Alcatel-Lucent 5620

SERVICE AWARE MANAGER | RELEASE 9.0 R2

GLOSSARY

3HE 06505 AAAB TQZZA Edition 01

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Alcatel-Lucent License Agreement

SAMPLE END USER LICENSE AGREEMENT

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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.

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2. PROTECTION AND SECURITY OF LICENSED PROGRAMS

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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.

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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.

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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).

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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.

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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.

Note — You can use the Search function of Acrobat Reader (File→Search) to find a term in a PDF of this 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. For more information, see the Help for Acrobat Reader.

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 documentation suite.

Table 1 5620 SAM customer documentation suite

Guide	Description
5620 SAM core documentation	
5620 SAM Planning Guide	The *5620 SAM Planning Guide* provides information about 5620 SAM scalability and recommended hardware configurations.

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Guide	Description
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 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, commissioning, service configuration, and policy management. The *5620 SAM User Guide* uses a task-based format. Each chapter contains: • a workflow that describes the steps for configuring and using the functionality • detailed procedures that list the configurable parameters on the associated forms 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 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 There are dynamic links between the procedures in the *5620 SAM User Guide* and the parameter descriptions in the *5620 SAM Parameter Guide*. See Procedure 2 for more information. 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*.
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.
5620 SAM Scripts and Templates Developer Guide	The *5620 SAM Scripts and Templates Developer Guide* provides information that allows you to develop, manage, and execute 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 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

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Guide	Description
5620 SAM Maintenance Guide	The *5620 SAM Maintenance Guide* provides procedures for: • generating baseline information for 5620 SAM applications • performing daily, weekly, monthly, and as-required maintenance activities for 5620 SAM-managed networks
5620 SAM Integration Guide	The *5620 SAM Integration Guide* provides procedures to allow the 5620 SAM to integrate with additional components.
5620 SAM System Architecture Guide	The *5620 SAM System Architecture Guide* is intended for technology officers and network planners 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 Supervision Module User Guide	The *5620 SAM Supervision Module User Guide* provides information about how to configure and use the web-based 5620 SAM Supervision Module for fault management and at-a-glance network element monitoring.
5620 SAM Network Element Compatibility Guide	The *5620 SAM Network Element Compatibility Guide* provides release-specific information about the compatibility of managed device features in 5620 SAM releases.
5620 SAM Release Description	The *5620 SAM Release Description* provides information about the new features associated with a 5620 SAM software release.
5620 SAM Glossary	The *5620 SAM Glossary* defines terms and acronyms used in all of the 5620 SAM documentation, including 5620 SAM LTE 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
5620 SAM LTE documentation	
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. 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 RAN User Guide	The *5620 SAM LTE RAN User Guide* describes how to discover, configure, and manage the eNodeB using the 5620 SAM. The guide is intended for LTE RAN network planners, administrators, and operators. 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 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 Alarm Reference	The *5620 SAM LTE Alarm Reference* provides a list of LTE ePC and LTE RAN alarms that can be reported in the 5620 SAM GUI.
5620 SAM 3GPP OSS Interface Developer Guide	The *5620 SAM 3GPP OSS Interface Developer Guide* describes the components and architecture of the 3GPP OSS interface to the 5620 SAM. It includes procedures and samples to assist OSS application developers to use the 3GPP interface to manage LTE devices.
5620 SAM 3GPP OSS Interface Compliance Statements	The *5620 SAM 3GPP OSS Interface Compliance Statements* document describes the compliance of the 5620 SAM 3GPP OSS interface with the 3GPP standard.
5620 SAM LTE RAN Release Description	The *5620 SAM LTE RAN Release Description* provides information about the LTE RAN features associated with the release.

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Guide	Description
5620 SAM optical documentation	
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. Alcatel-Lucent recommends that you review the entire *5620 SAM Optical User Guide* before you attempt to use the 5620 SAM in your network.
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 Alarm Reference	The *5620 SAM Optical Alarm Reference* provides a list of optical device alarms that can be reported in the 5620 SAM GUI.

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Procedure 1 To find the 5620 SAM user documentation

The user documentation is available from the following sources:

- the User_Documentation directory on the product DVD-ROM
- Help→5620 SAM User Documentation in the 5620 SAM client GUI main menu

Note — Users of Mozilla browsers may receive an error message when using the User Documentation Index page (index.html) to open 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 offline storage (Mozilla Firefox) or cache (Mozilla 1.7) values to 100 Mbytes to eliminate the error message.

