Alcatel-Lucent 5620

SERVICE AWARE MANAGER

GLOSSARY

Alcatel·Lucent

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Alcatel-Lucent License Agreement

SAMPLE END USER LICENSE AGREEMENT

1. LICENSE

1.1 Subject to the terms and conditions of this Agreement, Alcatel-Lucent grants to Customer and Customer accepts a nonexclusive, nontransferable license to use any software and related documentation provided by Alcatel-Lucent pursuant to this Agreement ("Licensed Program") for Customer's own internal use, solely in conjunction with hardware supplied or approved by Alcatel-Lucent. In case of equipment failure, Customer may use the Licensed Program on a backup system, but only for such limited time as is required to rectify the failure.

1.2 Customer acknowledges that Alcatel-Lucent may have encoded within the Licensed Program optional functionality and capacity (including, but not limited to, the number of equivalent nodes, delegate workstations, paths and partitions), which may be increased upon the purchase of the applicable license extensions.

1.3 Use of the Licensed Program may be subject to the issuance of an application key, which shall be conveyed to the Customer in the form of a Supplement to this End User License Agreement. The purchase of a license extension may require the issuance of a new application key.

2. PROTECTION AND SECURITY OF LICENSED PROGRAMS

2.1 Customer acknowledges and agrees that the Licensed Program contains proprietary and confidential information of Alcatel-Lucent and its third party suppliers, and agrees to keep such information confidential. Customer shall not disclose the Licensed Program except to its employees having a need to know, and only after they have been advised of its confidential and proprietary nature and have agreed to protect same.

2.2 All rights, title and interest in and to the Licensed Program, other than those expressly granted to Customer herein, shall remain vested in Alcatel-Lucent or its third party suppliers. Customer shall not, and shall prevent others from copying, translating, modifying, creating derivative works, reverse engineering, decompiling, encumbering or otherwise using the Licensed Program except as specifically authorized under this Agreement. Notwithstanding the foregoing, Customer is authorized to make one copy for its archival purposes only. All appropriate copyright and other proprietary notices and legends shall be placed on all Licensed Programs supplied by Alcatel-Lucent, and Customer shall maintain and reproduce such notices on any full or partial copies made by it.

3. TERM

3.1 This Agreement shall become effective for each Licensed Program upon delivery of the Licensed Program to Customer.

3.2 Alcatel-Lucent may terminate this Agreement: (a) upon notice to Customer if any amount payable to Alcatel-Lucent is not paid within thirty (30) days of the date on which payment is due; (b) if Customer becomes bankrupt, makes an assignment for the benefit of its creditors, or if its assets vest or become subject to the rights of any trustee, receiver or other administrator; (c) if bankruptcy, reorganization or insolvency proceedings are instituted against Customer and not dismissed within 15 days; or (d) if Customer breaches a material provision of this Agreement and such breach is not rectified within 15 days of receipt of notice of the breach from Alcatel-Lucent.

3.3 Upon termination of this Agreement, Customer shall return or destroy all copies of the Licensed Program. All obligations of Customer arising prior to termination, and those obligations relating to confidentiality and nonuse, shall survive termination.

4. CHARGES

4.1 Upon shipment of the Licensed Program, Alcatel-Lucent will invoice Customer for all fees, and any taxes, duties and other charges. Customer will be invoiced for any license extensions upon delivery of the new software application key or, if a new application key is not required, upon delivery of the extension. All amounts shall be due and payable within thirty (30) days of receipt of invoice, and interest will be charged on any overdue amounts at the rate of 1 1/2% per month (19.6% per annum).

5. SUPPORT AND UPGRADES

5.1 Customer shall receive software support and upgrades for the Licensed Program only to the extent provided for in the applicable Alcatel-Lucent software support policy in effect from time to time, and upon payment of any applicable fees. Unless expressly excluded, this Agreement shall be deemed to apply to all updates, upgrades, revisions, enhancements and other software which may be supplied by Alcatel-Lucent to Customer from time to time.

6. WARRANTIES AND INDEMNIFICATION

6.1 Alcatel-Lucent warrants that the Licensed Program as originally delivered to Customer will function substantially in accordance with the functional description set out in the associated user documentation for a period of 90 days from the date of shipment, when used in accordance with the user documentation. Alcatel-Lucent's sole liability and Customer's sole remedy for a breach of this warranty shall be Alcatel-Lucent's good faith efforts to rectify the nonconformity or, if after repeated efforts Alcatel-Lucent is unable to rectify the nonconformity, Alcatel-Lucent shall accept return of the Licensed Program and shall refund to Customer all amounts paid in respect thereof. This warranty is available only once in respect of each Licensed Program, and is not renewed by the payment of an extension charge or upgrade fee.

6.2 ALCATEL-LUCENT EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, REPRESENTATIONS, COVENANTS OR CONDITIONS OF ANY KIND, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OR REPRESENTATIONS OF WORKMANSHIP, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, DURABILITY, OR THAT THE OPERATION OF THE LICENSED PROGRAM WILL BE ERROR FREE OR THAT THE LICENSED PROGRAMS WILL NOT INFRINGE UPON ANY THIRD PARTY RIGHTS.

6.3 Alcatel-Lucent shall defend and indemnify Customer in any action to the extent that it is based on a claim that the Licensed Program furnished by Alcatel-Lucent infringes any patent, copyright, trade secret or other intellectual property right, provided that Customer notifies Alcatel-Lucent within ten (10) days of the existence of the claim, gives Alcatel-Lucent sole control of the litigation or settlement of the claim, and provides all such assistance as Alcatel-Lucent may reasonably require. Notwithstanding the foregoing, Alcatel-Lucent shall have no liability if the claim results from any modification or unauthorized use of the Licensed Program by Customer, and Customer shall defend and indemnify Alcatel-Lucent against any such claim.

6.4 Alcatel-Lucent Products are intended for standard commercial uses. Without the appropriate network design engineering, they must not be sold, licensed or otherwise distributed for use in any hazardous environments requiring fail safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life-support machines, or weapons systems, in which the failure of products could lead directly to death, personal injury, or severe physical or environmental damage. The Customer hereby agrees that the use, sale, license or other distribution of the Products for any such application without the prior written consent of Alcatel-Lucent, shall be at the Customer's sole risk. The Customer also agrees to defend and hold Alcatel-Lucent harmless from any claims for loss, cost, damage, expense or liability that may arise out of or in connection with the use, sale, license or other distribution of the Products in such applications.

7. LIMITATION OF LIABILITY

7.1 IN NO EVENT SHALL THE TOTAL COLLECTIVE LIABILITY OF ALCATEL-LUCENT, ITS EMPLOYEES, DIRECTORS, OFFICERS OR AGENTS FOR ANY CLAIM, REGARDLESS OF VALUE OR NATURE, EXCEED THE AMOUNT PAID UNDER THIS AGREEMENT FOR THE LICENSED PROGRAM THAT IS THE SUBJECT MATTER OF THE CLAIM. IN NO EVENT SHALL THE TOTAL COLLECTIVE LIABILITY OF ALCATEL-LUCENT, ITS EMPLOYEES, DIRECTORS, OFFICERS OR AGENTS FOR ALL CLAIMS EXCEED THE TOTAL AMOUNT PAID BY CUSTOMER TO ALCATEL-LUCENT HEREUNDER. NO PARTY SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER OR NOT SUCH DAMAGES ARE FORESEEABLE, AND/OR THE PARTY HAD BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7.2 The foregoing provision limiting the liability of Alcatel-Lucent's employees, agents, officers and directors shall be deemed to be a trust provision, and shall be enforceable by such employees, agents, officers and directors as trust beneficiaries.

8. GENERAL

8.1 Under no circumstances shall either party be liable to the other for any failure to perform its obligations (other than the payment of any monies owing) where such failure results from causes beyond that party's reasonable control.

8.2 This Agreement constitutes the entire agreement between Alcatel-Lucent and Customer and supersedes all prior oral and written communications. All amendments shall be in writing and signed by authorized representatives of both parties.

8.3 If any provision of this Agreement is held to be invalid, illegal or unenforceable, it shall be severed and the remaining provisions shall continue in full force and effect.

8.4 The Licensed Program may contain freeware or shareware obtained by Alcatel-Lucent from a third party source. No license fee has been paid by Alcatel-Lucent for the inclusion of any such freeware or shareware, and no license fee is charged to Customer for its use. The Customer agrees to be bound by any license agreement for such freeware or shareware. CUSTOMER ACKNOWLEDGES AND AGREES THAT THE THIRD PARTY SOURCE PROVIDES NO WARRANTIES AND SHALL HAVE NO LIABILITY WHATSOEVER IN RESPECT OF CUSTOMER'S POSSESSION AND/OR USE OF THE FREEWARE OR SHAREWARE.

8.5 Alcatel-Lucent shall have the right, at its own expense and upon reasonable written notice to Customer, to periodically inspect Customer's premises and such documents as it may reasonably require, for the exclusive purpose of verifying Customer's compliance with its obligations under this Agreement.

8.6 All notices shall be sent to the parties at the addresses listed above, or to any such address as may be specified from time to time. Notices shall be deemed to have been received five days after deposit with a post office when sent by registered or certified mail, postage prepaid and receipt requested.

8.7 If the Licensed Program is being acquired by or on behalf of any unit or agency of the United States Government, the following provision shall apply: If the Licensed Program is supplied to the Department of Defense, it shall be classified as "Commercial Computer Software" and the United States Government is acquiring only "restricted rights" in the Licensed Program as defined in DFARS 227-7202-1(a) and 227.7202-3(a), or equivalent. If the Licensed Program is supplied to any other unit or agency of the United States Government, rights will be defined in Clause 52.227-19 or 52.227-14 of the FAR, or if acquired by NASA, Clause 18-52.227-86(d) of the NASA Supplement to the FAR, or equivalent. If the software was acquired under a contract subject to the October 1988 Rights in Technical Data and Computer Software regulations, use, duplication and disclosure by the Government is subject to the restrictions set forth in DFARS 252-227.7013(c)(1)(ii) 1988, or equivalent.

8.8 Customer shall comply with all export regulations pertaining to the Licensed Program in effect from time to time. Without limiting the generality of the foregoing, Customer expressly warrants that it will not directly or indirectly export, reexport, or transship the Licensed Program in violation of any export laws, rules or regulations of Canada, the United States or the United Kingdom.

8.9 No term or provision of this Agreement shall be deemed waived and no breach excused unless such waiver or consent is in writing and signed by the party claimed to have waived or consented. The waiver by either party of any right hereunder, or of the failure to perform or of a breach by the other party, shall not be deemed to be a waiver of any other right hereunder or of any other breach or failure by such other party, whether of a similar nature or otherwise.

8.10 This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario. The application of the United Nations Convention on Contracts for the International Sale of Goods is hereby expressly excluded.

Preface

The Preface provides general information about the 5620 Service Aware Manager documentation suite, including this guide.

Prerequisites

Readers of the 5620 SAM documentation suite are assumed to be familiar with the following:

- 5620 SAM software structure and components
- 5620 SAM GUI operations and tools
- typical 5620 SAM management tasks and procedures
- device and network management concepts

5620 SAM documentation suite

The 5620 SAM documentation suite describes the 5620 SAM and the associated network management of its supported devices. Contact your Alcatel-Lucent support representative for information about specific network or facility considerations.

Table 1 lists the documents in the 5620 SAM customer documentation suite.

Table 1 5620 SAM customer documentation suite

Guide	Description
5620 SAM core documentation	

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Guide	Description
5620 SAM Alarm Reference	The *5620 SAM Alarm Reference* provides a description of all alarms supported on the 5620 SAM, including LTE and optical alarms, the raising and clearing conditions of each alarm, and the remedial action to fix the problem. The reference is organized by network element type.
5620 SAM Chronos SyncWatch Integration Guide	The *5620 SAM Chronos SyncWatch Integration Guide* provides procedures to allow the 5620 SAM to integrate with the Chronos SyncWatch Probe and NetSMART server. The guide also provides general information about synchronization management in a 5620 SAM-managed network.
5620 SAM Glossary	The *5620 SAM Glossary* defines terms and acronyms used in all of the 5620 SAM documentation.
5620 SAM Integration Guide	The *5620 SAM Integration Guide* provides procedures to allow the 5620 SAM to integrate with other Alcatel-Lucent products and third-party products.
5620 SAM Network Element Compatibility Guide	The *5620 SAM Network Element Compatibility Guide* provides release-specific information about the compatibility of managed devices in 5620 SAM releases. This document is updated regularly; always consult the latest version on OLCS as described in Documentation and resources on the web.
5620 SAM Parameter Guide	The *5620 SAM Parameter Guide* provides: • parameter descriptions that include value ranges and default values • parameter options and option descriptions • parameter and option dependencies • parameter mappings to the 5620 SAM-O XML equivalent property names Parameters specific to LTE network elements are covered in the *5620 SAM LTE Parameter Reference*. Parameters specific to 1830 PSS network elements are covered in the *5620 SAM Optical Parameter Reference*. The 5620 SAM online help system includes a Parameter Search Tool that allows you to look up parameters or 5620 SAM and 5650 CPAM forms. See the *5620 SAM User Guide* for more information about using the Parameter Search Tool.
5620 SAM Planning Guide	The *5620 SAM Planning Guide* provides information about 5620 SAM scalability and recommended hardware configurations.
5620 SAM Release Description	The *5620 SAM Release Description* provides information about the new features associated with a 5620 SAM software release.
5620 SAM Release Notice	The *5620 SAM Release Notice* provides important information about the software release, including outstanding issues and restrictions. This document is not shipped with the on-product customer documentation and must be obtained from OLCS as described in Documentation and resources on the web.
5620 SAM Scripts and Templates Developer Guide	The *5620 SAM Scripts and Templates Developer Guide* provides information that allows users to develop, manage, and run CLI-based or XML-based scripts or templates. The guide is intended for developers, skilled administrators, and operators who are expected to be familiar with the following: • CLI scripting, XML, and the Velocity engine • basic scripting or programming • 5620 SAM functions
5620 SAM Statistics Management Guide	The *5620 SAM Statistics Management Guide* provides information about how to configure performance and accounting statistics collection and how to view counters using the 5620 SAM. Network examples are included.

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Guide	Description
5620 SAM System Administrator Guide	The *5620 SAM System Administrator Guide* provides information about the tasks performed by a user with a 5620 SAM admin role, including: • 5620 SAM security management tasks such as setting up all required user accounts and user groups • advanced configuration tasks such as configuring, maintaining, and administering the 5620 SAM operational environment • routine maintenance tasks to maintain the 5620 SAM hardware and system integrity and efficiencies
5620 SAM System Architecture Guide	The *5620 SAM System Architecture Guide* is intended for technology officers, network planners, and system administrators to increase their knowledge of the 5620 SAM software structure and components. It describes the system structure, software components, and interfaces of the 5620 SAM. In addition, 5620 SAM fault tolerance, security, and network management capabilities are discussed from an architectural perspective.

5620 SAM Troubleshooting Guide	The *5620 SAM Troubleshooting Guide* provides task-based procedures and user documentation to:
	• help resolve issues in the managed and management networks
	• identify the root cause and plan corrective action for:
	  • alarm conditions on a network object or customer service
	  • problems on customer services with no associated alarms
	• list problem scenarios, possible solutions, and tools to help check:
	  • network management LANs
	  • network management platforms and operating systems
	  • 5620 SAM client GUIs and client OSS applications
	  • 5620 SAM servers
	  • 5620 SAM databases

5620 SAM User Guide	The *5620 SAM User Guide* provides information about using the 5620 SAM to manage the service-aware IP/MPLS network, including GUI basics, service configuration, and policy management. The *5620 SAM User Guide* uses a task-based format that employs both high-level workflows and detailed procedures. 5620 SAM management information specific to LTE network elements is covered in the *5620 SAM LTE ePC User Guide* and *5620 SAM LTE RAN User Guide*. 5620 SAM management information specific to 1830 PSS network elements is covered in the *5620 SAM Optical User Guide*. 5620 SAM management information specific to 9500 MPR and 9500 MPRe devices is covered in the *5620 SAM MPR User Guide*.
*5620 SAM	5650 CPAM Installation and Upgrade Guide*	The *5620 SAM	5650 CPAM Installation and Upgrade Guide* provides OS considerations, configuration information, and procedures for the following: • installing, upgrading, and uninstalling 5620 SAM and 5650 CPAM software in standalone and redundant deployments • 5620 SAM system migration to a different system • conversion from a standalone to a redundant 5620 SAM system
5620 SAM MPR documentation	
5620 SAM MPR User Guide	The *5620 SAM MPR User Guide* describes how to discover, configure, and manage 9500 MPR and 9500 MPRe devices using the 5620 SAM. The guide is intended for network planners, administrators, and operators and is to be used in conjunction with other guides in the 5620 SAM documentation suite where management of 9500 MPR and 9500 MPRe devices does not differ from other network elements. Alcatel-Lucent recommends that you review the entire *5620 SAM MPR User Guide* before you attempt to use the 5620 SAM in your MPR network.
5620 SAM LTE documentation	
5620 SAM LTE Release Description	The *5620 SAM LTE Release Description* provides information about the LTE features associated with the release.

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Guide	Description
5620 SAM LTE ePC User Guide	The *5620 SAM LTE ePC User Guide* describes how to discover, configure, and manage LTE ePC devices using the 5620 SAM. The guide is intended for LTE ePC network planners, administrators, and operators and is to be used in conjunction with other guides in the 5620 SAM documentation suite where management of ePC devices does not differ from other network elements. Alcatel-Lucent recommends that you review the entire *5620 SAM LTE ePC User Guide* before you attempt to use the 5620 SAM in your LTE network.
5620 SAM LTE OSS Interface Developer Guide	The *5620 SAM LTE OSS Interface Developer Guide* provides information about developing LTE OSS applications, including information about the 3GPP OSS interface components and architecture, understanding the 5620 SAM-O schema in the context of LTE, compliance with 3GPP standards, and typical operational scenarios.
5620 SAM LTE Parameter Reference	The *5620 SAM LTE Parameter Reference* provides a list of all LTE ePC and LTE RAN parameters supported in the 5620 SAM.
5620 SAM LTE RAN User Guide	The *5620 SAM LTE RAN User Guide* describes how to discover, configure, and manage the Evolved NodeB, or eNodeB, using the 5620 SAM. The guide is intended for LTE RAN network planners, administrators, and operators and is to be used in conjunction with other guides in the 5620 SAM documentation suite where management of RAN devices does not differ from other network elements. Alcatel-Lucent recommends that you review the entire *5620 SAM LTE RAN User Guide* before you attempt to use the 5620 SAM in your LTE network.
5620 SAM optical documentation	
5620 SAM Optical Parameter Reference	The *5620 SAM Optical Parameter Reference* provides a list of all optical device parameters supported in the 5620 SAM.
5620 SAM Optical User Guide	The *5620 SAM Optical User Guide* describes how to discover, configure, and manage optical devices using the 5620 SAM. The guide is intended for optical network planners, administrators, and operators and is to be used in conjunction with other guides in the 5620 SAM documentation suite where management of optical devices does not differ from other network elements. Alcatel-Lucent recommends that you review the entire *5620 SAM Optical User Guide* before you attempt to use the 5620 SAM in your optical network.
5620 SAM-O documentation	
5620 SAM XML OSS Interface Developer Guide	The *5620 SAM XML OSS Interface Developer Guide* provides information that allows you to: • use the 5620 SAM XML OSS interface to access network management information • learn about the information model associated with the managed network • develop OSS applications using the packaged methods, classes, data types, and objects necessary to manage 5620 SAM functions
5650 CPAM documentation	
5650 CPAM Release Description	The *5650 CPAM Release Description* provides information about the new features associated with a 5650 CPAM software release.
5650 CPAM Release Notice	The *5650 CPAM Release Notice* provides important information about the 5650 CPAM software release and corresponding 7701 CPAA software release, including outstanding issues and restrictions. This document is not shipped with the on-product documentation and must be obtained from OLCS as described in Documentation and resources on the web.
5650 CPAM User Guide	The *5650 CPAM User Guide* describes how to capture, inspect, visualize, and troubleshoot IGP and BGP topologies using the 5650 CPAM.
7701 CPAA Hardware Revision 2 Setup and Software Installation Instructions	The *7701 CPAA Hardware Revision 2 Setup and Software Installation Instructions* describes the hardware setup and software installation for the 7701 CPAA Hardware Revision 2, the route analyzer component of the 5650 CPAM.

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Guide	Description
7701 CPAA Hardware Revision 1 Setup and Software Installation Instructions	The *7701 CPAA Hardware Revision 1 Setup and Software Installation Instructions* describes the hardware setup and software installation for the 7701 CPAA Hardware Revision 1, the route analyzer component of the 5650 CPAM.

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Obtaining customer documentation

You can obtain 5620 SAM customer documentation:

- from the product
- on the web

On-product documentation

The 5620 SAM on-product customer documentation is delivered in HTML and PDF. Choose Help→User Documentation from the 5620 SAM client GUI to open the help system in a web browser. For best results, use Internet Explorer or Firefox.

The help system opens to the User Documentation Index, which provides a summary of and links to all 5620 SAM customer documents.

Click on the Using the help system tab on the User Documentation Index page to find usage tips for navigating and searching within the on-product customer documentation.

You can return to the User Documentation Index at any time by clicking on the Home icon, shown in Figure 1.

Figure 1 Home icon

Documentation and resources on the web

The 5620 SAM customer documentation is available for download in PDF format from the Alcatel-Lucent Customer Support Center: http://www.alcatel-lucent.com/myaccess. If you are a new user and require access to this service, please contact your Alcatel-Lucent support representative.

Release Notices and any other documents not delivered on-product are posted to this site.

5620 SAM product alerts

Product technical alerts are used to communicate important information to customers about released loads. You can view and subscribe to product alerts for the 5620 SAM from the Alcatel-Lucent Customer Support Center.

Working with PDFs

You can download PDFs of individual guides from the Alcatel-Lucent Customer Support Center, or you can choose to download a zip of all PDFs for a particular release.

You can use the Search function of Acrobat Reader (File→Search) to find a term in a PDF of any 5620 SAM document. To refine your search, use appropriate search options (for example, search for whole words only or enable case-sensitive searching). You can also search for a term in multiple PDFs at once, provided that they are located in the same directory. For more information, see the Help for Acrobat Reader.

Note — Users of Mozilla browsers may receive an error message when opening the PDF files in the 5620 SAM documentation suite. The offline storage and default cache values used by the browsers are the cause of the error message.

Alcatel-Lucent recommends changing the Mozilla Firefox offline storage or Mozilla 1.7 cache value to 100 Mbytes to eliminate the error message.

Documentation conventions

Table 2 lists the conventions that are used throughout the documentation.

Table 2 Documentation conventions

Convention	Description	Example
Key name	Press a keyboard key	Delete
Italics	Identifies a variable	*hostname*
Key+Key	Type the appropriate consecutive keystroke sequence	CTRL+G
Key–Key	Type the appropriate simultaneous keystroke sequence	CTRL–G
*	An asterisk is a wildcard character, which means “any character” in a search argument.	log_file*.txt
↵	Press the Return key	↵
—	An em dash indicates there is no information.	—
→	Indicates that a cascading submenu results from selecting a menu item	Policies→Alarm Policies

Procedures with options or substeps

When there are options in a procedure, they are identified by letters. When there are substeps in a procedure, they are identified by Roman numerals.

