NOKIA

NSP
Network Services Platform
Release 24.11

Release Description

3HE-20026-AAAC-TQZZA
Issue 1
December 2024

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Contents

About this document

Purpose

This document is intended to assist network planners and administrators by providing high-level feature descriptions for NSP Release 24, along with the schedule for delivery.

Scope

The NSP Release Description lists and describes all significant features introduced in NSP Release 24, including classic IP management (NFM-P). The features available in your deployment depend on the feature packages you purchased. For information about feature packages and the product functionality they license you to use, see the *NSP System Architecture Guide*.

Document organization

The document is organized on a cumulative basis by release. Descriptions reflect the release in which the feature was introduced. If an enhancement is delivered in a subsequent release, the enhancement feature would appear separately.

Feature descriptions are sorted in alphabetical order by product area, and then by feature key.

For more detailed information and procedures related to the features described in this Release Description document, refer to the customer documentation suite delivered with the NSP product.

Document support

Customer documentation and product support URLs:

- Documentation Center
- Technical support

How to comment

Please send your feedback to Documentation Feedback.

1 Introduction

1.1 Release information

1.1.1 Target schedule

Three releases with new content are planned in Release 24, as summarized below:

- Release 24.4 — April 2024
- Release 24.8 — August 2024
- Release 24.11 — December 2024

Service packs in support of these releases will be delivered as required.

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1.2 Ordering information

1.2.1 Sales engineering information

Table 1-1   NSP resources

Resource
[Software download from the Nokia Support portal](#) (registered customers only)
License keys (please contact your account representative for assistance)

1.2.2 Pricing information

To obtain NSP pricing information or assistance with ordering, please contact your regional sales representative.

1.2.3 Sizing

Contact your account representative to make a sizing request.

1.2.4 Support for Beta keys

Beta keys are controlled by NSP Product Management. To apply for the NSP Beta Program, contact your account representative.

1.3 Additional information

1.3.1 Network element support

Please see the *NSP NFM-P Network Element Compatibility Guide* for complete network element compatibility information. This compatibility reference guide is updated frequently to incorporate new network element release information and compatibility with NFM-P. Always consult the latest version on the Doc Center.

For information about adaptors, see "Where can I find more information about adaptors?"

Device artifact bundles and documentation are available from the Nokia NSP software download site.

1.3.2 Deprecations and support discontinuation notices

Feature deprecation and discontinuation notices are listed in the *NSP Release Notice*.

1.3.3 Scale and architecture

The scalability and performance targets for NSP Release 24 are described in the *NSP Planning Guide*.

1.3.4 Supported operating systems

Please refer to the *NSP Planning Guide* for detailed information about supported operating systems and requirements.

1.3.5 Adaptors and artifacts

Adaptors and other artifacts can be delivered off-cycle and are accompanied by their own documentation.

NSP framework features that support these artifacts are delivered with NSP releases and may be described in this document.

2 NSP NMS feature descriptions

2.1 Transport Slice Controller and 5G features

2.1.1 [NSPF-314580] TSC: Support for SDPs on PEs and IETF model changes Phase 1

Release introduced: 24.11

Compliance with the latest version of the IETF SLICE NBI draft-ietf-teas-ietf-network-slice-nbi-yang.

2.2   Path Control features

2.2.1   [NSPF-174489] PCEP IPv6 Support

Release introduced: 24.11

In NSP Release 24.11, users have the ability to specify IPv6 addresses when defining LSP source, destination, and intermediate hops. This is in addition to previously-supported IPv4 addresses. Existing APIs will return the same information for IPv6 addresses as they did previously for IPv4 addresses.

2.2.2   [NSPF-429277] ISISv6 support of MT=2

Release introduced: 24.11

Visualization of multi-topology ISIS (MT=2) is supported for non-congruent IPv6 topologies.

In NSP 24.11, a Router ID must be specified for non-congruent IPv6 topologies.