Procedure 2 To view parameter descriptions from the *5620 SAM User Guide*

You can click on a parameter name in a *5620 SAM User Guide* procedure to open the matching parameter description in the *5620 SAM Parameter Guide*. Ensure the following conditions are true beforehand:

- the *5620 SAM Parameter Guide* and *5620 SAM User Guide* are located in the same directory
- Adobe Reader Release 5.0 or later is installed

1 To view a parameter description when both the *5620 SAM User Guide* and the *5620 SAM Parameter Guide* are open in Adobe Acrobat, click on the parameter name in the *5620 SAM User Guide*.

The parameter description is displayed in the *5620 SAM Parameter Guide*.

2 To view a parameter description when only the *5620 SAM User Guide* is open in Adobe Acrobat:

i Click on a parameter name in a procedure in the *5620 SAM User Guide*. The *5620 SAM User Guide* closes and the *5620 SAM Parameter Guide* opens to display the parameter description.

ii Double-click on the Previous View button in Adobe Acrobat (or press Alt + ←) to re-open the *5620 SAM User Guide*. The *5620 SAM User Guide* opens and displays the parameter from step i.

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

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*

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Convention	Description	Example
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

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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.

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

100Base-T A networking standard that supports data transfer rates of up to 100 Mb/s using standard twisted-pair telephone wire.

1830 PSS-1 The 1830 PSS-1 Gigabit Ethernet (GE) is part of a new breed of photonic-switching platforms for the next generation of metro wavelength division multiplexing, implementing Zero-Touch Photonics. This implementation transforms traditional WDM networking into a fully flexible transport layer, with complete optical-layer visibility at an individual wavelength level, simplifying service delivery, speeding time to revenue generation and facilitating bandwidth expansion in metro networks for new broadband services.

1830 PSS-16/32/36

The 1830 PSS is a multi-reach photonic platform, providing the first commercially available support for best in class, single carrier 100G Next Generation Coherent technology. Building on the unique Zero-Touch Photonics approach - which enables easier operations for reduced costs and accelerated time to market for wavelength services - the 1830 PSS is poised to meet the new requirements for a next-generation photonic network - beyond what is available today with ROADM technology - able to mimic the flexibility, automation and fast time-to-service capabilities of electrical-based transport networks.

3GPP

3rd Generation Partnership Project

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

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 operates on Solaris, and 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 multivendor equipment, interfacing with UMS, and partitioning networks.

5620 SAM

5620 Service Aware Manager

The 5620 SAM is the network manager portfolio of modules for devices that include the 7210 SAS-M24F, 7210 SAS-M24F2XFP, 7210 SAS-E, 7750 SR, 7710 SR, 7705 SAR, 7450 ESS, 7250 SAS, and Telco.

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 that 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 by using X.11 or native X display redirection.

5620 SAM database

The 5620 SAM database stores network data-model objects and network 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. 5620 SAM main servers may be deployed as single servers in standalone systems, or as redundant pairs in distributed systems.

5620 SAM server

See 5620 SAM main server and 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 OSS Integration

A 5620 SAM software module that provides interfaces 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

The 5650 CPAM captures and displays IGP topology information for the 7701 CPAA and other managed devices.

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 Service Controller.

The 5780 DSC performs 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. This mechanism allows the transmission of IPv6 packets through a multicast-enabled IPv4 network.

7210 SAS-E

7210 Service Access Switch - Ethernet

Designed as a service-provider owned and managed CLE device, the 7210 SAS-E is a small footprint, Carrier Ethernet, customer-edge device. It can also be deployed as a cost-effective aggregation device for smaller sites. The 7210 SAS-E is MEF 9 and 14 certified and built to provide cost-effective, highly scalable Carrier Ethernet services delivery.

7210 SAS-M

7210 Service Access Switch - MPLS

The 7210 SAS-M is a customer edge device that is designed to address the Metro Ethernet services, managed WAN services, and service aggregation markets. It extends Carrier Ethernet VPN services to the customer edge. There are two variants of the 7210 SAS-M. They are the 7210 SAS-M24F and the 7210 SAS-M24F2XFP.