Example of options in a procedure

At step 1, you can choose option a or b. At step 2, you must do what the step indicates.

1 This step offers two options. You must choose one of the following.

   a This is one option.

   b This is another option.

2 You must perform this step.

Example of substeps in a procedure

At step 1, you must perform a series of substeps within a step. At step 2, you must do what the step indicates.

1 This step has a series of substeps that you must perform to complete the step. You must perform the following substeps.

   i This is the first substep.

   ii This is the second substep.

   iii This is the third substep.

2 You must perform this step.

Measurement conventions

Measurements in this document are expressed in metric units and follow the Système international d'unités (SI) standard for abbreviation of metric units. If imperial measurements are included, they appear in brackets following the metric unit.

Table 3 lists the measurement symbols used in this document.

Table 3 Bits and bytes conventions

Measurement	Symbol
bit	b
byte	byte
kilobits per second	kb/s

Important information

The following conventions are used to indicate important information:

Warning — Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.

Caution — Caution indicates that the described activity or situation may, or will, cause service interruption.

Note — Notes provide information that is, or may be, of special interest.

Glossary

Glossary entries that are marked with an asterisk (*) are reproduced with permission from *LTE – The UMTS Long Term Evolution: A Pocket Dictionary of Acronyms*, © 2009 Stefania Sesia, Issam Toufik, and Matthew Baker, available at http://www.wiley.com/go/sesia_theumts.

Numerics

10/100/1000Base-FX A networking standard that supports data transfer rates of up to 1000 Mb/s over two optical fibers.

10/100/1000Base-TX An Ethernet technology that supports data transfer rates of up to 1000 Mb/s using twisted-pair copper wire.

10/100Base-TX An Ethernet standard that supports data transfer rates of up to 100 Mb/s using two pairs of data-grade, twisted-pair copper wire.

100Base-T An Ethernet standard that supports data transfer rates of up to 100 Mb/s using twisted-pair copper wire.

1830 PSS 1830 Photonic Service Switch

An Alcatel-Lucent photonic switching device that has advanced CWDM, DWDM, and OTN capabilities.

1830 PSS-1 1830 Photonic Service Switch, 1-slot

A single-slot 1830 PSS that is typically deployed as a CE access device.

1830 PSS-16 1830 Photonic Service Switch, 16-slot

A 16-slot 1830 PSS that is typically deployed for service delivery between metropolitan and core networks.

1830 PSS-32 1830 Photonic Service Switch, 32-slot

A 32-slot 1830 PSS that is typically deployed in a core network.

1830 PSS-4 1830 Photonic Service Switch, 4-slot

A four-slot 1830 PSS that is typically deployed near the edge of a metropolitan network for the aggregation of CWDM and DWDM traffic.

1830 VWM 1830 Versatile WDM Module

A passive add-on shelf unit that provides CWDM extension to a network element.

3-plus-tag A descriptor for Ethernet frames with three or more VLAN ID tags.

3GPP 3rd Generation Partnership Project

The joint standardization partnership responsible for standardizing UMTS, HSPA, and LTE.

5-tuple Information that defines a TCP/IP connection, including source IP address, destination IP address, source port number, destination port number, and the protocol in use.

5620 NM 5620 Network Manager

The 5620 NM provides advanced management of large, complex LAN/WAN networks, including hybrid circuit-switched, IP/MPLS, ATM, frame relay, and X.25 networks. The GUI can be used to configure databases, monitor network operation in real time, set up and manage paths, and perform diagnostics to isolate and manage problems in the network.

With the addition of optional software modules, the 5620 NM can perform advanced management functions such as managing multi-vendor equipment, interfacing with UMS, and partitioning networks.

5620 SAM 5620 Service Aware Manager

The 5620 SAM is a single management platform offering element, network, and service management for advanced Layer 2 and Layer 3 network solutions.

The 5620 SAM offers a modular, scalable architecture that consists of four modules:

- element management for traditional FCAPS functions
- network infrastructure configuration, service provisioning, scripting and customer management
- assurance including physical, network and service topology views and OAM service-diagnostics tools
- OSS integration with external applications

5620 SAM auxiliary server	In a 5620 SAM system that is deployed using distributed server architecture, a 5620 SAM server instance on a dedicated station accepts processing requests from, and is directed by, a 5620 SAM main server. A main server and one or more auxiliary servers that are in communication are collectively called a 5620 SAM server cluster.
5620 SAM client	A 5620 SAM client interacts with a 5620 SAM main server. A 5620 SAM GUI client provides a graphical interface for network and 5620 SAM management. A 5620 SAM OSS client is a third-party application that uses the 5620 SAM-O for network and 5620 SAM management.
5620 SAM client delegate server	A 5620 SAM client delegate server supports simultaneous 5620 SAM client GUI sessions using one client software installation. Local and remote client GUI users on separate terminals connect to a 5620 SAM main server through a client delegate server using display redirection or a remote access server.
5620 SAM database	The 5620 SAM database stores network data-model objects and configuration information.
5620 SAM main server	A 5620 SAM main server mediates between the 5620 SAM database, 5620 SAM auxiliary servers, 5620 SAM clients, and the network. A 5620 SAM main server can be deployed as a single server in a standalone system, or as half of a redundant pair in a distributed system.
5620 SAM server	A generic term for 5620 SAM main server or 5620 SAM auxiliary server.
5620 SAM server cluster	A logical grouping in a distributed 5620 SAM server configuration that consists of a 5620 SAM main server and the 5620 SAM auxiliary servers that communicate with it.
5620 SAM-A	5620 SAM Assurance A 5620 SAM software module that provides service assurance functions.
5620 SAM-E	5620 SAM Element manager A 5620 SAM software module that provides NE configuration and management functions.
5620 SAM-O	5620 SAM Open interface A 5620 SAM software module that provides an interface for 5620 SAM communication with OSS applications.
5620 SAM-P	5620 SAM Provisioning A 5620 SAM software module that provides service provisioning functions.
5650 CPAM	5650 Control Plane Assurance Manager A management system that captures and displays IGP topology information for the 7701 CPAA.
5750 SSC	5750 Subscriber Services Controller The 5750 SSC is a subscriber and service management solution that administers centralized, reliable, flexible control to deploy user-driven and user-centric triple-play broadband services.

5780 DSC	5780 Dynamic Services Controller. The 5780 DSC acts as the PCRF in an LTE network.
6over4 tunneling	6over4 tunneling is a network mechanism that is part of the transition from IPv4 usage to the adoption of IPv6. The mechanism enables IPv6 packet transmission through a multicast-enabled IPv4 network.
7210 SAS-D	7210 Service Access Switch - Demarcation An intelligent Ethernet edge-demarcation device that extends enhanced Carrier Ethernet VPN service delivery to the CE.
7210 SAS-E	7210 Service Access Switch - Ethernet A Carrier Ethernet CLE device that can also be deployed as a cost-effective CE aggregation device for smaller networks.
7210 SAS-M	7210 Service Access Switch - MPLS A CE device that provides MPLS-enabled metropolitan and WAN Carrier Ethernet service delivery, Ethernet-based mobile backhaul, and residential service access.
7210 SAS-R	7210 Service Access Switch, chassis type R An Ethernet switch capable of MPLS and MPLS-TP service transport. With six IMM card slots and two CPM slots, the 7210 SAS-R supports 60-Gig redundant switching capacity and is suitable for aggregating 1-Gig and 10-Gig rings in access Ethernet networks.
7210 SAS-T	7210 Service Access Switch, chassis type T An Ethernet access device that provides demarcation for services managed to the customer edge and Ethernet aggregation in smaller network locations.
7210 SAS-X	7210 Service Access Switch - MPLS Extended An MPLS-enabled Ethernet aggregation device for small and medium-sized networks that provides business, mobile backhaul, and residential services. It is similar to the 7210 SAS-M, but has 10Gb/s uplink ports, enhanced traffic management, greater scalability, and hierarchical QoS functions.
7301 ASAM	7301 Advanced Services Access Manager A high-bandwidth, multimedia-ready DSLAM that provides DSL-based high-speed data transmission between a residential subscriber host and an ATM network.
7450 ESS	7450 Ethernet Service Switch An Ethernet switch that enables the delivery of metro Ethernet services and high-density service-aware Ethernet aggregation over IP/MPLS networks.

7701 CPAA	7701 Control Plane Assurance Appliance A mountable 2-unit rack that provides an analysis and distributed computing platform that passively peers with a network to collect and analyze routing data from the routing areas to which it is connected. The 7701 CPAA route analyzer is the hardware component of the 5650 CPAM.
7705 SAR	7705 Service Aggregation Router A router that provides IP/MPLS and PW capabilities in an aggregation platform.
7705 SAR-H	7705 Service Aggregation Router– hardened A 7705 SAR-H router that is temperature and EMC–hardened to the following specifications: IEEE1613 and IEC61850-3.
7710 SR	7710 Service Router A 10-Gbyte version of the 7750 SR that provides granular lower-speed private data services with SLAs.
7750 MG	7750 Mobile Gateway An LTE gateway based on the 7750 SR platform. The 7750 MG can be configured as a PGW or an SGW.
7750 SR	7750 Service Router A high-capacity router that provides scalable, high-speed private data services. It is typically deployed in a core network.
7950 XRS	7950 Extensible Routing System A large-scale routing system designed for core deployments. The system is based on the SR OS and is available in a 20-slot chassis.
802.1ag	An IEEE standard that specifies protocols, procedures, and managed objects to support transport fault management in Ethernet services. The standard includes specifications for path discovery and verification, and detection and isolation of connectivity faults.
802.1D	An IEEE standard that specifies a general method for the operation of MAC bridges, including the STP.
802.1p	An IEEE standard to provide QoS in Ethernet networks. The standard uses packet tags that define up to eight traffic classes, and enables a switch to transmit packets based on the priority value.
802.1Q	An IEEE standard that defines the operation of VLAN bridges, and the operation and administration of VLAN topologies in a bridged LAN.
802.1w	An IEEE standard that defines the requirements for a MAC bridge to provide rapid reconfiguration capability.

802.1X An IEEE standard for transmitting EAP authentication messages over a LAN. The client EAP messages are encapsulated in Ethernet frames and transported to a network access point, which is typically a port on an edge device, and then to an authentication device such as a RADIUS server.

9400 AWY 9500 Access Wireless sYstem

A family of point-to-point digital radio transmission systems for public and private networks that support multiple applications in mobile and private data networks.

9400 NEM 9400 Network Element Manager

The 9400 NEM is a configuration tool for eNodeB devices.

9412 eNodeB See eNodeB.

9471 WMM 9471 Wireless Mobility Manager

An MME based on an ATCA Linux platform.

9500 MPR 9500 Microwave Packet Radio

A microwave radio transmission device that aggregates, in a unified Ethernet convergence layer, the native IP packet streams of services in a TDM mobile backhaul network.

9500 MPRe 9500 Microwave Packet Radio (Ethernet)

The 9500 MPRe is a 9500 MPR variant that is a standalone outdoor application of the MPT-MC with no shelf unit. The 9500 MPRe provides fixed or mobile Ethernet backhaul and supports converged metropolitan MPLS networks.

9926 DBS 9926 Distributed Base Station

See eNodeB.

9952 WPS 9952 Wireless Provisioning System

The 9952 WPS is an Alcatel-Lucent LTE software tool for creating CM XML WO files for LTE NE configuration management.

9959 NPO 9959 Network Performance Optimizer

The 9959 NPO is an EMS that monitors LTE RAN networks and provides the 5620 SAM with QoS support, alarm management, and statistics.

A

AA application assurance

A technology that enables policy-based deep packet inspection of subscriber traffic for application-layer subscriber management.

AAA authentication, authorization, and accounting

The functions of user security protocols such as RADIUS and TACACS+.

AAL-5 ATM adaptation layer type 5

AAL-5 supports the conversion of VBR, delay-tolerant, connection-oriented traffic such as signaling and control data, and network management data. AAL-5 traffic requires minimal sequencing and minimal error detection.

ABR area border router

A router on the border of one or more OSPF areas that connects the areas to the backbone network. The ABR is considered to be a member of the OSPF backbone and the attached areas. The router maintains routing tables that describe both the backbone topology and the topologies of other areas.

ABS anti-breakdown system

An overload protection process on the 7750 MG. ABS contains internal parameters that monitor signaling latency and memory utilization on each ISM-MG. The parameters each have a high and low threshold value.

When the high threshold value is reached, the ABS signals the corresponding application protocol handler, which decides whether the packet is selectively discarded.

When the memory utilization drops below the low threshold value, the ABS stops passing the signal to the application handler, which prevents the packets from being discarded.

ACK acknowledge

An ACK is an acknowledgment signal that confirms the receipt of a data packet.

ACL access control list

An ACL, which is also called a filter policy, is a template applied to a service or port to control ingress or egress network traffic based on IP and MAC criteria.

ACR accounting requests

AD administrative domain

A group of hosts, routers, and the interconnecting networks, that are managed by a single administrative authority.

adjacency An adjacency is a close link-state relationship between compatible neighboring routers that allows them to share routing information and forward network traffic. In OSPF, routers become fully adjacent when their compatibility is confirmed and they synchronize their link-state databases. In IS-IS, adjacencies proceed in stages from Down to Up; they are Up when their compatibility is confirmed. IS-IS adjacencies are level 1 or level 2, depending on the level capability of the routers.

ADM add/drop multiplexer

A device installed at an intermediate point on a transmission line that enables new signals to be added in the line and existing signals to be dropped. Add/drop multiplexing can be done with optical or electrical signals.

admission control Admission control is a validation process that matches the availability of network resources with the service authorization level of an end user to establish a network connection.

AGW access gateway

AH Authentication Header

A member of the IPsec protocol suite. AH is a transport-layer protocol that provides data confidentiality, origin authentication, integrity checking, and replay protection. The communicating systems use a shared key to encrypt and decipher data. AH is similar to ESP, but provides IP header protection by default.

AHPHG High Power High Gain Amplifier

AHPLG High Power Low Gain Amplifier

AINS Automatic IN-Service

An 1830 PSS shelf option that allows newly provisioned entities to be inserted at a later time without generating alarms.

AIS alarm indication signal

A signal that a system transmits after some part of a communication link fails.

AISG Air Interface Standards Group

The AISG is a non-profit consortium that develops international standards for wireless antenna line devices.

alarm An alarm is a notification that the 5620 SAM generates based on a set of conditions; for example, SNMP traps from NEs and 5620 SAM events. 5620 SAM alarms are displayed in the client GUI client alarms window, and are also available through the 5620 SAM-O interface. 5620 SAM alarms follow the X.733 standard.

ALD antenna line device

ALG Application Layer Gateway.

A security component that augments a NAT configuration in a network. It allows the configuration of NAT traversal filters that allow address and port translation for specified application layer protocols.

ALPFGT Low Power Fixed Gain Amplifier card with total power monitoring

ALPHG Low Power High Gain Amplifier card

AMI alternate mark inversion

A type of line encoding that prevents line capacitance charging. AMI uses alternate positive and negative pulses of the same amplitude to represent a binary 1 and a zero-amplitude state to represent a binary 0.

AMR adaptive multi-rate

ANCP Access Node Control Protocol

ANCP is an IP-based protocol used in DSL networks. ANCP operates between a DSLAM and a core network device to provide SAP-level rate management. ANCP is an extension of GSMP.

ANM Any rate pluggable I/O card

ANR automatic neighbor relation

An eNodeB function that automatically determines the optimal neighbor relations for UE hand-off.

ANSI American National Standards Institute

AOS Alcatel-Lucent OmniSwitch

AP access point

A device that allows wireless devices to connect to a wired network using Wi-Fi.

APAC Asia Pacific and China

API application programming interface

A set of programming functions that provide an interface between software applications. An API translates high-level program code into low-level computer instructions.

Apipe ATM pipe

A type of VLL service that provides a point-to-point ATM service between users who connect to NEs directly or through an ATM access network. One endpoint of an Apipe uses ATM encapsulation, and the other endpoint uses ATM or frame relay encapsulation.

APN access point name

Identifies a GGSN or PGW. It includes a network identifier that defines the PDN to which the UE requests connectivity, and may also include an operator identifier that specifies in which PLMN the PGW or GGSN is located. See 3GPP TS23.003 Sections 9 and 19.4.2.2.*

APN AMBR access point name aggregate maximum bit rate

The maximum available bit rate for an LTE user for accessing services on a specific PDN APN.

application server A software product that provides Java EE services for Java applications, such as JMS or transaction support. The product may include clustering technology to allow communication among multiple JVMs in a network.

APR automatic power reduction

A function that automatically reduces the output power of an optical amplifier to prevent human exposure to hazardous output levels.

APS automatic protection switching

The capability of a transmission system to detect a failure on a working line and to switch automatically to a protection line to recover the traffic.

AQP application QoS policy

An AQP defines the application policy rules (in terms of matches and actions) when actions that require application awareness are to be performed on the traffic.

arbiter An arbiter is an object in a policer control policy that controls the amount of bandwidth that may be distributed to a set of child policers. The root arbiter represents the parent policer. The maximum traffic rate defined for the root arbiter specifies the decrement rate for the parent policer that governs the overall aggregate traffic rate of every child policer associated with the policy instance. The root arbiter also contains the parent policer MBS configuration parameters that the system uses to individually configure the priority thresholds for each policer instance. Child policers may be associated directly with the root arbiter, or with one of the tier 1 or tier 2 arbiters created under the root arbiter.

area In the OSPF protocol, network management and scalability can be simplified by partitioning a network into regions. These OSPF network regions are called areas. Each area, also called a routing sub-domain, maintains detailed routing information about its own internal composition, and also maintains routing information which allows it to reach other areas.

ARP ARP is expanded two ways:

1 Address Resolution Protocol

ARP is a TCP/IP protocol used to convert an IP address into a physical address, such as an Ethernet address.

2 allocation and retention priority

An EPS bearer QoS parameter that prioritizes bearer establishment or modification requests when resources are limited. An ARP can determine that existing bearers with a relatively low priority should be dropped to free up needed resources. An ARP can also determine whether a bearer should be dropped by another bearer with a higher priority. See 3GPP TS 23.203

AS AS is expanded two ways:

1 autonomous system

An AS is a collection of routers under one administrative entity that cooperates by using a common IGP (such as OSPF). AS is synonymous with the ISO term “routing domain”. Routing between autonomous systems is done with an inter-AS or interdomain EGP, such as BGP-4.

2 alarm surveillance

AS is an application that receives, stores, displays, and manages real-time alarms. The AS tool consists of an IM to receive, filter, and store alarms; and a USM to display and manage alarm information.

ASAP MDA any service, any port MDA

An MDA that supports channelization down to the DS0 level and accepts one OC-3/STM-1 SFP module. The MDA is based on a programmable data path architecture that enables enhanced L1 and L2 data path functions, such as ATM TM features, MDA-based channel and port queuing, and multilink applications such as IMA and PPP.

ASBR autonomous system boundary router

In OSPF, an ASBR is a router that exchanges information with devices from other ASs. ASBRs are also used to import routing information about RIP, direct, or static routes from non-OSPF attached interfaces.

ASCII American Standard Code for Information Interchange

ASCII is a collection of 7-bit character sets allowing per-country definitions, called variants.

ASE Amplified Spontaneous Emissions

ASM Any-Source Multicast

Any-Source Multicast is the IP multicast service model defined in RFC 1112, host extensions for IP Multicasting. An IP datagram is transmitted to a host group which is a set of zeroes and is identified by a single IP destination address (224.0.0.0 through 239.255.255.255 for IPv4). End hosts are able to join or leave a group any time as there is no restriction to the location or number. This model supports multicast groups with a number of senders. Any end host can be transmitted to a host group even if it is not a member of that group.

ASN autonomous system number

ASN.1 abstract syntax notation one

ASO application service option

ASOs are used to define service provider and customer network functions that are common among sets of subscribers. ASOs prevent subscribers from requiring each subscriber-specific entry in the application QoS policies for standard network services.

ATCA Advanced Telecommunications Computing Architecture

ATCA is an industry initiative developed by the PCI Industrial Computer Manufacturers Group. It is designed to meet the needs of both network equipment manufacturers, who require platform reuse, lower costs, faster time-to-market, and multi-source flexibility, and carriers and service providers, who require reduced capital and operational expenditures.

ATM asynchronous transfer mode

A transport and switching mechanism that employs 53-byte cells as a basic unit of transfer. Information is routed through the network in the cell using addressing information contained in the header.

AU administrative unit

See AU-N.

AU-N administrative unit - level *N*

A managed entity within the SDH structure that is the top of the STM-1 configuration hierarchy.

AU-3 has the payload pointer for each payload envelope that is consolidated with the respective payload in one unit. An STM-1 frame has three payload envelopes; therefore, the frame has three AU-3 units. AU-4 applies to the entire STM-1 payload. The AU-4 structure is the only AU in an STM-1 frame.

AUG administrative unit group

One or more AUs that occupy fixed, defined positions in an STM payload.

autosigned A method of automatically signing SSL and PKI certificates, rather than forcing the manually signing certificates each time there is an SSL or PKI transaction.

AUX auxiliary

auxiliary server *See* 5620 SAM auxiliary server.

AVP attribute value pair

A fundamental data representation that consists of an attribute name and a value.

The Diameter protocol consists of a header followed by one or more AVPs. An AVP includes a header and is used to encapsulate protocol-specific data and AAA information.

B

B-component The VLAN component within a Backbone Edge Bridge that relays frames between Customer Backbone Ports and Provider Network Ports.

B-MAC backbone or provider MAC

B-TAG	backbone VLAN tag
B-VID	backbone VLAN Id
B-VLAN	backbone VLAN
B-VPLS	backbone VPLS
B-VSI	backbone Virtual Switch Instance. Also referred to as a B-Site.
backpressure	A technique for ensuring that a transmitting port does not send too much data to a receiving port at a specific time. When the buffer capacity of a receiving port is exceeded, the port sends a jam message to the transmitting port to halt transmission.
BBU	base band unit
BCB	backbone core bridge
BCP	Bridging Control Protocol A protocol that configures, enables, and disables the bridge protocol modules on both ends of a point-to-point link.
bearer	A bearer is an IP packet flow that has a QoS configuration between a gateway and the UE.
BEB	backbone edge bridge
BER	bit error rate The percentage of bits that have errors relative to the total number of bits received in a transmission.
BERT	bit error rate tester BERT is a device that determines the BER on a communication channel.
BFD	bidirectional forwarding detection BFD is a protocol to detect faults in the bidirectional path between two forwarding devices.
BGP	Border Gateway Protocol BGP is an IETF standard EGP used to propagate routing information between autonomous systems.
BGP-4	Border Gateway Protocol 4 A BGP that supports CIDR addressing, which increases the number of available IP addresses.
binding	A collection of configuration parameters, including at least an IP address, associated with a DHCP client. DHCP servers manage bindings.