IPv6 Unnumbered Interfaces impact the consistency of the traffic engineering information.

BGP EPE does not support between IPv6 neighbor.

2.3   NSP GUI features

2.3.1 [NSPF-416267] Enterprise onboarding

Release introduced: 24.11

Enterprise onboarding is a wizard-style application that allows a user to configure their NSP post-installation. For deployments configured in Enterprise mode, the wizard is launched upon the first login and walks the user through a series of screens to simplify the process of configuring the look and function of the NSP.

For upgrades, there will be an option to use the previous configuration, or to start a new one.

2.4 Network Infrastructure Management - Configuration and Operations features

2.4.1 [NSPF-311882] MAG-c Appliance: Backup and Restore in LSO

Release introduced: 24.8

This feature introduces Backup and Restoration operation support on the MAG-c appliance in NSP.

2.4.2 [NSPF-229815] Centralized discovery manager for all of NSP

Release introduced: 24.4

This feature provides centralized discovery management across a classic and model-driven network.

This will allow user to:

- Unify the visualization of all discovered NEs into a central GUI

- Provide unified discovery rule definition and execution

- Centralize NE un-management and removal from NSP

The main customer benefit of this feature is that it will increase visibility of NEs managed by NSP, merging the current functionalities of model-driven and classic NE discovery. This is another step forward in unification of NSP functionality and central visualization of the network.

2.5   Network Infrastructure Management - Assurance features

2.5.1 [NSPF-319814] MAG-u: 7750 SR-1x/SR-1s upgrade automation

Release introduced: 24.11

This feature automates the following steps for software upgrades on MAG-u in CUPS deployment:

1. Make sure MAG-u is in stable state and it has disk space available for ISO image transfer.

2. Move subscribers from this MAG-u to other MAG-u nodes that are operationally up.

3. Upgrade MAG-u.

4. Verify MAG-u with the new release.

5. Return the subscribers to MAG-u seamlessly.

2.5.2 [NSPF-435969] Troubleshooting dashboard - NE and service event timeline

Release introduced: 24.11

This feature provides network operators with visibility of all network and configuration related event changes presented in the context of an NE or service within the troubleshooting dashboard. It provides complete visibility of everything: configuration changes, network alarms and events, OAM test failures and any NE resource state change.

2.6 Mediation Collection features

2.6.1 [NSPF-316978] CN Telemetry - accounting file collection GA functionality

Release introduced: 24.8

NSP now natively supports the collection of accounting logs from Classic and MD NEs. It does so in a horizontally scalable manner for file output, as well as notifications (Kafka) and persistence (DB).

A new recovery mechanism attempts to retrieve accounting files missed from previous collection interval(s). Files that remain on the NE (not yet aged-out) may be retrieved reducing or eliminating data loss.

2.6.2 [NSPF-241820] Support IPFIX for MD SR and IXR

Release introduced: 24.4

NSP Flow Collectors support the collection of System cFlowd statistics from the model-driven Release 23.10 7250 IXR and 7750 SR. Model-driven collection of AA Cflowd statistics from the devices is not supported.

2.6.3 [NSPF-126079] Auxiliary Database Installation and Management with or without NFM-P

Release introduced: 24.4

Until Release 24.4, an NSP deployment that included an auxiliary database also required the NFM-P.

NSP Release 24.4 eliminates the NFM-P dependency, and supports auxiliary database deployment and management regardless of whether the NSP system includes the NFM-P.

2.7 IP/Optical Coordination features

2.7.1 [NSPF-313926] Ciena T-API Controller - 2.4.1 support Phase 2

Release introduced: 24.4

NSP IP/Optical Coordination support for TAPI Release 2.4.1.

2.8 Device Management: SR OS features

2.8.1 [NSPF-308510] MAG-c Appliance ICR upgrade automation

Release introduced: 24.8

This feature automates MAG-c Appliance upgrade on two NEs that are in an inter-chassis geo-redundant setup.

