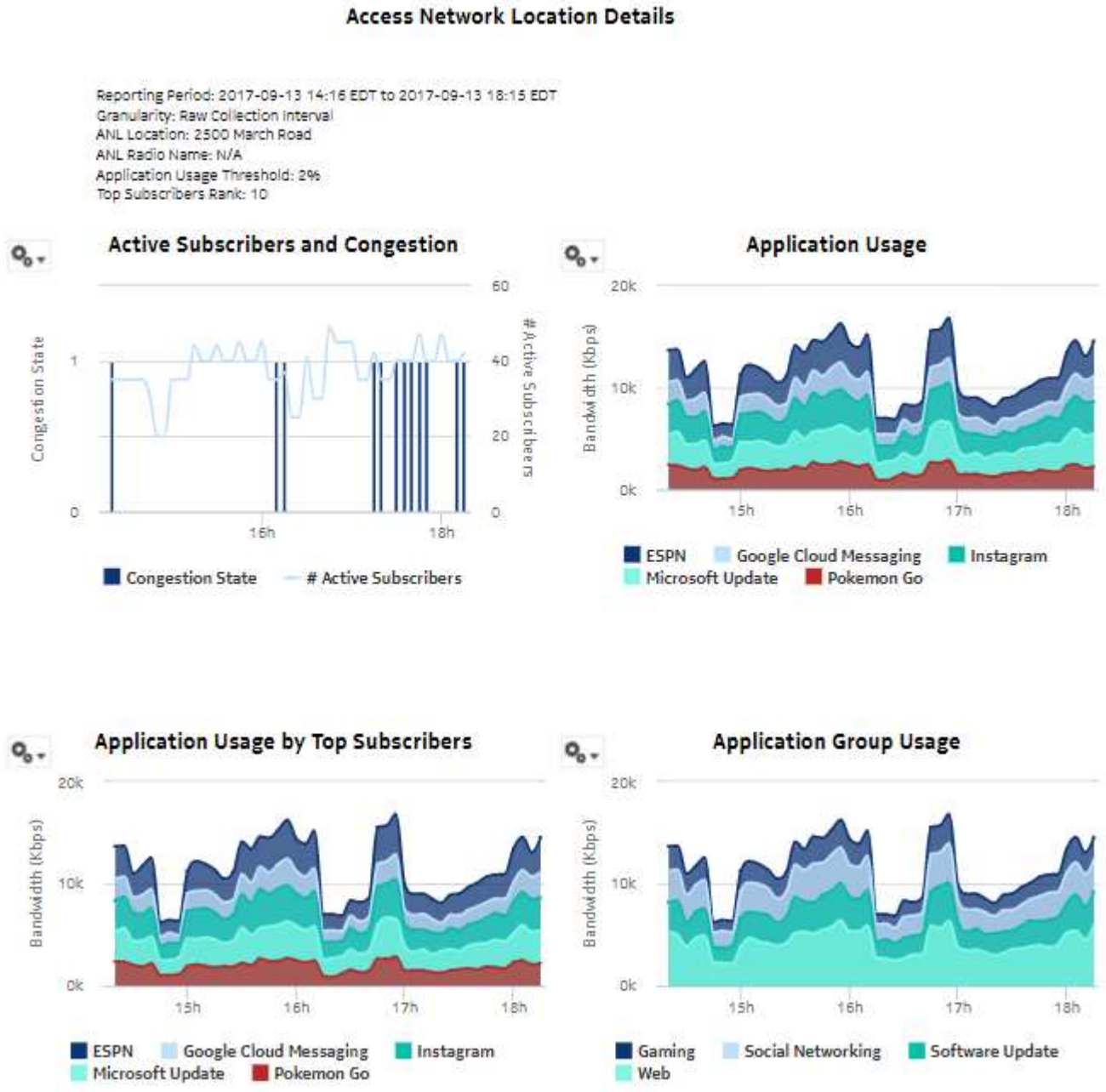
Table 6-8 Subscriber and Usage Details for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Usage Threshold	Threshold percentage for usage below which the application will not appear in the report. The default is 2.
	Rank	Number of subscribers to report.
Drill-down support	No	

6.7.2 Example

The following figure shows a report example.

Figure 6-8 Subscriber and Usage Details for Selected Access Network Location report



6.8 Top Congested Access Network Location report

6.8.1 Top Congested Access Network Location report overview

The Top Congested Access Network Locations report shows a ranking of the selected ANLs by impact intensity. The impact intensity value models the impact that congestion may have had on traffic flowing through the ANL for the selected time intervals. A higher value represents a higher potential impact, hence lower QoE for traffic at the location. The default appearance is a heat map: the vertical axis is the range of impact intensity bands, the horizontal axis is the time line, and the cell contents show the number of ANLs in a specific intensity band at a specific time.

Report characteristics

The following table lists the principal report characteristics.

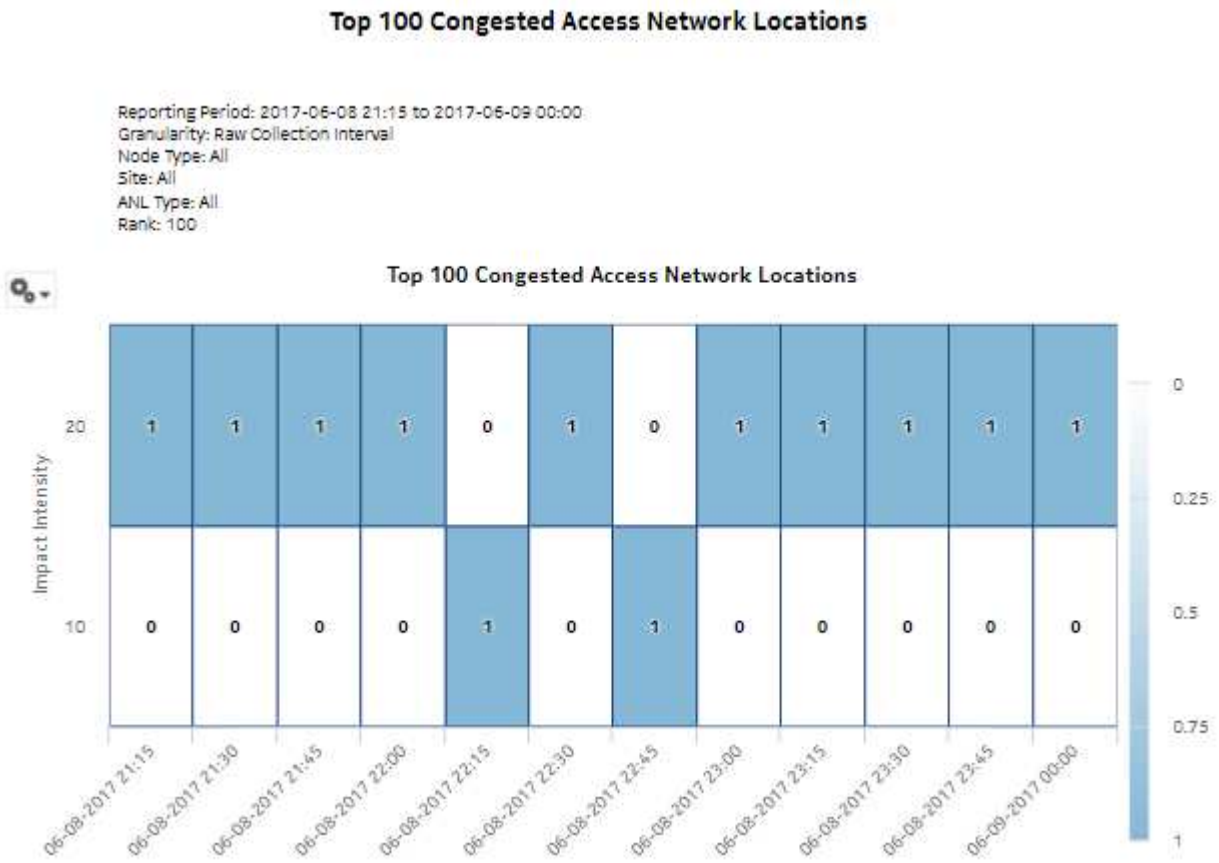
Table 6-9 Top Congested Access Network Locations report characteristics

<table>
<tr><th>Characteristic</th><th colspan="2">Value</th></tr>
<tr><td>Statistics type</td><td colspan="2">AA Cflowd Flow Congestion</td></tr>
<tr><td>NSP Flow Collector required</td><td colspan="2">Yes</td></tr>
<tr><td rowspan="8">Report inputs</td><td>Prompt</td><td>Notes</td></tr>
<tr><td>End date</td><td>Calendar date or relative date (for example, two days ago) and time</td></tr>
<tr><td>Granularity</td><td>Aggregation types:
• None (raw data)
• Hourly
• Daily
• Monthly</td></tr>
<tr><td>Domain</td><td>Mobile or Wi-Fi (DSM)</td></tr>
<tr><td>Report range</td><td>Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m). The 12 most recent intervals will be analyzed.</td></tr>
<tr><td>Node Type</td><td rowspan="3">Search using partial names or wildcard (%).
Select individual items or click Select All.</td></tr>
<tr><td>Node</td></tr>
<tr><td>Access Network Location Type</td></tr>
<tr><td>Rank</td><td>Number of items to report</td></tr>
<tr><td>Drill-down support</td><td colspan="2">Yes—Open Top Congested Access Network Locations Details for the ANLs in the selected cell.</td></tr>
</table>

6.8.2 Example

The following figure shows a report example.

Figure 6-9 Top Congested Access Network Location report



6.9 Top Congested Access Network Locations Details report

6.9.1 Top Congested Access Network Locations Details report overview

The Top Congested Access Network Locations Details report shows a table of selected ANL impact intensity information. The table shows the number and percentage of flows in a specific impact impact intensity band.

Report characteristics

The following table lists the principal report characteristics.

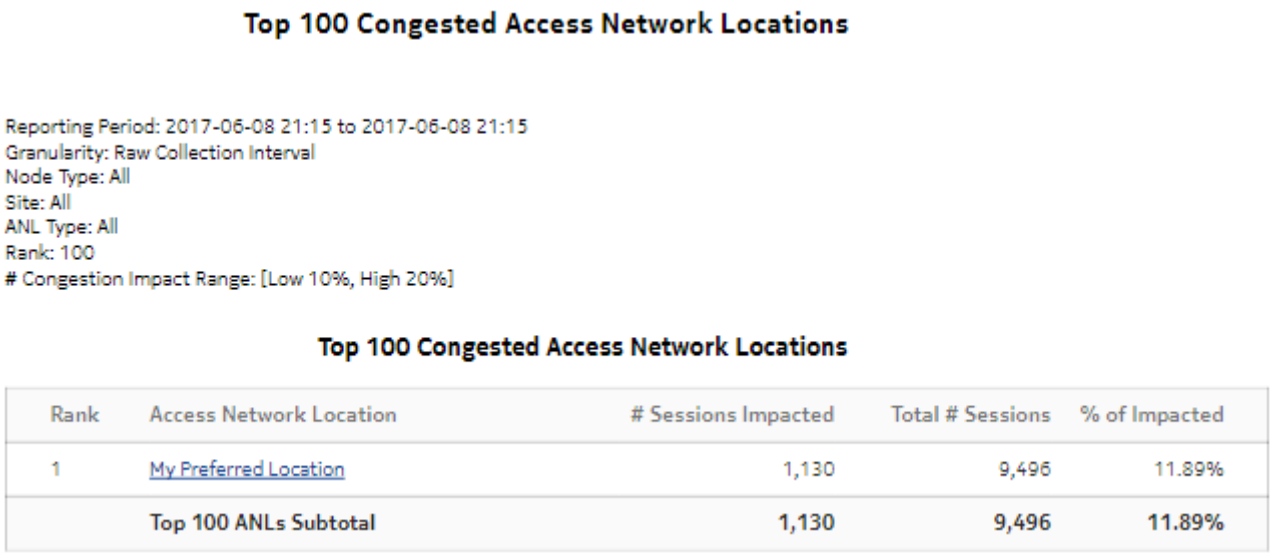
Table 6-10 Top Congested Access Network Locations Details report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Access Network Location Type	
	Rank	Number of items to report
Drill-down support	Yes—Open Subscriber and Usage Details for Selected Access Network Location report for the selected ANL or Radio-VLAN (in the case of the Wi-Fi [DSM] domain) The Report range input for the Subscriber and Usage Details report is the default for the chosen granularity. All other inputs are preserved from the parent report. You can change the report range.	

6.9.2 Example

The following figures show a report example.

Figure 6-10 Top Congested Access Network Location Details report



Top 100 Congested Access Network Locations

Reporting Period: 2017-06-08 21:15 to 2017-06-08 21:15
Granularity: Raw Collection Interval
Node Type: All
Site: All
ANL Type: All
Rank: 100
Congestion Impact Range: [Low 10%, High 20%]

Top 100 Congested Access Network Locations

Rank	Access Network Location	# Sessions Impacted	Total # Sessions	% of Impacted
1	My Preferred Location	1,130	9,496	11.89%
	Top 100 ANLs Subtotal	**1,130**	**9,496**	**11.89%**

6.10 Top Congested Access Network Locations Geographic Distribution report

6.10.1 Top Congested Access Network Location Geographic Distribution report overview

The Top Congested Access Network Locations Geographic Distribution report shows a table ranking the selected ANLs by impact intensity, showing the geographic locations of each ANL. The impact intensity value models the impact that congestion may have had on traffic flowing through the ANL for the selected time intervals. A higher value represents a higher potential impact, hence lower QoE for traffic at the location.

The table can be sorted ascending or descending by rank.

Congestion propensity

Congestion propensity is defined as the percentage of time an ANL is congested for a selected period of interest, for example, the past three days between 6 and 11 PM local time. The period of interest for congestion propensity can be the same as the report range or different.

Report characteristics

The following table lists the principal report characteristics.

Table 6-11 Top Congested Access Network Locations Geographic Distribution report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	Domain	Mobile or Wi-Fi (DSM)
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Access Network Location Type	
	Rank	Number of items to report
	Access Network Location State/Province	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Access Network Location City	
	Show only Congested Locations	If this check box is selected, only the ANLs that are congested in the last interval of activity are displayed in the report output.
	Congestion Propensity Threshold	Enter a number between 1 and 100 to filter results based on congestion propensity.
	Impact Intensity Threshold	Enter a number between 1 and 100 to filter results based on impact insensity.
	Report Range for Congestion Propensity	Length of time to evaluate congestion propensity.
	Days of Week for Congestion Propensity	Specify the intervals of interest in the Report Range for Congestion Propensity. Select individual items or click **Select All**.
	Hours of Day for Congestion Propensity	

Table 6-11 Top Congested Access Network Locations Geographic Distribution report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Open Subscriber and Usage Details for Selected Access Network Location report for the selected ANL or, Radio-VLAN (in the case of the Wi-Fi [DSM] domain)

6.10.2 Example

The following figure shows a report example.

Figure 6-11 Top Congested Access Network Locations Geographic Distribution report

Top 100 Access Network Locations - Geographic Distribution

Reporting Period: 2017-09-10 18:00 EDT to 2017-09-12 17:59 EDT
Granularity: Hourly
Node Type: All
Site: All
ANL Type: All
ANL Loc Details: State/Prov: [Nova Scotia, Ontario] City: All
Thresholds (%): Congestion Propensity: 0; Impact Intensity: 0
Propensity - Days of Week: All
Propensity - Hours of Day: 18:00,19:00,20:00,21:00
Propensity Obsvn Period - Past : 3 Days

Top 100 Access Network Locations - Geographic Distribution

Rank	State/Province	City	ANL Name	Congested?	Congestion Propensity	Impact Intensity
1	Ontario	Kanata	2500 March Road	Yes	100.00%	19.58%
2	Ontario	Kanata	150 March Road	Yes	100.00%	19.32%
3	Ontario	Kanata	1110 March Road	Yes	75.00%	18.24%
4	Ontario	Kanata	250 March Road	Yes	75.00%	17.85%
5	Ontario	Kanata	350 March Road	Yes	100.00%	17.24%
6	Ontario	Kanata	450 March Road	Yes	75.00%	12.64%
7	Ontario	Kanata	300 March Road	Yes	100.00%	9.95%
8	Ontario	Kanata	100 March Road	Yes	75.00%	9.79%
9	Nova Scotia	Dartmouth	4 Middle Street	Yes	100.00%	9.71%
10	Ontario	Kanata	3500 March Road	Yes	100.00%	9.51%
11	Ontario	Kanata	4500 March Road	Yes	100.00%	9.41%
12	Ontario	Kanata	1500 March Road	Yes	100.00%	8.60%
13	Ontario	Kanata	200 March Road	Yes	100.00%	8.24%

Note: Congested? indicates whether ANL was congested in the last interval of activity or not.

6.11 Top Loaded Access Network Locations report

6.11.1 Top Loaded Access Network Locations report overview

The Top Loaded Access Network Locations report shows a ranking of the selected Access Network Locations by volume (upload, download, or total). The default appearance is a heat map: the vertical axis is the traffic volume, the horizontal axis is the time line, and the cell contents show the number of ANLs in the volume range at a specific time.

Report characteristics

The following table lists the principal report characteristics.

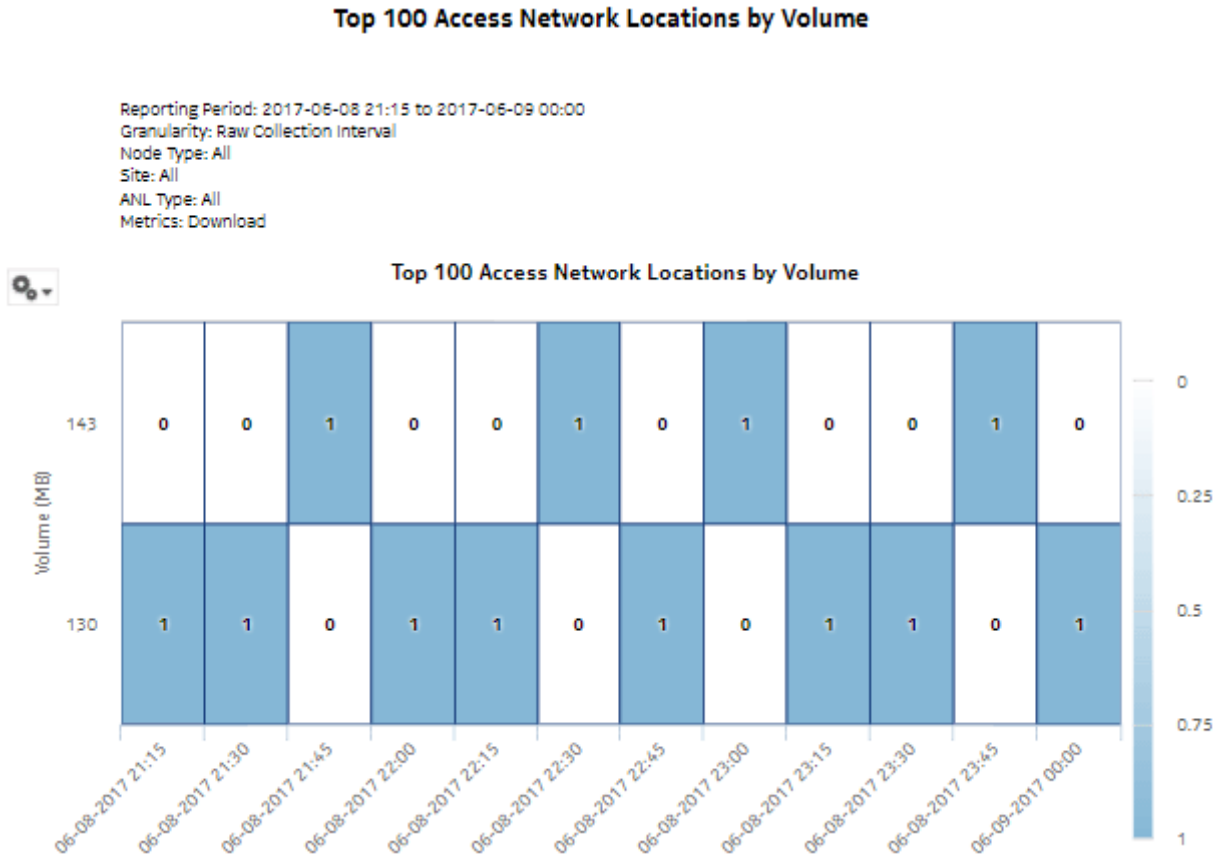
Table 6-12 Top Loaded Access Network Locations report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m). The 12 most recent intervals will be analyzed.
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Access Network Location Type	
	Metrics	Download, Upload, or Total
	Rank	Number of items to report
Drill-down support	Yes—Open Top Loaded Access Network Locations Details for the ANLs in the selected cell.	

6.11.2 Example

The following figure shows a report example.

Figure 6-12 Top Loaded Access Network Locations report



6.12 Top Loaded Access Network Locations Details report

6.12.1 Top Loaded Access Network Locations Details report overview

The Top Loaded Access Network Locations report shows traffic details for a list of selected Access Network Locations.

Report characteristics

The following table lists the principal report characteristics.

Table 6-13 Top Loaded Access Network Locations Details report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

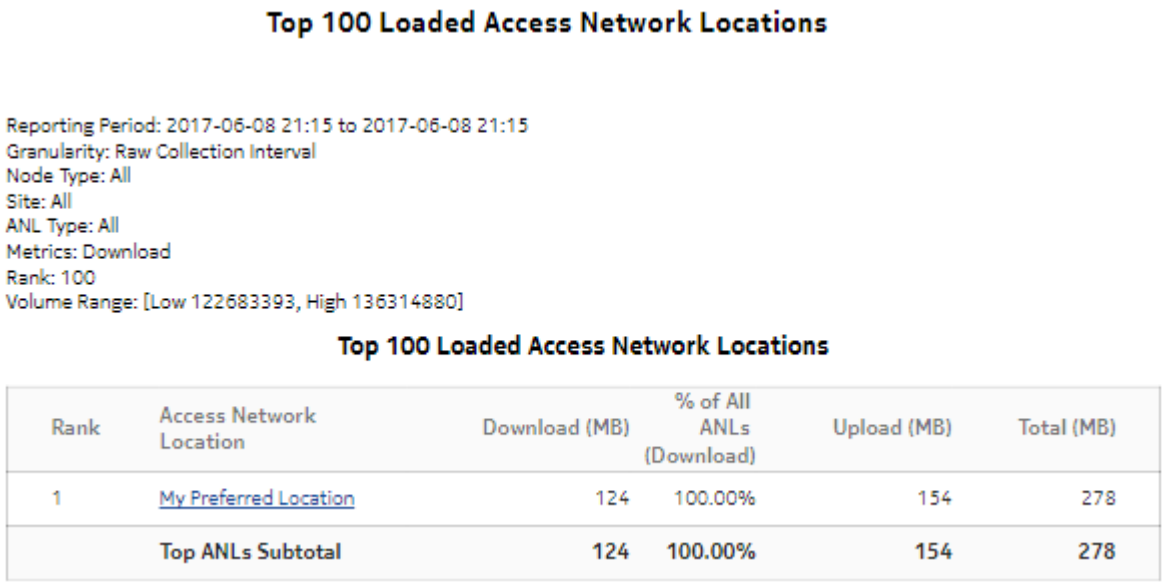
Table 6-13 Top Loaded Access Network Locations Details report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Access Network Location Type	
	Metrics	Download, Upload, or Total
	Rank	Number of items to report
Drill-down support	Yes—Open Subscriber and Usage Details for Selected Access Network Location report for the selected ANL or Radio-VLAN (in the case of the Wi-Fi [DSM] domain). The Report range input for the Subscriber and Usage Details report will be the default for the chosen granularity. All other inputs will be preserved from the parent report. You can change the report range if needed.	

6.12.2 Example

The following figures show a report example.

Figure 6-13 Top Loaded Access Network Locations Details report



Top 100 Loaded Access Network Locations

Reporting Period: 2017-06-08 21:15 to 2017-06-08 21:15
Granularity: Raw Collection Interval
Node Type: All
Site: All
ANL Type: All
Metrics: Download
Rank: 100
Volume Range: [Low 122683393, High 136314880]

Top 100 Loaded Access Network Locations

Rank	Access Network Location	Download (MB)	% of All ANLs (Download)	Upload (MB)	Total (MB)
1	My Preferred Location	124	100.00%	154	278
	Top ANLs Subtotal	**124**	**100.00%**	**154**	**278**

7 Fixed Wireless Access subscribers reports

7.1 Fixed Wireless Access subscribers reports overview

7.1.1 General information

Fixed Wireless Access subscribers reports provide information about application and application group usage by fixed wireless access subscribers.

Note: While the reports are named Mobile, they are, in actuality, Fixed Wireless Access.

Drill-down reports

All reports can be run from the main Mobile Subscriber reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Mobile Subscriber reports. Each level of indentation indicates a drill down. For example, Application Group Usage Pattern with Selected Mobile Subscriber is a drill-down report from a Top Application Groups with Selected Mobile Subscriber report.

Table 7-1 Available drill-downs for Mobile Subscriber reports

Top Application Groups with Selected Mobile Subscriber	
	Application Group Usage Pattern with Selected Mobile Subscriber
Top Applications with Selected Mobile Subscriber	
	Application Usage Pattern with Selected Mobile Subscriber
Top Mobile Subscribers by Application Group Usage	
	Top Application Groups with Selected Mobile Subscriber
Top Mobile Subscribers by Application Usage	
	Top Applications with Selected Mobile Subscriber

7.2 # Active Mobile Subscribers and Usage for Selected Application Groups report

7.2.1 # Active Mobile Subscribers and Usage for Selected Application Group report overview

The # Active Mobile Subscribers and Usage for Selected Application Group report shows the number of active mobile subscribers and usage details for one or more application groups. Additionally, the report shows the average consumption per subscriber for the selected application group.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 7-2 # Active Mobile Subscribers and Usage for Selected Application Group characteristics

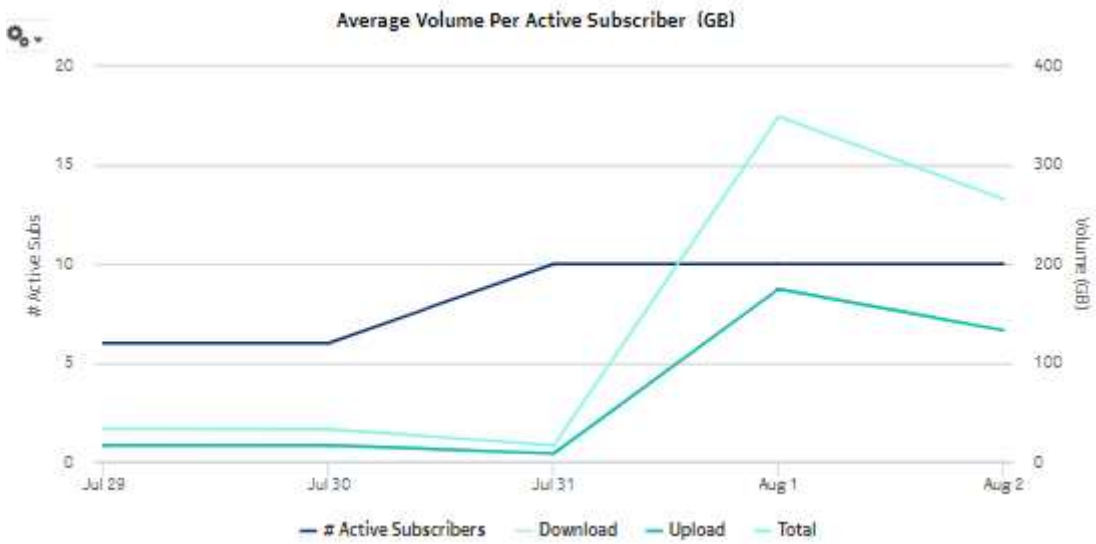
Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes, packets, or flows
Drill-down support	No	

7.2.2 Example

The following figures show a report example.

Figure 7-1 # Active Mobile Subscribers and Usage for Selected Application Groups report

Figure 7-2 # Active Mobile Subscribers and Usage for Selected Application Groups report, continued



7.3 # Active Mobile Subscribers and Usage for Selected Applications report

7.3.1 # Active Mobile Subscribers and Usage for Selected Application report overview

The # Active Mobile Subscribers and Usage for Selected Application report shows the number of active mobile subscribers and usage details for one or more specified applications. Additionally, the report shows the average consumption per subscriber for the selected applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 7-3 # Active Mobile Subscribers and Usage for Selected Application report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application
NSP Flow Collector required	Yes

Table 7-3 # Active Mobile Subscribers and Usage for Selected Application report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes, packets, or flows
Drill-down support	No	

7.3.2 Example

The following figures show a report example.

Figure 7-3 # Active Mobile Subscribers and Usage for Selected Application report

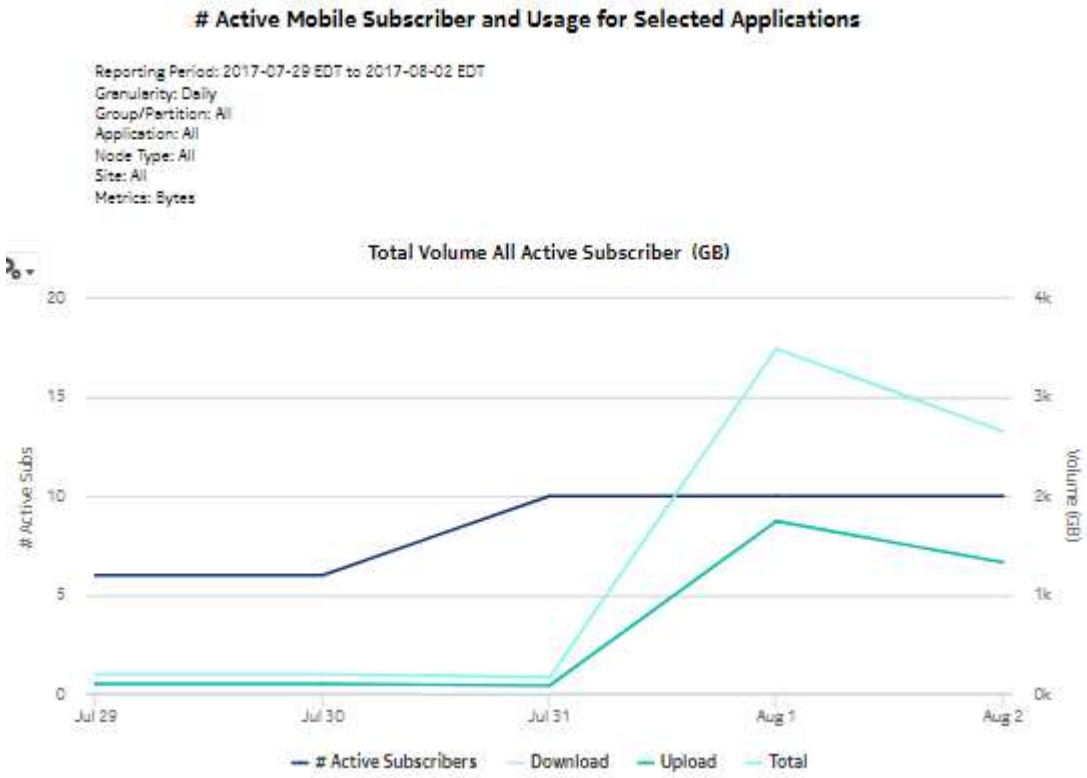
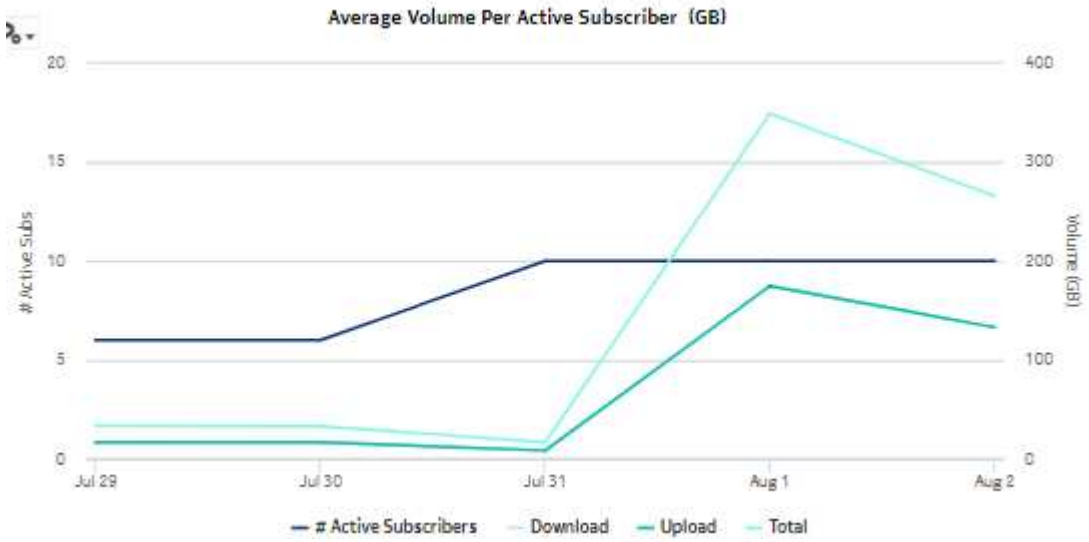


Figure 7-4 # Active Mobile Subscribers and Usage for Selected Application report, continued



7.4 Application Group Usage Pattern with Selected Mobile Subscriber report

7.4.1 Application Group Usage Pattern with Selected Mobile Subscriber report overview

The Application Group Usage Pattern with Selected Mobile Subscriber report shows the application group usage pattern for a specified mobile subscriber.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific subscriber.

Report characteristics

The following table lists the principal report characteristics.

Table 7-4 Application Group Usage Pattern with Selected Mobile Subscriber report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Group/Partition	
	Application Group	
	Mobile Subscriber Name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
Drill-down support	No	

7.4.2 Example

The following figures show a report example.

Figure 7-5 Application Group Usage Pattern with Selected Mobile Subscriber report

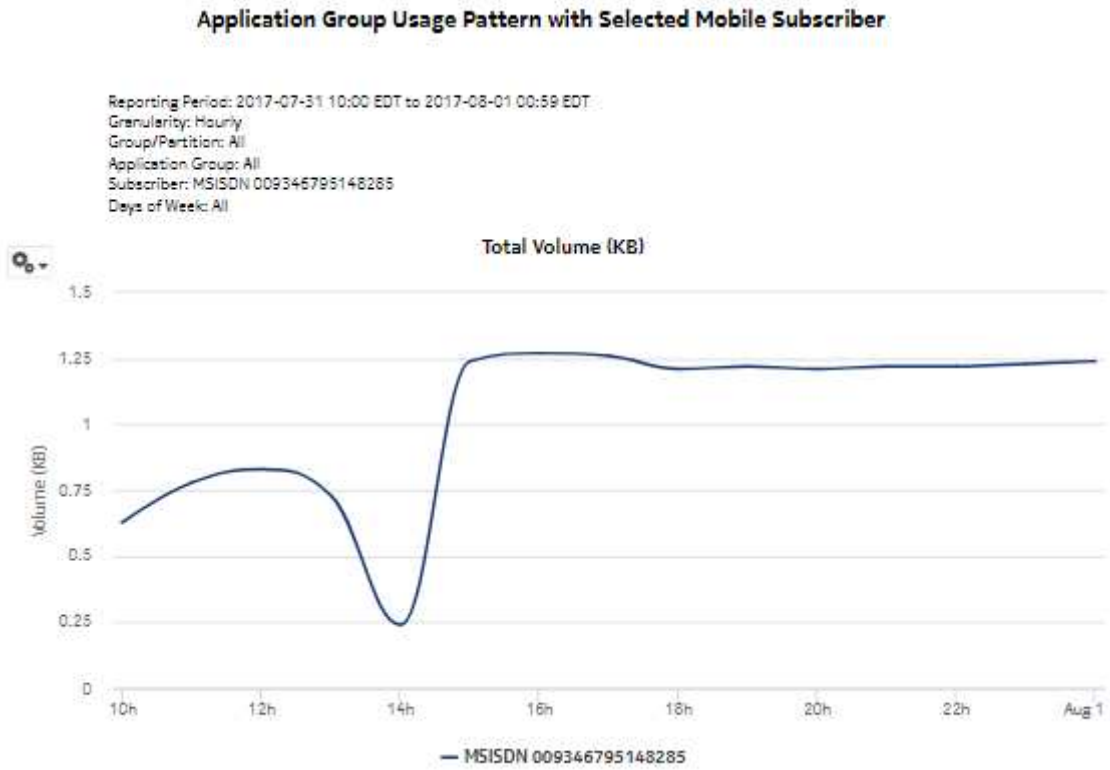
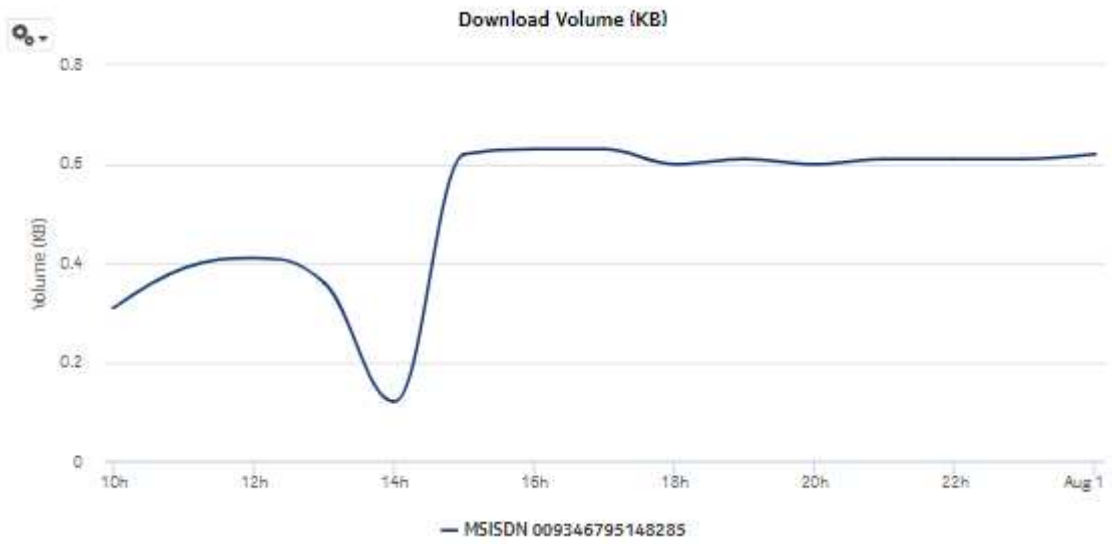


Figure 7-6 Application Group Usage Pattern with Selected Mobile Subscriber report, continued



7.5 Application Usage Pattern with Selected Mobile Subscriber report

7.5.1 Application Usage Pattern with Selected Subscriber report overview

The Application Usage Pattern with Selected Mobile Subscriber report the traffic distribution across a specified set of applications for a specified subscriber on a specified set of ISA-AA groups and partitions.

Use cases

Policy pre-planning—Use the report to do the following:

- identify applications that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 7-5 Application Usage Pattern with Selected Mobile Subscriber report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application

Table 7-5 Application Usage Pattern with Selected Mobile Subscriber report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Mobile Subscriber Name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
Drill-down support	No	

7.5.2 Example

The following figures show a report example.

Figure 7-7 Application Usage Pattern with Selected Mobile Subscriber report—total volume

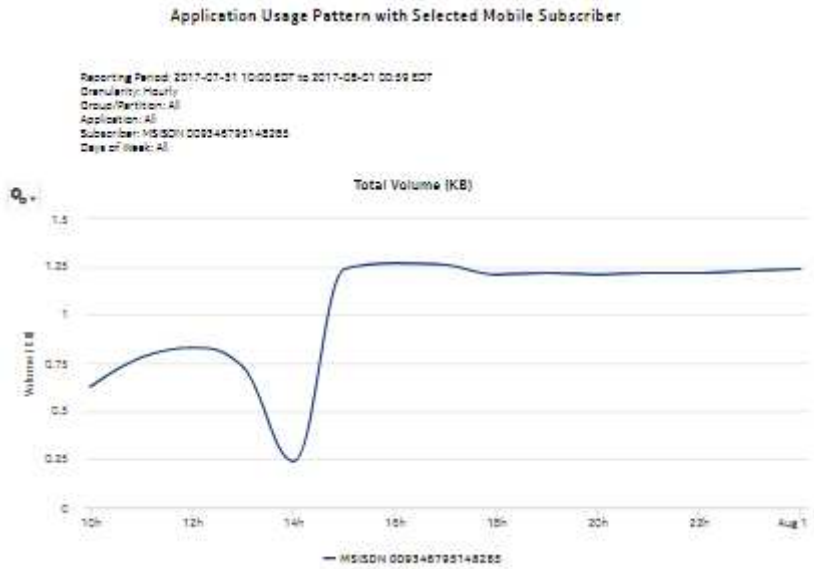


Figure 7-8 Application Usage Pattern with Selected Mobile Subscriber report—download volume

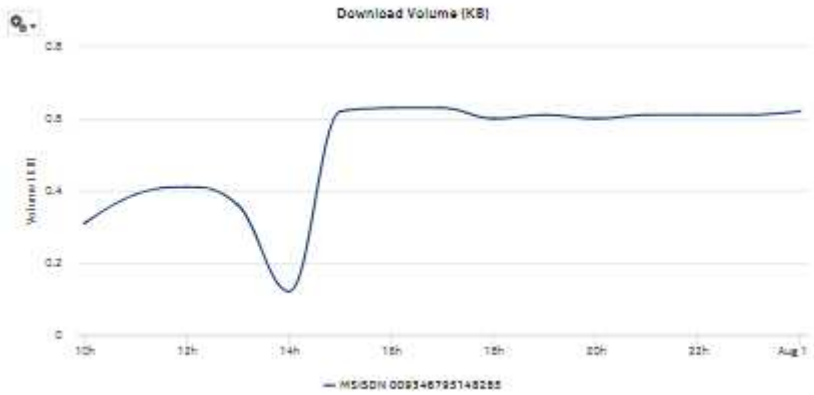


Figure 7-9 Application Usage Pattern with Selected Mobile Subscriber report—upload volume

7.6 Mobile Subscriber Percentile vs Traffic Contribution report

7.6.1 Mobile Subscriber Percentile vs Traffic Contribution report overview

The Mobile Subscriber Percentile vs Traffic Contribution report shows the subscriber traffic contribution to bandwidth consumption by percentile, the usage within each percentile, and the cumulative contribution to the overall total usage.

Use cases

Top mobile subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage; use in conjunction with the following reports to identify the top subscribers and establish fair use policies, targeted campaigns, or new services:

- Top Mobile Subscribers by Application Usage
- Top Mobile Subscribers by Application Group Usage

Report characteristics

The following table lists the principal report characteristics.

Table 7-6 Mobile Subscriber Percentile vs Traffic Contribution report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application group
NSP Flow Collector required	Yes

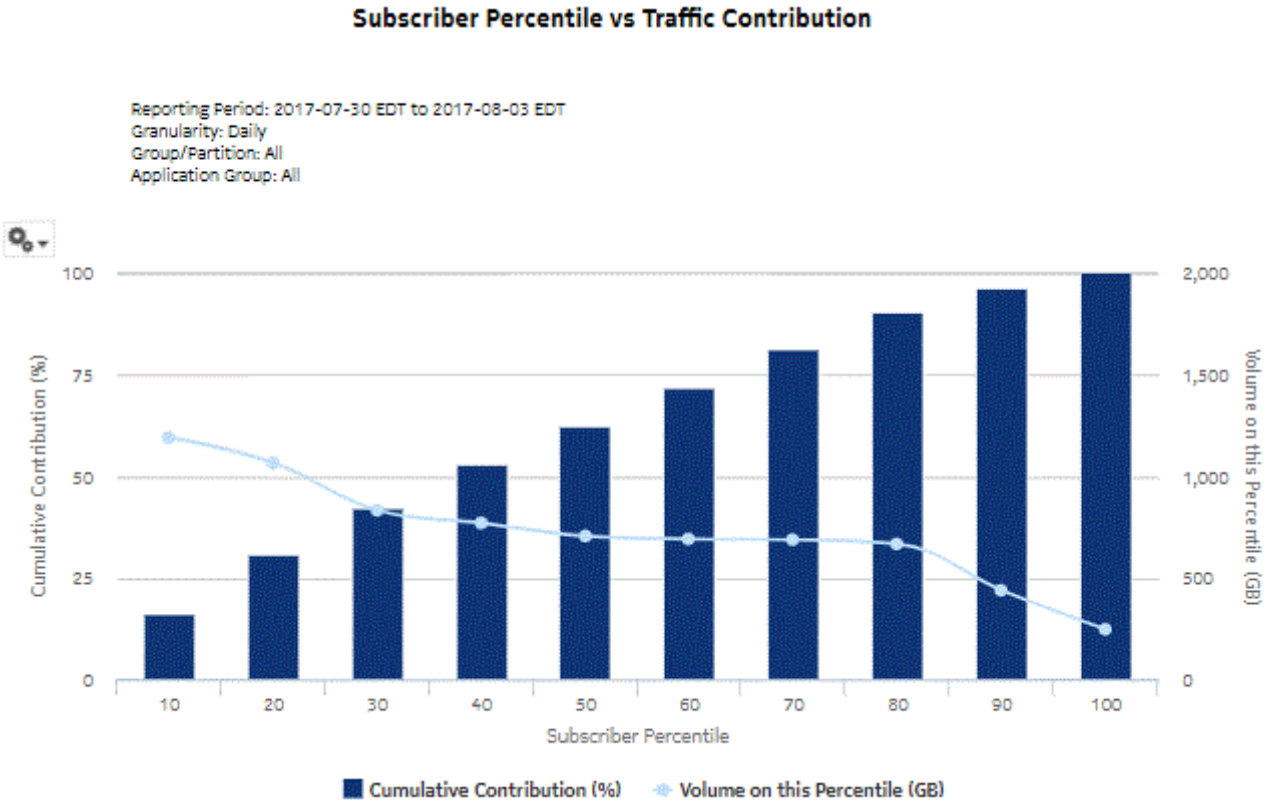
Table 7-6 Mobile Subscriber Percentile vs Traffic Contribution report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Application	
	Percentile Range	1, 5, 10, 20, or 25
Drill-down support	No	

7.6.2 Example

The following figure shows a report example.

Figure 7-10 Mobile Subscriber Percentile vs Traffic Contribution report



7.7 Top Application Groups with Selected Mobile Subscriber report

7.7.1 Top Application Groups with Selected Mobile Subscriber report overview

The Top Application Groups with Selected Mobile Subscriber report shows the top specified number of application groups by usage for a specified subscriber.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

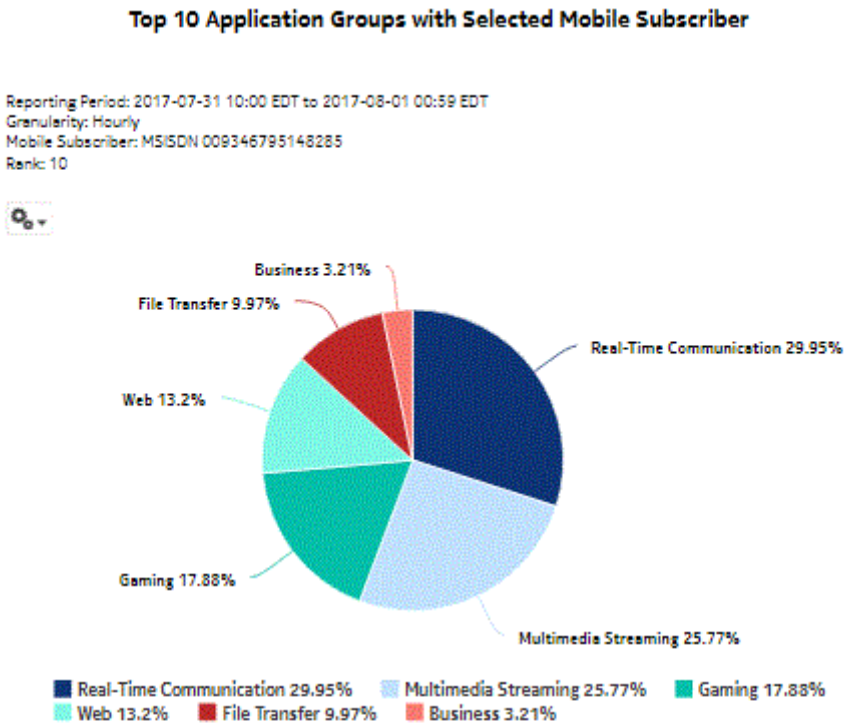
Table 7-7 Top Application Groups with Selected Mobile Subscriber report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Mobile Subscriber name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Group Usage Pattern with Selected Mobile Subscriber to display a graph of the bandwidth consumption for the selected subscriber over time. Note: Drilling down from the Others segment opens the Application Group Usage Pattern with Selected Mobile Subscriber report for all mobile subscribers, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

7.7.2 Example

The following figures show a report example.

Figure 7-11 Top Application Groups with Selected Mobile Subscriber report



Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application
1	Real-Time Communication	4.66	29.95%
2	Multimedia Streaming	4.01	25.77%
3	Gaming	2.78	17.88%
4	Web	2.05	13.20%
5	File Transfer	1.55	9.97%
6	Business	.50	3.21%
	Top 10 Application Groups Subtotal	**15.59**	**99.99%**

Figure 7-12 Top Application Groups with Selected Mobile Subscriber (continued)

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application
1	Real-Time Communication	2.33	29.92%
2	Multimedia Streaming	2.01	25.80%
3	Gaming	1.39	17.86%
4	Web	1.03	13.20%
5	File Transfer	.78	9.98%
6	Business	.25	3.20%
	Top 10 Application Groups Subtotal	**7.79**	**100.00%**

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application
1	Real-Time Communication	2.34	29.97%
2	Multimedia Streaming	2.01	25.74%
3	Gaming	1.40	17.88%
4	Web	1.03	13.20%
5	File Transfer	.78	9.95%
6	Business	.25	3.21%
	Top 10 Application Groups Subtotal	**7.80**	**100.00%**

7.8 Top Applications with Selected Mobile Subscriber report

7.8.1 Top Applications with Selected Mobile Subscriber report overview

The Top Applications with Selected Mobile Subscriber report shows the top specified number of applications by usage for a specified subscriber.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

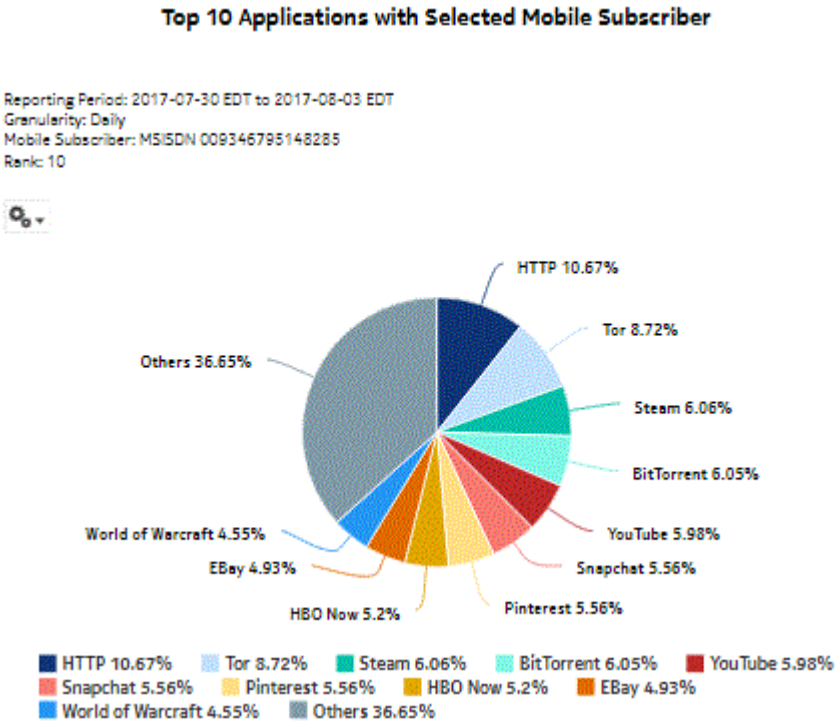
Table 7-8 Top Applications with Selected Mobile Subscriber report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Mobile Subscriber name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Usage Pattern with Selected Mobile Subscriber to display a graph of the bandwidth consumption for the selected application over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Mobile Subscriber report for all applications, not just the ones in the Others category. Drilling down from other groups opens the report for the selected application.	

7.8.2 Example

The following figures show a report example.

Figure 7-13 Top Applications with Selected Mobile Subscriber report



Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	HTTP	113.76	10.67%
2	Tor	92.98	8.72%
3	Steam	64.57	6.06%
4	BitTorrent	64.48	6.05%
5	YouTube	63.78	5.98%
6	Snapchat	59.33	5.56%
7	Pinterest	59.32	5.56%
8	HBO Now	55.46	5.20%
9	EBay	52.61	4.93%
10	World of Warcraft	48.49	4.55%
	Top 10 Applications Subtotal	674.84	63.34%

Figure 7-14 Top Applications with Selected Mobile Subscriber (continued)

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Applications
1	HTTP	56.86	10.67%
2	Tor	46.53	8.73%
3	BitTorrent	32.29	6.06%
4	Steam	32.29	6.06%
5	YouTube	31.86	5.98%
6	Snapchat	29.67	5.56%
7	Pinterest	29.64	5.56%
8	HBO Now	27.78	5.21%
9	EBay	26.30	4.93%
10	World of Warcraft	24.24	4.55%
	Top 10 Applications Subtotal	337.44	63.35%

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Applications
1	HTTP	56.90	10.68%
2	Tor	46.46	8.72%
3	Steam	32.29	6.06%
4	BitTorrent	32.20	6.04%
5	YouTube	31.93	5.99%
6	Pinterest	29.69	5.57%
7	Snapchat	29.67	5.56%
8	HBO Now	27.69	5.19%
9	EBay	26.32	4.94%
10	World of Warcraft	24.26	4.55%
	Top 10 Applications Subtotal	337.40	63.33%

7.9 Top Mobile Subscribers by Application Group Usage report

7.9.1 Top Mobile Subscribers by Application Group Usage report overview

The Top Mobile Subscribers by Application Group Usage report shows the top specified number of subscribers that use the specified application groups.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

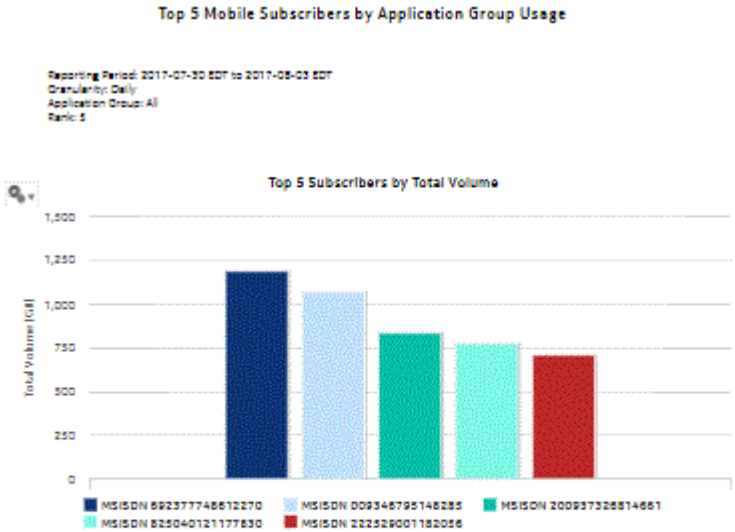
Table 7-9 Top Mobile Subscribers by Application Group Usage report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Top Application Groups with Selected Mobile Subscriber to display a graph of the top application groups for the selected subscriber.	

7.9.2 Example

The following figure shows a report example.

Figure 7-15 Top Mobile Subscribers by Application Group Usage report



Top 5 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	1,190.79	16.30%
2	MSISDN 009346795148285	1,065.35	14.58%
3	MSISDN 200937326814661	833.25	11.41%
4	MSISDN 825040121177830	771.16	10.56%
5	MSISDN 222529001182056	706.79	9.67%
	Top 5 Subscribers Subtotal	4,567.35	62.54%

Top 5 Subscribers - Download Volume (GB)

Rank	Subscriber	Download Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.45	16.30%
2	MSISDN 009346795148285	532.63	14.58%
3	MSISDN 200937326814661	416.59	11.41%
4	MSISDN 825040121177830	385.53	10.56%
5	MSISDN 222529001182056	353.35	9.67%
	Top 5 Subscribers Subtotal	2,283.55	62.54%

Top 5 Subscribers - Upload Volume (GB)

Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.34	16.30%
2	MSISDN 009346795148285	532.73	14.59%
3	MSISDN 200937326814661	416.66	11.41%
4	MSISDN 825040121177830	385.64	10.56%
5	MSISDN 222529001182056	353.42	9.67%
	Top 5 Subscribers Subtotal	2,283.79	62.54%

7.10 Top Mobile Subscribers by Application Usage report

7.10.1 Top Mobile Subscribers by Application Usage report overview

The Top Mobile Subscribers by Application Usage report shows the top specified number of subscribers that use the specified applications.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

Table 7-10 Top Mobile Subscribers by Application Usage report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application	
NSP Flow Collector required	Yes	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Top Applications with Selected Mobile Subscriber to display a graph of the top applications for the selected subscriber.	

7.10.2 Example

The following figures show a report example.

Figure 7-16 Top Mobile Subscribers by Application Usage report

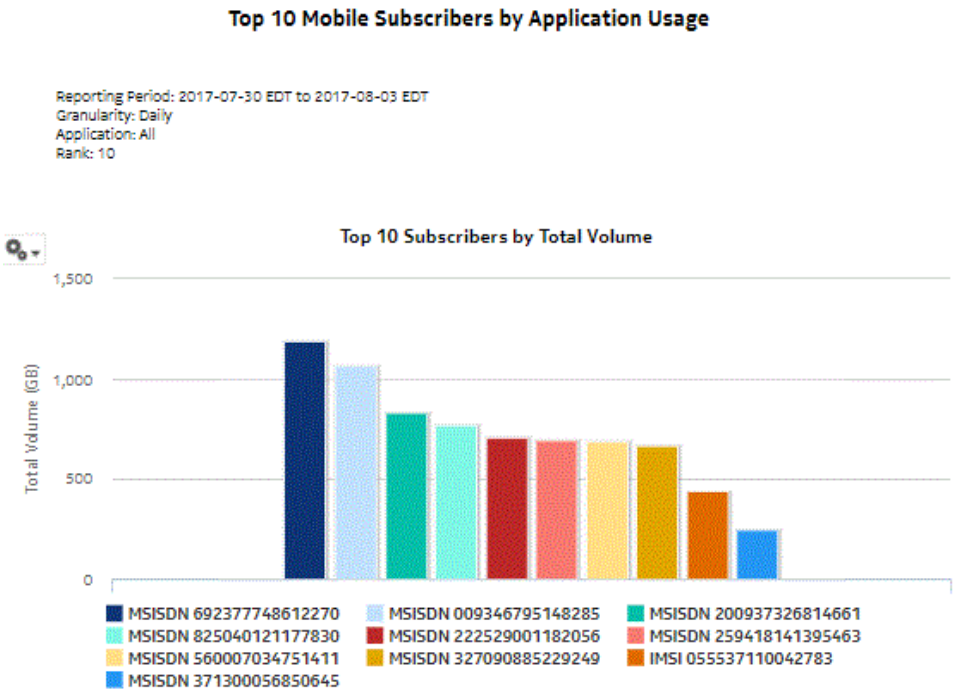


Figure 7-17 Top Mobile Subscribers by Application Usage - total volume

Top 10 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	1,190.79	16.30%
2	MSISDN 009346795148285	1,065.36	14.58%
3	MSISDN 200937326814661	833.25	11.41%
4	MSISDN 825040121177830	771.16	10.56%
5	MSISDN 222529001182056	706.79	9.67%
6	MSISDN 259418141395463	692.24	9.47%
7	MSISDN 560007034751411	688.78	9.43%
8	MSISDN 327090885229249	667.65	9.14%
9	IMSI 055537110042783	439.23	6.01%
10	MSISDN 371300056850645	247.00	3.38%
	Top 10 Subscribers Subtotal	**7,302.30**	**100.00%**

Figure 7-18 Top Mobile Subscribers by Application Usage - download volume

Top 10 Subscribers - Download Volume (GB)

Rank	Subscriber	Download Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.45	16.30%
2	MSISDN 009346795148285	532.63	14.58%
3	MSISDN 200937326814661	416.59	11.41%
4	MSISDN 825040121177830	385.53	10.55%
5	MSISDN 222529001182056	353.38	9.67%
6	MSISDN 259418141395463	346.15	9.48%
7	MSISDN 560007034751411	344.36	9.43%
8	MSISDN 327090885229249	333.86	9.14%
9	IMSI 055537110042783	219.59	6.01%
10	MSISDN 371300056850645	123.52	3.38%
	Top 10 Subscribers Subtotal	**3,651.07**	**100.00%**

Figure 7-19 Top Mobile Subscribers by Application Usage - upload volume

Top 10 Subscribers - Upload Volume (GB)

Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.34	16.30%
2	MSISDN 009346795148285	532.73	14.59%
3	MSISDN 200937326814661	416.66	11.41%
4	MSISDN 825040121177830	385.64	10.56%
5	MSISDN 222529001182056	353.42	9.67%
6	MSISDN 259418141395463	346.09	9.47%
7	MSISDN 560007034751411	344.42	9.43%
8	MSISDN 327090885229249	333.80	9.14%
9	IMSI 055537110042783	219.64	6.01%
10	MSISDN 371300056850645	123.49	3.38%
	Top 10 Subscribers Subtotal	**3,651.23**	**100.00%**

8 Nodes reports

8.1 Daily and Monthly Usage per Application report

8.1.1 Daily and Monthly Usage per Application report overview

The Daily and Monthly Usage per Application report shows the router-level usage for applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns on a router for planning future capacity requirements.

Market forecasting—Use the report to determine which applications are in high demand in order to offer specialized plans.

Report characteristics

The following table lists the principal report characteristics.

Table 8-1 Daily and Monthly Usage per Application report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-1 Daily and Monthly Usage per Application report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Application	
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.1.2 Example

The following figures show a report example.

Figure 8-1 Daily and Monthly Usage per Application report - total volume

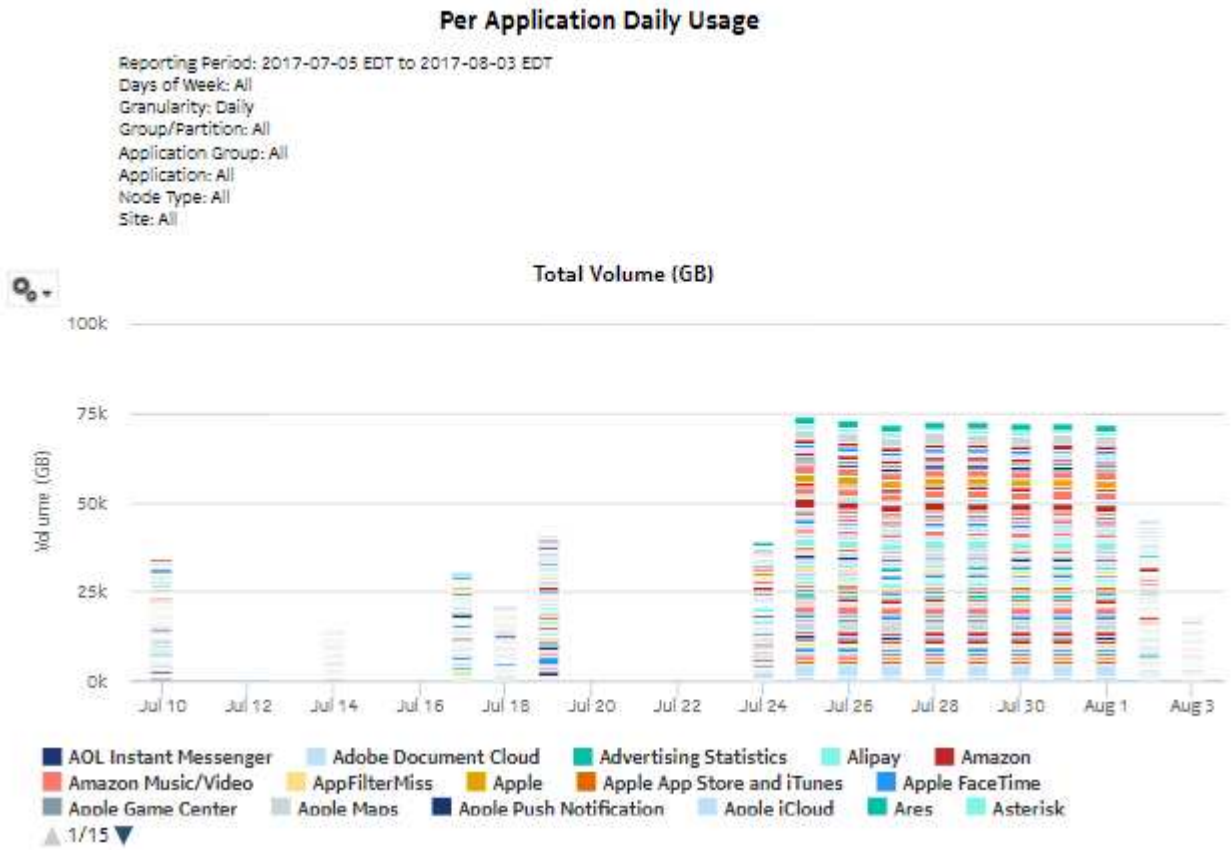


Figure 8-2 Daily and Monthly Usage per Application report - download volume

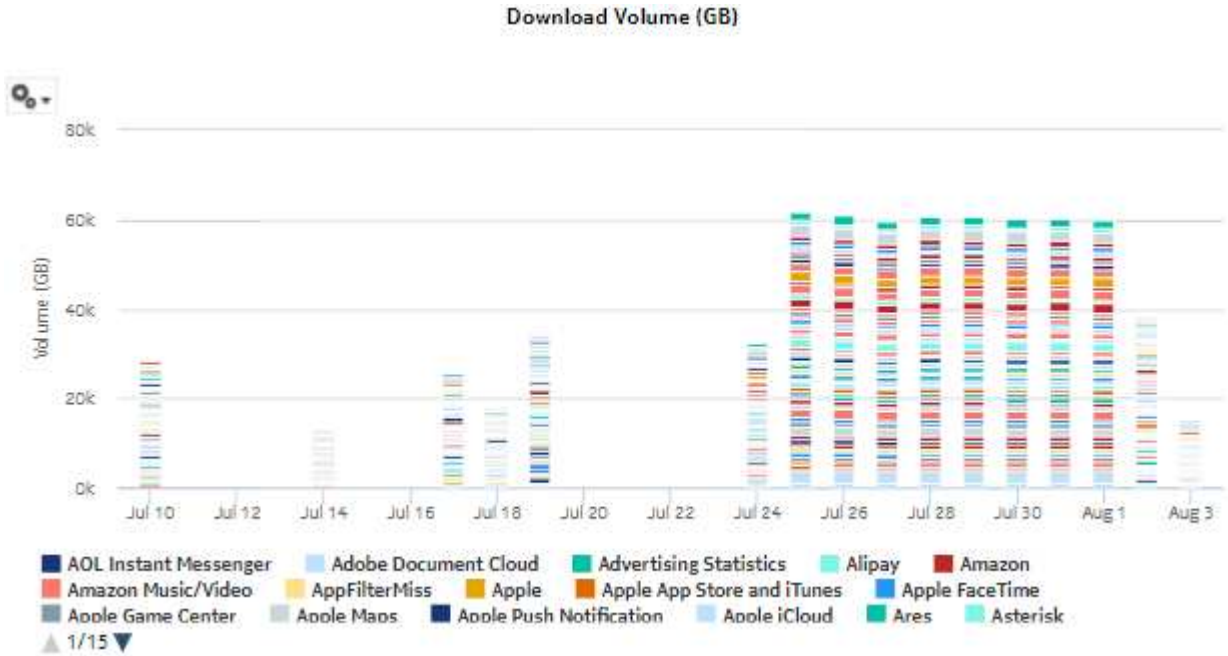
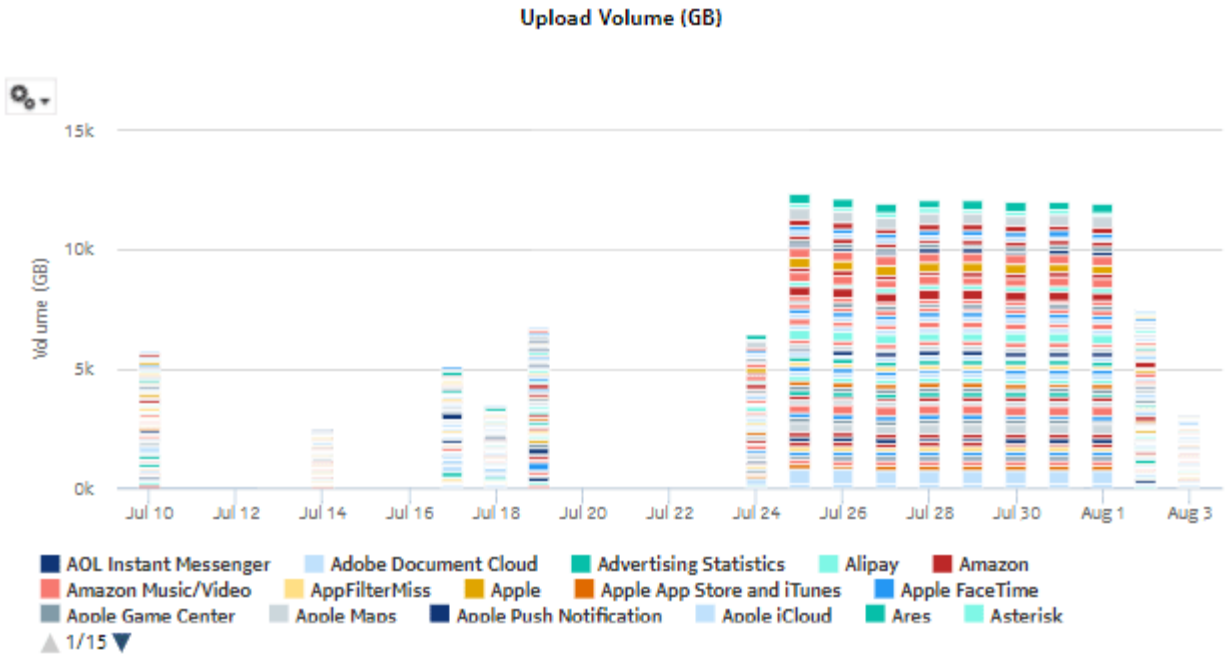


Figure 8-3 Daily and Monthly Usage per Application report - upload volume



8.2 Daily and Monthly Usage per Application Group report

8.2.1 Daily and Monthly Usage per Application Group report overview

The Daily and Monthly Usage per Application Group report shows the router-level usage for application groups.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns on a router for planning future capacity requirements.

Market forecasting—Use the report to determine which application groups are in high demand in order to offer specialized plans.

Report characteristics

The following table lists the principal report characteristics.

Table 8-2 Daily and Monthly Usage per Application Group report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application group
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-2 Daily and Monthly Usage per Application Group report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click **Select All**.
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.2.2 Example

The following figures show a report example.

Figure 8-4 Daily and Monthly Usage per Application Group report—total volume

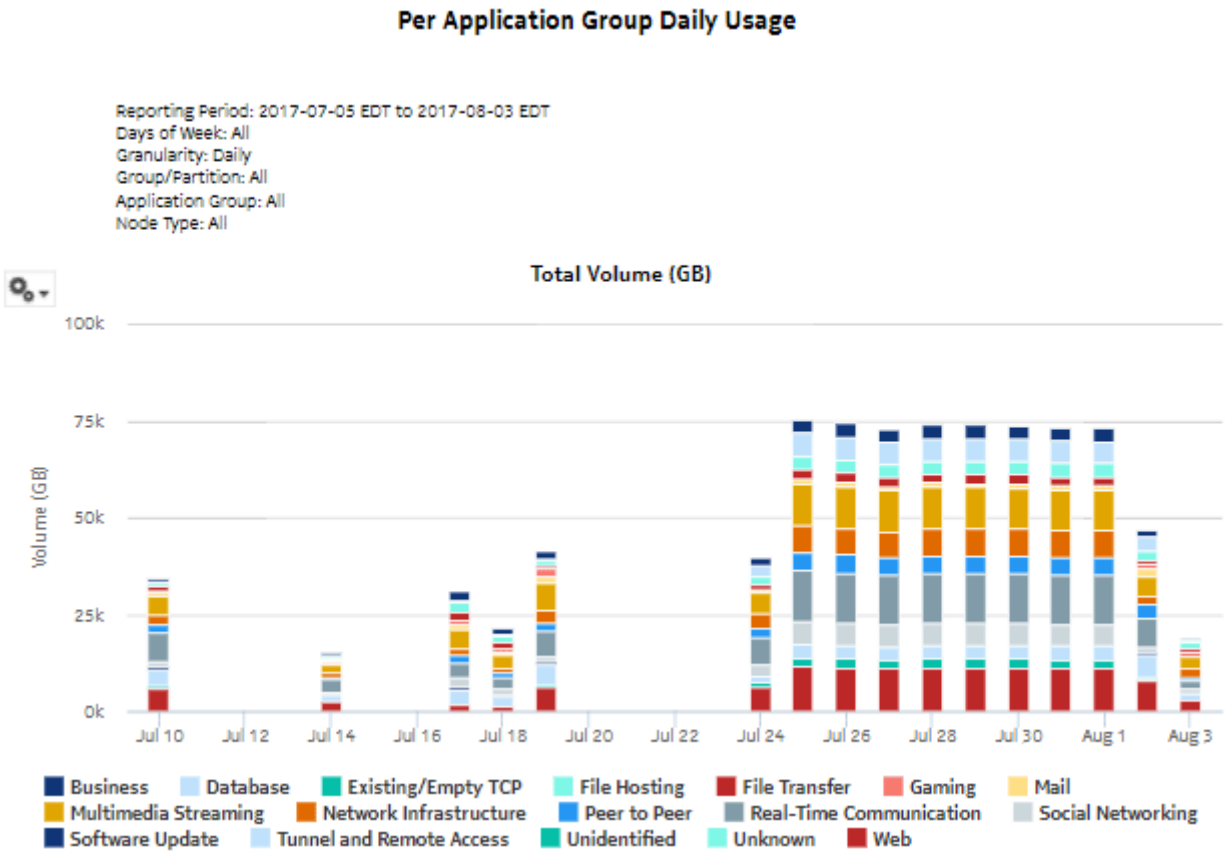


Figure 8-5 Daily and Monthly Usage per Application Group report—download volume

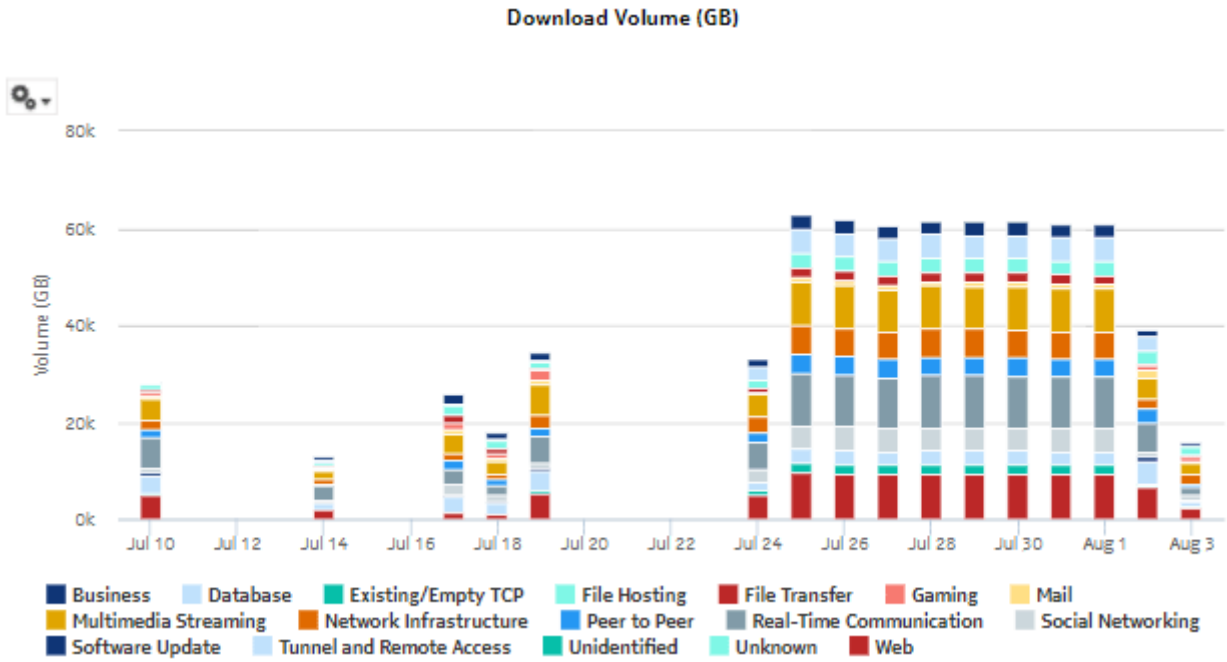
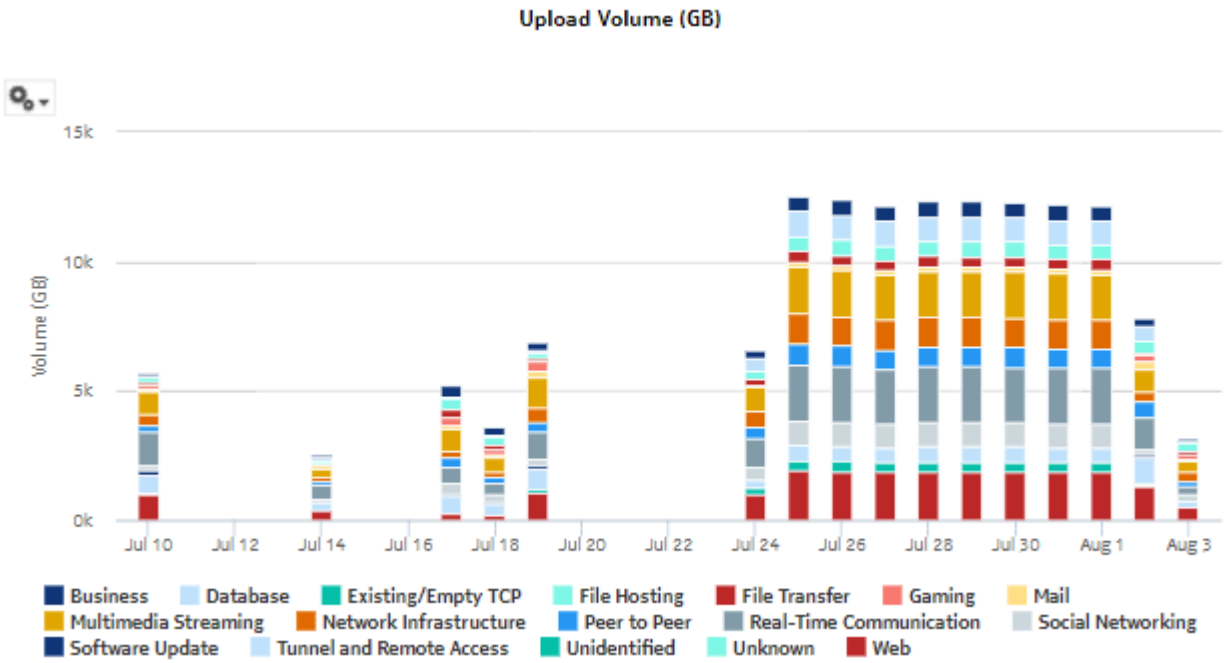


Figure 8-6 Daily and Monthly Usage per Application Group report—upload volume



8.3 IP Family Usage report

8.3.1 IP Family Usage Report overview

The IP Family Usage report shows the bandwidth usage for a specified set of protocols and applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements; for example, monitor how quickly IPv6 traffic is growing in the network.

Report characteristics

The following table lists the principal report characteristics.

Table 8-3 IP Family Usage report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application AA Accounting Configuration – AA Partition. Enable the Collect Traffic Statistics parameter on the AA Accounting Configuration form for the AA Partition accounting policy.
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-3 IP Family Usage report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w) or months (months, m) Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes or packets
	Traffic Direction	Upload, download, or both
Drill-down support	No	

8.3.2 Example

The following figures show a report example. The figures have been altered for size.

Figure 8-7 IP Family Usage Report

IP Family Usage Distribution

Reporting Period: 2017-07-30 EDT to 2017-08-03 EDT
Granularity: Daily
Group/Partition: All
Node Type: All
Site: All
Metrics: Bytes

IP Family Usage per Protocol (GB)

Protocol	V6inV6Gtp	IPv6	IPv4	DS-Lite	6RD	Total (GB)	%
TCP	155424.11	155364.60	155351.68	155554.89	155536.29	1399301.29	33.35%
UDP	155276.77	155673.71	155644.55	155079.63	155399.07	1398757.50	33.34%
Other	155293.12	155209.84	154935.29	155160.00	155531.55	1397354.34	33.31%
Total (GB)	**465994.00**	**466248.15**	**465931.52**	**465794.52**	**466466.91**	**4195413.13**	**100.00%**

Figure 8-8 IP Family Usage Report, #subscribers per family

 # Subscribers for each IP Family for Residential / Wi-Fi (ESM)

IP Family	# Subscribers
6RD	**120**
DS-Lite	**120**
IPv4	**120**
IPv6	**120**
V4inV6Gtp	**120**
Teredo	**120**
V6inV4Gtp	**120**
V6inV6Gtp	**120**
V4inV4Gtp	**120**

Figure 8-9 IP Family Usage Report, continued

IP Family Usage per Application - Residential / Wi-Fi (ESM) (GB)

Application	V4inV4Gtp	DS-Lite	IPv6	V6inV6Gtp	V6inV4Gtp	V4inV6Gtp	IPv4	Total (GB)	%
Apple Maps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Google Play Store	0.00	0.00	0.00	0.00	4.04	0.00	0.00	4.04	0.06%
Microsoft Bing	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
PlayStation Now	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.70	0.01%
Pokemon Go	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00%
Facebook	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	0.00%
TiVo	0.00	0.00	8.08	0.00	0.00	0.00	0.00	8.08	0.12%
Microsoft Bing	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Netflix	0.00	0.00	0.00	0.00	3.80	0.00	0.00	3.80	0.06%
Flickr	0.00	0.00	13.58	0.00	0.00	0.00	0.00	13.58	0.20%
FTP	0.00	0.00	0.00	0.00	0.00	0.00	3.06	3.06	0.05%
Pinterest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.04	0.54%
Dropbox	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00%
PlayStation Now	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.70	0.01%
Gmail	0.00	0.00	0.00	16.45	0.00	0.00	0.00	16.45	0.24%
Microsoft Mail	0.00	0.00	17.13	0.00	0.00	0.00	0.00	17.13	0.25%
Apple Maps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Netflix	0.00	0.00	0.00	0.00	3.80	0.00	0.00	3.80	0.06%
Steam	0.00	0.00	0.00	0.00	0.00	41.14	0.00	41.14	0.61%
Apple Maps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Microsoft Office 365	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.61	0.40%
BitTorrent	0.00	31.55	0.00	0.00	0.00	0.00	0.00	31.55	0.47%
Twitter	0.00	0.00	0.00	28.45	0.00	0.00	0.00	28.45	0.42%

8.4 OTT Video Streaming Report

8.4.1 OTT Video Streaming Report overview

The OTT Video Streaming Report provides video quality of experience information to ensure subscriber service level agreements are being met. The report shows the different bit rate measurements for application video usage data and the number of active sessions. The report indicates the number of sessions in different bit rate intervals and categorizes their streaming quality.

Note: The OTT video applications must be selected from the Application drop-down menu in the prompt section of the report.

Note: This report requires special study statistics collection by an NSP Flow Collector for each OTT video application. See the workflow to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent an OTT video application, the application will appear in the report but the information provided will be invalid. If the user chooses an OTT video application that is not configured for special studies collection, the application will not appear in the report.

Use cases

Video QoE assurance—Identify potential issues affecting user experience.

SLA monitoring—Identify potential impact to service level agreements.

Report characteristics

The following table lists the principal report characteristics.

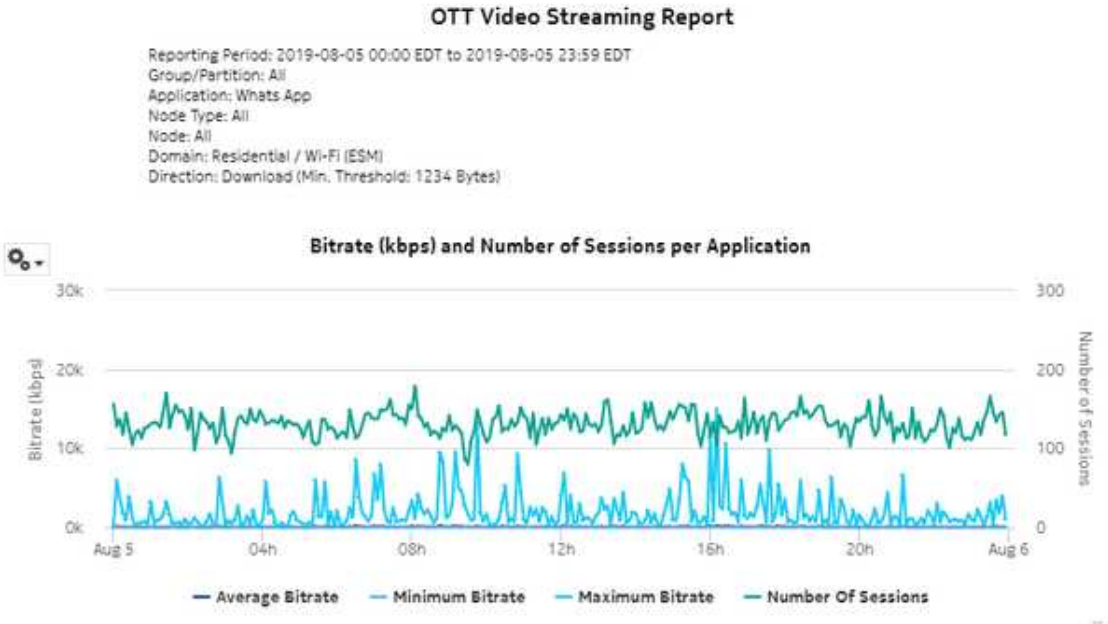
Table 8-4 OTT Video Streaming Report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Direction	Upload or download
	Minimum Threshold (in Bytes)	—
Drill-down support	No	

8.4.2 Example

The following figure shows a report example.

Figure 8-10 OTT Video Streaming Report



Range (kbps)	# Sessions	% Sessions	Typical Quality
0-350	37072	97.9	LD 240p 3G Mobile @ H.264
351-700	392	1	LD 360p 4G Mobile @ H.264
701-1200	188	0.5	SD 480p WiFi @ H.264 main
1201-2500	130	0.3	HD 720p @ H.264 high profile
2501-5000	52	0.1	HD 1080p @ H.264 high profile
5001+	30	0.1	4K 4096p @ H.264 high profile
Total	37864	100	

8.5 OTT VoIP Call Report

8.5.1 OTT VoIP Call Report overview

The OTT VoIP Call Report shows the number of OTT VoIP calls, by VoIP application, and the average call duration.

Note: The OTT VOIP applications must be selected from the Application drop-down menu in the prompt section of the report.

Note: This report requires special study statistics collection by an NSP Flow Collector for each

OTT VOIP application. See the workflow to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent an OTT VoIP application, the application will appear in the report but the information provided will be invalid. If the user chooses an OTT VoIP application that is not configured for special studies collection, the application will not appear in the report.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

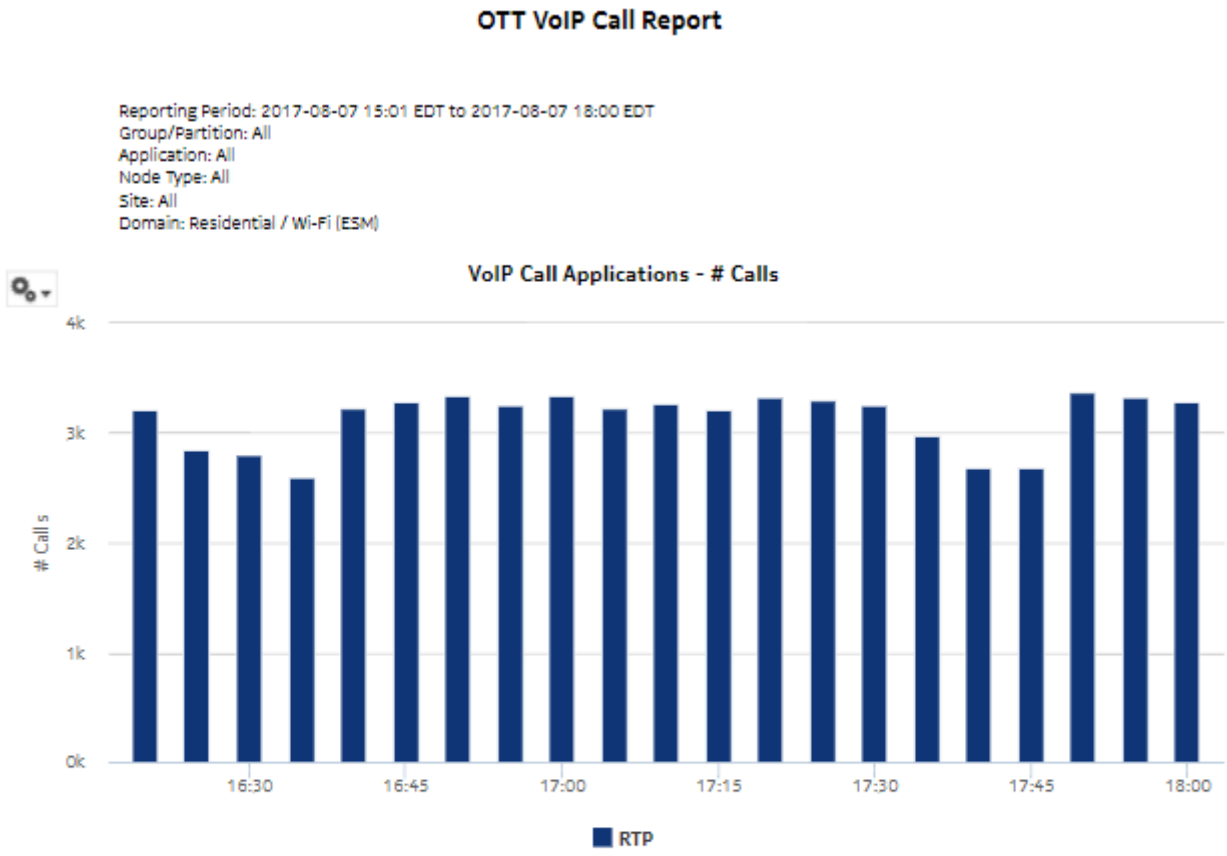
Table 8-5 OTT VoIP Call Report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes or packets
	Traffic Direction	Upload, download, or both
Drill-down support	No	

8.5.2 Example

The following figure shows a report example.

Figure 8-11 OTT VoIP Call Report



Application	# Calls	Average Call Duration (sec)
RTP	65,808	5.02
Overall Total (or Average)	**65,808**	**5.02**

8.6 Raw and Hourly Bandwidth per Application report

8.6.1 Raw and Hourly Bandwidth per Application report overview

The Raw and Hourly Bandwidth per Application report shows the raw and hourly bandwidth consumed by a specified set of applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 8-6 Raw and Hourly Bandwidth per Application report characteristics

Characteristic	Value	
Statistics type	AA Accounting per partition application	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Hours of Day	
	Node Type	
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Application	
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.6.2 Example

The following figures show a report example.

Figure 8-12 Raw and Hourly Bandwidth per Application report—total bandwidth

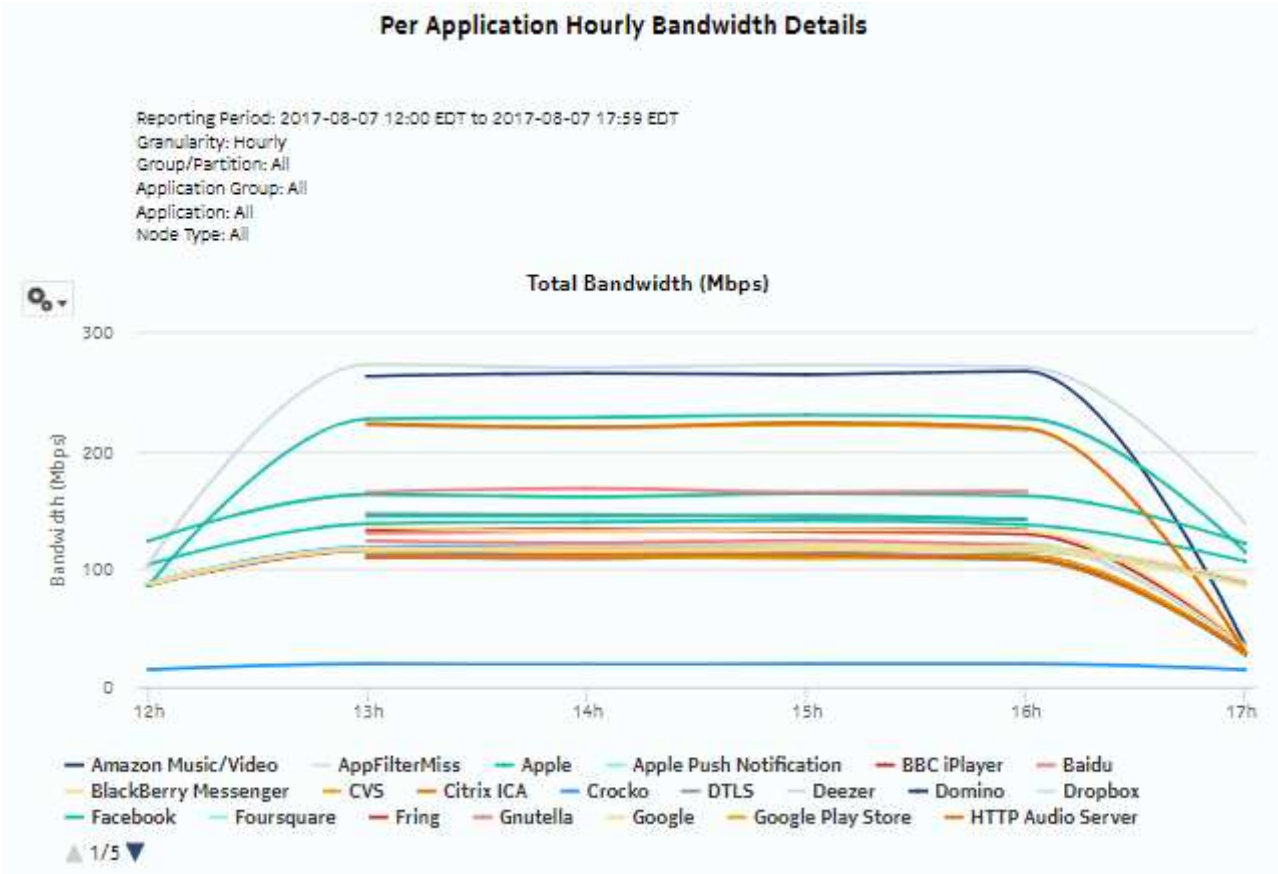


Figure 8-13 Raw and Hourly Bandwidth per Application report—download bandwidth

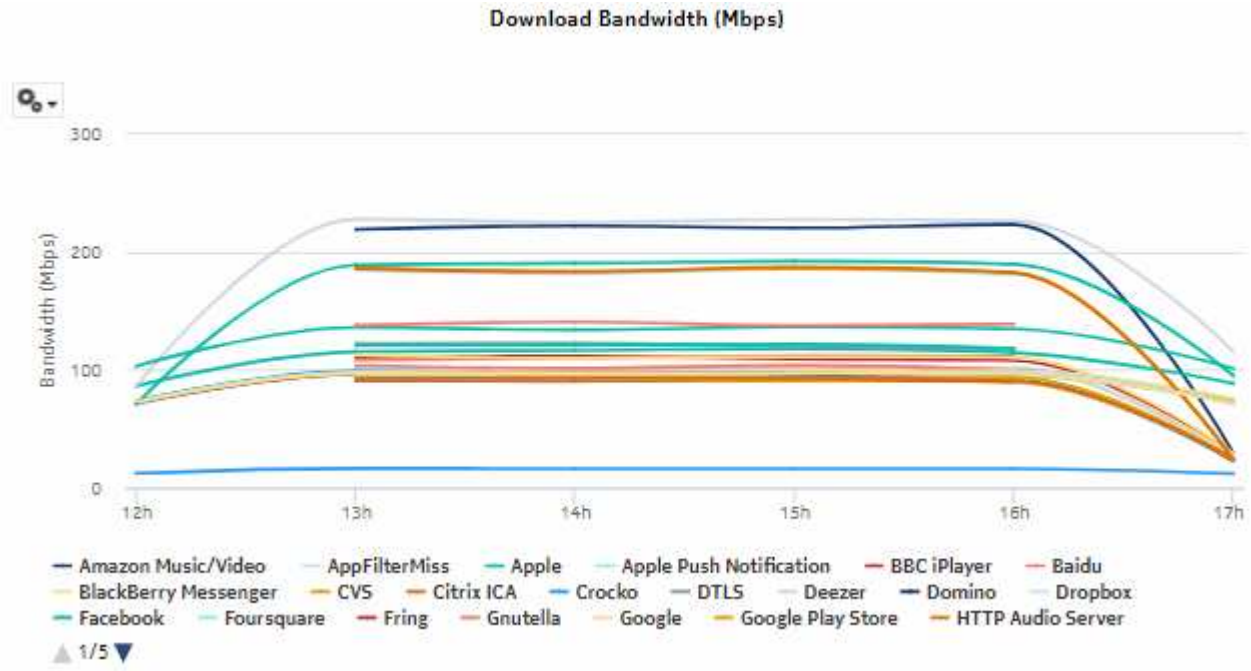
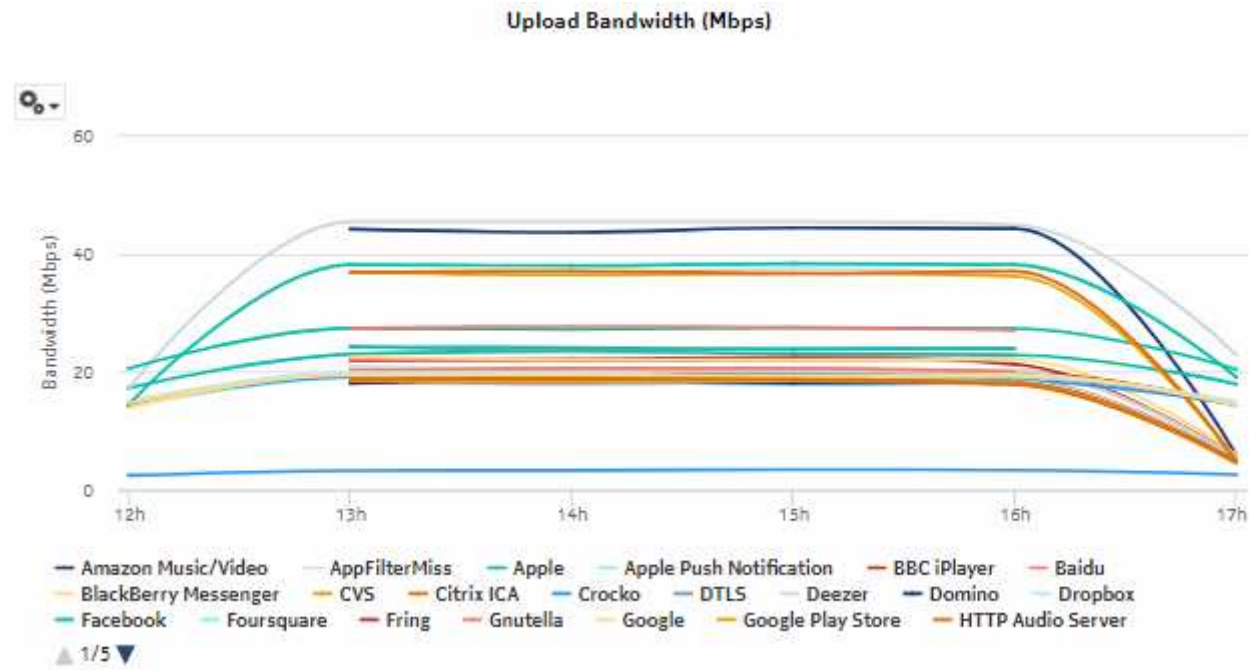


Figure 8-14 Raw and Hourly Bandwidth per Application report—upload bandwidth



8.7 Raw and Hourly Bandwidth per Application Group report

8.7.1 Raw and Hourly Bandwidth per Application Group report overview

The Raw and Hourly Bandwidth per Application Group report shows the raw and hourly bandwidth consumed by a specified set of application groups.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 8-7 Raw and Hourly Bandwidth per Application Group report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application group
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-7 Raw and Hourly Bandwidth per Application Group report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Hours of Day	
	Node Type	
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.7.2 Example

The following figures show a report example.

Figure 8-15 Raw and Hourly Bandwidth per Application Group report - total bandwidth

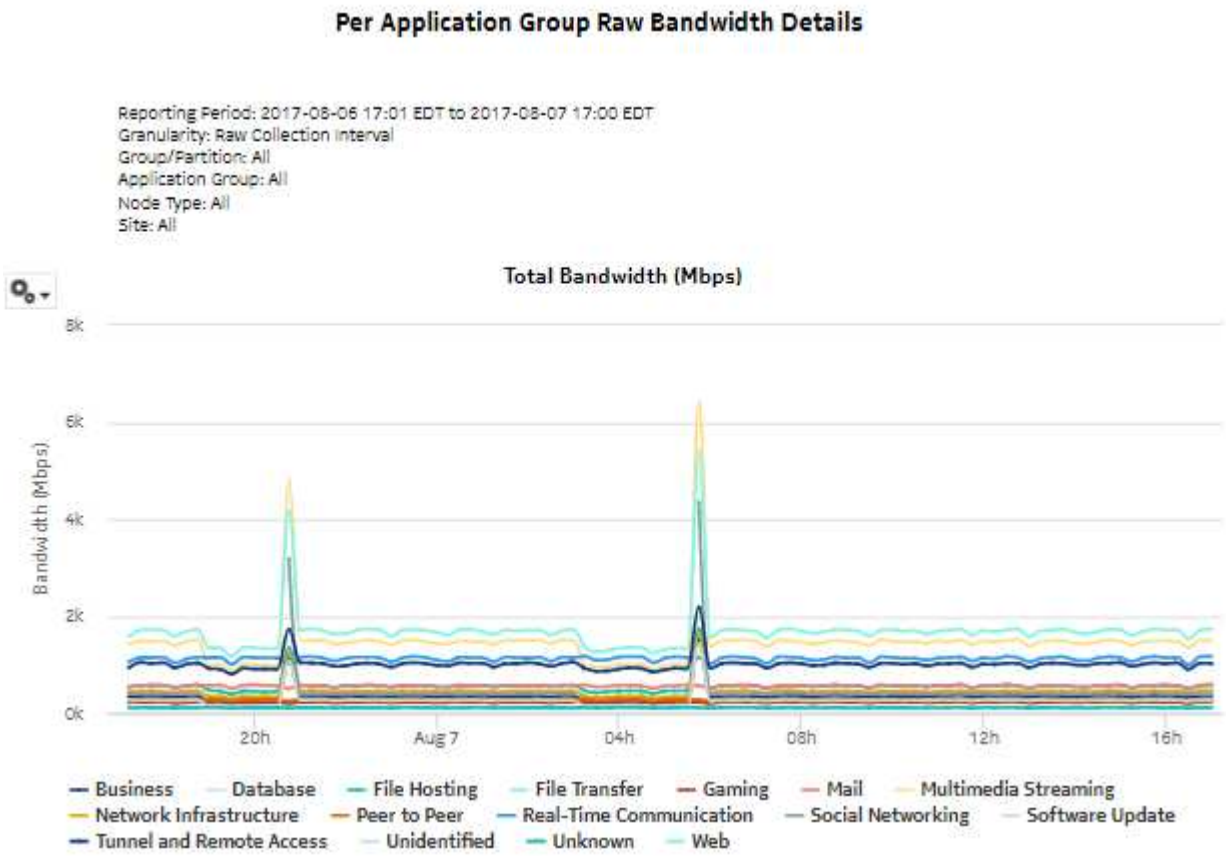


Figure 8-16 Raw and Hourly Bandwidth per Application Group report - download bandwidth

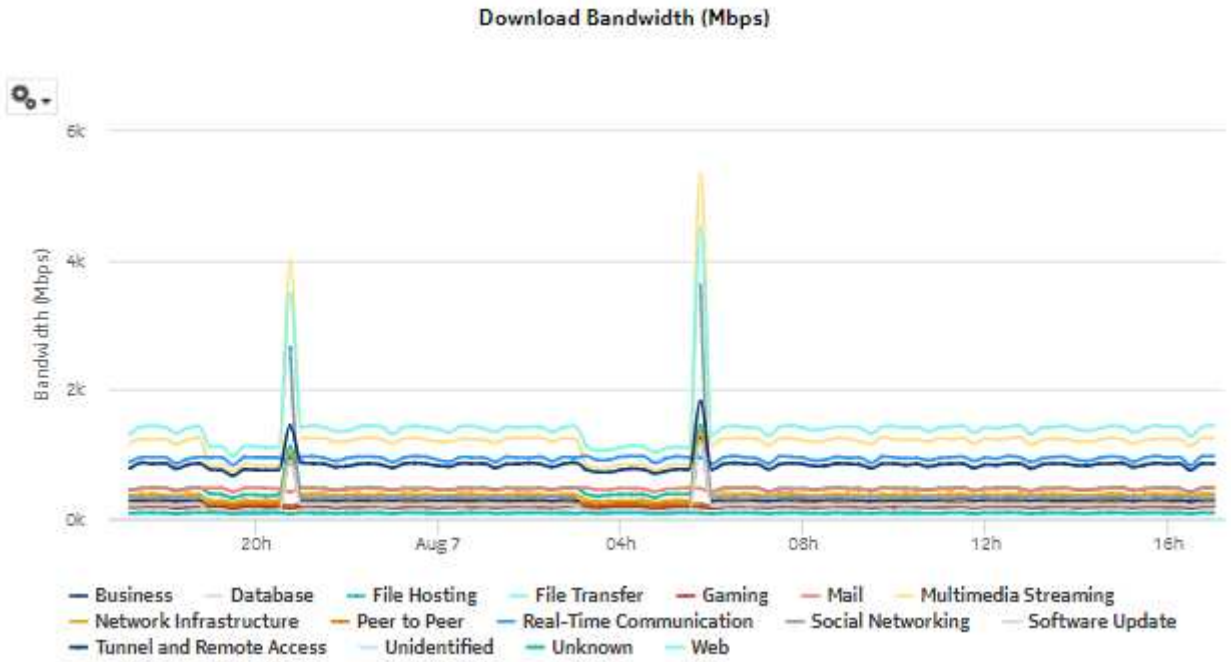
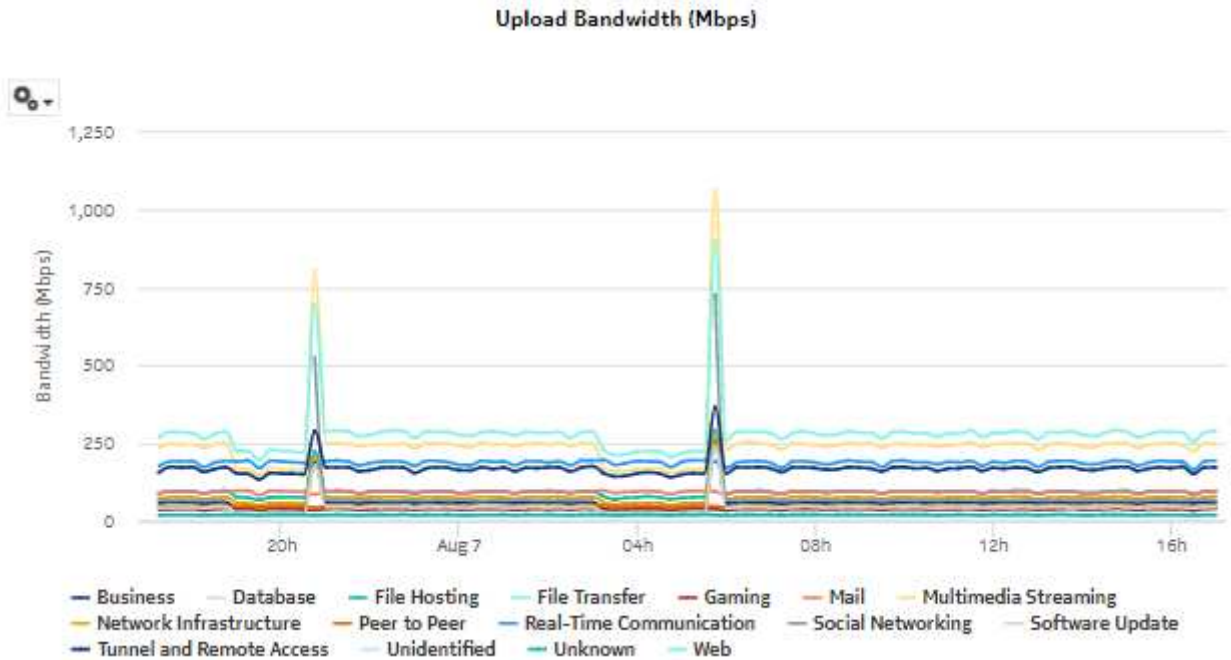


Figure 8-17 Raw and Hourly Bandwidth per Application Group report - upload bandwidth



8.8 Router Level Usage Summary report

8.8.1 Router Level Usage Summary report overview

The Router Level Usage Summary report shows a router-level summary of the traffic rate and volume for a specified time period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 8-8 Router Level Usage Summary report characteristics

Characteristic	Value	
Statistics type	AA Accounting per partition application group	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
Drill-down support	No	

8.8.2 Example

The following figures show a report example.

Figure 8-18 Router Level Usage Summary report—bandwidth per router

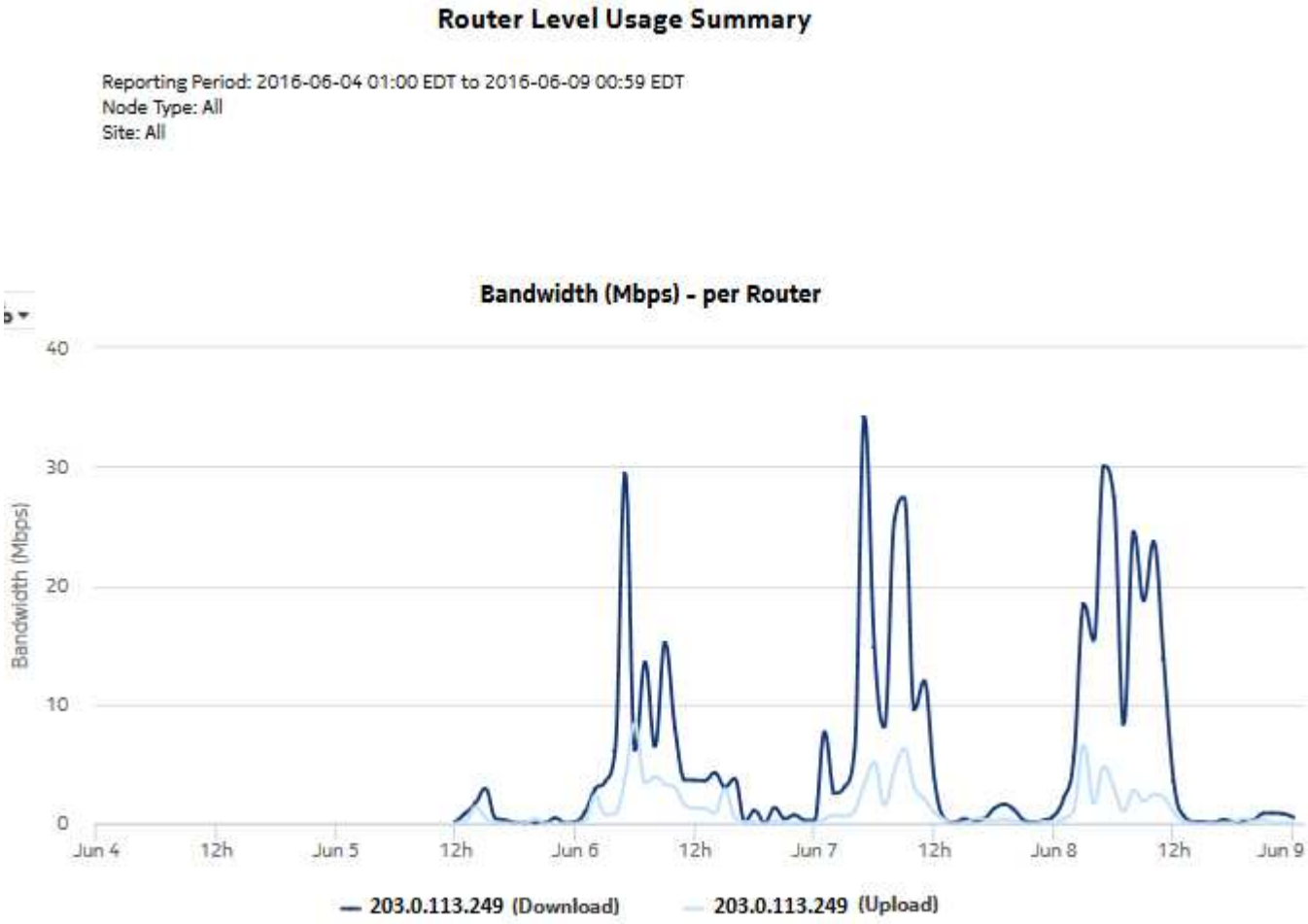


Figure 8-19 Router Level Usage Summary report—total volume

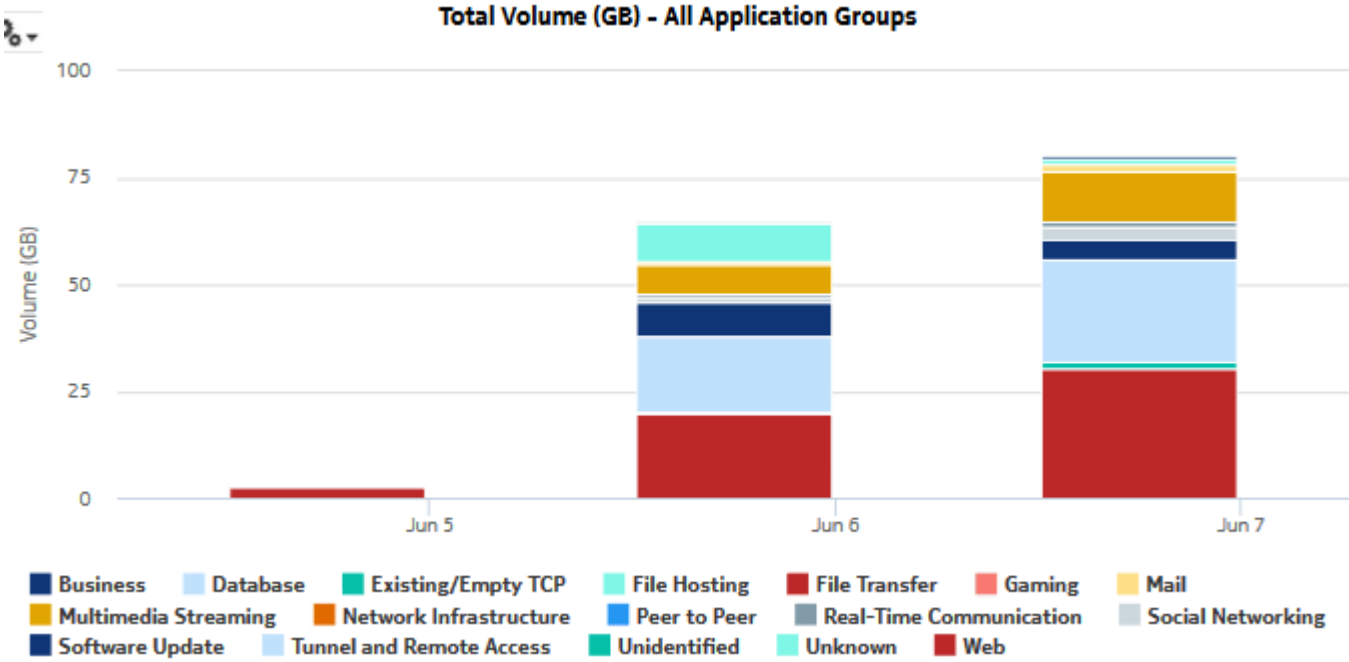


Figure 8-20 Router Level Usage Summary report—download volume

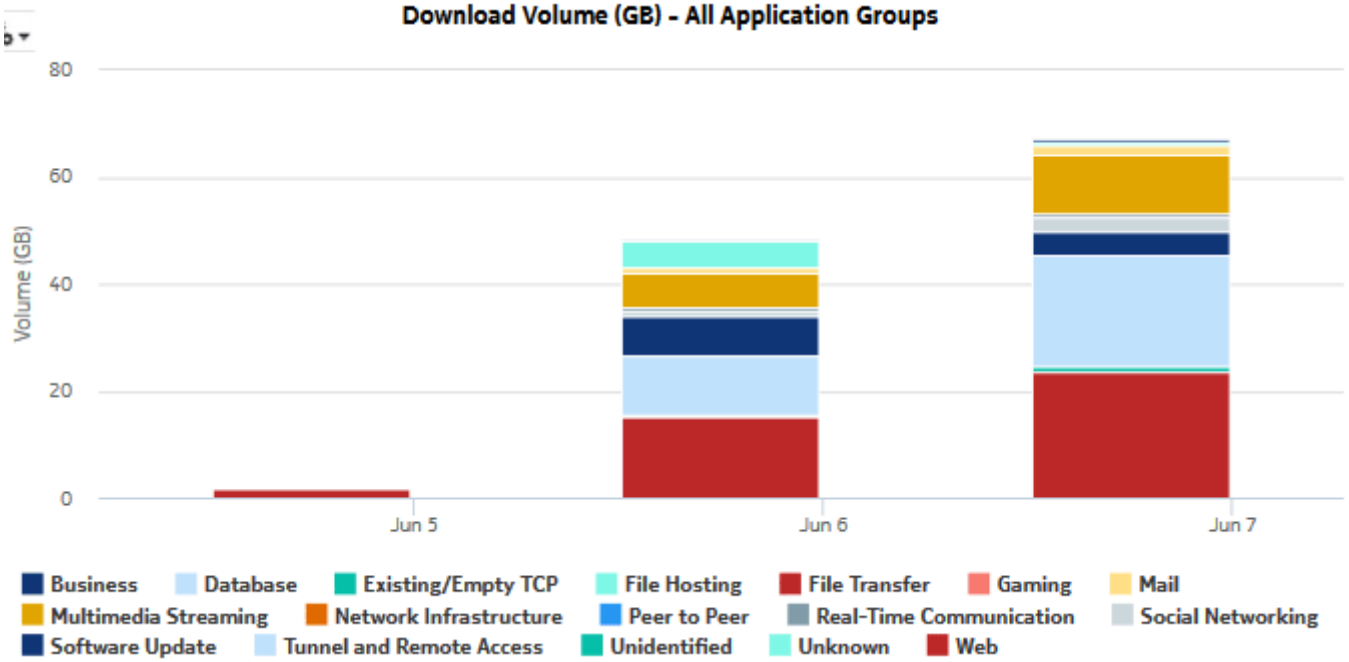
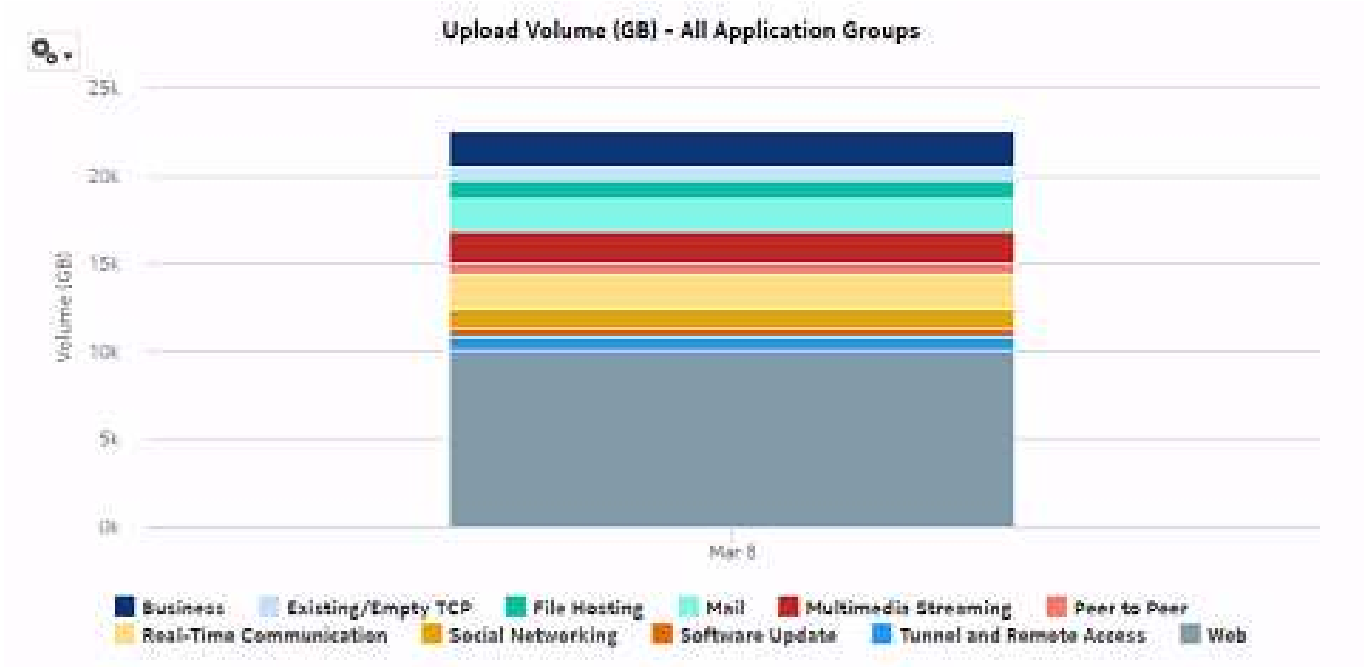


Figure 8-21 Router Level Usage Summary report - upload volume



8.9 Router Level Usage Summary with Baseline report

8.9.1 Router Level Usage Summary with Baseline report overview

The Router Level Usage Summary with Baseline report shows a router-level summary of the traffic rate and volume for a specified time period. The current results are displayed along with baseline values. See 1.1.5 “Baselining in Analytics reports” (p. 20) for more information about how baselines are defined.

The default display is a series of line graphs showing throughput, and a series of bar charts showing volume.

For the first three line graphs, showing bandwidth per router, the baseline for one selected router is shown. For the charts showing volume by application group, one baseline per application group is shown. A small number of application groups improves report legibility.

Use cases

Capacity planning—Use the report to examine deviations from past traffic and usage patterns to identify anomalies that may require intervention.

Report characteristics

The following table lists the principal report characteristics.

Table 8-9 Router Level Usage Summary with Baseline report characteristics

Characteristic	Value	
Statistics type	AA Accounting per partition application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Hourly • Daily • Monthly • None (raw data)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Application Group	
	Enable Baseline	Select the check box to include baseline data in the report.
	Baseline End Date	Calendar date or relative date (for example, two days ago) and time
	Baseline Report Range	Length of time to calculate the baseline, in minutes, hours, days, or months A longer baseline range will improve baseline accuracy.
	Baseline Definition	Select a definition to calculate the baseline. For example, “hour of day” means that current data is compared against the baseline calculated from the historical data from the same hour within the baseline time frame.
	Baseline Node for Throughput	Select one NE to use as an example for baseline data in throughput graphs.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 8-9 Router Level Usage Summary with Baseline report characteristics (continued)

Characteristic	Value
Drill-down support	No

8.9.2 Example

The following figures show a report example.

Figure 8-22 Router Level Usage Summary with Baseline report—total bandwidth per router

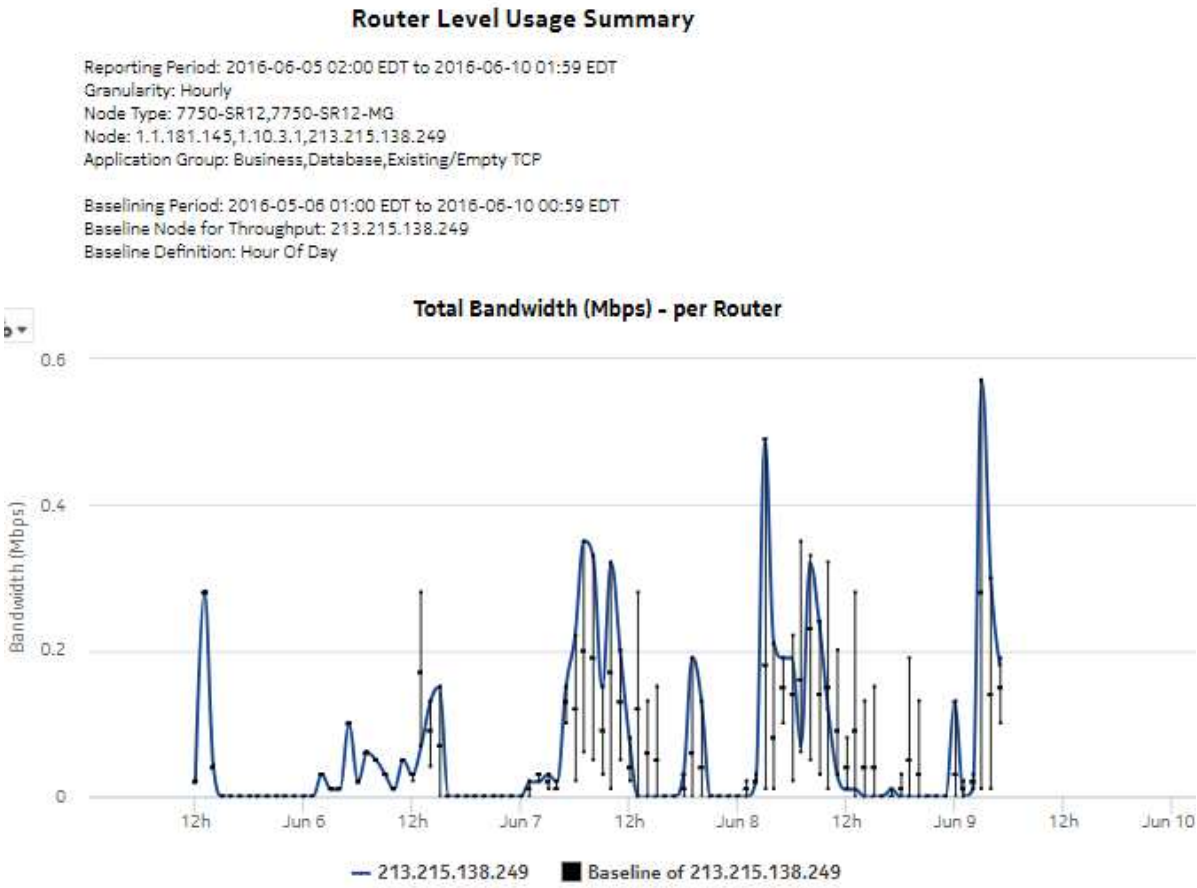


Figure 8-23 Router Level Usage Summary with Baseline report—download bandwidth per router

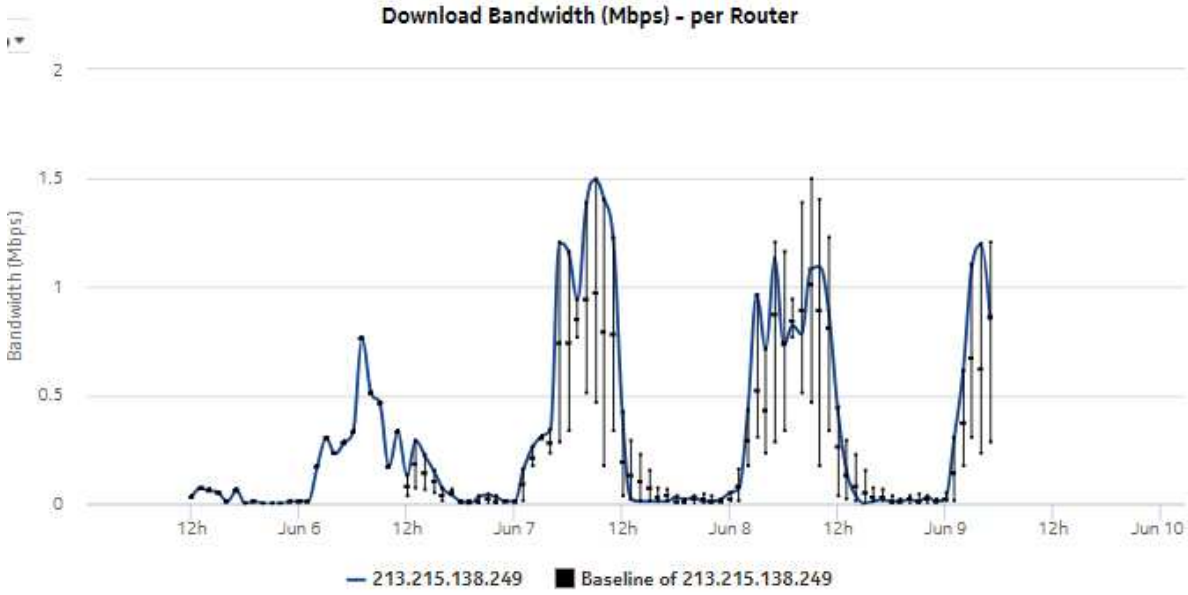


Figure 8-24 Router Level Usage Summary with Baseline report—upload bandwidth per router

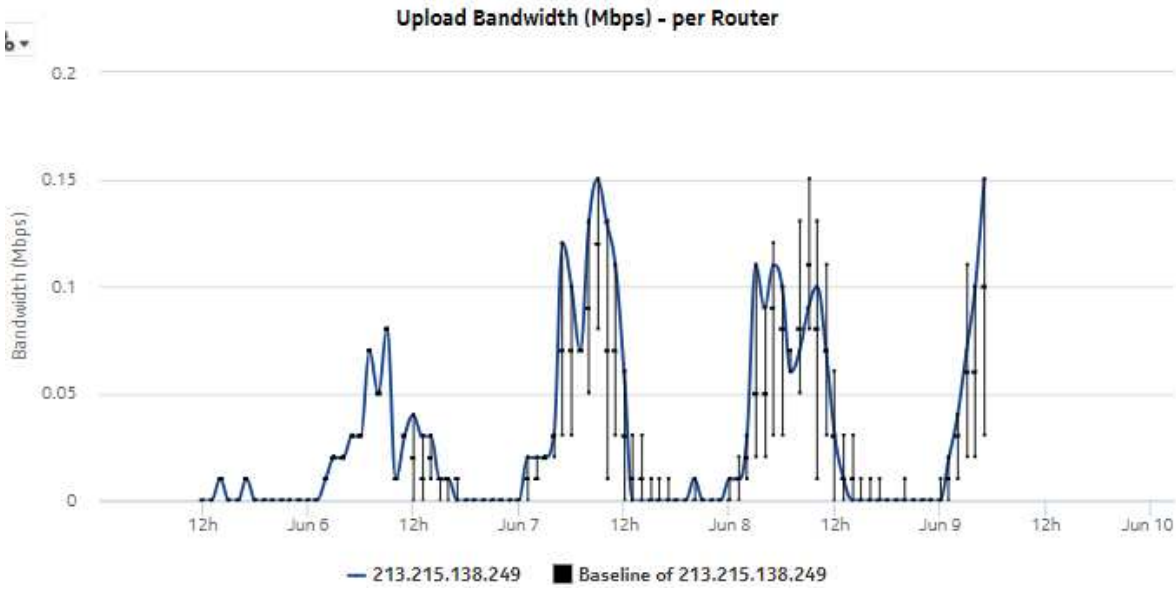


Figure 8-25 Router Level Usage Summary with Baseline report—total volume, all application groups

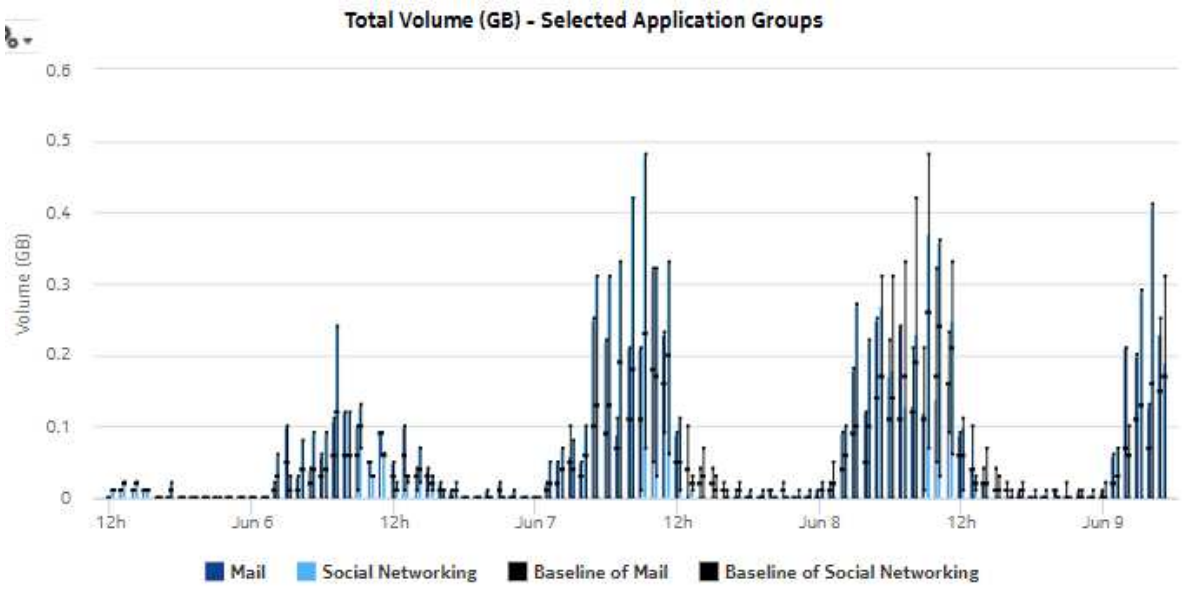


Figure 8-26 Router Level Usage Summary with Baseline report—download volume, all application groups

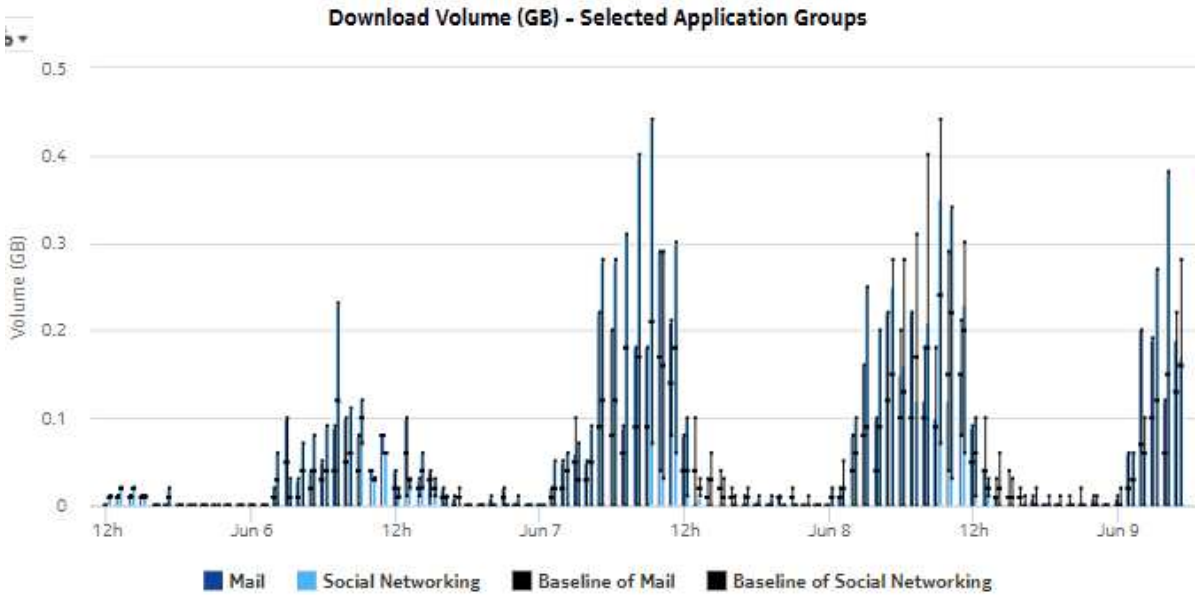
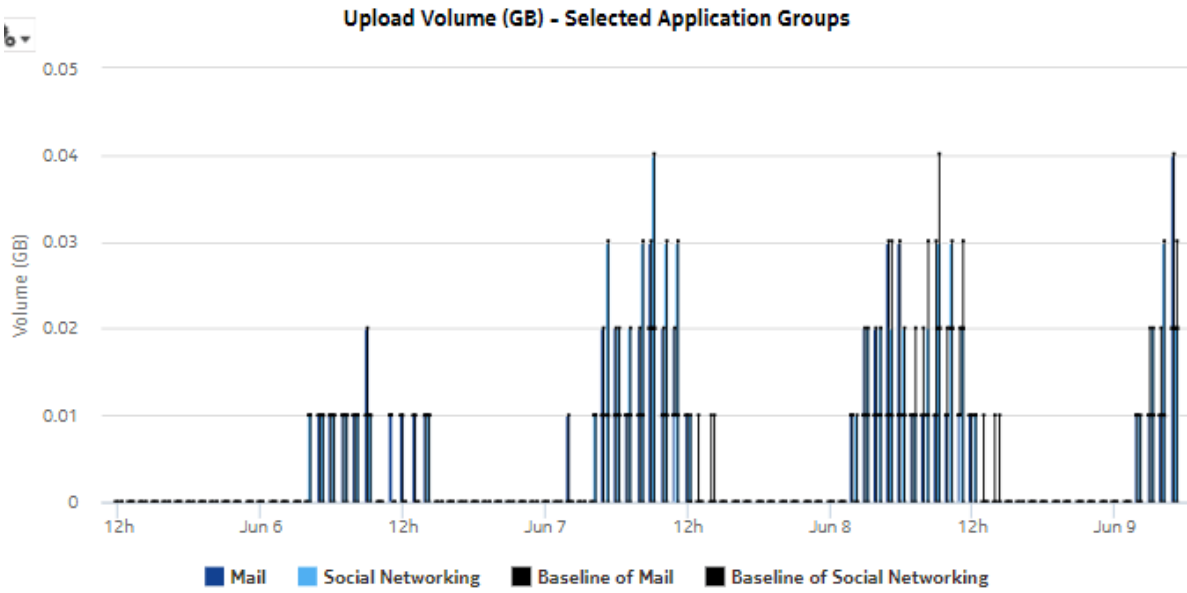


Figure 8-27 Router Level Usage Summary with Baseline report—upload volume, all application groups



8.10 Top Application Groups by Usage report

8.10.1 Top Application Groups by Usage report overview

The Top Application Groups by Usage report shows the router-level distribution of traffic among a top specified number of application groups.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 8-10 Top Application Groups by Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application group
NSP Flow Collector required	No

Table 8-10 Top Application Groups by Usage report characteristics (continued)

Characteristic	Value	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Selectable metrics or counters	—	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Rank	Number of items to report
Drill-down support	Yes—Display the Top Applications by Usage graph of the top applications for the selected application group. Note: Drilling down from the Others segment opens the Top Applications by Usage report for all applications, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

8.10.2 Example

The following figures show a report example.

Figure 8-28 Top Application Groups by Usage report

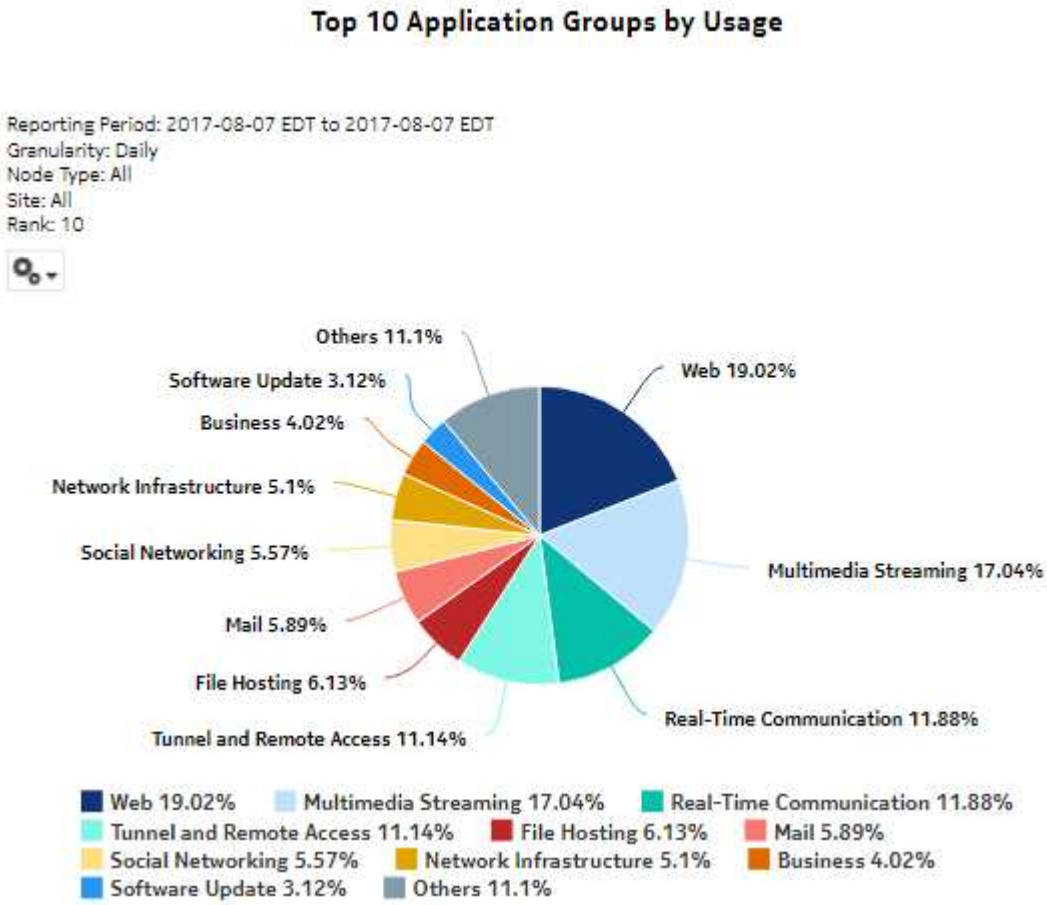


Figure 8-29 Top Application Groups by Usage - total volume

Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application
1	Web	3,121.29	19.02%
2	Multimedia Streaming	2,795.72	17.04%
3	Real-Time Communication	1,949.20	11.88%
4	Tunnel and Remote Access	1,828.01	11.14%
5	File Hosting	1,005.37	6.13%
6	Mail	966.19	5.89%
7	Social Networking	913.83	5.57%
8	Network Infrastructure	837.10	5.10%
9	Business	659.13	4.02%
10	Software Update	511.78	3.12%
	Top 10 Application Groups Subtotal	**14,587.62**	**88.91%**

Figure 8-30 Top Application Groups by Usage - download volume

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application Groups
1	Web	51,310.56	43.59%
2	Mail	10,882.24	9.24%
3	Business	10,320.76	8.77%
4	Real-Time Communication	9,575.72	8.13%
5	Multimedia Streaming	9,274.02	7.88%
6	Social Networking	5,873.44	4.99%
7	File Hosting	5,834.21	4.96%
8	Existing/Empty TCP	4,542.01	3.86%
9	Tunnel and Remote Access	4,481.89	3.81%
10	Peer to Peer	3,154.68	2.68%
	Top 10 Application Groups Subtotal	**115,249.53**	**97.91%**

Figure 8-31 Top Application Groups by Usage - upload volume

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application
1	Web	520.52	19.04%
2	Multimedia Streaming	465.50	17.03%
3	Real-Time Communication	324.56	11.87%
4	Tunnel and Remote Access	305.01	11.16%
5	File Hosting	168.43	6.16%
6	Mail	159.68	5.84%
7	Social Networking	152.48	5.58%
8	Network Infrastructure	139.34	5.10%
9	Business	110.10	4.03%
10	Software Update	84.84	3.10%
	Top 10 Application Groups Subtotal	**2,430.46**	**88.91%**

8.11 Top Applications by Usage report

8.11.1 Top Applications by Usage report overview

The Top Application by Usage report shows the router-level distribution of traffic among a top specified number of applications.

Use cases

Application pattern identification—Use the report to determine which applications consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 8-11 Top Applications by Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application

Table 8-11 Top Applications by Usage report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Application Group	
	Rank	Number of items to report
Drill-down support	No	

8.11.2 Example

The following figures show a report example.

Figure 8-32 Top Applications by Usage report

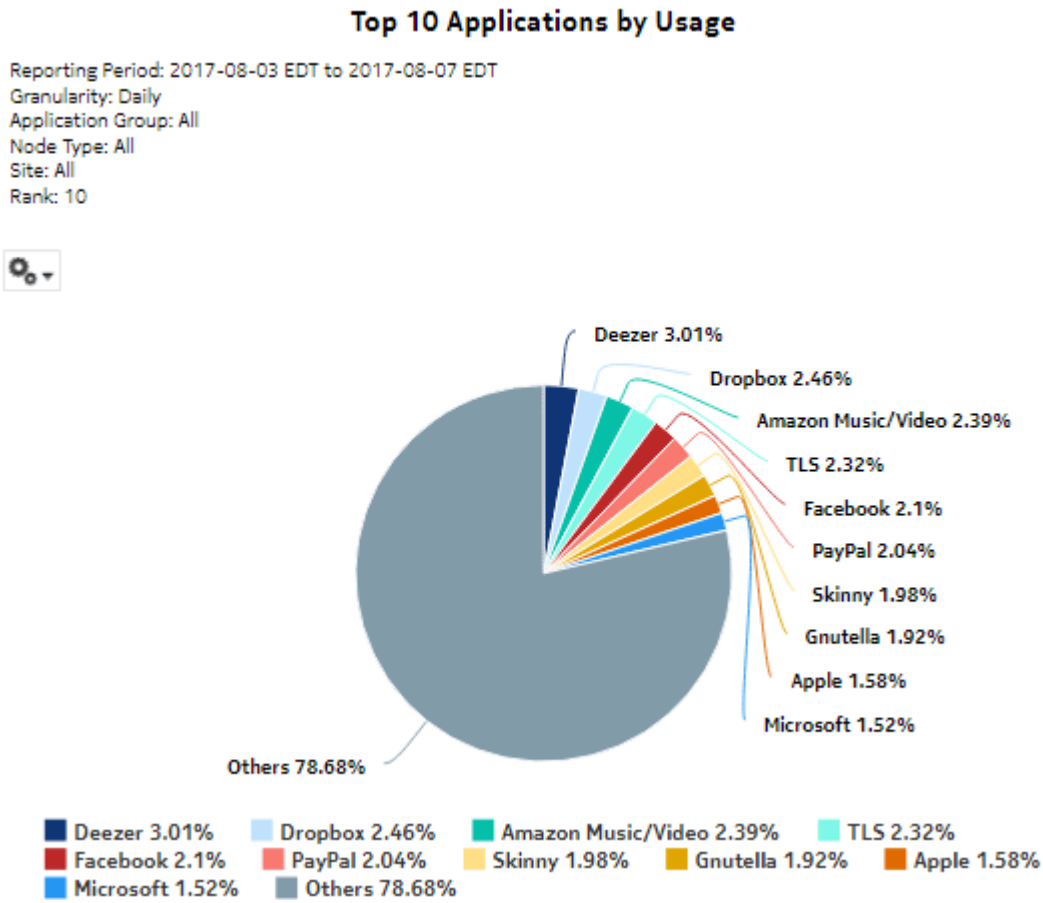


Figure 8-33 Top Applications by Usage—Total Volume

Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	Deezer	3,320.81	3.01%
2	Dropbox	2,715.74	2.46%
3	Amazon Music/Video	2,641.37	2.39%
4	TLS	2,567.35	2.32%
5	Facebook	2,317.96	2.10%
6	PayPal	2,250.03	2.04%
7	Skinny	2,190.11	1.98%
8	Gnutella	2,122.59	1.92%
9	Apple	1,748.61	1.58%
10	Microsoft	1,683.11	1.52%
	Top 10 Applications Subtotal	**23,557.68**	**21.32%**

Figure 8-34 Top Applications by Usage—Download Volume

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Applications
1	Deezer	2,766.17	3.00%
2	Dropbox	2,262.53	2.46%
3	Amazon Music/Video	2,202.37	2.39%
4	TLS	2,138.55	2.32%
5	Facebook	1,931.70	2.10%
6	PayPal	1,875.30	2.04%
7	Skinny	1,825.01	1.98%
8	Gnutella	1,768.46	1.92%
9	Apple	1,457.83	1.58%
10	Microsoft	1,402.92	1.52%
	Top 10 Applications Subtotal	**19,630.84**	**21.31%**

Figure 8-35 Top Applications by Usage—Upload Volume

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Applications
1	Deezer	554.64	3.01%
2	Dropbox	453.21	2.46%
3	Amazon Music/Video	439.00	2.38%
4	TLS	428.80	2.33%
5	Facebook	386.26	2.10%
6	PayPal	374.73	2.03%
7	Skinny	365.11	1.98%
8	Gnutella	354.13	1.92%
9	Apple	290.78	1.58%
10	Microsoft	280.20	1.52%
	Top 10 Applications Subtotal	**3,926.86**	**21.31%**

9 Performance reports

9.1 Performance reports overview

9.1.1 General information

Performance reports provide information about network performance and quality.

Drill-down reports

All reports can be run from the main Performance reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Performance reports. Each level of indentation indicates a drill down. For example, DNS Performance RTT Details and DNS Performance Session Details are drill-down reports from a DNS Performance Summary report.

Table 9-1 Available drill-downs for Performance reports

DNS Performance Summary	
	DNS Performance RTT Details DNS Performance Session Details
TCP Performance Report for Selected Application Group	
	TCP Performance Report - Worst Performing Applications

9.2 DNS Performance RTT Details report

9.2.1 DNS Performance RTT Details report overview

The DNS Performance RTT Details report shows the network quality in terms of DNS responsiveness for the selected DNS servers.

Note: The DNS servers are modeled as applications and must be selected from the Application drop-down menu in the prompt section of the report.

Note: This report requires special study statistics collection by an NSP Flow Collector for each modeled DNS server application. See the workflow to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent a DNS application, the application will appear in the report but the information provided will be invalid. If the user chooses a DNS application that is not configured for special studies collection, the application will not appear in the report.

Use cases

User quality of experience—Use the report to identify potential DNS server issues by DNS server type, or potential network issues that affect one or more DNS server types.

Report characteristics

The following table lists the principal report characteristics.

Table 9-2 DNS Performance RTT Details report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Drill-down support	No	

9.2.2 Example

The following figures show a report example.

Figure 9-1 DNS Performance RTT Details report

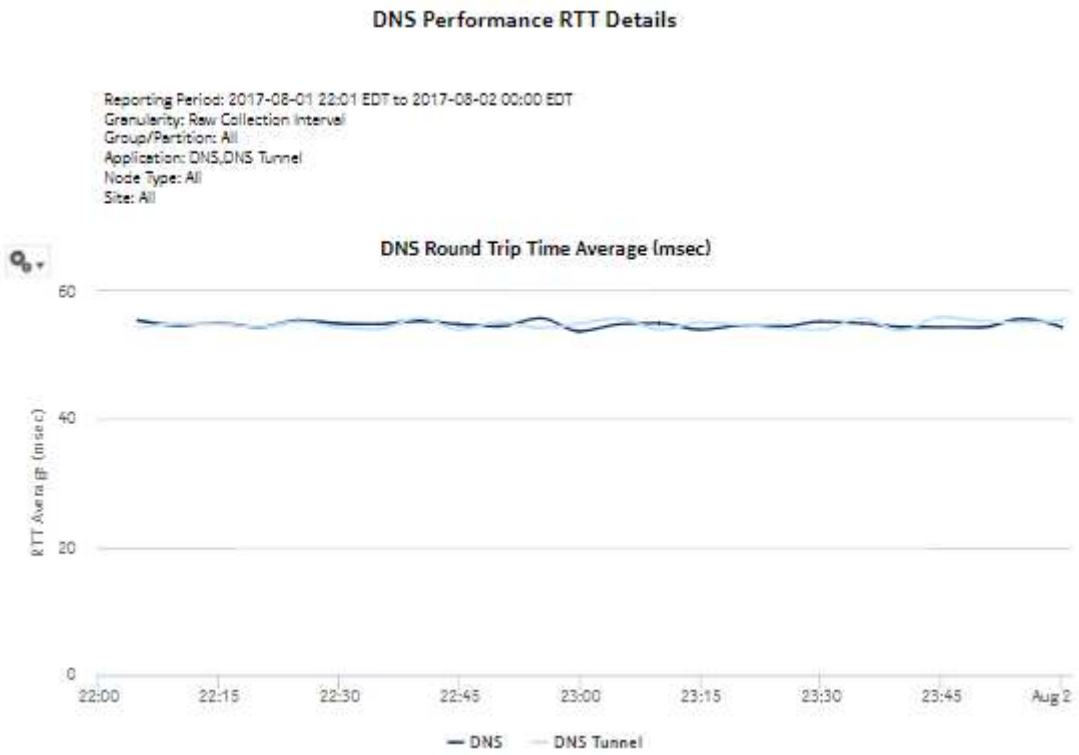
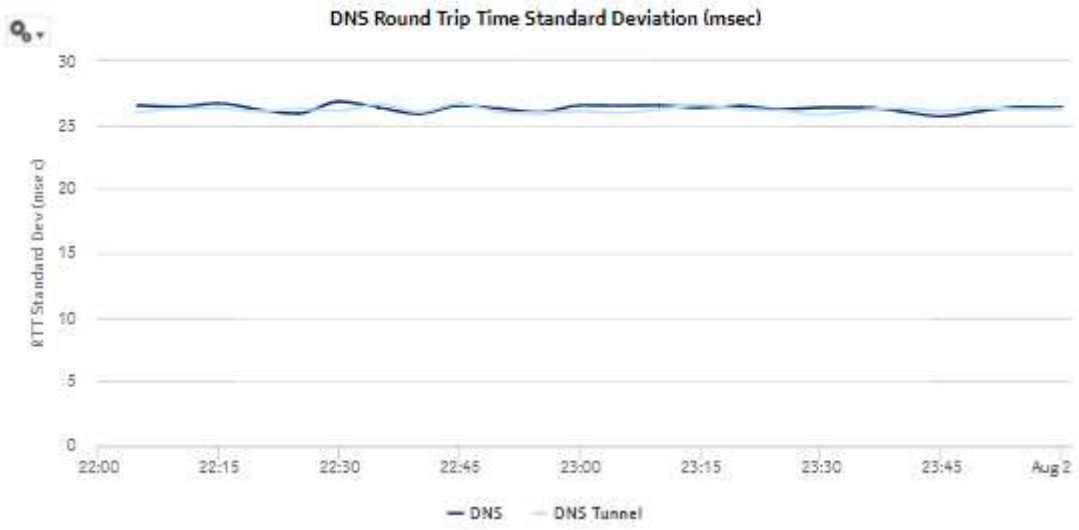


Figure 9-2 DNS Performance RTT Details report, continued



9.3 DNS Performance Session Details report

9.3.1 DNS Performance Session Details report overview

The DNS Performance Session Details report shows the number of DNS sessions for a specified set of applications.

Note: The DNS servers are modeled as applications and must be selected from the Application drop-down menu in the prompt section of the report

Note: This report requires special study statistics collection by an NSP Flow Collector for each modeled DNS server application. See the workflow to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent a DNS application, the application will appear in the report but the information provided will be invalid. If the user chooses a DNS application that is not configured for special studies collection, the application will not appear in the report.

Use cases

User quality of experience—Use the report to identify potential DNS server issues by DNS server type, or potential network issues that affect one or more DNS server types.

Report characteristics

The following table lists the principal report characteristics.

Table 9-3 DNS Performance Session Details report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive special study
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business
Selectable metrics or counters	—
Aggregation types	None (raw data) Hourly

Table 9-3 DNS Performance Session Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Drill-down support	No	

9.3.2 Example

The following figures show a report example.

Figure 9-3 DNS Performance Session Details report

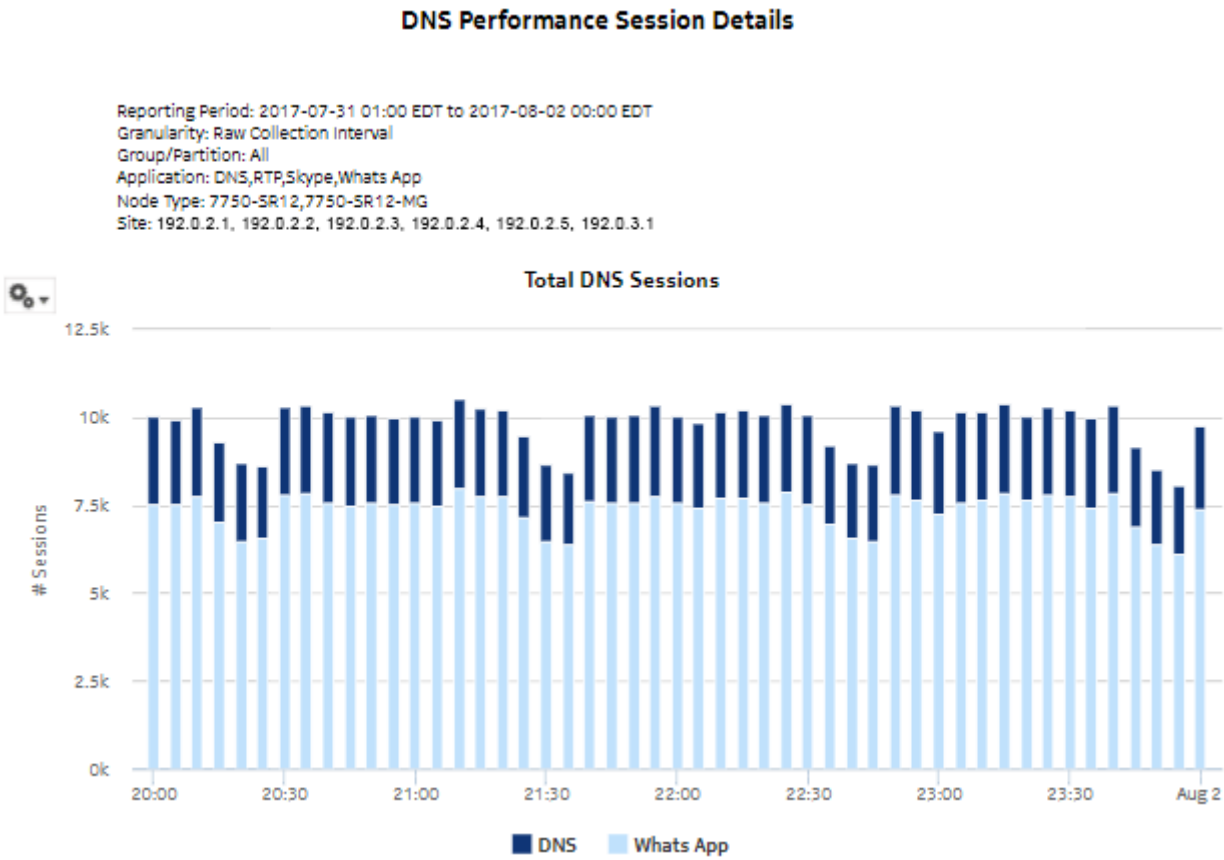


Figure 9-4 DNS Performance Session Details report—Successful DNS Sessions

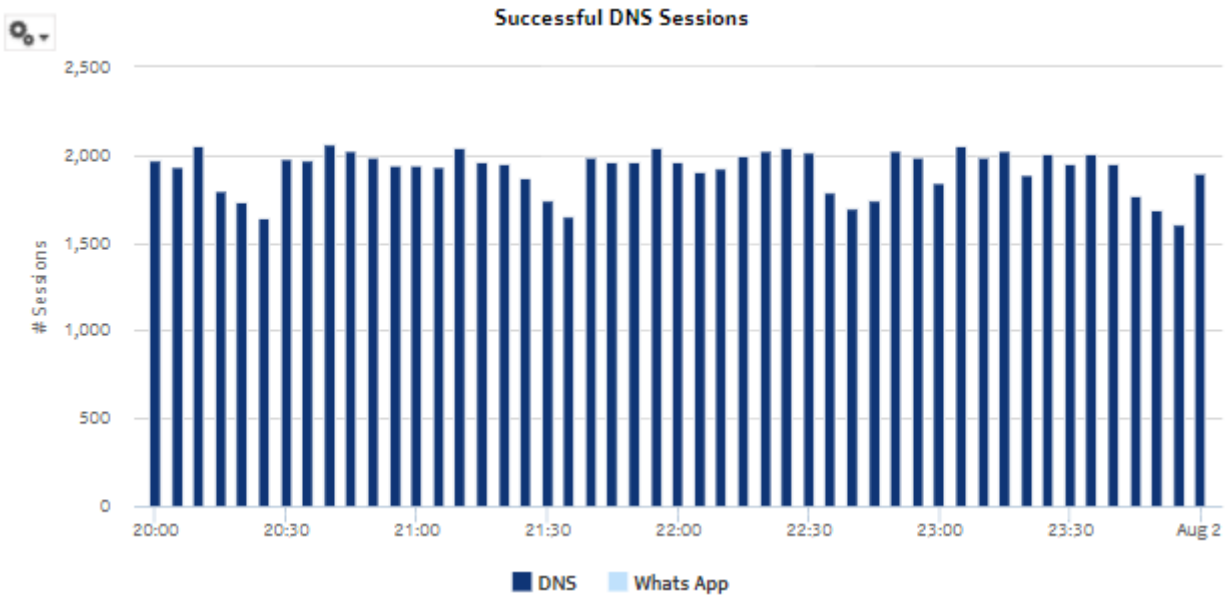


Figure 9-5 DNS Performance Session Details report—Failed DNS Sessions

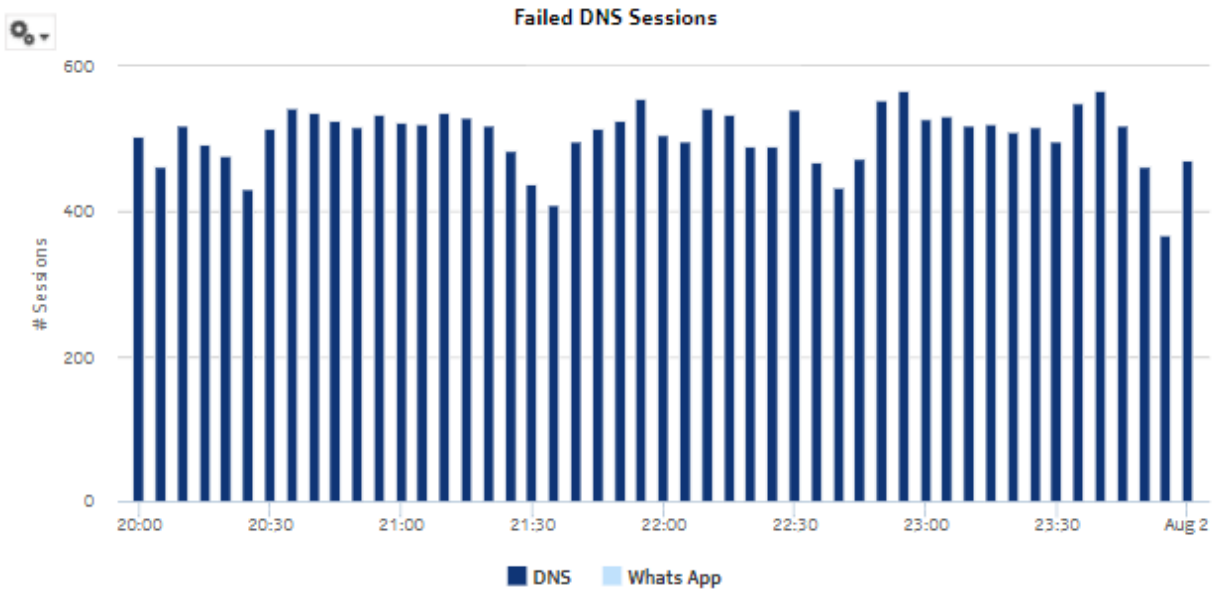
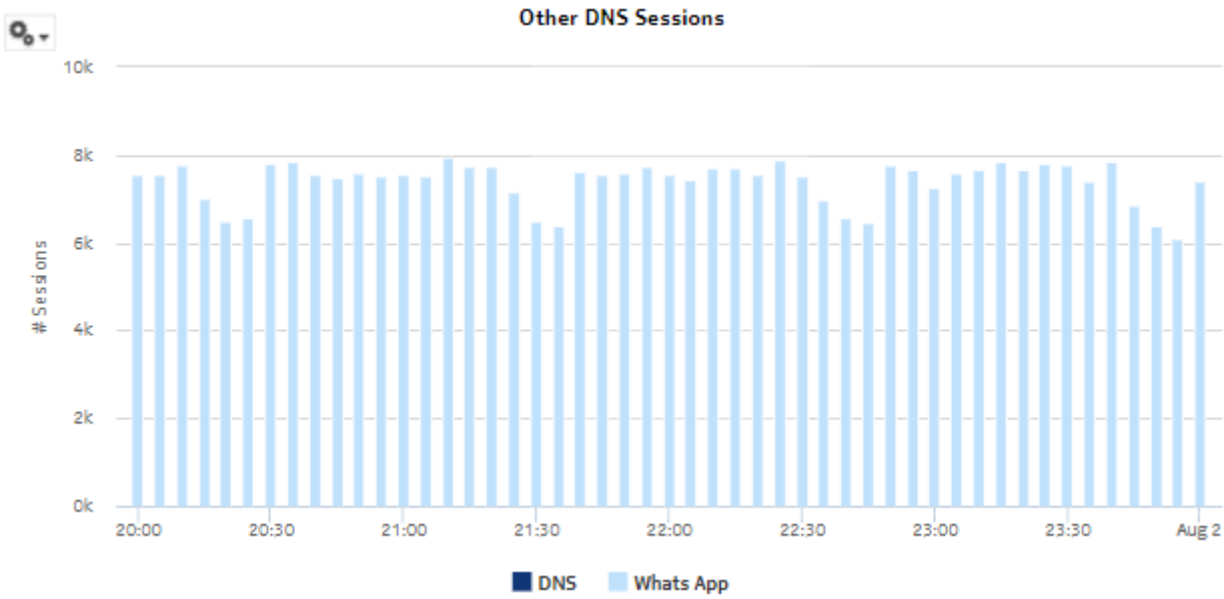


Figure 9-6 DNS Performance Session Details report—Other DNS Sessions



9.4 DNS Performance Summary report

9.4.1 DNS Performance Summary report overview

The DNS Performance Summary report shows a summary of DNS performance for a specified set of applications using RTT values and session counts.