BOF boot option file

A file that specifies the runtime image, configuration files, and other operational parameters during system initialization.

BOM byte order mark

The byte order mark is a unicode character used to signal the byte order of a text file or stream.

BPDU bridge protocol data unit

BPDU is the frame used by LAN bridges that support 802.1D STP to communicate with each other.

BRAS broadband remote access server

bridge Bridges connect two or more network segments which increases the network diameter. Bridges also help regulate traffic. They can send and receive transmissions but a bridge does not originate any traffic of its own other than a special Ethernet frame that allows it to communicate with other bridges.

broadcast TV *See* BTV.

BSA broadband service aggregator

A high-speed Ethernet aggregation device that supports hundreds of ports, tens of thousands of filter policies, and tens of thousands of queues to aggregate subscriber traffic. The 7450 ESS is a BSA.

BSM bootstrap message

A PIM message that CBSRs exchange during the BSR election process.

BSR BSR is expanded two ways:

1 bootstrap router

A BSR is a PIM router that manages RP and group information in a multicast network.

2 broadband service router

A BSR terminates L2 access services and routes over IP/MPLS, supporting hundreds of ports and sophisticated QoS for services and for differentiating content and source. An example of a BSR is the 7750 SR.

BTS base transceiver station

In a RAN, the BTS is the terminating point of the radio interface.

BTV broadcast television

The transmission of television signals that are available to all users. This television service is used on cable, satellite, and off-air systems. BTV is typically part of a triple play service offering.

bundle A bundle consists of all baud channels of a packet handler access point interface to a specific connection-related function to which users are connected.

C

C client port

C-MAC customer MAC

c-plane *See* control plane.

C-RP candidate rendezvous point

A router that is configured as a potential RP. If the current RP fails, the C-RP participates in an automated RP election process.

C-XMA compact XMA

In the 7950 XRS, an XMA that operates at half capacity. *See also* XMA.

CAC connection admission control

CAD Channel Add Drop

CALEA communications assistance for law enforcement act

CALEA is a United States federal law that enables the government to intercept wire and electronic communications and call-identifying information under certain circumstances; for example, to protect national security.

CAM content-addressable memory

CAM is a type of computer memory typically used where high-speed searches are required. CAM compares search terms to the memory contents and returns the storage address of any matches, along with additional data if so designed.

CBP customer backbone port

A CBP is a Backbone Edge Bridge Port that can receive and transmit frames for multiple customers, and can translate or assign B-MAC, B-VID, and I-SID on the basis of the received I-SID. This is an I-tagged interface. In the context of SR PBB this is the B-Site “port” that is connected to the I-Site.

CBR constant bit rate

CBR is an ATM service category that is used to carry traffic characterized by a service bit rate specified by a constant value and an evenly-spaced cell stream.

CBS committed burst size

The CBS is the maximum number of bytes that can be transmitted at the link speed and that conform to the CIR.

CBSR candidate bootstrap router

A router that is configured as a potential BSR. If the current BSR fails, the CBSR participates in an automated BSR election process.

CC CC can be expanded in two ways:

1 continuity check

A continuous flow of OAM cells generated by an ATM switch to check connectivity in the forward direction of a VCC or a VPC between two points in the network.

2 credit control

CCA CCA can be expanded in two ways:

1 credit control answer

The CCA is a message that is used between the credit control server and the Diameter credit control client to acknowledge a CCR.

2 cross-connect adapter

See VSM-CCA.

CCAG cross-connect aggregation group

VSM-CCAs are placed in a CCAG. A CCAG provides a mechanism to aggregate multiple CCAs into one forwarding group. The CCAG uses conversation hashing to dynamically distribute cross-connect traffic to the active CCAs in the aggregation group. In the event that an active CCA fails or is removed from the group, the conversation hashing function redistributes the traffic over the remaining active CCAs within the group. The conversation hashing mechanism for a CCAG is identical to that used by Ethernet LAGs.

CCF charging control function

CCM CCM is expanded in two ways:

1 continuity check message

In a CFM enabled network, CCM is a multicast PDU transmitted periodically by a MEP to assure the continuity over the MA to which the transmitting MEP belongs.

2 chassis control module

In the 7950 XRS, a module that houses all management connections and supports operator access to the routing system. CCMs include an LCD touch-screen that supports interfaces for functions such as alarm management and timing management. Each 7950 XRS includes two CCMs that are physically connected to a CPM.

CCR credit control request

The credit control request is a message used between the Diameter credit control client and the credit control server to request credit authorization for a service.

CCR-A	credit control request answer
CCR-U	credit control request update
CDF	charging data function
CDR	charging data record A CDR represents a formatted collection of information about a chargeable event and is used by telecom providers for user billing.
CE	customer edge A customer device with the required functions to access the services that are made available by a provider.
CEM	circuit emulation CEM is an encapsulation mode that emulates circuit characteristics of SONET or SDH packets.
certified directory	The certified directory contains image and configuration files that are certified by an authorized user as the default files for the switch. If the switch reboots, the switch reloads the files in the certified directory. If a switch is running from the certified directory, you cannot save any changes made in the running configuration. If the switch reboots, the changes made to switch parameters are lost. To save running configuration changes, the switch must be running from the working directory. *See also* working directory.
CES	circuit emulation service A device function that enables the encapsulation of TDM frames in protocol packets that are tunneled through a core network.
CESoETH	circuit emulation service over Ethernet *See* CES
cflowd	Enabling cflowd allows for the collection and analysis of traffic flow samples through a router. It is used for network planning and traffic engineering, capacity planning, security, application and user profiling, performance monitoring, and SLA measurement.
CFM	connectivity fault management
CFMA	common fault management assets CFMA provides Network and Element Management Systems with fault monitoring and management capabilities, and additionally to provide facilities for aiding integration of fault management across domains and systems
CFOADM	CWDM Fixed Optical Add Drop Multiplexer
CFP	compact form factor pluggable

CGF charging gateway function

The CGF listens to GTP messages sent from the GSNs on TCP or UDP port 3386 and gathers charging information in discreet records called CDRs from both SGSNs and GGSNs. The CGF compiles the CDRs into files and stores them until forwarding them to one or more billing networks.

CGI cell global identity

CHAP Challenge Handshake Authorization Protocol

CHAP is a secure method for connecting to a system.

cHDLC Cisco HDLC data encapsulation

cHDLC is a Cisco variation of HDLC encapsulation, a bit-oriented synchronous data link layer protocol. HDLC specifies a data encapsulation method on synchronous serial links using frame characters and checksums. cHDLC also uses a control protocol to maintain serial link keep-alives. You can only configure Cisco HDLC on IES SAPs.

child form A child form is a form that is opened from another form. Typically, you must save the child form configuration, and also save or apply the changes from the parent.

CIDR classless interdomain routing

An address aggregation process that simplifies routing.

CIR committed information rate

The CIR is the guaranteed minimum rate of throughput between two end-user devices over a network under normal operating circumstances. This rate, measured in bits or kb/s, is used in congestion control procedures.

circuit A circuit is a communications connection between two points. It has a line interface from which it transmits and receives data and signaling. A circuit is also known as a port, channel, or timeslot. An electronic circuit is one or more electronic components connected together to perform a specific function.

CIST common and internal spanning tree

The CIST instance is the spanning tree calculated by the MSTP region IST and the network CST. The CIST is represented by the single spanning tree flat mode instance. By default, all VLANs are associated with the CIST until they are mapped to an MSTI. *See* STP flat mode.

CIT Craft interface terminal

A local interface between the user and an NE. It is used to issue commands to the local system or, by way of a remote login, to another system on the same fiber as the local system.

class of service *See* CoS.

CLEI common language equipment identifier

CLEI codes identify telecommunications equipment in networks. The CLEI code uses a 10-character structure, as outlined in the Telcordia specification. These characters define equipment by specifying basic product type, features, source document, and associated drawings and versions. A CLEI code is unique to a specific piece of equipment and cannot be assigned to any other part.

CLI command line interface

A CLI is an interface that allows an operator to interact with the operating system of a device by typing commands and optional parameters at a command prompt. UNIX provides a CLI.

client delegate server *See* 5620 SAM client delegate server.

CLLI common language location identifier

A CLLI is a standardized, 11-character code used to identify the geographic location of an NE.

CLM customer license manager

A designated role within a customer organization that is responsible for the administration, purchase, return, and request of temporary, permanent, and emergency RAN license entitlements via OLCS and the LKDI web tool.

CM configuration management

Modification of network elements in the LTE RAN.

CMA compact media adapter

Similar to an MDA, but smaller.

CMAS confederation member autonomous system

A subdivision of an AS that is recognized only by other peers within the confederation. Within the confederation, a BGP peer treats only the peers in its CMAS as internal peers. Peers in different CMASs are external peers.

CMM chassis management module

Switches that operate in a stack, in a primary or secondary management role.

CNM customer network manager

A data integration system that integrates data from the fault, performance, order management, and provisioning systems of a service provider into a near real-time view for the enterprise customer.

CNM toolkit The CNM toolkit is comprised of an Alcatel-Lucent servlet and related files that provide a simplified distributed interface to the 5620 SAM-O module. The servlet is invoked by CNM applications from a web browser.

CO central office

See NOC.

COF Channel optical filter

combo port A port that is shared between a 10/100/1000 RJ-45 copper connection and a fiber 1 Gb/s connection. The copper or fiber connection can be used, but not both at the same time. If the fiber connection fails, the copper connection automatically becomes active. Combo ports are also known as hybrid ports.

confederation In BGP, a confederation is an AS that has been subdivided into smaller ASs called CMASs. A confederation appears to be a single AS to other ASs and is recognized only by other confederation members.

control plane The portion of the telecommunications network that is involved with signaling and control, including the management of sessions and services. *See also* c-plane.

CoS class of service

CoS is the degree of importance assigned to traffic. There are standard and premium classes of services. During queuing and forwarding, service points give preferential treatment to traffic that originates on elements configured for premium CoS.

CPB Commissioning and Power Balancing

CPE CPE can be expanded in two ways:

1 customer premises equipment

Network equipment that resides on the customer's premises.

2 customer provider edge

Cpipe A Cpipe, or circuit emulation VLL service, provides a point-to-point CEM service between users who connect to devices in an IP/MPLS network directly. The endpoints of a Cpipe uses CEM encapsulation.

CPM control processing module

A CPM is in a device such as the 7750 SR that uses hardware filters to perform traffic management and queuing functions to protect the control plane.

CPU central processing unit

CRC cyclic redundancy check

CRC checks transmission errors applied to a block of information. CRC involves a bit string (computed from the data to transmit) associated with each transmitted block, and ensures the check on reception.

credit control A mechanism that interacts with a subscriber account in real time, and controls or monitors the charges that are associated with service usage. Credit control checks to see if credit is available, reserves credit, deducts credit from a subscriber account when the service is completed, and refunds unused reserved credit.

cron A time-based scheduling service in UNIX and UNIX-like operating systems.

CSA Convergent Security Asset

An Alcatel-Lucent security solution package that offers single sign-on and access control mechanisms at different levels to provide a highly secure operating environment. The CSA includes an entry-level login and password mechanism.

CSFB circuit switched fallback

CSFB allows UE in an LTE network to use non-LTE RAT for services, such as SMS, when the LTE network does not provide that service.

CSM control switching module

A CSM is part of the 7705 SAR that uses hardware filters to perform traffic management and queuing functions to protect the control plane.

CSNP complete sequence number PDU

A PDU sent by a designated router to ensure database synchronization.

CSPF constrained shortest path first

CSPF is a component of constraint-based routing that uses a TED to find the shortest path through an MPLS domain that meets established constraints. The ingress router determines the physical path for each LSP by applying the CSPF algorithm to the TED information. Input to the CSPF algorithm includes topology link-state information learned from the IGP, LSP administrative attributes, and network resource attributes that are carried by IGP extensions and stored in the TED.

As CSPF considers each candidate NE and link for a new LSP, it accepts or rejects a specific path component based on resource availability and whether selecting the component violates policy constraints. The output of the CSPF calculation is an explicit route that consists of a sequence of router addresses. The explicit route is passed to the signaling component, which establishes forwarding states in the routers along the LSP.

CST common spanning tree

The CST is the overall network spanning tree topology resulting from STP, RSTP, and/or MSTP calculations to provide a single data path through the network.

CSU channel service unit

A CSU connects a digital phone line coming in from the phone company to network access equipment located on the customer premises. A CSU may also be built into the network interface of the network access equipment.

CSV comma separated value

CSV is a way of recording parameters and values in text format that separates values with a delimiter, such as a comma or tab.

customer In the 5620 SAM, a customer is the entity that pays for a network service, such as an IES, a VPLS, or a VPRN. The service is a means of transport for the application content, such as HSI or VoIP, that the customer offers to end users.

CVLAN customer VLAN

CWDM Coarse wavelength division multiplexing

CWDM is the method of combining multiple signals on laser beams at various wavelengths for transmission along fiber optic cables. The number of channels is fewer than in dense wavelength division multiplexing, or DWDM, but more than in standard wavelength division multiplexing, or WDM.

CWR8 8–Channel colorless wavelength router card, 44 channel

CWR8-88 8–Channel colorless wavelength router card, 88 channel

D

data-MDT data multicast distribution tree

A data-MDT is a tunnel for high-bandwidth source traffic through the P-network to interested PE routers. Data-MDTs do not broadcast customer multicast traffic to all PE routers in a multicast domain. Data-MDTs are only supported for VPRN services.

DB database

DCCA diameter credit-control application

A networking protocol for the diameter application that is used for real-time credit control of user services.

DCE data communication equipment

A device that communicates with a DTE device in RS-232C communications.

DCM DCM can be expanded in two ways:

1 dispersion compensation module

2 DSL combo module

A module card that can be configured on the 7705 SAR-M/ME. A DCM includes four SHDSL lines and two xDSL lines.

DCP data collection and processing

DDN downlink data notification

A message sent from an SGW to an SGSN or 9471 WMM over the S11 or S4 interface when data is received from a UE. The DDN and DDN Ack alert the SGSN or 9471 WMM of the UE reachability and service requests.

DDoS distributed denial of service

A DoS attack that occurs from more than one source at the same time. *See also* DoS.

de-mux *See* demultiplexer.

default SAP A SAP that forwards VLAN traffic with any encapsulation value. Default SAPs are indicated by the 4095 or * VLAN ID tag.

degree-2 A bidirectional network configuration from east to west or west to east.

demultiplexer A device that separates signals that have been combined as a single signal by a multiplexer for transmission over a communications channel.

deprecate As a class evolves over releases, its API, methods, and parameters may change. As the old transitions to the new, both versions must be maintained for a period. To deprecate an API, method, class, or parameter, the older version is marked as deprecated, but continues to work.

DES data encryption standard

An unclassified U.S. government-sanctioned encryption and decryption technology that uses 56-bit encryption, with 8-bit error detection.

device A generic term for an NE such as a router, switch, or bridge; the term is typically used to describe the NE in a non-network context.

DF don’t fragment

A bit in an IPv4 header that controls the fragmentation of a datagram.

DHCP Dynamic Host Configuration Protocol

An Internet protocol to automate the configuration of computers that use TCP/IP. The DHCP can be used to automatically assign IP addresses, deliver TCP/IP stack configuration parameters such as the subnet mask and default router, and provide other configuration information such as the addresses for printer, time, and news servers.

DHCP client An Internet host that uses DHCP to obtain configuration parameters, such as a network address, from a DHCP server.

DHCP relay DHCP relay allows a router to intercept a DHCP broadcast packet and forward the packet to a specific DHCP server.

DHCP relay agent A router used to interconnect DHCP clients with a DHCP server that is connected to another LAN segment or network. A DHCP relay agent can also be used to insert client circuit information.

DHCP server A server that stores network addresses and delivers configuration parameters to DHCP clients.

DHCP snooping DHCP snooping provides network security by monitoring and analyzing DHCP messages from hosts outside the managed network that can cause traffic attacks within the managed network. DHCP snooping builds and maintains a binding table that contains information such as MAC addresses and IP addresses that correspond to the hosts that are connected from outside the managed network.

Diameter A base foundation protocol that provides transfer of Diameter messages, negotiation capabilities, routing capabilities, and error handling. Diameter is a type of AAA protocol.

Diffie-Hellman key exchange A key agreement algorithm used by two parties to agree on a shared secret.

Dijkstra Routing algorithm used by IS-IS and OSPF that uses the length of path to determine a shortest-path spanning tree. Sometimes also called SPF.

DLCI data link connection identifier

A DLCI is a 10-bit routing address of the virtual circuit at the UNI or the NNI that identifies a frame as being from a specific PVC. DLCIs are used to multiplex several PVCs over one physical link.

DM delay measurement

Ethernet delay measurement measures frame delay and frame delay variations by sending periodic frames to the peer MEP and receiving frames from the peer MEP during the diagnostic interval.

DNS domain name system

A system that translates host names to IP addresses.

DNU do not use

DoS denial of service

A type of attack on a network that involves flooding the network with dummy data packets to render the network incapable of transmitting legitimate traffic.

Dot1N 802.1 level *N*

See 802.1D, 802.1p, 802.1Q, 802.1w, and 802.1X.

DP drop precedence

Attribute of a packet which affects the probability of the packet being dropped within a CoS.

DPA diameter proxy agent

DPD dead peer detection

A method that is used to detect a dead IKE peer by using IPsec traffic patterns.

DPI deep packet inspection

A computer network packet inspection process that evaluates the data of a packet. The data is examined for protocol non-compliance and for intrusions such as viruses and spam. If the data passes inspection, the packet passes; otherwise, it is routed to a different destination.

DPR disconnect peer request

DR designated router

A DR is a PIM-enabled router that manages multicast stream delivery for a group of receiver hosts in a multicast network. DRs exchange information regarding multicast sources and dynamically adjust to changes in source availability.

DRA Diameter routing agent

A functional element that ensures that all Diameter sessions established over reference points, such as the Gx, for a specific IP-CAN session, reach the same PCRF when there are multiple and separately addressable PCRFs that are deployed in a Diameter realm. The DRA tracks the status of PCRFs that are assigned to specific UEs and IP-CAN sessions across reference points, such as the Gx.

DRR deficit round robin

A DRR scheduler is designed to address the limitations of WRR scheduling by implementing a scheduling algorithm that is based on the bytes sent on an egress link. The DRR scheduling algorithm maintains a quantum value that defines the total number of credits for each CoS queue and a credit counter that is decremented each time a byte is taken from the queue for transmission. The purpose of the credit counter is to track the use of bandwidth by a CoS queue relative to the amount of bandwidth that has been allocated to the queue.

DRX discontinuous reception

A system used in cellular networks to prolong UE battery life by dividing UE devices into paging channels that are only paged by the designated network devices.

DS Lite Dual-Stack Lite

DS Lite allows an Internet service provider to omit the deployment of any IPv4 address to the customer's CPE. Only global IPv6 addresses are provided.

DS-N digital signal - level *N*

A digital signaling rate of *N* Mb/s; for example, the DS-1 rate is 1.544 Mb/s.

DSAP destination service access point

DSCP differentiated services code point

A six-bit value encoded in the type of service field of an IP packet header, which identifies CoS and the DP the packet receives.

DSL digital subscriber line

A DSL is a single twisted pair that supports full-duplex transmission at a bit rate of 160 kb/s (144 kb/s for 2B+D data, 12 kb/s for framing and error correction, and 4 kb/s for the embedded operation channel).

DSL module A module card that can be configured on the 7705 SAR-M/ME. The DSL module includes eight xDSL lines.

DSLAM digital subscriber line access multiplexer

A DSLAM is multiplexing equipment that a telecom operator uses to provide DSL services to end users.

DSU data service unit

A DSU adapts the physical interface on a DTE device to a transmission facility such as T1 or E1. The DSU is also responsible for signal timing.

DTD document type definition

The DTD defines the document structure and legal elements for a set of XML code.

DTE data terminal equipment

A device that communicates with a DCE device in RS-232-C.

DU downstream unsolicited

An MPLS LDP technique, where LSRs distribute bindings to LSRs that have not explicitly requested them.

DUS do not use for synchronization

DVD digital versatile disk

An optical digital disk that stores up to 4.7 Gbytes of data. A DVD can be recorded on both sides and in dual layers.

DVD-ROM digital versatile disk - read-only memory

A read-only DVD that is used to store data and software, as well as audio and video content.

DWDM dense wavelength division multiplexing

In DWDM, the channels that are transported simultaneously over one fiber at different wavelengths without interaction, are closely spaced (100 GHz or below). Each channel is usually Time Division Multiplexed.

dynamic host A host that is temporarily configured on the SAP. The 5620 SAM learns dynamic hosts when the DHCP lease populate function is enabled.

E

e-BGP *See* EBGP.

E-CSCF	emergency call session control function
E-LSP	EXP inferred LSP
E-SNCP	Electrical-Subnetwork Connection Protection
E1	A European standard for high-speed voice and data transmission at 2.048 Mb/s.
E3	A wide-area digital transmission scheme used predominantly in Europe that carries data at a rate of 34.368 Mb/s. E3 lines can be leased for private use from common carriers.
EAP	Extensible Authentication Protocol EAP provides a generalized framework for different types of authentication methods. This allows access devices to hand off authentication packets to an authentication system, such as a RADIUS server, without knowing the authentication method used.
EAS	Ethernet Access Switch
EBGP	Exterior Border Gateway Protocol A BGP session established between routers in different ASs. EBGPs communicate among different network domains.
EBI	EPS bearer ID
EC	Equipment controller
eCCM-U	enhanced core controller module The eCCM-U is an eNodeB component that provides the backhaul interface, call processing, data switching, routing, alarms, and frequency/timing.
eCEM-U	enhanced channel element module The eCEM-U is an eNodeB component that provides baseband signal processing and supports data, control, and timing interfaces to the BTS.
ECGI	E-UTRAN cell global identifier
ECMP	equal-cost multipath routing Technique used by OSPF and IS-IS routing protocols to balance the load of Internet traffic.
ECT	equal cost tree Algorithm as defined by 802.1aq where the shortest paths have to follow a subset of the equal cost shortest paths to any destination.
ED	Edge device
edge	In the context of a 5620 SAM map, an object which links two vertex objects. Physical links and service tunnels are examples of edges.