2.9 Automation Frameworks features

2.9.1 [NSPF-264172] Support for self-signed artifacts

Release introduced: 24.8

This feature allows the installation of public keys in NSP for artifact bundle validation coming from third-party authors (i.e. non Nokia R&D signed bundles).

In this way, developers creating new artifacts in NSP will be able to create their own key pairs, request the installation of the public key in NSP and sign their bundles before installing them in NSP.

Bundles will appear as signed in the Artifacts view, including the right Author.

2.10 Analytics features

2.10.1 [NSPF-442849] NFM-P Availability Framework enhancements

Release introduced: 24.11

In previous releases availability monitoring was enabled or disabled for all managed object classes involved in supporting Availability reports in NSP Analytics. This release introduces the flexibility to enable/disable the availability monitoring of selected availability managed object classes. This can reduce system resource usage and align it better with customer reporting needs.

It is possible for the synchronization of the Analytics data dictionary table data with the NFM-P for periodic availability monitoring to fall behind and not complete in the configured interval of time. In this release synchronization of data for the next interval will not start unless the previous synchronization cycle has completed. This avoids potentially exacerbating a loaded system condition at the risk of suspect intervals for some availability data (which is logged).

2.10.2 [NSPF-429072] NFM-P Availability Framework profile

Release introduced: 24.8

This release provides detailed deployment guidelines for the Availability Framework when used with NSP Analytics reports, e.g. Comprehensive reports. Additional instrumentation is provided to monitor the framework and to alert of overload conditions. The rate of availability KPI processing is expanded as documented in the Analytics Report Catalog.

2.10.3 [NSPF-205637] Analytics server containerization

Release introduced: 24.4

In Release 24.4, the NSP analytics server functions and data are transferred to the NSP Kubernetes cluster. The RPM-based analytics servers deployed outside the cluster are no longer required or supported.

The move to the NSP cluster reduces the number of required VMs in a deployment, and eliminates the need for discrete analytics installation and upgrade procedures.

The analytics migration to the NSP cluster is a simple and straightforward operation that requires minimal user interaction.

3 NSP nodal feature descriptions

3.1 IP Edge features

3.1.1 [NSPF-443262] Resurrect AOS EoL Device Support

Release introduced: 24.11

Re-introduce OMNI Switches (EoL) that were removed in NSP 23.11 to cater to OMNI customer deployment.

As part of this feature, OMNI customer can now manage following OMNI Switches using Extended LPs :

OMNI HW : OS6400, OS6850/6850E, OS6855, OS6855-U24x, OS6250-24/24M

AOS Releases : 6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6

Please refer the NFM-P 24.11 NE Compatibility guide for more details on this.

3.1.2 [NSPF-301630] Require OS6570M-12/OS6570M-12D Support

Release introduced: 24.8

NSP will manage OmniSwitch 6570M Metro Ethernet Switch that features versatile 12-port fixed configurations, including 10/100/1000BASE-T RJ-45 ports, 1G SFP ports, and 10G SFP+ ports for increased throughput and switch compacity.

3.1.3 [NSPF-309339] Require OS6570M-U28/OS6570M-U28D Support

Release introduced: 24.8

NSP will manage OmniSwitch 6570M Metro Ethernet Switch that features versatile 28-port fixed configurations, including 10/100/1000BASE-T RJ-45 ports, 1G SFP ports, and 10G SFP+ ports for increased throughput and switch compacity.

3.1.4 [NSPF-306650] OS6360-P10 Support

Release introduced: 24.4

NSP will manage OS6360-P10, which is a replacement of OS6450-P10.

It has the following characteristics:

OS6360-P10 GigE fixed chassis 8 RJ-45 PoE 10/100/1G BaseT. 2 10/100/1G BaseT. 2 fixed SFP (1G) uplink ports. 1RU size. internal AC power supply (120W PoE budget). Includes US power cord.