Note: The DNS servers are modeled as applications and must be selected from the Application drop-down menu in the prompt section of the report.

Note: This report requires special study statistics collection by an NSP Flow Collector for each modeled DNS server application. See the workflow to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent a DNS application, the application will appear in the report but the information provided will be invalid. If the user chooses a DNS application that is not configured for special studies collection, the application will not appear in the report.

Use cases

User quality of experience—Use the report to anticipate user QoE issues by monitoring DNS performance to identify potential network issues.

Report characteristics

The following table lists the principal report characteristics.

Table 9-4 DNS Performance Summary report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Drill-down support	Yes—See DNS Performance RTT Details and DNS Performance Session Details	

9.4.2 Example

The following figures show a report example.

Figure 9-7 DNS Performance Summary report

DNS Performance Summary

Reporting Period: 2017-08-05 15:00 EDT to 2017-08-10 14:40 EDT
Group/Partition: All
Application: DNS,RTP,Skype
Node Type: All
Site: All
Domain: Residential / Wi-Fi (ESM)

DNS Session Round Trip Time (RTT)

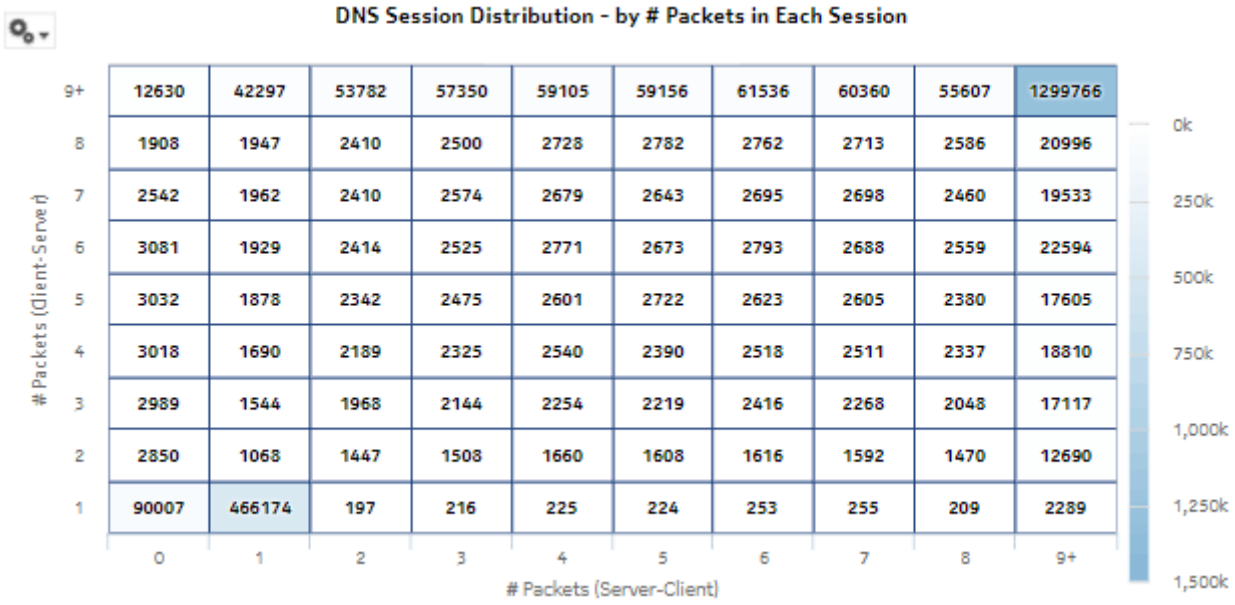
DNS Server	RTT Average (msec)	RTT Standard Dev (msec)
DNS	55.01	26.26
RTP	4,875.44	2,848.53
Skype	6,203.42	2,968.74

Figure 9-8 DNS Performance Summary—DNS Session Count

DNS Session Count

DNS Server	# Sessions	% Utilization	# Successful	% Successful	# Failed	% Failed	# Others	% Others
DNS	588,070	22.63%	466,013	79.24%	122,057	20.76%	0	.00%
RTP	1,562,728	60.15%	149	.01%	0	.00%	1,562,579	99.99%
Skype	447,462	17.22%	12	.00%	0	.00%	447,450	100.00%
Total	**2,598,260**	**100.00%**	**466,174**	**17.94%**	**122,057**	**4.7%**	**2,010,029**	**77.36%**

Figure 9-9 DNS Session Distribution—by # Packets in Each Session



The vertical axis of the DNS Session Distribution heat map shows the number of DNS requests made from the client to the server. The horizontal axis shows the number of responses sent from the server to the client.

Each cell shows the number of sessions observed that had X requests from the client to the server, and Y responses from the server to the client. For example, a 1 indicates one DNS request to the server and a matching response from the server to the client.

The following points may be useful for troubleshooting:

- The heat map shows the most number of sessions in the [1,1] cell, or along the diagonal. This indicates that the same 5-tuple is being re-used for multiple requests from the client.
- The first column shows requests from the client for which no response was received from the server. This could indicate a failure with one or more DNS server instances, or a communications issue between the client and server. A large number in any of these cells should be investigated.
- Cells above the diagonal are for cases where the client is sending more requests than it is receiving responses. Small deltas here are normal, but large deltas may represent a rogue client or a DoS attack on the DNS servers.
- Cells below the diagonal indicate cases where the client is receiving more responses than the number of issued requests. This is a rare, anomalous condition. Large values in these cells may represent compromised DNS servers or one experiencing a software malfunction.

9.5 ISA Average Load Report

9.5.1 ISA Average Load Report overview

The ISA Average Load Report shows average throughput and usage information for a specified set of ISA-AA.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 9-5 ISA Average Load Report characteristics

Characteristic	Value	
Statistics type	AA Accounting network performance	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	ISA Card	
	Metrics	• Average traffic rate • Average packet rate • Average active flows • Average flow setup rate • Average active subscribers

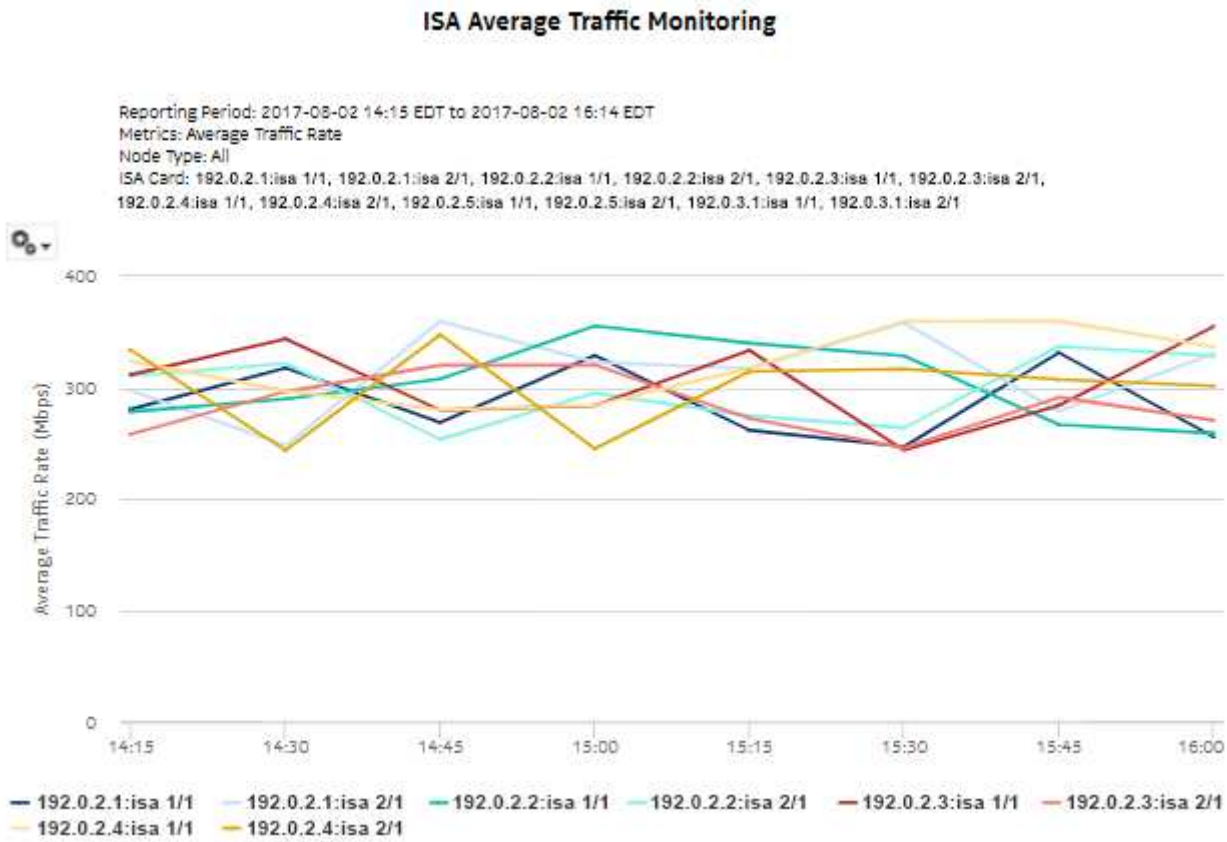
Table 9-5 ISA Average Load Report characteristics (continued)

Characteristic	Value
Drill-down support	No

9.5.2 Example

The following figure shows a report example.

Figure 9-10 ISA Average Load Report



9.6 ISA Peak Load report

9.6.1 ISA Peak Load report overview

The ISA Peak Load Report shows the peak throughput and usage information for a specified set of ISA-AA.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

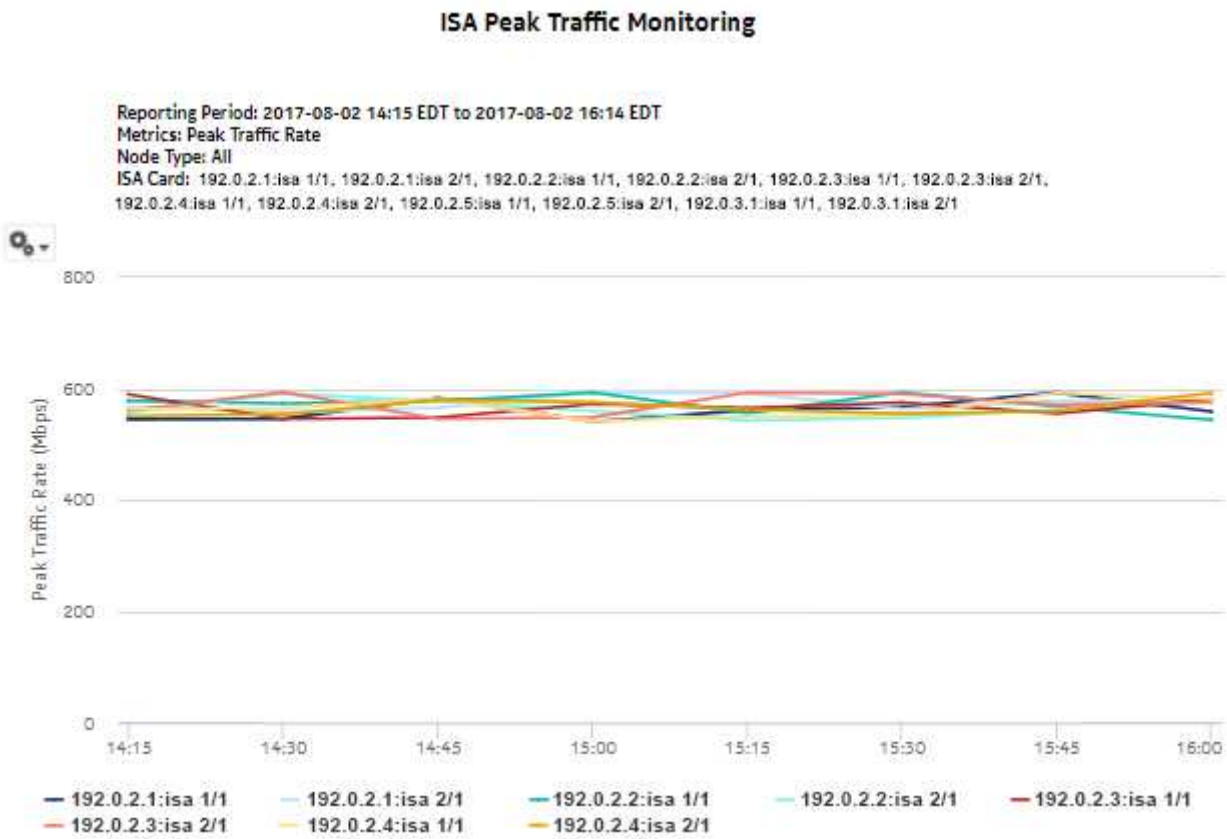
Table 9-6 ISA Peak Load report characteristics

Characteristic	Value	
Statistics type	AA Accounting network performance	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	ISA Card	
	Metrics	• Peak traffic rate • Peak packet rate • Peak active flows • Peak flow setup rate • Peak active subscribers with flows
Drill-down support	No	

9.6.2 Example

The following figure shows a report example.

Figure 9-11 ISA Peak Load Report



9.7 ISA Per Active Subscriber Traffic report

9.7.1 ISA Per Active Subscriber Traffic report overview

The ISA Per Active Subscriber Traffic report shows the throughput and usage information for a specified set of ISA-AA.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

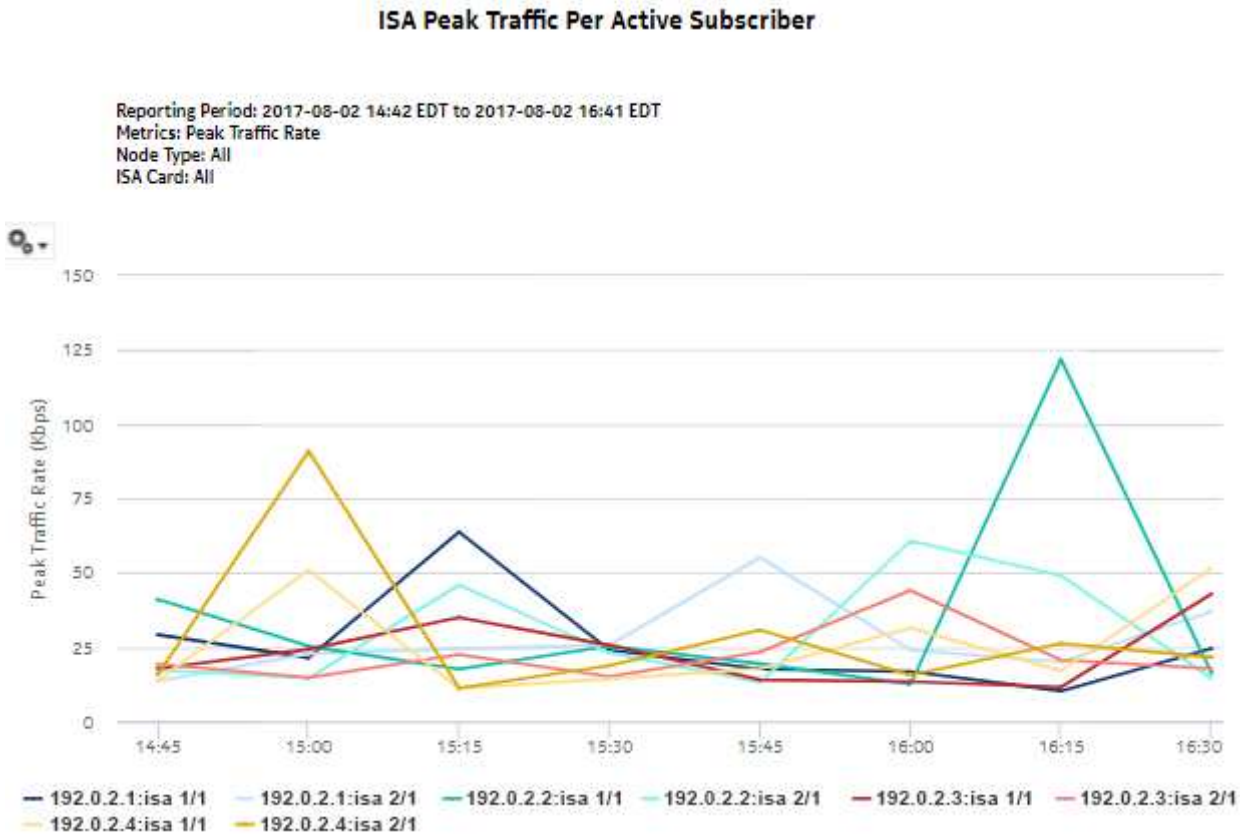
Table 9-7 ISA Per Active Subscriber Traffic report characteristics

Characteristic	Value	
Statistics type	AA Accounting network performance	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	ISA Card	
	Metrics	• Peak traffic rate • Peak packet rate • Peak active flows • Peak flow setup rate • Peak active subscribers with flows
Drill-down support	No	

9.7.2 Example

The following figure shows a report example.

Figure 9-12 ISA Per Active Subscriber Traffic report



9.8 ISA Performance Dashboard

9.8.1 Dashboard overview

The ISA Performance Dashboard shows the following ISA-AA information:

- Overloaded ISAs
- Top Loaded ISAs

Use cases

Network resource planning—Use the dashboard to identify excessive ISA-AA usage.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 9-8 ISA Performance Dashboard characteristics

Characteristic	Value	
Statistics type	Application Distribution - All Routers—AA Accounting per partition application	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Site and ISA Card(s)	
	Rank	Number of items to report
	Flow Threshold	—
	Flow Rate Threshold	
	Traffic Rate Threshold (Mbps)	
	Packet Rate Threshold (pps)	
Drill-down support	Yes—Click on a table entry to display the data in chart form	

9.8.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 9-13 ISA Performance dashboard—Overloaded ISAs dashlet

Figure 9-14 ISA Performance dashboard—Top Loaded ISAs dashlet

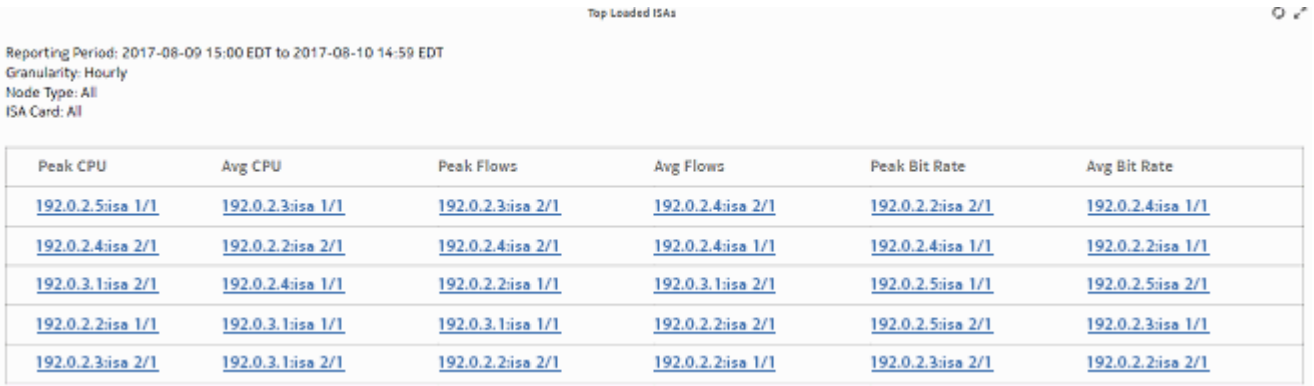


Figure 9-15 ISA Performance dashboard—Overloaded ISAs drill-down

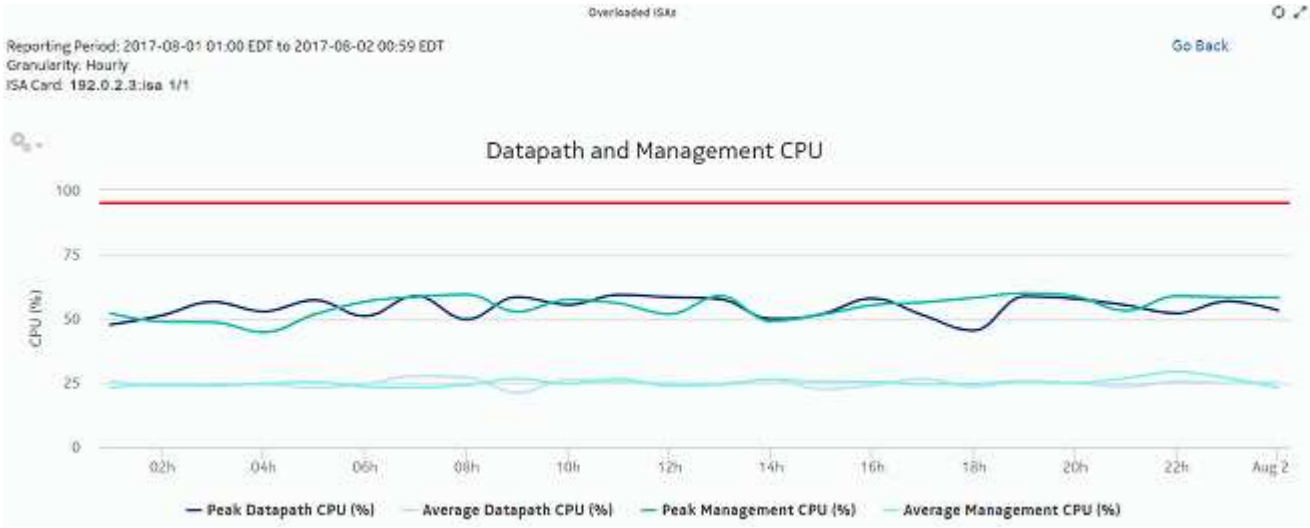


Figure 9-16 ISA Performance dashboard—Top Loaded ISAs drill-down

9.9 Network and Subscriber Dashboard

9.9.1 Dashboard overview

The Network and Subscriber Dashboard shows the following network- and router-level information:

- Top Routers—Download Bandwidth Per Router

- Total Download Bandwidth—All Routers
- Total Upload Bandwidth—All Routers
- Top Routers—Active Subscribers Per Router
- Application Group Distribution—Selected Routers
- Application Distribution—All Routers

Use cases

Capacity planning—Use the dashboard to examine traffic growth and identify usage patterns for planning future capacity requirements.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 9-9 Network and Subscriber Dashboard characteristics

Characteristic	Value	
Statistics type	Top Routers - Download Bandwidth Per Router—AA Accounting per partition application group Total Download Bandwidth - All Routers—AA Accounting per partition application group Total Upload Bandwidth - All Routers—AA Accounting per partition application group Top Routers - Active Subscribers Per Router—AA Accounting network performance Application Group Distribution - Selected Routers—AA Accounting per partition application group Application Distribution - All Routers—AA Accounting per partition application	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Site	
	Rank	Number of items to report
	Bandwidth Percentage Threshold	—
Drill-down support	Yes—Application Group Distribution - Selected Routers dashlet only; display a table of the top applications in the selected application group	

9.9.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 9-17 Top Routers - Download Bandwidth Per Router dashlet

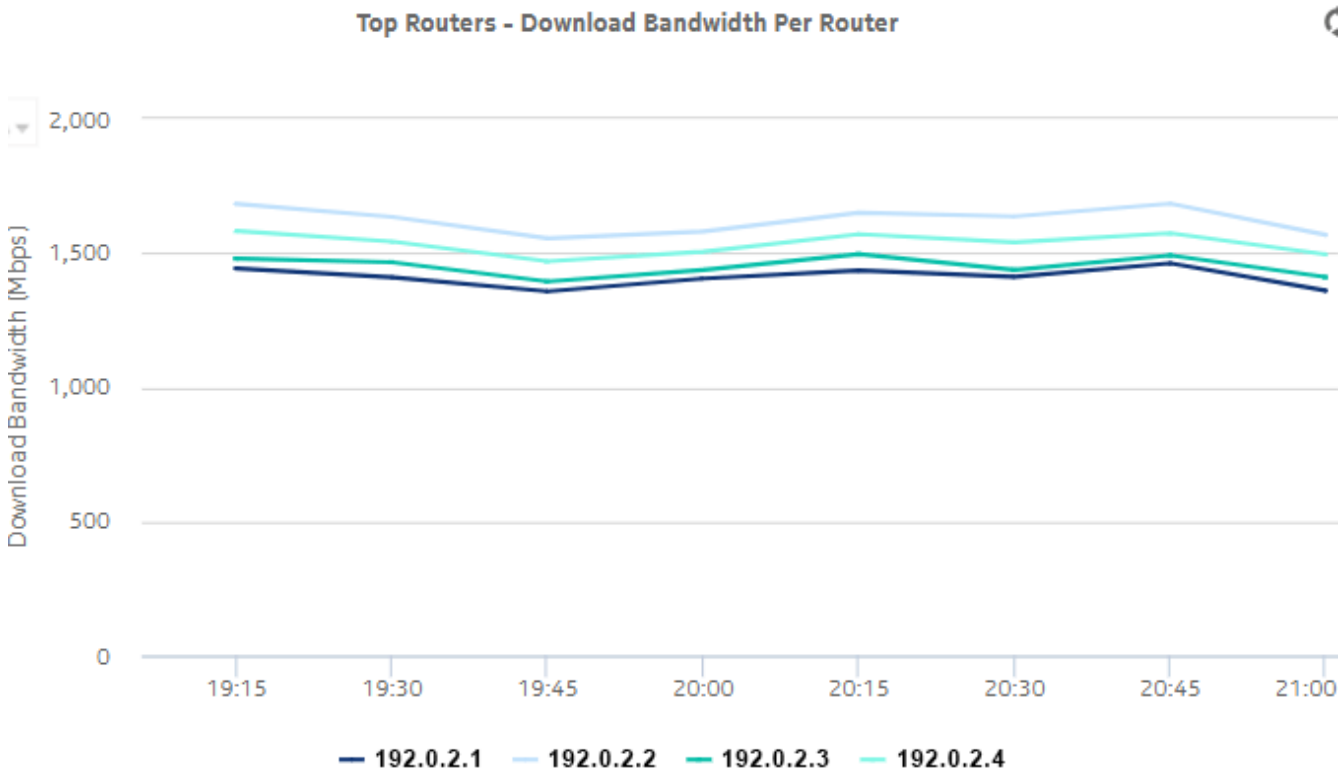


Figure 9-18 Top Routers - Active Subscribers Per Router dashlet

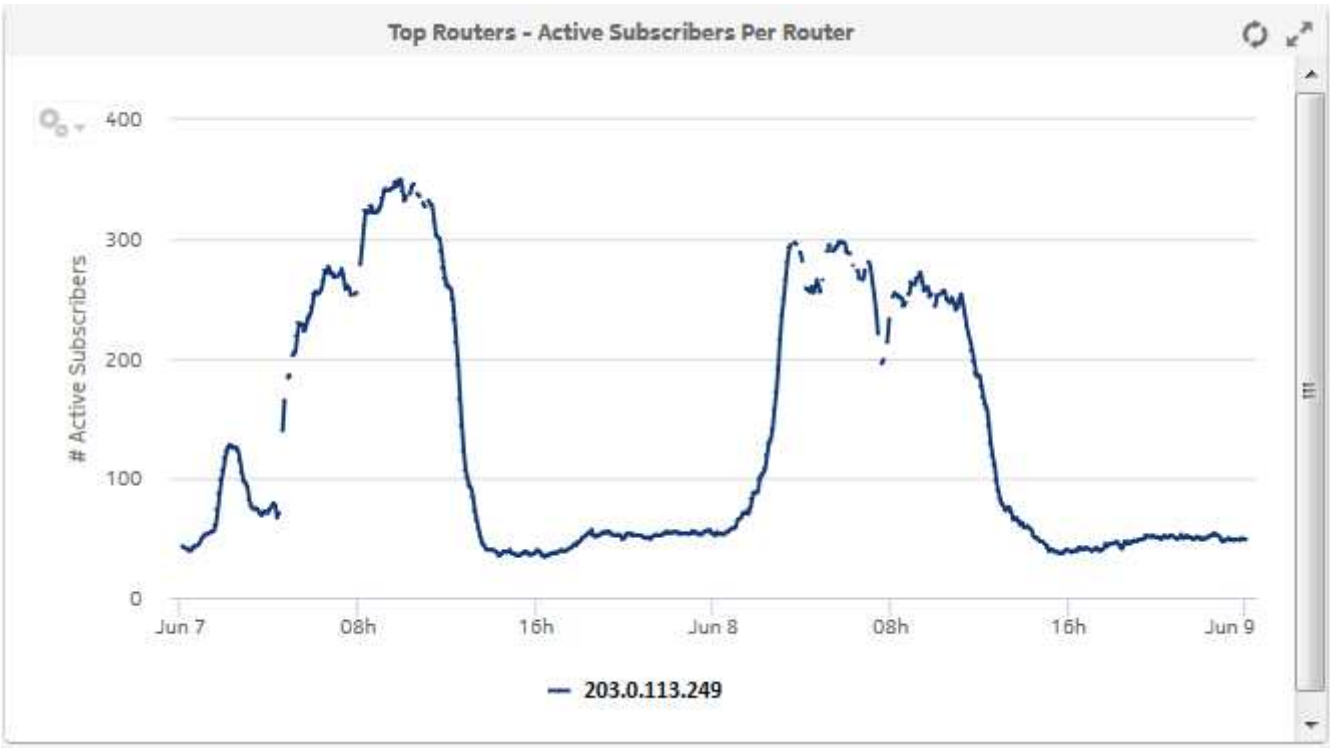


Figure 9-19 Total Download Bandwidth - All Routers dashlet

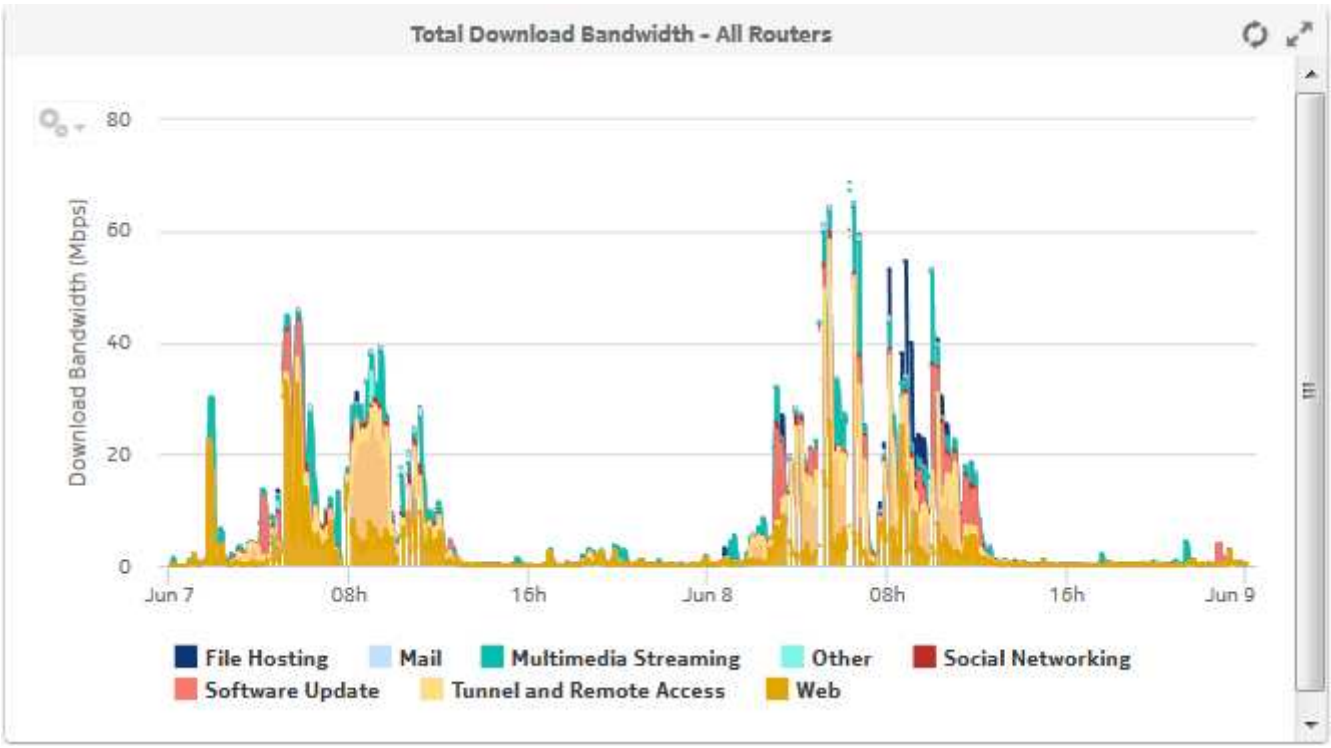


Figure 9-20 Application Group Distribution — Selected Routers dashlet

Application Group Distribution - Selected Routers

#	Application Group	Volume (GB)	%
1	Web	1,069.19	17.7
2	Tunnel and Remote Access	938.65	15.5
3	Real-Time Communication	932.74	15.4
4	Peer to Peer	515.31	8.5
5	Multimedia Streaming	495.6	8.2
6	Database	467.58	7.7
7	File Hosting	375.9	6.2
8	Mail	371.34	6.1
9	Gaming	233.14	3.9

Figure 9-21 Application Group Distribution - Selected Routers drill-down

Application Group Distribution - Selected Routers

Go Back

Application Group Distribution - Multimedia Streaming

Application Distribution

#	Application	Volume (GB)	%
1	Deezer	111.83	22.5
2	CNN Live	103.42	20.8
3	Funshion	94.28	19
4	Spotify	93.72	18.9
5	Slingbox	93.14	18.8
	Total	**496.39**	**100%**

Figure 9-22 Total Upload Bandwidth - All Routers dashlet

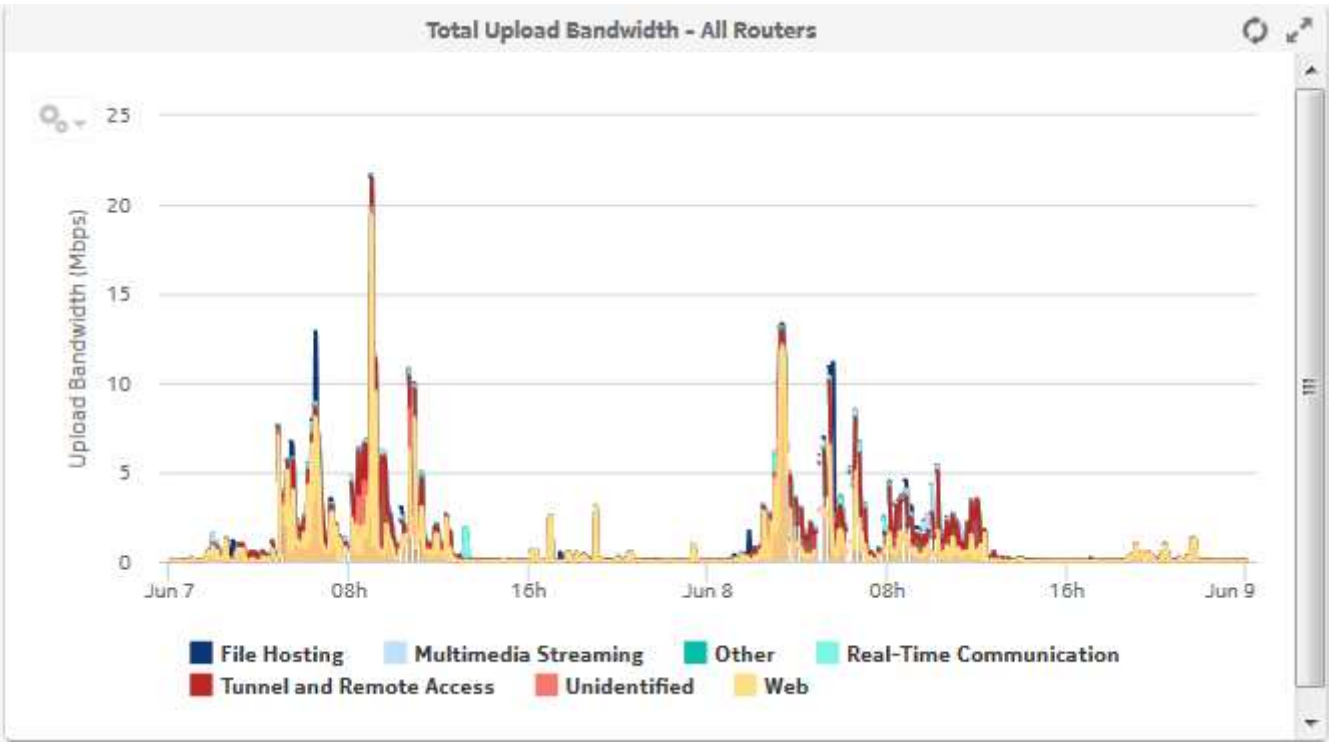
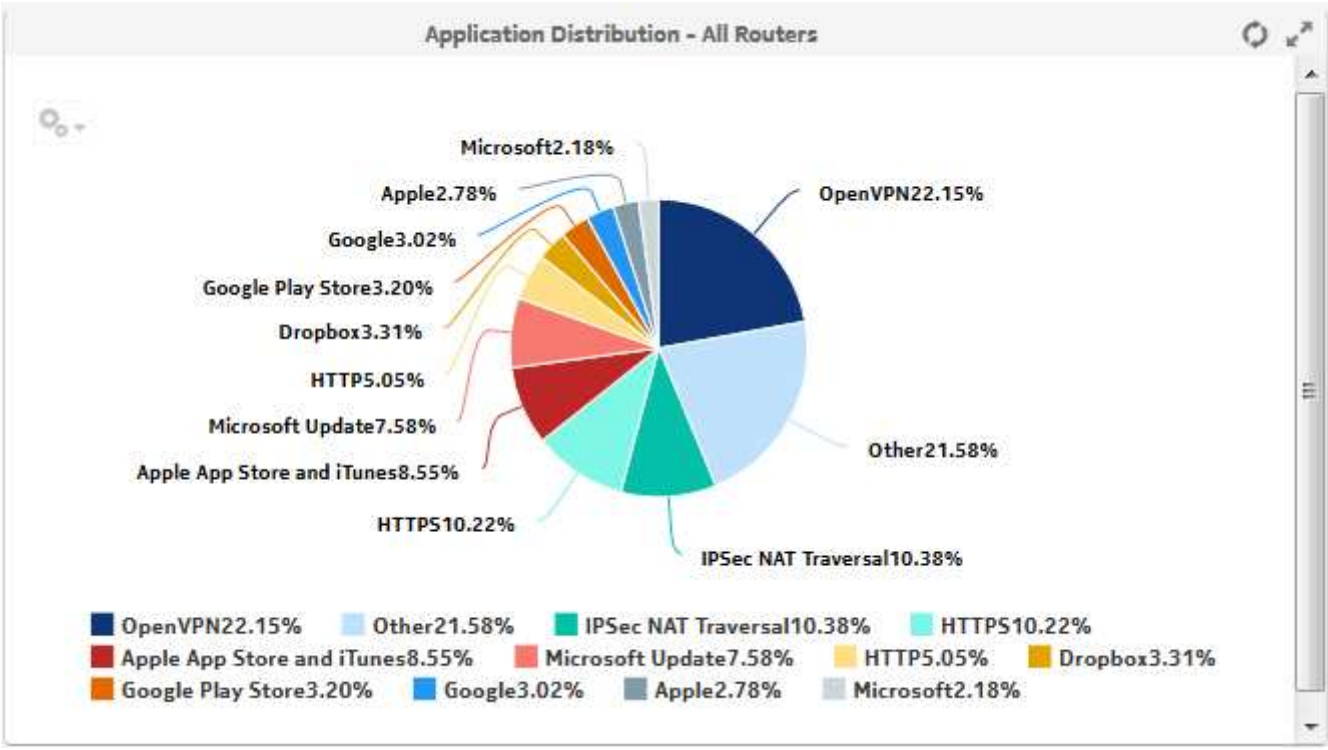


Figure 9-23 Application Distribution - All Routers dashlet



9.10 TCP Performance Dashboard

9.10.1 Dashboard overview

The TCP Performance Dashboard shows network performance in terms of the number of retransmitted packets and the time taken to establish a user session.

Use cases

User quality of experience—Use the report to anticipate user QoE issues by monitoring TCP performance to identify potential network issues.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 9-10 TCP Performance Dashboard characteristics

Characteristic	Value
Statistics type	AA Cflowd TCP performance application group **Note:** Cflowd aggregation per DCP group must be enabled.

Table 9-10 TCP Performance Dashboard characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Application Group	
	Node Type	
	Site	
	Client IP Group	Configured on NSP Analytics Parameters tab of AA Group Policy
	Server IP Group	
	Top Applications	Number of items to report
Drill-down support	Yes—Display graphs to show the top applications contributing to retransmitted packets or excessive RTT for the selected time and direction.	

9.10.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 9-24 Average Retransmitted Packets Per Session Direction dashlet

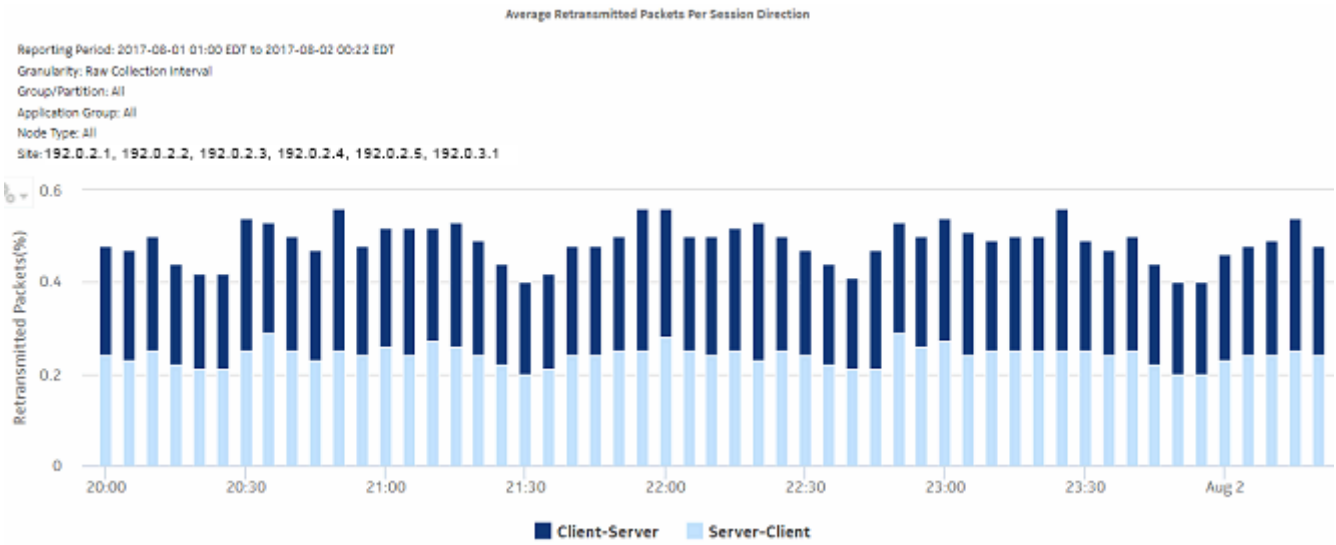


Figure 9-25 Average Session Establish Time Per Session Direction dashlet

Figure 9-26 Average Retransmitted Packets Per Session Direction drill-down

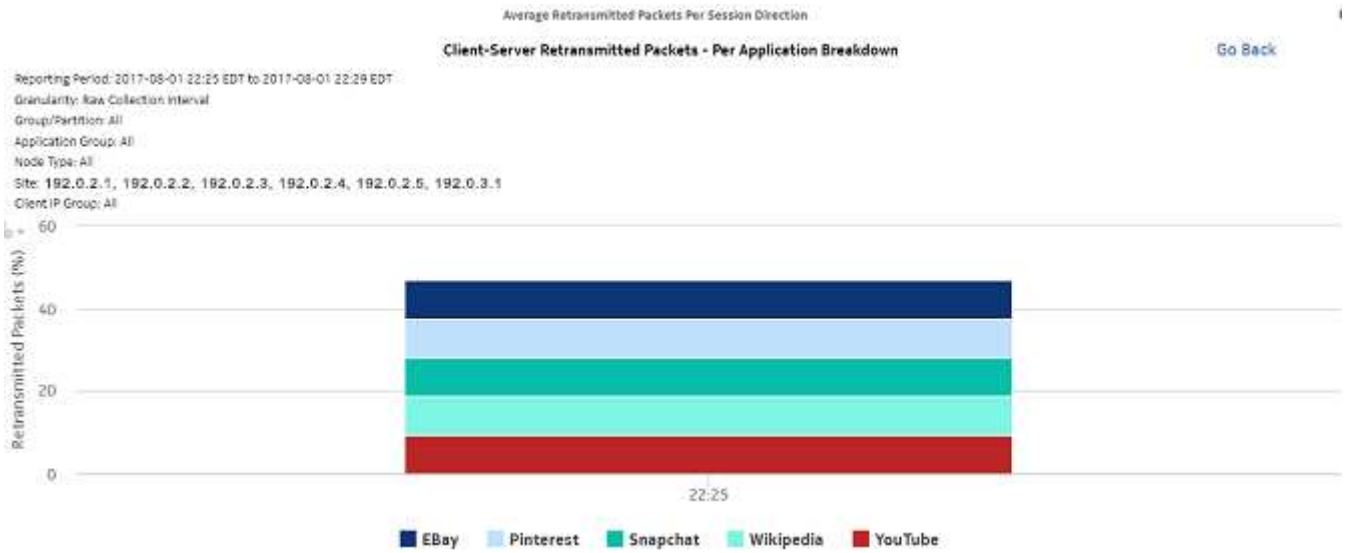
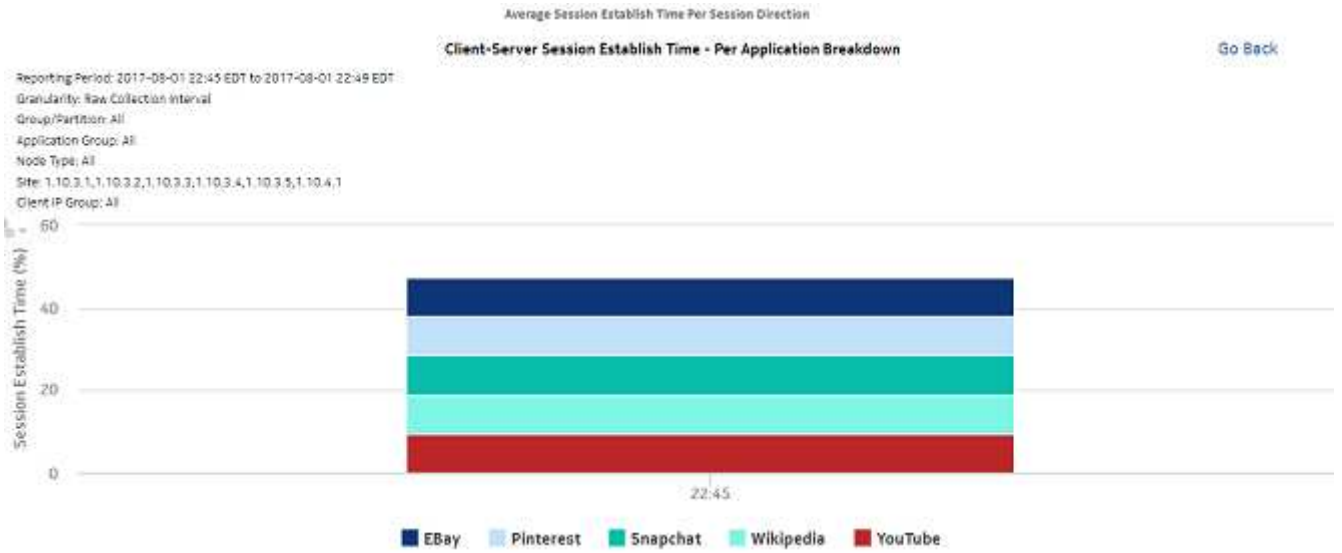


Figure 9-27 Average Session Establish Time Per Session Direction drill-down



9.11 TCP Performance Report - Worst Performing Applications report

9.11.1 TCP Performance Report - Worst Performing Applications report overview

The TCP Performance Report - Worst Performing Applications report shows the most poorly performing applications in terms of retransmitted packets or session establishment delay.

Use cases

User quality of experience—Use the report to identify low-quality application delivery and address user QoE issues by monitoring TCP performance to see the worst performing applications.

Report characteristics

The following table lists the principal report characteristics.

Table 9-11 TCP Performance Report - Worst Performing Applications report characteristics

Characteristic	Value
Statistics type	AA Cflowd TCP performance application **Note:** Cflowd aggregation per IP group must be enabled.
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

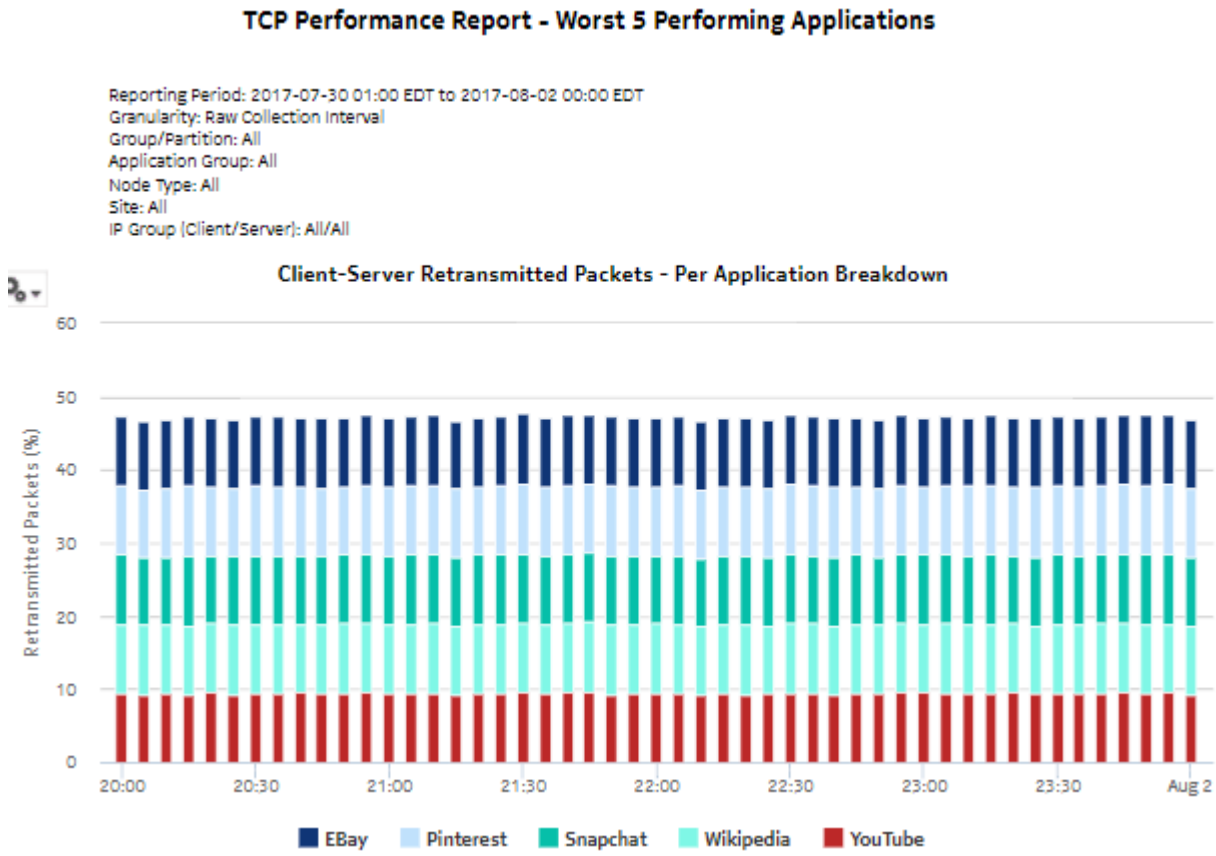
Table 9-11 TCP Performance Report - Worst Performing Applications report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	
	Application Group	
	Top Applications	Number of items to report
	Client IP Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Server IP Group	
	Metrics	Retransmitted packets, session establish time
	Direction	Client-server, server-client
Drill-down support	No	

9.11.2 Example

The following figure shows a report example.

Figure 9-28 TCP Performance Report - Worst Performing Applications report



9.12 TCP Performance Report for Selected Application Group report

9.12.1 TCP Performance Report for Selected Application Group report overview

The TCP Performance Report for Selected Application Group report shows the TCP performance metrics for an application group.

Use cases

User quality of experience—Use the report to monitor application group performance and identify potential user QoE issues.

Report characteristics

The following table lists the principal report characteristics.

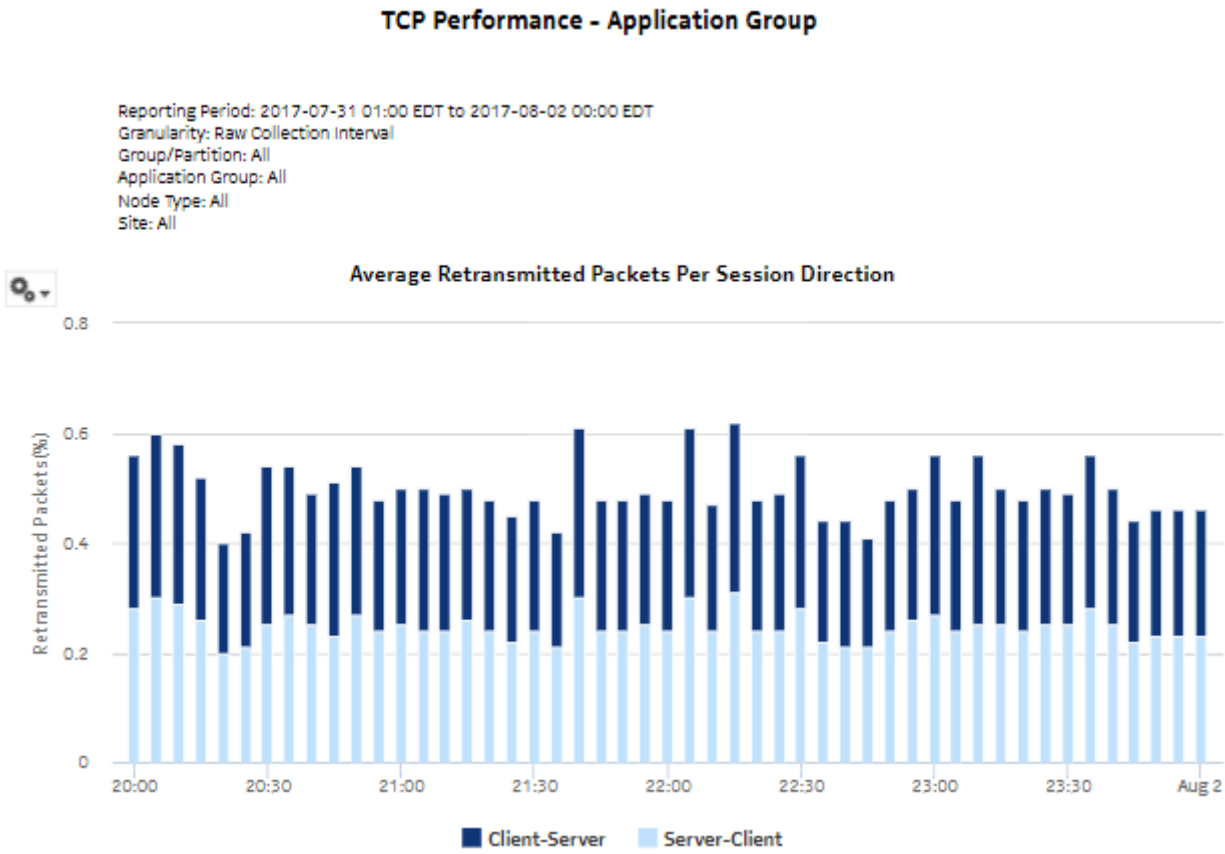
Table 9-12 TCP Performance Report for Selected Application Group report characteristics

Characteristic	Value	
Statistics type	AA Cflowd TCP performance application group **Note:** Cflowd aggregation per IP group must be enabled.	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	
	Application Group	
	Client IP Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Server IP Group	
	Metrics	Retransmitted packets, session establish time
Drill-down support	Yes—Open TCP Performance Report - Worst Performing Applications to display graphs that show the top applications contributing to retransmitted packets or excessive RTT for the selected time and direction.	

9.12.2 Example

The following figure shows a report example.

Figure 9-29 TCP Performance Report for Selected Application Group report



9.13 VoIP MOS Forensic report

9.13.1 VoIP MOS Forensic report overview

The VoIP MOS Forensic report shows application-level VoIP MOS metrics.

Use cases

Troubleshooting—Use the report to perform root-cause analysis of VoIP call quality issues for an application.

Error case

Because the report output involves a crosstab-based-horizontally growing table, running the report without narrowing down the data using input controls can lead to a report showing partial results (not showing data for all intervals in the selected reporting period). This is caused by the configured limit for crosstab components in this report.

If this occurs, re-run the report narrowing down the input control values; for example, instead of selecting all metrics available to report on, select a subset. Similarly, select a subset of applications, source and destination IP groups to report on.

Caution: Changing the configured limit causes performance issues. To change the configured limit, contact Nokia technical support.

Report characteristics

The following table lists the principal report characteristics.

Table 9-13 VoIP MOS Forensic report characteristics

Characteristic	Value
Statistics type	AA Cflowd RTP voice performance application
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

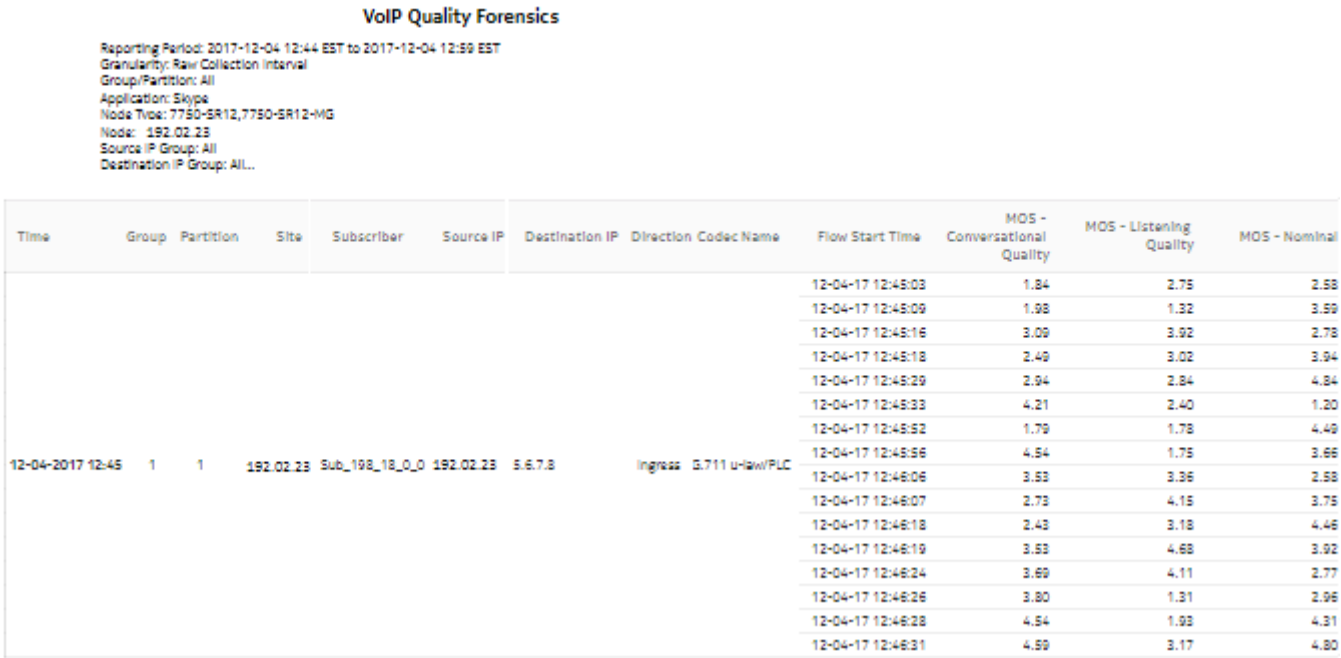
Table 9-13 VoIP MOS Forensic report characteristics (continued)

Characteristic	Value			
Report inputs	*Prompt*	*Notes*		
	Start date	Calendar date or relative date (for example, two days ago) and time		
	Granularity	Read-only: Raw collection only		
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)		
	Group/Partition	Search using partial names or wildcard (%).		
	Application			
	Source IP Group			
	Destination IP Group			
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.		
	Node			
	Metrics	Average burst length (msec) Average round trip packet delay Average voice bandwidth Burst count Degradation factor due to: • codec • delay • echo • noise level • packet discard • packet loss • recency • signal level	Discard packets Flow duration Flow start timestamp Gap count Lost packets MOS: • conversational quality • listening quality • nominal • reference Mean absolute packet delay variation Out of sequence packets Payload type	R-factor: • conversational quality • for burst conditions • for gap conditions • G.107 • listening quality • nominal RTP average gap length (msec) Received packets
Drill-down support	No			

9.13.2 Example

The following figure shows a report example.

Figure 9-30 VoIP MOS Forensic report



VoIP Quality Forensics

Reporting Period: 2017-12-04 12:44 EST to 2017-12-04 12:59 EST
Granularity: Raw Collection Interval
Group/Partition: All
Application: Skype
Node Type: 7750-SR12,7750-SR12-MG
Node: 192.02.23
Source IP Group: All
Destination IP Group: All...

Time	Group	Partition	Site	Subscriber	Source IP	Destination IP	Direction	Codec Name	Flow Start Time	MOS - Conversational Quality	MOS - Listening Quality	MOS - Nominal
12-04-2017 12:45	1	1	192.02.23	Sub_198_18_0_0	192.02.23	5.6.7.8	Ingress	G.711 u-law/PLC	12-04-17 12:45:03	1.84	2.75	2.58
									12-04-17 12:45:09	1.98	1.32	3.59
									12-04-17 12:45:16	3.09	3.92	2.78
									12-04-17 12:45:18	2.49	3.02	3.94
									12-04-17 12:45:29	2.94	2.84	4.84
									12-04-17 12:45:33	4.21	2.40	1.20
									12-04-17 12:45:52	1.79	1.78	4.49
									12-04-17 12:45:56	4.54	1.75	3.66
									12-04-17 12:46:06	3.53	3.36	2.58
									12-04-17 12:46:07	2.73	4.15	3.75
									12-04-17 12:46:18	2.43	3.18	4.46
									12-04-17 12:46:19	3.53	4.68	3.92
									12-04-17 12:46:24	3.69	4.11	2.77
									12-04-17 12:46:26	3.80	1.31	2.96
									12-04-17 12:46:28	4.54	1.93	4.31
									12-04-17 12:46:31	4.59	3.17	4.80

9.14 VoIP MOS report

9.14.1 VoIP MOS report overview

The VoIP MOS report shows overall and per-application VoIP MOS metrics.

Use cases

User quality of experience—Use the report to monitor VoIP call quality and identify potential user QoE issues.

Report characteristics

The following table lists the principal report characteristics.

Table 9-14 VoIP MOS report characteristics

Characteristic	Value
Statistics type	AA Cflowd RTP voice performance application
NSP Flow Collector required	Yes

Table 9-14 VoIP MOS report characteristics (continued)

Characteristic	Value			
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business			
Report inputs	*Prompt*	*Notes*		
	End date	Calendar date or relative date (for example, two days ago) and time		
	Granularity	Aggregation types: • Hourly • Daily • Monthly		
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)		
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.		
	Node			
	Group/Partition			
	Application			
	Select metric to plot	R-Factor - listening quality, MOS - conversational quality, MOS - listening quality, MOS - nominal, MOS - reference, R-Factor - conversational quality		
	Select metrics to see the details summary	Degradation factor due to: • codec type • delay • echo • noise level • packet discard • packet loss • recency • signal level	MOS: • conversational quality • listening quality • nominal	R-factor: • conversational quality • listening quality
Drill-down support	No			

9.14.2 Example

The following figures show a report example.

Figure 9-31 VoIP MOS Report

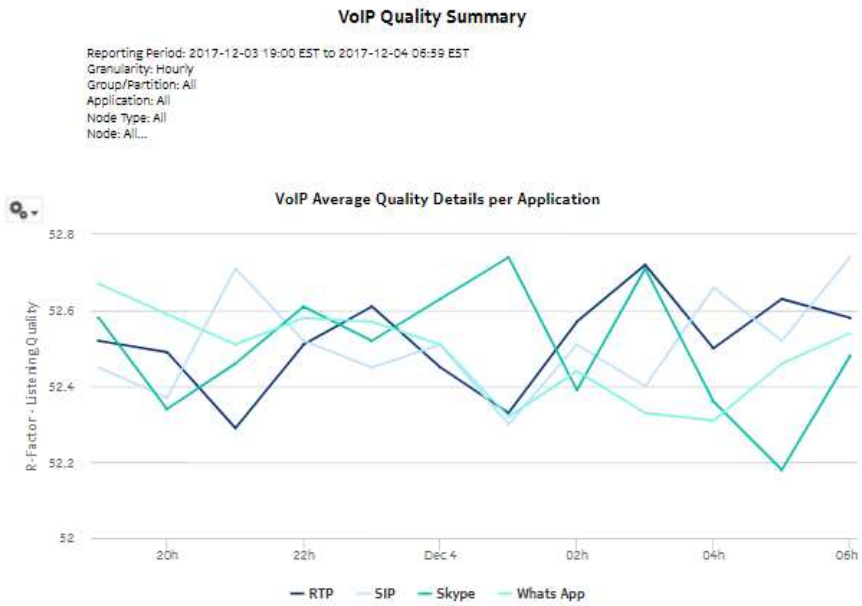


Figure 9-32 VoIP MOS Report report average quality summary

VoIP Average Quality Summary

Codec Name	Average Degradation Factor due to Codec Type	Average Degradation Factor due to Delay	Average Degradation Factor due to Echo	Average Degradation Factor due to Noise Level	Average MOS - Listening Quality	Total # Sampled Calls
G.711 u-law/PLC	52.49	52.55	52.52	52.49	2.94	2,116,058.00
G.719	52.46	52.51	52.46	52.55	2.94	636,884.00
G.722 64k	52.48	52.51	52.49	52.48	2.94	1,058,796.00
G.729A/G.729AB	52.51	52.48	52.50	52.53	2.94	2,119,148.00
Overall (Average)	**52.48**	**52.51**	**52.49**	**52.51**	**2.94**	**1,482,721.50**

10 Residential Subscribers reports

10.1 Residential Subscribers reports overview

10.1.1 General information

Residential Subscribers reports provide information about traffic usage, application usage, and application group usage by subscribers.

Drill-down reports

All reports can be run from the main Residential Subscribers reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Residential Subscribers reports. Each level of indentation indicates a drill down. For example, an Application Usage Pattern with Selected Application Profiles report is a drill-down report from a Top Applications with Selected Application Profiles report.

Table 10-1 Available drill-downs for Residential Subscribers reports

Top Application Groups with Selected Application Profiles	
	Application Group Usage Pattern with Selected Application Profiles
Top Application Groups with Selected Subscribers	
	Application Group Usage Pattern with Selected Subscribers
Top Application Profiles by Application Group Usage	
	Top Application Groups with Selected Application Profiles
Top Application Profiles by Application Usage	
	Top Applications with Selected Application Profiles
Top Applications with Selected Application Profiles	
	Application Usage Pattern with Selected Subscribers
Top Applications with Selected Subscribers	
	Application Usage Pattern with Selected Application Profiles
Top Subscribers by Application Group Usage	
	Top Application Groups with Selected Subscribers
Top Subscribers by Application Usage	
	Top Applications with Selected Subscribers

10.2 # Active Subscribers and Usage for Selected Application Groups report

10.2.1 # Active Subscribers and Usage for Selected Application Groups report overview

The # Active Subscribers and Usage for Selected Application Groups report shows the number of active subscribers for a specified set of application groups. Additionally, the report shows the average consumption per subscriber for the selected application groups

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-2 # Active Subscribers and Usage for Selected Application Groups report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes, packets or flows
Drill-down support	No	

10.2.2 Example

The following figure shows a report example.

Figure 10-1 # Active Subscribers and Usage for Selected Application Groups report

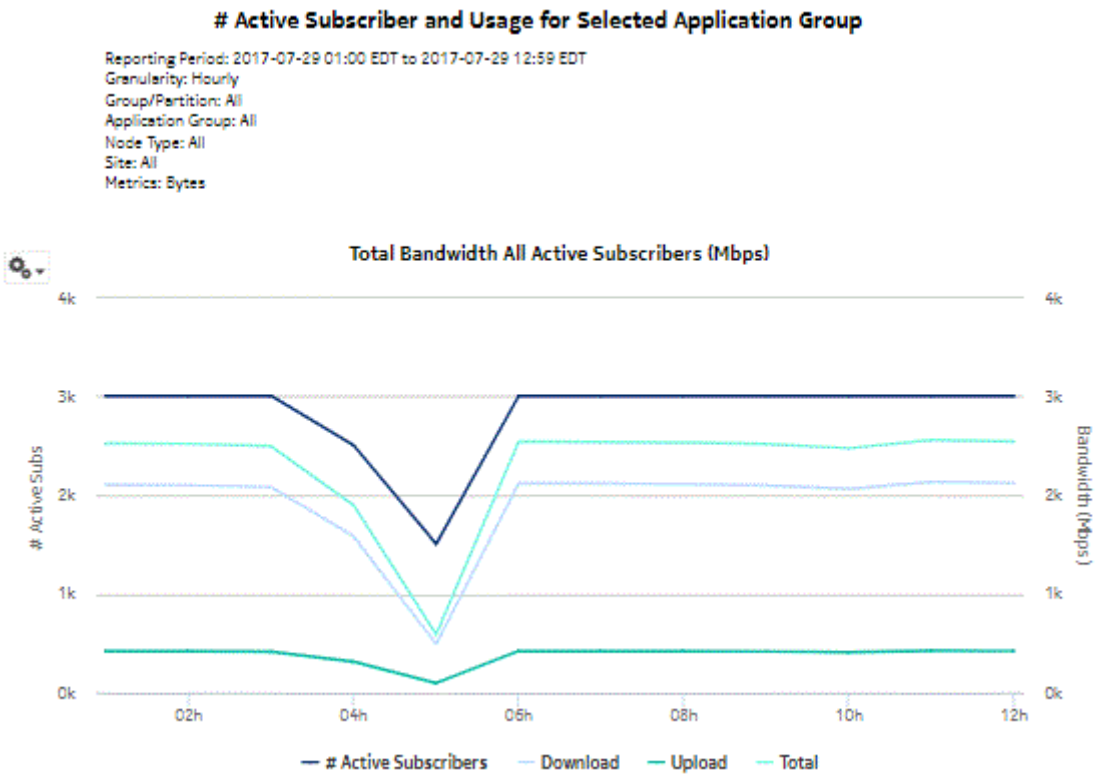
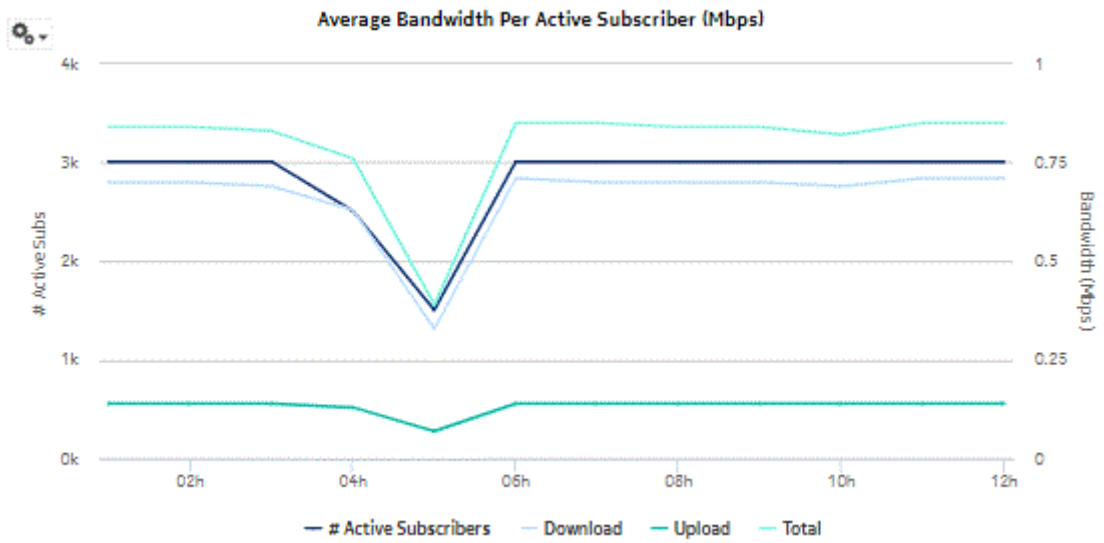


Figure 10-2 # Active Subscribers and Usage for Selected Application Groups report, continued



10.3 # Active Subscribers and Usage for Selected Application Profiles report

10.3.1 # Active Subscribers and Usage for Selected Application Profiles report overview

The # Active Subscribers and Usage for Selected Application Profiles report shows the number of active subscribers for a specified set of application profiles. Additionally, the report shows the average consumption per subscriber for the selected application profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-3 # Active Subscribers and Usage for Selected Application Profiles report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber aggregate **Note:** Subscriber aggregation must be enabled in the associated AA accounting policy.
NSP Flow Collector required	No

Table 10-3 # Active Subscribers and Usage for Selected Application Profiles report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Profile	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes, packets or flows
Drill-down support	No	

10.3.2 Example

The following figure shows a report example.

Figure 10-3 # Active Subscribers and Usage for Selected Application Profiles report

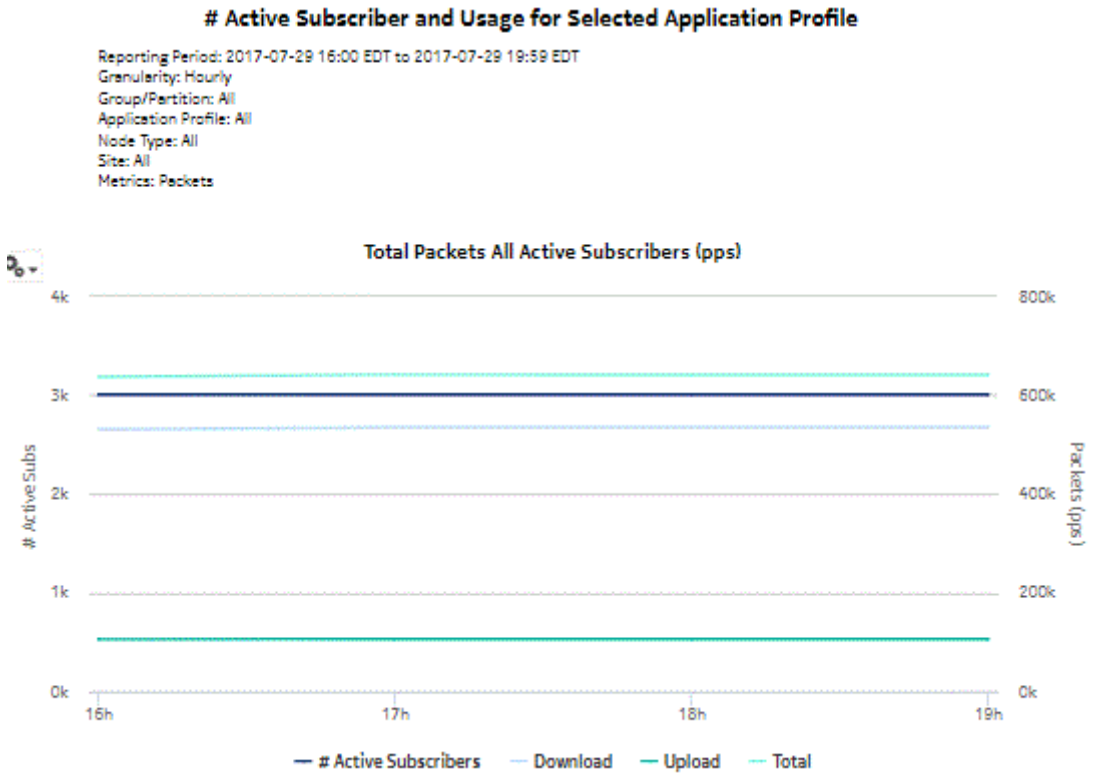
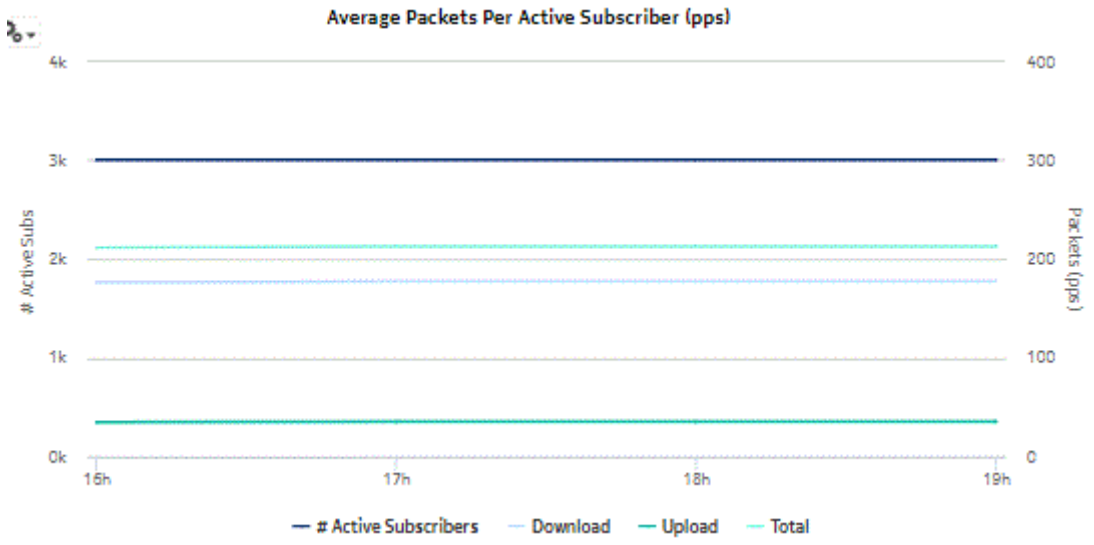


Figure 10-4 # Active Subscribers and Usage for Selected Application Profiles report, continued



10.4 # Active Subscribers and Usage for Selected Applications report

10.4.1 # Active Subscribers and Usage for Selected Applications report overview

The # Active Subscribers and Usage for Selected Applications report shows the number of active subscribers and the associated traffic volume for a specified set of applications. Additionally, the report shows the average consumption per subscriber for the selected applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-4 # Active Subscribers and Usage for Selected Applications report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Metrics	Bytes, packets or flows
Drill-down support	No	

10.4.2 Example

The following figure shows a report example.

Figure 10-5 # Active Subscribers and Usage for Selected Applications report

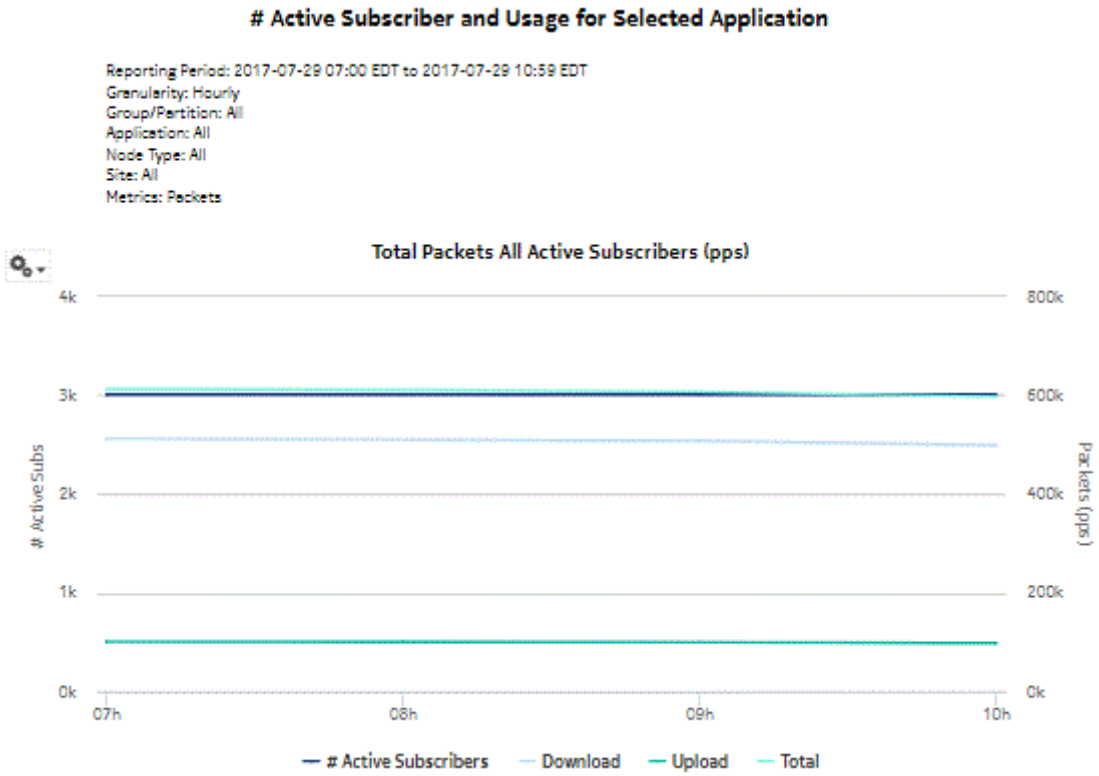
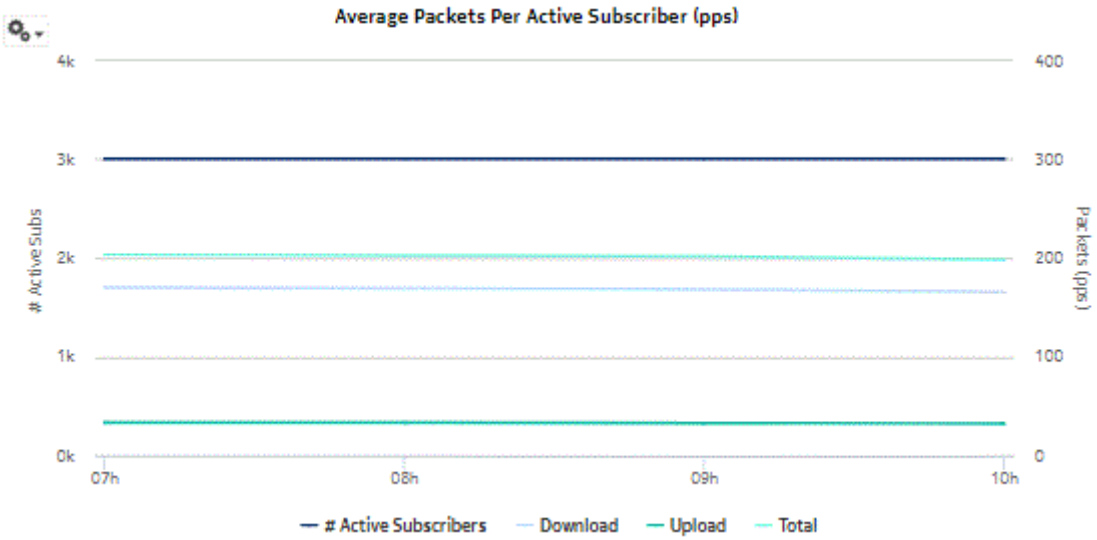


Figure 10-6 # Active Subscribers and Usage for Selected Applications report, continued



10.5 Application Group Usage Pattern with Selected Application Profiles report

10.5.1 Application Group Usage Pattern with Selected Application Profiles report overview

The Application Group Usage Pattern with Selected Application Profiles report shows the traffic distribution across a specified set of application groups for a specified set of application profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-5 Application Group Usage Pattern with Selected Application Profiles report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber aggregate **Note:** Subscriber aggregation must be enabled in the associated AA accounting policy.
NSP Flow Collector required	No

Table 10-5 Application Group Usage Pattern with Selected Application Profiles report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Select individual items or click **Select All**.
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application Profile	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Application Group	
Drill-down support	No	

10.5.2 Example

The following figure shows a report example.

Figure 10-7 Application Group Usage Pattern with Selected Application Profiles report

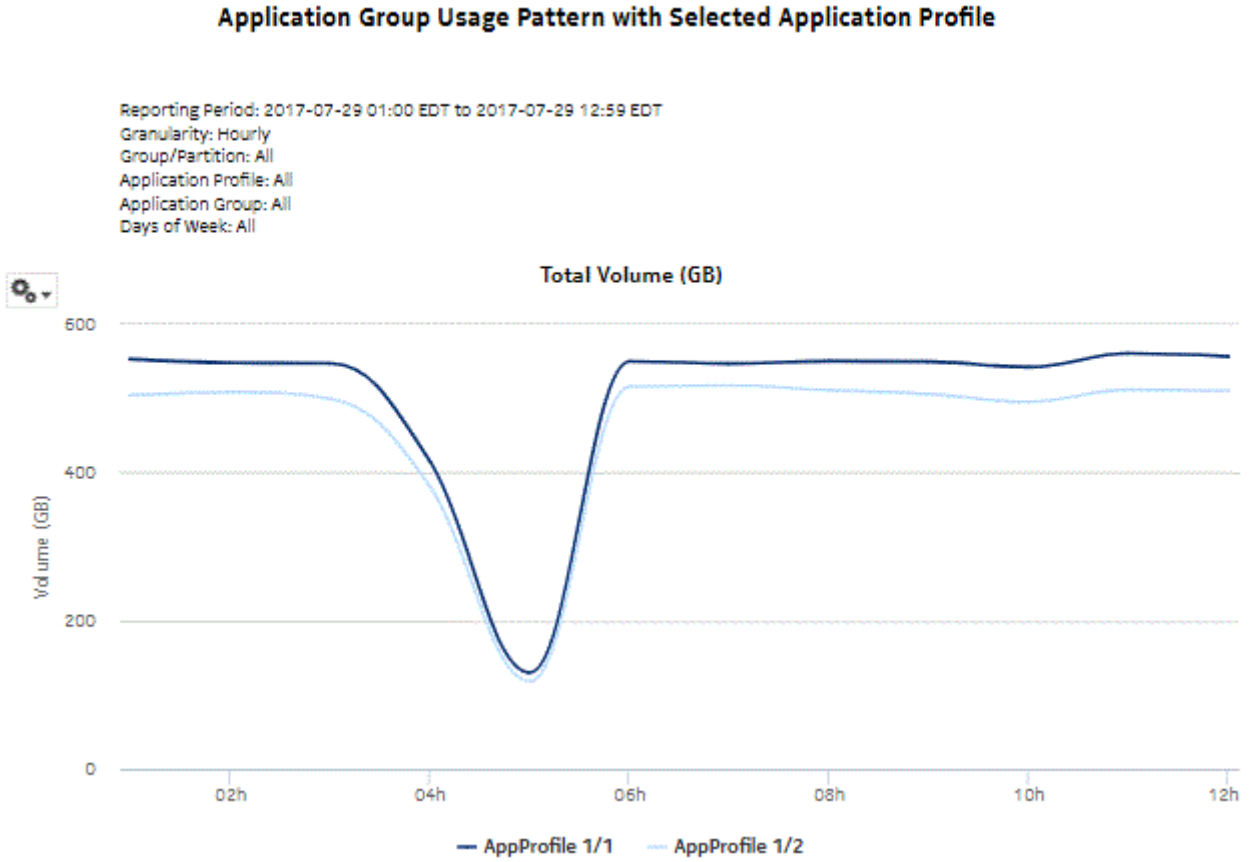


Figure 10-8 Application Group Usage Pattern with Selected Application Profiles - Download Volume

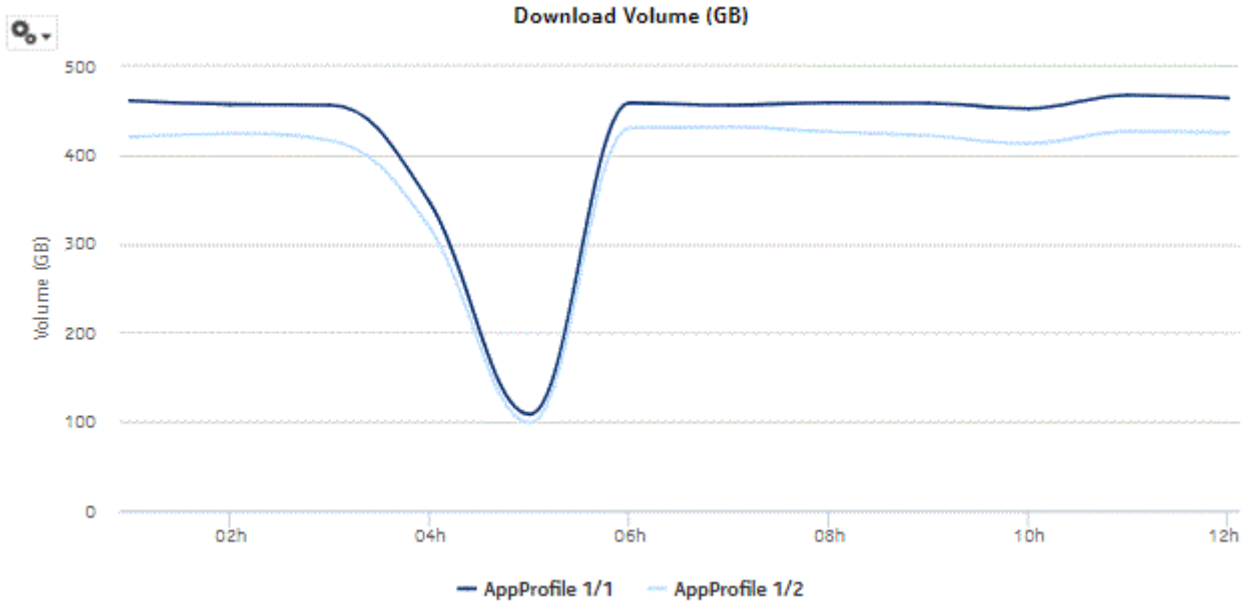
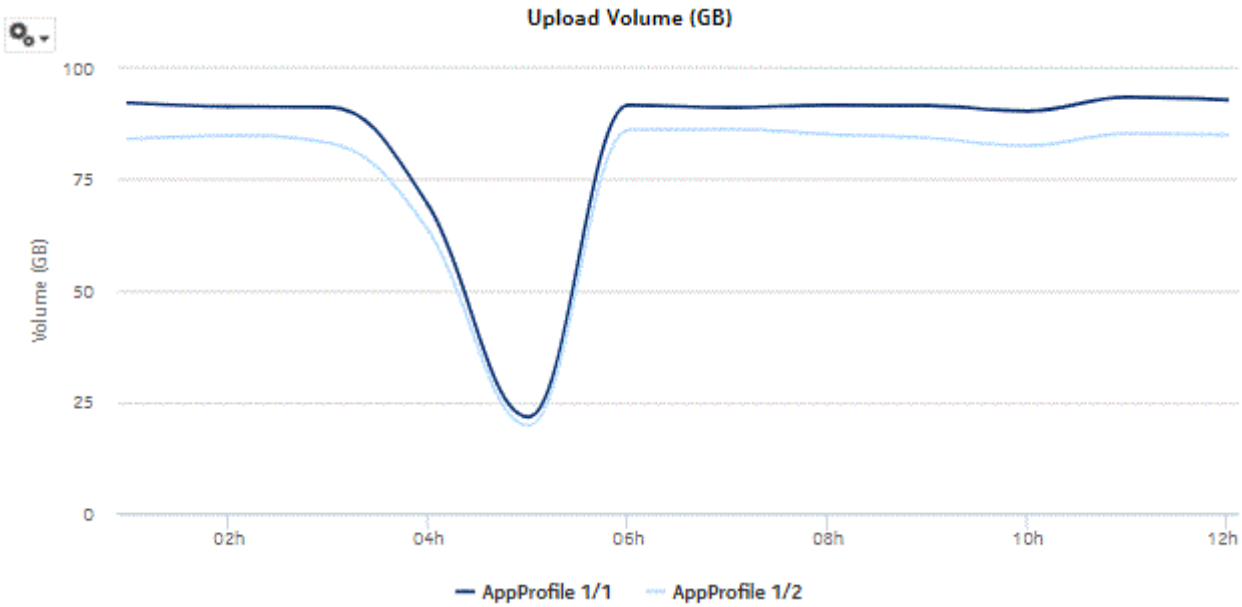


Figure 10-9 Application Group Usage Pattern with Selected Application Profiles - Upload Volume



10.6 Application Group Usage Pattern with Selected Subscribers report

10.6.1 Application Group Usage Pattern with Selected Subscribers report overview

The Application Group Usage Pattern with Selected Subscribers report shows the traffic distribution across a specified set of application groups for a specified set of subscribers. ESM hosts appear in the subscriber list in the format *subscribername*:*MAC address*.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-6 Application Group Usage Pattern with Selected Subscribers report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application group
NSP Flow Collector required	No

Table 10-6 Application Group Usage Pattern with Selected Subscribers report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual items or click **Select All**.
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Subscriber Name (or Name Pattern)	Enter text or wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Drill-down support	No	

10.6.2 Example

The following figures show report examples.

Figure 10-10 Application Group Usage Pattern with Selected Subscribers report

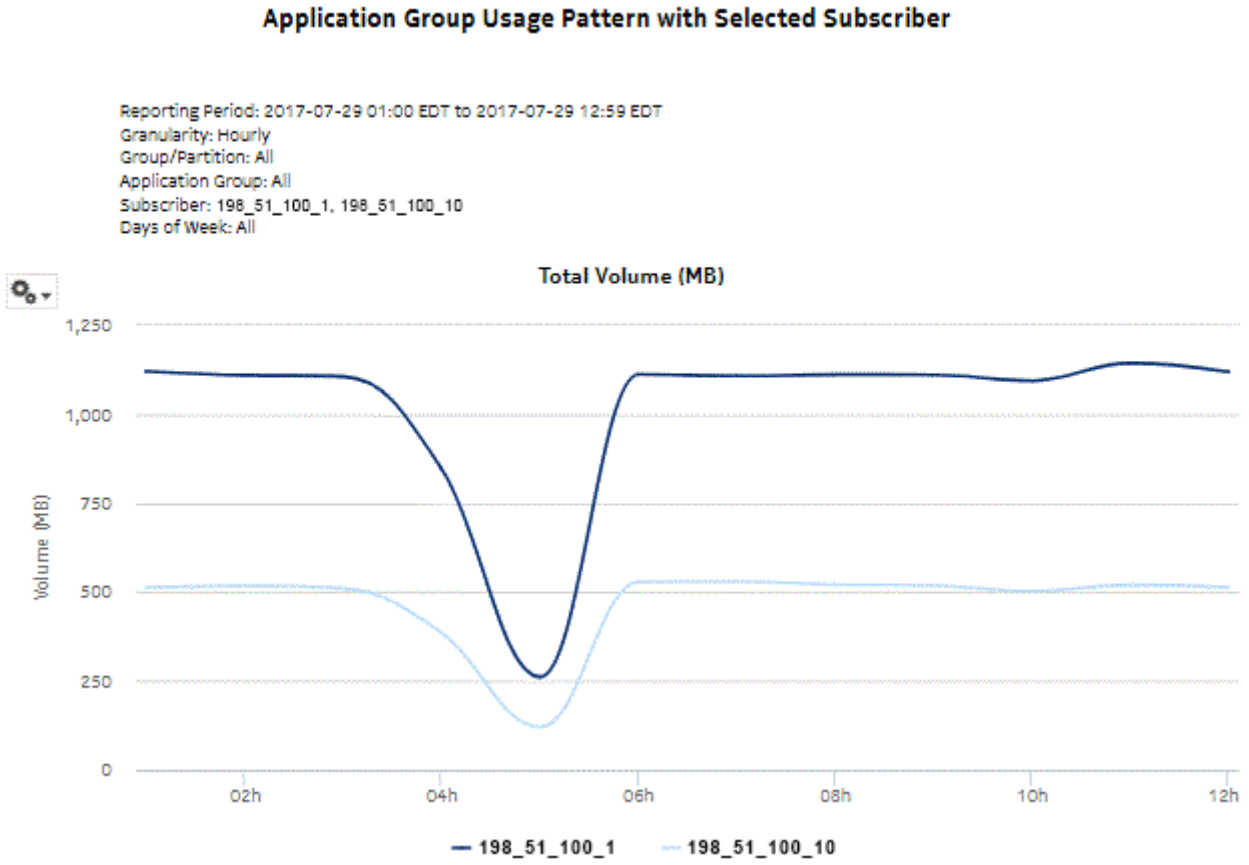


Figure 10-11 Application Group Usage Pattern with Selected Subscribers - Download Volume

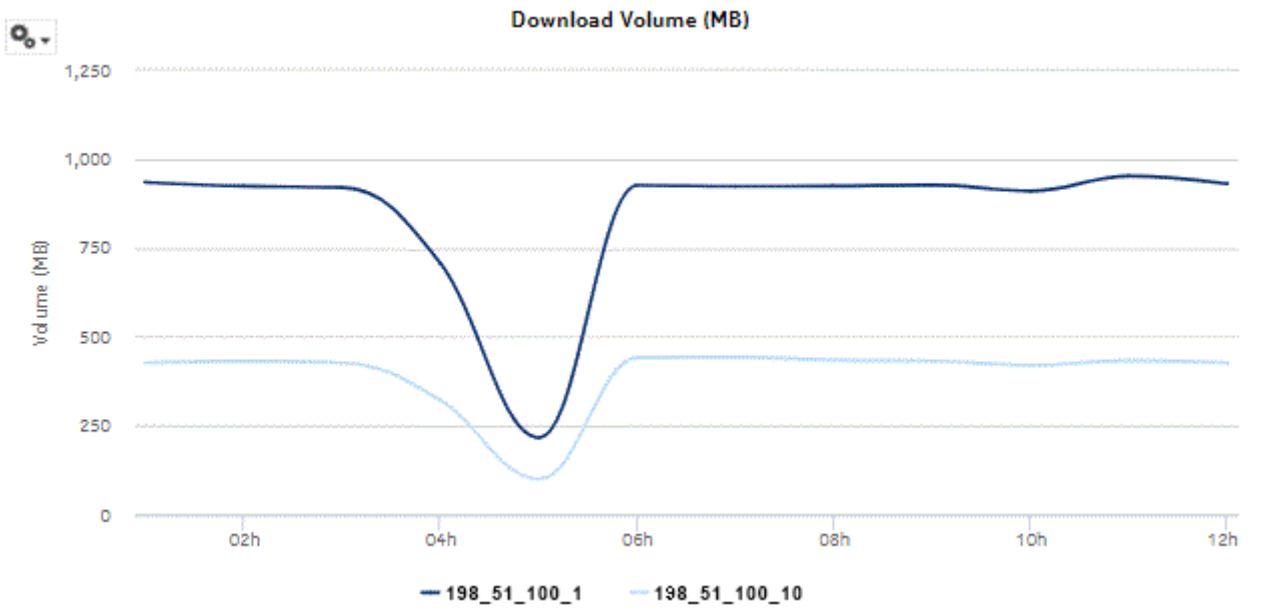
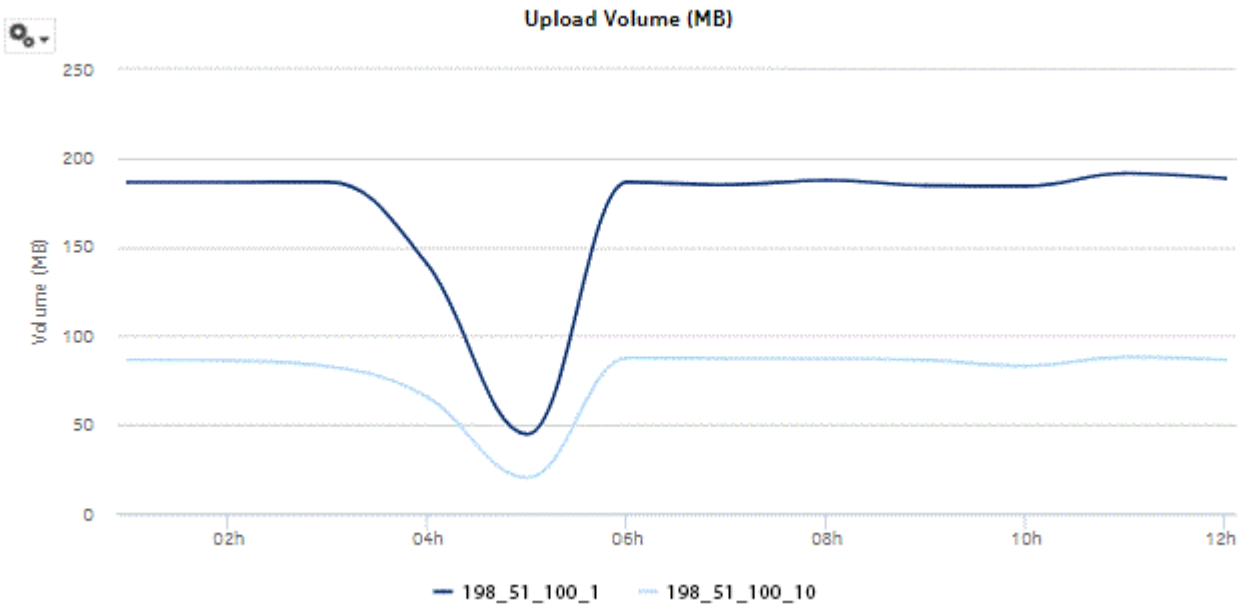


Figure 10-12 Application Group Usage Pattern with Selected Subscribers - Upload Volume



10.7 Application Usage Pattern with Selected Application Profile report

10.7.1 Application Usage Pattern with Selected Application Profiles report overview

The Application Usage Pattern with Selected Application Profile report shows the traffic distribution across a specified set of applications for a specified set of application profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-7 Application Usage Pattern with Selected Application Profile report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber aggregate **Note:** Subscriber aggregation must be enabled in the associated AA accounting policy.	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual items or click **Select All**.
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application Profile	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Application	
Drill-down support	No	

10.7.2 Example

The following figures show a report example.

Figure 10-13 Application Usage Pattern with Selected Application Profile report

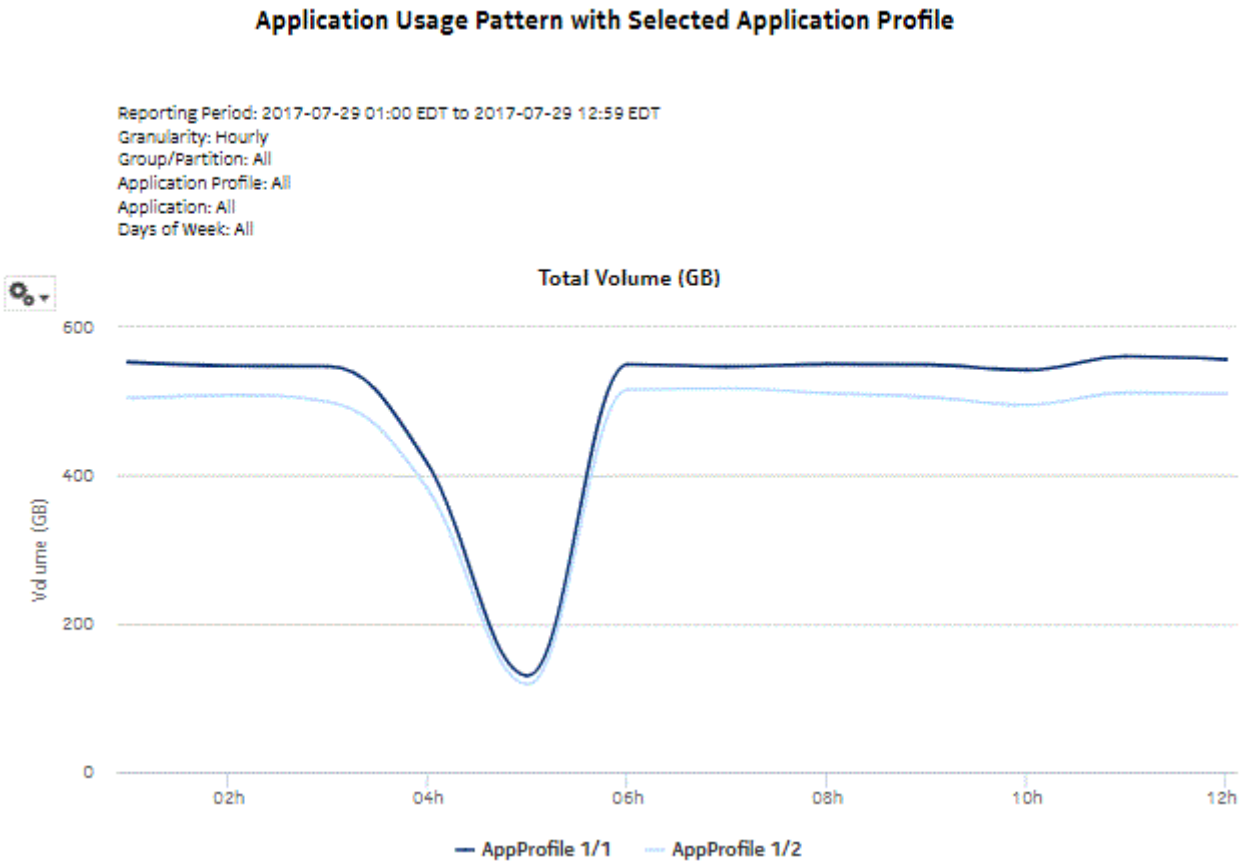


Figure 10-14 Application Usage Pattern with Selected Application Profile - Download Volume

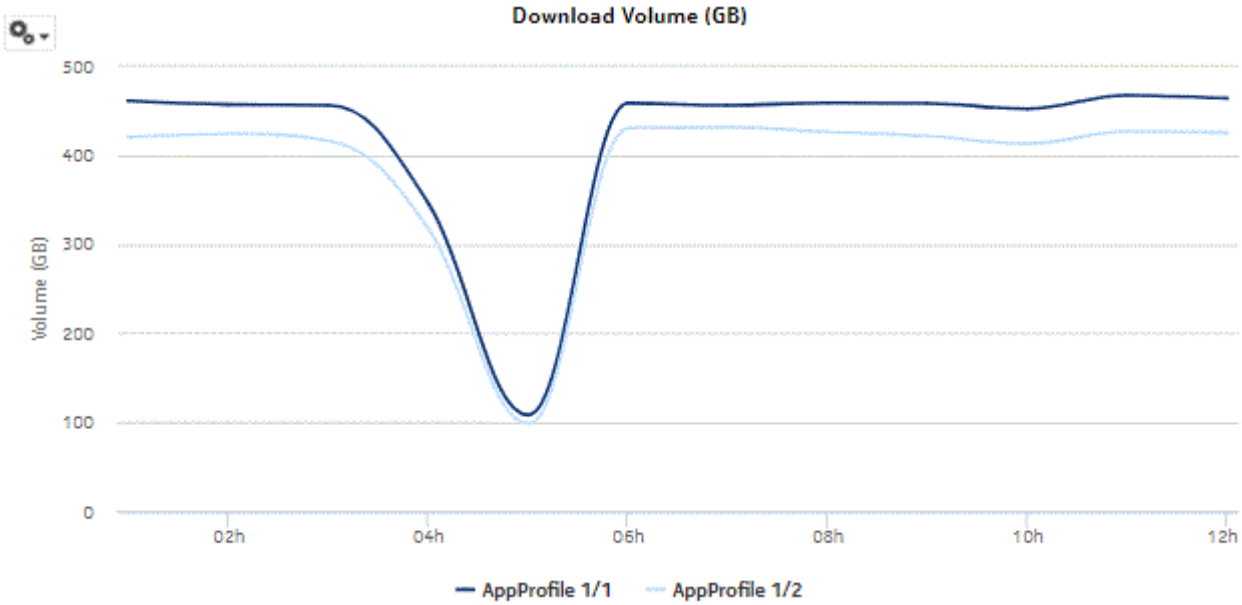
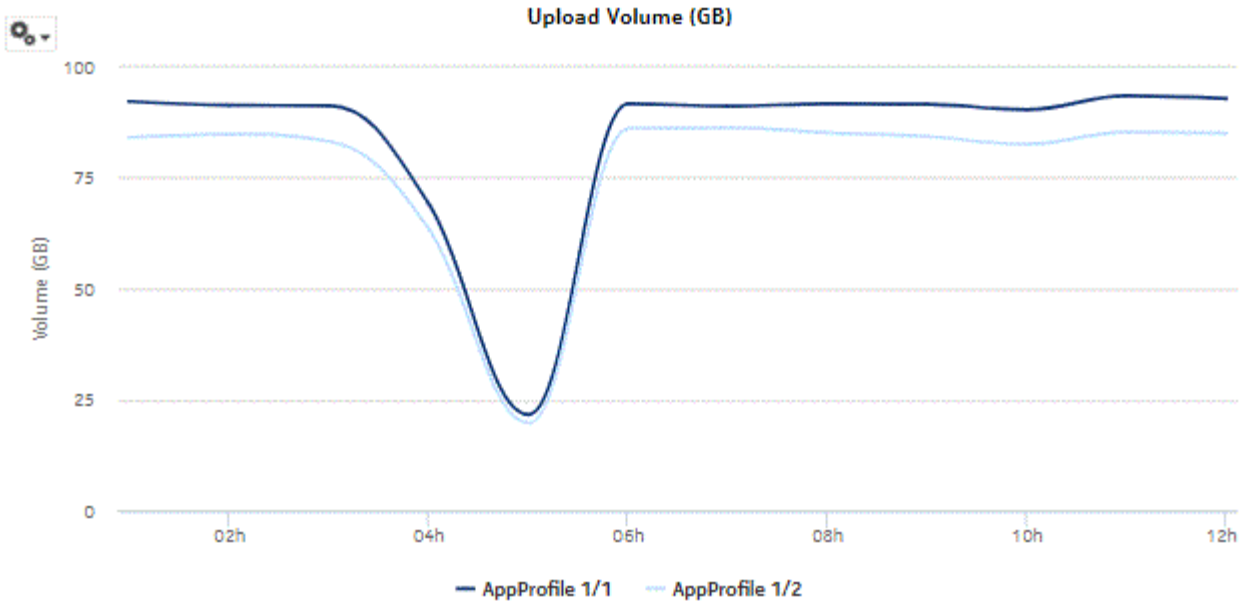


Figure 10-15 Application Usage Pattern with Selected Application Profile - Upload Volume



10.8 Application Usage Pattern with Selected Subscribers report

10.8.1 Application Usage Pattern with Selected Subscribers report overview

The Application Usage Pattern with Selected Subscribers report the traffic distribution across a specified set of applications for a specified set of subscribers on a specified set of ISA-AA groups and partitions. ESM hosts appear in the subscriber list in the format *subscribername*:*MAC address*.

Use cases

Policy pre-planning—Use the report to do the following:

- identify applications that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-8 Application Usage Pattern with Selected Subscribers report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application
NSP Flow Collector required	No

Table 10-8 Application Usage Pattern with Selected Subscribers report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual items or click **Select All**.
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Subscriber Name (or Name Pattern)	Enter text or wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Drill-down support	No	

10.8.2 Example

The following figure shows a report example.

Figure 10-16 Application Usage Pattern with Selected Subscribers report

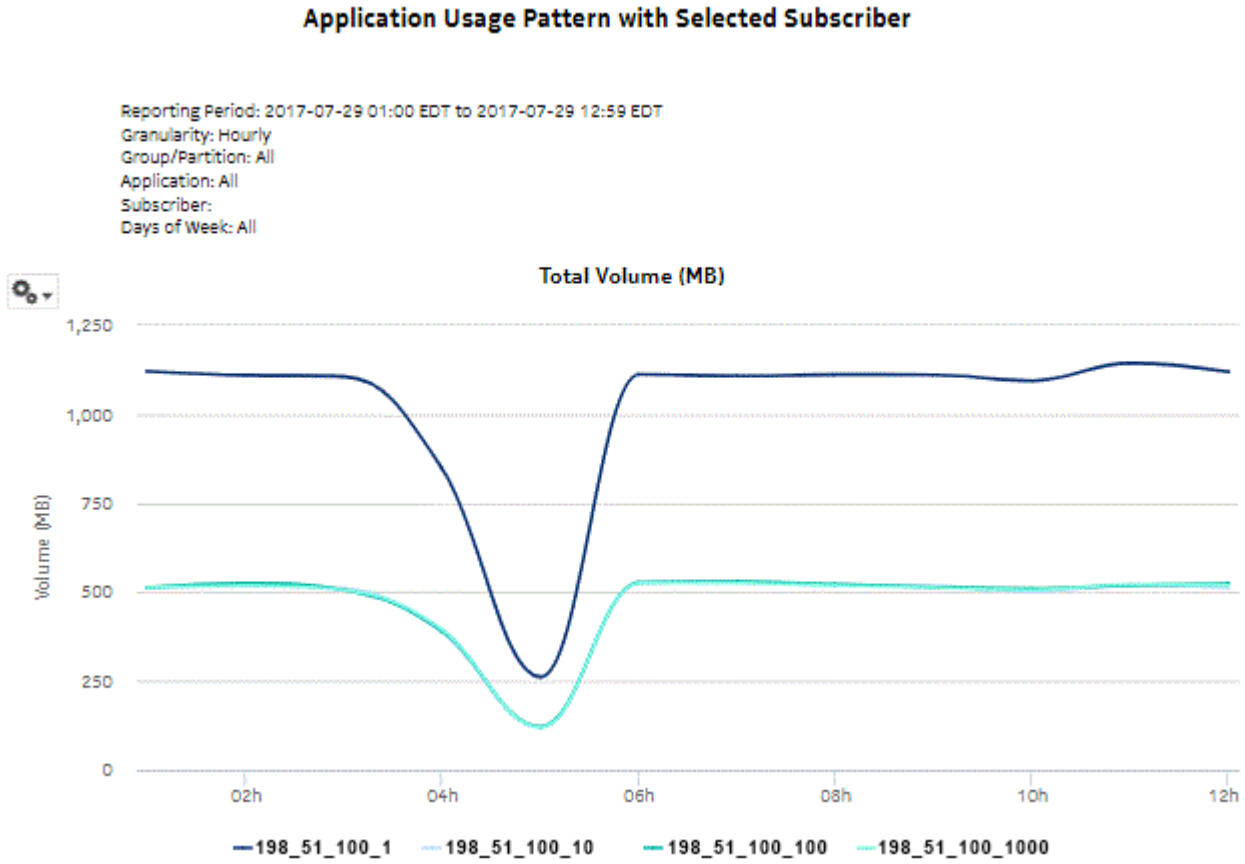


Figure 10-17 Application Usage Pattern with Selected Subscribers - Download Volume

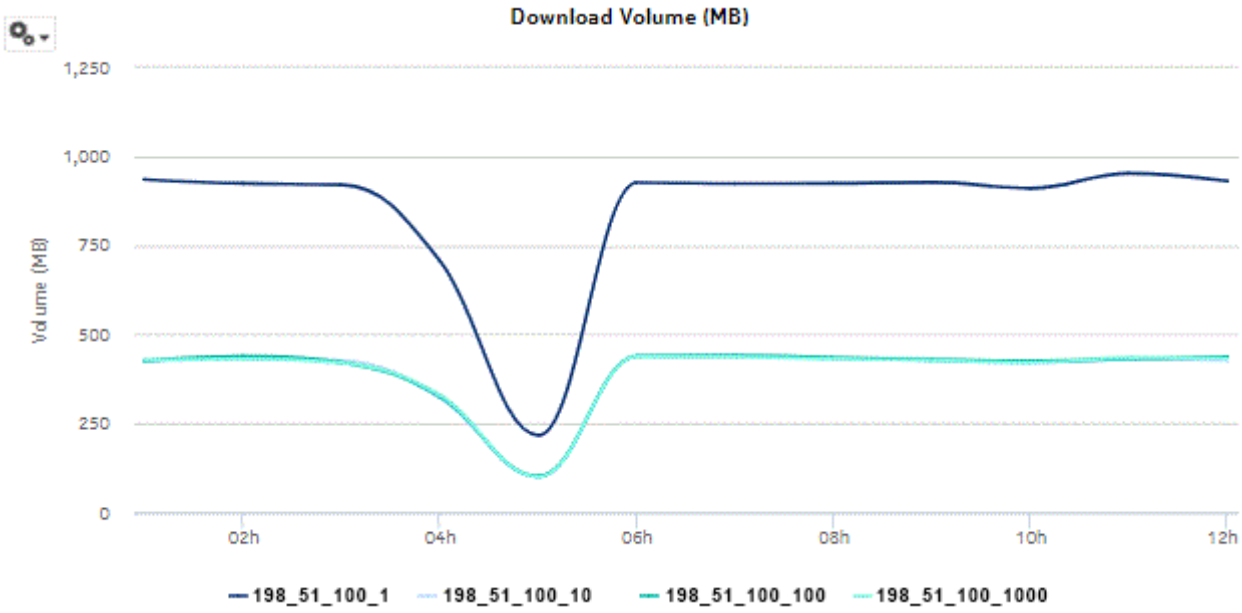
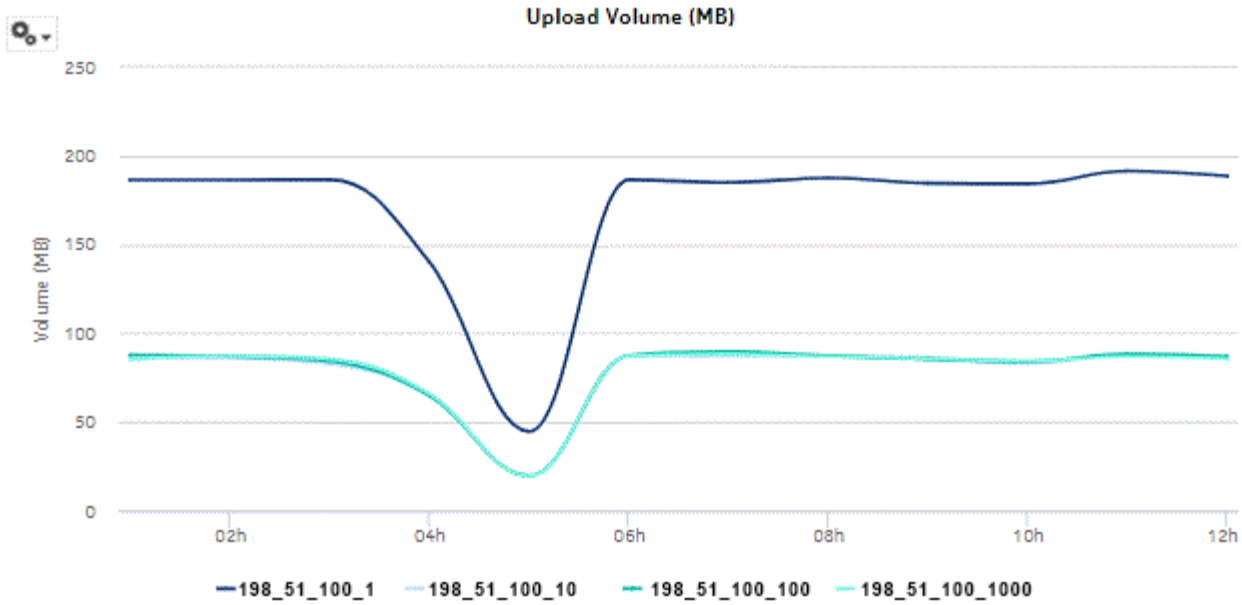


Figure 10-18 Application Usage Pattern with Selected Subscribers - Upload Volume



10.9 Subscriber Percentile vs Traffic Contribution report

10.9.1 Subscriber Percentile vs Traffic Contribution report overview

The Subscriber Percentile vs Traffic Contribution report shows the subscriber traffic contribution to bandwidth consumption by percentile, the usage within each percentile, and the cumulative contribution to the overall total usage.

Use cases

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage; use in conjunction with the following reports to identify the top subscribers and establish fair use policies, targeted campaigns, or new services:

- Top Subscribers by Application Usage
- Top Subscribers by Application Group Usage

Report characteristics

The following table lists the principal report characteristics.

Table 10-9 Subscriber Percentile vs Traffic Contribution report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Application	
	Percentile Range	5, 10, 20, or 25
Drill-down support	No	

10.9.2 Example

The following figures show report examples.

Figure 10-19 Subscriber Percentile vs Traffic Contribution report

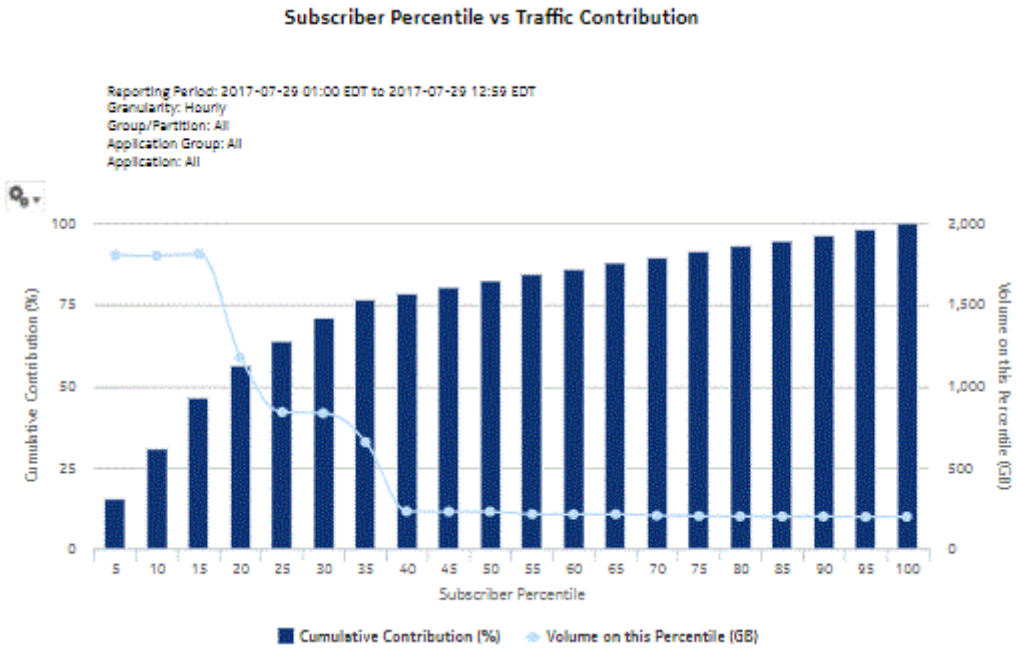


Figure 10-20 Subscriber Percentile vs Traffic Contribution report, continued

Subscriber Percentile (%)	Volume on this Percentile (GB)	Cumulative Volume (GB)	Cumulative Contribution to Overall Total (%)
5	1,805.79	1,805.79	15.51%
10	1,802.64	3,608.43	31.00%
15	1,812.14	5,420.57	46.57%
20	1,175.87	6,596.44	56.67%
25	840.79	7,437.23	63.89%
30	834.03	8,271.26	71.06%
35	655.49	8,926.75	76.69%
40	229.91	9,156.66	78.66%
45	227.70	9,384.36	80.62%
50	228.38	9,612.74	82.58%
55	212.53	9,825.27	84.41%
60	211.30	10,036.57	86.22%
65	212.07	10,248.64	88.04%
70	203.39	10,452.03	89.79%
75	200.52	10,652.55	91.51%
80	198.65	10,851.20	93.22%
85	197.85	11,049.05	94.92%
90	198.18	11,247.23	96.62%
95	196.29	11,443.52	98.31%
100	196.81	11,640.33	100.00%

10.10 Top Application Groups with Selected Application Profiles report

10.10.1 Top Application Groups with Selected Application Profiles report overview

The Top Application Groups with Selected Application Profiles report shows the top specified number of application groups by usage for a specified application profile.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-10 Top Application Groups with Selected Application Profiles report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber aggregate **Note:** Subscriber aggregation must be enabled in the associated AA accounting policy.	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Profile	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Group Usage Pattern with Selected Application Profiles to display a graph of the bandwidth consumption per selected application group over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Application Profiles report for all application groups, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

10.10.2 Example

The following figures show report examples.

Figure 10-21 Top Application Groups with Selected Application Profiles report

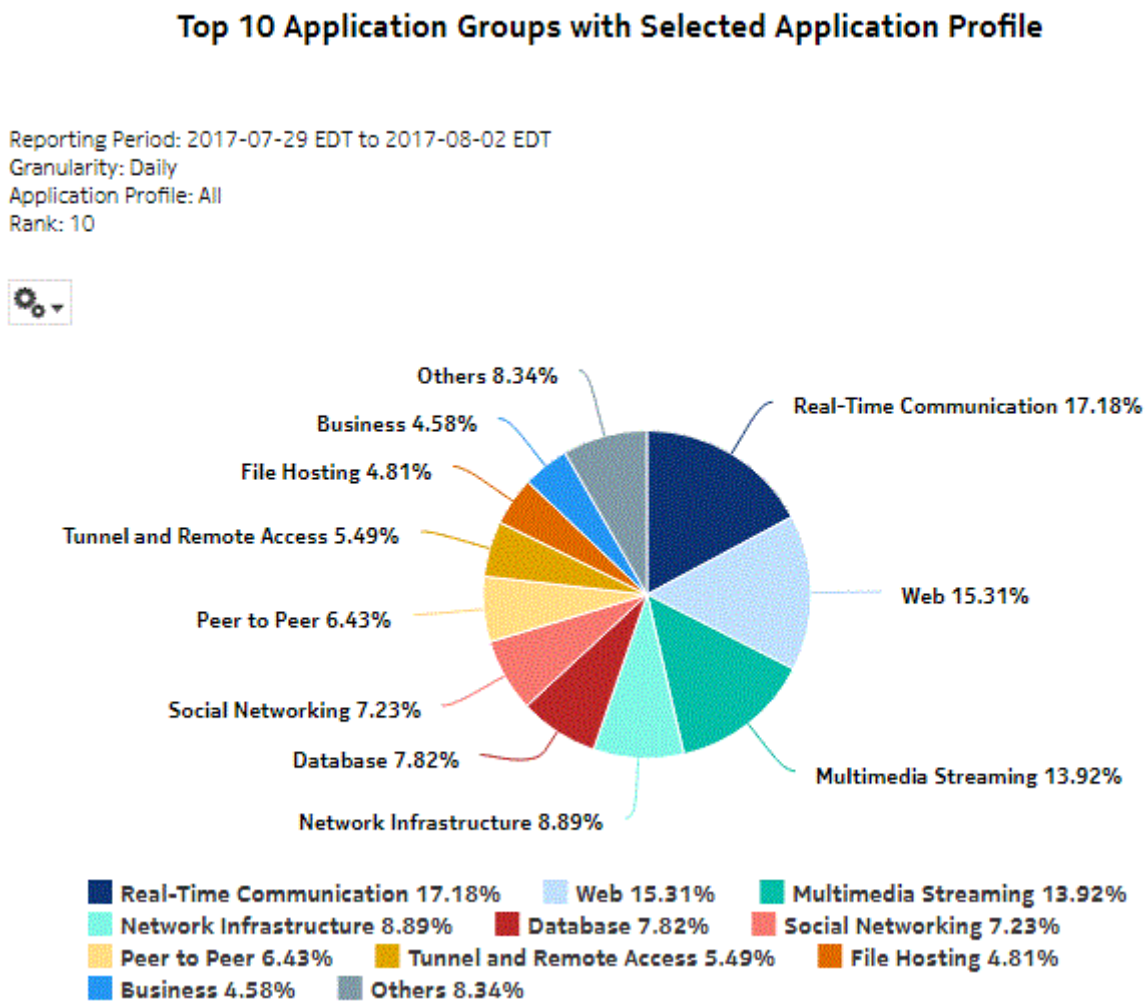


Figure 10-22 Top Application Groups with Selected Application Profiles - Total Volume

Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application Groups
1	Web	1,152,495,192.89	39.59%
2	File Hosting	1,009,172,497.39	34.67%
3	Tunnel and Remote Access	747,733,792.86	25.69%
4	Multimedia Streaming	511,239.16	.02%
5	Business	317,326.83	.01%
6	Real-Time Communication	143,602.70	.00%
7	Mail	137,249.80	.00%
8	Peer to Peer	84,373.50	.00%
9	Social Networking	79,522.47	.00%
10	Software Update	65,912.46	.00%
	Top 10 Application Groups Subtotal	**2,910,740,710.06**	**99.98%**

Figure 10-23 Top Application Groups with Selected Application Profiles - Download Volume

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application
1	Real-Time Communication	14,448.87	17.18%
2	Web	12,881.04	15.31%
3	Multimedia Streaming	11,708.94	13.92%
4	Network Infrastructure	7,479.90	8.89%
5	Database	6,578.50	7.82%
6	Social Networking	6,080.26	7.23%
7	Peer to Peer	5,408.94	6.43%
8	Tunnel and Remote Access	4,619.03	5.49%
9	File Hosting	4,042.02	4.81%
10	Business	3,852.57	4.58%
	Top 10 Application Groups Subtotal	**77,100.07**	**91.66%**

Figure 10-24 Top Application Groups with Selected Application Profiles - Upload Volume

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application
1	Real-Time Communication	2,889.68	17.18%
2	Web	2,575.88	15.31%
3	Multimedia Streaming	2,341.91	13.92%
4	Network Infrastructure	1,495.78	8.89%
5	Database	1,315.53	7.82%
6	Social Networking	1,216.16	7.23%
7	Peer to Peer	1,082.00	6.43%
8	Tunnel and Remote Access	923.80	5.49%
9	File Hosting	808.30	4.80%
10	Business	770.52	4.58%
	Top 10 Application Groups Subtotal	**15,419.56**	**91.65%**

10.11 Top Application Groups with Selected Subscribers report

10.11.1 Top Application Groups with Selected Subscribers report overview

The Top Application Groups with Selected Subscriber report shows the top specified number of application groups by usage for the specified subscribers. ESM hosts appear in the subscriber list in the format *subscribername*:*MAC address*.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-11 Top Application Groups with Selected Subscribers report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application group	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Subscriber Name (or Name Pattern)	Enter a wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Group Usage Pattern with Selected Subscribers to display a graph of the bandwidth consumption for the selected application group over time. Note: Drilling down from the Others segment opens the Top Applications with Selected Subscriber report for all application groups, not just the ones in the Others category. Drilling down from other application groups opens the report for the selected application group.	

10.11.2 Example

The following figures show a report example.

Figure 10-25 Top Application Groups with Selected Subscribers report

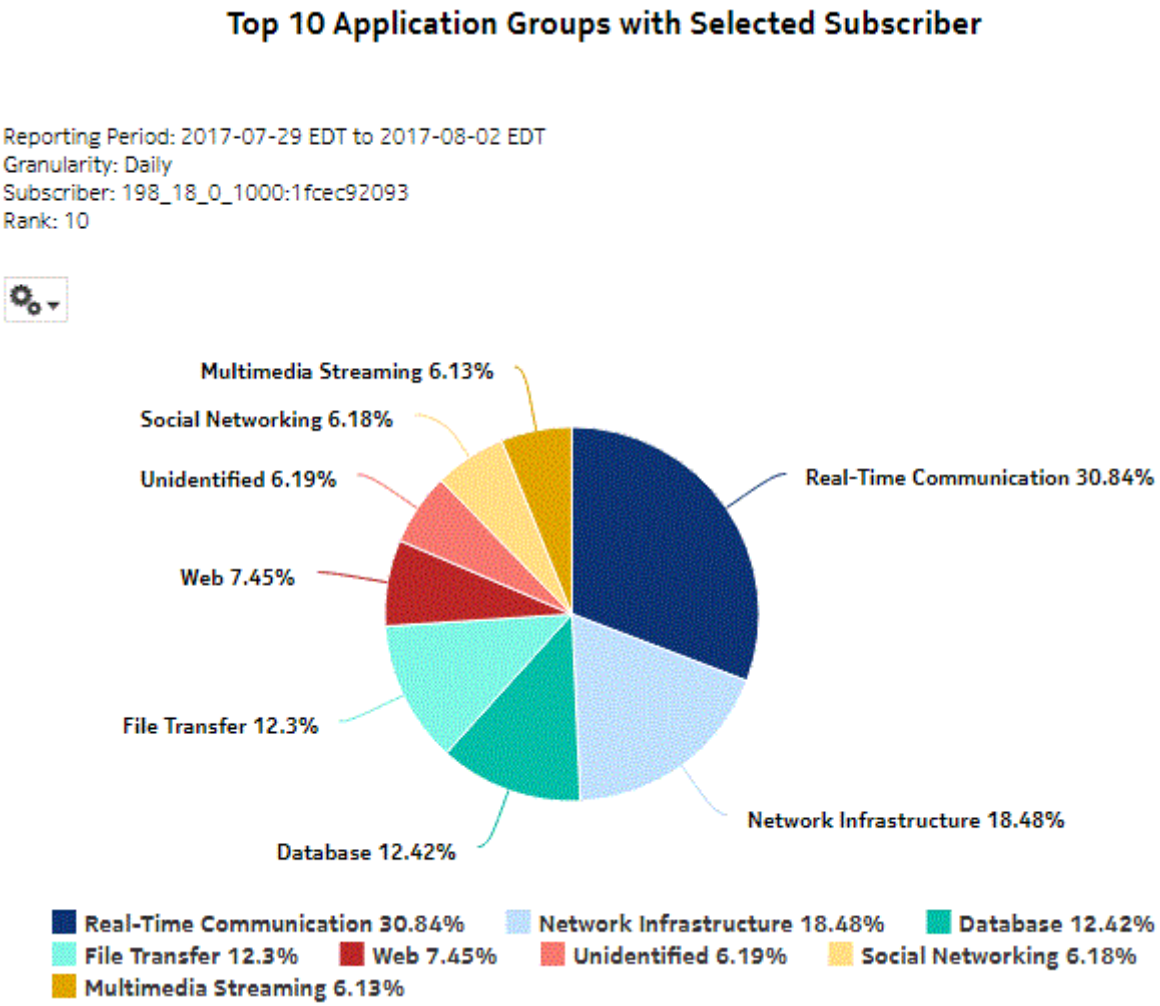


Figure 10-26 Top Application Groups with Selected Subscribers - Total Volume

Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application
1	Real-Time Communication	3.47	30.84%
2	Network Infrastructure	2.08	18.48%
3	Database	1.40	12.42%
4	File Transfer	1.38	12.30%
5	Web	.84	7.45%
6	Unidentified	.70	6.19%
7	Social Networking	.70	6.18%
8	Multimedia Streaming	.69	6.13%
	Top 10 Application Groups Subtotal	**11.26**	**99.99%**

Figure 10-27 Top Application Groups with Selected Subscribers - Download Volume

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application
1	Real-Time Communication	2.89	30.84%
2	Network Infrastructure	1.73	18.49%
3	Database	1.16	12.44%
4	File Transfer	1.15	12.29%
5	Web	.70	7.46%
6	Unidentified	.58	6.19%
7	Social Networking	.58	6.18%
8	Multimedia Streaming	.57	6.11%
	Top 10 Application Groups Subtotal	**9.36**	**100.00%**

Figure 10-28 Top Application Groups with Selected Subscribers - Upload Volume

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application
1	Real-Time Communication	.58	30.86%
2	Network Infrastructure	.35	18.48%
3	File Transfer	.23	12.38%
4	Database	.23	12.32%
5	Web	.14	7.41%
6	Multimedia Streaming	.12	6.19%
7	Social Networking	.12	6.19%
8	Unidentified	.12	6.18%
	Top 10 Application Groups Subtotal	**1.89**	**100.01%**

10.12 Top Application Profiles by Application Group Usage report

10.12.1 Top Application Profiles by Application Group Usage report overview

The Top Application Profiles by Application Group Usage report shows the top specified number of application profiles by usage for a specified application group.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-12 Top Application Profiles by Application Group Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application group
NSP Flow Collector required	No

Table 10-12 Top Application Profiles by Application Group Usage report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Top Application Groups with Selected Application Profiles to display a graph of the top application groups for the selected application profile. Note: Drilling down from the Others segment opens the Top Application Groups with Selected Application Profiles report for all application profiles, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application profile.	

10.12.2 Example

The following figures show report examples.

Figure 10-29 Top Application Profiles by Application Group Usage report

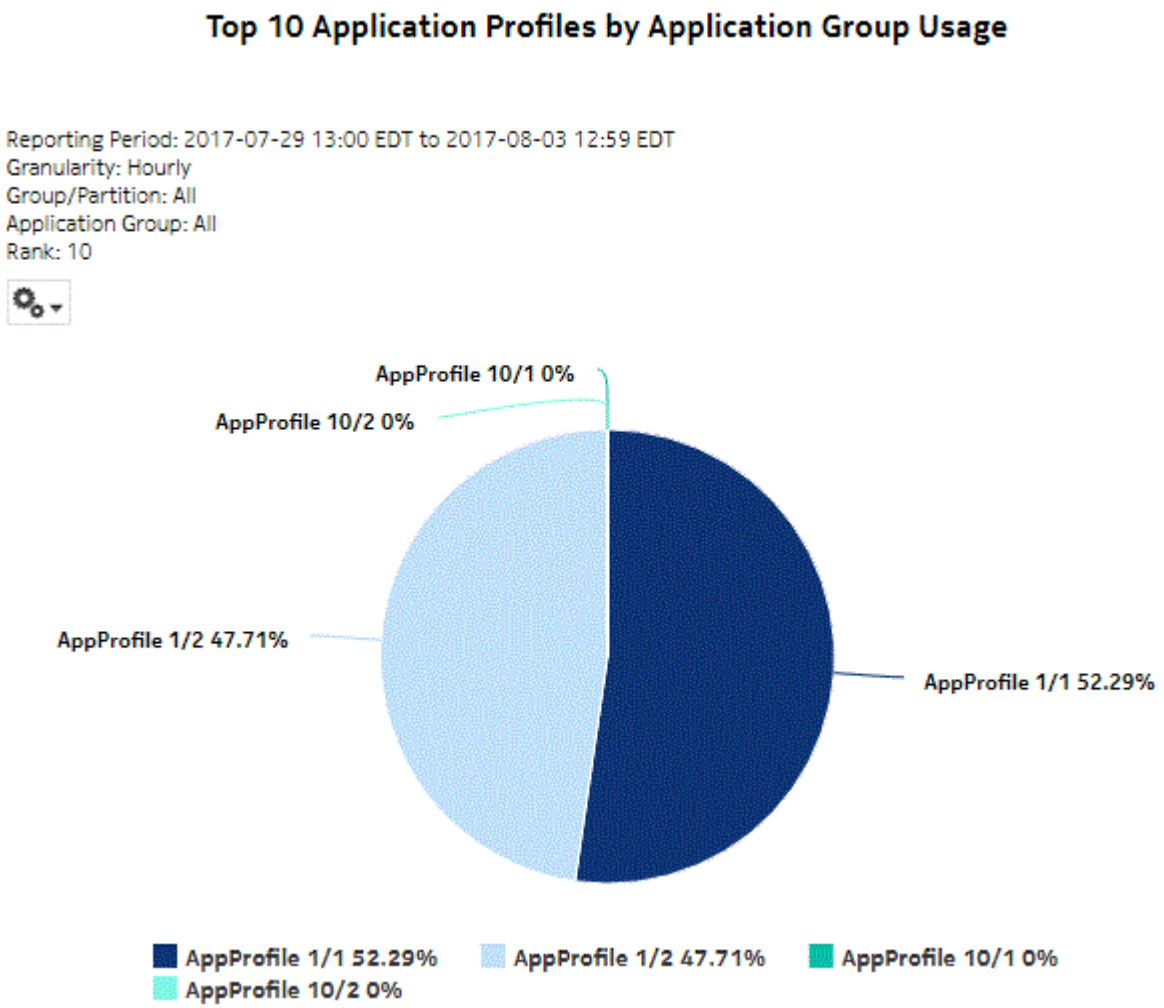


Figure 10-30 Top Application Profiles by Application Group Usage - Total Volume

Top 10 Application Profiles - Total Volume (GB)

Rank	Application Profile	Total Volume (GB)	% of All Application
1	AppProfile 1/1	46,133.28	52.30%
2	AppProfile 1/2	42,084.17	47.70%
3	AppProfile 10/1	.00	.00%
4	AppProfile 10/2	.00	.00%
	Top 10 Application Profiles Subtotal	**88,217.45**	**100.00%**

Figure 10-31 Top Application Profiles by Application Group Usage - Download Volume

Top 10 Application Profiles - Download Volume (GB)

Rank	Application Profile	Download Volume (GB)	% of All Application
1	AppProfile 1/1	38,444.88	52.30%
2	AppProfile 1/2	35,070.08	47.70%
3	AppProfile 10/1	.00	.00%
4	AppProfile 10/2	.00	.00%
	Top 10 Application Profiles Subtotal	**73,514.96**	**100.00%**

Figure 10-32 Top Application Profiles by Application Group Usage - Upload Volume

Top 10 Application Profiles - Upload Volume (GB)

Rank	Application Profile	Upload Volume (GB)	% of All Application
1	AppProfile 1/1	7,688.41	52.29%
2	AppProfile 1/2	7,014.09	47.71%
3	AppProfile 10/1	.00	.00%
4	AppProfile 10/2	.00	.00%
	Top 10 Application Profiles Subtotal	**14,702.50**	**100.00%**

10.13 Top Application Profiles by Application Usage report

10.13.1 Top Application Profiles by Application Usage report overview

The Top Application Profiles by Application Usage report shows the top specified number of application profiles by usage for a specified application.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-13 Top Application Profiles by Application Usage report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Top Applications with Selected Application Profiles to display a graph of the top applications for the selected application profile. Note: Drilling down from the Others segment opens the Top Applications with Selected Application Profiles report for all application profiles, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application profile.	

10.13.2 Example

The following figure shows a report example.

Figure 10-33 Top Application Profiles by Application Usage report

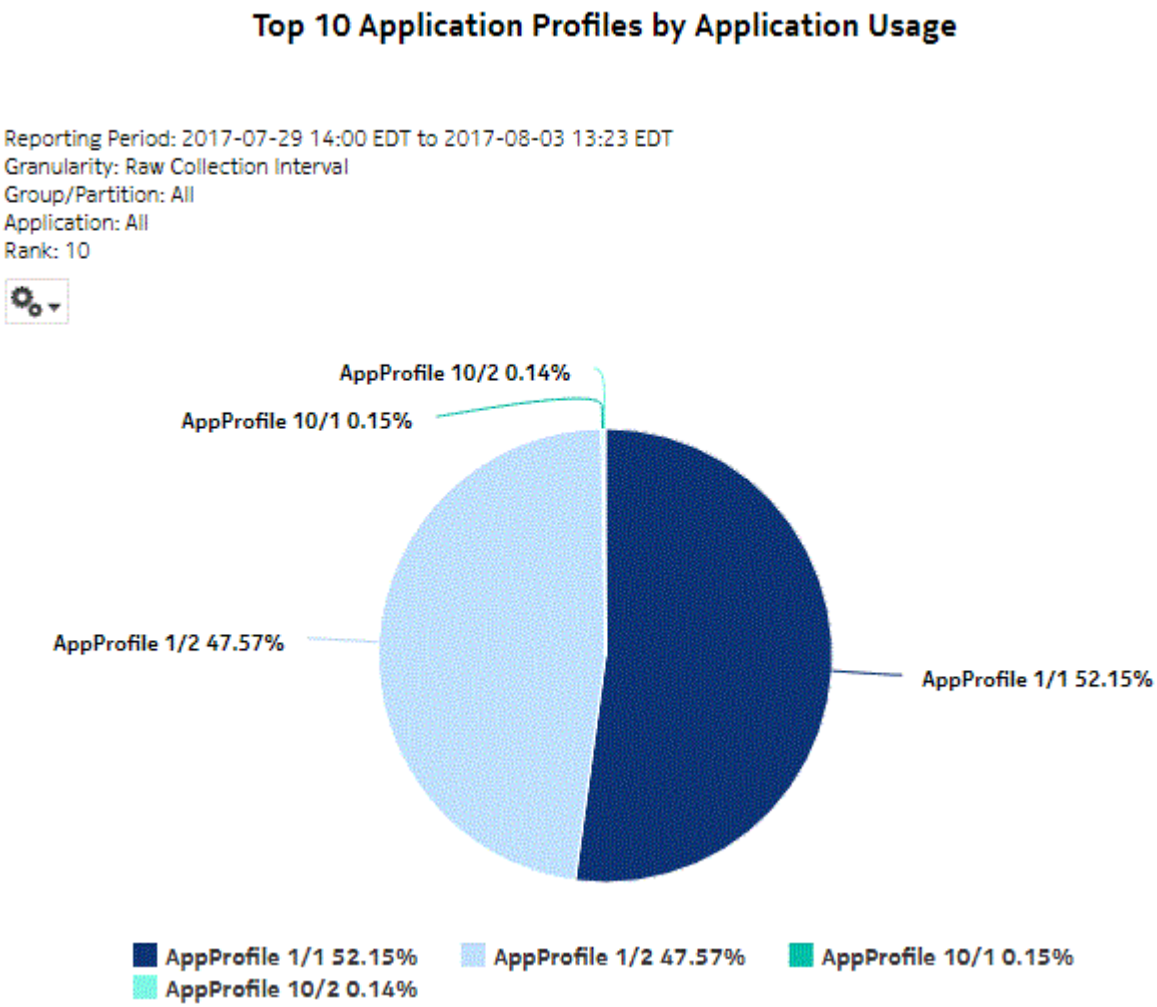


Figure 10-34 Top Application Profiles by Application Usage - Total Volume

Top 10 Application Profiles - Total Volume (GB)

Rank	Application Profile	Total Volume (GB)	% of All Application
1	AppProfile 1/1	46,707.50	52.15%
2	AppProfile 1/2	42,603.97	47.57%
3	AppProfile 10/1	129.98	.14%
4	AppProfile 10/2	124.92	.14%
	Top 10 Application Profiles Subtotal	**89,566.37**	**100.00%**

Figure 10-35 Top Application Profiles by Application Usage - Download Volume

Top 10 Application Profiles - Download Volume (GB)

Rank	Application Profile	Download Volume (GB)	% of All Application
1	AppProfile 1/1	38,923.38	52.15%
2	AppProfile 1/2	35,503.25	47.57%
3	AppProfile 10/1	108.30	.14%
4	AppProfile 10/2	104.10	.14%
	Top 10 Application Profiles Subtotal	**74,639.03**	**100.00%**

Figure 10-36 Top Application Profiles by Application Usage - Upload Volume

Top 10 Application Profiles - Upload Volume (GB)

Rank	Application Profile	Upload Volume (GB)	% of All Application
1	AppProfile 1/1	7,784.12	52.15%
2	AppProfile 1/2	7,100.72	47.57%
3	AppProfile 10/1	21.68	.14%
4	AppProfile 10/2	20.81	.14%
	Top 10 Application Profiles Subtotal	**14,927.33**	**100.00%**

10.14 Top Applications with Selected Application Profiles report

10.14.1 Top Applications with Selected Application Profiles report overview

The Top Applications with Selected Application Profiles report shows the top specified number of applications by usage for a specified application Profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-14 Top Applications with Selected Application Profiles report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber aggregate **Note:** Subscriber aggregation must be enabled in the associated AA accounting policy.	
NSP Flow Collector required	No	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Profile	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Usage Pattern with Selected Subscribers to display a graph of the bandwidth consumption for the selected application over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Subscriber report for all applications, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application.	

10.14.2 Example

The following figure shows a report example.

Figure 10-37 Top Applications with Selected Application Profiles report

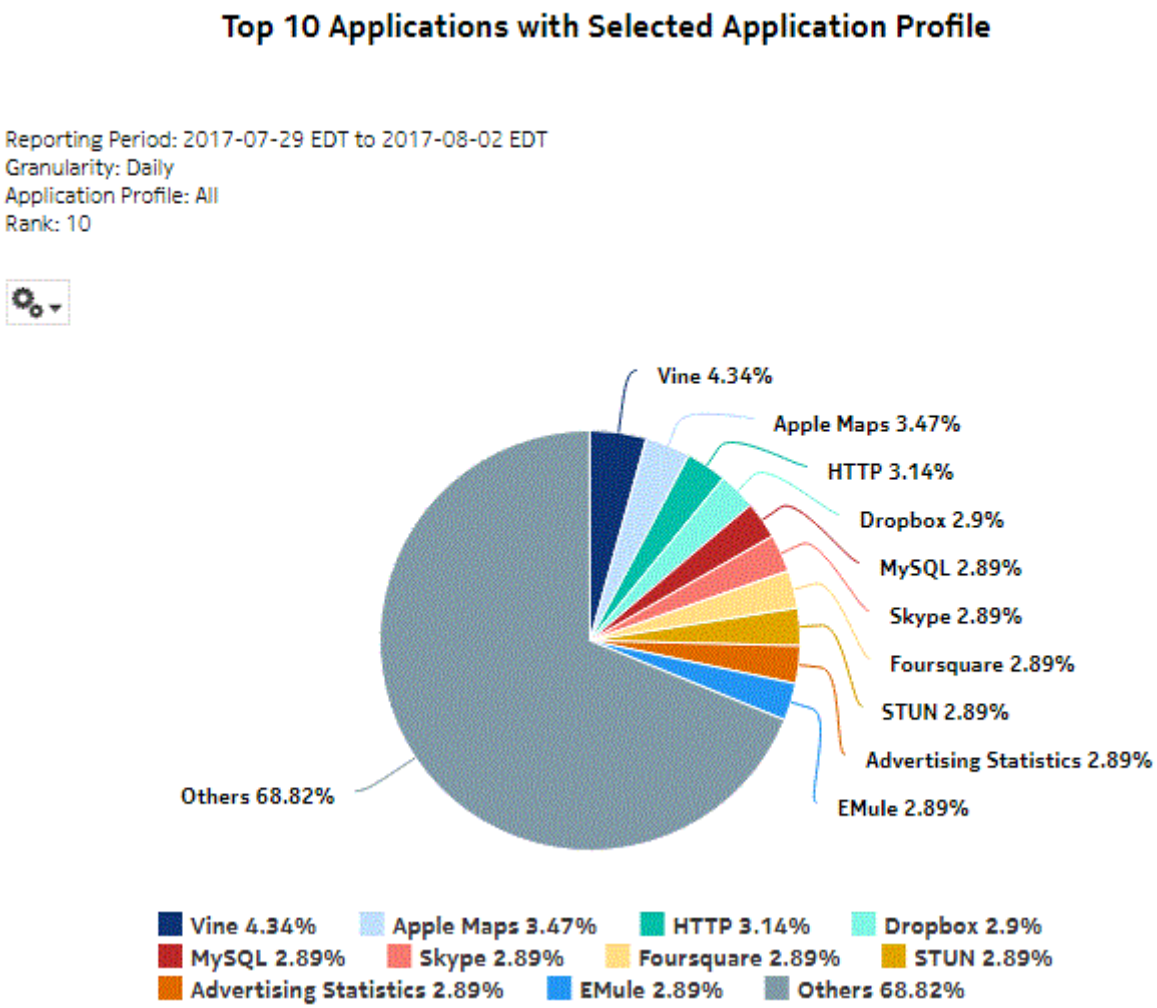


Figure 10-38 Top Applications with Selected Application Profiles - Total Volume

Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	Vine	4,376.41	4.34%
2	Apple Maps	3,497.75	3.47%
3	HTTP	3,169.48	3.14%
4	Dropbox	2,922.78	2.90%
5	MySQL	2,921.39	2.89%
6	Skype	2,920.25	2.89%
7	Foursquare	2,920.00	2.89%
8	STUN	2,916.47	2.89%
9	Advertising Statistics	2,915.48	2.89%
10	EMule	2,915.30	2.89%
	Top 10 Applications Subtotal	**31,475.31**	**31.19%**

Figure 10-39 Top Applications with Selected Application Profiles - Download Volume

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Applications
1	Vine	3,646.99	4.34%
2	Apple Maps	2,914.86	3.47%
3	HTTP	2,641.21	3.14%
4	Dropbox	2,435.74	2.90%
5	MySQL	2,434.55	2.89%
6	Skype	2,433.63	2.89%
7	Foursquare	2,433.26	2.89%
8	STUN	2,430.41	2.89%
9	Advertising Statistics	2,429.63	2.89%
10	EMule	2,429.33	2.89%
	Top 10 Applications Subtotal	**26,229.61**	**31.19%**

Figure 10-40 Top Applications with Selected Application Profiles - Upload Volume

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Applications
1	Vine	729.42	4.34%
2	Apple Maps	582.89	3.46%
3	HTTP	528.27	3.14%
4	Dropbox	487.04	2.90%
5	MySQL	486.84	2.89%
6	Foursquare	486.74	2.89%
7	Skype	486.62	2.89%
8	STUN	486.07	2.89%
9	EMule	485.97	2.89%
10	Advertising Statistics	485.85	2.89%
	Top 10 Applications Subtotal	**5,245.71**	**31.18%**

10.15 Top Applications with Selected Subscribers report

10.15.1 Top Applications with Selected Subscribers report overview

The Top Applications with Selected Subscribers report shows the top specified number of applications by usage for the specified subscribers. ESM hosts appear in the subscriber list in the format *subscribername*:*MAC address*.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-15 Top Applications with Selected Subscribers report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Selectable metrics or counters	—	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Subscriber Name (or Name Pattern)	Enter a wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Usage Pattern with Selected Application Profiles to display a graph of the bandwidth consumption for the selected application over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Application Profiles report for all applications, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application.	

10.15.2 Example

The following figures show a report example.

Figure 10-41 Top Applications with Selected Subscribers report

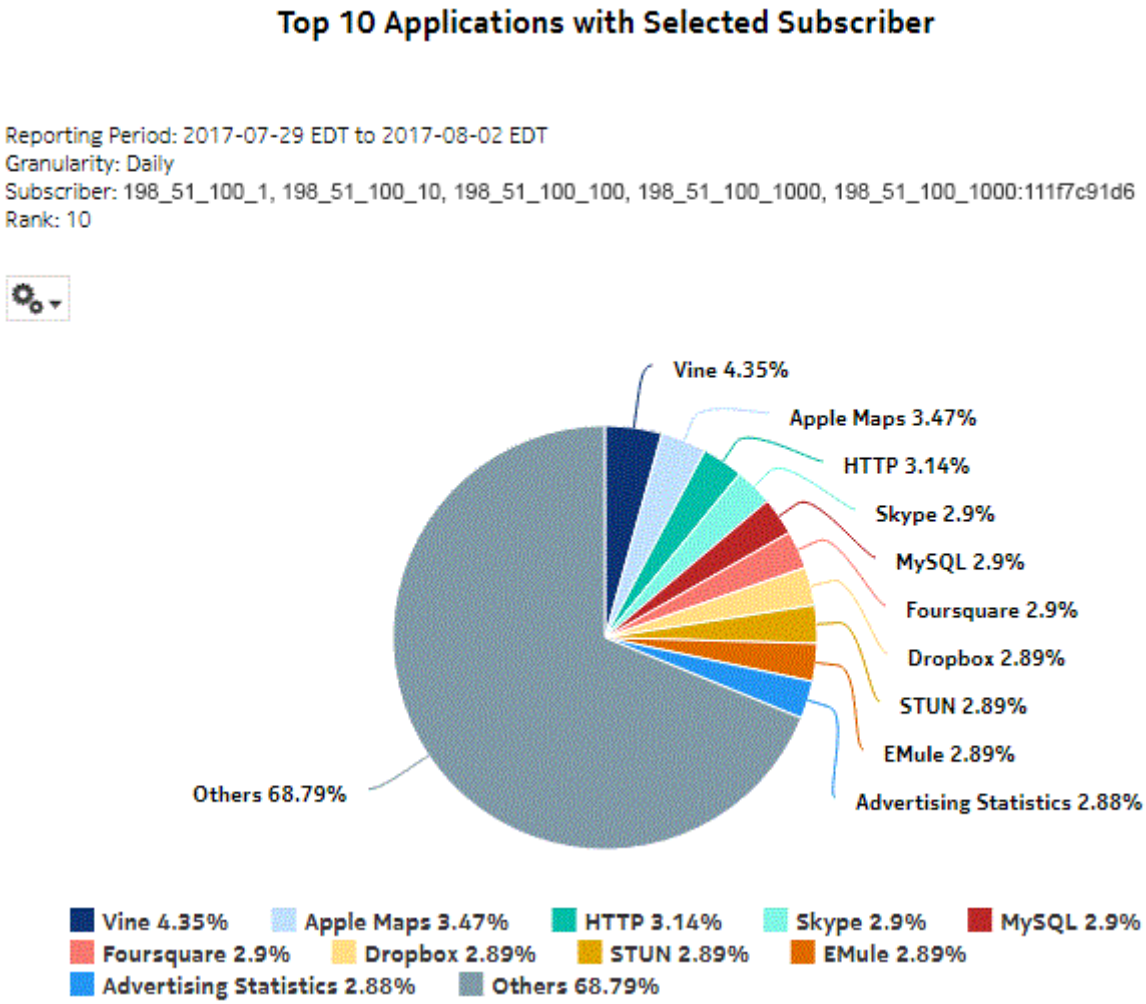


Figure 10-42 Top Applications with Selected Subscribers - Total Volume

Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	Vine	10.81	4.35%
2	Apple Maps	8.62	3.47%
3	HTTP	7.81	3.14%
4	Skype	7.22	2.90%
5	MySQL	7.21	2.90%
6	Foursquare	7.20	2.90%
7	Dropbox	7.20	2.89%
8	STUN	7.19	2.89%
9	EMule	7.18	2.89%
10	Advertising Statistics	7.17	2.88%
	Top 10 Applications Subtotal	**77.61**	**31.21%**

Figure 10-43 Top Applications with Selected Subscribers - Download Volume

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Applications
1	Vine	9.01	4.35%
2	Apple Maps	7.19	3.47%
3	HTTP	6.51	3.14%
4	Skype	6.02	2.91%
5	MySQL	6.01	2.90%
6	Foursquare	6.00	2.90%
7	Dropbox	6.00	2.89%
8	EMule	5.99	2.89%
9	STUN	5.99	2.89%
10	Advertising Statistics	5.97	2.88%
	Top 10 Applications Subtotal	**64.69**	**31.22%**

Figure 10-44 Top Applications with Selected Subscribers - Upload Volume

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Applications
1	Vine	1.80	4.35%
2	Apple Maps	1.43	3.46%
3	HTTP	1.30	3.14%
4	MySQL	1.20	2.90%
5	STUN	1.20	2.90%
6	Dropbox	1.20	2.90%
7	Advertising Statistics	1.20	2.90%
8	Skype	1.20	2.89%
9	Foursquare	1.20	2.89%
10	EMule	1.19	2.88%
	Top 10 Applications Subtotal	**12.92**	**31.21%**

10.16 Top Applications with Selected Subscribers for Home Devices report

10.16.1 Top Applications with Selected Subscribers for Home Devices report overview

The Top Applications with Selected Subscribers for Home Devices report shows:

- the top specified number of UE devices in the home based on the total volume, sorted by volume in descending order
- the top specified number of application groups in the home based on the total volume, sorted by volume in descending order
- the top specified number of applications by usage for the specified subscribers for home devices, on a per-device basis

ESM-MAC hosts appear in the subscriber list in the format *subscribername*:*MAC address*

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-16 Top Applications with Selected Subscribers for Home Devices report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Volume	
NSP Flow Collector required	Yes	
Selectable metrics or counters	—	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Subscriber Name (or Name Pattern)	Enter a wildcard (%) in this field to populate the list of subscribers.
	Rank	Number of applications to report
	Max. no. of devices to report on	Enter the maximum number of devices to include in the report.
	Logo Resource ID	Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
Drill-down support	No	

10.16.2 Example

The following figure shows a report example.