EDPS	event-driven processing server A server that is used by the 5750 SSC to access network equipment or mediate with other network management systems to access network equipment.
EFM	Ethernet in the First Mile EFM refers to the IEEE Std 802.3ah-2004 standard, an amendment to the Ethernet standard. The EFM standard was approved by the IEEE Standards Board in June 2004, and officially published on 7 September 2004. The EFM amendment deals with a set of additional specifications, allowing users to run the Ethernet protocol over previously unsupported media, such as single pairs of telephone wiring and single strands of single-mode fiber.
EGP	Exterior Gateway Protocol A generic term for a routing protocol that is used to exchange routing information between two hosts in a network of ASs. An EGP is typically used between hosts on the Internet to share routing table information.
Egress secondary shaper	A control mechanism to prevent downstream packet overruns without affecting the class-based scheduling behavior on a port, typically on an HSMDA.
eHRPD	evolved high rate packet data Connects the 3GPP2 HRPD access network to the 3GPP EPC IP environment through PMIP.
EIC	equipment ID code A character, or group of characters, used to identify or name equipment.
EIR	excess information rate The EIR is the excess bandwidth that a frame relay network attempts to carry for a given connection.
EIS	enhanced Internet service EIS enhances the Internet service model by catering to the needs of QoS-sensitive applications by providing value-added Internet services that improve delivery performance.
EJB	Enterprise Java Beans Used to describe a session bean, which is a Java object tied into system services to provide session management functions. EJB technology is the architecture on the server side for the Java Enterprise Edition platform.
EM	element manager

EMG egress multicast group

A group of destination SAPs that receives packets in a single transmission. The advantage of an EMG is the elimination of packet loopbacks to multiple SAPs.

eMLPP enhanced multi-level precedence and pre-emption

Specifies levels of precedence for call setup and continuity for HO.

EMS element management system

An application that manages one or more NEs.

eNB See eNodeB.

encapsulation Encapsulation is the addition of information to the beginning and end of data. Encapsulation is used by layered network protocols as data moves from one stack down to the next. Header and trailer information is added to the data at each layer. Encapsulation is also used to bridge connections between different types of networks.

eNodeB Evolved NodeB

The eNodeB is an enhanced BTS system for UE access to the LTE RAN network and LTE services in the 700 MHz spectrum. There are different hardware configurations available for the eNodeB, involving compact configuration (9412 eNodeB) or distributed configuration using remote radio heads (9926 DBS, also known as 9926 BBU).

Alcatel-Lucent 5620 SAM customer documentation refers to the 9926 DBS and 9412 eNodeB collectively as the eNodeB.

ePC evolved packet core

The core network in the LTE and SAE system. The ePC provides the overall control of the UE and establishment of the bearers. The main logical NEs of the ePC are the PGW, SGW, and MME.

ePDG evolved packet data gateway

The ePDG is part of the SAE that interfaces with untrusted non-3GPP networks that require secure access, such as Wi-Fi. The ePDG secures the data transmission with UE connected to the EPC, and acts as a secure termination node for IPsec tunnels that are established with the UE.

Epipe A type of VLL service that provides a point-to-point Ethernet service. One endpoint of an Epipe uses Ethernet encapsulation, and the other endpoint uses Ethernet, ATM, or frame relay encapsulation. Also known as an Ethernet VLL service.

EPS EPS is expanded two ways:

1 equipment protection switching

2 evolved packet system

The LTE and SAE together, comprising both an evolved core network and an evolved radio access network.

EPT Engineering and Planning Tool

ERP Ethernet ring protection

Ethernet Ring Protection (ERP) as specified in ITU-T G.8032, is a protection mechanism for Ethernet ring topologies that provides a resilient Ethernet network. ERP provides sub-50ms protection and recovery switching for Ethernet traffic in a ring topology, and, at the same time, ensures that loops are not formed at the Ethernet layer.

ERPS Ethernet ring protection switching

ESM *See* RSM.

ESNCP Electrical sub-block network connection protection

ESP Encapsulating Security Payload

A member of the IPsec protocol suite. ESP is a transport-layer protocol that provides data confidentiality, origin authentication, integrity checking, and replay protection. The communicating systems use a shared key to encrypt and decipher data. ESP is similar to AH, but provides IP header protection only in tunnel mode.

ESS extended service switch

A network switch, for example, the 7450 ESS, that supports the creation of Ethernet services such as VPLS and VLL.

EtherType A field in the Ethernet frame header that is used to indicate the version of Ethernet protocol.

ETR extended temperature range

eUTRAN evolved Universal Terrestrial Radio Access Network

The eUTRAN consists of eNodeBs that provide the user-plane and control-plane protocol terminations towards the UE. The eNodeBs can be interconnected with each other using the X2 interface. The eNodeBs are connected to the EPS through the S1 interface.

eVOA electrical variable optical attenuator

EVPL Ethernet virtual private line

An EVPL is a data service, defined by the Metro Ethernet Forum that provides a point-to-point Ethernet connection between UNIs.

EXP experimental field

A field in an IP packet header that is reserved for experimental use.

F

failover Failover is the process of changing the roles of a redundant system, for example, when the standby database takes over the role of a failed active database. A failover is irreversible.

fallback Fallback is the process of reversing configuration deployments using the activation manager.

Fast Ethernet A LAN transmission standard that provides a data rate of 100 Mb/s.

fault A fault is a failure or defect in a network, causing the network, or part of the network, to malfunction.

FC flow control

Flow control is the procedure that shuts down transmission when a receiving station is unable to store the data it is receiving.

FC forwarding class

See forwarding class.

FCAPS FCAPS is the acronym for a broad categorization of network and service management activities that includes:

- fault management
- configuration management
- accounting/administration management
- performance management
- security management

FCC fast channel change

FCC is an HDTV function that provides bursts of cached unicast traffic via separate video servers to provide channel changes in under a second.

FD frequency diversity

Two ODUs simultaneously transmit packets on different frequencies. On the receive side, two ODUs receive the packets on two frequencies but only the best signal, as determined by factors such as BER and loss of signal, is processed by the 9500 MPR.

FDB filtering database

FDL facilities data link

Used in ESF to support the communication of network information in the form of in-service monitoring and diagnostics.

FDN fully distinguished name

FEC forwarding equivalency class

A group of IP packets that are forwarded in the same manner, for example, over the same path, with the same forwarding treatment.

FIB forwarding information base

FIB is the set of information that represents the best forwarding information for a destination. A device derives FIB entries from the reachability information held in the RIB, which is subject to administrative routing.

FIC frame ID code

A field in a channel frame that identifies the position of the frame in the frame sequence.

flash memory A rewritable memory chip that retains its content without power.

flowspec The use of BGP to distribute traffic flow specifications (flow routes) throughout a network. A flow route carries the description of a flow, such as source IP address, destination IP address or TCP/UDP port number, and a set of actions to take on packets that match the flow.

FOADM Fixed optical add/drop multiplexer/multiplexing

forwarding class A forwarding class, also called a CoS, provides to NEs a method to weigh the relative importance of one packet over another in a different forwarding class. Each forwarding class is important only in relation to other forwarding classes.

Queues are created for a specific forwarding class to determine the manner in which the queue output is scheduled into the switch fabric and the type of parameters the queue accepts. The forwarding class of the packet, along with the in-profile or out-of-profile state, determines how the packet is queued and handled (the per-hop behavior at each hop along its path to a destination egress point).

FPGA field programmable gate array

A high density programmable hardware device capable of supporting different applications

Fpipe A type of VLL service that provides a point-to-point frame relay service between users over an IP/MPLS network. Both endpoints of an Fpipe use frame relay encapsulation. An Fpipe connects users through frame relay PVCs. An Fpipe is also known as a frame relay VLL service.

FQDN fully qualified domain name

FR frame relay

A standard for high-speed data communication that offers transmission speeds of at least 2.048 Mb/s. The main application of FR is LAN interconnection.

FRF.5 Frame Relay/ATM PVC Network Interworking Implementation Agreement

A standard that provides network interworking function, allowing frame relay users to communicate over an intermediate ATM network.

FRR fast reroute

FRU Field replaceable unit

An FRU is a component that you can replace on-site with minimal or no service interruption. A fan unit is an example of an FRU.

FT fault tolerance or fault-tolerant

Fault tolerance enables a system to continue operating properly in the event of the failure of some of its components. When the operating quality decreases at all, the decrease is proportional to the severity of the failure.

TCP fault tolerance allows reliable two-way network communication using links that may be imperfect or overloaded. It does this by requiring the communication endpoints to expect packet loss, duplication, reordering and corruption, so that these conditions do not affect data integrity.

FTP File Transfer Protocol

FTP is the Internet standard client-server protocol for transferring files from one computer to another. FTP generally runs over TCP or UDP.

fVOA fast variable optical attenuator

FXO Foreign Exchange Office

FXS Foreign Exchange Subscriber

G

Ga The interface between the PGW and the OFCS.

GARP Generic Attribute Registration Protocol (formerly Group Address Registration Protocol)

A LAN protocol that defines procedures by which end stations and switches can register and de-register attributes (such as network identifiers or addresses) with each other. By this means, every NE has a record or list of all the other NEs that can be reached at any given time.

GBE Gigabit Ethernet

A transmission technology based on the Ethernet frame format and protocol used in local area networks (LANs) that provides a data rate of one billion bits (one gigabit) per second. Gigabit Ethernet is defined in the IEEE 802.3 standard and is currently used as the backbone in many enterprise networks.

GBEH Gigabit Ethernet Hardened

The 1830 PSS-1 GBEH is a temperature-hardened edge device that provides up to 10 GBE services over an 11G optical channel.

GBR guaranteed bit rate

The GBR indicates the guaranteed number of bits delivered to the network within a period of time.

generic NE generic network element

An NE, typically a non-Alcatel-Lucent device, for which the 5620 SAM provides limited management support using SNMP.

GERAN GSM Edge Radio Access network

Supports enhanced data rates for global evolution (EDGE), and provides both the radio coverage and intelligent network services. It consists of the Base Transceiver Station (BTS), the Base Station Controller (BSC), the Transcoding and Rate Adaptation Unit (TRAU), a key component in handling and routing information, and the Operation and Maintenance Center (OMC-B).

GGSN gateway GPRS support node

GGSN provides network access to external hosts that need to communicate with mobile subscribers. GGSN is the gateway between the GPRS wireless data network and other external PDNs such as radio networks, IP networks, or private networks.

GIF graphics interchange format

GIF is a graphics file format that supports up to 256 colors.

Gig gigabit

Approximately 1 000 000 000 bits. The exact number is 2^{30}, or 1 073 741 824 bits. The term is used to mean either value.

Gig Ethernet *See* Gigabit Ethernet.

Gigabit Ethernet An Ethernet interface with a peak data rate of 1000 Mb/s.

GigE *See* Gigabit Ethernet.

Global MEG Global Maintenance Entity Group

A Global MEG is a virtual object that contains more than one MEG. *See also* MEG.

Gn Gn is:

- the interface between the PGW and the SGSN
- the interface between GSNs within a PLMN

GNE GNE can be expanded in two ways:

1 *See* generic NE.

2 Gateway Network Element

The 5620 SAM can manage a network consisting of one or more 1830 PSS NEs while being connected to a single 1830 PSS NE called the GNE. The GNE manages the connectivity to all other 1830 PSS NEs in the network.

GNI Gigabit Ethernet Network Interface

GNSS global navigation satellite system

A satellite navigation system is a system of satellites that provides autonomous geo-spatial positioning with global coverage. It allows small electronic receivers to determine their location (longitude, latitude, and altitude) to high precision, using time signals transmitted along a line of sight by radio from satellites. The signals also allow the electronic receivers to calculate the current local time to high precision, which allows time synchronization. A satellite navigation system with global coverage may be termed a global navigation satellite system or GNSS.

golden configuration A golden configuration is an NE that is configured to be a standard against which other NE configurations can be compared.

Gp Gp is:

- the interface between the PGW and the SGSN
- the interface between GSNs in different PLMNs

GPON module gigabit passive optical network module

A module card that can be configured on the 7705 SAR-M/ME. The GPON module is a 1-port optical network terminal which serves as an Ethernet connection point for transmitting data over a GPON network.

GPRS General Packet Radio Service

A mobile data service extension to the GSM system. It is often described as “2.5G”. See 3GPP TS43.064 and TS23.060.*

GPS global positioning system

GR graceful restart

Many Internet routers implement a separation of control and forwarding functions. These routers can continue to forward data while the control software is restarted or reloaded. This function is called graceful restart. A successful graceful restart requires the use of a GR helper.

GR helper graceful restart helper

A GR helper is a neighboring router that is configured to cooperate during a graceful restart. The GR helper monitors the network topology for any changes and, if there are none, advertises that the router performing the graceful restart is still active.

Gr interface generic requirement interface

The Gr interface is a General Packet Radio Service which is located between the Serving General Packet Radio Service Support Node and the Home Location Register.

GRE generic routing encapsulation

A protocol for the encapsulation of an arbitrary network-layer protocol over another arbitrary network-layer protocol.

GRT global route table

GSM Global System for Mobile communications; a type of 2G network.

GSMP General Switch Management Protocol

GSMP is an ATM and TCP/IP protocol designed to control a label switch. This protocol allows a controller to establish and release connections across the switch. For example, adding and deleting leaves on a multicast connection, managing switch ports, and requesting configuration information and statistics.

ANCP is an extension of GSMP.

GSN GPRS support node

A GSN is an NE that supports the use of GPRS in a GSM core network.

GTP GPRS tunneling protocol

GTP is the protocol between GSNs in the UMTS/GPRS backbone network. GTP is the standard that specifies interfaces for the GPRS within the 3GPP system:

- the Gn and Gp interfaces of the GPRS
- the Iu, Gn, and Gp interfaces of the UMTS system.

GTP-C GTP-control plane

This protocol tunnels signaling messages between the SGSN and MME over the S3 interface, between the SGSN and SGW over the S4 interface, between the SGW and PGW over the S5/S8interface, and between MMEs over the S10 interface. See 3GPP TS 23.401 Section 5.1.1.*

GTP-U GTP-user plane

This protocol tunnels user data between the eNodeB and the SGW, as well as between the SGW and the PGW in the backbone network. GTP encapsulates all end-user IP packets. See 3GPP TS23.401 Section 5.1.2.1.*

GUI graphical user interface

A GUI is a computer user interface that incorporates graphics to make software easier to use.

GVRP GARP VLAN registration protocol

GVRP is a standards-based Layer 2 network protocol for automatic configuration of VLAN information on switches.

Gx The Diameter reference point between the PCRF and the PCEF on the PGW that transfers policy and charging rules from the PCRF to PCEF.

Gy The interface between the PGW and the OCS.

H

H-VPLS hierarchical virtual private LAN service

HA high-availability

HCM high capacity multiplexing

HCM is a rate adaption and sub-rate multiplexing scheme that provides a bandwidth granularity of 800bit/s throughout a network. HCM multiplexes multiple V.24 lines into a single G.703 time slot.

HDD hard disk drive

HDLC high-level data link control

HDLC is a bit-oriented synchronous data link layer protocol. It specifies a data encapsulation mode on synchronous serial links using frame characters and checksums.

HIP horizontal integration protocol

A mechanism for connecting external systems to the 5620 SAM. HIP supports network discovery, alarm forwarding, and alarm management.

HMAC key-hash message authentication code

HMAC is a type of message authentication code that is calculated using MD5 and a secret key. It simultaneously verifies the data integrity and the authenticity of a message. The resulting algorithm is termed HMAC-MD5 or HMAC-SHA-1.

HO handover

HO-ODUk The higher-order ODU (HO-ODU) transparently carries several multiplexed lower-order ODUs.

Hop The number of hops in a path indicates the number of full or fractional links a path traverses to get from source to destination. Each link is one hop.

host A host is a device that has at least one static or dynamic IP address. The term typically applies to an end-user device, such as a PC, VoIP phone, or set-top box, rather than an NE in a transport network.

Hpipe A type of VLL service that provides point-to-point HDLC service over an MPLS network.

HQoS hierarchical quality of service

HQoS provides the ability to perform rate limiting across multiple queues from multiple SAPs.

HSB hot standby

One ODU transmits or receives packets on a single frequency. A second ODU is in standby mode and takes over if the other ODU fails.

HSDPA high speed data-link packet access

HSGW HRPD service gateway

The HRPD service gateway is in HRPD network, and provides interworking between the HRPD and ePC networks. The HSGW connects to the PGW by the S2a reference point.

HSI high-speed Internet access

HSI is a broadband Internet access service that is typically part of a triple play service.

HSMDA high scale Ethernet MDA

The HSMDA is an MDA for the 7450 ESS and 7750 SR platforms. The HSMDA extends subscriber and service density capabilities of first and second generation IOMs by adding an MDA level of ingress and egress queues, shapers, and schedulers.

HSPA high-speed packet access

HSS home subscriber server

The HSS is a user database that supports the IMS network entities that handle calls. It contains subscriber profiles, performs authentication and authorization of the user, and can provide information about the subscriber's location and IP information.

HTML hypertext markup language

Language for writing hypertext documents, often for use in a web environment.

HTTP Hypertext Transfer Protocol

A set of rules for exchanging text, graphics, sound, video, and other multimedia files on the Web.

HTTP POST In HTML, you can specify a GET or POST submission method for a form. The method is specified inside a FORM element using the METHOD attribute. The difference between METHOD=”GET” (default) and METHOD=”POST” is primarily defined by form data encoding.

HTTPS Secure Hypertext Transfer Protocol

A protocol built into a Web browser that provides encryption and decryption of Web page requests and responses. Also known as HTTP over SSL.

HVPLS hierarchical virtual private LAN service

hybrid port *See* combo port.

I

I-component An S-VLAN component with PIP

I-SID I-component service instance identifier

I-TAG	service instance TAG
I-VPLS	I-component VPLS (or I-SID VPLS)
I-VSI	I-component virtual switch instance. Also referred to as an I-Site.
I/O	input/output Connections between a system and its controlled devices (output) and incoming statuses (input).
I/O module	*See* IOM.
IB-RCC	In-band ring control connection
IBGP	Interior Border Gateway Protocol IBGP is a type of BGP used within a single AS. IBGP is a protocol for exchanging routing information between gateways within an autonomous network. The routing information can then be used by IP or other network protocols to specify how to route packets.
ICAP	Internet Content Adaptation Protocol ICAP is a protocol defined in the IETF RFC 3507 that provides simple object-based content processing for HTTP services. An ICAP client passes an HTTP message to an ICAP server that processes the message and sends a response to the client. A typical ICAP function is to enable parental control of Internet content viewed by children.
ICB	inter-chassis backup
ICMP	Internet Control Message Protocol ICMP is a protocol that sends and receives the control and error messages used to manage the behavior of the TCP/IP stack. ICMP is defined in RFC 792.
ICR	inter-chassis redundancy
ID	identifier or identification
IdP	identity provider IdP is responsible for acting as the access management authority for SSO-enabled applications and their users.
IE	information element An element of a signaling message whose contents are for a specific signaling purpose
IED	intelligent electronic device A packet-based remote monitoring and control device used in SCADA networks
IEEE	Institute of Electrical and Electronics Engineers

IES Internet enhanced service

IES is a routed connectivity service in which a host communicates with an IP router interface to send and receive Internet traffic. An IES has one or more logical IP router interfaces, each with a SAP that acts as the access point to the network. IES allows customer-facing IP interfaces to participate in the same routing instance that is used for core network routing. The IP addressing scheme for a customer must be unique among the provider addressing schemes in the network and possibly in the entire Internet.

The usable IP address space may be limited. A portion of the service provider address is reserved for service IP provisioning and allows administration by a separate but subordinate address authority.

IETF Internet Engineering Task Force

The IETF is the organization that manages the standards and specifications for IP and related protocols.

IGH interface group handler

IGH is a fate-sharing group that provides the ability to group multiple IP links and POS links so that if a specified number of links go out of service for any reason, the rest of the links in the IGH also go out of service and can be rerouted to an alternate path.

IGMP Internet Group Management Protocol.

IGMP is an IP extension that hosts use to report their multicast group membership to neighboring multicast routers.

IGMP snooping IGMP snooping enables a device that relays an IGMP packet to read the IGMP message and thus identify hosts that are members of multicast groups. The device forwards the returning multicast packets to only the hosts in the multicast group.

IGP Interior Gateway Protocol

Generic term applied to any protocol used to propagate network reach and routing information within an AS.

IKE Internet key exchange

Protocol used to establish a security association in the IPsec protocol suite using the Diffie-Hellman Key exchange to establish a shared secret session.

ILA in-line amplifier

ILMI interim local management interface

An interim standard defined by the ATM Forum that allows UNI management information to be exchanged between an end user and a public or private network, or between a public network and a private network, including setting and capturing physical layer, ATM layer, virtual path, and virtual circuit parameters on ATM interfaces. ILMI uses SNMP messages without UDP and IP, and organizes managed objects into four MIBs.

IMA inverse multiplexing over ATM

A cell-based protocol where an ATM cell stream is inverse-multiplexed and de-multiplexed in a cyclical fashion among ATM-supporting paths to form a higher bandwidth logical link, where the logical link concept is referred to as an IMA group.

IME interface management entity

Software components that execute the ILMI protocol.

IMEI international mobile equipment identity

A unique number that is allocated to each mobile station. It is implemented by the mobile station manufacturer. See 3GPP TS 22.016.*

IMEISV international mobile equipment identifier and software version

A unique number that is allocated to each mobile station. It is implemented by the mobile station manufacturer. The software version number identifies the software version number of the mobile equipment.

IMM integrated media module

In the 7750 SR and 7450 ESS architectures, a circuit board that uses the same chassis card slots as an IOM, but combines IOM 3 and high-bandwidth MDA functions in one unit. The IMM does not accept plug-in MDAs because the MDA functions are built into the IMM.

IMPM ingress multicast path management

IMS Internet protocol multimedia subsystem

An architectural framework for delivering Internet Protocol (IP) multimedia services via UTRAN and E-UTRAN. See 3GPP TS23.228 and TS23.406.*

IMSI international mobile subscriber identity

A unique number associated with each mobile phone user. It is stored in the SIM inside the phone and is sent by the phone to the network. It is primarily intended for obtaining information on the use of the PLMN by subscribers. It is also used for other functions, such as to compute the Paging Occasions (PO) in LTE. See 3GPP TS22.016 and TS23.003.*

intermediate system A router, in ISO terminology. Intermediate systems forward traffic for end systems, which are hosts.

IOM input/output module

In the 7750 SR and 7450 ESS architectures, a circuit board that contains two independent data paths, with each path connected to an MDA. IOMs implement queuing and IP and MPLS functions. The IOM is available in several variants, such as the IOM 2 and IOM 3, that provide enhancements to the basic IOM functions.

IP Internet Protocol

IP is the network layer for the TCP/IP protocol suite. It is a connectionless, best-effort packet-switching protocol defined by the IETF.

IP precedence A three-bit field in an IP packet header which is used to identify the level of service a packet receives in the network. IP precedence bits are the least significant bits in a DSCP value.

IP-CAN IP connectivity access network

The IP-CAN defines the network that connects an IMS subscriber to IMS services. Typically, the IP-CAN is a GPRS that is supported by GERAN or UTRAN functions.

IPCP Internet Protocol Control Protocol

A protocol that establishes and configures IP over PPP. Elements of IPCP include packet encapsulation, code fields, and timeouts.

IPFIX Internet Protocol Flow Information Export

Ipipe A type of VLL service that provides point-to-point IP connectivity and allows service interworking between different Layer 2 technologies. One endpoint of an Ipipe uses Ethernet encapsulation and the other endpoint uses Ethernet, ATM, frame relay, cHDLC, or PPP encapsulation. Also known as IP interworking VLL service.

IPsec Internet protocol security

A structure of open standards to ensure private and secure communications over IP networks using cryptographic security services.