3.1.5 [NSPF-311130] Require OS6900-V48C8 Support

Release introduced: 24.4

NSP will manage OS 6900V48C8 with the following characteristics:

OS6900V48: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10/25G SFP28 ports and 8 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two 650W AC power supplies. The bundle ships with user manuals access card and rack mounts.

4 NSP Release 24 features at a glance

4.1 NMS feature list

4.1.1 NSP NMS features

Table 4-1 NSP Release 24.11

Key	Summary	Area
[NSPF-421881]	NFM-P IB Extracts: Support SR Classic NEs Pay-as-you-grow with additional CSV extracts	7x50 equipment
[NSPF-431051]	Enhancements to Radio Summary Table	Analytics
[NSPF-442849]	NFM-P Availability Framework enhancements	Analytics
[NSPF-209063]	Device Management: Support for FTP policies in NSP GUI	Assurance
[NSPF-319814]	MAG-u: 7750 SR-1x/SR-1s upgrade automation	Assurance
[NSPF-435969]	Troubleshooting dashboard – NE and service event timeline	Assurance
[NSPF-286120]	Async operations and notification support	Automation Frameworks
[NSPF-314860]	Kafka trigger framework to queue notifications beyond rate limit	Automation Frameworks
[NSPF-449396]	GraalJS for Production GA (transversal)	Automation Frameworks
[NSPF-289501]	AOS 8.10 R01 Support	IP Edge
[NSPF-265757]	Support OAUTH2 SSO in IP/Optical deployments	IP/Optical Coordination
[NSPF-277071]	IP/Optical support for kafka authentication	IP/Optical Coordination
[NSPF-314727]	IP/Optical - integrate NSP 24.8 with WS 24H1	IP/Optical Coordination
[NSPF-265591]	Move CLM to Kubernetes	Infrastructure
[NSPF-314720]	Update NSP K8S Platform Packages - 24.11	Infrastructure
[NSPF-317480]	Consolidate Users and Security Settings	Infrastructure
[NSPF-449638]	System Admin: DR activity switch control	Infrastructure
[NSPF-441122]	Aux DB: Admin Dashlet - Activate Cluster	Mediation Collection
[NSPF-447347]	OAM Edge node support - Y.1731	Mediation Collection
[NSPF-416267]	Enterprise onboarding	NSP GUI
[NSPF-436478]	ENT Library of Enterprise Artifacts	NSP GUI
[NSPF-174489]	PCEP IPv6 Support	Path Control
[NSPF-429277]	ISISv6 support of MT=2	Path Control
[NSPF-311021]	Support of Network spans - RBAC - Span of control	Service Management

Table 4-1 NSP Release 24.11 (continued)

Key	Summary	Area
[NSPF-314580]	TSC: Support for SDPs on PEs and IETF model changes Phase 1	Transport Slice Controller and 5G

Table 4-2 NSP Release 24.8

Key	Summary	Area
[NSPF-261582]	Comprehensive Service Reports	Analytics
[NSPF-278345]	Node Health Reports (NSP)	Analytics
[NSPF-429072]	NFM-P Availability Framework profile	Analytics
[NSPF-190372]	Network Intents | Performance and Scalability	Automation Frameworks
[NSPF-264168]	Artifacts | System-wide support: MDM deployer	Automation Frameworks
[NSPF-264172]	Artifacts | Support for self-signed content	Automation Frameworks
[NSPF-292609]	DevX | vsCode extension for artifact bundle creation	Automation Frameworks
[NSPF-309078]	SDK - Network Intents project support	Automation Frameworks
[NSPF-428366]	Network Intents | GraalJS Support	Automation Frameworks
[NSPF-429956]	Restrict authoring access for production deployments	Automation Frameworks
[NSPF-308510]	MAG-c Appliance ICR upgrade automation (GA)	Device Management: SR OS
[NSPF-300520]	Enterprise: Generic SNMP Adapter also supporting 7705/7210	Network Infrastructure Management - Assurance
[NSPF-311481]	Assurance - Migration of Grouping Concept within new NSP Navigation Part 2	Network Infrastructure Management - Assurance
[NSPF-314261]	MAGu: CUPS Sx loop back for MD Management in NH/NT Dashboard	Network Infrastructure Management - Assurance
[NSPF-274005]	Make Device Configuration functions modular	Network Infrastructure Management - Configuration and Operations
[NSPF-310401]	Device Configuration: Ability to filter targets based on template capabilities or filter templates based on selected node	Network Infrastructure Management - Configuration and Operations
[NSPF-311882]	MAG-c Appliance: Backup & Restore in LSO	Network Infrastructure Management - Configuration and Operations