Figure 10-45 Top Applications with Selected Subscribers for Home Devices report – Top UE devices in the home based on the total volume

Top 10 Devices and Application Groups for Sub_192.168.111.1%

Reporting Period: 2019-06-05 EDT to 2019-06-09 EDT
Granularity: Daily

Top 10 Devices

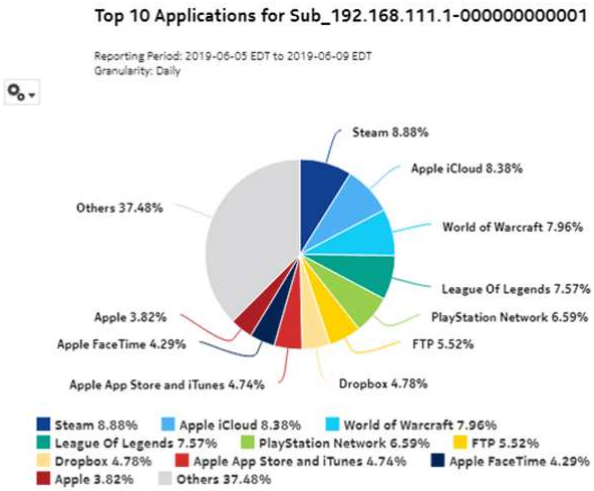
Rank	Device	Total Volume (MB)	Download Volume (MB)	Upload Volume (MB)	Total Volume %
1	Sub_192.168.111.19-000000000001	1,564.47	813.41	751.06	6.36%
2	Sub_192.168.111.13-000000000002	1,496.42	771.42	725.00	6.08%
3	Sub_192.168.111.19-000000000002	1,483.91	768.18	715.73	6.03%
4	Sub_192.168.111.13-000000000001	1,373.76	713.87	659.90	5.58%
5	Sub_192.168.111.1-000000000002	1,373.44	713.42	660.02	5.58%
6	Sub_192.168.111.14-000000000002	1,342.62	690.28	652.34	5.46%
7	Sub_192.168.111.16-000000000001	1,327.41	683.97	643.44	5.40%
8	Sub_192.168.111.12-000000000002	1,306.14	679.35	626.79	5.31%
9	Sub_192.168.111.17-000000000002	1,287.83	665.77	622.06	5.24%
10	Sub_192.168.111.10-000000000002	1,224.83	637.31	587.53	4.98%

Figure 10-46 Top Applications with Selected Subscribers for Home Devices report – Top applications groups in the home based on the total volume

Top 10 Application Groups

Rank	Application Group	Total Volume (GB)	Download Volume (GB)	Upload Volume (MB)	Total Volume %
1	Gaming	8.13	4.06	4,168.65	33.86%
2	Web	4.18	2.09	2,140.31	17.43%
3	File Hosting	3.08	1.54	1,576.01	12.82%
4	Business	1.46	.73	748.42	6.09%
5	Social Networking	1.36	.68	700.63	5.67%
6	Real-Time Communication	1.05	.95	102.31	4.38%
7	Multimedia Streaming	.97	.49	494.70	4.05%
8	File Transfer	.97	.48	499.25	4.04%
9	Software Update	.87	.44	445.27	3.64%
10	Mail	.86	.43	441.00	3.60%
	Top Application Groups - Subtotal	**22.95**	**11.89**	**11,316.56**	**95.58%**

Figure 10-47 Top Applications with Selected Subscribers for Home Devices report – Top applications by usage for specified subscribers per device



Rank	Application	Total Volume (MB)	Download Volume (MB)	Upload Volume (MB)	Total Volume %
1	Steam	73.84	36.28	37.56	8.88%
2	Apple iCloud	69.68	34.93	34.75	8.38%
3	World of Warcraft	66.17	31.69	34.48	7.96%
4	League Of Legends	62.97	31.51	31.46	7.57%
5	PlayStation Network	54.78	27.07	27.71	6.59%
6	FTP	45.88	22.77	23.11	5.52%
7	Dropbox	39.72	19.74	19.98	4.78%
8	Apple App Store and iTunes	39.42	19.88	19.54	4.74%
9	Apple FaceTime	35.67	32.30	3.37	4.29%
10	Apple	31.75	16.50	15.25	3.82%
	Top 10 Applications	**519.88**	**272.67**	**247.21**	**62.53%**

10.17 Top Subscribers by Application Group Usage report

10.17.1 Top Subscribers by Application Group Usage report overview

The Top Subscribers by Application Group Usage report shows the top specified number of subscribers that use the specified application groups.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

Table 10-17 Top Subscribers by Application Group Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application group
NSP Flow Collector required	No
Selectable metrics or counters	—

Table 10-17 Top Subscribers by Application Group Usage report characteristics (continued)

Characteristic	Value	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Group	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Top Application Groups with Selected Subscriber to display a graph of the top application groups for the selected subscriber.	

10.17.2 Example

The following figures show report examples.

Figure 10-48 Top Subscribers by Application Group Usage report

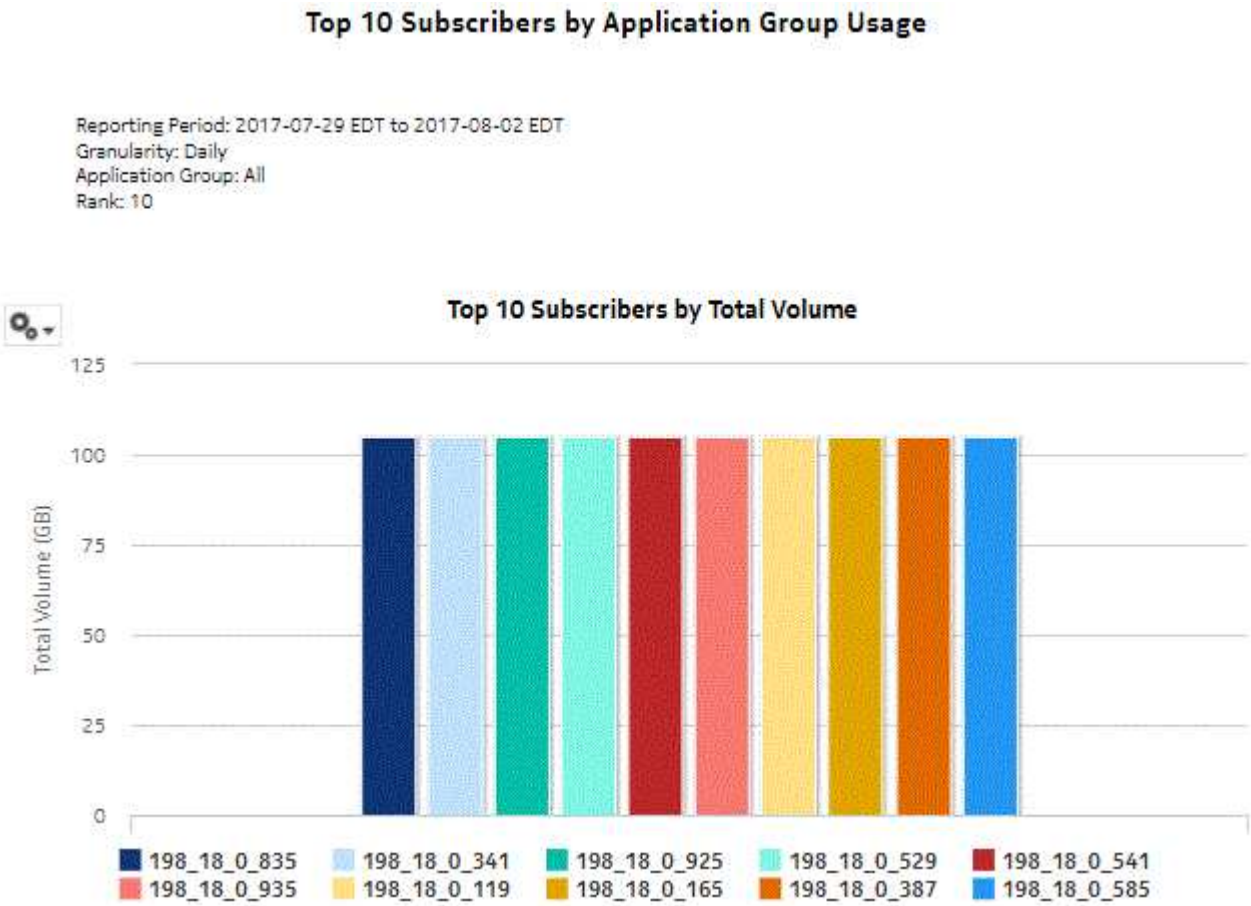


Figure 10-49 Top Subscribers by Application Group Usage - Total Volume

Top 10 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	198_51_100_835	104.86	.10%
2	198_51_100_341	104.84	.10%
3	198_51_100_925	104.84	.10%
4	198_51_100_529	104.83	.10%
5	198_51_100_541	104.83	.10%
6	198_51_100_935	104.82	.10%
7	198_51_100_119	104.81	.10%
8	198_51_100_165	104.80	.10%
9	198_51_100_387	104.80	.10%
10	198_51_100_585	104.80	.10%
	Top 10 Subscribers Subtotal	**1,048.23**	**1.04%**

Figure 10-50 Top Subscribers by Application Group Usage - Download Volume

Top 10 Subscribers - Download Volume (GB)

Rank	Subscriber	Download Volume (GB)	% of All Subscribers
1	198_51_100_835	87.41	.10%
2	198_51_100_341	87.39	.10%
3	198_51_100_925	87.39	.10%
4	198_51_100_529	87.38	.10%
5	198_51_100_935	87.38	.10%
6	198_51_100_119	87.37	.10%
7	198_51_100_731	87.37	.10%
8	198_51_100_165	87.36	.10%
9	198_51_100_523	87.36	.10%
10	198_51_100_541	87.36	.10%
	Top 10 Subscribers Subtotal	**873.77**	**1.04%**

Figure 10-51 Top Subscribers by Application Group Usage - Upload Volume

Top 10 Subscribers - Upload Volume (GB)

Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	198_51_100_131	17.47	.10%
2	198_51_100_155	17.47	.10%
3	198_51_100_201	17.47	.10%
4	198_51_100_247	17.47	.10%
5	198_51_100_25	17.47	.10%
6	198_51_100_255	17.47	.10%
7	198_51_100_273	17.47	.10%
8	198_51_100_33	17.47	.10%
9	198_51_100_363	17.47	.10%
10	198_51_100_379	17.47	.10%
	Top 10 Subscribers Subtotal	**174.70**	**1.04%**

10.18 Top Subscribers by Application Usage report

10.18.1 Top Subscribers by Application Usage report overview

The Top Subscribers by Application Usage report shows the top specified number of subscribers that use the specified applications.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

Table 10-18 Top Subscribers by Application Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application

Table 10-18 Top Subscribers by Application Usage report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Selectable metrics or counters	—	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Rank	Number of items to report
Drill-down support	Yes—Open Top Applications with Selected Subscriber to display a graph of the top applications for the selected subscriber.	

10.18.2 Example

The following figures show report examples.

Figure 10-52 Top Subscribers by Application Usage report

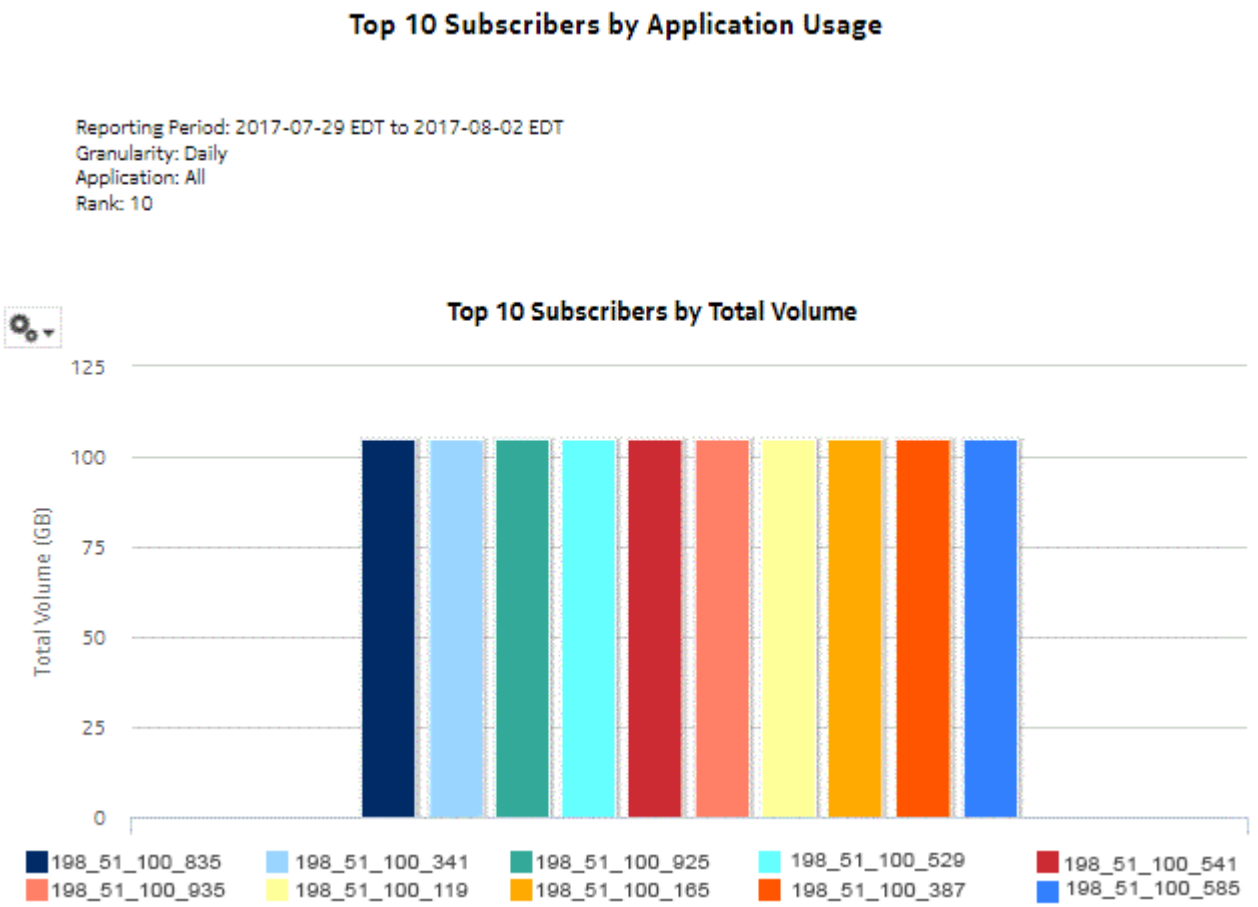


Figure 10-53 Top Subscribers by Application Usage - Total Volume

Top 10 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	198_51_100_835	104.86	.10%
2	198_51_100_341	104.84	.10%
3	198_51_100_925	104.84	.10%
4	198_51_100_529	104.83	.10%
5	198_51_100_541	104.83	.10%
6	198_51_100_935	104.82	.10%
7	198_51_100_119	104.81	.10%
8	198_51_100_165	104.80	.10%
9	198_51_100_387	104.80	.10%
10	198_51_100_585	104.80	.10%
	Top 10 Subscribers Subtotal	**1,048.23**	**1.04%**

Figure 10-54 Top Subscribers by Application Usage - Download Volume

Top 10 Subscribers - Download Volume (GB)

Rank	Subscriber		Download Volume (GB)	% of All Subscribers
1	198_18_0_835	198_51_100_835	87.41	.10%
2	198_18_0_341	198_51_100_341	87.39	.10%
3	198_18_0_925	198_51_100_925	87.39	.10%
4	198_18_0_529	198_51_100_529	87.38	.10%
5	198_18_0_935	198_51_100_935	87.38	.10%
6	198_18_0_119	198_51_100_119	87.37	.10%
7	198_18_0_731	198_51_100_731	87.37	.10%
8	198_18_0_165	198_51_100_165	87.36	.10%
9	198_18_0_523	198_51_100_523	87.36	.10%
10	198_18_0_541	198_51_100_541	87.36	.10%
	Top 10 Subscribers Subtotal		**873.77**	**1.04%**

Figure 10-55 Top Subscribers by Application Usage - Upload Volume

Top 10 Subscribers - Upload Volume (GB)

Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	198_51_100_131	17.47	.10%
2	198_51_100_155	17.47	.10%
3	198_51_100_201	17.47	.10%
4	198_51_100_247	17.47	.10%
5	198_51_100_25	17.47	.10%
6	198_51_100_255	17.47	.10%
7	198_51_100_273	17.47	.10%
8	198_51_100_33	17.47	.10%
9	198_51_100_363	17.47	.10%
10	198_51_100_379	17.47	.10%
	Top 10 Subscribers Subtotal	**174.70**	**1.04%**

Part IV: Network and Service

Overview

Purpose

This part describes the NSP Analytics reports in the Network and Service category.

Notes:

Filter options are not available for grouped columns in the table.

Contents

11 Comprehensive reports

11.1 Comprehensive reports information overview

11.1.1 General information

Comprehensive reports support a user experience where a large quantity of network data is fetched and rendered, then sorted and filtered for data mining purposes.

Comprehensive Summary reports are tabular and typically present data in a Top-N fashion. Summary reports contain many columns in an effort to put all relevant data into the table to avoid the need for multiple reports. In some cases, there may be a need to scroll horizontally to view all columns. The tables can be sorted and filtered on any column.

Comprehensive Details reports provide a time series linear graph of one of more selected KPI. The Details reports can be run directly or as a drill-down from the Summary report. From the Summary report, clicking on a KPI in a table cell automatically launches the Details report for that KPI.

These reports filter based on network topology/grouping, by region and subregion. Weekly granularity is also provided.

Objects in subregions that are nested to three or more levels in depth are not displayed in the optional input prompts for region and subregion; they are displayed as N/A in the Region and Subregion columns in the reports. When you do not select a region or subregion, objects are displayed in the report regardless of the levels. When you select any region or subregion, the objects available are displayed.

Comprehensive reports take more time to generate or return an exception when trying to render results in one page (when you select “Show report output on one page”) for a large amount of data.

11.1.2 Recommendations

Nokia recommends the following:

- Generate the reports over multiple pages, as aggregating a high number of pages of a report over a single page could take a considerable amount of time or may even fail.
- For the Ports and Interfaces Utilization Summary and Ports and Interfaces Forwards and Discards per Queue Summary reports, either generate or schedule the reports for each region or subregion individually. These reports are for all ports, LAGs, bundles, Scada, channels, interface and SAPs in the network, resulting in a summary of millions of rows over thousands of pages.
- Schedule report generation for regions/subregions to ensure that there are no overlaps.
- Use the aggregated granularities for generating a report for a higher report range.
- Track memory utilization in the auxiliary database and manually clear it to ensure that there are no hung queries after the reports are cancelled.

11.2 Availability framework

11.2.1 General information

An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. Depending on the report, these periodic values are aggregated to determine the availability of an NE, interfaces and ports, or service over a period of time. A periodic table tracks the activity state and availability of an NE, interfaces and ports, or service. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

The availability framework supporting the availability reports can synchronize objects from the main database to the auxiliary database at a rate of 500,000 objects per minute. The following table shows the number of objects that can be used by the availability framework, based on the Periodic Sync Time.

Table 11-1 The number of objects that can be used by the availability framework based on the Periodic Sync Time

analyticsMODictPeriodicSyncTime (min)	Number of objects that can be used by availability framework
5	2,500,000
10	5,000,000
15	7,500,000
20	10,000,000
30	15,000,000
60	30,000,000

WARNING: Exceeding the objects per minute limit may result in incorrect availability report content, reports taking a long time to complete, or failing altogether.

11.3 How do I synchronize the Analytics data dictionary table data with the NFM-P?

11.3.1 Purpose

Perform the following steps to set the object synchronization interval for tables registered for periodic calculation, such as availability tables. This procedure only needs to be performed once to set the interval for all relevant tables.

Note: You must perform the procedure on each NFM-P main server.

11.3.2 Steps

1

Log in as the root user on the main server station.

2

Navigate to the /opt/nsp/nfmp/server/nms/config directory.

3

Create a backup copy of the nms-server.xml file.

4

Open the nms-server.xml file using a plain-text editor such as vi.

5

CAUTION

Service Disruption

Contact technical support before you attempt to modify the nms-server.xml file.

Modifying the nms-server.xml file can have serious consequences that can include service disruption.

Locate the following section:

```
<samauxdb
   analyticsMODictPeriodicSyncTime="value"
   enabled="value"
   ipaddress=""
   oamTestResultEnabled="value"
   secure="value"
   sysKeysafe="value" />
```

6

Set the analyticsMODictPeriodicSyncTime parameter to 15, as shown below:

```
<samauxdb
   analyticsMODictPeriodicSyncTime="15"
   enabled="value"
   ipaddress=""
   oamTestResultEnabled="value"
   secure="value"
   sysKeysafe="value" />
```

7

Save and close the nms-server.xml file.

8

Open a console window.

9

Navigate to the /opt/nsp/nfmp/server/nms/bin directory.

10

If the main server is a standalone server, or the primary server is in a redundant deployment, enter the following:

```
bash$ ./nmsserver.bash read_config ↵
```

The main server reads the nms-server.xml file and puts the configuration change into effect.

11

Close the console window.

END OF STEPS

11.4 Node Availability Details report

11.4.1 Node Availability Details report overview

The Node Availability Details report shows availability information for NEs.

Use cases

Service level agreement—Use the report to validate that NE availability meets agreed targets.

Troubleshooting—Use the report to determine if an NE is currently, or has previously, been unavailable.

Prerequisites

To create the Node Availability Details report, NE availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of an NE over a period of time. A periodic table tracks the activity state and availability of an NE. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see 11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P?” (p. 330). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see 14.5 “To add data to the samdb maintenance-window table in an auxiliary database” (p. 526). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-2 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_network_element	reachability	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-3 Node Availability Details report characteristics

Characteristic	Value
Data type	Availability tables computed by availability framework
Source database	Auxiliary database

Table 11-3 Node Availability Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Availability Min Availability Avg Availability (for all granularities except for raw granularity) Availability (for raw granularity)
	NE	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Uptime Threshold (%)	Identify the threshold percentage
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

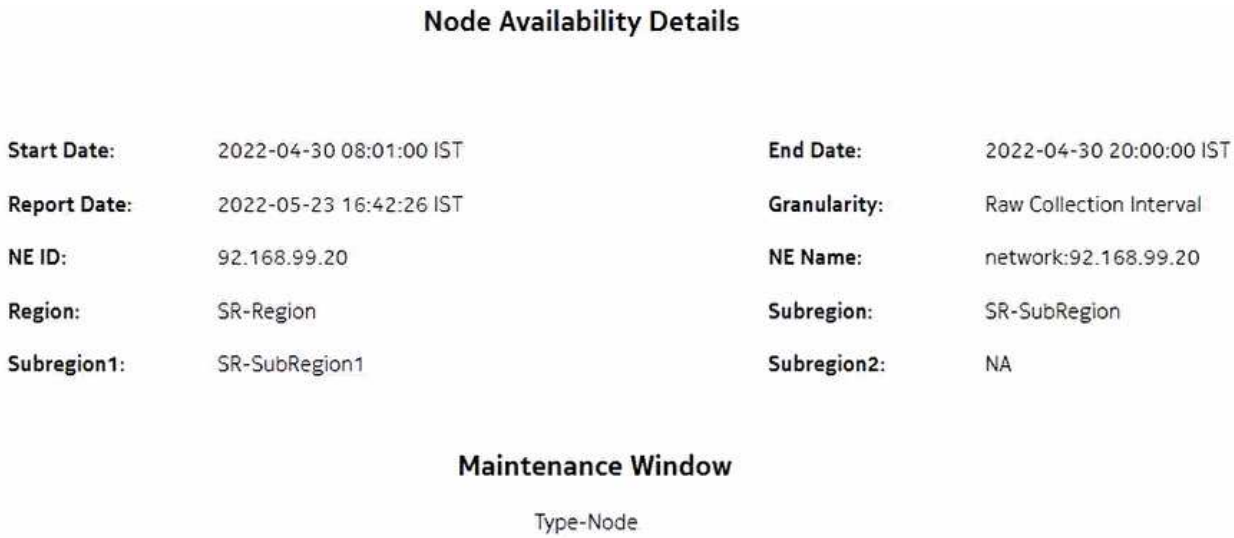
Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.4.2 Example

The following figure shows a report example.

Figure 11-1 Node Availability Details report



Node Availability Details

Start Date:	2022-04-30 08:01:00 IST	**End Date:**	2022-04-30 20:00:00 IST
Report Date:	2022-05-23 16:42:26 IST	**Granularity:**	Raw Collection Interval
NE ID:	92.168.99.20	**NE Name:**	network:92.168.99.20
Region:	SR-Region	**Subregion:**	SR-SubRegion
Subregion1:	SR-SubRegion1	**Subregion2:**	NA

Maintenance Window

Type-Node

Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration (DD:HH:MM:SS)
2022-04-30 08:14 IST	2022-04-30 09:14 IST	00:01:00:00
2022-04-30 10:20 IST	2022-04-30 10:50 IST	00:00:30:00
2022-04-30 12:14 IST	2022-04-30 12:54 IST	00:00:39:59
2022-04-30 14:00 IST	2022-04-30 15:00 IST	00:01:00:00
2022-04-30 16:30 IST	2022-04-30 17:14 IST	00:00:44:50
	Totals	**00:03:54:50**

11.5 Node Availability Summary report

11.5.1 Node Availability Summary report overview

The Node Availability Summary report shows availability information for NEs.

Use cases

Service level agreement—Use the report to validate that NE availability meets agreed targets.

Troubleshooting—Use the report to determine if an NE is currently, or has previously, been unavailable.

Limitations

When the report is exported to the RTF or DOCX file type, some columns may not display or there may be a problem with the table border.

Prerequisites

To create the report, NE availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary

database data dictionary. These periodic values are aggregated to determine the availability of an NE over a period of time. A periodic table tracks the activity state and availability of an NE. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see 11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P?” (p. 330). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see 14.5 “To add data to the samdb maintenance-window table in an auxiliary database” (p. 526). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-4 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_network_element	reachability	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-5 Node Availability Summary report characteristics

Characteristic	Value
Data type	Availability tables computed by availability framework
Source database	Auxiliary database

Table 11-5 Node Availability Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Uptime Threshold (%)	Identify the threshold percentage
	Downtime Threshold (Minutes)	Identify the downtime threshold in minutes
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

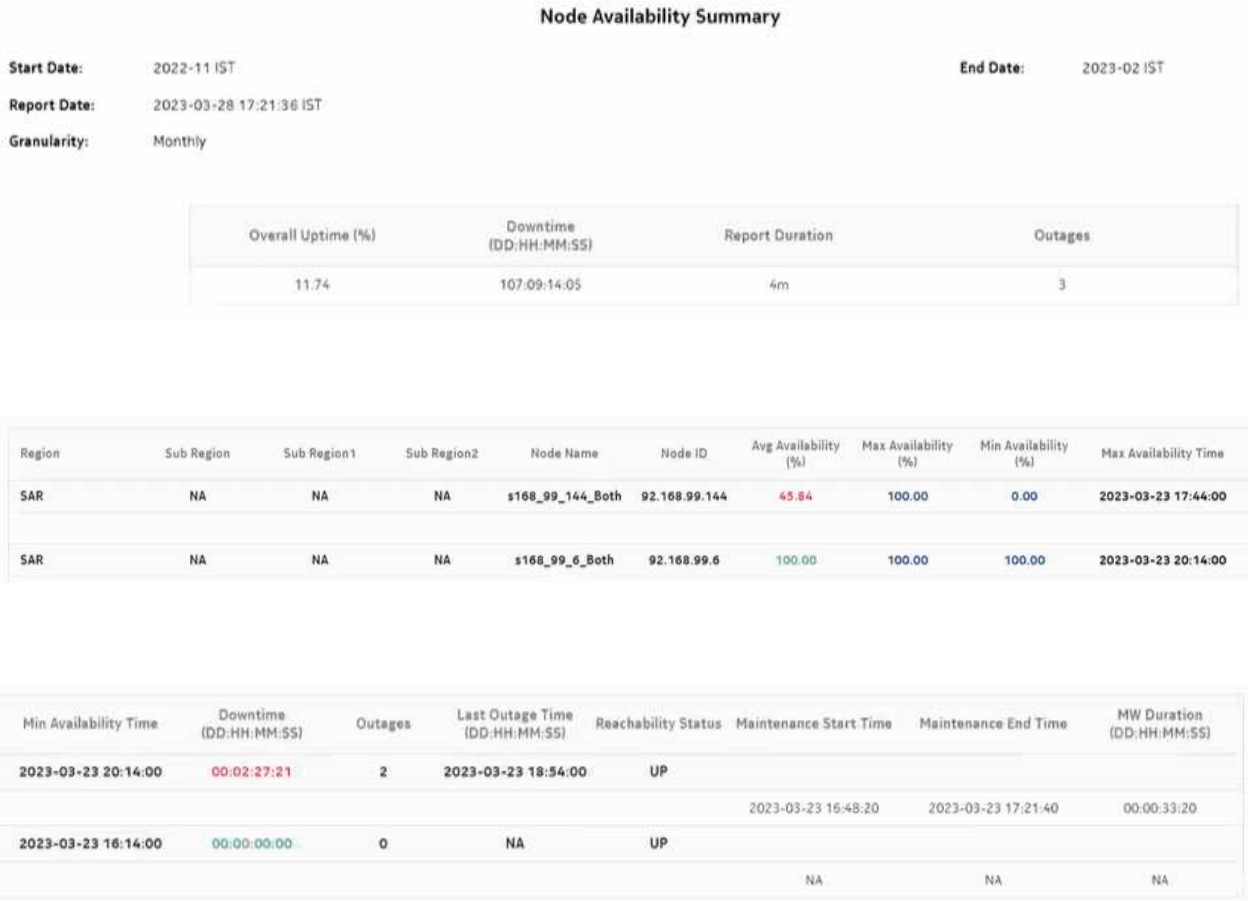
Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.5.2 Example

The following figure shows a report example. Not all figures are from the same report.

Figure 11-2 Node Availability Summary report



Node Availability Summary

Start Date: 2022-11 IST **End Date:** 2023-02 IST

Report Date: 2023-03-28 17:21:36 IST

Granularity: Monthly

Overall Uptime (%)	Downtime (DD:HH:MM:SS)	Report Duration	Outages
11.74	107:09:14:05	4m	3

Region	Sub Region	Sub Region1	Sub Region2	Node Name	Node ID	Avg Availability (%)	Max Availability (%)	Min Availability (%)	Max Availability Time
SAR	NA	NA	NA	s168_99_144_Both	92.168.99.144	45.84	100.00	0.00	2023-03-23 17:44:00
SAR	NA	NA	NA	s168_99_6_Both	92.168.99.6	100.00	100.00	100.00	2023-03-23 20:14:00

Min Availability Time	Downtime (DD:HH:MM:SS)	Outages	Last Outage Time (DD:HH:MM:SS)	Reachability Status	Maintenance Start Time	Maintenance End Time	MW Duration (DD:HH:MM:SS)
2023-03-23 20:14:00	00:02:27:21	2	2023-03-23 18:54:00	UP			
					2023-03-23 16:48:20	2023-03-23 17:21:40	00:00:33:20
2023-03-23 16:14:00	00:00:00:00	0	NA	UP			
					NA	NA	NA

11.6 Node Health Details report

11.6.1 Node Health Details report overview

The Node Health Details report shows temperature, CPU, and memory utilization details for selected NEs.

Use cases

Equipment health monitoring—Ensure the network equipment is operating within anticipated ranges for temperature, memory, and CPU utilization.

Limitations

Report limitations include:

- Low voltage threshold and high voltage threshold report inputs are applicable only to DDM statistics and hardware resource statistics.
- When the report is exported to the ODS file format, the Start Date does not display.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 11-6 Node Health Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_ SystemCpu StatsLogRecord	equipment. BaseCard	equipment. HardwareTempera-ture	MIB-based	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
equipment_ Hardware TemperatureL-ogRecord	equipment. ControlProcessor	equipment. HardwareTempera-ture	MIB-based	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
equipment_ SystemMemory StatsLogRecord	equipment. DaughterCard	equipment. HardwareTempera-ture	MIB-based	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Table 11-6 Node Health Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_ AllocatedMemory StatsLogRecord	equipment. SystemStatsHolder	equipment. SystemCpuStats	MIB-based	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
equipment_ AvailableMemory StatsLogRecord	equipment. SystemStatsHolder	equipment. SystemMemoryS-tats	MIB-based	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR **Note:** 7705 SAR-H is not supported. Memory Usage is calculated as follows: Memory Usage =(systemMemoryUsageInKb/(allocate For SAR-H NEs, the available memory statistics are not supported; the calculation is as follows: Memory Usage =(systemMemoryUsageInKb/(allocate

Report characteristics

The following table lists the principal report characteristics.

Table 11-7 Node Health Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 11-7 Node Health Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	CPU Utilization Avg CPU Utilization Max Memory Utilization Avg Memory Utilization Max Memory In Use Avg Memory In Use Max Temperature Avg Temperature Max
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

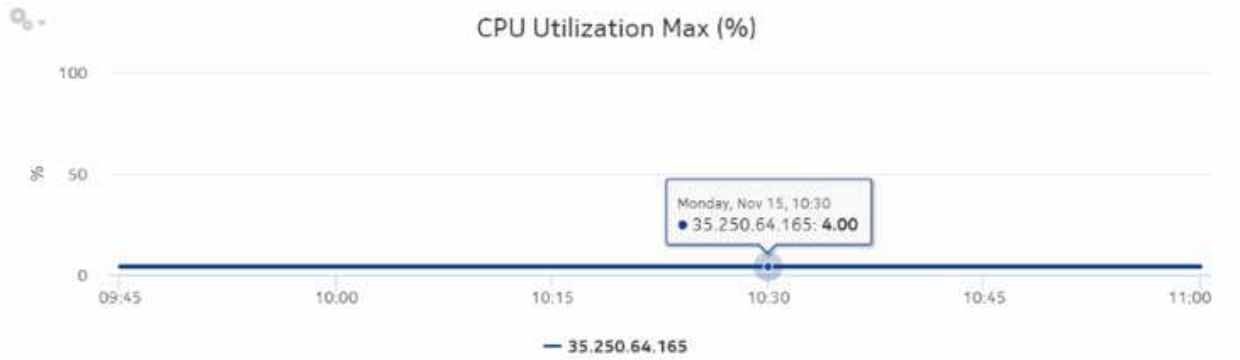
11.6.2 Example

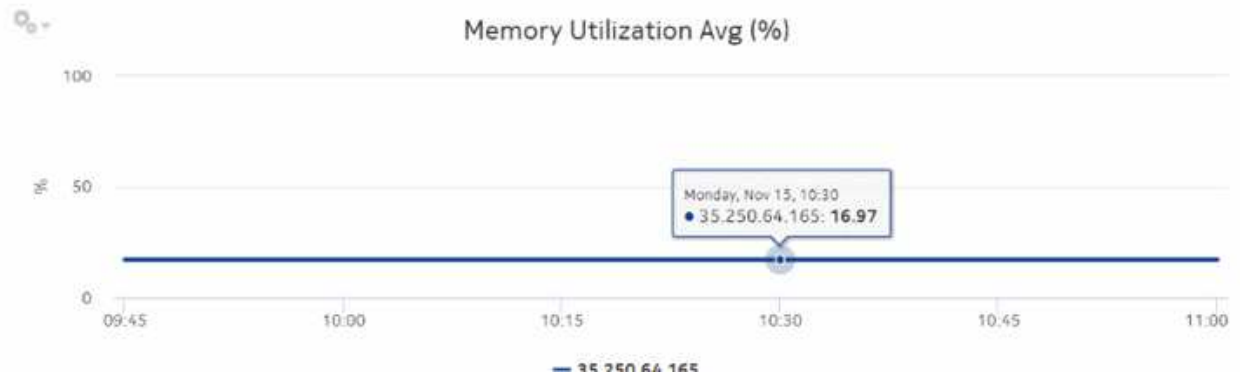
The following figures show a report example.

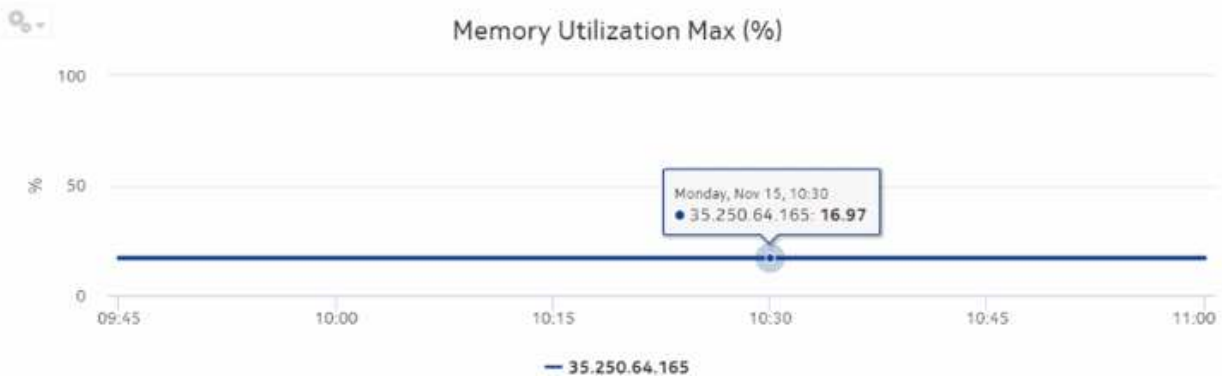
Figure 11-3 Node Health Details report

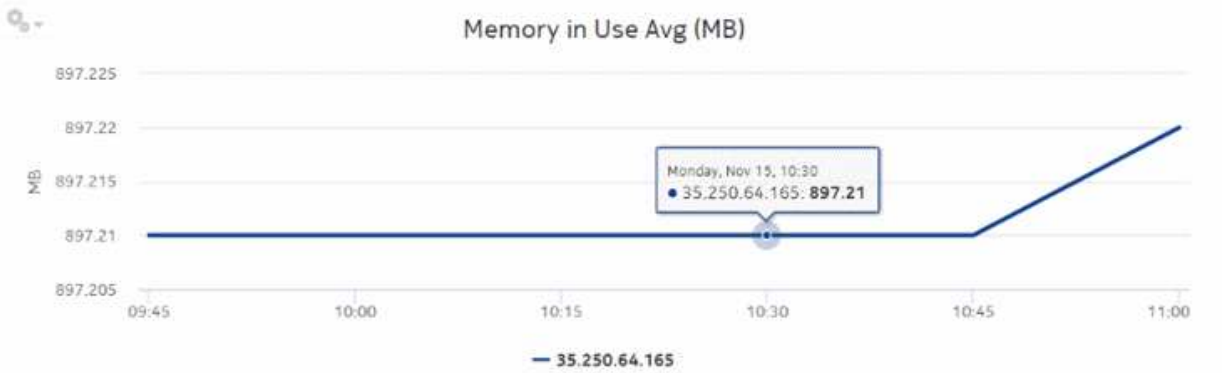
Node Health Details

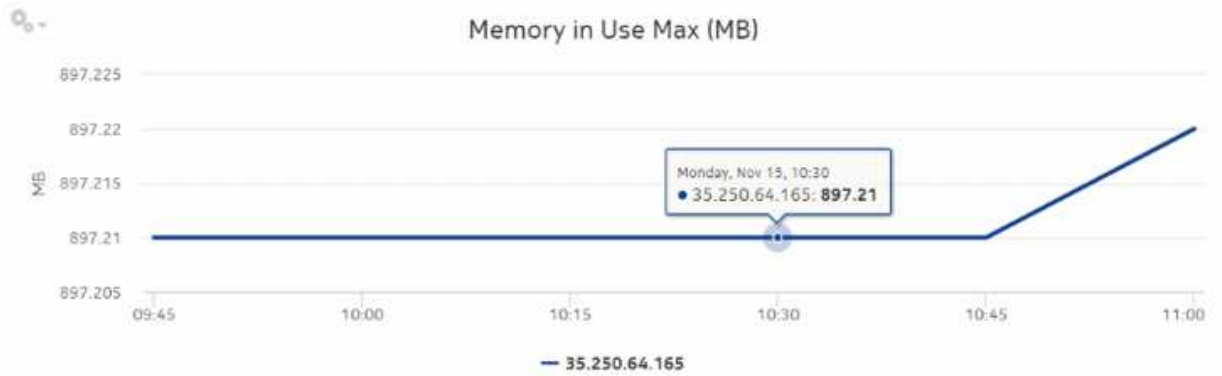
Start Date:	2022-04-07 08:01:00 IST	**End Date:**	2022-04-07 09:00:00 IST
Report Date:	2022-05-18 11:22:58 IST	**Region:**	SR Nodes
Granularity:	Raw Collection Interval	**Sub Region:**	SR-Sub_Region
NE ID:	35.250.64.165	**Sub Region 1:**	NA
NE Name:	LIVE165	**Sub Region 2:**	NA

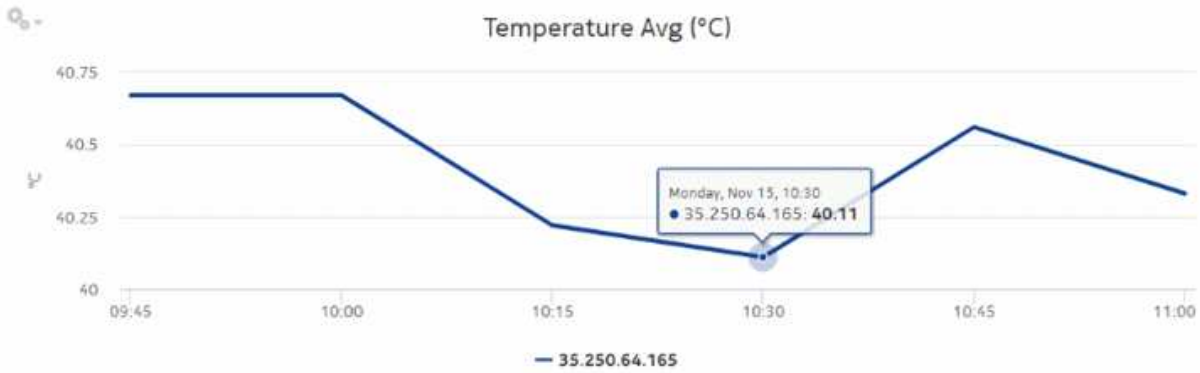


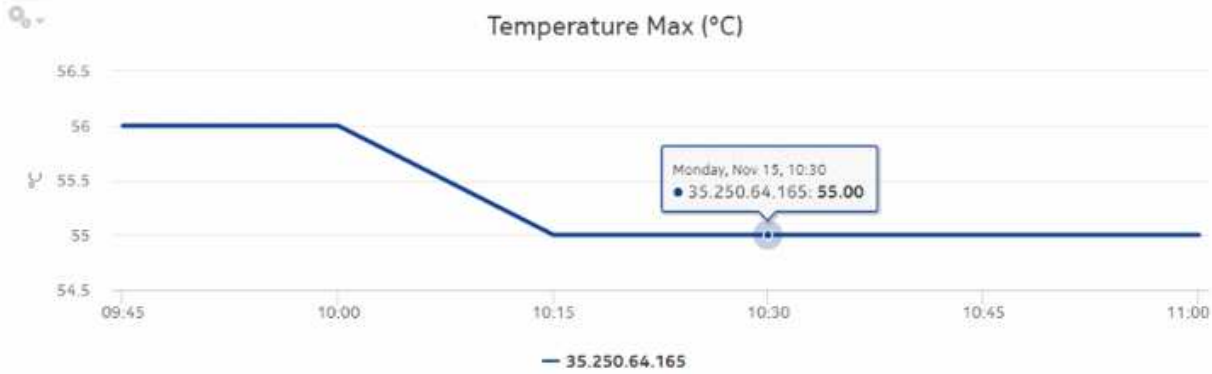












11.7 Node Health Summary report

11.7.1 Node Health Summary report overview

The Node Health Summary report shows a summary of temperature, CPU, and memory utilization data for available NEs.

If no telemetry subscriptions are enabled for CPU, Memory, and Temperature, the report shows -1 values for CPU and Memory and N/A for Temperature.

Use cases

Equipment health monitoring—Ensure the network equipment is operating within anticipated ranges for temperature, memory, and CPU utilization.

Limitations

Report limitations include:

- When the report is exported to the ODS file type, the Region column in the table and the Granularity do not display.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 11-8 Node Health Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_ SystemCpu StatsLogRecord	equipment. BaseCard	equipment. HardwareTempera-ture	MIB-based	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
equipment_ Hardware TemperatureL-ogRecord	equipment. ControlProcessor	equipment. HardwareTempera-ture	MIB-based	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
equipment_ SystemMemory StatsLogRecord	equipment. DaughterCard	equipment. HardwareTempera-ture	MIB-based	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Table 11-8 Node Health Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_ AllocatedMemory StatsLogRecord	equipment. SystemStatsHolder	equipment. SystemCpuStats	MIB-based	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
equipment_ AvailableMemory StatsLogRecord	equipment. SystemStatsHolder	equipment. SystemMemoryS-tats	MIB-based	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR **Note:** 7705 SAR-H is not supported. Memory Usage is calculated as follows: Memory Usage =(systemMemoryUsageInKb/(allocate For SAR-H NEs, the available memory statistics are not supported; the calculation is as follows: Memory Usage =(systemMemoryUsageInKb/(allocate

Report characteristics

The following table lists the principal report characteristics.

Table 11-9 Node Health Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

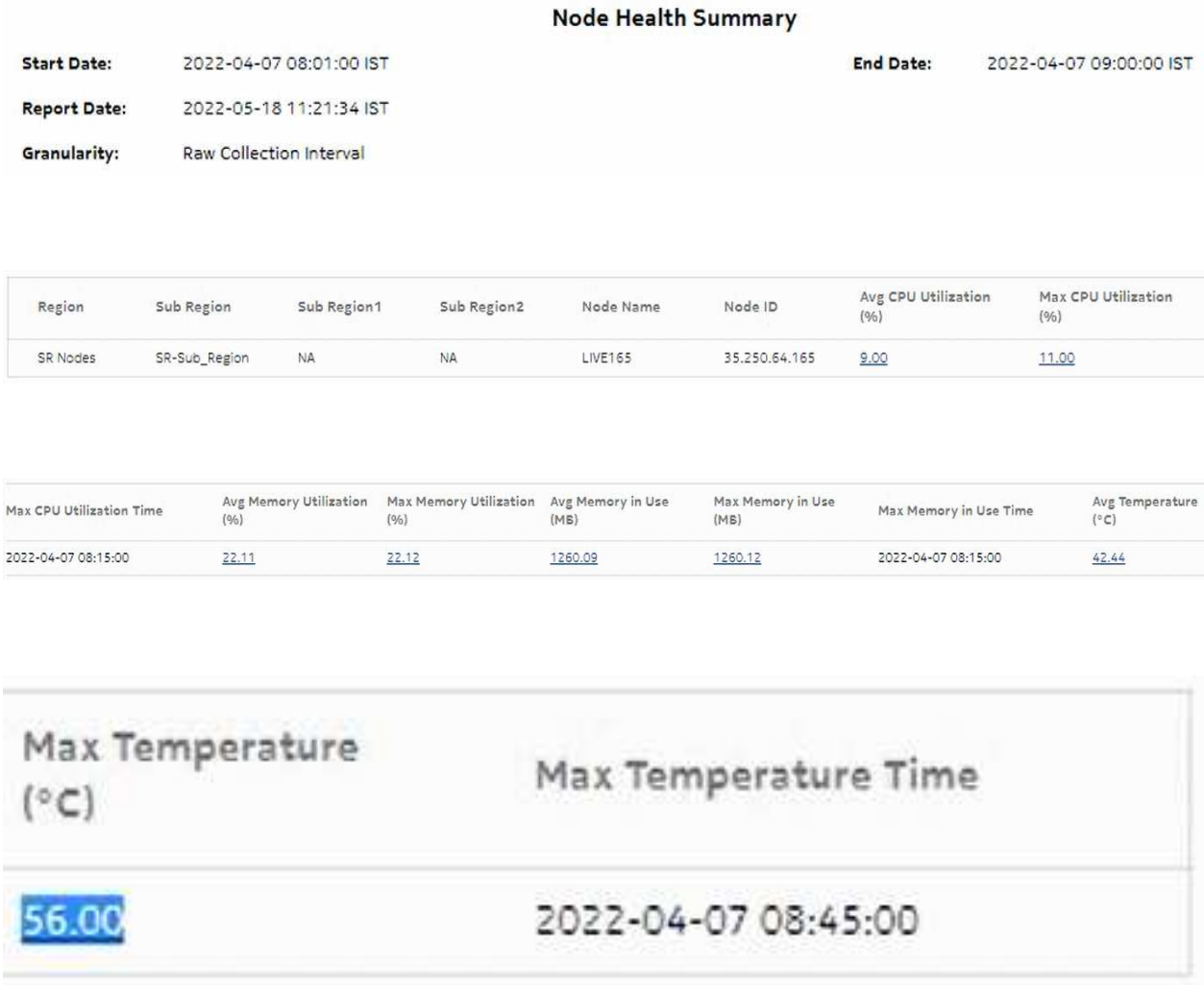
Table 11-9 Node Health Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

11.7.2 Example

The following figure shows a report example.

Figure 11-4 Node Health Summary report



Node Health Summary

Start Date: 2022-04-07 08:01:00 IST **End Date:** 2022-04-07 09:00:00 IST

Report Date: 2022-05-18 11:21:34 IST

Granularity: Raw Collection Interval

Region	Sub Region	Sub Region1	Sub Region2	Node Name	Node ID	Avg CPU Utilization (%)	Max CPU Utilization (%)
SR Nodes	SR-Sub_Region	NA	NA	LIVE165	35.250.64.165	9.00	11.00

Max CPU Utilization Time	Avg Memory Utilization (%)	Max Memory Utilization (%)	Avg Memory in Use (MB)	Max Memory in Use (MB)	Max Memory in Use Time	Avg Temperature (°C)
2022-04-07 08:15:00	22.11	22.12	1260.09	1260.12	2022-04-07 08:15:00	42.44

Max Temperature (°C)	Max Temperature Time
56.00	2022-04-07 08:45:00

11.8 Node Power and Voltage Summary

11.8.1 Node Power and Voltage Summary report overview

The Node Power and Voltage Summary report shows detailed information about NE power and voltage. The report provides tables showing DDM, lane DDM, coherent optical port, and hardware resource statistics, and can drill down to the Optical Power and Voltage Summary report for more information.

For hardware resource statistics, only minimum and maximum voltage are displayed; there is no average counter.

Use cases

Troubleshooting—Confirm that NE power is in the optimum operating range to determine if it is a cause of network impairment.

Limitations

Report limitations include:

- Low voltage threshold and high voltage threshold report inputs are applicable only to DDM statistics and hardware resource statistics.
- Periodic counters are used for hardware resource statistics if non-periodic counters are not present in aggregation tables.
- When the report is exported to the DOCX file type, the table borders do not display properly.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the CSV file type, table data does not display properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and the statistics to be collected. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 11-10 Node Power and Voltage Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
DDM stats aggregator	equipment.Digital DiagnosticMonitor-ing	equipment. DDMStats	MIB-based	TIMETRA-PORT-MIB. tmnxDigitalDiag MonitorEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
Lane DDM stats aggregator	equipment. LaneDDM	equipment, LaneDDMStats	MIB-based	tmnxDDMLaneEn-try	7210 SAS-R 7210 SAS-S/Sx 7250 IXR 7450 ESS 7705 SAR-H 7705 SAR-Hm 7750 SR 7950 XRS

Table 11-10 Node Power and Voltage Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Coherent optical port stats aggregator	equipment. Connector equipment. PhysicalPort	ethernetequipment CohOptPortStats	MIB-based	tmnxCohOptPortS-tatsEntry	7250 IXR 7450 ESS 7705 SAR-H 7705 SAR-Hm 7750 SR 7950 XRS
Hardware resource stats aggregator	equipment. HwEnvironment	equipment HardwareRe-sourceStats	MIB-based	tmnxHwRe-sourceEntry	7250 IXR 7705 SAR-H 7750 SR 7950 XRS

Report characteristics

The following table lists the principal report characteristics.

Table 11-11 Node Power and Voltage Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

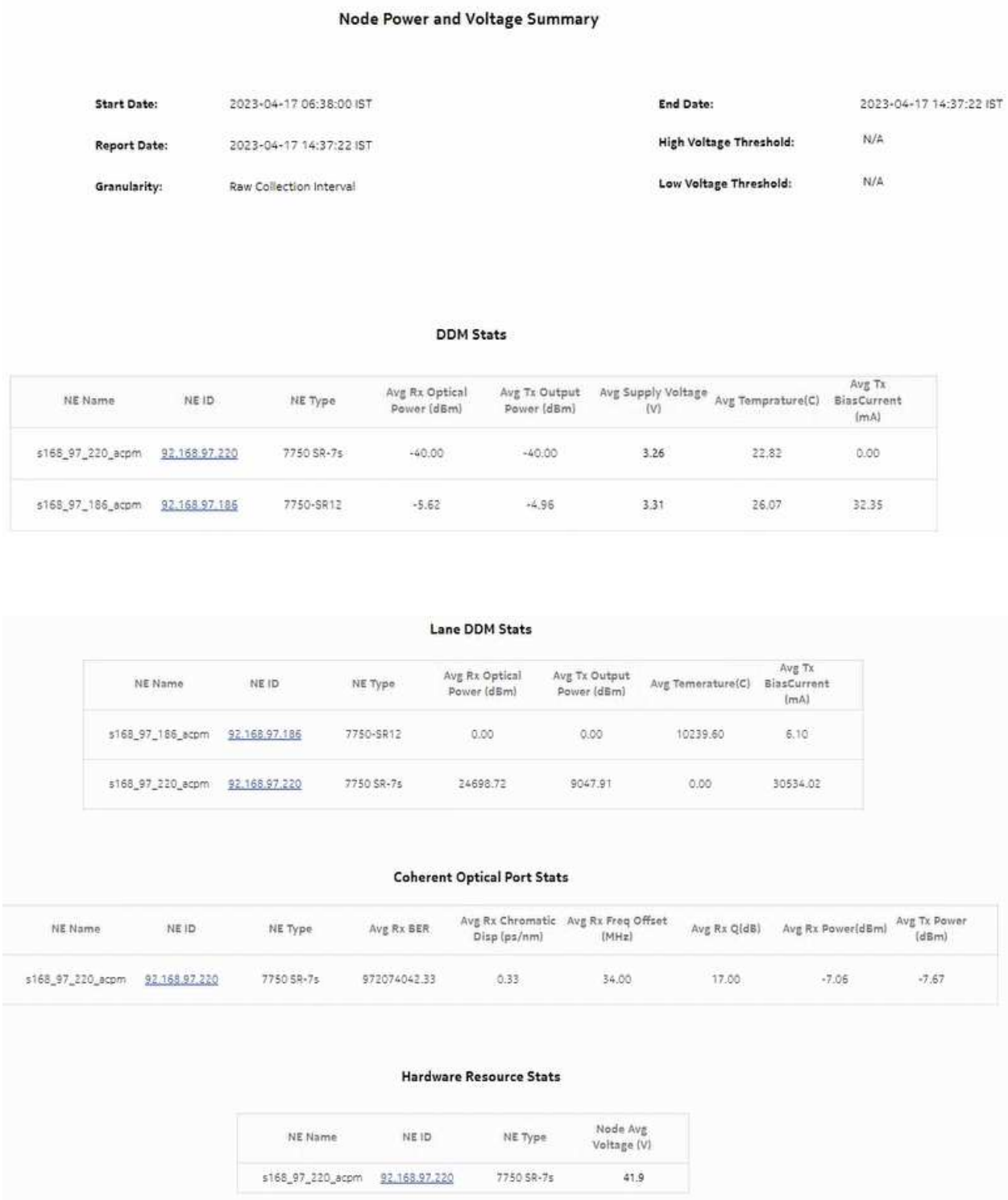
Table 11-11 Node Power and Voltage Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • Raw Collection Interval • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	NE types	Search using partial names. Select individual items or click **Select All**.
	NEs	
	Low voltage threshold	Specify the value using expressions like > or <.
	High voltage threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drills down to Optical Power and Voltage Summary report	

Example

The following figures show a report example.

Figure 11-5 Node Power and Voltage Summary report



Node Power and Voltage Summary

Start Date:	2023-04-17 06:38:00 IST	**End Date:**	2023-04-17 14:37:22 IST
Report Date:	2023-04-17 14:37:22 IST	**High Voltage Threshold:**	N/A
Granularity:	Raw Collection Interval	**Low Voltage Threshold:**	N/A

DDM Stats

NE Name	NE ID	NE Type	Avg Rx Optical Power (dBm)	Avg Tx Output Power (dBm)	Avg Supply Voltage (V)	Avg Temprature(C)	Avg Tx BiasCurrent (mA)
s168_97_220_acpm	92.168.97.220	7750 SR-7s	-40.00	-40.00	3.26	22.82	0.00
s168_97_186_acpm	92.168.97.186	7750-SR12	-5.62	-4.96	3.31	26.07	32.35

Lane DDM Stats

NE Name	NE ID	NE Type	Avg Rx Optical Power (dBm)	Avg Tx Output Power (dBm)	Avg Temerature(C)	Avg Tx BiasCurrent (mA)
s168_97_186_acpm	92.168.97.186	7750-SR12	0.00	0.00	10239.60	6.10
s168_97_220_acpm	92.168.97.220	7750 SR-7s	24698.72	9047.91	0.00	30534.02

Coherent Optical Port Stats

NE Name	NE ID	NE Type	Avg Rx BER	Avg Rx Chromatic Disp (ps/nm)	Avg Rx Freq Offset (MHz)	Avg Rx Q(dB)	Avg Rx Power(dBm)	Avg Tx Power (dBm)
s168_97_220_acpm	92.168.97.220	7750 SR-7s	972074042.33	0.33	34.00	17.00	-7.06	-7.67

Hardware Resource Stats

NE Name	NE ID	NE Type	Node Avg Voltage (V)
s168_97_220_acpm	92.168.97.220	7750 SR-7s	41.9

11.9 Optical Power and Voltage Details report

11.9.1 Optical Power and Voltage Details report overview

The Optical Power and Voltage Details report contains detailed information about the optical power in dBm, measured at equipment ports. The report provides graphs showing the Tx power, Rx power, temperature, supply voltage, and Tx bias current.

Note: In the case of an upgrade from 23.4 or previous release, there will be reports listed as ‘Optical Port Power Details’ report. These reports are replaced with ‘Optical Power and Voltage Details’ report for details report and will be removed from the list in the future.

Use cases

Troubleshooting—Confirm that optical power is in the optimum operating range to determine if it is a cause of network impairment.

Limitations

Report limitations include:

- The average voltage counter is not part of the hardware resource statistics.
- Low voltage threshold and high voltage threshold report inputs are applicable only to DDM statistics and hardware resource statistics.
- Periodic counters are used for hardware resource statistics if non-periodic counters are not present in aggregation tables.
- This report contains 12 subreports, each with three graphs. All three KPI graphs are shown in a single band, but when there is only one graph, blank space displays for the other graphs.

Prerequisites

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 11-12 Optical Power and Voltage Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
DDM stats aggregator	equipment.Digital DiagnosticMonitor-ing	equipment. DDMStats	MIB-based	TIMETRA-PORT-MIB. tmnxDigitalDiag MonitorEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Report characteristics

The following table lists the principal report characteristics.

Table 11-13 Optical Power and Voltage Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 11-13 Optical Power and Voltage Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Stats Type	Stats types: • DDM Stats • Lane DDM stats • Coherent Optical Port Stats • Hardware Resource Stats
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • Raw Collection Interval • Hourly • Daily • Weekly • Monthly
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	• Tx Power Avg • Tx Power Min • Tx Power Max • Rx Power Avg • Rx Power Min • Rx Power Max • Temperature Avg • Temperature Min • Temperature Max • Supply Voltage Avg • Supply Voltage Min • Supply Voltage Max • Tx Bias Current Avg • Tx Bias Current Min • Tx Bias Current Max
	NE types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	NE	
	Optical Port	Select an optical port from the drop-down list.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

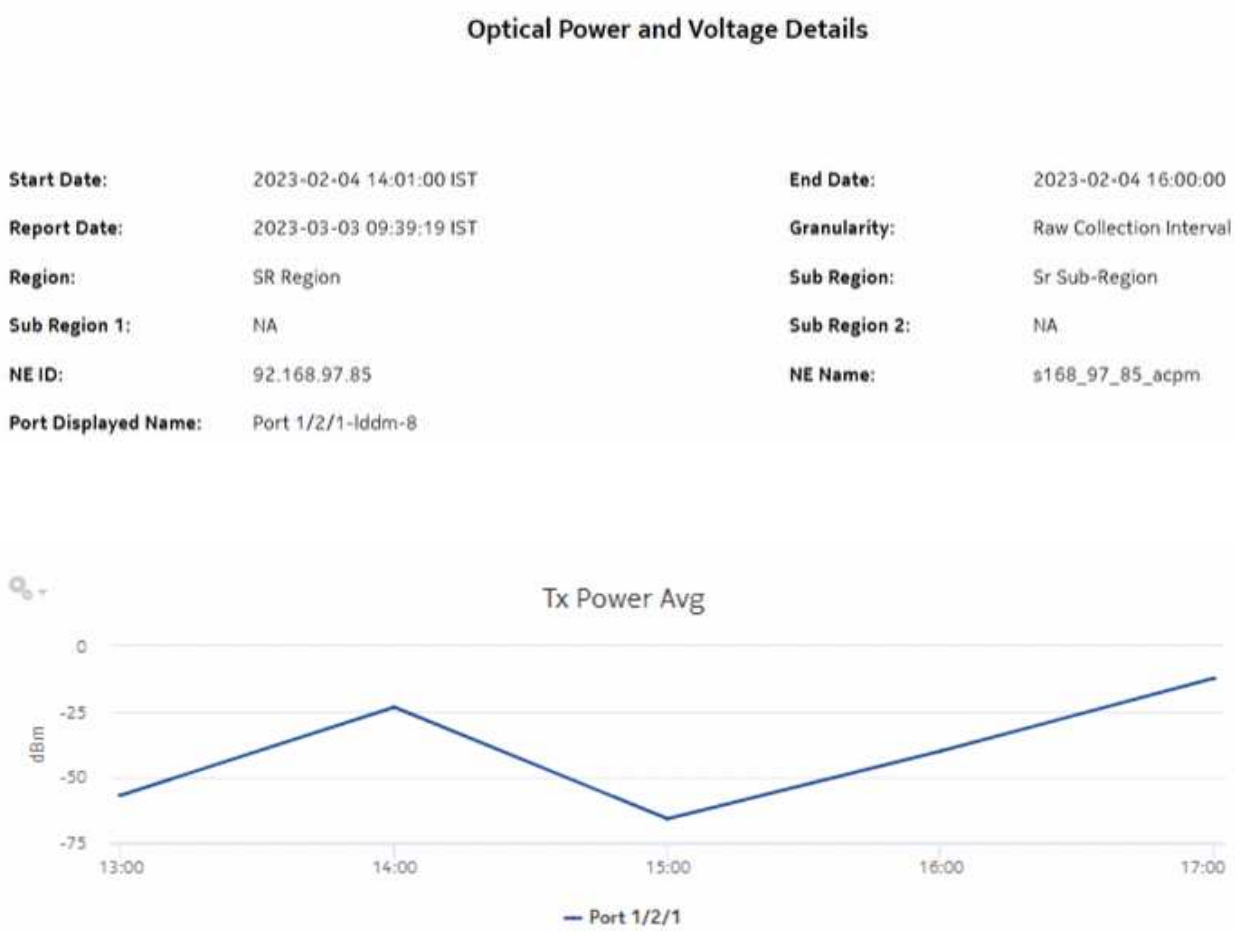
Table 11-13 Optical Power and Voltage Details report characteristics (continued)

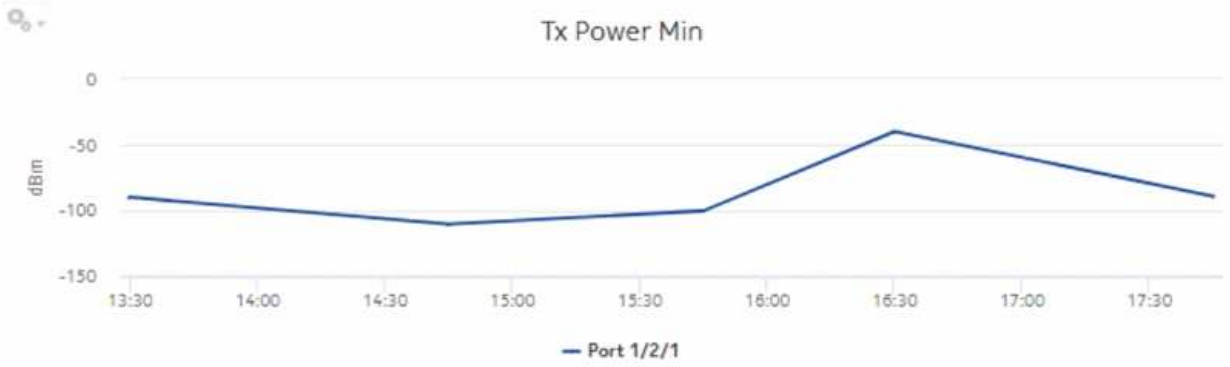
Characteristic	Value
Drill-down support	No

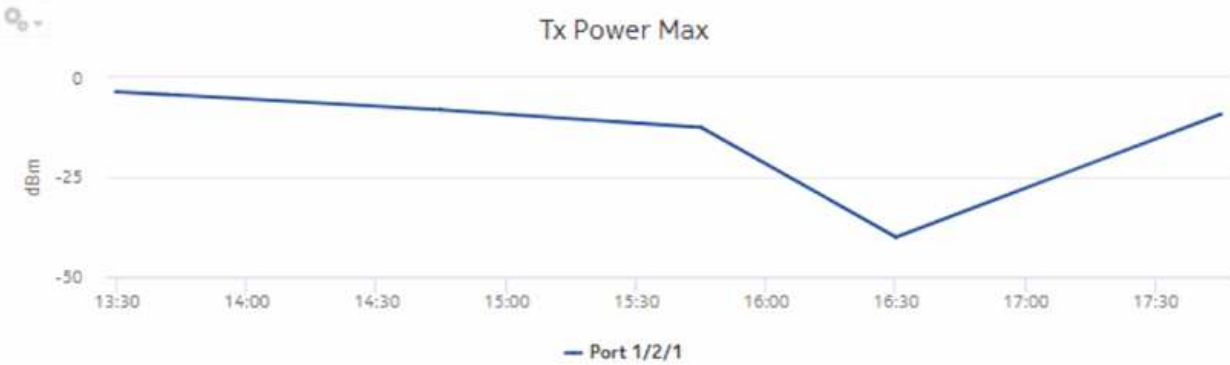
Example

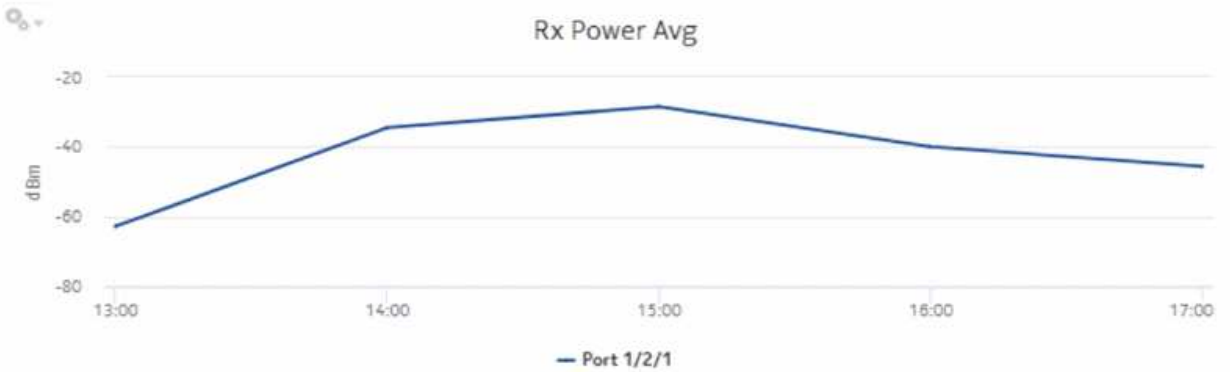
The following figures show a report example. Not all figures are from the same report.

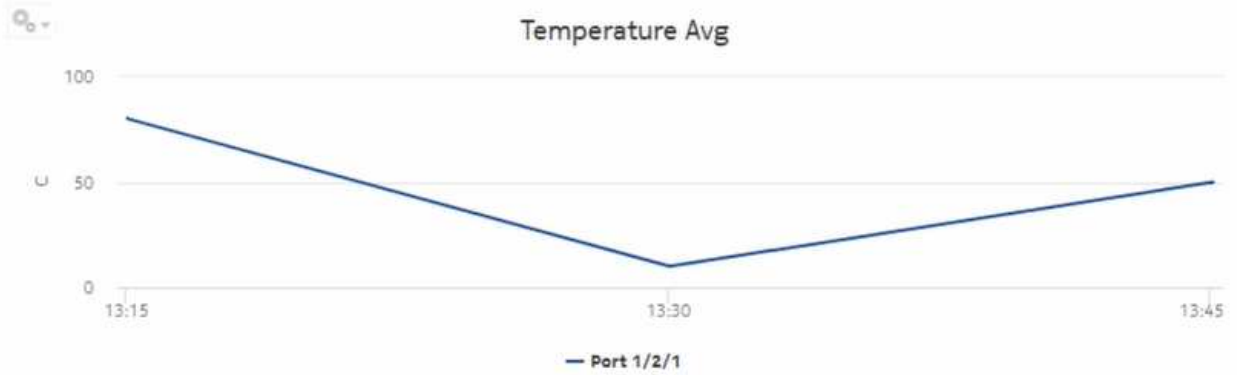
Figure 11-6 Optical Power and Voltage Details report

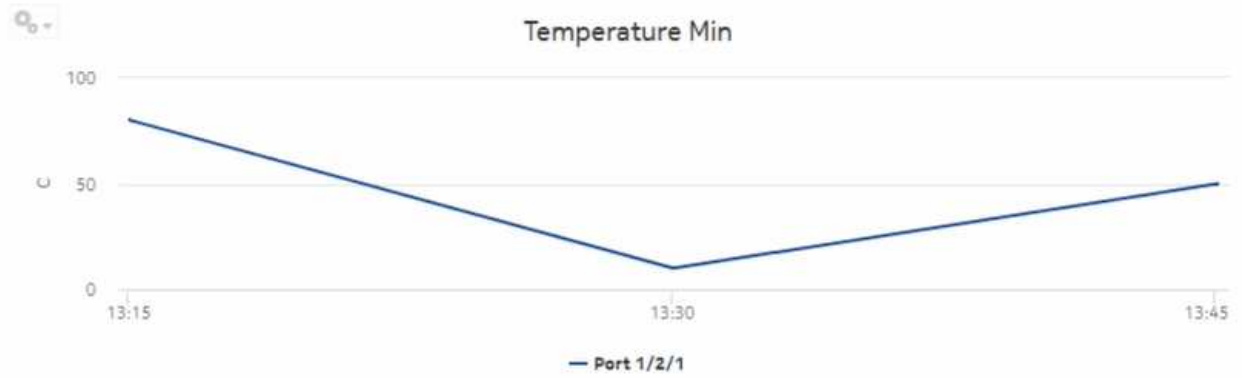


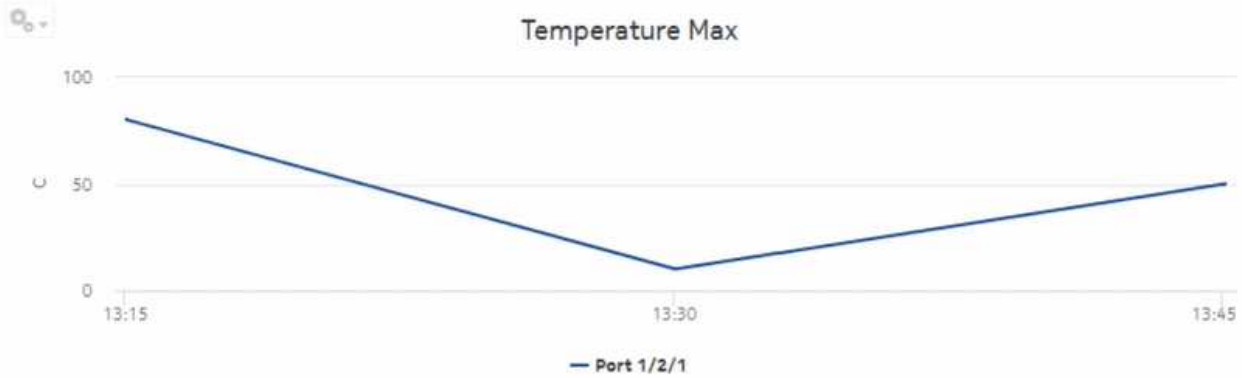


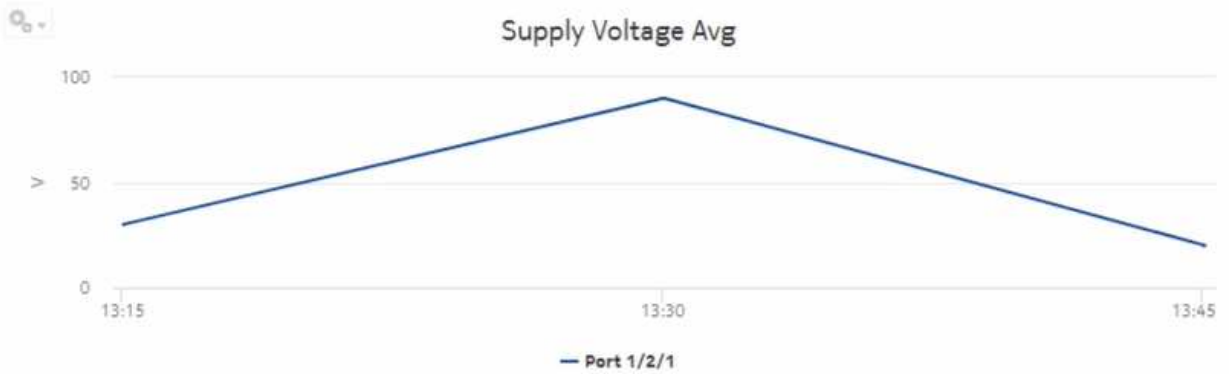


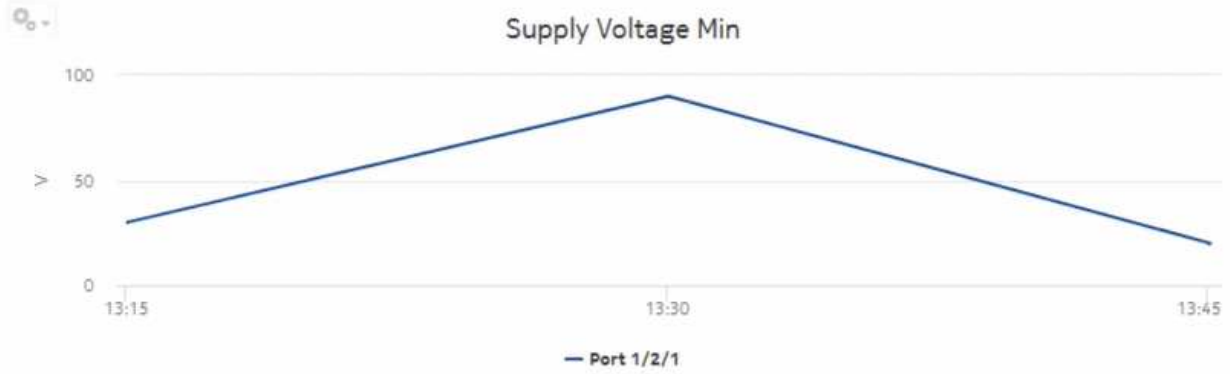


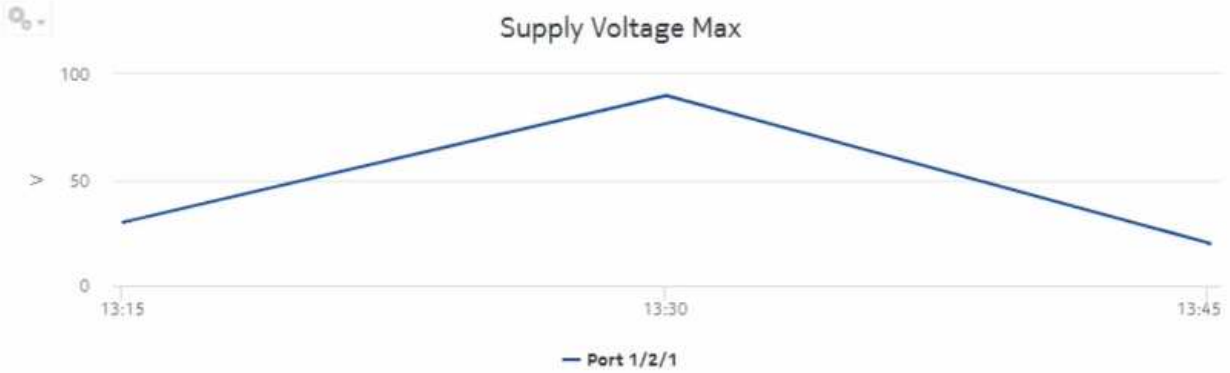


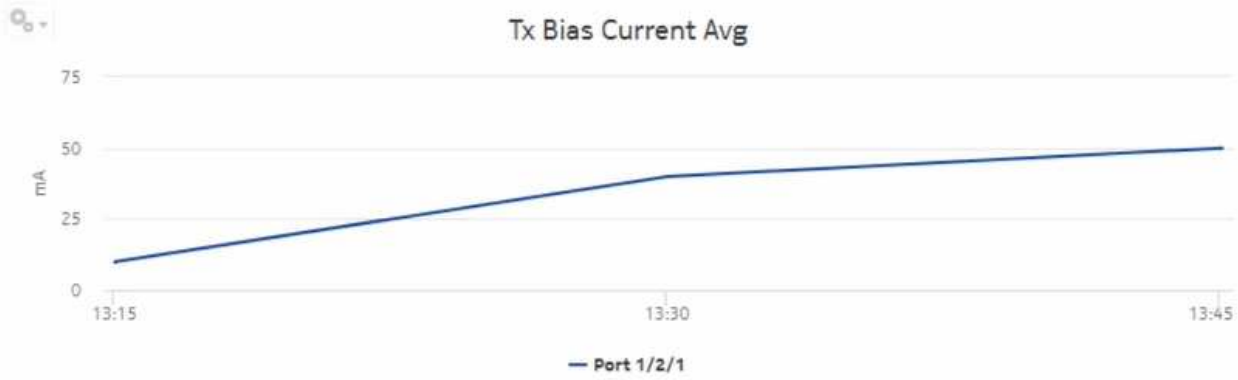


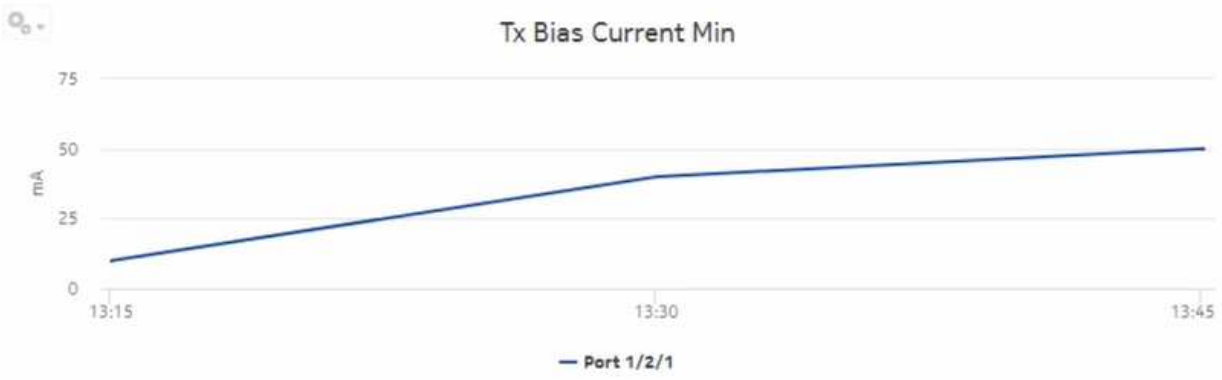


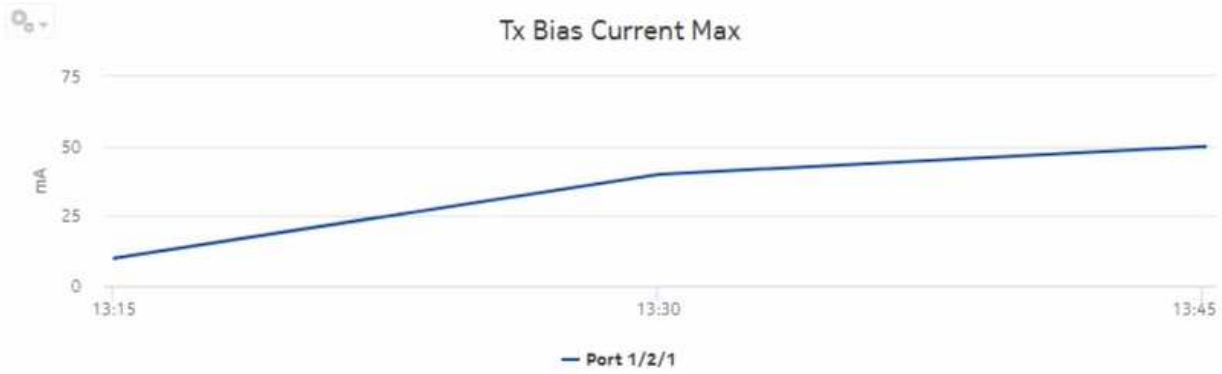












11.10 Optical Power and Voltage Summary report

11.10.1 Optical Power and Voltage Summary report overview

The Optical Power and Voltage Summary report contains a summary of information about the optical power in dBm, measured at equipment ports. The report provides a table showing Tx power, Rx power, temperature, supply voltage, and Tx bias current.

Note: In the case of an upgrade from 23.4 or previous release, there will be reports listed as ‘Optical Port Power Details’ report. These reports are replaced with ‘Optical Power and Voltage Details’ report for details report and will be removed from the list in the future.

Use cases

Troubleshooting—Use the report to confirm that optical power is in the optimum operating range to determine if it is a cause of network impairment.

Limitations

Report limitations include:

- The average voltage counter is not part of the hardware resource statistics.
- Low voltage threshold and high voltage threshold report inputs are applicable only to DDM statistics and hardware resource statistics.
- Periodic counters are used for hardware resource statistics if non-periodic counters are not present in aggregation tables.
- When the report is exported to the RTF file type, DDM statistics may not display properly.
- When the report is exported to the DOCX file type, DDM statistics do not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the statistics to be collected. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 11-14 Optical Power and Voltage Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
DDM stats aggregator	equipment.Digital DiagnosticMonitoring	equipment. DDMStats	MIB-based	TIMETRA-PORT-MIB. tmnxDigitalDiagMonitorEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR
Lane DDM stats aggregator	equipment. LaneDDM	equipment, LaneDDMStats	MIB-based	tmnxDDMLaneEntry	7210 SAS-R 7210 SAS-S/Sx 7250 IXR 7450 ESS 7705 SAR-Hm 7750 SR 7950 XRS
Coherent optical port stats aggregator	equipment. Connector equipment. PhysicalPort	ethernetequipment CohOptPortStats	MIB-based	tmnxCohOptPortStatsEntry	7250 IXR 7450 ESS 7705 SAR-Hm 7750 SR 7950 XRS
Hardware resource stats aggregator	equipment. HwEnvironment	equipment HardwareResourceStats	MIB-based	tmnxHwResourceEntry	7250 IXR 7750 SR 7950 XRS

Report characteristics

The following table lists the principal report characteristics.

Table 11-15 Optical Power and Voltage Summary report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	Stats Type	Stats types: • DDM • Lane DDM Stats • Coherent Optical Port Stats • Hardware Resource Stats
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	NE types	Select individual items.
	NE	
	Low voltage threshold	Specify the value using expressions like > or <.
	High voltage threshold	
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 11-15 Optical Power and Voltage Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report

11.10.2 Example

The following figures show a report example. The table below is a single table, but is separated due to its width.

Figure 11-7 Optical Power and Voltage Summary report

Optical Power and Voltage Summary

Start Date:	2023-02-04 14:01:00 IST	**End Date:**	2023-02-04 16:00:00 IST
Report Date:	2023-03-03 09:31:49 IST	**Granularity:**	Raw Collection Interval
Region:	SR Region	**Sub Region 1:**	NA
Sub Region:	Sr Sub-Region	**Sub Region 2:**	NA
NE Type:	7750-SR12	**NE Name:**	s168_97_85_acpm
NE ID:	92.168.97.85		

Monitored Displayed Name	Port Description	Administrative State	Operational State	Rx OpticalPower Type	Tx Power Avg (dBm)	Tx Power Min (dBm)	Tx Power Max (dBm)	Tx Power Min Time
Port 1/2/1-Iddm-2	100-Gig Ethernet	UP	Down	Average Rx Optical Power	4.71	0.00	33.00	02/04/23 03:30 PM
Port 1/2/1-Iddm-3	100-Gig Ethernet	UP	Down	Average Rx Optical Power	6.29	0.00	44.00	02/04/23 03:30 PM
Port 1/2/1-Iddm-5	100-Gig Ethernet	UP	Down	Average Rx Optical Power	6.29	0.00	44.00	02/04/23 03:30 PM
Port 1/2/1-Iddm-8	100-Gig Ethernet	UP	Down	Average Rx Optical Power	6.29	0.00	44.00	02/04/23 03:30 PM

Tx Power Max Time	Tx Power High Threshold (dBm)	Tx Power Low Threshold (dBm)	Rx Power Avg (dBm)	Rx Power Min (dBm)	Rx Power Max (dBm)	Rx Power Min Time	Rx Power Max Time
02/04/23 03:45 PM	5.50	-8.90	4.57	0.00	32.00	02/04/23 03:30 PM	02/04/23 03:45 PM
02/04/23 03:45 PM	5.50	-8.90	4.71	0.00	33.00	02/04/23 03:30 PM	02/04/23 03:45 PM
02/04/23 03:45 PM	5.50	-8.90	4.71	0.00	33.00	02/04/23 03:30 PM	02/04/23 03:45 PM
02/04/23 03:45 PM	5.50	-8.90	6.14	0.00	43.00	02/04/23 03:30 PM	02/04/23 03:45 PM

Rx Power High Threshold (dBm)	Rx Power Low Threshold (dBm)	Temperature Avg (C)	Temperature Min (C)	Temperature Max (C)	Temperature Min Time	Temperature Max Time	Tx Bias Current Avg (mA)	Tx Bias Current Min (mA)
4.50	-12.81	10248.00	10248.00	10248.00	02/04/23 03:45 PM	02/04/23 03:45 PM	1.57	0.00
4.50	-12.81	10241.00	10241.00	10241.00	02/04/23 03:45 PM	02/04/23 03:45 PM	0.29	0.00
4.50	-12.81	10241.00	10241.00	10241.00	02/04/23 03:45 PM	02/04/23 03:45 PM	3.00	0.00
4.50	-12.81	10234.00	10234.00	10234.00	02/04/23 03:45 PM	02/04/23 03:45 PM	3.00	0.00

Tx Bias Current Max (mA)	Tx Bias Current Min Time	Tx Bias Current Max Time
11.00	02/04/23 03:30 PM	02/04/23 03:45 PM
2.00	02/04/23 03:30 PM	02/04/23 03:45 PM
21.00	02/04/23 03:30 PM	02/04/23 03:45 PM
21.00	02/04/23 03:30 PM	02/04/23 03:45 PM

11.11 Ports and Interfaces Availability Details report

11.11.1 Ports and Interfaces Availability Details report overview

The Ports and Interfaces Availability Details report shows the availability details for ports, LAGs, bundles, and their associated network/access interfaces for all possible modes (network, access, and hybrid).

Use cases

- Service level agreement—Use the report to validate that port and interface availability meets agreed targets.
- Troubleshooting—Use the report to determine if a port or interface is currently, or has previously, been unavailable.

Limitations

- Periodic Time should be non-zero for the reports to launch.

Prerequisites

To create the report, the availability of interfaces and ports (LAG, bundle, SCADA, and POS) must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of interfaces and ports over a period of time. A periodic table tracks the activity state and availability of interfaces and ports. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see 11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P?” (p. 330). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see 14.5 “To add data to the samdb maintenance-window table in an auxiliary database” (p. 526). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-16 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_bundleInterface	operationalState	Returns 1	Returns 0
analytics_lagInterface	operationalState	Returns 1	Returns 0
analytics_PhysicalPort	operationalState	Returns 1	Returns 0
analytics_Sts12Channel	operationalState	Returns 1	Returns 0
analytics_ScadaPort	operationalState	Returns 1	Returns 0
analytics_rtr_ntwInterface	operationalState	Returns 1	Returns 0
analytics_business_aa_sub	operationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-17 Ports and Interfaces Availability Details report characteristics

Characteristic	Value	
Data type	Availability tables computed by availability framework	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Availability Min Availability Avg Availability (for all granularities except for raw granularity) Availability (for raw granularity)
	Interface	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.11.2 Example

The following figures show a report example.

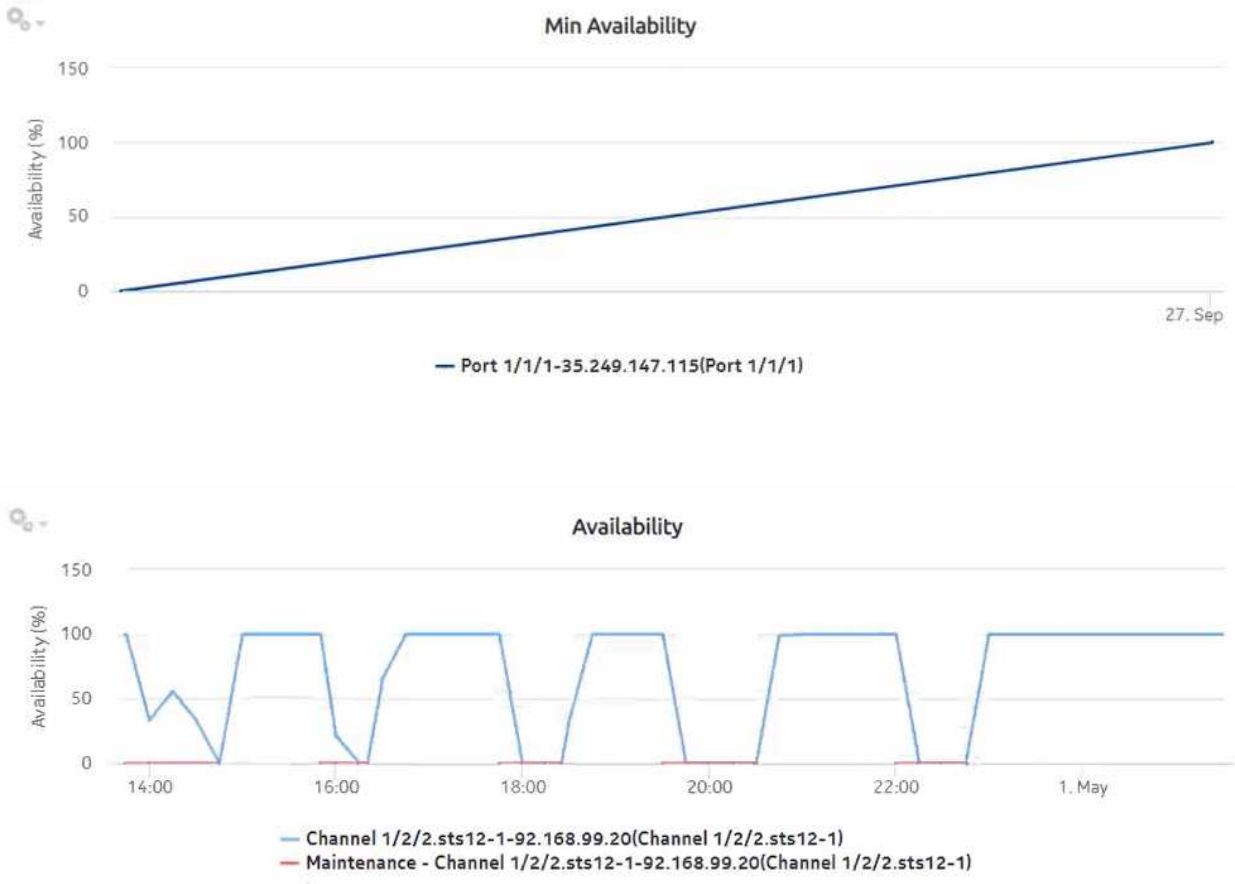
Figure 11-8 Ports and Interfaces Availability Details report

Ports and Interfaces Availability Details

Start Date:	2022-04-30 08:01:00 IST	**End Date:**	2022-04-30 20:00:00 IST
Report Date:	2022-05-27 12:39:33 IST	**OuterEncap:**	0
Granularity:	Raw Collection Interval	**InnerEncap:**	0
TerminationObject NE Name:	92.168.99.20	**TerminationObject Name:**	Channel 1/2/2.sts12-1
Region:	SR-Region	**Subregion:**	SR-SubRegion
Subregion1:	SR-SubRegion1	**Subregion2:**	NA

Maintenance Table

Type	Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration (HH:MM:SS)
port	2022-04-30 08:14 IST	2022-04-30 09:14 IST	00:01:00:00
port	2022-04-30 10:20 IST	2022-04-30 10:50 IST	00:00:30:00
port	2022-04-30 12:14 IST	2022-04-30 12:54 IST	00:00:39:59
port	2022-04-30 14:00 IST	2022-04-30 15:00 IST	00:01:00:00
port	2022-04-30 16:30 IST	2022-04-30 17:14 IST	00:00:44:50
		Totals	**00:03:54:50**



11.12 Ports and Interfaces Availability Summary report

11.12.1 Ports and Interfaces Availability Summary report overview

The Ports and Interfaces Availability Summary report shows the availability summary for ports, LAGs, bundles, and their associated network/access interfaces for all possible modes (network, access, and hybrid).

Note: Report launching time will be non-linear with respect to huge data.

Use cases

- Service level agreement—Use the report to validate that port and interface availability meets agreed targets.
- Troubleshooting—Use the report to determine if a port or interface is currently, or has previously, been unavailable.

Limitations

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Periodic Time should be non-zero for the reports to launch.

Prerequisites

To create the report, the availability of interfaces and ports (LAG, bundle, SCADA, and POS) must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of interfaces and ports over a period of time. A periodic table tracks the activity state and availability of interfaces and ports. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see 11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P?” (p. 330). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see 14.5 “To add data to the samdb maintenance-window table in an auxiliary database” (p. 526). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-18 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_bundleInterface	operationalState	Returns 1	Returns 0
analytics_lagInterface	operationalState	Returns 1	Returns 0
analytics_PhysicalPort	operationalState	Returns 1	Returns 0
analytics_Sts12Channel	operationalState	Returns 1	Returns 0
analytics_ScadaPort	operationalState	Returns 1	Returns 0
analytics_rtr_ntwInterface	operationalState	Returns 1	Returns 0
analytics_business_aa_sub	operationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-19 Ports and Interfaces Availability Summary report characteristics

Characteristic	Value	
Data type	Availability tables computed by availability framework	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.12.2 Example

The following figures show a report example. The table below is a single table, but is separated due to its width. Not all figures are from the same report.

Figure 11-9 Ports and Interfaces Availability Summary report

Ports and Interfaces Availability Summary

Start Date: 2022-05-02 07:00 IST **End Date:** 2022-05-02 20:00 IST

Report Date: 2022-05-27 12:35:42 IST

Granularity: Hourly

Region	Sub Region	Sub Region1	Sub Region2	Mode	TerminationObject Type	TerminationObject NE IP Address	TerminationObject NE Name	TerminationObject Name
SAR-Region	**SAR-Subregion**	**SAR-SubRegion1**	**SAR-SubRegion2**					
				Access	N/A	92.168.98.71	Branch 1/1/1.1	Branch 1/1/1.1

Interface Name	Interface Description	Outer Encap	Inner Encap	Interface IP Address	Mask	Avg Availability (%)	Max Availability (%)	Min Availability (%)
Branch 1/1/1.1:0.0	SCADA_Cpipe	0	0	N/A	0	61.77	100.0	0.0

Max Availability Time	Min Availability Time	Maintenance Start Time	Maintenance End Time	MW Duration(in Minutes)
2022-05-02 15:10:00	2022-05-02 20:14:00			
		2022-05-02 08:00:00	2022-05-02 10:00:00	00:02:00:00

11.13 Ports and Interfaces Forwards and Discards per Queue Details report

11.13.1 Ports and Interfaces Forwards and Discards per Queue Details report overview

The Ports and Interfaces Forwards and Discards per Queue Details report contains detailed information about throughput and utilization information for each forwarding class of a port, LAG, bundle and associated network and access interfaces for all possible modes, including network, access, or hybrid.

The network interface scenario is not supported.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns to ensure that service-level agreements are met.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, an empty space displays.
- When the report is exported to the RTF file type, half of the page displays.

Prerequisites

The following table describes the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies.

Table 11-20 Ports and Interfaces Forwards and Discards per Queue Details report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	service.CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgrPolicy	7705 SAR 7705 SAR-H 7750 SR
equipment.PhysicalPort	service.CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgrPolicy	7210 SAS-D 7210 SAS-MXP 7210 SAS R all 7705 SAR variants 7750 SR
lag.Interface	service.CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgrPolicy	all 7705 SAR variants 7750 SR

Table 11-20 Ports and Interfaces Forwards and Discards per Queue Details report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
lag.Interface	service.CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R all 7705 SAR variants 7750 SR
bundle.Interface	service.CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7750 SR
bundle.Interface	service.CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7750 SR
service.L3AccessInterface	service.CompleteServiceEgressPacketOctets service.CompleteServiceIngressPacketOctetsA	Accounting, file, and log policies	completeSvcInEg policy,svcEgressOctet policy	7250 IXR-R6 7705 SAR 7750 SR
service.L3AccessInterface	service.ServiceEgressOctets service.ServiceIngressOctets	Accounting, file, and log policies	completeSvcInEg policy svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R
service.L2AccessInterface	service.CompleteServiceEgressPacketOctets service.CompleteServiceEgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7705 SAR 7750 SR
service.L2AccessInterface	service.ServiceEgressOctets service.ServiceEgressOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R

Notes:

1. For equipment.PhysicalPort, lag.Interface, service.L2AccessInterface and service.L3AccessInterface, SAS,equipment does not support per FC counters.
2. For service.L2AccessInterface and service.L3AccessInterface, IXR equipment does not support egress QoS policy.

Report characteristics

The following table lists the principal report characteristics.

Table 11-21 Ports and Interfaces Forwards and Discards per Queue Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 11-21 Ports and Interfaces Forwards and Discards per Queue Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	AF Discards Egress AF Discards Ingress AF Forwards Egress AF Forwards Ingress BE Forwards Egress BE Forwards Ingress BE Discards Egress BE Discards Ingress EF Discards Egress EF Discards Ingress EF Forwards Egress EF Forwards Ingress H1 Discards Egress H1 Discards Ingress H1 Forwards Egress H1 Forwards Ingress H2 Discards Egress H2 Discards Ingress H2 Forwards Egress H2 Forwards Ingress L1 Discards Egress L1 Discards Ingress L1 Forwards Egress L1 Forwards Ingress L2 Discards Egress L2 Discards Ingress L2 Forwards Egress L2 Forwards Ingress NC Discards Egress NC Discards Ingress NC Forwards Egress NC Forwards Ingress

Table 11-21 Ports and Interfaces Forwards and Discards per Queue Details report characteristics (continued)

Characteristic	Value	
	Port/LAG/Bundle/SAP	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

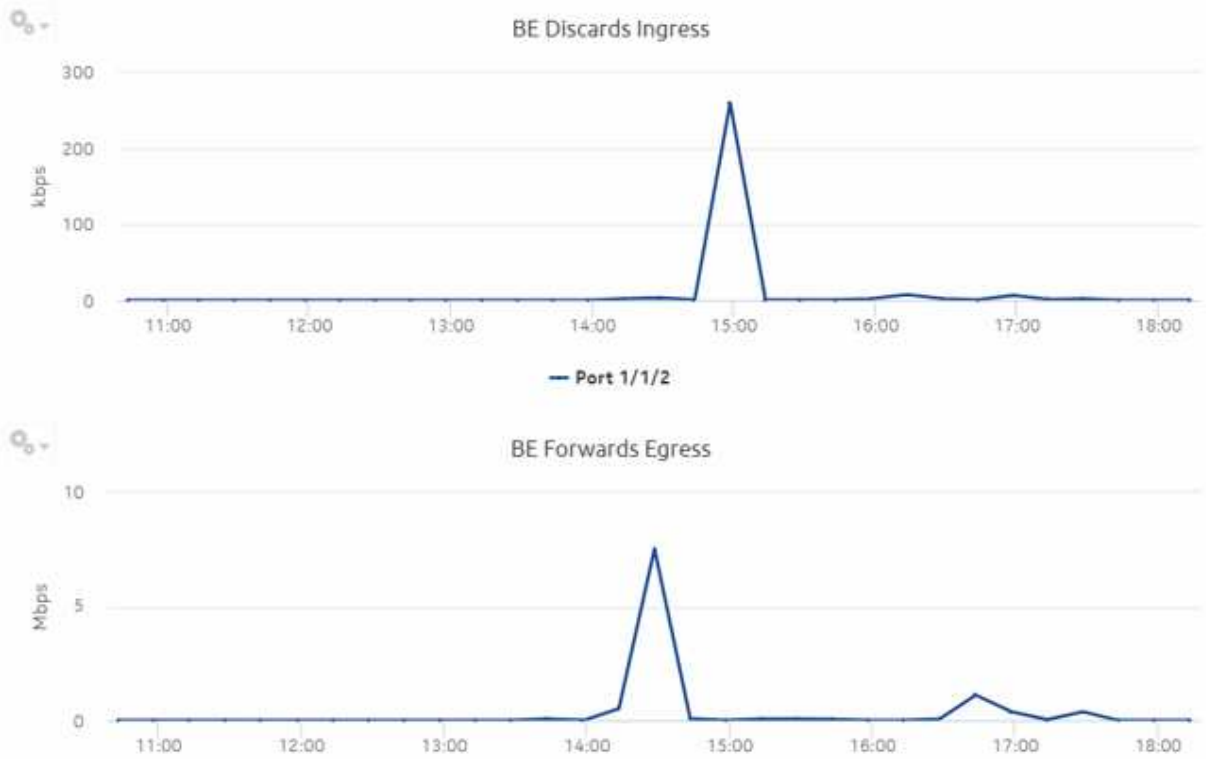
11.13.2 Example

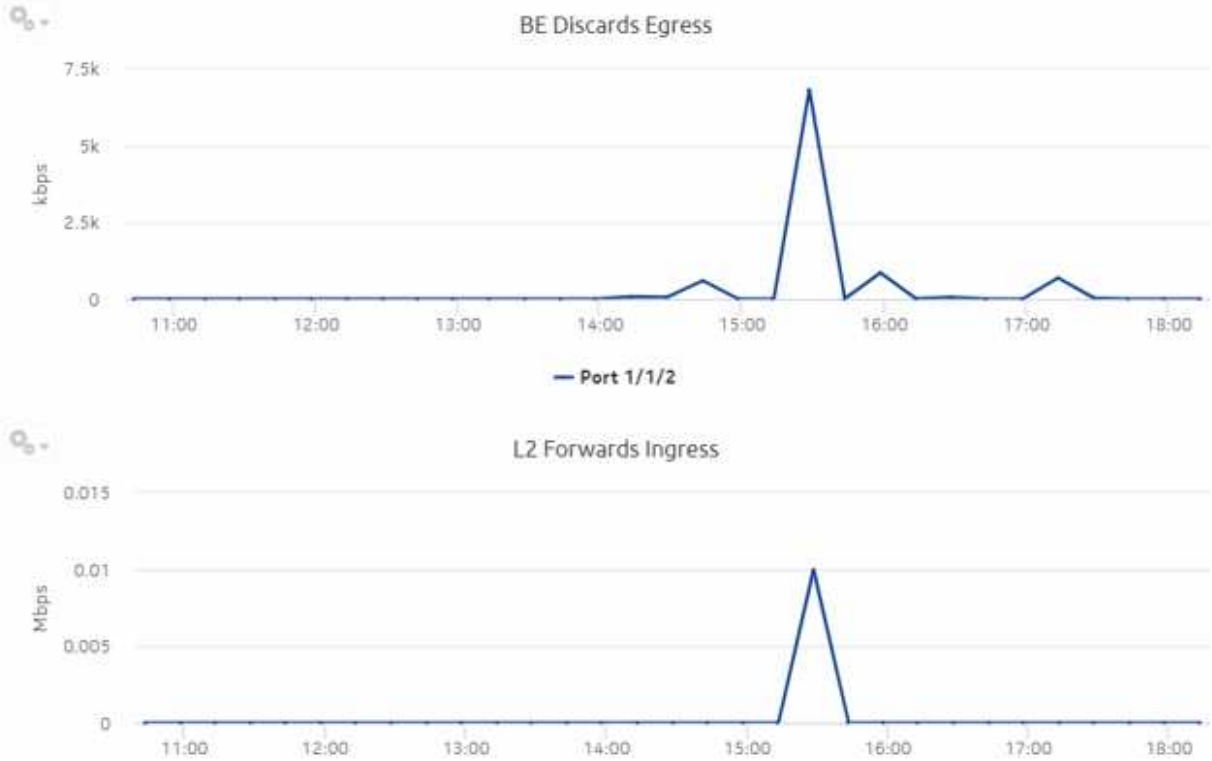
The following figures show a report example. Not all figures are from the same report.

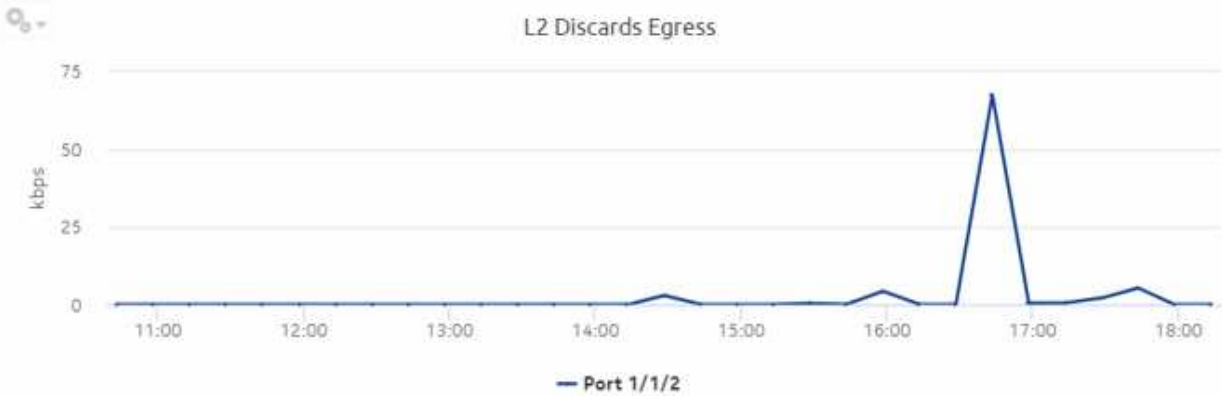
Figure 11-10 Ports and Interfaces Forwards and Discards per Queue Details report

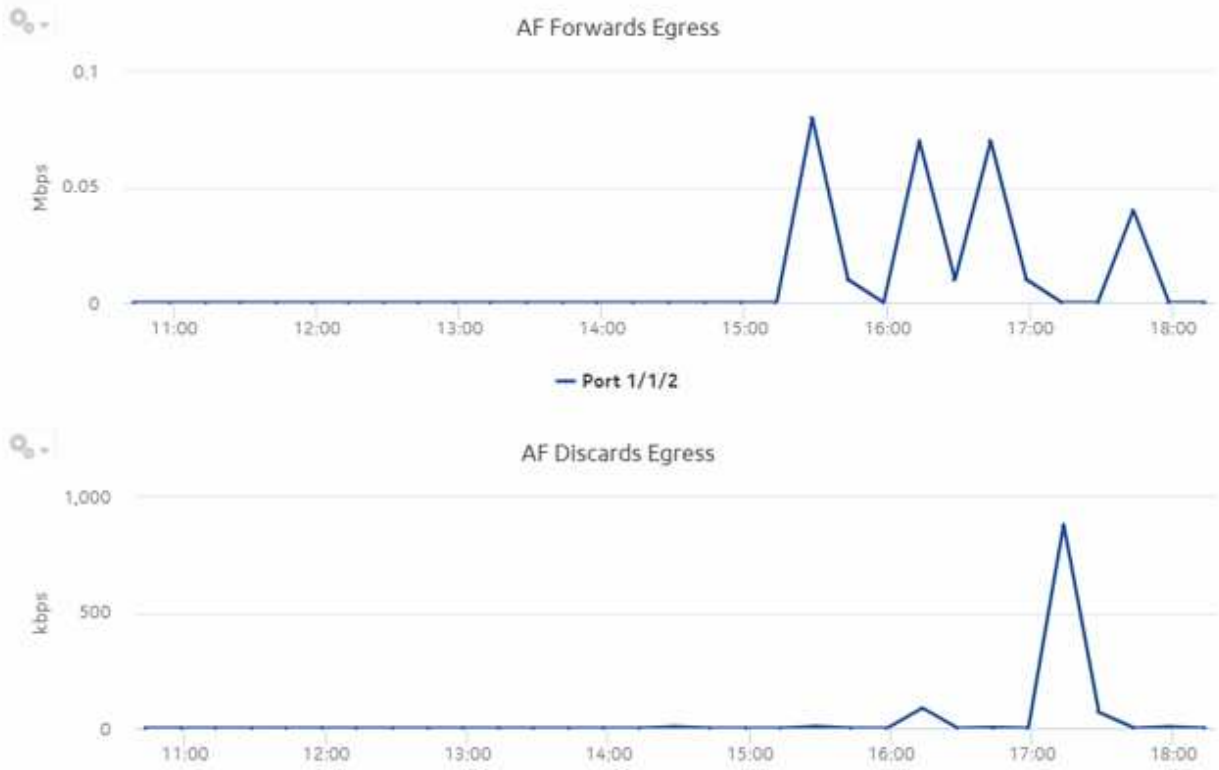
Ports and Interfaces Forwards and Discards per Queue Details

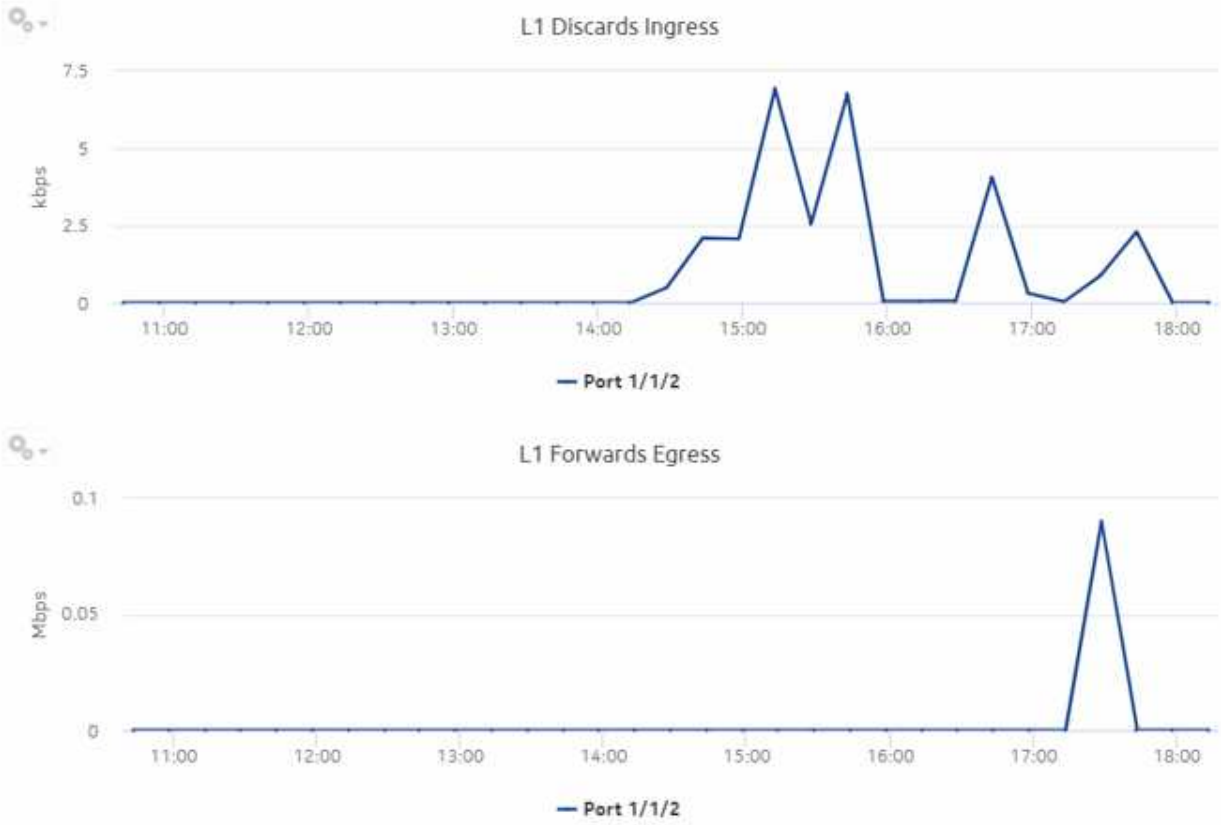
Start Date:	2023-03-23 09:02:00 IST	**End Date:**	2023-03-23 10:01:00 IST
Report Date:	2023-04-04 12:01:31 IST	**Termination Object NE ID:**	92.168.98.235
Object Type:	LAG	**Termination Object Name:**	Lag 1
Region:	SR Region	**Outer Encap:**	0
Sub Region:	SR subregion	**Inner Encap:**	0
Sub Region1:	N/A	**Reference Speed:**	1000.0 Mbps
Sub Region2:	N/A	**Service Id:**	N/A
Operational State:	Down	**Administrative State:**	Up

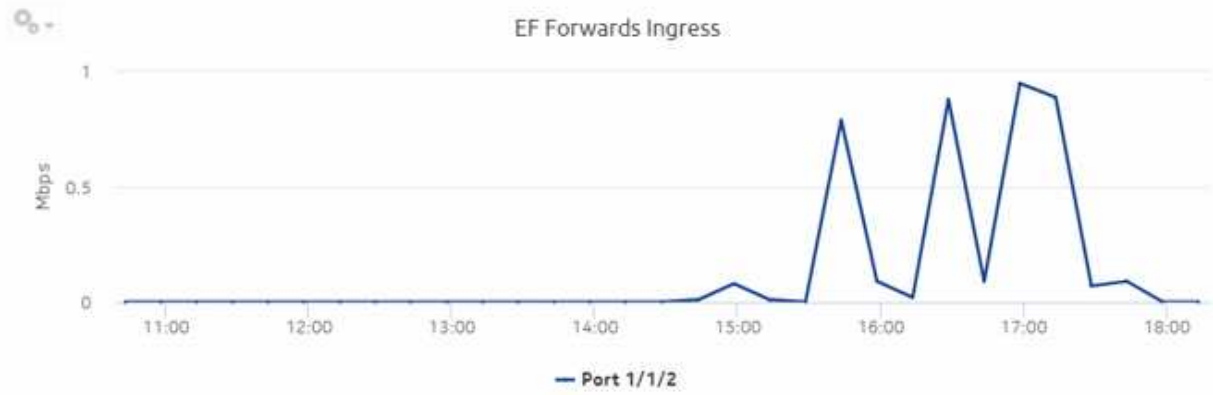












11.14 Ports and Interfaces Forwards and Discards per Queue Summary report

11.14.1 Ports and Interfaces Forwards and Discards per Queue Summary report overview

The Ports and Interfaces Forwards and Discards per Queue Summary report contains a summary of information about throughput and utilization information for each forwarding class of a port, LAG, bundle and associated network and access interfaces for all possible modes, including network, access, or hybrid.

The network interface scenario is not supported.

Note: Either generate or schedule the reports for each region or subregion individually. These reports are for all ports, LAGs, bundles, Scada, channels, interface and SAPs in the network, resulting in a summary of millions of rows over thousands of pages.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns to ensure that service-level agreements are met.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, an empty space displays.
- When the report is exported to the RTF file type, half of the page displays.
- When the report is exported to the ODT file type, the table does not display properly.

Prerequisites

The following table describes the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies.

Table 11-22 Ports and Interfaces Forwards and Discards per Queue Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	service.CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgrPolicy	7705 SAR 7705 SAR-H 7750 SR
equipment.PhysicalPort	service.CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgrPolicy	7210 SAS-D 7210 SAS-MXP 7210 SAS R 7705 SAR 7705 SAR-H 7750 SR

Table 11-22 Ports and Interfaces Forwards and Discards per Queue Summary report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
lag.Interface	service.CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
lag.Interface	service.CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R 7705 SAR 7750 SR 7705 SAR-H
bundle.Interface	service.CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
bundle.Interface	service.CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
service.L3AccessInterface	service.CompleteServiceEgressPacketOctets service.CompleteServiceIngressPacketOctetsA	Accounting, file, and log policies	completeSvcInEg policy,svcEgressOctet policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7750 SR
service.L3AccessInterface	service.ServiceEgressOctets service.ServiceIngressOctets	Accounting, file, and log policies	completeSvcInEg policy svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R 7705 SAR-H
service.L2AccessInterface	service.CompleteServiceEgressPacketOctets service.CompleteServiceEgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7705 SAR 7705 SAR-H 7750 SR
service.L2AccessInterface	service.ServiceEgressOctets service.ServiceEgressOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H

Notes:

1. For equipment.PhysicalPort, lag.Interface, service.L2AccessInterface and service.L3AccessInterface, SAS,equipment does not support per FC counters.
2. For service.L2AccessInterface and service.L3AccessInterface, IXR equipment do not support egress QoS policy.

Report characteristics

The following table lists the principal report characteristics.

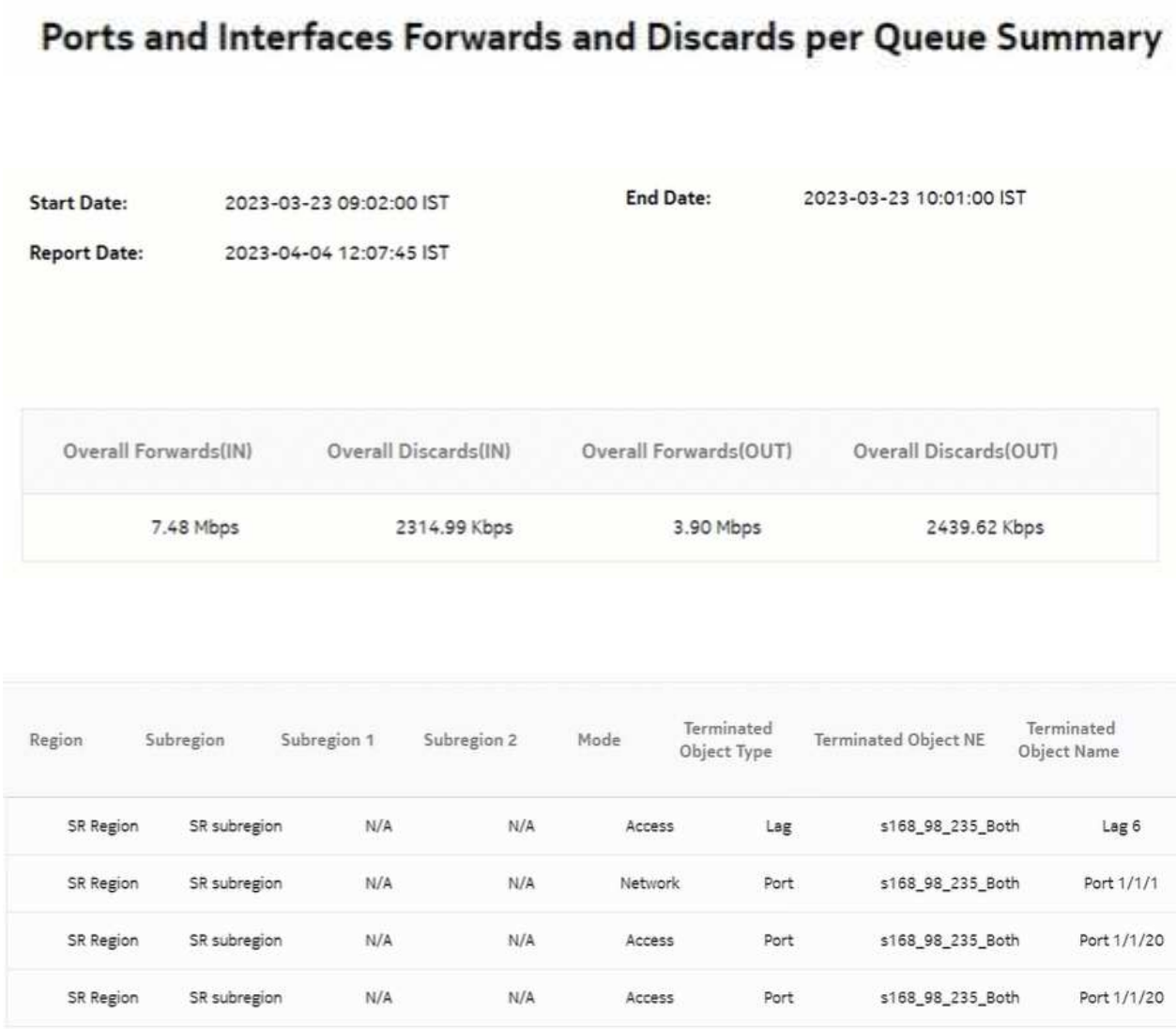
Table 11-23 Ports and Interfaces Forwards and Discards per Queue Summary report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

11.14.2 Example

The following figures show a report example. The table below is a single table, but is separated due to its width. Not all figures are from the same report.

Figure 11-11 Ports and Interfaces Forwards and Discards per Queue Summary report



Ports and Interfaces Forwards and Discards per Queue Summary

Start Date: 2023-03-23 09:02:00 IST **End Date:** 2023-03-23 10:01:00 IST

Report Date: 2023-04-04 12:07:45 IST

Overall Forwards(IN)	Overall Discards(IN)	Overall Forwards(OUT)	Overall Discards(OUT)
7.48 Mbps	2314.99 Kbps	3.90 Mbps	2439.62 Kbps

Region	Subregion	Subregion 1	Subregion 2	Mode	Terminated Object Type	Terminated Object NE	Terminated Object Name
SR Region	SR subregion	N/A	N/A	Access	Lag	s168_98_235_Both	Lag 6
SR Region	SR subregion	N/A	N/A	Network	Port	s168_98_235_Both	Port 1/1/1
SR Region	SR subregion	N/A	N/A	Access	Port	s168_98_235_Both	Port 1/1/20
SR Region	SR subregion	N/A	N/A	Access	Port	s168_98_235_Both	Port 1/1/20

Service Id	Operational State	Administrative State	Interface Name	Interface Description
N/A	Down	Up	N/A	lag25
N/A	Down	Up	N/A	10/100/Gig Ethernet TX
N/A	Down	Up	N/A	10/100/Gig Ethernet TX
87	Down	Up	Port 1/1/20:0.0	SAP_235_Desc_20

Outer Encap	Inner Encap	Interface IP Address	Mask	Reference Speed (Mbps)	BE Forwards Ingress (MB)	BE Discards Ingress (KB)	BE Forwards Egress (MB)	BE Discards Egress (KB)	L2 Forwards Ingress (MB)	L2 Discards Ingress (KB)	L2 Forwards Egress (MB)	L2 Discards Egress (KB)	AF Forwards Ingress (MB)	AF Discards Ingress (KB)
0	0	N/A	0	0.0	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34
0	0	N/A	0	0.0	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34
1000	0	N/A	0	622.08	8.33	3151.52	3.06	31.02	0.10	307.08	0.60	58.98	0.03	4.13
0	0	N/A	0	622.08	8.33	3151.52	3.06	31.02	0.10	307.08	0.60	58.98	0.03	4.13

AF Forwards Egress (MB)	AF Discards Egress (KB)	L1 Forwards Ingress (MB)	L1 Discards Ingress (KB)	L1 Forwards Egress (MB)	L1 Discards Egress (KB)	H2 Forwards Ingress (MB)	H2 Discards Ingress (KB)	H2 Forwards Egress (MB)	H2 Discards Egress (KB)	EF Forwards Ingress (MB)	EF Discards Ingress (KB)	EF Forwards Egress (MB)	EF Discards Egress (KB)	H1 Forwards Ingress (MB)
3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64
3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64
0.52	4.45	0.31	3.87	0.03	99.04	0.04	0.41	0.05	43.76	0.00	0.21	0.08	7.31	0.91
0.52	4.45	0.31	3.87	0.03	99.04	0.04	0.41	0.05	43.76	0.00	0.21	0.08	7.31	0.91

H1 Discards Ingress (KB)	H1 Forwards Egress (MB)	H1 Discards Egress (KB)	NC Forwards Ingress (MB)	NC Discards Ingress (KB)	NC Forwards Egress (MB)	NC Discards Egress (KB)
8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82
8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82
38.53	0.05	418.66	0.35	30.71	0.04	229.14
38.53	0.05	418.66	0.35	30.71	0.04	229.14

11.15 Ports and Interfaces Utilization Details report

11.15.1 Ports and Interfaces Utilization Details report overview

The Ports and Interfaces Utilization Details report shows utilization information about network and/or access interfaces associated with existing termination objects (port, LAG, or bundle) for all possible modes (network, access, or hybrid).

Use cases

Capacity planning—Use the report to examine port and interface utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 11-24 Ports and Interfaces Utilization Details report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	equipment.InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
lag.Interface	equipment.InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
bundle.Interface	equipment.InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
rtr.NetworkInterface	equipment.InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
mpls.Interface	mpls.MplsInterfaceStats	MIB-based	TIMETRA-MPLS-MIB.vRtrMplsIfStatEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Table 11-24 Ports and Interfaces Utilization Details report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
rtr.NetworkInterface	rtr. IpInterfaceAdditional-Stats rtr.IpInterfaceStats rtr.SarIpInterfaceStats	MIB-based	TIMETRA-VRTR-MIB. vRtrIfStatsEntry TIMETRA-VRTR-MIB. vRtrIfStatsExtEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7750 SR **Note:** 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
service.AccessInterface	service. CompleteService-EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H
service.AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H
equipment.PhysicalPort	ethernetequipment. Dot3Stats (only supported at the port level)	Performance statistics	EtherLike-MIB. dot3StatsEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Report characteristics

The following table lists the principal report characteristics.

Table 11-25 Ports and Interfaces Utilization Details report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Threshold value	Specify the threshold value
	Region	
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Tx Throughput Min Tx Throughput Avg Tx Throughput Max Rx Throughput Min Rx Throughput Avg Rx Throughput Tx Volume Rx Volume Max Tx Utilization Min Tx Utilization Avg Tx Utilization Max Rx Utilization Min Rx Utilization Avg Rx Utilization Max Utilization Min Utilization
	Interface	Search using partial names or wildcard (%). Select individual items or click **Select All**.

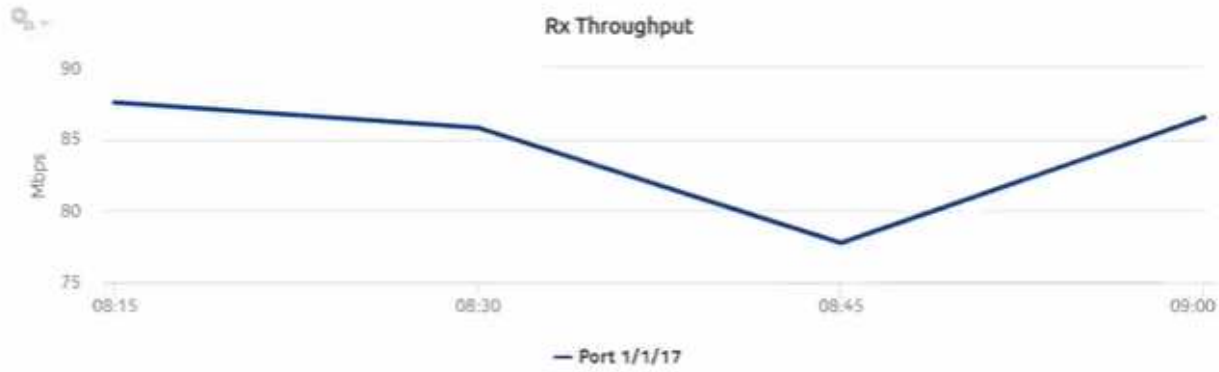
Table 11-25 Ports and Interfaces Utilization Details report characteristics (continued)

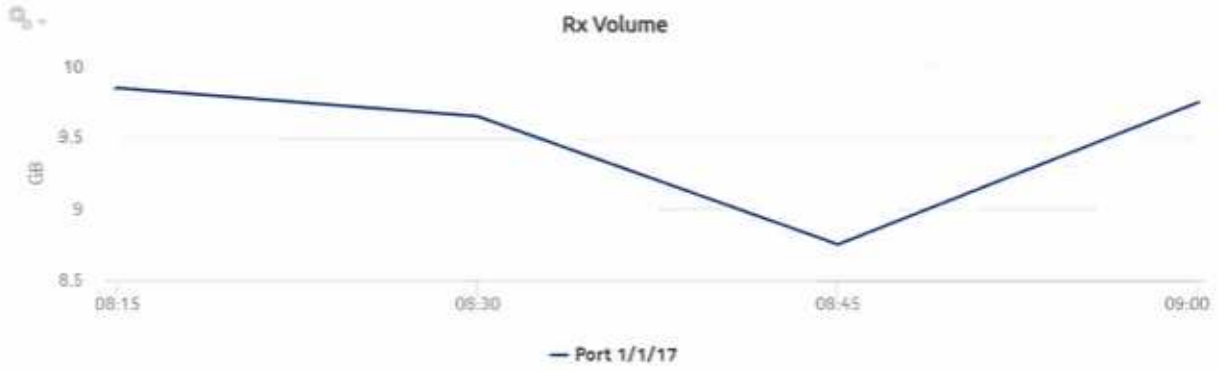
Characteristic	Value	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports. Note: The report displays all content on one page regardless of whether the check box is enabled.
Drill-down support	No	

11.15.2 Example

The following figure shows a report example.

Figure 11-12 Ports and Interfaces Utilization Details report





Errors and Collisions

Alignment	Carrier Sense	Deferred Transmissions	Excessive Collisions	FCS	Frame Too Long	MAC Receive	MAC Transmit	Late Collisions
5	1	9	2	3	1	3	3	1

Multiple Collision	Single Collision	SQE Test	Symbol
4	3	3	5

11.16 Ports and Interfaces Utilization Summary report

11.16.1 Ports and Interfaces Utilization Summary report overview

The Ports and Interfaces Utilization Summary report shows a summary of utilization information about network and/or access interfaces associated with existing termination objects (port, LAG, or bundle) for all possible modes (network, access, or hybrid).

Note: Either generate or schedule the reports for each region or subregion individually. These reports are for all ports, LAGs, bundles, Scada, channels, interface and SAPs in the network, resulting in a summary of millions of rows over thousands of pages.

Use cases

Capacity planning—Use the report to examine port and interface utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- When the report is exported to the ODT file type, the table is not properly aligned.
- When the report is exported to the DOCX file type, an empty page displays.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 11-26 Ports and Interfaces Utilization Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Table 11-26 Ports and Interfaces Utilization Summary report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
lag.Interface	equipment.InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
bundle.Interface	equipment.InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
rtr.NetworkInterface	equipment.InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
mpls.Interface	mpls.MplsInterfaceStats	MIB-based	TIMETRA-MPLS-MIB.vRtrMplsIfStatEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Table 11-26 Ports and Interfaces Utilization Summary report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
rtr.NetworkInterface	rtr. IpInterfaceAdditional-Stats rtr.IpInterfaceStats rtr.SarIpInterfaceStats	MIB-based	TIMETRA-VRTR-MIB. vRtrIfStatsEntry TIMETRA-VRTR-MIB. vRtrIfStatsExtEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7750 SR **Note:** 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
service.AccessInterface	service. CompleteService-EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H
service.AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 11-27 Ports and Interfaces Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

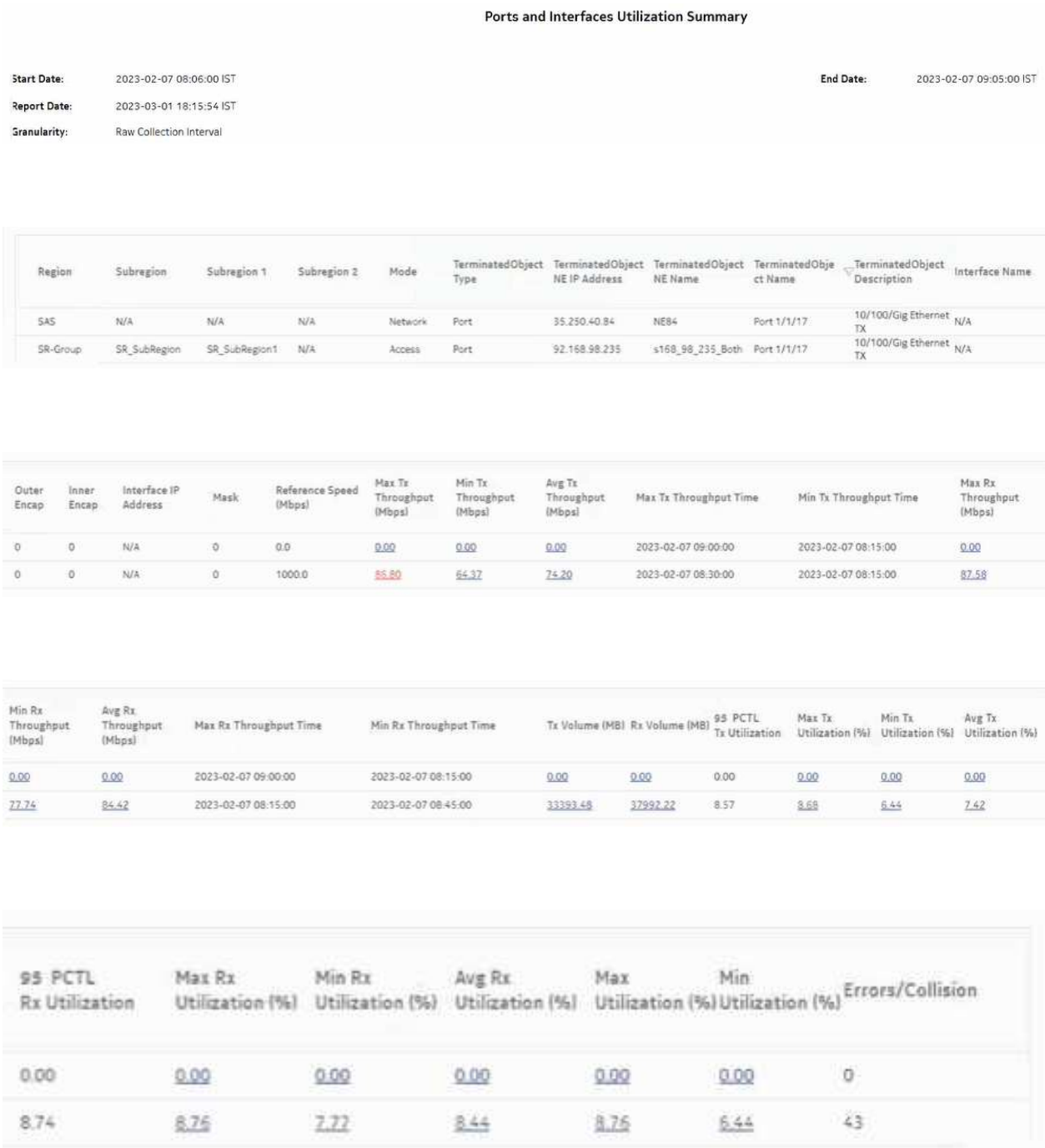
Table 11-27 Ports and Interfaces Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Percentile	Identify a percentile of interest between 1 and 99.
	KPI Threshold	Specify the KPI threshold value
	Threshold Value	Specify the threshold value
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

11.16.2 Example

The following figures show report examples. The table below is a single table, but is separated due to its width.

Figure 11-13 Ports and Interfaces Utilization Summary report



Ports and Interfaces Utilization Summary

Start Date: 2023-02-07 08:06:00 IST **End Date:** 2023-02-07 09:05:00 IST

Report Date: 2023-03-01 18:15:54 IST

Granularity: Raw Collection Interval

Region	Subregion	Subregion 1	Subregion 2	Mode	TerminatedObject Type	TerminatedObject NE IP Address	TerminatedObject NE Name	TerminatedObject Name	TerminatedObject Description	Interface Name
SAS	N/A	N/A	N/A	Network	Port	35.250.40.84	NE84	Port 1/1/17	10/100/Gig Ethernet TX	N/A
SR-Group	SR_SubRegion	SR_SubRegion1	N/A	Access	Port	92.168.98.235	s168_98_235_Both	Port 1/1/17	10/100/Gig Ethernet TX	N/A

Outer Encap	Inner Encap	Interface IP Address	Mask	Reference Speed (Mbps)	Max Tx Throughput (Mbps)	Min Tx Throughput (Mbps)	Avg Tx Throughput (Mbps)	Max Tx Throughput Time	Min Tx Throughput Time	Max Rx Throughput (Mbps)
0	0	N/A	0	0.0	0.00	0.00	0.00	2023-02-07 09:00:00	2023-02-07 08:15:00	0.00
0	0	N/A	0	1000.0	86.80	64.37	74.20	2023-02-07 08:30:00	2023-02-07 08:15:00	87.58

Min Rx Throughput (Mbps)	Avg Rx Throughput (Mbps)	Max Rx Throughput Time	Min Rx Throughput Time	Tx Volume (MB)	Rx Volume (MB)	95 PCTL Tx Utilization	Max Tx Utilization (%)	Min Tx Utilization (%)	Avg Tx Utilization (%)
0.00	0.00	2023-02-07 09:00:00	2023-02-07 08:15:00	0.00	0.00	0.00	0.00	0.00	0.00
77.74	84.42	2023-02-07 08:15:00	2023-02-07 08:45:00	33393.48	37992.22	8.57	8.68	6.44	7.42

95 PCTL Rx Utilization	Max Rx Utilization (%)	Min Rx Utilization (%)	Avg Rx Utilization (%)	Max Utilization (%)	Min Utilization (%)	Errors/Collision
0.00	0.00	0.00	0.00	0.00	0.00	0
8.74	8.76	7.72	8.44	8.76	6.44	43

11.17 Service Availability Details report

11.17.1 Service Availability Details report overview

The Service Availability Details report shows the availability details of services. The report provides graphs showing the maximum, minimum, and average availability of services.

Use cases

Service level agreement—Use the report to validate that service availability meets agreed targets.

Troubleshooting—Use the report to determine if a service is currently, or has previously, been unavailable.

Prerequisites

To create the report, service availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of a service over a period of time. A periodic table tracks the activity state and availability of a service. The report does not consider the site, but instead uses the operational state of a service to provide the availability. Only the Up service is considered for Uptime; Partially Down and Down states are considered as downtime. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see 11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P?” (p. 330). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see 14.5 “To add data to the samdb maintenance-window table in an auxiliary database” (p. 526). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-28 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_service	aggrOperationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-29 Service Availability Details report characteristics

Characteristic	Value
Data type	Availability tables computed by availability framework
Source database	Auxiliary database
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7705 SAR variants all 7750 SR variants **Note:** The 7705 SAR-H is not supported.

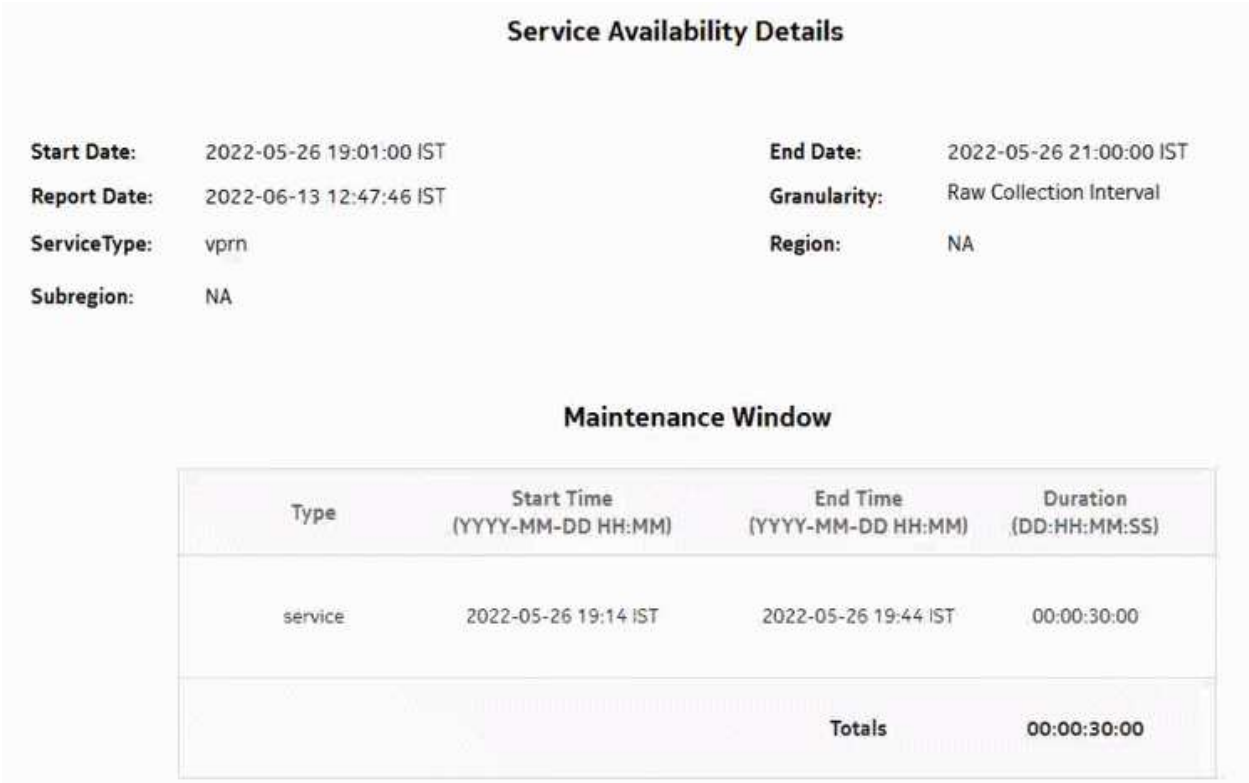
Table 11-29 Service Availability Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Availability Min Availability Avg Availability (for all granularities except for raw granularity) Availability (for raw granularity)
	Service(s)	Search using partial names or wildcard (%). Select an individual item.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

11.17.2 Example

The following figures show a report example. Not all figures are from the same report.

Figure 11-14 Service Availability Details report

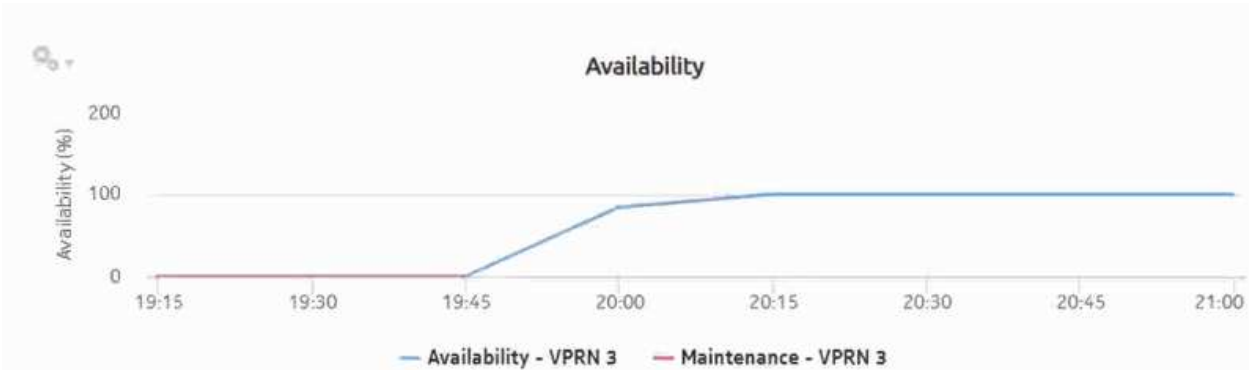


Service Availability Details

Start Date:	2022-05-26 19:01:00 IST	**End Date:**	2022-05-26 21:00:00 IST
Report Date:	2022-06-13 12:47:46 IST	**Granularity:**	Raw Collection Interval
ServiceType:	vprn	**Region:**	NA
Subregion:	NA		

Maintenance Window

Type	Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration (DD:HH:MM:SS)
service	2022-05-26 19:14 IST	2022-05-26 19:44 IST	00:00:30:00
		Totals	**00:00:30:00**



11.18 Service Availability Summary report

11.18.1 Service Availability Summary report overview

The Service Availability Summary report shows a summary of the availability details of services. The report provides a table showing, for example, average availability, maximum availability, minimum availability, maximum availability time, and minimum availability time.

Use cases

Service level agreement—Use the report to validate that service availability meets agreed targets.

Troubleshooting—Use the report to determine if a service is currently, or has previously, been unavailable.

Limitations

When the report is exported to the RTF file type, half of the report displays.

Prerequisites

To create the report, service availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of a service over a period of time. A periodic table tracks the activity state and availability of a service. The report does not consider the site, but instead uses the operational state of a service to provide the availability. Only the Up service is considered for Uptime; Partially Down and Down states are considered as downtime. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see 11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P?” (p. 330). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see 14.5 “To add data to the samdb maintenance-window table in an auxiliary database” (p. 526). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-30 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_service	aggrOperationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-31 Service Availability Summary report characteristics

Characteristic	Value	
Data type	Availability tables computed by availability framework	
Source database	Auxiliary database	
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7705 SAR variants all 7750 SR variants **Note:** The 7705 SAR-H is not supported.	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Service(s)	Search using partial names or wildcard (%). Select an individual item.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

11.18.2 Example

The following figure shows a report example.

Figure 11-15 Service Availability Summary report

Service Availability Summary

Start Date: 2022-05-26 19:01:00 IST **End Date:** 2022-05-26 21:00:00 IST
Report Date: 2022-06-13 12:39:31 IST **Granularity:** Raw Collection Interval

Service Name	Service ID	ServiceType	Avg Availability (%)	Max Availability (%)	Min Availability (%)	Max Availability Time	Min Availability Time	Maintenance Start Time	Maintenance End Time
VPRN 3	3	vprn	96.83	100.0	84.14	2022-05-26 20:59:00	2022-05-26 19:59:00		
								2022-05-26 19:14:00	2022-05-26 19:44:00

Maintenance End Time	Maintenance Window Duration(DD:HH:MM:SS)
2022-05-26 19:44:00	00:00:30:00

11.19 Service Performance Details report

11.19.1 Service Performance Details report overview

The Service Performance Details report displays the latency, jitter, and packet loss for a selected service in detail.

Prerequisites

The following tests need to be configured and running using NSP Classic management for Service Performance reports to be created:

- A Y.1731 test session for L2 services
- A TWAMP-Light test session for L3 services

Test sessions must be running for at least one aggregation period, for example, at least one day for a daily report.

Use cases

QoS analysis - identify potential service impacting issues based on thresholds for latency, jitter and packet loss on a specified service.

Report characteristics

The following table lists the principal report characteristics.

Table 11-32 Service Performance Details report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
Service types supported	VPLS, VPRN, MVPLS, Epipe, or Cpipe

Table 11-32 Service Performance Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Jitter Avg Jitter Max Jitter Min Latency Avg Latency Max Latency Min Packet Loss Avg Packet Loss Max Packet Loss Min
	Service(s)	Search using partial names or wildcard (%). Select an individual item.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

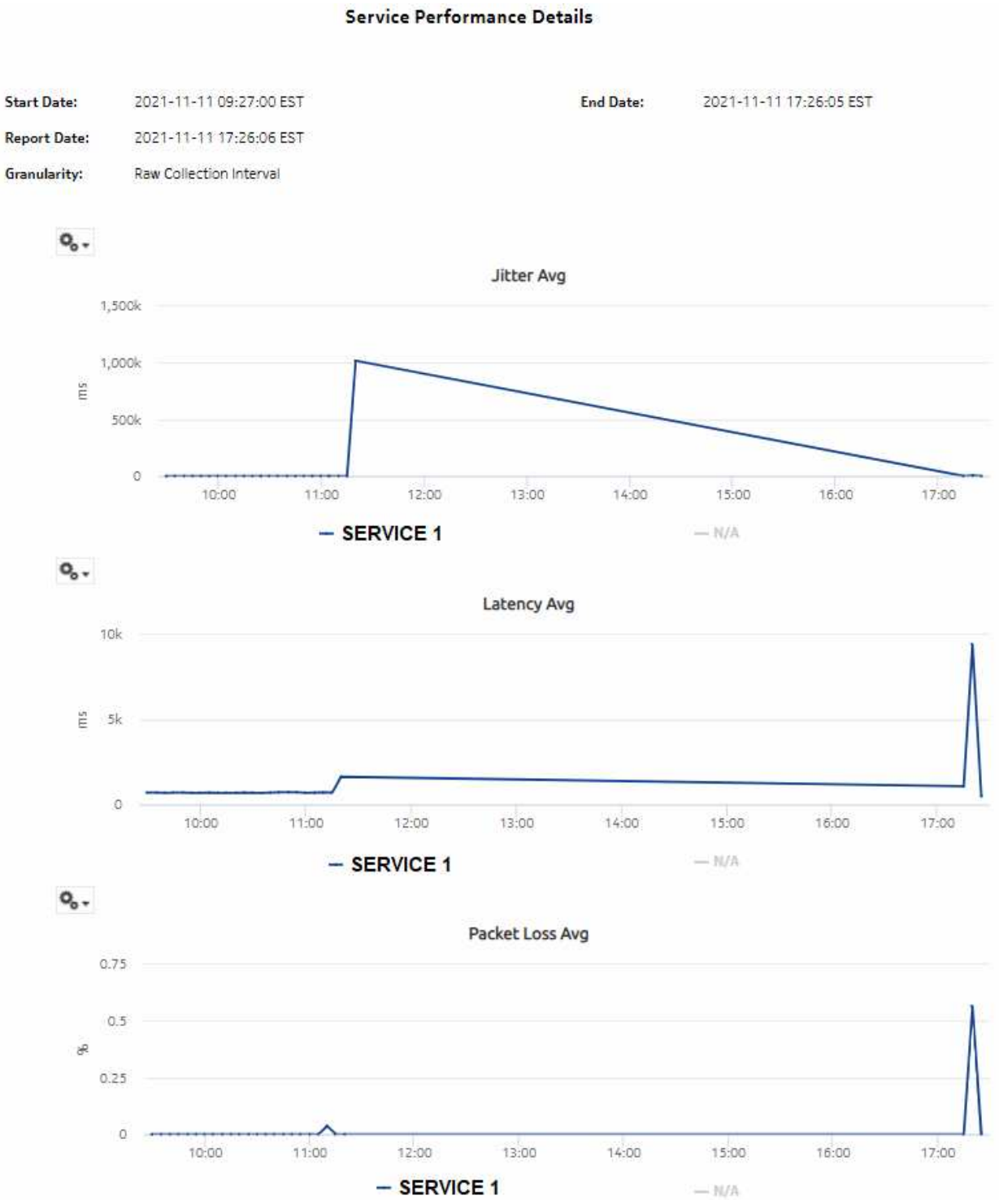
Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.19.2 Example

The following figure shows a report example.

Figure 11-16 Service Performance Details report



11.20 Service Performance Summary report

11.20.1 Service Performance Summary report overview

The Service Performance Summary report shows a summary of jitter, latency, and packet loss for services. The report provides a table showing, for example, average , maximum, and minimum for each .

Limitations

Report limitations include:

- when the report is exported to the DOCX file type, the PacketLossMaxTime column may not be properly aligned.
- when the report is exported to the RTF file type, half of the page displays.

Prerequisites

The following tests need to be configured and running using NSP Classic management for the report to be created:

- A Y.1731 test session for L2 services
- A TWAMP-Light test session for L3 services

Test sessions must be running for at least one aggregation period, for example, at least one day for a daily report.

The following statistics need to be collected using NSP Classic management for the report to be created:

- OAM-PM ETH-CFM DMM session accounting stats
- OAM-PM ETH-CFM SLM session accounting stats
- OAM-PM TWL loss session accounting stats
- OAM-PM TWL delay session accounting stats

Note: Complete PM is not supported for SAR NEs.

Use cases

QoS analysis - identify potential service impacting issues based on thresholds for latency, jitter and packet loss on services.

Report characteristics

The following table lists the principal report characteristics.

Table 11-33 Service Performance Summary report characteristics

Characteristic	Value	
Data type	OAM testing	
Source database	Auxiliary database	
Service types supported	VPLS, VPRN, MVPLS, Epipe, or Cpipe	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the 11.19 “Service Performance Details report” (p. 415) report	

Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.20.2 Example

The following figures shows report examples.

Figure 11-17 Service Performance Summary report

Service Performance Summary

Start Date: 2021-11-11 09:24:00 EST
End Date: 2021-11-11 17:23:16 EST
Report Date: 2021-11-11 17:23:16 EST
Granularity: Raw Collection Interval

Service Name	Service Id	JitterMax (ms)	JitterMin (ms)	JitterAvg (ms)	JitterMaxTime	LatencyMax (ms)	LatencyMin (ms)	LatencyAvg (ms)	LatencyMaxTime	PacketLossMax (%)	PacketLossMin (%)	PacketLossAvg (%)	PacketLossMaxTime
SERVICE 1	VPRN 80001	1.18723328959	0.0	11448.92	2021-11-11 18:20:00	1369536.0	0.0	1803.82	2021-11-11 16:20:00	3.33	0.0	0.05	2021-11-11 16:20:00

Service Performance Summary

Start Date: 2021-11-11 09:31:00 EST
End Date: 2021-11-11 17:30:59 EST
Report Date: 2021-11-11 17:30:59 EST
Granularity: Raw Collection Interval

Service Name	Service Id	JitterMax (ms)	JitterMin (ms)	JitterAvg (ms)	JitterMaxTime	LatencyMax (ms)	LatencyMin (ms)	LatencyAvg (ms)	LatencyMaxTime	PacketLossMax (%)	PacketLossMin (%)	PacketLossAvg (%)	PacketLossMaxTime
N/A	EPIPE 412	15684.0	0.0	216.63	2021-11-11 17:10:00	33477.0	7756.0	7913.47	2021-11-11 17:10:00	0.0	0.0	0.0	null
N/A	EPIPE 1030	12725.0	0.0	28.23	2021-11-11 23:55:00	12826.0	89.0	110.61	2021-11-11 23:55:00	0.0	0.0	0.0	null
EPIPE 1	EPIPE 29	14483.0	0.0	58.68	2021-11-11 16:20:00	14817.0	327.0	378.23	2021-11-11 16:20:00	0.0	0.0	0.0	null
EPIPE 2	EPIPE 3672	83803.0	0.0	4546.8	2021-11-11 19:48:00	111013.0	3240.0	9548.26	2021-11-11 19:08:00	0.0	0.0	0.0	null
EPIPE 3	EPIPE 959	2000012.0	0.0	280.66	2021-11-11 21:08:00	9120.0	0.0	2397.9	2021-11-11 20:43:00	0.0	0.0	0.0	null
EPIPE 4	EPIPE 164	2476.0	0.0	18.07	2021-11-11 23:22:00	3895.0	510.0	533.58	2021-11-11 23:22:00	0.0	0.0	0.0	null
N/A	EPIPE 332	1.603136398859	0.0	5614.03	2021-11-11 22:20:00	18497.0	0.0	696.41	2021-11-11 19:15:00	0.0	0.0	0.0	null

12 Inventory reports

12.1 Inventory reports overview

12.1.1 General information

Inventory reports provide hardware configuration details at the card and port levels.

Results are colored when percentage of ports used exceeds user-defined thresholds:

- Yellow coloring indicates that the utilization is equal to or above the warning threshold. The default threshold value is 70%.
- Red coloring indicates that the utilization is equal to or above the critical threshold. The default threshold value is 90%.

Note: The report input options list all NEs that are compatible with Inventory reports, not only the NEs that are present. A report can only be generated for NEs found in the network.

Use cases

Network planning—Use the reports to plan for the acquisition of new hardware when required.

Prerequisites

Before an inventory report can be created, the NEs must be managed using NSP Classic mediation.

Drill-down reports

All reports can be run from the main Inventory reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Inventory reports. Each level of indentation indicates a drill down.

Table 12-1 Available drill-downs for Inventory reports

Port Inventory Summary	
	Port Details

12.2 Card Inventory report

12.2.1 Card Inventory report overview

The Card Inventory report shows the NEs and sites selected and proportion of empty and populated IOM, IMM, MDA, and Wavence slots. The default display is a pie chart and a set of tables displaying details.

- The pie chart shows the empty and populated slot percentages of IOM/IMM/XCM/Wavence and MDA/XMA for the sites selected.
- The Card Totals Per Node Type table displays the number of the Populated/Empty slot of IOM/IMM/XCM/Wavence and MDA/XMA.
- The CPM/SF Card Totals table displays the Card Type, Card Software, and Number of Card details of CPM/SF card type.
- The IOM/IMM/XCM/Wavence Card Totals table displays the Card Type, Card Software, and Number of Card details of IOM/IMM/XCM card type.
- The MDA/XMA Card Totals table displays the Card Type, Card Software, and Number of Card details of MDA/XMA card type.
- The Card Totals Per Node table provides the number of IOM/IMM/XCM/MDA/XMA for the selected sites.
- The Full Node Inventory table provides the following information for the selected sites:
  - NE Name
  - Node type
  - Card Type
  - Software Version
  - Slot Number
  - Part Number
  - Serial Number
  - Manufacture Assembly Number
  - Manufacture Date

Report characteristics

The following table lists the principal report characteristics.

Table 12-2 Card Inventory report characteristics

Characteristic	Value
Data type	Node configuration information
Source database	NSP database

Table 12-2 Card Inventory report characteristics (continued)

Characteristic	Value	
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
	Support is limited to NEs found in the network.	
Report inputs	*Prompt*	*Notes*
	Node Types	Search using partial names or wildcard (%). At least one NE or site name must be entered.
	Sites (or Name Pattern)	
	Sites	Search using the site name.
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Include Full Node Inventory (check box)	—
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports. Note: When the report output is displayed on multiple pages, the logo displays only on the first page.
Drill-down support	No	

12.2.2 Example

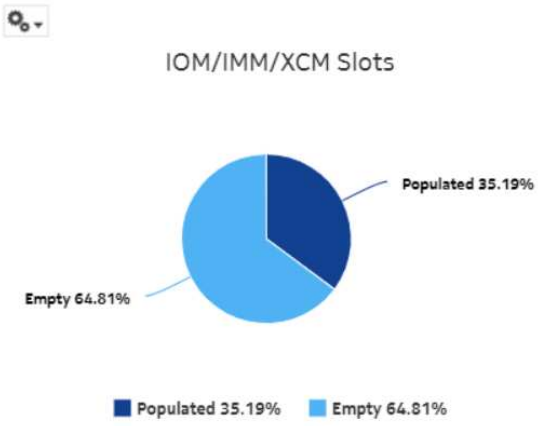
The following figures show a report example.

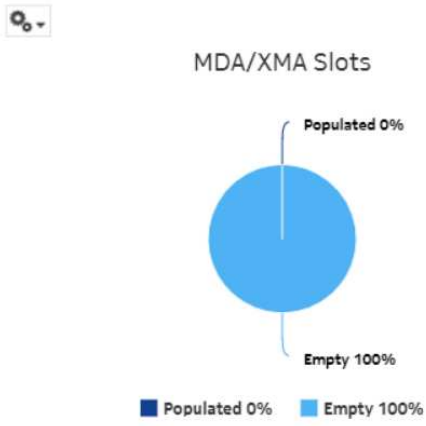
Figure 12-1 Card Inventory report

Warning Threshold : 70.0 % **Critical Threshold :** 90.0 %

Report Date : 2019-07-19 12:39:39 IST

NE IDs : 192.0.2.20, 192.0.2.37, 192.0.2.38, 192.0.2.139, 192.0.2.156, 192.0.2.64, 192.0.2.18, 192.0.2.24, 192.0.2.4, 192.0.2.1, 192.0.2.2, 192.0.2.3, 192.0.2.5,192.0.2.6, 192.0.2.113





Card Totals by NE Type

NE Type	Number NEs	Total IOM/IMM/ XCM Slots	Populated IOM/IMM/ XCM Slots	Empty IOM/IMM/ XCM Slots	Populated MDA/XMA Slots	Empty MDA/XMA Slots	NEs with No Free IOM/IMM/XCM Slots	NEs with No Free MDA/XMA Slot
Wavence MSS-8	11	88	31	57	0	0	11	0
7250 IXR-10	1	4	0	4	0	2	1	1
9500 MPR-E Chassis 8	2	16	7	9	0	0	2	0

Figure 12-2 Card Inventory report, continued

CPM/SF Card Totals

Card Type	Card Software Version	Number of Cards
SFM IXR 10	TiMOS-C-13.1.R7	6
IXR CPM	TiMOS-C-13.1.R7	2
Totals		**8**

IOM/IMM/XCM Card Totals

Card Type	Card Software Version	Number of Cards
CorEvo	19.1.0	12
EAC1G2G5	19.1.0	6
1 x STM (Channelized)	7.1.0	4
32 x E1	19.0.0	1

MDA/XMA Card Totals

Card Type	Card Software Version	Number of Cards
48 X 10Gig SFP+ + 2 X 100G QSFP28	TiMOS-C-13.1.R7	1
36 X 100Gig QSFP28	TiMOS-C-13.1.R7	1
Totals		**2**

Figure 12-3 Card Inventory report, continued

Card Totals Per NE

NE Name ▲	NE Type	Total IOM/XCM Cards	Total IMM cards	Free IOM/IMM/XCM Slots	Total MDA/XMA cards	Free MDA/XMA Slots
BLR_40_20	Wavence MSS-8	8	0	7	0	0
BLR_40_37	Wavence MSS-8	8	0	7	0	0
BLR_40_38	Wavence MSS-8	8	0	7	0	0
BLR_64_139	Wavence MSS-8	8	0	4	0	0
BLR_64_156	Wavence MSS-8	8	0	6	0	0
BLR_64_18	9500 MPR-E Chassis 8	8	0	4	0	0
BLR_64_24	9500 MPR-E Chassis 8	8	0	5	0	0
MSS 8 NE1 UBT Bench	Wavence MSS-8	8	0	4	0	0
MSS 8 NE2 UBT Bench	Wavence MSS-8	8	0	4	0	0

Full NE Inventory

NE Name ▲	NE Type	Software Version	Slot Number ▲	Card Type	Part Number	Serial Number	Manufacture Assembly Number	Manufacture Date
BLR_40_20	Wavence MSS-8	19.1.0	1	CorEvo	3DB18788ABAB01	TH1446Q045A	N/A	141127
BLR_40_20	Wavence MSS-8	19.1.0	3	EASv2	N/A	N/A	N/A	N/A
BLR_40_37	Wavence MSS-8	19.1.0	1	CorEvo	3DB18788ABAB01	TH1446Q0454	N/A	141126
BLR_40_37	Wavence MSS-8	19.1.0	2	CorEvo	N/A	N/A	N/A	N/A
BLR_40_37	Wavence MSS-8	19.1.0	3	EASv2	N/A	N/A	N/A	N/A

12.3 Port Details report

12.3.1 Port Details report overview

The Port Details report shows the port usage details for selected NEs and sites. The default display is a table displaying details of the port. If a port is used in a backhaul service or is a member of the lag group, then the corresponding port is marked as used port. Protection ports are not shown as "used ports" in the port details reports.

The port count in a slot is calculated based on grouping the NE Type, NE ID, Port Class, and Port Description. Total port count is calculated based on grouping the NE ID and slot.

Report characteristics

The following table lists the principal report characteristics.

Table 12-3 Port Details report characteristics

Characteristic	Value	
Data type	NE configuration information	
Source database	NSP database	
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
	Support is limited to NEs found in the network.	
Report inputs	*Prompt*	*Notes*
	Node Types	Search using partial names or wildcard (%). At least one NE or site name must be entered.
	Sites (or Name Pattern)	
	Sites	Search using the site name.
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports. Note: When the report output is displayed on multiple pages, the logo displays only on the first page.
Drill-down support	No	

12.3.2 Example

The following figure shows a report example.

Figure 12-4 Port Details report

Port Details

Report Date :	2019-07-19 12:04:59 IST	**NE Name:**	BLR_64_18
NE Type :	9500 MPR-E Chassis 8	**NE ID :**	192.0.2.18
Warning Threshold :	70.0 %	**Critical Threshold :**	90.0 %

Slot	Port Name	Port Type	Mode	Port Description	Port Count	Ports Used	Ports Used (%)
1					**6**	**1**	**16.6667**
	Port 1/1	Fast Ethernet	Access	Ethernet	1	0	
	Port 1/2	Fast Ethernet	Access	Ethernet	1	0	
	Port 1/3	Fast Ethernet	Access	Ethernet	1	1	
	Port 1/4	Fast Ethernet	Access	Ethernet	1	0	
	Port 1/5	Fast Ethernet	Access	Ethernet	1	0	
	Port 1/6	Fast Ethernet	Access	Ethernet	1	0	
3					**1**	**0**	**0**
	Port 3/1	SONET	Access	STM-1	1	0	

12.4 Port Inventory Summary report

12.4.1 Port Inventory Summary report overview

The Port Inventory Summary report shows the port type and port usage for selected NEs. The default display is a table displaying details, including total port count, total ports used, and percentage of ports used. If a port is used in a backhaul service or is a member of the lag group, then the corresponding port is marked as used port. Protection ports are not shown as "used ports" in port inventory summary reports.

The port count is calculated based on the grouping of NE Type, NE ID, Port Class, and Port Description. The total port count is grouped based on the NE ID. For a specific NE, it gives the total count of the associated ports.

Report characteristics

The following table lists the principal report characteristics. The total port count is grouped based on the NE ID. For a specific NE, it gives the total count of the associated ports

Table 12-4 Port Inventory Summary report characteristics

Characteristic	Value	
Data type	NE configuration information	
Source database	NSP database	
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants 7210 SAS-D 6F 4T, 7210 SAS-D 6F 4T ETR, 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12 OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
	Support is limited to NEs found in the network.	
Report inputs	*Prompt*	*Notes*
	Node Types	Search using partial names or wildcard (%). At least one NE or site name must be entered.
	Sites (or Name Pattern)	
	Sites	Search using the site name.
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Show Threshold Violations Only (check box)	—
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports. Note: When the report output is displayed on multiple pages, the logo displays only on the first page.
Drill-down support	Yes—Open the Port Details report for the selected NE.	