IPTV Internet-based television transmission

IPv4 Internet Protocol version 4

The version of IP in use since the 1970s. IPv4 addresses are 32 bits. IPv4 headers vary in length and are at least 20 bytes.

IPv6 Internet Protocol version 6

The version of IP that succeeds IPv4. IPv6 addresses are 128 bits. IPv6 headers are 40 bytes.

IPX internetwork packet exchange

The network-layer protocol in the NetWare operating system. It contains a network address and allows messages to be routed to a different network or subnet.

IRAT inter-radio access technology

IRAT refers to functions, particularly SON functions, that interface between radio technologies such as LTE and UTRAN.

IRI intercept related information

Data about the targeted communication event, including the destination of a voice call, the source of a call, and the time of the call.

IRICC intercept related information and content of communication

Data about the call and the data containing the call content.

IS *See* intermediate system.

IS-IS intermediate system to intermediate system

IS-IS is an ISO standard link-state routing protocol. Integrated IS-IS allows IS-IS to be used for route determination in IP networks.

ISA integrated services adapter

The ISA is an MDA for the 7450 ESS and 7750 SR platforms. As a resource adapter, there are no external interface ports on the ISA. Any IOMs on a system in which the ISA is installed are used to switch traffic internally to the ISA.

ISA-AA integrated services adapter - application assurance

ISA-AA is an application assurance function that is configured in the 5620 SAM for ISAs on the 7450 ESS and 7750 SR platforms. *See* AA and ISA.

ISA-IPsec integrated services adapter - IP security

ISA-IPsec is a IP security function that is configured in the for ISAs on the 7450 ESS and 7750 SR platforms. On an NE the ISA-IPsec acts as a concentrator to gather and terminate encrypted IPsec tunnels on an IES or VPRN service. This allows a network provider to offer a secure global service when the hosts are in an uncontrolled or unsecure part of a network.

ISA-L2TP/LNS integrated services adapter - L2TP network server

ISA-LNS is a L2TP network server function that is configured in the 5620 SAM for ISAs on the 7450 ESS and 7750 SR platforms. Any IOMs on a system in which the ISA-LNS is installed are used to switch traffic internally to the ISA-LNS.

ISA-NAT integrated services adapter - network address translation

ISA-NAT is a network address translation function that is configured in the 5620 SAM for ISAs on the 7450 ESS and 7750 SR platforms. *See* NAT and ISA.

ISA-TMS integrated services adapter - threat management system

The ISA-TMS is an MDA for the 7750 SR platform.

ISA-WLAN integrated services adapter - wireless local area network

The ISA-WLAN is a wireless local area network function that is configured in the 5620 SAM for ISAs on the 7450 ESS and 7750 SR platforms. *See* WLAN GW and ISA.

ISC integrated services card

ISC integrated services card

ISO International Standards Organization

ISSU in-service software upgrade

IST instance internal spanning tree instance

The IST instance determines and maintains the CST topology between MSTP switches that belong to the same MSTP region. The IST is a CST that only applies to MSTP region switches while, at the same time, the IST represents the region as a single spanning tree bridge to the network CST.

IT information technology

ITL Interleaver

ITU *See* ITU-T.

ITU-T International Telecommunication Union - Telecommunication Standardization Sector

IWF interworking function

IWF provides seamless packet transmission between two protocol stacks. For example, IWF can connect an ATM endpoint with a frame relay endpoint using mappings between the two protocol stacks.

J

J0 byte The J0 byte refers to the numeric value for a SONET section trace to verify the physical connectivity of data links. The J0 byte traces the origin of an STS frame as it travels across a SONET network. The value for the J0 byte parameter is inserted continuously at the source and is checked against the value expected by the receiver. After the data links have been verified, they can be grouped to form a single traffic engineering link.

JAAS Java authentication and authorization service

A set of packages that enable services to authenticate and enforce access controls on users.

Java An object-oriented programming language that creates portable code to support interaction among different objects.

Java EE Java Enterprise Edition

A set of services, APIs, and protocols that provide the functions to develop multi-tiered, web-based application components. Java EE is overseen by a partnership of enterprise software and computer platform vendors, and is available for a range of platforms.

JDBC Java Database Connectivity

An application-programming interface that has the same characteristics as Open Database Connectivity, but is specifically designed for use by Java database applications.

JMS Java Message Service

JMS is an API that combines Java technology with enterprise messaging. The JMS API defines a common set of interfaces for creating applications using reliable asynchronous communication among components in a distributed computing environment. The applications are portable to different enterprise systems.

JNLP Java Network Launching Protocol

JNLP enables an application to be launched on a client desktop by using resources that are hosted on a remote web server. Java Plug-in software and Java Web Start software are considered JNLP clients because they can launch remotely hosted applets and applications on a client desktop.

JRMP Java Remote Method Protocol

A proprietary wire-level protocol that transports Java RMI.

JVM Java virtual machine

A software abstraction layer that enables Java software to run on any processor architecture.

K

KCI key capacity indicator

keystore A Java security framework class that represents an in-memory collection of keys and trusted certificates.

KPI key performance indicator

A statistic counter used to monitor network performance.

L

L line port

L-LSP label only inferred LSP

L1 Layer 1

The physical layer of the OSI model that includes network hardware and physical cabling required to transmit raw bits and perform requests from the data link layer.

L2 Layer 2

The data link or MAC layer of the OSI model. In networking, it is a communications protocol that contains the physical address of a client or server station that is inspected by a bridge or switch.

L2PT Layer 2 protocol tunneling

L2PT allows L2 PDUs to tunnel through a network.

L2TP Layer 2 Tunneling Protocol

L2PT is a session-layer protocol that extends the PPP model by allowing L2 and PPP endpoints to reside on different devices that are interconnected by a PSN. L2TP extends the PPP sessions between the CPE and PPP/L2TP termination point (LNS), via an intermediate LAC. *See also* LNS *and* LAC.

L3 Layer 3

The network layer of the OSI model. In networking, it is a communications protocol that contains the logical address of a client or server station that is inspected by a router, which forwards the address through the network. L3 contains a type field so that traffic can be prioritized and forwarded based on the message type as well as the network destination.

LAC L2TP access concentrator

The LAC is the initiator of an L2TP tunnel. *See also* LNS *and* L2TP.

LACP Link Aggregation Control Protocol

LACP is used to detect whether all local members of a LAG are physically connected to the remote ports that are part of the far end of the LAG.

LACPDU link aggregation control protocol data unit

LAG link aggregation group

A LAG increases the bandwidth available between two NEs by grouping up to eight ports into one logical link. The aggregation of multiple physical links allows for load sharing and offers seamless redundancy. If one of the links fails, traffic is redistributed over the remaining links. Up to eight links can be supported in a single LAG, and up to 64 LAGs can be configured on a device.

LAIS line alarm indication signal

A SONET signal that indicates a general line fault.

LAN local area network

A LAN is a group of computers or associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area, for example, within an office building.

Layer 2 *See* L2.

Layer 3 *See* L3.

LBM loopback message

A loopback message is generated by a MEP to a peer MEP or an intervening MIP.

LCP Link Control Protocol

LCP establishes, configures and tests data-link Internet connections before establishing communications over a point to point link.

LD Line driver

LDAP Lightweight Directory Access Protocol

LDAP is a networking protocol for querying and modifying directory services that run over TCP/IP.

LDP Label Distribution Protocol

LDP is a signaling protocol used for MPLS path setup and teardown. An LDP is used by LSRs to indicate to other LSRs of the meaning of labels used to forward traffic. LDP is defined in RFC 3036.

lease For DHCP, the amount of time that a specific IP address is valid for a computer.

LED light-emitting diode

LER label edge router

An LER is a router at the edge of a service-provider network that forwards IP packets using LSPs.

level In the IS-IS link-state protocol, level indicates the type of adjacency that can be formed between routers. Routers are assigned a capability for level 1, level 2, or both level 1 and 2. Level 1 routers can form adjacencies with other level 1-capable routers, and forward traffic within an area. Level 2 routers can form adjacencies with level 2-capable routers, and forward traffic between areas. Traffic that moves from one area to another is forwarded through routers that have both level 1 and 2 capability.

LFI link fragmentation and interleaving

LFI interleaves high priority traffic within a stream of fragmented lower priority traffic. LFI helps avoid excessive delays to high priority, delay-sensitive traffic over a low-speed link.

LH	Long haul
LI	lawful intercept A method to monitor target subscriber voice and data communications over an IP network by authorized agencies.
LIC	location ID code A field in a SONET frame that identifies the location of an MDL.
lightRadio Wi-Fi	lightRadio Wi-Fi is an Alcatel-Lucent solution that allows the offloading of traffic or data to a wireless network using RADIUS authentication, GRE tunnels, and WLAN GWs.
Linux	A UNIX-like OS developed by Linus Torvalds using the open-source software development and distribution model. Linux has an independently developed kernel, so is not a UNIX variant. Popular commercial versions are RHEL and Ubuntu.
LKDI	license key delivery infrastructure An Alcatel-Lucent web service that you can use to create and download LTE RAN license files for import into the 5620 SAM.
LLC	logical link control LLC is the upper sublayer of the ISO model data link layer. LLC governs packet transmission as specified by IEEE 802.2.
LLD	link layer discovery
LLDP	Link Layer Discovery Protocol LLDP, defined by IEEE 802.1AB, is a standard that provides a solution for the configuration issues caused by expanding LANs. LLDP defines a standard information advertising and discovery method for Ethernet devices. The protocol runs in the datalink layer only, which allows NEs running different network-layer protocols to learn about each other.
LLDPDU	Link Layer Discovery Protocol data unit *See also* LLDP.
LLID	Logical Link Identifier A means for a service provider to track a subscriber, based on a virtual port (the LLID).
LM	loss measurement Ethernet loss measurement is used to count the number of service frames which are not successfully delivered to the specified destinations.

LMI local management interface

LMI is a signaling standard that is used between routers and FR switches. LMI communication takes place between a router and the first FR switch in the signaling path and involves the exchange of keep-alive, addressing, and virtual circuit status information.

LMT local maintenance terminal

LNS L2TP network server

The LNS is the server, which waits for L2TP tunnels. *See also* LAC *and* L2TP.

load balancing Load balancing is the distribution of network traffic among the ports by a device so that no single port is overwhelmed, and network bandwidth is optimized.

LOC loss of clock

A field in a SONET frame that indicates the loss of the line clock signal.

LOF loss of frame

A field in a SONET frame that indicates the loss of a line frame in the frame sequence.

LOS loss of signal

A field in a SONET frame that indicates the loss of line signaling.

LOS line of sight

The propagation characteristic of high-frequency radio is called line-of-sight. Any obstruction between a transmitting antenna and a receiving antenna will block a signal. The ability to visually see a transmitting antenna roughly corresponds to the ability to receive a radio signal from it.

LO–ODUk Lower Order–Optical Data Unit–k (k=1 to 8)

LPE logical provider edge

A set of devices in a provider network that implement the functions of a service, such as VPLS.

LPS learned port security

A mechanism for authorizing source learning of MAC addresses on Ethernet and Gigabit Ethernet ports.

LRDI line remote defect indication

A field in a channel frame that indicates a remote LOF, LOC, or LOS.

LSA link state advertisement

LSA describes the local state of a device or network, including the state of the device's interfaces and adjacencies. Each LSA is flooded throughout the routing domain. The collected LSAs of all devices and networks form the protocol's topological database.

LSM local session manager

A CSA component for session management and navigation.

LSP label switched path

LSPs support MPLS functions and allow network operators to perform traffic engineering. There are three types of LSPs:

- static LSP
  A static LSP specifies a static path. All devices that the LSP traverses must be configured manually with labels. No signaling is required.
- signaled (dynamic) LSP
  A signaled LSP is set up using a signaling protocol. The signaling protocol facilitates path selection and allows labels to be assigned from an ingress device to an egress device. Signaling is triggered by the ingress router; only the ingress router requires configuration.
- bypass-only LSP
  A bypass-only LSP has manually configured bypass tunnels on PLR NEs and is used exclusively for bypass protection.

LSP classifier A method of filtering IP traffic flows on to an LSP.

LSP path An LSP associated with an MPLS path. This path could be an actual route, or a configured route. A configured route can be primary, secondary, or standby. An LSP could have at most one actual route, one primary route, and multiple standby or secondary routes.

LSR label switched router

An LSR is an MPLS NE that runs MPLS control protocols and is capable of forwarding packets based on labels. An MPLS NE may also be capable of forwarding native Layer 3 packets.

LTE Long Term Evolution

LTE is a standard for wireless mobile broadband networks. LTE networks can offer higher data throughput to mobile terminals than other technologies. LTE is the accepted evolution path for GSM, WCDMA, and CDMA networks. LTE is developed and maintained by the 3GPP standards body.

LTR Link Trace Response

M

MA maintenance association

MA is a set of MEPs, each configured with the same ID and MD level.

MAC media access control

MAC is a sublayer of the data link layer, defined in IEEE 802.2 specifications that accesses the LAN medium. The MAC layer handles the recognition and identification of individual network devices. Every computer and network device has a MAC address that is hardware-encoded.

MAC pinning MAC pinning is a restriction on a MAC entry in the MAC forwarding table such that it cannot be relearned on another port within the lifetime of the entry. The entry can still age.

MAF MAF can be expanded in two ways:

1 management access filter

A filter that specifies the type of management access and underlying connection protocol usage for an NE, as well as the IP addresses and ports that can access the device.

2 9471 MME application function

MAID maintenance association ID

A MAID is a unique identifier for the MA. The MAID has two parts, the maintenance domain name and the MA name.

main server *See* 5620 SAM main server.

MAN metropolitan area network

A telecommunications network that covers a geographic area such as a city or suburb.

mask A filter that selectively includes or excludes certain values. For example, when you define a database field, you can assign a mask that indicates the type of value for the field. Values that do not conform to the mask cannot be entered.

MBB make before break

MBMS multimedia broadcast multicast service

A P2MP interface specification for RAN and core network broadcast and multicast services.

MBS maximum burst size

MBS refers to the number of cells that can be sent at PCR and still conform to the SCR.

MC multichassis

A redundancy configuration that includes two peer NEs.

MC APS multi chassis automatic protection switching

MC LAG multi chassis link aggregation group

MC MLPPP multiclass MLPPP

Fragmentation of packets of various priorities into multiple classes, allowing high-priority packets to be sent between fragments of lower priorities. *See* MLPPP.

MCC mobile country code

A three-digit code defined in ITU-T Recommendation E212 that identifies a country or group of networks.

MCFR Fragmentation of packets of various priorities into multiple classes, allowing high-priority packets to be sent between fragments of lower priorities. *See* MLFR.

MCM MDA carrier module

A hardware component of a 7450 ESS or 7750 SR that plugs into a card slot and accepts the installation of one or more MDAs.

MCS MCS can be expanded in two ways:

1 multichassis synchronization

2 MC mobile interface

MCS Database multi chassis synchronization database

A database that contains the dynamic state information created on any of the NEs by any application using its services. The individual entries in the MCS Database are always paired by peering-relation, sync-tag and application-id. At any time, the specific entry is related to the single redundant-pair objects (such as two saps on two different NEs), and hence stored in a local MCS Database of the respective NEs.

MCT microwave craft terminal

A type of local craft terminal. An MCT can provision or manage an NE remotely over a network connection, or directly over a local connection. A local connection allows on-site management of the NE. An MCT includes the terminal and the software required to perform NE management.

MD maintenance domain

An MD is a network or part of a network for which faults in connectivity can be managed using the IEEE 802.1ag standard protocols. Each MD can include multiple MAs.

MD4H multiservice dual-module unit with four temperature-hardened client ports per module

The 1830 PSS-1 MD4H is a temperature-hardened one-RU edge device that supports two PSS1MD4 OTs, four multiservice client ports, and two 2.7-Gb line ports on each OT.

MD5 message digest 5

MD5 is a security algorithm that takes an input message of arbitrary length and produces as an output a 128-bit message digest of the input. MD5 is intended for digital signature applications, where a large file must be compressed securely before being encrypted.

MDA media dependent adapter

An MDA is a pluggable interface module that distributes traffic between the network and the system IOM. Also referred to as a daughter card.

MDCR minimum desired cell rate

MDCR is equivalent to MIR.

MDDB multidrop data bridge

An MDDB broadcasts a single stream from a SCADA master to multiple remote devices and allows communication from individual remote devices back to the master.

MDI/MDIX medium-dependent interface/medium-dependent interface crossed

A type of Ethernet port connection that uses twisted-pair cabling, as specified in the IEEE 802.3 standard. Network adapter cards on computers typically connect to a network using RJ-45 interface ports that use pins 1 and 2 to transmit, and pins 3 and 6 to receive. Uplink ports on hubs and switches use the same pin assignments. Normal ports on hubs and switches use the opposite pin assignment: pins 1 and 2 are used to receive, and pins 3 and 6 are used to transmit. Such ports are called MDIX ports.

MDL message data link

A data transmission path that is used to communicate identification or test signal information at the data link layer.

MDT multicast distribution tree

An MDT is a group of network paths in a multicast domain that originate at a common multicast source and terminate at CE devices.

ME metro Ethernet

MED multi-exit discriminator

An attribute that is used by an external AS to determine the preferred route into the AS that is advertising the attribute.

MEF Metro Ethernet Forum

MEG maintenance entity group

An MD is a network, or part of a network, that is provisioned with a set of maintenance entity groups, or MEGs, which are groups of service sites. Typically, a MEG represents one service and consists of a group of MEPs. A MEG can be associated with only one service, while one service can be associated with multiple MEGs.

menu bar The menu bar is a tool on the GUI that organizes tasks across broad headings. You can perform functions on the application by selecting an action from the menu bar.

MEP maintenance entity point

In a CFM enabled network MEPs can be any SAP or SDP binding in a service and associated to a MA. A set of MEPs configured with the same MA ID defines a MA. CFM tests detect connectivity failures between any pair of local and remote MEPs in a MA.

Mesh A type of network configuration that combines ROADMs to support mesh channel connectivity between the ROADMs without O-E-O for transmission. It is operated as a single NE with as many as four degrees (bidirectional DWDM interfaces) that comprise two lines for the east and two for the west.

MF bit more fragments bit

A bit in an IP header that indicates the occurrence of data fragmentation and signals that at least one packet fragment follows. When a packet becomes fragmented, the MF bit in the current packet is set to 1. The MF bit is reset in the last packet of the fragmented datagram to indicate that there are no more fragments.

MHF MIP half function

In a CFM enabled network MIP half-function objects allow MIPs to be recognized as MIPs on one MD level and MEPs on a higher level.

MI management interface

MIB management information base

A formal description of a set of network objects that can be managed using SNMP.

MIF 9471 WMM interface function

MIM management information model

MIP maintenance domain intermediate point

In a CFM enabled network a MIP is an intermediate point between 2 MEPs and consists of 2 MHFs.

MIR minimum information rate

MIR is the minimum data transfer rate for a path, such as a frame relay, VPC, or VCC path.

mirror service A mirror service is a type of service that copies the packets from a specific customer service to a destination outside the service for troubleshooting or surveillance purposes.

MLD Multicast Listener Discovery Protocol

MLD is an asymmetric protocol used by IPv6 routers to discover the presence of NEs that wish to receive multicast packets on their directly-attached links, and to discover which multicast addresses are of interest to those neighboring NEs.

MLD snooping Multicast listener discovery snooping is essentially the IPv6 version of IGMP snooping.

MLFR An aggregation of multiple physical links into a single logical bundle to improve bandwidth between two peer systems. *See* FR.

MLPPP multilink PPP

An aggregation of multiple physical links into a single logical bundle to improve bandwidth between two peer systems. *See* PPP.

MME mobility management entity

The control NE that processes the signaling between the UE and the core network. The MME also provides VLR functions for the EPS and supports functions related to bearer and connection management.

MMRP Multiple MAC Registration Protocol

MMS multimedia messaging service

A method to send multimedia content messages to and from mobile devices.

MNC mobile network code

A two- or three-digit code defined in ITU-T Recommendation E212 that together with the MCC identifies a network.

MNO mobile network operator

A telecommunications company that provides mobile services to subscribers. An MNO typically holds a radio spectrum license.

monitoring key A monitoring key groups services that share a common allowed usage. A monitoring key identifies a usage monitoring control instance. Many PCC rules share the same monitoring key.

MP Multi Point

MP-BGP Multiprotocol Border Gateway Protocol

An enhanced BGP that carries IP multicast routes. MP-BGP carries two sets of routes: one set for unicast routing and one set for multicast routing. The routes associated with multicast routing are used by PIM to build multicast data distribution trees.

MPH MME packet handler service

The MPH service terminates the external signaling SCTP, UDP, and TCP stacks on the 9471 WMM to offload the MIF service from this function.

MPLS multiprotocol label switching

MPLS is a technology in which forwarding decisions are based on fixed-length labels inserted between the data link layer and network layer headers to increase forwarding performance and flexibility in path selection.

MPLS-TP multiprotocol label switching - transport profile

MPLS-TP is a set of MPLS protocol functions that enables the use of MPLS in transport networks and applications. MPLS-TP enables MPLS to be deployed in a statically configured transport network without the need for a dynamic control plane.

MPT microwave packet transport

MPT is a microwave dish which connects to a 9500 MPR MSS via a GigE interface located on a 4+4 × Ethernet EAS module of a 9500 MPR MSS.

MPT-ACC microwave packet transport-access

MPT-HC microwave packet transport-high capacity

MPT-HL microwave packet transport-high capacity long haul

MPT-HL provides full indoor RF transceiver packages connecting to ports on an Ethernet Access Switch (EAS) module.

MPT-MC microwave packet transport-medium capacity

MPT-XP microwave packet transport-eXtreme power

MRP Multiple Registration Protocol

MRRU maximum received reconstructed unit

MRRU is the maximum frame size that can be reconstructed from multilink fragments.

MS mobile station

An MS comprises all user equipment and software needed for communication with a mobile network. In 3G systems it is often referred to as UE.

MSAP managed service access point

See also SAP.

MSCC multiple services credit control

An AVP in CCA and CCR messages that is used to grant and report quota for each rating group. When the MSCC AVP is included in CCA messages, it represents quota that is granted. When it is included in CCR messages, it represents usage that is reported. If the quota or usage is reported for more than one rating group, multiple MSCC AVPs are present in the message.

MSDP Multicast Source Discovery Protocol

MSDP allows PIM-SM domains to communicate with each other using their own RPs. MSDP also enables multiple RPs in a single PIM-SM domain to establish MDSP mesh-groups, and can be used between anycast RPs to synchronize information about the active sources being served by each anycast RP peer.

MSE mean squared error

MSISDN mobile station international subscriber directory number

The telephone number of a mobile user. The MSISDN is included in the EPS bearer context. See 3GPP TS 23.003 Section 3.3.*

MSM mobility service module

MSS microwave service switch

The MSS is a multiservice aggregation switch in which TDM traffic is circuit-emulated according to MEF 8. Inverse Multiplexing over ATM (IMA) is terminated, aggregated natively, then converted into packet using PWE3 (IETF RFC 4717).

MSTI multiple spanning tree instance

An enhancement to the IEEE 802.1Q CST. An MSTI is a single spanning tree instance that represents a group of VLANs.