Table 4-2 NSP Release 24.8 (continued)

Key	Summary	Area
[NSPF-318453]	Device Configuration: Ability to migrate config instances on a NE basis (Upgrade use case)	Network Infrastructure Management - Configuration and Operations
[NSPF-429926]	Finish of Centralised discovery	Network Infrastructure Management - Configuration and Operations
[NSPF-229911]	File server service - File purge policies	Platform
[NSPF-246499]	New NSP Navigation: Tree Customization	Platform
[NSPF-250975]	Support health monitoring for NFM-P	Platform
[NSPF-284557]	System Admin Dashboard - Add support for Kubernetes Cluster status	Platform
[NSPF-293503]	RHEL Updates to RHEL 8.10	Platform
[NSPF-299589]	Update NSP K8S Platform Packages for 24.8	Platform
[NSPF-312480]	Support Kubernetes LoadBalancer service	Platform
[NSPF-313952]	Support alarms for standby cluster failures	Platform
[NSPF-314604]	Remove support for 1830TPS	Platform
[NSPF-319196]	Support installation of NSP in restricted PSA - part 2	Platform
[NSPF-319821]	Eliminate support for CAS	Platform
[NSPF-417764]	Support use of customer provided storage	Platform
[NSPF-444319]	Add support for EAP Authentication in Keycloak Radius plugin	Platform
[NSPF-312957]	Artifact: E-Line artifact enhancements	Predefined Intent Types
[NSPF-420234]	Artifact: VPRN & IES Product Artifact Enhancements	Predefined Intent Types
[NSPF-295453]	Ability to define parent configuration forms to enable common attributes across multiple child configuration forms	Service Management
[NSPF-316043]	State of Redundant SAP/SDPs to be shown	Service Management
[NSPF-281558]	FC and FCC containerization (Phase 1 - FCC)	Telemetry, OAM, Mediation
[NSPF-285483]	[MD-OAM] OAM Manager NFM-P integration - LinkTrace	Telemetry, OAM, Mediation
[NSPF-309388]	Aux DB: Installation/Management w & w/o NFM-P Phase II	Telemetry, OAM, Mediation
[NSPF-316978]	CN Telemetry - accounting file collection GA functionality	Telemetry, OAM, Mediation
[NSPF-318029]	FC and FCC RESTCONF API	Telemetry, OAM, Mediation