12.4.2 Example

The following figure shows a report example.

Figure 12-5 Port Inventory Summary report

Port Inventory Summary

Report Date : 2019-07-19 12:08:57 IST

Warning Threshold : 70.0 % **Critical Threshold :** 90.0 %

NE IDs : 192.0.2.20, 192.0.2.37, 192.0.2.38, 192.0.2.139, 192.0.2.156, 192.0.2.64, 192.0.2.18, 192.0.2.24, 192.0.2.4, 192.0.2.1, 192.0.2.2, 192.0.2.3, 192.0.2.5

NE Name	NE Type	Port Type	Port Description	Port Count	Ports Used	Ports Used (%)
BLR_40_20	Wavence MSS-8			16	2	12.5 %
		Radio	Radio	1	1	100 %
MSS 8 NE 4 UBT Bench	Wavence MSS-8			48	7	14.5833 %
		Radio	Radio	2	2	100 %
MSS 8 NE1 UBT Bench	Wavence MSS-8			48	9	18.75 %

12.5 Service Inventory report

12.5.1 Service Inventory report overview

The Service Inventory report shows the number of services associated with a port that are currently on a single device or on multiple devices in a single view. The report allows you to see what NE services and LSPs are affected by a move/add/change/outage of a network or access interface from a service perspective. The report can be run from a router perspective, port perspective, or TDM bundle perspective.

Supported services include IES, VPLS, VPRN, Epipe, Apipe, Cpipe, VLAN, and MVPLS.

Limitations

When the report is exported to the RTF file format, data may be missing or obscured on the right side.

Prerequisites

To generate a Service Inventory report, you must discover all of the NEs that are part of the path in the network. This ensures that the path is accurately represented and fully visible in the report.

Report characteristics

The following table lists the principal report characteristics.

Table 12-5 Service Inventory report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP database
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants 7210 SAS-D 6F 4T, 7210 SAS-D 6F 4T ETR, 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12 OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA
	Support is limited to NEs found in the network.

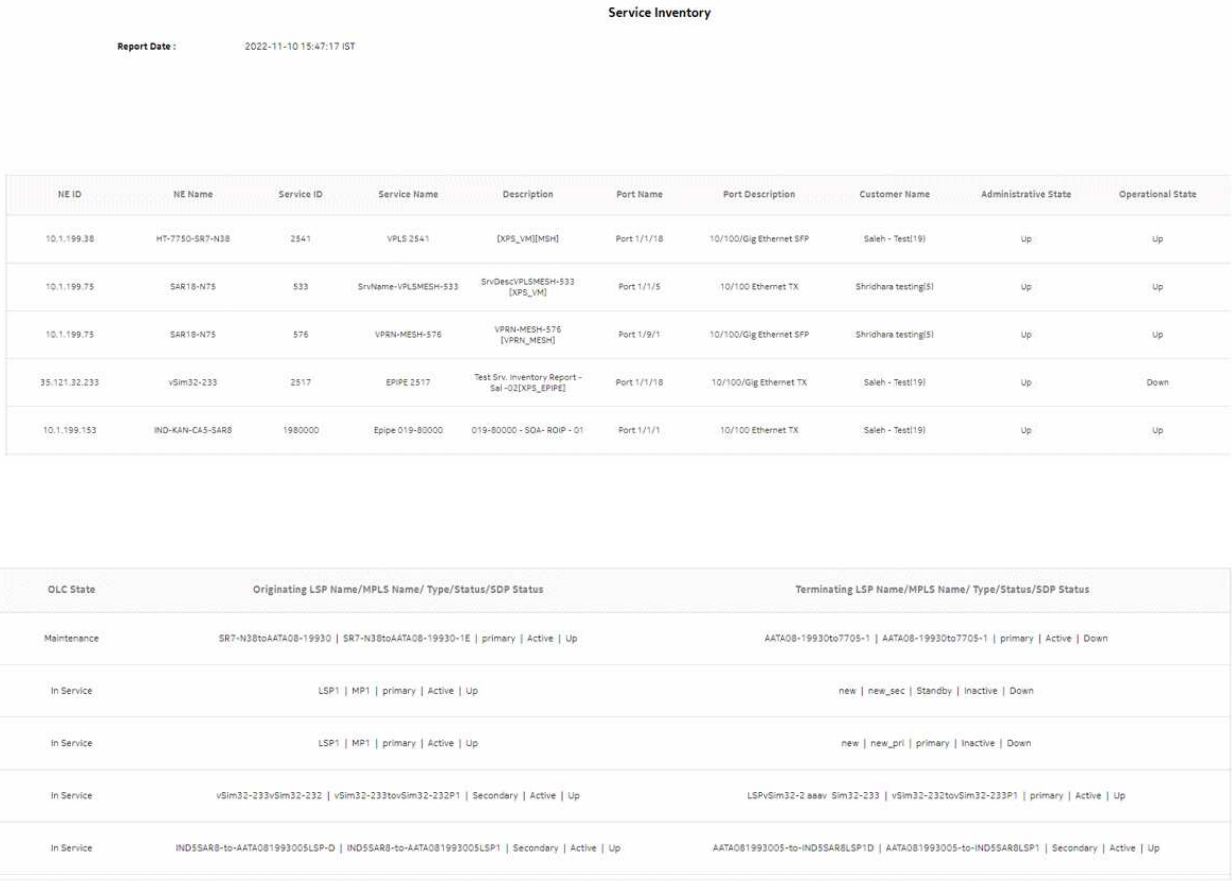
Table 12-5 Service Inventory report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Resource type	Router, Port, Bundle
	NEs/ Physical Ports/ TDM Bundles	Search using partial names or wildcard (%).
	Name or name pattern for services	Search using partial names or wildcard (%). Select individual items or click Select All.
	Services	Select individual items or click Select All.
	Exclude Options	Enable, disable
	OLC State	Maintenance, In Service
	Administrative State	Up, Down, Partially Down, Unknown
	Lsp Path Type	Other, Primary, Standby, Secondary
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

12.5.2 Example

The following figure shows a report example.

Figure 12-6 Service Inventory report



Service Inventory

Report Date : 2022-11-10 15:47:17 IST

NE ID	NE Name	Service ID	Service Name	Description	Port Name	Port Description	Customer Name	Administrative State	Operational State
10.1.199.38	HT-7750-SR7-N38	2541	VPLS 2541	[XPS_VM][MSH]	Port 1/1/18	10/100/Gig Ethernet SFP	Saleh - Test(19)	Up	Up
10.1.199.75	SAR18-N75	533	SrvName-VPLSMESH-533	SrvDescVPLSMESH-533 [XPS_VM]	Port 1/1/5	10/100 Ethernet TX	Shridhara testing(5)	Up	Up
10.1.199.75	SAR18-N75	576	VPRN-MESH-576	VPRN-MESH-576 [VPRN_MESH]	Port 1/9/1	10/100/Gig Ethernet SFP	Shridhara testing(5)	Up	Up
35.121.32.233	vSim32-233	2517	EPIPE 2517	Test Srv. Inventory Report - Sal -02[XPS_EPIPE]	Port 1/1/18	10/100/Gig Ethernet TX	Saleh - Test(19)	Up	Down
10.1.199.153	IND-KAN-CA5-SAR8	1980000	Epipe 019-80000	019-80000 - SOA- ROIP - 01	Port 1/1/1	10/100 Ethernet TX	Saleh - Test(19)	Up	Up

OLC State	Originating LSP Name/MPLS Name/ Type/Status/SDP Status	Terminating LSP Name/MPLS Name/ Type/Status/SDP Status
Maintenance	SR7-N38toAATA08-19930 | SR7-N38toAATA08-19930-1E | primary | Active | Up	AATA08-19930to7705-1 | AATA08-19930to7705-1 | primary | Active | Down
In Service	LSP1 | MP1 | primary | Active | Up	new | new_sec | Standby | Inactive | Down
In Service	LSP1 | MP1 | primary | Active | Up	new | new_pri | primary | Inactive | Down
In Service	vSim32-233vSim32-232 | vSim32-233tovSim32-232P1 | Secondary | Active | Up	LSPvSim32-2 aaav Sim32-233 | vSim32-232tovSim32-233P1 | primary | Active | Up
In Service	IND5SAR8-to-AATA081993005LSP-D | IND5SAR8-to-AATA081993005LSP1 | Secondary | Active | Up	AATA081993005-to-IND5SAR8LSP1D | AATA081993005-to-IND5SAR8LSP1 | Secondary | Active | Up

13 OAM reports

13.1 OAM report overview

13.1.1 General information

OAM reports show aggregated latency and loss information based on results of OAM testing. Information in the report inputs is optimized to reflect the configuration of the test in the NFM-P GUI, for example, only configured forwarding classes appear in the inputs.

Forwarding classes are highlighted when latency or packet loss exceeds thresholds:

- Orange highlighting indicates that the maximum RTD is double or more the value of the average RTD
- Yellow highlighting indicates that the loss is greater than 0% but less than 5%.
- Red highlighting indicates that the loss is greater than 5%.

Note: Gaps may appear in line graphs: these indicate a time during which no data was available.

Both the NE name and its IP address display in the report.

Drill-down reports

All OAM reports can be run from the main OAM reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for OAM reports. Each level of indentation indicates a drill down. For example, OAM-PM Network Site Summary is a drill-down report from an OAM-PM Network Summary report. OAM-PM Latency and OAM-PM Loss reports are drill-downs from an OAM-PM Network Site Summary report.

Table 13-1 Available drill-downs for OAM reports

OAM-PM Network Summary		
	OAM-PM Network Site Summary	
		OAM-PM Latency OAM-PM Loss
OAM-PM Service Summary		
	OAM-PM Service Site Summary	
		OAM-PM Service Site
		OAM-PM Latency OAM-PM Loss
OAM-PM Multiple Session View		

Table 13-1 Available drill-downs for OAM reports (continued)

	OAM-PM Bins and Delay	
OAM-PM Composite Service Summary		
	OAM-PM Composite Service View	
		OAM-PM Service Site Summary
OAM-PM Bin Groups		
	OAM-PM Latency OAM-PM Loss	
OAM-PM Top N Worst Sessions		
	OAM-PM Latency OAM-PM Loss	
Ping Network Summary		
	Ping Network Site Summary	
		Ping Latency Ping Jitter & Loss
Ping Service Summary		
	Ping Service Site Summary	
		Ping Service Site
		Ping Latency Ping Jitter & Loss
Ping Top N Worst Results		
	Ping Latency Ping Jitter & Loss	

Supported standards

The following table describes the test types supported by the reports, and alternate test names where they exist.

Table 13-2 Supported standards for OAM testing

Reports	Standards or alternate test names
• OAM-PM Bins and Delay • OAM-PM Composite Service Summary • OAM-PM Latency • OAM-PM Loss • OAM-PM Multiple Session View • OAM-PM Network Site Summary • OAM-PM Network Summary • OAM-PM Service Summary • OAM-PM Service Site Summary • OAM-PM Service Site	MEF35

Prerequisites

The following must be configured for OAM reports to be created:

- OAM testing can be configured in the NFM-P or the NSP.

  See the following in the *NSP NFM-P Classic Management User Guide* for information about the tests and policies that provide data for OAM reports:
  - PM bin group policies
  - Configuring a CFM two way delay OAM diagnostic test from the STM
  - Configuring a PM session OAM diagnostic test from the STM
  - Configuring a CFM DMM session OAM diagnostic test from the STM
  - Configuring a TWAMP-Light session OAM diagnostic test from the STM
  - Creating and running an ICMP ping OAM diagnostic test from the STM
  - Creating and running a VCCV ping OAM diagnostic test from the STM
- The OAM test results must be stored in the auxiliary database. To enable auxiliary database storage of OAM test results, you must enable the oam-test-results parameter in the samauxdb section of each NFM-P main server configuration. See the *NSP Installation and Upgrade Guide* for information about using the samconfig utility to modify the NFM-P configuration.
- OAM statistics must be collected using an accounting policy:
  - ETH-CFM Two-Way Delay, ICMP Ping, and VCCV Ping tests require an NE Schedulable Tests policy.
  - ETH-CFM Session and TWAMP-Light Session tests require a Complete-PM policy.
- To view the reports for granularities other than raw data, the OAM aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

13.2 OAM PM BinGroups report

13.2.1 OAM PM BinGroups report overview

The OAM PM BinGroups report shows a distribution count of the PM bin groups in use. To use this report, a bin group policy must be distributed, PM sessions must be configured for each bin group, and PM sessions must be active and enabled.

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential performance impact for a selected bin group.

Report inputs

The report has no inputs.

Report characteristics

The following table lists the principal report characteristics.

Table 13-3 OAM PM BinGroups report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	all 7750 SR variants all 7450 ESS variants all 7950 XRS variants 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC
Aggregation types	-
Drill-down support	Yes: 1. Click on a bin group to show an OAM-PM Sessions report, showing the distribution of sessions using the bin group. 2. From an OAM-PM Sessions report, click on a session to show an OAM-PM Sessions By Site report: an aggregate view of the active sessions on the site using the selected bin group. You can modify report inputs, for example, show sessions with no data. 3. From an OAM-PM Sessions By Site report, click on a delay result to show an OAM-PM Latency report. 4. From an OAM-PM Sessions By Site report, click on a jitter or loss result to show an OAM-PM Loss report.

13.2.2 Example

The following figures show report examples.

Figure 13-1 OAM PM BinGroups report

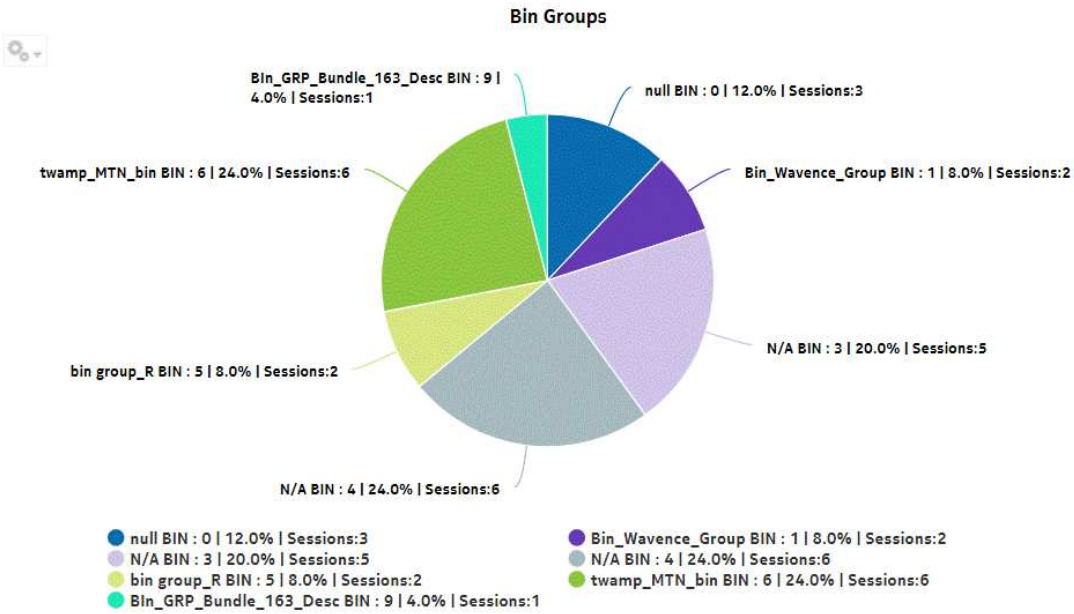


Figure 13-2 OAM-PM Sessions report

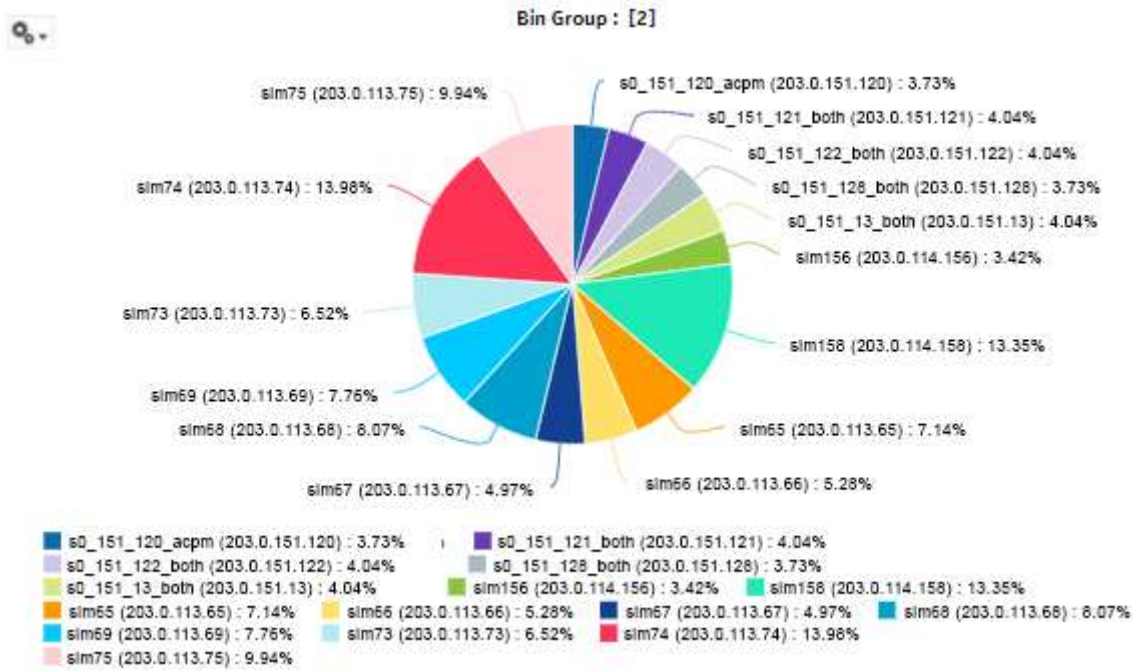


Figure 13-3 OAM-PM Sessions by Site report

OAM-PM Sessions By Site

Bin Group ID: 2
Site ID: 203.0.113.74
Report Generated On: 2017-08-09 12:58 EDT

Start Date: 2017-08-08 12:00 EDT
End Date: 2017-08-09 11:59 EDT

Session	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
E2-1-2-104B01010009	2011037	2204923	9639	97.15
E2-e-1-104901010007	2950	14023	1130	0
E2-e-2-104901010005	2851	12372	1023	0
E2-e-3-104901010009	0	0	0	0
E2-e-3-104B01010006	0	0	0	0
E2-e-3-12B201010006	0	0	0	0
pm-session-proactive-all	0	0	0	0

13.3 OAM-PM Bins and Delay report

13.3.1 OAM-PM Bins and Delay report overview

The OAM-PM Bins and Delay report shows an OAM-PM session with a bin count bar graph and a delay line overlay.

Use cases

QoS analysis—Identify potential performance or SLA impact for a service or composite service

Report inputs

The following table shows the report inputs.

Table 13-4 OAM-PM Bins and Delay report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • Hourly • Daily • Monthly • None (raw collection interval)
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session name	Search using partial names, full names, or IP addresses.
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Delay Type	Maximum, average, or minimum

Report characteristics

The following table lists the principal report characteristics.

Table 13-5 OAM-PM Bins and Delay report characteristics

Characteristic	Value
Data type	OAM PM statistics

Table 13-5 OAM-PM Bins and Delay report characteristics (continued)

Characteristic	Value
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	No

13.3.2 Examples

The following figures show report examples.

Figure 13-4 ETH-CFM OAM Bins and Delay report

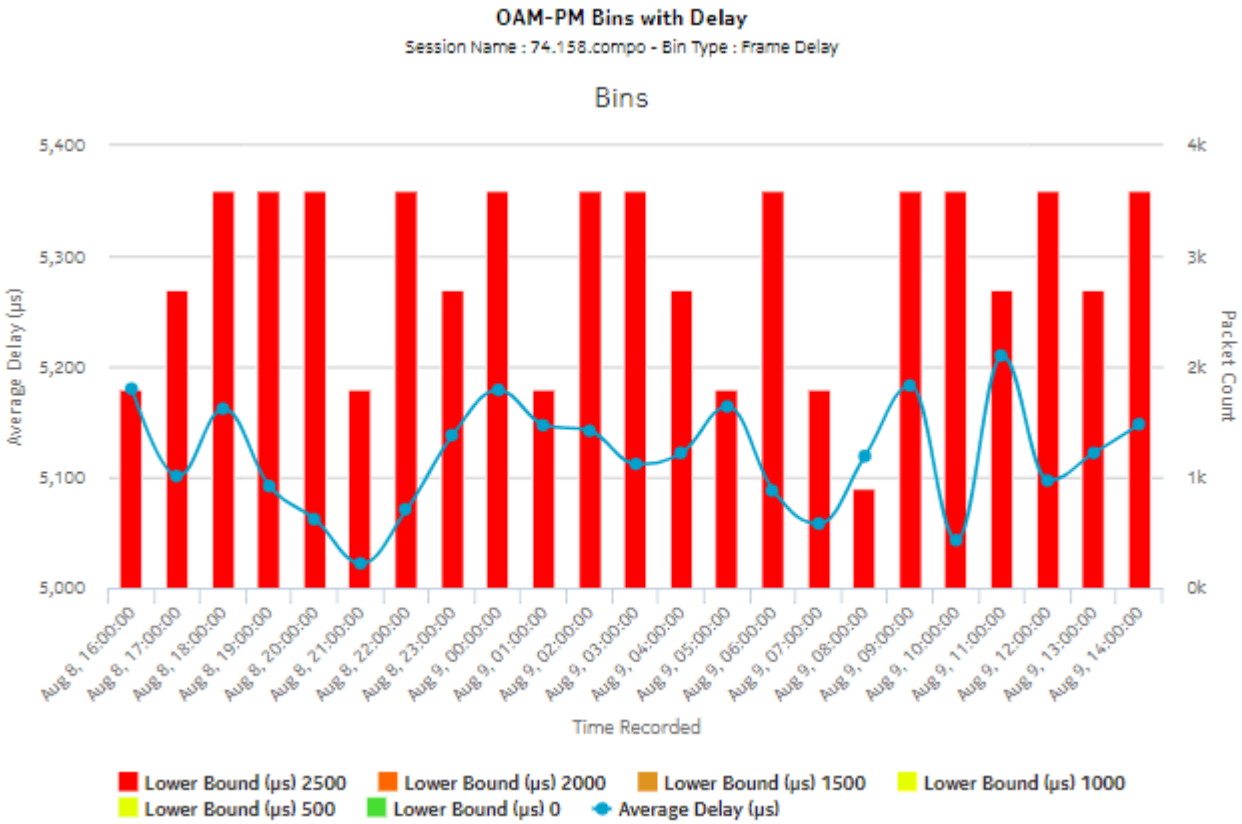
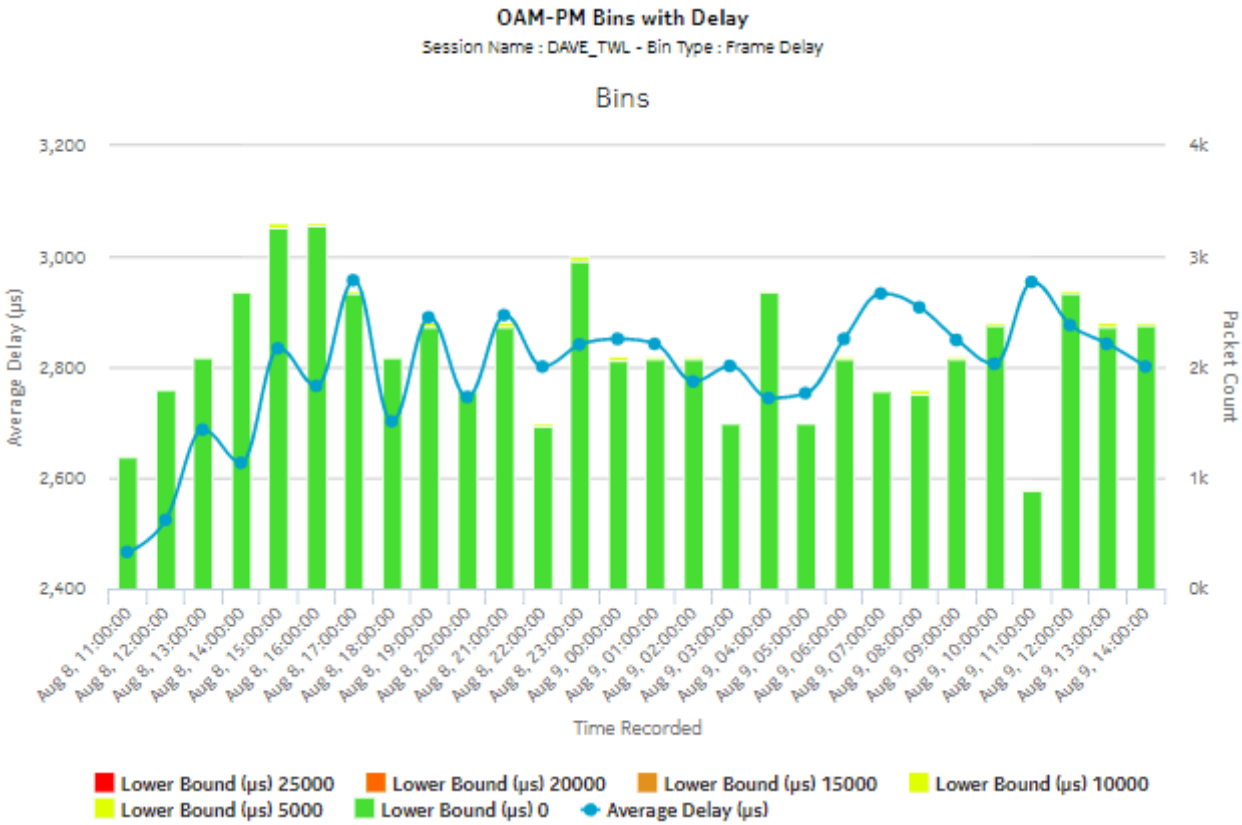


Figure 13-5 TWAMP-Light OAM Bins and Delay report



13.4 OAM-PM Composite Service Summary report

13.4.1 OAM-PM Composite Service Summary report overview

The OAM-PM Composite Service Summary report shows an aggregated view of composite services in use, and results of PM CFM DMM, PM CFM SLM, and TWAMP-Light tests, grouped by ID.

Use cases

QoS analysis—Identify potential performance or SLA impact for a service or composite service

Troubleshooting—Troubleshoot service performance by forwarding class and segment

Prerequisites

The following tasks need to be performed using NSP Classic management for OAM-PM Service Summary reports to be created:

- A DMM session must be defined with accounting enabled.
- A TWAMP-Light session must be defined with accounting enabled.
- For session loss information to be available, an SLM session must also be defined.

Report inputs

The following table shows the report inputs.

Table 13-6 OAM-PM Composite Service Summary report inputs

Prompt	Notes
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-7 OAM-PM Composite Service Summary report characteristics

Characteristic	Value
Data type	OAM PM statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 13-7 OAM-PM Composite Service Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes: • Click on a composite to show an OAM-PM Composite Service View report, displaying test results by service segment. • From an OAM-PM Composite Service View, click on a service to show an OAM-PM ETH-CFM Service Site Summary or OAM-PM TWAMP-Light Service Site Summary report.

13.4.2 Example

The following figures show report examples.

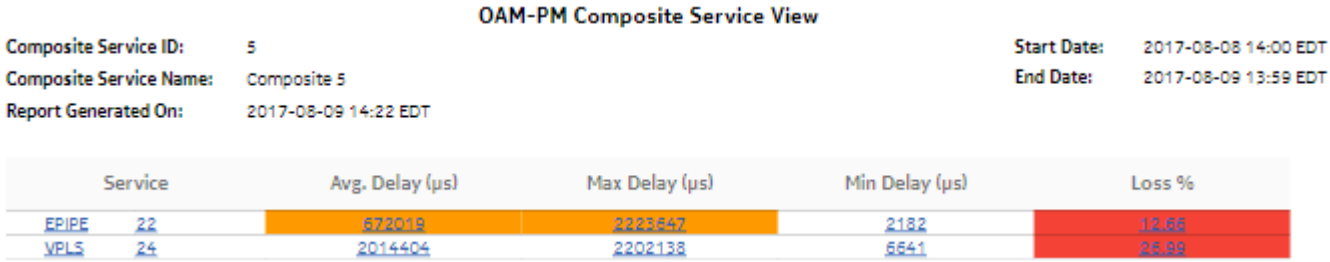
Figure 13-6 OAM-PM Composite Service Summary report

OAM-PM Composite Service Summary

Report Generated On: 2017-08-09 14:15 EDT
Start Date: 2017-08-08 14:00 EDT
End Date: 2017-08-09 13:59 EDT

ID	Composite Service Name	Number of Services
1	N/A	1
2	N/A	1
3	N/A	1
4	Composite 4	2
5	Composite 5	2
6	Composite 6	2
7	Composite 7	2
8	Composite 8	2
9	Composite 9	4
10	Composite 10	2
11	Composite 11	4
12	Composite 12	2
13	Composite 13	3
14	Composite 14	6
15	Composite 15	2
16	Composite 16	2
17	Composite 17	7
18	Composite 18	3
19	Composite 19	2
20	Composite 20	2
21	Composite 21	2
22	Composite 22	2

Figure 13-7 OAM-PM Composite Service View



13.5 OAM-PM Latency report

13.5.1 Overview

An OAM-PM Latency report can be run by itself or as a drill-down from an OAM-PM Network Site Summary report. The report shows the graph of latency for a selected session during a specified time period.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-8 OAM-PM Latency report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)

Table 13-8 OAM-PM Latency report inputs (continued)

Prompt	Notes
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Session Name	
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Threshold	Specify in bps/Kbps/Mbps/Gbps

Report characteristics

The following table lists the principal report characteristics.

Table 13-9 OAM-PM Latency report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	No

13.5.2 Example

The following figures show a report examples.

Figure 13-8 OAM-PM ETH-CFM Session Delay Measurement Details report

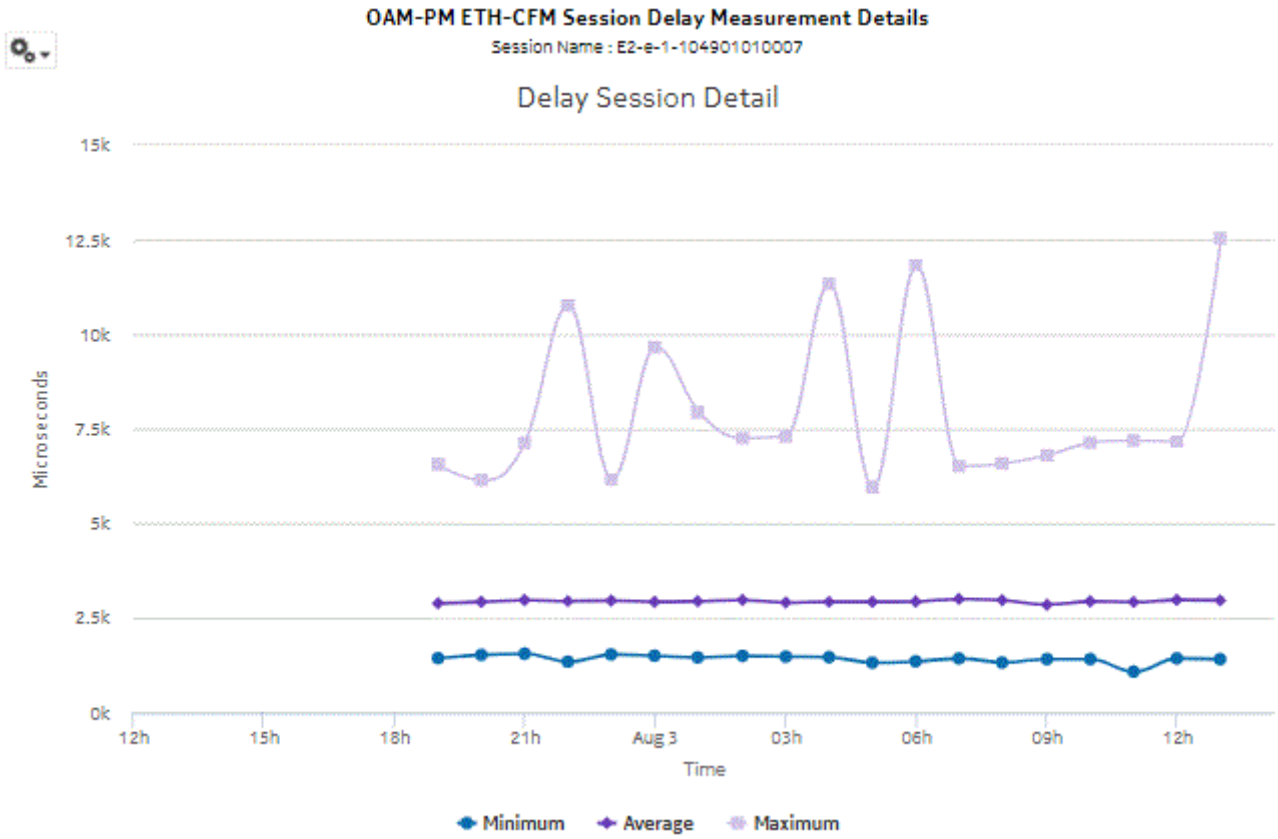
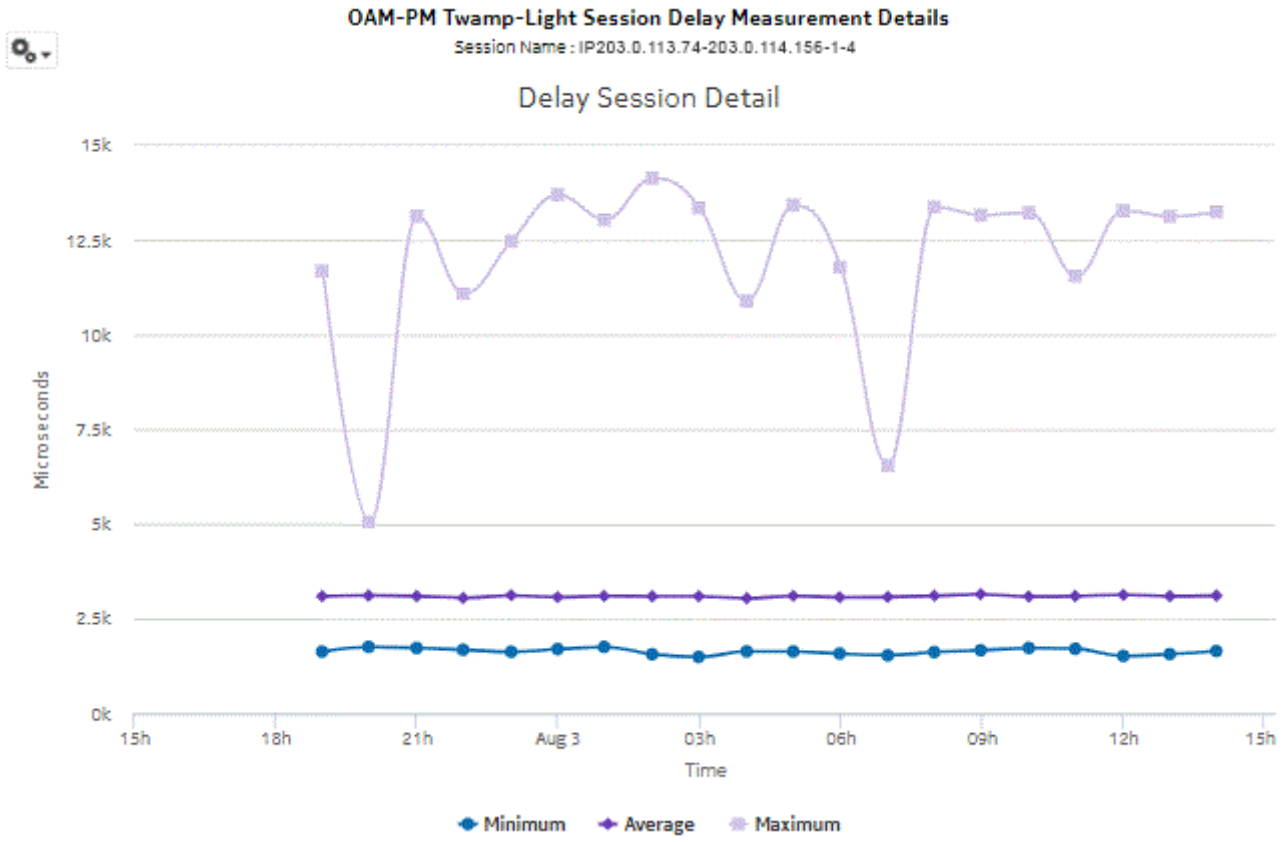


Figure 13-9 OAM-PM Twamp-Light Session Delay Measurement Details report



13.6 OAM-PM Loss report

13.6.1 Overview

An OAM-PM Loss report can be run by itself or as a drill-down from an OAM-PM Network Site Summary report. The report shows the graph of loss data for a selected session during a specified time period.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-10 OAM-PM Loss report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Session Name	
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day

Report characteristics

The following table lists the principal report characteristics.

Table 13-11 OAM-PM Loss report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 13-11 OAM-PM Loss report characteristics (continued)

Characteristic	Value
Drill-down support	No

13.6.2 Example

The following figures show report examples.

Figure 13-10 OAM-PM ETH-CFM Session Delay Measurement Details report

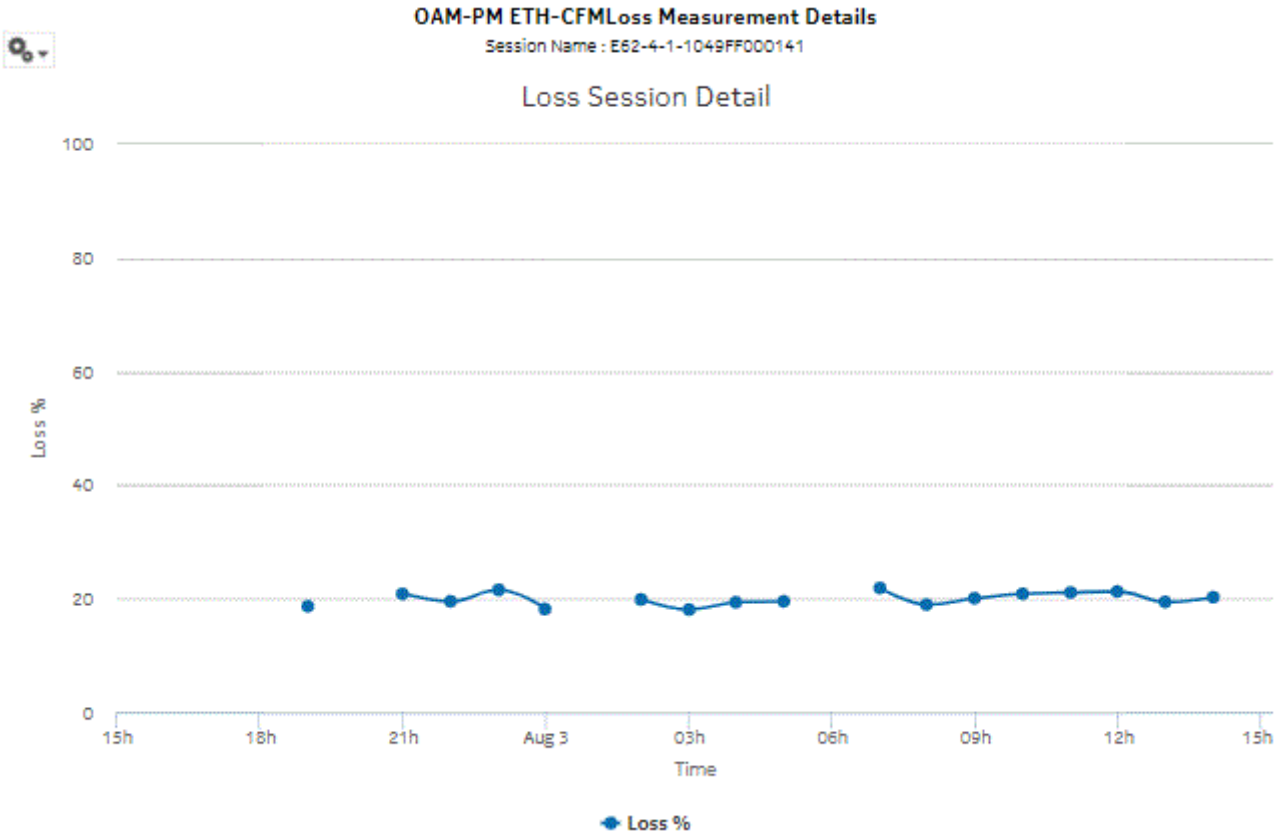
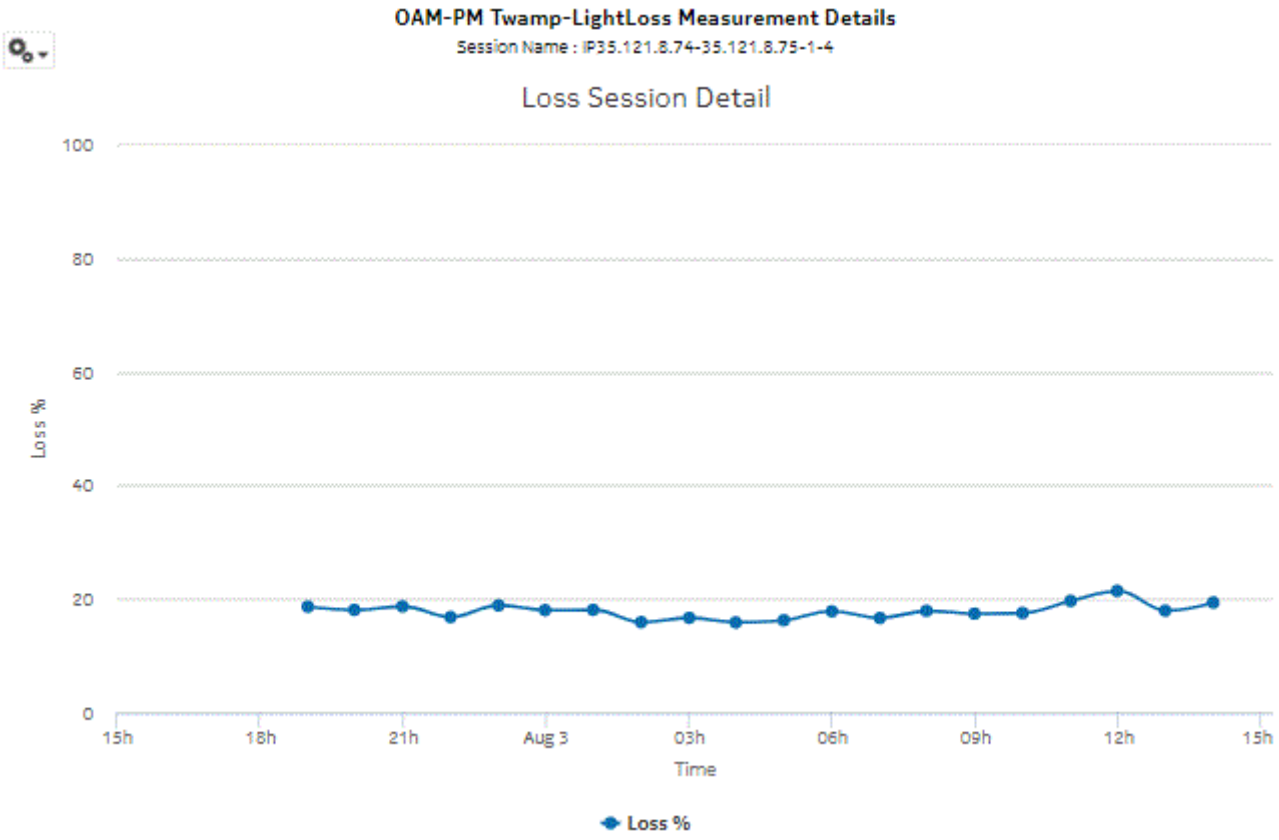


Figure 13-11 OAM-PM TWAMP-Light Loss Measurement Details report



13.7 OAM-PM Multiple Session View report

13.7.1 OAM-PM Multiple Session View report overview

The OAM-PM Multiple Session View report shows a list of OAM-PM sessions with a delay history graph and bin count summary.

Use cases

QoS analysis—Identify potential performance or SLA impact for a service or composite service

Report inputs

The following table shows the report inputs.

Table 13-12 OAM-PM Multiple Session View report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session names	Search using partial names, full names, or IP addresses.
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Threshold	Identify the threshold
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-13 OAM-PM Multiple Session View report characteristics

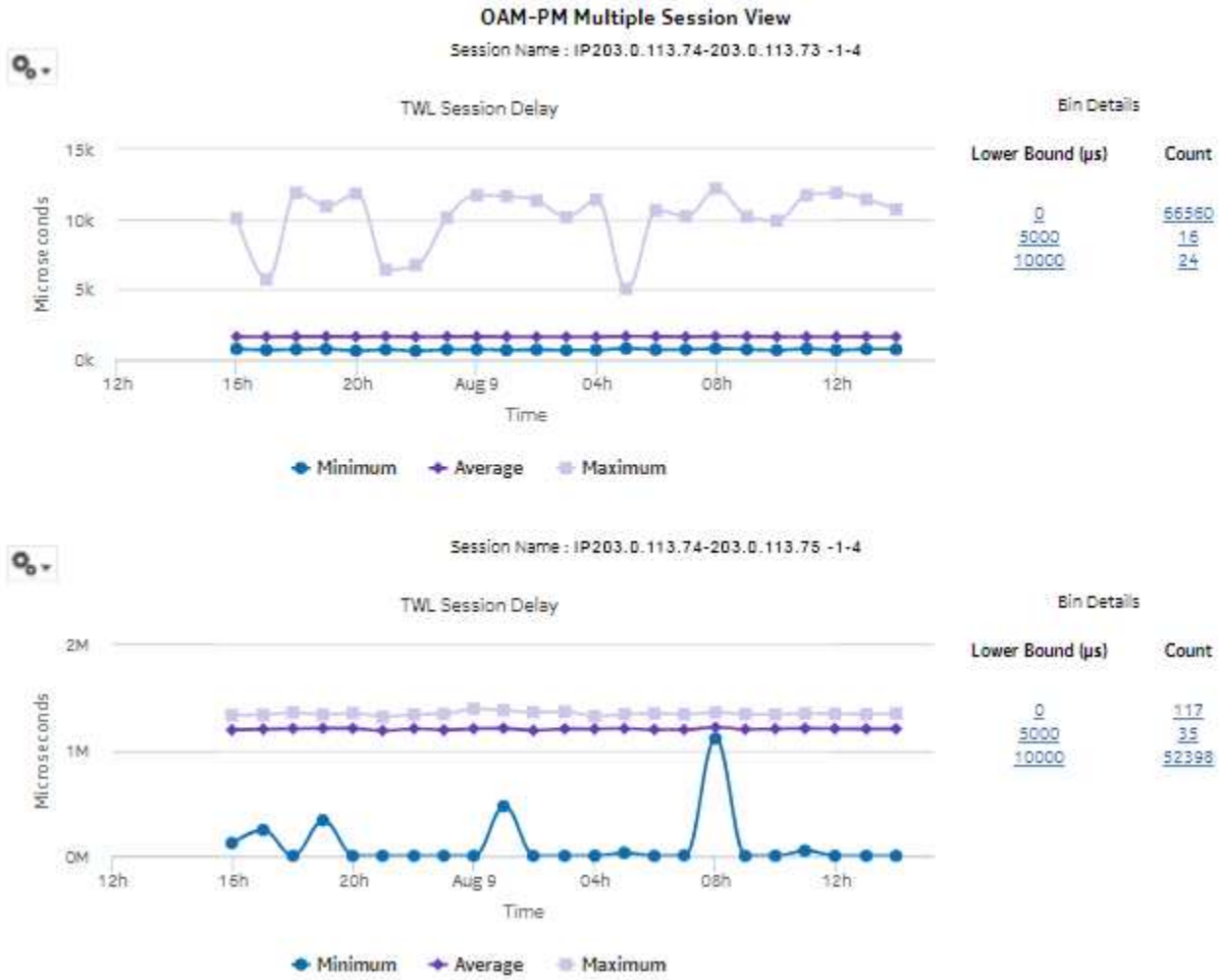
Characteristic	Value
Data type	OAM PM statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Open an OAM-PM Bins and Delay report for the selected bin.

13.7.2 Examples

The following figures show report examples.

Figure 13-12 ETH-CFM OAM Multiple Session View report

Figure 13-13 TWAMP-Light OAM Multiple Session View report



13.8 OAM-PM Network Site Summary report

13.8.1 Overview

An OAM-PM Network Site Summary report can be run by itself or as a drill-down from an OAM-PM Network Summary report. The report shows the aggregated PM sessions for a selected source and target NE with collected bin type data, aggregated by session name.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-14 OAM-PM Network Site Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-15 OAM-PM Network Site Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database

Table 13-15 OAM-PM Network Site Summary report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes: • Click on a delay result to show an OAM-PM Latency report. • Click on a jitter or loss result to show an OAM-PM Loss report.

13.8.2 Example

The following figures show report examples.

Figure 13-14 OAM-PM ETH-CFM Network Site Summary report

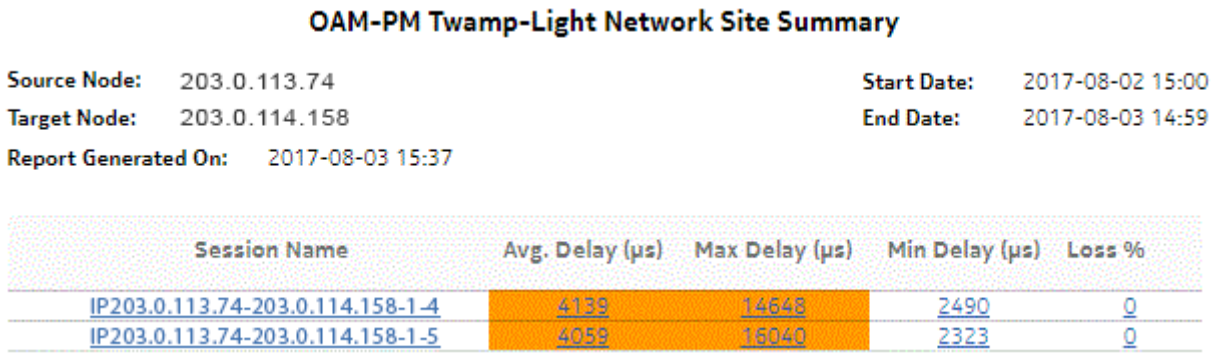
OAM-PM ETH-CFM Network Site Summary

Source Node: 203.0.113.74
Target Node: 203.0.113.75
Report Generated On: 2017-08-03 15:30

Start Date: 2017-08-02 15:00
End Date: 2017-08-03 14:59

Session Name	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
74.158.compo	5122	23176	2661	0
E1-3-1-129D01010002	4829	17168	2346	0
E1-3fd-1-129D01010002	4846	24578	2542	0
test-for-reports	0	0	0	100

Figure 13-15 OAM-PM TWAMP-Light Network Site Summary report



OAM-PM Twamp-Light Network Site Summary

Source Node: 203.0.113.74
Target Node: 203.0.114.158
Report Generated On: 2017-08-03 15:37
Start Date: 2017-08-02 15:00
End Date: 2017-08-03 14:59

Session Name	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
IP203.0.113.74-203.0.114.158-1-4	4139	14648	2490	0
IP203.0.113.74-203.0.114.158-1-5	4059	16040	2323	0

13.9 OAM-PM Network Summary report

13.9.1 Overview

OAM-PM Network Summary reports show an aggregated view of performance monitoring tests for Ethernet and IP, grouped by source and target NE.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Prerequisites

The following tasks need to be performed using NSP Classic management for OAM-PM Network Summary reports to be created:

- A DMM session must be defined with accounting enabled.
- A TWAMP-Light session must be defined with accounting enabled.
- For session loss information to be available, an SLM session must also be defined.

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-16 OAM-PM Network Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-17 OAM-PM Network Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 13-17 OAM-PM Network Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Opens an OAM-PM Network Site Summary report of the selected session type, an aggregate view of the PM sessions for the selected source and target NE. From an OAM-PM Network Site Summary report: • Click on a delay result to show an OAM-PM Latency report. • Click on a jitter or loss result to show an OAM-PM Loss report.

13.9.2 Examples

The following figures show report examples.

Figure 13-16 OAM-PM ETH-CFM Network Summary report

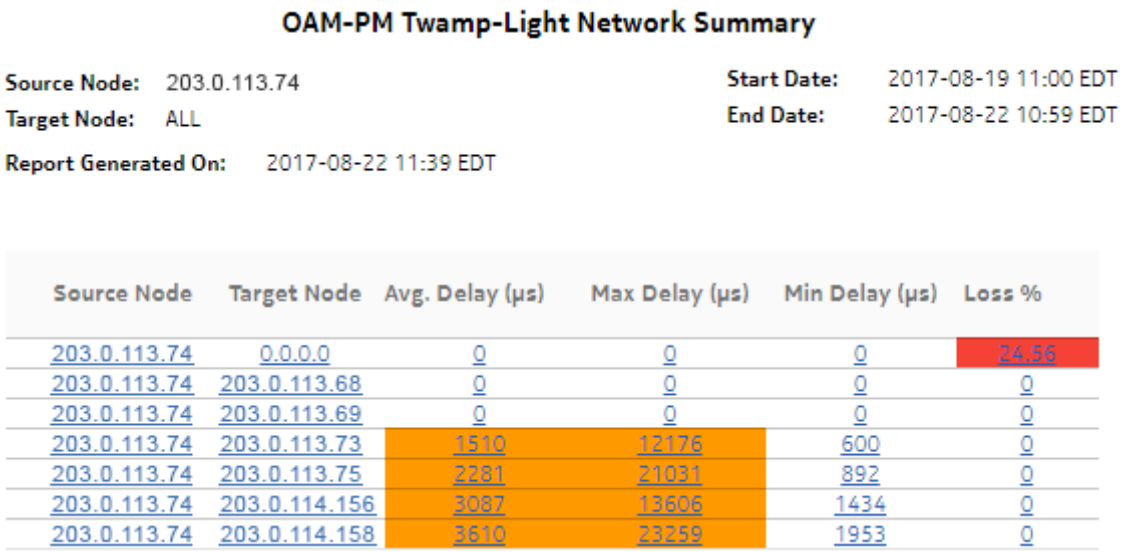
OAM-PM ETH-CFM Network Summary

Source Node: 203.0.113.74
Target Node: ALL
Report Generated On: 2017-08-22 11:36 EDT

Start Date: 2017-08-19 11:00 EDT
End Date: 2017-08-22 10:59 EDT

Source Node	Target Node	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
203.0.113.74	0.0.0.0	0	0	0	0
203.0.113.74	203.0.113.73	1714	17729	0	6.96
203.0.113.74	203.0.113.75	4029	24822	0	23.25
203.0.113.74	203.0.114.158	3469	25562	0	20.64

Figure 13-17 OAM-PM TWL Network Summary report



OAM-PM Twamp-Light Network Summary

Source Node: 203.0.113.74
Target Node: ALL
Report Generated On: 2017-08-22 11:39 EDT
Start Date: 2017-08-19 11:00 EDT
End Date: 2017-08-22 10:59 EDT

Source Node	Target Node	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
203.0.113.74	0.0.0.0	0	0	0	24.56
203.0.113.74	203.0.113.68	0	0	0	0
203.0.113.74	203.0.113.69	0	0	0	0
203.0.113.74	203.0.113.73	1510	12176	600	0
203.0.113.74	203.0.113.75	2281	21031	892	0
203.0.113.74	203.0.114.156	3087	13606	1434	0
203.0.113.74	203.0.114.158	3610	23259	1953	0

13.10 OAM-PM Service Site report

13.10.1 Overview

An OAM-PM Service Site report can be run by itself or as a drill-down from an OAM-PM Service Site Summary report. The report shows the aggregate view of the set of sessions on a selected service.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

The following service types are supported:

- Epipe
- VPLS
- MVPLS

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following tasks need to be performed using NSP Classic management for OAM-PM Service Site reports to be created:

- A DMM session must be defined with accounting enabled.
- A TWAMP-Light session must be defined with accounting enabled.
- For session loss information to be available, an SLM session must also be defined.

Report inputs

The following table shows the report inputs.

Table 13-18 OAM-PM Service Site report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Name/ID	Search using partial names or full names. Select individual items or click **Select All**.
Service Type	Select individual items or click **Select All**.
Source Node	
Target Node	
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-19 OAM-PM Service Site report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes: • Click on a delay result to show an OAM-PM Latency report. • Click on a jitter or loss result to show an OAM-PM Loss report.

13.10.2 Example

The following figures show report examples.

Figure 13-18 OAM-PM ETH-CFM Service Site report

OAM-PM ETH-CFM Service Site

Service Type: EPIPE
Service ID: 107
Report Generated On: 2017-08-09 14:37 EDT

Start Date: 2017-08-08 14:00 EDT
End Date: 2017-08-09 13:59 EDT

Session	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
E1-1-1-104401010006	3834	13990	1054	0
E1-4-1-104401010006	3968	13212	1378	0

Figure 13-19 OAM-PM Twamp-Light Service Site report

OAM-PM Twamp-Light Service Site

Service Type: VPRN
Service ID: 6666
Report Generated On: 2017-08-09 14:49 EDT

Start Date: 2017-08-08 14:00 EDT
End Date: 2017-08-09 13:59 EDT

Session	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
IP60.69.69.69-60.66.66.6-1-c-18	4200	9042	1042	0
IP690000009-660000006-1-5-2	3485	8154	1305	0
IP690000009-660000006-1-c-18	2873	7290	1223	0

13.11 OAM-PM Service Site Summary report

13.11.1 Overview

An OAM-PM Service Site Summary report can be run by itself or as a drill-down from an OAM-PM Service Summary or OAM-PM Composite Service Summary report. The report shows the aggregate view of the set of sessions on a selected service.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

The following service types are supported:

- Epipe
- VPLS
- VPRN
- MVPLS

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following tasks need to be performed using NSP Classic management for OAM-PM Service Site Summary reports to be created:

- A DMM session must be defined with accounting enabled.
- A TWAMP-Light session must be defined with accounting enabled.
- For session loss information to be available, an SLM session must also be defined.

Report inputs

The following table shows the report inputs.

Table 13-20 OAM-PM Service Site Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time

Table 13-20 OAM-PM Service Site Summary report inputs (continued)

Prompt	Notes
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type Service Name/ID Service Sites	Search using partial names or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-21 OAM-PM Service Site Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 13-21 OAM-PM Service Site Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Opens an OAM-PM Service Site report of the selected session type: a view of the results of tests on the site. From an OAM-PM Service Site report: • Click on a delay result to show an OAM-PM Latency report. • Click on a jitter or loss result to show an OAM-PM Loss report.

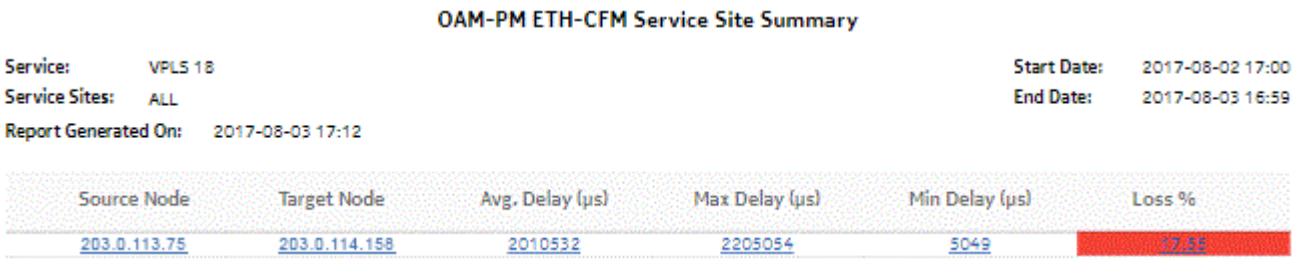
13.11.2 OAM-PM ETH-CFM Service Site Summary report overview

The OAM-PM ETH-CFM Service Site Summary report shows an aggregated view of PM CFM DMM and PM CFM SLM sessions for a specified service over a specified time period, grouped by source and target NE.

Example

The following figure shows a report example.

Figure 13-20 OAM-PM ETH-CFM Service Site Summary report



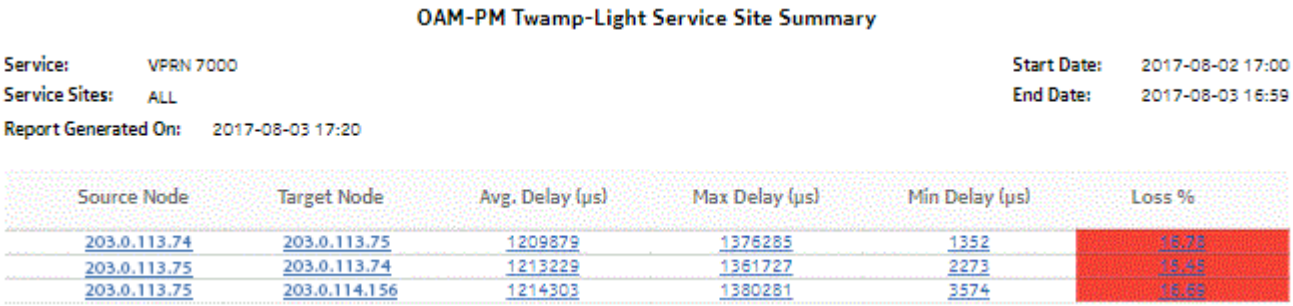
13.11.3 OAM-PM TWAMP-Light Service Site Summary report overview

The OAM-PM TWAMP-Light Service Site Summary report shows an aggregated view of TWAMP Light session statistics on a specified service over a specified time period, grouped by source and target NE.

Example

The following figures show a report example.

Figure 13-21 OAM-PM TWAMP-Light Service Site Summary report



OAM-PM Twamp-Light Service Site Summary

Service: VPRN 7000
Service Sites: ALL
Report Generated On: 2017-08-03 17:20
Start Date: 2017-08-02 17:00
End Date: 2017-08-03 16:59

Source Node	Target Node	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
203.0.113.74	203.0.113.75	1209879	1376285	1352	16.73
203.0.113.75	203.0.113.74	1213229	1361727	2273	15.45
203.0.113.75	203.0.114.156	1214303	1380281	3574	16.69

13.12 OAM-PM Service Summary report

13.12.1 Overview

OAM-PM Service Summary reports show an aggregated view of session statistics on a specified service over a specified time period, grouped by service ID.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

The following service types are supported:

- Epipe
- VPLS
- VPRN
- MVPLS

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following tasks need to be performed using NSP Classic management for OAM-PM Service Summary reports to be created:

- A DMM session must be defined with accounting enabled.
- A TWAMP-Light session must be defined with accounting enabled.
- For session loss information to be available, an SLM session must also be defined.

Report inputs

The following table shows the report inputs.

Table 13-22 OAM-PM Service Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	Search using partial names or full names. A wildcard (*) will display all service IDs. Search service ID ranges using hyphens, for example, 1-200. Select individual items or click **Select All**.
Service ID Range	
Bin Type	• Frame Delay—The Avg Delay, Min Delay, and Max Delay in the report output is the delay in microseconds • Frame Delay Range—The Avg Delay, Min Delay, and Max Delay in the report output is the delay range in microseconds • Inter Frame Delay Variation—The Avg Delay, Min Delay, and Max Delay in the report output is the delay variation (jitter) in microseconds
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-23 OAM-PM Service Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database

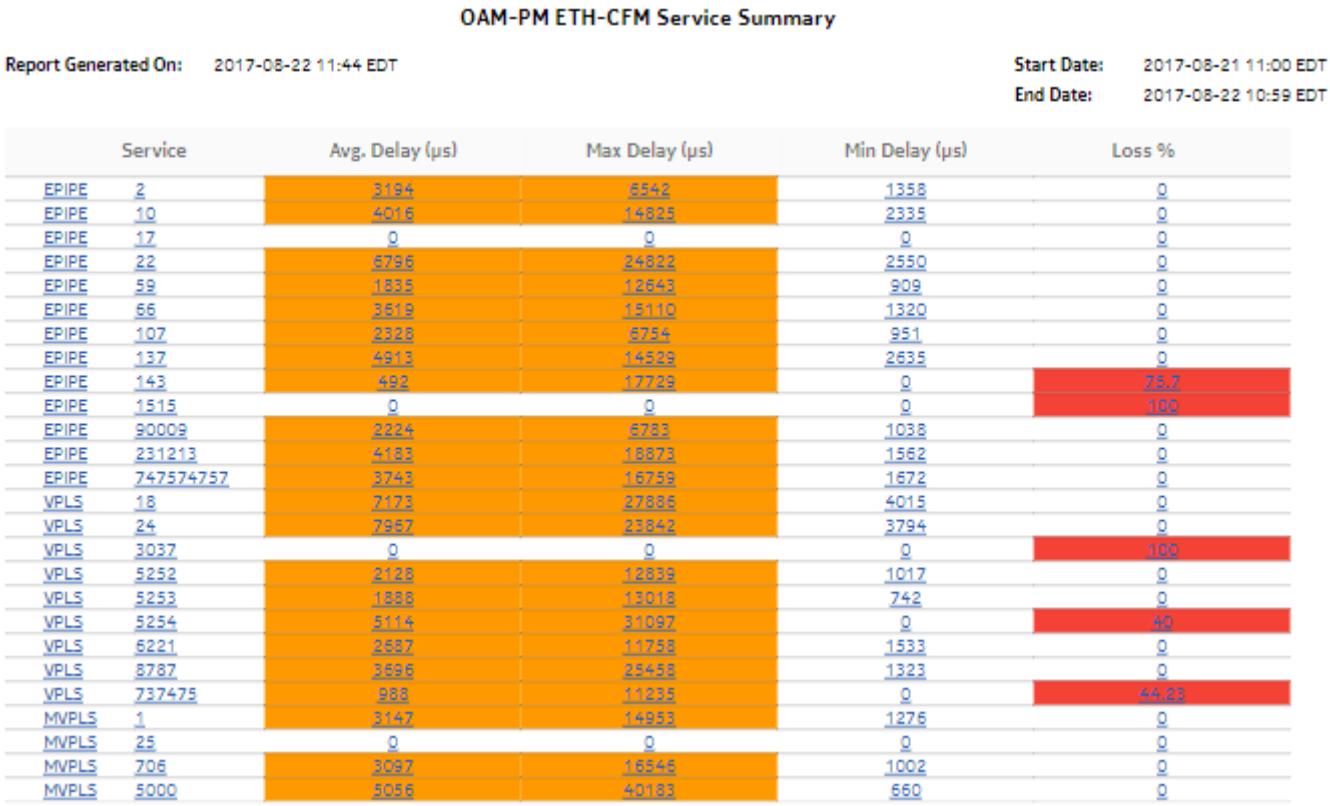
Table 13-23 OAM-PM Service Summary report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Opens an OAM-PM Service Site Summary report of the selected session type: an view of the results of tests on the service. From an OAM-PM Service Site Summary, open an OAM-PM Service Site report of the selected session type: an view of the results of tests on the site. From an OAM-PM Service Site report: • Click on a delay result to show an OAM-PM Latency report. • Click on a jitter or loss result to show an OAM-PM Loss report.

13.12.2 Example

The following figures show report examples.

Figure 13-22 OAM-PM ETH-CFM Service Summary report



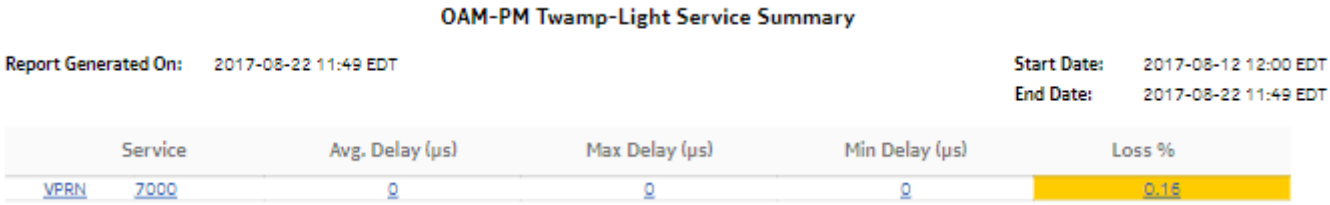
OAM-PM ETH-CFM Service Summary

Report Generated On: 2017-08-22 11:44 EDT

Start Date: 2017-08-21 11:00 EDT
End Date: 2017-08-22 10:59 EDT

	Service	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
EPIPE	2	3194	6542	1358	0
EPIPE	10	4016	14825	2335	0
EPIPE	17	0	0	0	0
EPIPE	22	6796	24822	2550	0
EPIPE	59	1835	12643	909	0
EPIPE	66	3619	15110	1320	0
EPIPE	107	2328	6754	951	0
EPIPE	137	4913	14529	2635	0
EPIPE	143	492	17729	0	75.7
EPIPE	1515	0	0	0	100
EPIPE	90009	2224	6783	1038	0
EPIPE	231213	4183	18873	1562	0
EPIPE	747574757	3743	16759	1672	0
VPLS	18	7173	27886	4015	0
VPLS	24	7967	23842	3794	0
VPLS	3037	0	0	0	100
VPLS	5252	2128	12839	1017	0
VPLS	5253	1888	13018	742	0
VPLS	5254	5114	31097	0	40
VPLS	6221	2687	11758	1533	0
VPLS	8787	3696	25458	1323	0
VPLS	737475	988	11235	0	44.23
MVPLS	1	3147	14953	1276	0
MVPLS	25	0	0	0	0
MVPLS	706	3097	16546	1002	0
MVPLS	5000	5056	40183	660	0

Figure 13-23 OAM-PM TWAMP-Light Service Summary report



OAM-PM Twamp-Light Service Summary

Report Generated On: 2017-08-22 11:49 EDT

Start Date: 2017-08-12 12:00 EDT
End Date: 2017-08-22 11:49 EDT

	Service	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
VPRN	7000	0	0	0	0.15

13.13 OAM-PM Top N Worst Sessions report

13.13.1 Overview

OAM-PM Top N Worst Sessions reports show the worst case OAM-PM sessions over a specified time period, grouped by session.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Prerequisites

The following tasks need to be performed using NSP Classic management for OAM-PM Top N Worst Sessions reports to be created:

- A DMM session must be defined with accounting enabled.
- A TWAMP-Light session must be defined with accounting enabled.
- An SLM session must be defined.

Use cases

QoS analysis—Identify potential service impacting issues between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-24 OAM-PM Top N Worst Sessions report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display. **Note:** You can select up to 10,000 source NEs or target NEs for the OAM-PM Top N Worst Sessions report. An exception is returned when you select more than 10,000 source NEs or target NEs.
Target Node	

Table 13-24 OAM-PM Top N Worst Sessions report inputs (continued)

Prompt	Notes
Test Factor	Average delay, maximum delay, minimum delay, or loss
Result set limit	Number of results to report
Bin type	• Frame Delay—The amount of time required to travel from the source site to the destination site and back (latency). • Frame Delay Range—The difference between the minimum frame delay and the individual packet (jitter). • Inter Frame Delay Variation—The difference in the delay metric between two adjacent packets (jitter).
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-25 OAM-PM Top N Worst Sessions report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes: • Click on a delay result to show an OAM-PM Latency report. • Click on a loss result to show an OAM-PM Loss report.

13.13.2 Examples

The following figures show report examples.

Figure 13-24 OAM-PM Top N Worst Sessions report

OAM-PM ETH-CFM Top 25 Worst Case Sessions

Source Node: [35.121.9.156, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.73, 35.121.8.74, 35.121.8.75]

Target Node: [0.0.0.0, 35.121.9.156, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.73, 35.121.8.74, 35.121.8.75]

Start Date: 2018-04-11 14:00 EDT
End Date: 2018-05-11 13:59 EDT

Report Generated On: 2018-05-11 14:43 EDT

Session Name	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
E4-4-1617-1-104B01010002	133004	2277617	0	2
E4-4-48-1-104B01010008	132508	2280235	0	1
E4-4-1515-2-104B01010002	132223	2287531	0	2
E4-4-1009-2-104B01010001	132075	2277511	0	2
E4-4-231213-2-104B01010004	131395	2270617	0	2
E4-4-747574757-2-104B01010004	130978	2265215	0	2
E4-4-9-1-104B01010005	130646	2276841	0	1
E4-8-1009-1-105101010007	13308	23288	5910	0
E4-8-1515-2-105101010002	10884	19851	5980	0
E4-8-747574757-1-105101010005	9362	20859	4340	0
E4-8-137-2-1049FF000141	8949	15814	2903	0
E4-8-48-1-104B01010008	8728	17795	4220	0
E4-8-9-2-104B01010005	8492	14665	3893	0
E4-8-747574757-2-104B01010004	7867	14330	3640	0
E4-8-9-1-105101010005	7779	19161	3425	0
E4-8-1009-2-104B01010001	7712	14448	3441	0
E4-8-1617-1-105101010004	7468	19078	3820	0
E4-8-231213-2-104B01010004	7156	20624	3318	0
E4-8-1515-1-104B01010002	7084	18348	3544	0
E4-8-1617-2-104B01010002	6910	20596	3912	0
E4-8-48-2-105101010007	6174	21621	3385	0
E4-8-231213-1-105101010005	6058	15773	3334	0
E4-4-305-1-104901010009	2193	13044	0	0
E4-4-3737-2-104901010004	2067	13052	0	0
E1-1-888-1-104401010003	2043	5254	0	0

Figure 13-25 OAM-PM Top N Worst Sessions report

OAM-PM Twamp-Light Top 25 Worst Case Sessions

Source Node: [35.121.9.156, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.73, 35.121.8.74, 35.121.8.75]

Target Node: [0.0.0.0, 35.121.9.156, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.73, 35.121.8.74, 35.121.8.75]

Start Date: 2018-04-11 14:00 EDT
End Date: 2018-05-11 13:59 EDT

Report Generated On: 2018-05-11 14:38 EDT

Session Name	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
IP70.74.1.1-70.156.2.1-#2b15021f	1711833	1856465	6243	2
IP70.74.1.1-70.156.18.1#e9396940	1703469	1815761	7499	3
IP70.74.1.1-70.156.4.1-#eed0955d	1703461	1845807	5252	1
IP70.74.1.1-70.156.19.1#cb1732df	1702542	1854507	5514	1
IP70.74.1.1-70.156.20.1#34268689	1701974	1827292	6095	3
IP70.74.1.1-70.156.7.1-#9469f23a	1700302	1816304	7015	3
IP70.74.1.1-70.156.12.1#9e06af86	1695531	1815878	4560	3
IP7400000074-1560000006#8a7420f0	1695088	1825144	6044	6
IP35.121.8.74-35.121.9.#a62a6259	1694922	1825622	4235	0
IP70.74.1.1-70.156.17.1-#75b9fa1	1676198	1845248	5575	1
IP70.74.1.1-70.156.13.1#7fe47925	1674048	1844768	5288	1
IP70.74.1.1-70.156.16.1#257dd602	1673501	1826870	6351	3
IP70.74.1.1-70.156.14.1#61c242c4	1671900	1825149	6888	2
IP70.74.1.1-70.156.5.1-#d0ae5efc	1667510	1856556	8288	2
IP70.74.1.1-70.156.10.1#da4b1c48	1666801	1846639	5110	1
IP70.74.1.1-70.156.3.1-1#cf2cbbe	1666341	1855831	4671	1
IP70.74.1.1-70.156.1.1-#49373880	1665524	1866412	6810	2
IP70.74.1.1-70.156.15.1#43a00c63	1663162	1824879	3865	3
IP70.74.1.1-70.156.9.1-#58258578	1657244	1825202	4831	3
IP10.74.40.4-10.156.60.#a9aea918	1657023	1821700	6259	1
IP70.74.1.1-70.156.8.1-#7647bbd9	1656559	1815281	5965	3
IP70.74.1.1-70.156.11.1#bc28e5e7	1653708	1816319	6272	1
IP70.74.1.1-70.156.6.1-#b28c289b	1652450	1817451	4579	2
IP74.74.74.4-156.56.56.#6d7b63ea	1651726	1825184	6220	3
IP10.74.40.4-10.75.50.5#bacbc67e	1279517	1424870	2732	11

13.14 Ping Network Summary report

13.14.1 Overview

Ping Network Summary reports show an aggregated view of ping tests between selected NEs over a specified time period, grouped by source and target NE and forwarding class.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-26 Ping Network Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping, LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-27 Ping Network Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes—Opens aPing Network Site Summary report of the selected test type: an aggregate view of the set of tests used to create the row. From a Ping Network Site Summary report: • Click on a delay result to show a Ping Latency report. • Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.14.2 Example

The following figures show report examples.

Figure 13-26 ETH-CFM Two Way Delay Network Summary report

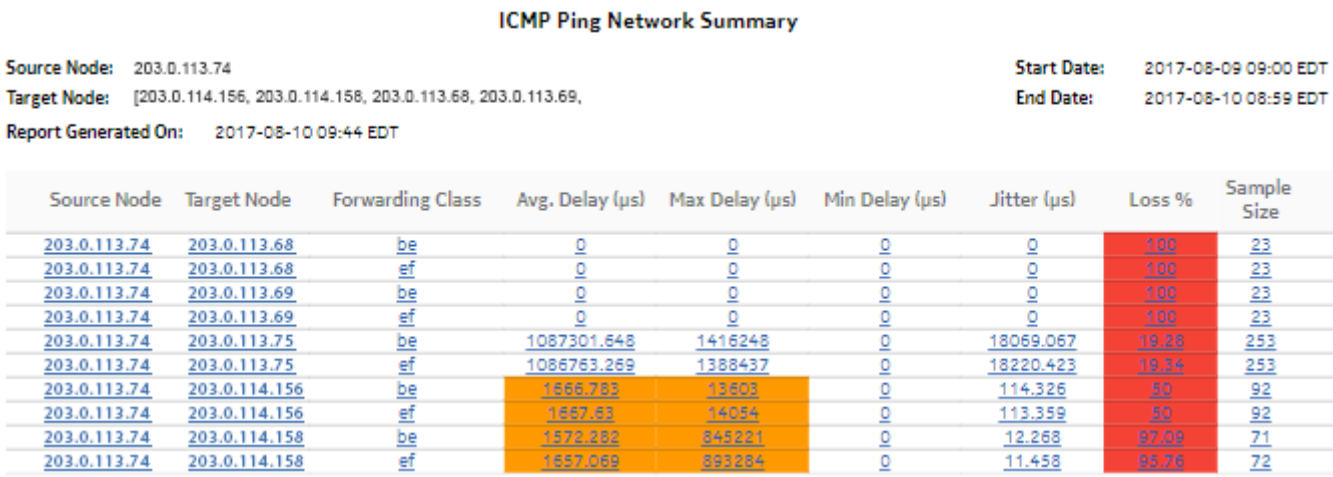
ETH-CFM Two Way Delay Network Summary

Source Node: 203.0.113.74
Target Node: ALL
Report Generated On: 2017-08-02 13:22

Start Date: 2017-08-01 13:00
End Date: 2017-08-02 12:59

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.73	nc	2724.989	13962	892	292.413	0	184
203.0.113.74	203.0.113.75	nc	1740572.389	2213350	0	14877.014	25.74	694
203.0.113.74	203.0.114.156	nc	5424	16358	2818	328.652	0	46
203.0.113.74	203.0.114.158	nc	5066.884	16169	2781	342.464	0	138

Figure 13-27 ICMP Ping Network Summary report



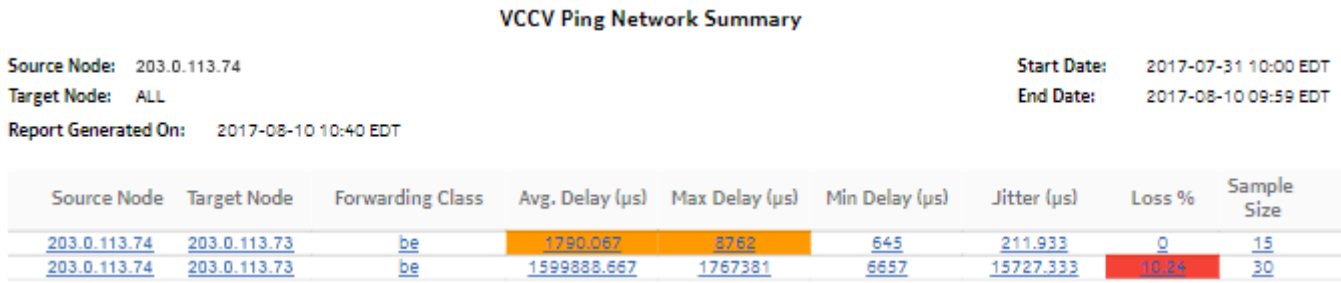
ICMP Ping Network Summary

Source Node: 203.0.113.74
Target Node: [203.0.114.156, 203.0.114.158, 203.0.113.68, 203.0.113.69,
Report Generated On: 2017-08-10 09:44 EDT

Start Date: 2017-08-09 09:00 EDT
End Date: 2017-08-10 08:59 EDT

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.68	be	0	0	0	0	100	23
203.0.113.74	203.0.113.68	ef	0	0	0	0	100	23
203.0.113.74	203.0.113.69	be	0	0	0	0	100	23
203.0.113.74	203.0.113.69	ef	0	0	0	0	100	23
203.0.113.74	203.0.113.75	be	1087301.648	1416248	0	18069.067	19.28	253
203.0.113.74	203.0.113.75	ef	1086763.269	1388437	0	18220.423	19.34	253
203.0.113.74	203.0.114.156	be	1666.783	13603	0	114.326	50	92
203.0.113.74	203.0.114.156	ef	1667.63	14054	0	113.359	50	92
203.0.113.74	203.0.114.158	be	1572.282	845221	0	12.268	97.09	71
203.0.113.74	203.0.114.158	ef	1657.069	893284	0	11.458	95.76	72

Figure 13-28 VCCV Ping Network Summary report



VCCV Ping Network Summary

Source Node: 203.0.113.74
Target Node: ALL
Report Generated On: 2017-08-10 10:40 EDT

Start Date: 2017-07-31 10:00 EDT
End Date: 2017-08-10 09:59 EDT

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.73	be	1790.067	8762	645	211.933	0	15
203.0.113.74	203.0.113.73	be	1599888.667	1767381	6657	15727.333	10.24	30

Figure 13-29 LSP Ping Network Summary report

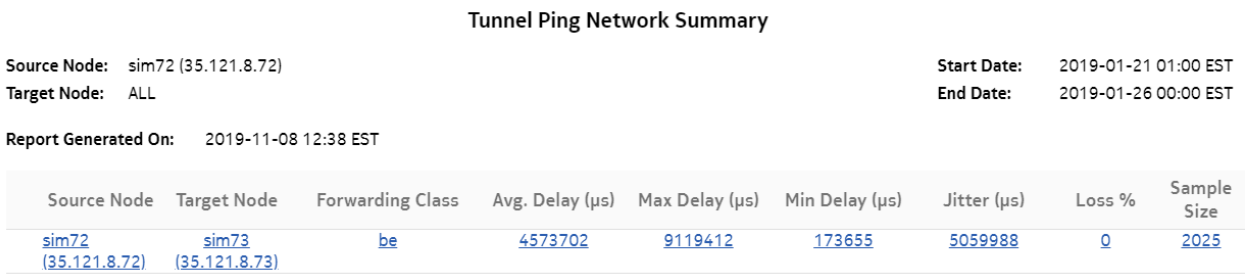
LSP Ping Network Summary

Source Node: sim72 (35.121.8.72)
Target Node: ALL
Report Generated On: 2019-09-23 15:21 EDT

Start Date: 2018-11-24 00:00 EST
End Date: 2019-09-23 14:59 EDT

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
sim72 (35.121.8.72)	sim73 (35.121.8.73)	be	4747016	9281677	314935	3350278	0	765
sim72 (35.121.8.72)	sim73 (35.121.8.73)	l2	4747016	9281677	314935	3350278	0	405
sim72 (35.121.8.72)	sim73 (35.121.8.73)	af	4747016	9281677	314935	3350278	0	585
sim72 (35.121.8.72)	sim73 (35.121.8.73)	l1	4747016	9281677	314935	3350278	0	270

Figure 13-30 Tunnel Ping Network Summary report



Tunnel Ping Network Summary

Source Node: sim72 (35.121.8.72)
Target Node: ALL
Start Date: 2019-01-21 01:00 EST
End Date: 2019-01-26 00:00 EST

Report Generated On: 2019-11-08 12:38 EST

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
sim72 (35.121.8.72)	sim73 (35.121.8.73)	be	4573702	9119412	173655	5059988	0	2025

13.15 Ping Network Site Summary report

13.15.1 Overview

A Ping Network Site Summary report can be run by itself or as a drill-down from a Ping Network Summary report. The report shows the aggregate view of the set of tests for a selected source NE and target NE, aggregated by forwarding class.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-28 Ping Network Site Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping, LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time

Table 13-28 Ping Network Site Summary report inputs (continued)

Prompt	Notes
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	The list of forwarding classes configured in NSP Classic management. Search using partial or full names.
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-29 Ping Network Site Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.

Table 13-29 Ping Network Site Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes: • Click on a delay result to show a Ping Latency report. • Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.15.2 Example

The following figures show report examples.

Figure 13-31 ETH-CFM Two Way Delay Network Site Summary report

ETH-CFM Two Way Delay Network Site Summary

Source Node: 203.0.113.74
Target Node: [203.0.113.75]
Report Generated On: 2017-08-02 13:30

Start Date: 2017-08-01 13:00
End Date: 2017-08-02 12:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.74:sas:cfm-twoWayDlyTest-1	nc	2004644.459	2163104	0	19124.027	19.83	37
network:203.0.113.74:sas:cfm-twoWayDlyTest-10	nc	2008941.05	2175142	11308	17797	16.84	40
network:203.0.113.74:sas:cfm-twoWayDlyTest-11	nc	2006841.05	2189175	0	17312.4	17.94	40
network:203.0.113.74:sas:cfm-twoWayDlyTest-13	nc	2012410.914	2213350	0	14231.171	20.86	35
network:203.0.113.74:sas:cfm-twoWayDlyTest-14	nc	2009888.781	2182200	0	14179.281	22.68	32
network:203.0.113.74:sas:cfm-twoWayDlyTest-15	nc	0	0	0	0	100	23
network:203.0.113.74:sas:cfm-twoWayDlyTest-3	nc	1986192.444	2190917	10221	23187.417	30.41	36
network:203.0.113.74:sas:cfm-twoWayDlyTest-5	nc	2013836.571	2209998	0	15224.524	15.96	42
network:203.0.113.74:sas:cfm-twoWayDlyTest-8	nc	2008733.41	2144878	0	16009.077	18.1	39
network:203.0.113.74:sas:cfm-twoWayDlyTest-9	nc	0	0	0	0	100	23

Figure 13-32 ICMP Ping Network Site Summary report

ICMP Ping Network Site Summary

Source Node: 203.0.113.74
Target Node: [203.0.113.75]
Report Generated On: 2017-08-10 10:48 EDT

Start Date: 2017-08-09 10:00
End Date: 2017-08-10 09:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.74:sas:icmp-ping-15	be	1205052.087	1375019	2950	19150.5	10.85	46
network:203.0.113.74:sas:icmp-ping-16	be	1204125.63	1416248	3136	18886.587	11.24	46
network:203.0.113.74:sas:icmp-ping-26	be	1195154.565	1399228	2417	20440.348	11.07	46
network:203.0.113.74:sas:icmp-ping-27	be	1196998.761	1377580	0	19917.674	11.26	46
network:203.0.113.74:sas:icmp-ping-28	be	0	0	0	0	100	23
network:203.0.113.74:sas:icmp-ping-30	be	1188205	1390244	1844	20280.435	11.66	46

Figure 13-33 VCCV Ping Network Site Summary report

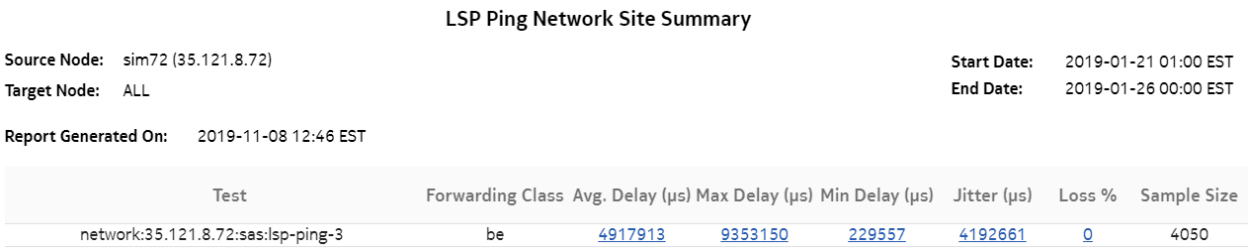
VCCV Ping Network Site Summary

Source Node: 203.0.113.75
Target Node: [203.0.114.156]
Report Generated On: 2017-08-10 10:31 EDT

Start Date: 2017-07-31 10:00
End Date: 2017-08-10 09:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.75:sas:vccv-ping-1	be	1176855.6	1345764	0	14691.333	9.82	30

Figure 13-34 LSP Ping Network Site Summary report



LSP Ping Network Site Summary

Source Node: sim72 (35.121.8.72)
Target Node: ALL
Report Generated On: 2019-11-08 12:46 EST

Start Date: 2019-01-21 01:00 EST
End End Date: 2019-01-26 00:00 EST

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.72:sas:lsp-ping-3	be	4917913	9353150	229557	4192661	0	4050

Figure 13-35 Tunnel Ping Network Site Summary report

Tunnel Ping Network Site Summary

Source Node: sim72 (35.121.8.72)
Target Node: ALL
Report Generated On: 2019-09-23 15:23 EDT

Start Date: 2018-11-24 00:00 EST
End Date: 2019-09-23 14:59 EDT

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.72:sas:tunnel-ping-1	be	4861568	9441036	154669	5575098	0	1485

13.16 Ping Service Summary report

13.16.1 Overview

Ping Service Summary reports show an aggregated view of supported ping tests on a specified service over a specified time period, grouped by service ID.

The report includes the following test types:

- ETH-CFM Two-Way Delay

- ICMP Ping
- VCCV Ping

For Cpipe, only the VCCV Ping test is supported

The following service types are supported:

- Epipe
- Cpipe
- VPLS
- VPRN
- MVPLS

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-30 Ping Service Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	VPLS, VPRN, MVPLS, Epipe, or Cpipe
Service ID Range	Search using partial names or full names. A wildcard (*) will display all service IDs. Search service ID ranges using hyphens, for example, 1-200. Select individual items or click **Select All**.
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-31 Ping Service Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes—Opens aPing Service Site Summary report of the selected test type: an view of the results of tests on the service. From a Ping Service Site Summary report, open a Ping Service Site report. From a Ping Service Site report: • Click on a delay result to show a Ping Latency report. • Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.16.2 Example

The following figures show report examples.

Figure 13-36 ETH-CFM Two Way Delay Service Summary report

ETH-CFM Two Way Delay Service Summary

Report Generated On: 2017-08-02 15:22

Start Date: 2017-08-01 15:00
End Date: 2017-08-02 14:59

	Service	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
EPIPE	2	4466.088	13619	1080	427.294	0	68
EPIPE	6	0	0	0	0	100	92
EPIPE	9	2013360.878	2148631	0	15633.207	15.66	164
EPIPE	10	5219.261	16159	2818	330.5	0	92
EPIPE	21	1200471.466	2190917	2781	14114.983	12.9	116
EPIPE	22	1230185.051	2160326	0	10158.508	12.4	118
EPIPE	23	2010401.643	2189175	0	17403.393	15.61	168
EPIPE	34	4475.265	10680	1055	415.971	0	68
EPIPE	48	2013460.815	2176164	11308	16570.395	15.46	162
EPIPE	49	0	0	0	0	100	90
EPIPE	59	2736.13	13356	1055	300	0	46
EPIPE	66	4453.147	10049	1060	428.235	0	68
EPIPE	107	4449.412	11049	1069	433.088	0	68
EPIPE	137	2010150.841	2168123	0	18486.614	12.33	88
EPIPE	143	686.652	8140	0	74.283	75	184
EPIPE	305	2714.087	7576	892	286.957	0	46
EPIPE	1009	2013910.867	2209998	0	16391.602	16.33	166
EPIPE	1617	0	0	0	0	100	46
EPIPE	3737	2708.783	13962	1020	288.565	0	46
EPIPE	90009	4427.735	11320	1054	415.5	0	68
EPIPE	231213	2008422.52	2166257	0	15879.467	17.11	150
EPIPE	741852963	0	0	0	0	100	88
EPIPE	747574757	2012649.5	2191227	0	15724.355	17.8	152

Figure 13-37 ICMP Ping Service Summary report

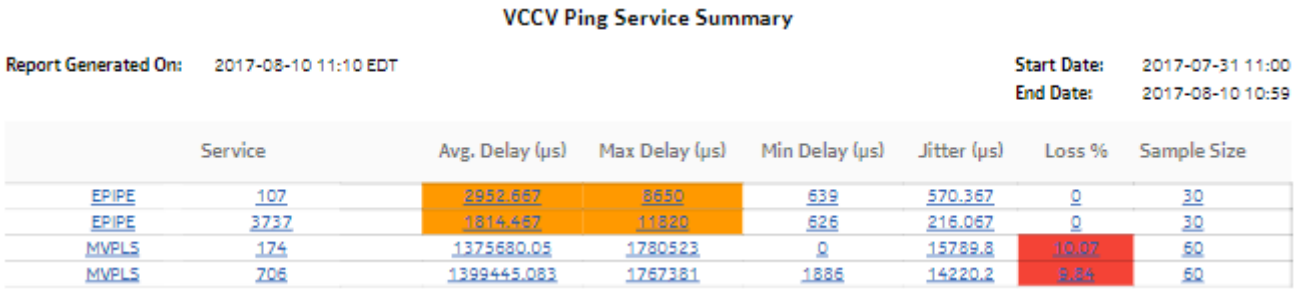
ICMP Ping Service Summary

Report Generated On: 2017-08-10 11:03 EDT

Start Date: 2017-08-09 11:00
End Date: 2017-08-10 10:59

	Service	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
VPRN	3535	0	0	0	0	100	828
VPRN	4003	1207033.94	1416248	2950	19002.856	10.44	368
VPRN	6666	2270.592	18110	277	244.452	0	1472
VPRN	7000	793482.664	1399228	0	13306.212	29.21	833
VPRN	606060	2071.507	16034	0	298.971	33.33	138

Figure 13-38 VCCV Ping Service Summary report



VCCV Ping Service Summary

Report Generated On: 2017-08-10 11:10 EDT

Start Date: 2017-07-31 11:00
End Date: 2017-08-10 10:59

Service		Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
EPIPE	107	2952.667	8650	639	570.367	0	30
EPIPE	3737	1814.467	11820	626	216.067	0	30
MVPLS	174	1375680.05	1780523	0	15789.8	10.07	60
MVPLS	706	1399445.083	1767381	1886	14220.2	8.84	60

13.17 Ping Service Site Summary report

13.17.1 Overview

A Ping Service Site Summary report can be run by itself or as a drill-down from a Ping Service Summary report. The report shows the aggregate view of the set of tests on a selected service.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-32 Ping Service Site Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly

Table 13-32 Ping Service Site Summary report inputs (continued)

Prompt	Notes
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	MVPLS, VPLS, or Epipe
Service Name/ID	Search using partial names or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Service Sites	
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-33 Ping Service Site Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes—Opens a Ping Service Site report. From a Ping Service Site report: • Click on a delay result to show a Ping Latency report. • Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.17.2 Example

The following figures show report examples.

Figure 13-39 ETH-CFM Two Way Delay Service Site Summary report

ETH-CFM Two-Way Delay Service Site Summary

Service: EPIPE 34
Service Sites: ALL
Report Generated On: 2017-08-08 12:02

Start Date: 2017-03-07 13:00
End Date: 2017-03-08 12:02

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.68	203.0.113.69	nc	[illegible]	[illegible]	0	182.869	0	9
203.0.113.69	203.0.113.68	nc	[illegible]	[illegible]	0	182.7	0	10

Figure 13-40 ICMP Ping Service Site Summary report

ICMP Ping Service Site Summary

Service: VPRN 4003
Service Sites: ALL
Report Generated On: 2017-08-10 11:20 EDT

Start Date: 2017-07-31 11:00
End Date: 2017-08-10 10:59

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.75	be	1203630.952	1416248	2950	19257.47	11.13	168
203.0.113.74	203.0.113.75	ef	1203290.958	1376903	2116	19675.911	11.14	168
203.0.113.75	203.0.113.74	be	1209866.143	1381460	4279	18950.036	9.82	168
203.0.113.75	203.0.113.74	ef	1210389.095	1370666	4700	18631.571	9.78	168

Figure 13-41 VCCV Ping Service Site Summary report

VCCV Ping Service Site Summary

Service: MVPLS 706
Service Sites: ALL
Report Generated On: 2017-08-10 11:14 EDT

Start Date: 2017-07-31 11:00
End Date: 2017-08-10 10:59

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.75	be	1599888.667	1767381	6657	15727.333	10.24	30
203.0.113.75	203.0.113.74	be	1199001.5	1352480	1886	12713.067	9.44	30

13.18 Ping Service Site report

13.18.1 Overview

A Ping Service Site report can be run by itself or as a drill-down from a Ping Service Site Summary report. The report shows the results of a test on the site.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-34 Ping Service Site report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	Forwarding classes configured in NSP Classic management
Service Type	VPLS, MVPLS, or Epipe
Service Name/ID	Search using partial names or full names. Select individual items or click **Select All**.
Source Node	
Target Node	
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-35 Ping Service Site report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes: • Click on a delay result to show a Ping Latency report. • Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.18.2 Example

The following figures show report examples.

Figure 13-42 ETH-CFM Two Way Delay Service Site report

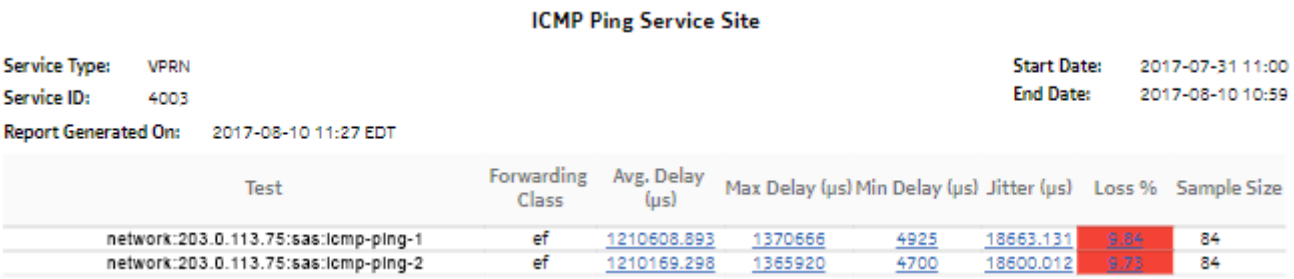
ETH-CFM Two Way Delay Service Site

Service Type: EPIPE
Service ID: 107
Report Generated On: 2017-08-09 16:07 EDT

Start Date: 2017-08-08 16:00
End Date: 2017-08-09 15:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.69:sas:cfm-twoWayDlyTest-2	be	4600.391	13085	992	432.696	0	23

Figure 13-43 ICMP Ping Service Site report



ICMP Ping Service Site

Service Type: VPRN
Service ID: 4003
Report Generated On: 2017-08-10 11:27 EDT
Start Date: 2017-07-31 11:00
End Date: 2017-08-10 10:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.75:sas:icmp-ping-1	ef	1210608.893	1370666	4925	18663.131	9.84	84
network:203.0.113.75:sas:icmp-ping-2	ef	1210169.298	1365920	4700	18600.012	9.73	84

Figure 13-44 VCCV Ping Service Site report

VCCV Ping Service Site

Service Type: MVPLS
Service ID: 174
Report Generated On: 2017-08-10 11:36 EDT
Start Date: 2017-07-31 11:00
End Date: 2017-08-10 10:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.114.156:sas:vccv-ping-1	be	1574504.5	1780523	0	16888.267	10.32	30

13.19 Ping Tests Top N Worst Results report

13.19.1 Overview

Ping Tests Top N Worst Results reports show an aggregated view of worst case ping tests between selected NEs over a specified time period, grouped by source and target NE.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-36 Ping Tests Top N Worst Results report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping, LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Result set limit	Number of results to report
Test Factor	Average delay, maximum delay, minimum delay, jitter, or loss
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-37 Ping Tests Top N Worst Results report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.

Table 13-37 Ping Tests Top N Worst Results report characteristics (continued)

Characteristic	Value
Drill-down support	Yes: • Click on a delay result to show a Ping Latency report. • Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.19.2 Example

The following figures show report examples.

Figure 13-45 ETH-CFM Two Way Delay Top N Worst Results report

ETH-CFM Two Way Delay Top 20 Worst Case Results

Source Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]

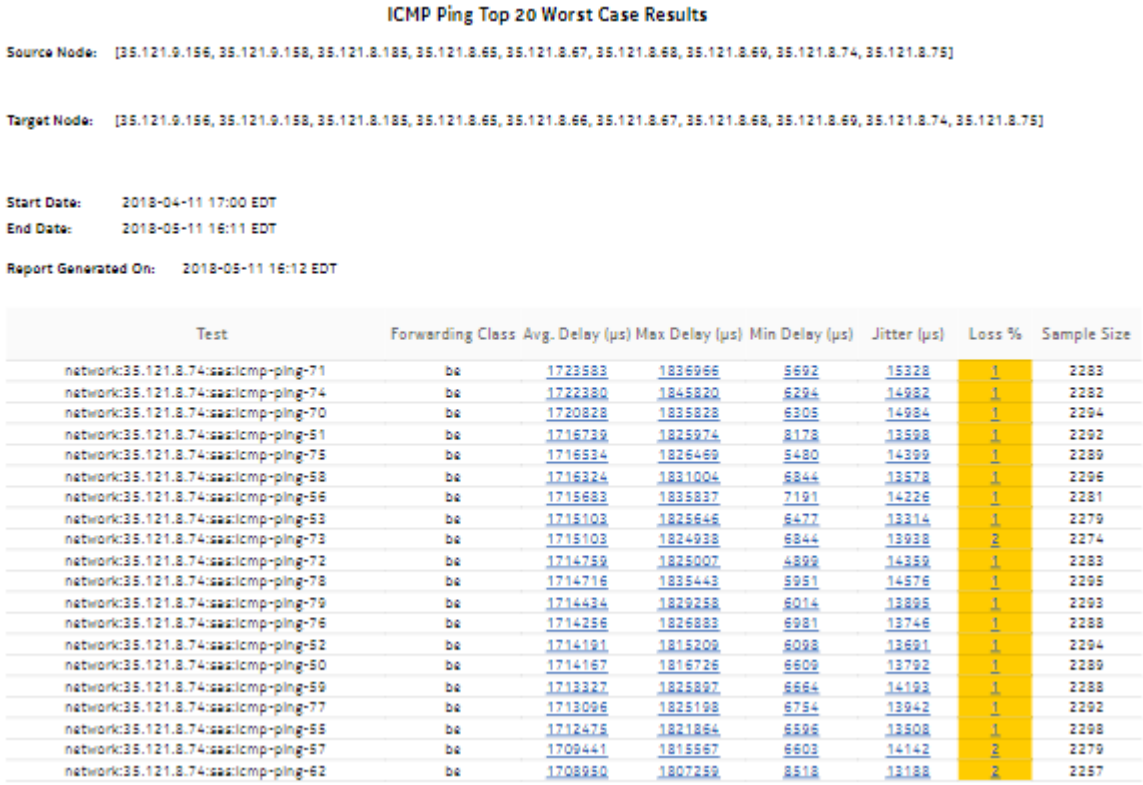
Target Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.66, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]

Start Date: 2018-04-11 17:00 EDT
End Date: 2018-05-11 16:16 EDT

Report Generated On: 2018-05-11 16:16 EDT

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.75:saa:cfm-twoWayDlyTest-5	nc	2133981	2301223	0	22563	13	1235
network:35.121.8.75:saa:cfm-twoWayDlyTest-2	nc	2130820	2280946	0	22694	14	1233
network:35.121.8.75:saa:cfm-twoWayDlyTest-1	nc	2126440	2275951	0	22667	14	1232
network:35.121.8.75:saa:cfm-twoWayDlyTest-3	nc	2124323	2294696	0	22303	14	1231
network:35.121.8.74:saa:cfm-twoWayDlyTest-1	nc	2119221	2287619	0	21126	23	1226
network:35.121.8.74:saa:cfm-twoWayDlyTest-4	nc	2115733	2278798	0	20252	23	1224
network:35.121.8.75:saa:cfm-twoWayDlyTest-22	nc	29360	66193	13562	3786	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-26	nc	22833	48214	9523	3199	0	1
network:35.121.8.75:saa:cfm-twoWayDlyTest-21	nc	20752	53348	4629	3231	0	1
network:35.121.8.75:saa:cfm-twoWayDlyTest-28	nc	20619	48451	7469	2780	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-31	nc	19794	32190	10845	2702	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-30	nc	19351	32095	11649	2719	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-9	nc	19119	33754	9983	2641	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-34	nc	18446	34517	11102	3005	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-22	nc	17878	33155	9136	2581	0	1
network:35.121.8.75:saa:cfm-twoWayDlyTest-18	nc	16633	37597	7456	2591	0	1
network:35.121.8.75:saa:cfm-twoWayDlyTest-9	nc	15775	25542	9599	1405	0	1
network:35.121.8.75:saa:cfm-twoWayDlyTest-27	nc	15707	37676	6039	3173	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-29	nc	14323	23972	9174	1438	0	1
network:35.121.8.74:saa:cfm-twoWayDlyTest-11	nc	14203	31625	8326	2611	0	1

Figure 13-46 ICMP Ping Top N Worst Results report



ICMP Ping Top 20 Worst Case Results

Source Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]

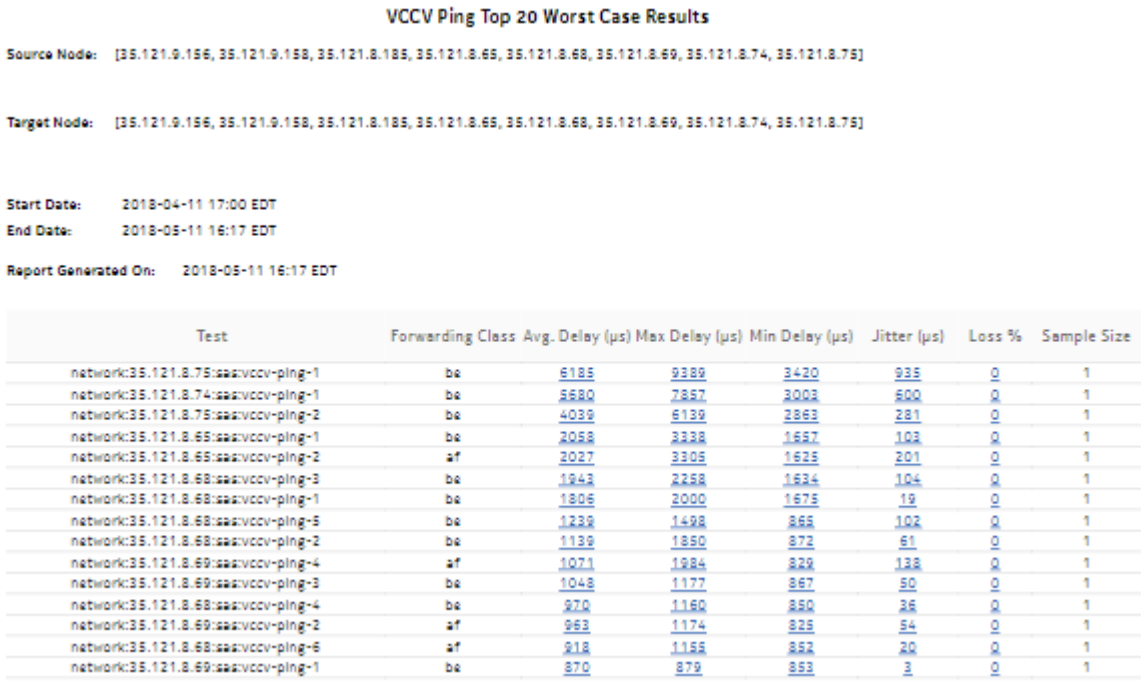
Target Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.66, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]

Start Date: 2018-04-11 17:00 EDT
End Date: 2018-05-11 16:11 EDT

Report Generated On: 2018-05-11 16:12 EDT

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.74:sss:icmp-ping-71	be	1723583	1836966	5692	15328	1	2283
network:35.121.8.74:sss:icmp-ping-74	be	1722380	1845820	6294	14982	1	2282
network:35.121.8.74:sss:icmp-ping-70	be	1720828	1835828	6305	14984	1	2294
network:35.121.8.74:sss:icmp-ping-51	be	1716739	1825974	8178	13598	1	2292
network:35.121.8.74:sss:icmp-ping-75	be	1716534	1826469	5480	14399	1	2289
network:35.121.8.74:sss:icmp-ping-58	be	1716324	1831004	6844	13578	1	2296
network:35.121.8.74:sss:icmp-ping-56	be	1715683	1835837	7191	14226	1	2281
network:35.121.8.74:sss:icmp-ping-53	be	1715103	1825646	6477	13314	1	2279
network:35.121.8.74:sss:icmp-ping-73	be	1715103	1824938	6844	13938	2	2274
network:35.121.8.74:sss:icmp-ping-72	be	1714759	1825007	4899	14359	1	2283
network:35.121.8.74:sss:icmp-ping-78	be	1714716	1835443	5951	14576	1	2295
network:35.121.8.74:sss:icmp-ping-79	be	1714434	1829258	6014	13895	1	2293
network:35.121.8.74:sss:icmp-ping-76	be	1714256	1826883	6981	13746	1	2288
network:35.121.8.74:sss:icmp-ping-52	be	1714191	1815209	6098	13691	1	2294
network:35.121.8.74:sss:icmp-ping-50	be	1714167	1816726	6609	13792	1	2289
network:35.121.8.74:sss:icmp-ping-59	be	1713327	1825897	6664	14193	1	2288
network:35.121.8.74:sss:icmp-ping-77	be	1713096	1825198	6754	13942	1	2292
network:35.121.8.74:sss:icmp-ping-55	be	1712475	1821864	6596	13508	1	2298
network:35.121.8.74:sss:icmp-ping-57	be	1709441	1815567	6603	14142	2	2279
network:35.121.8.74:sss:icmp-ping-62	be	1708950	1807259	8518	13188	2	2257

Figure 13-47 VCCV Ping Top N Worst Results report



VCCV Ping Top 20 Worst Case Results

Source Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]

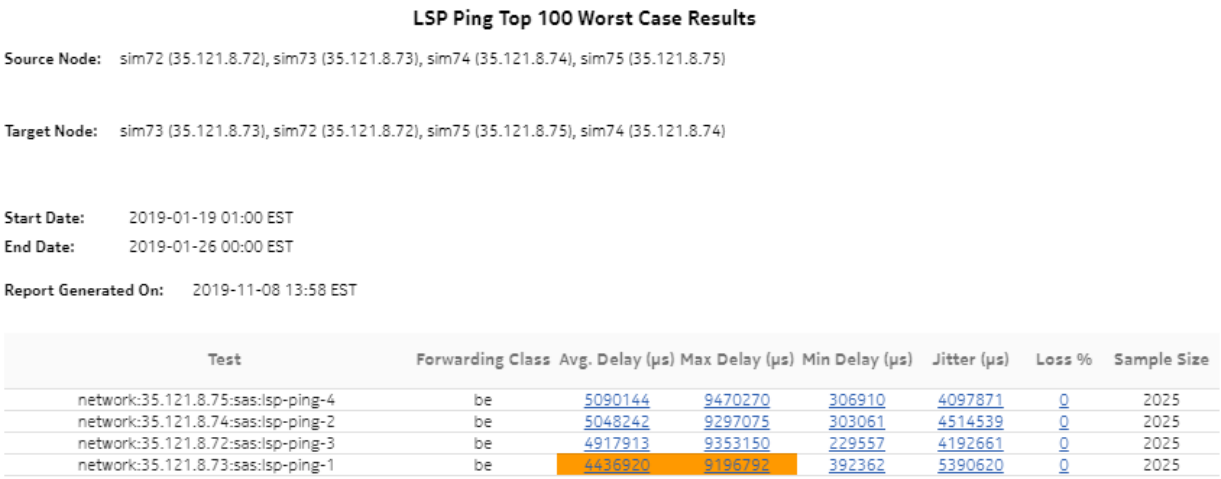
Target Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]

Start Date: 2018-04-11 17:00 EDT
End Date: 2018-05-11 16:17 EDT

Report Generated On: 2018-05-11 16:17 EDT

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.75:sas:vccv-ping-1	be	6185	9389	3420	935	0	1
network:35.121.8.74:sas:vccv-ping-1	be	5680	7857	3003	600	0	1
network:35.121.8.75:sas:vccv-ping-2	be	4039	6139	2863	281	0	1
network:35.121.8.65:sas:vccv-ping-1	be	2058	3338	1657	103	0	1
network:35.121.8.65:sas:vccv-ping-2	af	2027	3305	1625	201	0	1
network:35.121.8.68:sas:vccv-ping-3	be	1943	2258	1634	104	0	1
network:35.121.8.68:sas:vccv-ping-1	be	1806	2000	1675	19	0	1
network:35.121.8.68:sas:vccv-ping-5	be	1239	1498	865	102	0	1
network:35.121.8.68:sas:vccv-ping-2	be	1139	1850	872	61	0	1
network:35.121.8.69:sas:vccv-ping-4	af	1071	1984	829	138	0	1
network:35.121.8.69:sas:vccv-ping-3	be	1048	1177	867	50	0	1
network:35.121.8.68:sas:vccv-ping-4	be	970	1160	850	36	0	1
network:35.121.8.69:sas:vccv-ping-2	af	963	1174	825	54	0	1
network:35.121.8.68:sas:vccv-ping-6	af	918	1155	852	20	0	1
network:35.121.8.69:sas:vccv-ping-1	be	870	879	853	3	0	1

Figure 13-48 LSP Ping Top 100 Worst Case Results report



LSP Ping Top 100 Worst Case Results

Source Node: sim72 (35.121.8.72), sim73 (35.121.8.73), sim74 (35.121.8.74), sim75 (35.121.8.75)

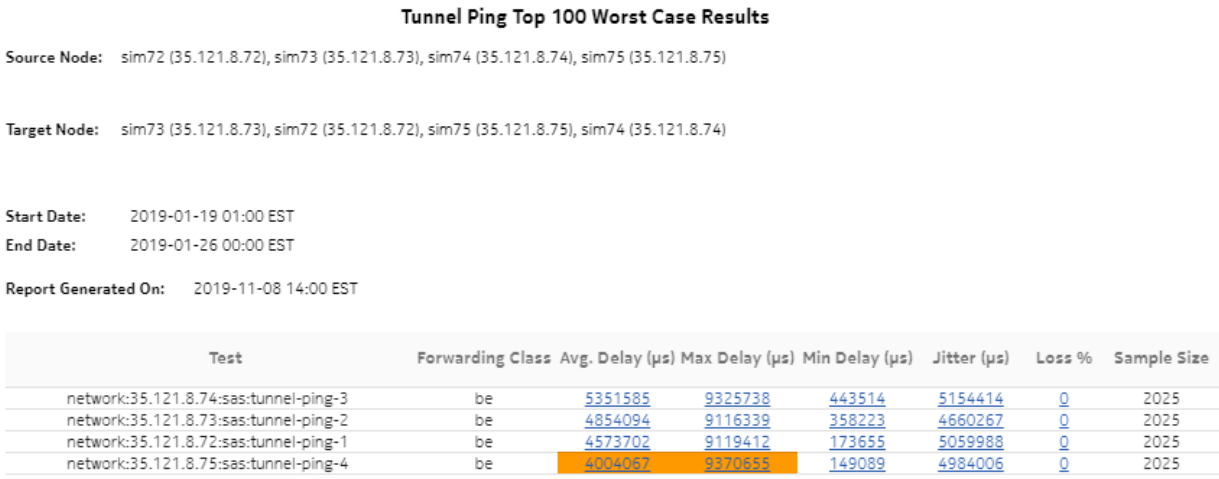
Target Node: sim73 (35.121.8.73), sim72 (35.121.8.72), sim75 (35.121.8.75), sim74 (35.121.8.74)

Start Date: 2019-01-19 01:00 EST
End Date: 2019-01-26 00:00 EST

Report Generated On: 2019-11-08 13:58 EST

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.75:sas:lsp-ping-4	be	5090144	9470270	306910	4097871	0	2025
network:35.121.8.74:sas:lsp-ping-2	be	5048242	9297075	303061	4514539	0	2025
network:35.121.8.72:sas:lsp-ping-3	be	4917913	9353150	229557	4192661	0	2025
network:35.121.8.73:sas:lsp-ping-1	be	4436920	9196792	392362	5390620	0	2025

Figure 13-49 Tunnel Ping Top 100 Worst Case Results report



Tunnel Ping Top 100 Worst Case Results

Source Node: sim72 (35.121.8.72), sim73 (35.121.8.73), sim74 (35.121.8.74), sim75 (35.121.8.75)

Target Node: sim73 (35.121.8.73), sim72 (35.121.8.72), sim75 (35.121.8.75), sim74 (35.121.8.74)

Start Date: 2019-01-19 01:00 EST
End Date: 2019-01-26 00:00 EST

Report Generated On: 2019-11-08 14:00 EST

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.74:sas:tunnel-ping-3	be	5351585	9325738	443514	5154414	0	2025
network:35.121.8.73:sas:tunnel-ping-2	be	4854094	9116339	358223	4660267	0	2025
network:35.121.8.72:sas:tunnel-ping-1	be	4573702	9119412	173655	5059988	0	2025
network:35.121.8.75:sas:tunnel-ping-4	be	4004067	9370655	149089	4984006	0	2025

13.20 Ping Latency report

13.20.1 Overview

A Ping Latency report can be run by itself or as a drill-down from a Ping Network Site Summary report. The report shows the graph of latency for a selected test during a specified time period.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-38 Ping Latency report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping, LSP Ping, Tunnel Ping

Table 13-38 Ping Latency report inputs (continued)

Prompt	Notes
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	The list of forwarding classes configured in NSP Classic management. Search using partial or full names.
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Test	Number of results to report
Threshold	Specify in bps/Kbps/Mbps/Gbps

Report characteristics

The following table lists the principal report characteristics.

Table 13-39 Ping Latency report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	No

13.20.2 Example

The following figures show report examples.

Figure 13-50 ETH-CFM Two Way Delay Results Latency report

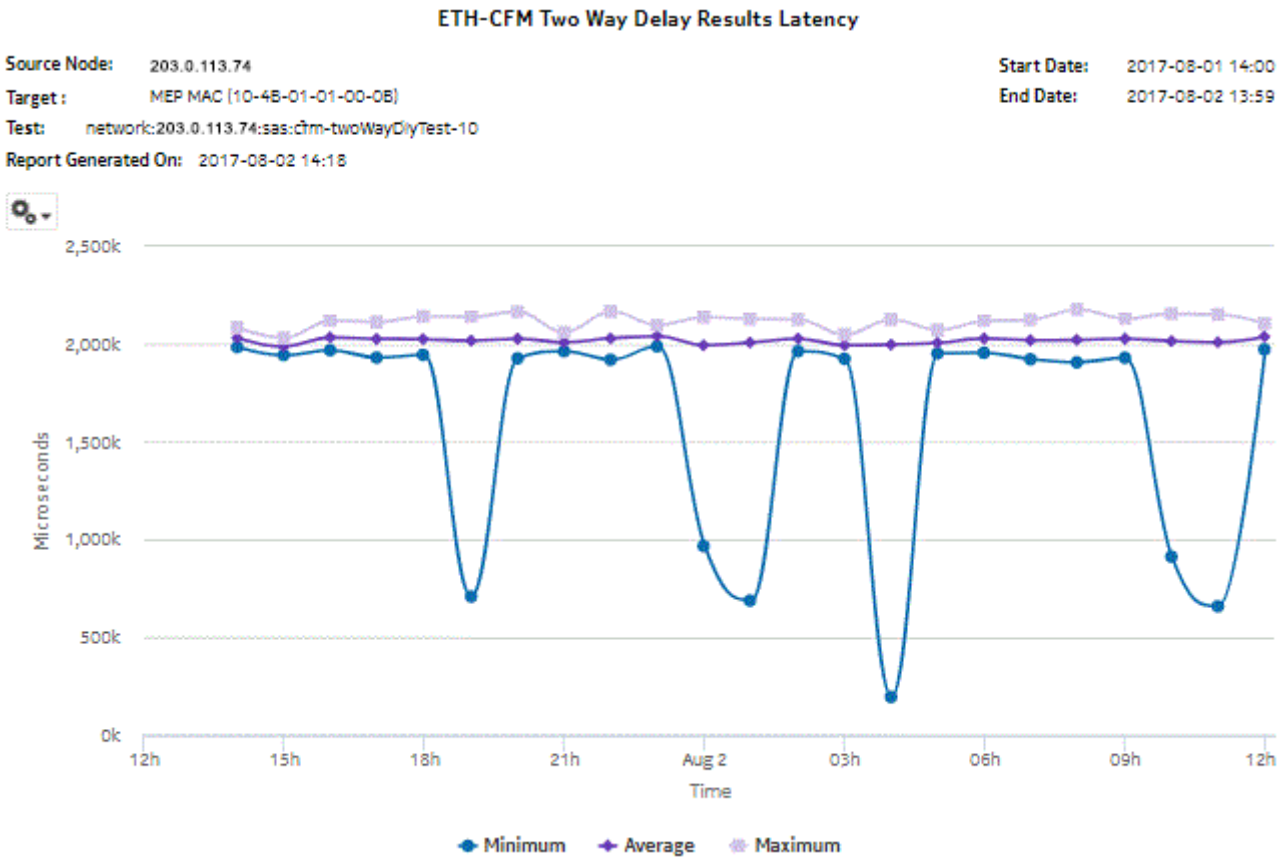


Figure 13-51 ICMP Ping Results Latency report

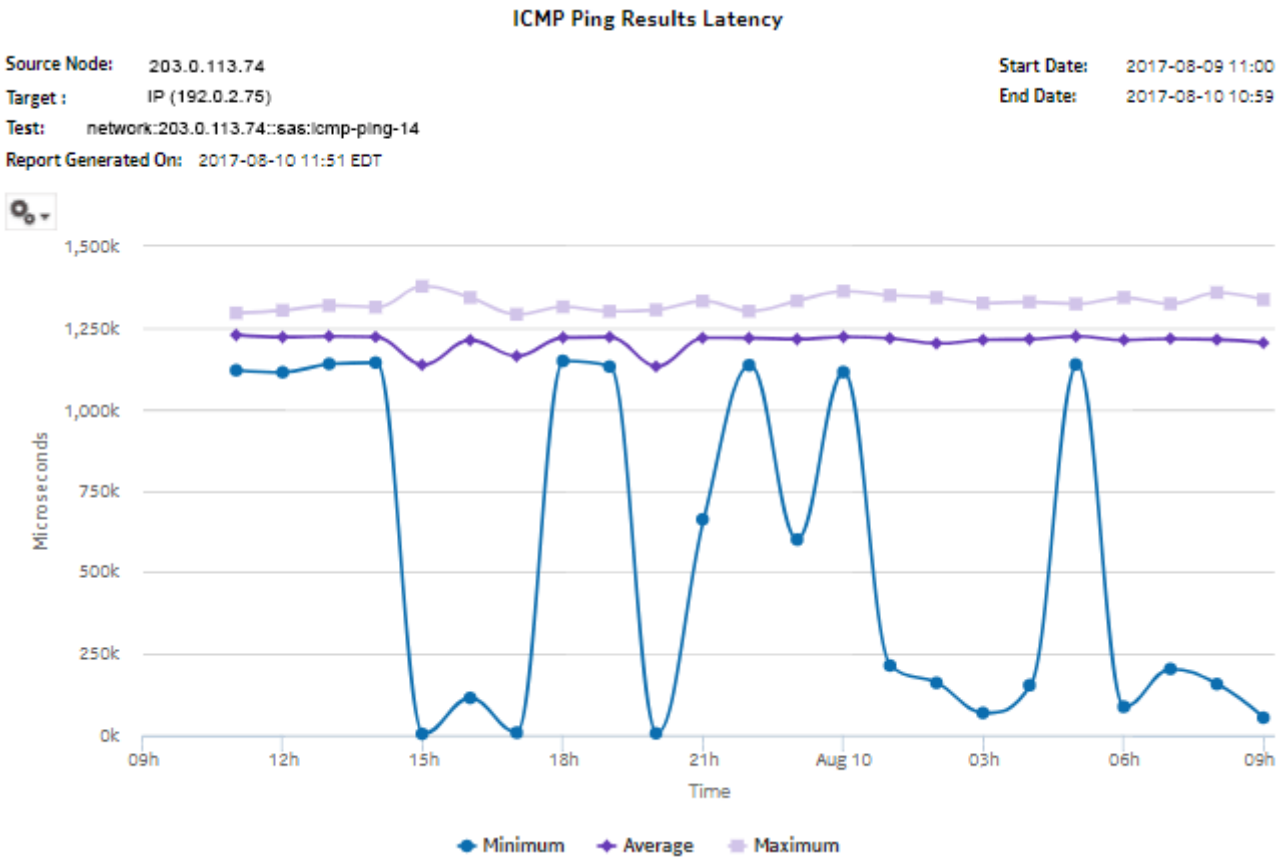


Figure 13-52 VCCV Ping Results Latency report

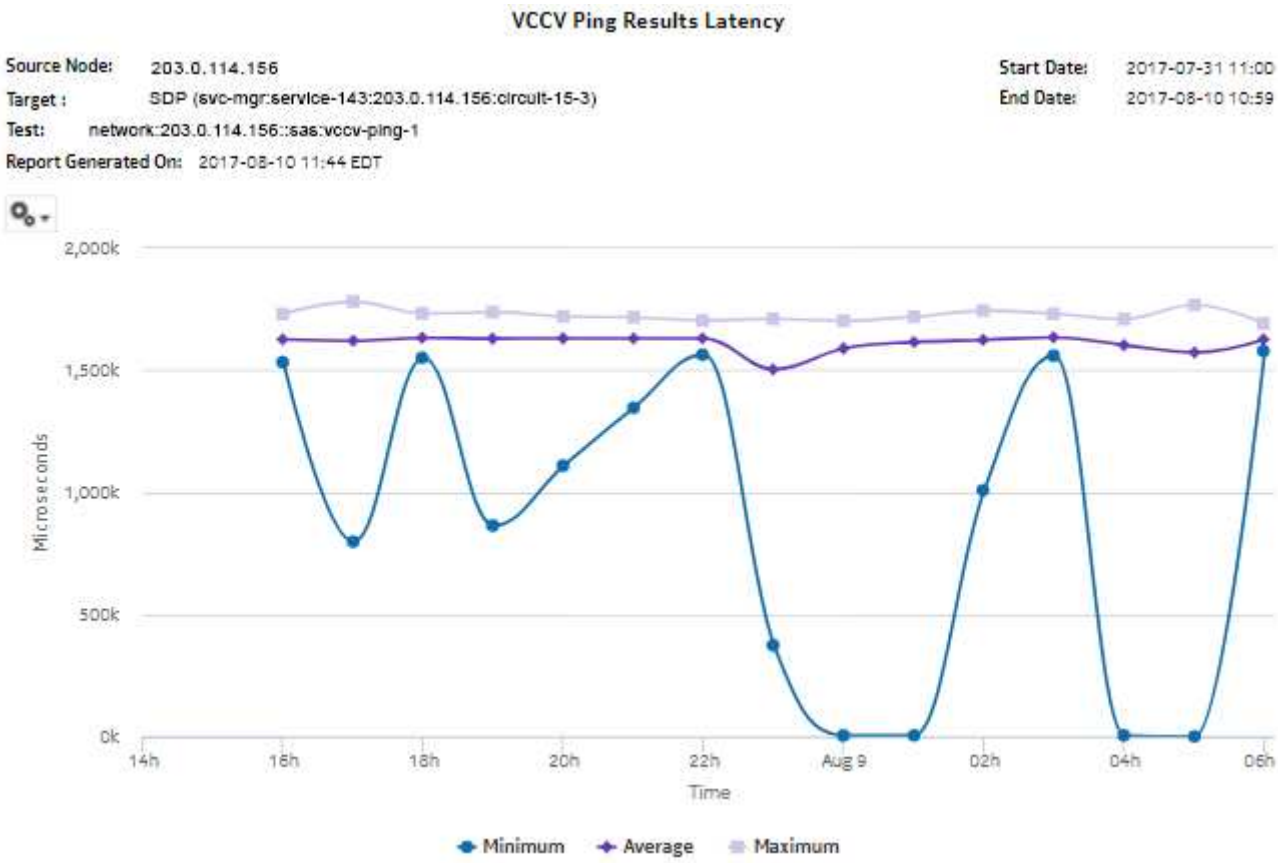
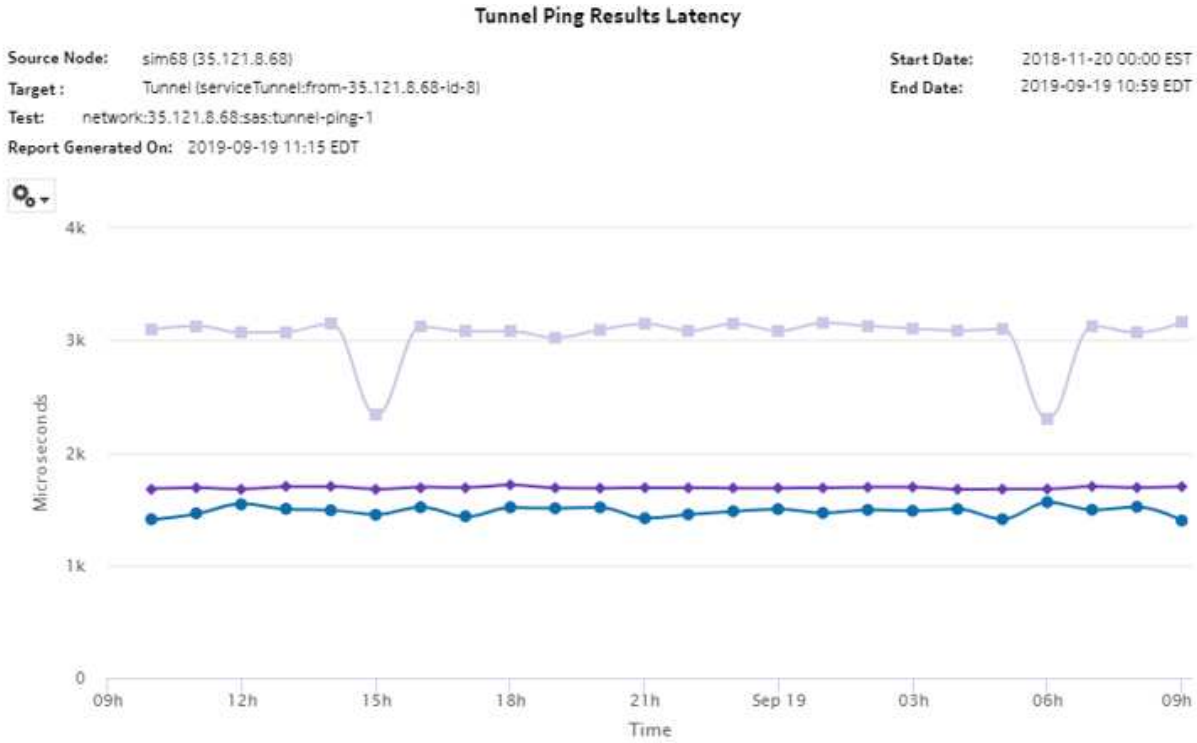


Figure 13-53 LSP Ping Results Latency report

Figure 13-54 Tunnel Ping Results Latency report



13.21 Ping Jitter & Loss report

13.21.1 Overview

A Ping Jitter & Loss report can be run by itself or as a drill-down from a Ping Network Site Summary report. The report shows the graph of jitter and loss for a selected test during a specified time period.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-40 Ping Jitter & Loss report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping, LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	The list of forwarding classes configured in NSP Classic management. Search using partial or full names.
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Test	Number of results to report

Report characteristics

The following table lists the principal report characteristics.

Table 13-41 Ping Jitter & Loss report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.

Table 13-41 Ping Jitter & Loss report characteristics (continued)

Characteristic	Value
Drill-down support	No

13.21.2 Example

The following figures show report examples.

Figure 13-55 ETH-CFM Two Way Delay Results Jitter & Loss report

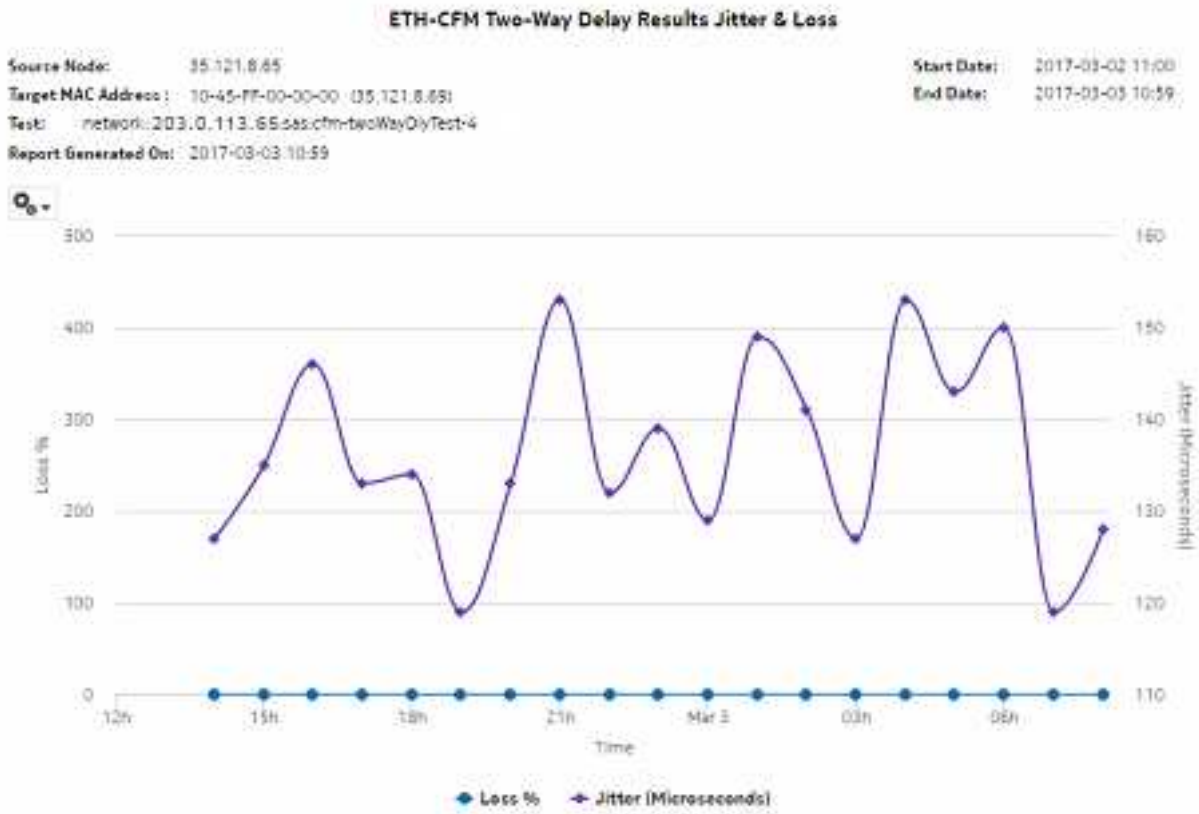


Figure 13-56 ICMP Ping Results Jitter & Loss report

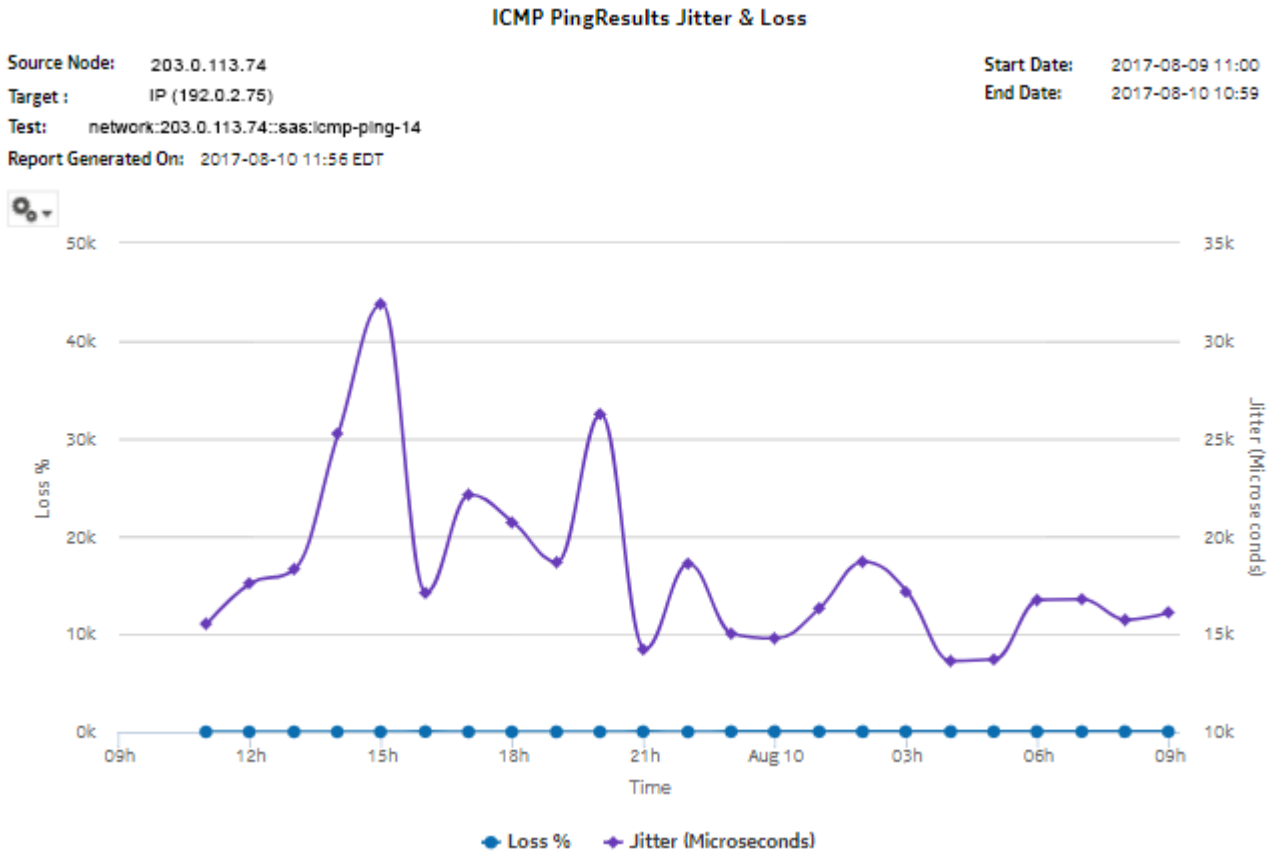


Figure 13-57 VCCV Ping Results Jitter & Loss report

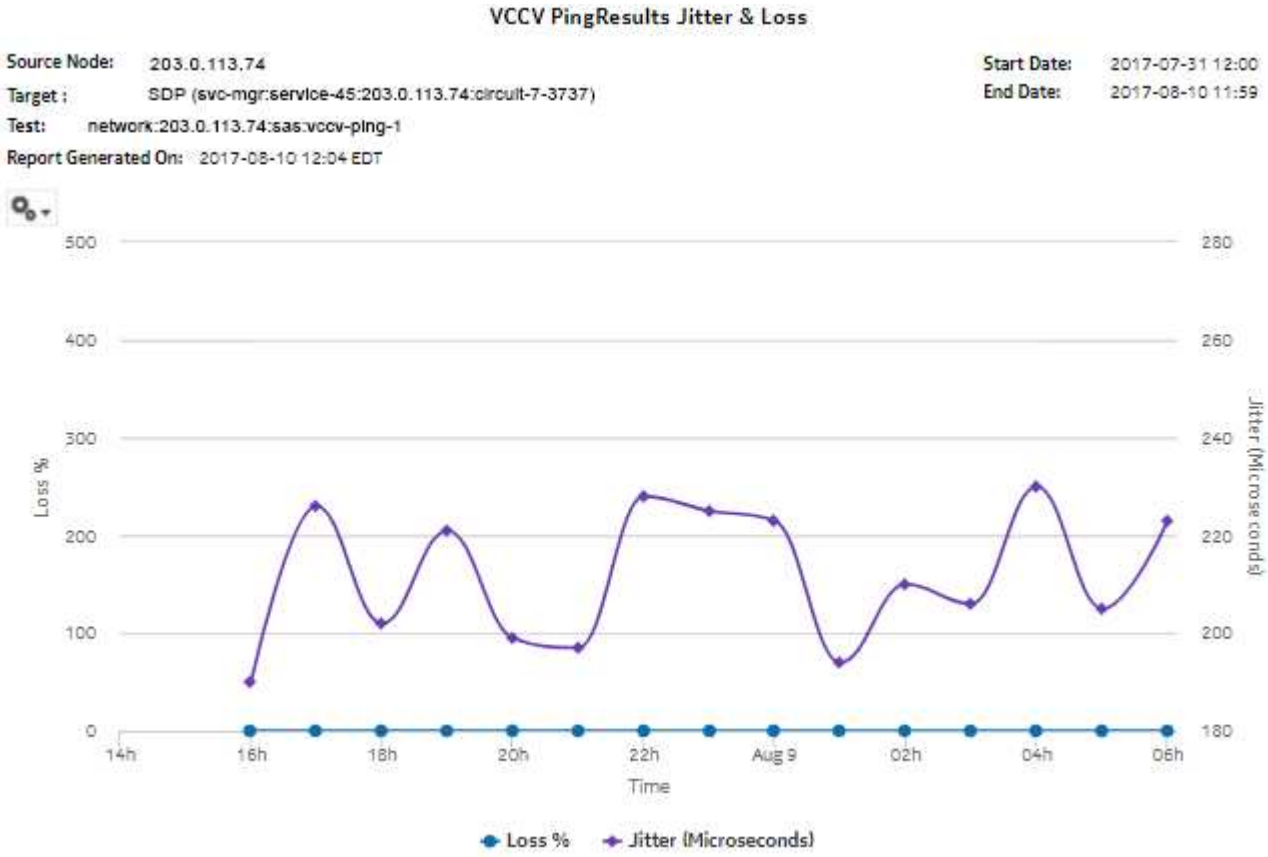
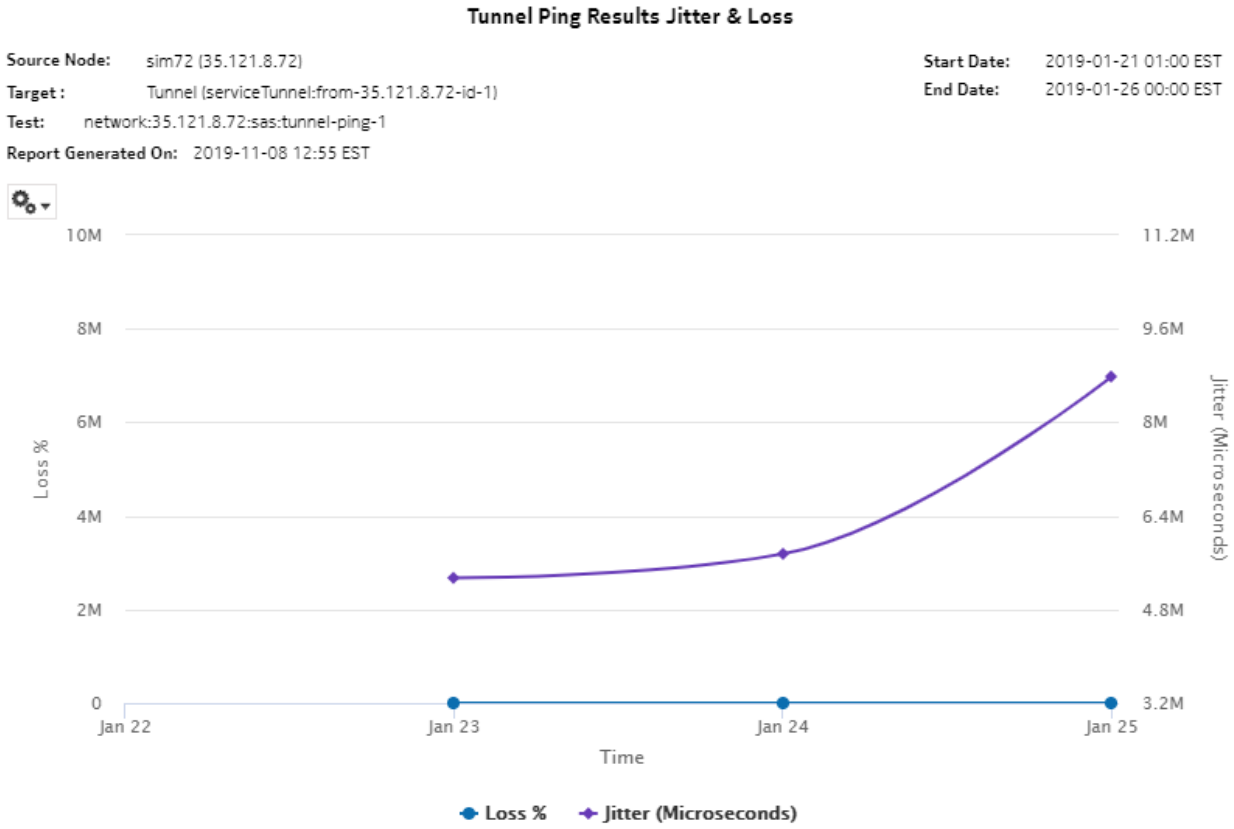


Figure 13-58 LSP Ping Results Jitter & Loss report

Figure 13-59 Tunnel Ping Results Jitter & Loss report



14 Utilization reports

14.1 Utilization reports information overview

14.1.1 General information

Utilization reports provide utilization or uptime information at the NE, port, SAP, service or customer level.

Limitations

Report limitations include:

- Customer specific reports (Customer Utilization Summary and Customer Uptime) may not complete if they are run on customers with more than 100 000 services.
- Changing the graph type of a report, for example, switching from a line chart to a bar chart, can take 30 or more seconds to complete.
- Running customer level reports with output on one page may impact the time required to generate the report. In extreme cases, report generation may fail.
- The 7705 SAR prior to Release 8.0 does not support the Complete Service Ingress Egress and Combined Network Ingress Egress Octets accounting policies. As a result, utilization reports that rely on these accounting policies will not show data for the 7705 SAR pre-Release 8.0.
- The utilization graph in forecast reports does not stretch when the forecast in the graph is unselected.

Drill-down reports

All Utilization reports can be run from the main Utilization reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Utilization reports. Each level of indentation indicates a drill down. For example, Port/LAG Details and Service Utilization Per Port Details reports are both drill-down reports from a Port Throughput Summary report.

Table 14-1 Available drill-downs for Utilization reports

Port Throughput Summary	
	Port/LAG Details Service Utilization per Port Details Port Forwarding Class Details

Table 14-1 Available drill-downs for Utilization reports (continued)

	From Port/LAG Details: • Interface Utilization Summary • Link Utilization Summary • For an MC-LAG, the drill down is to the default NE Types and NEs selected	
	From Service Utilization per Port Details: • SAP Throughput • OAM-PM Service Summary • Ping Service Summary • Service Utilization	
		From Interface Utilization Summary: Interface Overview From Link Utilization Summary: Interface Utilization Details
Customer Uptime		
	Service Uptime	
		SAP Uptime
Customer Utilization Summary		
	Service Utilization Details	
Link Utilization Summary		
	Interface Utilization Details	
Interface Utilization Summary		
	Interface Overview	
Temperature, CPU, Memory Utilization Summary		
	Temperature, CPU, Memory Details	

Note: Using the Show Report On One Page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show Report On One Page option when creating reports.

Aggregation

Utilization reports are available without aggregation (RAW collection) or with user-selected aggregation granularity. RAW collection uses the periodic time from the statistics collection to calculate utilization for periods when statistics are available. Aggregated collection calculates utilization for the requested report duration, regardless of whether statistics data is available for the entire period. If a collection failure occurred during a report internal, the utilization reports collected using RAW and aggregated collection will not match.

14.2 Port Throughput Summary report

14.2.1 Port Throughput Summary report overview

The Port Throughput Summary report shows bandwidth utilization by specified ports. The default display is a set of time series graphs, showing total, ingress and egress.

The top 5 ports with the highest throughputs are shown in the report plots.

The summary table shows the minimum, average, and maximum throughput values and the average utilization, along with percentiles, for all the ports selected. The summary table displays the ports in descending order of average total throughput. The report also shows information such as the total count of errors of all types for the port. You can drill-down into the Port/LAG Details report to see the full breakdown of specific errors on the port.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the data is shown in the table.

The values entered in the ingress, egress, and total threshold input prompts are compared with the average of ingress, egress, or total values and accordingly the records or rows in the table are highlighted. The highlighted rows (that is, the average values) are populated in the three rows above the table.

Additionally, the plot or graph shows the actual values at a specified time.

Note: There will be a delay in launching the report.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a port, LAG, or MC LAG basis, to plan for capacity requirements.

Prerequisites

The following tasks need to be performed using NSP Classic management for Port Throughput Summary reports to be created:

- Interface Additional Statistics (Physical Equipment) must be enabled on the port; see information in the *NSP NFM-P Statistics Management Guide* about creating or editing a MIB statistics policy using a bottom-up method.
- For a Service Utilization per Port Details report to be available as a drill-down, a Complete Service Ingress Egress accounting policy must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. The accounting policy must be assigned to the SAPs of each service represented in the Utilization reports. If there is no accounting policy, the Port Throughput Summary report will be available, however, if you click on an entry in the Average Utilization (%) column, the Service Utilization per Port Details drill-down report will not be generated.
- For a Port Forwarding Class Details report to be available as a drill-down, a Complete Network Ingress Egress accounting policy must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information. The accounting policy must be assigned to the ports or LAGs for which the Forwarding Class Details reports will be created. If there is no accounting policy the Port Throughput Summary report will be

available, however, if you click on an entry in the Minimum column, the Port Forwarding Class Details drill-down report will not be generated.

- You must configure SAP on an access port. When an access port is not configured with SAP, the drill down from Port Throughput to Service Utilization per Port Details does not generate a report and shows a warning in the input prompts.

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-2 Port Throughput Summary report prerequisites

Aggregator name	Monitored object class	MIB name	Statistics class	Statistics collection	NE types
Interface Utilization Statistics Aggregator	equipmet. PhysicalPort lag.interface	ifXEntry	equipment. InterfaceAdditional-Stats	Performance statistics	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
PortNet-IngressStats Error Stats Aggregator	equipment. PhysicalPort	TIMETRA-PORT-MIB.tmnxPort NetIngressStatsEn-try	equipment. PortNet-IngressStats	Performance statistics	7705 SAR 7705 SAR-H 7705 SAR-Hm
PortNetE-gressStats Error Stats Aggregator	equipment. PhysicalPort	TIMETRA-PORT-MIB.tmnxPort NetEgressStatsEn-try	equipment. PortNetEgressStats	Performance statistics	7705 SAR 7705 SAR-H 7705 SAR-Hm
Dot3Stats Error Stats Aggregator	equipment. PhysicalPort	EtherLike-MIB. dot3StatsEntry	ethernetequipment. Dot3Stats	Performance statistics	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
Interface Error Stats Aggregator	equipmet. PhysicalPort lag.interface	ifEntry	equipment. InterfaceStats	Performance statistics	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
EthernetStats Error Stats Aggregator	equipment. PhysicalPort	etherStatsEntry	ethernetequipment. Ethernet-StatsLogRecord	Performance statistics	7210 SAS 7250 IXR 7705 SAR-H 7705 SAR-Hm 7750 SR

Table 14-2 Port Throughput Summary report prerequisites (continued)

Aggregator name	Monitored object class	MIB name	Statistics class	Statistics collection	NE types
AdditionalEthernet-Stats Error Stats Aggregator	equipment. PhysicalPort	tmnxPortEtherEntry	Ethernetequipment. AdditionalEthernet-Stats	Performance statistics	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR-Hm 7750 SR
IngressPortF-wdEngDropRea-sonStats Error Stats Aggregator	equipment. PhysicalPort	TIMETRA-PORT-MIB. tPortIngressF-wdEngDRStatsEn-try	equipment. IngressPortF-wdEngDropRea-sonStats	Performance statistics	7250 IXR 7705 SAR-Hm 7750 SR **Note:** The 7705 SAR-H is not supported

Report characteristics

The following table lists the principal report characteristics.

Table 14-3 Port Throughput Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-3 Port Throughput Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node Name (or Node Name Pattern)	
	Nodes	
	Port Modes	Select Access, Network, or Hybrid. Select individual items or click **Select All**.
	Port-LAG/MC LAG	Select one radio button
	Port Name (or Port Name Pattern)	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Physical Ports / LAGs / MC LAGs	
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Total Threshold	
	Average total utilization threshold	—
	Average ingress utilization threshold	
	Average egress utilization threshold	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 14-3 Port Throughput Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes: • Click on an entry in the Port/LAG column to open the Port/LAG Details report for the selected port or LAG. • Click on an entry in the Average Utilization (%) column to open the Service Utilization per Port Details report for the selected port. • Click on an entry in the Minimum column to open the Port Forwarding Class Details for the selected port or LAG.

14.2.2 Example

The following figures show report examples.

Figure 14-1 Port Throughput Summary report—Total traffic

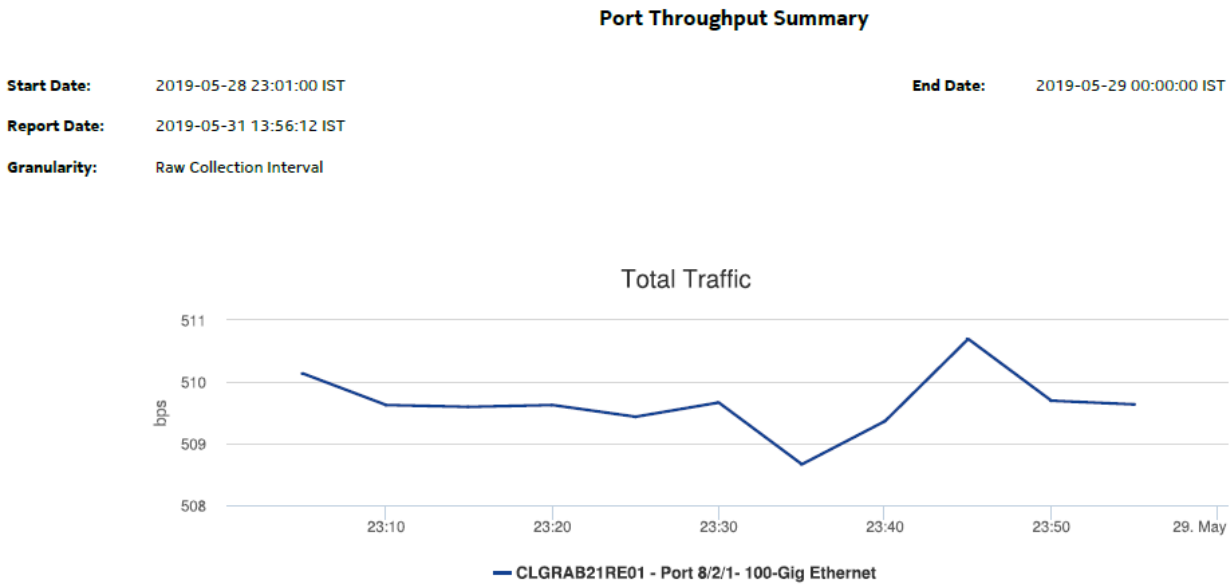


Figure 14-2 Port Throughput Summary report—Ingress traffic

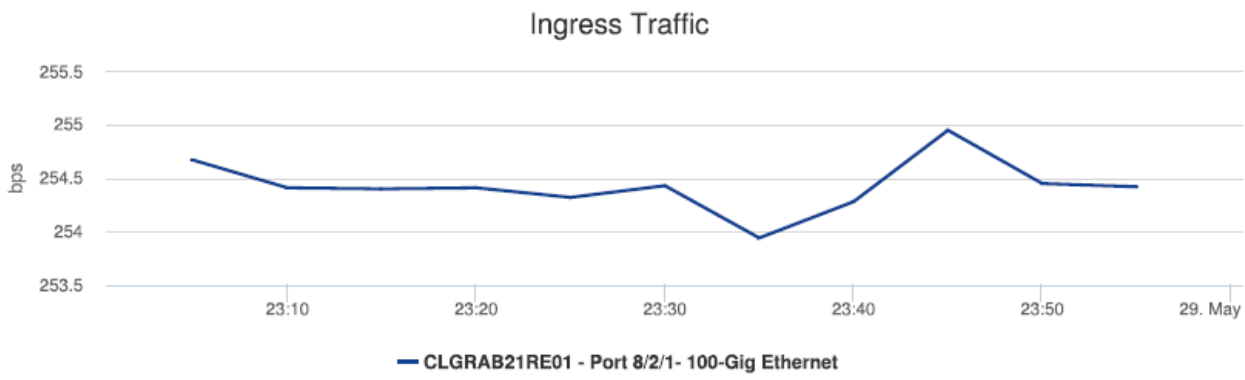


Figure 14-3 Port Throughput Summary report—Egress traffic

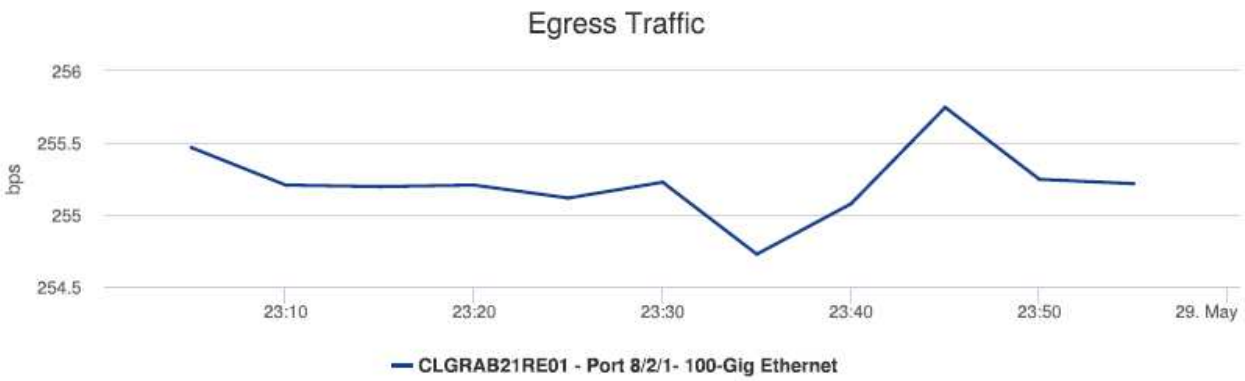


Figure 14-4 Port Throughput Summary report—Summary table

Ports Over Total Threshold:	N/A	Ports Over Total Utilization Threshold:	N/A
Ports Over Ingress Threshold:	N/A	Ports Over Ingress Utilization Threshold:	N/A
Ports Over Egress Threshold:	N/A	Ports Over Egress Utilization Threshold:	N/A

Direction	NE Name	NE ID	Port/LAG	Port Speed (Mbps)	Port Mode	Description	Minimum (bps)	Average (bps)	Maximum (bps)	95 PCTL (bps)	Average Utilization(%)	#Errors	Maximum (Time)	Max Count
Total	CLGRAB21RE01	35.250.64.165	Port 8/2/1	0.01	network	100-Gig Ethernet	508.67	509.65	510.7	510.42	5.1	0	05-28-2019 23:45 IST	1
Ingress	CLGRAB21RE01	35.250.64.165	Port 8/2/1	0.01	network	100-Gig Ethernet	253.94	254.43	254.95	254.81	2.54	0	05-28-2019 23:45 IST	1
Egress	CLGRAB21RE01	35.250.64.165	Port 8/2/1	0.01	network	100-Gig Ethernet	254.73	255.23	255.75	255.61	2.55	0	05-28-2019 23:45 IST	1

14.3 SAP Throughput report

14.3.1 SAP Throughput report overview

The SAP Throughput report shows bandwidth utilization by specified services and SAPs. The default display is a set of time series graphs, showing ingress and egress.

The top five SAPs with the highest throughputs are shown in the report plots.

The summary table shows the minimum, average, and maximum SAP throughput values along with percentiles, for all the SAPs selected. The summary table displays the SAPs in descending order of average total throughput.

The report currently shows policers with stat mode “minimal” only.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the data is shown in the table.

Note: The report may not complete if it is run on more than 400 000 SAPs.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue overrides, policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

Use cases

Capacity Planning—Use the report to examine traffic usage and patterns on a per service or per SAP basis, to plan for capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following tasks need to be performed using NSP Classic management for SAP Throughput reports to be created:

- For raw data, the periodic counter must be enabled from the Periodic Counter Manager; see the *NSP NFM-P Statistics Management Guide* for information about creating and managing periodic accounting statistics calculations.
- The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-4 SAP Throughput report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc-tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOc-tets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Viewing collection statistics in the NFM-P GUI

For 7210 SAS and 7750 SR NEs, the following statistics are collected to create the SAP Throughput report:

- For 7210 SAS NEs, the Service Ingress Octets and Service Egress Octets record types show the statistics with All Octets Forwarded, which are used for throughput calculations.
- For 7750 SR and 7705 SAR NEs, the Complete Service Ingress Packet Octets and Complete Service Egress Packet Octets record types show the statistics used for throughput calculations.

7210 SAS counter type

Reports are available for 7210 SAS NEs using both counter types. The throughput information is calculated based on the counter type configured at the time the report is taken. If multiple SAPs are

selected for reporting, Analytics assumes that the counter type of all the selected SAPs can be same or different. Currently the sum of throughputs of multiple SAPs chosen would be plotted.

For more information about counter types, see the NE documentation.

Report characteristics

The following table lists the principal report characteristics.

Table 14-5 SAP Throughput report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

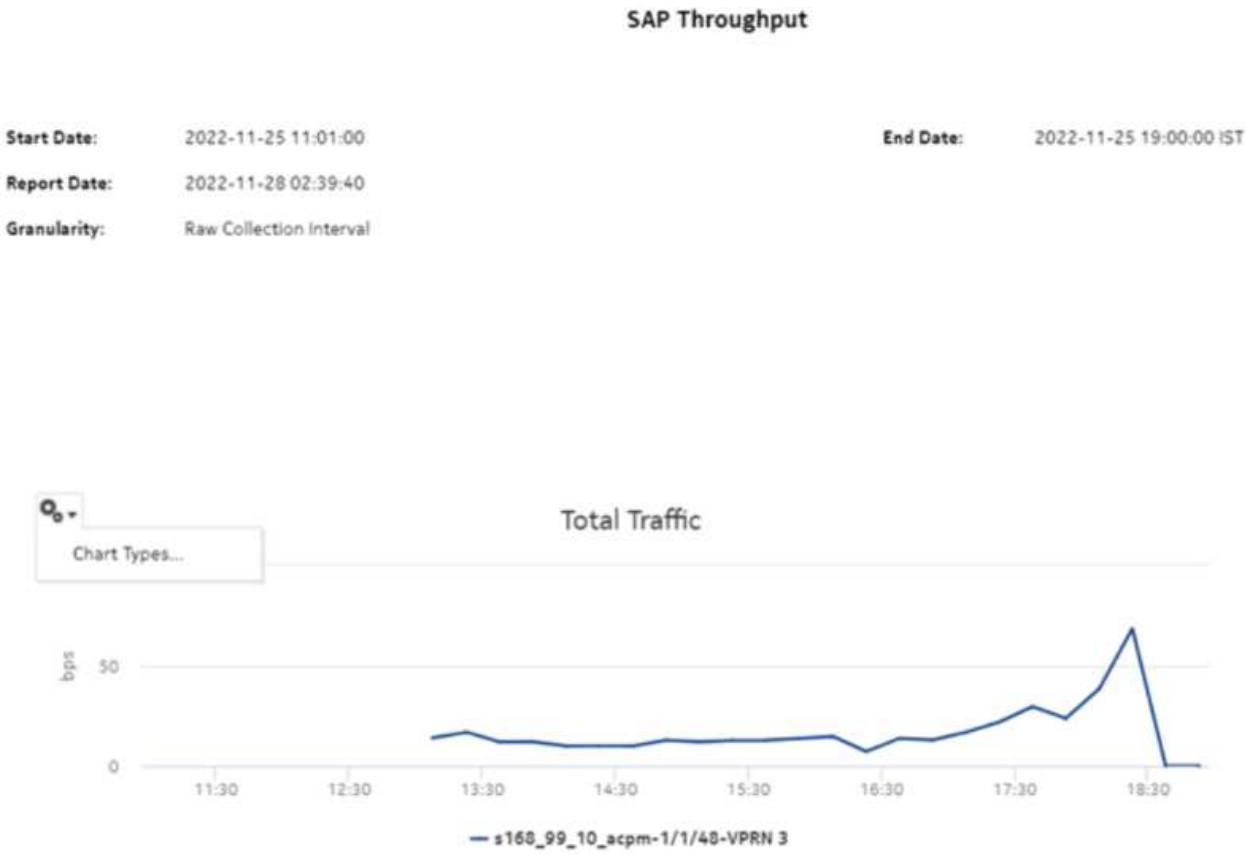
Table 14-5 SAP Throughput report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Service	
	SAP Name (or Name Pattern)	Search using partial names or wildcard (%).
	SAP	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.3.2 Example

The following figure shows a report example.