MSTP Multiple Spanning Tree Protocol

An RSTP that allows different spanning trees to co-exist on the same Ethernet switched network.

MTOSI multi-technology operations systems interface

A TMF team creating new standards for OSSs to simplify integration between different vendor systems by using a common open interface.

MTSO Mobile Telephone Switching Office

MTU maximum transmission unit

MTU is the largest unit of data that can be transmitted over a specific interface type in one packet. The MTU can change over a network.

multi-tier model Logical partitioning of software products to enable distributed implementations and modular deployments. Logical partitioning can be from three layers (user interface, application server or middleware, database server) to five or more layers. One model uses the client, presentation, business, integration, and resource layers to define software components.

multicast CAC multicast connection admission control

Multicast CAC manages the amount of bandwidth consumed by BTV distribution services to avoid network congestion and maintain QoS standards. The multicast CAC function is supported on any IGMP and PIM interface, and in the case of BTV distribution, on VPLS SAPs and SDPs where IGMP snooping is enabled.

multicast routing Multicast routing delivers source traffic to multiple receivers without any additional burden to the source or the receivers. Multicast packets are replicated in the network by routers that are enabled with PIM, which results in the efficient delivery of data to multiple receivers.

Multicast routing is based on an arbitrary group of receivers that expresses an interest in receiving a specific data stream. The group does not have physical boundaries—the hosts can be located anywhere on the Internet. The hosts must join the group using IGMP to receive the data stream.

MVAC8B Multiple Variable Attenuator Card Bidirectional

The bidirectional card is used to control the power level and insert WaveTracker keys on optical signals received from client equipment.

MVPLS management virtual private LAN service

An MVPLS is created to run RSTP and manage traffic on the associated VPLS. An MVPLS is required to remove topology loops when redundant spoke SDPs or L2 access interfaces have been created for HVPLS configurations. RSTP must be run on the redundant spoke SDPs or L2 access interfaces to block some of them from passing traffic. VPLS that have redundant spoke SDPs or L2 access interfaces that are managed by the MVPLS also have their traffic blocked appropriately.

MVPN A multicast VPN is an IP VPN service that supports the transmission of IP multicast packets between sites.

MVR multicast VLAN registration

See MVR VPLS.

MVR by proxy A 7450 ESS feature that allows multicast VPLS traffic to be copied to an SAP other than the SAP from which the IGMP message originated.

MVR VPLS Also known as a multicast VPLS, an MVR VPLS distributes multicast traffic through a network. An MVR VPLS also acts as a user VPLS when it contains SAPs that receive multicast traffic.

MVR on VPLS allows multiple subscriber hosts to remain in separate VLANs while sharing a single multicast VPLS. The 7450 ESS uses MVR on VPLS and IGMP snooping to provide BTV services.

MVRF The multiple virtual routing and forwarding feature provides the ability to configure separate virtual routing instances on the same NE. *See* VRF.

MVRP Multi-VLAN Registration Protocol

MW microwave

MWA microwave-aware

N

N-PE network-facing provider edge

A device that implements the control and signaling functions of an LPE.

NAI network access identifier

The NAI is used to address a user in a specific Internet domain. The format of an NAI is similar to that of an address. It is comprised of a user portion that identifies the individual node and a realm portion that identifies an administrative domain in the Internet. The two portions are separated by an @ sign. The ROAMOPS working group is in liaison with bodies such as the ITU and 3GPP in order to integrate NAI with variables such as the E.164 telephone number range and the IMSI.

NAPT network address port translation

An enhancement of regular NAT that allows a large number of devices on a private network to simultaneously "share" a single inside global address by changing the port numbers used in TCP and UDP messages.

NAT network address translation

NAT is a method by which IP addresses are mapped from one group to another group; the method is transparent to end users. Many network addresses and their TCP/UDP ports are translated into a network address and its TCP/UDP ports. As a result, a realm with private addresses can be connected to an external realm with globally unique registered addresses, typically the Internet.

navigation tree The navigation tree displays a view of all managed equipment, services, and protocols, and allows you to navigate through these components.

NE network element

A physical device, such as a router, switch, or bridge, that participates in a network.

NE WO network element work order

See WO.

NEBS Network Equipment Building Standards

The requirement for equipment deployed in a central office environment. Covers spatial, hardware, craftsperson interface, thermal, fire resistance, handling and transportation, earthquake and vibration, airborne contaminants, grounding, acoustical noise, illumination, electromagnetic compatibility, and electrostatic discharge requirements.

neighbor An adjacent system reachable by traversing a single sub-network by a PDU

NETCONF Network Configuration Protocol

NEtO Network Element Overview

A GUI-based 9500 MPR NE manager.

network topology The layout of a network, which can include the way in which NEs are connected and how they communicate.

networkstation A station on which the 5620 NM client software runs.

NI network ID

NIST National Institute of Standards and Technology

NLOS non-line-of-sight

A radio transmission across a path that is partially obstructed, usually by an object.

NLRI network layer reachability information

NMS network management system

A system that manages at least part of a network. An NMS is typically a reasonably powerful and well equipped computer that communicates with external agents to monitor and manage network resources.

NNI NNI is expanded two ways:

1 network-to-network interface

An NNI is a standard interface between two ATM devices or two frame relay devices.

An NNI is also a port that resides on a PE bridge or a transit bridge, and connects to a service provider network.

2 network node interface

NNI is the interface between two ATM network devices that operate under different administrative domains, such as a vendor ATM switch and an ATM switch from another vendor.

NOC network operations center

The group that is responsible for the configuration and monitoring of the network and service elements using network switching equipment and management systems.

NPDU network protocol data unit

nrt-VBR non real-time variable bit rate

nrt-VBR is an ATM service category that guarantees low cell loss and low delay for applications, such as video and frame relay, which are characterized by an on/off source with known, predictable transmission patterns. During the on period, cells are transmitted at the peak information rate. No cells are transmitted during the off period. nrt-VBR allows statistical multiplexing gains using the traffic descriptors (PCR and SCR). It does not provide delay commitments.

NSAPI network service access point identifier

NSR non-stop routing

Non-stop routing prevents the outage of the control plane of a router due to the introduction of fault tolerance.

NSSA not-so-stubby-area

NSSA is an OSPF area type where OSPF propagates any external routes that it obtains from the AS.

NTP Network Time Protocol

An Internet protocol that network devices use to synchronize their clocks.

O

OADM card optical add/drop multiplexer card

An MDA that can be configured on the 7705 SAR to add or drop specific wavelengths while allowing others to pass through. This card comes in 1, 2, 4, or 8-channel variants.

OAM operations, administration, and maintenance

A general term used to describe the costs, tasks involved, or other aspects of operating, administering, and managing a telecommunications network. The 5620 SAM provides a series of OAM tools to monitor and administer the network.

OAMPDU operations, administration, and maintenance protocol data unit

OC-N optical carrier - level *N*

An optical SONET signal carried at the speed of *N*, for example, OC-12 is a signal at 622.08 Mb/s.

OCH Optical channel

An optical wavelength band for WDM optical communications.

OCS online charging system

A charging system that records accounting information for network resource usage. The OCS performs real-time credit control, including the management of transactions and subscriber accounts. The OCS authorizes the network, upon request, to grant resource usage to a subscriber. See 3GPP TS 32.240 for more information.

ODU optical channel data unit

outdoor unit

ODUk The Optical Data Unit (ODU) provides end-to-end bandwidth management for a sub-wavelength signal in the electronic domain. The ODU is a fixed-sized container with in-band OAM tools for quality supervision and SLA assurance. The ODU functions as primary bearer for client traffic.

OEO optical-to-electrical to optical

The process of converting an optical signal to an electrical equivalent and then back to optical data.

OFCS offline charging system

A charging system that records charging information and sends the data from the network to an external billing system, after the resource usage has occurred. The OFCS relies on clients in the NE that initiate, modify, and terminate charging reporting based on a set of parameters that are relevant to each NE. See 3GPP TS 32.240 for more information.

OID object identifier

An OID is a sequence of integers that uniquely identifies a MIB object. Each MIB object has an OID. A management system uses an OID to request an object value from a MIB. The OID defines a path to the object through a tree-like structure called the OID tree, or registration tree.

OIPS Open Interfaces Professional Support

The Alcatel-Lucent OIPS portfolio provides OSS developers with network management integration solutions for the 5620 NM and 5620 SAM. OSS integration initiatives include project review, design consultation, development support, and training for integration projects.

OLC object life cycle

The OLC state specifies whether a service or network object is in maintenance or in-service mode to filter alarms. The default value of the OLC state for NEs can be specified in the discovery rules.

OLP optical line protection

OLP protects the path between two adjacent network element degrees by splitting the fibers and selecting from two transmission fibers.

OMD Optical multiplexer/demultiplexer

OMSP Optical multiplex section protection

OOS	out of service
OPEX	operating expenditures
OPR	Optical power receive
OPS	An optical circuit pack that provides WDM protection. OPS is expanded in two ways: 1 off-premise station 2 optical protection switch
OPSA	Optical protection switch - advanced card
OPT	Optical power transmit
Option 82	*See* Relay Information Option.
OPTSG	OPU1 Timing Slot Group
OPUk	Optical Channel Payload Unit-k (k=1,2, or 3)
Oracle Advanced Security	A security option for the Oracle database product that provides security features to protect enterprise networks and securely extend corporate networks to the Internet. Oracle Advanced Security combines message encryption, database encryption, strong authentication, and authorization to address customer privacy and compliance requirements.
ORF	outbound route filtering ORF is used to reduce the amount of time required to filter routes from a BGP peer.
OS	OS is expanded in two ways: 1 operating system 2 OmniSwitch An Alcatel-Lucent family of devices. These devices support L2 forwarding and L3 routing, and have an extensive array of networking features.
OS 10K	OmniSwitch 10K The OS 10K is a high-capacity, high-performance modular Ethernet LAN switch that provides 5.12 terabits per second of switching performance. The OS 10K has a 12 slot chassis configuration: 4 slots for CMM/fabric cards; and 8 slots for XNI or GNI cards that provide Ethernet, GigE, and 10 GigE capabilities.
OS 6250	OmniSwitch 6250 Layer 2+ Fast Ethernet Stackable LAN family of switches which includes the OS 6250SME (small and medium enterprise) for the enterprise segment, and the OS 6250M, for the Metro access segment.

OS 6400 OmniSwitch 6400

The Alcatel-Lucent OS 6400 family of devices is a set of stackable Layer 2+ GigE LAN switches.

OS 6450 OmniSwitch 6450

The Alcatel-Lucent OS 6450 family of devices is a set of stackable GigE LAN switches available in 10-, 24-, or 48-ports variants, with optional upgrade paths for 10 GigE stacking, 10 GigE uplinks, and metro Ethernet services.

OS 6850 OmniSwitch 6850

The Alcatel-Lucent OS 6850 family of devices is a set of stackable Ethernet switches that provides wire-rate L2 forwarding and L3 routing with advanced service support.

This family includes the OS 6850E, an enhanced chassis that has a different form factor, updated transceiver support, and a different stacking mode.

OS 6850E OmniSwitch 6850E

See OS 6850.

OS 6855 OmniSwitch 6855

The OS 6855 is a stackable, hardened Ethernet switch that has up to 24 Gigabit copper and fiber ports; it is designed to operate reliably in harsh electrical and severe temperature environments.

OS 6900 OmniSwitch 6900

The OS 6900 is a family of standalone aggregation switches that consists of two models: the OS 6900-X20 (640 Gbps) and the OS 6900-X40 (1.28 Tbps). The OS 6900-X40 has 40 fixed SFP+ ports, and two expansion slots. The OS 6900-X20 has 20 fixed SFP+ ports, and one expansion slot. Both models provide 1+1 redundant hot-swappable power supplies and a field-replaceable fan tray. Each expansion slot is capable of supporting 120 Gbps of bandwidth.

OS 9600 OmniSwitch 9600

The OS 9600 is a five-slot Ethernet switch that supports one CMM and four network interface modules. It offers a wide range of GigE and 10GigE interfaces, and supports power-over-Ethernet for devices such as IP telephones, WLAN access points and video cameras. The OS 9600 supports up to two load-sharing power supplies.

OS 9700 OmniSwitch 9700

The Alcatel-Lucent OS 9700 family of devices is a set of high-density ten-slot Ethernet switches that use two slots for control and eight for network interfaces. Designed for smart continuous switching operation, the two center slots are dedicated to CMMs that support redundancy. The OS 9700 supports up to three power supplies.

This family includes the OS 9700E, which offers eight slots for Gigabit and 10-GigE network interface modules. The remaining two slots are reserved for redundant CMMs.

OS 9700E OmniSwitch 9700E

See OS 9700.

OS 9800 OmniSwitch 9800

The Alcatel-Lucent OS 9800 family of devices is a set of high performance 18-slot switches. 16 slots are reserved for Gigabit and 10-GigE network interface modules. The remaining two slots are reserved for primary and redundant CMMs. The OS 9800 supports up to four power supplies.

This family includes the OS 9800E, which offers 16 slots for Gigabit and 10-GigE network interface modules. The remaining two slots are reserved for redundant CMMs.

OS 9800E OmniSwitch 9800E

See OS 9800.

OSC optical supervisory channel

A designated optical channel used to carry communications related to maintenance and operational functions of the network rather than customer traffic. The OSC supports the following communications:

- NE-to-NE
- interworking
- client LAN
- orderwire communication

OSI open systems interconnection

A reference model of protocols organized in seven layers. OSI standards and applications facilitate the interworking of equipment from different manufacturers.

OSPF open shortest path first

OSPF is an IETF standard link-state routing protocol used to determine the most direct path for a transmission in IP networks.

OSS operations support system

A network management system supporting a specific management function, such as alarm surveillance and provisioning, in a service provider network.

OSSI operations support system interface

A set of APIs that allow OSSs to manipulate a well defined set of managed objects that are identified by management applications to automate operational procedures and allow flow-through provisioning.

OT Optical Transponder

A circuit pack that performs OEO conversion. OTs perform frequency adaptation between 1830 PSS equipment and external equipment that is not optically compatible with 1830 PSS transport. It provides retiming, reshaping, and re-amplification, or 3R, functions and performs fault management and non-intrusive performance monitoring on the SONET/SDH and WaveWrapper signals.

OTN Optical Transport Network

A fiber-optic network, such as an SDH or SONET network, that is designed to transport customer traffic,

OTU optical transport unit

OUI organizationally unique identifier

A three-octet field in a SNAP header that identifies an organization.

P

P provider core

P-CSCF proxy-call session control function

An IMS SIP server that is the first point of contact in a VoLTE call. The P-CSCF has the following functions:

- forwards SIP messages to other IMS nodes and to the UE
- interacts with the PCRF for billing and policy rules
- maintains a security association with the UE
- detects and forwards emergency calls to the local E-CSCF

P-GW *See* PGW.

P2MP point to multi-point

PAE port access entity

A logical entity that supports the IEEE 802.1X protocol that is associated with a port.

PAP Password Authentication Protocol

A protocol to communicate with a security server for a user authentication.

PAT program association table

PBB provider backbone bridge or provider backbone bridging

PBBN provider backbone bridged network

PBN provider bridge network

PBS peak burst size

The maximum number of bytes that can be sent at the network interface speed without exceeding the PIR.

PC personal computer

PCC policy and charging control

PCC encompasses flow-based charging, including charging control and online credit control and policy control (e.g. gating control, QoS control, QoS signaling). See 3GPP TS23.203.*

PCEF policy and charging enforcement function

This encompasses SDF detection, policy enforcement and flow-based charging functions. See 3GPP TS23.203 Section 6.2.2.*

PCI physical cell identification

PCI prevents signal collision during UE handover between wireless cells of eNodeBs.

PCMD per-call measurement data

In a CDMA network, PCMD is the data associated with a call, such as the subscriber identifier, start time, duration, type, system identifiers, and call geometry parameters. The data is used for operations such as call hand-off, tracking, and traffic analysis.

PCP port control protocol

Port control protocol allows an IPv4 or IPv6 host to control how incoming IPv4 or IPv6 packets are translated and forwarded by a NAT or firewall, and also allows a host to optimize its outgoing NAT keepalive messages.

PCR PCR is expanded in two ways:

1 peak cell rate

PCR is the cell rate, in cells per second, that the endpoint may never exceed.

2 program clock reference

PCRF policy control and charging rules function

Enables operators to have rules-based, real-time dynamic control over bandwidth, charging, and usage in an LTE network.

PD powered device

Any device that uses a PoE data cable as the only source of power.

PDF portable document format

The file format in Adobe Acrobat document exchange technology.

PDH plesiochronous digital hierarchy

A technology used in telecommunications networks to transport large quantities of data over digital transport equipment such as fiber optic and microwave radio systems.

PDN packet data network

The network through which a UE obtains a packet data connection to the Internet.

PDP packet data protocol

In UMTS, the PDP uses a packet data connection over which the user equipment and the network exchange IP packets. The use of the packet data connections is restricted to specific services. The services can be accessed using access points.

PDU protocol data unit

A PDU is a message of a specific protocol comprising payload and protocol-specific control information, typically contained in a header. PDUs pass over the protocol interfaces which exist between the layers of protocols, as indicated in the OSI model.

PE provider edge

The name of the device or set of devices at the edge of the provider network with the functions required to interface with the customer network and the MPLS network.

PE bridge An Ethernet switch that resides on the edge of the service provider network. The PE bridge interconnects customer networks with service provider networks. A switch is a PE bridge when the switch transports packets between a customer-facing port and a network port or between two customer-facing ports.

PECF policy enforcement and charging function

PEM power entry module

PEQ power equalization module

The 7950 XRS power supply which provides DC power to the chassis.

PF power filter

PFS perfect forwarding secrecy

A key-establishment protocol for secure VPN communications. PFS requires the use of public key cryptography. No key used for the transfer of data may be used to derive keys for future transmission. Diffie-Hellman key exchange is a cryptographic protocol that provides perfect forward secrecy.

PGW packet data network gateway

The gateway that terminates the interface towards the PDN. If a UE is accessing multiple PDNs, there may be more than one PGW for that UE.

PHY physical

PHY refers to the physical layer, or L1 of the OSI model.

PID PID is expanded in two ways:

1 protocol identification

A two-octet field in a SNAP header that specifies the protocol type.

2 packet identification

PIM protocol independent multicast

PIM is a family of multicast routing protocols for IP networks that provide one-to-many and many-to-many distribution of data over a LAN, WAN or the Internet. It is termed protocol-independent because PIM does not include its own topology discovery mechanism, but instead uses routing information supplied by other traditional routing protocols such as BGP, IS-IS, OSPF, RIP, or static.

PIM snooping PIM snooping for VPLS allows a VPLS PE router to build multicast states by snooping PIM protocol packets that are sent over the VPLS. The VPLS PE then forwards multicast traffic based on the multicast states.

PIM-SM PIM sparse mode

PIM-SSM PIM-source specific multicast

ping packet Internet groper

An ICMP echo message and its reply. Often used in IP networks to test the reachability of a network device.

PIP provider instance port

A PIP is a backbone edge bridge port that can transmit or receive frames from one or multiple customers, adding or removing I-TAGs. In the context of SR PBB, it could be the I-Site “port” that is connected to the B-Site.

PIR peak information rate

The PIR is the peak data transfer rate for a path, such as a frame relay, VPC, VCC, or DE service path. The PIR is the PCR converted to kb/s.

PKI public key infrastructure

PKI represents the set of hardware, software, people, policies and procedures needed to create, manage, store, distribute, and revoke public key certificates based on public-key cryptography.

PLAR Private Line Automatic Ringdown

PLMN public land mobile network

Typically the mobile network run by one network operator in one country. See 3GPP TS23.002 Section 3.1.*

PLR point-of-local-repair

A functional NE in a path in which a manual bypass is implemented for a defective NE in the path.

PM path monitoring

For an optical channel data unit.

PMC packet microwave card

PMIP proxy mobile IP

A network-based mobility management protocol. It is an amendment to mobile IPv6 which allows mobility control to be moved from the mobile node to a proxy in the network.

PMIPv6 proxy mobile IPv6

A network-based mobility management protocol. It allows mobility control to be moved from a mobile NE to a proxy in the network.

PMSI provider multicast service interface

PMT program map table

POA program off-air

PoE power over Ethernet

A technology that provides in-line power directly from switch Ethernet ports. PDs such as IP phones, wireless LAN stations, Ethernet hubs, and other access points can be plugged directly into an Ethernet port. The Ethernet port provides both electrical power and data flow.

PoE Plus power over Ethernet plus

A technology that provides greater in-line power over Ethernet than PoE.

PoE+ *See* PoE Plus. *See also* PoE.

POS packet over SONET

A technology that allows IP packets to be sent directly over SONET/SDH frames.

PPP Point-to-Point Protocol

PPP is a protocol for communication between two computers using a serial interface, typically a PC connected by phone line to a server. PPP uses IP. It is considered as a member of the TCP/IP suite of protocols.

PPP Magic Numbers Magic numbers are identifiers which are inserted into PPP control packets and are sent to the other end of the link in the form of an echo. The echo-request should be answered with an echo-reply containing the magic number of the other end. *See* PPP.

PPPoE Point-to-Point Protocol over Ethernet

See also PPP.

PPPRF Point-to-Point Protocol over Radio Frequency

See also PPP.

PPTP Point-to-Point Tunneling Protocol

A protocol that provides VPN connections for home or mobile users to gain secure access to an enterprise network. Encrypted payload is transported over a GRE tunnel that is negotiated over a TCP control channel.

prefix The first 64 bits of an IPv6 address that identify the network to which a host belongs. The IPv6 prefix is analogous to the IPv4 subnet mask.

primary CMM primary chassis management module

When switches operate in a stack, one switch in the stack, known as the primary CMM, always performs the primary management role.

property form identifier link A window identifier link is a unique internal address that the 5620 SAM assigns to a form or window.

PS FCI Packet Switched Furnish Charging Information

Specific information about an online charging session. PS FCI includes charging information per rating group when it is sent by the OCS. See 3GPP 32.298.

PSE power source equipment

PSE provides power to a single link section. The PSE main functions include searching the PD, optionally classifying the PD, supplying power to the link section if the PD is detected, monitoring the power on the link section, and scaling power back to detect level when power is no longer requested or required.

pseudowire A mechanism that emulates the essential attributes of a service such as ATM, frame relay, or Ethernet over a PSN.

PSI program specific information

PSN packet-switched network

A data-transmission network that uses the packet-switching technique. Unlike circuit switching, packet switching allocates multiplexing and switching resources only when data is present. There are public and private packet-switched networks.

PSNP partial sequence number PDU

A PDU that is sent by a router, which has established an adjacency with a neighboring router, to transmit link-state information to ensure synchronization of routing tables throughout the network.

PSS Photonic Service Switch

PST Primary state

PTP Precision Time Protocol

A time synchronization protocol for networks.

PVC permanent virtual circuit

A PVC is an ATM end-to-end logical connection that extends between host interfaces on a network. A single PVC may pass through several ATM switching devices.