Table 4-3 NSP Release 24.4

Key	Summary	Area
[NSPF-205637]	Analytics server containerization	Analytics
[NSPF-213321]	Analytics: Data Dictionary - configurable retention time for MOs that need availability monitoring	Analytics
[NSPF-109413]	Audible Alarm sounds on new alarms	Assurance
[NSPF-281432]	Complete coverage of NFM-P discovery aspects in NSP	Assurance
[NSPF-315314]	FWA CUPS: 5G Reference Point KPI Support	Assurance
[NSPF-315709]	FWA CUPS - Alarm Addition	Assurance
[NSPF-229815]	Centralized discovery manager for all of NSP	Device Management
[NSPF-317658]	Discontinuation of "Dual NE Management"	Device Management
[NSPF-293699]	Extend Centralized Discovery to OMNI Devices	IP Edge
[NSPF-291771]	IP/Optical: Integrate NSP 23.11 with WS-NOC/WS-RC 23 H2	IP/Optical Coordination
[NSPF-313926]	Ciena T-API Controller - 2.4.1 support Phase 2	IP/Optical Coordination
[NSPF-299586]	Update NSP K8S Platform Packages - kubespray 2.23 (k8s v1.27)	Infrastructure
[NSPF-299884]	NSP RHEL Updates to RHEL 8.9	Infrastructure
[NSPF-311104]	Post 23.11: Support a small resource profile	Infrastructure
[NSPF-126079]	Auxiliary Database Installation and Management with or without NFM-P	Mediation Collection
[NSPF-241820]	Support IPFIX for MD SR and IXR	Mediation Collection
[NSPF-313573]	CN Telemetry - Support for vendor-agnostic LAG utilization	Mediation Collection
[NSPF-252572]	Generate device specific artifacts for 7220 IXR configuration	Network Configuration
[NSPF-293321]	Remove support for embedded and non-secure nspos	Platform core
[NSPF-316045]	NSP as a domain controller for multiple HCOs	Service Management
[NSPF-416822]	Enhance MD Stitch Algorithms - Part 1	Service Management

4.2 Nodal feature list

4.2.1 NSP

Table 4-4   NSP Release 24.11

Key	Summary
[NSPF-290252]	ESA Shelf Support in NSP (MD SROS only)
[NSPF-300638]	[NE RELEASE] MAGC 23.10 R6 release support
[NSPF-310680]	New SRL Chassis 7215 IXS-A1 support
[NSPF-427097]	New SRL Chassis HW Rev 7250 IXR-X3b support
[NSPF-438193]	[NE RELEASE] MAGC 24.7 R2 release support

Table 4-5   NSP Release 24.8

Key	Summary
[NSPF-318254]	[NE RELEASE] Support SRL OS 24.3.1
[NSPF-318256]	[NE RELEASE] Support SRL OS 24.3.2
[NSPF-318258]	[NE RELEASE] Support SRL OS 23.10.3
[NSPF-318260]	[NE RELEASE] Support SRL OS 24.3.3
[NSPF-318262]	[NE RELEASE] Support SRL OS 24.7.1
[NSPF-318264]	[NE RELEASE] Support SRL OS 23.10.4
[NSPF-428014]	[NE RELEASE] MAGC 24.3 R2 release support
[NSPF-428181]	[FP] FWA CUPS - Alarm Addition (Ph 2)
[NSPF-438198]	[NE RELEASE] MAGC 24.3 R3 release support
[NSPF-438199]	[NE RELEASE] MAGC 23.10 R5 release support
[NSPF-438200]	[NE RELEASE] MAGC 23.10 R4 release support

Table 4-6   NSP Release 24.4

Key	Summary
[NSPF-300634]	MAGC 24.3 R1 & 23.10 R2 release support
[NSPF-318250]	Support SRL OS 23.10.2
[NSPF-318252]	Support SRL OS 22.11.4

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4.2.2 Classic NE management (formerly known as NFM-P)

Table 4-7   NSP Release 24.11

Key	Summary
[NSPF-289042]	IXR satellites as transparent clocks PTP over Ethernet on IXR-X1/Xs/E-Big(both var)/s
[NSPF-289135]	YANG Operations: 'reset router bgp neighbor' Commands
[NSPF-294710]	QSFP112 support on Catfish_ZD14
[NSPF-294771]	QSFP112 support on Sharkfish_1c
[NSPF-294773]	QSFP112 support on 800G QSFP112-DD connectors
[NSPF-294800]	IXR-satellite enhancement: ePipe performance enhancements
[NSPF-294841]	MACSec IXR-R6 m20-1g-csfp
[NSPF-443262]	Resurrect AOS EoL Device Support