Figure 14-5 SAP Throughput report



SAPs Over Total Threshold : N/A

SAPs Over Ingress Threshold : N/A

SAPs Over Egress Threshold : N/A

Direction	NE Name	NE ID	SAP	Service Name	Description	Minimum (bps)	Average (bps)	Maximum (bps)	95 PCTL (bps)	Maximum (Time)	Max Count
Total	s168_99_10_acpm	92.168.99.10	1/1/48	VPRN 3	N/A	0.0	16.51	68.55	37.06	11-25-2022 18:23 IST	1
Ingress	s168_99_10_acpm	92.168.99.10	1/1/48	VPRN 3	N/A	0.0	5.48	59.46	18.6	11-25-2022 18:23 IST	1
Egress	s168_99_10_acpm	92.168.99.10	1/1/48	VPRN 3	N/A	0.0	11.03	19.63	16.47	11-25-2022 18:08 IST	1

14.4 Uptime reports overview

14.4.1 General information

The Uptime reports display downtime in the HH:MM:SS format. The uptime percentage calculations use milliseconds along with the HH:MM:SS information displayed.

Uptime is calculated as follows:

`Uptime %=( [`*`Total Time-Downtime`*`]/`*`Total Time`*`)*100`

Where

Downtime is the time for which the SAP or service was down

Total Time is the time span defined in the Report Range field, considering any SAP or service creation and deletion events

If a SAP or service creation or deletion occurred within the report range, the total time would be adjusted accordingly.

For example, if the report range is 10:00:00 to 15:00:00 and there is a creation event at 11:00:00 and a deletion event at 12:00:00, the total time would be from 11:00:00 to 12:00:00.

Note: Uptime percentage will be 0 when service/SAP is down and also with no outages. Same is applicable even though service/SAP is excluded.

14.4.2 Prerequisites

The following tasks need to be performed using NSP Classic management for Uptime reports to be created:

- Configure the retention time for assurance events. The default retention time is one week. The maximum retention time for the auxiliary database is one year, which is recommended.
  See the *NSP NFM-P Classic Management User Guide* for information about event log policies.
- Enable event logging for the following object types in the Timeline Settings in the NSP.
  - Service
  - Port
  - Site
  - Endpoints
  - Tunnel binding
- Configure the customer; see information in the *NSP NFM-P Classic Management User Guide* about creating a customer profile. Customer names must be unique.
- Populate the maintenance window table in the NSP auxiliary database with udetails of NE and service maintenance, as described in 14.5 “To add data to the samdb maintenance-window table in an auxiliary database” (p. 526).
  The report runs if the table is not created or empty; however, in such a case, maintenance windows are treated as down time when availability is calculated.

Note: Customer Utilization Summary and Customer Uptime Summary reports may not complete if they are run on customers with more than 100 000 services.

14.5 To add data to the samdb maintenance-window table in an auxiliary database

14.5.1 Purpose

Perform this procedure to add an NE or service as the target of Analytics reporting to monitor downtime, for example, during a network maintenance window. You add the NE or service information to the custom auxiliary database table named samdb.analytics_MaintenanceWindow_ct. This procedure employs the NFM-P custom data tool.

The following is an example of the table format:

Figure 14-6 Example of the samdb.analytics_MaintenanceWindow_ct table format

maintenanceType	affectedObject	fullnameAffectedObject	startTime	endTime	description
node	92.168.98.106	network:92.168.98.106	1684230000000	1684240000000	node
bundle	92.168.96.41	network:92.168.96.41:shelf-1:bundle-1	1684230000000	1684240000000	bundle
interface	92.168.98.71	svc-mgr:service-22:92.168.98.71:interface-Mddb_35684352.Branch_1-inner-tag-0-outer-tag-0	1684230000000	1684240000000	interface
lag	92.168.96.163	network:92.168.96.163:lag:interface-1	1684230000000	1684240000000	lag
service	92.168.96.41	svc-mgr:service-1	1684230000000	1684240000000	service
port	92.168.99.20	network:92.168.99.20:shelf-1:cardSlot-1:card:daughterCardSlot-1:daughterCard:port-1	1684230000000	1684240000000	port

14.5.2 Steps

1

Log in as the root user on an NFM-P main server station.

2

Open a console window.

3

Enter the following:

```
# cd /opt/nsp/nms/bin ↵
```

4

Use a plain-text editor to create the following file in the directory that holds the source maintenance-window data:

NodeAvailability_Table.csv

5

The following define the table columns:

Note: The epoch time must be in milliseconds.

- maintenanceType—node or service
- affectedObjec—NE system or site ID, or service name

- fullnameAffectedObjecteither—either:
  - NE FDN, in the format network:*address*
  - NFM-P service ID, in the format svc-mgr:*service_ID*

  An NFM-P NE properties form lists the NE system address..

  The NFM-P Manage Services form lists NFM-P service IDs.
- startTime—maintenance window start; Unix epoch time, in milliseconds
- endTime—maintenance window end; Unix epoch time, in milliseconds
- description—optional object description; displayed as input option

For example:

```
maintenanceType,affectedObject,fullnameAffectedObject,startTime,
endTime,description
node,203.0.113.169,network:203.0.113.169,1681104600000,1681111800000,
Maintenance-1
node,203.0.113.182,network:203.0.113.182,1681129800000,1681138800000,
Maintenance-2
service,N/A,svc-mgr:service-1,1681203600,1681210800,Maintenance-3
```

6

Save and close the file.

7

Enter the following to insert the data from the CSV file into the custom table:

```
# ./customData.bash --importData samdb.analytics_MaintenanceWindow_ct
NodeAvailability_Table.csv ↵
```

You are prompted for the password of the samauxdb user.

8

Enter the password.

The file data is imported to the samdb.analytics_MaintenanceWindow_ct table.

9

Close the console window on the main server station.

10

Log in as the root user on an auxiliary database station.

11

Enter the following:

```
# cd /opt/vertica/bin ↵
```

12

Enter the following:

```
# ./vsql -U samauxdb ↵
```

You are prompted for the password of the samauxdb user.

13

Enter the password.

A database console session opens.

14

Enter the following:

```
select * from samdb.analytics_MaintenanceWindow_ct; ↵
```

The table data is inserted, and the table content is displayed.

15

Verify that the table content matches the information provided in the CSV file:

16

When the verification is complete, enter the following:

```
exit ↵
```

The database console session closes.

17

Close the console window on the auxiliary database station.

END OF STEPS

14.6 To add data to the custom data maintenance-window table in an auxiliary database

14.6.1 Purpose

Perform this procedure to add an NE or service as the target of Analytics reporting to monitor downtime, for example, during a network maintenance window. You add the NE or service information to the custom auxiliary database table named custom_data.analytics_MaintenanceWindow_ct. This procedure employs the NSP custom data tool.

The following is an example of the table format:

Figure 14-7 Example of the custom_data.analytics_MaintenanceWindow_ct table format

maintenanceType	affectedObject	fullnameAffectedObject	startTime	endTime	description
node	92.168.98.106	network:92.168.98.106	1684230000000	1684240000000	node
bundle	92.168.96.41	network:92.168.96.41:shelf-1:bundle-1	1684230000000	1684240000000	bundle
interface	92.168.98.71	svc-mgr:service-22:92.168.98.71:interface-Mddb_35684352.Branch_1-inner-tag-0-outer-tag-0	1684230000000	1684240000000	interface
lag	92.168.96.163	network:92.168.96.163:lag:interface-1	1684230000000	1684240000000	lag
service	92.168.96.41	svc-mgr:service-1	1684230000000	1684240000000	service
port	92.168.99.20	network:92.168.99.20:shelf-1:cardSlot-1:card:daughterCardSlot-1:daughterCard:port-1	1684230000000	1684240000000	port

14.6.2 Steps

1

Log in as the root user on an auxiliary database station.

2

Open a console window.

3

Enter the following:

```
# cd /opt/nsp/nfmp/auxdb/install/custom-data/bin ↵
```

4

Use a plain-text editor to create the following file in the directory that holds the source maintenance-window data:

NodeAvailability_Table.csv

5

The following define the table columns:

Note: The epoch time must be in milliseconds.

- maintenanceType—node or service
- affectedObjec—NE system or site ID, or service name
- fullnameAffectedObjecteither—either:
  - NE FDN, in the format network:*address*
  - NFM-P service ID, in the format svc-mgr:*service_ID*

  An NFM-P NE properties form lists the NE system address.

  The NFM-P Manage Services form lists NFM-P service IDs.
- startTime—maintenance window start; Unix epoch time, in milliseconds
- endTime—maintenance window end; Unix epoch time, in milliseconds
- description—optional object description; displayed as input option

For example:

```
maintenanceType,affectedObject,fullnameAffectedObject,startTime,
endTime,description
node,203.0.113.169,network:203.0.113.169,1681104600000,1681111800000,
Maintenance-1
node,203.0.113.182,network:203.0.113.182,1681129800000,1681138800000,
Maintenance-2
service,N/A,svc-mgr:service-1,1681203600,1681210800,Maintenance-3
```

6

Save and close the file.

7

Change the ownership of the file to samauxdb:

```
# chown samauxdb:samauxdb NodeAvailability_Table.csv ↵
```

8

Enter the following to insert the data from the CSV file into the custom table:

```
# ./customData.bash --importData custom_data.analytics_
MaintenanceWindow_ct NodeAvailability_Table.csv ↵
```

You are prompted for the password of the samauxdb user.

9

Enter the password.

The file data is imported to the custom_data.analytics_MaintenanceWindow_ct table.

10

Enter the following:

```
# cd /opt/vertica/bin ↵
```

11

Enter the following:

```
# ./vsql -U samauxdb ↵
```

You are prompted for the password of the samauxdb user.

12

Enter the password.

A database console session opens.

13

Enter the following:

```
select * from custom_data.analytics_MaintenanceWindow_ct; ↵
```

The table data is inserted, and the table content is displayed.

14

Verify that the table content matches the information provided in the CSV file.

15

When the verification is complete, enter the following:

```
\q ↵
```

The database console session closes.

16

Close the console window on the auxiliary database station.

END OF STEPS

14.7 Customer Uptime Summary report

14.7.1 Customer Uptime Summary report overview

The Customer Uptime Summary report shows outage information for a customer. The default display is a table showing outage information.

Totals are calculated as follows:

- Uptime percentage (for Totals) is the average of all the uptime percentage for all customers.
- Outages is the sum of all the outages.
- Downtime is the sum of all the downtime.

Subtotals are calculated as follows:

- Uptime percentage is the average of all the services uptime percentage of a customer.
- Outages is the sum of all the service outages.
- Downtime is the sum of all the service downtime.

Note: Nokia recommends that large customers do not use the Show report output on one page option.

Note: The report loads slowly when there are more than 200,000 state change events.

Note: Report launching time will be non-linear with respect to huge data.

Use cases

SLA monitoring—Use the report to examine outage patterns, to ensure SLAs are met.

Prerequisites

To create Customer Uptime Summary reports, enable the event logging using NSP Classic management for the following object types in the Timeline Settings in the NSP:

- Service

- Port
- Site
- Endpoints
- Tunnel binding

Report characteristics

The following table lists the principal report characteristics.

Table 14-6 Customer Uptime Summary report characteristics

Characteristic	Value
Data type	• Configuration, operational state and events for service related objects derived by the system • Maintenance window information provided by the user
Source database	Auxiliary database
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7210 SAS variants all 7250 IXR variants OS 6860, OS 6450, OS 6900
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-6 Customer Uptime Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer Name	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Exclude SAP Downtime	When enabled, all SAP-related downtime is zero. The structure of the report and entries in the tables across the Uptime reports do not change. SAP outages are shown, but their downtime is zero (duration is not affected).
	Exclude Services	—
	Exclude SAP	—
	Uptime Threshold %	Identify the threshold percentage
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Service Uptime report for the selected service.	

14.7.2 Example

The following figure shows a report example.

Figure 14-8 Customer Uptime Summary report

Customer Uptime

Start Date: 2017-03-13 01:00:00 **End Date:** 2017-04-17 00:00:00 **Granularity:** Raw Collection Interval
Report Date: 2017-04-17 19:04:44

Customer Name	Customer ID	Service Uptime	#Outages	Downtime
Default customer	1	99.9201 %	46	09:46:01

Customer	Service	Service	Service	OFN	#SAPs	Current	Uptime	#Outages	Downtime
Default	IPIPE 4	4	ipipe	svc-mgr:service-6	12	Up	99.7616 %	4	02:00:00
Default	IPIPE 4	4	ipipe	svc-mgr:service-7	12	Up	99.8212 %	4	01:30:00
Default	EPIPE 3	3	epipe	svc-mgr:service-3	6	Down	99.9281 %	6	03:16:18
Default	IPIPE 4	4	ipipe	svc-mgr:service-4	12	Down	99.9434 %	23	02:34:34
Default	VPRN 1	1	vprn	svc-mgr:service-1	3	Up	99.9867 %	6	00:24:12
Default	VPLS 2	2	vpls	svc-mgr:service-2	4	Up	99.9997 %	3	00:00:55
Default	IES 5	5	ies	svc-mgr:service-5	1	Up	100 %	0	00:00:00
						Subtotals	**99.9201 %**	**46**	**09:46:01**
						TOTALS	**99.9201 %**	**46**	**09:46:01**

14.8 Service Uptime Summary report

14.8.1 Service Uptime Summary report overview

The Service Uptime Summary report shows uptime information for a service. Service Uptime Summary is the percentage of time that the service was completely up, factoring in outages.

The default display is a table showing outage information. Only SAP and SDP outages are displayed. Overlaps of SAP downtime and SDP downtime are considered in total downtime and percentage uptime calculations.

For example, if the SAP was down from 10:00 to 11:00 and the SDP was down from 10:30 to 11:30, then the overlap of 10:30 to 11 would be considered only once. The total downtime in this case would be 1:30:00 hours. Uptime % would be calculated based on this downtime.

Uptime % is calculated by the events recorded in the assurance_assuranceEvent Table. The current state of the service is taken from the currentState field of the Service table.

Uptime is calculated as follows:

```
Uptime = (Total Time) – (Time for which the SAP or Service was down)

Uptime % = (Uptime/Total Time) * 100
```

Use cases

SLA monitoring—Use the report to examine outage patterns, to ensure SLAs are met.

Prerequisites

To create the Service Uptime Summary reports, enable the event logging using NSP Classic management for the following object types in the Timeline Settings in the NSP:

- Service
- Port
- Site
- Endpoints
- Tunnel binding

Report characteristics

The following table lists the principal report characteristics.

Table 14-7 Service Uptime Summary report characteristics

Characteristic	Value
Data type	• Configuration, operational state and events for service related objects derived by the system • Maintenance window information provided by the user
Source database	Auxiliary database
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

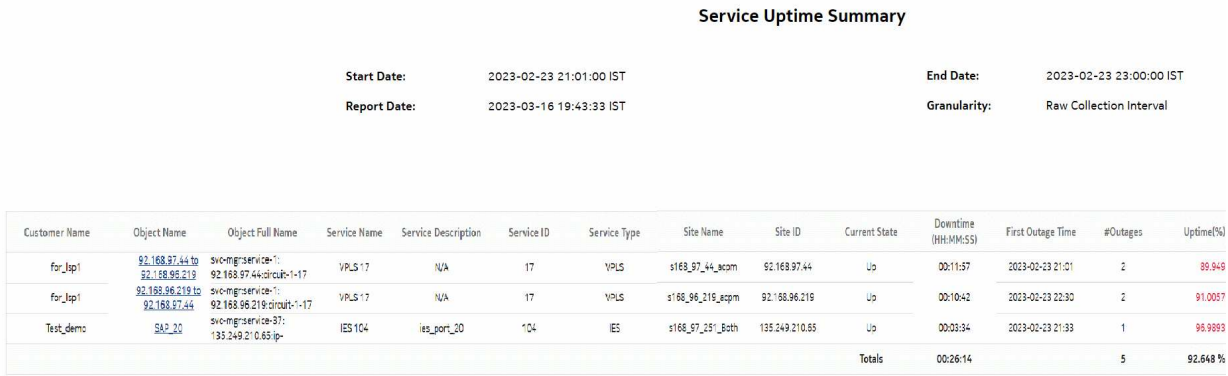
Table 14-7 Service Uptime Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly • Raw Collection Interval
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Name or name pattern for customer	Search using partial names or wildcard (%).
	Customer	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for service	Search using partial names or wildcard (%).
	Service	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Exclude SAP Downtime	When enabled, all SAP-related downtime is zero. The structure of the report and entries in the tables across the Uptime reports do not change. SAP outages are shown, but their downtime is zero (duration is not affected).
	Exclude SAP	—
	Threshold (%)	—
	Threshold (seconds)	—
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the SAP Uptime report for the selected SAP.	

14.8.2 Example

The following figure shows a report example.

Figure 14-9 Service Uptime Summary report



Service Uptime Summary

Start Date: 2023-02-23 21:01:00 IST
End Date: 2023-02-23 23:00:00 IST
Report Date: 2023-03-16 19:43:33 IST
Granularity: Raw Collection Interval

Customer Name	Object Name	Object Full Name	Service Name	Service Description	Service ID	Service Type	Site Name	Site ID	Current State	Downtime (HH:MM:SS)	First Outage Time	#Outages	Uptime(%)
for_lsp1	92.168.97.44 to 92.168.96.219	svc-mgr:service-1: 92.168.97.44:circuit-1-17	VPLS 17	N/A	17	VPLS	s168_97_44_acpm	92.168.97.44	Up	00:11:57	2023-02-23 21:01	2	89.949
for_lsp1	92.168.96.219 to 92.168.97.44	svc-mgr:service-1: 92.168.96.219:circuit-1-17	VPLS 17	N/A	17	VPLS	s168_96_219_acpm	92.168.96.219	Up	00:10:42	2023-02-23 22:30	2	91.0057
Test_demo	SAP_20	svc-mgr:service-37: 135.249.210.65:ip-	IES 104	ies_port_20	104	IES	s168_97_251_Both	135.249.210.65	Up	00:03:34	2023-02-23 21:33	1	96.9893
									Totals	00:26:14		5	92.648 %

14.9 SAP, SDP Uptime Details report

14.9.1 SAP, SDP Uptime Details report overview

The SAP, SDP Uptime Details report shows uptime percentage and downtime for a SAP.

The default display is a set of tables showing outages and maintenance windows.

Use cases

SLA monitoring—Use the report to examine outage patterns, to ensure SLAs are met.

Report characteristics

The following table lists the principal report characteristics.

Table 14-8 SAP, SDP Uptime Details report characteristics

Characteristic	Value
Data type	• Configuration, operational state and events for service related objects derived by the system • Maintenance window information provided by the user
Source database	Auxiliary database

Table 14-8 SAP, SDP Uptime Details report characteristics (continued)

Characteristic	Value
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-8 SAP, SDP Uptime Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly • Raw Collection Interval
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Name or name pattern for customer	Search using partial names or wildcard (%).
	Customer	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for service	Search using partial names or wildcard (%).
	Service	
	Name or name pattern for SAP	
	SAP	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.9.2 Example

The following figure shows a report example.

Figure 14-10 SAP, SDP Uptime Details report

SAP, SDP Uptime Details

Start Date:	2023-02-23 21:01:00 IST	**End Date:**	2023-02-23 23:00:00 IST
Report Date:	2023-03-16 19:59:23 IST	**Granularity:**	Raw Collection Interval
Customer Name:	for_lsp1	**Customer ID:**	17
Service Name:	VPLS 17	**Service ID:**	17
Service Type:	VPLS	**SAP, SDP Description:**	N/A
Site ID:	92.168.97.44	**Site Name:**	s168_97_44_acpm
SAP, SDP Fullname:	svc-mgr:service-1:92.168.97.44:circuit-1-17	**SAP, SDP Name:**	1:17
Uptime:	89.949 %		

Outages

MW -> Maintenance Windows

Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration Total (HH:MM:SS)	Duration Inside MW (HH:MM:SS)	Duration Outside MW (HH:MM:SS)
2023-02-23 22:31 IST	2023-02-23 22:37 IST	00:05:57	00:03:30	00:02:27
2023-02-23 21:01 IST	2023-02-23 21:07 IST	00:06:00	00:00:00	00:06:00
	Totals	**00:11:57**	**00:03:30**	**00:08:27**

Maintenance Windows

Type	Affected Object	Full Affected Object	Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration (HH:MM:SS)
service	92.168.97.44	svc-mgr:service-1	2023-02-23 22:32 IST	2023-02-23 22:35 IST	00:03:30
				Totals	**00:03:30**

14.10 SAP Utilization Details report

14.10.1 SAP Utilization Details report overview

The SAP Utilization Details report shows utilization percentage information for an SAP. This report can be launched on its own or as a drill-down of the Service Utilization Details report.

The default display is a set of time series graphs showing multi-axis line charts for the SAP total, ingress, egress, actual throughput, CIR, PIR, and percentage utilization for the selected SAP.

Queues, meters, and policers values are also shown.

The report supports the Rate (kbps) rate type, Percent Port, and Percent Local rate types are supported for this report. The report also supports the port limit and local limit, which are the CIR/PIR values configured as percentages

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue overrides, policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine SAP utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-9 SAP Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-9 SAP Utilization Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H **Note:** 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

14.10.2 Report characteristics

The following table lists the principal report characteristics.

Table 14-10 SAP Utilization Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-10 SAP Utilization Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Customer	
	Name or name pattern for service	
	Service	
	Name or name pattern for SAP	
	SAP	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.10.3 Example

The following figures show report examples.

Figure 14-11 SAP Utilization Details report—Total utilization

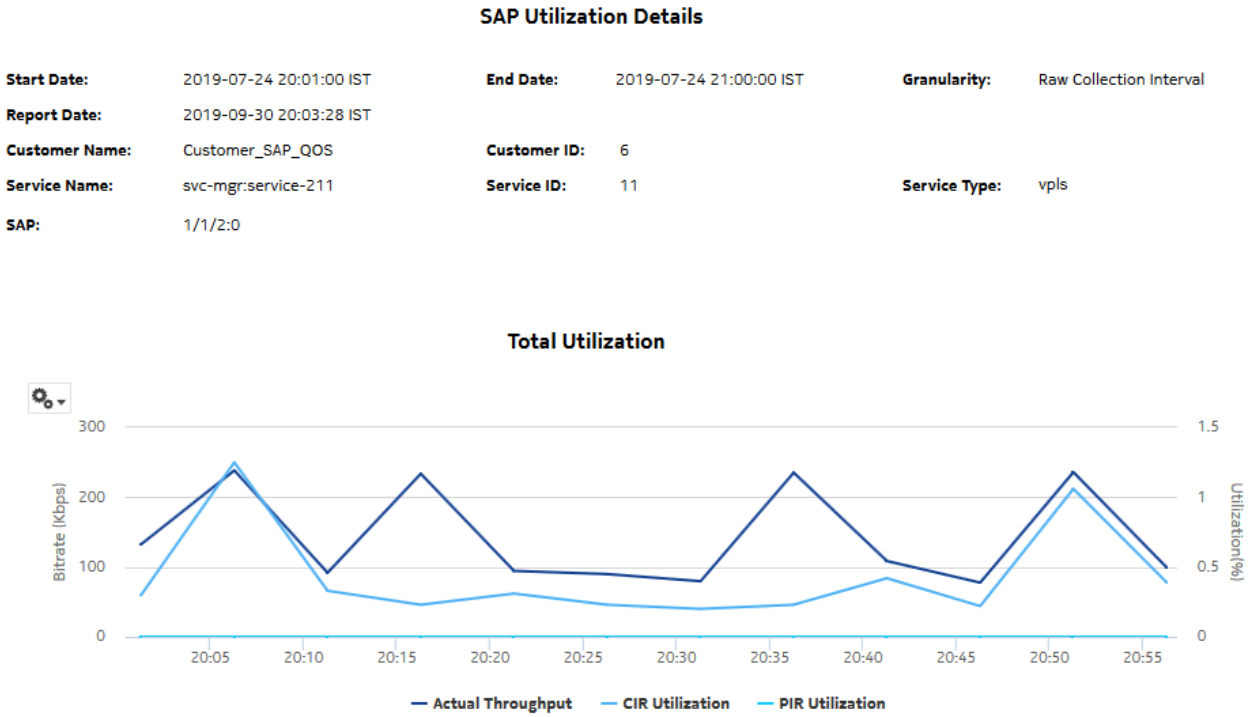


Figure 14-12 SAP Utilization Details report—Ingress utilization

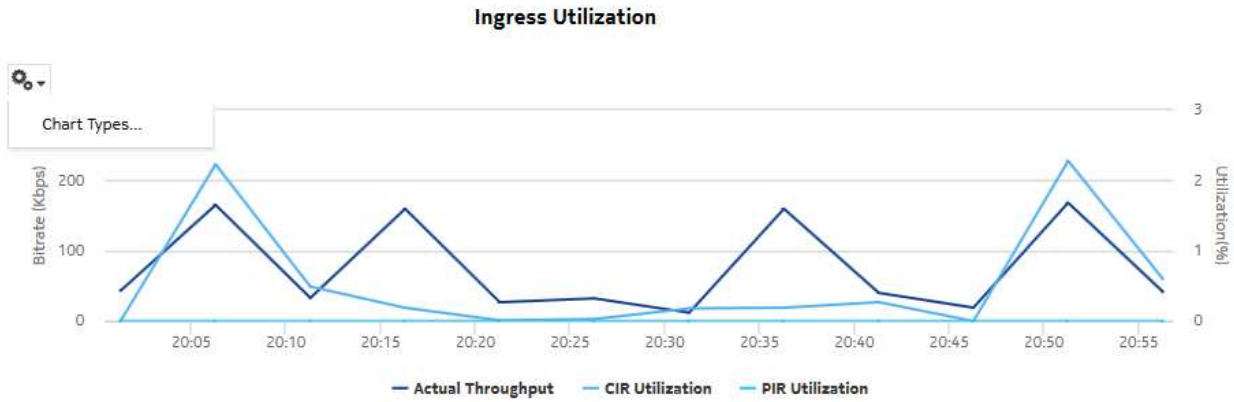
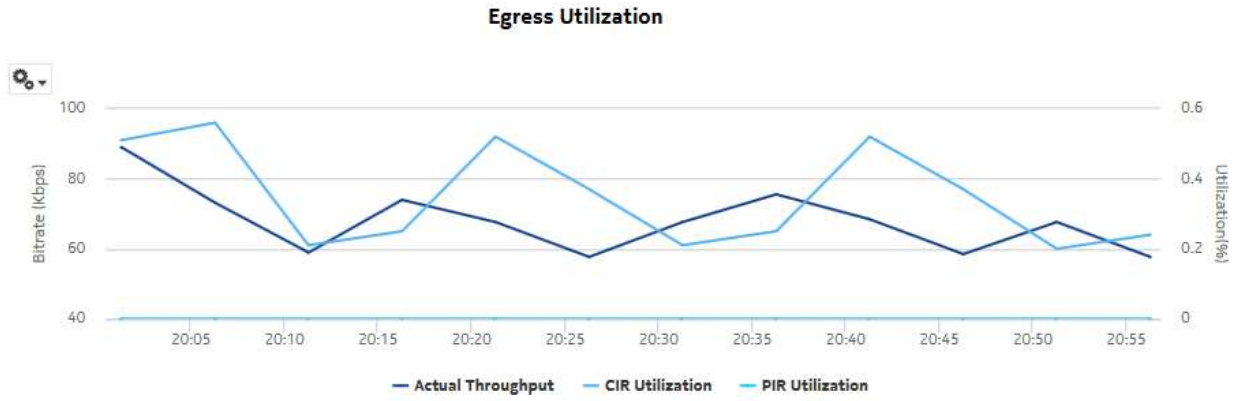


Figure 14-13 SAP Utilization Details report—Egress utilization



14.11 SAP QoS Utilization Details report

14.11.1 SAP QoS Utilization Details report overview

The SAP QoS Utilization Details report shows utilization percentage information for an SAP. This report can be launched on its own or as a drill-down of the Service Utilization Details report.

The report has one time series graph for the selected SAP, direction, and queue, meter, or policer value. The graph displays the actual throughput, CIR, PIR, and percentage utilization.

The report supports the Rate (kbps) rate type, Percent Port, and Percent Local rate types. The report supports the port limit and local limit, which are the CIR/PIR values configured as percentages.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue/policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine SAP QoS utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-11 SAP QoS Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7750 SR 7705 SAR 7705 SAR-H 7705 SAR Hm
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc-tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-T 7210 SAS-X 7705 SAR-H **Note:** 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOc-tets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

14.11.2 Report characteristics

The following table lists the principal report characteristics.

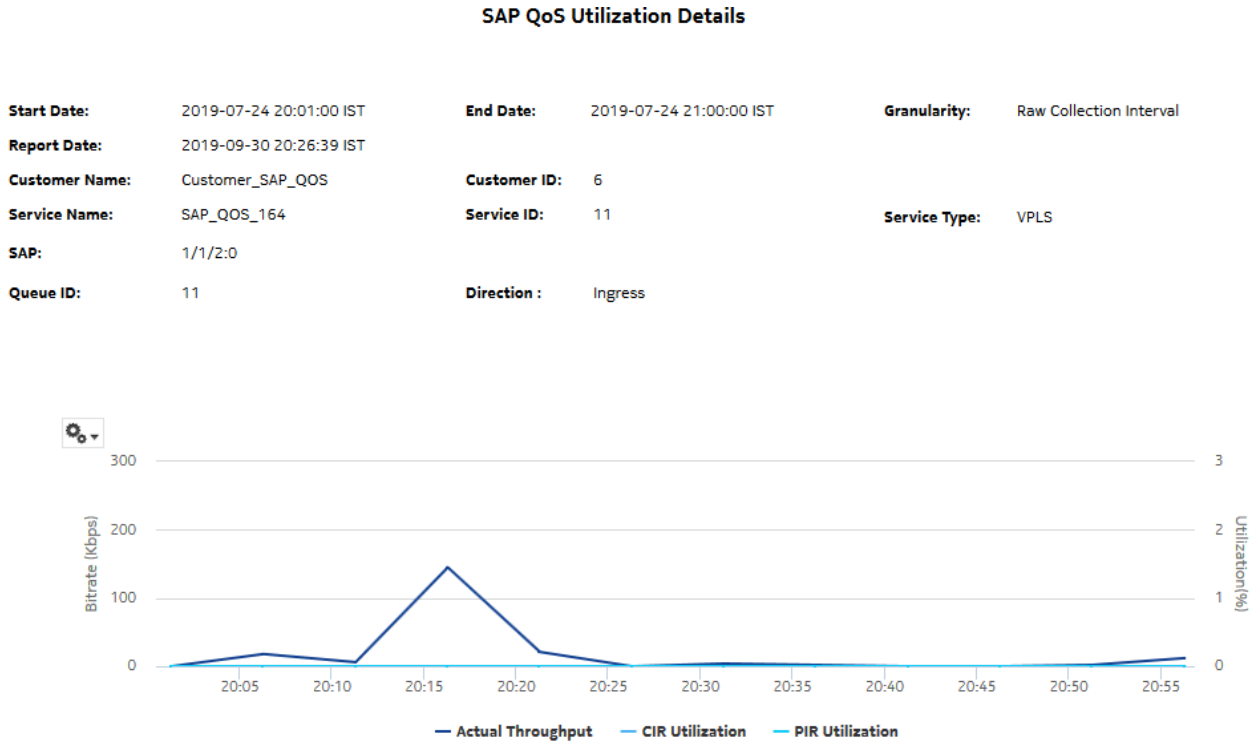
Table 14-12 SAP QoS Utilization Details report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Customer	
	Name or name pattern for service	
	Service	
	Name or name pattern for SAP	
	SAP	
	Direction	Upload, download, or upload and download.
	Queues/Meters/Policers	Queue, Meters, or Policers
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.11.3 Example

The following figure shows a report example.

Figure 14-14 SAP QoS Utilization Details report



14.12 Service and Customer Utilization Summary reports overview

14.12.1 General information

Service and Customer Utilization Summary reports show utilization percentage information for a service or customer.

Note: The utilization data is derived from collected statistics. It will not be an exact match to utilization data available via CLI from the NE.

14.12.2 Prerequisites

The following tasks need to be performed using NSP Classic management for Service and Customer Utilization Summary reports to be created:

- QoS policies must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Classic Management User Guide* for information about QoS policies. The policies must be associated with the SAP on which statistics are to be collected.

- Configure the customer. Customer names must be unique.
- A file policy and a Complete Service Ingress Egress accounting policy must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about creating file and accounting policies.

  The file and accounting policies must be assigned to the SAPs that belong to services for which the Utilization reports will be created.
- To view the report for granularities other than raw data, the following aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

  Note: The reports combine all aggregation tables for both 7750 SR/7705 SAR and 7210 SAS, therefore all the following aggregations need to be enabled to generate a report for either NE type.
  - SAP Interface Stats Aggregator Ingress and SAP Interface Stats Aggregator Egress must be enabled for 7750 SR and 7705 SAR NEs.
  - Service Ingress Octets Aggregator and Service Egress Octets Aggregator must be enabled for 7210 SAS NEs.
- For raw data, the periodic counter must be enabled from the Periodic Counter Manager; see information in the *NSP NFM-P Statistics Management Guide* about creating and managing periodic accounting statistics calculations

Note: Customer Utilization Summary and Customer Uptime Summary reports may not complete if they are run on customers with more than 100 000 services.

14.13 Customer Utilization Summary report

14.13.1 Customer Utilization Summary report overview

The Customer Utilization Summary report shows utilization percentage information for a customer.

The default display is two tables: the first table shows average ingress and egress utilization. The second shows the actual, ingress, and egress utilization for each service on a customer. By default the tables are sorted by average utilization in decreasing value order (worst first), regardless of ingress or egress direction.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue/policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the traffic data is shown in the second table. The percentile calculation is applied to the sum of the traffic, for each service and for the total. For example, if 95 is entered and two services are present, each row in the table shows the 95 percentile value for the sum of traffic on the service. The total value shows the 95 percentile of the sum of traffic for both services. This may not be the same as the sum of the two 95th percentile values. The same total value is shown in the first table for each respective customer.

All queue types are supported in the report.

Utilization results are colored when percentage utilization exceeds user-defined thresholds:

- Yellow coloring indicates that the utilization is equal to or above the warning threshold. The default threshold value is 70%.
- Red coloring indicates that the utilization is equal to or above the critical threshold. The default threshold value is 90%.

The report supports Rate (kbps) rate type, Percent Port, and Percent Local rate types. The report also supports the port limit and local limit, which are the CIR/PIR values configured as percentages.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-13 Customer Utilization Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm all 7705 SAR variants 7750 SR

Table 14-13 Customer Utilization Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgress Octet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-T 7210 SAS-X 7705 SAR-H **Note:** 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngress Octet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-14 Customer Utilization Summary report characteristics

Characteristic	Value
Data type	• Configuration for service related objects derived by the system • Threshold information provided by the user.
Source database	Auxiliary database
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

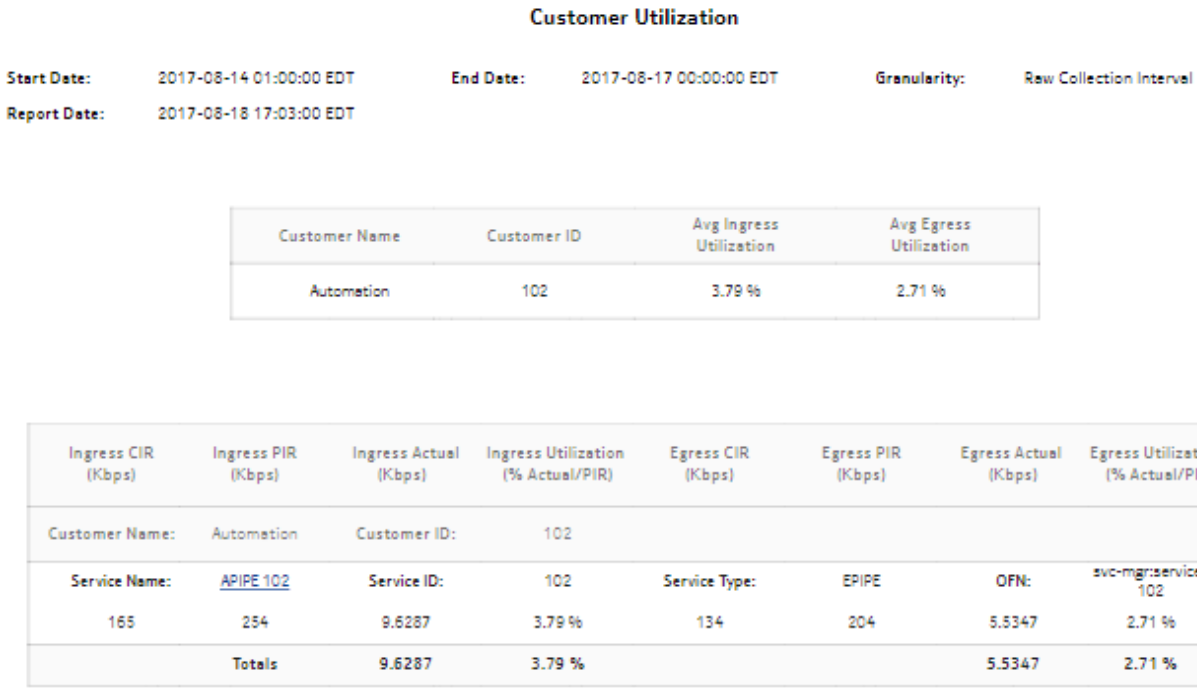
Table 14-14 Customer Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer Name	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Utilization Threshold Yellow %	—
	Utilization Threshold Red %	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Service Utilization report for the selected service.	

14.13.2 Example

The following figure shows a report example.

Figure 14-15 Customer Utilization Summary report



Customer Utilization

Start Date: 2017-08-14 01:00:00 EDT **End Date:** 2017-08-17 00:00:00 EDT **Granularity:** Raw Collection Interval

Report Date: 2017-08-18 17:03:00 EDT

Customer Name	Customer ID	Avg Ingress Utilization	Avg Egress Utilization
Automation	102	3.79 %	2.71 %

Ingress CIR (Kbps)	Ingress PIR (Kbps)	Ingress Actual (Kbps)	Ingress Utilization (% Actual/PIR)	Egress CIR (Kbps)	Egress PIR (Kbps)	Egress Actual (Kbps)	Egress Utilization (% Actual/PIR)
Customer Name:	Automation	Customer ID:	102				
Service Name:	APIPE 102	**Service ID:**	102	**Service Type:**	EPIPE	**OFN:**	svc-mgr:service-102
165	254	9.6287	3.79 %	134	204	5.5347	2.71 %
	Totals	**9.6287**	**3.79 %**			**5.5347**	**2.71 %**

14.14 Service Utilization Details report

14.14.1 Service Utilization Details report overview

The Service Utilization Details report shows utilization percentage information for a service.

The default display includes both graphs and tables. The graphs are a set of time series multi-axis line charts showing total, ingress, egress, actual throughput, CIR, PIR, and percentage utilization for the selected service.

The tables show CIR, PIR, and percentage ingress and egress utilization. By default, the tables are sorted by average utilization in decreasing value order (worst first).The CIR utilization (%) displays the bandwidth utilization in-profile, and not actual throughput, and it is always less than or equal to the CIR value. For an SR NE, when a policer is specified and the statmode is minimal, allOctets statistics are used to calculate utilization. Therefore, CIR utilization (%) cannot be greater than 100%, and is set to 100% when allOctets statistics are greater than the CIR. For Total and SubTotal rows, there are no specified limits, so utilization can be greater than 100%.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue/policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the traffic data is shown in the second table. The percentile calculation is applied to the sum of the traffic, for each direction and for the total. For example, if 95 is entered and two queues are present, each row in the table shows the 95 percentile value for the sum of traffic on the queue. The total value shows the 95 percentile of the sum of traffic for both queues. This may not be the same as the sum of the two 95th percentile values.

The SubTotal row displays the percentile throughput and utilization of an SAP and the Total row displays the same for a service.

All queue types are supported in the report.

Forwarding Class information is shown only for unicast queues.

The report supports the Rate (kbps) rate type, Percent Port, and Percent Local rate types. The report also supports the port limit and local limit, which are the CIR/PIR values configured as percentages.

The ingress utilization is displayed only when there is a QoS and a forwarding class associated with the SAP.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine service utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-15 Service Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-15 Service Utilization Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIngressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H **Note:** 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-16 Service Utilization Details report characteristics

Characteristic	Value
Data type	• Configuration for service related objects derived by the system • Threshold information provided by the user
Source database	Auxiliary database
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-16 Service Utilization Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer Name	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Service Name (or Name Pattern)	
	Utilization Threshold Yellow %	—
	Utilization Threshold Red %	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes: • Click on a Name to launch an SAP QoS Utilization Details report. • Click on the SAP or Full SAP to launch a Service Utilization Details report.	

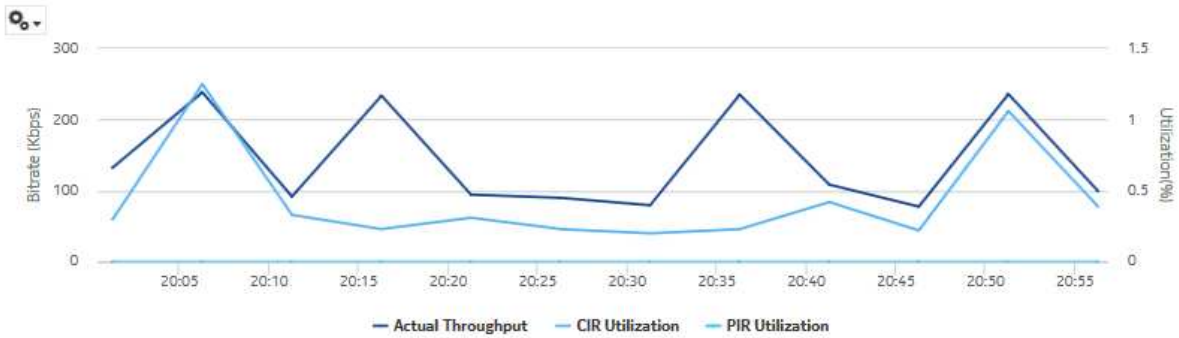
14.14.2 Example

The following figures show report examples.

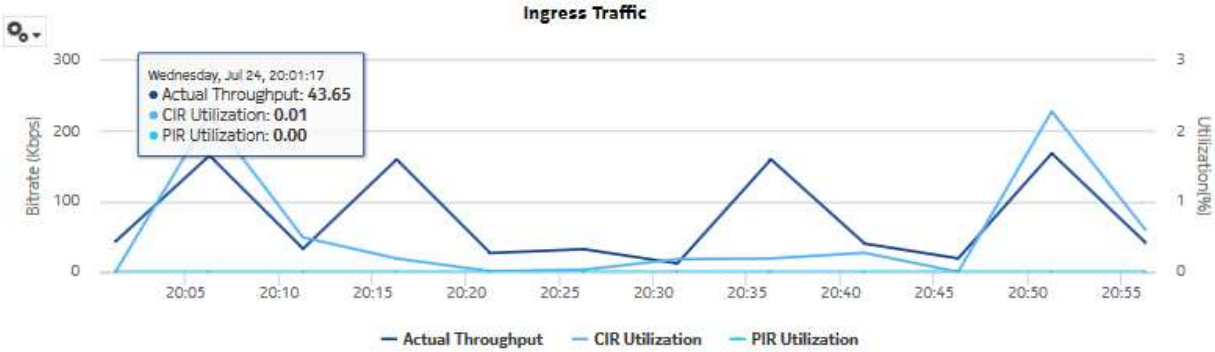
Service Utilization Details

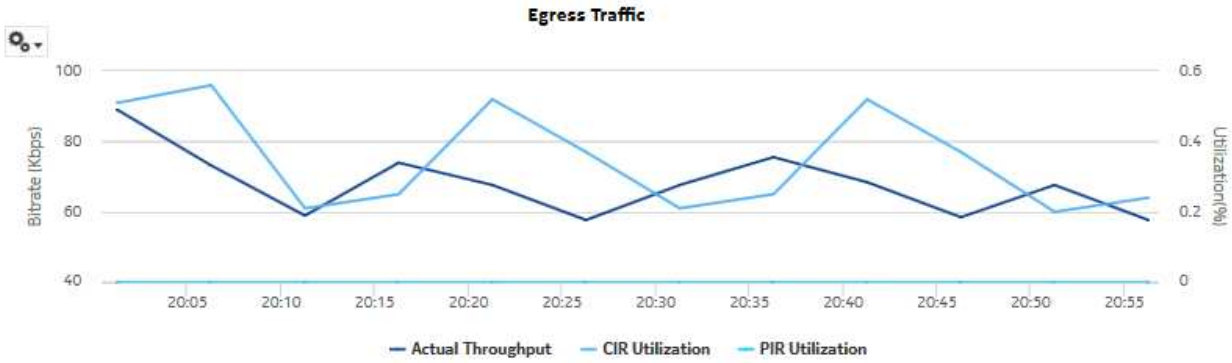
Start Date:	2019-07-24 20:01:00 IST	**End Date:**	2019-07-24 21:00:00 IST	**Granularity:**	Raw Collection Interval
Report Date:	2019-09-30 20:42:44 IST				
Customer Name:	Customer_SAP_QOS	**Customer ID:**	6		
Service Name:	SAP_QOS_164	**Service ID:**	11	**Service Type:**	VPLS
OFN:	svc-mgr:service-211				

Total Traffic



Ingress Traffic





Ingress Utilization

Direction	Queue#	Meter#	Policer#	Name	Forwarding Classes	CIR (Kbps)	PIR (Kbps)	Actual (Kbps) (95 PCTL)	CIR Utilization (95 PCTL)	Utilization (Actual/PIR) (95 PCTL)
SAP:	1/1/2:0		**Full SAP:**	svc-mgr:service-211:35.250.64.164:interface-1/1/2-inner-tag-0-outer-tag-0	**Policy ID:**	4				
Ingress	1	-	-	queue-1	be	0	10000000	76.802	0	0
Ingress	2	-	-	queue-2	l2	1500	300000	14.5945	0.27	0
Ingress	3	-	-	queue-3	af	3000	6000	16.0788	0.25	0.27
Ingress	4	-	-	queue-4	l1	2000	8000	76.802	3.83	0.96
Ingress	11	-	-	queue-11	ef	0	10000000	76.802	0	0
Ingress	-	-	1	policer-1	nc	100	2200	0	0	0
Ingress	-	-	2	policer-2	h1	0	10000000	76.802	0	0
				SubTotal	**Ingress:**	**6600**	**30316200**	**166.6231**	**2.25**	**0**
				TOTAL	**Ingress:**	**6600**	**30316200**	**166.6231**	**2.25**	**0**

Egress Utilization

Direction	Queue#	Meter#	Policer#	Name	Forwarding Classes	CIR (Kbps)	PIR (Kbps)	Actual (Kbps) (95 PCTL)	CIR Utilization (95 PCTL)	Utilization (Actual/PIR) (95 PCTL)
SAP:	1/1/2:0		**Full SAP:**	svc-mgr:service-211:35.250.64.164:interface-1/1/2-inner-tag-0-outer-tag-0	**Policy ID:**	2	**Egress Aggregate Rate Limit PIR:**	-1		
Egress	1	-	-	queue-1	be	0	10000000	28.5937	0	0
Egress	2	-	-	queue-2	l2	4200	12000	29.1211	0.42	0.24
Egress	3	-	-	queue-3	af	4500	7000	25.4161	0.38	0.36
Egress	-	-	1	policer-1	h2	337	5679	0	0	0
Egress	-	-	2	policer-2	ef	300	4564	0	0	0
				SubTotal	**Egress:**	**9337**	**10029243**	**81.5882**	**0.54**	**0**
				TOTAL	**Egress:**	**9337**	**10029243**	**81.5882**	**0.54**	**0**

14.15 Service Utilization per LSP report

14.15.1 Service Utilization per LSP report overview

The Service Utilization per LSP report shows a list of the top LSPs for a selected MPLS interface. The report can be run on its own or as a drill-down from an Interface Utilization Details report.

The report provides a table with a list of services contained within the LSP, and displays the service's percentage utilization of the LSP's bandwidth sorted in decreasing order. For each service in the table, you can drill down to the existing Service Utilization report to see a breakdown of traffic on a per queue basis for each SAP in the service.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-17 Service Utilization per LSP report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	Counters	NE types
Combined SDP Ingress PacketOctets stats aggregator	svt. PWPortBinding svt.SdpBinding	service. CombinedSdpIngressPacketOctets	Accounting, file, and log policies	combinedSvcSdpInEg	totalOctetsForwarded	210 WBX 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR Hm 7710 SR 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC **Note:** The 7705 SAR-H is not supported.
Combined SDP Egress PacketOctets stats aggregator	svt. PWPortBinding svt.SdpBinding	service. CombinedSdpEgressPacketOctets	Accounting, file, and log policies	combinedSvcSdpInEg	totalOctetsForwarded	

Report characteristics

The following table lists the principal report characteristics.

Table 14-18 Service Utilization per LSP report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
LSP types supported	Dynamic, P2MP Dynamic, SR TE, Static LSP

Table 14-18 Service Utilization per LSP report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for NE	
	NE	
	Name or name pattern for interface	
	Interface	
	Name or name pattern for LSP	
	LSP	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a Name to launch a Service Utilization Details report.	

14.15.2 Example

The following figure shows a report example.

Figure 14-16 Service Utilization per LSP report

Service Utilization Per LSP

Start Date:	2019-08-28 12:00:00 IST	**End Date:**	2019-08-31 11:00:00 IST	**Granularity:**	Raw Collection Interval
Report Date:	2019-09-30 20:19:13 IST				
NE ID:	35.250.40.121	**NE Name:**	NE121		
Interface Name:	to112				
LSP Name:	from121to112				

Direction	LSP Name	LSP Bandwidth (Mbps)	Customer Name	Service Name	Service ID	Utilization (%)
Total	from121to112	1000.0	Customer_NFMP	N/A	1	19.81
Ingress	from121to112	1000.0	Customer_NFMP	N/A	1	19.81
Egress	from121to112	1000.0	Customer_NFMP	N/A	1	0.0

**When LSP's bandwidth is 0, the Port's speed is used for display and to calculate utilization.*

14.16 Service Utilization per Port Details report

14.16.1 Service Utilization per Port Details report overview

The Service Utilization per Port Details report shows the utilization of individual services for a selected access port. It is used to identify what services are consuming the majority of the bandwidth on a particular port. This report can be launched on its own or as a drill-down of the Port Throughput Summary report.

The default display is a table showing average ingress and egress utilization. By default the table is sorted by average utilization in decreasing value order (worst first), regardless of ingress or egress direction.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue overrides, policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

The report supports the port limit and local limit, which are the CIR and PIR values configured as percentages.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine utilization patterns for planning future capacity requirements.

Fault impact analysis—If the port is down or suffering performance issues, use this report to quickly identify the impacted services.

The Rate (kbps) rate type, Percent Port, and Percent Local rate types are supported for this report.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. The accounting policy must be assigned to the SAPs that belong to services for which the Utilization reports will be created. For the report to be created as a drill-down from a Port Throughput Summary report, the Port Throughput prerequisites must also be in place; see 14.2 “Port Throughput Summary report” (p. 513). To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-19 Service Utilization per Port Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR **Note:** esat ports are not supported
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-19 Service Utilization per Port Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H **Note:** 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-20 Service Utilization per Port Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-20 Service Utilization per Port Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	NE Name (or NE Pattern)	
	NEs	
	Port Name (or Port Name Pattern)	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Port/ LAG	
	Display Service Full Name	Select the check box to show the full names of the services in the table.
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes: • Click on a Service Name to launch a Ping Service Summary report. • Click on a Service ID to launch an OAM-PM Service Summary report. • Click on an Egress Actual value to launch a SAP Throughput report. • Click on an Egress Utilization value to launch a Service Utilization Details report. The drill-down from the Service Utilization per Port Details report is only supported when the Service Utilization report is performed on a service that is supported by the target report: • Ping Service Summary reports support EPIPE, CPIPE, VPLS, MVPLS, and VPRN • OAM-PM Service Summary reports support EPIPE, VPLS, MVPLS, and VPRN	

14.16.2 Example

The following figure shows a report example.

Figure 14-17 Service Utilization per Port Details

Service Utilization per Port Details

Start Date:	2020-08-20 10:01:00 IST	**End Date:**	2020-08-20 11:00:00 IST	**Granularity:**	Raw Collection Interval
Report Date:	2020-08-24 13:26:12 IST	**Port Description:**	10/100 Ethernet TX	**Port Name:**	Port 1/1/5
NE ID :	35.249.149.25	**NE Name:**	s168_96_54_Both	**Port Mode:**	Access

Customer Name	Customer ID	Service Type	Service Name	Service ID	Service FullName	Ingress CIR (Kbps)	Ingress PIR (Kbps)	Ingress Actual (Kbps)	Ingress Utilization (%Actual/PIR)	Egress CIR (Kbps)	Egress PIR (Kbps)	Egress Actual (Kbps)	Egress Utilization (%Actual/PIR)
vsim_25_cust	13	vpls	VPLS 23	23	svc-mgr:service-6	0	200000	0	0	0	100000	0	0

14.17 Link Utilization Summary report

14.17.1 Link Utilization Summary report overview

The Link Utilization Summary report shows utilization percentage information for selected IGP interfaces.

The default display is a table showing ingress, egress and percentage utilization. By default the table is sorted by average egress utilization in decreasing value order (worst first).

Note: Selecting more than 6000 interfaces may affect performance. Nokia recommends selecting only necessary interfaces.

The donut chart segments are colored based on the interface average egress utilization percentages, as follows:

- green: 0% to 20%
- blue: 21% to 40%
- purple: 41% to 60%
- pink: 61% to 80%
- red: 81% to 100%

Note: An operational CPAM with CPAA must be in use for the IGP Metric and Remote Node fields in the report to be populated.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

For a Link Utilization Summary report to be created for an interface, the following items must be performed:

- Assign the interface to either an IS-IS or an OSPF context, that is, enable the interface for IP
- If needed, assign the interface to an MPLS context, that is, also enable the interface for MPLS

The report shows utilization data for the statistics that are enabled. For example, if the interface is running both MPLS and IP but only IP statistics are enabled, the report shows IP utilization data only.

Note: The utilization data is derived from collected statistics. It will not be an exact match to utilization data available via CLI from the NE.

For an Interface Utilization Details report to be available as a drill-down, the MPLS LSP Egress Stats Aggregator must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29). If the aggregator is not enabled, the Link Utilization Summary report can still be created, but the drill-down will not be available.

To avoid errors, Nokia recommends creating the report with 4 500 interfaces or less.

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-21 Link Utilization Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Ip Interface Stats Aggregator	rtr.NetworkInterface	rtr.IpInterfaceStats	Performance statistics	vRtrIfStatsEntry	7250 IXR 7705 SAR-H 7750-SR **Note:** 7210 SAS is not supported

Table 14-21 Link Utilization Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Ip Interface Additional Stats Aggregator	rtr.NetworkInterface	rtr. IpInterfaceAddition-alStats	Performance statistics	vRtrIfStatsExtEntry	7250 IXR 7750-SR **Notes:** • 7210 SAS is not supported • 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
SAR Ip Interface Stats Aggregator	rtr.NetworkInterface	rtr. SarIpInterfaceStats	Performance statistics	—	7705 SAR 7705 SAR-H 7705 SAR Hm **Note:** 7210 SAS is not supported
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR Omnisystem NE

Report characteristics

The following table lists the principal report characteristics.

Table 14-22 Link Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-22 Link Utilization Summary report characteristics (continued)

Characteristic	Value
Interface types supported	IP (IS-IS, OSPF, RIP), MPLS

Table 14-22 Link Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	NE Name (or NE Name Pattern)	
	NEs	
	Interface Name (or Interface Name Pattern)	
	Interfaces	
	Rank	Value to use for the Top-N LSPs in the Interface Details drill-down report. The maximum is 1000; default is 10. Will only be relevant when MPLS interfaces are present.
	Reference Speed	Interface Speed or Physical Port Speed Notes: • IP-only utilization can be calculated with Interface Speed. • MPLS-only and IP+MPLS calculations can only be calculated if the Reference Speed is Physical Port Speed.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

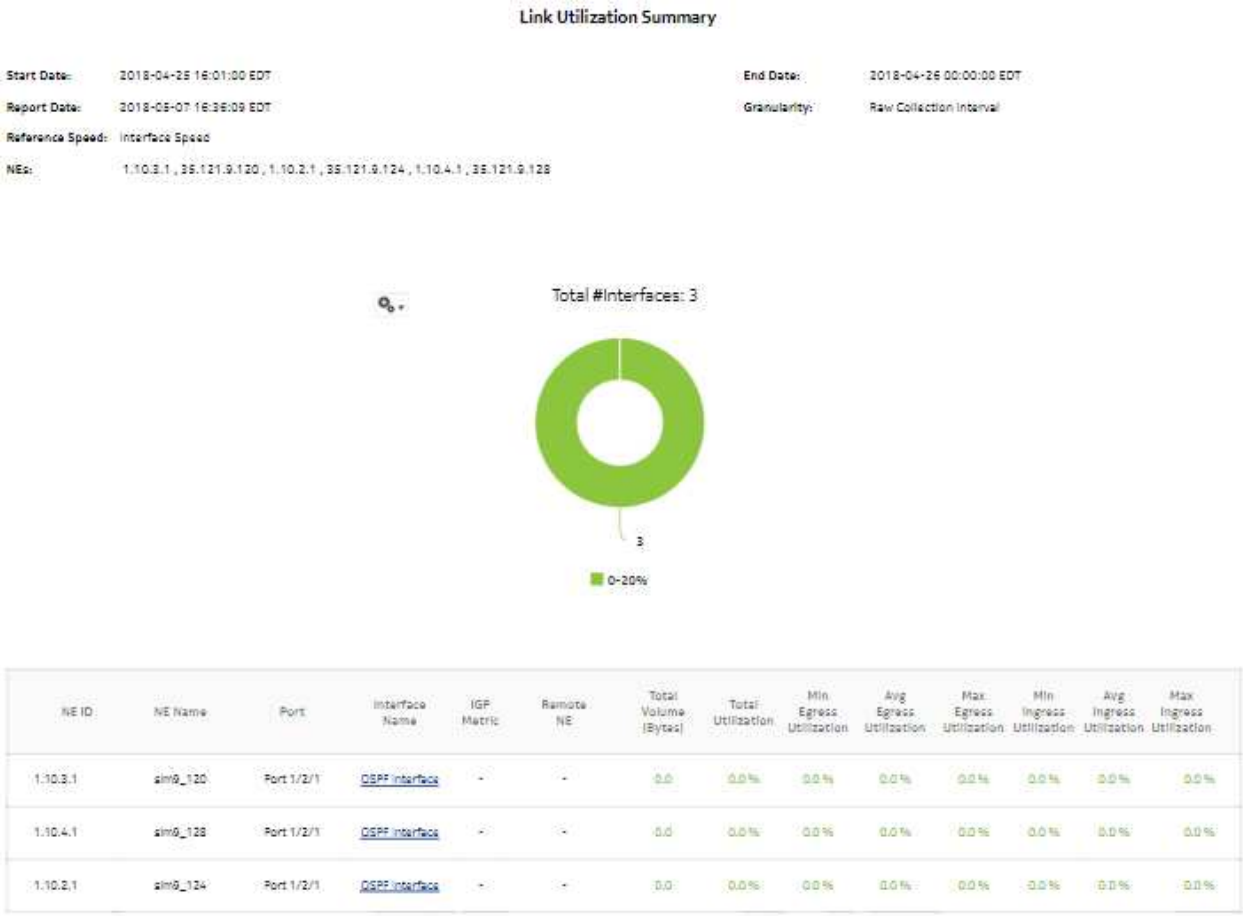
Table 14-22 Link Utilization Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Click on an interface name to open an Interface Utilization Details report for the selected interface.

14.17.2 Example

The following figure shows a report example.

Figure 14-18 Link Utilization Summary report



14.18 Port Forwarding Class Details report

14.18.1 Port Forwarding Class Details report overview

The Port Forwarding Class Details report shows throughput and utilization information for each forwarding class of a selected port or LAG. The report can be run on its own or as a drill-down from a Port Throughput Summary report.

The default display is a summary table and a set of multi-axis graphs, showing total bitrate and utilization of the port or LAG, the bitrate of each forwarding class, and any configured thresholds.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a port or LAG basis, to plan for capacity requirements.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, table details do not display.
- When the report is exported to the RTF file type, the report does not display completely.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following tasks need to be performed using NSP Classic management for Port Forwarding Class Details reports to be created:

- A Network Queue policy must be configured and distributed on the NE.
- The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. The accounting policies must be assigned to the ports or LAGs for which the Forwarding Class Details reports will be created. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-23 Port Forwarding Class Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Complete Network Ingress Packet Octets	equipment.Port ethernetequipment.EthernetPortSpecifics lag.Interface	CompleteNetwork-IngressPacketOctets	Accounting, file, and log policies	completeNetIngrEg policy	7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS **Note:** SR variants use the network queue policy to retrieve statistics at the FC level
Complete Network Egress Packet Octets	equipment.Port ethernetequipment.EthernetPortSpecifics lag.Interface	CompleteNet-workEgressPack-etOctets	Accounting, file, and log policies	completeNet-IngrEgr policy	7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS **Note:** SR variants use the network queue policy to retrieve statistics at the FC level

Table 14-23 Port Forwarding Class Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Ingress Octets	equipment.Port	NetworkIngressOctets	Accounting, file, and log policies	netIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-E 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC **Note:** SAS NEs use the network policy to retrieve statistics at the FC level; supports meters only
Network Egress Octets	equipment.Port	NetworkEgressOctets	Accounting, file, and log policies	netEgressOctet policy **Note:** Network policy is not supported for network egress octets to retrieve statistics at the FC level	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSG 7850 VSA-8 7950 XRS VSC

Report characteristics

The following table lists the principal report characteristics.

Table 14-24 Port Forwarding Class Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-24 Port Forwarding Class Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for NEs	
	NEs	
	Port Modes	Select Network or Hybrid. Select individual items or click **Select All**.
	Port/LAG	Select one radio button
	Name or name pattern for ports	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Physical Port / LAG	
	KPI	Raw Granularity: • Total Traffic – Utilization • Total Traffic – Bitrate • Egress Traffic – Utilization • Egress Traffic – Bitrate • Ingress Traffic – Utilization • Ingress Traffic – Bitrate Granularities: Minimum, maximum, and average of all KPIs **Note:** For the SAS NE, the report shows only one direction of data at a time: Either egress traffic or ingress traffic. **Note:** When you select a single KPI, an extra space between the graph and the table displays in the report.
	Total Threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress Threshold	
	Egress Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

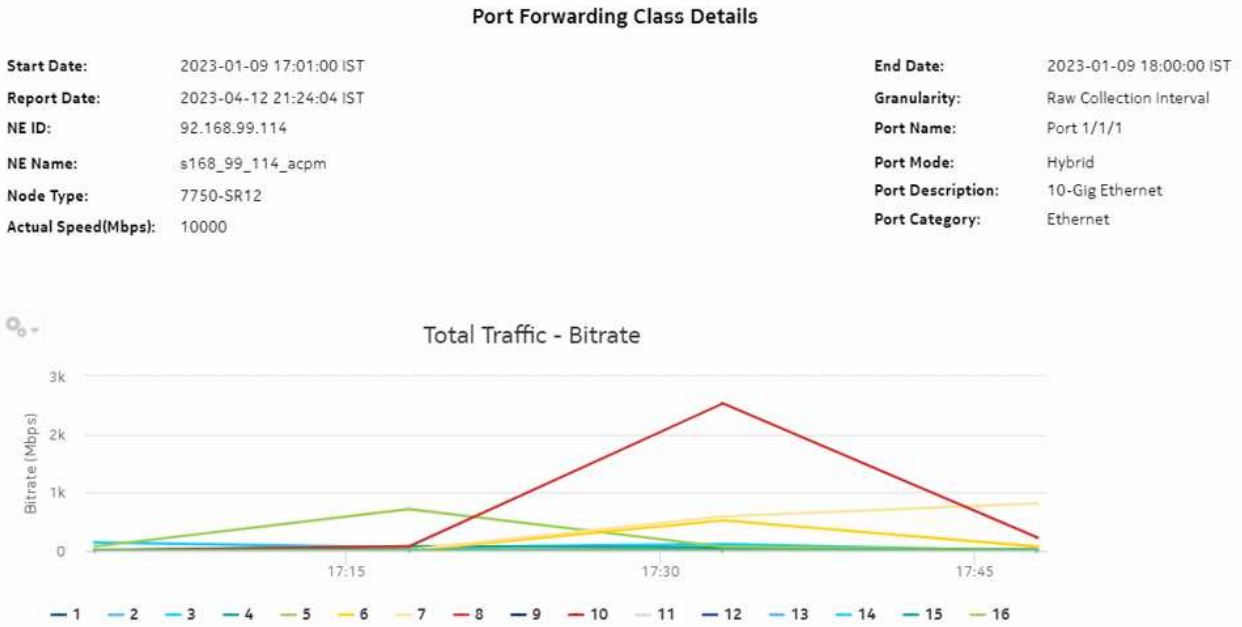
Table 14-24 Port Forwarding Class Details report characteristics (continued)

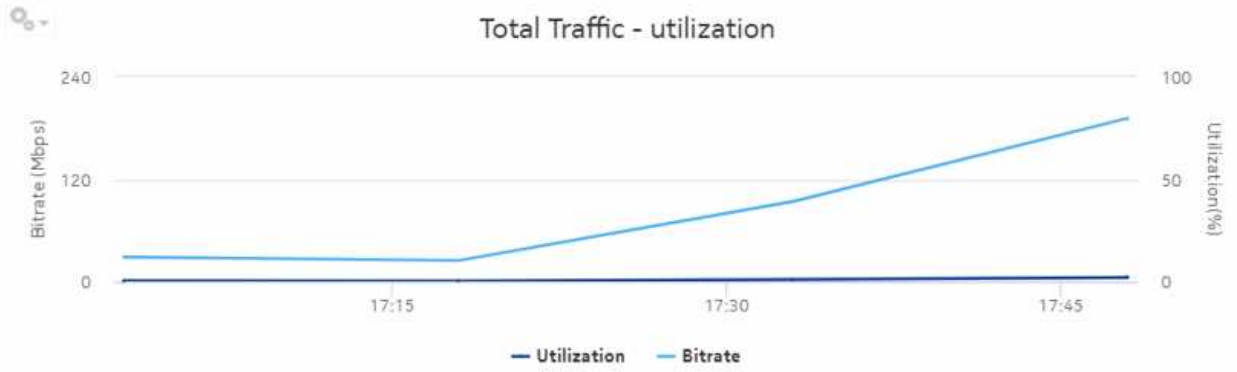
Characteristic	Value
Drill-down support	No

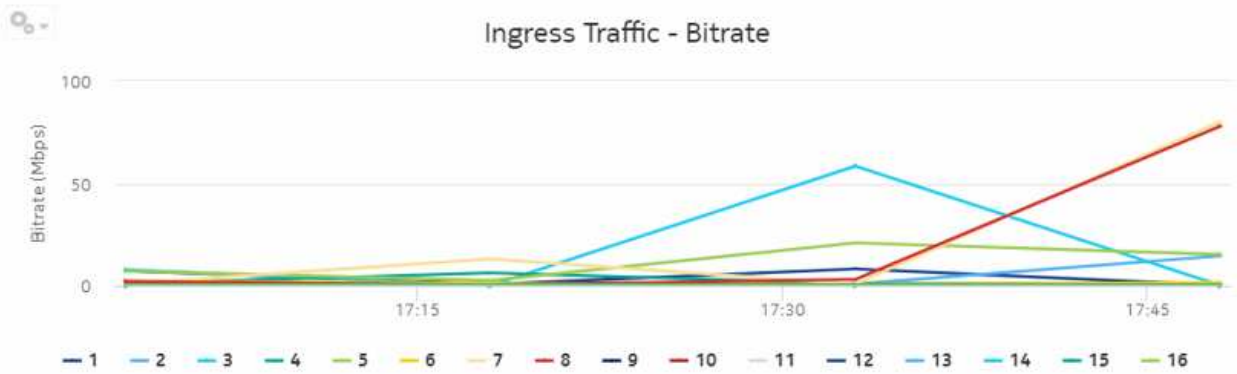
14.18.2 Example

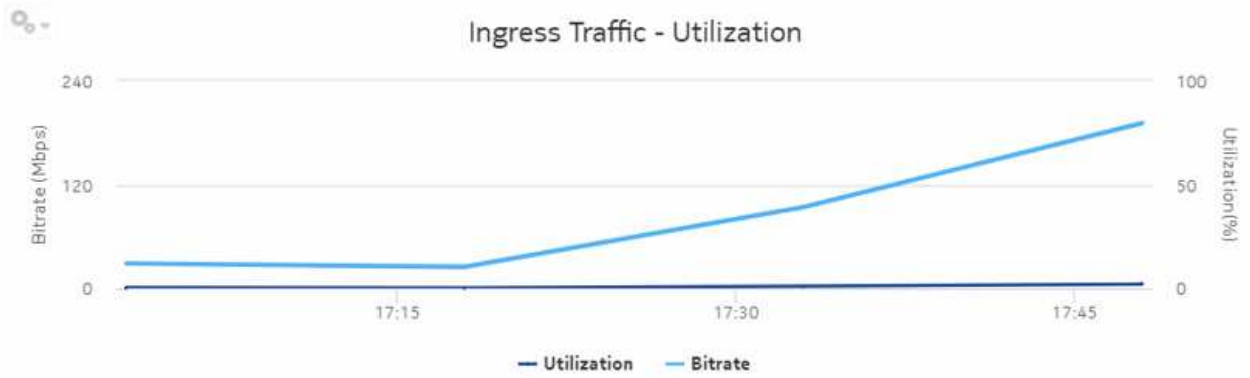
The following figures show a report example.

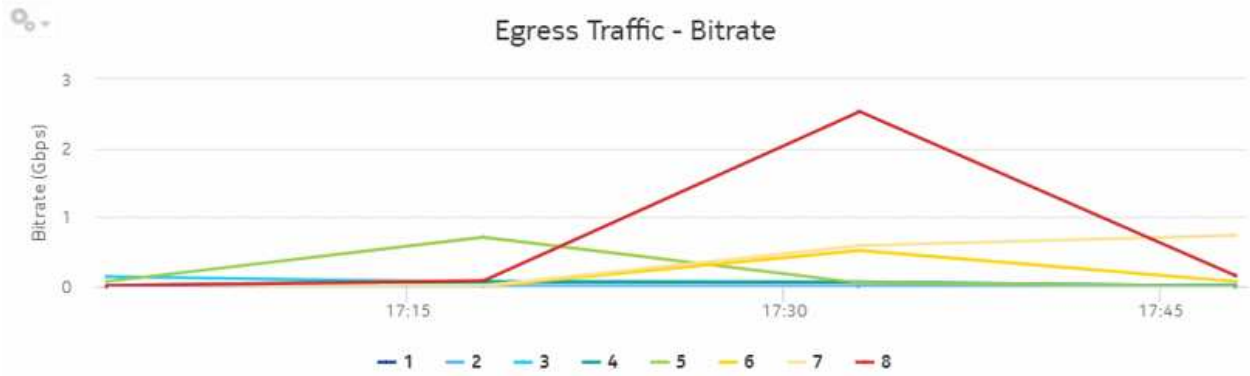
Figure 14-19 Port Forwarding Class Details report

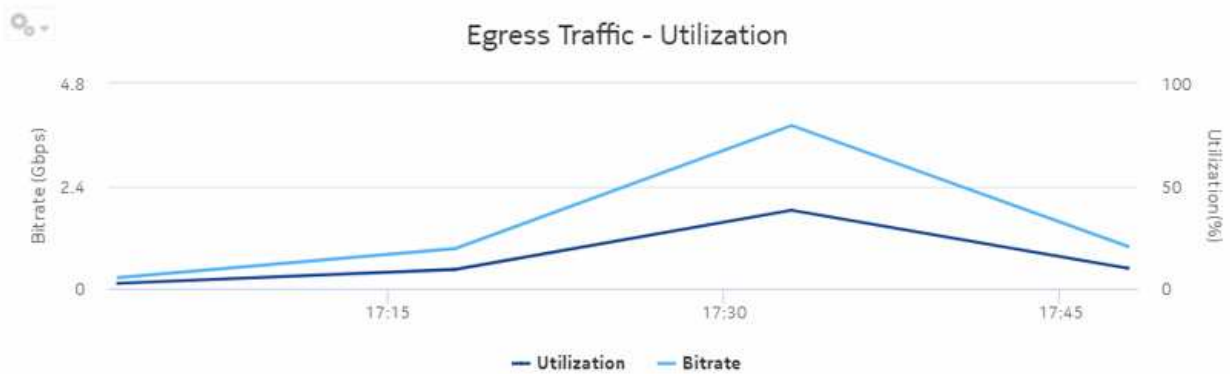












Queue Id	Forwarding Class	Avg Ingress Utilization(%)	Avg Ingress Throughput(Mbps)	Max Ingress Utilization(%)	Max Ingress Throughput(Mbps)	Max Ingress Time	Avg Egress Utilization(%)	Avg Egress Throughput(Mbps)	Max Egress Utilization(%)	Max Egress Throughput(Mbps)	Max Egress Time
1	be	0.04	4.07	0.05	5.21	1/9/23 5:33 PM	0.03	2.69	0.09	9.10	1/9/23 5:03 PM
2	l2	0.04	4.01	0.15	14.52	1/9/23 5:48 PM	0.05	4.54	0.15	15.14	1/9/23 5:48 PM
3	af	0.17	16.60	0.58	58.43	1/9/23 5:33 PM	0.63	62.56	1.36	135.94	1/9/23 5:03 PM
4	l1	0.02	2.32	0.06	6.29	1/9/23 5:18 PM	0.35	34.98	0.72	71.92	1/9/23 5:18 PM
5	h2	0.11	11.49	0.21	20.92	1/9/23 5:33 PM	2.08	208.33	7.13	713.48	1/9/23 5:18 PM
6	ef	0.01	1.37	0.02	2.27	1/9/23 5:03 PM	1.5	150.10	5.22	521.83	1/9/23 5:33 PM
7	h1	0.24	23.77	0.8	80.26	1/9/23 5:48 PM	3.36	336.26	7.36	735.88	1/9/23 5:48 PM
8	nc	0.21	20.87	0.76	77.97	1/9/23 5:48 PM	6.91	690.97	25.3	2529.76	1/9/23 5:33 PM
9(Mcast)	be	0.0	0.01	0.0	0.02	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
10(Mcast)	l2	0.0	0.02	0.0	0.05	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
11(Mcast)	af	0.0	0.01	0.0	0.03	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
12(Mcast)	l1	0.0	0.02	0.0	0.04	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
13(Mcast)	h2	0.0	0.03	0.0	0.06	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
14(Mcast)	ef	0.0	0.01	0.0	0.03	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
15(Mcast)	h1	0.0	0.01	0.0	0.02	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
16(Mcast)	nc	0.0	0.02	0.0	0.04	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A

14.19 Port/LAG Details report

14.19.1 Port/LAG Details report overview

The Port/LAG Details report shows the throughput and utilization by a specified port, LAG, or MC LAG. The default display is a set of time series graphs, showing total, ingress, and egress traffic. The report can be run by itself or as a drill-down from a Port Throughput Summary report. The report can also be displayed along with baseline values. See 1.1.5 “Baselining in Analytics reports” (p. 20) for more information about how baselines are defined.

Additionally, the plot or graph shows the actual values at a specified time.

To enable or disable a baseline box plot, click on the baseline item in the graph legend. When you run the report for MC-LAG or LAG, enable only one baseline legend to align the baseline plot with the axis.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a port, LAG, or MC LAG basis, to plan for capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-25 Port/LAG Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Interface Utilization Statistics Aggregator	equipment.PhysicalPort lag.Interface	equipment.InterfaceAdditionalStats	Performance statistics	ifXEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
PortNetIngressStats Error Stats Aggregator	equipment.PhysicalPort	equipment.PortNetIngressStats	Performance statistics	TIMETRA-PORT-MIB.tmnxPortNetIngressStatsEntry	7705 SAR 7705 SAR-H
PortNetEgressStats Error Stats Aggregator	equipment.PhysicalPort	equipment.PortNetEgressStats	Performance statistics	TIMETRA-PORT-MIB.tmnxPortNetEgressStatsEntry	7705 SAR 7705 SAR-H
Dot3Stats Error Stats Aggregator	equipment.PhysicalPort	ethernetequipment.Dot3Stats	Performance statistics	EtherLike-MIB.dot3StatsEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
Interface Error Stats Aggregator	equipmet.PhysicalPort lag.Interface	equipment.InterfaceStats	Performance statistics	ifEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
EthernetStats Error Stats Aggregator	equipment.PhysicalPort	ethernetequipment.EthernetStatsLogRecord	Performance statistics	etherStatsEntry	7210 SAS 7250 IXR 7705 SAR-H 7705 SAR-Hm 7750 SR
AdditionalEthernetStats Error Stats Aggregator	equipment.PhysicalPort	ethernetequipment.AdditionalEthernetStats	Performance statistics	tmnxPortEtherEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR-Hm 7750 SR
IngressPortFwdEngDropReasonStats Error Stats Aggregator	equipment.PhysicalPort	equipment.IngressPortFwdEngDropReasonStats	Performance statistics	TIMETRA-PORT-MIB.tPortIngressFwdEngDRStatsEntry	7250 IXR 7705 SAR-Hm 7750 SR **Note:** The 7705 SAR-H is not supported

Report characteristics

The following table lists the principal report characteristics.

Table 14-26 Port/LAG Details report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items.
	Node Name (or Node Name Pattern)	
	Nodes	
	Port Modes	Select Access, Network, or Hybrid. Select individual items or click **Select All**.
	Port-LAG/MC LAG	Select one radio button
	Port Name (or Port Name Pattern)	Select Access, Network, or Hybrid. Select individual items.
	Physical Ports / LAGs / MC LAGs	
	Enable Baseline	Select the check box to include baseline data in the report.
	Baseline End Date	Calendar date or relative date (for example, two days ago) and time
	Baseline Report Range	Length of time to calculate the baseline, in minutes, hours, days, or months. A longer baseline range will improve baseline accuracy.
	Baseline Definition	Select a definition to calculate the baseline. For example, “hour of day” means that current data is compared against the baseline calculated from the historical data from the same hour within the baseline time frame.
	Baseline NEs	Select one NE to use as an example for baseline data

Table 14-26 Port/LAG Details report characteristics (continued)

Characteristic	Value	
Report inputs	Baseline port mode	Select Access, Network, or Hybrid. Select individual items or click **Select All**.
	Name or name pattern for baseline ports	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Baseline port or LAG or MC-LAG	Select a baseline port, LAG, or MC-LAG.
	Total Threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes: • Click on the utilization plot in the graph to open a Link Utilization Summary report. • Click on the bitrate plot in the graph to open an Interface Utilization Summary report.	

14.19.2 Example

The following figures show a report example.

Figure 14-20 Port/LAG Details report—Total Traffic – Bitrate

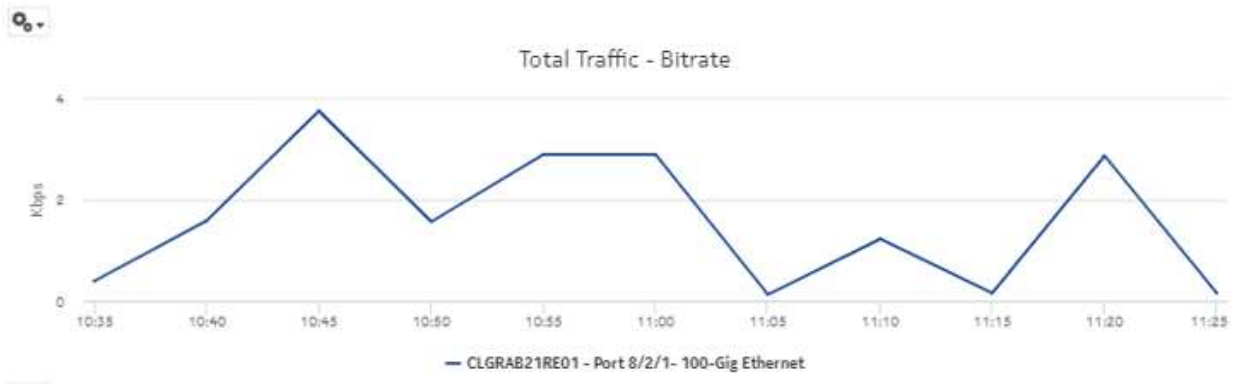


Figure 14-21 Port/LAG Details report—Total Traffic – Utilization

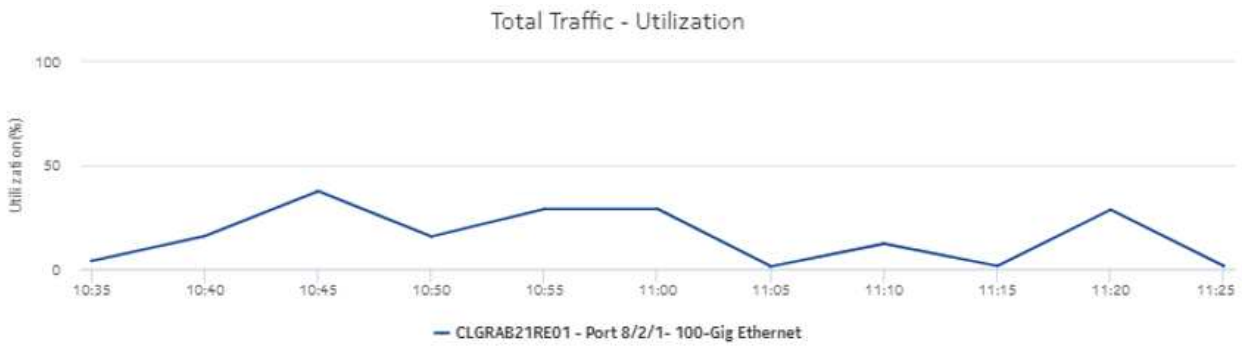


Figure 14-22 Port/LAG Details report—Ingress Traffic – Bitrate

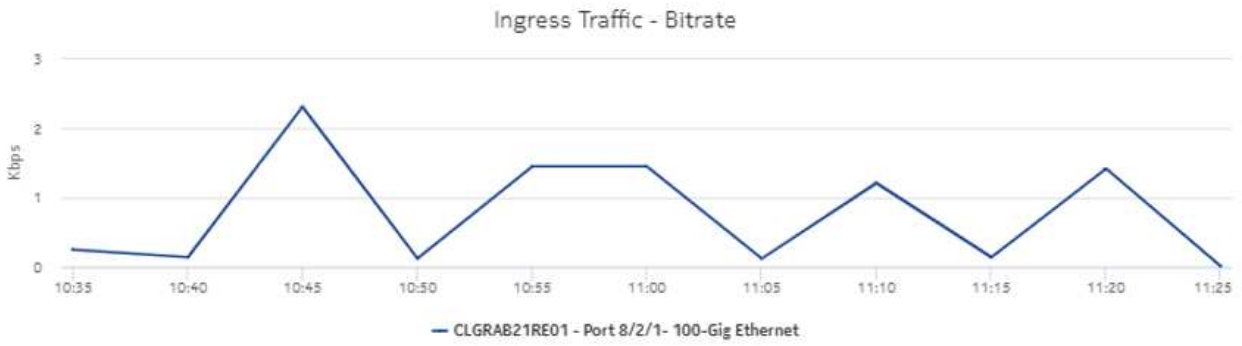


Figure 14-23 Port/LAG Details report—Ingress Traffic – Utilization

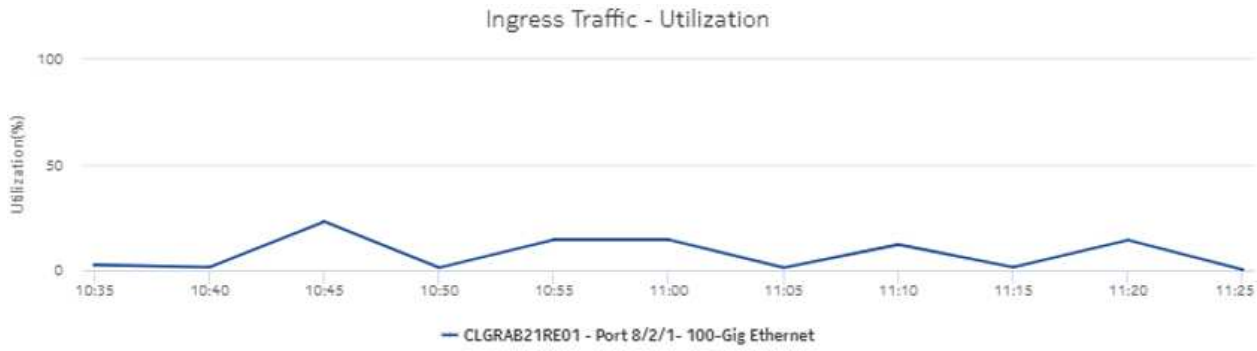


Figure 14-24 Port/LAG Details report—Egress Traffic – Bitrate

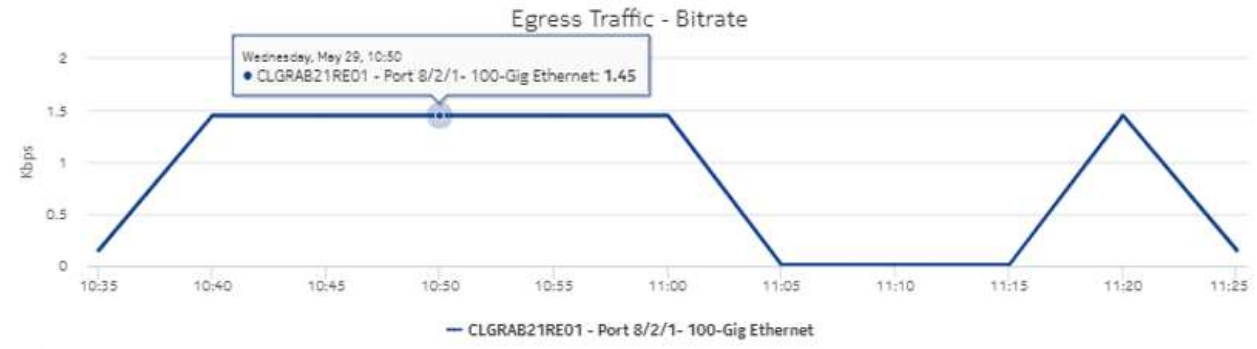


Figure 14-25 Port/LAG Details report—Egress traffic – Utilization

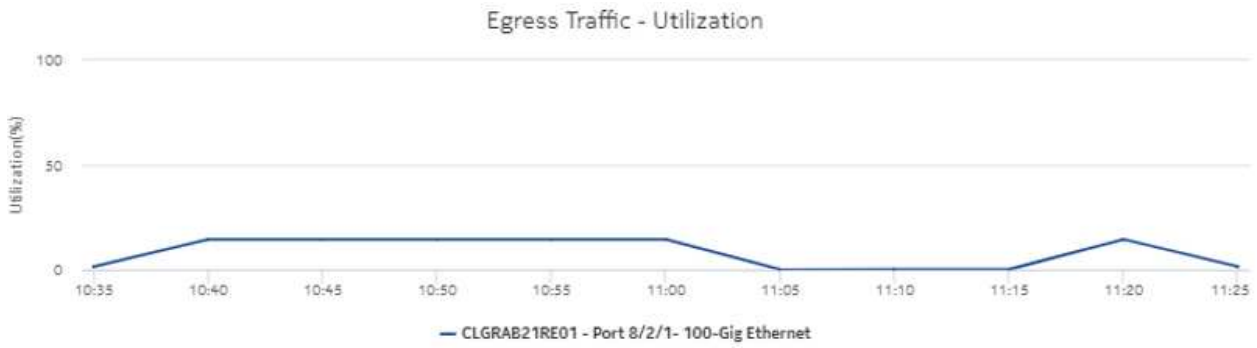


Figure 14-26 Port/LAG Details report with baseline—Total Traffic

Port-LAG Details

Start Date:	2019-05-29 10:31:00 IST	**End Date:**	2019-05-29 11:30:00 IST
Report Date:	2019-05-31 13:40:27 IST	**Granularity:**	Raw Collection Interval
NE ID:	35.250.64.165	**NE Name:**	CLGRAB21RE01
Port Name:	Port 8/2/1	**Port Mode:**	Network
Baseline Start Date:	2019-05-26 12:00:00 IST	**Baseline End Date:**	2019-05-29 11:30:00 IST
Baseline Definition:	Raw + Hour of Day		
Baseline NE ID:	35.250.64.165	**Baseline NE Name:**	CLGRAB21RE01
Baseline Port Name:	Port 8/2/1	**Baseline Port Mode:**	Network

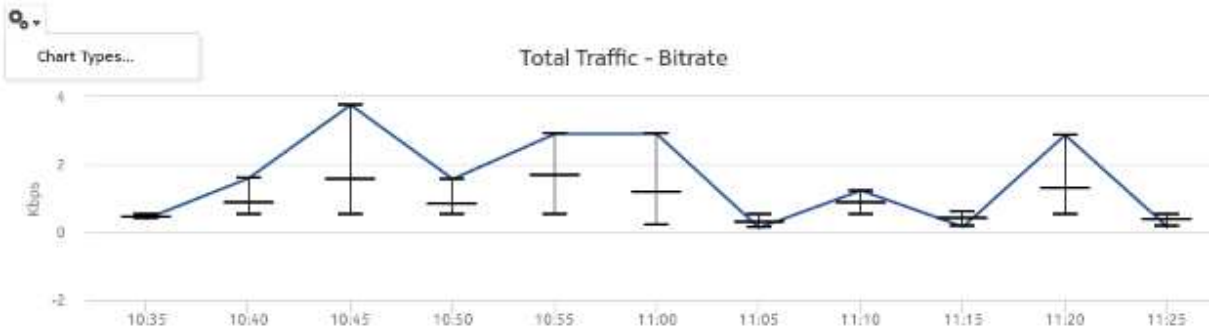


Figure 14-27 Port/LAG Details report with baseline—Ingress Traffic – Bitrate

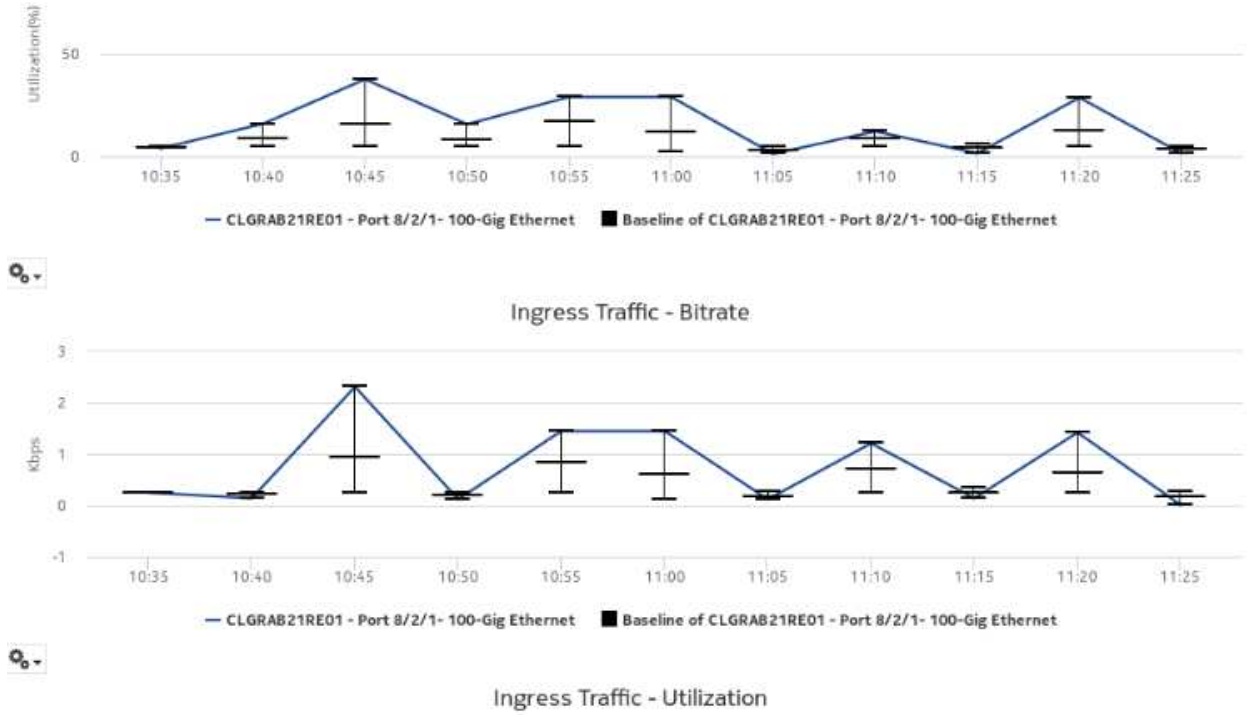


Figure 14-28 Port/LAG Details report with baseline—Egress Traffic – Bitrate

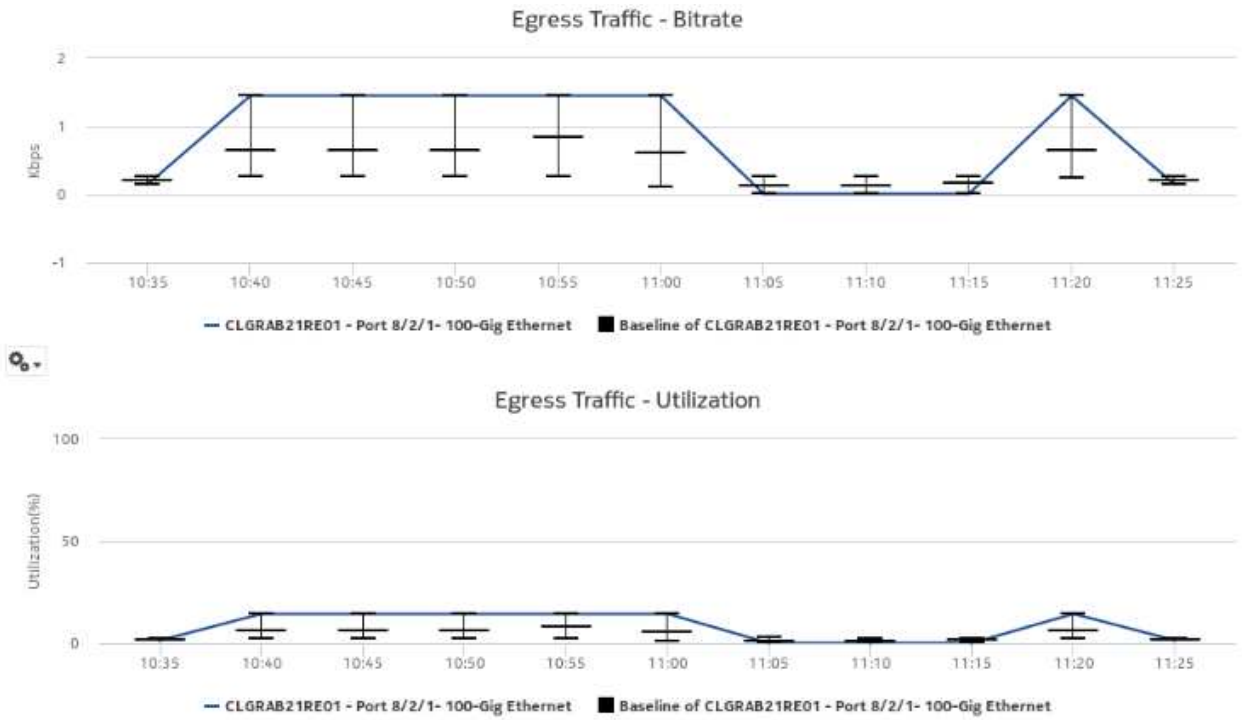
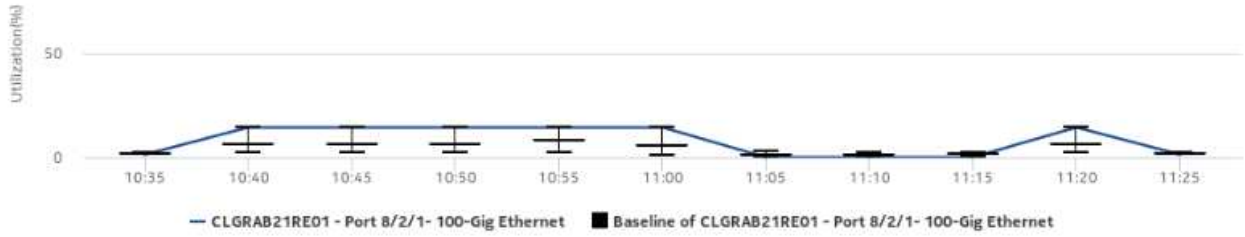


Figure 14-29 Port/LAG Details report—Baseline information



Stat	Counter	Count
Dot3 Stats		**490191**
	SQE Test Errors	265105
	Single Collision Frames	225086
	Alignment Errors	0
	Carrier Sense Errors	0
	Excessive Collisions	0
	FCS Errors	0
	Frame Too Long	0
	Internal MAC Receive Errors	0
	Internal MAC Transmit Errors	0
	Late Collisions	0
	Multiple Collision Frames	0

14.20 Interface Overview report

14.20.1 Interface Overview report overview

The Interface Overview report shows an overview of protocol, TOS, host, and conversation traffic for a selected IGP interface. The report can be run on its own or as a drill-down from an Interface Utilization Summary report.

The default display is a set of graphs showing ingress, egress stacked trends and summaries.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Prerequisites

The collection of IPFIX statistics, which are also called system Cflowd or NetFlow v10 statistics, must be enabled; see the *NSP NFM-P Statistics Management Guide*.

To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-27 Interface Overview report prerequisites

Aggregator name	Statistics collection	Details	NE types
Analytics_cflowd_sys_pt_proto_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_pt_proto_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS
Analytics_cflowd_sys_ot_tos_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_ot_tos_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS
Analytics_cflowd_sys_ht_if_hip_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_ht_if_hip_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS
Analytics_cflowd_sys_ct_if_ip1ip2_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_ct_if_ip1ip2_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS

Notes:

1. **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 14-28 Interface Overview report characteristics

Characteristic	Value
Data type	Statistics
Statistics type	IPFIX
NSP Flow Collector required	Yes
Source database	Auxiliary database

Table 14-28 Interface Overview report characteristics (continued)

Characteristic	Value	
Interface types supported	IP (IS-IS, OSPF, RIP), MPLS	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	NE (or NE Name Pattern)	
	NE	
	Interface Name (or Name Pattern)	
	Interface	
	Direction	Ingress, Egress, or Both
	Top N	Number of interfaces to report
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.20.2 Example

The following figures show a report example.

Figure 14-30 Interface Overview report—Stacked Protocol Trend - In

Figure 14-31 Interface Overview report—Stacked Protocol Trend – Out

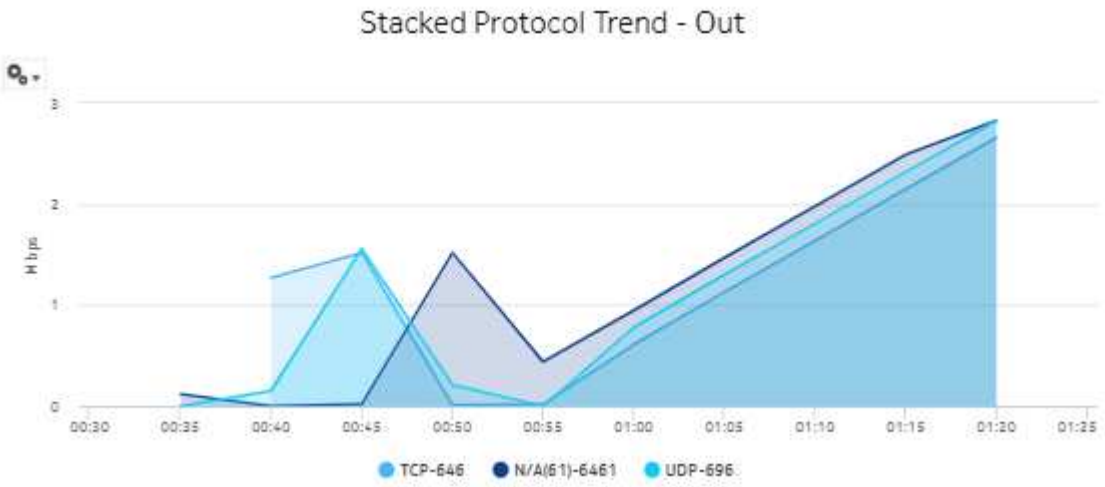


Figure 14-32 Interface Overview report, Stacked TOS Trend – In

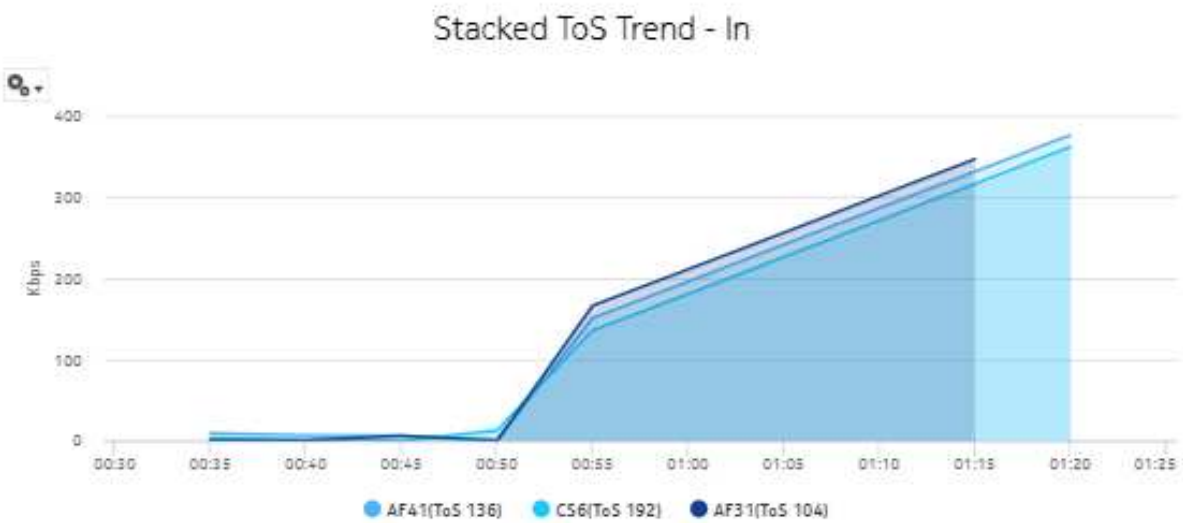


Figure 14-33 Interface Overview report—Stacked TOS Trend – Out

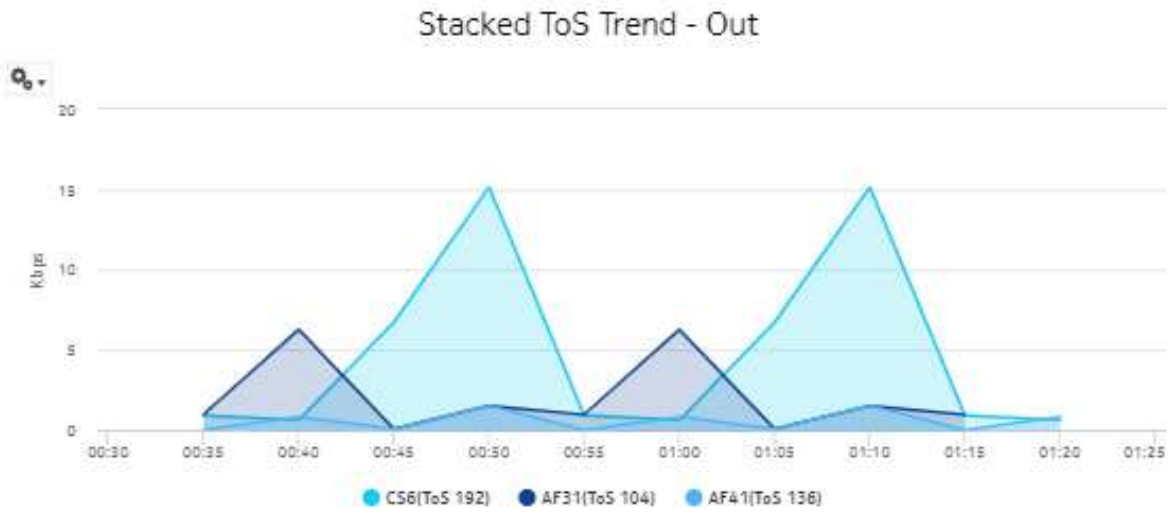


Figure 14-34 Interface Overview report—Host Summary – Volume – From

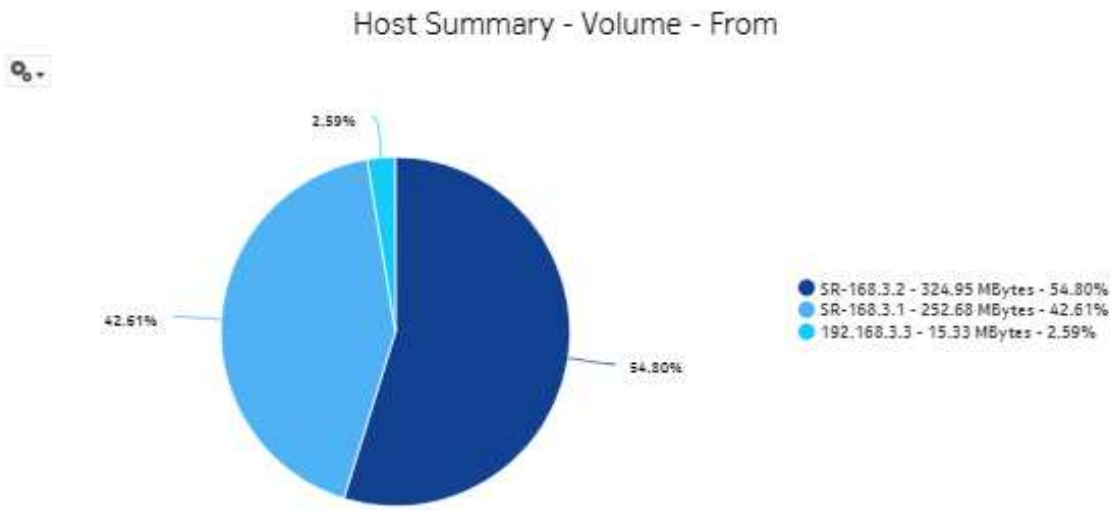


Figure 14-35 Interface Overview report—Host Summary - Volume - To

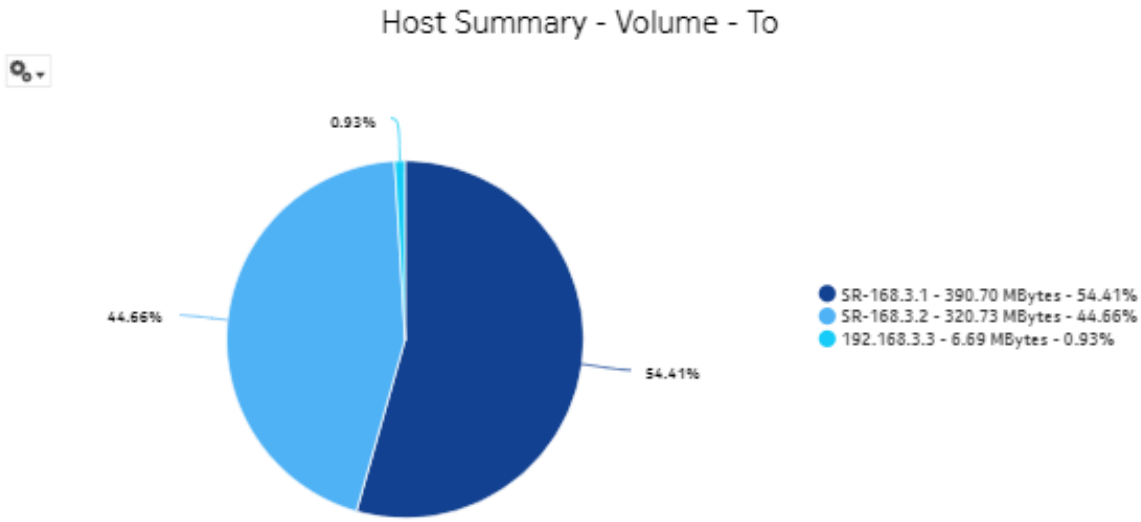
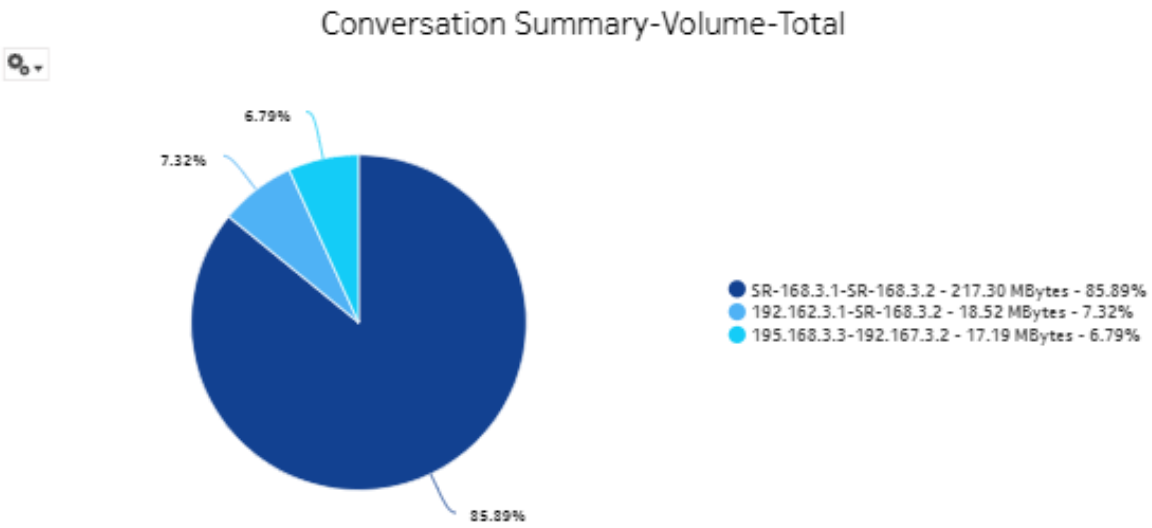


Figure 14-36 Interface Overview report—Conversion Summary - Volume - Total



14.21 Interface Utilization Details report

14.21.1 Interface Utilization Details report overview

The Interface Utilization Details report shows utilization details for a selected IGP interface. The report can be run on its own or as a drill-down from a Link Utilization report.

The default display is a set of graphs and a table showing ingress, egress utilization, reference speeds, and percentage interface consumption. By default the table is sorted by average egress interface consumption in decreasing value order (worst first).

Percentage interface consumption is based on average MPLS interface throughput divided by average LSP throughput.

The results in the table are colored based on interface consumption percentage ranges:

- green: 0% to 20%
- turquoise: 21% to 40%
- blue: 41% to 60%
- purple: 61% to 80%
- red: 81% to 100%

In the graph, all legends will be visible if any of the statistical data is available.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

For an Interface Utilization Details Report to be created for an interface, the “Prerequisites” (p. 567) for a Link Utilization report must be performed.

To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-29 Interface Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Ip Interface Stats Aggregator	rtr.Network Interface	rtr.IpInterfaceStats	Performance statistics	vRtrIfStatsEntry	7250 IXR 7705 SAR-H 7750 SR **Note:** 7210 SAS is not supported
Ip Interface Additional Stats Aggregator	rtr.Network Interface	rtr. IpInterfaceAddition-alStats	Performance statistics	vRtrIfStatsExtEntry	7250 IXR 7750 SR **Notes:** • 7210 SAS is not supported • 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
SAR Ip Interface Stats Aggregator	rtr.Network Interface	rtr. SarIpInterfaceStats	Performance statistics	—	7705 SAR 7705 SAR-H 7705 SAR Hm **Note:** 7210 SAS is not supported
Mpls Interface Stats Aggregator	rtr.Network Interface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR Omnisystem NEs

Table 14-29 Interface Utilization Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
MPLS LSP Egress Stats Aggregator	rtr.Network Interface	mpls. MplsLspE-gressStats	Performance statistics	—	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR **Note:** 7210 SAS is not supported

Report characteristics

The following table lists the principal report characteristics.

Table 14-30 Interface Utilization Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Interface types supported	IP (IS-IS, OSPF, RIP), MPLS

Table 14-30 Interface Utilization Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node Name (or Node Name Pattern)	
	Nodes	
	Interface Name (or Interface Name Pattern)	
	Interfaces	
	Rank	Value to use for the Top-N LSPs. Max is 1000, default is 10.
	Reference Speed	Interface Speed or Physical Port Speed Notes: • IP-only utilization can be calculated with Interface Speed. • MPLS-only and IP+MPLS calculations can only be calculated if the Reference Speed is Physical Port Speed.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 14-30 Interface Utilization Details report characteristics (continued)

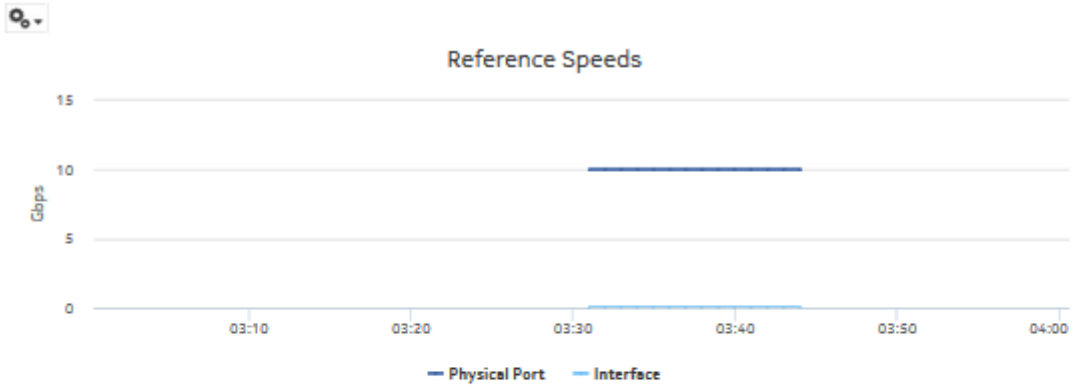
Characteristic	Value
Drill-down support	Yes—OpenClick on a Name to launch a Service Utilization per LSP report.

14.21.2 Example

The following figures show a report example.

Figure 14-37 Interface Utilization Details report

Figure 14-38 Interface Utilization Details report, continued



Top 10 LSPs

Lsp Name	Avg Interface Consumption(%)	Max Interface Consumption(%)	Min Interface Consumption(%)
63to86	14.46	29.34	0.0

14.22 Interface Utilization Summary report

14.22.1 Interface Utilization Summary report overview

The Interface Utilization Summary report provides a summary of utilization data for a selected group of interfaces.

Note: The Interface Utilization Summary report is based on different statistics from the Interface Overview report. The utilization values shown in the two report types will be different.

The default display is a set of graphs and a table showing ingress and egress speeds and minimum, maximum and average utilization percentages. Utilization results in the table are colored red when utilization reaches or exceeds user-defined thresholds.

Utilization calculation varies by interface type:

- MPLS/Network & Access Interfaces use port speed
- GNE interfaces use genericne.Ifspeed

Note: Running the report for all Interface Types or using the Show Report On One Page option may impact report rendering time. Nokia recommends running the report only for the required interface type, and disabling pagination unless required.

When five or fewer SAPs are selected and the data is available in the database for either ingress or egress (but not both), the legend of other graphs display, but not the plot.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-31 Interface Utilization Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc-tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Table 14-31 Interface Utilization Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR Omnisystem NEs
GNE Interface Utilization Stats Aggregator	genericne. GenericNeInterface	genericne. InterfaceAdditionalStats **Note:** Only GNE interfaces without multivendor drivers are supported.	Performance statistics	ifXEntry	GNE NEs

Note: The report does not support the 7250 IXR, Release 22.0 or later.

Report characteristics

The following table lists the principal report characteristics.

Table 14-32 Interface Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Interface types supported	MPLS, GNE interfaces

Table 14-32 Interface Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for NEs	
	NEs	
	Port modes	Select Access, Network, or Hybrid Port and port mode inputs are not required for GNE interfaces. Selecting a GNE in the NE list will automatically display GNE interfaces.
	Name or name pattern for ports	Search using partial names or wildcard (%). Select individual items or click **Select All**. Interfaces whose associated port speed is 0 will not be displayed in the Interfaces input prompt.
	Physical ports or LAGs	
	Interface Type	
	Name or name pattern for interfaces	
	Interfaces	
	Total threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress threshold	
	Egress threshold	
	Logo resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 14-32 Interface Utilization Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Click on an entry in the Interface Name column for a 7750 SR, VSR, 7450 ESS, or 7950 XRS NE interface to launch an Interface Overview report.

14.22.2 Example

The following figures show report examples. Not all figures are from the same report.

Figure 14-39 Interface Utilization Summary report—Total and Ingress Utilization

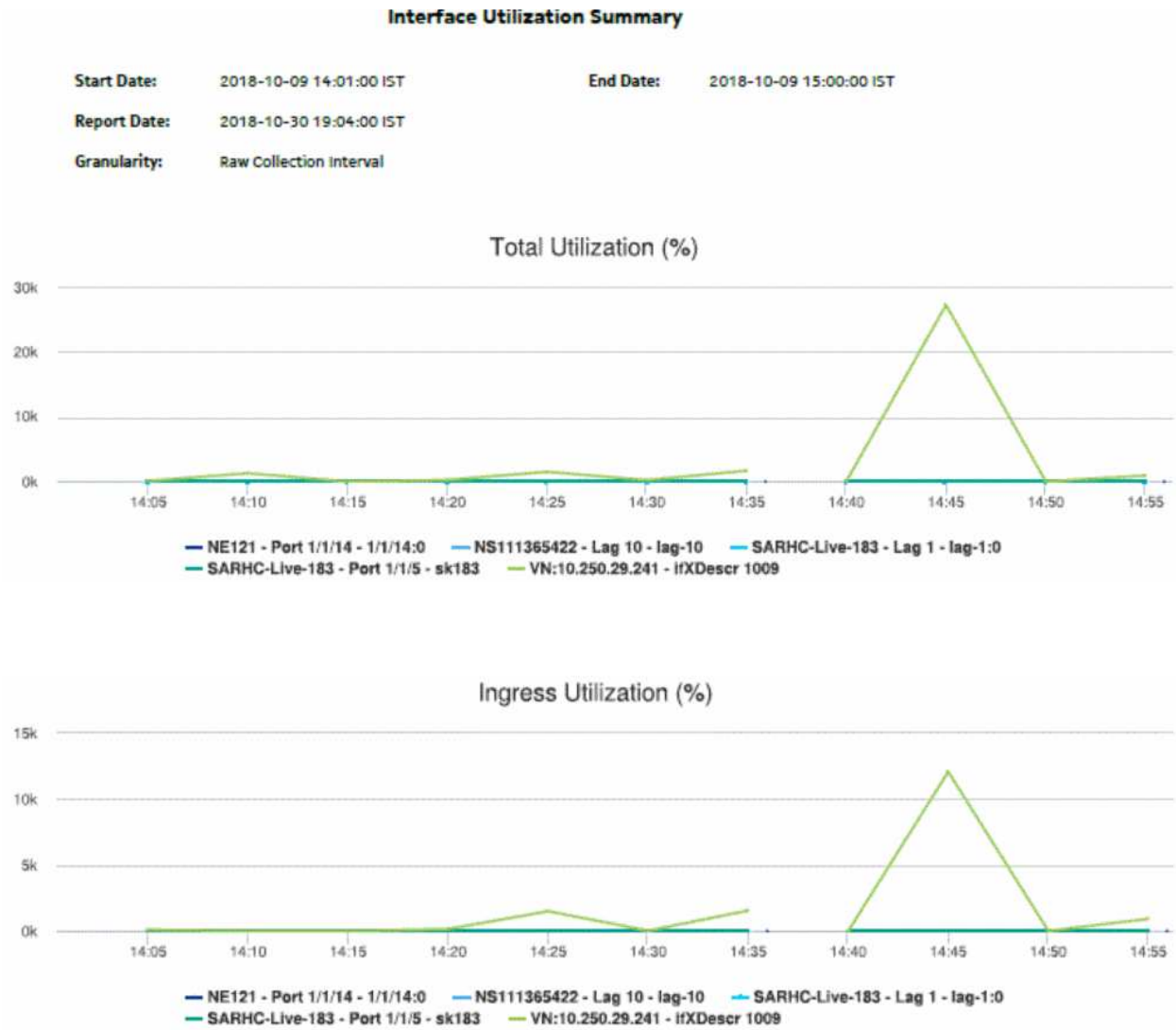


Figure 14-40 Interface Utilization Summary report—Egress Utilization

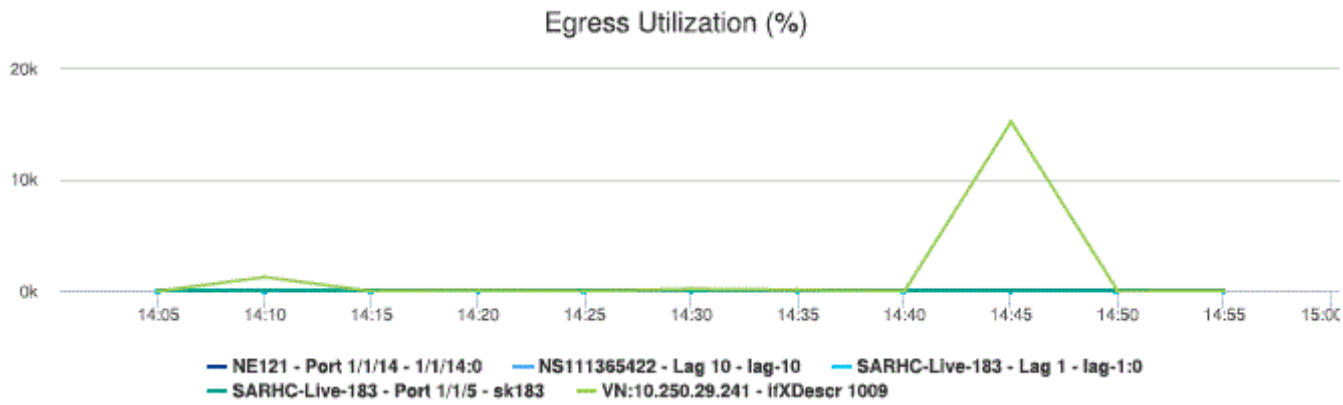


Figure 14-41 Interface Utilization Summary report, continued

Interfaces Over Total Threshold:	2
Interfaces Over Ingress Threshold:	2
Interfaces Over Egress Threshold:	2

Direction	NE Name	NE ID	Port/LAG	Speed (Mbps)	Interface Name	Average Bitrate (Kbps)	Minimum Utilization (%)	Maximum Utilization (%)	Average Utilization (%)
Total	s0_2_27_both	192.0.2.27	Port 1/1/1	10000.0	1/1/1:102	67.56	0.0	0.0	0.0
Ingress	s0_2_27_both	192.0.2.27	Port 1/1/1	10000.0	1/1/1:102	38.09	0.0	0.0	0.0
Egress	s0_2_27_both	192.0.2.27	Port 1/1/1	10000.0	1/1/1:102	29.48	0.0	0.0	0.0
Total	s0_2_156_both	192.0.2.156	Port 1/1/1	10000.0	1/1/1:101	45.87	0.0	0.0	0.0
Ingress	s0_2_156_both	192.0.2.156	Port 1/1/1	10000.0	1/1/1:101	24.48	0.0	0.0	0.0
Egress	s0_2_156_both	192.0.2.156	Port 1/1/1	10000.0	1/1/1:101	21.39	0.0	0.0	0.0
Total	s0_2_27_both	192.0.2.27	Port 1/1/11	10000.0	1/1/27:11	0.64	0.0	0.0	0.0
Egress	s0_2_27_both	192.0.2.27	Port 1/1/11	10000.0	1/1/27:11	0.64	0.0	0.0	0.0

14.23 Interface Utilization With Forecast report

14.23.1 Interface Utilization With Forecast report overview

The Interface Utilization With Forecast report provides forecast utilization data for a single interface.

The default display is a set of graphs showing total, ingress, and egress traffic.

To generate a forecast, you must provide at least two seasons of data, although more may be required if the input data is not linear. For example, if you choose a seasonality value of 7 and the granularity is daily, you must use a report range of at least 14 days.

When the forecast algorithm fails, a pop-up message displays with the recommendation that you either lower the seasonality value or increase the report range.

You may consider scheduling the report, as it takes several minutes to generate.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section 1.10 “How do I configure the Analytics session time zone?” (p. 31) for more information about configuring the session time zone.

To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-33 Interface Utilization With Forecast report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-33 Interface Utilization With Forecast report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgress Octet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750-SR Omnisystem NEs
GNE Interface Utilization Stats Aggregator	genericne. GenericNeInterface	genericne. InterfaceAdditionalStats	Performance statistics	ifXEntry	GNE NEs

Note: The report does not support the 7250 IXR, Release 22.0 or later.

Report characteristics

The following table lists the principal report characteristics.

Table 14-34 Interface Utilization With Forecast report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-34 Interface Utilization With Forecast report characteristics (continued)

Characteristic	Value
Interface types supported	MPLS interfaces

Table 14-34 Interface Utilization With Forecast report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • Daily • Monthly
	NE Type	Search using partial names or wildcard (%). Select individual items.
	Name or name pattern for NE	
	NE	
	Port Mode	Select Access, Network, or Hybrid Select individual items.
	Name or name pattern for port	Search using partial names or wildcard (%). Select individual items.
	Physical Port or LAG	
	Interface Type	
	Name or name pattern for Interface	
	Interface	
	Forecast Periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Nokia recommends using the Show report output on one page option when creating reports. A high forecast periods per season may impact the time that it takes for the report to load the forecast.

Table 14-34 Interface Utilization With Forecast report characteristics (continued)

Characteristic	Value
Drill-down support	No

14.23.2 Example

The following figures show report examples.

Figure 14-42 Interface Utilization With Forecast report—Total Utilization

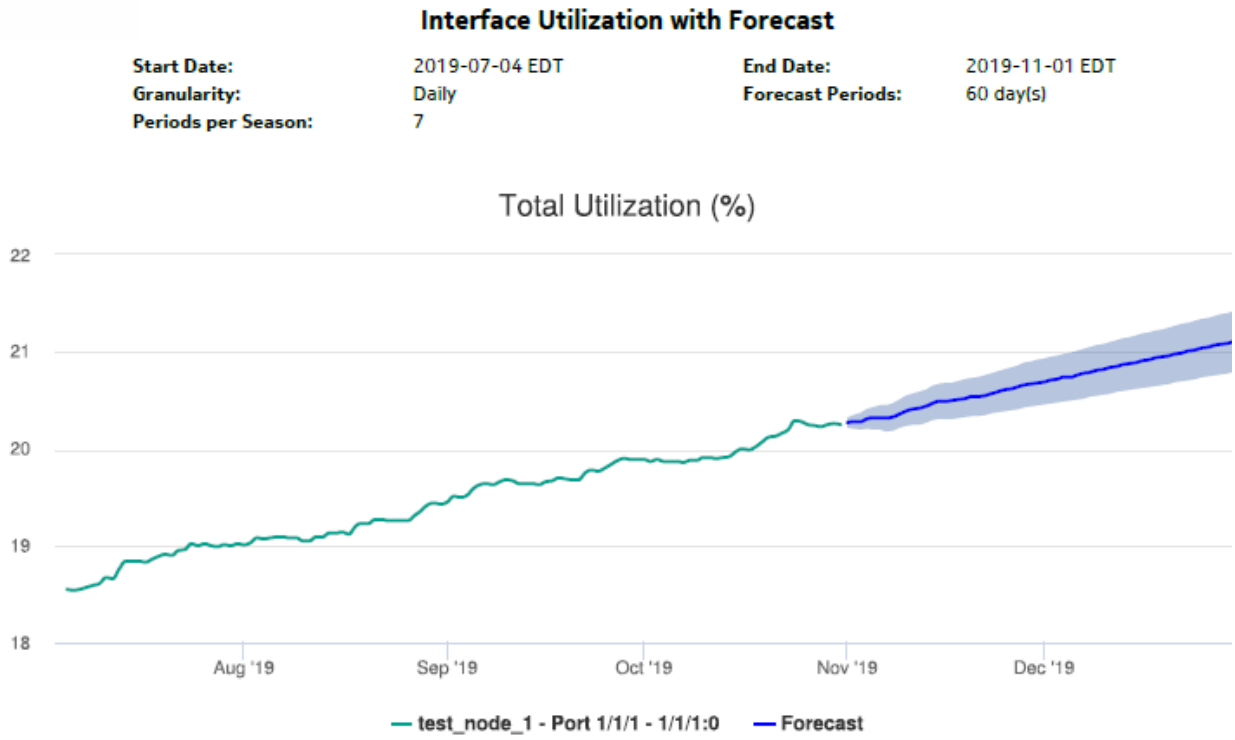


Figure 14-43 Interface Utilization With Forecast report—Ingress Utilization

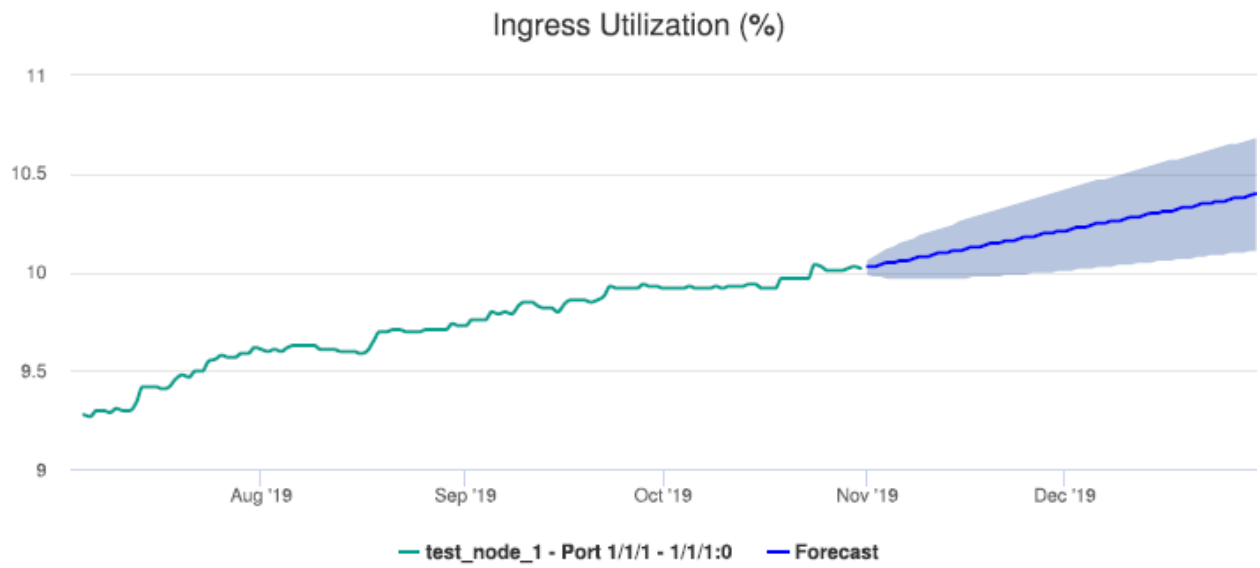
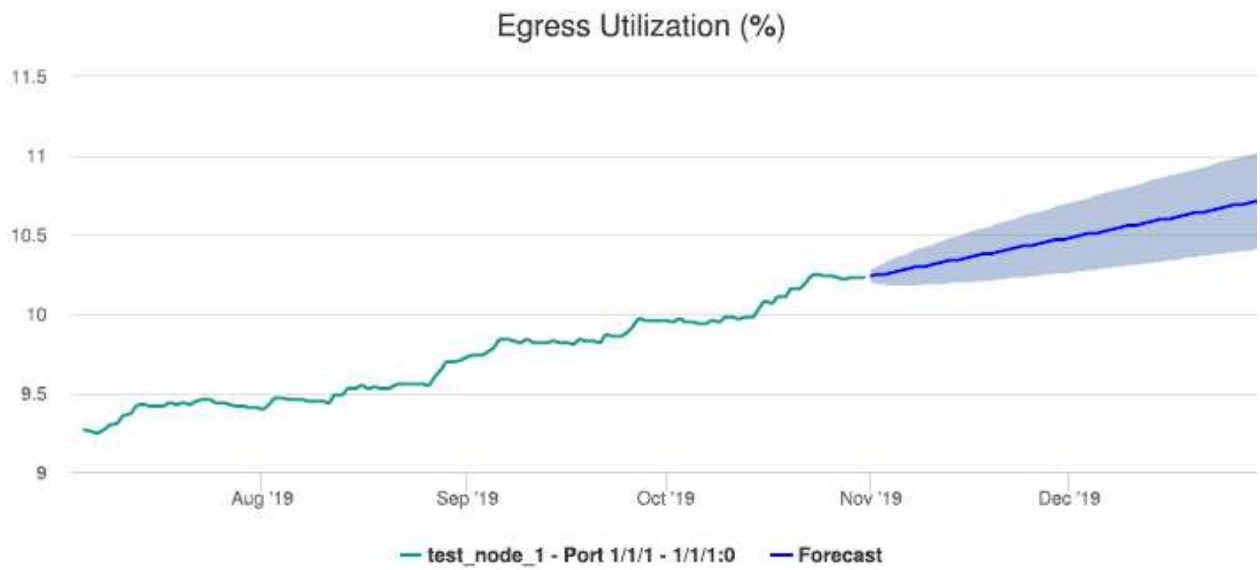


Figure 14-44 Interface Utilization With Forecast report—Egress Utilization



14.24 LSP Throughput with Forecast report

14.24.1 LSP Throughput with Forecast report overview

The LSP Throughput with Forecast report provides the LSP throughput with forecasting data.

The report can generate a forecast depending on the granularity. For raw and hourly granularities, forecast periods and periods per season are ignored. To generate a forecast, you must provide at least two seasons of data, although more may be required if the input data is not linear. For example, if you choose a seasonality value of 7 and the granularity is daily, you must use a report range of at least 14 days.

When the forecast algorithm fails, a pop-up message displays with the recommendation that you either lower the seasonality value or increase the report range.

The aggregation time zone and the session time zone must be same.

You may consider scheduling the report, as it takes several minutes to generate.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section 1.10 “How do I configure the Analytics session time zone?” (p. 31) for more information about configuring the session time zone.

For an LSP Throughput with Forecast report to be created, the following items must be enabled:

- vRtrMplsLspStatisticsEntry
- MPLS LSP Egress Aggregator to see MPLS utilization data; see 1.9 “How do I configure analytics aggregation?” (p. 29)

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-35 LSP Throughput with Forecast report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
MPLS LSP Egress Aggregator	mpls.DynamicLsp mpls.P2MPDynamicLsp mpls.SegmentRouting-TeLsp	mpls.mplsLspEgress	Performance statistics	TIMETRA -MPLS-MIB.vRtr MplsLsp Statistics Entry	7705 SAR 7705 SAR-H 7750 SR **Note:** 7210 SAS and 7250 IXR are not supported

Use cases

Capacity planning—Use the report to examine LSP throughput data for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 14-36 LSP Throughput with Forecast report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
LSP types supported	Dynamic, P2MP Dynamic, SR TE

Table 14-36 LSP Throughput with Forecast report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE type	Select individual items.
	Name or name pattern for NE	Search using partial names or wildcard (%). Select individual items.
	NE	Select individual items.
	Name or name pattern for LSP	Search using partial names or wildcard (%). Select individual items.
	LSP	Select individual items. You must enter data for this field.
	Forecast Periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

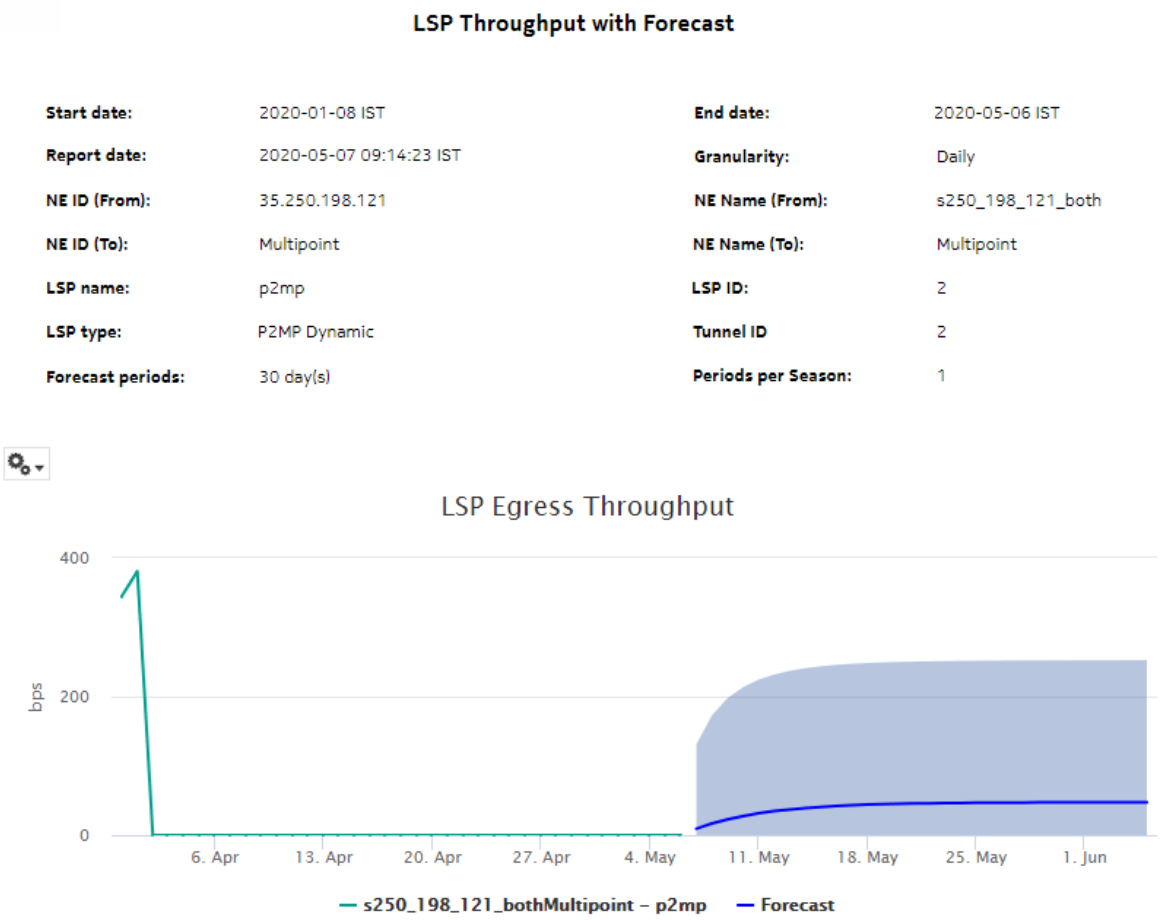
Table 14-36 LSP Throughput with Forecast report characteristics (continued)

Characteristic	Value
Drill-down support	No

14.24.2 Example

The following figures show report examples.

Figure 14-45 LSP Throughput with Forecast



14.25 Per-site VPN Throughput report

14.25.1 Per-site VPN Throughput report overview

The Per-site VPN Throughput report shows the throughput for L2 and L3 VPNs on a per-site basis.

The report provides a table with a list of sites and displays the source site, destination site, VPN name, L2/L3 name, average and maximum bit rates, and maximum traffic time.

Use cases

Use the report to visualize traffic distribution between different sites in a distributed VPN.

Limitations

Report limitations include:

- When the report is exported to the PPT file type, the table border may not be fully closed.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The Per-site VPN Throughput report requires the Flow Collector. Perform the following:

1. Enable the collection of the IPFIX statistics as per Table 14-37, “ Per-site VPN Throughput report prerequisites” (p. 617).
2. Configure the Flow Collector; see the *NSP Data Collection and Analysis Guide* for information about how to configure NSP flow collection, and Flow statistics collection in the *NSP Statistics Management Guide* for information about how to configure NFM-P flow collection.
3. Enable the analytics_cflowd_sys_vpn_r aggregate.

Table 14-37 Per-site VPN Throughput report prerequisites

Aggregator name	Statistics class	NE types
Analytics_cflowd_sys_vpn_r	Analytics_cflowd_sys_vpn_r	7250 IXR 7705 SAR 7750 SR
Analytics_cflowd_sys_vpn_r_max_time	Analytics_cflowd_sys_vpn_r	7250 IXR 7705 SAR 7750 SR

Notes:

1. **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 14-38 Per-site VPN Throughput report characteristics

Characteristic	Value	
Data type	IPFIX Traffic Volume flow records	
Source database	Auxiliary database	
Service types supported	All L2 and L3 services	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for Source Site	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Source Site	
	Name or name pattern for Remote Site	
	Remote Site	
	VPN Type	L2, L3
	Name or name pattern for VPN Name	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	VPN Name	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.25.2 Example

The following figure shows a report example.

Figure 14-46 Per-site VPN Throughput report

Per-site VPN Throughput

Start Date:	2021-06-15 04:29:00 EDT	**End Date:**	2021-06-15 12:28:52 EDT
Report Date:	2021-06-15 12:28:52 EDT		
Granularity:	Raw Collection Interval	**VPN Type:**	L2,L3

Source Site	Destination Site	VPN Name	Average Bitrate (bps)	Max Bitrate (bps)	Max Traffic Time
sim202_173	10.10.10.4	EPIPE 11	46.67	80.0	2021-06-15 20:07:00
sim202_173	10.10.10.4	VPRN 22	26.67	26.67	2021-06-15 20:07:00
sim202_173	169.1.1.1	EPIPE 11	66.67	66.67	2021-06-15 20:07:00
sim202_173	192.168.1.1	EPIPE 11	40.0	40.0	2021-06-15 20:07:00
sim202_173	2002:0DB8:85A3:0000:0000:8A2E:0370:7334	EPIPE 11	46.67	80.0	2021-06-15 20:07:00
sim202_173	2002:0DB8:85A3:0000:0000:8A2E:0370:7334	VPRN 22	26.67	26.67	2021-06-15 20:07:00
sim202_173	7777:0DB8:85A3:0000:0000:8A2E:0370:7777	EPIPE 11	66.67	66.67	2021-06-15 20:07:00
sim202_173	9002:0DB8:85A3:0000:0000:8A2E:0370:1111	EPIPE 11	40.0	40.0	2021-06-15 20:07:00

14.26 Signaling Trend Analysis report

14.26.1 Signaling Trend Analysis report overview

The Signaling Trend Analysis report provides analysis of LTE signal trends for 7705 SAR-Hm and 7705 SAR-Hmc NEs.

The default display is a set of graphs and a table showing signal strength, power, temperature, memory, and CPU data.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-39 Signaling Trend Analysis report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Cellular Port Signal Stats Aggregator	Card Port Shelf	CellularPortStats	CellularPortstatis-tics	TIMETRACELLU-LAR -MIB. tmnxCellularPortS-tatusEntry	7705 Sar-Hm 7705 Sar-Hmc **Note:** 7705 SAR-H is not supported. Cellular port statistics and available memory statistics are not supported.
System CPU Usage Stats Aggregator	equipment.System StatsHolder	equipment. SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiCpuU sage	7705 SAR-H 7705 SAR Hm
System Memory Stats Aggregator	equipment.System StatsHolder	equipment.System MemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMem oryUsed	7705 SAR-H 7705 SAR Hm
Hardware Temperature Stats Aggregator	equipment. BaseCard equipment. CardSlot equipment.CCM equipment.FanTray equipment. ControlProcessor equipment. DaughterCard equipment. MCMCard equipment. PowerSupplyTray equipment.Shelf equipment. SwitchFabricPro-cessor equipment. XiomCard	equipment. HardwareTempera-ture	Performance statistics	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7705 SAR-H 7705 SAR Hm
Allocated Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AllocatedMemoryS-tats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryPoolAl-locate	7705 SAR-H 7705 SAR Hm

Table 14-39 Signaling Trend Analysis report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Available MemoryStats Aggregator	equipment. SystemStatsHolder	equipment. AvailableMemoryS-tats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryPoolA-vailable	7705 SAR Hm **Note:** 7705 SAR-H is not supported. Cellular port statistics and available memory statistics are not supported.

Use cases

Capacity planning—Use the report to examine signal patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 14-40 Signaling Trend Analysis report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

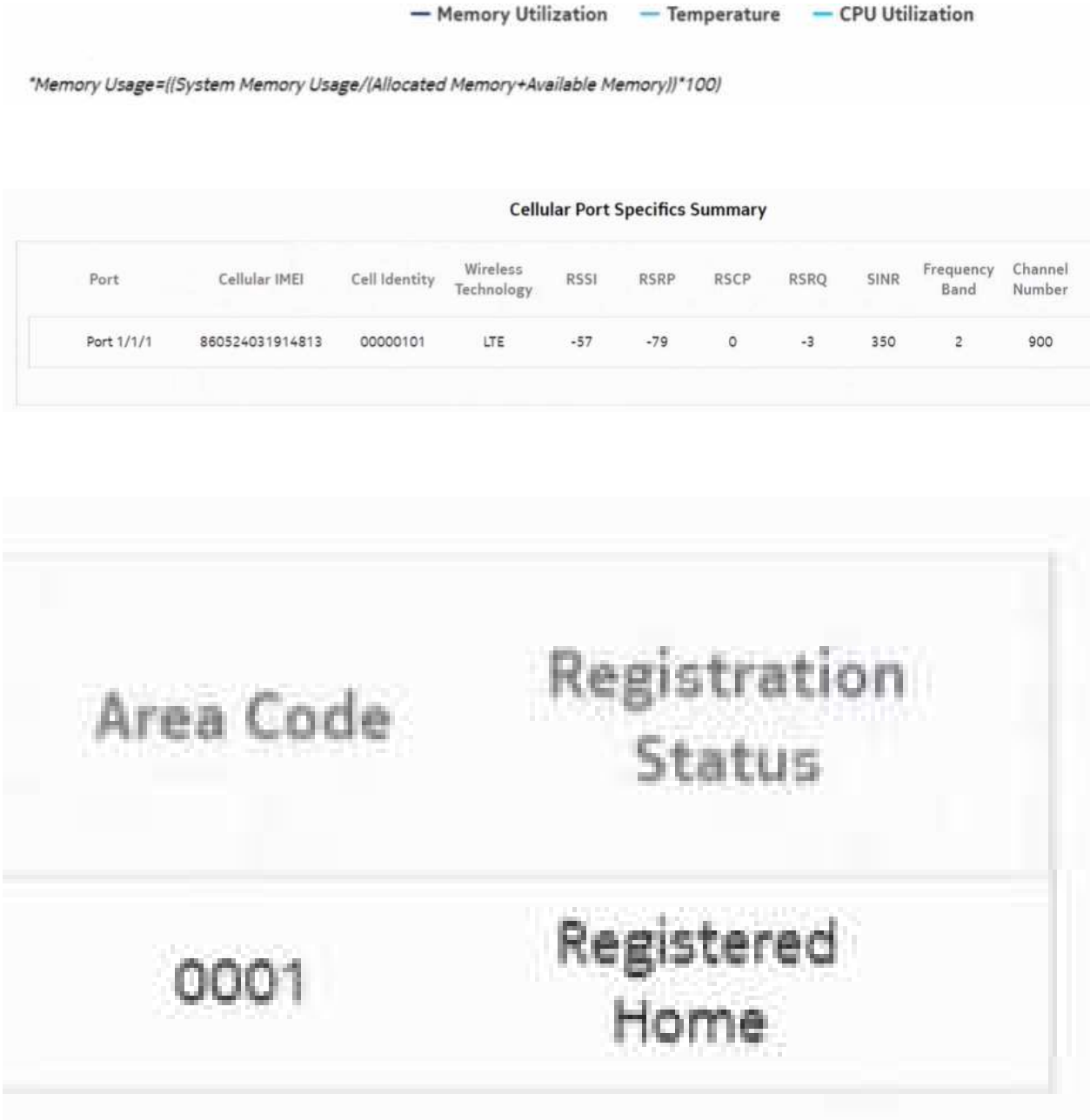
Table 14-40 Signaling Trend Analysis report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Type	7705 SAR-Hm 7705 SAR-Hmc
	Name or name pattern for NE	Search using partial names or wildcard (%).
	NE	
	Port Status	Active All
	Name or name pattern for port	Search using partial names or wildcard (%).
	Cellular port	
	Temperature Unit	Celsius or Fahrenheit
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.26.2 Example

The following figures show report examples. The table below is a single table, but is separated due to its width.

Figure 14-47 Signaling Trend Analysis report



14.27 Temperature, CPU, Memory Utilization Details report

14.27.1 Temperature, CPU, Memory Utilization Details report overview

The Temperature, CPU, Memory Utilization Details report shows the temperature, memory and CPU usage details for selected NEs and sites. The default display is a graph displaying usage over

time relative to user-defined thresholds.

The following temperatures can be reported by the NE when no temperature sensor is available. These temperatures are invalid and will not be displayed in the report.

- For ETR NEs: -127 C, -128 C
- For non ETR NEs: all negative temperatures

Note: For 7705 SAR-Hm and 7705 SAR-Hmc NEs, negative temperatures can be valid. Temperatures reported by 7705 SAR-Hm and 7705 SAR-Hmc NEs are always displayed.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 14-41 Temperature, CPU, Memory Utilization Details Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
System CPU Usage Stats Aggregator	equipment. SystemStatsHolder	equipment. SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
System Memory Stats Aggregator	equipment. SystemStatsHolder	equipment.System MemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Allocated Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AllocatedMemoryS-tats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryPoolAl-locate	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-41 Temperature, CPU, Memory Utilization Details Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Available Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AvailableMemoryS-tats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryAvail-able	7210 SAS 7250 IXR 7705 SAR 7705 SAR Hm 7750 SR **Note:** 7705 SAR-H is not supported. Memory Usage is as follows: Memory Usage =(systemMemory UsageInKb/ (allocatedMemoryInKb+availableMem For SAR-H NEs, the available memory statistics are not supported; the calculation is as follows: Memory Usage =(systemMemory UsageInKb/ (allocatedMemory-InKb)*100
Hardware Temperature Stats Aggregator	equipment. BaseCard equipment. CardSlot equipment.CCM equipment.FanTray equipment. ControlProcessor equipment. DaughterCard equipment.MCCard equipment. PowerSupplyTray equipment.Shelf equipment. SwitchFabricPro-cessor equipment.XioCard	equipment. HardwareTempera-ture	Performance statistics	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750-SR Omnisystem NEs
Card Health Stats Aggregator	equipment. CardSlot	equipment. CardHealth Stats	Performance statistics	ALCATEL-IND1-HEALTH-MIB. healthModuleEntry	7705 SAR-H Omnisystem NEs and their variants

Report characteristics

The following table lists the principal report characteristics.

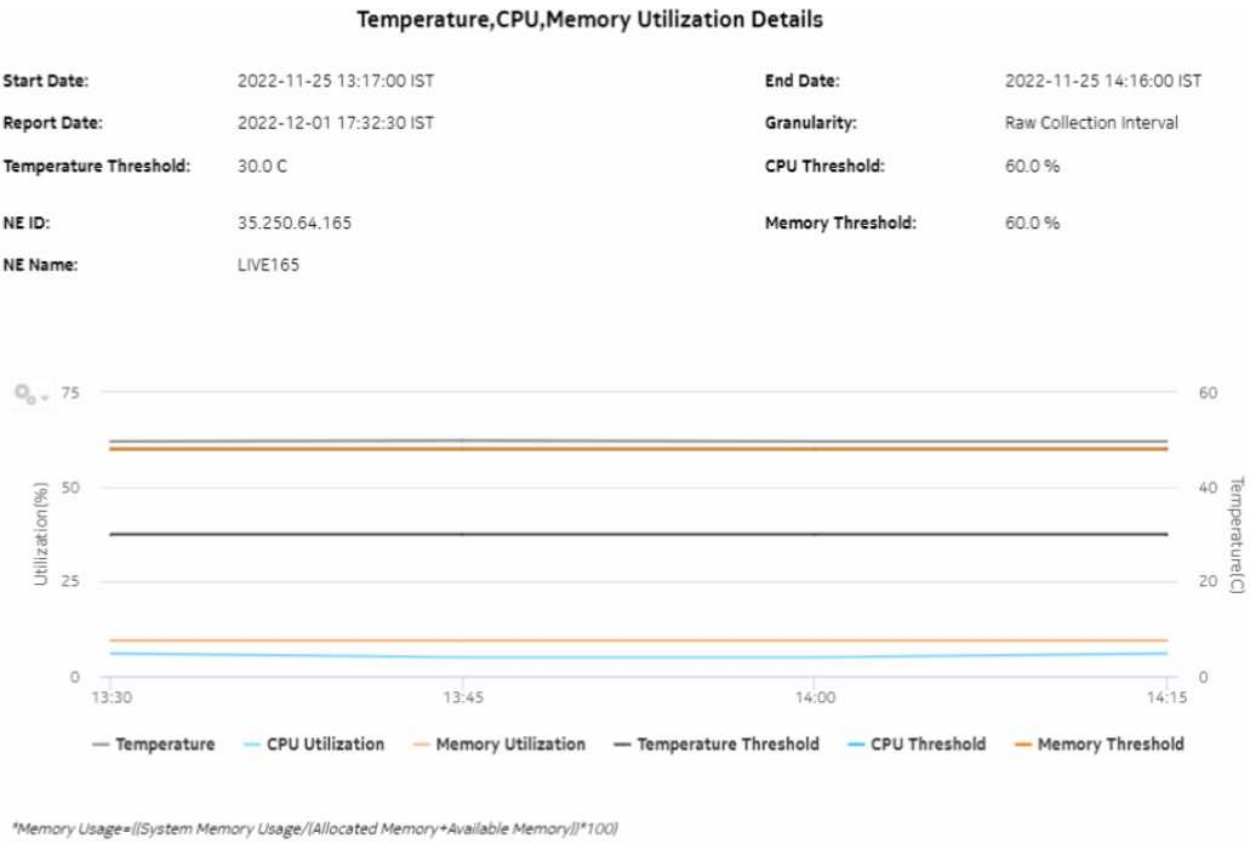
Table 14-42 Temperature, CPU, Memory Utilization Details report characteristics

Characteristic	Value	
Data type	Statistics NE configuration information	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Select individual NE types or click **Select All**. Search using partial names or wildcard (%).
	Site	If the report is opened from a Temperature-CPU-Memory Utilization report, the site is displayed. Otherwise, select from the list of sites for the slected NE types.
	Temperature threshold	Data at or above thresholds will display in red.
	CPU threshold	
	Memory threshold	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.27.2 Example

The following figure shows a report example.

Figure 14-48 Temperature, CPU, Memory Utilization Details report



14.28 Temperature, CPU, Memory Utilization Summary report

14.28.1 Temperature, CPU, Memory Utilization Summary report overview

The Temperature, CPU, Memory Utilization Summary report shows the maximum and average temperature and memory and CPU usage for selected NEs. The report displays a detailed table that is sorted according to the NE Name column. Table sorting is enabled for the CPU Memory Average and Maximum columns.

To generate meaningful average temperature data, Nokia recommends using raw or hourly interval statistics.

Memory Usage is computed in the report using the following formula:

```
[memory in use / (allocated memory + available memory) * 100]
```

The calculation is displayed at the footnote section of the reports.

If no telemetry subscriptions are enabled for CPU, Memory, and Temperature, the report shows -1 values for CPU and Memory and N/A for Temperature.

Utilization results are colored red when utilization reaches or exceeds user-defined thresholds. Thresholds are defined separately. The default value for the temperature threshold is 30°C. The default value for the memory and CPU thresholds is 60%.

The following temperatures can be reported by the NE when no temperature sensor is available. These temperatures are invalid and will not be displayed in the report.

- For ETR NEs: -127 C, -128 C
- For non ETR NEs: all negative temperatures

Note: For 7705 SAR-Hm and 7705 SAR-Hmc NEs, negative temperatures can be valid. Temperatures reported by 7705 SAR-Hm and 7705 SAR-Hmc NEs are always displayed.

Limitations

Report limitations include:

- When the report is exported to the ODS file type, the report may not be properly aligned, and some table columns may not appear.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 14-43 Temperature, CPU, Memory Utilization Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
System CPU Usage Stats Aggregator	equipment. SystemStatsHolder	equipment. SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
System Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. SystemMemoryS-tats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-43 Temperature, CPU, Memory Utilization Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Allocated Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AllocatedMemoryS-tats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryPoolAl-locate	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Available Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AvailableMemoryS-tats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryAvail-able	7210 SAS 7250 IXR 7705 SAR 7705 SAR Hm 7750 SR **Note:** 7705 SAR-H is not supported. Memory Usage is as follows: Memory Usage =(systemMemoryUsageInKb/(allocate For SAR-H NEs, the available memory statistics are not supported; the calculation is as follows: Memory Usage =(systemMemoryUsageInKb/(allocate
Hardware Temperature Stats Aggregator	equipment. BaseCard equipment. CardSlot equipment.CCM equipment.FanTray equipment. ControlProcessor equipment. DaughterCard equipment. MCMCard equipment. PowerSupplyTray equipment.Shelf equipment. SwitchFabricPro-cessor equipment. XiomCard	equipment. Hardware Temperature	Performance statistics	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750-SR Omnisystem NEs

Table 14-43 Temperature, CPU, Memory Utilization Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Card Health Stats Aggregator	equipment. CardSlot	equipment. CardHealth Stats	Performance statistics	ALCATEL-IND1-HEALTH-MIB. healthModuleEntry	7705 SAR-H Omnisystem NEs and their variants

Report characteristics

The following table lists the principal report characteristics.

Table 14-44 Temperature, CPU, Memory Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics NE configuration information
Source database	Auxiliary database

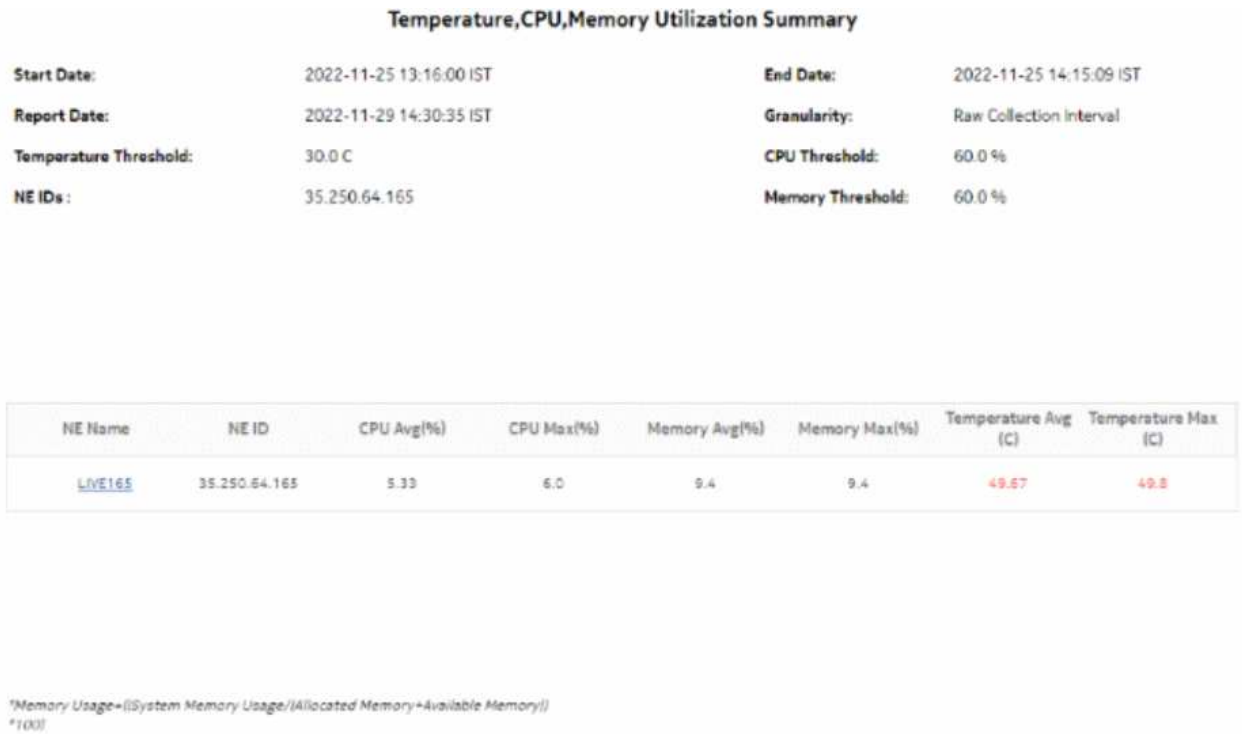
Table 14-44 Temperature, CPU, Memory Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Select individual NE types or click **Select All**. Search using partial names or wildcard (%).
	Site (or Site Name Pattern)	Search using partial names or wildcard (%).
	Sites	Select individual sites or click **Select All**. Search using partial names or wildcard (%).
	Temperature unit (C/F)	Default is Celsius
	Temperature threshold	Data at or above thresholds will display in red.
	CPU threshold	
	Memory threshold	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Temperature, CPU, Memory Details report for the selected NE.	

14.28.2 Example

The following figure shows a report example.

Figure 14-49 Temperature, CPU, Memory Utilization Summary report



Temperature,CPU,Memory Utilization Summary

Start Date:	2022-11-25 13:16:00 IST	**End Date:**	2022-11-25 14:15:09 IST
Report Date:	2022-11-29 14:30:35 IST	**Granularity:**	Raw Collection Interval
Temperature Threshold:	30.0 C	**CPU Threshold:**	60.0 %
NE IDs :	35.250.64.165	**Memory Threshold:**	60.0 %

NE Name	NE ID	CPU Avg(%)	CPU Max(%)	Memory Avg(%)	Memory Max(%)	Temperature Avg (C)	Temperature Max (C)
LIVE165	35.250.64.165	5.33	6.0	9.4	9.4	49.67	49.8

*'Memory Usage=((System Memory Usage/(Allocated Memory+Available Memory))
100)

14.29 Top N Packet Drop—Network Ports report

14.29.1 Top N Packet Drop—Network Ports report overview

The Top N Packet Drop—Network Ports report show the top N FECs or queues that are dropping packets. Separate reports are available for access ports and for network ports. The default display is a table showing queue, forwarding class, and ingress, egress, and total packet and octet dropped information.

Note: The report can be run for 7210 SAS NEs that do not support forwarding classes. For these NEs, the report will display N/A in the Forwarding Class and Queue columns.

For 7210 SAS network ports, only one of the following statistics can be collected at one time:

- network ingress octets
- network ingress packets
- network egress octets
- network egress packets

The columns for the statistics not being collected will display -1.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns, to ensure SLAs are met.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-45 Top N Packet Drop—Network Ports report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Complete Network Ingress Packet Octets stats aggregator	equipment.Port ethernetequipment.EthernetPortSpecifics lag.Interface	CompleteNetwork-IngressPacketOctets	Accounting, file, and log policies	completeNetIngrEg policy	7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS
Complete Network Egress Packet Octets stats aggregator	equipment.Port ethernetequipment.EthernetPortSpecifics lag.Interface	CompleteNet-workEgressPack-etOctets	Accounting, file, and log policies	completeNet-IngrEgr policy	7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS

Table 14-45 Top N Packet Drop—Network Ports report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Ingress Octets stats aggregator	equipment.Port	NetworkIngressOctets	Accounting, file, and log policies	netIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-E 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC
Network Egress Octets stats aggregator	equipment.Port	NetworkEgressOctets	Accounting, file, and log policies	netEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC

Table 14-45 Top N Packet Drop—Network Ports report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Ingress Packets stats aggregator	equipment.Port	NetworkIngress-Packets	Accounting, file, and log policies	netIngressPkt policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-E 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H
					7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC **Note:** SAS NEs use the network policy to retrieve stats at the FC level. They support only meters.