7210 SAS-X 7210 Service Access Switch - MPLS

The 7210 SAS-X is an ethernet aggregation platform used in first level aggregation in small and medium networks, in either ring or multi-homing network topologies. It provides business services, mobile backhaul services, and triple-play residential services. It provides 2 x 10G ethernet interfaces, allowing operators to deploy 10G access aggregation networks to handle a growing volume of traffic. The platform provides enhanced traffic management features, an increased service scale and supports MPLS. There is one variant of the 7210 SAS-X. It is the 7210 SAS-X 24F 2XFP.

7250 SAS 7250 Service Access Switch

A CE L2/L3 switch that provides VLAN, bridging, and TDM backhauling functionality and supports MPLS, Ethernet, and circuit emulation.

7250 SAS-ES 7250 Service Access Switch-Enhanced Services

The 7250 SAS-ES is physically identical to the standard 7250 SAS with the addition of two GigE uplink ports. The 7250 SAS-ES supports all features available in the 7250 SAS plus enhanced features such as H-QoS, resource reservation protocol with traffic engineering (RSVP-TE), MPLS fast reroute (FRR), and VPLS in a ring topology.

7250 SAS-ESA 7250 Service Access Switch Enhanced Services Advanced

The 7250 SAS-ESA supports all of the features of the 7250 SAS-ES with the addition of dry contacts functionality. A connector on the back of the chassis can monitor the status of sensors connected to external co-located equipment. If the state of a sensor changes, an SNMP trap is sent to the 5620 SAM, which then raises an alarm. Based on how the alarm condition has been configured, the opening of a contact either raises or clears the alarm.

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-based networks.

7701 CPAA 7701 Control Plane Assurance Appliance

The 7701 CPAA is 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

The 7705 SAR is a router that provides IP/MPLS and pseudowire capabilities in an aggregation platform.

7710 SR 7710 Service Router

The 7710 SR is a 10-Gbyte version of the 7750 SR that provides granular lower-speed private data services with SLAs.

7750 MG 7750 Mobile Gateway

The 7750 MG is based on the 7750 SR platform. The 7750 MG can be configured as an SGW or a PGW.

7750 SR 7750 Service Router

The 7750 SR is a router that provides scalable, high-speed private data services with SLAs.

802.1ag An IEEE standard specifies protocols, procedures, and managed objects to support transport fault management, including discovery and verification of a path, detection and isolation of connectivity faults for each Ethernet service instance.

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 allows switches to transmit packets based on the tagged priority value.

802.1Q An IEEE standard that defines the operation of VLAN bridges that permit the definition, operation, and administration of VLAN topologies within a bridged LAN infrastructure.

802.1w An IEEE standard that defines the changes required for the operation of a MAC bridge to provide rapid reconfiguration capability.

802.1X 802.1X is the IEEE standard for transmitting EAP authentication messages over a LAN. The EAP messages are encapsulated in Ethernet frames and transported from the client to be authenticated through the access point, which is typically an access port on an edge device, to the authentication device, which is typically a RADIUS server.

9400 AWY Digital PDH, low- and medium-capacity, point-to-point microwave links

9400 NEM 9400 Network Element Manager

The 9400 NEM is a configuration tool designed to configure eNodeB parameters.

9452 WPS 9452 Wireless Provisioning System

The 9452 WPS is a software tool designed to create WOs for eNodeB offline configuration.

9471 MME 9471 Mobility Management Entity

An MME based on an ATCA-based Linux platform.

9500 MPR 9500 Microwave Packet Radio

The 9500 MPR enables the smooth transformation of backhaul networks from TDM to IP, based on its ability to handle packets natively. The 9500 MPR efficiently transports multimedia traffic, while supporting legacy TDM with the QoS that end users require.

A

AA application assurance

A technology that enables deep packet inspection of subscriber traffic according to policies to provide application-based subscriber management.

AAA authentication, authorization, and accounting

The functions of security-based protocols, such as RADIUS, to ensure secure communications.

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. This traffic requires minimal sequencing and minimal error detection support.

ABR area border router

A router located on the border of one or more OSPF areas that connects those 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 topology of other areas.

ACA accounting answers

ACK acknowledge

ACK represents an acknowledging signal that confirms the receipt of a data packet.

ACL access control list

An access control list, also known as a filter policy, is a template applied to a service or port to control ingress or egress network traffic based on IP and MAC matching criteria. Filters are applied to services to examine packets that enter or exit a SAP or network interface. An ACL policy can be used on multiple interfaces. The same filter can apply to ingress and egress traffic.

ACR accounting requests

active An active database or server is the currently operating system. For example, the active server is the system that can read and write to the active database. Clients can connect to the active server to provision and view NEs.