Table 4-8   NSP Release 24.8

Key	Summary
[NSPF-266511]	OCA management
[NSPF-276291]	7250 IXR Gen2/2c: lbl-ip-l4-teid hash option on LSR
[NSPF-284232]	MSS-HE: Full management of port 5 and 6 (Combo Ports)
[NSPF-287417]	IPSec performance testing - ESA 100G-2 (Gen 11)
[NSPF-289171]	RSVP-TE Manual and timer re-optimization for link-protect bypass in node-protect-retry state (RFE400893)
[NSPF-289247]	Video: ESA 100G-2 (Gen 11) support
[NSPF-294822]	7250 IXR Gen2/2c: ECMP/LAG hashing exclude src and dst IPv6
[NSPF-294883]	Conditional-static-route in VPRN tracking Base routing table
[NSPF-295007]	7750 SR-s 3.0T 36p 400G QSFP112 XMA2-s
[NSPF-295017]	7250 IXR-R6dl MDAs - 80 x cSFP
[NSPF-295215]	Report SFP RSL on MSS-E-HE-XE , NIM, UBT-SA
[NSPF-297873]	TWAMP Light responder in MSS-E-HE-XE and NIM
[NSPF-301630]	Require OS6570M-12/OS6570M-12D Support
[NSPF-309339]	Require OS6570M-U28/OS6570M-U28D Support
[NSPF-310259]	MPLS-QA - Multicast-MPLS: infrastructure creation
[NSPF-321144]	W24 Support
[NSPF-321146]	Discontinue of 7.1 release
[NSPF-321163]	NIM: CA in Full Outdoor(mode1b)

Table 4-8   NSP Release 24.8   (continued)

Key	Summary
[NSPF-321375]	UBT-SA mixed CA with Y cable
[NSPF-416041]	Y1731: Ethernet CFM in MSS-E/HE/XE & NIM
[NSPF-416042]	CAHD: ring with CA intra-board up to 10G
[NSPF-416045]	WebCT users – Bulk Password update via NSP
[NSPF-429083]	AA-lite Firewall report support to SAR-Hm/Hmc

Table 4-9   NSP Release 24.4

Key	Summary
[NSPF-283162]	7750 SR-s 3.0T 36p 400G QSFP112 XMA2-s
[NSPF-287197]	State to indicate system needs reboot
[NSPF-287233]	Timing algorithm reroute handling and performance improvements (Bell Labs)
[NSPF-287239]	Support MACSec over 800G channelized optics for FP5 HW
[NSPF-287321]	NG-mVPN with PIM ASM: BSR mode for RP discovery on 7250 IXR-R6
[NSPF-288973]	OpenSSL 3.1 - upgrade from 1.1.1 to 3.1.4
[NSPF-288988]	YANG Operations: 'reset card/mda' Commands
[NSPF-289000]	Additional Ethernet port interface stats (nokia-yang, Openconfig, MIB)
[NSPF-289020]	Major and Minor ISSU on IXR-R6d/R6dl (first usage in 23.10.R1)
[NSPF-289139]	Microloop avoidance for OSPF
[NSPF-294756]	Support IXR-ec on SRUX
[NSPF-294784]	PTP G.8273.2 Class B Performance: 7750 SR-1/1x/1d FP5 platforms
[NSPF-294806]	Missing card detection, alarming and logging
[NSPF-306650]	OS6360-P10 Support
[NSPF-310209]	vSIM support for VMware ESXi 7.0
[NSPF-310221]	cVSR Intel E810 NIC family support
[NSPF-310250]	MPLS-QA - LDP: Enhance ildp and tldp (functional / scaling) automation coverage
[NSPF-311130]	Require OS6900-V48C8 Support
[NSPF-318724]	Improve bof.cfg encryption
[NSPF-318732]	Add "PTP steps removed" in "show system ptp clock csm"
[NSPF-318736]	BGP error-handling default behavior change (7705)

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Table 4-9   NSP Release 24.4   (continued)

Key	Summary
[NSPF-318738]	VRRP - NTP reply for master address
[NSPF-318740]	Avoid BGP session reset when malformed NLRIs are received - 7705
[NSPF-318746]	Overload max-metric support for ISIS