PVP permanent virtual path

A permanent ATM connection that is used to carry one or more PVCs.

PVST Per-VLAN spanning tree

PVST maintains a spanning tree instance for each VLAN configured in the network to help load balance L2 traffic without causing spanning tree loops.

PW *See* pseudowire.

PWRSV Power-save mode

PXC Photonic Cross Connect

Q

QAM quadrature amplitude modulation

QCI quality of service class identifier

A parameter of the QoS profile of an EPS bearer. It is a scalar quantity that refers to access-device-specific parameters that control bearer-level packet forwarding treatment, for example, scheduling weights, admission thresholds, queue management thresholds, and link layer protocol configuration. See 3GPP TS23.401 Section 4.7.3 and TS23.203 Annex J.*

QinQ QinQ is a type of Ethernet encapsulation in which a second 802.1Q VLAN tag is added to an 802.1Q frame. Service providers can then use VLAN IDs to segregate customer services and still allow customers to assign their own VLAN IDs without the possibility of ID duplication.

QL quality level

QoS quality of service

QoS is a term for the set of parameters and their values that determine the performance of a virtual circuit. A service level is typically described in terms of network delay, bandwidth, and jitter.

QPPB QoS policy propagation via BGP

QPPB is a mechanism that allows propagation of QoS policy and classification by the sending party, based on access lists, community lists and AS paths, thereby helping to classify based on destination instead of source address.

R

R-APS ring automatic protection switching

RADIUS remote authentication dial-in user service

A remote user authentication, authorization, and accounting protocol.

RAM random access memory

A group of memory chips that function as the primary workspace of the computer. Each byte of storage in the chip can be directly accessed without regard to the bytes before or after it.

RAN radio access network

RAT radio access technology

The RAT is the type of radio technology used in a radio access network (RAN) to access the core network (CN), e.g. UMTS, GSM, CDMA2000.

rating group An AVP, within the MSCC AVP, that is used to indicate service. Each quota allocated to a Diameter credit control session has a unique rating group value.

RCA root cause analysis

Problem solving methods used to determine the root cause of a problem.

RD route distinguisher

An eight-byte BGP field that allows an operator to create a distinct route to a common IP address prefix.

RDI remote defect indication

A signal sent to transmitting equipment by receiving equipment when defects are detected on an incoming signal.

RED random early detection

RED is an algorithm that detects and avoids traffic congestion in a PSN. Incoming congestion is detected by calculating the average queue size. If the gateway decides that the average queue size exceeds a predetermined threshold, it either randomly drops packets arriving at the gateway, or sets a bit in the packet headers. The packet transmission rate is reduced until all the packets reach their destination.

Relay Information Option The Relay Information Option is defined in RFC 3046 and allows a DHCP relay agent to append to the relayed DHCP request information that identifies where the originating DHCP request was sent. Also known as Option 82.

residential subscriber *See* subscriber.

resync An OSS operation that maintains a local mirror of 5620 SAM state information, such as inventory or current alarm states, performs a resync when it knows or suspects that the locally stored state information is out of sync with the state information stored in the 5620 SAM. The OSS does this by requesting information via the XML API. An OSS that does not monitor events periodically performs resyncs to maintain synchronization with the 5620 SAM. An OSS that does monitor events requires a resync in situations where there are missed events.

RET RET is expanded two ways:

1 retransmission

2 remote electrical tilt

RF radio frequency

Rf Rf is:

- the reference point between an IMS element and the OCS
- the interface between the SGW and the CCF

RFC request for comments

A document that describes a technology specification. RFCs are used by the IETF and other standards bodies.

RFM radio frequency module

RHEL Red Hat Enterprise Linux

RHEL is a Linux variant that is designed for commercial use. 5620 SAM system deployment is supported on RHEL.

RIB routing information base

A router database that contains the routing information necessary for packet forwarding.

ring group A group of network devices that connect to each other in a ring topology for the efficient distribution of multicast or broadcast network traffic.

RIP Routing Information Protocol

RIP is a Bellman-Ford routing protocol based on distance vector algorithms, which measure the shortest path between two points on a network in terms of the number of hops between those points. Various forms of RIP distribute routing information in IP, XNS, IPX, and VINES networks.

See also OSPF.

RJ-45 registered jack 45

A telephone connector that holds up to eight wires. RJ-45 plugs and sockets are used in Ethernet and Token Ring Type 3 devices.

RMI remote method invocation

A standard for distributed objects written in Java. RMI is a remote procedure call that allows Java objects to be managed remotely.

RMON remote network monitoring

RMS resource management server

A server that tracks the use of services in a network by an end host. An RMS can enforce quotas, ensure that specific service levels are met, optimize resources, manage IP addresses, and generate real-time active session reports.

RNC radio network controller

Controls radio resource management in the radio access networks of universal mobile telecommunications systems. An RNC is equipment in the UTRAN radio network subsystem that manages the use of radio resources.

RNCV ring node connectivity verification

ROADM Reconfigurable Optical Add/Drop Multiplexer

An optical network element with a configuration that can be changed remotely. This remote reconfigurability reduces OPEX when operating a DWDM network. OPEX is reduced because the ROADM eases network provisioning and line tuning at both the initial installation and any upgrades (to increase the capacity or re-allocate resources to a new demand matrix).

root bridge The bridge with the highest priority ID, selected as the root in a spanning tree.

route flapping A routing problem caused by network problems where an advertised route between two devices changes back and forth between two different paths.

router An interface device that connects two networks. It maintains configuration tables and uses various network protocols to select cost-effective routes that move data between a source and destination device. Also called a device.

routing instance The configuration of a router, including information such as protocols, interfaces, routing, and policies.

routing protocol A routing protocol is used to determine the correct route for packets within IP and IP/MPLS networks.

RP rendezvous point

An RP is a PIM-enabled router that is elected by PIM as a central distribution source for multicast groups in a multicast domain.

RPC remote procedure call

RPC is a procedure call between different applications that run on the same machine or on different machines. There are parameters and returned values, as in normal procedure calls. Since machines have different operating systems and formats, the parameters and results are converted (marshaled) into a format that can be understood by both partners.

RPF reverse path forwarding

A mechanism used by PIM to forward multicast packets down a distribution tree.

RPL ring protection link

Loop avoidance in an Ethernet Ring is achieved by guaranteeing that, at any time, traffic may flow on all but one of the ring links which is designated as the RPL.

RPS radio protection switching

RRH remote radio head

RS-232-C recommended standard - 232 - current

The physical interface and protocol used to connect serial devices.

RSA Rivest, Shamir, Adleman

RSA is an algorithm for public key encryption in which a public key consists of the product of two prime numbers and an auxiliary value.

RSHG residential split horizon group

A type of SHG with dual-pass queue optimization. Downstream broadcast and multicast traffic are not supported. SAPs associated with an RSHG are lightweight SAPs.

RSM residential subscriber management

A versatile TPSDA model, sometimes called enhanced subscriber management, which supports a variety of delivery configurations, such as one VLAN per host, one VLAN per application, one VLAN for all applications, and one VLAN per service provider per application.
See subscriber.

RSRP reference signal received power

RSRQ reference signal received quality

RSTP Rapid Spanning Tree Protocol

RSTP is an enhanced version of STP, as defined in IEEE standard 802.1w-2001 and incorporated in IEEE standard 802.1D-2004. RSTP supersedes STP for standards conformance. RSTP provides faster automatic reconfiguration for route failures than STP by facilitating a rapid change in port roles.

RSVP Resource Reservation Protocol

RSVP is a network-control protocol in the IP suite that is used for communicating application QoS requirements to intermediate transit NEs in a network. RSVP uses a soft-state mechanism to maintain path and reservation states on each NE in the reservation path.

RSVP-TE resource reservation protocol-traffic engineering

RSVP-TE is an extension of RSVP that is described in RFC 3209. RSVP-TE allows the establishment of LSPs based on network constraints such as available bandwidth and explicit hops.

RT route target or retransmission

In BGP/MPLS VPNs, an RT is an attribute that identifies a set of sites.

rt-VBR real-time variable bit rate

rt-VBR is a variant of the VBR service category available only for VPC paths and VCC paths. It allows statistical multiplexing gains using the traffic descriptors (PCR and SCR), and provides delay commitments. rt-VBR supports variable bit rate traffic with sustained and peak traffic parameters, which require strict delay control, such as packetized voice or video.

An rt-VBR is an ATM service category that guarantees very low cell loss and very low delay for time-sensitive applications such as voice and video, which are characterized by unpredictable, bursty transmission patterns.

rt-VBR is a variant of the VBR service category that is only available for VPC and VCC paths. nrt-VBR is the other variant of VBR available for these paths.

RTM routing table manager

An RTM is an application that operates in a multiprotocol network to create and maintain a RIB that contains all active static routes in the network. The RTM calculates the best routes from the RIB and stores the information in the FIB.

RTU remote terminal unit

A remote monitoring and control device used in industrial networks. An RTU, also called a slave or remote, typically uses RS-232 links back to the master.

RUC rack user commissioning

A RUC is an eNodeB component that is comprised of front and back RUC cards and a fan rack.

rwa read-write access

S

S-GW *See* SGW.

S-PE switching PE

S1 The interface between an eNodeB and the Core Network (CN). See 3GPP TS36.300 Section 19 and TS36.410 to TS36.414.*

S1-U S1-user plane

Provides non-guaranteed delivery of user plane PDUs between the eNodeB and the SGW. It is built on IP transport, and GTP-U is used on top of UDP/IP to carry the user plane PDUs between the eNodeB and the SGW. It supports inter-eNodeB path switching during handover. See 3GPP TS36.300 Section 19.1 and TS36.414.*

S11 The interface between the SGW and the MME.

S12 The interface between the SGW and the RNC.

S2a A reference point that provides the user plane with control and mobility support between trusted non-3GPP IP access and the mobile gateway

S2b A reference point that provides the user plane with control and mobility support between the ePDG and the mobile gateway.

S4 An interface between the SGW and SGSN that provides control and mobility support between the GPRS core and the 3GPP anchor function of the SGW.

S5 The interface between the SGW and the PGW in the same PLMN.*

S6b The Diameter interface between the PGW and the 3GPP AAA server/proxy.

S8 The interface between the SGW and the PGW in different PLMNs.*

SA security association

The establishment of shared security information between two IPsec peers to support secure communication.

SAA service assurance agent

The SAA is a tool that allows operators to configure a number of different tests that can be used to provide performance information such as delay, jitter, loss of services, or network segments. The test results are saved in SNMP tables or summarized XML files.

SAE system architecture evolution

The part of the evolved packet system (EPS), which involves non-radio aspects. It includes the evolved packet core (ePC) network, and accompanies LTE.*

SAII Source Attachment Individual Identifier

SAM-L security assertion markup language

An XML-based standard for exchanging authentication and authorization data between security domains, such as identity providers (producers of assertions) and service providers (consumers of assertions). SAM-L is a product of the OASIS Security Services Technical Committee.

SAP service access point

A SAP is a point of communication exchange between an application and the LLC, or between layers of software.

SAS service assurance system

SAS refers to the grouping of OAM diagnostic tests into test suites for end-to-end testing of customer services. SAS test suites can be scheduled. They can provide more network monitoring and troubleshooting capability than individual OAM activities.

SC service component

An SC is a customer service that is a component of a composite service.

SCADA Supervisory Control And Data Acquisition

An industrial data management system that monitors and controls IEDs

SCP SCP is expanded two ways:

1 secure copy protocol

The SCP securely transfers files between local and remote hosts, or between two remote hosts, using SSH2.

2 service connection point

An SCP is a type of connector endpoint in a composite service. It can be a SAP, service interface, or network port, depending on the device.

SCR sustainable cell rate

An upper limit on the conforming average rate of an ATM connection. An SCR uses a time scale that is long relative to the time scale of the PCR.

SCTE35 society of cable telecommunications engineers

SCTP Stream Control Transmission Protocol

A transport layer protocol, similar to TCP and UDP. Like TCP, SCTP ensures that data is transported across the network sequentially and without error. SCTP is also similar to TCP in that a relationship is created between the endpoints of an SCTP session before the data is transmitted, and this relationship is maintained until the data transmission is completed.

Unlike TCP, SCTP provides multi-streaming and multi-homing, which increase performance and reliability of the Diameter application message exchange.

Multi-streaming allows data to be partitioned into multiple streams that can be delivered independently, so that message loss in any of the streams only affects delivery within that stream.

Multi-homing is the ability of an SCTP endpoint to support multiple IP addresses, which can mean greater survivability of the session in the presence of network failures. In a single-homed session, the failure of a local LAN access can isolate the end system, while failures within the core network can disrupt transport until the IP routing protocols reconverge around the point of failure. With multi-homed SCTP, redundant LANs can be used to reinforce the local access and, in the core network, the risk of failure from one address can be reduced.

SDF service data flow

An aggregate set of packet flows that match a set of filters based on packet headers, such as source and destination IP addresses, in a policy and charging control rule. See 3GPP TS23.203.*

SDH synchronous digital hierarchy

SDH is a hierarchical set of digital transport structures, standardized for the transport of suitably adapted payloads over physical transmission networks. SDH is a standard for communicating digital information over optical fiber and microwaves. SDH was developed to replace the PDH system for transporting large amounts of telephone and data traffic.

SDI serial data interface

An SDI is an MDA configurable on the 7705 SAR-8/18. It can be configured to operate in access mode for a V35, RS232, or X.21 interface.

SDP service distribution point

The 5620 SAM uses this term interchangeably with service tunnel.

SDRAM synchronous dynamic random-access memory

The 5620 SAM uses this term interchangeably with service tunnel.

SDU service data unit

An SDU is a unit of information from an upper-layer protocol that defines a service request to a lower-layer protocol.

secondary CMM secondary chassis management module

When switches operate in a stack, one of the switches in the stack operates in a secondary management role. This switch serves as a backup, and is always ready to perform the primary management role if the primary CMM fails or is taken offline.

section A single fiber run that an NE or optical regenerator terminates. The main functions of the section layer are to properly format the SONET frames and to convert the electrical signals to optical signals.

SEG security gateway

A SEG is one or both ends of an IPsec tunnel.

service class indicator A 3GPP standard that identifies the service class associated with downlink user plane packets, so that the GERAN can optimize the deployment of radio resources for packet-switched traffic.

service tunnel A service tunnel acts as a logical way of unidirectionally directing traffic from one device to another device. The service tunnel is provisioned to a specific encapsulation method, such as GRE, and the services are mapped to the service tunnel. A distributed service spans more than one router. Distributed services use Service Distribution Points to direct traffic to another Alcatel-Lucent router through a service tunnel.

service-level agreement *See* SLA.

SES severely errored second

A one-second interval during which the error ratio on a transmission line is greater than a specified limit, and transmission performance is significantly degraded.

set-top box A set-top box is a type of residential subscriber end-user device that receives network traffic. An example of a set-top box is a consumer device that converts BTV IP data into video and audio signals for a television.

SFC Static Filter CWDM

A static filter card used with a CWDM circuit pack.

SFD Static Filter DWDM

A static filter card used with a DWDM circuit pack.

SFM switch fabric module

SFP small form factor pluggable

A high-speed, compact, and hot-swappable optical modular transceiver.

SFTP Secure File Transfer Protocol

A secure file transfer protocol is included with version 2 of the SSH application.

SGSN serving GPRS support node

SGSN mediates access to network resources, on behalf of mobile subscribers, and implements the packet scheduling policy between different QoS classes. SGSN establishes the Packet Data Protocol context with the GGSN upon activation. *See also* GGSN.

SGW serving gateway

The SGW is positioned at the edge of the eUTRAN and terminates the connection from the eNodeB.

SHA secure hash algorithm

A NIST standard hash algorithm, also known as SHA-1.

SHCV subscriber host connectivity verification

A method of using periodic ARP requests and DHCP snooping to maintain connectivity state information for the subscriber hosts on a SAP.

SHG split horizon group

A group of SAPs or spoke SDPs. Members of the group cannot send traffic to each other.

SIP session initiation protocol

An application-layer control (signaling) protocol for creating, modifying, and terminating sessions with one or more participants. These sessions include Internet telephone calls, multimedia distribution, and multimedia conferences.

SLA service-level agreement

An SLA is a service contract, between a network service provider and a customer, which guarantees a specific QoS level. SLAs specify criteria such as network availability and data delivery reliability.

SLM synthetic loss measurement

Ethernet synthetic loss measurement is used to count the number of synthetic LM frames which are not successfully delivered to the specified destinations.

SLOF section loss of frame

A field in a SONET channel frame that indicates the loss of a frame in the section frame sequence.

SLOS section loss of signal

A field in a SONET channel frame that indicates the loss of section signaling.

Smart SFP RMD The Gigabit Ethernet demarcation device managed by Alcatel-Lucent 1830 PSS to provide the customers service visibility at the network edge demarcation in applications like business Ethernet and carrier wholesale, and mobile backhaul.

SMI structure of management information

A description of the common structure and identification scheme for the definition of information used to manage TCP/IP-based internetworks. Formal descriptions of the structure are provided using ASN.1. SMI, which is defined in RFC 1155.

SMS short message service

A communication service component of the GSM mobile communication system, using standardized communications protocols that allow the exchange of short text messages between mobile devices.

SMTP simple mail transfer protocol

An application in the TCP/IP suite that manages the sending and receiving of e-mail messages.

SNAP subnetwork access protocol

An Internet protocol that operates between a network entity in the subnetwork and a network entity in the end system. The SNAP specifies a standard method of encapsulating IP datagrams and ARP messages on IEEE networks. The SNAP entity in the end system uses the subnetwork services and performs three key functions: data transfer, connection management, and QoS selection.

sniffer A software tool that is used to monitor and analyze network traffic for troubleshooting or surveillance purposes.

SNMP Simple Network Management Protocol

A protocol used for the transport of network management information between a network manager and an NE. SNMP is the most commonly used standard for interworking devices.

SNMP trap An SNMP trap is an unsolicited notification that indicates that the SNMP agent on an NE has detected an event, and that the network management domain should be aware of the event. SNMP trap information typically includes alarm and status information, and standard SNMP messages.

SNMP trap log ID SNMP trap log ID is the ID of a log. A valid log ID must exist for alarms and traps to be sent to the trap receiver.

SNTP Simple Network Time Protocol

A rudimentary version of NTP with only the features that devices commonly require.

SOAP Simple Object Access Protocol

An XML-based protocol for the exchange of information in a decentralized, distributed environment.

Solaris A UNIX OS variant developed by Sun Microsystems.

SON self-organizing network

SON is a 3GPP standard for LTE RAN that includes functions such as self-optimization, self-healing, ANR, and PCI.

SONET synchronous optical network

SONET is an ANSI standard for fiber optic transmission of high-speed digital traffic. SONET allows internetworking of transmission products from multiple vendors and defines a physical interface, optical line rates known as OC signals, frame format, and an OAM protocol. The base rate is 51.84 Mb/s (OC-1), and higher rates are multiples of the base rate.

SONET uses synchronous high-speed signals and provides easy access to low-speed signals by mapping them into VTs.

SONET is a North American standard that is technically consistent with SDH, which is an international standard.

SPB shortest path bridging

SPB, defined in IEEE 802.1aq, simplifies how customers create and configure networks—across the enterprise and for the cloud— by requiring service provisioning only at the edge of the network. It uses IS-IS to dynamically build the topology between NEs, enabling multipath routing and virtually eliminating human error.

SPF shortest path first

SPF is an algorithm used by IS-IS and OSPF to make routing decisions based on the state of network links.

spoofing A technique used to gain unauthorized access to devices, whereby the intruder sends messages using a source IP address that appears to come from a trusted host.

SPT shortest path tree

SPT is an algorithm used by PIM to make routing decisions based on the state of network links.

SQL structured query language

A specialized language for accessing relational databases.

SR SR is expanded in two ways:

1 short reach

An optical interface specification for distances of less than 2 km.

2 service router

A network router, for example, the 7750 SR, that supports the creation of IP and MPLS network-layer services such as IES and VPRN services.

SRRP Subscriber Routed Redundancy Protocol

A set of functions and messaging protocols that allows a system to create a set of redundant gateway IP addresses shared by local and remote NEs.

srTCM single rate three color marking

SSAP source service access point

SSD source statistics descriptor

The characteristic of traffic in the conversational UMTS traffic class. The SSD can be either speech or unknown.

SSH secure shell

The SSH protocol is used to protect communication between two hosts by encrypting a Telnet, FTP, or SCP connection between the NEs. Both ends of the connection are authenticated, and passwords are encrypted.

SSH2 SSH version 2

SSH2 is a more secure, efficient, and portable version of SSH that includes SCP. *See* SSH.

SSID Service Set Identifier

An SSID is the name of a wireless local area network (WLAN). All wireless devices on a WLAN must use the same SSID in order to communicate with each other.

SSL secure socket layer

The SSL is a protocol developed by Netscape for transmitting private documents using the Internet. Many web sites use the protocol to obtain confidential user information, such as credit card numbers. The protocol is also used for data encryption, server authentication, and message integrity between 5620 SAM servers and single-user GUI clients, as well as between 5620 SAM servers and client delegate servers.

SSLF section synchronization line failure

A SONET alarm that indicates a failure of the frame synchronization for a section.

SSM source-specific multicast

An extension of PIM that enables a receiving client to obtain content directly from the source rather than from the shared RP.

SSM synchronous status message

SSO single sign on

SST secondary state

SSU synchronization supply unit

A timing synchronization unit that filters and distributes synchronization signals to local equipment.

standby A standby database or standby server is a 5620 SAM component that is not currently in service, but provides protection for the active system. For example, the standby server is a system that can read and write to the active database. However, it is in standby mode, and ignores events from the network. A 5620 SAM client cannot connect to a standby server.

static host *See* static subscriber host.

static MAC A MAC address that is manually configured in a FIB, rather than dynamically learned. Static MAC addresses are assigned to network objects such as SAPs, SDPs (service circuits), or endpoints.

static subscriber host A host that is explicitly configured on a SAP rather than through a dynamic learning process.

station A generic term for a physically discrete piece of processing or transmission equipment, for example, a personal computer or mobile communication relay agent. *See also* workstation.

statistics Statistics are the quantitative data collected by the 5620 SAM for entities such as equipment, network protocols, interfaces, and alarms.

STB *See* set-top box.

STE section terminating equipment

SONET equipment that originates, accesses, modifies, or terminates section header information.

STM STM is expanded two ways:

1 service test manager

A 5620 SAM facility that allows the manual creation and automatic generation of tests and test suites. STM tests and test suites can be run on demand or scheduled to run periodically on services and service transport components for SLA QoS validation and troubleshooting.

2 synchronous transfer mode

The synchronous end-to-end transmission of data or voice containers in a network. STM is a component of SDH.

STM-N synchronous transfer mode - level *N*

An SDH signal carried at the speed of *N*; for example, STM-4 is a signal at 622.08 Mb/s.

STP Spanning Tree Protocol

The STP is specified in IEEE 802.1D. This protocol automatically ensures a loop-free topology in any interconnection of Ethernet LAN or WAN devices.

STP 1x1 mode The STP 1x1 mode is an Alcatel-Lucent proprietary implementation of the STP that applies a single spanning tree instance per VLAN.