Table 14-45 Top N Packet Drop—Network Ports report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Egress Packets stats aggregator	equipment.Port	NetworkEgress-Packets	Accounting, file, and log policies	netEgressPkt policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSG 7850 VSA-8 7950 XRS VSC

Report characteristics

The following table lists the principal report characteristics.

Table 14-46 Top N Packet Drop—Network Ports report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

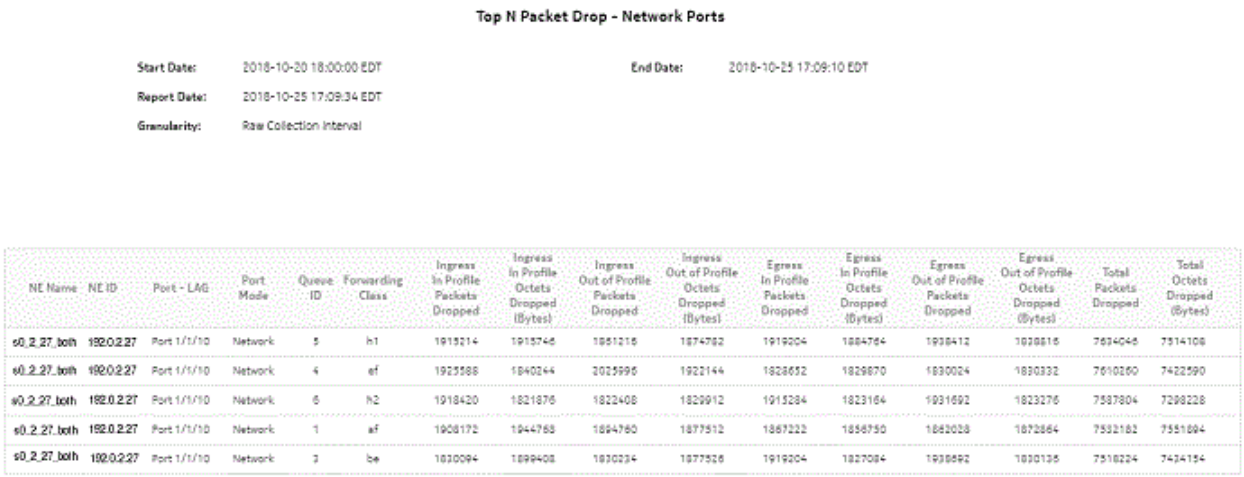
Table 14-46 Top N Packet Drop—Network Ports report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for NEs	
	NEs	
	Port modes	Choose Network or Hybrid
	Port, LAG, or MC-LAG	Choose Port or LAG
	Name or name pattern for ports	Search using partial names or wildcard (%).
	Physical ports or LAGs or MC LAGs	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Top N	Enter the number of results to display. Enter a value between 1 and 100.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.29.2 Example

The following figure shows report examples.

Figure 14-50 Top N Packet Drop—Network Ports report



Top N Packet Drop - Network Ports

Start Date: 2018-10-20 18:00:00 EDT
End Date: 2018-10-25 17:09:10 EDT
Report Date: 2018-10-25 17:09:34 EDT
Granularity: Raw Collection Interval

NE Name	NE ID	Port - LAG	Port Mode	Queue ID	Forwarding Class	Ingress In Profile Packets Dropped	Ingress In Profile Octets Dropped (Bytes)	Ingress Out of Profile Packets Dropped	Ingress Out of Profile Octets Dropped (Bytes)	Egress In Profile Packets Dropped	Egress In Profile Octets Dropped (Bytes)	Egress Out of Profile Packets Dropped	Egress Out of Profile Octets Dropped (Bytes)	Total Packets Dropped	Total Octets Dropped (Bytes)
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	5	h1	1915214	1915746	1851216	1874782	1919204	1884764	1938412	1938816	7624046	7514108
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	4	ef	1925588	1940244	2025996	1922144	1828652	1829870	1830024	1830332	7610260	7422590
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	6	h2	1918420	1821876	1822408	1829912	1915284	1823164	1931692	1823276	7587804	7298228
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	1	af	1908172	1944768	1894760	1877512	1867222	1856750	1862028	1872864	7532182	7551694
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	3	be	1830094	1899408	1830234	1877526	1919204	1827084	1938692	1830136	7518224	7424154

14.30 Top N Packet Drop—Access Ports report

14.30.1 Top N Packet Drop—Access Ports report overview

The Top N Packet Drop—Access Ports report show the top N FECs or queues that are dropping packets. Separate reports are available for access ports and for network ports. The default display is a table showing queue, forwarding class, egress and octet dropped information.

The report can be run for 7210 SAS NEs that do not support forwarding classes. For these NEs, the report displays N/A in the Forwarding Class and Queue columns. For 7210 SAS NEs that do not support egress policies, the statistics displays as -1 and the forwarding class and queue displays as N/A.

For 7750 SR NEs that do not have packet details available, the statistics will display as -1.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns, to ensure SLAs are met.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To

view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-47 Top N Packet Drop—Access Ports report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc-tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx, 7210 SAS-T 7210 SAS-X 7705 SAR-H
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOc-tets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx, 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-48 Top N Packet Drop for Access port report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-48 Top N Packet Drop for Access port report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for NEs	
	NEs	
	Port modes	Choose Access or Hybrid
	Port, LAG, or MC-LAG Port or LAG	Choose Port, LAG, or MC-LAG
	Name or name pattern for ports	Search using partial names or wildcard (%). If an MC LAG is selected, the report will show a column with the name of the MC LAG.
	Physical ports or LAGs Physical ports or LAGs or MC LAGs	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Top N	Enter the number of results to display. Enter a value between 1 and 100.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.30.2 Example

The following figure shows report examples.

Figure 14-51 Top N Packet Drop - Access Ports

Top N Packet Drop - Access Ports

Start Date: 2018-10-18 17:00:00 EDT
End Date: 2018-10-25 16:54:10 EDT
Report Date: 2018-10-25 16:54:28 EDT
Granularity: Raw Collection Interval

NE Name	NE ID	Port-LAG	Description	Customer ID	Customer Name	Service ID	Service Name	SAP ID	SAP Name	Queue	Forwarding Class	In Profile Packets Dropped	Out Of Profile Packets Dropped	All Packets Dropped	In Profile Octets Dropped (Bytes)	Out Of Profile Octets Dropped (Bytes)	All Octets Dropped (Bytes)
s0-2-27_both	192.0.2.27	Port 1/1/11	10-GigEthernet	1	Default customer	101	APIPE 101	1/1/27:11	svc-mgr:service-101:192.0.2.27 : interface-1/1/11-inner-tag-0-outer-	queue-12	ID	12101	9314	20415	2342	2161	4504
s0-2-27_both	192.0.2.27	Port 1/1/11	10-GigEthernet	1	Default customer	101	APIPE 101	1/1/27:11	svc-mgr:service-101:192.0.2.27 : interface-1/1/11-inner-tag-0-outer-	queue-14	be	1305	1296	2601	19781	1368	21129

14.31 Emulated Service Details report

14.31.1 Emulated Service Details report overview

The Emulated Service Details report shows the jitter buffer depth, asymmetry, underruns, overruns, and errored seconds details for the service endpoints.

The Emulated Service Details report is a multi-element report with the following:

- column Spline timeline with depth and delay ADC
- time series graph with Cem Sap measurements
- time series graph with errored seconds
- bar graph timeline with jitter buffer asymmetry for the emulated service
- table with emulated service error counts

The Increasing Intervals value does not have to be contiguously increasing intervals, the increases can be scattered across the reporting period.

This report can be run on its own or launched from the Top-N Worst Emulated Services report.

Use cases

Synchronization management—Monitoring of services and their health in terms of network synchronization, with identification of services needing further investigation or maintenance based on three jitter buffer asymmetry KPIs.

Limitations

When the report is exported to the DOCX or RTF file type, the report is not properly aligned.

Prerequisites

- CEM SAP statistics must be enabled via MIB policy.
- To view the report for granularities other than raw data, the aggregation rules must be enabled;

see 1.9 “How do I configure analytics aggregation?” (p. 29). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-49 Emulated Service Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
CEM SAP Aggregator	service. L2AccessInterface	service. CemSapStats	Performance statistics	sapCemStatsEntry	7210 SAS-M 7250 IXR R6 7450 ESS 7705 SAR 7705 SAR-H 7750 SR **Note:** 7705 SAR-Hm and 7705 SAR-Hmc are not supported
CEM SAP ADC Aggregator	service. L2accessInterafce	service. CemSapADCStats	Performance statistics	samCemADCStat-sEntry	7705 SAR 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-50 Emulated Service Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-50 Emulated Service Details report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%).
	Customer	Select individual items.
	Name or name pattern for service	Search using partial names or wildcard (%).
	Service	Select individual items.
	KPI Threshold	Specify the threshold value for: • Ingress Dropped Packets • Ingress Forwarded Packets • Egress Overruns Packets • Egress Jitter Buffer Depth Packets • Egress Underruns Packets • Egress Dropped Packets • Egress Errored Seconds
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

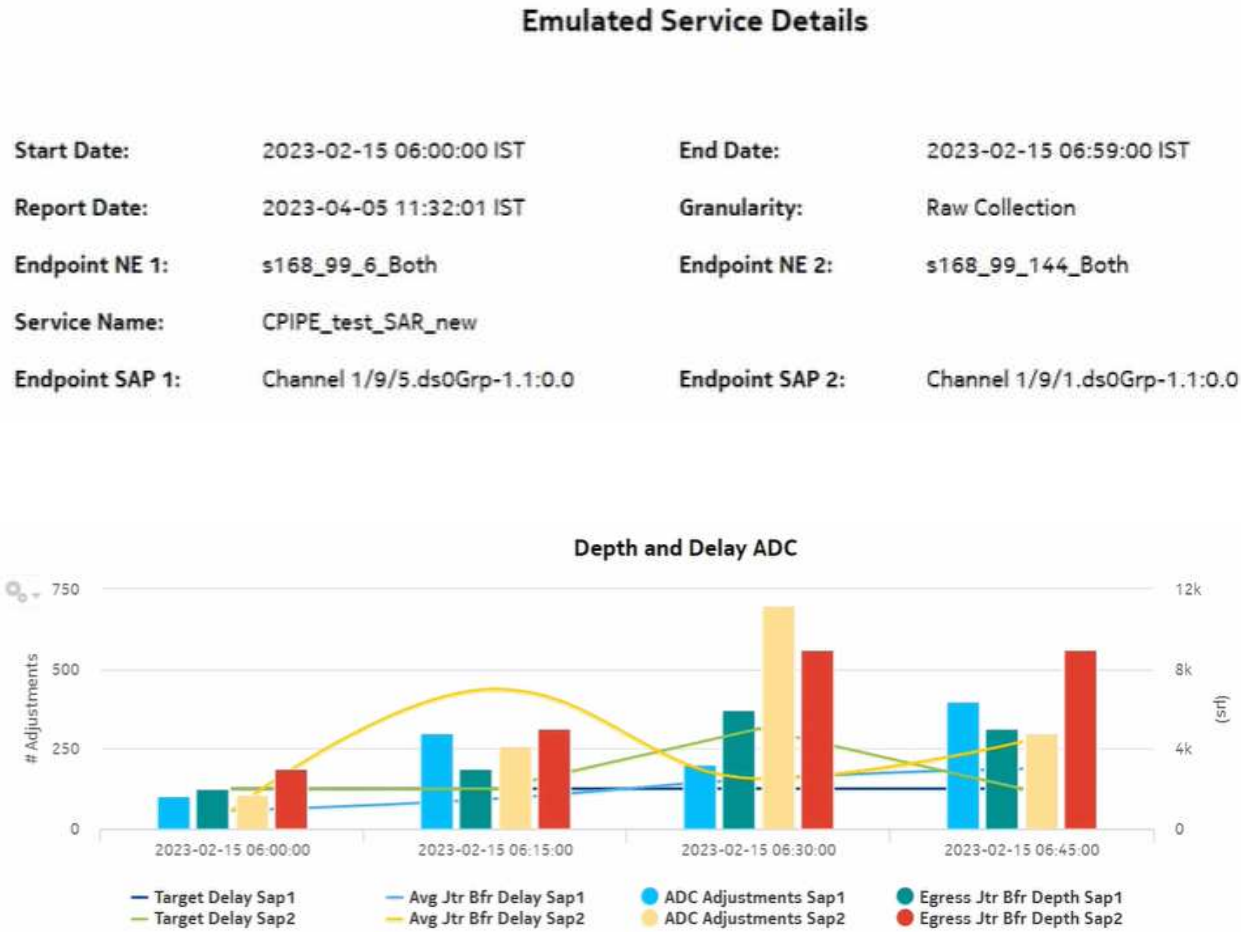
Notes:

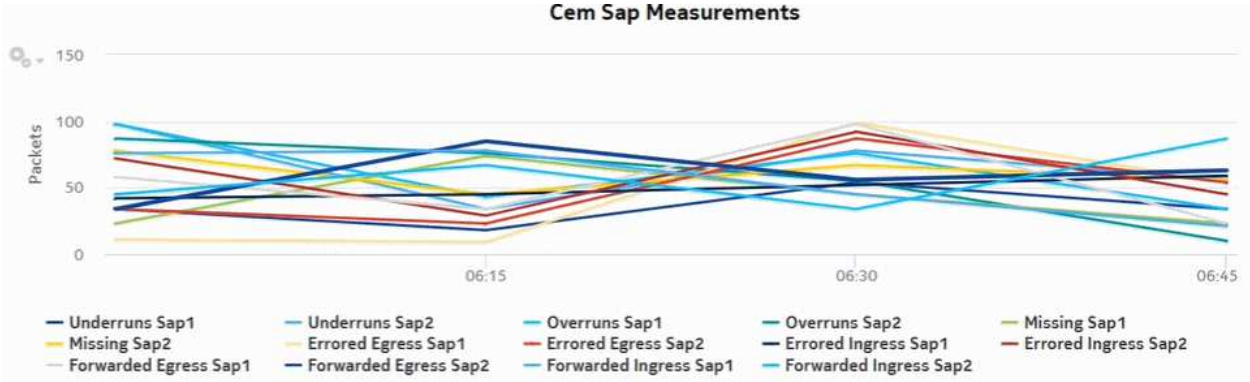
1. The 7705 SAR-Hm and 7705 SAR-Hmc are not supported.

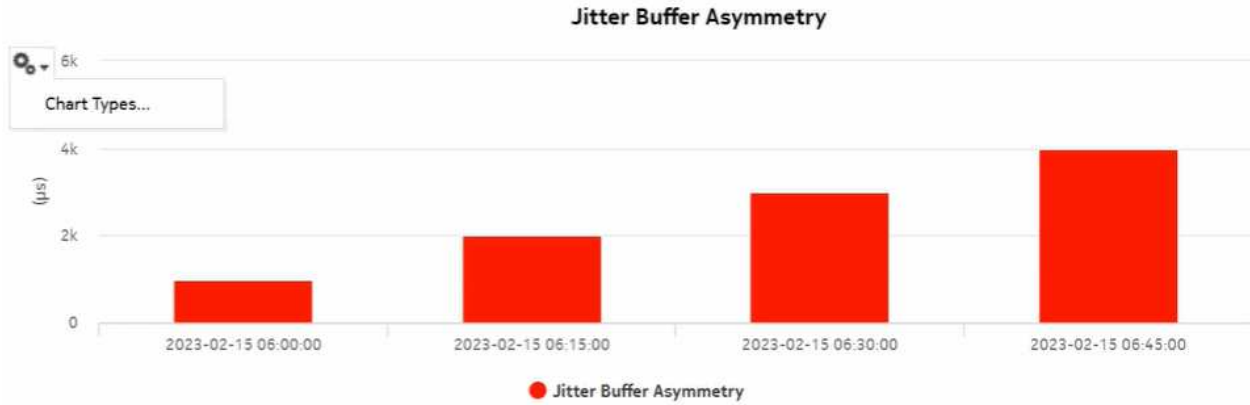
14.31.2 Example

The following figure shows a report example.

Figure 14-52 Emulated Service Details report







Emulated Service Error Counts

Customer Name	Service Name	Service ID	Endpoint NE Name	Endpoint SAP Name	Egress Forwarded (Packets)	Egress Dropped (Packets)	Egress Missing (Packets)	Egress Reordered Forwarded (Packets)	Egress Underruns (events)
Default customer	CPIPE_test_SAR_new	19	s168_99_6_Both	Channel 1/9/5.ds0Grp-1.1:0.0	213	173	165	244	15
Default customer	CPIPE_test_SAR_new	19	s168_99_144_Both	Channel 1/9/1.ds0Grp-1.1:0.0	238	198	246	0	15

Egress Underruns (Packets)	Egress Overruns (events)	Egress Overruns (Packets)	Egress Misordered Dropped (Packets)	Egress Malformed Dropped (Packets)	Egress LBit Dropped (Packets)	Egress Error (Seconds)	Egress Severely Errored (Seconds)	Egress Unavailable (Seconds)	Egress Failure Count (events)	Ingress Forwarded (Packets)	Ingress Dropped (Packets)
140	218	251	202	269	235	4	82	83	281	220	198
266	31	228	204	249	189	106	132	1457	110	233	238

Egress Jtr Bfr Depth (Packets)
16
26

14.32 Top N Worst Emulated Services report

14.32.1 Top N Worst Emulated Services report overview

The Top N Worst Emulated Services report is a tabular report that lists the emulated services (Cpipe) with the worst jitter buffer asymmetry.

Jitter buffer asymmetry is the difference in the jitter buffer depth at the two SAP endpoints at a moment in time (statistics collection interval). The jitter buffer asymmetry index is a value in the 0 to 100 range where 100 is the theoretical worst jitter buffer asymmetry (maximum jitter buffer asymmetry) for each interval in the report range. The formula is:

```
sum (asymmetry for each interval in the range) / (# intervals * max
jitter buffer depth) * 100
```

Jitter buffer asymmetry persistence is a value in the 0 to 100 range, where 100 is the theoretical worst persistence value. This value indicates how consistently the asymmetry is at an unacceptable level. A single spike of asymmetry is typically less of a concern than a persistent condition of asymmetry. The formula is:

```
Count (# intervals asymmetry >= 2) / # intervals * 100
```

The table is sorted in descending order with the asymmetry index first, then asymmetry persistence.

Limitations

When the report is exported to the RTF file type, the report may not export or display properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 14-51 Top N Worst Emulated Services report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
CEM SAP Aggregator	service. L2AccessInterface	service. CemSapStats	Performance statistics	sapCemStatsEntry	7210 SAS-M 7250 IXR R6 7450 ESS 7705 SAR 7705 SAR-H 7750 SR **Note:** 7705 SAR-Hm and 7705 SAR-Hmc are not supported

Table 14-51 Top N Worst Emulated Services report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
CEM SAP ADC Aggregator	service. L2accessInterafce	service. CemSapADCStats	Performance statistics	samCemADCStat-sEntry	7705 SAR 7705 SAR-H

Use cases

Synchronization management—Monitoring of services and their health in terms of network synchronization, with identification of services needing further investigation or maintenance based on three jitter buffer asymmetry KPIs.

Report characteristics

The following table lists the principal report characteristics.

Table 14-52 Top N Worst Emulated Services report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

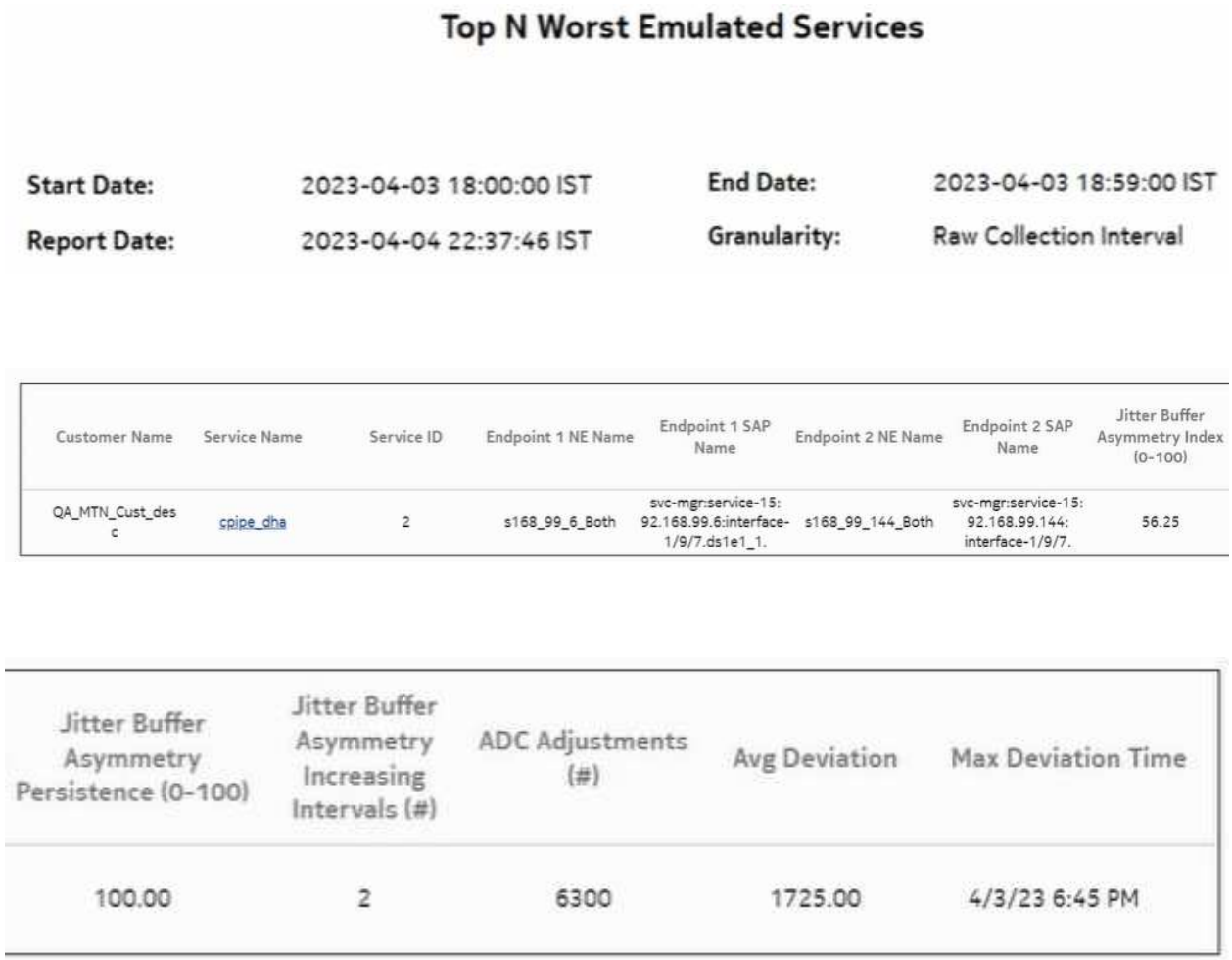
Table 14-52 Top N Worst Emulated Services report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Customers	
	Name or name pattern for service	
	Service	
	Top N	Number of interfaces to report.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on service name to drill down to the Emulated Service Details report.	

14.32.2 Example

The following figure shows a report example.

Figure 14-53 Top N Worst Emulated Services report



Top N Worst Emulated Services

Start Date: 2023-04-03 18:00:00 IST
End Date: 2023-04-03 18:59:00 IST
Report Date: 2023-04-04 22:37:46 IST
Granularity: Raw Collection Interval

Customer Name	Service Name	Service ID	Endpoint 1 NE Name	Endpoint 1 SAP Name	Endpoint 2 NE Name	Endpoint 2 SAP Name	Jitter Buffer Asymmetry Index (0-100)
QA_MTN_Cust_desc	cpipe_dha	2	s168_99_6_Both	svc-mgr:service-15: 92.168.99.6:interface-1/9/7.ds1e1_1.	s168_99_144_Both	svc-mgr:service-15: 92.168.99.144: interface-1/9/7.	56.25

Jitter Buffer Asymmetry Persistence (0-100)	Jitter Buffer Asymmetry Increasing Intervals (#)	ADC Adjustments (#)	Avg Deviation	Max Deviation Time
100.00	2	6300	1725.00	4/3/23 6:45 PM

15 Wavence reports

Overview

15.1 Wavence reports overview

15.1.1 General information

Wavence reports consist of both inventory and utilization reports based on Wavence NEs managed by the NFM-P.

Limitations

The utilization graph in forecast reports does not stretch when the forecast in the graph is unselected.

Wavence inventory reports

15.2 Wavence inventory reports overview

15.2.1 General information

The inventory reports provide hardware configuration details at the card and port levels. Results are colored when percentage of ports used exceeds user-defined thresholds:

- Yellow coloring indicates that the utilization is equal to or above the warning threshold. The default threshold value is 70%.
- Red coloring indicates that the utilization is equal to or above the critical threshold. The default threshold value is 90%.

Note: The report input options list all NEs that are compatible with Inventory reports, not only the NEs that are present. A report can only be generated on NEs found in the network.

Use cases

Network planning—Use the reports to plan for the acquisition of new hardware when required.

Prerequisites

Before an inventory report can be created, the NEs must be managed using NSP Classic management.

15.3 License Inventory Summary report

15.3.1 License Inventory Summary report overview

The License Inventory Summary report shows a cumulative summary of license(s) present on Wavence NEs managed on NMS. Based on the input controls chosen, suitable license results are shown.

For capacity licenses, a cumulative comparison of the number of radios is performed. Several capacity licenses may be present in the system. The comparison is done by summing all of the radio directions in the capacity licenses with the license string, and comparing it with the total number of radios configured.

Prerequisites

Before a license inventory summary report can be created, the NEs must be managed using NSP Classic management. Input fields for the license inventory summary report are retrieved from the NSP database. If the license data is modified using NSP Classic management, you must rerun the report to get the updated data.

Report characteristics

The following table lists the principal report characteristics.

Table 15-1 License Inventory Summary report characteristics

Characteristic	Value	
Data type	NE configuration information	
Source database	NSP database	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI.	
	Support is limited to NEs found in the network.	
Report inputs	*Prompt*	*Notes*
	License Types	Search using partial names or wildcard (%). At least one license type must be entered.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the License Details report for the selected NE.	

15.3.2 Example

The following figures show a report example.

Figure 15-1 License Inventory Summary report

License Inventory Summary

Report Date :

License Types :

Static

License Type	Number of Nodes
AES Radio Encryption	23
1588 Transparent Clock	2

Dynamic

License Type	Number of Nodes	Number of Radios/Interfaces/Services (Aggregated)
Radio interfaces with XPIC (MPT-HLS, MPT-HLC)	12	336
VPWS services can be activated	16	1152

Capacity

UBT/MPT Capacity (Mbps)	Number of Nodes	Number of Radios (Aggregated)	Type
10000	1	16	UBT
1000	7	128	UBT
800	1	16	UBT
3000	2	34	UBT
500	16	480	MPT

15.4 License Details report

15.4.1 License Details report overview

The License Details report shows details of a particular license present on Wavence NEs managed on NMS. Based on the input controls chosen suitable license results are shown.

License Details at a particular license string level shows the relevant NE/s containing the license string (MSS-8/MSS-4/MSS-1/MSS-O).

Prerequisites

Before a license details report can be created, the NEs must be managed using NSP Classic management. Input fields for the license details report are retrieved from the NSP database. If the license data is modified, you must rerun the report to get the updated data.

Report characteristics

The following table lists the principal report characteristics.

Table 15-2 License Details report characteristics

Characteristic	Value	
Data type	NE configuration information	
Source database	NSP database	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI.	
	Support is limited to NEs found in the network.	
Report inputs	*Prompt*	*Notes*
	License Types	Search using partial names or wildcard (%). At least one license type must be entered.
	Capacity	Select the capacity values corresponding to the selected license from drop-down menu.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 15-2 License Details report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Open the License Details report for the selected NE.

15.4.2 Example

The following figures show a report example.

Figure 15-2 License Details report

License Details

Report Date : 2020-01-06 12:27:27 IST **License Type:** AES

Description : AES Radio Encryption

Site ID	Site Name
172.26.66.42	Node_Echo
135.238.235.141	HLS_Right
135.238.235.172	18GHz_XPIC_B
135.238.235.170	UBTBDLOW
172.26.66.27	Node_C
172.26.65.152	MSS4_152
172.26.65.129	node_cdr_129
135.238.235.176	MSS4 RIGHT
172.26.66.57	Node_57
135.238.235.177	MSS4 10G LEFT
135.238.235.162	NE1 AREA A
172.26.66.29	Node_E
172.26.66.41	Node_Bravo
135.238.235.166	L3VPN_Node-C
172.26.66.5	Node_5
135.238.235.167	L3VPN_Node-D

License Details

Report Date : 2020-01-06 12:28:56 IST **License Type:** YXPIC

Site ID	Site Name	Number of Radios/Interfaces/Services	Description
172.26.66.42	Node_Echo	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
135.238.236.141	HLS_Right	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
135.238.236.172	18GHz_XPIC_B	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
172.26.66.27	Node_C	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
135.238.236.170	U3T80LOW	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
172.26.65.129	node_cdr_129	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
135.238.236.176	MSS4 RIGHT	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
172.26.66.57	Node_57	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
135.238.236.177	MSS4 100 LEFT	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
135.238.236.162	NE1 AREA A	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
172.26.66.29	Node_E	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)
172.26.65.152	MSS4_152	28	Up to 26 radio interfaces with XPIC (MPT-HLS, MPT-HLC)

License Details

Report Date : 2020-01-05 12:23:32 IST **License Type:** YCapXXX
Radio Type : MPT

Site ID	Site Name	Number of Radios	Interface Used	Interface Available	Capacity (Mbps)	Description
135.238.236.162	NET AREA A	30	11	19	500	Up to 30 Radio Interfaces with
135.238.236.166	L3VPN_Node-C	30	16	14	500	Up to 30 Radio Interfaces with
135.238.236.167	L3VPN_Node-D	30	18	12	500	Up to 30 Radio Interfaces with
135.238.236.176	MSS4 RIGHT	30	2	28	500	Up to 30 Radio Interfaces with
135.238.236.177	MSS4 100 LEFT	30	13	17	500	Up to 30 Radio Interfaces with
172.26.65.129	node_cdr_129	30	7	23	500	Up to 30 Radio Interfaces with
172.26.65.152	MSS4_152	30	13	17	500	Up to 30 Radio Interfaces with
172.26.66.27	Node_C	30	18	12	500	Up to 30 Radio Interfaces with
172.26.66.28	Node_D	30	28	2	500	Up to 30 Radio Interfaces with
172.26.66.38	Node_Delta	30	10	20	500	Up to 30 Radio Interfaces with
172.26.66.41	Node_Bravo	30	17	13	500	Up to 30 Radio Interfaces with
172.26.66.42	Node_Echo	30	15	15	500	Up to 30 Radio Interfaces with
172.26.66.43	Node_Golf	30	12	18	500	Up to 30 Radio Interfaces with
172.26.66.44	Node_Fox	30	30	0	500	Up to 30 Radio Interfaces with
172.26.66.57	Node_57	30	13	17	500	Up to 30 Radio Interfaces with
172.26.66.8	Node_8	30	1	29	500	Up to 30 Radio Interfaces with

15.5 Radio Link Inventory report

15.5.1 Radio Link Inventory report overview

The Radio Link Inventory report shows the radio links on the selected NEs, along with the frequency, capacity and utilization of radio and MWA links and the frequency and temperature of MWA links. Wavence and SAR nodes must be discovered using NSP Classic management; MWA links are supported on SAR nodes, and radio links on Wavence nodes.

Note: When you enter a search term that returns zero links, you can still load a report for the links in the network

Limitations

When you export the report to any format, elements of the report table may not be aligned correctly.

Report characteristics

The following table lists the principal report characteristics.

Table 15-3 Radio Link Inventory report characteristics

Characteristic	Value	
Data type	Radio	
Source database	NSP database	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC **Note:** The 7705 SAR-H is not supported.	
	Support is limited to NEs found in the network.	
Report inputs	*Prompt*	*Notes*
	Node Types	Search using partial names or wildcard (%).
	Filter	Displays information about the parameters, which can be filtered based on the following attributes: This includes • Tx Frequency (Ghz) • Rx Frequency (Ghz) • Max Capacity (Mbps) • Min Capacity (Mbps) • Current Capacity (Mbps) • Current Utilization (%) To generate a Radio link inventory report on a MWA link, Filter and distance unit must be none and value must be empty.
	Value	Specify the value using required expressions (>100k or <100M) based on the attributes selected in the Filter parameter. To generate a Radio link inventory report on a MWA link, Filter and distance unit must be none and value must be empty.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Radio link	Select up to 1000 radio links to display in the report. If you do not select any links, then the report displays network-wide radio links.
	Distance unit	Choose whether to display distances in kilometres or miles for Wavence nodes.

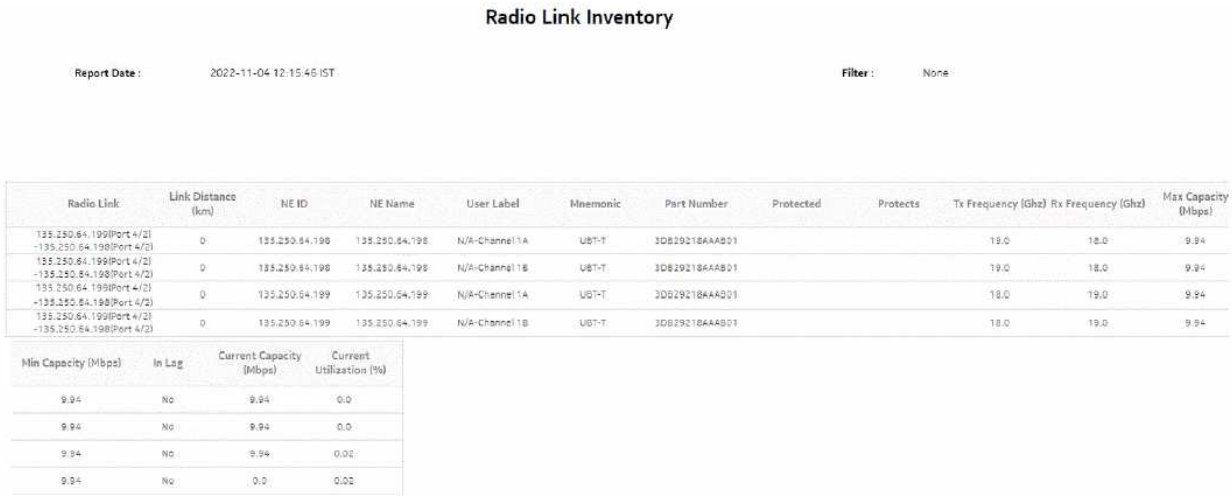
Table 15-3 Radio Link Inventory report characteristics (continued)

Characteristic	Value
Drill-down support	No

15.5.2 Example

The following figure shows a report example.

Figure 15-3 Radio Link Inventory report



Radio Link Inventory

Report Date : 2022-11-04 12:15:46 IST **Filter :** None

Radio Link	Link Distance (km)	NE ID	NE Name	User Label	Mnemonic	Part Number	Protected	Protects	Tx Frequency (Ghz)	Rx Frequency (Ghz)	Max Capacity (Mbps)
135.250.64.199(Port 4/2) -135.250.64.198(Port 4/2)	0	135.250.64.198	135.250.64.198	N/A-Channel 1A	UBT-T	3DB29218AAAB01			19.0	18.0	9.94
135.250.64.199(Port 4/2) -135.250.64.198(Port 4/2)	0	135.250.64.198	135.250.64.198	N/A-Channel 1B	UBT-T	3DB29218AAAB01			19.0	18.0	9.94
135.250.64.198(Port 4/2) -135.250.64.198(Port 4/2)	0	135.250.64.199	135.250.64.199	N/A-Channel 1A	UBT-T	3DB29218AAAB01			18.0	19.0	9.94
135.250.64.199(Port 4/2) -135.250.64.198(Port 4/2)	0	135.250.64.199	135.250.64.199	N/A-Channel 1B	UBT-T	3DB29218AAAB01			18.0	19.0	9.94

Min Capacity (Mbps)	In Lag	Current Capacity (Mbps)	Current Utilization (%)
9.94	No	9.94	0.0
9.94	No	9.94	0.0
9.94	No	9.94	0.02
9.94	No	0.0	0.02

15.6 Feature and Capacity Inventory report

15.6.1 Feature and Capacity Inventory report overview

The Feature and Capacity Inventory report consists of feature inventory and capacity inventory tables.

The feature inventory table counts the following items for the selected snapshot date:

- radios
- radio types
- MSS types
- features
- NEs
- ref radios
- difference of radios
- ref nodes
- difference of nodes

The capacity inventory table lists the UBT or MPT type, its capacity and number of radios, number of ref radios, and difference of radios for the selected snapshot date.

You can compare the selected snapshot date against another snapshot to display the difference between the two snapshots.

Use cases

Capacity planning—Use the report to examine capacity and features which are licensed.

Limitations

When using a reference snapshot that contains data for features or capacities that are absent from any of the selected snapshot dates, rows in the table output may appear malformed (for example, displaying N/A in the Snapshot Date column).

Prerequisites

Before a feature and capacity inventory report can be created, the Wavence NE and ports must be discovered using NSP Classic management, and features and capacity must be scheduled.

Calculations

This section describes how the capacity and feature license values are calculated for this report. The following table lists the port feature licenses and the requirements for a port to be counted as using the licensed feature. If a feature is enabled on any channel, then the port is counted as using that feature, except where noted.

License	Description
XPIC	Number of ports with XPIC enabled
modAdp	Number of ports with Adaptive Modulation enabled
HCS	Number of ports with channel spacing igreater than 500MHz
HQAM	Number of ports using HQAM. The threshold depends on the UBT • UBT-m: 128QAM/256QAM • UBT-S, UBT-T: 2048QAM/4096QAM UBT-C is not included.
PTB	Number of ports with Packet Throughput Booster enabled
AES	Number of ports with AES Encryption enabled
TRX2	Number of ports using TRX2. UBT-T are counted only if both channels are enabled
TDM2Eth	Only UBT ports which are part of a CrossConnect backhaul service with a CEM to Eth profile are counted. If the same port is used in two different services, it will be counted twice.
CA	Total number of LAG members. Port usage is calculated using the primary port in the LAG. MPTs are also considered.

The following table lists the node feature licenses, and the requirements for a node to be counted as using the licensed feature.

License	Description
L3VPN	Total number of sites used for an L3 service, grouped by node type.
Ring	Number of ring instances created, grouped by node type.
1588TC	Number of nodes with 1588TC enabled
1588BC	Number of nodes with 1588BC enabled
IGP	Number of nodes with an OSPF Site that has an administrative state of Up
BNM	Number of nodes with one or more BNM entries enabled.
Core Protection	Number of nodes with core card protected.
RTU Synchronous Ethernet	Number of nodes with Sync-E enabled.
10G	Number of nodes containing a UBT port with speed 10G.

The following table lists the capacity licenses for each UBT type and capacity range.

UBT Type	From	Till	License
UBT-m	0	1000	yyCapU1000
UBT-m	1001	1500	yyCapU1500
UBT-m	1501	2000	yyCapU2000
UBT-m	2001	3000	yyCapU3000
UBT-m	3001	4000	yyCapU4000
UBT-m	4001	5000	yyCapU5000
UBT-m	5001	6000	yyCapU6000
UBT-m	6001	Above	yyCapU10000
UBT-S	0	50	yyCapU0050
UBT-S	51	100	yyCapU0100
UBT-S	101	160	yyCapU0160
UBT-S	161	200	yyCapU0200
UBT-S	201	300	yyCapU0300
UBT-S	301	400	yyCapU0400
UBT-S	401	600	yyCapU0600
UBT-S	601	800	yyCapU0800
UBT-S	801	Above	yyCapU1000
UBT-T	0	300	yyCapU0300

UBT Type	From	Till	License
UBT-T	301	400	yyCapU0400
UBT-T	401	600	yyCapU0600
UBT-T	601	800	yyCapU0800
UBT-T	801	1000	yyCapU1000
UBT-T	1001	1500	yyCapU1500
UBT-T	1501	Above	yyCapU2000
UBT-C	0	50	yyCapU0050
UBT-C	51	100	yyCapU0100
UBT-C	101	160	yyCapU0160
UBT-C	161	200	yyCapU0200
UBT-C	201	300	yyCapU0300
UBT-C	301	400	yyCapU0400
UBT-C	401	600	yyCapU0600
UBT-C	601	800	yyCapU0800
UBT-C	801	Above	yyCapU1000

Report characteristics

The following table lists the principal report characteristics.

Table 15-4 Feature and Capacity Inventory report characteristics

Characteristic	Value
Source database	NSP database
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, Wavence-SA, Wavence NIM
	Support is limited to NEs found in the network.

Table 15-4 Feature and Capacity Inventory report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Snapshot date	Calendar date or relative date (for example, two days ago) and time. Do not specify more than ten snapshot dates.
	Reference snapshot date	Snapshot date to compare the selected snapshot against
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.6.2 Example

The following figure shows a report example using a single snapshot date.

Figure 15-4 Feature and Capacity Inventory report

Feature and Capacity Inventory

Report Date : 2021-05-24 14:25:39 IST

Snapshot Date : 12-MAY-2021

Feature Inventory

Snapshot Date	Feature	Radio Type	MSS Type	Number of Radios	Number of Nodes
2021-05-12 09:30:03					
	modAdp	UBT-C	N/A	2	0
	modAdp	UBT-S	N/A	2	0
	L3VPN	N/A	MSS-8	0	4
	modAdp	UBT-T	N/A	5	0
	10G	N/A	MSS-8	0	1

Capacity Inventory

Snapshot Date	Capacity	Radio Type	Number of Radios
2021-05-12 09:30:03			
	50.0	UBT-S	2
	50.0	UBT-C	2
	300.0	UBT-T	5

The following figure shows a report example using a reference snapshot date.

Figure 15-5 Feature and Capacity Inventory report with reference snapshot

NOKIA

Feature and Capacity Inventory

Report Date : 2023-03-21 17:08:19

Snapshot Date : 2023-03-21 16:30:00

Reference Snapshot Date : 2023-03-21 15:30:00

Feature Inventory

Snapshot Date	Feature	Radio Type	MSS Type	Number of Radios	Number of Ref Radios	Difference of Radios	Number of Nodes	Number of Ref Nodes	Difference of Nodes
2023-03-21 16:30:00									
	10G	N/A	MSS-4	0	0	0	1	1	0
	modAdp	UBT-T	UBT-SA	5	5	0	0	0	0
	10G	UBT-m	UBT-SA	1	1	0	0	0	0
	RTU Synchronous Ethernet	UBT-S	UBT-SA	2	2	0	0	0	0
	modAdp	UBT-m	N/A	7	7	0	0	0	0
	Ring	N/A	MSS-8	0	0	0	9	9	0
	CA	MPT-HQAM	MSS-8	16	16	0	0	0	0
	1588TC	N/A	MSS-8	0	0	0	12	12	0

Capacity Inventory

Snapshot Date	Capacity	Radio Type	Number of Radios	Number of Ref Radios	Difference of Radios
2023-03-21 16:30:00					
	300.0	UBT-T	9	9	0
	10000.0	UBT-m	7	7	0
	2000.0	UBT-T	31	31	0
	1000.0	UBT-S	8	8	0
	800.0	UBT-S	4	4	0
	1000.0	UBT-T	2	2	0
	50.0	UBT-S	3	3	0
	1500.0	UBT-T	1	1	0
	1000.0	UBT-m	1	1	0

15.7 Synchronization Report

15.7.1 Synchronization Report overview

The Synchronization Report table lists the data for switch criteria and status for the selected NEs for the selected snapshot date.

Use cases

Network planning—Use the report to examine network wide Synchronisation settings and plan for synchronisation over networks.

Report characteristics

The following table lists the principal report characteristics.

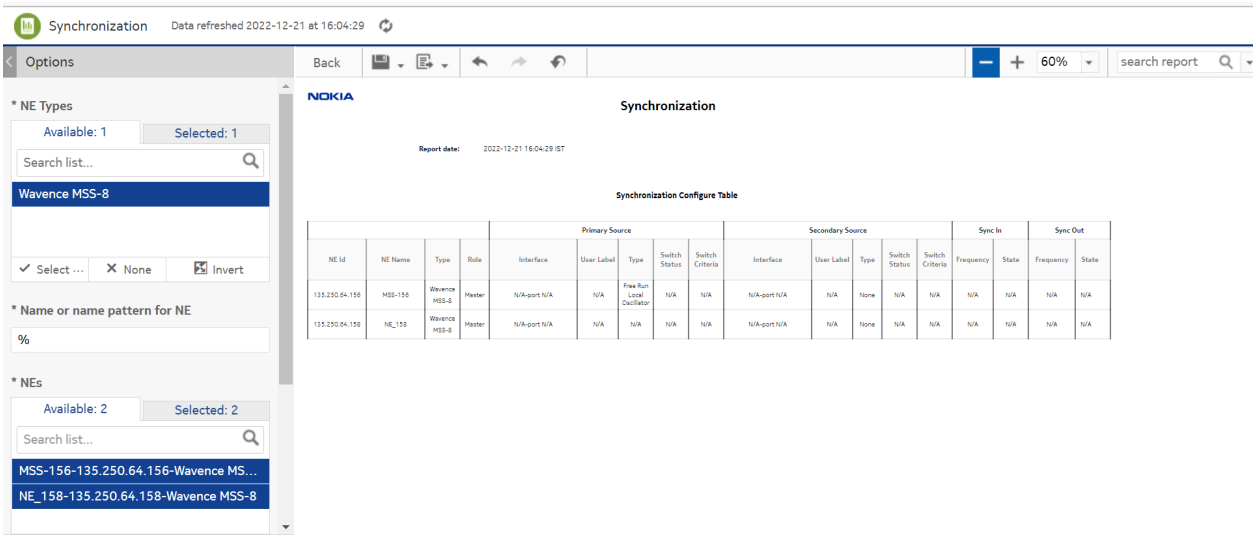
Table 15-5 Synchronization Report characteristics

Characteristic	Value	
Source database	NSP database	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, Wavence NIM, 9500-MPR-A Chassis 1, 9500-MPR-E Chassis 1, 9500-MPR-A Chassis 4, 9500-MPR-E Chassis 4, 9500-MPR-A Chassis 8, 9500-MPR-E Chassis 8 **Note:** The 7705 SAR-H is not supported.	
Report inputs	*Prompt*	*Notes*
	NE Types	Lists all Wavence NE Types
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	Up to 1000 entries from the available list of NEs are displayed. Select individual NEs or click **Select All**.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.7.2 Example

The following figures show a report example.

Figure 15-6 Synchronization Report



Wavence Data Communication Network (DCN) reports

15.8 Radio Port Config report

15.8.1 Radio Port Config report overview

The Radio Port Config report shows the detailed information of a port, LAG, routing protocol, shortest path for the selected NEs along with the protection information on the port/LAG.

Use cases

Use the report to examine the radio configurations on a port and a LAG based on the selected NE.

Report characteristics

The following table lists the principal report characteristics.

Table 15-6 Radio Port Config report characteristics

Characteristic	Value	
Source database	NSP database	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.	
Report inputs	*Prompt*	*Notes*
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	A maximum of first 1000 entries from the available list of NEs are displayed. Select individual NEs or click **Select All**.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.8.2 Example

The following figures show a report example.

Figure 15-7 Radio Port Config report

Radio Port Config

Report Date : 2020-10-08 20:34:41 IST

Loopback IP	Site Name	Slot	Port	LAG	LAG Member	Port Label	Remote IP	PPP RF	Routing Protocol	OSPF Area	OSPF Address	Protect	Stand by Slot	Stand by Port
192.169.204.26	BA0013_MSS4_1	4	1	0	0	BA0494H3_188L01	192.169.204.2	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.204.30	BA0006_MSS4_1	4	1	0	0	267.BA0494V4L01	192.169.204.10	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.204.38	BA0023_MSS4_1	4	1	0	0	BA0006V3-214L01	192.169.204.34	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.204.38	BA0023_MSS4_1	4	2	0	0	BA0310H2_340L01	192.169.204.42	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.220.134	BA0018_MSS4_1	4	1	0	0	BA0068V4_237L01	192.169.220.130	Enabled	OSPF	1	0.68.1.1	N/A	N/A	N/A
192.169.220.138	BA0022_MSS4_1	4	1	0	0	BA0068H4_310L01	192.169.220.130	Enabled	OSPF	1	0.68.1.1	N/A	N/A	N/A
192.169.220.138	BA0022_MSS4_1	4	2	0	0	BA0492_V2L1	192.169.220.150	Enabled	OSPF	1	0.68.1.1	N/A	N/A	N/A
192.169.220.34	BA0003_MSS4_1	4	1	0	0	BA0601V2_233L01	192.169.220.2	Enabled	OSPF	1	6.1.1.1	N/A	N/A	N/A
192.169.246.38	BA0024_MSS4_1	4	1	0	0	BA0131V2_55L01	192.169.246.2	Enabled	OSPF	2	1.31.1.1	N/A	N/A	N/A

15.9 Static Routes report

15.9.1 Static Routes report overview

The Static Routes report shows the detailed information of the route traversed, destination, gateway and the interface type for the selected NEs.

Use cases

Use the report to examine the static route defined on a selected NE.

Report characteristics

The following table lists the principal report characteristics.

Table 15-7 Static Routes report characteristics

Characteristic	Value
Source database	NSP database
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.

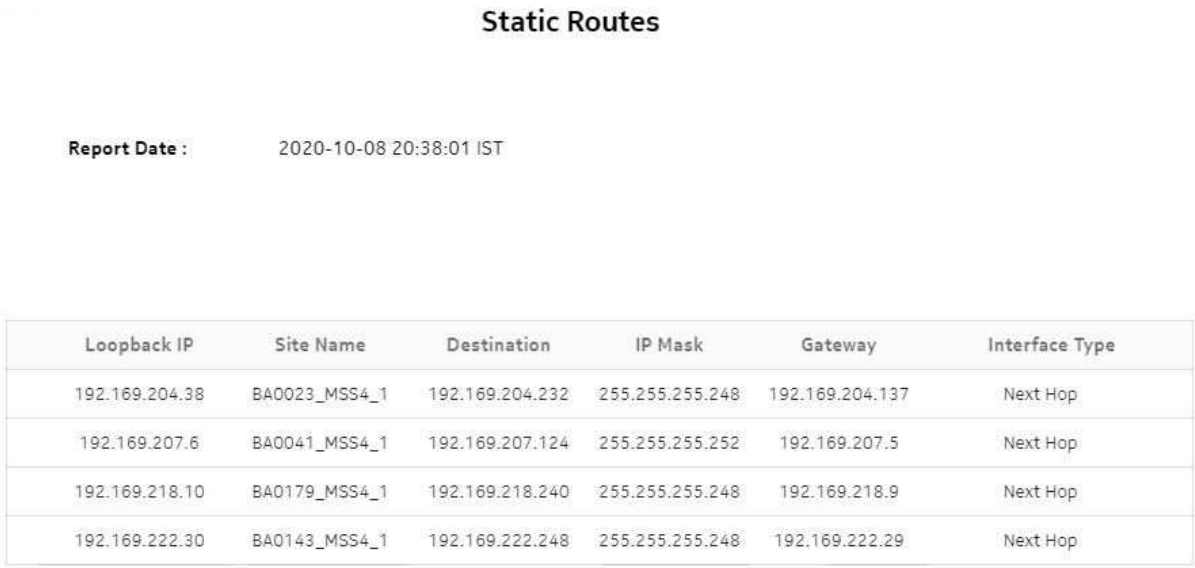
Table 15-7 Static Routes report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	A maximum of first 1000 entries from the available list of NEs are displayed. Select individual NEs or click **Select All**.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.9.2 Example

The following figures show a report example.

Figure 15-8 Static Routes report



Static Routes

Report Date : 2020-10-08 20:38:01 IST

Loopback IP	Site Name	Destination	IP Mask	Gateway	Interface Type
192.169.204.38	BA0023_MSS4_1	192.169.204.232	255.255.255.248	192.169.204.137	Next Hop
192.169.207.6	BA0041_MSS4_1	192.169.207.124	255.255.255.252	192.169.207.5	Next Hop
192.169.218.10	BA0179_MSS4_1	192.169.218.240	255.255.255.248	192.169.218.9	Next Hop
192.169.222.30	BA0143_MSS4_1	192.169.222.248	255.255.255.248	192.169.222.29	Next Hop

15.10 TMN In Band Details report

15.10.1 TMN In Band Details report overview

The TMN In Band Details report shows the detailed information of the network IP, routing protocol, and OSPF address for the selected NEs (managed through the common protocols using the network itself as a medium), and OSPF area.

Use cases

Use the report to examine the TMN in band details for ports based on the selected NEs and the OSPF area.

Report characteristics

The following table lists the principal report characteristics.

Table 15-8 TMN In Band Details report characteristics

Characteristic	Value	
Source database	NSP database	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.	
Report inputs	*Prompt*	*Notes*
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	Up to 1000 entries from the available list of NEs are displayed. Select individual NEs or click **Select All**.
	OSPF Area	Select the OSPF area for which the report is to be generated.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.

Table 15-8 TMN In Band Details report characteristics (continued)

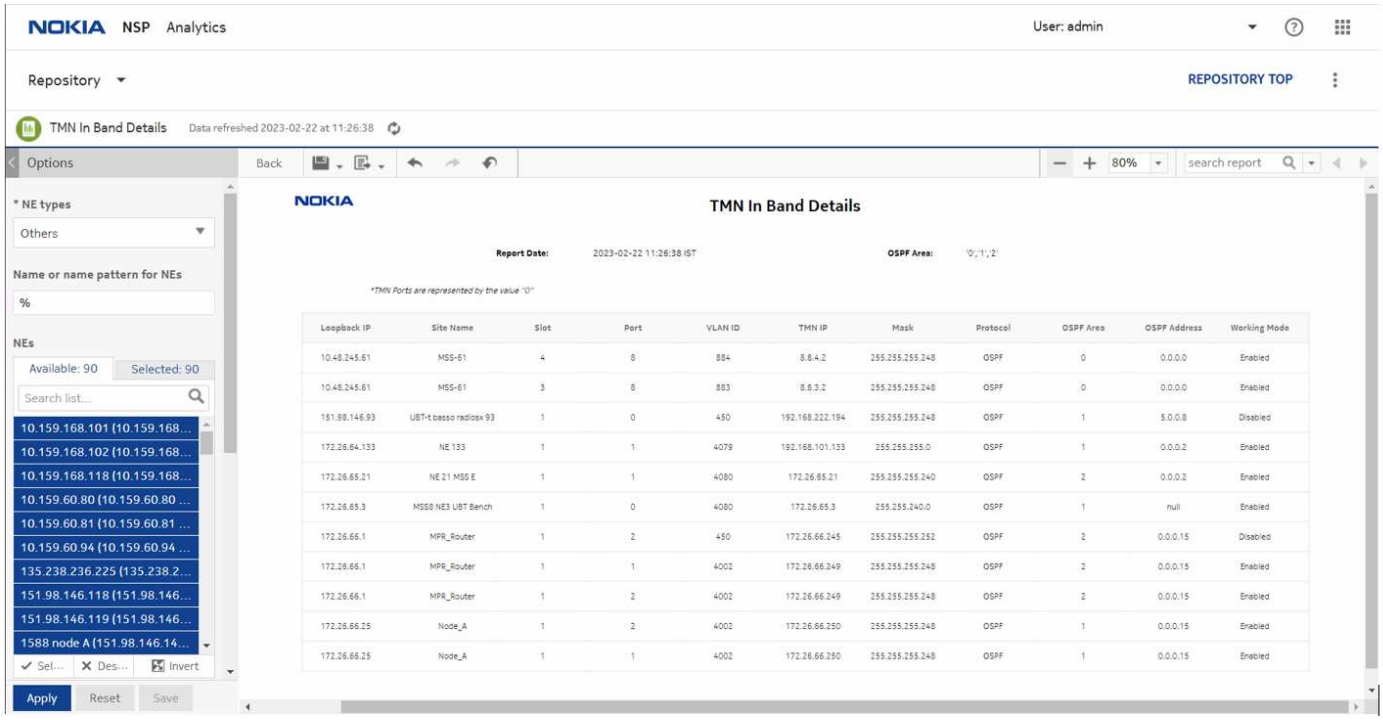
Characteristic	Value
Drill-down support	No

15.10.2 Example

The following figures show a report example.

Note: The OSPF Area and OSPF Address are represented by N/A when the static routing protocol is used.

Figure 15-9 TMN In Band Details report



15.11 TMN Out of Band Details report

15.11.1 TMN Out of Band Details report overview

The TMN Out of Band Details report shows the detailed information of the network IP, routing protocol, and OSPF address for the selected NE (by having an access server that is connected to a management port of each controlled device), and OSPF area.

Use cases

Use the report to examine the TMN out of band details for port/interface based on the selected NEs and the OSPF area.

Report characteristics

The following table lists the principal report characteristics.

Table 15-9 TMN Out of Band Details report characteristics

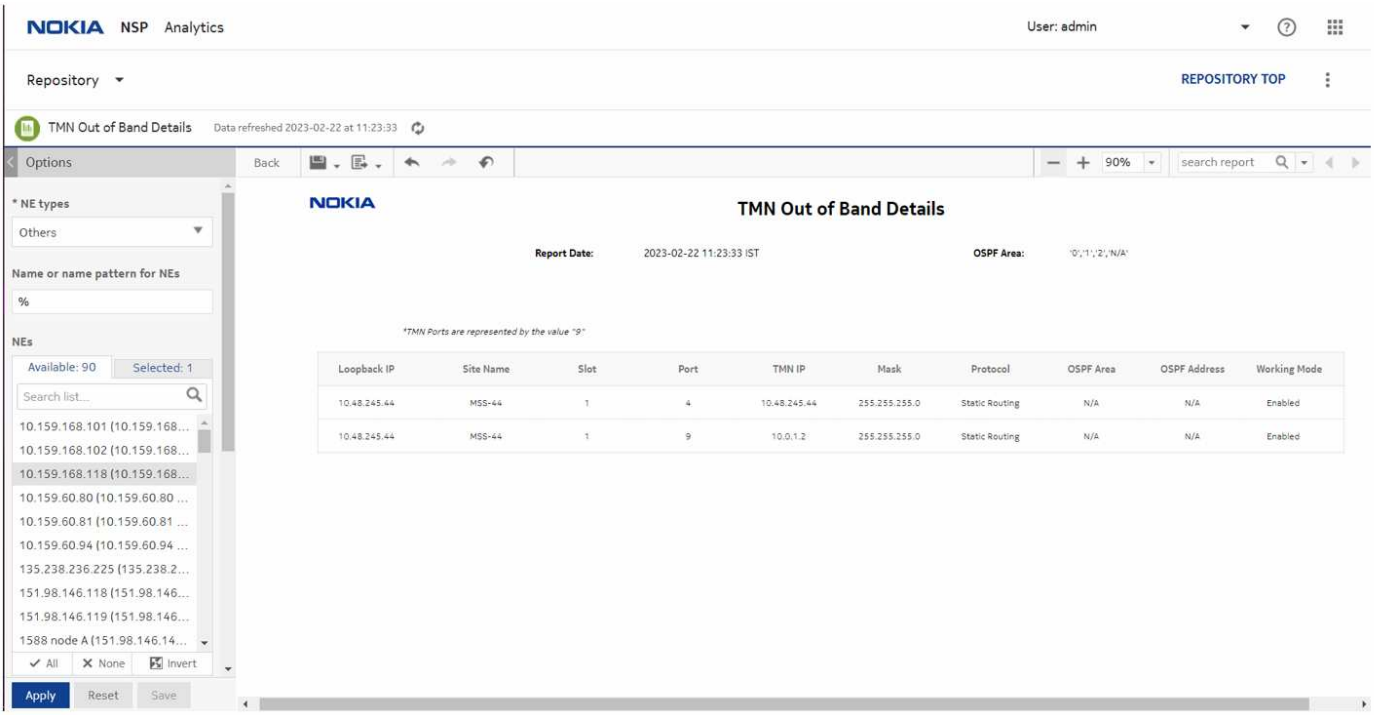
Characteristic	Value	
Source database	NSP database	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.	
Report inputs	*Prompt*	*Notes*
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	Up to 1000 entries from the available list of NEs are displayed. Select individual NEs or click **Select All**.
	OSPF Area	Select the OSPF area for which the report is to be generated.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.11.2 Example

The following figures show a report example.

Note: The OSPF Area and OSPF Address are represented by N/A when the static routing protocol is used.

Figure 15-10 TMN Out of Band Details report



Wavence utilization reports

15.12 Wavence utilization reports overview

15.12.1 General information

Utilization reports provide utilization or uptime information at the NE, port, SAP, service, or customer level.

Note: Changing the graph type of a report, for example, switching from a line chart to a bar chart, can take 30 s or more to complete.

Note: Running customer level reports with output on one page may impact the time required to generate the report. In extreme cases, report generation may fail.

15.13 Advanced Stats Analysis report

15.13.1 Advanced Stats Analysis report overview

The Advanced Stats Analysis report shows the peak and average statistics of the UBT radio NEs along with the peak utilization, peak throughput, average utilization, and average throughput values.

Use cases

Capacity planning—Use the report to highlight ports crossing the threshold for a given time range with specified number of occurrences.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 15-10 Advanced Stats Analysis report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG	Peak Throughput Average Throughput Peak Link Utilization Average Link Utilization	Peak And Average Throughput and Link Utilization History Data Stats (24Hr) Peak And Average Throughput and Link Utilization History Data Stats (15 min)	opticsIMPeakAndAverageHistoryDataEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8 **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-11 Advanced Stats Analysis report characteristics

Characteristic	Value
Data type	Statistics
NSP flow collector required	No
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8

Table 15-11 Advanced Stats Analysis report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • 15 Minutes • 24 Hours
	Statistics	Statistics types: • Peak Throughput • Average Throughput • Peak Link Utilization • Average Link Utilization
	Threshold (Mbps or %)	Specify the threshold value.
	Minimum Number of Occurrences	Specify the number of occurrences.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.13.2 Example

The following figure shows a report example.

Figure 15-11 Advanced Stats Analysis Report

Advanced Stats Analysis

Start Date: 2019-07-22 23:59:59 IST
End Date: 2019-07-23 11:06:06 IST
Report Date: 2019-07-23 11:06:06 IST
Granularity: 15 Minutes

Site Name	Site Id	Port	Time	Peak Throughput (Mbps)
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:45:02	173.24
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 09:45:05	169.14
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:15:03	168.91
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 05:15:02	168.90
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 06:15:04	168.89
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 05:30:04	168.88
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:00:05	168.88
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 05:00:05	168.88
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 11:00:04	168.87
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 10:30:02	168.87
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 06:00:06	168.87
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:30:04	168.87

15.14 Bandwidth Usage report

15.14.1 Bandwidth Throughput Summary report overview

The Bandwidth Throughput Summary report shows bandwidth utilization by specified radio or Ethernet ports configured as a part of the link across the Wavence NEs. The default display is a set of time series graphs for Rx and Tx Throughput and Rx and Tx summary. You can select a link to use as a baseline on the graph, either the same link or a different link from the data set.

The Bandwidth Throughput Summary report at the link level shows the Rx and Tx throughput on a per link basis for the available Ethernet or Radio ports. The corresponding graphs are plotted for Rx and Tx Throughput within the selected single link.

Note: The report tooltip cannot display large numbers of links. If the data displayed in the tooltip extends past the viewable area, refer to the report instead of the tooltip.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns based on the radio or Ethernet traffic in a network and to plan for capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 15-12 Bandwidth Throughput Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Wavence Ingress Stats Bandwidth Aggregator Wavence Egress Stats Bandwidth Aggregator	Port LAG	Ethernet	Ethernet Aggregate Rx Stats (15Min) Ethernet Aggregate Tx Stats (15Min)	ethAggrMaintRxEntry ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-13 Bandwidth Throughput Summary report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA

Table 15-13 Bandwidth Throughput Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for links	Enter the name pattern of the link
	Links	Select individual items or click **Select All**.
	Enable Baseline	Select the check box to enable baseline support.
	Baseline End Date	Calendar date or relative date (for example, two days ago) and time
	Baseline Report range	Length of time to be reported, in hours or days
	Baseline Definition	Sub-aggregation types: • None (raw data): Raw + Hour of Day, Raw + Hour of Day + Day of Week • Hourly: Hour of Day, Hour of Day + Day of Week + Hour of Day + Day of Month • Daily: Day of Week, Day of Week + Month of year, Day of Month, Day of Month + Month of year • Monthly: Month of year
	Baseline Links	Select individual items or click **Select All**.
	Tx Threshold	Specify value (Mbps)
	Rx Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered
	Reset	Resets all the parameters to default value

Table 15-13 Bandwidth Throughput Summary report characteristics (continued)

Characteristic	Value
Drill-down support	No

15.14.2 Example

The following figures show a report example.

Figure 15-12 Bandwidth Throughput Summary Report—Tx Throughput

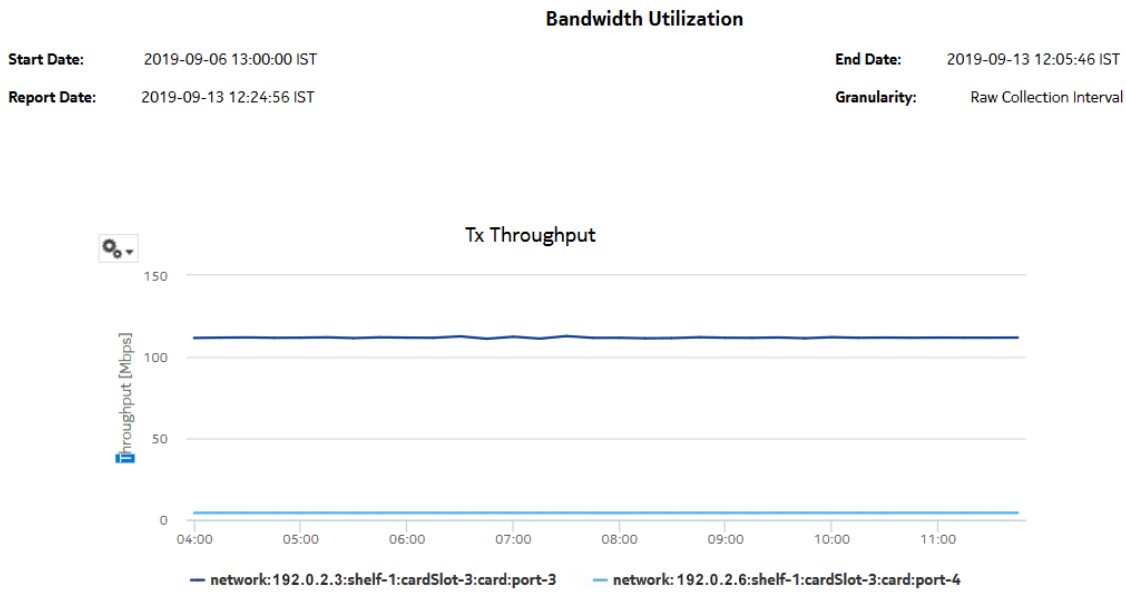


Figure 15-13 Bandwidth Throughput Summary Report—Rx Throughput

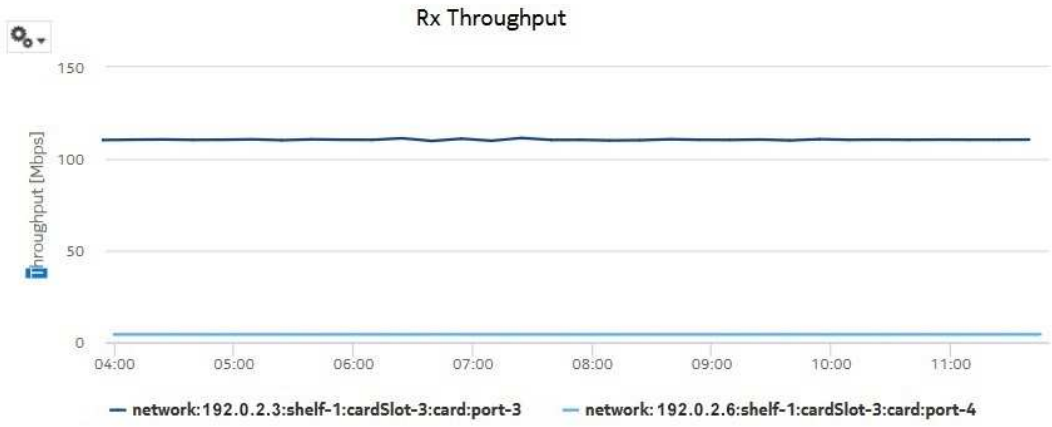


Figure 15-14 Bandwidth Throughput Summary Report—Tx Summary

Tx Summary

Link Name	Site Name	Site Id	Port Name	Average Throughput (Mbps)	Minimum Throughput (Mbps)	Maximum Throughput (Mbps)
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 3/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	101.76	1.83	112.97
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 4/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	101.76	1.83	112.97

Figure 15-15 Bandwidth Throughput Summary Report—Rx Summary

Rx Summary

Link Name	Site Name	Site Id	Port Name	Average Throughput (Mbps)	Minimum Throughput (Mbps)	Maximum Throughput (Mbps)
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 3/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	101.76	1.83	112.97
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 4/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/4	101.76	1.83	112.97

Figure 15-16 Bandwidth Throughput Summary Report with Baseline—Tx Throughput

Bandwidth Throughput Summary

Start Date:	2021-05-04 08:01:00 IST	**End Date:**	2021-05-04 09:00:00 IST
Report Date:	2021-06-09 18:15:58 IST	**Granularity:**	Raw Collection Interval
Baseline Start Date:	2021-04-30 10:00:00 IST	**Baseline End Date:**	2021-05-03 09:00:00 IST
Baseline Definition:	Raw + Hour of Day		

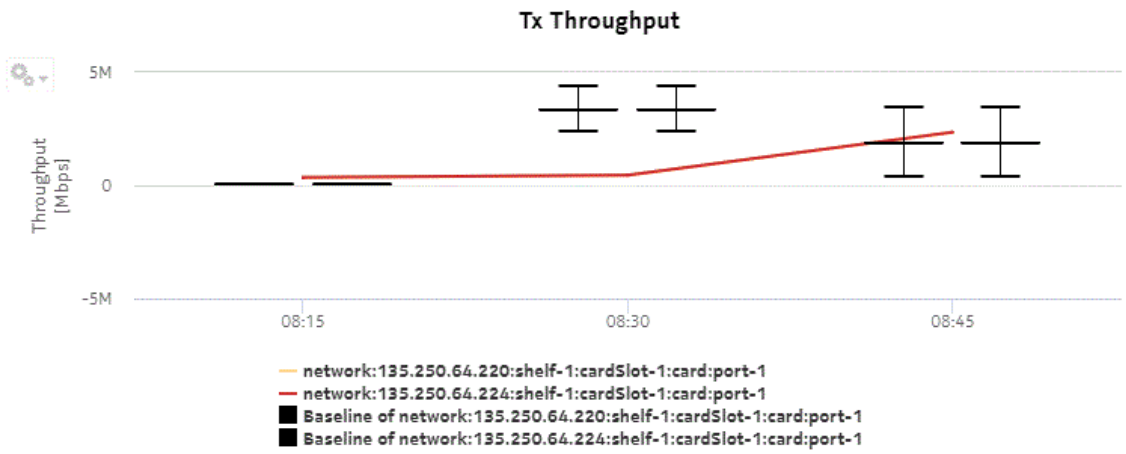
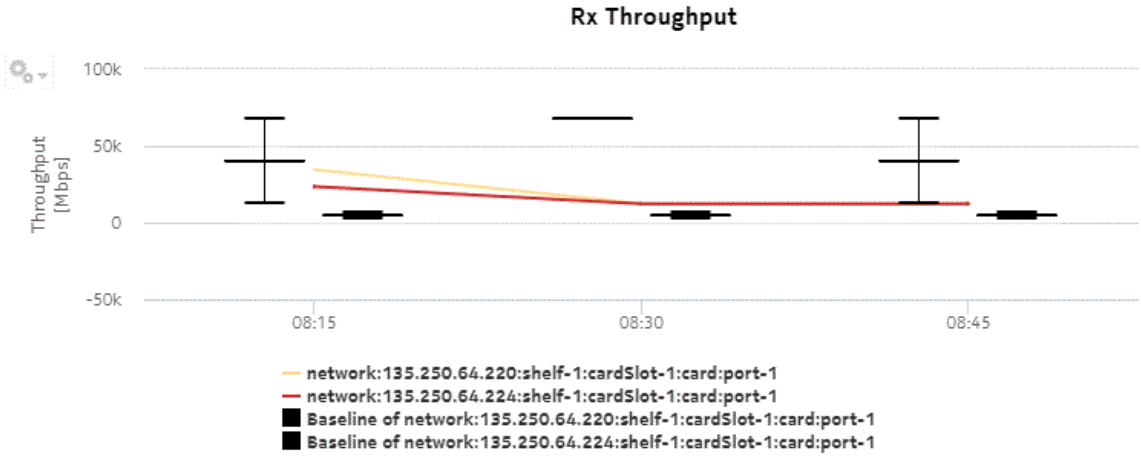


Figure 15-17 Bandwidth Throughput Summary Report with Baseline—Rx Throughput



15.15 Bandwidth Throughput with Forecast report

15.15.1 Bandwidth Throughput with Forecast report overview

The Bandwidth Throughput with Forecast report shows bandwidth utilization by specified radio or Ethernet ports configured as a part of the link across the Wavence NEs with forecasting data. The default display is a set of time series graphs for Rx and Tx Throughput.

Note: The report generation takes approximately 49 to 50 s to complete.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns based on the radio or Ethernet traffic in a network and to plan for capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section 1.10 “How do I configure the Analytics session time zone?” (p. 31) for more information about configuring the session time zone.

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To

view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 15-14 Bandwidth Throughput with Forecast report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Wavence Ingress Stats Bandwidth Aggregator Wavence Egress Stats Bandwidth Aggregator	Port LAG	Ethernet	Ethernet Aggregate Rx Stats (15Min) Ethernet Aggregate Tx Stats (15Min)	ethAggrMaintRxEntry ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-15 Bandwidth Throughput with Forecast report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA

Table 15-15 Bandwidth Throughput with Forecast report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Name or name pattern for links	Enter the name pattern of the link
	Links	Select individual link
	Tx Threshold	Specify value (Mbps)
	Rx Threshold	
	Forecast periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered
	Reset	Resets all the parameters to default value
Drill-down support	No	

15.15.2 Example

The following figures show a report example.

Figure 15-18 Bandwidth Throughput with Forecast report—Tx Throughput

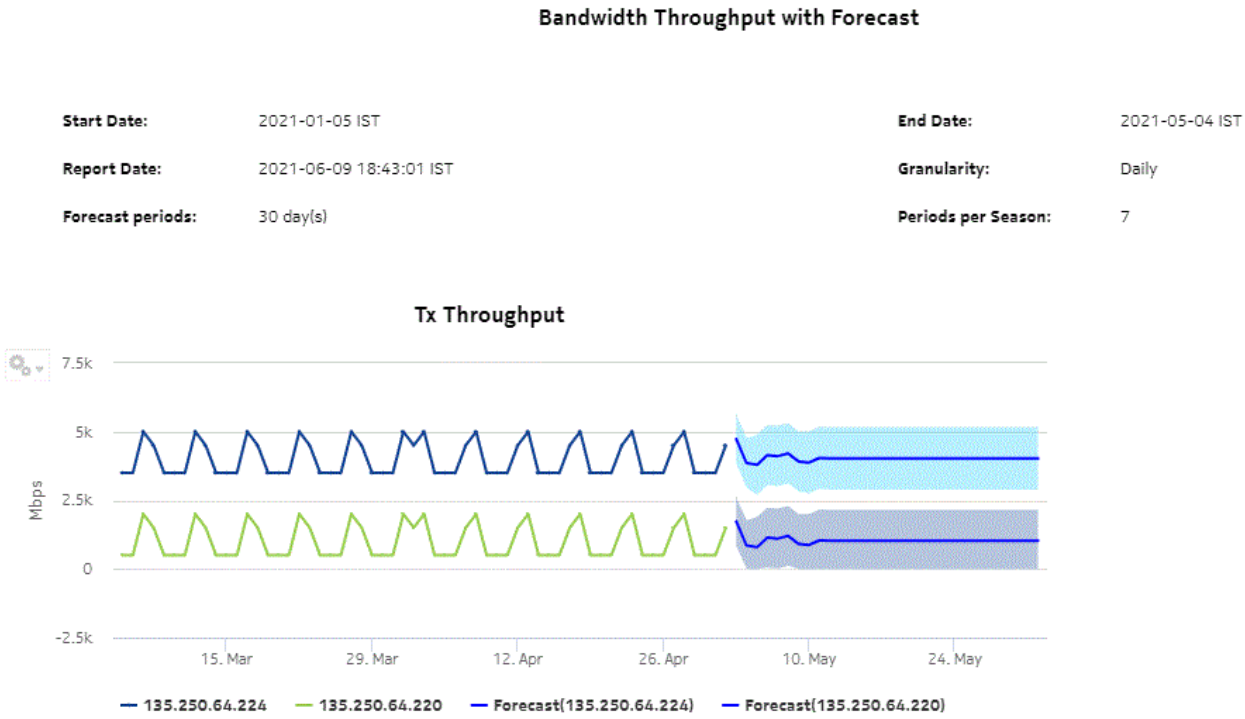
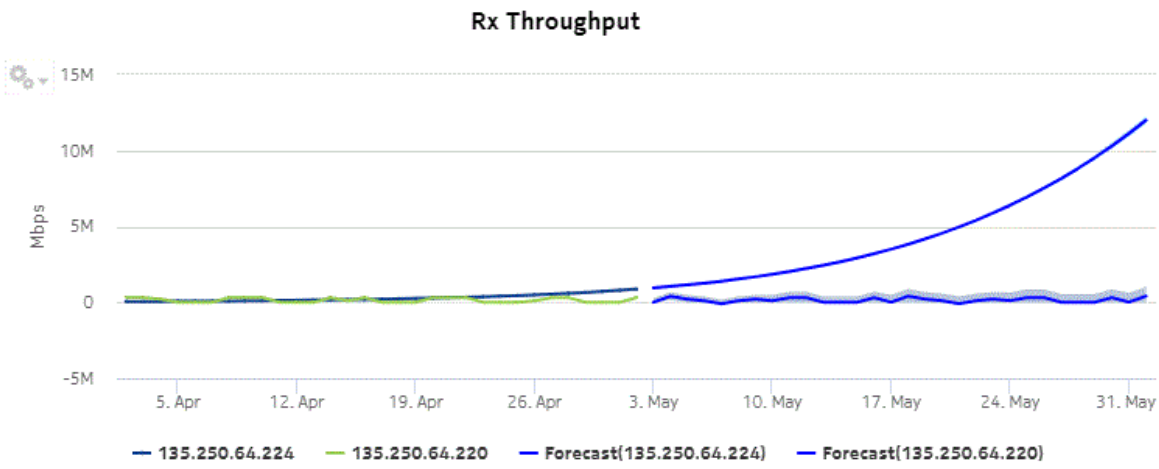


Figure 15-19 Bandwidth Throughput with Forecast report—Rx Throughput



15.16 Link Budget Calculation report

15.16.1 Link Budget Calculation report overview

The Link Budget Calculation report provides the details on radio link deviations, based on the Install/Design and Actual RSL values per MPT/UBT basis, for selected time range and granularity. The report lists the number of deviations and details on the links for Actual vs Design and Actual vs Install dB values.

The default display is a set of tables for 1+0 and 1+1, 2+0 and 2+2, and N+0 and N+N radio links providing details including Site A, Site B, Radio Link Name, Link Distance (km/mile), Site ID, Port, Design RSL (dBm), Installed RSL (dBm), Actual RSL (dBm), and Number of deviations for the selected inputs.

Click on the number of deviations on the selected radio link to drill down to the Link Budget Calculation details report. The default display is a time-series chart with Actual vs Design and Actual vs Install dB values. The values are plotted on the time slots in the time range and presented in a table with details like Date, Time, Actual vs Design RSL deviation, and Actual vs Installed RSL deviation.

Note: The coordinates are displayed as parameters on the General tab of the Node Properties form.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following tasks need to be performed using NSP Classic management for a Link Budget Calculation Report to be created:

- NEs with radio links need to be discovered. The path distance (user configurable between kilometer or miles) is calculated based on the latitude and longitude coordinates discovered from the NE. The NSP discovers the Wavence radio links automatically and builds this report based on the adjacency information.

  Radio RSL is supported only for MPT/UBT radio ports and not supported for radio modem ports.
- To update the Installed RSL value on the associated radio ports, the Radio RSL retrieval operation must be completed for the NEs with radio links.

  See the *Wavence statistics support* chapter of the *Microwave Radio User Guide* for information about configuring link budget calculation statistics.
- The Install RSL value must be updated per MPT/UBT after the Radio RSL retrieval operation is successfully completed on the NE.
- The Design RSL value must be manually entered on the radio ports that are part of the radio links from the radio tab.
- The Radio RSL Hop Current Data 15 Min PM must be enabled for the radio ports that are part of radio links, to be included in the analytics reporting.

- The Radio RSL Hop History 24 Hr PM must be enabled for the radio ports for generating report on 24 h granularity.

Note: For reports with more than 1000 pages, use the multipage display option to shorten loading times. Large reports can take from thirty seconds to several minutes to load, depending on the number of entries.

Use case

Use the Link Budget Calculation report to identify the deviations with respect to Design vs Install vs Actual RSL on a per MPT/UBT level on the radio link.

Report characteristics

The following table lists the principal report characteristics.

Table 15-16 Link Budget Calculation report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8

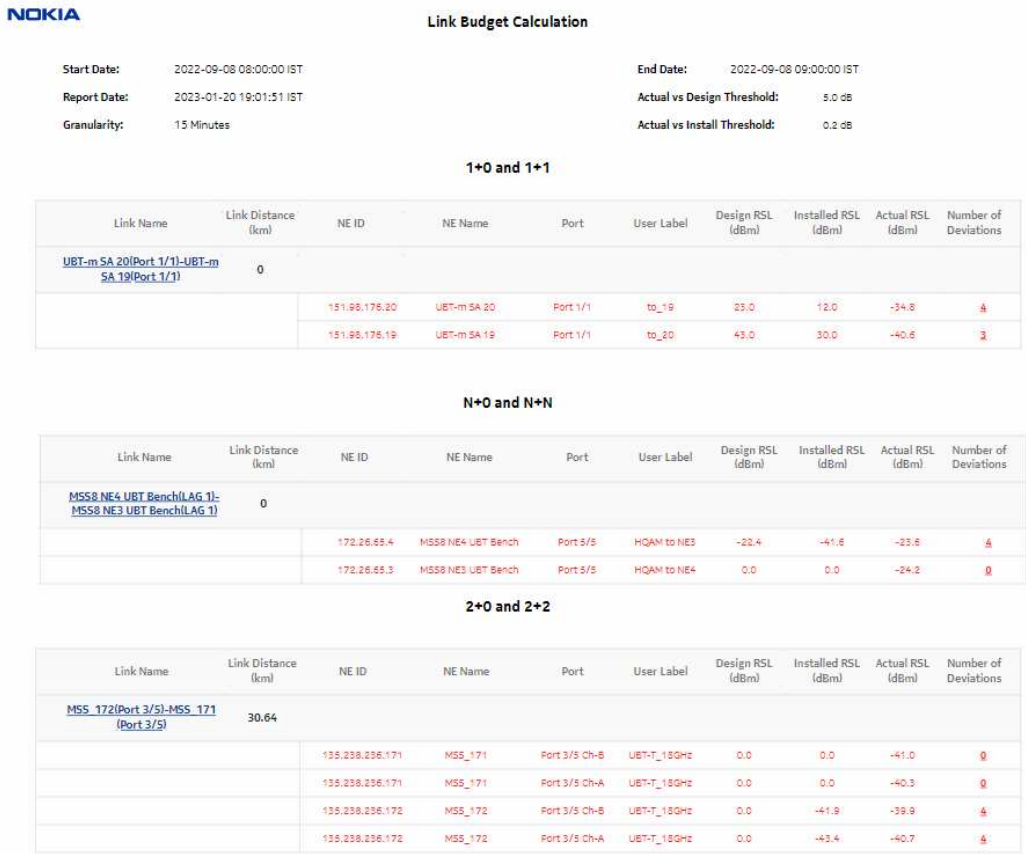
Table 15-16 Link Budget Calculation report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Actual vs Design threshold (dB)	Accepts values greater than 0.1
	Actual vs Install threshold (dB)	
	Number of Deviations	Accepts integer values
	Granularity	15 Minutes and 24 Hours
	Distance Unit	Select the unit for the path distance to display on the report. Unit types: • Kilometer • Mile
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered
	Reset	Resets all the parameters to default value
Drill-down support	Yes—Link Budget Calculation Details can only be launched from the main report. Click on the Link Name to launch the Radio Link Inventory report.	

15.16.2 Examples

The following figures show report examples.

Figure 15-20 Link Budget Calculation report



NOKIA

Link Budget Calculation

Start Date:	2022-09-08 08:00:00 IST	**End Date:**	2022-09-08 09:00:00 IST
Report Date:	2023-01-20 19:01:51 IST	**Actual vs Design Threshold:**	5.0 dB
Granularity:	15 Minutes	**Actual vs Install Threshold:**	0.2 dB

1+0 and 1+1

Link Name	Link Distance (km)	NE ID	NE Name	Port	User Label	Design RSL (dBm)	Installed RSL (dBm)	Actual RSL (dBm)	Number of Deviations
UBT-m SA 20(Port 1/1)-UBT-m SA 19(Port 1/1)	0								
		151.98.176.20	UBT-m SA 20	Port 1/1	to_19	23.0	12.0	-34.8	4
		151.98.176.19	UBT-m SA 19	Port 1/1	to_20	43.0	30.0	-40.6	3

N+0 and N+N

Link Name	Link Distance (km)	NE ID	NE Name	Port	User Label	Design RSL (dBm)	Installed RSL (dBm)	Actual RSL (dBm)	Number of Deviations
MSS8 NE4 UBT Bench(LAG 1)-MSS8 NE3 UBT Bench(LAG 1)	0								
		172.26.65.4	MSS8 NE4 UBT Bench	Port 5/5	HQAM to NE3	-22.4	-41.6	-23.6	4
		172.26.65.3	MSS8 NE3 UBT Bench	Port 5/5	HQAM to NE4	0.0	0.0	-24.2	0

2+0 and 2+2

Link Name	Link Distance (km)	NE ID	NE Name	Port	User Label	Design RSL (dBm)	Installed RSL (dBm)	Actual RSL (dBm)	Number of Deviations
MSS_172(Port 3/5)-MSS_171 (Port 3/5)	30.64								
		135.238.236.171	MSS_171	Port 3/5 Ch-B	UBT-T_18GHz	0.0	0.0	-41.0	0
		135.238.236.171	MSS_171	Port 3/5 Ch-A	UBT-T_18GHz	0.0	0.0	-40.3	0
		135.238.236.172	MSS_172	Port 3/5 Ch-B	UBT-T_18GHz	0.0	-41.9	-39.9	4
		135.238.236.172	MSS_172	Port 3/5 Ch-A	UBT-T_18GHz	0.0	-43.4	-40.7	4

Figure 15-21 Link Budget Calculation report, continued.

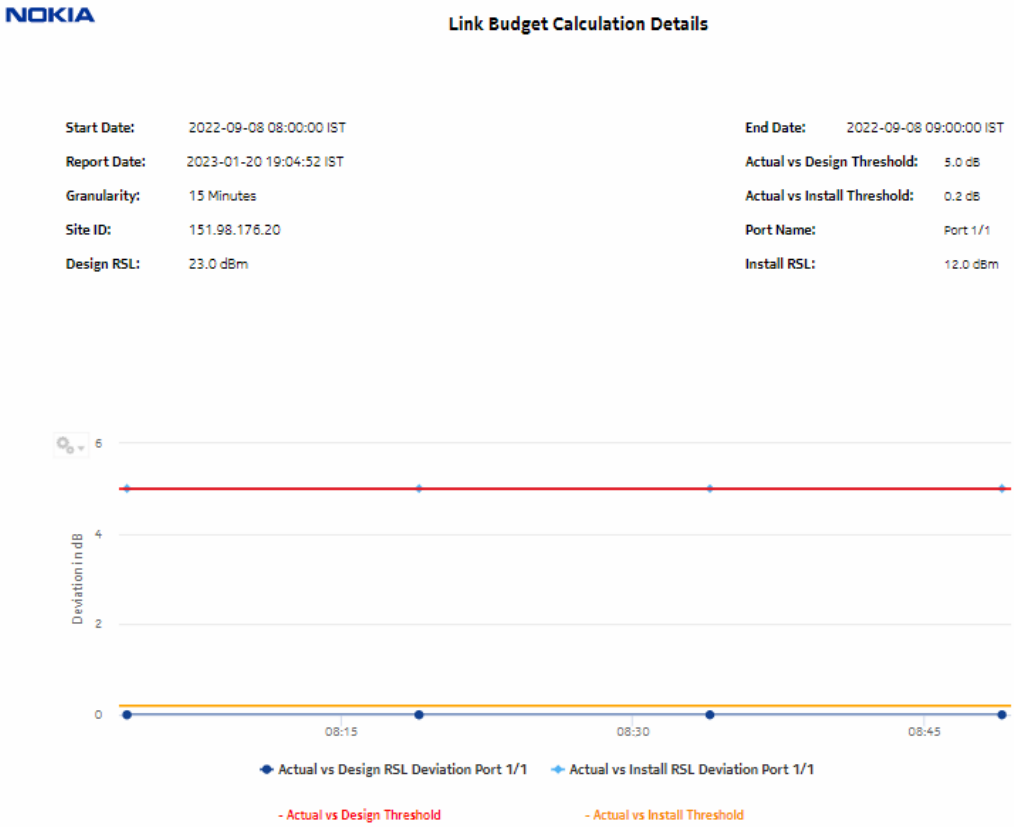


Figure 15-22 Link Budget Calculation Details report

DateTime	Actual vs Design RSL Deviation (dB)	Actual vs Install RSL Deviation (dB)	Actual RSL(dBm)
2022-09-08 08:49:00	0.00	5.00	-34.80
2022-09-08 08:34:00	0.00	5.00	-34.80
2022-09-08 08:19:00	0.00	5.00	-34.80
2022-09-08 08:04:00	0.00	5.00	-34.80

15.17 Link Unavailability Summary report

15.17.1 Link Unavailability Summary report overview

The Link Unavailability Summary report shows high-level information about the unavailable seconds of the associated port or LAG on a radio and MWA link. The operator can select multiple radio links and MWA links for the selected interval. The Link Unavailability Summary report can be generated based on radio and MWA links between the NEs of the respective ports or LAGs.

Use cases

Capacity planning—Use the report to examine the unavailable seconds based on the radio link between the NEs of the respective ports or LAGs.

Prerequisites

To create the Link Unavailability Summary report, enable the Hop History Data Statistics by selecting the Product Name as ‘Wavence SM’ using NSP Classic management.

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Table 15-17 Link Unavailability Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG UBT	G.826	Hop History Data stats (15Min)	opticsIMPdhFrame-HopHistoryDataEn-try	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC

Report characteristics

The following table lists the principal report characteristics.

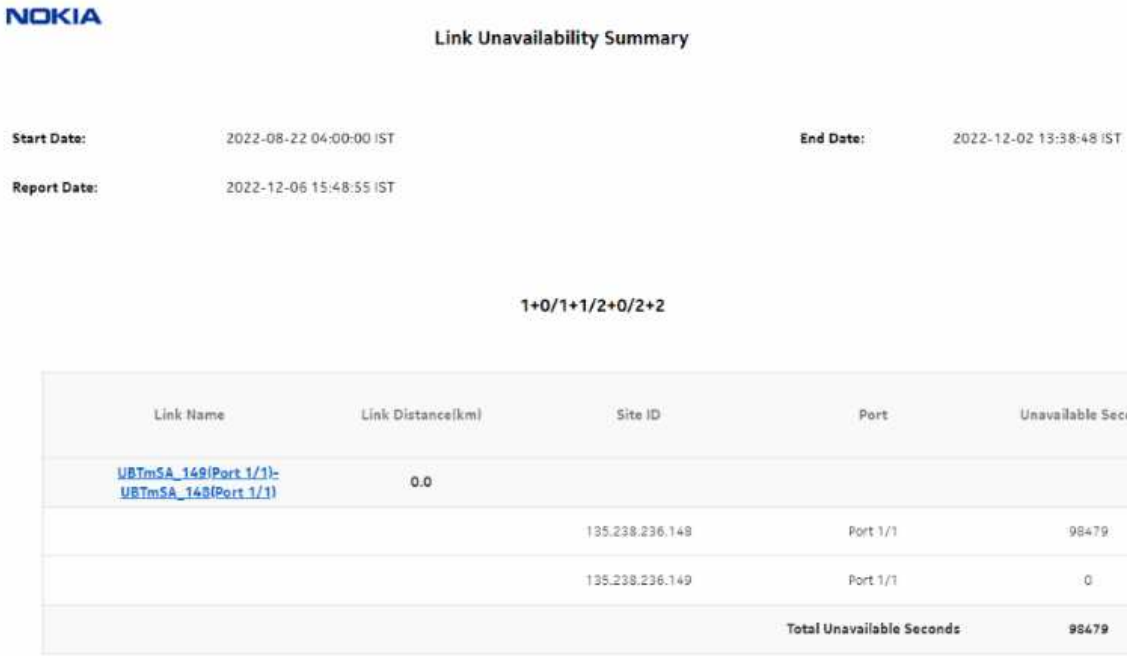
Table 15-18 Link Unavailability Summary report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Links	Select individual links or click **Select All**.
	Unavailability Seconds Threshold	Specify the value in seconds
	Show threshold violations only	Select to see threshold violations only.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	Yes—Open the Link Unavailability Details for the selected NE.	

15.17.2 Example

The following figures show a report example.

Figure 15-23 Link Unavailability Summary report



NOKIA

Link Unavailability Summary

Start Date: 2022-08-22 04:00:00 IST **End Date:** 2022-12-02 13:38:48 IST

Report Date: 2022-12-06 15:48:55 IST

1+0/1+1/2+0/2+2

Link Name	Link Distance(km)	Site ID	Port	Unavailable Seconds
UBTmSA_149(Port 1/1)-UBTmSA_148(Port 1/1)	0.0			
		135.238.236.148	Port 1/1	98479
		135.238.236.149	Port 1/1	0
			Total Unavailable Seconds	**98479**

Figure 15-24 Link Unavailability Summary Report, continued

N+0/N+N

Link Name	Link Distance(km)	Site ID	Port	Unavailable Seconds
NE_158(LAG 2)-MSS-156(LAG 1)	0.0			
		135.250.64.156	Port 3/1	234
		135.250.64.158	Port 3/1	899
			Total Unavailable Seconds	**1133**

15.18 Link Unavailability Details report

15.18.1 Link Unavailability Details report overview

The Link Unavailability Details report shows the month wise details of unavailable seconds for the associated ports or LAGs on a radio link and MWA link. The Link Unavailability Details report can be generated based on the link selected in the summary report.

Use cases

Capacity planning—Use the report to examine the unavailable seconds based on the radio link between the NEs of the respective ports or LAGs.

Prerequisites

To create a Link Unavailability Details report, you must enable the Hop History Data Statistics by selecting the Product Name as ‘Wavence SM’ using NSP Classic management.

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Table 15-19 Link Unavailability Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG UBT	G.826	Hop History Data stats (15Min)	opticsIMPdhFrame-HopHistoryDataEn-try	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC

Report characteristics

The following table lists the principal report characteristics.

Table 15-20 Link Unavailability Details report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Links	Select individual links or click **Select All**.
	Unavailability Seconds Threshold	Specify the value in seconds
	Show threshold violations only	Select to see threshold violations only.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.18.2 Example

The following figures show a report example.

Figure 15-25 Link Unavailability Details report

Link Unavailability Details

Start Date:	2019-02-01 00:00:00 IST	**End Date:**	2019-08-27 14:49:03 IST
Report Date:	2019-08-27 14:50:21 IST		
Local NE:	BLR_64_156	**Local Port:**	Port 5/6
Far NE:	BLR_64_157	**Far Port:**	Port 5/6

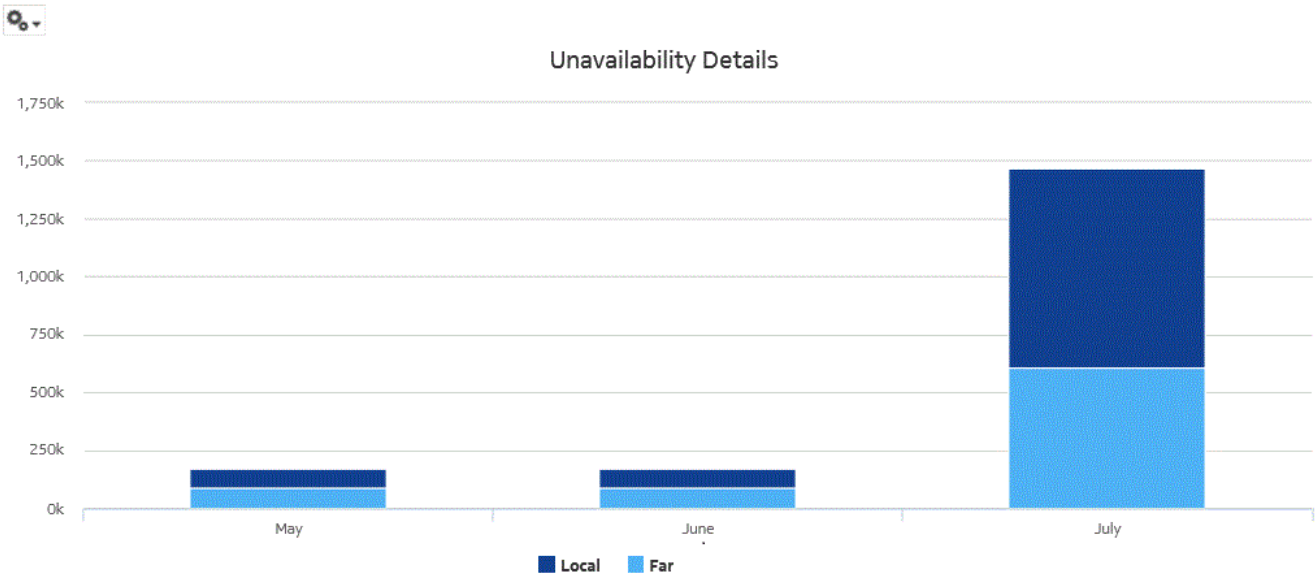


Figure 15-26 Link Unavailability Details report, continued

Month	Local UAS	Far UAS
May	86399	86399
June	85966	86400
July	863991	604793
Total	**1036356**	**777592**

15.19 Quarterly Traffic Analysis report

15.19.1 Quarterly Traffic Analysis report overview

The Quarterly Traffic Analysis report shows the daily Peak Utilization and daily Peak Throughput for each radio port averaged over one quarter. The report can be generated on a per-quarter basis, Q1, Q2, Q3, or Q4 of the selected year.

Use cases

Capacity planning—Use the report to examine the quarterly traffic based on the daily Peak Utilization and daily Peak Throughput per radio port on the given network and to plan for capacity requirements.

Prerequisites

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Table 15-21 Quarterly Traffic Analysis report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG	Peak Throughput Average Throughput Peak Link Utilization Average Link Utilization	Peak And Average Throughput and Link Utilization History Data Stats (24Hr)	opticsIMPeakAndAverageHistoryDataEntry	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8 **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-22 Quarterly Traffic Analysis report characteristics

Characteristic	Value
Statistics type	Radio Equipment
NSP flow collector required	No

Table 15-22 Quarterly Traffic Analysis report characteristics (continued)

Characteristic	Value	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8	
Report inputs	*Prompt*	*Notes*
	Duration	Report is generated based on the selected quarter of the year.
	Year	Select the year from the drop-down menu.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

15.19.2 Example

The following figure shows a report example.

Figure 15-27 Quarterly Traffic Analysis report

Quarterly Traffic Analysis

Start Month: 2019-07 IST **End Month:** 2019-10 IST

Report Date: 2019-07-23 11:23:23 IST **Quarter:** 3

Site Id	Site Name	Port	Port Usage	Average Peak Throughput (Mbps)	Average Peak Utilization (%)
192.0.2.1	MSS 8 NE1 UBT Bench	Port 5/5	UBT-S	192.08	79.15
192.0.2.5	MSS 8 NE5 UBT Bench	Port 3/5	UBT-T	320.12	31.45
192.0.2.2	MSS 8 NE2 UBT Bench	Port 3/3	UBT-T	276.42	27.25
192.0.2.3	MSS 8 NE3 UBT Bench	Port 3/3	UBT-T	260.40	25.36
192.0.2.4	MSS 8 NE 4 UBT Bench	Port 1/7	UBT-T	225.81	22.18

15.20 Radio Equipment Health Monitoring Summary report

15.20.1 Radio Equipment Health Monitoring Summary report overview

The Radio Equipment Health Monitoring Summary report shows the detailed information of the power voltage, current, and temperature values of the ports associated on the radio link. The operator can select multiple radio links for the selected temperature unit. The default unit for temperature is Celsius. The Radio Equipment Health Monitoring Summary report can be generated based on the radio links between the NEs of the respective ports or LAGs.

Use cases

Capacity planning—Use the report to examine the power voltage, current and temperature values based on the radio link between the NEs of the respective ports or LAGs.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

Perform the following tasks using NSP Classic management to create a Radio Equipment Health Monitoring Details report:

- enable the UBT/MPT Equipment Measurement (MPR) statistics by selecting the Product Name as ‘Wavence SM’
- enable the Wavence MPT STATS Aggregator to view the report for granularities other than raw data

Report characteristics

The following table lists the principal report characteristics.

Note: The value of -99 means the data value is not available.

Table 15-23 Radio Equipment Health Monitoring Summary report characteristics

Characteristic	Value
Statistics type	Performance statistics
NSP flow collector required	No
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.

Table 15-23 Radio Equipment Health Monitoring Summary report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Links	Select individual links or click **Select All**.
	Temperature Unit	Celsius or Fahrenheit
	Temperature Threshold	Specify the value using expression like >,<,=,<=,>=.
	Power Threshold	
	Current Threshold	
	Voltage Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	Yes—Open the Radio Equipment Health Monitoring Details Report for the select NE.	

15.20.2 Example

The following figures show a report example.

Figure 15-28 Radio Equipment Health Monitoring Summary report

Radio Equipment Health Monitoring Summary

Start Date:	2019-01-01 00:00:00 IST	**End Date:**	2019-08-27 14:40:56 IST
Report Date:	2019-08-27 14:41:05 IST	**Granularity:**	Raw Collection Interval
Temperature Threshold:	C	**Power Threshold:**	
Current Threshold:		**Voltage Threshold:**	

1+0/1+1

NE Name	NE ID	Port	Power Avg(W)	Power Max(W)	Current Min(A)	Current Max(A)	Temperature Min (C)	Temperature Max (C)	Voltage Min (V)	Voltage Max(V)
BLR_64_156	192.0.2.1	Port 5/6	43.25	53.0	0.61	0.69	25.0	45.0	41.0	53.0
BLR_64_157	192.0.2.1	Port 5/6	44.83	48.0	0.62	0.69	41.0	45.0	41.0	48.0
		Total Power Consumed	88.08	101.0						

Figure 15-29 Radio Equipment Health Monitoring Summary report, continued

N+0/N+N

NE Name	NE ID	Lag-Port	Power Avg(W)	Power Max(W)	Current Min(A)	Current Max(A)	Temperature Min (C)	Temperature Max(C)	Voltage Min (V)	Voltage Max(V)
BLR_64_156	192.0.2.5	LAG 2tester	44.5	48.0	0.63	0.69	35.0	48.0	20.0	50.0
BLR_64_156	192.0.2.5	LAG 2tester	50.58	54.0	0.61	0.69	41.0	47.0	40.0	48.0
BLR_64_156	192.0.2.5	LAG 2tester	48.75	59.0	0.61	0.69	41.0	47.0	41.0	52.0
		Total Power Consumed	143.83	161.0						
BLR_64_157	192.0.2.1	LAG 2tester	44.67	49.0	0.61	0.69	41.0	46.0	41.0	47.0
BLR_64_157	192.0.2.1	LAG 2tester	45.58	58.0	0.61	0.68	41.0	54.0	41.0	45.0
BLR_64_157	192.0.2.1	LAG 2tester	54.83	60.0	0.61	0.69	12.0	45.0	25.0	56.0
		Total Power Consumed	145.08	167.0						

15.21 Radio Equipment Health Monitoring Details report

15.21.1 Radio Equipment Health Monitoring Details report overview

The Radio Equipment Health Monitoring Details report shows the detailed port information of the power voltage, current and temperature values of the selected port. The default unit for temperature is Celsius. The report can be generated based on the port selected in the details report.

Use cases

Capacity planning—Use the report to examine the power voltage, current and temperature values on NEs of the respective ports.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following tasks must be performed using NSP Classic management to create a Radio Equipment Health Monitoring Details report:

- enable the UBT/MPT Equipment Measurement (MPR) by selecting the Product Name as ‘Wavence SM’
- enable the Wavence MPT STATS Aggregator to view the report for granularities other than raw data

Report characteristics

The following table lists the principal report characteristics.

Note: The value of -99 means the data value is not available.

Table 15-24 Radio Equipment Health Monitoring Details report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.	
Report inputs	*Prompt*	*Notes*

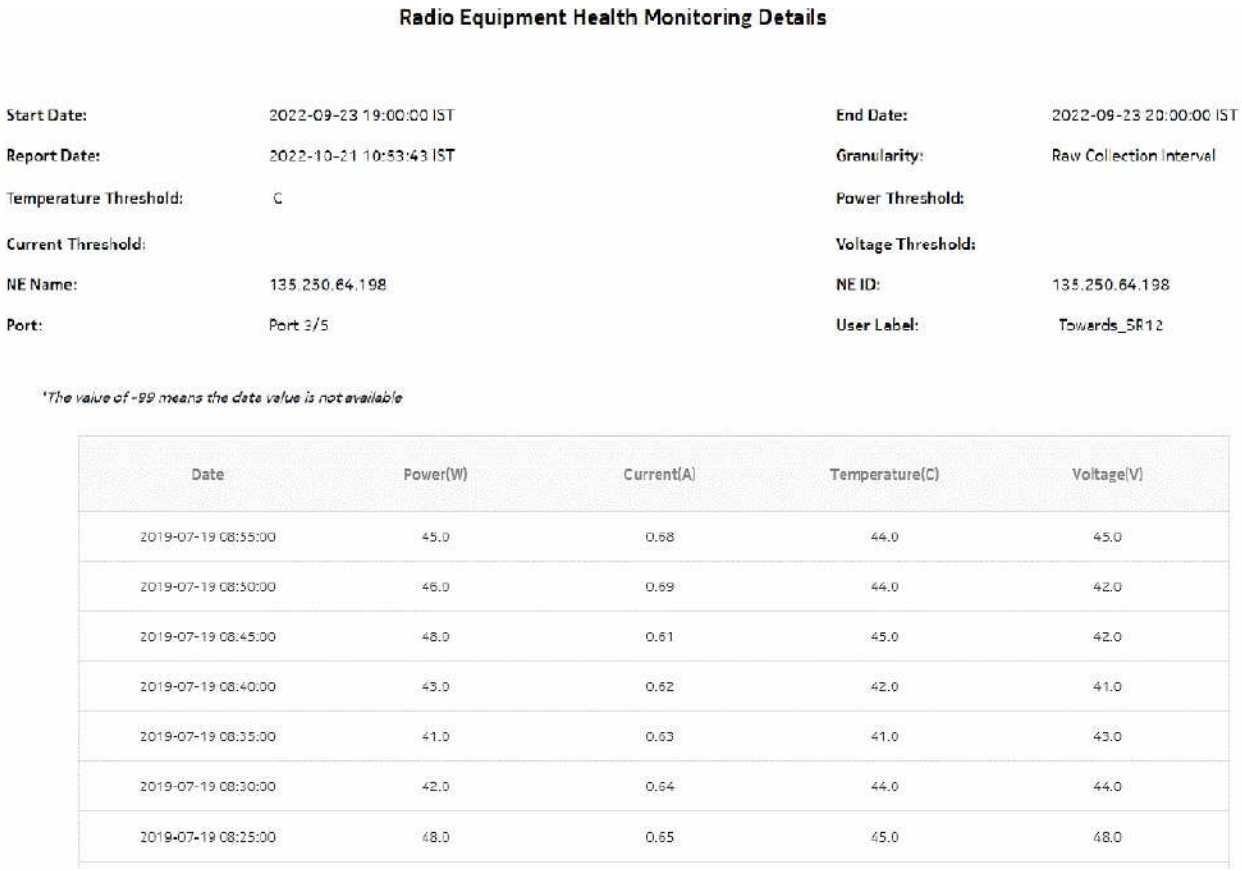
Table 15-24 Radio Equipment Health Monitoring Details report characteristics (continued)

Characteristic	Value	
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Port	Select a port from the drop-down list
	Temperature Unit	Celsius or Fahrenheit
	Temperature Threshold	Specify the value using expression like >,<,=,<=,>=.
	Power Threshold	
	Current Threshold	
	Voltage Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.21.2 Example

The following figure shows a report example.

Figure 15-30 Radio Equipment Health Monitoring Details report



Radio Equipment Health Monitoring Details

Start Date:	2022-09-23 19:00:00 IST	**End Date:**	2022-09-23 20:00:00 IST
Report Date:	2022-10-21 10:53:43 IST	**Granularity:**	Raw Collection Interval
Temperature Threshold:	C	**Power Threshold:**	
Current Threshold:		**Voltage Threshold:**	
NE Name:	135.250.64.198	**NE ID:**	135.250.64.198
Port:	Port 3/5	**User Label:**	Towards_SR12

'The value of -99 means the data value is not available

Date	Power(W)	Current(A)	Temperature(C)	Voltage(V)
2019-07-19 08:55:00	45.0	0.68	44.0	45.0
2019-07-19 08:50:00	46.0	0.69	44.0	42.0
2019-07-19 08:45:00	48.0	0.61	45.0	42.0
2019-07-19 08:40:00	43.0	0.62	42.0	41.0
2019-07-19 08:35:00	41.0	0.63	41.0	43.0
2019-07-19 08:30:00	42.0	0.64	44.0	44.0
2019-07-19 08:25:00	48.0	0.65	45.0	48.0

15.22 Radio Performance per Link report

15.22.1 Radio Performance per Link report overview

The Radio Performance per Link report shows a comprehensive view of Adaptive Modulation, RSL, and performance parameters.

Use cases

Capacity planning—Use the report to examine the radio performance summary for the endpoints of the links.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

The exported filename for this report is Radio_Performance_Link_Details.

Prerequisites

At least one of the statistics listed in the following table must be enabled on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Note: When the QAM values are 0, the ACM graph only displays a legend. Colors differentiate between QAMs, and not objects within a QAM.

Table 15-25 Radio Performance per Link report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port LAG UBT MWA Port for SAR with PMC MWA link for SAR Radio link for Wavence	For Wavence, at least one of: • RSL • G.826 • ACM For SAR with PMC: • G.826 • ACM • Radio Analogue	For Wavence, at least one of: • RSL Hop History Data stats (24Hr) • Hop History Data stats (24Hr) • Adaptive Modulation History data stats (24Hr) For SAR with PMC: • Hop History Data stats (24Hr) • Adaptive Modulation History data stats (24Hr) • Radio Analogue stats (24Hr)	For Wavence, at least one of: • opticsIMRSLHopHistoryDataEntry • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptiveModulationHistoryDataEntry • ethAggrMaintTxEntry For SAR with PMC: • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptiveModulationHistoryDataEntry • aluMwRadioPMACMEntry • aluMwRadioPMG826Entry • aluMwRadioPMPowerEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-26 Radio Performance per Link report characteristics

Characteristic	Value
Statistics type	Performance statistics
NSP flow collector required	No

Table 15-26 Radio Performance per Link report characteristics (continued)

Characteristic	Value	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Radio link	Select a radio link from the drop-down list.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Radio Performance per Link > Radio Performance per Port Summary > Radio Performance per Port Details.	

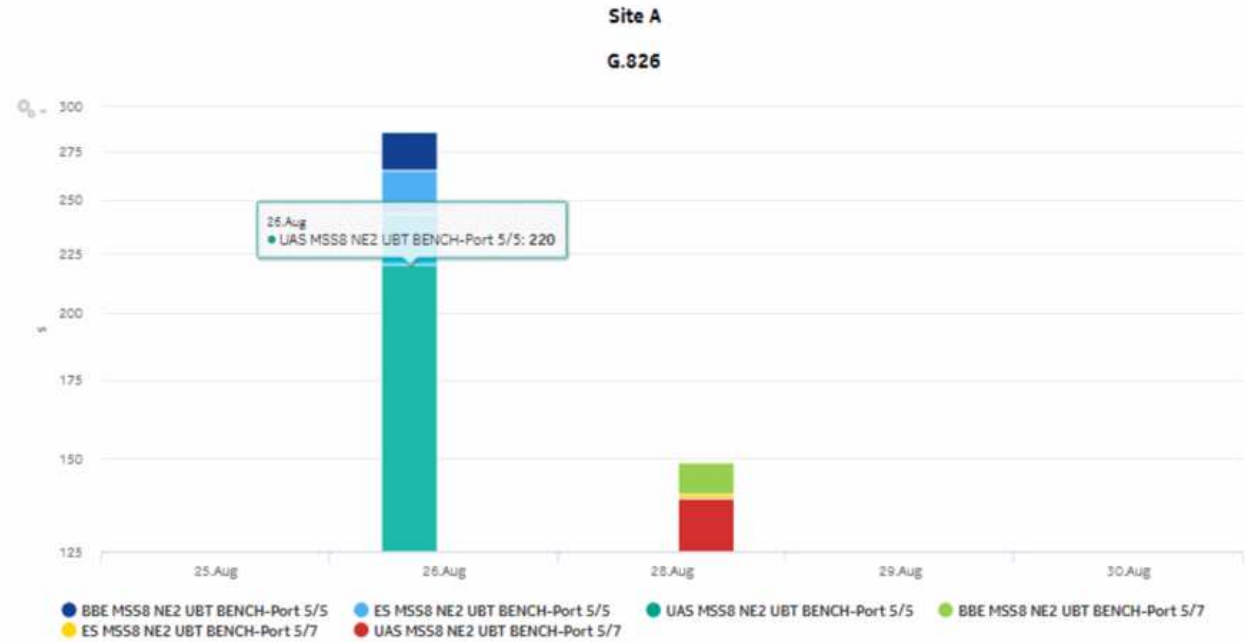
15.22.2 Example

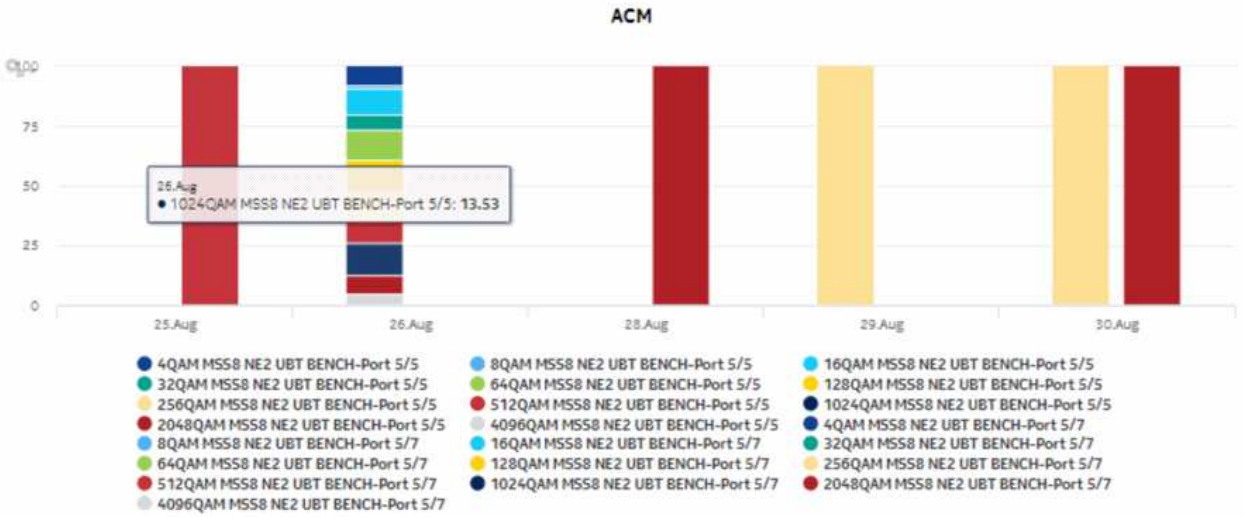
The following figures show a report example.

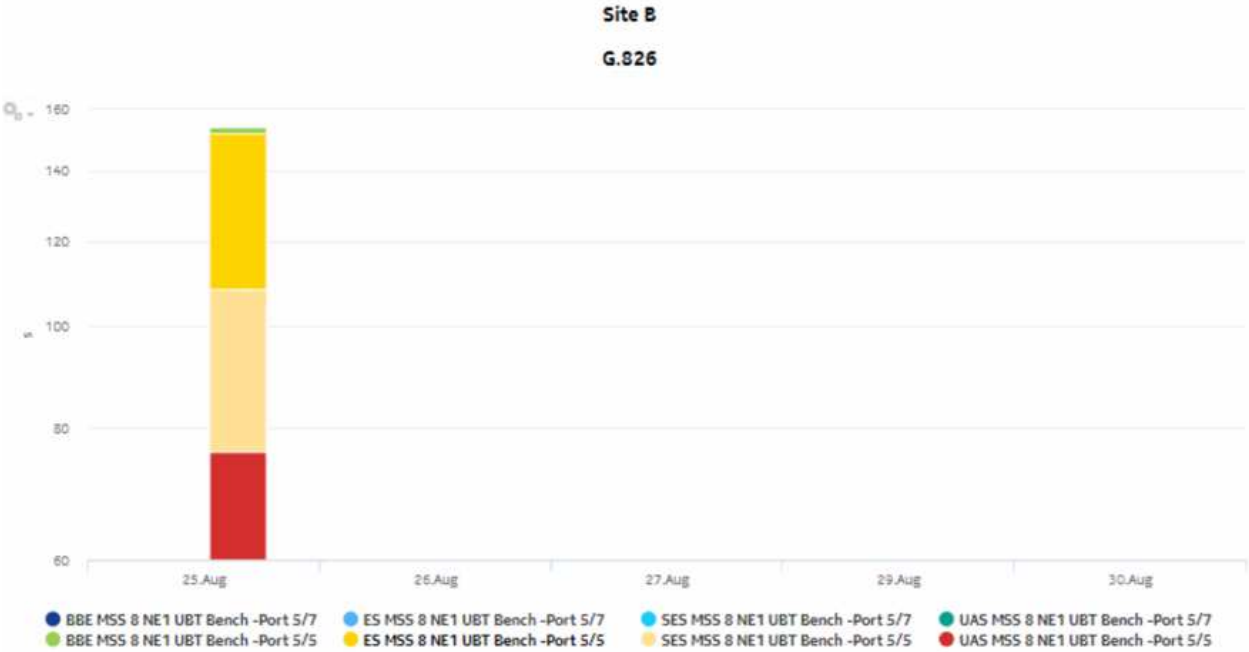
Figure 15-31 Radio Performance per Link report

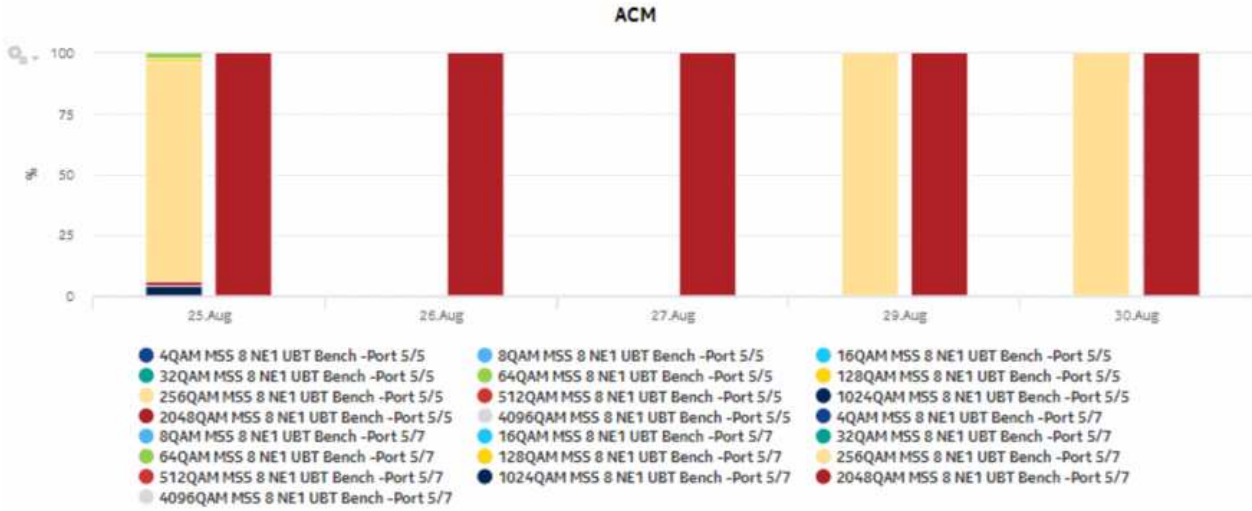
Radio Performance per Link

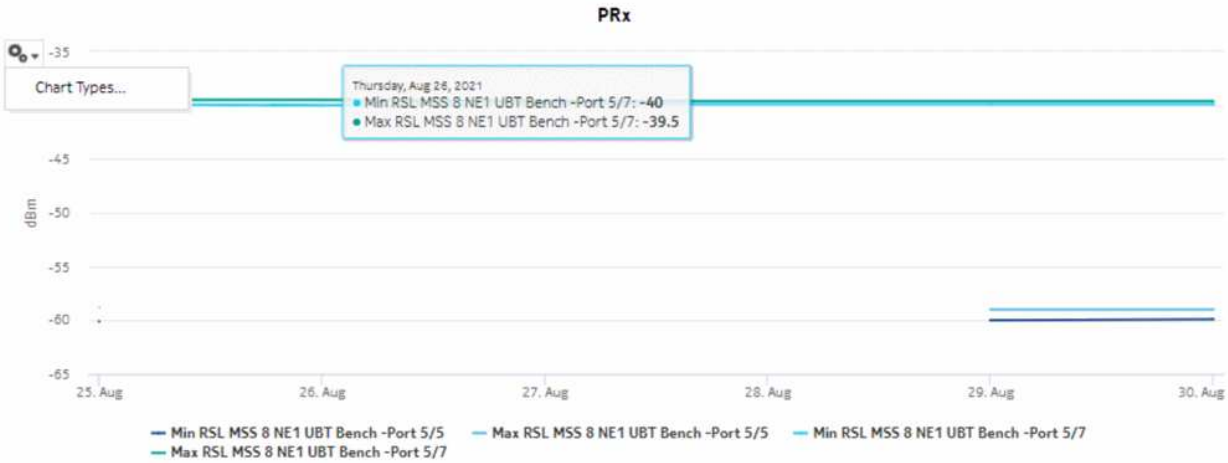
Start Date:	2021-08-25 00:00:00 IST	**End Date:**	2021-08-31 00:00:00 IST
Report Date:	2021-09-03 09:35:07 IST	**Site A Name:**	MSS8 NE2 UBT BENCH
Link:	MSS8 NE2 UBT BENCH (LAG 1) -MSS 8 NE1 UBT Bench (LAG 1)	**Site B Name:**	MSS 8 NE1 UBT Bench
Site A Port:	LAG 1	**Site B Port:**	LAG 1











15.23 Radio Links Summary report

15.23.1 Radio Links Summary report overview

The Radio Links Summary report displays a summary of the near end and far end details of radio links in the network, showing utilization, link availability, and peak throughput values of the links.

Note:

- General data is based on the near end details for TX Frequency, Rx Frequency, Channel Bandwidth, Modulation, Wan Capacity, Link Configuration, and XPIC

- Detect time corresponds to the maximum throughput value
- WAN peak utilization is determined using the maximum values of the near end and far end utilization, and the corresponding link throughput and detect time.

Limitations

Report limitations include:

- When the report is exported to the RTF, DOCX , or ODT formats, elements the report table may not be aligned correctly.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

Wavence nodes and radio links must be discovered using NSP Classic management in order to be displayed in the report.

Note: When statistics collection is not enabled in NSP Classic management, some report parameters are displayed at their default value. The following table describes the parameters, the default values that are displayed, and the related statistic.

Parameter	Default displayed	Statistic
RSL (min/max)	-99	RSL Hop History Data stats (15Min)
ODU temp	-99	UBT/MPT Equipment measurement
Throughput	0	Peak And Average Throughput and Link Utilization History Data Stats (15Min)/AggrTxEthernetStats
Utilization	0	Peak And Average Throughput and Link Utilization History Data Stats (15Min)/AggrTxEthernetStats
Detect Time	N/A	Peak And Average Throughput and Link Utilization History Data Stats (15Min)/AggrTxEthernetStats
Link Availability	0	PdhFrameHopHistoryDataStats24HrLogRecord

The following table lists the statistics that must be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Table 15-27 Radio Links Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port /LAG	Ethernet	Ethernet Aggregate Tx Stats	ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.
	RSL	RSL Hop History Data stats (15Min)	opticsIMRSLHopHistoryDataEntry	
	G.826	Hop History Data stats (24Hr)	opticsIMPdhFrameHopHistoryDataEntry	
	Peak Throughput, Average Throughput Peak Link Utilization, Average Link Utilization	Peak And Average Throughput and Link Utilization History Data Stats (15Min)	opticsIMPeakAndAverageHistoryDataEntry	
	MPR	UBT/MPT Equipment measurement	opticsIMEquipmentExtenEntry	

Report characteristics

The following table lists the principal report characteristics.

Table 15-28 Radio Links Summary report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP database
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA
	Support is limited to NEs found in the network.

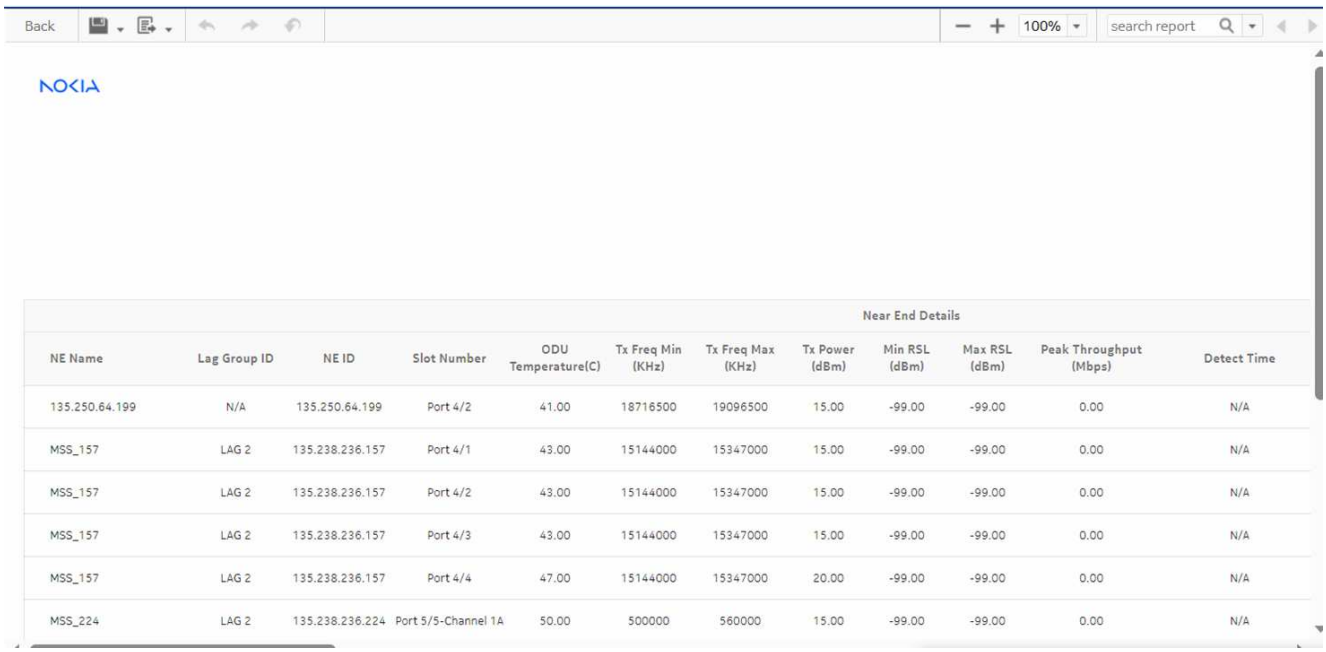
Table 15-28 Radio Links Summary report characteristics (continued)

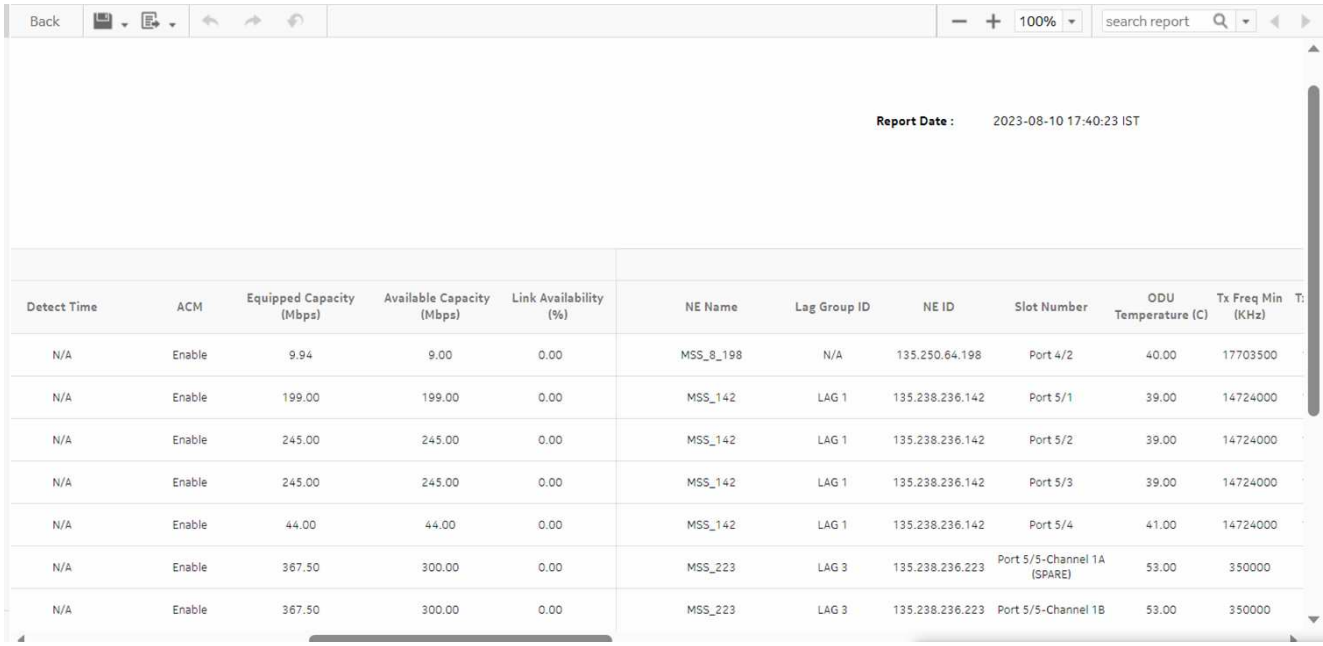
Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill Down	Yes. Click on the link in the Radio Link column to display the Radio Link Inventory report. See 15.5 “Radio Link Inventory report” (p. 660)	

15.23.2 Example

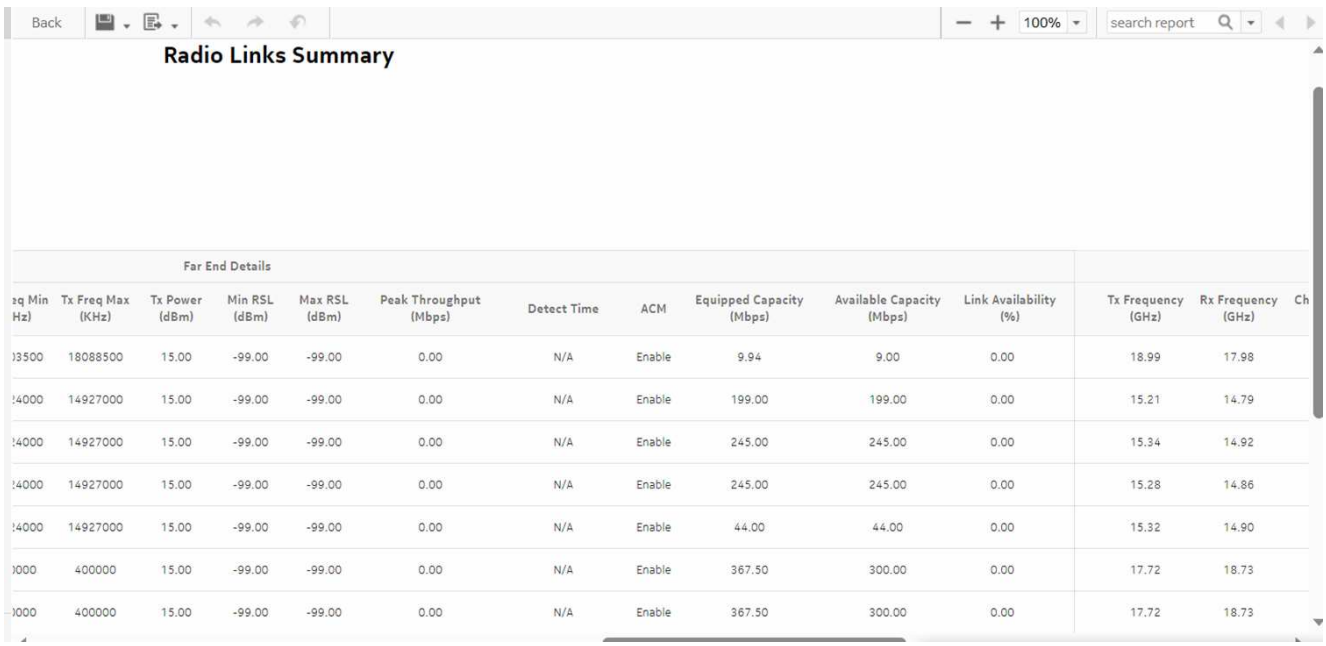
The following figures show a report example.

Figure 15-32 Radio Links Summary report

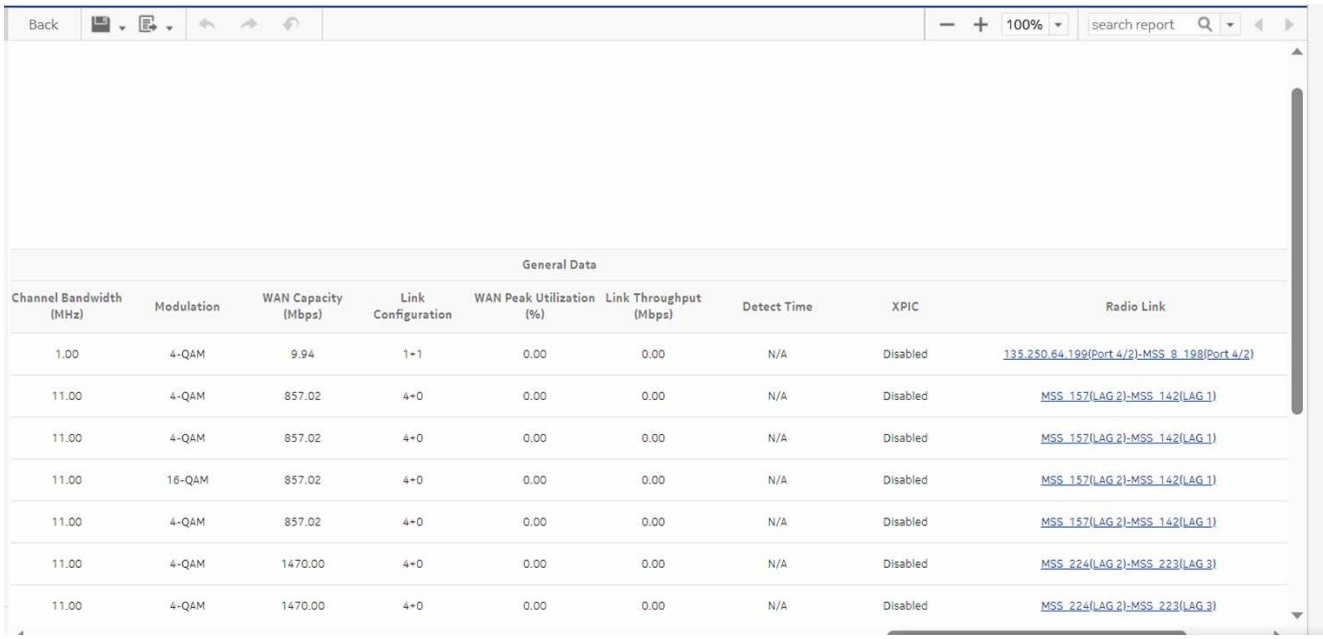




Detect Time	ACM	Equipped Capacity (Mbps)	Available Capacity (Mbps)	Link Availability (%)	NE Name	Lag Group ID	NE ID	Slot Number	ODU Temperature (C)	Tx Freq Min (KHz)	T:
N/A	Enable	9.94	9.00	0.00	MSS_8_198	N/A	135.250.64.198	Port 4/2	40.00	17703500	
N/A	Enable	199.00	199.00	0.00	MSS_142	LAG 1	135.238.236.142	Port 5/1	39.00	14724000	
N/A	Enable	245.00	245.00	0.00	MSS_142	LAG 1	135.238.236.142	Port 5/2	39.00	14724000	
N/A	Enable	245.00	245.00	0.00	MSS_142	LAG 1	135.238.236.142	Port 5/3	39.00	14724000	
N/A	Enable	44.00	44.00	0.00	MSS_142	LAG 1	135.238.236.142	Port 5/4	41.00	14724000	
N/A	Enable	367.50	300.00	0.00	MSS_223	LAG 3	135.238.236.223	Port 5/5-Channel 1A (SPARE)	53.00	350000	
N/A	Enable	367.50	300.00	0.00	MSS_223	LAG 3	135.238.236.223	Port 5/5-Channel 1B	53.00	350000	

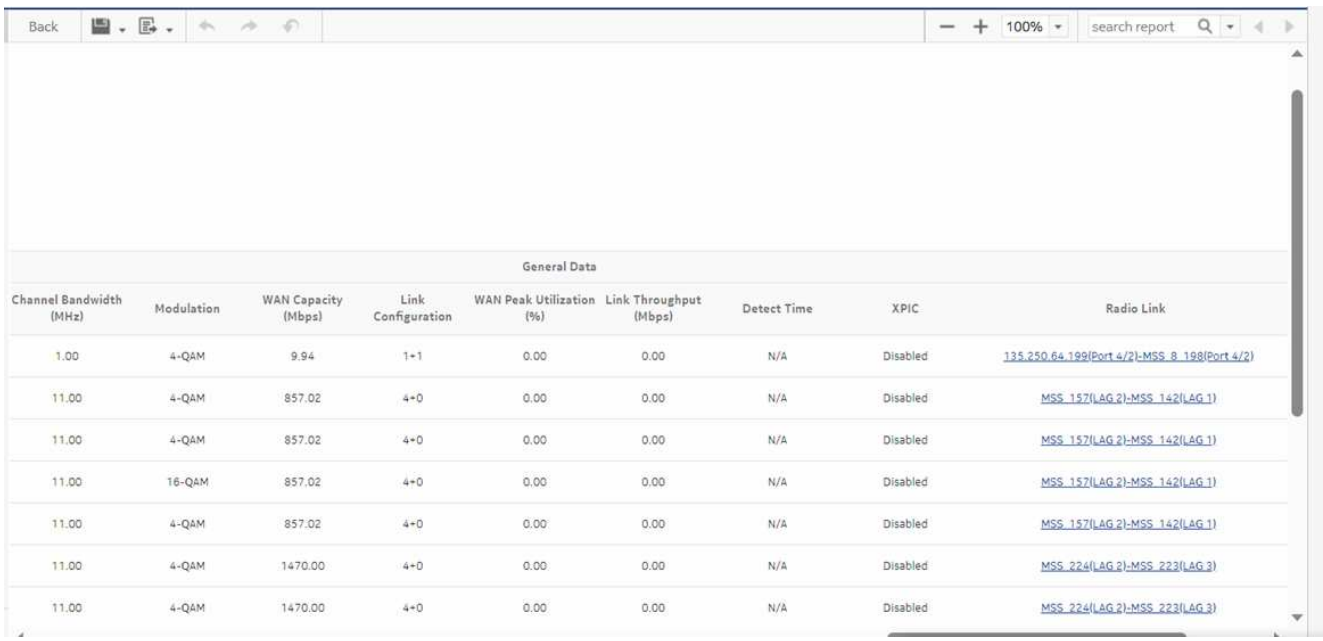


					Far End Details								
ɜq Min Hz)	Tx Freq Max (KHz)	Tx Power (dBm)	Min RSL (dBm)	Max RSL (dBm)	Peak Throughput (Mbps)	Detect Time	ACM	Equipped Capacity (Mbps)	Available Capacity (Mbps)	Link Availability (%)	Tx Frequency (GHz)	Rx Frequency (GHz)	Ch
03500	18088500	15.00	-99.00	-99.00	0.00	N/A	Enable	9.94	9.00	0.00	18.99	17.98	
14000	14927000	15.00	-99.00	-99.00	0.00	N/A	Enable	199.00	199.00	0.00	15.21	14.79	
14000	14927000	15.00	-99.00	-99.00	0.00	N/A	Enable	245.00	245.00	0.00	15.34	14.92	
14000	14927000	15.00	-99.00	-99.00	0.00	N/A	Enable	245.00	245.00	0.00	15.28	14.86	
14000	14927000	15.00	-99.00	-99.00	0.00	N/A	Enable	44.00	44.00	0.00	15.32	14.90	
0000	400000	15.00	-99.00	-99.00	0.00	N/A	Enable	367.50	300.00	0.00	17.72	18.73	
0000	400000	15.00	-99.00	-99.00	0.00	N/A	Enable	367.50	300.00	0.00	17.72	18.73	



General Data

Channel Bandwidth (MHz)	Modulation	WAN Capacity (Mbps)	Link Configuration	WAN Peak Utilization (%)	Link Throughput (Mbps)	Detect Time	XPIC	Radio Link
1.00	4-QAM	9.94	1+1	0.00	0.00	N/A	Disabled	135.250.64.199(Port 4/2)-MSS_8_198(Port 4/2)
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	16-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	4-QAM	1470.00	4+0	0.00	0.00	N/A	Disabled	MSS_224(LAG 2)-MSS_223(LAG 3)
11.00	4-QAM	1470.00	4+0	0.00	0.00	N/A	Disabled	MSS_224(LAG 2)-MSS_223(LAG 3)



General Data

Channel Bandwidth (MHz)	Modulation	WAN Capacity (Mbps)	Link Configuration	WAN Peak Utilization (%)	Link Throughput (Mbps)	Detect Time	XPIC	Radio Link
1.00	4-QAM	9.94	1+1	0.00	0.00	N/A	Disabled	135.250.64.199(Port 4/2)-MSS_8_198(Port 4/2)
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	16-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157(LAG 2)-MSS_142(LAG 1)
11.00	4-QAM	1470.00	4+0	0.00	0.00	N/A	Disabled	MSS_224(LAG 2)-MSS_223(LAG 3)
11.00	4-QAM	1470.00	4+0	0.00	0.00	N/A	Disabled	MSS_224(LAG 2)-MSS_223(LAG 3)

15.24 Radio Performance per Port Summary report

15.24.1 Radio Performance per Port Summary report overview

The Radio Performance per Port Summary report shows a comprehensive view of Adaptive Modulation, RSL, and performance parameters.

Use cases

Capacity planning—Use the report to examine the radio performance for a selected port.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Note:

- When the ethernetequipment_AggrMaintTxStatsLogRecord statistic is configured to collect at an interval of five minutes or less, duplicate entries appear in the report.
- When the QAM values are 0, the ACM graph only displays a legend.
- Colors differentiate between QAMs, and not objects within a QAM.
- When the remote site or port is not available, the context area remote site details are displayed as N/A.
- At least one statistic must be enabled from among RSL/Radio Analogue, G .826, or ACM.

Table 15-29 Radio Performance per Port Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port LAG UBT MWA Port for SAR with PMC MWA link for SAR Radio link for Wavence	For Wavence, at least one of: • RSL • G.826 • ACM • Ethernet For SAR with PMC: • G.826 • ACM • Radio Analogue	For Wavence, at least one of: • RSL Hop History Data stats (24Hr) • Hop History Data stats (24Hr) • Adaptive Modulation History data stats (24Hr) • Ethernet Aggregate Tx stats_day For SAR with PMC: • Hop History Data stats (24Hr) • Adaptive Modulation History data stats (24Hr) • Radio Analogue stats (24Hr)	For Wavence, at least one of: • opticsIMRSLHopHistoryDataEntry • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptiveModulationHistoryDataEntry • ethAggrMaintTxEntry For SAR with PMC: • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptiveModulationHistoryDataEntry • aluMwRadioPMACMEntry • aluMwRadioPMG826Entry • aluMwRadioPMPowerEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-30 Radio Performance per Port Summary report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	*Prompt*	*Notes*

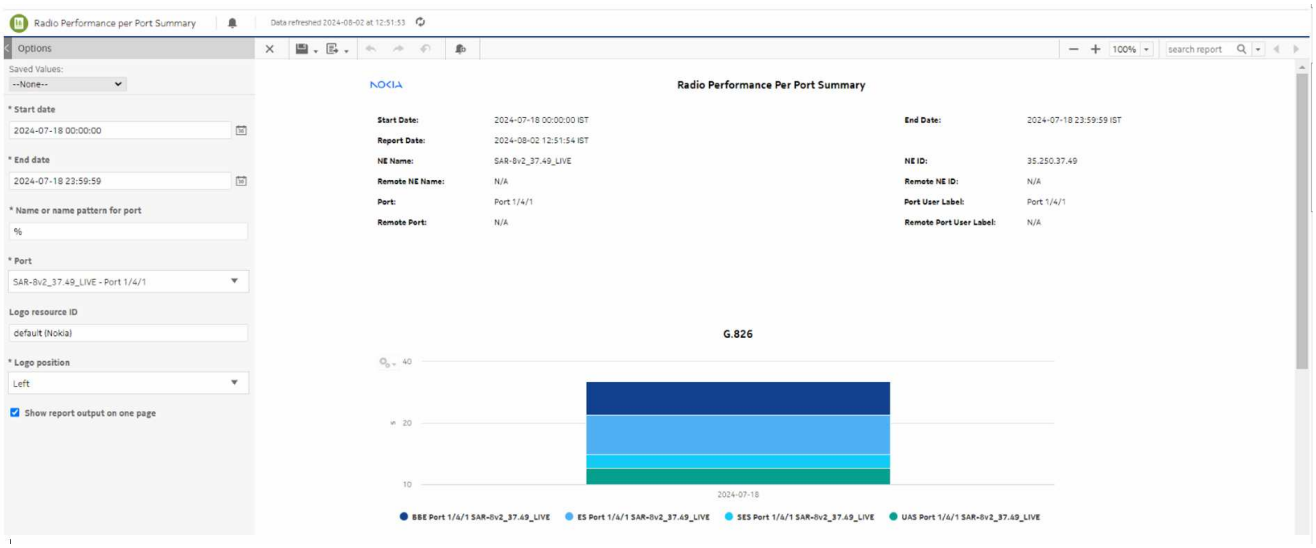
Table 15-30 Radio Performance per Port Summary report characteristics (continued)

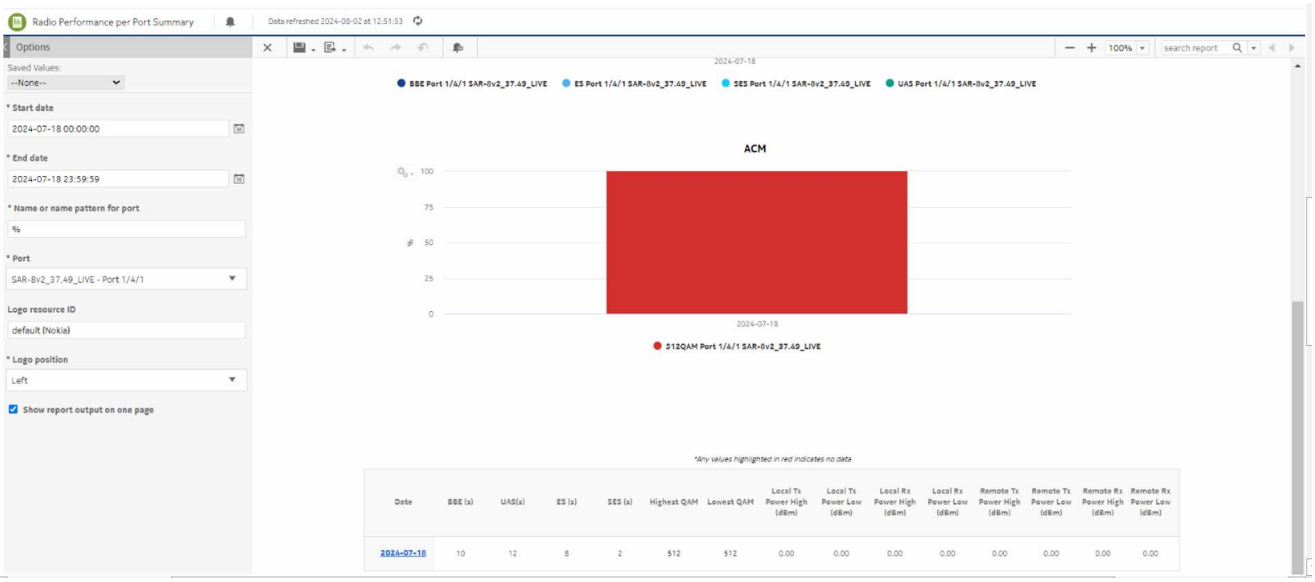
Characteristic	Value	
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Name or name pattern for port	Search using partial names or wildcard (%). Select individual items.
	Port	Select a port from the drop-down list.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Radio Performance per Link > Radio Performance per Port Summary > Radio Performance per Port Details. Drilling down from Radio Performance Per Port Summary report to the Radio Performance per Port Details report uses the previous day's date as the start date. The report is generated using the timezone of the NSP server, not the user timezone.	

15.24.2 Example

The following figures show a report example.

Figure 15-33 Radio Performance per Port Summary report





15.25 Radio Performance per Port Details report

15.25.1 Radio Performance per Port Details report overview

The Radio Performance per Port Details report shows a comprehensive view of Adaptive Modulation, RSL, and performance parameters.

Note: For reports generated from a large amount of data, enabling the multi-page option is recommended.

Use cases

Capacity planning—Use the report to examine the day wise radio performance details for a selected port.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Note: At least one of statistic must be enabled from RSL/Radio Analogue, .G.826, or ACM. When the remote site or port is not available, the context area remote site details are displayed as N/A.

Table 15-31 Radio Performance per Port Details report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port LAG UBT MWA Port for SAR with PMC MWA link for SAR Radio link for Wavence	For Wavence, at least one of: • RSL • G.826 • ACM • Ethernet For SAR with PMC: • G.826 • ACM • Radio Analogue	For Wavence, at least one of: • RSL Hop History Data stats (15Min) • Hop History Data stats (15Min) • Adaptive Modulation History data stats (15Min) • Ethernet Aggregate Tx stats (15Min) For SAR with PMC: • Hop History Data stats (15 Min) • Adaptive Modulation History data stats (15 Min) • Radio Analogue stats (15 min)	For Wavence, at least one of: • opticsIMRSLHopHistoryDataEntry • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptiveModulationHistoryDataEntry • ethAggrMaintTxEntry For SAR with PMC: • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptiveModulationHistoryDataEntry • aluMwRadioPMACMEntry • aluMwRadioPMG826Entry • aluMwRadioPMPowerEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

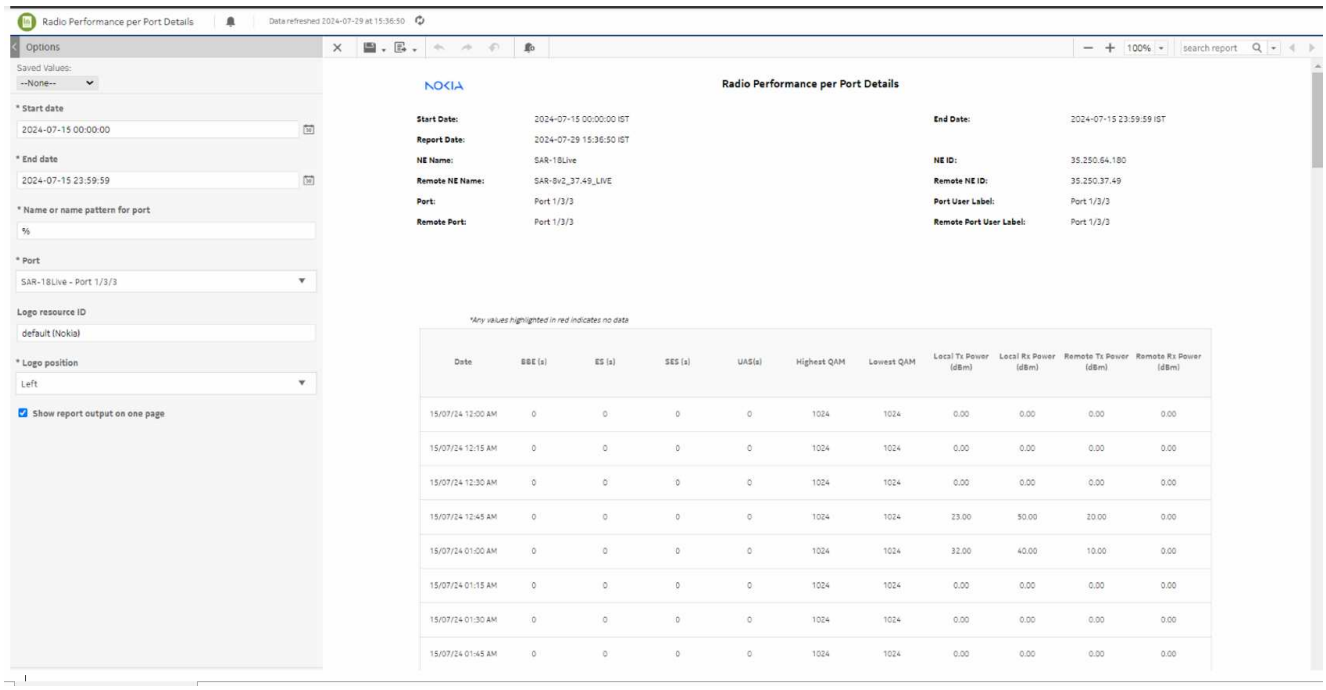
Table 15-32 Radio Performance per Port Details report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence SA,Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Name or name pattern for port	Search using partial names or wildcard (%). Select individual items.
	Port	Select a port from the drop-down list.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Radio Performance per Link > Radio Performance per Port Summary > Radio Performance per Port Details. Drilling down from Radio Performance Per Port Summary report to the Radio Performance per Port Details report uses the previous day's date as the start date. The report is generated using the timezone of the NSP server, not the user timezone.	

15.25.2 Example

The following figures show a report example.

Figure 15-34 Radio Performance per Port Details report



15.26 Top Loaded Nodes report

15.26.1 Top Loaded Nodes report overview

The Top Loaded Nodes report shows the top loaded NEs sorted by order of load. You can select a value of ‘N’ meaning top N loaded NEs. By default, N is set to 5. If N is not selected, then all NEs are included. The Top Loaded Nodes report can be generated based on Radio or Ethernet port utilization percentage.

The heat map is colored according to the maximum and minimum values for the number of NEs that appear in each section of the chart.

Click each block on the heat map report to get the individual NE port utilization report. See Figure 15-37, “Top Loaded Nodes Report—Utilization Details” (p. 733) for the utilization report.

Note: We see utilization details with data upon clicking the empty box of the heat map with one minute interval. This happens when we see PM collection with one min interval and the time stamp is with less than 1 min duration.

Use cases

Capacity planning—Use the report to examine the top loaded NEs based on the radio or Ethernet traffic in a network and to plan for capacity requirements.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 15-33 Top Loaded Nodes report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Wavence Ingress Stats Bandwidth Aggregator Wavence Egress Stats Bandwidth Aggregatorr	NE	Ethernet	Ethernet Aggregate Rx Stats (15Min) Ethernet Aggregate Tx Stats (15Min)	ethAggrMaintRxEntry ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA **Note**: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-34 Top Loaded Nodes report characteristics

Characteristic	Value
Data type	Statistics

Table 15-34 Top Loaded Nodes report characteristics (continued)

Characteristic	Value	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Top ‘N’ Nodes	Specify the value (1, 2, etc.) or leave blank to get all the NE details in the report. Default: N=5
	Port Type	Select Radio or Ethernet.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

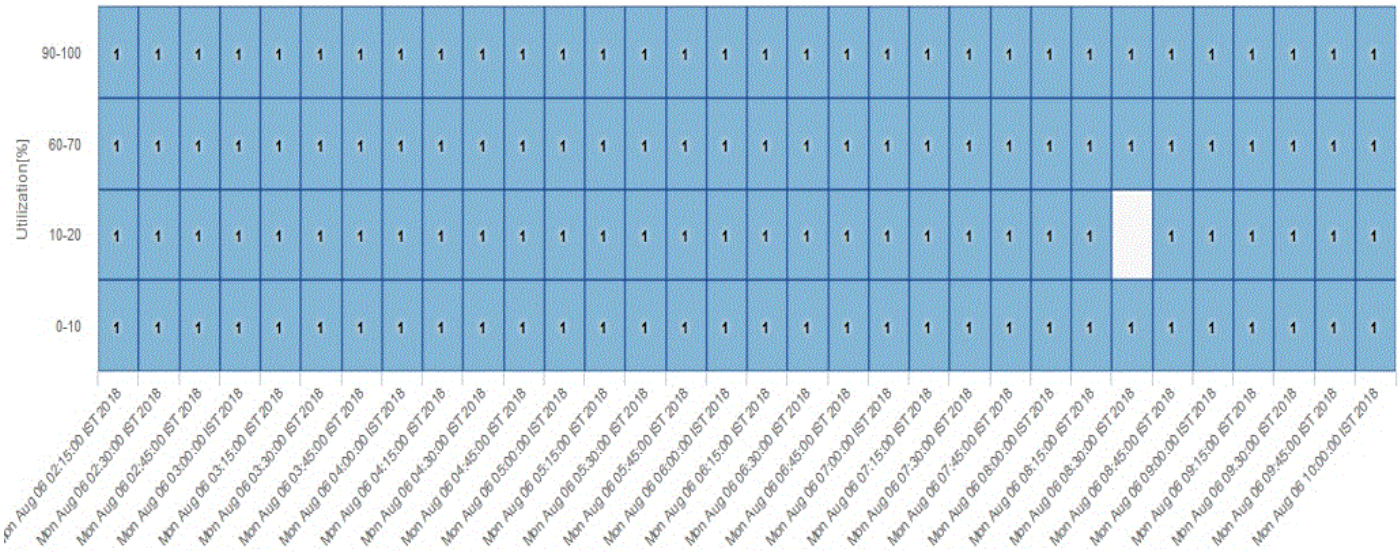
15.26.2 Example

The following figures show a report example.

The below heatmap is displayed for all the NEs in the network based on the radio port utilization percentage.

Click each block to get the individual NE port utilization report.

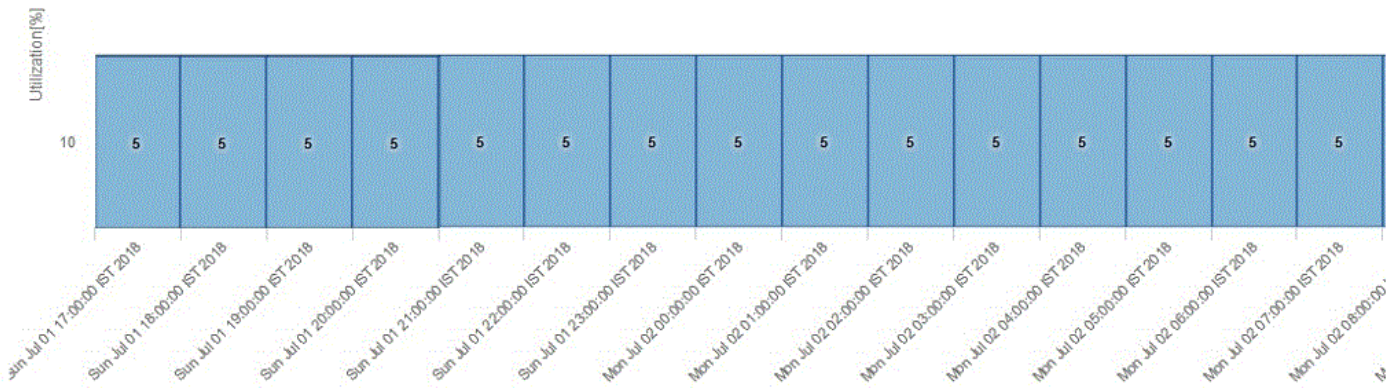
Figure 15-35 Top Loaded Nodes Report—Radio Traffic



The below heatmap is displayed for top five NEs in the network based on the Ethernet port utilization percentage.

Clicking on each block will take the user to the individual NE port utilization report which is shown in the next figure.

Figure 15-36 Top Loaded Nodes Report—Ethernet Traffic



The Figure below is the individual NE port utilization report which displays the Site Id, Port Name, Utilization(%), Throughput (Mbps),Compression Gain and Average Utilization(%).

Figure 15-37 Top Loaded Nodes Report—Utilization Details

Utilization Details

Site Id	Port Name	Utilization (%)	Throughput (Mbps)	Compression Gain (%)	Average Utilization (%)
192.0.2.139					39.49
	LAG 1	39.49	753.83	0.0	
192.0.2.139					35.19
	LAG 1	35.19	671.69	0.0	

15.27 Top Loaded Ports report

15.27.1 Top Loaded Ports report overview

The Top Loaded Ports report shows the top loaded ports sorted by utilization percentage. The operator can select the value of ‘N’ which corresponds to the top N loaded ports. By default, N is set to 5. The Top Loaded Ports report can be generated based on Radio or Ethernet port utilization percentage.

Use cases

Capacity planning—Use the report to examine the top loaded ports based on the radio and/or Ethernet traffic in a given network and to plan for capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Note: Busy hour support is only available for raw data granularity.

Table 15-35 Top Loaded Ports report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Wavence Egress Stats Bandwidth Aggregatorr	Port LAG	Ethernet	Ethernet Aggregate Tx Stats (15Min)	ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-36 Top Loaded Ports report characteristics

Characteristic	Value	
Data type	Statistics	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
Report inputs	*Prompt*	*Notes*

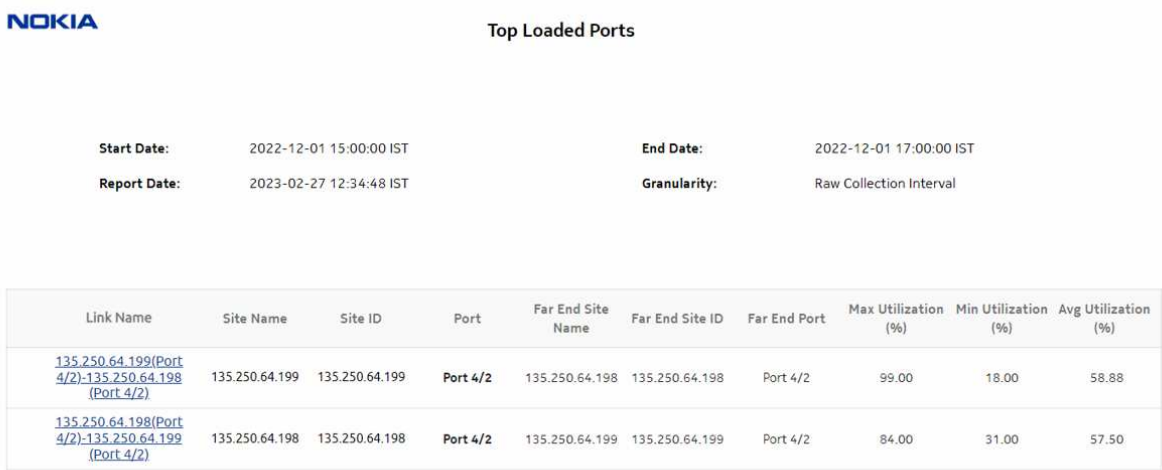
Table 15-36 Top Loaded Ports report characteristics (continued)

Characteristic	Value	
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Top 'N' Ports	Specify the value (1,2, etc.) to get the ports details of the selected number of ports in the report. Default: N=5
	Port Type	Select Radio or Ethernet or All.
	Utilization Threshold (%)	Specify the threshold percentage to get reports for all entries equal and above the specified threshold value.
	Minimum Number of Occurrence	Specify the number of occurrences.
	Busy Hour Support	Allows specifying Busy Start Hour and Busy End Hour to customize report range for busy hours. Busy Hour Support is only available for raw data granularity.
	Busy Start Hour	Start hour of the busy hour in the report range
	Busy End Hour	End hour of the busy hour in the report range
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	Yes—Click on each Link Name (applicable to Radio ports only) to get the individual link Bandwidth Throughput Summary.	