AD auto discovery

adjacency An adjacency is the portion of the local routing information that pertains to the reachability of a single neighbor end system or intermediate system. A separate adjacency is created for each neighbor, and for each level of routing on a broadcast circuit.

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 out of the line. Add/drop multiplexing can be done with optical or electrical signals.

AGW access gateway

AH authentication header

Transport layer protocol that provides data confidentiality, data origin authentication, data integrity checking, and replay protection, in which both communicating systems use a shared key to encrypt and decipher exchanged data. The primary difference between the integrity provided by ESP and AH is the extent of the coverage. ESP does not protect any IP header fields unless those fields are encapsulated using ESP. *See also* ESP.

AINS Automatic in-service

Allows newly provisioned entities to be inserted at a later time without generating alarms.

AIS alarm indication signal

The Ethernet Alarm Indication Signal function (ETH-AIS) is used to suppress alarms at the client layer following detection of defect conditions at a higher level. Transmission of frames with ETH-AIS information can be enabled or disabled on a MEP.

alarm An alarm is a node-generated message created as a result of an event, such as an interface status change.

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 the DSLAM and the 7750 SR or the 7450 ESS to provide SAP level rate management. ANCP is an extension of GSMP.

ANR automatic neighbor relation

The function that is used by eNodeBs to automatically determine the optimal neighbor relations for UE hand-off.

ANSI American National Standards Institute

AOS Alcatel-Lucent OmniSwitch

APAC Asia Pacific and China

API application programming interface

An API is a set of programming functions and routines that provides an interface to the network for application programs. APIs translate high-level program code into low-level computer instructions that run the network. Thus, application programs (for example, word processors) can communicate with low-level programs handling network data traffic.

Apipe A type of VLL service that provides a point-to-point ATM service between users who connect to nodes, such as the 7750 SR in an IP/MPLS network 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. Also known as an ATM VLL service.

APN access point name

Identifies a Gateway GPRS Support Node (GGSN) or Packet Data Network GateWay (P-GW). It includes an APN network identifier which defines the Packet Data Network (PDN) to which the UE requests connectivity, and may also include an APN operator identifier which defines in which Public Land Mobile Network (PLMN) the P-GW or GGSN is located. See 3GPP TS23.003 Sections 9 and 19.4.2.2.*

Application Server A software product that provides J2EE services for Java applications, such as JMS or transactions support. The product may also include clustering technology to allow multiple Java virtual machines to communicate over a network.

APR automatic power reduction

A technique to automatically reduce the output power of optical amplifiers to avoid 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

address resolution protocol

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

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 functionality, such as ATM TM features, MDA-based channel/port queuing, or 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

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 functionality that is 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

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.

auxiliary server *See* 5620 SAM auxiliary server.

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 bi-directional forwarding detection

BFD is a protocol to detect faults in the bi-directional 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.

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-MAC

customer MAC

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.

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.

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 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.

CCA 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 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.

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 device with the functionality needed on the customer premises to access services provisioned by the service provider.

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.

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

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 keepalives. 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.

class of service *See* CoS.

CLEI common language equipment identifier

CLEI codes identify telecommunications equipment in networks. A 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 a node.

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.

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.

COF Channel optical filter

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 customer premises equipment

Network equipment that resides on the customer's premises.

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.

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.

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 node 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

CWR8 8 Channel wavelength router

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

DCE data communication equipment

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

DCM Dispersion compensation module

de-mux *See* demultiplexer.

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.

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.

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.

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.

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-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).

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-LSP EXP inferred LSP

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.

EBGP exterior border gateway protocol

A BGP session established between routers in different ASs. EBGPs communicate among different network domains.

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.

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.

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.

EIC

equipment ID code

A character, or group of characters, used to identify or name equipment.

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 functionality. EJB technology is the architecture on the server side for the Java 2 Platform, Enterprise Edition.

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.

EMS

element management system

An application that manages one or more NEs.

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.

eNB

See eNodeB.

eNodeB

evolved Node B

The base station in LTE systems. Each eNodeB serves one or more eUTRAN cells.

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 nodes of the ePC are the PGW, SGW, and MME.

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

equipment protection switching

EPT

Engineering and Planning Tool

ESM *See* RSM.

ESP encapsulating security payload

Transport layer protocol that provides data confidentiality, data origin authentication, data integrity checking, and replay protection, in which both communicating systems use a shared key to encrypt and decipher exchanged data.