STP flat mode The STP flat mode applies a single spanning tree instance per switch. In the STP flat mode, when you choose MSTP as the STP mode, you can configure MSTIs in addition to the CST instance. Each MSTI is mapped to a set of VLANs. Therefore, flat mode supports the forwarding of VLAN traffic over separate data paths.

strict priority In strict priority scheduling, each CoS queue associated with the egress port is serviced in priority order from highest 7 to lowest 0. All traffic for a specific CoS is transmitted before the scheduler proceeds to the next highest priority queue. The purpose of strict priority scheduling is to ensure lower latency and priority transmission of critical traffic by always transmitting higher priority traffic before lower priority traffic.

STS synchronous transport signal

The electrical equivalent of the SONET optical signal. In SDH, STS is known as STM.

subscriber In the 5620 SAM, a subscriber represents a unique identifier that associates a group of end-user devices with policies and resources.

subscriber host In the 5620 SAM, a subscriber host is an end device, such as a set-top box, that receives the network traffic. *See also* host.

subscriber instance In the 5620 SAM, a subscriber instance refers to the instantiation of a specific subscriber and the associated policies on a device. A subscriber may have multiple subscriber instances in a network, but only one instance on a specific NE.

SVLAN service provider VLAN

sVOA slow variable optical attentuator

switch Switches are Layer 2 devices that make it possible for several users to send information over a network at the same time without slowing each other down. Switches allow different NEs to communicate directly with one another in an efficient manner.

switch fabric processor A processor that handles traffic passing through the switch fabric.

switchover Switchover is the process of switching the roles of a redundant system; for example, switching the roles of an active and standby database. A switchover is reversible.

SYN synchronize

SYN is a message that is sent by TCP during the initiation of a new connection to synchronize the TCP packet sequence numbers on the connecting computers. The SYN is acknowledged by a SYN/ACK from the responding computer.

SYN/ACK synchronize acknowledged

An SYN/ACK is a message that is sent by TCP during the initiation of a new connection in response to a synchronization attempt from another computer.

SyncE *See* Synchronous Ethernet.

Synchronous Ethernet An ITU-T standard for transmitting clock signals over an Ethernet network. Clock signals are traceable to an external master clock that meets certain accuracy requirements.

T

T-LDP Targeted-Label Distribution Protocol

An LDP session between indirect connect peers.

T-PE terminating PE

T1 A 1.544-Mb/s point-to-point dedicated digital circuit provided by the telephone companies in North America.

TAC technical assistance center

The front end, or customer-facing, product support structure in which the first- and second-level support reside.

TACACS+ terminal access controller access control system

A remote user authentication, authorization, and accounting protocol.

TAF time-average-factor

Specifies a weight factor between the previous shared buffer average utilization and current shared buffer instantaneous utilization when a new shared buffer average utilization is calculated.

TAII Target Attachment Individual Identifier

TCA Threshold-crossing alert

A TCA occurs when a statistics counter value crosses the defined threshold during a 15-min interval.

TCE trace-collection entity

TCN topology change notification

A bridge uses TCN BPDUs to notify the root bridge about a detected topology change.

TCP Transmission Control Protocol

TCP is a protocol used, along with the IP, to send data in the form of message units between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP takes care of keeping track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet.

TCP/IP transmission control protocol/Internet protocol

TCP/IP is a set of protocols that link different computers across many kinds of networks. It is commonly used over subnetworks, including Ethernet, ATM, frame relay, and leased line. TCP corresponds to the network layer and transport layer of the OSI model. It is a multivendor, non-proprietary standard.

TDM time division multiplexing

Multiplexing in which a separate periodic time interval is allocated to each tributary channel in a common aggregated channel.

TED traffic engineering database

A TED is a database used by CSPF for storing route constraint information.

TEI transport error indicator

telco telephone company

A company that provides local, or local and long-distance, telephone services.

Telnet Telnet is an application in the TCP/IP suite that provides remote terminal connection service. It allows a user at one site to interact with a timesharing system at another site as though the user terminal directly connects to the remote system.

tiered architecture Tiered architecture refers to the way in which the GUI and the network management components use a Java-based technology that provides distributed, secure, and scalable applications. The tiered architecture allows for scaling and fair load balancing, which improves performance.

TISPAN telecommunications and Internet converged services and protocols for advanced networking

TISPAN is the ETSI core competence center for all aspects of standardization for fixed and converged networks, including NGNs. TISPAN defines standards for service aspects, architectural aspects, protocol aspects, QoS support, security-related matters, and mobility aspects within fixed networks to meet the business requirements and commercial objectives of the ETSI members. ETSI TISPAN writes the key standard specifications that define the fixed and converged networks as well as the NGN architecture.

TLV type length value

Traffic engineering information is carried by signaling objects, such as LDPs. The type, length, and values of this traffic engineering information is specified in the TLV.

TMA tower mounted amplifier

A tower mounted amplifier is a low-noise amplifier for BTS.

TMF	telemanagement forum A non-profit global organization that provides leadership, strategic guidance, and practical solutions to improve the management and operation of information and communications services.
TMN	telecommunications management network A TMN is an industry-standard model defined by the ITU-T for the layering of management functions in telecommunications networks. TMN is a network that interfaces with a telecommunications network at several points to receive information from, and to control the operation of, the telecommunications network. A TMN may use parts of the managed telecommunications network to provide for the TMN communications.
TMS	threat management system A TMS is a server that identifies and removes network and application-layer attaches without interrupting the flow of legitimate traffic.
TNC	tech non-conformant
TOA	transport stream off-air
TOADM	tunable optical add/drop multiplexer A tunable ROADM that yields the ultimate in operational flexibility, especially when used in conjunction with transponders with tunable wavelength lasers.
ToS	type of service An eight-bit field in an IP packet header that contains a three-bit IP precedence value or six-bit DSCP value. This value is used to identify the level of service that a packet receives in the network.
TPS	transmission protection switching
TPSDA	triple play service delivery architecture A model of service delivery for triple play that attempts to guarantee delay, jitter, and packet loss characteristics. TPSDA provides QoS customization for high-speed Internet data services with per-user bandwidth controls.
transit bridge	An Ethernet switch that resides inside the service provider network and provides a connection between multiple provider networks. The transit bridge uses the same SVLAN on two or more network ports. This SVLAN does not terminate on the switch. Traffic ingressing on a network port is switched to other network ports. The same switch can also function as both a PE bridge and a transit bridge.
transit SAP	An access interface on a VLL or VPLS that forwards traffic with any encapsulation values transparently through the service.
transit service	A service tunnel that uses transit SAPs to pass traffic for existing VLL or VPLS data services or composite services.

transport tunnel Alcatel-Lucent routers are connected to physical links that are used to carry traffic. When a service is set up using MPLS, transport LSP tunnels are set up between Provider Edge routers. Each service or customer sends traffic through a service tunnel within the transport LSP tunnel. Transport tunnel LSPs are identified by MPLS labels that are swapped at each intermediate NE, or transit LSR, along the LSP from the ingress to the egress of the MPLS network.

TRDU transceiver duplexer unit

triple play Triple play refers to the offering of voice, video and data applications over the same network connection. Triple play services are available through technologies that range from DSL to broadband wireless connections.

trTCM two rate three color marking

TTL time-to-live

A field in an IP header that specifies the maximum number of hops for a data packet before the packet expires and is discarded.

TU-N tributary unit - level *N*

The basic unit of an SDH payload, which includes management overheads and synchronization data. The TU consists of a virtual container and a TU pointer. It provides a unit of bandwidth that is required to convey a T1- or E1-framed carrier.

TUG tributary unit group

A TUG consists of identical TUs. A multiplexing scheme that is used to assemble the TUs into a higher unit of bandwidth.

tunnel A method of setting up a communication session between two or more points that hides the complexity of the underlying technologies.

tuple In programming languages, a tuple is an ordered set of values. The delimiter for each value is often a comma, depending on the rules of the specific language. As a data type, a tuple can be used to pass a string of parameters from one program to another.

TWAMP two-way active measurement protocol

Two-way Active Measurement Protocol (TWAMP), based on the One-way Active Measurement Protocol (OWAMP), adds two-way or round-trip measurement capabilities. The TWAMP measurement architecture is usually comprised of two hosts with specific roles. Devices that implement TWAMP provide the capability to identify performance issues on all IP network segments. TWAMP initiates a control session between any two points in the network using TCP and then sends a test session using UDP packets. The UDP test packets are sent from the client and are reflected by the server, providing a round-trip measurement.

Tx transmit

U

u-plane *See* user plane.

UBR unspecified bit rate

UBR is an ATM service category that is used for applications, which do not require guarantees of low cell loss or low delay. Specifically, UBR does not include the notion of a per-connection negotiated bandwidth. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection. UBR emulates the connectionless services provided by conventional bridged and routed data networks. It provides best effort delivery.

UCT universal coordinated time

UCT is also known as Greenwich Mean Time.

UDP User Datagram Protocol

A minimal transport protocol above the IP network layer that does not guarantee datagram delivery. The UDP is used by applications that do not require the level of service of TCP or that need to use communications services, such as multicast or broadcast delivery, which are not available from TCP.

UE user equipment

The mobile unit, which allows a user to access network services. The UE connects to the UTRAN or eUTRAN through a radio interface.

UI user interface

See GUI.

UIC unit ID code

A field in an MDL message that identifies the CSU or DSU of the originating equipment.

UMTS Universal Mobile Telecommunication System

UNI user-network interface

UNI is an interface point between ATM end users and a private ATM switch, or between a private ATM switch and the public carrier ATM network. The physical and protocol specifications of the ATM Forum UNI documents define the standard for a connection between end stations and a local ATM network switch.

A switch UNI is a port that resides on a PE bridge and that connects to a customer network and carries customer traffic. The UNI may consist of a single port or a group of ports, and can accept tagged or untagged traffic.

UNIX A multi-user, multitasking OS. UNIX is the basis of Solaris.

URL uniform resource locator

user plane The portion of a telecommunications network that is involved with user traffic, including voice, data, and video. *See also* u-plane.

user VPLS A VPLS that contains SAPs that receive multicast traffic from an MVR VPLS.

USM user service manager

A GUI application for a management system. It usually functions as a manager towards an information manager application, but it may also connect directly with the managed system.

USRPNL user interface panel

USU used service unit

UTC Coordinated Universal Time

primary time standard by which the world regulates clocks and time

UTRAN universal terrestrial radio access network

UTRAN consists of RNCs and NodeBs of a UMTS network. UTRAN allows connectivity between the UE and the core network.

V

VACM view-based access control model

A model of the access control subsystem of an SNMP engine, which defines a set of services that an application can use for checking access rights.

VAS vendor-specific attribute

An attribute that is set by a remote-server vendor to allow a vendor-specific extension of existing remote server attributes.

VBR variable bit rate

VBR is an ATM service category that provides guaranteed low cell loss and low delay for applications such as video and frame relay, and is characterized by an on/off source with known, predictable transmission patterns. During the on period, cells are transmitted at the peak information rate. No cells are transmitted during the off period.

VBR supports VBR data traffic with average and peak traffic parameters.

VBR is intended for applications that generate bursty traffic at a rate that varies with time. There are two service categories in VBR. The first is rt-VBR and is used by real-time applications. The second one is nrt-VBR and is intended for non-real-time applications.

See also nrt-VBR *and* rt-VBR.

VC virtual connection

A technique ensuring that packets are delivered to the correct recipient in the same order as they were submitted.

VCC virtual channel connection

A VCC is the series of cross-connections used to traverse an ATM network end-to-end. This ATM concept describes a type of path through an ATM network, defined by its VPI and VCI values.

VCCs represent a specific instance of a PVC, SPVC, or SVC. They are formed as a concatenation of one-hop connections that are cross-connected on workgroup switches. VCCs are unidirectional. They do not use bandwidth if there is no data to transmit.

VCI virtual channel identifier

The VCI is part of the address of a VCC. The complete address of the VCC consists of the VCI and the VPI. A unique numerical tag, as defined by a 16-bit field in the ATM cell header, identifies a virtual channel, over which the cell is to travel. VCIs are assigned for one hop only. Each switch cross-connects cells from one VC to the next, reassigning VCIs.

vertex In the context of a 5620 SAM map, an object other than a link between objects. Network elements and NE groups are examples of vertexes.

VID VLAN Identifier

A VID is a 12-bit field in an Ethernet frame that uniquely identifies the VLAN to which the frame belongs.

VINES virtual networking system

virtual link Virtual links connect separate elements of a backbone, and function as if they are unnumbered point-to-point networks between two devices. A virtual link uses the intra-area routing of its transit area (the non-backbone area that both devices share) to forward packets.

VLAN virtual LAN

A logical grouping of two or more NEs, which are not necessarily on the same physical network segment, but which share the same IP network number.

VLAN stacking VLAN stacking provides a mechanism to tunnel multiple customer VLANs through a service provider network, using one or more stacked VLANs that use 802.1Q double-tagging or VLAN translation. VLAN stacking allows service providers to offer their customers TLS. This service is multipoint to support multiple customer sites or networks, which are distributed over the edges of a service provider network.

VLAN uplink A logical object in the 5620 SAM that is automatically created between SAPs on two NEs which have a physical link and are on the same service. VLAN uplinks are also automatically created when the underlying transport mechanism is a transit service or composite transit service, rather than a direct physical link.

VLL virtual leased line

A virtual leased line is a type of VPN where IP traffic is transported in a point-to-point manner.

VLR Visitor Location Register

A database that stores information about all the mobiles under the jurisdiction of a Mobile Switching Centre (MSC), which the database serves. See 3GPP TS23.002 Section 4.1.1.2.*

VoD video on demand

An application that provides a specific, non-broadcast video stream to an end user. Triple play service sometimes includes VoD.

VoIP Voice over Internet Protocol

A telephone service that uses the Internet as a global telephone network. VoIP is typically part of a triple play service.

VoLTE voice over LTE

Voice and SMS services over an LTE network using IMS.

VPA VLAN port assignment

By default, all switch ports on an OmniSwitch are non-mobile ports that are manually assigned to a specific VLAN and can only belong to one VLAN at a time. When a port is defined as a mobile port, switch software compares traffic coming in on the port with configured VLAN rules. If any of the mobile port traffic matches any of the VLAN rules, the port and the matching traffic become a member of that VLAN.

VPC virtual path connection

A VPC is a series of linked VPs that extend between the point where the VCI values are assigned and the point where those values are translated or removed.

A VPC carries VCCs between sites. VPC traffic is carried on full ATM trunks. VPCs use physical bandwidth only when the end devices pass traffic over the network; they do not use bandwidth if there is no data to transmit.

A VPC is a concatenation of VP links. The endpoints of a VPC are the points at which the ATM payload is passed to, or received from, the users of the ATM layer.

VPI virtual path identifier

The VPI is an 8-bit field in the ATM cell header, which indicates the virtual path over which the cell should be routed.

The VPI is assigned on a connection set up by the devices at the two ends of a hop. Multihop VPC paths use multiple VPIs to go from source to destination. Each switch that the VPC traverses cross-connects the VPC from one port and VPI to another port and VPI.

VPLS virtual private LAN service

A VPLS is a type of VPN in which a number of sites are connected in a single bridged domain over an IP/MPLS network. The services may be from different locations, but in a VPLS, they appear to be on the same LAN.

When implemented with Layer 2 interfaces, this service is called VPLS. When implemented with Layer 3 interfaces, this service is called an IP-VPN.

VPM VLAN port membership

Mobile ports on an OmniSwitch can join more than one VLAN. However, certain rules, such as MAC address rules, can limit port membership to one VLAN.

VPN virtual private network

A private network that is configured within a public network (a carrier network or the Internet) takes advantage of the economies of scale and management facilities of large networks. VPNs are used by enterprises to create WANs that span large geographic areas in order to provide site-to-site connections to branch offices, and to allow mobile users to dial up their company LANs.

VPRN virtual private routed network

A network exhibiting at least some of the characteristics of a private network, even though it uses the resources of a public switched network.

VQM video quality monitoring

VQM monitors video quality in the stages of transmission just prior reaching the STB.

VRF virtual routing and forwarding

A logical or virtual routing function, with an associated routing table, which can be instantiated in a device capable of supporting IP VPN services.

VRID virtual router ID

A number that is used with an IP address to uniquely identify the virtual router created using VRRP. Only one VRID can be used in a VLAN.

VRRP Virtual Router Redundancy Protocol

VRRP is a protocol to provide redundancy in statically defined routed networks, rather than in dynamically defined networks, such as RIP and OSPF. VRRP is an election protocol that dynamically assigns responsibility for one or more virtual router(s) to the VRRP router(s), allowing several routers on a multiaccess link to utilize the same virtual IP address. A VRRP router is configured to run the VRRP protocol in conjunction with one or more other routers.

VSI virtual switch instance

VSM-CCA versatile service module cross-connect adapter

The VSM-CCA is a new type of MDA for the 7450 ESS and 7750 SR platforms, which is designed to provide an extra set of egress and ingress forwarding paths through a set of virtual ports. This design eliminates the need for a physical port MAC address, cable, or other MDA specific components; thus, producing a less costly and more reliable adapter.

VT virtual trunk

An aggregation of ATM VCs. All connections on a VT map to a single VPC with a public network-assigned VPI.

VT-N virtual tributary - level *N*

A SONET format for mapping a lower-rate signal into a SONET payload; for example, VT1.5 is used to transport a DS-1 signal.

VTG virtual tributary group

One or more virtual tributaries of the same rate that are bundled into an STS-1 payload.

VTL velocity template language

VTS virtual time-slot

1830 PSS-1 GBE Edge Device has a fixed assignment of 10 virtual time slots to each line port.

VWM Versatile WDM Module

See 1830 VWM.

W

WAN wide-area network

A geographically dispersed, long-haul telecommunications network that usually consists of backbone links. A WAN may be privately owned or leased. The term usually connotes the inclusion of public networks that are highly regulated, and provides superior reliability and resilience.

WDM Wavelength Division Multiplexing

Several signals (or channels) are transported simultaneously over one fiber but at different wavelengths without interaction. Each channel is usually TDM. The capacity of a WDM system is thus given by the number of wavelengths × the bit rate of the TDM channel.

web services Web services are network functions that can be accessed through a standard interface. For example, the XML metalanguage and the SOAP protocol allow the definition and transmission of messages between software components that run on heterogeneous platforms. This allows development teams to independently build components that run as distributed, independent implementations, linked only by their XML interfaces.

WFQ weighted fair queuing

Weighted fair queuing classifies all current traffic flows on an interface. Packets are sorted into flows based on a number of criteria such as MAC addresses, IP addresses, ports, priority codes (e.g., DiffServ, 802.11p), VLANs, and even DLCIs. These flows are then assigned to either a low-volume or high-volume queue. Interactive traffic, such as Telnet, is almost always placed in the low-volume queue; high-volume flows, such as FTP or HTTP, are placed in high-volume queues. The low-volume and high-volume queues are then serviced in a WRR manner, meaning that 20 low-volume packets might be processed for every high-volume packet. This type of queuing is weighted, but it allows each queue fair access to the interface.

Wi-Fi offload Wi-Fi offload is a process by which traffic or data on a cellular network is offloaded to an available wireless network.

window A window is a form, panel of information, equipment drawing, or graphic that appears on a screen. A window commonly allows an operator to enter data and initiate functions, but some windows only display information.

WLAN GW wireless local area network gateway

A WLAN is a network to which users can establish a wireless connection via an access point within the coverage area.

WO work order

A WO is an XML file that contains eNodeB configuration data. WOs are created by the 9952 WPS and deployed by the 5620 SAM to eNodeBs.

workflow The 5620 SAM workflow is a defined series of tasks that describe how to install, configure, create, and manage services.

working directory The working directory contains image and configuration files that may or may not be the same as the files in the certified directory. The working directory is a holding place for new files. Files in the working directory must be tested before they can be committed to the certified directory. You can save configuration changes to the working directory. *See also* certified directory.

working panel The working panel is a component of the 5620 SAM GUI that can include windows, drawings, and configuration forms.

workstation A computer system with a local set of input and output devices, such as a keyboard and monitor.

WR2-88 2-degree, 88-channel wavelength router card

WRED weighted random early detection

WRED is a variation of RED, but instead of dropping packets randomly when there is high traffic congestion, the packets are dropped based on traffic priority.

WRR weighted round robin

This queuing technique creates a number of queues and allows a user to assign incoming traffic to each queue by some distinguishing factor. This could be service class, address, protocols, or any other number of factors. To ensure each queue is serviced fairly, the user defines a weighting for each queue. Like round robin queuing, the scheduler visits each queue in turn. However, the weighting impacts the number of packets released from each queue when it is visited.

The primary problem with WRR is that it operates at the packet level. This means that if the queues contain packets of differing average lengths, the packet percentages won't be realized as bandwidth percentages.

WTOCM Wavelength Tracker Optical Channel Monitoring card

WTR wait to restore

A period of time that must elapse after a failed working line has recovered, before switching back to the working line from the protection line.

X

X.25 An ITU-T data communications protocol and interface for public packet-switched communication between a network user and the network.

X.733 X.733 is the standard that describes the alarm reporting function.

X2 The interface used to interconnect eNodeBs. See 3GPP S36.300 Section 20 and TS36.420 to TS36.424.*

XC Cross Connect

XCM XMA Control Module

In the 7950 XRS, an interface module that is inserted into one of the I/O slots on the 7950 XRS shelf. An XCM includes two input slots for XMA or C-XMA cards.

XFP 10 Gigabit Small Form Factor Pluggable

XMA XRS Media Adapter

In the 7950 XRS, an interface module that is installed on an XCM. An XMA card slot is also configurable with a C-XMA, which operates at half the capacity of an XMA.

XMDA extended media dependent adapter.

See MDA.

XML extensible markup language

XML defines the syntax to customize markup languages. The markup languages are used to create, manage, and transmit documents across the web.

XML-JMS extensible markup language Java Message Service

The OSS client sends requests and receives responses using raw XML over a JMS queue. The requests and responses do not use SOAP headers.

XNI 10 Gigabit Network Interface

XNS Xerox network standard

The term for the suite of Internet protocols developed by researchers at the Xerox Corporation.

XPIC Cross Polarization Interference Cancellation

The 9500 MPR has XPIC capabilities that double the potential capacity of a microwave path. It allows the assignment of the same frequency to both the vertical and horizontal polarization on a path.

Z

ZIC Zero Install Craft

The ZIC interface provides a web-based user interface, called WebUI, to access the 1830 PSS. WebUI supports provisioning, administration, performance monitoring, and NE alarm and condition display.

zone A portion of the namespace defined by the DNS protocol over which a system or organization has authority. The DNS namespace is a hierarchical concatenation of zone identifiers in a tree structure, with the highest-level zone as the rightmost. A period serves as the separator between two zones in a namespace.

Customer documentation and product support

Customer documentation

http://www.alcatel-lucent.com/myaccess

Product manuals and documentation updates are available at alcatel-lucent.com. If you are a new user and require access to this service, please contact your Alcatel-Lucent sales representative.

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