15.27.2 Example

The following figures show a report example.

Figure 15-38 Top Loaded Ports report—Radio Traffic



NOKIA

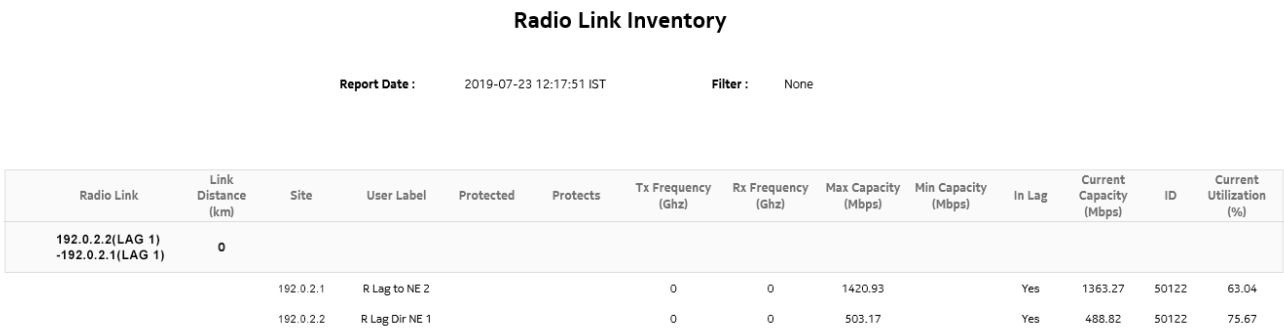
Top Loaded Ports

Start Date: 2022-12-01 15:00:00 IST **End Date:** 2022-12-01 17:00:00 IST

Report Date: 2023-02-27 12:34:48 IST **Granularity:** Raw Collection Interval

Link Name	Site Name	Site ID	Port	Far End Site Name	Far End Site ID	Far End Port	Max Utilization (%)	Min Utilization (%)	Avg Utilization (%)
135.250.64.199(Port 4/2)-135.250.64.198 (Port 4/2)	135.250.64.199	135.250.64.199	**Port 4/2**	135.250.64.198	135.250.64.198	Port 4/2	99.00	18.00	58.88
135.250.64.198(Port 4/2)-135.250.64.199 (Port 4/2)	135.250.64.198	135.250.64.198	**Port 4/2**	135.250.64.199	135.250.64.199	Port 4/2	84.00	31.00	57.50

Figure 15-39 Top Loaded Ports Report—Drill-down, Radio Link Inventory Details



Radio Link Inventory

Report Date : 2019-07-23 12:17:51 IST **Filter :** None

Radio Link	Link Distance (km)	Site	User Label	Protected	Protects	Tx Frequency (Ghz)	Rx Frequency (Ghz)	Max Capacity (Mbps)	Min Capacity (Mbps)	In Lag	Current Capacity (Mbps)	ID	Current Utilization (%)
192.0.2.2(LAG 1) -192.0.2.1(LAG 1)	**0**												
		192.0.2.1	R Lag to NE 2			0	0	1420.93		Yes	1363.27	50122	63.04
		192.0.2.2	R Lag Dir NE 1			0	0	503.17		Yes	488.82	50122	75.67

Part V: NSP

Overview

Purpose

This part describes the NSP Analytics reports in the NSP category.

Supported NEs

NSP reports support classic and model-driven NEs.

For a list of statistics that are supported for each NE variant, see the Statistics Search Tool in the NSP Help Center.

Prerequisites

Aggregation needs to be enabled on NFM-P for the supported statistics in case of the existence of NFM-P.

Notes:

There is a duplication of data in the report inputs when the NEs are dual managed.

If the classic NE is discovered in the NSP with statistics enabled in the NFM-P, the input details are duplicated as both collection schema and samdb dictionary tables will have the entries.

When a classic NE is discovered in the NSP that also has the NFM-P, the NSP automatically creates a network region when you create a map layout. As a result, the report displays the network region twice; once for the NFM-P auto-created region and another for the NEs discovered on the NSP that have not been placed into any regions yet.

Filter options are not available for grouped columns in the table.

Based on the current report functionality, the report considers the list of services and its details according to the region where it was created, regardless of the NE type. Specifically:

- **NSP-created regions:** If the region is created on the NSP, the report uses the services and details from the telemetry table.
- **NFM-P-created regions:** If the region is created in NFM-P, the report uses data from the samdb schema.

Contents

16 NSP comprehensive reports

16.1 NSP comprehensive reports information overview

16.1.1 General information

NSP comprehensive reports include network data for NEs managed by the NFM-P only, MDM (model-driven Nokia or multivendor NEs) only, or NFM-P+MDM-mediated NEs (for Node Health Summary and Node Health Details reports only). NSP comprehensive reports support a user experience where a large quantity of network data is fetched and rendered, then sorted and filtered for data mining purposes.

Summary reports contain many columns in an effort to put all relevant data into the table to avoid the need for multiple reports. In some cases, there may be a need to scroll horizontally to view all columns. The tables can be sorted and filtered on any column.

NSP comprehensive Details reports provide a time series linear graph of one of more selected KPI. The Details reports can be run directly or as a drill-down from the Summary report. From the Summary report, clicking on a KPI in a table cell automatically launches the Details report for that KPI.

These reports filter based on network topology/grouping, by region and subregion. Weekly granularity is also provided.

Note: Objects in subregions that are nested to three or more levels in depth are not displayed in the optional input prompts for region and subregion. When you do not select a region or subregion, objects are displayed in the report regardless of the levels. When you select any region or subregion, the objects available are displayed.

NSP comprehensive reports take more time to generate or return an exception when trying to render results in one page (when you select “Show report output on one page”) for a large amount of data.

If statistics are collected in both the NSP and NFM-P for the same NE, then the report displays the data randomly.

If the classic NE is discovered in the NSP with statistics enabled in the NFM-P, the input details are duplicated as both collection schema and samdb dictionary tables will have the entries.

16.1.2 Recommendations

Nokia recommends the following:

- Generate the reports over multiple pages, as aggregating a high number of pages of a report over a single page could take a considerable amount of time or may even fail.
- Schedule report generation for regions/subregions to ensure that there are no overlaps.
- Use the aggregated granularities for generating a report for a higher report range.
- Track memory utilization in the auxiliary database and manually clear it to ensure that there are no hung queries after the reports are cancelled.

16.2 Node Health Details (NSP) report

16.2.1 Node Health Details (NSP) report overview

The Node Health Details (NSP) report differs from the Node Health Details report by including availability data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The report shows temperature, CPU, and memory utilization details for selected NEs.

If the NE is part of more than one subregion, any one entry displays randomly.

If classic node is managed in NSP, node will get automatically managed in NFM-P. In this case, duplicates regions will be shown. One will display the NFM-P contents and another one is common for both NFM-P and NSP.

Note: For card-based statistics, the report displays the average value of all cards per timestamp in raw granularity.

Use cases

Equipment health monitoring—Ensure the network equipment is operating within anticipated ranges for temperature, memory, and CPU utilization.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Table 16-1 Node Health Details (NSP) report prerequisites for NSP statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12

Table 16-1 Node Health Details (NSP) report prerequisites for NSP statistics (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12

Table 16-2 Node Health Details (NSP) report prerequisites for NFM-P statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_SystemCpuStatsLogRecord	equipment.BaseCard	equipment.HardwareTemperature	MIB-based	TIMETRA-CHASSIS-MIB.tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR
equipment_HardwareTemperatureLogRecord	equipment.ControlProcessor	equipment.HardwareTemperature	MIB-based	TIMETRA-CHASSIS-MIB.tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR
equipment_SystemMemoryStatsLogRecord	equipment.DaughterCard	equipment.HardwareTemperature	MIB-based	TIMETRA-CHASSIS-MIB.tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR
equipment_AllocatedMemoryStatsLogRecord	equipment.SystemStatsHolder	equipment.SystemCpuStats	MIB-based	TIMETRA-SYSTEM-MIB.sgiCpuUsage	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR

Table 16-2 Node Health Details (NSP) report prerequisites for NFM-P statistics (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_ AvailableMemory StatsLogRecord	equipment. SystemStatsHolder	equipment. SystemMemoryS-tats	MIB-based	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR

Report characteristics

The following table lists the principal report characteristics.

Table 16-3 Node Health Details (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 16-3 Node Health Details (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	**Raw Granularity:** • CPU Utilization • Memory In Use • Memory Utilization • Temperature **Granularities:** • CPU Utilization Avg • CPU Utilization Max • Memory In Use Avg • Memory In Use Max • Memory Utilization Avg • Memory Utilization Max • Temperature Avg • Temperature Max
	NE	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

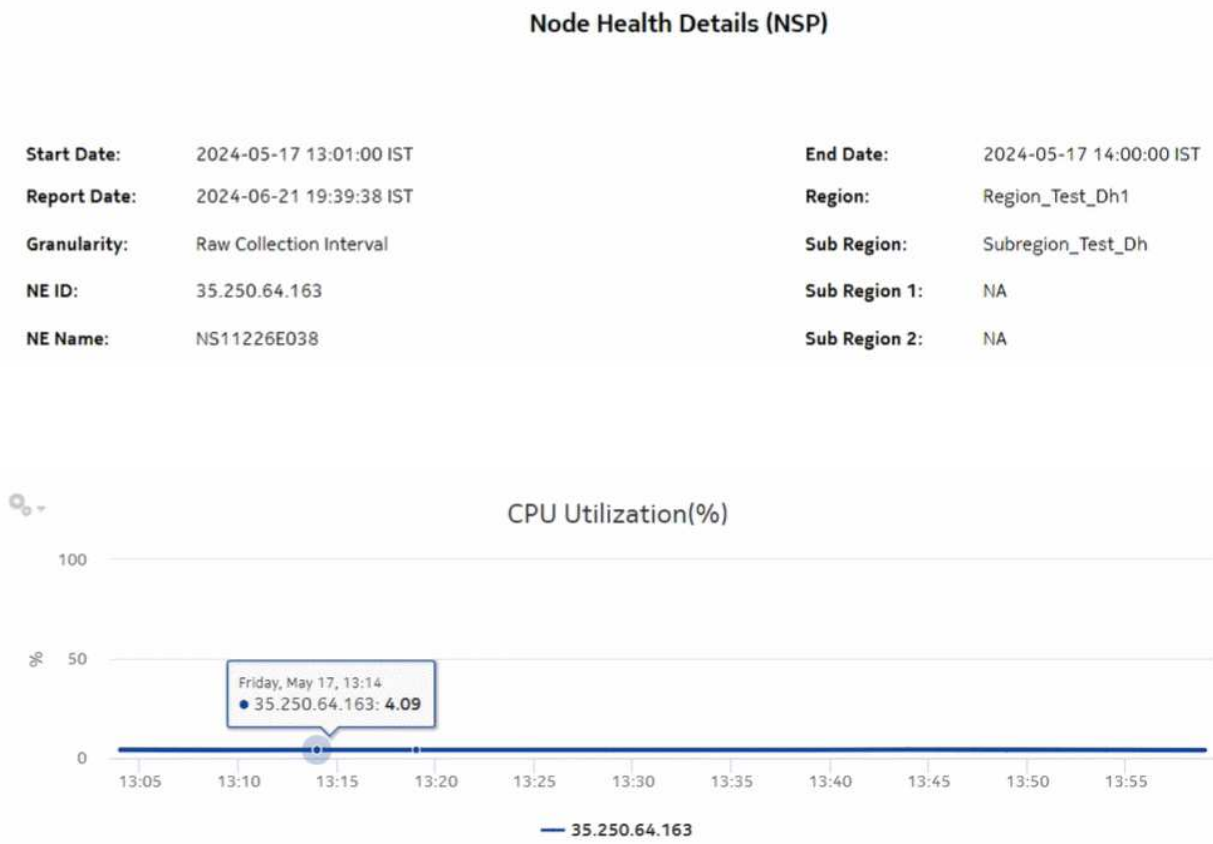
Table 16-3 Node Health Details (NSP) report characteristics (continued)

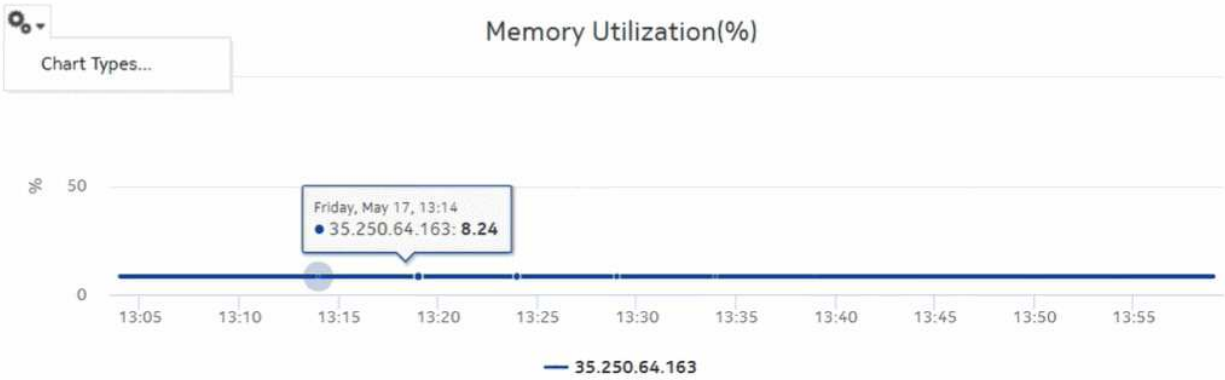
Characteristic	Value
Drill-down support	No

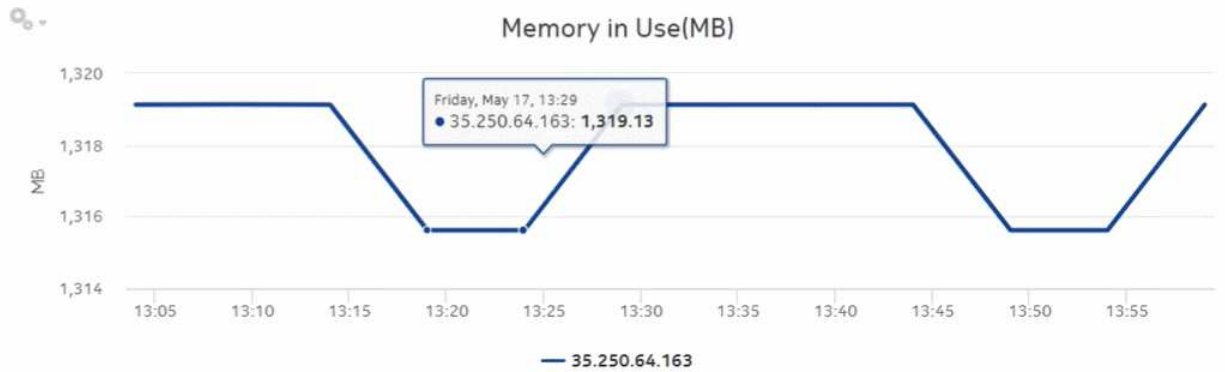
16.2.2 Example

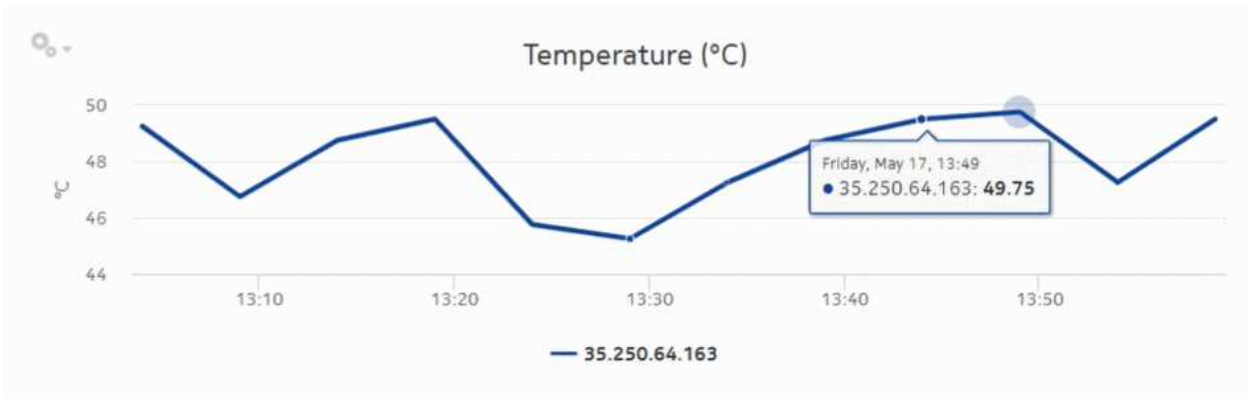
The following figures show a report example.

Figure 16-1 Node Health Details (NSP) report









16.3 Node Health Summary (NSP) report

16.3.1 Node Health Summary (NSP) report overview

The Node Health Summary (NSP) report differs from the Node Health Summary report by including availability data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The report shows a summary of temperature, CPU, and memory utilization data for available NEs.

If no telemetry subscriptions are enabled for CPU, Memory, and Temperature, the report shows -1 values for CPU and Memory and N/A for Temperature.

If the NE is part of more than one subregion, any one entry displays randomly.

If classic node is managed in NSP, node will get automatically managed in NFM-P. In this case, duplicates regions will be shown. One will display the NFM-P contents and another one is common for both NFM-P and NSP.

Use cases

Equipment health monitoring—Ensure the network equipment is operating within anticipated ranges for temperature, memory, and CPU utilization.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Table 16-4 Node Health Summary (NSP) report prerequisites for NSP statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12

Table 16-4 Node Health Summary (NSP) report prerequisites for NSP statistics (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12

Table 16-5 Node Health Summary (NSP) report prerequisites for NFM-P statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
System CPU Usage Stats Aggregator	equipment.SystemStatsHolder	equipment.SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB.sgiCpuUsage	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR
System Memory Stats Aggregator	equipment.SystemStatsHolder	equipment.SystemMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB.sgiMemoryUsed	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR
Allocated Memory Stats Aggregator	equipment.SystemStatsHolder	equipment.AllocatedMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB.sgiMemoryPoolAllocate	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR
Available Memory Stats Aggregator	equipment.SystemStatsHolder	equipment.AvailableMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB.sgiMemoryAvailable	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR

Table 16-5 Node Health Summary (NSP) report prerequisites for NFM-P statistics (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Hardware Temperature Stats Aggregator	equipment.BaseCard equipment.CardSlot equipment.CCM equipment.FanTray equipment.ControlProcessor equipment.DaughterCard equipment.MCCard equipment.PowerSupplyTray equipment.Shelf equipment.SwitchFabricProcessor equipment.XioCard	equipment.HardwareTemperature	Performance statistics	TIMETRA-CHASSIS-MIB.tmnxHwEntry	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR Omnisystem NEs

Report characteristics

The following table lists the principal report characteristics.

Table 16-6 Node Health Summary (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

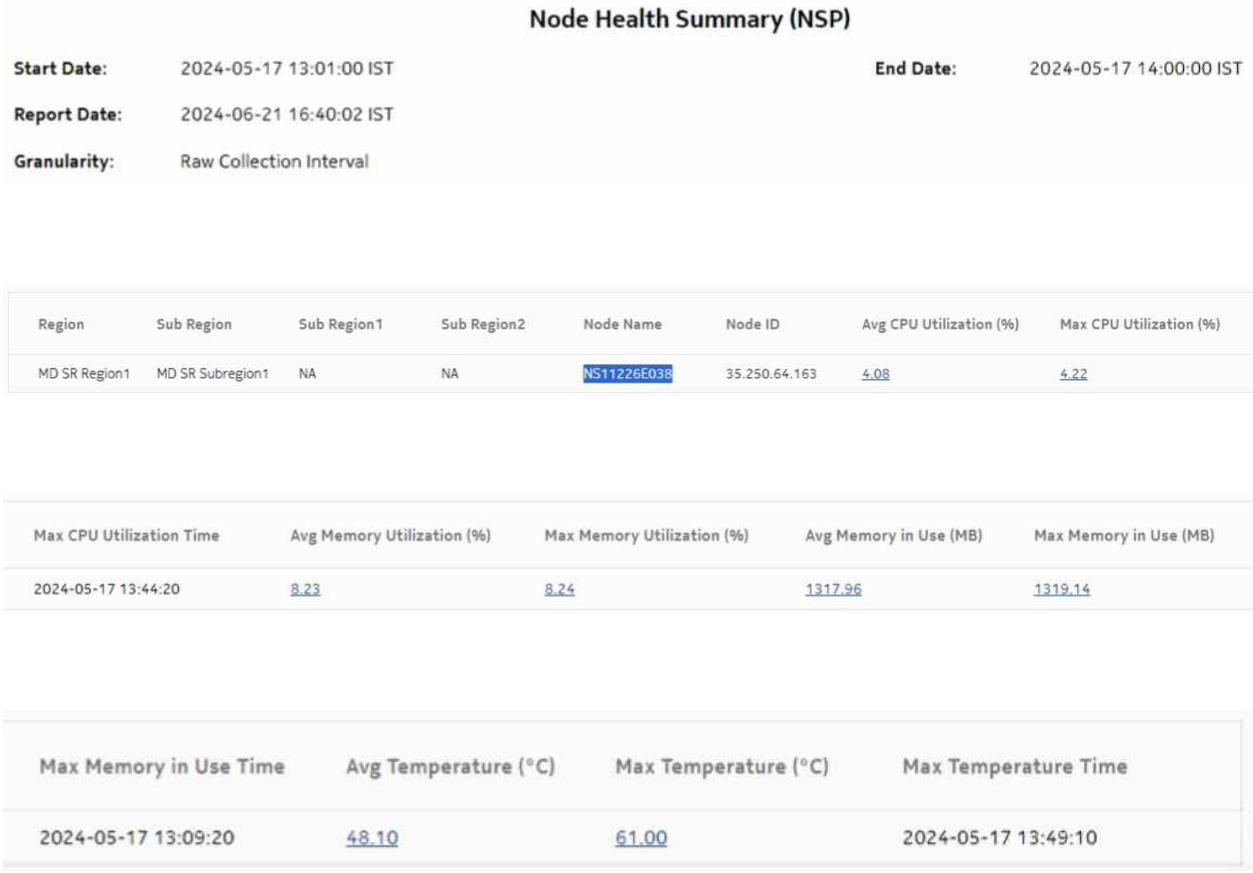
Table 16-6 Node Health Summary (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

16.3.2 Example

The following figure shows a report example. The table below is a single table, but is separated due to its width.

Figure 16-2 Node Health Summary (NSP) report



Node Health Summary (NSP)

Start Date: 2024-05-17 13:01:00 IST **End Date:** 2024-05-17 14:00:00 IST

Report Date: 2024-06-21 16:40:02 IST

Granularity: Raw Collection Interval

Region	Sub Region	Sub Region1	Sub Region2	Node Name	Node ID	Avg CPU Utilization (%)	Max CPU Utilization (%)
MD SR Region1	MD SR Subregion1	NA	NA	NS11226E038	35.250.64.163	4.08	4.22

Max CPU Utilization Time	Avg Memory Utilization (%)	Max Memory Utilization (%)	Avg Memory in Use (MB)	Max Memory in Use (MB)
2024-05-17 13:44:20	8.23	8.24	1317.96	1319.14

Max Memory in Use Time	Avg Temperature (°C)	Max Temperature (°C)	Max Temperature Time
2024-05-17 13:09:20	48.10	61.00	2024-05-17 13:49:10

16.4 Service Performance Details (NSP) report

16.4.1 Service Performance Details (NSP) report overview

The Service Performance Details (NSP) report differs from the Service Performance Details report by including availability data for NEs managed by the NFM-P only or MDM (model-driven Nokia) only. The report displays the latency, jitter, and packet loss for a selected service in detail. The report can be run by itself or as a drill-down from a Service Performance Summary (NSP) report.

Note: If the received packet is greater than the transmitted packet, then the packet loss gives a negative value, which is displayed as 0.0.

Limitations

Report limitations include:

- The report for MD SR NE supports only the services which are associated with endpoints (not MEP).

- When the report is exported to the RTF file type, half of the page and only one page's graph will be displayed.
- For Classic Node, there is a possibility of having the same service name with the same service ID but with a different full name multiple times. In such cases, all the services will be listed in the report.

Prerequisites

The following prerequisites are required in order for the report to be generated:

- MD SR NE and/or classic NE must be discovered
- L2 services/L3 services must exist

Either of the following sessions must be performed in the NSP or NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. DMM sessions are created with L2 services.
- A TWAMP-Light session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. TWAMP Light sessions are created with L3 services.

Note: Complete PM is not supported for SAR NEs.

The following table describes the subscriptions that must be added to the NSP to collect telemetry statistics, and the aggregators that must be enabled to run the report for other granularities.

Table 16-7 Service Performance Details (NSP) report prerequisites for MDM-managed NEs

Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session, Site	telemetry:/base/oampm-accounting/cfm-dmm-session-acc-stats	Telemetry statistics	7750 MD-SR
CFM SLM Session, Site	telemetry:/base/oampm-accounting/cfm-slm-session-acc-stats	Telemetry statistics	7750 MD-SR
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-acc-stats	Telemetry statistics	7750 MD-SR
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-loss-acc-stats	Telemetry statistics	7750 MD-SR

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 "How do I configure analytics aggregation?" (p. 29).

Table 16-8 Service Performance Details (NSP) report prerequisites for NFM-P-managed NEs

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session Accounting Aggregator	saspm_ CfmDmmSession-AccStatsLogRecord	CFM DMM Session, Site	ethernetoam. CfmDmmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-8 Service Performance Details (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM SLM Session Accounting Aggregator	saspm_ CfmSlmSession-AccStatsLogRecord	CFM SLM Session, Site	ethernetoam. CfmSlmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-8 Service Performance Details (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Accounting Aggregator	saspm_ TWLSession-AccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-8 Service Performance Details (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Loss Accounting Aggregator	saspm_ TWLSessionLos-sAccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics(Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Use cases

QoS analysis - identify potential service impacting issues based on thresholds for latency, jitter and packet loss on a specified service.

Report characteristics

The following table lists the principal report characteristics. It is not mandatory for all service sites to be located within the same region or subregion. If at least one of the service sites falls within the selected region or subregion, the service will be included in the report.

Table 16-9 Service Performance Details (NSP) report characteristics

Characteristic	Value
Data type	OAM tests
Source database	Auxiliary database

Table 16-9 Service Performance Details (NSP) report characteristics (continued)

Characteristic	Value
Service types supported	VPLS, VPRN, MVPLS, Epipe, or Cpipe

Table 16-9 Service Performance Details (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Select one or more subregion(s). Objects in the lower subregions are automatically selected when their subregion is selected.
	Service(s)	Search using partial names or wildcard (%). Select an individual item.
	Sessions	Search using partial names or full names. Select individual items or click **Select All**.
	KPI	Raw granularity: • Jitter Avg • Jitter Max • Jitter Min • Latency Avg • Latency Max • Latency Min • Packet Loss Other granularities (Hourly, Daily, Weekly and Monthly): • Jitter Avg • Jitter Max • Jitter Min • Latency Avg • Latency Max • Latency Min • Packet Loss Avg • Packet Loss Max • Packet Loss Min **Note:** The Max, Min, and Avg packet loss values are the same.

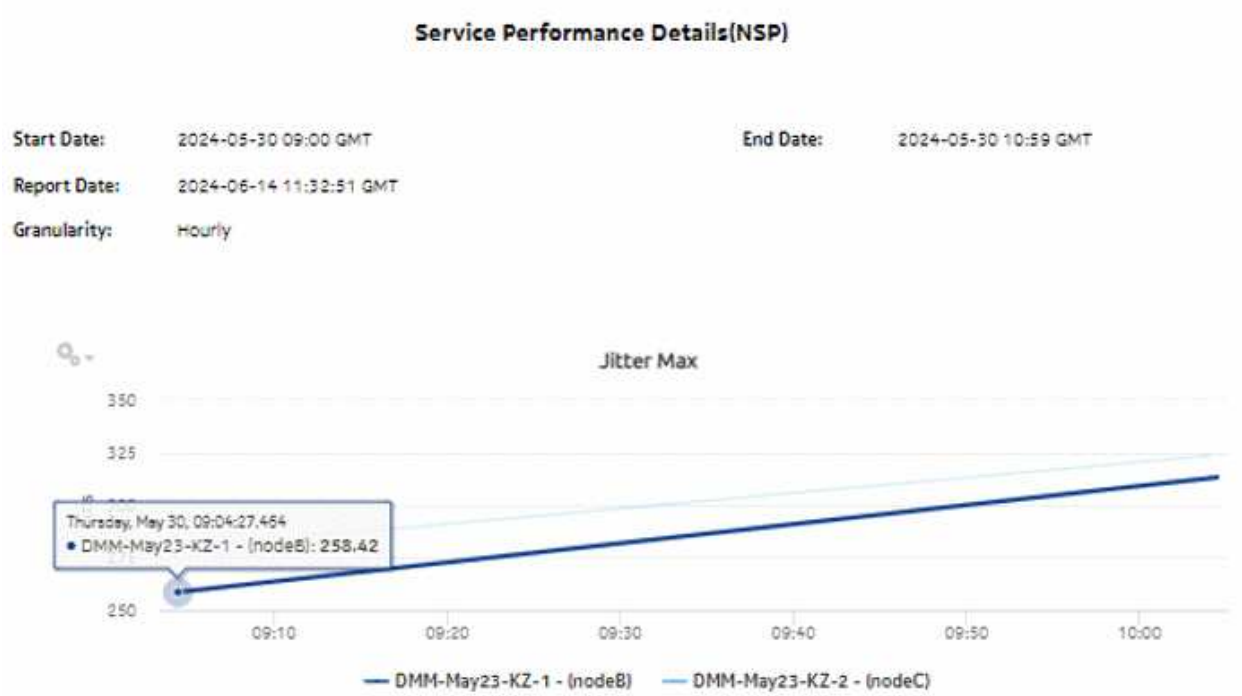
Table 16-9 Service Performance Details (NSP) report characteristics (continued)

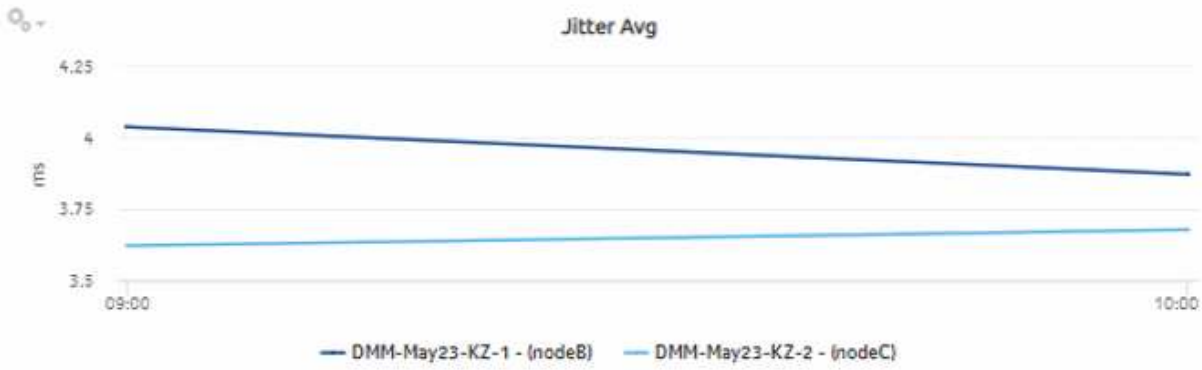
Characteristic	Value	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Service Performance Summary (NSP) report	

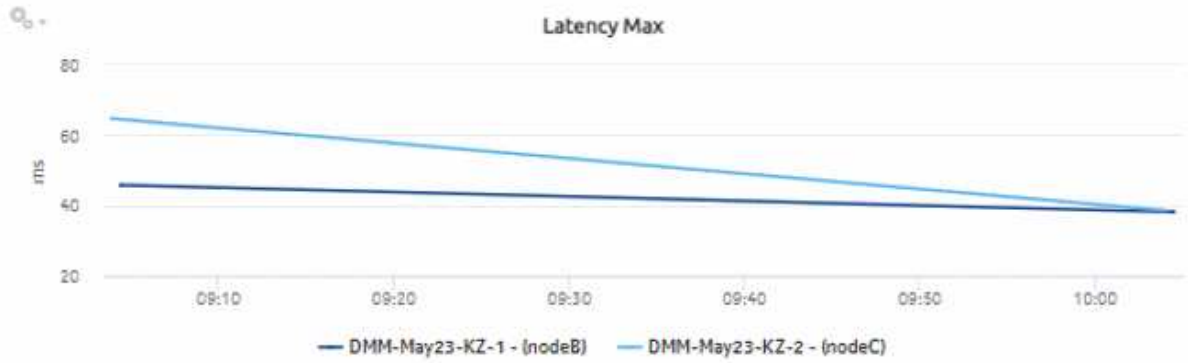
16.4.2 Example

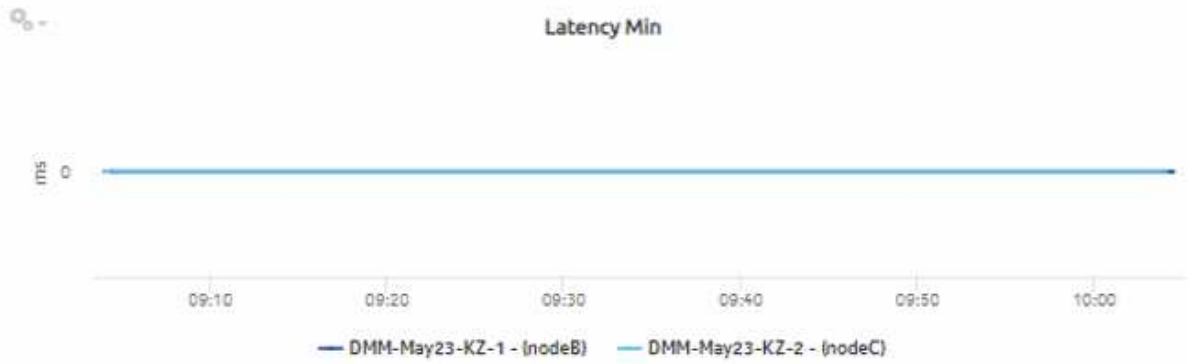
The following figure shows a report example.

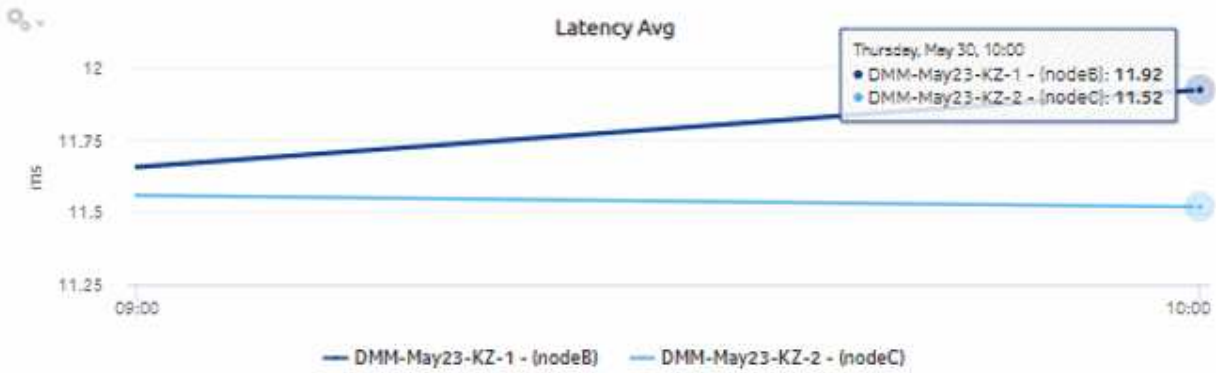
Figure 16-3 Service Performance Details (NSP) report

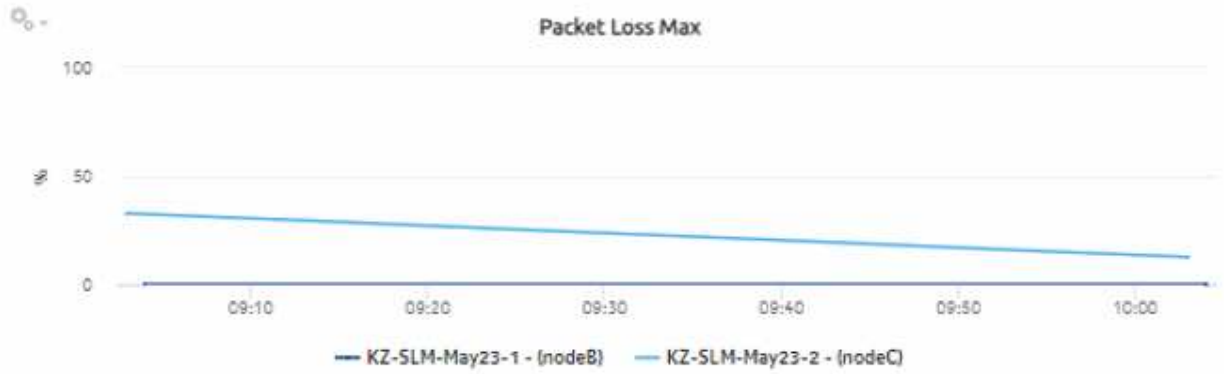


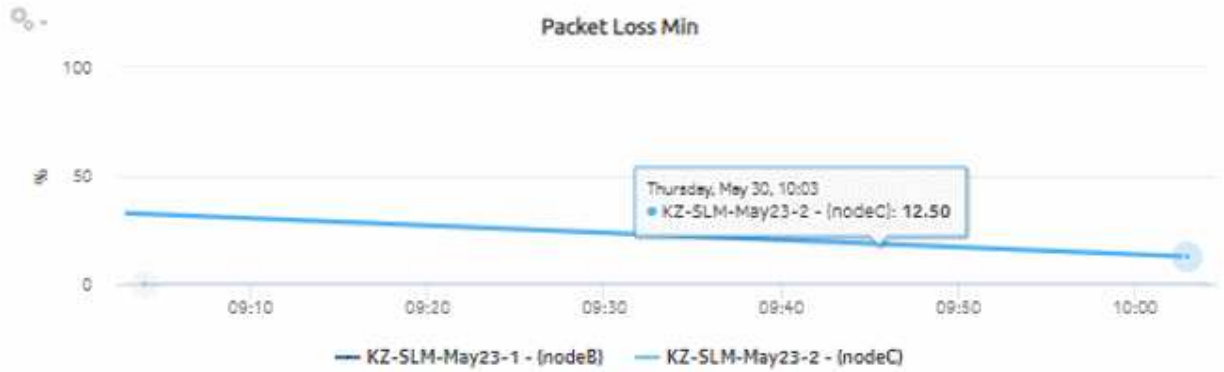


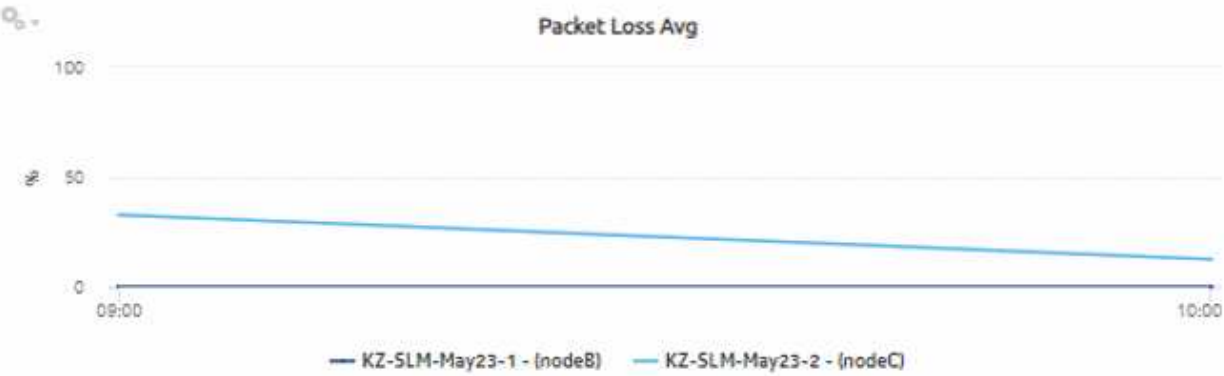












16.5 Service Performance Summary (NSP) report

16.5.1 Service Performance Summary (NSP) report overview

The Service Performance Summary (NSP) report offers a concise overview of jitter, latency, and packet loss metrics for services. Within the report, a table is presented, detailing key statistics such as average, maximum, and minimum values for each metric. The Service Performance Summary (NSP) report differs from the Service Performance Summary report by including available data for NEs managed by the NFM-P or MDM. The report shows a summary of jitter, latency, and packet loss for services.

Note: If there is no data in any one of the stats for TWL/TWL Loss and DMM/SLM session accounting stats, the report shows -1.0 in red.

If the received packet is greater than the transmitted packet, then the packet loss gives a negative value, which is displayed as 0.0 with drill down.

Limitations

Report limitations include:

- The report for MD SR NE supports only the services which are associated with endpoints (not MEP).
- When the report is exported to the RTF or DOCX file type, some columns may not display or there may be a problem with the table border.

Prerequisites

The following prerequisites are required in order for the report to be generated:

- MD SR NE and/or classic NE must be discovered
- L2 services/L3 services must exist

Either of the following sessions must be performed in the NSP or NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. DMM Sessions will be created with L2 services.
- A TWAMP-Light session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. TWAMP Light session will be created with L3 Services.

Note: Complete PM is not supported for SAR NEs.

The following table describes the subscriptions that must be added to the NSP to collect telemetry statistics, and the aggregators that must be enabled to run the report for other granularities.

Table 16-10 Service Performance Summary (NSP) report prerequisites for MDM-managed NEs

Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session, Site	telemetry:/base/oampm-accounting/cfm-dmm-session-acc-stats	Telemetry statistics	7750 MD-SR
CFM SLM Session, Site	telemetry:/base/oampm-accounting/cfm-slm-session-acc-stats	Telemetry statistics	7750 MD-SR
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-acc-stats	Telemetry statistics	7750 MD-SR
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-loss-acc-stats	Telemetry statistics	7750 MD-SR

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 16-11 Service Performance Summary (NSP) report prerequisites for NFM-P-managed NEs

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session Accounting Aggregator	saspm_ CfmDmmSession-AccStatsLogRecord	CFM DMM Session, Site	ethernetoam. CfmDmmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-11 Service Performance Summary (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM SLM Session Accounting Aggregator	saspm_ CfmSlmSession-AccStatsLogRecord	CFM SLM Session, Site	ethernetoam. CfmSlmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-11 Service Performance Summary (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Accounting Aggregator	saspm_ TWLSession-AccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-11 Service Performance Summary (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Loss Accounting Aggregator	saspm_ TWLSessionLos-sAccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics(Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Use cases

QoS analysis - identify potential service impacting issues based on thresholds for latency, jitter and packet loss on services.

Report characteristics

The following table lists the principal report characteristics. It is not mandatory for all service sites to be located within the same region or subregion. If at least one of the service sites falls within the selected region or subregion, the service will be included in the report.

Table 16-12 Service Performance Summary (NSP) report characteristics

Characteristic	Value
Data type	OAM tests
Source database	Auxiliary database

Table 16-12 Service Performance Summary (NSP) report characteristics (continued)

Characteristic	Value	
Service types supported	VPLS, VPRN, MVPLS, Epipe, or Cpipe	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Select one or more subregion(s). Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the 11.19 “Service Performance Details report” (p. 415) report	

16.5.2 Example

The following figures shows report examples.

Figure 16-4 Service Performance Summary (NSP) report

Service Performance Summary(NSP)

Start Date: 2024-05-30 09:00 GMT
End Date: 2024-05-30 10:00 GMT
Report Date: 2024-06-14 11:25:11 GMT
Granularity: Hourly

*Any values highlighted in red indicates no data

Service Name	Service Id	JitterMax (ms)	JitterMin (ms)	JitterAvg (ms)	JitterMaxTime	LatencyMax (ms)	LatencyMin (ms)	LatencyAvg (ms)	LatencyMaxTime	PacketLossMax (%)	PacketLossMin (%)	PacketLossAvg (%)	PacketLossMaxTime
vprn-2000	vprn-2000	129.72	0.0	2.32	2024-05-30 14:30:00	47.1	0.0	7.58	2024-05-30 15:30:00	-1.0	-1.0	-1.0	N/A
vple1000	vple1000	383.83	0.0	3.8	2024-05-30 15:30:00	64.65	0.0	11.66	2024-05-30 14:30:00	32.58	0.0	11.87	2024-05-30 14:30:00

17 NSP inventory reports

17.1 NSP inventory reports overview

17.1.1 General information

NSP inventory reports provide hardware configuration details at the card and port levels. NSP inventory reports additionally include inventory data for NEs managed using model-driven mediation.

Note: The report input options list all NEs that are compatible with NSP inventory reports, not only the NEs that are present. A report can only be generated on NEs found in the network.

Use cases

Network planning—Use the reports to plan for the acquisition of new hardware when required.

Prerequisites

An MDM adapter is required for MDM-mediated NEs. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

17.2 Card Inventory (NSP) report

17.2.1 Card Inventory (NSP) report overview

The Card Inventory (NSP) report differs from the Card Inventory report by additionally including inventory data for NEs managed using model-driven mediation.

For MDM-mediated NEs, cards are mapped as IOM cards.

The Card Inventory (NSP) report shows the NEs and sites selected and proportion of empty and populated IOM, IMM, MDA, and Wavence slots. The default display is a pie chart and a set of tables displaying details.

- The pie chart shows the empty and populated slot percentages of IOM/IMM/XCM/Wavence and MDA/XMA for the sites selected.
- The Card Totals Per Node Type table displays the number of the Populated/Empty slot of IOM/IMM/XCM/Wavence and MDA/XMA.
- The CPM/SF Card Totals table displays the Card Type, Card Software and Number of Card details of CPM/SF card type.
- The IOM/IMM/XCM/Wavence Card Totals table displays the Card Type, Card Software and Number of Card details of IOM/IMM/XCM card type.
- The MDA/XMA Card Totals table displays the Card Type, Card Software, and Number of Card details of MDA/XMA card type.
- The Card Totals Per Node table provides the number of IOM/IMM/XCM/MDA/XMA for the selected sites.

- The Full Node Inventory table provides information of NE Name, Node type, Card Type, Software Version, Slot Number, Part Number, Serial Number, Manufacture Assembly Number, and Manufacture Date of the sites selected.

Limitations

When the report is exported to the RTF file type, report data does not display.

Prerequisites

An MDM adapter is required for MDM-mediated NEs. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

Report characteristics

The following table lists the principal report characteristics.

Table 17-1 Card Inventory (NSP) report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP main database
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA MDM-mediated NEs. The support for MDM-mediated NEs depends on the availability of the MDM adapters for the particular NE version and variants installed in the network.
	Support is limited to NEs found in the network.

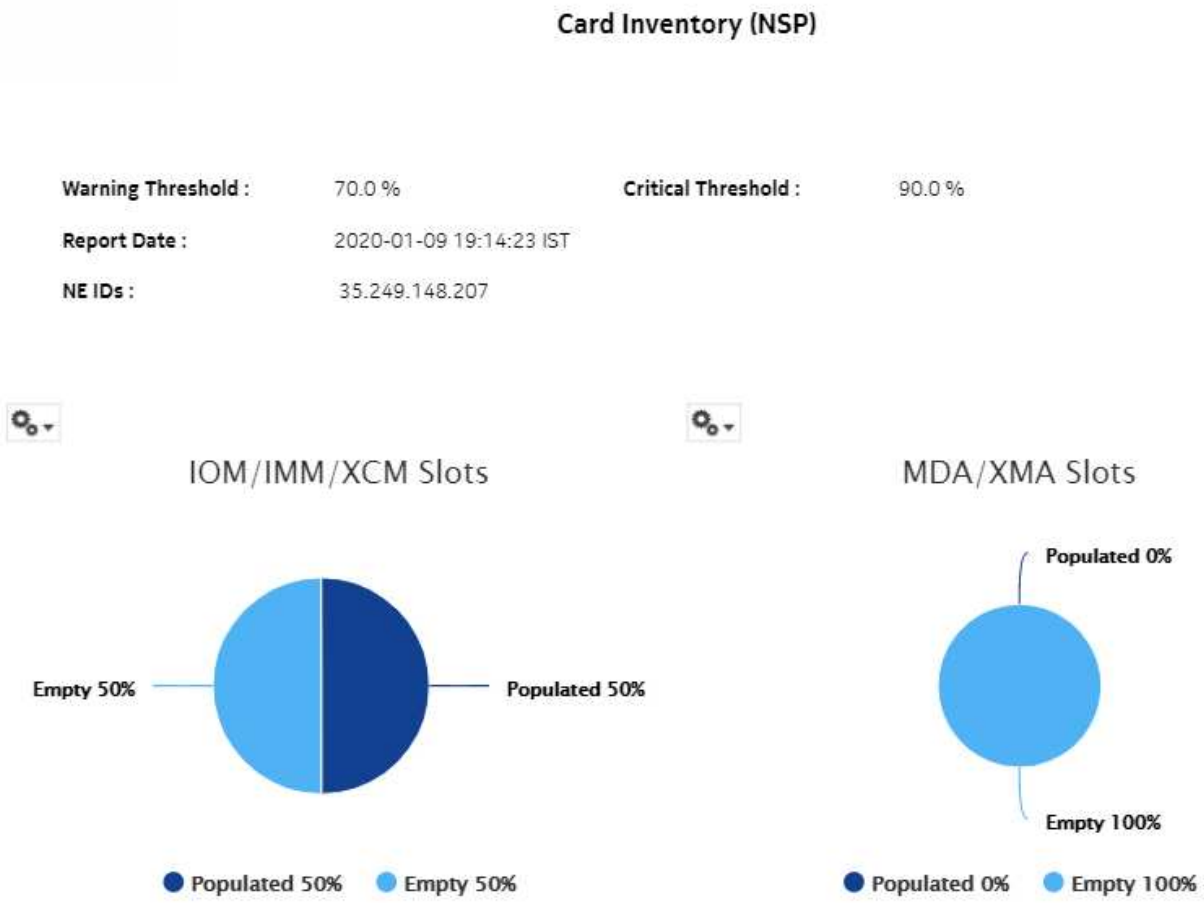
Table 17-1 Card Inventory (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	NE types	Search using partial names or wildcard (%). At least one NE ID or NE name must be entered.
	Name or name pattern for NEs	
	NEs	
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

17.2.2 Example

The following figures show a Card Inventory (NSP) report example.

Figure 17-1 Card Inventory (NSP) report



Card Totals by NE Type

NE Type	Number NEs	Total IOM/IMM/ XCM Slots	Populated IOM/IMM/ XCM Slots	Empty IOM/IMM/ XCM Slots	Populated MDA/XMA Slots	Empty MDA/XMA Slots	NEs with No Free IOM/IMM/ XCM Slots	NEs with No Free MDA/XMA Slots
7250 IXR-R6	1	2	1	1	0	12	0	0

CPM/SF Card Totals

Card Type	Card Software Version	Number of Cards
IXR-R6 CPIOM	TiMOS-B-19.10.B1-24	2
Totals		**2**

IOM/IMM/XCM Card Totals

Card Type	Card Software Version	Number of Cards
IXR-R6 IOM	TiMOS-B-19.10.B1-24	1
Totals		**1**

MDA/XMA Card Totals

Card Type	Card Software Version	Number of Cards
No data found		

Card Totals Per NE

NE Name ▲	NE Type	Total IOM/XCM Cards	Total IMM Cards	Free IOM/IMM/ XCM Slots	Total MDA/XMA cards	Free MDA/XMA Slots
s168_96_19_Both	7250 IXR-R6	2	0	1	12	12

Full NE Inventory

NE Name ▲	NE Type	Software Version	Slot Number ▲	Card Type	Part Number	Serial Number	Manufacture Assembly Number	Manufacture Date
s168_96_19_Both	7250 IXR-R6	TiMOS-B-19.10.B1-24	1	IXR-R6 IOM	9487075d121a434ba6ddaaed246c890a	card-1	01-2345-67	01/01/2003
s168_96_19_Both	7250 IXR-R6	TiMOS-B-19.10.B1-24	1/5	32 Port Any Service Channelized DS1/E1, Multi-	N/A	N/A	N/A	N/A
s168_96_19_Both	7250 IXR-R6	TiMOS-B-19.10.B1-24	1/6	32 Port Any Service Channelized DS1/E1, Multi-	N/A	N/A	N/A	N/A
s168_96_19_Both	7250 IXR-R6	TiMOS-B-19.10.B1-24	2	IXR-R6 IOM	N/A	N/A	N/A	N/A
s168_96_19_Both	7250 IXR-R6	TiMOS-B-19.10.B1-24	3	IXR-R6 CPIOM	9487075d121a434ba6ddaaed246c890a	card-3	01-2345-67	01/01/2003
s168_96_19_Both	7250 IXR-R6	TiMOS-B-19.10.B1-24	4	IXR-R6 CPIOM	N/A	N/A	N/A	N/A

17.3 Port Details (NSP) report

17.3.1 Port Details (NSP) report overview

The Port Details (NSP) report differs from the Port Details report by additionally including data for NEs managed using model-driven mediation.

The port mode may show its value as Unknown for multivendor NEs because it is specific to Nokia.

The Port Details (NSP) report shows the port usage details for selected NEs and sites. The default display is a table displaying details of the port. Protection ports will not be shown as "used ports" in the port details reports.

The model number and optical compliance are displayed at the port level.

Limitations

Filters and ascending and descending sorting options are not enabled for the Ports Used (%) column.

Prerequisites

MDM adapters are required based on the NEs that are managed. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

Report characteristics

The following table lists the principal report characteristics.

Table 17-2 Port Details (NSP) report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP main database
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants OS 6860, OS 6450, OS 6900 Cisco Sapro NCS540 7.5.2 Cisco Sapro NCS57C3 7.6.2 MDM-mediated/MV NEs—Support for these NEs depends on the availability of the MDM adapters for the particular NE version and variants installed in the network. Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA
	Support is limited to NEs found in the network.

Table 17-2 Port Details (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	NE type	Search using partial names or wildcard (%). At least one NE ID or NE name must be entered.
	Name or name pattern for NE	
	NE	
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

17.3.2 Example

The following figure shows a report example.

Figure 17-2 Port Details (NSP) report

Port Details (NSP)

Report Date :	2023-03-29 14:36:41 IST	**NE Name:**	NS204265290
NE Type :	7750-SRa4	**NE ID :**	35.250.64.162
Warning Threshold :	70.0 %	**Critical Threshold :**	90.0 %

Slot	Card Type	Port Type	Port Name	Port Speed (mbps)	Port Actual Speed (kbps)	Mode
fdn:realm:sam:network:						
	MDA-a XP 10 x 10GE XP SFP+	ethernet	Port 1/1/1	1000	1000000	Network
	MDA-a XP 10 x 10GE XP SFP+	ethernet	Port 1/1/10	1000	1000000	Network
	MDA-a XP 10 x 10GE XP SFP+	ethernet	Port 1/1/2	1000	1000000	Network
	MDA-a XP 10 x 10GE XP SFP+	ethernet	Port 1/1/3	1000	1000000	Network

Port Description	Port Count	Ports Used	Ports Used (%)	Model Number	Optical Compliance
	10	**2**	**20**		
10-Gig Ethernet	1	0		N/A	N/A
10-Gig Ethernet	1	0		N/A	N/A
10-Gig Ethernet	1	0		3HE04823AAAA01 ALA IPU3ANKEAA	10GBASE-LR
10-Gig Ethernet	1	1		N/A	10GBASE-SR

17.4 Port Inventory Summary (NSP) report

17.4.1 Port Inventory Summary (NSP) report overview

The Port Inventory Summary (NSP) report differs from the Port Inventory Summary report by additionally including data for NEs managed using model-driven mediation.

The Port Inventory Summary (NSP) report shows the port type and port usage for selected NEs. The default display is a table displaying details, including total port count, total ports used, and percentage of ports used. Protection ports will not be shown as "used ports" in port inventory summary (NSP) reports.

The part number and CLEI number are displayed at the card level.

Prerequisites

An MDM adapter is required for MDM-mediated NEs. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

Report characteristics

The following table lists the principal report characteristics.

Table 17-3 Port Inventory Summary (NSP) report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP main database

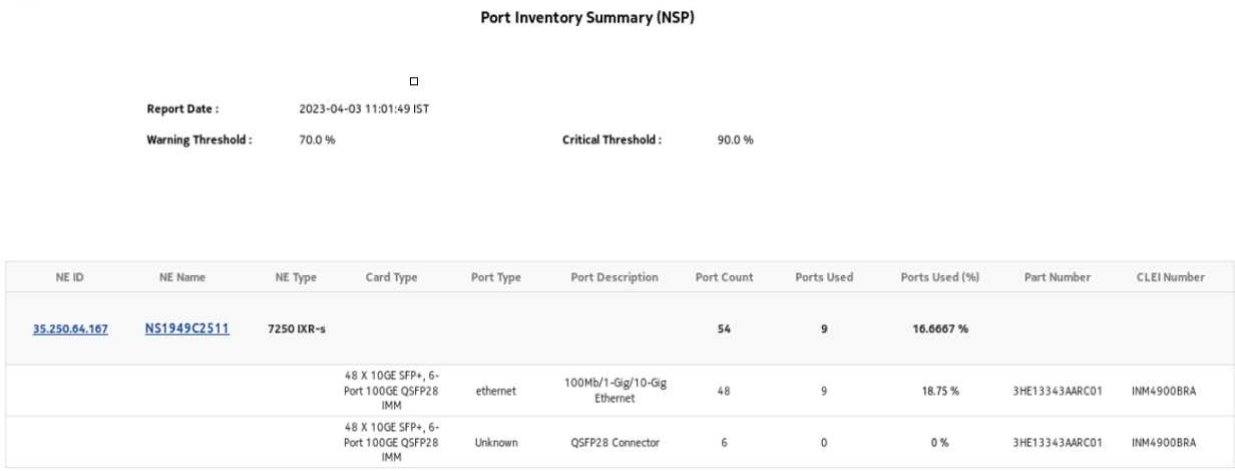
Table 17-3 Port Inventory Summary (NSP) report characteristics (continued)

Characteristic	Value	
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants 7210 SAS-D 6F 4T, 7210 SAS-D 6F 4T ETR, 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12 OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA MDM-mediated NEs. The support for MDM-mediated NEs depends on the availability of the MDM adapters for the particular NE version and variants installed in the network.	
	Support is limited to NEs found in the network.	
Report inputs	*Prompt*	*Notes*
	NE Types	Search using partial names or wildcard (%). At least one NE ID or NE name must be entered.
	NEs	
	Name or name pattern for NEs	
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Port Details report for the selected NE.	

17.4.2 Example

The following figure shows a report example.

Figure 17-3 Port Inventory Summary (NSP) report



Port Inventory Summary (NSP)

Report Date : 2023-04-03 11:01:49 IST

Warning Threshold : 70.0 % **Critical Threshold :** 90.0 %

NE ID	NE Name	NE Type	Card Type	Port Type	Port Description	Port Count	Ports Used	Ports Used (%)	Part Number	CLEI Number
35.250.64.167	NS1949C2511	7250 IXR-s				54	9	16.6667 %		
			48 X 10GE SFP+, 6-Port 100GE QSFP28 IMM	ethernet	100Mb/1-Gig/10-Gig Ethernet	48	9	18.75 %	3HE13343AARC01	INM4900BRA
			48 X 10GE SFP+, 6-Port 100GE QSFP28 IMM	Unknown	QSFP28 Connector	6	0	0 %	3HE13343AARC01	INM4900BRA

18 NSP OAM reports

18.1 NSP OAM reports overview

18.1.1 General information

NSP OAM reports show aggregated latency and loss information based on results of OAM testing. Information in the report inputs is optimized to reflect the configuration of the test; for example, only configured forwarding classes appear in the inputs. NSP OAM reports additionally include OAM data for NEs managed using model-driven mediation.

Forwarding classes are highlighted when latency or packet loss exceeds thresholds:

- Orange highlighting indicates that the maximum RTD is double or more the value of the average RTD
- Yellow highlighting indicates that the loss is greater than 0% but less than 5%.
- Red highlighting indicates that the loss is greater than 5%.

Both the NE name and its IP address display in the report.

Note: Gaps may appear in line graphs: These indicate a time during which no data was available.

There is a duplication of data in input controls when the NEs are dual managed.

Drill-down reports

NSP OAM reports can be run from the main NSP OAM reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report. See the report characteristics table for each NSP OAM report for the drill-downs available.

Supported standards

The MEF35 test type is supported for the following reports:

- OAM-PM Bins and Delay (NSP)
- OAM-PM Latency (NSP)
- OAM-PM Loss (NSP)
- OAM-PM Multiple Session View (NSP)
- OAM-PM Network Site Summary (NSP)
- OAM-PM Network Summary (NSP)
- OAM-PM Service Summary (NSP)
- OAM-PM Service Site Summary (NSP)
- OAM-PM Service Site (NSP)

Prerequisites

Note: See "Supported NEs" (p. 737) for information about supported NEs.

The following must be configured for NSP OAM reports to be created:

- For NSP Classic-managed NEs statistics collection, use SNMP MIB statistics or accounting statistics
- For model driven-managed NEs, MDM is required to collect gRPC statistics. When MDM is used to collect statistics, persistence must be enabled in the subscription.
- An MDM adapter is required for MDM-mediated NEs; contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.
- The OAM test results must be stored in the auxiliary database. To enable auxiliary database storage of OAM test results, you must enable the oam-test-results parameter in the samauxdb section of each main server configuration. See the *NSP Installation and Upgrade Guide* for information about using the samconfig utility.
- OAM statistics must be collected using an accounting policy. ETH-CFM Session and TWAMP-Light Session tests require a Complete-PM policy.
- To view the reports for granularities other than raw data, the OAM aggregation rules must be enabled; see 1.9 "How do I configure analytics aggregation?" (p. 29).
- PM bin group policies must be created.
- The following feature packs must be added when you create an NSP instance:
  - platform
  - platformMdm
  - serviceAssurance
  - serviceActivationAndConfiguration-intentBasedServiceFulfillment
  - intentBasedNetworkingFramework

18.2 OAM PM BinGroups (NSP) report

18.2.1 OAM PM BinGroups (NSP) report overview

The OAM-PM BinGroups (NSP) report differs from the OAM PM BinGroups report by additionally including OAM data for NEs managed using model-driven mediation. The report shows a distribution count of the PM bin groups in use. To use this report, a bin group policy must be distributed, PM sessions must be configured for each bin group, and PM sessions must be active and enabled.

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential performance impact for a selected bin group.

Prerequisites

The following tasks need to be performed for each NE for the report to be created:

- a DMM session must be defined with accounting enabled
- a TWAMP-Light session must be defined with accounting enabled
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-1 OAM-PM BinGroups (NSP) report inputs

Prompt	Notes
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Report characteristics

The following table lists the principal report characteristics.

Table 18-2 OAM-PM BinGroups (NSP) report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants (supports Classic and MDM modes) all 7950 XRS variants all Wavence variants
Aggregation types	—

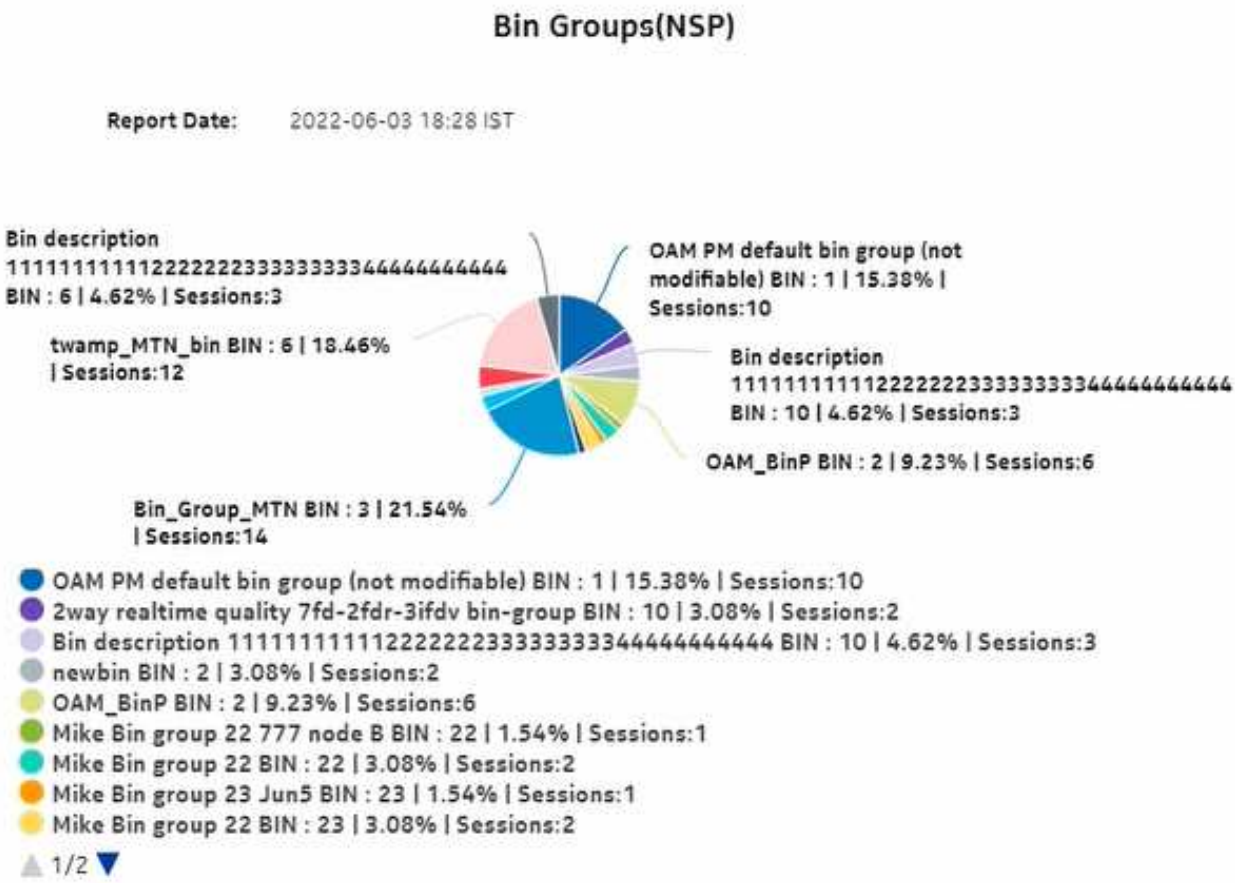
Table 18-2 OAM-PM BinGroups (NSP) report characteristics (continued)

Characteristic	Value
Drill-down support	Yes: 1. Click on a bin group to show an OAM-PM Sessions (NSP) report, showing the distribution of sessions using the bin group. 2. From an OAM-PM Sessions (NSP) report, click on a session to show an OAM-PM Sessions By Site report: an aggregate view of the active sessions on the site using the selected bin group. You can modify report inputs, for example, show sessions with no data. 3. From an OAM-PM Sessions By Site (NSP) report, click on a delay result to show an OAM-PM Latency (NSP) report. 4. From an OAM-PM Sessions By Site (NSP) report, click on a jitter or loss result to show an OAM-PM Loss (NSP) report.

18.2.2 Example

The following figure shows a report example.

Figure 18-1 OAM-PM BinGroups (NSP) report



18.3 OAM-PM Bins (NSP) report

18.3.1 OAM-PM Bins (NSP) report overview

The OAM-PM Bins (NSP) report differs from the OAM-PM Bins report by additionally including OAM data for NEs managed using model-driven mediation. The report shows a distribution count of the PM bins in use. To use this report, a bin policy must be distributed, PM sessions must be configured for each bin, and PM sessions must be active and enabled.

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential performance impact for a selected bin group.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-3 OAM-PM Bins (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • Hourly • Daily • Monthly • Raw Collection Interval
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session name	Search using partial names, full names, or IP addresses.
Bin Type	Bin types as configured in the NSP and NFM-P

Table 18-3 OAM-PM Bins (NSP) report inputs (continued)

Prompt	Notes
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

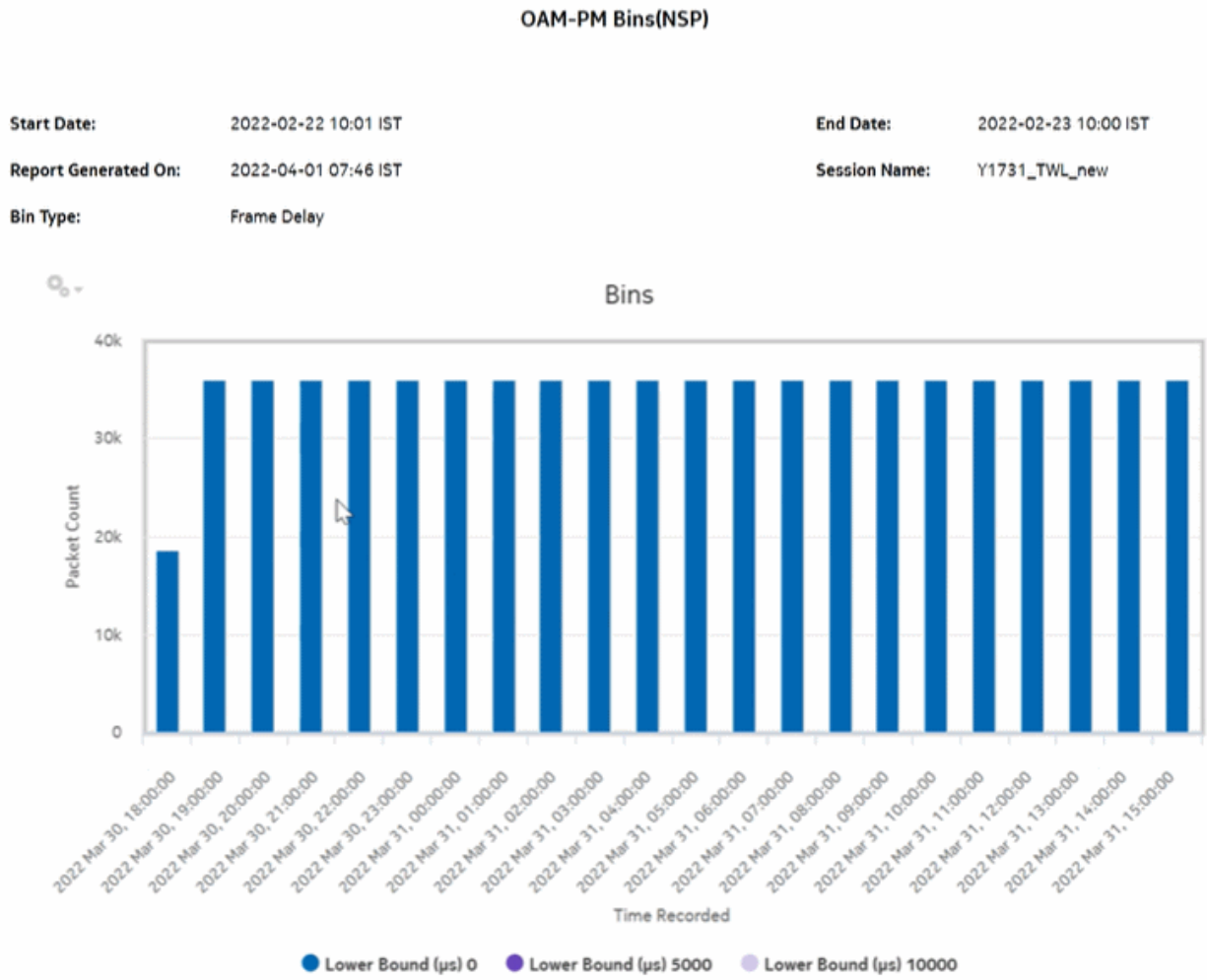
Table 18-4 OAM-PM Bins (NSP) report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	all 7750 SR variants all 7450 ESS variants all 7950 XRS variants 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC
Aggregation types	—
Drill-down support	No

18.3.2 Example

The following figure shows a report example.

Figure 18-2 OAM-PM Bins (NSP) report



18.4 OAM-PM Bins and Delay (NSP) report

18.4.1 OAM-PM Bins and Delay (NSP) report overview

The OAM-PM Bins and Delay (NSP) report differs from the OAM-PM Bins and Delay report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report shows an OAM-PM session with a bin count bar graph and a delay line overlay.

Use cases

QoS analysis—Identify potential performance or SLA impact for a service

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-5 OAM-PM Bins and Delay (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • Hourly • Daily • Monthly • None (raw collection interval)
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session name	Search using partial names, full names, or IP addresses.
Bin Type	Bin types as configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Delay Type	Maximum, average, or minimum
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-6 OAM-PM Bins and Delay (NSP) report characteristics

Characteristic	Value
Data type	OAM PM statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	No

18.4.2 Examples

The following figures show report examples.

Figure 18-3 OAM-PM Bins and Delay (NSP) report – NFM-P NE TWAMP light session bins and delay

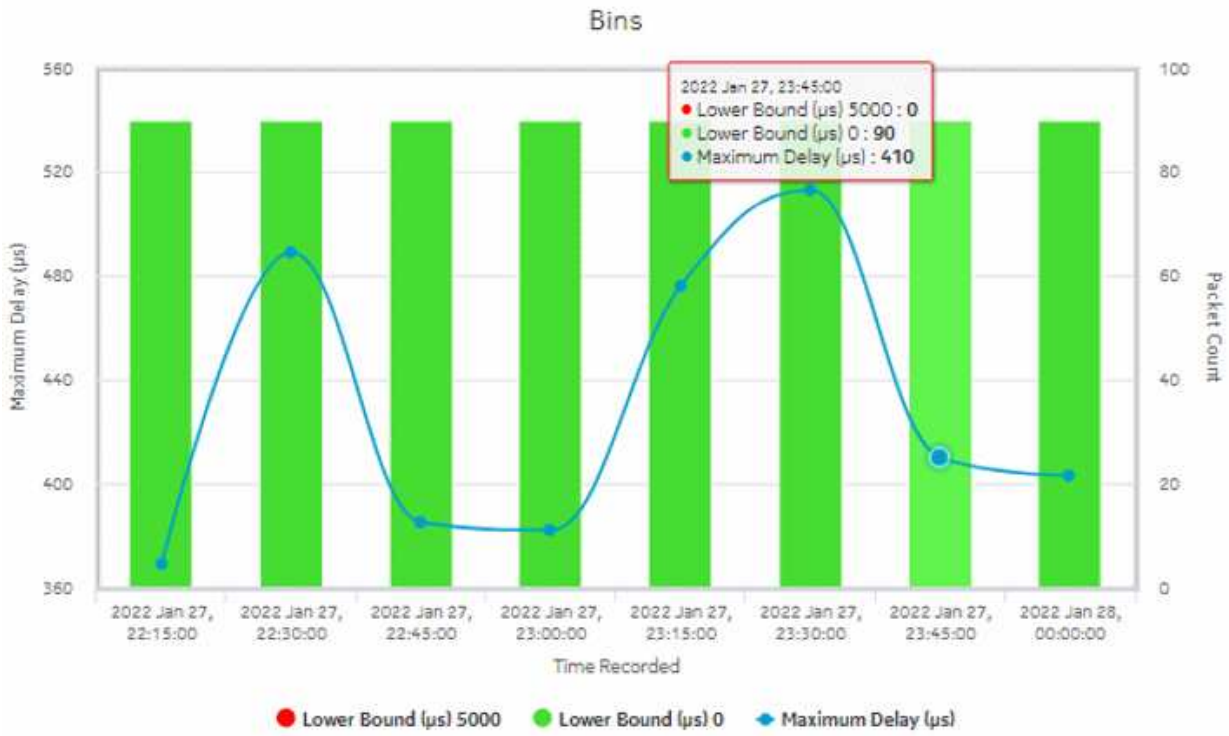


Figure 18-4 OAM-PM Bins and Delay (NSP) report – NFM-P NE CFM DMM session bins and delay

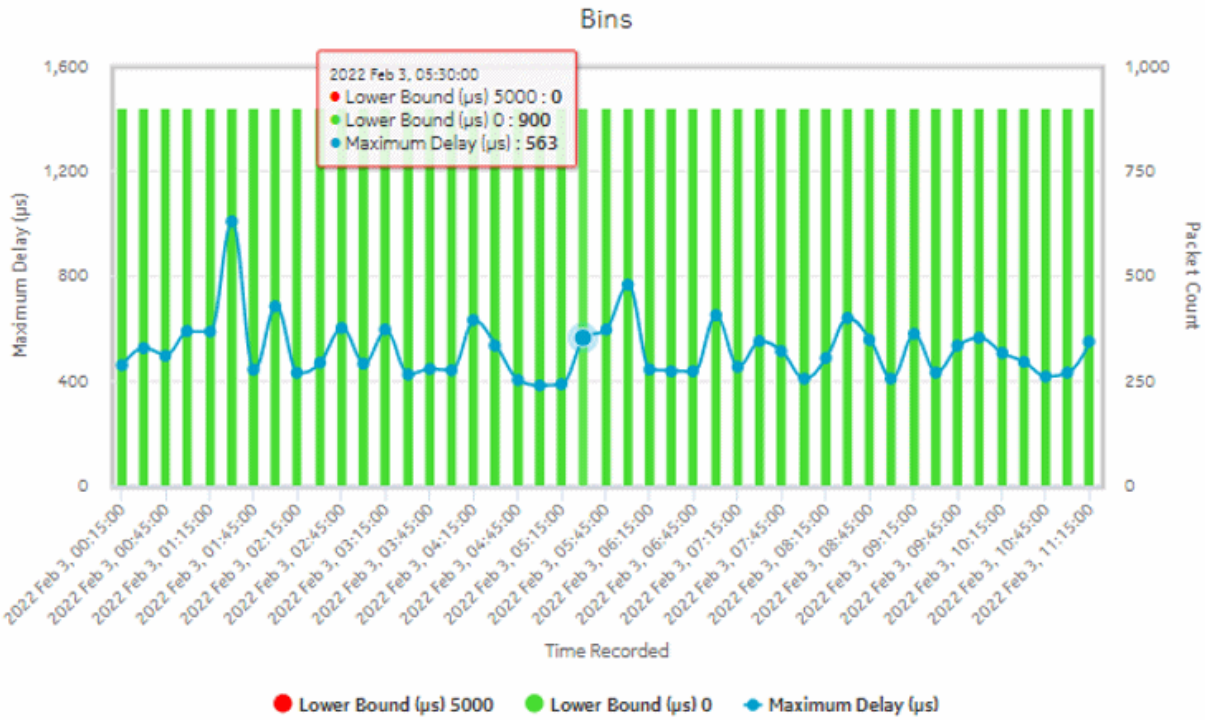


Figure 18-5 OAM-PM Bins and Delay (NSP) report – MDM NE TWAMP light session bins and delay

Figure 18-6 OAM-PM Bins and Delay (NSP) report – MDM NE CFM DMM light session bins and delay

18.5 OAM-PM Latency (NSP) report

18.5.1 General information

The OAM-PM Latency (NSP) report differs from the OAM-PM Latency report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report can be run by itself or as a drill-down from an OAM-PM Network Site Summary (NSP) report. The report shows the graph of latency for a selected session during a specified time period. The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

For raw granularity, the report displays data based on startTime from PM session-based statistics. For other granularities (hourly, daily, and monthly), the report displays based on timeRecorded. The difference in data is between the raw and granularity reports for Wavence NEs.

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-7 OAM-PM Latency (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • Hourly • Daily • Monthly • None (raw collection interval)
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Session name	
Bin Type	Bin types as configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day (15 min and 1 day are supported for Wavence NEs)
Threshold	Specify the threshold value
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-8 OAM-PM Latency (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics For Wavence NEs: OAM session statistics and PM session-based statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants Wavence MSS-4, Wavence MSS-8
Drill-down support	No

18.5.2 Examples

The following figures show report examples.

Figure 18-7 OAM-PM Twamp-Light Session Delay Measurement Details (NSP) – Delay Details for Frame Delay

OAM-PM Twamp-Light Session Delay Measurement Details (NSP)

Start Date:	2022-04-20 09:01 IST	**End Date:**	2022-04-20 10:00 IST
Report Date:	2022-11-11 11:58 IST	**Source Node:**	s168_96_59_Both (35.249.152.222)
Target Node:	N/A (0.0.0.0)	**Session:**	Y1731_TWL_new
Threshold:	0		

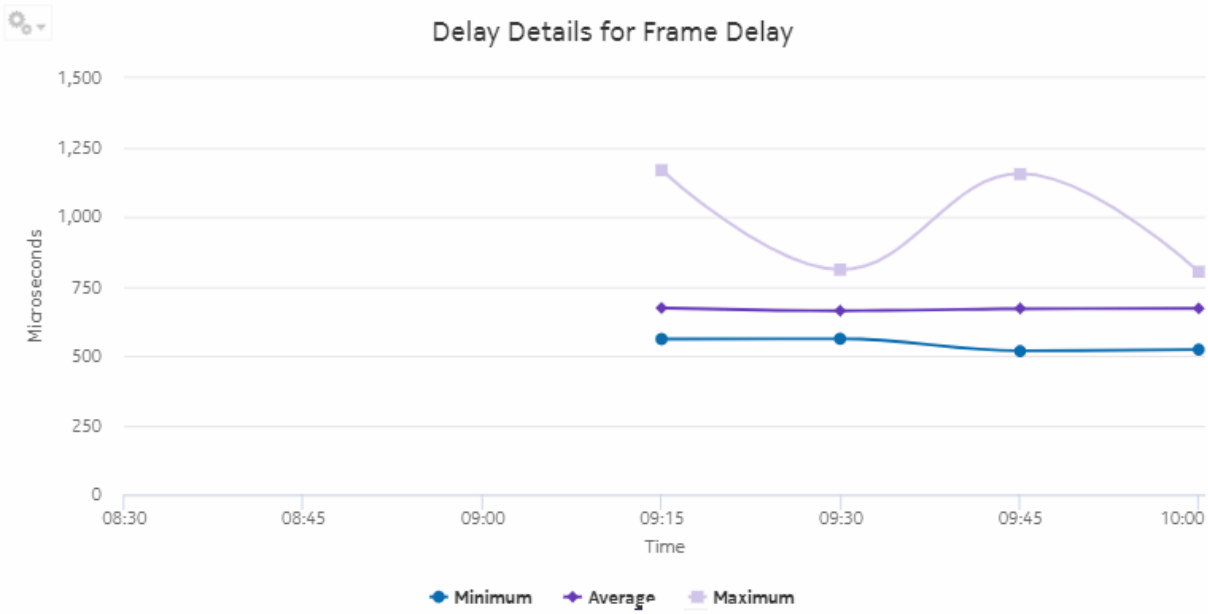


Figure 18-8 OAM-PM Twamp-Light Session Delay Measurement Details (NSP) – Delay Details for Inter Frame Delay Variation

OAM-PM Twamp-Light Session Delay Measurement Details (NSP)

Start Date:	2022-04-20 09:01 IST	**End Date:**	2022-04-20 10:00 IST
Report Date:	2022-11-11 11:56 IST	**Source Node:**	s168_96_59_Both (35.249.152.222)
Target Node:	N/A (0.0.0.0)	**Session:**	Y1731_TWL_new
Threshold:	0		

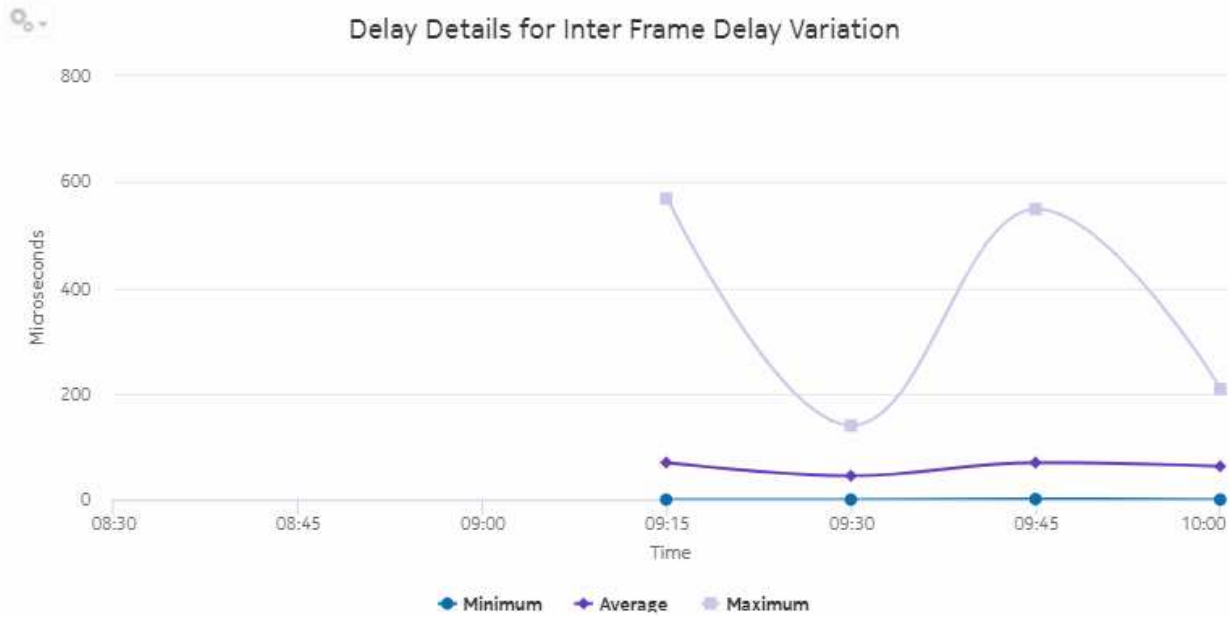


Figure 18-9 OAM-PM ETH-CFM Session Delay Measurement Details (NSP) – Delay Details for Frame Delay Range

Figure 18-10 OAM-PM ETH-CFM Session Delay Measurement Details (NSP) – Delay Details for Frame Delay

Figure 18-11 OAM-PM ETH-CFM Session Delay Measurement Details (NSP) – Delay Details for Inter Frame Delay Variation

18.6 OAM-PM Loss (NSP) report

18.6.1 Overview

The OAM-PM Loss (NSP) report differs from the OAM-PM Loss report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report can be run by itself or as a drill-down from an OAM-PM Network Site Summary (NSP) report. The report shows the graph of loss data for a selected session during a specified time period.

The report includes the following session types:

- ETH-CFM Session

- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-9 OAM-PM Loss (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Session Name	
Bin Type	Bin type configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 18-9 OAM-PM Loss (NSP) report inputs (continued)

Prompt	Notes
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-10 OAM-PM Loss (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants Wavence MSS-4, Wavence MSS-8
Drill-down support	Yes–From the following reports: • OAM-PM Service Site (NSP) report • OAM-PM Top N Worst Sessions (NSP) report • OAM-PM Sessions by Site (NSP) report

18.6.2 Example

The following figures show report examples.

Figure 18-12 OAM-PM Twamp-Light Loss Measurement Details (NSP) report – Loss Details for Frame Delay

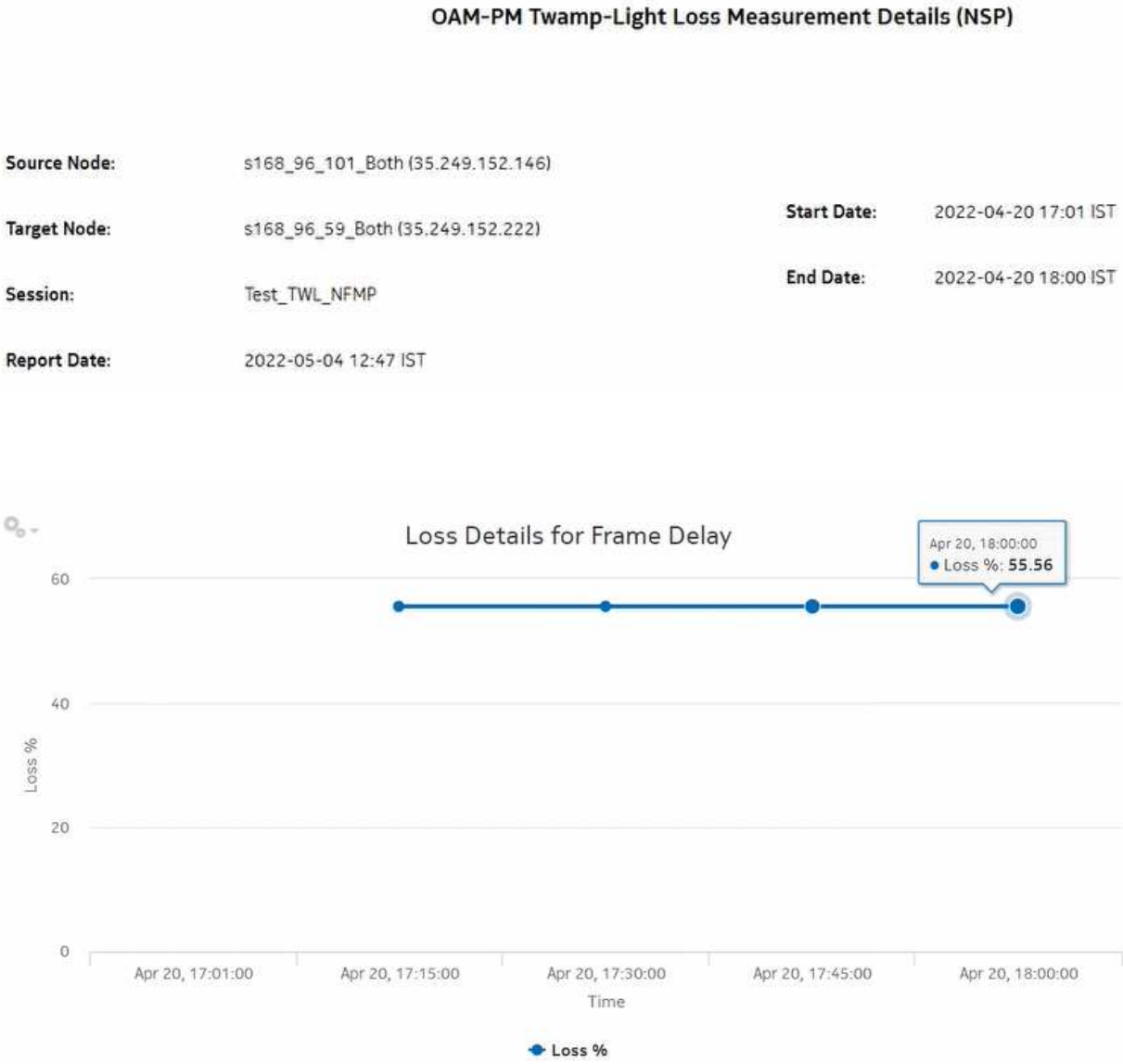
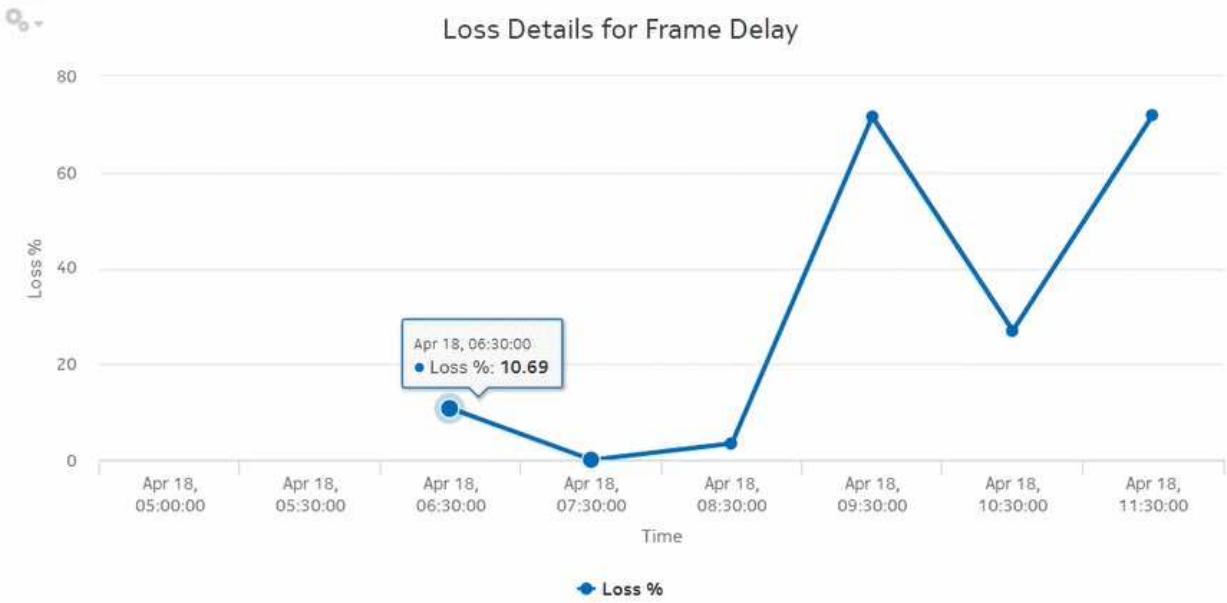


Figure 18-13 OAM-PM ETH-CFM Loss Measurement Details (NSP) report – Loss Details for Inter Frame Delay Variation

Figure 18-14 OAM-PM ETH-CFM Loss Measurement Details (NSP) report – Loss Details for Frame Delay



18.7 OAM-PM Multiple Session View (NSP) report

18.7.1 OAM-PM Multiple Session View (NSP) report overview

The OAM-PM Multiple Session View (NSP) report differs from the OAM-PM Multiple Session View report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report shows a list of OAM-PM sessions with a delay history graph and bin count summary.

Note: The OAM-PM Multiple Session View (NSP) report returns an exception when more than 150 sessions are selected. You can select up to 149 sessions only.

Use cases

QoS analysis—Identify potential performance or SLA impact for a service

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-11 OAM-PM Multiple Session View (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session Name	Search using partial names, full names, or IP addresses.
Bin Type	Bin types as configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Threshold	Identify the threshold
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-12 OAM-PM Multiple Session View (NSP) report characteristics

Characteristic	Value
Data type	OAM PM statistics
Source database	Auxiliary database

Table 18-12 OAM-PM Multiple Session View (NSP) report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Open an OAM-PM Bins and Delay (NSP) report for the selected bin.

18.7.2 Examples

The following figures show report examples.

Figure 18-15 OAM-PM Multiple Session View (NSP) – ETH-CFM Session Delay

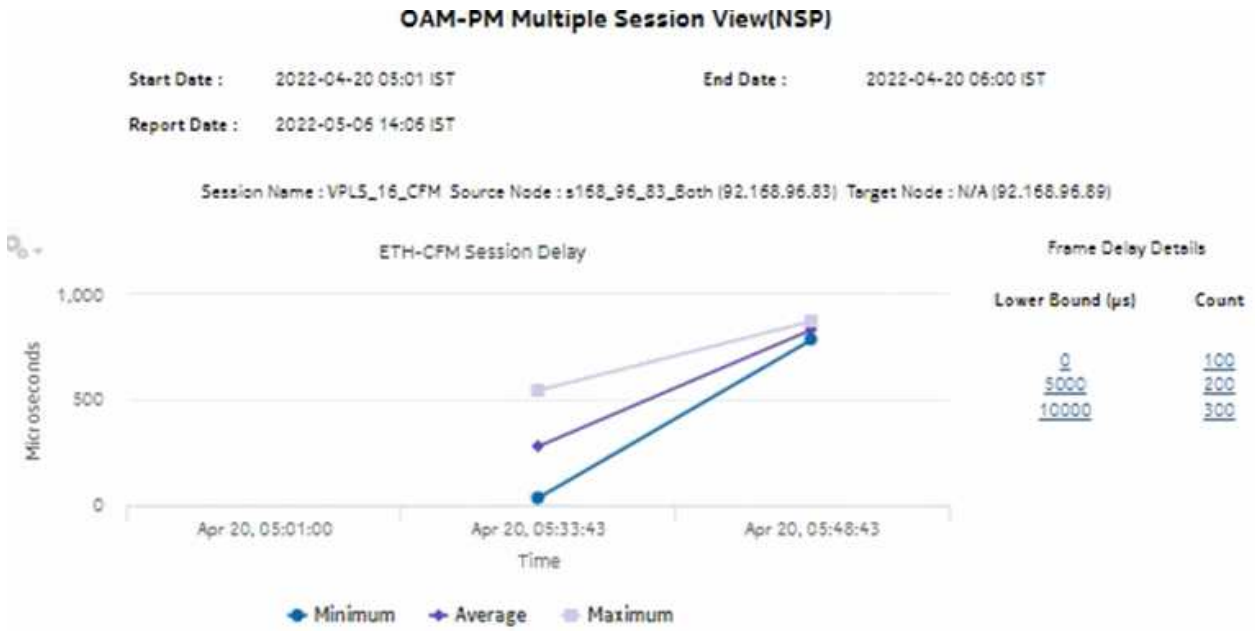
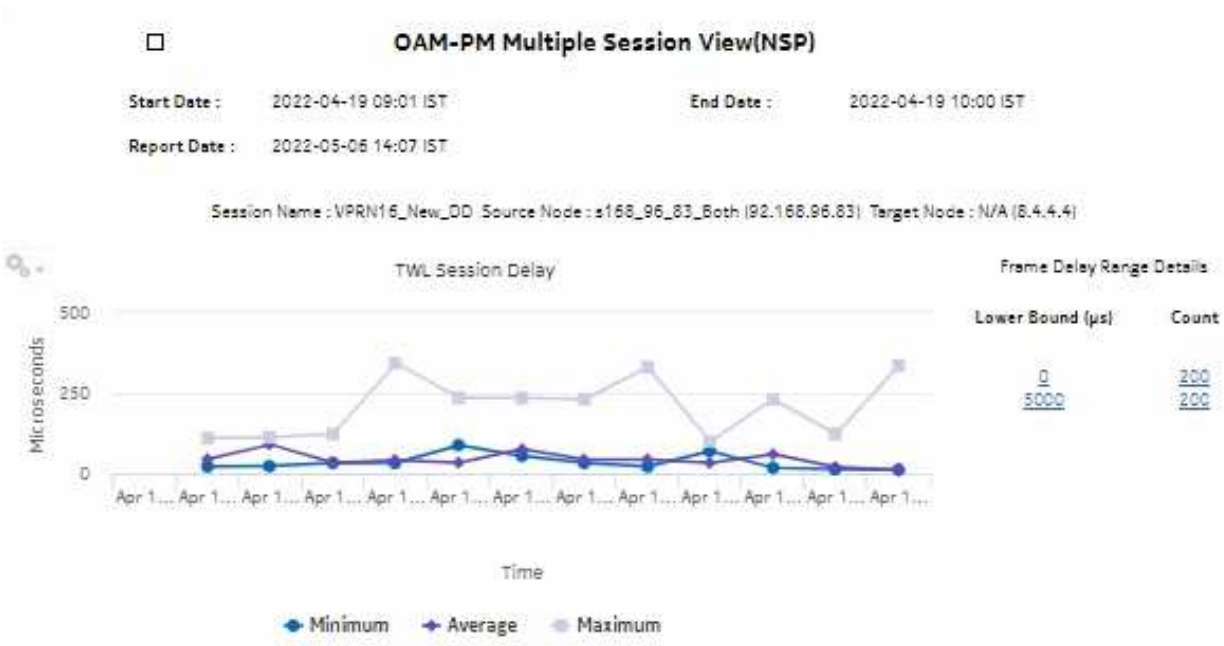


Figure 18-16 OAM-PM Multiple Session View (NSP) – TWL Session Delay



18.8 OAM-PM Network Site Summary (NSP) report

18.8.1 Overview

The OAM-PM Network Site Summary (NSP) report differs from the OAM-PM Network Site Summary report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report shows the aggregated PM sessions for a selected source and target NE with collected bin type data, aggregated by session name.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs

- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-13 OAM-PM Network Site Summary (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Bin Type	Bin types configured in the NSP and NFM-P
Result set limit	Number of results to report
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-14 OAM-PM Network Site Summary (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes: • Click on a delay result to show an OAM-PM Latency (NSP) report. • Click on a jitter or loss result to show an OAM-PM Loss (NSP) report.

18.8.2 Example

The following figures show report examples.

Figure 18-17 OAM-PM Twamp-Light Network Site Summary (NSP) – Frame Delay

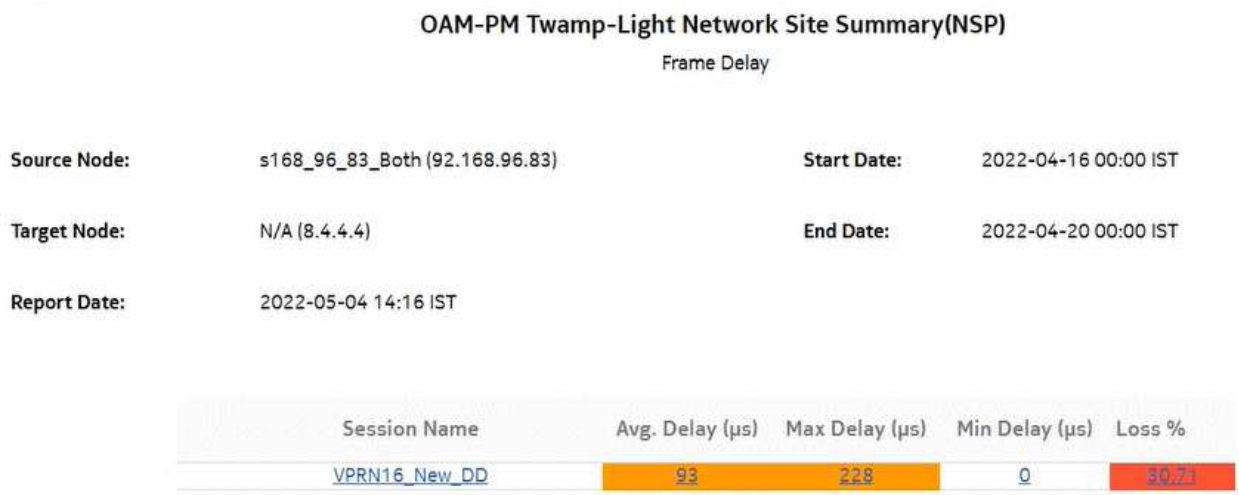
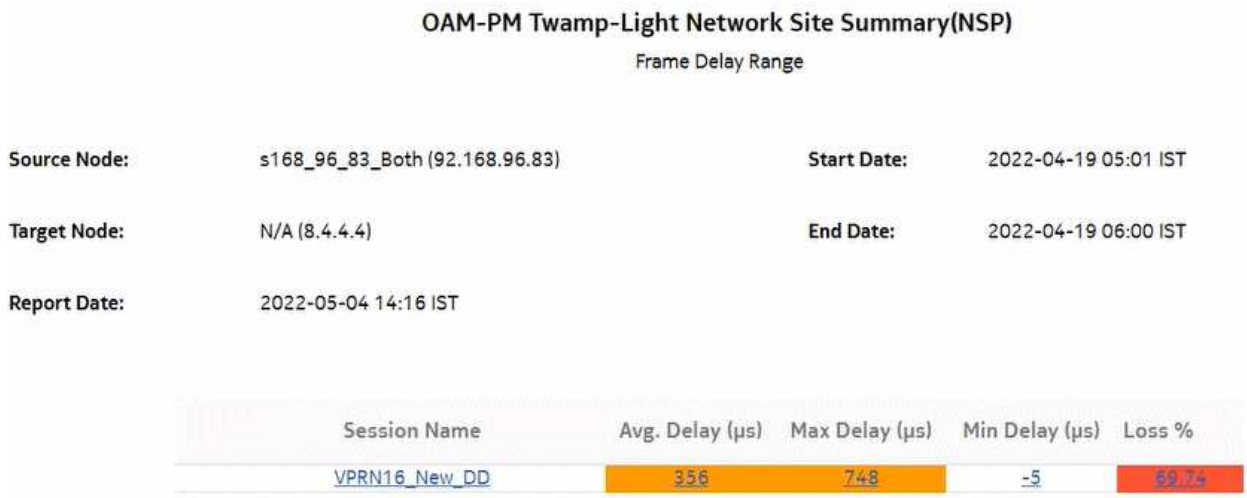


Figure 18-18 OAM-PM Twamp-Light Network Site Summary (NSP) – Frame Delay Range



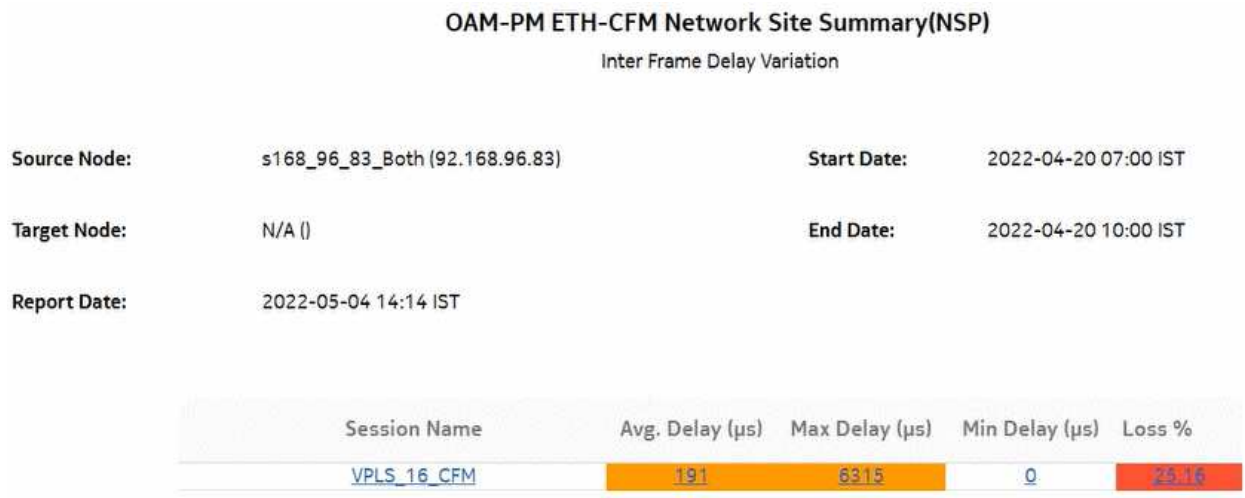
OAM-PM Twamp-Light Network Site Summary(NSP)

Frame Delay Range

Source Node:	s168_96_83_Both (92.168.96.83)	**Start Date:**	2022-04-19 05:01 IST
Target Node:	N/A (8.4.4.4)	**End Date:**	2022-04-19 06:00 IST
Report Date:	2022-05-04 14:16 IST		

Session Name	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
VPRN16_New_DD	356	748	-5	69.74

Figure 18-19 OAM-PM ETH-CFM Network Site Summary (NSP) – Inter Frame Delay Variation



OAM-PM ETH-CFM Network Site Summary(NSP)

Inter Frame Delay Variation

Source Node:	s168_96_83_Both (92.168.96.83)	**Start Date:**	2022-04-20 07:00 IST
Target Node:	N/A ()	**End Date:**	2022-04-20 10:00 IST
Report Date:	2022-05-04 14:14 IST		

Session Name	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
VPLS_16_CFM	191	6315	0	25.16

Figure 18-20 OAM-PM ETH-CFM Network Site Summary (NSP) – Frame Delay Range

18.9 OAM-PM Network Summary (NSP) report

18.9.1 Overview

The OAM-PM Network Summary (NSP) report differs from the OAM-PM Network Summary report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report shows an aggregated view of performance monitoring tests for Ethernet and IP, grouped by source and target NE.

The report includes the following session types:

- ETH-CFM session
- TWAMP-Light session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-15 OAM-PM Network Summary (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Bin Type	Bin types configured in the NSP and NFM-P
Result set limit	Number of results to report
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-16 OAM-PM Network Summary (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database

Table 18-16 OAM-PM Network Summary (NSP) report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants (supports Classic and MDM modes) all 7950 XRS variants
Drill-down support	Yes—Opens an OAM-PM Network Site Summary (NSP) report of the selected session type, an aggregate view of the PM sessions for the selected source and target NE. From an OAM-PM Network Site Summary (NSP) report: • Click on a delay result to show an OAM-PM Latency (NSP) report. • Click on a jitter or loss result to show an OAM-PM Loss (NSP) report.

Note: Reports exported to some file types may have missing information or be incomplete.

- ODS: The Source Node, Target Node, and Average Delay column headings do not display.
- ODT: The Target Node value is not completely visible in the table.
- PPTX: The table border is not completely visible.

18.9.2 Examples

The following figures show report examples.

Figure 18-21 OAM-PM ETH-CFM Network Summary (NSP) – Frame Delay

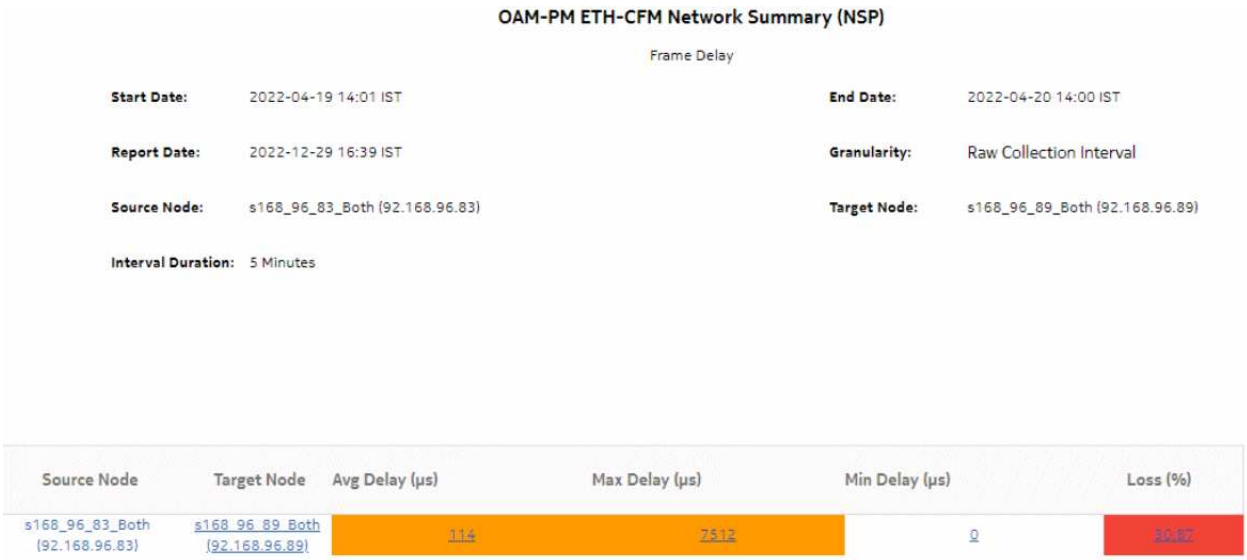
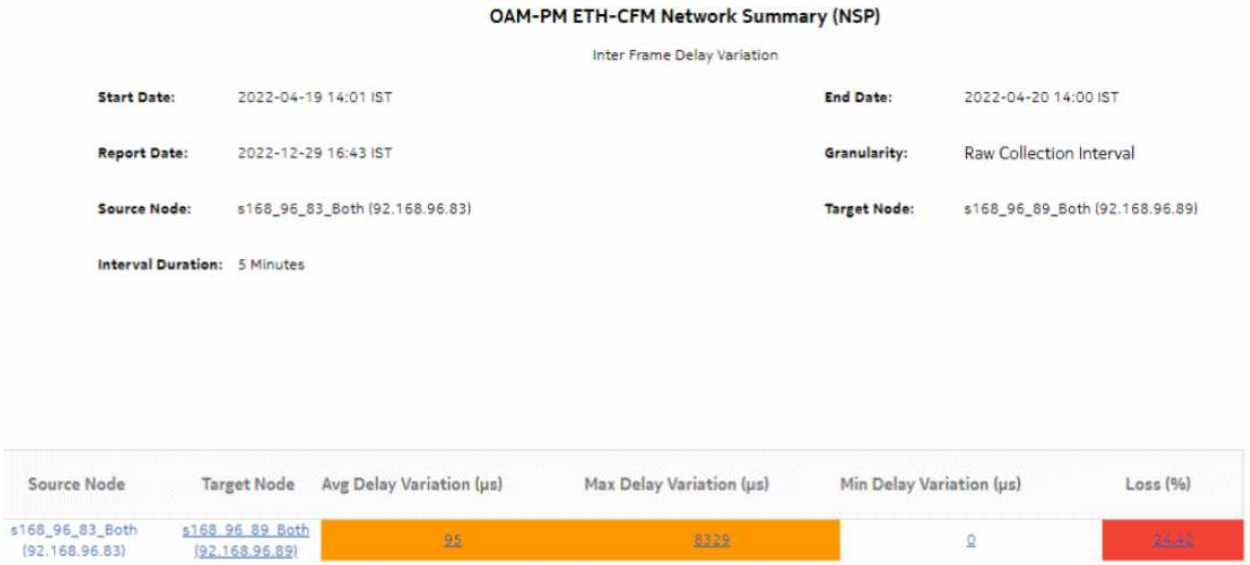


Figure 18-22 OAM-PM ETH-CFM Network Summary (NSP) – Inter Frame Delay Variation



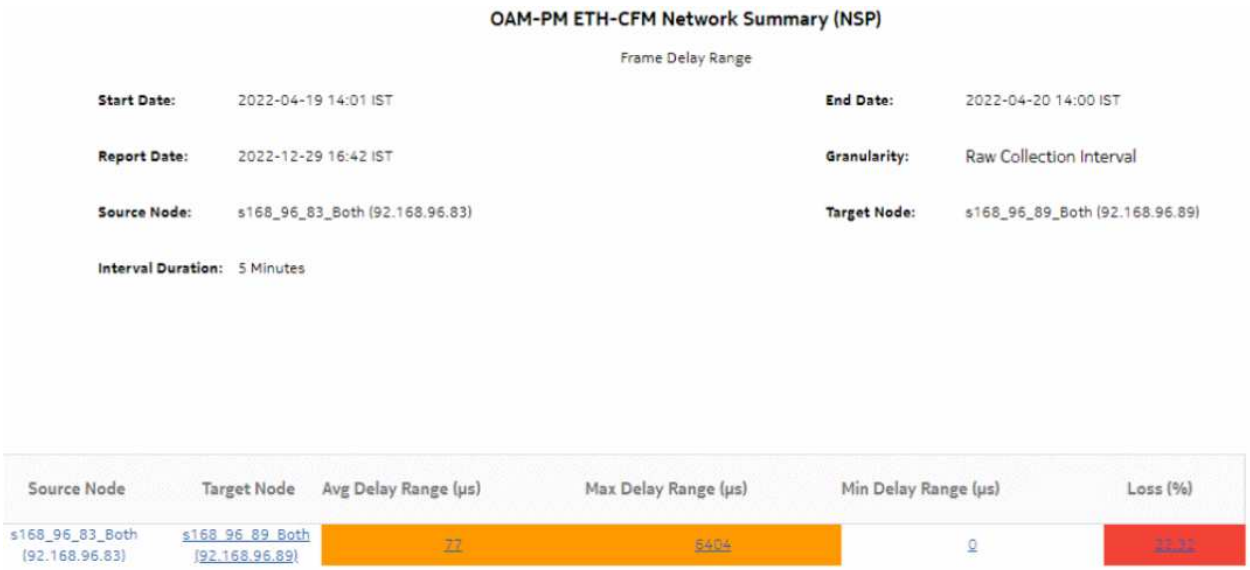
OAM-PM ETH-CFM Network Summary (NSP)

Inter Frame Delay Variation

Start Date:	2022-04-19 14:01 IST	**End Date:**	2022-04-20 14:00 IST
Report Date:	2022-12-29 16:43 IST	**Granularity:**	Raw Collection Interval
Source Node:	s168_96_83_Both (92.168.96.83)	**Target Node:**	s168_96_89_Both (92.168.96.89)
Interval Duration:	5 Minutes		

Source Node	Target Node	Avg Delay Variation (µs)	Max Delay Variation (µs)	Min Delay Variation (µs)	Loss (%)
s168_96_83_Both (92.168.96.83)	s168_96_89_Both (92.168.96.89)	95	8329	0	24.42

Figure 18-23 OAM-PM ETH-CFM Network Summary (NSP) – Frame Delay Range



OAM-PM ETH-CFM Network Summary (NSP)

Frame Delay Range

Start Date:	2022-04-19 14:01 IST	**End Date:**	2022-04-20 14:00 IST
Report Date:	2022-12-29 16:42 IST	**Granularity:**	Raw Collection Interval
Source Node:	s168_96_83_Both (92.168.96.83)	**Target Node:**	s168_96_89_Both (92.168.96.89)
Interval Duration:	5 Minutes		

Source Node	Target Node	Avg Delay Range (µs)	Max Delay Range (µs)	Min Delay Range (µs)	Loss (%)
s168_96_83_Both (92.168.96.83)	s168_96_89_Both (92.168.96.89)	77	8404	0	32.32

18.10 OAM-PM Service Site (NSP) report

18.10.1 Overview

The OAM-PM Service Site (NSP) report differs from the OAM-PM Service Site report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report can be run by itself or as a drill-down from an OAM-PM Service Site Summary (NSP) report. The report shows the aggregate view of the set of sessions on a selected service.

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-17 OAM-PM Service Site (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Name/ID	Search using partial names or full names. Select individual items.
Service Type	Epipe, VPLS, MVPLS, or VPRN

Table 18-17 OAM-PM Service Site (NSP) report inputs (continued)

Prompt	Notes
Source Node	Select individual items.
Target Node	
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Bin Type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Result set limit	Number of results to report
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-18 OAM-PM Service Site (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants (supports chassis and MDM mode) all 7950 XRS variants
Drill-down support	Yes: • Click on a delay result to show an OAM-PM Latency (NSP) report. • Click on a jitter or loss result to show an OAM-PM Loss (NSP) report.

18.10.2 Example

The following figures show report examples.

Figure 18-24 OAM-PM Twamp-Light Service Site (NSP) – Frame Delay

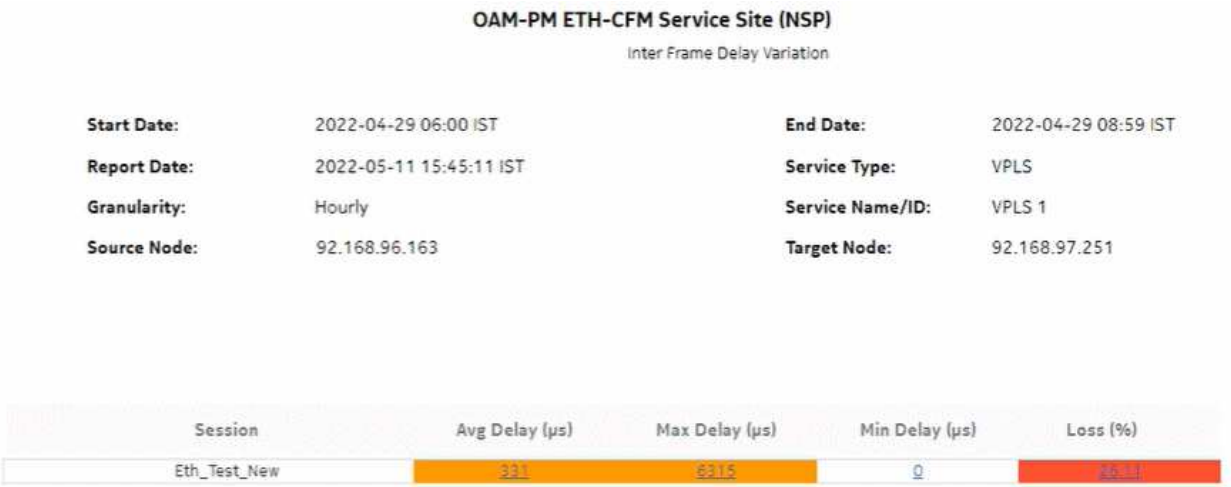
OAM-PM Twamp-Light Service Site (NSP)

Frame Delay

Start Date:	2022-04-19 06:00:00 IST	**End Date:**	2022-04-19 06:59:59 IST
Report Date:	2022-05-11 15:29:06 IST	**Service Type:**	VPRN
Granularity:	Raw Collection Interval	**Service Name/ID:**	VPRN_16
Source Node:	92.168.96.83	**Target Node:**	8.4.4.4

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPRN16_New_DD	1086	6066	0	25.9

Figure 18-25 OAM-PM ETH-CFM Service Site (NSP) – Inter Frame Delay Variation



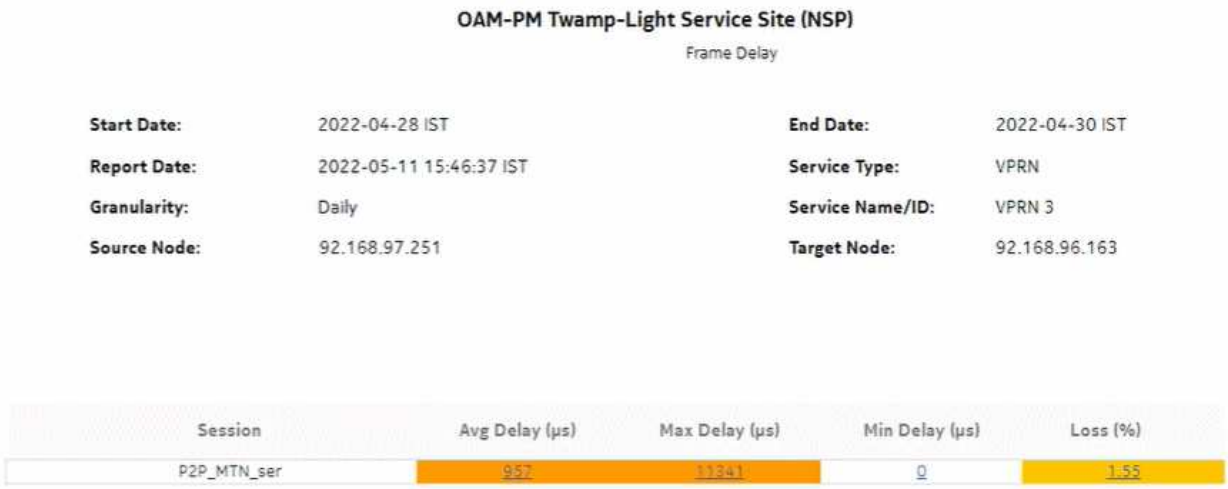
OAM-PM ETH-CFM Service Site (NSP)

Inter Frame Delay Variation

Start Date:	2022-04-29 06:00 IST	**End Date:**	2022-04-29 08:59 IST
Report Date:	2022-05-11 15:45:11 IST	**Service Type:**	VPLS
Granularity:	Hourly	**Service Name/ID:**	VPLS 1
Source Node:	92.168.96.163	**Target Node:**	92.168.97.251

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
Eth_Test_New	331	6315	0	28.11

Figure 18-26 OAM-PM Twamp-Light Service Site (NSP) – Frame Delay



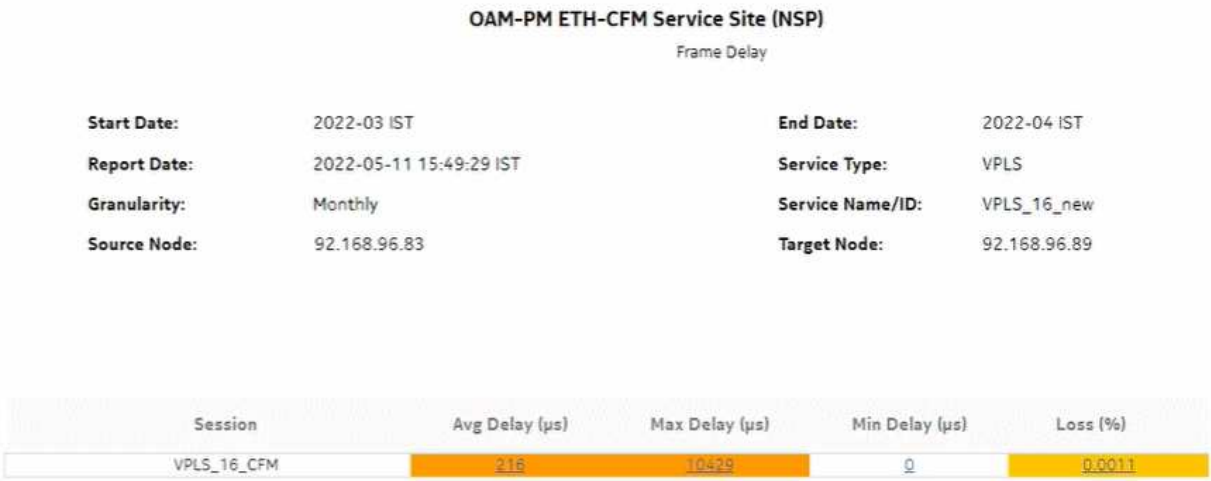
OAM-PM Twamp-Light Service Site (NSP)

Frame Delay

Start Date:	2022-04-28 IST	**End Date:**	2022-04-30 IST
Report Date:	2022-05-11 15:46:37 IST	**Service Type:**	VPRN
Granularity:	Daily	**Service Name/ID:**	VPRN 3
Source Node:	92.168.97.251	**Target Node:**	92.168.96.163

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
P2P_MTN_ser	957	11341	0	1.55

Figure 18-27 OAM-PM ETH-CFM Service Site (NSP) – Frame Delay



OAM-PM ETH-CFM Service Site (NSP)

Frame Delay

Start Date:	2022-03 IST	**End Date:**	2022-04 IST
Report Date:	2022-05-11 15:49:29 IST	**Service Type:**	VPLS
Granularity:	Monthly	**Service Name/ID:**	VPLS_16_new
Source Node:	92.168.96.83	**Target Node:**	92.168.96.89

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPLS_16_CFM	216	10429	0	0.0011

18.11 OAM-PM Service Site Summary (NSP) report

18.11.1 Overview

The OAM-PM Service Site Summary (NSP) report differs from the OAM-PM Service Site Summary report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

The report can be run by itself or as a drill-down from an OAM-PM Service Summary (NSP) report. The report shows the aggregate view of the set of sessions on a selected service.

The report includes the following session types:

- ETH-CFM session
- TWAMP-Light session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-19 OAM-PM Service Site Summary (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	MVPLS, VPRN, VPLS, Epipe
Service Name/ID	Search using partial names or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Service Sites	
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day

Table 18-19 OAM-PM Service Site Summary (NSP) report inputs (continued)

Prompt	Notes
Bin Type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Result set limit	Number of results to report
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

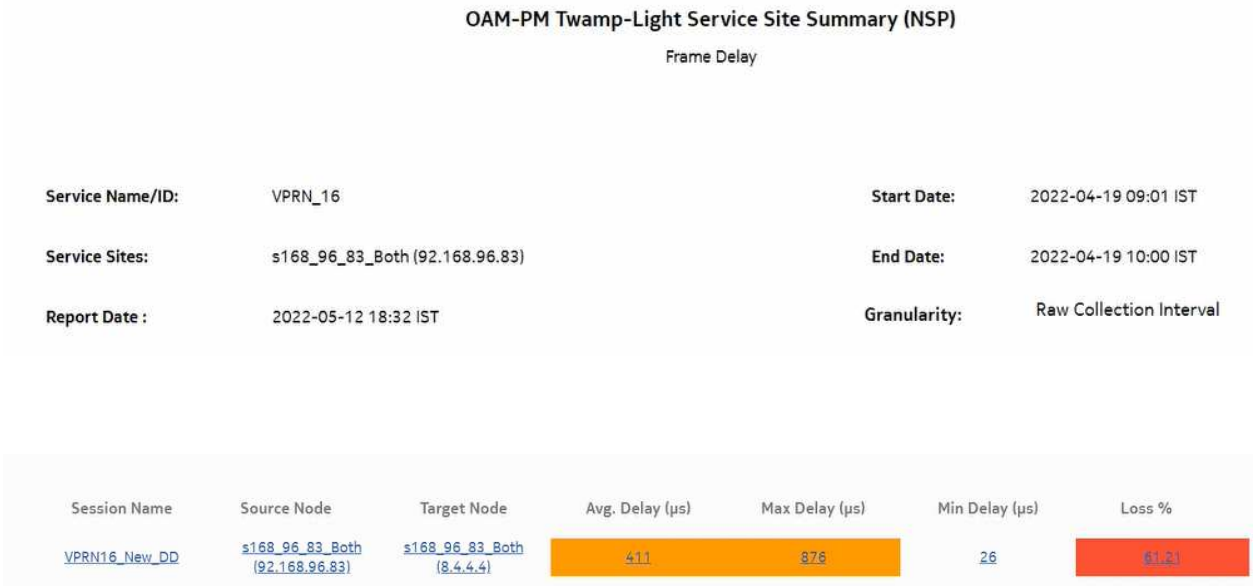
Table 18-20 OAM-PM Service Site Summary (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Opens an OAM-PM Service Site (NSP) report of the selected session type: a view of the results of tests on the site. From an OAM-PM Service Site (NSP) report: • Click on a delay result to show an OAM-PM Latency (NSP) report. • Click on a jitter or loss result to show an OAM-PM Loss (NSP) report.

18.11.2 Examples

The following figures show report examples.

Figure 18-28 OAM-PM Twamp-Light Service Site Summary (NSP) – Frame Delay



OAM-PM Twamp-Light Service Site Summary (NSP)

Frame Delay

Service Name/ID:	VPRN_16	**Start Date:**	2022-04-19 09:01 IST
Service Sites:	s168_96_83_Both (92.168.96.83)	**End Date:**	2022-04-19 10:00 IST
Report Date :	2022-05-12 18:32 IST	**Granularity:**	Raw Collection Interval

Session Name	Source Node	Target Node	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
VPRN16_New_DD	s168_96_83_Both (92.168.96.83)	s168_96_83_Both (8.4.4.4)	411	876	26	61.21

Figure 18-29 OAM-PM Twamp-Light Service Site (NSP) – Frame Delay

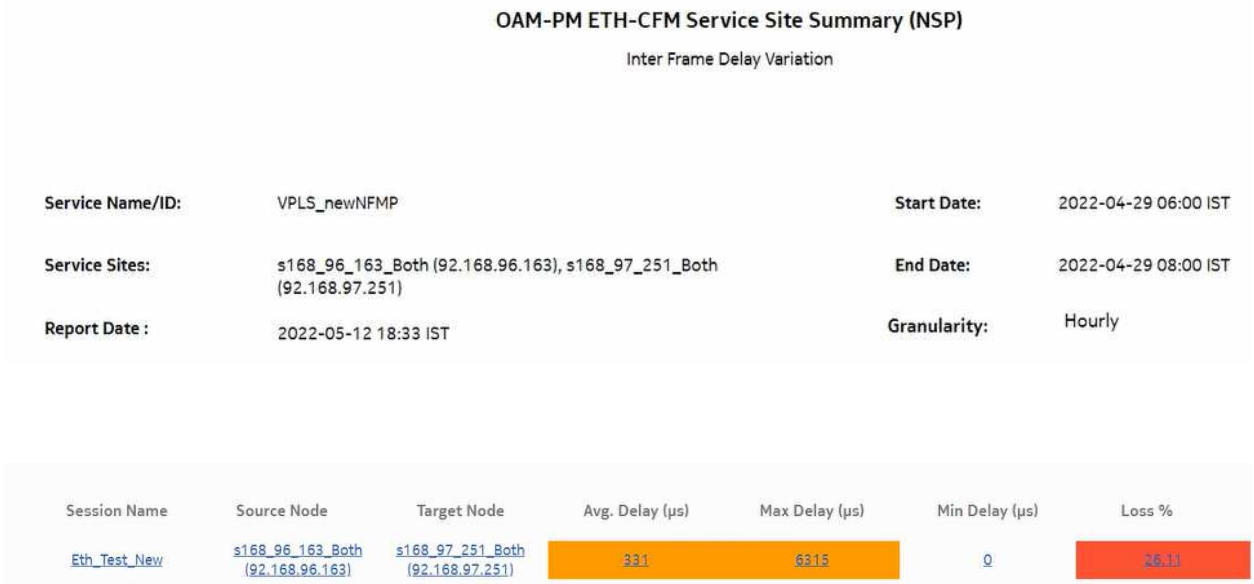
OAM-PM Twamp-Light Service Site (NSP)

Frame Delay

Start Date:	2022-04-19 09:01:00 IST	**End Date:**	2022-04-19 10:00:00 IST
Report Date:	2022-05-12 18:32:54 IST	**Service Type:**	VPRN
Granularity:	Raw Collection Interval	**Service Name/ID:**	VPRN_16
Source Node:	92.168.96.83	**Target Node:**	8.4.4.4

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPRN16_New_DD	411	876	26	61.21

Figure 18-30 OAM-PM ETH-CFM Service Site Summary (NSP) – Inter Frame Delay Variation



18.12 OAM-PM Service Summary (NSP) report

18.12.1 Overview

The OAM-PM Service Summary (NSP) report differs from the OAM-PM Service Summary report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The reports show an aggregated view of session statistics on a specified service over a specified time period, grouped by service ID.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs.

- A TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-21 OAM-PM Service Summary (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	Epipe, VPLS, VPRN, or MVPLS
Service ID Range	Search service ID ranges using hyphens, for example, 1-200. A wildcard (*) displays all service IDs.
Bin Type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Result set limit	Number of results to report
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-22 OAM-PM Service Summary (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Opens an OAM-PM Service Site Summary (NSP) report of the selected session type: an view of the results of tests on the service. From an OAM-PM Service Site Summary, open an OAM-PM Service Site (NSP) report of the selected session type: an view of the results of tests on the site. From an OAM-PM Service Site (NSP) report: • Click on a delay result to show an OAM-PM Latency (NSP) report. • Click on a jitter or loss result to show an OAM-PM Loss (NSP) report.

18.12.2 Example

The following figures show report examples.

Figure 18-31 OAM-PM Twamp-Light Service Summary (NSP)–Frame Delay

OAM-PM Twamp-Light Service Summary (NSP)

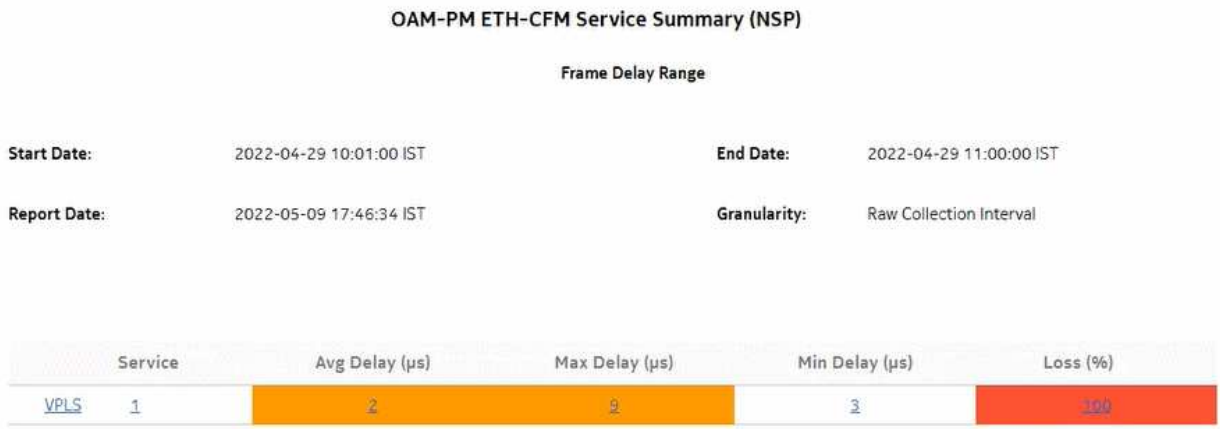
Frame Delay

Start Date: 2022-01 IST **End Date:** 2022-04 IST

Report Date: 2022-05-09 17:46:21 IST **Granularity:** Monthly

	Service	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPRN	3	537	11341	0	0.0017
VPRN	12	372	4532	0	0
VPRN	16	161	10567	100	0.5156
VPRN	20	0	0	0	86.79

Figure 18-32 OAM-PM ETH-CFM Service Summary (NSP)–Frame Delay Range



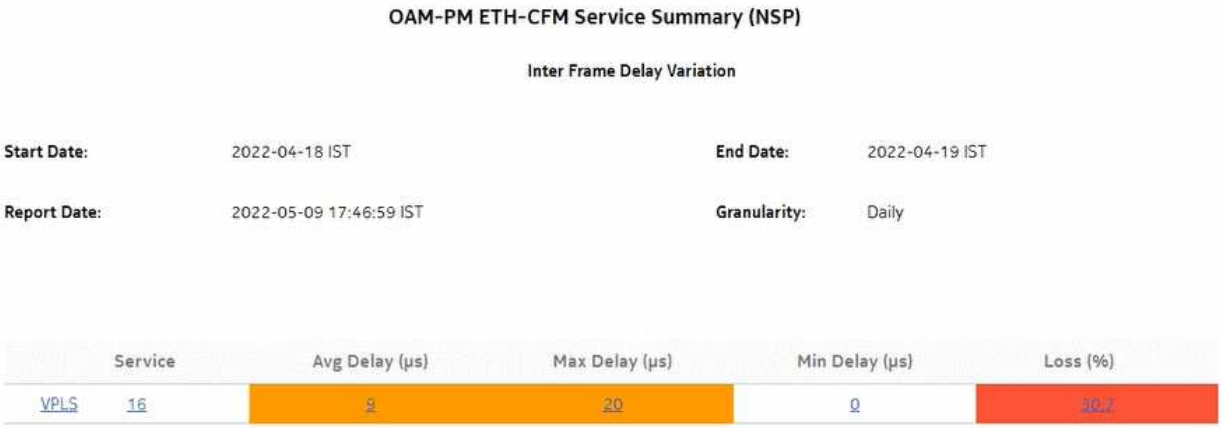
OAM-PM ETH-CFM Service Summary (NSP)

Frame Delay Range

Start Date:	2022-04-29 10:01:00 IST	**End Date:**	2022-04-29 11:00:00 IST
Report Date:	2022-05-09 17:46:34 IST	**Granularity:**	Raw Collection Interval

	Service	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPLS	1	2	9	3	100

Figure 18-33 OAM-PM ETH-CFM Service Summary (NSP)–Inter Frame Delay Variation



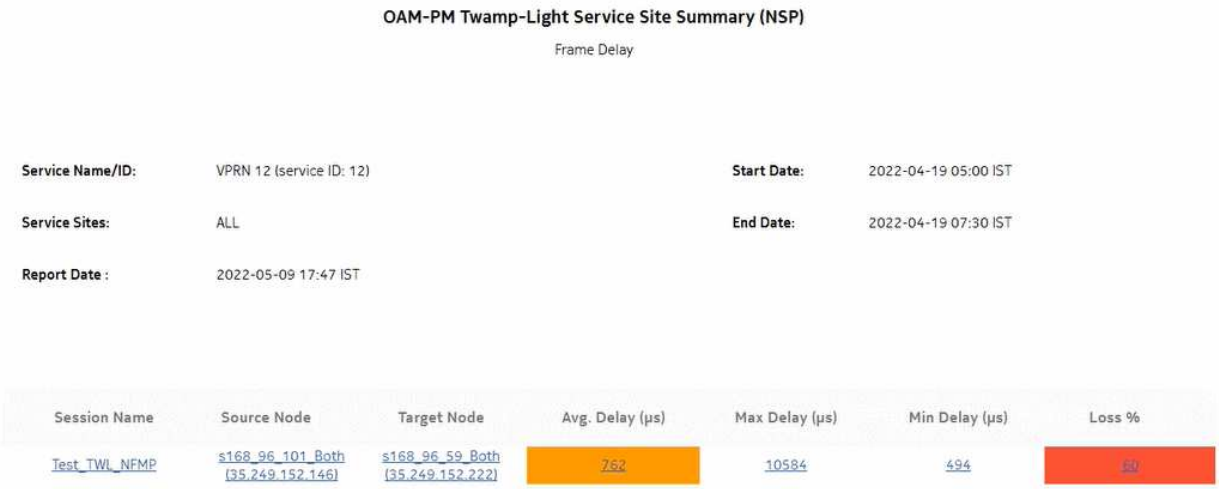
OAM-PM ETH-CFM Service Summary (NSP)

Inter Frame Delay Variation

Start Date:	2022-04-18 IST	**End Date:**	2022-04-19 IST
Report Date:	2022-05-09 17:46:59 IST	**Granularity:**	Daily

	Service	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPLS	16	9	20	0	30.7

Figure 18-34 OAM-PM Twamp-Light Service Site Summary (NSP)–Frame Delay



18.13 OAM-PM Sessions (NSP) report

18.13.1 Overview

The OAM-PM Sessions (NSP) report differs from the OAM-PM Sessions report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report shows the aggregate view of the active sessions on the site using the selected bin group.

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential service impact for a selected bin group.

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-23 OAM-PM Sessions (NSP) report inputs

Prompt	Notes
Bin Group	Bin groups configured in the NSP or NFM-P
Sites	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

18.13.2 Report characteristics

The following table lists the principal report characteristics.

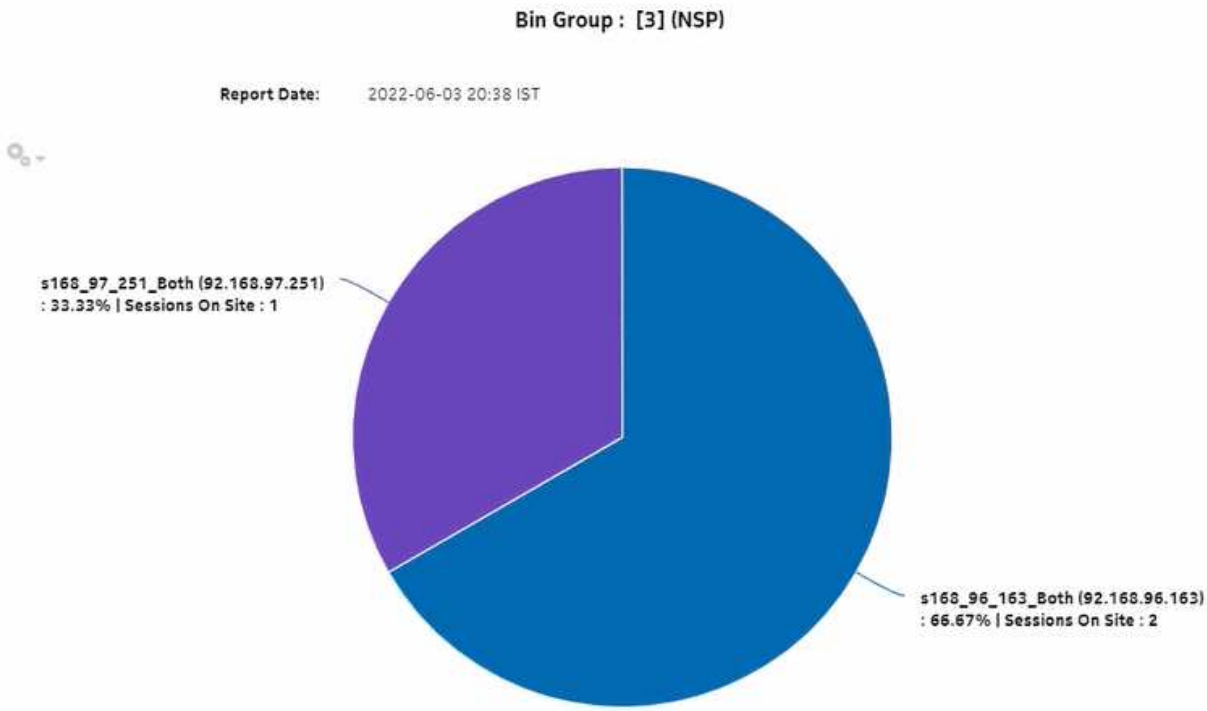
Table 18-24 OAM-PM Sessions (NSP) report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants (support both Classic and MDM modes) all 7950 XRS variants
Drill-down support	Yes: • Click on a bin group in the OAM-PM BinGroups (NSP) report to show an OAM-PM Sessions (NSP) report, showing the distribution of sessions using the bin group. • From an OAM-PM Sessions (NSP) report, click on a session to show an OAM-PM Sessions By Site (NSP) report: an aggregate view of the active sessions on the site using the selected bin group. You can modify report inputs, for example, show sessions with no data.

18.13.3 Example

The following figure shows a report example.

Figure 18-35 OAM-PM Sessions (NSP) report



18.14 OAM-PM Sessions By Site (NSP) report

18.14.1 Overview

The OAM-PM Sessions By Site (NSP) report differs from the OAM-PM Sessions By Site report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report shows the aggregate view of the active sessions on the site using the selected bin group.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential service impact for a selected bin group.

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-25 OAM-PM Sessions By Site (NSP) report inputs

Prompt	Notes
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Bin Group	Bin groups configured in the NSP or NFM-P
Site	Search using partial names or wildcard (%). Select individual items or click **Select All**.
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Bin type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Result set limit	Number of results to report
Show Sessions With No Data	Enable or disable checkbox
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-26 OAM-PM Sessions By Site (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants (support both Classic and MDM modes) all 7950 XRS variants
Drill-down support	Yes: • From an OAM-PM Sessions By Site (NSP) report, click on a delay result to show an OAM-PM Latency (NSP) report. • From an OAM-PM Sessions By Site (NSP) report, click on a jitter or loss result to show an OAM-PM Loss (NSP) report.

18.14.2 Example

The following figures show report examples.

Figure 18-36 OAM-PM Sessions By Site (NSP) – Frame Delay

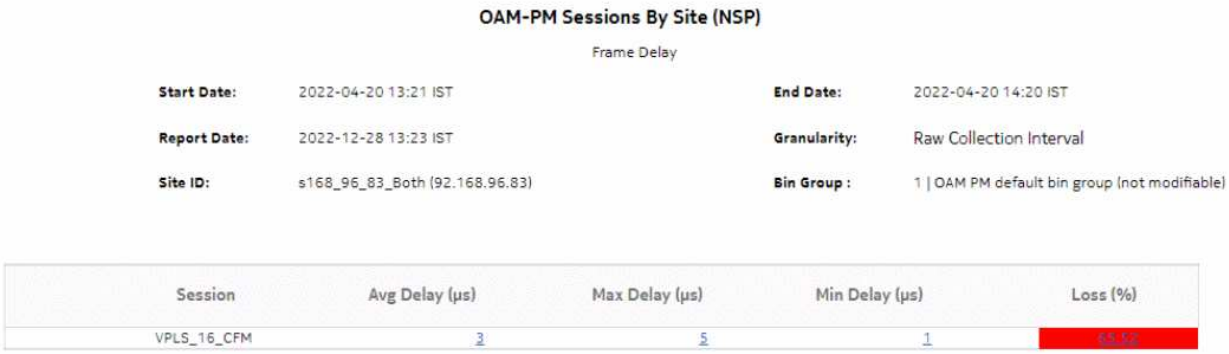


Figure 18-37 OAM-PM Sessions By Site (NSP) – Frame Delay Range

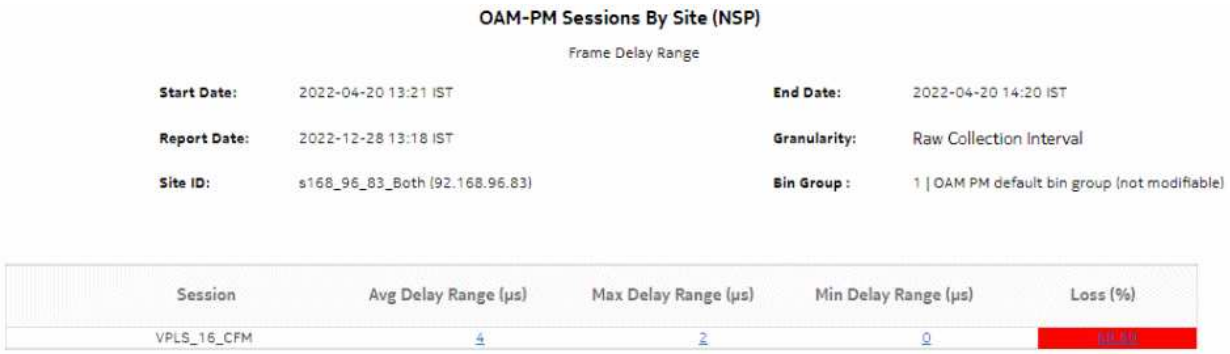
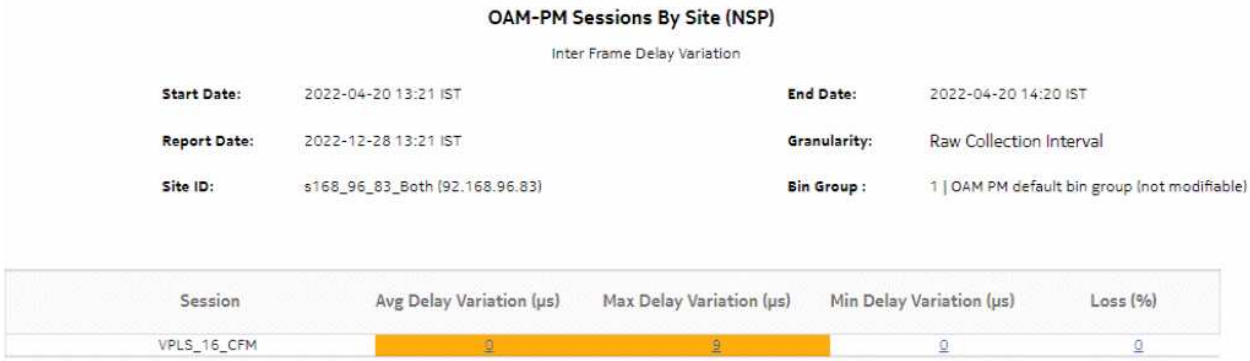


Figure 18-38 OAM-PM Sessions By Site (NSP) – Inter Frame Delay Variation



18.15 OAM-PM Top N Worst Sessions (NSP) report

18.15.1 Overview

The OAM-PM Top N Worst Sessions (NSP) report differs from the OAM-PM Top N Worst Sessions report by including OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report shows the worst case OAM-PM sessions over a specified time period, grouped by session.

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues between specific NEs.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-27 OAM-PM Top N Worst Sessions (NSP) report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click **Select All**. Both the NE name and its IP address display.
Target Node	
Bin Type	• Frame Delay—Average Delay, Maximum Delay, Minimum Delay • Frame Delay Range—Average Delay Range, Maximum Delay Range, Minimum Delay Range • Inter Frame Delay Variation—Average Delay Variation, Maximum Delay Variation, Minimum Delay Variation
Test Factor	
Result set limit	Number of results to report
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 18-27 OAM-PM Top N Worst Sessions (NSP) report inputs (continued)

Prompt	Notes
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-28 OAM-PM Top N Worst Sessions (NSP) report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants (support both Classic and MDM modes) all 7950 XRS variants
Drill-down support	Yes: • Click on a delay result to show an OAM-PM Latency (NSP) report. • Click on a loss result to show an OAM-PM Loss (NSP) report.

18.15.2 Examples

The following figures show report examples.

Figure 18-39 OAM-PM Top N Worst Sessions (NSP)—Frame Delay

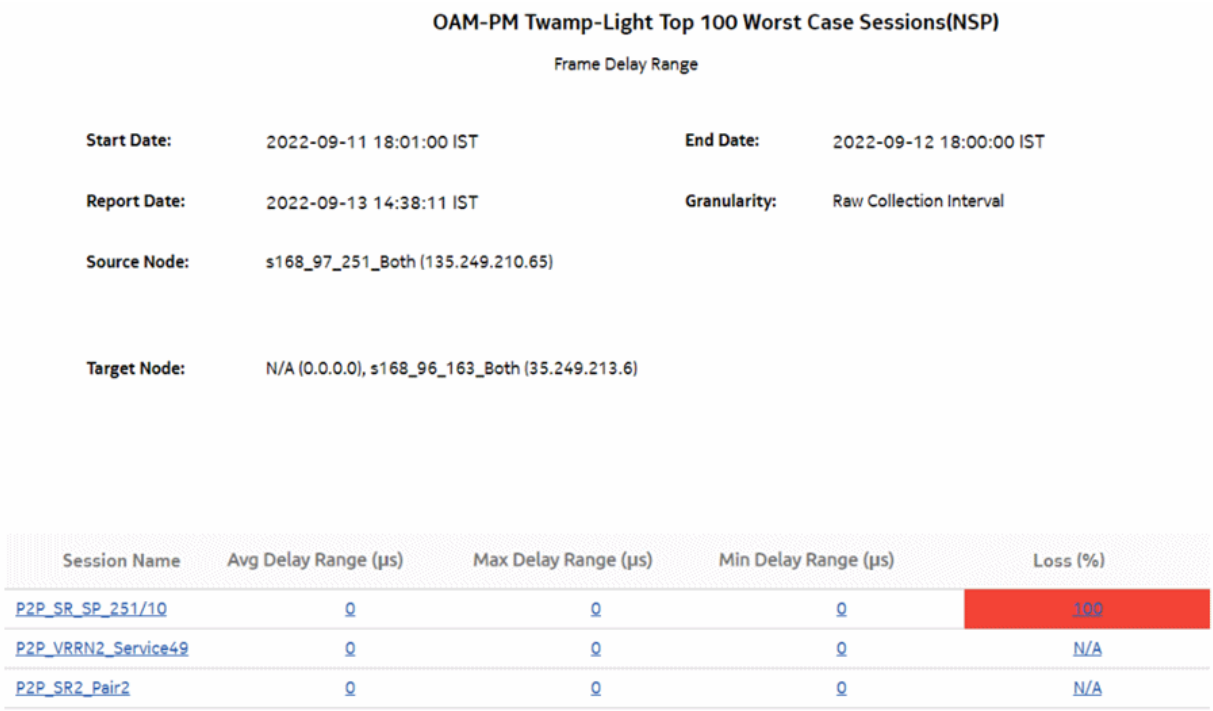
OAM-PM Twamp-Light Top 100 Worst Case Sessions(NSP)

Frame Delay

Start Date:	2022-09-11 18:01:00 IST	**End Date:**	2022-09-12 18:00:00 IST
Report Date:	2022-09-13 14:40:51 IST	**Granularity:**	Raw Collection Interval
Source Node:	s168_97_251_Both (135.249.210.65)		
Target Node:	N/A (0.0.0.0), s168_96_163_Both (35.249.213.6)		

Session Name	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
P2P_SR2_Pair2	0	0	0	N/A
P2P_SR_SP_251/10	0	0	0	100
P2P_VRRN2_Service49	0	0	0	N/A

Figure 18-40 OAM-PM Top N Worst Sessions (NSP)—Frame Delay Range



OAM-PM Twamp-Light Top 100 Worst Case Sessions(NSP)

Frame Delay Range

Start Date:	2022-09-11 18:01:00 IST	**End Date:**	2022-09-12 18:00:00 IST
Report Date:	2022-09-13 14:38:11 IST	**Granularity:**	Raw Collection Interval
Source Node:	s168_97_251_Both (135.249.210.65)		
Target Node:	N/A (0.0.0.0), s168_96_163_Both (35.249.213.6)		

Session Name	Avg Delay Range (µs)	Max Delay Range (µs)	Min Delay Range (µs)	Loss (%)
P2P_SR_SP_251/10	0	0	0	100
P2P_VRRN2_Service49	0	0	0	N/A
P2P_SR2_Pair2	0	0	0	N/A

Figure 18-41 OAM-PM Top N Worst Sessions (NSP)—Inter Frame Delay Variation

OAM-PM Twamp-Light Top 100 Worst Case Sessions(NSP)

Inter Frame Delay Variation

Start Date:	2022-09-11 18:01:00 IST	**End Date:**	2022-09-12 18:00:00 IST
Report Date:	2022-09-13 15:33:08 IST	**Granularity:**	Raw Collection Interval
Source Node:	s168_97_251_Both (135.249.210.65)		
Target Node:	N/A (0.0.0.0), s168_96_163_Both (35.249.213.6)		

Session Name	Avg Delay Variation (µs)	Max Delay Variation (µs)	Min Delay Variation (µs)	Loss (%)
P2P_SR2_Pair2	0	0	0	N/A
P2P_SR_SP_251/10	0	0	0	100
P2P_VRRN2_Service49	0	0	0	N/A

19 NSP utilization reports

19.1 NSP utilization reports overview

19.1.1 General information

NSP utilization reports provide utilization or uptime information at the NE, port, SAP, or LSP level. NSP utilization reports support NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

LAGs are not supported for MDM-only NEs and NFM-P+MDM-mediated NEs except for the Port Throughput Summary (NSP) and Port-LAG Details (NSP) reports.

There is a duplication of data in input controls when the NEs are dual managed.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns to plan for capacity requirements.

Limitations

The utilization graph in forecast reports does not stretch when the forecast in the graph is unselected.

Prerequisites

Note: See “Supported NEs” (p. 737) for information about supported NEs.

- For Classic (NFM-P)-managed NEs, there are two methods for statistics collection; choose one of the following methods:
  - use the traditional NFM-P SNMP MIB statistics or accounting statistics
  - use MDM to collect gRPC statistics. You must include gRPC in your mediation policy in order to use the policy/discovery rule for classic NEs; see the *Device Management Guide*.
- For Model Driven managed NEs, MDM is required to collect gRPC statistics. When MDM is used to collect statistics, persistence must be enabled in the subscription.
- MDM adapters are required based on the NEs that are managed; contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

19.2 Interface Utilization With Forecast (NSP) report

19.2.1 Interface Utilization With Forecast report overview

The Interface Utilization with Forecast (NSP) report includes utilization data for NEs managed by the NFM-P only or by the MDM (model-driven Nokia) only. The report provides forecast utilization data for a single interface. The default display is a set of graphs showing total, ingress, and egress traffic.

To generate a forecast, you must provide at least two seasons of data, although more may be required if the input data is not linear. For example, if you choose a seasonality value of 7 and the granularity is daily, you must use a report range of at least 14 days.

When the forecast algorithm fails, a pop-up message displays with the recommendation that you either lower the seasonality value or increase the report range.

You may consider scheduling the report, as it takes several minutes to generate.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section 1.10 “How do I configure the Analytics session time zone?” (p. 31) for more information about configuring the session time zone.

To view the report for daily and monthly granularities, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 19-1 Interface Utilization with Forecast (NSP) report prerequisites for MDM-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/ingress/packet/octets	Accounting, file and log policies	7750 MD SR
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/egress/packet/octets	Accounting, file and log policies	7750 MD SR
md-aggr:/md-aggr-base/telemetry-mpls-interfaces/mpls-interface	Telemetry Base Interface	telemetry:/base/mpls-interfaces/mpls-interface	Telemetry Statistics	7750 MD SR

Table 19-2 Interface Utilization with Forecast (NSP) report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOc-tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn-gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc-tets	Accounting, file, and log policies	svcEgress Octet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOc-tets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR Hm 7750-SR Omnisystem NEs
GNE Interface Utilization Stats Aggregator	genericne. GenericNeInterface	genericne. InterfaceAdditional-Stats	Performance statistics	ifXEntry	GNE NEs

Note: The report does not support the 7250 IXR, Release 22.0 or later.

Report characteristics

The following table lists the principal report characteristics.

Table 19-3 Interface Utilization with Forecast (NSP) report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	7210 SAS 7250 IXR 7705 SAR 7705 SAR-Hm 7750 SR Omnisystem NEs 7750 MD SR Model-driven NEs
Source database	Auxiliary database
Interface types supported	Access interface Network interface

Table 19-3 Interface Utilization with Forecast (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • Daily • Monthly
	NE Type	Search using partial names or wildcard (%). Select individual items.
	Name or name pattern for NE	
	NE	
	Port Mode	Select Access, Network, or Hybrid Select individual items.
	Name or name pattern for port	Search using partial names or wildcard (%). Select individual items.
	Physical Port or LAG	
	Interface Type	
	Name or name pattern for Interface	
	Interface	
	Forecast Periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Nokia recommends using the Show report output on one page option when creating reports. A high forecast periods per season may impact the time that it takes for the report to load the forecast.

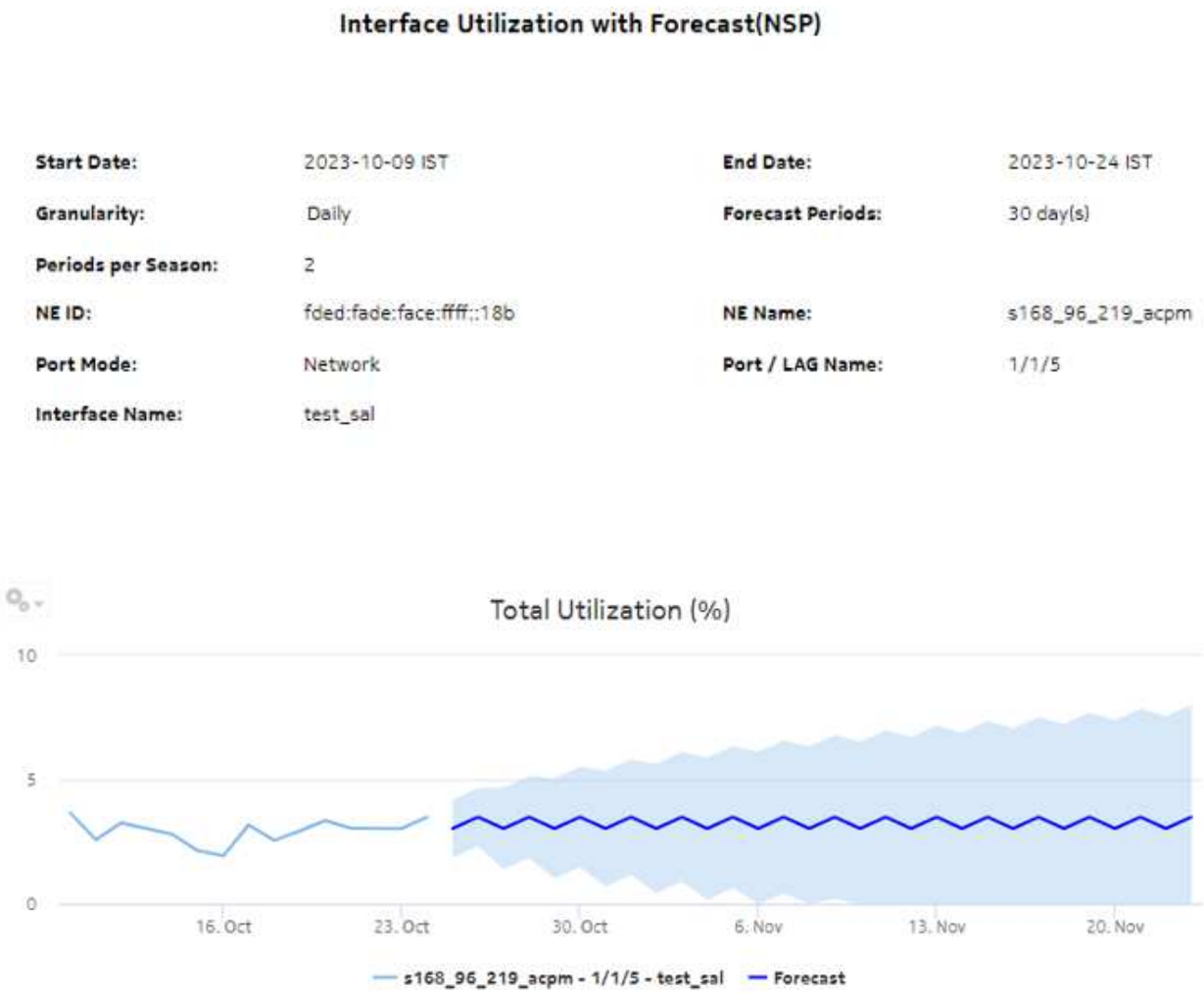
Table 19-3 Interface Utilization with Forecast (NSP) report characteristics (continued)

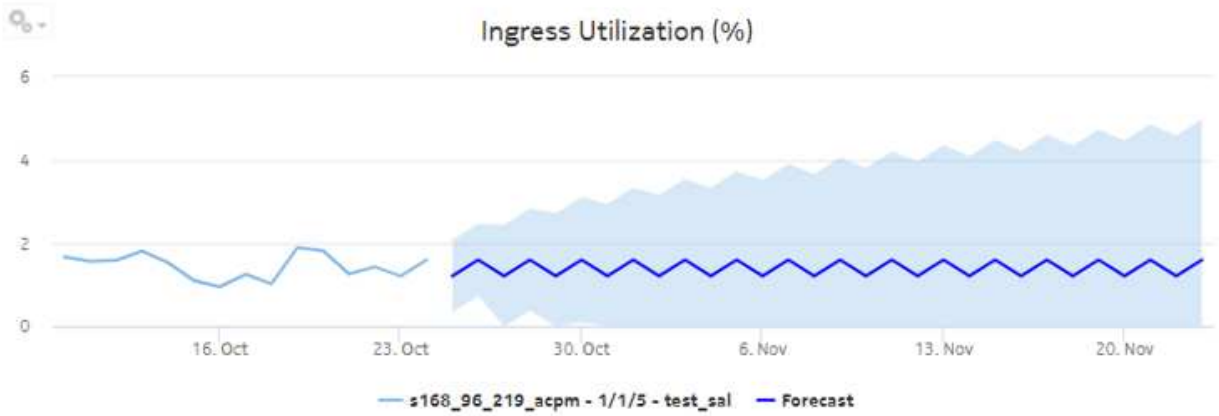
Characteristic	Value
Drill-down support	No

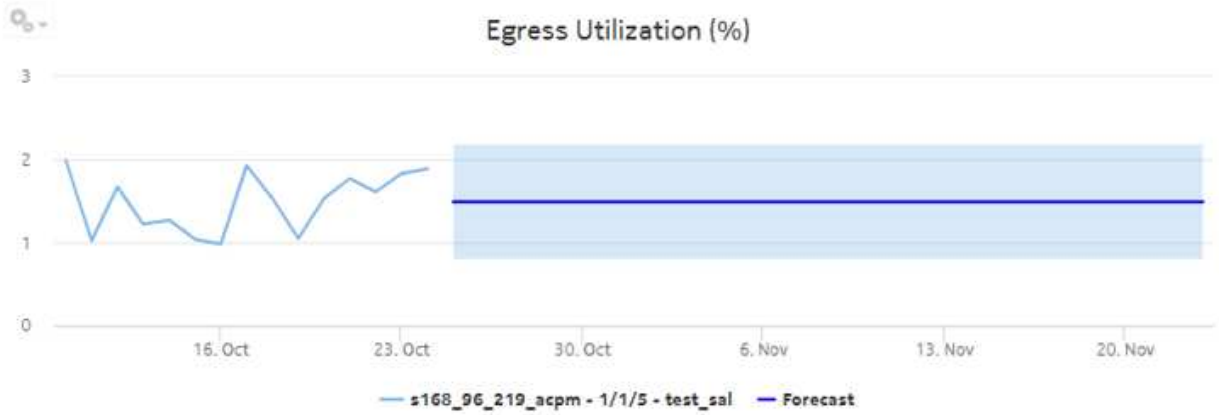
19.2.2 Example

The following figures show report examples.

Figure 19-1 Interface Utilization with Forecast (NSP) report







19.3 Interface Utilization Summary (NSP) report

19.3.1 Interface Utilization Summary (NSP) report overview

The Interface Utilization Summary (NSP) report includes utilization data for NEs managed by the NFM-P only or by the MDM (model-driven Nokia) only. The Interface Utilization Summary report provides a summary of utilization data for a selected group of interfaces.

Note: The Interface Utilization Summary report is based on different statistics from the Interface Overview report. The utilization values shown in the two report types will be different.

The default display is a set of graphs and a table showing ingress and egress speeds and minimum, maximum and average utilization percentages. Utilization results in the table are colored red when utilization reaches or exceeds user-defined thresholds.

Utilization calculation varies by interface type:

- MPLS/Network & Access Interfaces use port speed
- GNE interfaces use genericne.Ifspeed

Limitations

Report limitations include:

- Running the report for all Interface Types or using the Show Report On One Page option may impact report rendering time. Nokia recommends running the report only for the required interface type, and disabling pagination unless required.
- When five or fewer SAPs are selected and the data is available in the database for either ingress or egress (but not both), the legend of other graphs display, but not the plot.
- When the report is exported to the RTF file type, the report may not export or display properly.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Prerequisites

To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 19-4 Interface Utilization Summary (NSP) report prerequisites for MDM-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/ingress/packet/octets	Accounting, file and log policies	7750 MD SR
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/egress/packet/octets	Accounting, file and log policies	7750 MD SR

Table 19-4 Interface Utilization Summary (NSP) report prerequisites for MDM-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-mpls-interfaces/mpls-interface	Telemetry Base Interface	telemetry:/base/mpls-interfaces/mpls-interface	Telemetry statistics	7750 MD SR

Table 19-5 Interface Utilization Summary (NSP) report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIngressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR Hm 7750 SR Omnisystem NEs

Table 19-5 Interface Utilization Summary (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
GNE Interface Utilization Stats Aggregator	genericne. GenericNeInterface	genericne. InterfaceAdditional-Stats **Note:** Only GNE interfaces without multivendor drivers are supported.	Performance statistics	ifXEntry	GNE NEs

Note: The report does not support the 7250 IXR, Release 22.0 or later.

Report characteristics

The following table lists the principal report characteristics.

Table 19-6 Interface Utilization Summary (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Interface types supported	Access interface Network interface

Table 19-6 Interface Utilization Summary (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for NEs	
	NEs	
	Port modes	Select Access, Network, or Hybrid Port and port mode inputs are not required for GNE interfaces. Selecting a GNE in the NE list will automatically display GNE interfaces.
	Name or name pattern for ports	Search using partial names or wildcard (%). Select individual items or click **Select All**. Interfaces whose associated port speed is 0 will not be displayed in the Interfaces input prompt.
	Physical ports or LAGs	
	Interface Type	
	Name or name pattern for interfaces	
	Interfaces	
	Total threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress threshold	
	Egress threshold	
	Logo resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

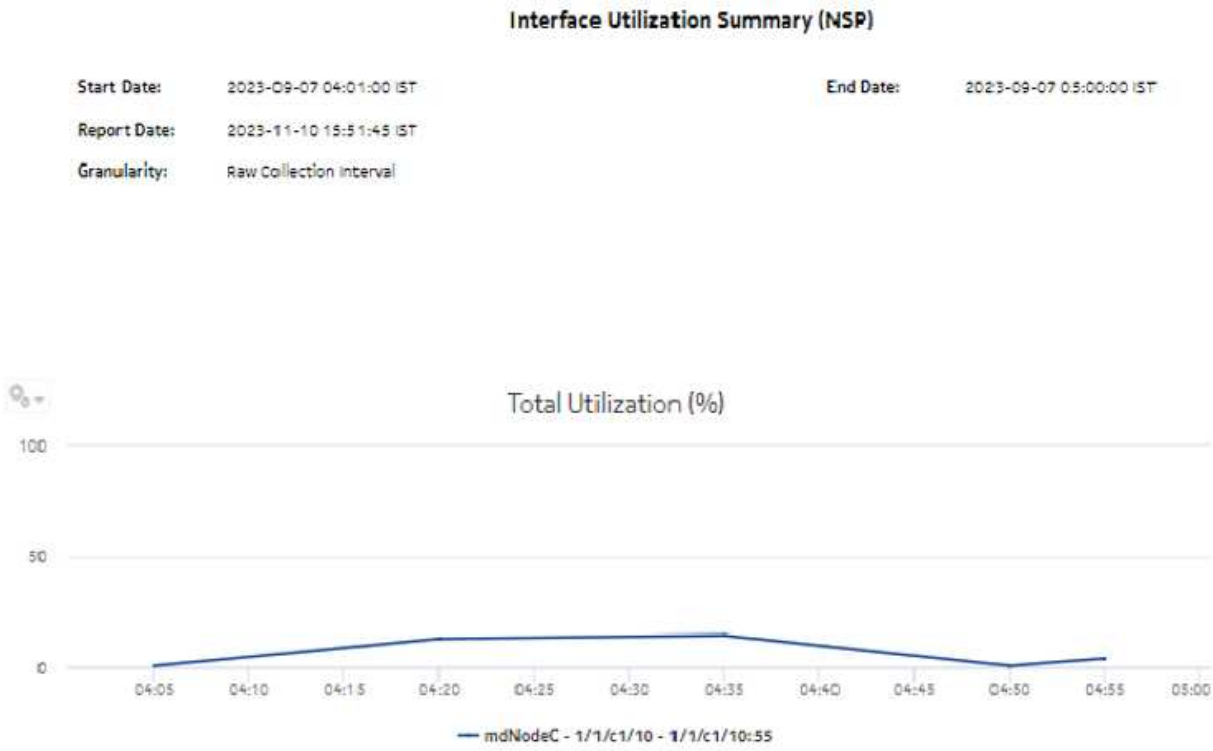
Table 19-6 Interface Utilization Summary (NSP) report characteristics (continued)

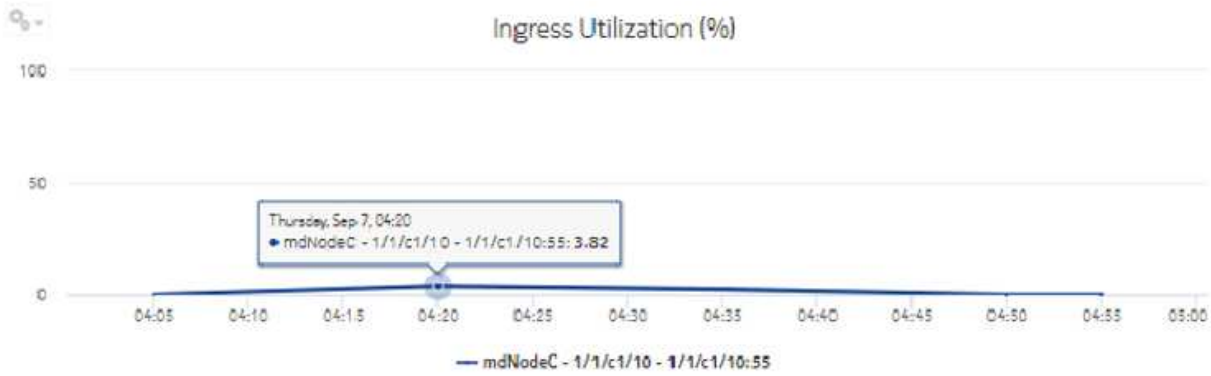
Characteristic	Value
Drill-down support	Yes—Click on an entry in the Interface Name column for a 7750 SR, VSR, 7450 ESS, or 7950 XRS NE interface to launch an Interface Overview report.

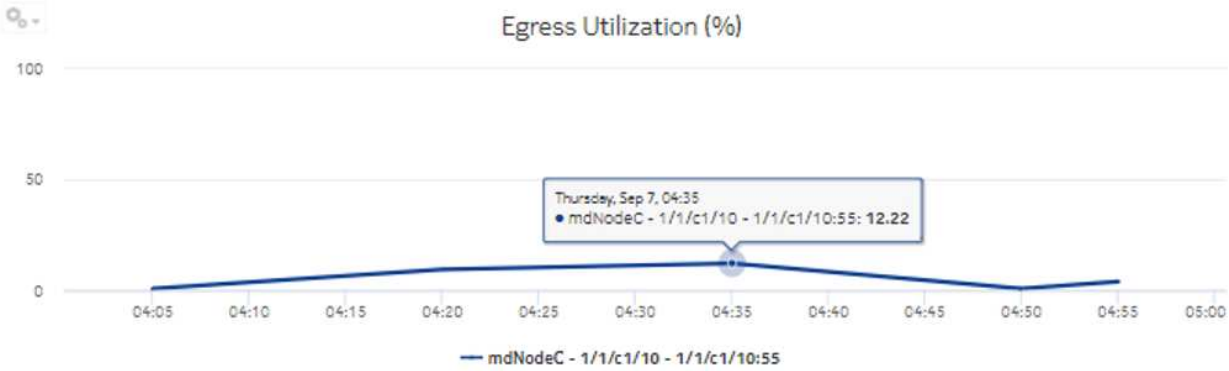
19.3.2 Example

The following figures show a report example.

Figure 19-2 Interface Utilization Summary (NSP) report







Interfaces Over Total Threshold:	N/A
Interfaces Over Ingress Threshold:	N/A
Interfaces Over Egress Threshold:	N/A

Direction	NE Name	NE ID	Port/LAG	Speed (Mbps)	Interface Name	Average Bitrate (bps)	Minimum Utilization (%)	Maximum Utilization (%)	Average Utilization (%)
Total	mdNodeC	92.168.96.26	1/1/c1/10	0.01	1/1/c1/10:55	662.59	0.69	14.63	6.63
Ingress	mdNodeC	92.168.96.26	1/1/c1/10	0.01	1/1/c1/10:55	124.42	0.0	3.82	1.24
Egress	mdNodeC	92.168.96.26	1/1/c1/10	0.01	1/1/c1/10:55	538.17	0.69	12.22	5.38

19.4 LSP Throughput with Forecast (NSP) report

19.4.1 LSP Throughput with Forecast (NSP) report overview

The LSP Throughput with Forecast (NSP) report provides the throughput trend for an LSP. The report can generate a forecast, depending on the granularity; the forecast is generated for daily and monthly granularities. There is no forecast plot for raw and hourly granularities; forecast periods and periods per season are ignored in this case.

Use cases

Capacity planning—Use the report to examine LSP throughput data for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section 1.10 “How do I configure the Analytics session time zone?” (p. 31) for more information about configuring the session time zone.

To configure LSP records collection, perform “Steps to follow to use IETF framework” from the Network Developer Portal, and create LSPs using postman to post the IETF tunnel creation to the server, as shown in the examples provided in IETF framework in the Network Developer Portal.

NEs must be in IPV4 format. The IPV6 format is currently not supported

The following table describes the aggregation rules that must be enabled and the telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

See the *NSP NFM-P Statistics Management Guide* for information about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-7 LSP Throughput with Forecast (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-base-lsps-lsp-egress/telemetry-base-lsps-lsp-egress	lsp	telemetry:/base/lsps/lsp/egress	Telemetry statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled

Table 19-7 LSP Throughput with Forecast (NSP) report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-base-lsps-lsp-egress-path/telemetry-base-lsps-lsp-egress-path	lsp path	telemetry:/base/lsps/lsp/egress/path	Telemetry statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled

The following table describes the LSP Throughput with Forecast (NSP) report prerequisites for NFM-P-managed NEs.

Table 19-8 LSP Throughput with Forecast (NSP) report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
MPLS LSP Egress Aggregator	mpls.DynamicLsp mpls.P2MPDynamicLsp mpls.SegmentRouting-TeLsp	mpls.mplsLspEgress	Performance statistics	TIMETRA- MPLS-MIB.vRtr MplsLsp Statistics Entry	7750 SAR 7750 SR **Note:** 7210 SAS and 7250 IXR are not supported

Report characteristics

The following table lists the principal report characteristics.

Table 19-9 LSP Throughput with Forecast (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
LSP types supported	Dynamic, P2MP Dynamic, SR TE, RSVP

Table 19-9 LSP Throughput with Forecast (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Types	Select individual items.
	Name or name pattern for NE	Search using partial names or wildcard (%). Select individual items.
	NE	Select individual items.
	Name or name pattern for LSP	Search using partial names or wildcard (%). Select individual items.
	LSP	Select individual items. You must enter data for this field.
	Forecast periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 19-9 LSP Throughput with Forecast (NSP) report characteristics (continued)

Characteristic	Value
Drill-down support	No

19.4.2 Example

The following figure shows a report example.

Figure 19-3 LSP Throughput with Forecast report—For LSPs managed by the 7750 MD SR

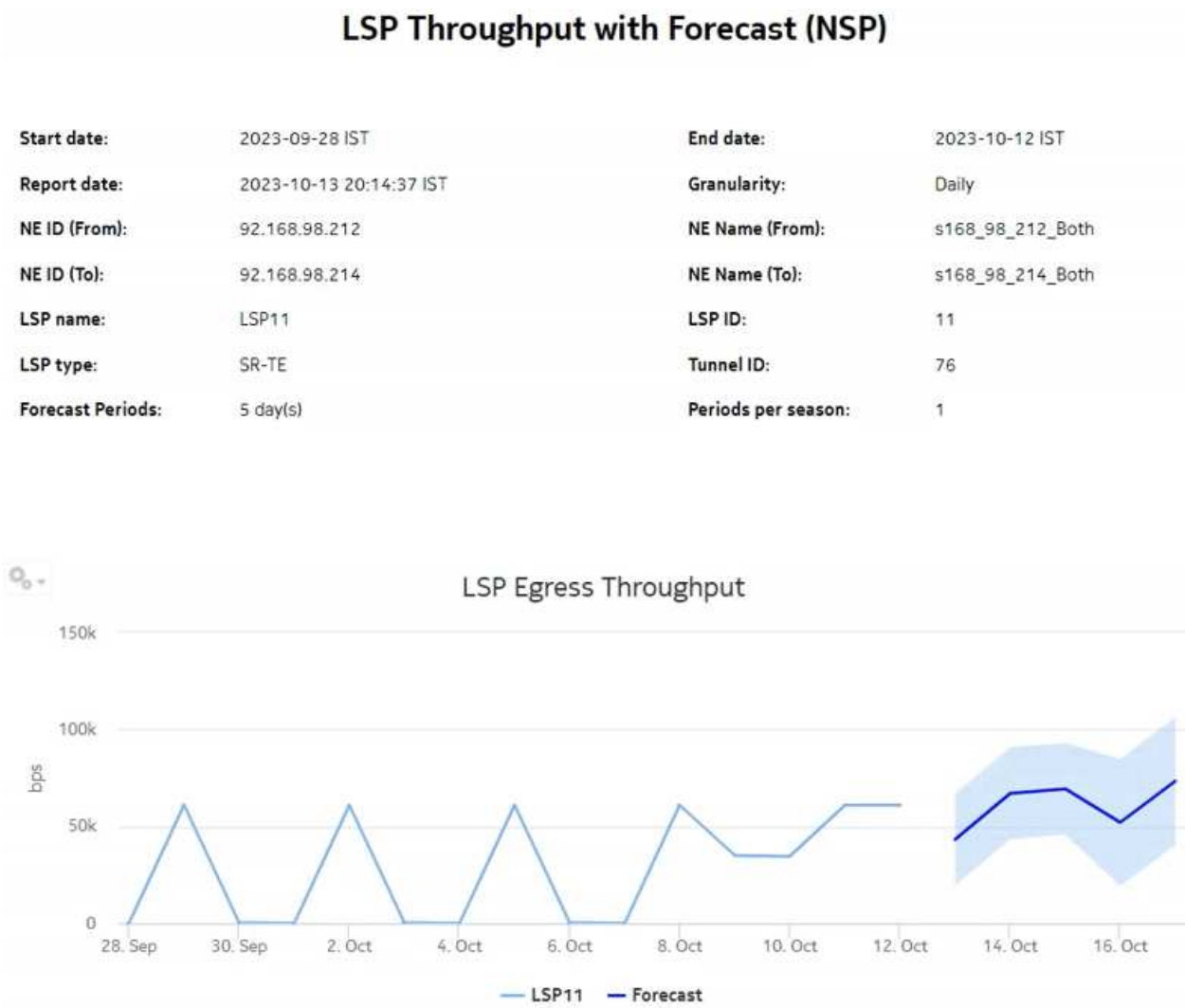
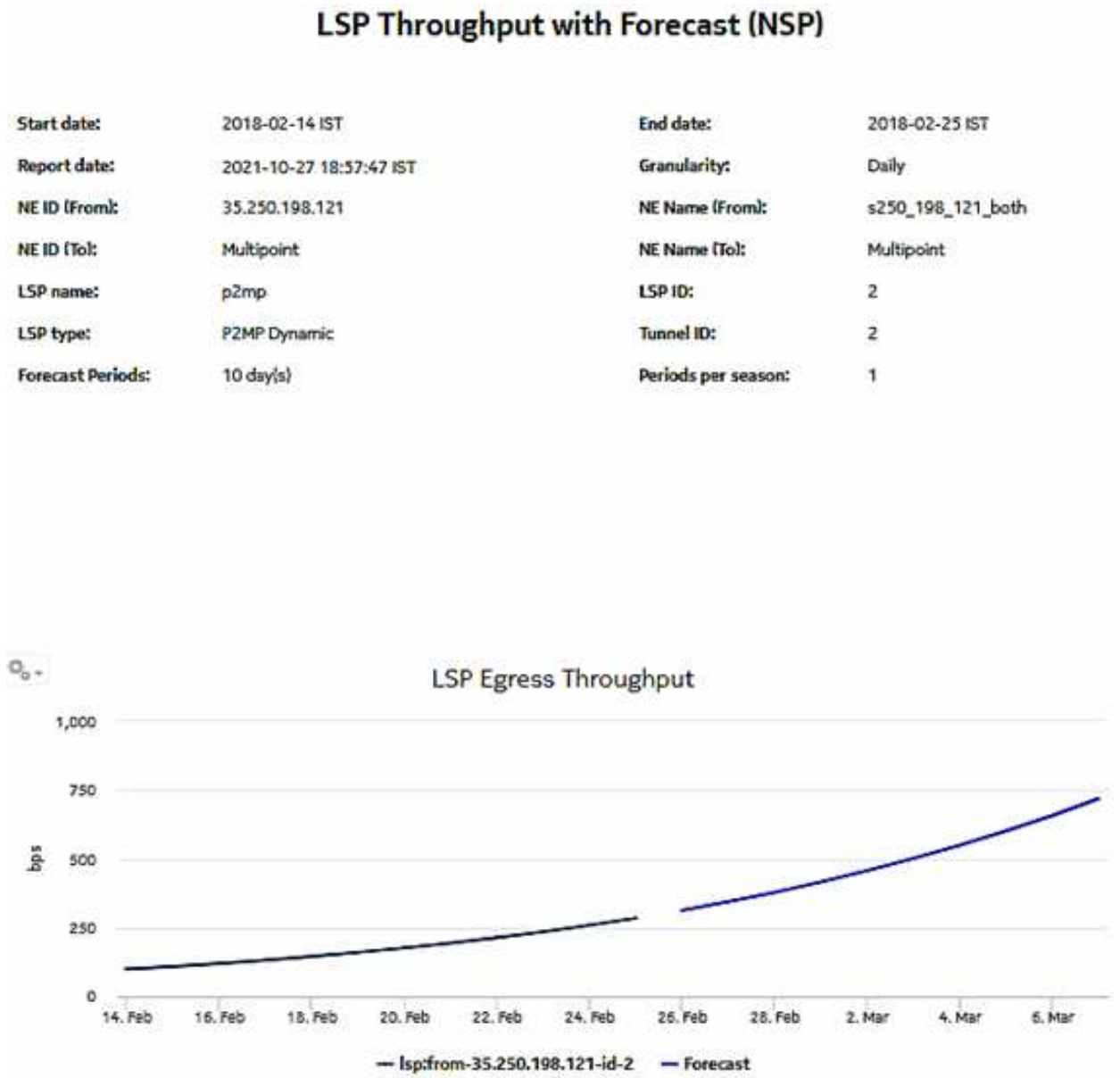


Figure 19-4 LSP Throughput with Forecast report—For LSPs managed by the NFM-P



19.5 Port-LAG Details (NSP) report

19.5.1 Port-LAG Details (NSP) report overview

The Port-LAG Details (NSP) report includes throughput data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The content and format of

the Port-LAG Details (NSP) report vary from the NFM-P-only Port-LAG Details report to accommodate its model-driven approach. For classic+GRPC NEs, the NE IP must be in IPV4 format. The IPV6 format is currently not supported by the report. The Port-LAG Details (NSP) report shows the throughput and utilization by a specified port, LAG, or MC LAG. For classic+gRPC NEs, the report shows the default NFM-P description in the Physical ports or LAGs or MC LAGs report input if there is no description provided in the port. The default display is a set of time series graphs, showing total, ingress, and egress traffic. The report can be run by itself or as a drill-down from a Port Throughput Summary report. The report can also be displayed along with baseline values. See 1.1.5 “Baselining in Analytics reports” (p. 20) for more information about how baselines are defined.

Additionally, the plot or graph shows the actual values at a specified time.

To enable or disable a baseline box plot, click on the baseline item in the graph legend. When you run the report for MC-LAG or LAG, enable only one baseline legend to align the baseline plot with the axis.

Limitations

Report limitations include:

- A duplication of data in the report inputs occurs when the NEs are dual managed.
- When the report is exported to the RTF file type, graphs and tables may not display.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- For the Juniper NE, LAG is not supported.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a port, LAG, or MC LAG basis, to plan for capacity requirements.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see 1.9 “How do I configure analytics aggregation?” (p. 29).

Table 19-10 Port-LAG Details (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Interface Utilization Statistics Aggregator	equipment.PhysicalPort lag.Interface	equipment.InterfaceAdditional-Stats	Performance statistics	ifXEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR

Table 19-10 Port-LAG Details (NSP) report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
PortNet-IngressStats Error Stats Aggregator	equipment. PhysicalPort	equipment. PortNet-IngressStats	Performance statistics	TIMETRA-PORT-MIB. tmnxPortNet-IngressStatsEntry	7705 SAR 7705 SAR-H
PortNetE-gressStats Error Stats Aggregator	equipment. PhysicalPort	equipment. PortNetEgressStats	Performance statistics	TIMETRA-PORT-MIB. tmnxPortNetE-gressStatsEntry	7705 SAR 7705 SAR-H
Dot3Stats Error Stats Aggregator	equipment. PhysicalPort	ethernetequipment. Dot3Stats	Performance statistics	EtherLike-MIB. dot3StatsEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR
Interface Error Stats Aggregator	equipmet. PhysicalPort lag.Interface	equipment. InterfaceStats	Performance statistics	ifEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR
EthernetStats Error Stats Aggregator	equipment. PhysicalPort	ethernetequipment. Ethernet-StatsLogRecord	Performance statistics	etherStatsEntry	7210 SAS 7250 IXR 7705 SAR-Hm 7750 SR
AdditionalEthernet-Stats Error Stats Aggregator	equipment. PhysicalPort	ethernetequipment. AdditionalEthernet-Stats	Performance statistics	tmnxPortEtherEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-Hm 7750 SR
IngressPortF-wdEngDropRea-sonStats Error Stats Aggregator	equipment. PhysicalPort	equipment. IngressPortF-wdEngDropRea-sonStats	Performance statistics	TIMETRA-PORT-MIB. tPortIngressF-wdEngDRStatsEn-try	7250 IXR 7705 SAR-Hm 7750 SR

Table 19-11 Port-Lag Details (NSP) report prerequisites for MD NE

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/ complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/ingress/packet/ octets	Accounting, file and log policies	7750 MD SR Classic NE with gRPC telemetry collection enabled
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/ complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/egress/packet/ octets	Accounting, file and log policies	7750 MD SR Classic NE with gRPC telemetry collection enabled

Table 19-11 Port-Lag Details (NSP) report prerequisites for MD NE (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-interfaces/interface	Telemetry Base Interface	telemetry:/base/interfaces/interface	Telemetry Statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)
md-aggr:/md-aggr-base/telemetry-interfaces/interface-errors	Telemetry Base Interface errors	telemetry:/base/interfaces/interface/errors	Telemetry Statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

Report characteristics

The following table lists the principal report characteristics.

Table 19-12 Port-LAG Details (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 19-12 Port-LAG Details (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items.
	Node Name (or Node Name Pattern)	
	Nodes	
	Port Modes	Select Access, Network, or Hybrid. Select individual items or click **Select All**.
	Port-LAG/MC LAG	Select one radio button
	Port Name (or Port Name Pattern)	Select Access, Network, or Hybrid. Select individual items.
	Physical Ports / LAGs / MC LAGs	
	Enable Baseline	Select the check box to include baseline data in the report.
	Baseline End Date	Calendar date or relative date (for example, two days ago) and time
	Baseline Report Range	Length of time to calculate the baseline, in minutes, hours, days, or months. A longer baseline range will improve baseline accuracy.
	Baseline Definition	Select a definition to calculate the baseline. For example, “hour of day” means that current data is compared against the baseline calculated from the historical data from the same hour within the baseline time frame.
	Baseline NEs	Select one NE to use as an example for baseline data

Table 19-12 Port-LAG Details (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	Baseline port mode	Select Access, Network, or Hybrid. Select individual items or click **Select All**.
	Name or name pattern for baseline ports	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Baseline port or LAG or MC-LAG	Select a baseline port, LAG, or MC-LAG.
	Total Threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

19.5.2 Example

The following figures show a report example.

Figure 19-5 Port-LAG Details report (NSP) with baseline

Port-LAG Details (NSP)

Start Date:	2023-10-11 14:01:00 IST	**End Date:**	2023-10-11 15:00:00 IST
Report Date:	2023-10-14 13:00:33 IST	**Granularity:**	Raw Collection Interval
NE ID:	fded:fade:face:ffff::18b	**NE Name:**	s168_96_219_acpm
Port Name:	1/2/1	**Port Mode:**	Network
Baseline Start Date:	2023-09-11 00:00:00 IST	**Baseline End Date:**	2023-10-11 15:00:00 IST
Baseline Definition:	Raw + Hour of Day		
Baseline NE ID:	fded:fade:face:ffff::18b	**Baseline NE Name:**	s168_96_219_acpm
Baseline Port Name:	1/2/1	**Baseline Port Mode:**	Network

Figure 19-6 Port-LAG Details report (NSP) with baseline—Total Traffic Bitrate

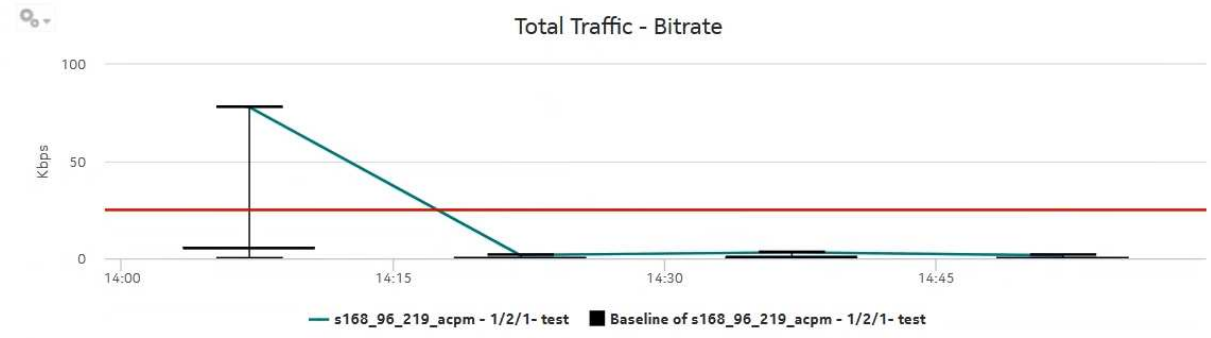


Figure 19-7 Port-LAG Details report (NSP) with baseline—Total Traffic Utilization

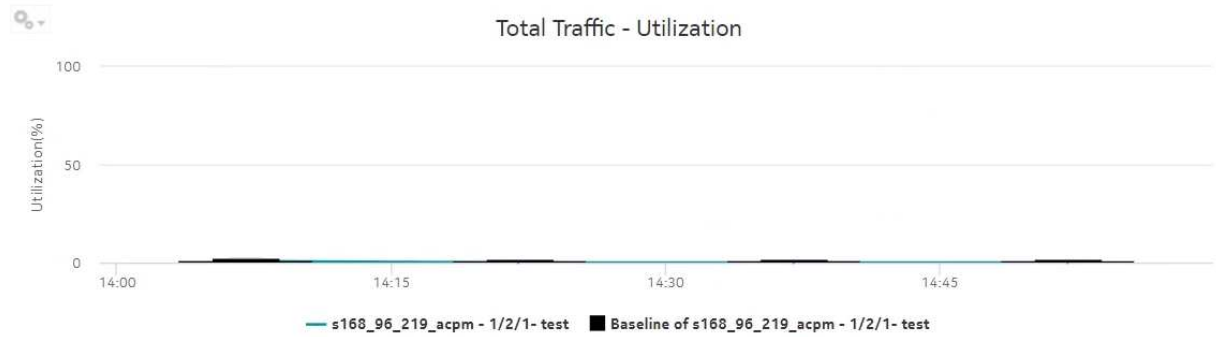


Figure 19-8 Port-LAG Details report (NSP) with baseline—Ingress Traffic Bitrate

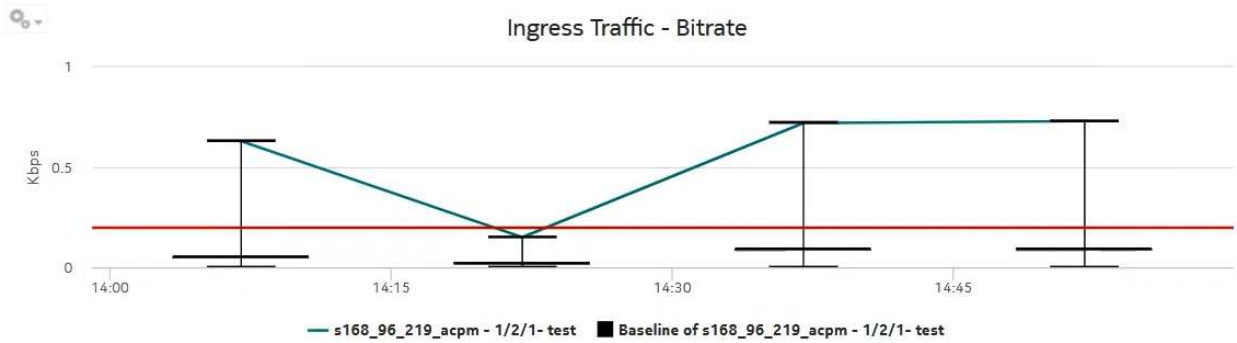
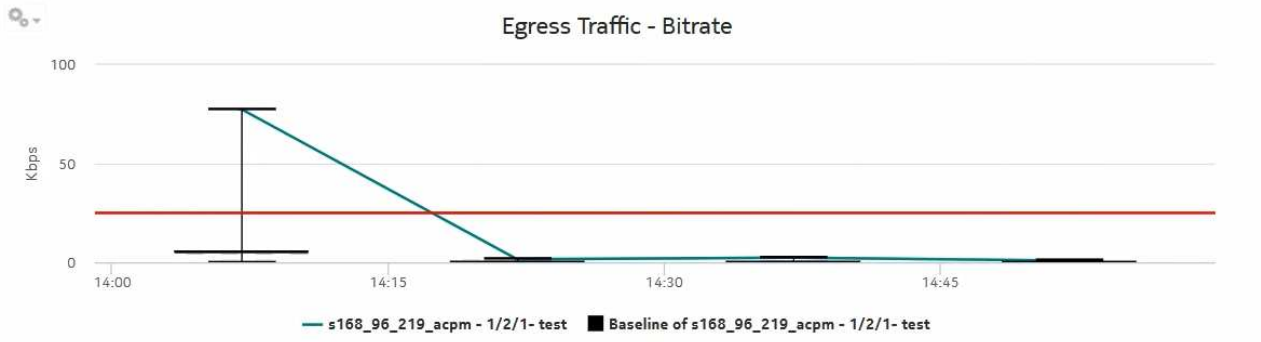


Figure 19-9 Port-LAG Details report (NSP) with baseline—Egress Traffic Bitrate



19.6 Port Throughput Summary (NSP) report

19.6.1 Port Throughput Summary (NSP) report overview

The Port Throughput Summary (NSP) report differs from the Port Throughput Summary report by including throughput data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The content and format of the Port Throughput Summary (NSP) report vary from the NFM-P-only Port Throughput Summary report to accommodate its model-driven approach.

For classic+GRPC NEs, the NE IP must be in IPV4 format. The IPV6 format is currently not supported by the report.

The port mode may show its value as Unknown for multivendor NEs because it is specific to Nokia.

The Port Throughput Summary (NSP) report shows bandwidth utilization by specified ports for selected NFM-P and MDM-mediated NEs. The report contents and format vary from the NFM-P-only Port Throughput Summary report to accommodate the model-driven approach. The report can display a set of time series graphs, showing total, ingress, and egress.

The top five ports with the highest throughputs are shown in the report plots.

The summary table shows the minimum, average, and maximum throughput values and the average utilization, along with percentiles, for all the ports selected. The summary table displays the ports in descending order of average total throughput. The report also shows information such as the total count of errors of all types for the port.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the data is shown in the table.

The values entered in the ingress, egress, and total threshold input prompts are compared with the average of ingress, egress, or total values and accordingly the records or rows in the table are highlighted. The highlighted rows (that is, the average values) are populated in the three rows above the table.

Additionally, the plot or graph shows the actual values at a specified time.

You must apply unique descriptions to classic NEs with gPRC when they are discovered in the NFM-P and SDN; otherwise, they are displayed as duplicates in the 'Physical ports or LAGs or MC LAGs' report input options.

Limitations

Report limitations include:

- The report is not available as an RTF file.
- For the Juniper NE, LAG is not supported.

Prerequisites

You must configure SAP on an access port. When an access port is not configured with SAP, the drill-down from Port Throughput to Service Utilization per Port Details does not generate a report and shows a warning in the input prompts.

The following table describes the aggregation rules that must be enabled and the telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

See the *NSP NFM-P Statistics Management Guide* for information about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-13 Port Throughput Summary (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-interfaces/interface	equipment.PhysicalPort	telemetry:/base/interfaces/interface	GNMI/GRPC-based performance statistics	All 7250 IXR variants 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)
md-aggr:/md-aggr-base/telemetry-interfaces/interface-errors	Telemetry Base Interface errors	telemetry:/base/interfaces/interface/errors	Telemetry statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

The following table describes the Port Throughput Summary (NSP) report prerequisites for NFM-P-managed NEs.

Table 19-14 Port Throughput Summary (NSP) report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	MIB name	Statistics class	Statistics collection	NE types
Interface Utilization Statistics Aggregator	equipment.PhysicalPort lag.Interface	ifXEntry	equipment.InterfaceAdditional-Stats	Performance statistics	7210-SAS All 7250 IXR variants 7705 SAR 7750-SR

Table 19-14 Port Throughput Summary (NSP) report prerequisites for NFM-P-managed NEs (continued)

Aggregator name	Monitored object class	MIB name	Statistics class	Statistics collection	NE types
PortNet-IngressStats Error Stats Aggregator	equipment.PhysicalPort	TIMETRA-PORT-MIB.tmnxPortNetIngressStatsEntry	equipment.PortNet-IngressStats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR 7750 SR
PortNetE-gressStats Error Stats Aggregator	equipment.PhysicalPort	TIMETRA-PORT-MIB.tmnxPortNetEgressStatsEntry	equipment.PortNetEgressStats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR 7750 SR
Dot3Stats Error Stats Aggregator	equipment.PhysicalPort	EtherLike-MIB.dot3StatsEntry ifEntry RMON-MIB.etherStatsEntry	equipment.InterfaceStats ethernetequipment.EthernetStats ethernetequipment.Dot3Stats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR 7750 SR
IngressPortF-wdEngDropRea-sonStats Error Stats Aggregator	equipment.PhysicalPort	TIMETRA-PORT-MIB.tPortIngressFwdEngDRStatsEntry	equipment.IngressPortF-wdEngDropRea-sonStats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR Hm 7750 SR

Report characteristics

The following table lists the principal report characteristics.

Table 19-15 Port Throughput Summary (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 19-15 Port Throughput Summary (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Types	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Name or name pattern for NEs	
	NEs	
	Port modes	Select Access, Network, or Hybrid. Select individual items or click **Select All**.
	Port-LAG or MC LAG	Select one radio button
	Name or name pattern for ports	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Physical ports or LAGs or MC LAGs	
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Total Threshold	
	Average total utilization threshold	—
	Average ingress utilization threshold	
	Average egress utilization threshold	
	Percentile	Identify a percentile of interest between 1 and 99.

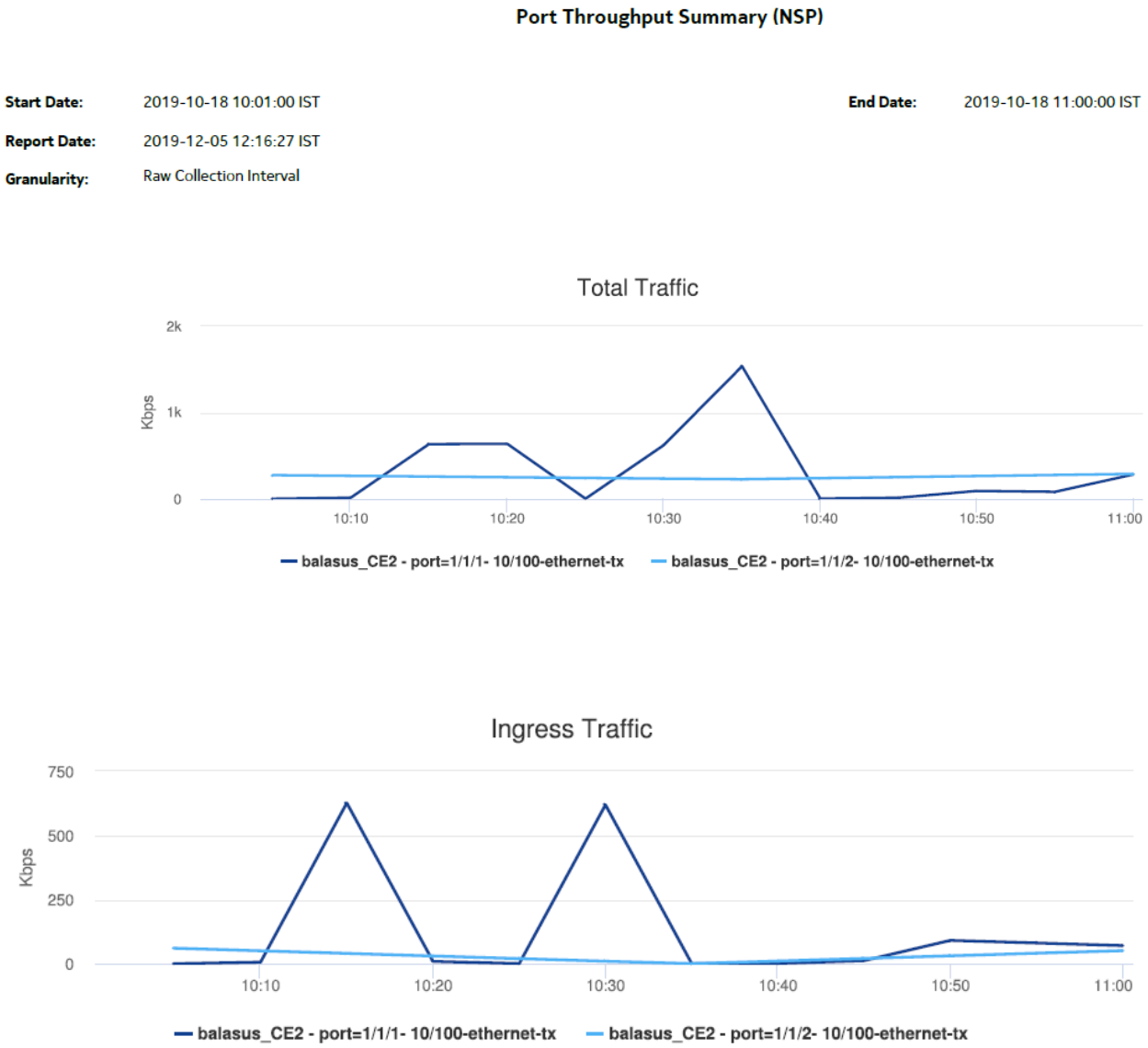
Table 19-15 Port Throughput Summary (NSP) report characteristics (continued)

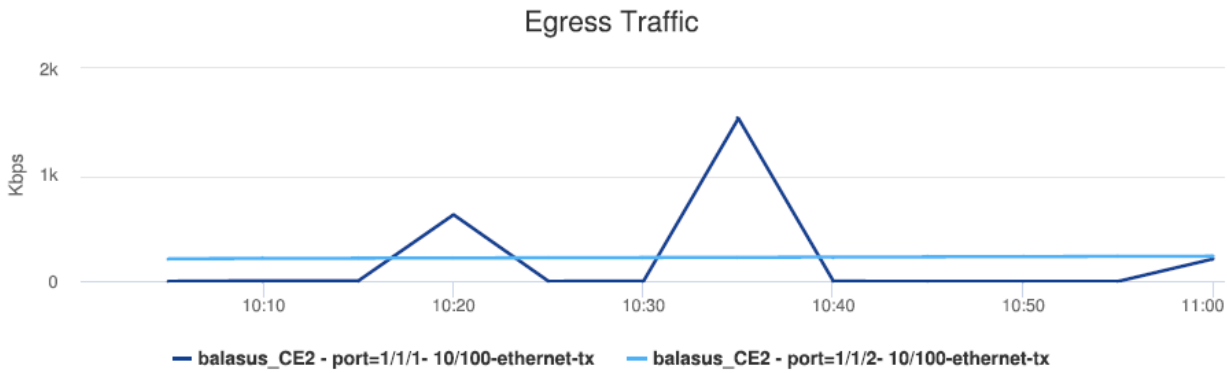
Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes: • Click on an entry in the Port/LAG column to open the Port/LAG Details report for the selected port or LAG. • Click on an entry in the Average Utilization (%) column to open the Service Utilization per Port Details report for the selected port. • Click on an entry in the Minimum column to open the Port Forwarding Class Details for the selected port or LAG. **Note:** You can drill down on an NFM-P managed port but the hyperlink is disabled for MDM-managed ports.	

19.6.2 Example

The following figures show report examples.

Figure 19-10 Port Throughput Summary (NSP) report





Ports Over Total Threshold:	N/A	Ports Over Total Utilization Threshold:	N/A
Ports Over Ingress Threshold:	N/A	Ports Over Ingress Utilization Threshold:	N/A
Ports Over Egress Threshold:	N/A	Ports Over Egress Utilization Threshold:	N/A

Direction	NE Name	NE ID	Port/LAG	Port Speed (Mbps)	Port Mode	Description	Minimum (Kbps)	Average (Kbps)	Maximum (Kbps)	95 PCTL (Kbps)	Average Utilization(%)	#Errors	Maximum (Time)	Max Count
Total	balasus_CE2	92.168.96.103	Port 1/1/1	1000.0	Unknown	10/100-ethernet-tx	0.19	325.78	1535.12	1041.01	0.03	0	10-18-2019 10:35 IST	1
Ingress	balasus_CE2	92.168.96.103	Port 1/1/1	1000.0	Unknown	10/100-ethernet-tx	0.09	126.69	627.35	623.34	0.01	0	10-18-2019 10:15 IST	1
Egress	balasus_CE2	92.168.96.103	Port 1/1/1	1000.0	Unknown	10/100-ethernet-tx	0.02	199.08	1534.49	1035.7	0.02	0	10-18-2019 10:35 IST	1
Total	balasus_CE2	92.168.96.103	Port 1/1/2	1000.0	Unknown	10/100-ethernet-tx	226.45	255.49	288.08	281.3	0.03	0	10-18-2019 11:00 IST	1
Ingress	balasus_CE2	92.168.96.103	Port 1/1/2	1000.0	Unknown	10/100-ethernet-tx	0.38	30.5	60.61	55.44	0.0	0	10-18-2019 10:05 IST	1
Egress	balasus_CE2	92.168.96.103	Port 1/1/2	1000.0	Unknown	10/100-ethernet-tx	213.12	224.99	236.86	235.67	0.02	0	10-18-2019 11:00 IST	1

19.7 Resource Group Utilization Detail with Forecast (NSP) report

19.7.1 Resource Group Utilization Detail with Forecast (NSP) report overview

The Resource Group Utilization Detail with Forecast (NSP) report includes utilization data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The report shows forecast support for utilization and throughput. Forecasts are available for daily or monthly granularities. The report displays a set of time series graphs or tables for Rx and Tx throughput, Rx and Tx utilization, Rx and Tx throughput with forecast, and Rx and Tx utilization with forecast.

There must be data in the data dictionary tables in order to generate the Resource Group Utilization Detail with Forecast (NSP) report. Otherwise, an error occurs when executing the SQL statement for the report; see /opt/nsp/analytics/log/analytics.server.log for more information.

Use cases

Capacity planning—Use the report to examine resource group utilization patterns to plan for capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- For the Juniper NE, LAG is not supported.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*. For the report prerequisites for NFM-P-managed NEs, see Table 14-43, “ Temperature, CPU, Memory Utilization Summary report prerequisites” (p. 630).

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-16 Resource Group Utilization Detail with Forecast (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base-interfaces-interface	Telemetry Base Interface	telemetry:/base/interfaces/interface	Telemetry statistics	All 7250 IXR variants 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

Table 19-17 Resource Group Utilization Detail with Forecast (NSP) report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Interface Utilization Statistics Aggregator	equipment.PhysicalPort lag.Interface	equipment.InterfaceAdditional-Stats	Performance statistics	ifXEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR 9500 MPR-A Chassis 1 9500 MPR-A Chassis 4 9500 MPR-A Chassis 8 9500 MPR-E Chassis 1 9500 MPR-E Chassis 4 9500 MPR-E Chassis 8 9500 MSS-1c 9500 MSS-O ANSI 9500 MSS-O ETSI 9500 SA Wavence UBT-SA Wavence UBT-I Wavence MSS-1 Wavence MSS-1c Wavence MSS-4 Wavence MSS-8 Wavence MSS-E Wavence MSS-HE Wavence MSS-XE Wavence MSS-O Wavence SA

Report characteristics

The following table lists the principal report characteristics.

Table 19-18 Resource Group Utilization Detail with Forecast (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 19-18 Resource Group Utilization Detail with Forecast (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	Start date End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Resource Groups	Port and LAG resource groups as created in the Maps Layouts and Groups, Map Layout view.
	Average utilization threshold	—
	Maximum utilization threshold	—
	Forecast periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	KPI	Rx Throughput Tx Throughput Rx Utilization Tx Utilization
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

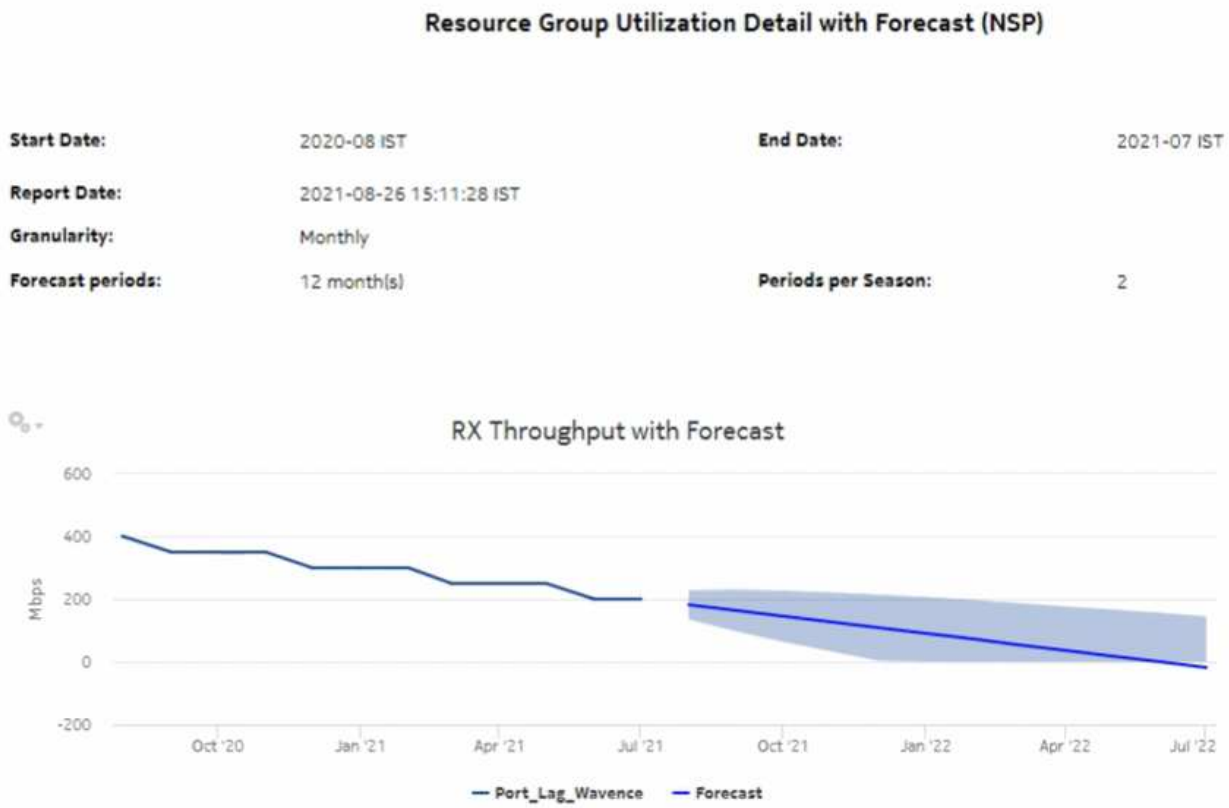
Table 19-18 Resource Group Utilization Detail with Forecast (NSP) report characteristics (continued)

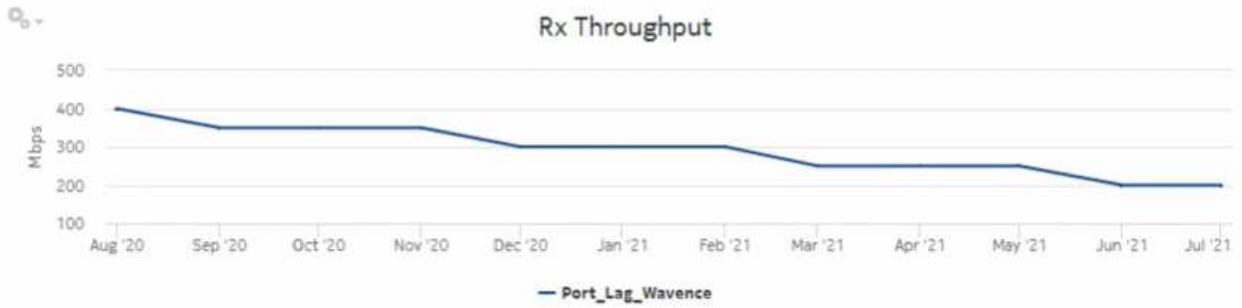
Characteristic	Value
Drill-down support	Yes—Drills down to the Resource Group Utilization Summary (NSP) report.

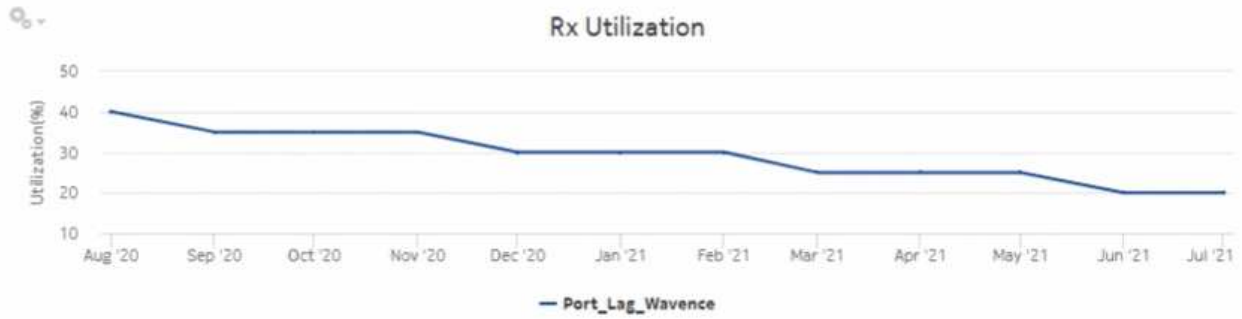
19.7.2 Example

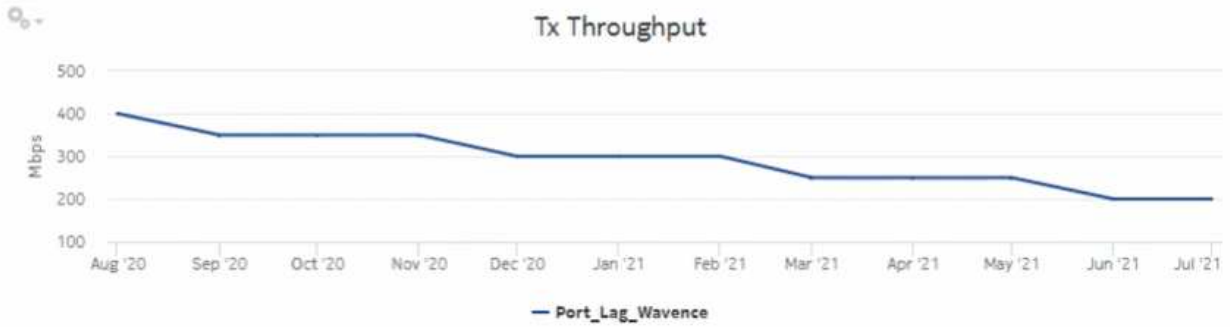
The following figures show a report example.

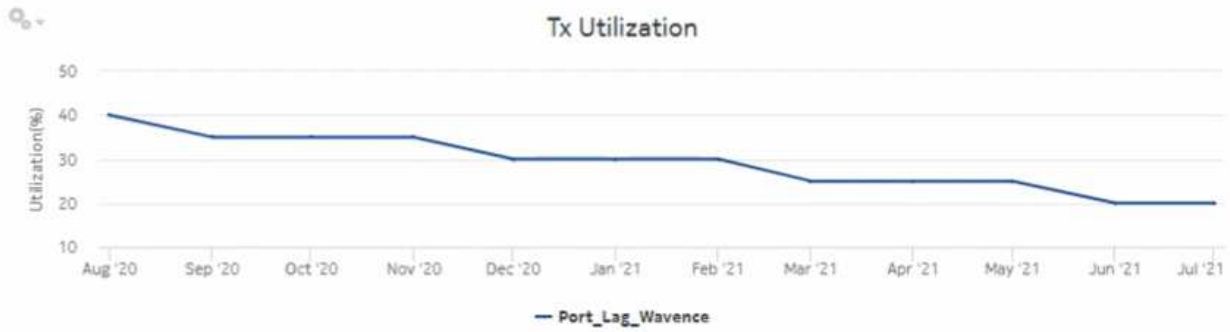
Figure 19-11 Resource Group Utilization Detail with Forecast (NSP) report











NE Name	NE ID	Port/LAG	Speed (Mbps)	Mode	Description	Avg Rx Throughput (Mbps)	Min Rx Throughput (Mbps)	Max Rx Throughput (Mbps)	Avg Rx Utilization (%)	Min Rx Utilization (%)
MSS8 NE2 UBT BENCH	172.26.65.2	LAG 1	668	Network	N/A	291.67	200.0	400.0	29.166666666667	20.0

Max Rx Utilization (%)	Min Rx Utilization time	Max Rx Utilization time	Avg Tx Throughput (Mbps)	Min Tx Throughput (Mbps)	Max Tx Throughput (Mbps)	Avg Tx Utilization (%)	Min Tx Utilization (%)	Max Tx Utilization (%)
40.0	06-01-2021 00:00:00 IST	08-01-2020 00:00:00 IST	291.67	200.0	400.0	29.166666666667	20.0	40.0

Min Tx Utilization time	Max Tx Utilization time	Max Utilization	Avg Threshold Violation	Max Threshold Violation
06-01-2021 00:00:00 IST	08-01-2020 00:00:00 IST	40.0	0	1

19.8 Resource Group Utilization Summary (NSP) report

19.8.1 Resource Group Utilization Summary (NSP) report overview

The Resource Group Utilization Summary (NSP) report includes utilization data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The report computes throughput and utilization based on ports and LAGs contained in resource groups defined in the NSP. Port/LAG speed is used to calculate utilization. You can select one or more resource groups to report on. The report contains one or more resource groups as per a multi-select prompt. The table-type report contains one summary row per resource group with the average maximum utilization for the top-N periods in the select date range (for example, top five days in one month).

The table is sorted by decreasing average maximum utilization; the resource group with the highest utilization is first. The top-N periods are sorted by decreasing max utilization. Sort order is fixed. Minimum and maximum timestamp columns (time of occurrence of minimum and maximum utilization) are for Rx and Tx utilization only.

Use cases

Capacity planning—Use the report to examine resource group utilization patterns to plan for capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- For the Juniper NE, LAG is not supported.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*. For the report prerequisites for NFM-P-managed NEs, see Table 14-43, “ Temperature, CPU, Memory Utilization Summary report prerequisites” (p. 630).

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-19 Resource Group Utilization Summary (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base-interfaces-interface	Telemetry Base Interface	telemetry:/base/interfaces/interface	Telemetry statistics	All 7250 IXR variants 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

Table 19-20 Resource Group Utilization Summary (NSP) report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
Interface Utilization Statistics Aggregator	equipment.PhysicalPort lag.Interface	equipment.InterfaceAdditionalStats	Performance statistics	7210 SAS 7250 IXR 7705 SAR 7750 SR 9500 MPR-A Chassis 1 9500 MPR-A Chassis 4 9500 MPR-A Chassis 8 9500 MPR-E Chassis 1 9500 MPR-E Chassis 4 9500 MPR-E Chassis 8 9500 MSS-1c 9500 MSS-O ANSI 9500 MSS-O ETSI 9500 SA Wavence UBT-SA Wavence UBT-I Wavence MSS-1 Wavence MSS-1c Wavence MSS-4 Wavence MSS-8 Wavence MSS-E Wavence MSS-HE Wavence MSS-XE Wavence MSS-O Wavence SA

Report characteristics

The following table lists the principal report characteristics.

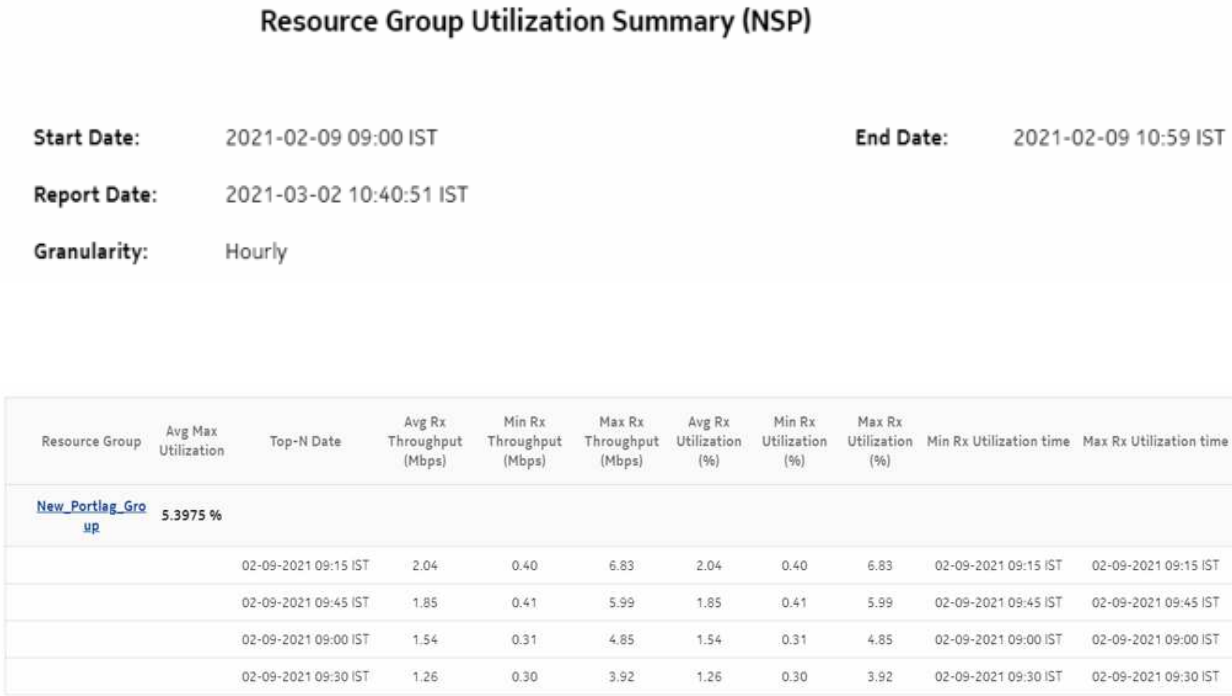
Table 19-21 Resource Group Utilization Summary (NSP) report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Resource Groups	Port and LAG resource groups as created in the Maps Layouts and Groups, Map Layout view
	Average utilization threshold	—
	Maximum utilization threshold	—
	Top N	Enter the number of results to display.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drills down to the Resource Group Utilization Detail with Forecast (NSP) report.	

19.8.2 Example

The following figure shows a report example. The table below is a single table, but is separated due to its width.

Figure 19-12 Resource Group Utilization Summary (NSP) report



Resource Group Utilization Summary (NSP)

Start Date: 2021-02-09 09:00 IST **End Date:** 2021-02-09 10:59 IST

Report Date: 2021-03-02 10:40:51 IST

Granularity: Hourly

Resource Group	Avg Max Utilization	Top-N Date	Avg Rx Throughput (Mbps)	Min Rx Throughput (Mbps)	Max Rx Throughput (Mbps)	Avg Rx Utilization (%)	Min Rx Utilization (%)	Max Rx Utilization (%)	Min Rx Utilization time	Max Rx Utilization time
New_Portlag_Group	5.3975 %									
		02-09-2021 09:15 IST	2.04	0.40	6.83	2.04	0.40	6.83	02-09-2021 09:15 IST	02-09-2021 09:15 IST
		02-09-2021 09:45 IST	1.85	0.41	5.99	1.85	0.41	5.99	02-09-2021 09:45 IST	02-09-2021 09:45 IST
		02-09-2021 09:00 IST	1.54	0.31	4.85	1.54	0.31	4.85	02-09-2021 09:00 IST	02-09-2021 09:00 IST
		02-09-2021 09:30 IST	1.26	0.30	3.92	1.26	0.30	3.92	02-09-2021 09:30 IST	02-09-2021 09:30 IST

Avg Tx Throughput (Mbps)	Min Tx Throughput (Mbps)	Max Tx Throughput (Mbps)	Avg Tx Utilization (%)	Min Tx Utilization (%)	Max Tx Utilization (%)	Min Tx Utilization time	Max Tx Utilization time	Max Utilization	Avg Threshold Violation	Max Threshold Violation
									4	4
2.90	0.50	4.95	2.90	0.50	4.95	02-09-2021 09:15 IST	02-09-2021 09:15 IST	6.83	1	1
4.01	1.73	5.10	4.01	1.73	5.10	02-09-2021 09:45 IST	02-09-2021 09:45 IST	5.99	1	1
2.55	0.41	5.04	2.55	0.41	5.04	02-09-2021 09:00 IST	02-09-2021 09:00 IST	5.04	1	1
2.28	0.40	4.01	2.28	0.40	4.01	02-09-2021 09:30 IST	02-09-2021 09:30 IST	4.01	1	1

19.9 SAP Throughput (NSP) report

19.9.1 SAP Throughput (NSP) report overview

The SAP Throughput (NSP) report differs from the SAP Throughput report by including throughput data for NEs managed by the NFM-P only, MDM (model-driven) only, or NFM-P+MDM-mediated

NEs. The content and format of the SAP Throughput (NSP) report vary from the NFM-P-only SAP Throughput report to accommodate its model-driven approach.

The SAP Throughput (NSP) report shows throughput by a specified service and SAPs. The default display is a set of time series graphs, showing ingress and egress.

The top 5 SAPs with the highest throughputs are shown in the report plots.

The summary table shows the minimum, average, and maximum SAP throughput values along with percentiles, for all the SAPs selected. The summary table displays the SAPs in descending order of average total throughput.

The report currently shows policers with stat mode “minimal” only.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the data is shown in the table.

Note: The report may not complete if it is run on more than 400 000 SAPs.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a per service or per SAP basis, to plan for capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following items need to be performed in the NFM-P for SAP Throughput (NSP) reports to be created:

- For raw data, the periodic counter must be enabled from the Periodic Counter Manager; see the *NSP NFM-P Statistics Management Guide* for information about creating and managing periodic accounting statistics calculations.
- The following table describes the aggregation rules that must be enabled and the telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*. For the report prerequisites for NFM-P-managed NEs, see Table 14-4, “SAP Throughput report prerequisites” (p. 520).

Table 19-22 SAP Throughput (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/ingress/packet/octets	Accounting, file, and log policies	7750 MD SR Classic NE with gRPC telemetry collection enabled

Table 19-22 SAP Throughput (NSP) report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/egress/packet/octets	Accounting, file, and log policies	7750 MD SR Classic NE with gRPC telemetry collection enabled

Viewing collection statistics in the NFM-P GUI

For 7210 SAS and 7750 SR NEs, the statistics collected to create the SAP Throughput (NSP) report can be viewed in the NFM-P GUI, from the SAP properties Statistics tab:

- For 7210 SAS NEs, the Service Ingress Octets and Service Egress Octets record types show the statistics with All Octets Forwarded, which are used for throughput calculations.
- For 7750 SR and 7705 SAR NEs, the Complete Service Ingress Packet Octets and Complete Service Egress Packet Octets record types show the statistics used for throughput calculations.

7210 SAS counter type

Reports are available for 7210 SAS NEs using both counter types. The throughput information is calculated based on the counter type configured at the time the report is taken. If multiple SAPs are selected for reporting, Analytics assumes that the counter type of all the selected SAPs can be the same or different. Currently the sum of throughputs of multiple SAPs chosen would be plotted.

For more information about counter types, see the NE documentation.

Report characteristics

The following table lists the principal report characteristics.

Table 19-23 SAP Throughput (NSP) report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 19-23 SAP Throughput (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Node	
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Service	
	SAP Name (or Name Pattern)	Search using partial names or wildcard (%).
	SAP	Search using partial names or wildcard (%). Select individual items or click **Select All**.
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

19.9.2 Example

The following figures show a report example.

Figure 19-13 SAP Throughput (NSP) report

SAPs Over Total Threshold : N/A

SAPs Over Ingress Threshold : N/A

SAPs Over Egress Threshold : N/A

Direction	NE Name	NE ID	SAP	Service Name	Description	Minimum (Kbps)	Average (Kbps)	Maximum (Kbps)	95 PCTL (Kbps)	Maximum (Time)	Max Count
Total	s168_96_15_Both	92.168.96.15	1/1/4:23	Test	sap_MDM	11.46	147.87	688.16	528.1	02-11-2021 09:15 IST	1
Ingress	s168_96_15_Both	92.168.96.15	1/1/4:23	Test	sap_MDM	3.08	19.52	40.64	40.08	02-11-2021 08:45 IST	1
Egress	s168_96_15_Both	92.168.96.15	1/1/4:23	Test	sap_MDM	2.67	128.34	663.1	507.8	02-11-2021 09:15 IST	1
Total	NE81	35.250.40.81	1/1/1	VPLS 2	TIM_Up_SAP	0.0	0.28	0.55	0.55	02-11-2021 10:00 IST	4
Ingress	NE81	35.250.40.81	1/1/1	VPLS 2	TIM_Up_SAP	0.0	0.28	0.55	0.55	02-11-2021 10:00 IST	4
Total	s168_96_57_Both	35.249.149.7	1/1/35: 2000	VPLS 14	N/A	0.0	0.0	0.0	0.0	02-11-2021 09:46 IST	0
Ingress	s168_96_57_Both	35.249.149.7	1/1/35: 2000	VPLS 14	N/A	0.0	0.0	0.0	0.0	02-11-2021 09:46 IST	0
Egress	s168_96_57_Both	35.249.149.7	1/1/35: 2000	VPLS 14	N/A	0.0	0.0	0.0	0.0	02-11-2021 09:46 IST	0

19.10 Temperature, CPU, Memory Utilization Details (NSP) report

19.10.1 Temperature, CPU, Memory Utilization Details (NSP) report overview

The Temperature, CPU, Memory Utilization Details (NSP) report differs from the Temperature, CPU, Memory Details report by including throughput data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The content and format of the Temperature, CPU, Memory Utilization Details (NSP) report vary from the NFM-P-only Temperature, CPU, Memory Details report to accommodate its model-driven approach.

The Temperature, CPU, Memory Utilization Details (NSP) report shows the temperature, memory and CPU usage details for selected NEs and sites. The default display is a graph displaying usage over time relative to user-defined thresholds.

The following temperatures can be reported by the NE when no temperature sensor is available. These temperatures are invalid and will not be displayed in the report.

- For ETR NEs: -127°C, -128°C
- For non ETR NEs: all negative temperatures

Limitations

Report limitations include:

- If memory values are very low, the values on the y-axis in the graph may be incorrect.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*. For the report prerequisites for NFM-P-managed NEs, see Table 14-41, “ Temperature, CPU, Memory Utilization Details Summary report prerequisites” (p. 626).

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-24 Temperature, CPU, Memory Utilization Details (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7250 IXR variants 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7250 IXR variants 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12

Report characteristics

The following table lists the principal report characteristics.

Table 19-25 Temperature, CPU, Memory Utilization Details (NSP) report characteristics

Characteristic	Value
Data type	Statistics NE configuration information
Source database	Auxiliary database

Table 19-25 Temperature, CPU, Memory Utilization Details (NSP) report characteristics (continued)

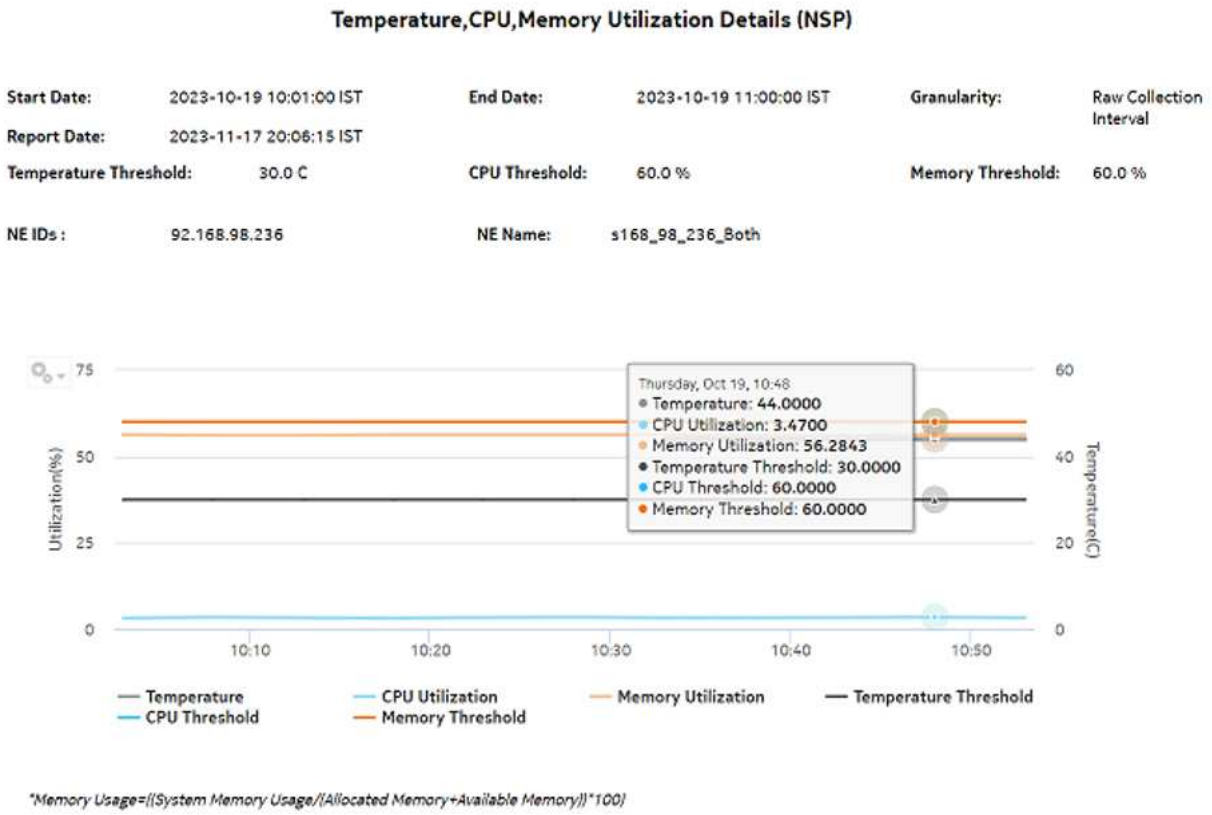
Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Select individual NE types or click **Select All**. Search using partial names or wildcard (%).
	Site	If the report is opened from a Temperature-CPU-Memory Utilization report, the site is displayed. Otherwise, select from the list of sites for the selected NE types.
	Temperature threshold	Data at or above thresholds will display in red.
	CPU threshold	
	Memory threshold	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

Note: If there is no data for the input date and range, the report displays an empty graph. For SRL NEs (7250 IXR variants), the report does not include memory statistics.

19.10.2 Example

The following figure shows a report example.

Figure 19-14 Temperature, CPU, Memory Utilization Details (NSP) report



19.11 Temperature, CPU, Memory Utilization Summary (NSP) report

19.11.1 Temperature, CPU, Memory Utilization Summary (NSP) report overview

The Temperature, CPU, Memory Utilization Summary (NSP) report differs from the Temperature, CPU, Memory Utilization Summary report by including throughput data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The content and format of the Temperature, CPU, Memory Utilization Summary (NSP) report vary from the NFM-P-only Temperature, CPU, Memory Utilization Summary report to accommodate its model-driven approach.

The Temperature, CPU, Memory Utilization Summary (NSP) report shows the maximum and average temperature and memory and CPU usage for selected NEs. The default display is a table displaying details. By default, the table is sorted according to the NE Name column. Table sorting is enabled for the CPU Memory Average and Maximum columns.

To generate meaningful average temperature data, Nokia recommends using raw or hourly interval statistics.

Memory Usage is computed in the report using the following formula: [memory in use / (allocated memory + available memory) * 100]. The calculation is displayed at the footnote section of the reports.

If no telemetry subscriptions are enabled for CPU, Memory, and Temperature, the report shows -1 values for CPU and Memory and N/A for Temperature.

Utilization results are colored red when utilization reaches or exceeds user-defined thresholds. Thresholds are defined separately. The default value for the temperature threshold is 30°C. The default value for the memory and CPU thresholds is 60%.

The following temperatures can be reported by the NE when no temperature sensor is available. These temperatures are invalid and will not be displayed in the report.

- For ETR NEs: -127°C, -128°C
- For non ETR NEs: all negative temperatures

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “How do I configure analytics aggregation?” (p. 29). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*. For the report prerequisites for NFM-P-managed NEs, see Table 14-43, “ Temperature, CPU, Memory Utilization Summary report prerequisites” (p. 630).

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-26 Temperature, CPU, Memory Utilization Summary (NSP) report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7250 IXR variants 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12

Table 19-26 Temperature, CPU, Memory Utilization Summary (NSP) report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7250 IXR variants 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12

Report characteristics

The following table lists the principal report characteristics.

Table 19-27 Temperature, CPU, Memory Utilization Summary (NSP) report characteristics

Characteristic	Value
Data type	Statistics NE configuration information
Source database	Auxiliary database

Table 19-27 Temperature, CPU, Memory Utilization Summary (NSP) report characteristics (continued)

Characteristic	Value	
Report inputs	*Prompt*	*Notes*
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Select individual NE types or click **Select All**. Search using partial names or wildcard (%).
	Site (or Site Name Pattern)	Search using partial names or wildcard (%).
	Sites	Select individual sites or click **Select All**. Search using partial names or wildcard (%).
	Temperature unit (C/F)	Default is Celsius
	Temperature threshold	Data at or above thresholds will display in red.
	CPU threshold	
	Memory threshold	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Temperature, CPU, Memory Details report for the selected NE.	

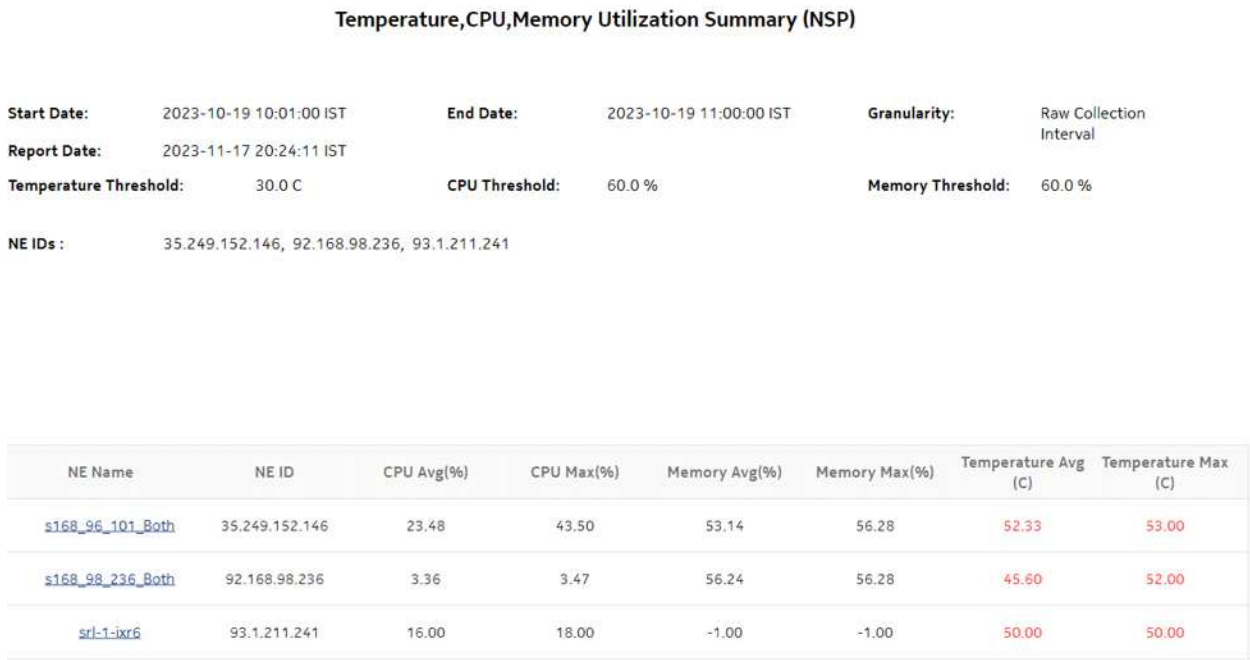
Note: If there is no data for the input date and range, the report displays -1.00 in the table columns.

For SRL NEs (7250 IXR variants), the report does not include memory statistics.

19.11.2 Example

The following figure shows a report example.

Figure 19-15 Temperature, CPU, Memory Utilization Summary (NSP) report



Temperature,CPU,Memory Utilization Summary (NSP)

Start Date:	2023-10-19 10:01:00 IST	**End Date:**	2023-10-19 11:00:00 IST	**Granularity:**	Raw Collection Interval
Report Date:	2023-11-17 20:24:11 IST				
Temperature Threshold:	30.0 C	**CPU Threshold:**	60.0 %	**Memory Threshold:**	60.0 %

NE IDs : 35.249.152.146, 92.168.98.236, 93.1.211.241

NE Name	NE ID	CPU Avg(%)	CPU Max(%)	Memory Avg(%)	Memory Max(%)	Temperature Avg (C)	Temperature Max (C)
s168_96_101_Both	35.249.152.146	23.48	43.50	53.14	56.28	52.33	53.00
s168_98_236_Both	92.168.98.236	3.36	3.47	56.24	56.28	45.60	52.00
srl-1-ixr6	93.1.211.241	16.00	18.00	-1.00	-1.00	50.00	50.00

Part VI: Custom

Overview

Purpose

This part provides information about custom NSP Analytics reports. Custom reports can be created according to your specifications by Nokia Professional Services. Contact your Nokia sales representative for more information.

Contents

20 Custom report deployment

20.1 Custom reports

20.1.1 Custom reports overview

You can deploy custom reports in Analytics.

20.2 To deploy a custom report

20.2.1 Purpose

Use this procedure to upload a custom report to Analytics. The report must be in ZIP file format. The custom reports can be in subfolders inside the ZIP folder. The subfolder will be included in the URI of the report when it is deployed.

20.2.2 Steps

1

Open Data Collection and Analysis Management, Analytics Server Management.

2

Click Deploy Resource Catalog.

3

Click to browse to the files to be deployed, then click **Deploy**.

You can select more than one file to deploy.

4

Click Data Collection and Analysis Visualizations, Repository when the upload is completed. The custom report appears in the Reports and Dashboards/Custom folder.

END OF STEPS

20.3 To delete a custom report

20.3.1 Purpose

Use this procedure to remove a custom report from Analytics. Reports can only be deleted from the Custom folder.

20.3.2 Steps

1

Open Data Collection and Analysis Management, Analytics Server Management.

2

Click Delete Resource Catalog.

3

Choose the report or folder to be deleted; for example, Reports and Dashboards/Custom/reportname.

4

Click Delete. The report or folder is deleted from the NSP.

END OF STEPS

20.4 Dashboard designer overview

20.4.1 General information

You can create custom dashboards in the application. Custom dashboards can include reports that come pre-packaged with the application and custom reports created with the ad hoc editor. The ad hoc editor can be launched from within the dashboard designer to create a report as part of the new dashboard. The ad hoc editor can also be accessed separately; see Chapter 21, “Ad hoc report design”.

Note: Previously created custom reports cannot be added to a custom dashboard. To add a custom report to a custom dashboard, the report must be created in the dashboard designer.

Reports are added to the dashboard with default input values applied, for example, the current date and time and all NE types. Add filters to specify input parameters, and use parameter mapping to apply the same filter to multiple reports in the new dashboard.

Dashboards can be saved to the Results folder. Running the dashboard runs the reports and displays the dashboard with the results. Opening the dashboard opens it in the dashboard designer.

Custom dashboards can be scheduled. The filters in the dashboard are available as parameters when a schedule is created. For example, if you have two reports that need to be run overnight with two NE types of interest, you can create a dashboard composed of the two reports with a filter for NE type. Create one schedule to run the dashboard with one NE type and one to run it with the other NE type. You will receive output showing results of both reports together, for the NE selected.

20.5 To create a custom dashboard

20.5.1 Purpose

Use the steps in this procedure as required to create a custom dashboard. At any time during creation you can click on the eye icon to toggle to display mode and preview the dashboard.

20.5.2 Steps

1

Open Data Collection and Analysis Analytics Reports, Dashboard Designer.

2

Add pre-packaged reports:

1. In the Existing Content panel, expand the folders to display the desired report.
2. Click on the report name and drag and drop it to the canvas. The report is added to the dashboard as a dashlet and input parameters are added to the Filters panel.
3. Drag and drop additional pre-packaged reports as needed.
4. Click and drag report images to move them or drag the edges to resize.
5. Configure the report as required using the parameters in the Dashboard Settings panel.

3

Add a filter:

1. In the Filters panel, expand the report with the input for which you need to create a filter.
2. Click on the input parameter and drag and drop it to the canvas. The filter is displayed.

4

Perform parameter mapping:

1. Click on the parameter mapping icon. The Parameter Mapping dialog opens and displays the filter groups that have been added to the dashboard and the dashlets to which they apply.
2. Click on the plus symbol to add another dashlet to a filter.
3. Configure the Dashlet Affected and Filter/Parameter affected parameters.
4. Click Create New Filter to manually create a new filter.
5. Configure the required parameters and click OK.

5

Create custom reports to include in the dashboard:

1. In the New Content panel, choose a display type and drag and drop it to the canvas.

2. Perform steps Step 2 through Step 7 of 21.2 “To create a report using the ad hoc editor” (p. 903).

6

Save the dashboard:

1. Click **Save**, and choose **Save Dashboard As**.
2. Configure the required parameters.
3. Click **Save**. The dashboard appears in the Results folder.

END OF STEPS

20.6 To upload images to a custom dashboard

20.6.1 Purpose

You can add a logo to a custom Analytics dashboard.

Note: You cannot add an image to a custom Analytics report, but you can create a custom dashboard with a logo and add one or more ad hoc reports to the dashboard

Perform this procedure to upload and import an image file for use as a logo. The following file formats are supported:

- JPEG
- JPG
- GIF
- PNG
- SVG
- BMP

Note: In a custom dashboard, the images are not auto-scaled to 80 pixels as in a prepackaged report. Instead, you must manually resize the image dashlet.

20.6.2 Steps

Upload image

1

Open Data Collection and Analysis Analytics Reports, Repository.

2

Click **Folders**, then expand root→Images→Add Resource→File→Image. The Add File form opens.

3

Configure the required parameters.

4

Click **Submit**.

Import image

5

Open Dashboard Designer.

6

Drag the image from the New Content section of the Available Content panel to the dashboard canvas to create a dashlet. The Dashlet Image form opens.

7

Complete the Web Address/Repository URI parameter with this path format:

repo:/Images/*image_name*.*image_file_type*

where:

- *image_name* is the file name of your image
- *image_file_type* is the file type of your image

8

Click **OK**.

END OF STEPS

21 Ad hoc report design

Ad hoc editor

21.1 Ad hoc report design overview

21.1.1 General information

You can use the Adhoc Report Design editor to create custom reports. Data domains provide a data model and abstraction layer for a variety of information stored in the NSP. The editor allows you to select the set of data that you require.

Syncing of data dictionary items to the Aux Db for new classes can be added dynamically to the NSP. These can then be used as input controls in Ad hoc report design. Contact your Nokia sales representative for more information.

The default time zone in data domains is GMT, regardless of the time zone of the user.

See the Analytics landing page for a demonstration video.

21.2 To create a report using the ad hoc editor

21.2.1 Purpose

Use the steps in this procedure as required to create a report. At any time during creation you can click on the eye icon to toggle to display mode and preview the report.

21.2.2 Steps

1

Open Data Collection and Analysis Analytics Reports, Adhoc Report Design. The Select Data window displays.

2

Open the folders, choose a domain, and click **Choose Data**. The list of tables in the data domain displays.

3

Choose the tables in the Source panel that you want to include in the report and click the right arrow to move them to the Selected Fields panel.

4

Click **OK**. The Ad Hoc View canvas displays.

5

Expand the data tables in the Fields and Measures panels. Click and drag relevant data types to the Columns and Rows selectors.

Note: You can move a data type from field to measure, or vice versa. Right-click on the data type and choose Use as Measure or Use as Field.

6

Right-click on column headers to change grouping, apply and create filters, or sort data as needed.

7

Click **Save** to save the ad hoc view for further editing, or save it and create a report.

After the view has been saved, you need to click **Select Fields** to choose a new table. Do not use the browser Back button.

8

Return to the Repository.

END OF STEPS

Application Assurance domains

21.3 General information

21.3.1 Application Assurance domains general information

You must enable all of the aggregators associated with the domain in the NFM-P.

21.4 IPDR Reference

21.4.1 IPDR Reference general information

The fields and measures included in the data domains are based on statistics described in the *NSP NFM-P IPDR Reference*. See Help→Developer Tools in the NFM-P GUI for more information about the data collected.

The following do not appear in the *NSP NFM-P IPDR Reference*:

- Node Type: the list of compatible NE types and their system addresses
- Device Operating System Data: the list of compatible device OS, and the number of devices with each OS ID
- ANL Custom Attribute Details Data: the details included in the analytics_anl_details_table_ct table in the auxiliary database; see 6.1.4 “Custom table for ANL data” (p. 127)
- IP Family Data (Wi-Fi Subscribers Domain): a static table used to display the name of the IP Family

For CFLOWD comprehensive, TCP performance and Volume statistics at the raw level, IP_POST_PRECEDENCE, also called forwarding class, information is available for ad hoc reporting. Analytics presents each flag as a separate field for reporting.

Volume statistics have eight forwarding class fields for reporting; performance statistics have eight per session direction. Field names ending in C2s indicate client to server session direction, while S2c indicate server to client. The field names are the following:

- AFImmediate
- BEBestEffort
- EFCritical
- H1InternetworkControl
- H2FlashOverride
- L1Flash
- L2Priority
- NCNetworkControl

21.4.2 Data domain mapping to the *NSP NFM-P IPDR Reference*

The following tables provide information about where data domain statistics can be found in the IPDR Reference document.

Table 21-1 Business Devices and Domains

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Business Comprehensive Device Application Group * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP_ GRP_SUB_DEV
Business Comprehensive Application Group Host * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP_ GRP_SUB_HOST
Business Comprehensive Application Device * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP_ SUB_DEV
Business Comprehensive Application Host * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP__ SUB_HOST
Business Comprehensive Special Study Stats * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE_SS	AGG_BUS_RAW

Table 21-2 Business Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Business Performance RTP Audio Application * Data	AA CFLOWD	BUSINESS	RTP_AUDIO	AGG_BUS_RAW
Business Performance RTP Video Application * Data	AA CFLOWD	BUSINESS	RTP_VIDEO	AGG_BUS_RAW
Business Performance RTP Voice Application * Data	AA CFLOWD	BUSINESS	RTP_VOICE	AGG_BUS_RAW
Business Performance TCP Application Group * Data	AA CFLOWD	BUSINESS	TCP_PERF	AGG_BUS_APP_GRP
Business Performance TCP Application * Data	AA CFLOWD	BUSINESS		AGG_BUS_APP

Table 21-2 Business Performance Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Business Performance Comprehensive Special Study Stats * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE_SS	AGG_BUS_RAW

Table 21-3 Business Subscribers Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Business Subscribers Application Group * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Application Group
Business Subscribers Application * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Application
Business Subscribers Charging Group * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Charging Group
Business Subscriber Aggregates * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Aggregates
Business Subscriber Protocol * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Protocol
Business Subscriber UAPPS Application * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Application
Business Subscriber Application Special Study Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Application

Table 21-3 Business Subscribers Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Business Subscriber Protocol Special Study Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Protocol
Business Subscriber IP Detail Application Group Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Application Group
Business Subscriber IP Detail Application Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Application

Table 21-4 IP Family Usage Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
IP Traffic * Data	AA Accounting	RESIDENTIAL	Router	IP Family
IP Family Business Volume Application * Data	AA CFLOWD	BUSINESS	VOLUME	AGG_BUS_APP
IP Family Mobile Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
IP Family Residential Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
IP Family Residential Volume RG Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP_GRP
IP Family Residential Volume RG Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP

Table 21-4 IP Family Usage Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
IP Family Wi-Fi Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
IP Family Wi-Fi Volume Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP_GRP
IP Family Wi-Fi Volume RG Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP_GRP
IP Family Wi-Fi Volume RG Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP
IP Family Mobile Volume Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP_GRP
IP Family Mobile Volume Special Study * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW
IP Family Wi-Fi Volume Special Study * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW
IP Family residential Volume Special Study * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW

Table 21-5 ISA Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
ISA Performance * Data	Network Performance	RESIDENTIAL	ISA Performance statistics	—
ISA Performance Collector * Data				

Table 21-6 Fixed Wireless Access Devices and Domains

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Comprehensive Application Group Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_DEV
Mobile Comprehensive Application Group Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_HOST
Mobile Comprehensive Application Group Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_SUB_DEV
Mobile Comprehensive Application Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_DEV
Mobile Comprehensive Application Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_HOST
Mobile Comprehensive Application Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_SUB_DEV
Mobile Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-7 Fixed Wireless Access Location and Congestion Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Flow Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL_APP_GRP
Mobile Flow Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL_APP

Table 21-7 Fixed Wireless Access Location and Congestion Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Flow Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL
Mobile Session Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP_GRP
Mobile Session Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP_GRP
Mobile Session Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP

Table 21-8 Fixed Wireless Access RTP Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile RTP Audio Application * Data	AA CFLOWD	RESIDENTIAL	RTP_AUDIO	AGG_RES_RAW
Mobile RTP Video Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VIDEO	AGG_RES_RAW
Mobile RTP Voice Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VOICE	AGG_RES_RAW
Mobile Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-9 Fixed Wireless Access Subscribers Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Volume Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG-RES_APP_ GRP
Mobile Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP

Table 21-9 Fixed Wireless Access Subscribers Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Volume Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW

Table 21-10 Fixed Wireless Access TCP Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile TCP Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP_GRP
Mobile TCP Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP
Mobile TCP RG Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_APP_GRP
Mobile TCP RG Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_APP

Table 21-11 Residential Devices and Domains

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Comprehensive Device Application Group * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_DEV
Residential Comprehensive Host Application Group * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_HOST
Residential Comprehensive Device Application Group Subscriber * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_SUB_DEV
Residential Comprehensive Device Application * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_DEV

Table 21-11 Residential Devices and Domains (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Comprehensive Host Application * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_HOST
Residential Comprehensive Device Application Subscriber * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_SUB_DEV
Residential Comprehensive RG Device Application Group * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_APP_GRP_DEV
Residential Comprehensive RG Device Application * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_APP_DEV
Residential Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-12 Residential RTP Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Residential RTP Audio Application * Data	AA CFLOWD	RESIDENTIAL	RTP_AUDIO	AGG_RES_RAW
Residential RTP Video Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VIDEO	AGG_RES_RAW
Residential RTP Voice Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VOICE	AGG_RES_RAW

Table 21-13 Residential Subscribers Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Subscriber Application Group * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Application Group

Table 21-13 Residential Subscribers Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Subscriber Application * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Application
Residential Subscriber Aggregates * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Aggregates
Residential Subscriber Protocol * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Application Group
Residential Subscriber Charging Group * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Charging Group
Residential Subscriber Application Special Study Stats * Data	AA Accounting	RESIDENTIAL	Special Study - Subscriber Special Study - Residential Transit Sub Special Study - EsmMac	Application
Residential Subscriber Protocol Special Study Stats * Data	AA Accounting	RESIDENTIAL	Special Study - Subscriber Special Study - Residential Transit Sub Special Study - EsmMac	Protocol

Table 21-14 Residential TCP Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Residential TCP RG Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_APP
Residential TCP RG Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_APP_GRP

Table 21-14 Residential TCP Performance Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Residential TCP Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP_GRP
Residential TCP Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP

Table 21-15 Router Partition Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Router Partition Router Application Group * Data	AA Accounting	RESIDENTIAL	Router	Application Group
Router Partition Router Application * Data	AA Accounting	RESIDENTIAL	Router	Application
Router Partition Router Protocol * Data	AA Accounting	RESIDENTIAL	Router	Protocol
Router Partition Tethering * Data	AA Accounting	RESIDENTIAL	Router	Tethering

Table 21-16 Wi-Fi Devices and Domains

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Comprehensive Application Group Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_DEV
Wi-Fi Comprehensive Application Group Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_HOST
Wi-Fi Comprehensive Application Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_HOST
Wi-Fi Comprehensive Application Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_DEV
Wi-Fi Comprehensive Application Group Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_GRP_SUB_DEV

Table 21-16 Wi-Fi Devices and Domains (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Comprehensive Residential Group Application Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_ APP_DEV
Wi-Fi Comprehensive Residential Group Application Group Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_ APP_GRP_DEV
Wi-Fi Comprehensive Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ SUB_DEV
Wi-Fi Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-17 Wi-Fi Location and Congestion Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Flow Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP_GRP
Wi-Fi Flow Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP
Wi-Fi Flow Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL
Wi-Fi Session Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP_GRP
Wi-Fi Session Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP
Wi-Fi Session Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL

Table 21-18 Wi-Fi RTP Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi RTP Performance Audio Application * Data	AA CFLOWD	RESIDENTIAL	RTP_AUDIO	AGG_RES_RAW
Wi-Fi RTP Performance Video Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VIDEO	AGG_RES_RAW
Wi-Fi RTP Performance Voice Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VOICE	AGG_RES_RAW

Table 21-19 Wi-Fi Subscribers Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Subscriber Application Group Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP_GRP
Wi-Fi Subscriber Application Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
Wi-Fi Subscriber RG Application group Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP_GRP
Wi-Fi Subscriber RG Application Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP
Wi-Fi Subscriber Volume Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW

Table 21-20 Wi-Fi TCP Performance Domain

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi TCP Performance Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP_GRP
Wi-Fi TCP Performance Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP

Table 21-20 Wi-Fi TCP Performance Domain (continued)

Adhoc Report Design Editor Source	*NSP NFM-P IPDR Reference*			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi TCP Performance RG Application Group* Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_APP_GRP
Wi-Fi TCP Performance RG Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_APP
Wi-Fi Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF_SS	AGG_RES_RAW

Network and Service domains

21.5 General information

21.5.1 Network and Service domains general information

You must enable all of the aggregators associated with the domain in the NFM-P.

21.6 Fields and Measures

21.6.1 Fields and Measures general information

The fields and measures included in the data domains are based on packages and classes described in the *XML API Reference*.

The following do not appear in the *XML API Reference*:

- Aux DB Enum Table: Information about the NE from the auxiliary database, such as chassis type
- Temperature
- Maintenance Window: information about configured maintenance windows
- Creation and Deletion Time: information about the time of creation and deletion of a SAP or service
- Outages

21.7 Data domain mapping to the *XML API Reference*

21.7.1 Comprehensive domain

The following table provides information about where data domain statistics can be found in the *XML API Reference*.

Table 21-21 Comprehensive Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Memory Stats * Data	equipment	AllocatedMemoryStats
	equipment	SystemMemoryStats
	equipment	AvailableMemoryStats
DDM Stats * Data	equipment	DDMStats
Hardware Temperature Stats * Data	equipment	HardwareTemperatureStats
Interface Additional Stats * Data	equipment	InterfaceAdditionalStatsStats
CPU Stats * Data	equipment	SystemCpuStatsStats
MPLS Interface Stats * Data	mpls	mplsInterfaceStats

Table 21-21 Comprehensive Domain (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
IP Interface Stats * Data	rtr	InterfaceAdditionalStats
	rtr	IpInterfaceStats
	rtr	sarIpInterfaceStats
CFM DMM Session Stats * Data	saspm	CFMDMMSessAccstats
CFM SLM Session Stats * Data	saspm	CFMSLMSessAccstats
TWL Session Stats * Data	saspm	TWLSessionAccStats
TWL Session Loss Stats * Data	saspm	TWLSessionLossAccStats
Combined Network Egress Octets Stats * Data	service	CombinedNetworkEgressOctets
Combined Network Ingress Octets Stats * Data	service	CombinedNetworkIngressOctets
Complete Service Egress Packet Octets Stats * Data	service	CompleteServiceEgressPacketOctets
Complete Service Ingress Packet Octets Stats * Data	service	CompleteServiceIngressPacketOctets
Service Egress Octets Stats * Data	service	serviceEgressOctets
Service Ingress Octets Stats * Data	service	serviceIngressOctets
Network Element	netw	NetworkElement
Topology Group Binding	netw	topologygroupbinding
Physical Port	equipment	Physicalport
Access Uplink Specific	accessuplink	accessUplinkSpecifics
Lag Interface	lag	interface
Port DDM	equipment	DigitalDiagnosticMonitoring
Bundle Interface	bundle	Interface
	bundle	Porttermination
	tdmequipment	DS0ChannelGroup
	tdmequipment	DS0ChannelGroupSpecifics
Service	service	service
MPLS Interface	mpls	Interface
SAP	vprn, vll, vlan, vpls, ies,	L2AccessInterface/L3 AccessInterface
OAM CFM DMM Session	ethernetoam	cfmdmmsession
OAM CFM SLM Session	ethernetoam	cfmslmsession

Table 21-21 Comprehensive Domain (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
OAM TWL Session	ethernetoam	TWLSession
Analytics Router Network Interface	ethernetequipment	NetworkEgrQGroup
	nqueue	NetworkQueueForwardingClass
	lag	porttermination
	rtrif	ntwInterface
	sasqos	networkingressmeter
POS Port	equipSonet	Sts12Channel
Scada Port	equipment	scadabranch
Access Queue Forwarding Class	aengr, aingr	queue
	sasqos	accessingressqueue
	aengr, aingr	policer
	sasqos	meter
	aengr, aingr	Forwardingclass
	sasqos	AccessIngressForwardingclass, AccessEgressForwardingclass
Maintenance Window	analytics	AnalyticsManager

Table 21-22 Comprehensive Domain—Custom details

Domain Table	Table Name	Description
MW Node Availability Stats * Data	analytics_Network_Element_ AVAILABILITY	Consists of the availability records for network element equipment; see 11.4 “Node Availability Details report” (p. 332)
	samdb.analytics_ MaintenanceWindow_ct	Consists of the maintenance windows that you provide.

Table 21-22 Comprehensive Domain—Custom details (continued)

Domain Table	Table Name	Description
MW Port Availability Stats * Data	analytics_bundleInterface_ AVAILABILITY	Consists of availability records for the bundle interface; see 11.11 “Ports and Interfaces Availability Details report” (p. 367)
	analytics_business_aa_sub_ AVAILABILITY	Consists of the availability records for the VPRN, VLL, VLAN, VPLS, and IES SAP; see 11.11 “Ports and Interfaces Availability Details report” (p. 367)
	analytics_lagInterface_ AVAILABILITY	Consists of the availability records for LAG interface; see 11.11 “Ports and Interfaces Availability Details report” (p. 367)
	analytics_PhysicalPort_ AVAILABILITY	Consists of the availability records for physical port equipment; see 11.11 “Ports and Interfaces Availability Details report” (p. 367)
	analytics_rtr_ntwInterface_ AVAILABILITY	Consists of the availability records for RTRIF network interface; see 11.11 “Ports and Interfaces Availability Details report” (p. 367)
	samdb.analytics_sts12channel_ Availability	Consists of the availability records for the equipSonet.POS port; see 11.11 “Ports and Interfaces Availability Details report” (p. 367)
	samdb.analytics_scadaport_ AVAILABILITY	Consists of the availability records for ScadaPort equipment; see 11.11 “Ports and Interfaces Availability Details report” (p. 367)
	samdb.analytics_ MaintenanceWindow_ct	Consists of the maintenance windows that you provide.
MW Service Availability Stats * Data	analytics_service_AVAILABILITY	Consists of the availability records for service; see 11.6 “Node Health Details report” (p. 340)
	samdb.analytics_ MaintenanceWindow_ct	Consists of the maintenance windows that you provide.

Note: MW denotes Maintenance Window.

21.7.2 Inventory domain

The following table provides information about where data domain statistics can be found in the *XML API Reference*.

Table 21-23 Physical Inventory Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
LSP Path	mpls	LspPath
Transport Connection	svt	TransportConnection
Service Tunnel	svt	ServiceTunnel
Services	service	Services
SDP Binding	svt	SdpBinding
SAP	vprn, vpls, vlan, vll	L3AccessInterface/ L2AccessInterface
Router Network Interface	rtr	RouterNetworkInterface
Port Lag	lag	Port Lag
MPLS Interface	mpls	Interface
LSP	mpls	LSP
Cross Connect	mpls	CrossConnect
Bundle Interface	bundle	Interface
Daughter Card Slot	equipment	DaughterCardSlot
Base Card Slot	equipment	BaseCardSlot

21.7.3 Utilization domains

The following table provides information about where data domain statistics can be found in the *XML API Reference*.

Table 21-24 Emulated Services Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Channels	tdmequipment	Datachannel, DS1E1Channel
Customer	subscr	subscriber
DS0ChannelGroup	tdmequipment	ds0channelgroup
Endpoint	service	endpoint
Network Element	netw	networkElement
SAP	vll	L2AccessInterface
Service	service	service
CEM SAP Stats * Data	service	CemSapStats

Table 21-25 Flow Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Interface	rtr	NetworkInterface
Router VIR Interface	rtr	VirtualInterfaceIcmpConfiguration
Interface Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ot_if_r (Observed Traffic / Interface)
Conversation Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ct_ip1ip2_r (Conversation Traffic / Host IP1 to Host IP2)
Conversation Traffic per Interface Stats * Data	cflowdlog	Analytics_cflowd_sys_ct_if_ip1ip2_r (Conversation Traffic / Interface / Host IP1 to Host IP2)
Host Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ht_hip_r (Host Traffic / IP)
Host Traffic per Interface Stats * Data	cflowdlog	Analytics_cFlowd_sys_ht_if_hip_r (Host Traffic / Interface / IP)
Protocol Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_pt_proto_r (Protocol Traffic)
TOS Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ot_tos_r (Observed Traffic / TOS)
AS AS Pair Stats * Data	cflowdlog	Analytics_cflowd_sys_sas_das_r (Traffic Volume / Source AS - Destination AS)
Basic IPv4 Stats * Data	cflowdlog	Analytics_cflowd_sys_basic_ipv4_r (Basic IPv4)
MPLS IPv4/IPv6 Stats * Data	cflowdlog	Analytics_cflowd_sys_mpls_r (MPLS IPv4/IPv6)
Netflow V5 Statistics Stats * Data	cflowdlog	Analytics_cflowd_sys_netflow_v5_r (Netflow v5)
Network Element	netw	networkElement
Service	vpls, vprn, ies	vprn,vpls,ies
SAP	vprn, vpls, ies	l3accessinterface,l2accessinterface
Service Site	vprn, vpls, ies	site
L2/L3 VPN Data	cflowdlog	Analytics_cflowd_sys_vpn_r
L2 IP Data	cflowdlog	analytics_cflowd_sys_l2_ip_r

Table 21-26 Link Utilization Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Isis Interface	topology	IsisLink
Network Interface	rtr	NetworkInterface
Ospf Interface	ospf	Interface
Lsp Details	mpls	StaticLsp

Table 21-26 Link Utilization Domain (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Crossconnect	mpls	Crossconnect
Ip Interface Stats * Data	equipment	IpInterfaceStatsLogRecord
Mpls Interface Stats * Data	mpls	MplsInterfaceStatsLogRecord
Mpls Lsp Egress Stats * Data	mpls	MplsLspEgressStats
Physical Port	equipment	PhysicalPort
Mpls Interface	mpls	Interface

Table 21-27 Port Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Physical Port	equipment	PhysicalPort
LAG Interface	lag	Interface
Port Termination	lag	PortTermination
MC Lag Interface	Multichassis	MultichassisLag
Interface Additional Stats * Data	equipment	InterfaceAdditionalStats
Network Queue Policy	nqueue	Policy
Network Queue Forwarding Class	nqueue	ForwardingClass
Access Uplink Specific	accessuplinkspecifics	AccessUplinkSpecifics
SAS Network Queue Policy	sasQos	Nqueue
SAS Network Queue Forwarding Class	sasQos	NqueueForwardingClass
Combined Network Ingress Stats * Data	service	PortNetIngressStats
Combined Network Egress Octets Stats * Data	service	PortNetEgressStats
Complete Network Egress Packet Octets Stats * Data	service	PortNetEgressStats
Complete Network Ingress Packet Octets Stats * Data	service	PortNetIngressStats
Network Egress Octets Stats * Data	service	PortNetEgressStats
Network Ingress Octets Stats * Data	service	PortNetIngressStats
Network Egress Packets Stats * Data	service	PortNetEgressStats
Network Ingress Packets Stats * Data	service	PortNetIngressStats

Table 21-27 Port Domain (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	netw	NetworkElement
Physical Shelf	equipment	shelf
Cellular Specific	cellularequipment	CellularSpecifics
Cellular Port Specific	cellularequipment	CellularPortSpecifics
Cellular Port Stats * Data	cellularequipment	cellularportstats

Table 21-28 Temperature-CPU-Memory Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
CPU Stats * Data	equipment	SystemCpuStats
Memory Stats * Data	equipment	MemoryUtilizationStats
Temperature Stats * Data	equipment	HardwareTemperature
Card Health Stats * Data	equipment	CardHealthStats

Table 21-29 Uptime Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Service Stats	service	cpipe, epipe, fpipe ,ies, ipipe, vlan, vpls, mvpls ,vprn
SAP	service	ies, ipipe, mvpls, vlan, vll, vpls, vprn
Customer	subscr	Subscriber
Event	assurance	Event
Maintenance Window	analytics	AnalyticsManager

Table 21-30 Utilization Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Service	service	cpipe, epipe, fpipe, ies, ipipe, mvpls, vlan, vprn, vpls
SAP	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls
Physical Port	equipment	PhysicalPort
LAG Interface	lag	Interface

Table 21-30 Utilization Domain (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
MC LAG Interface	multichassis	MultiChassisLag
Ingress Queues Policers Meters	package:aingr Parent Package:Policy	Policer
Ingress Forwarding Class	package:aingr Parent Package:Policy	ForwardingClass
Egress Queues Policers Meters	package:aingr Parent Package:Policy	Policer
Egress Forwarding Class	package:aengr Parent Package:Policy	ForwardingClass
Complete Service Ingress Packet Octets Stats * Data	service	SapIngQosPlcyQueueStats
Complete Service Egress Packet Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Interface Additional Stats * Data	equipment	InterfaceAdditionalStats
Service Egress Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Service Ingress Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Service Egress Packets Stats * Data	service	SapEgrQosHsmdaQueueStats
Service Ingress Packets Stats * Data	service	SapEgrQosHsmdaQueueStats
Customer	subscr	Subscriber

21.7.4 Wavence domains

You must enable all of the aggregators associated with the domain using NSP Classic management.

The following table provides information on where data domain statistics can be found in the *XML API Reference*.

Inventory domain

Table 21-31 Wavence License Inventory Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Radio Port Specifics	radioequipment	RadioPortSpecifics
Physical Port	equipment	PhysicalPort
MPR Protection	mpr	mprprotection

Table 21-31 Wavence License Inventory Domain (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
MPR TMN	mpr	mprtmn
Static Routes	mpr	wavencestaticroutes
OSPF Area	mpr	ospfarea
TMN VLAN Port	mpr	tmnvlanport
Feature Inventory	mpr	wavencefeatureInventory
Capacity Inventory	mpr	wavencecapacityInventory

Utilization domain

Table 21-32 Advance Stats Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Peak And Average History 24Hr Stats * Data	radioequipment	PeakAndAverageHistoryDataStats24Hr
Peak And Average History 15Min Stats * Data	radioequipment	PeakAndAverageHistoryDataStats15Min
Physical Port	equipment	PhysicalPort

Table 21-33 Bandwidth Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	netw	NetworkElement
Physical Port	equipment	PhysicalPort
Ingress Rx Stats * Data	ethernetequipment	AggrMaintRxStats
Egress Tx Stats * Data	ethernetequipment	AggrMaintTxStats
Radio Physical Link	netw	RadioPhysicalLink
Physical Link	netw	PhysicalLink
Discovered Physical Link	netw	DiscoveredPhysicalLink

Table 21-34 Link Budget Calculation Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Port Termination	lag	PortTermination
Physical Port	equipment	PhysicalPort
Radio Port Specifics	radioequipment	RadioPortSpecifics
RSL Hop CD 15Min Stats * Data	radioequipment	RSLHopCurrnetDataStats15MinLogRecord
RSL Hop HD 24Hr Stats * Data	radioequipment	RSLHopHistoryDataStats24HrLogRecord

Table 21-35 MWA Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Physical Port	equipment	PhysicalPort
Network Element	netw	NetworkElement
Radio Link	mwaLink	Link
MWA Port Termination	mwaLink	Porttermination
MWA Radio Port Specific	mwaLink	RadioPortSpecifics
Radio Analogue Measure Stats * Data	radioEquipment	RadioAnalogueMeasure
Adaptive Modulation 15Min Stats * Data	radioEquipment	AdaptiveModulationHistoryDataStats15Min
Adaptive Modulation 24Hr Stats * Data	radioEquipment	AdaptiveModulationHistoryDataStats24Hr
Pdh Frame Hop History 15Min Stats * Data	radioEquipment	pdhFrameHopHistoryDataStats15Min
Pdh Frame Hop History 24H Stats * Data	radioEquipment	pdhFrameHopHistoryDataStats24Hr

Table 21-36 Quarterly Traffic Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Peak And Average History 24Hr Stats * Data	radioequipment	PeakAndAverageHistoryDataStats24Hr
Physical Port	equipment	PhysicalPort

Table 21-37 Radio Interface Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	netw	NetworkElement
Physical Port	equipment	PhysicalPort
Radio Link	netw	radioPhysicalLink
Radio Port Specifics	radioequipment	RadioPortSpecifics
MPR MPT Stats	mpr	MPTStats
PDH Frame Hop History Stats * Data	radioequipment	PdhFrameHopHistory
Port Termination	lag	PortTermination
Lag Interface	lag	Interface

Table 21-38 Wavence Domain

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Adaptive Modulation Current 15Min Stats * Data	radioequipment	AdaptiveModulationCurrentDataStats15Min
Adaptive Modulation Current 24Hr Stats * Data	radioequipment	AdaptiveModulationCurrentDataStats24Hr
Adaptive Modulation History 15Min Stats * Data	radioequipment	AdaptiveModulationHistoryDataStats15Min
Adaptive Modulation History 24Hr Stats * Data	radioequipment	AdaptiveModulationHistoryDataStats24Hr
Aggr Per Queue Stats * Data	radioequipment	AggrPerQueueMaintStatsLogRecord
Ethernet Egress Stats * Data	EthernetEquipment	AggrMaintTxStatsLogRecord
Ethernet Ingress Stats * Data	EthernetEquipment	AggrMaintRxStatsLogRecord
Link	netw	RadioPhysicalLink
	lag	porttermination
	radioequipment	radioportspecifics
	netw	PhysicalLink
	netw	DiscoveredPhysicalLink
MPR MPT Stats * Data	mpr	MptStatsLogRecord
MPR Protection	mpr	mprprotection
Network Element	netw	Network Element
PDH Frame Hop Current 15Min Stats * Data	radioequipment	PdhFrameHopCurrentDataStats15Min

Table 21-38 Wavence Domain (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
PDH Frame Hop Current 24Hr Stats * Data	radioequipment	PdhFrameHopCurrentDataStats24Hr
PDH Frame Hop History 15Min Stats * Data	radioequipment	PdhFrameHopHistoryDataStats15Min
PDH Frame Hop History 24Hr Stats * Data	radioequipment	PdhFrameHopHistoryDataStats24Hr
Peak And Average History 15Min Stats * Data	radioequipment	PeakAndAverageHistoryDataStats15Min
Peak And Average History 24Hr Stats * Data	radioequipment	PeakAndAverageHistoryDataStats24Hr
Physical Port	equipment	Physical Port
	lag	Interface
	lag	porttermination
	radioequipment	radioportspecifics
Radio Port Specifics	radioequipment	radioportspecifics
Radio Analogue Measure Stats * Data	radioequipment	RadioAnalogueMeasureLogRecord
RSL Hop Current 24Hr Stats * Data	radioequipment	RSLHopCurrentDataStats24Hr
RSL Hop Current 15Min Stats * Data	radioequipment	RSLHopCurrentDataStats15Min
RSL Hop History 15Min Stats * Data	radioequipment	RSLHopHistoryDataStats15Min
RSL Hop History 24Hr Stats * Data	radioequipment	RSLHopHistoryDataStats24Hr
TSL Hop Current 15Min Stats * Data	radioequipment	TSLHopCurrentDataStats15Min
TSL Hop Current 24Hr Stats * Data	radioequipment	TSLHopCurrentDataStats24Hr

NSP domains

21.8 General information

21.8.1 NSP domains general information

For the NSP domains, you must enable the following:

- all aggregators associated with the domain in NSP Classic management

21.9 Fields and Measures

21.9.1 Fields and Measures general information

The fields and measures included in some of the data domains are based on packages and classes described in the *XML API Reference*.

The following do not appear in the *XML API Reference*:

- Aux DB Enum Table: Information about the NE from the auxiliary database, such as chassis type. The table provides information about NE types (chassis types, chassis numbers) and their displayed name
- Temperature
- Creation and Deletion Time: information about the time of creation and deletion of a SAP or service
- Outages
- ModelName
- ClassName/SubscriptionType

21.10 Data domain mapping to the *XML API Reference*

21.10.1

The following tables provide information about data domain statistics. Some tables provide information about where data domain statistics can be found in the *XML API Reference*.

21.10.2 Comprehensive domains (NSP)

Table 21-39 Comprehensive Domain (NSP)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Service	service	cpipe, epipe, fpipe, ies, ipipe, mvpls, vlan, vprn, vpls
SAP	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls

Table 21-39 Comprehensive Domain (NSP) (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
TWL Session	saspm	TwlSession
CFM DMM Session	ethernetoam	CfmDmmSession
Network Element	netw	NetworkElement
CFM DMM Session Accounting Stats * Data	saspm	CfmDmmSessionAccStats
TWL Session Accounting Stats * Data	saspm	TwlSessionAccStats
CFM SLM Session Stats * Data	ethernetoam	CfmSlmSessionStats

Table 21-40 Node Health Domain (NSP) (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Telemetry Hardware Temperature Stats * Data	—	/telemetry:base/hardware/temperature
Telemetry Info System Stats * Data	—	/telemetry:base/system-info/system
physicalmapregion	group	group.physicalmapregion
mapmember	group	group.mapmember
mapzone	group	group.mapzone

Table 21-41 Node Health Domain (NSP) (Classic)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	netw	NetworkElement
Allocated Stats * Data	equipment	AllocatedMemoryStats
Available Stats * Data	equipment	AvailableMemoryStats
Temperature Stats * Data	equipment	HardwareTemperature
Cpu Stats * Data	equipment	SystemCpuStats
Memory Stats* Data	equipment	MemoryUtilizationStats
Topology Group Binding	netw	topologygroupbinding

Table 21-42 Collection schema telemetry

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
CFM DMM Session Accounting Stats * Data	saspm	CfmDmmSessionAccStatsLogRecord
CFM SLM Session Accounting Stats * Data	saspm	CfmSlmSessionAccStatsLogRecord
TWL Session Accounting Stats * Data	saspm	TWLSessionAccStatsLogRecord
TWL Loss Session Accounting Stats * Data	saspm	TWLSessionLossAccStatsLogRecord

21.10.3 Physical Inventory domain (NSP)

Table 21-43 Physical Inventory Domain (NSP)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	equipment	NetworkElement
Shelf	equipment	equipment
Card	equipment	equipment
Physical Port	equipment	equipment, PortDetails

21.10.4 OAM (NSP) domains

Table 21-44 OAM Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
OAM PM Session	md-oam-app	nsp-oam.tests_oam-test.tests_cfm-dmm
	md-oam-app	nsp-oam.tests_oam-test.tests_twamp-light
Network Element	equipment	equipment.NetworkElement
OAM PM Bin Group	md-oam-app	nsp-oam-config.oam-pm_bin-groups
OAM Test CFM DMM	md-oam-app	nsp-oam.tests_oam-test.tests_cfm-dmm
OAM Test Twamp Light	md-oam-app	nsp-oam.tests_oam-test.tests_twamp-light
Telemetry Base OAM PM Ethernet CFM Delay Session Stats * Data	—	/telemetry:base/oam-pm/eth-cfm-delay-session
Telemetry Base OAM PM Ethernet CFM SLM Loss Session Stats * Data	—	/telemetry:base/oam-pm/eth-cfm-slm-loss-session

Table 21-44 OAM Domain (MDM) (continued)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Telemetry Base OAM PM Accounting CFM DMM Bin Accounting Stats * Data	—	/telemetry:base/oampm-accounting/cfm-dmm-bin-acc-stats
Telemetry Base OAM PM Accounting CFM DMM Session Accounting Stats * Data	—	/telemetry:base/oampm-accounting/cfm-dmm-session-acc-stats
Telemetry Base OAM PM Accounting TWL Bin Accounting Stats * Data	—	/telemetry:base/oampm-accounting/twl-bin-acc-stats
Telemetry Base OAM PM Accounting TWL Session Accounting Stats * Data	—	/telemetry:base/oampm-accounting/twl-session-acc-stats

Table 21-45 OAM Domain (NSP Classic)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
IP Session	saspm	IPSession
Bin Group	saspm	BinGroup
PM Session	saspm	PMSession
TWL Session	saspm	TwlSession
CFM DMM Session	ethernetoam	CfmDmmSession
Network Element	netw	NetworkElement
CFM DMM Bin Accounting Stats * Data	saspm	CfmDmmBinAccStats
CFM DMM Session Accounting Stats * Data	saspm	CfmDmmSessionAccStats
CFM DMM Session Stats * Data	ethernetoam	CfmDmmSessionStats
TWL Bin Accounting Stats * Data	saspm	TwlBinAccStats
TWL Session Accounting Stats * Data	saspm	TwlSessionAccStats
CFM SLM Session Stats * Data	ethernetoam	CfmSlmSessionStats

Table 21-46 OAM Domain—Custom details

Domain Table	Table Name	Description
CFM DMM Session with PM Session Stats Raw Data	ethernetoam_CfmDmm SessionStatsLogRecord	Consist of Cfm Dmm Sessions data; see 18.5 “OAM-PM Latency (NSP) report” (p. 794)
	sas_PmSession Bas-eStatsLogRecord	Consists of PM Sessions data

21.10.5 Utilization (NSP) domains

Table 21-47 Interface Utilization Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.Networkelement
Physical Port	equipment	equipment.PhysicalPort
Lag	equipment	equipment.Lag
Service Endpoint	service	service.Endpoint
Service EndpointResourceBinding	service	service.EndpointResourceBinding
Interface subinterfaces subinterface config	devicemodule	devicemodule. openconfig_ 67032650terface_subinterfaces_ subinterface_config
Attributes interface interface ref config	devicemodule	devicemodule. openconfig_ 60516277attributes_interface_interface_ ref_config
Telemetry base mpls interfaces mpls interface stats * Data	—	telemetry:/base/mpls-interfaces/mpls-interface
Telemetry Complete Service Egress Packet Stats * Data	—	/telemetry:base/accounting/ completeservice-egress-packet-octets
Telemetry Complete Service Ingress Packet Stats * Data	—	/telemetry:base/accounting/ completeservice-ingress-packet-octets

Table 21-48 Interface Utilization Domain (NSP Classic)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	netw	Network Element
Physical Port	equipment	PhysicalPort
Lag	equipment	LogicalPort
GenericNE	genericne	GenericNeInterface
Access Interface	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls
Network Interface	rtr,mpls	NetworkInterface, Interface
Mpls Interface stats * Data	mpls	MplsInterfaceStats
Complete Service Ingress Packet Octets * Data	service	CompleteServiceIngressPacketOctets
Complete Service Egress Packet Octets * Data	service	CompleteServiceEgressPacketOctets
Service Ingress Octets * Data	service	ServiceIngressOctets
Service Egress Octets * Data	service	ServiceEgressOctets

Table 21-48 Interface Utilization Domain (NSP Classic) (continued)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
GenericNe Interface Additional stats * Data	genericne	InterfaceAdditionalstatsLogRecord

Table 21-49 Link Utilization Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Telemetry Base LSP Stats * Data	—	/telemetry:base/lsps/lsp-egress
Te LSP	ietf	/ietf-te:te/lsps/lsp
Te Tunnel	ietf	/ietf-te:te/tunnels/tunnel
Telemetry Base LSP Path Stats * Data	—	/telemetry:base/lsps/lsp-egress-path

Table 21-50 Link Utilization Domain (NSP Classic)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Dynamic LSP	mpls	DynamicLsp
Network Element	netw	NetworkElement
P2MP Dymanic LSP	mpls	P2MPDynamicLsp
Segment RoutingTe LSP	mpls	SegmentRoutingTeLSP
Static LSP	mpls	Static LSP
MPLS LSP Egress Stats * Data	mpls	MplsLspEgressStats

Table 21-51 Port Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Physical Port	equipment	equipment.Equipment
	equipment	equipment.LAG
	equipment	equipment.PortDetails
Network Element	equipment	equipment.NetworkElement
Resource Group	group	group.EquipmentGroup
	group	group.LagGroup
Resource Group Members	group	group.group_groupmembers
Telemetry Base Interface Stats * Data	—	/telemetry:base/interfaces/interface

Table 21-51 Port Domain (MDM) (continued)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Telemetry Base Interfaces Interface Error Stats * Data	—	telemetry:/base/interfaces/interface-errors
Telemetry Base Accounting Complete Ethernet Port Stats * Data	—	telemetry:/base/accounting/complete-ethernet-port

Table 21-52 Port Domain (NSP Classic)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
MC Lag Interface	Multichassis	MultichassisLag
Network Element	netw	NetworkElement
Physical Port	equipment	PhysicalPort
Ingress Port Fwd Eng Drop Reason Stats * Data	equipment	IngressPortFwdEngDropReasonStats
Interface Additional Stats * Data	equipment	InterfaceAdditionalStats
Interface Stats * Data	equipment	InterfaceStats
Port Net Egress Stats * Data	equipment	PortNetEgressStats
Port Net Ingress Stats * Data	equipment	PortNetIngressStats
Additional Ethernet Stats * Data	ethernetequipment	AdditionalEthernetStats
Ethernet Stats * Data	ethernetequipment	EthernetStats
Aggr MaintRx Stats * Data	ethernetequipment	AggrMaintRxStats
Aggr MaintTx Stats * Data	ethernetequipment	AggrMaintTxStats
Dot3 Stats * Data	ethernetequipment	Dot3Stats
Ethernet Stats * Data	ethernetequipment	EthernetStats

Table 21-53 Temperature-CPU-Memory Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Telemetry Hardware Temperature Stats * Data	—	/telemetry:base/hardware/temperature
Telemetry Info System Stats * Data	—	/telemetry:base/system-info/system

Table 21-54 Temperature-CPU-Memory (NSP Classic)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	netw	NetworkElement
Allocated Stats * Data	equipment	AllocatedMemoryStats
Available Stats * Data	equipment	AvailableMemoryStats
Temperature Stats * Data	equipment	HardwareTemperature
Cpu Stats * Data	equipment	SystemCpuStats
Memory Stats* Data	equipment	MemoryUtilizationStats

Table 21-55 Utilization Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Customer Details	service	service.CustomerDetails
Service Endpoint	service	service.Endpoint
Service	service	service.Service
Service Site	service	service.Site
Telemetry Complete Service Egress Packet Stats * Data	—	/telemetry:base/accounting/complete-service-egress-packet-octets
Telemetry Complete Service Ingress Packet Octets Stats * Data	—	/telemetry:base/accounting/complete-service-ingress-packet-octets

Table 21-56 Utilization Domain (NSP Classic)

Adhoc Report Design Editor Source	*XML API Reference*	
	Package	Class
Network Element	netw	NetworkElement
SAP	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls
Complete Service Egress Packet Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Complete Service Ingress Packet Octets Stats * Data	service	SapIngQosPlcyQueueStats

NSP API documentation

21.11 NSP API documentation availability

21.11.1 Purpose

This part provides information about NSP API documentation for ad hoc reports.

21.11.2 NSP API documentation availability

The XML API Reference is a representation of the model for classically managed network elements only. For NSP MDM-managed devices, API documentation can be found in the Network Developer Portal (http://network.developer.nokia.com/api-documentation/). The portal provides links to NSP RESTCONF API and NSP REST API resources, which includes Swagger documentation, Yang HTML browser, and sample code “Postman” collections for all of the listed NSP APIs.

Part VII: Use cases

Overview

Purpose

This part provides information about NSP Analytics use cases.

Contents

22 Analytics use cases

22.1 Creating an ad hoc report

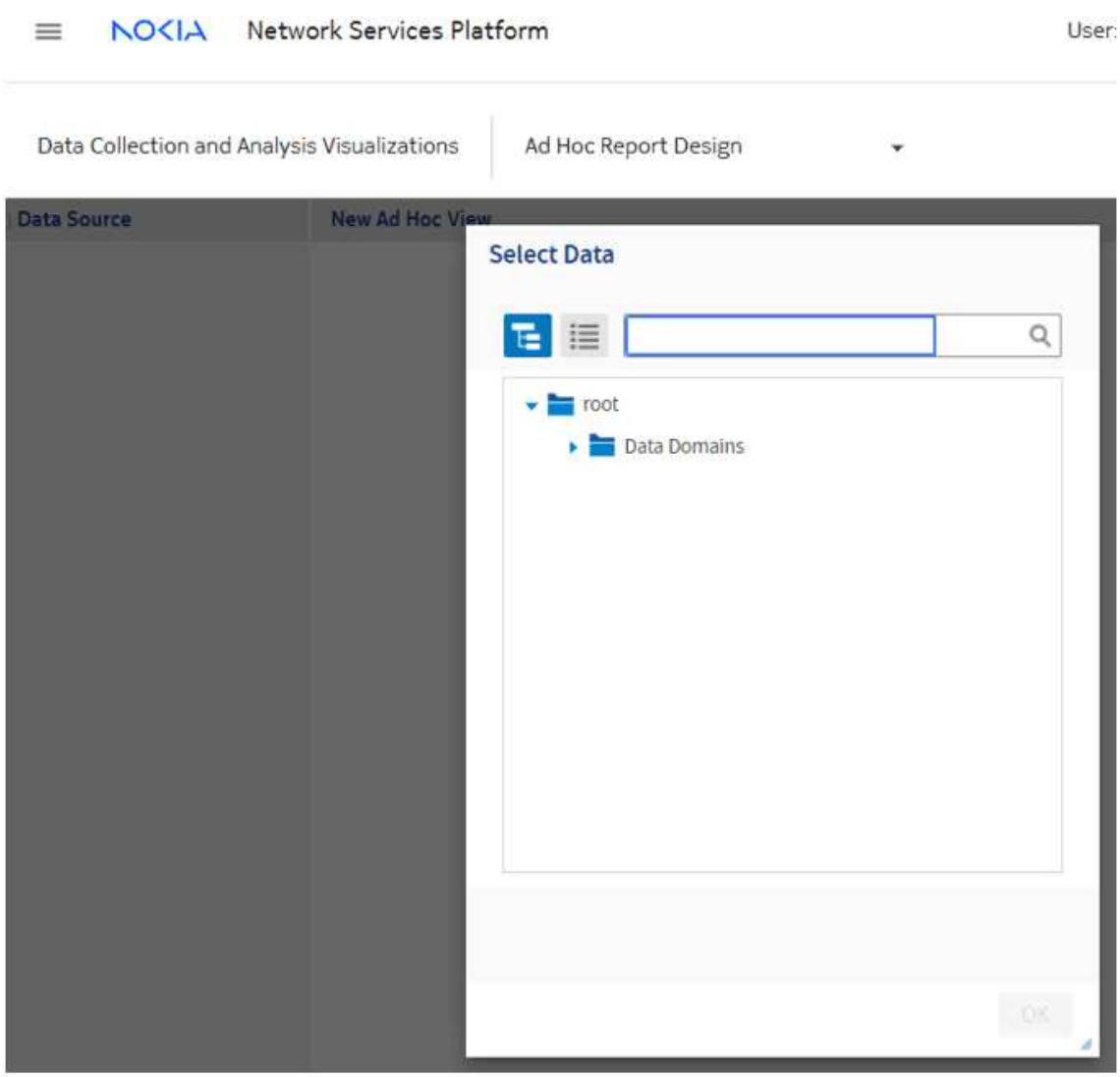
22.1.1 Use case overview

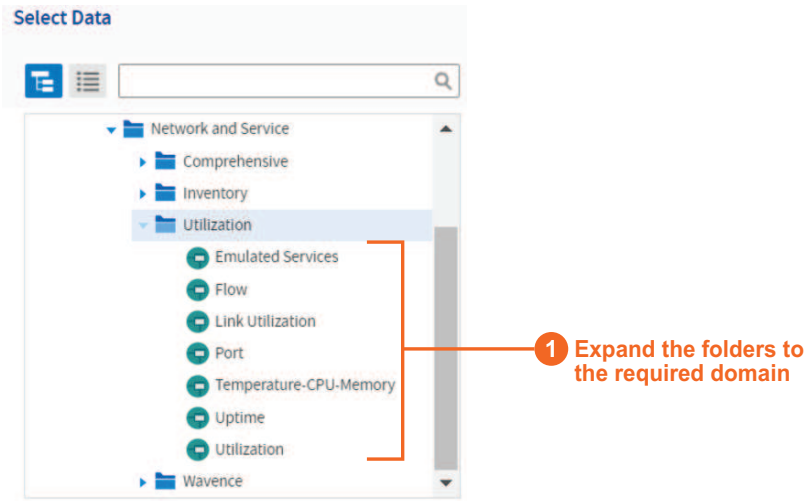
This article shows how to create an ad hoc report in Analytics. In this use case, we want to trigger action for link expansion if a link has throughput exceeding a pre-defined capacity. To aid in making the decision, we'll create a report showing the data we need.

22.1.2 Let's go

To create a custom report, we'll open the Adhoc Report Design view.

The information we'll be tracking is in the Port Domain.





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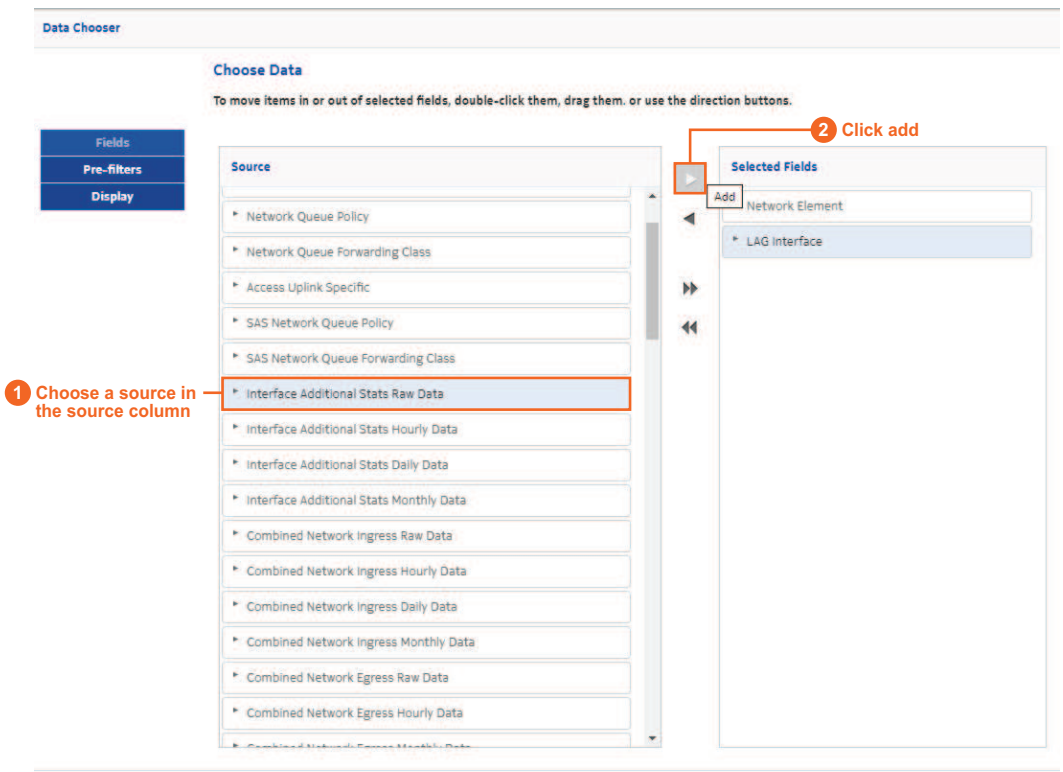

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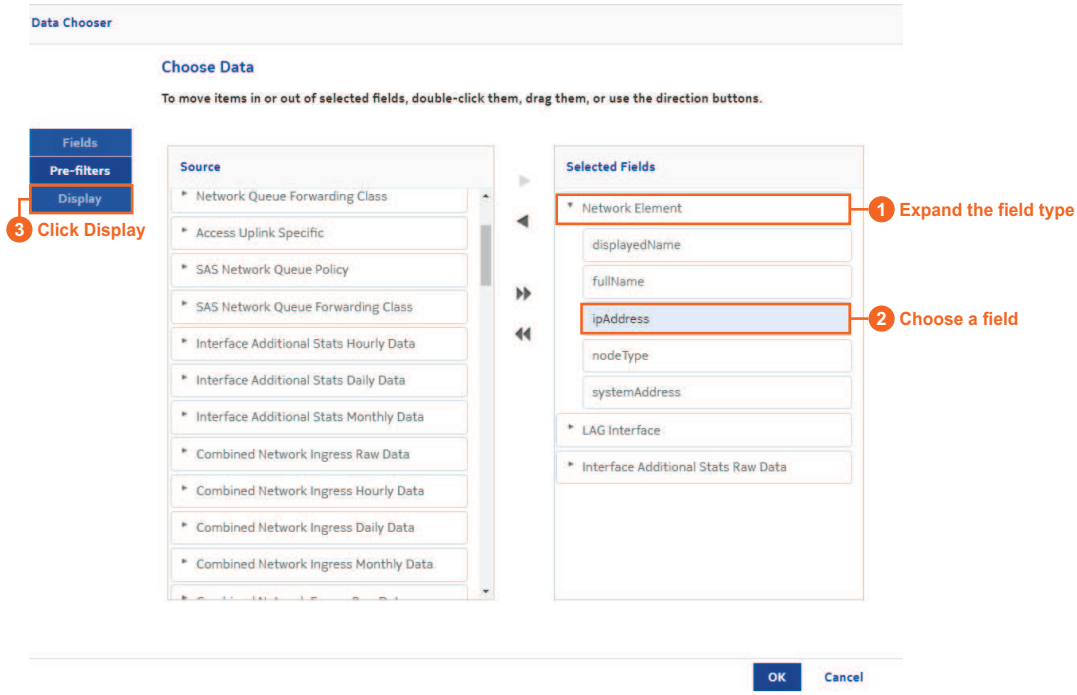
The fields and measures that are included with the data domains can be customized. Let’s update the names of some of the fields so that they’re easy to identify.



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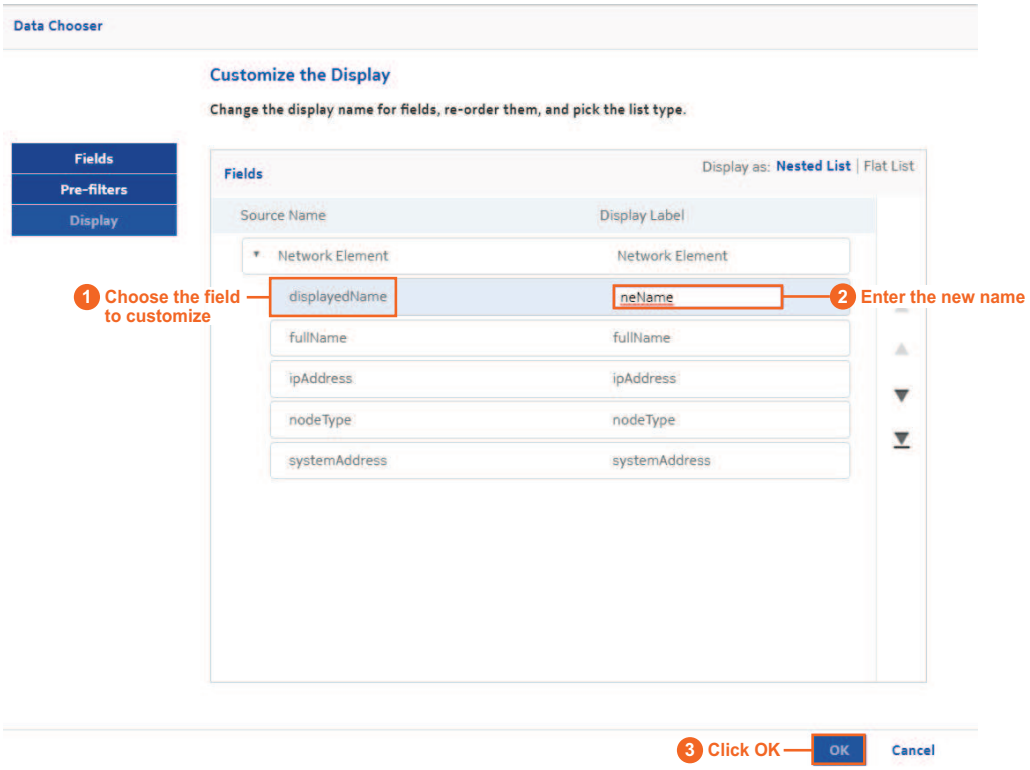


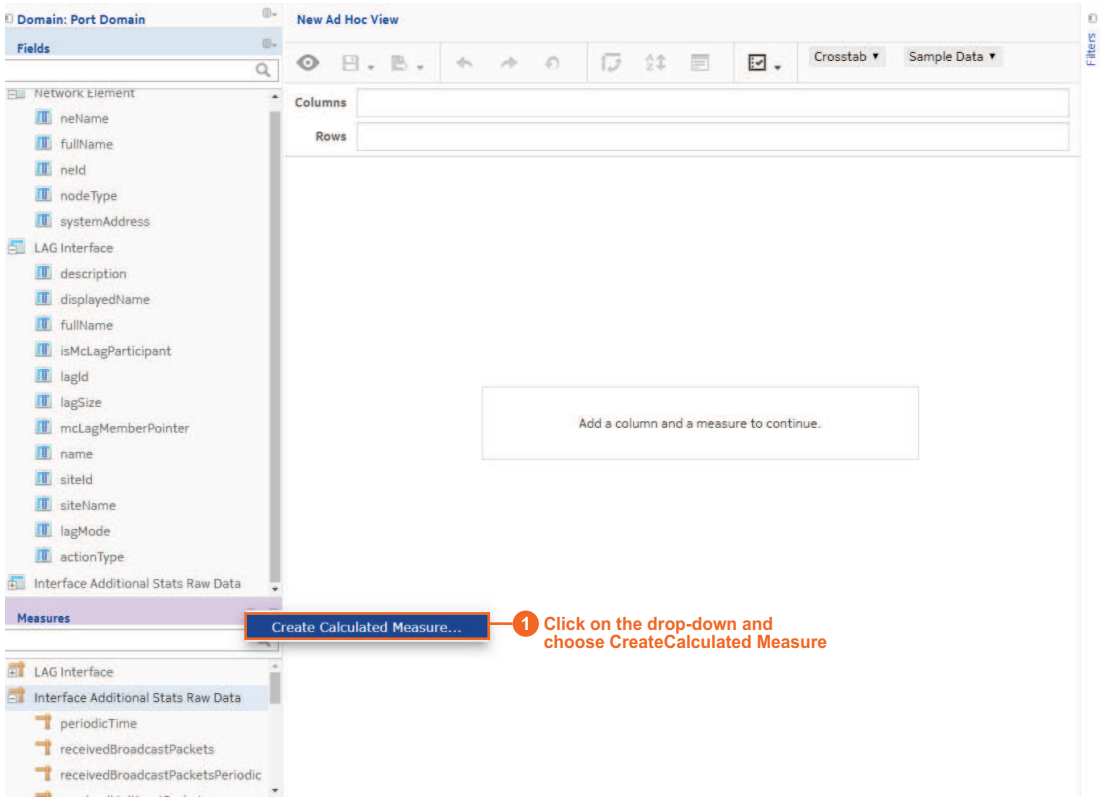
35732

Now we're ready to start designing the report. Our report will track ingress and egress utilization measures, and display information about the NEs and LAGs in the table fields.

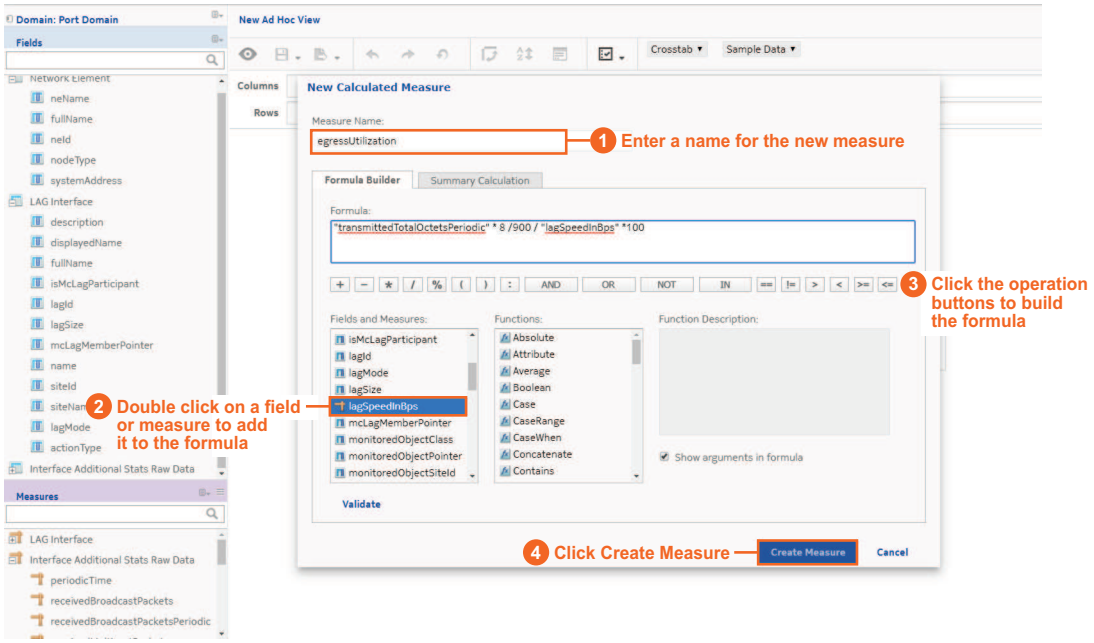
The utilization measures are calculated values, so we need to create custom measures to obtain the values.

The utilization measures are calculated using default measures, according to the following formulas:

- ingressUtilization: "receivedTotalOctetsPeriodic" * 8 / 900 / "lagSpeedInBps" *100
- egressUtilization: "transmittedTotalOctetsPeriodic" * 8 / 900 / "lagSpeedInBps" *100



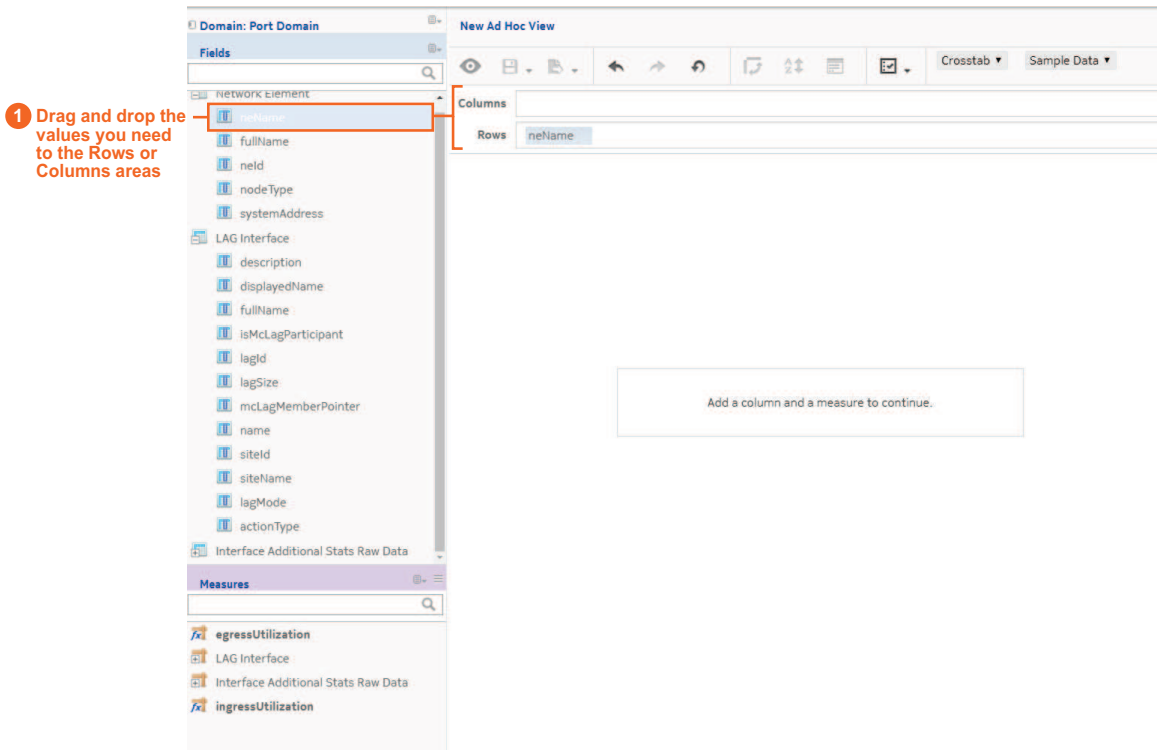
35733



35734

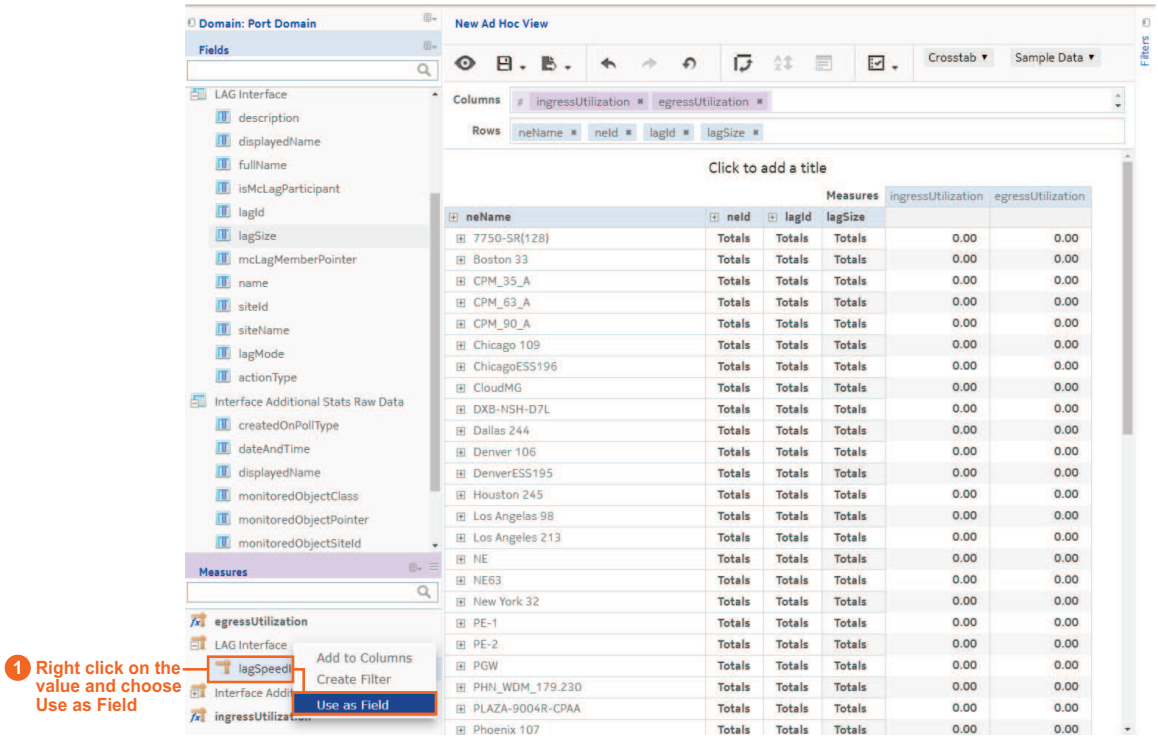
Add the values you need to the rows and columns. We'll use the Measures as the column values and put the Fields in each row. As the report is built, the values are populated to show how the report will look.

Note: You can choose to place either Fields in the Rows area and Measures in the Columns area or vice versa, but you cannot mix fields and measures in the same area.



35735

One of the values we want to show in the rows is the LAG speed. This value is a measure by default, so we'll need to change it to a field.



35736

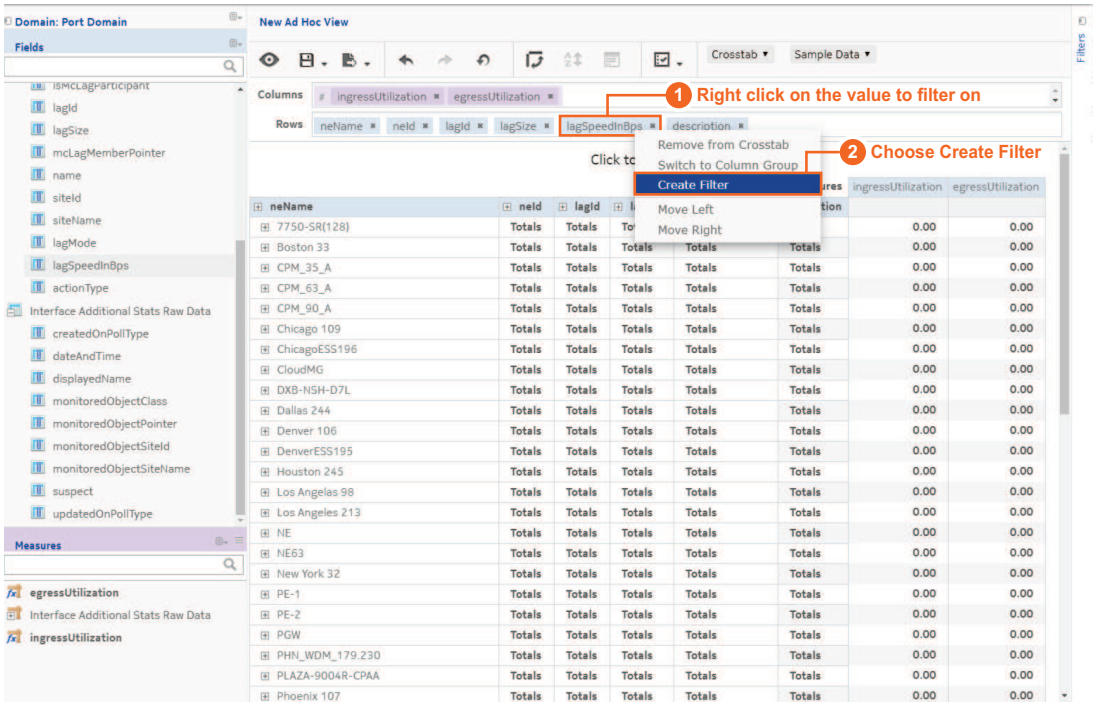
Continue adding the relevant values to the rows. The report will include descriptions about the NEs and their LAGs: NE name, NE ID, LAG ID, LAG size, LAG speed, and LAG description.

We have created a table that can be run as a report. If we saved this view and created a report from it, it would show all the available information for the selected values.

To allow the report to show a subset of data, we'll need to create filters. The filters we create will also become inputs in the report.

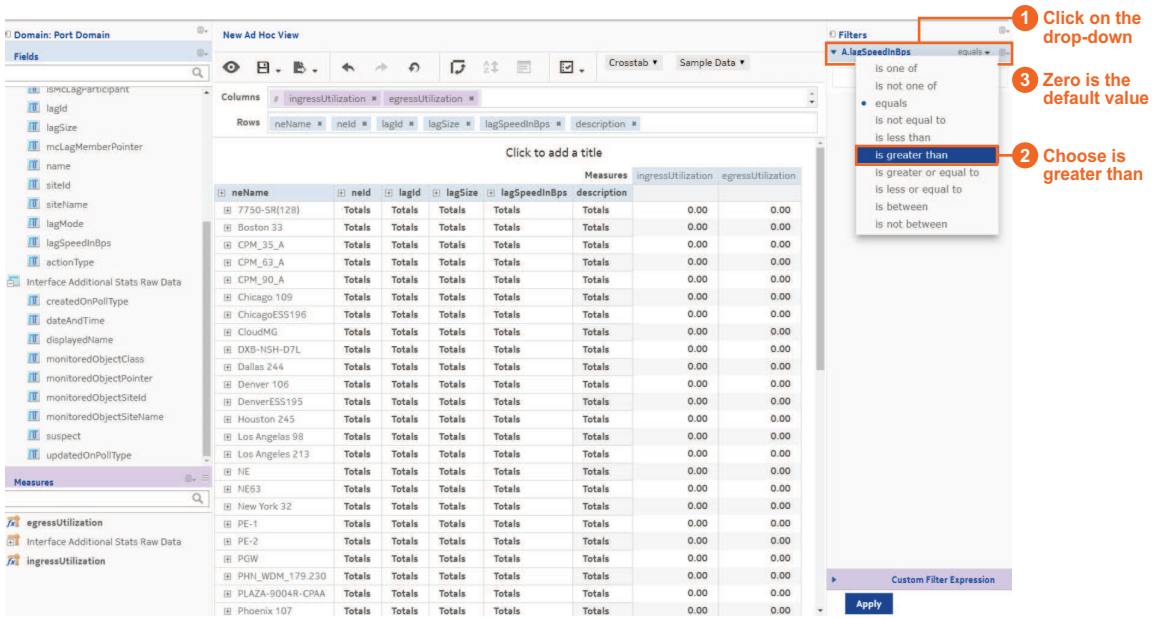
We'll filter based on the following:

- LAG speed
- Date and time



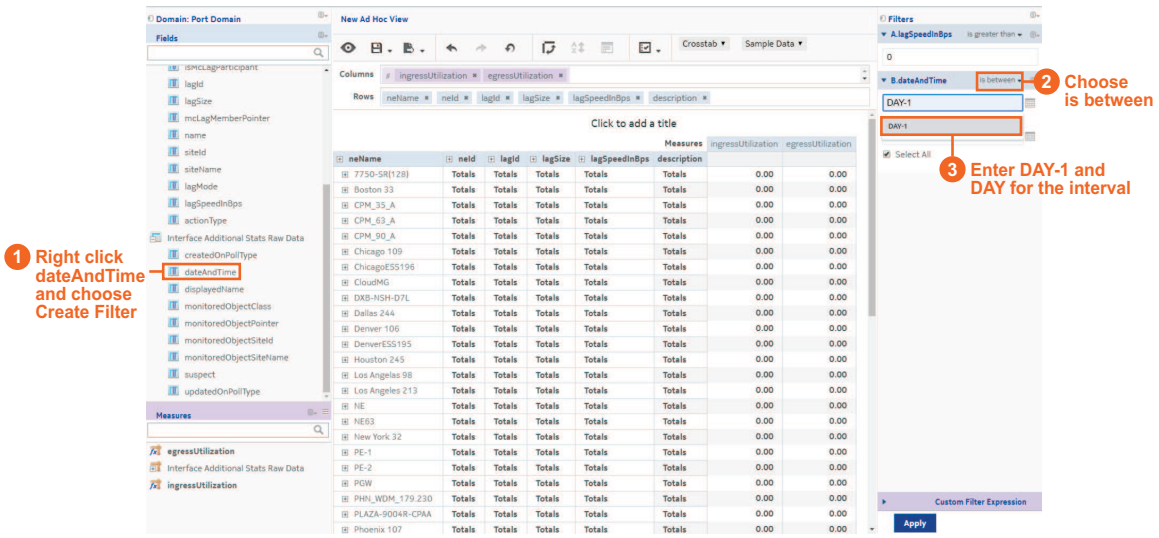
35737

The filter appears in the Filters column. Let’s set the default filter expression to greater than zero.



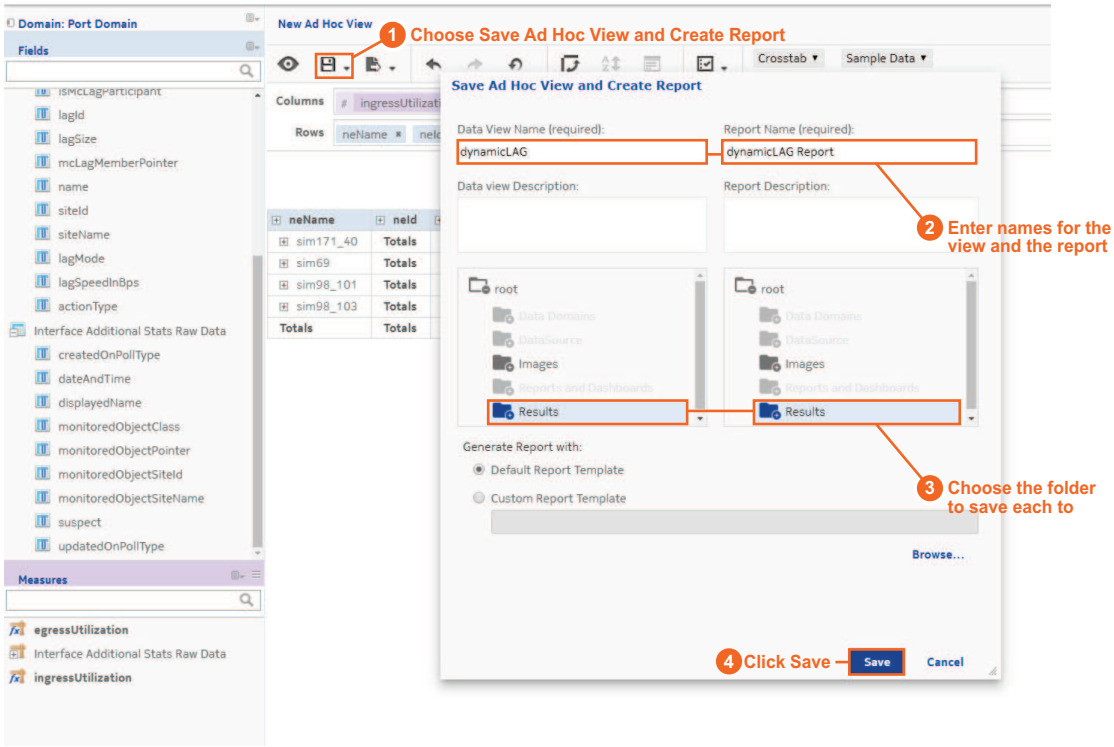
35738

Set a second filter for date between previous day and current day.



35739

From the Save drop-down, choose Save Ad Hoc View and Create Report. Saving the Ad Hoc View will let us modify it in the future as needed. Creating the report allows us to run or schedule it.



35740

22.1.3 We're done

We have created a custom report for egress and ingress LAG utilization. From the Results folder where the report is stored, we can create a schedule to run the report periodically, and output results in the desired format. The customer can use these results to trigger updates based on LAG utilization when required.