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

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.

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.

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 functionality 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.

FDL facilities data link

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

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.

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).

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 functionality, 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.

G

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.

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

A non-Alcatel-Lucent network element that supports SNMPv2 or later and that can be discovered and managed by the 5620 SAM.

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.

Gobal MEG Global Maintenance Entity Group

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

GNE *See* generic NE.

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.*

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.

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 a network node which supports the use of GPRS in the GSM core network.

GTP GPRS tunneling protocol

GTP-C GTP-control plane

This protocol tunnels signaling messages between the Serving GPRS Support Node (SGSN) and Mobility Management Entity (MME) over the S3 interface, between the SGSN and Serving Gateway (S-GW) over the S4 interface, between the S-GW and P-GW 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 Serving GateWay (S-GW), as well as between the S-GW and the Packet Data Network GateWay (P-GW) in the backbone network. GTP encapsulates all end user Internet Protocol (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-based reference point between the PCRF and the Policy Enforcement and Charging Function (PECF) on the PGW that transfers policy and charging rules from the PCRF to PECF.

H

H-VPLS hierarchical virtual private LAN service

HA high-availability

HDD hard disk drive

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

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

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.

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.

ID identifier or identification

IdP identity provider

IdP is responsible for acting as the access management authority for SSO-enabled applications and their users.

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.

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.*

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 functionality in one unit. The IMM does not accept plug-in MDAs because the MDA functionality is built into the unit.

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.*

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 functionality.

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.

IPCP Internet protocol control protocol

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

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

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 intermediate system

This term is used interchangeably with router.

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

ISA-AA integrated services adapter - application assurance

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

ISA-IPsec integrated services adapter - IP security

The ISA-IPsec is an MDA for the 7750 SR platform. The ISA-IPsec acts as a concentrator gathering and terminating encrypted IPsec tunnels into an IES or VPRN service. This allows a service provider to offer a global VPRN service when the VPRN or IES end user node is on an uncontrolled or unsecure portion of the network.

ISA-LNS integrated services adapter - L2TP network server

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

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

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.

J2EE Java 2 enterprise edition

A set of services, APIs, and protocols that provide the functionality to develop multi-tiered, web-based application components. J2EE is overseen by a partnership of enterprise software and computer platform vendors, and is available on a wide range of platforms.

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 for portable, interpretive code that supports interaction among disparate objects.

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 for reliable asynchronous communication among components in a distributed computing environment, so that the applications are portable across 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

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

KCI key capacity indicator

L

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 nodes 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 node.

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.

LCP link control protocol

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

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 1 and level 2 intermediate system These systems deliver and receive NPDUs from other systems, and relay NPDUs from other source systems to other destination systems. Level 1 systems route directly to systems within their own area, and route towards a level 2 system. A level 2 systems route towards another destination area or another routing area. Level 2 systems constitute the IS-IS backbone area.

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.

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.

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, defined by IEEE 802.1AB, is a standard which provides a solution for the configuration issues caused by expanding LANs. LLDP defines a standard method for Ethernet network devices such as switches, routers, and wireless LAN access points to advertise information about themselves to other nodes on the network and store the information they discover. The protocol runs over the data-link layer only, allowing two systems running different network layer protocols to learn about each other.

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.

LPE logical provider edge

A set of devices in a provider network that implement the functionality 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 functionality 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 nodes 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 node that runs MPLS control protocols and is capable of forwarding packets based on labels. An MPLS node 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.

luPS interface lu Packet Switched interface

This is the interface in a Universal Mobile Telecommunications System which links the Radio Network Controller with a 3G Serving General Packet Radio Service Support Node

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 node 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 an unique identifier for the MA in a AP is a secure enabled network. 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

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

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.

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.

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 multi chassis synchronization

MCS Database multi chassis synchronization database

This database contains the dynamic state information created on any of the nodes 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 nodes), and hence stored in a local MCS Database of the respective nodes.

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.

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.

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 association end 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.

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 MME 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 nodes that wish to receive multicast packets on their directly-attached links, and to discover which multicast addresses are of interest to those neighboring nodes.

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

MMRP multiple MAC registration protocol

MNC mobile network code

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

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 signalling SCTP, UDP, and TCP stacks on the 9471 MME 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.

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 x Ethernet (EAS) module of a 9500 MPR MSS.

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.

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.

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

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.

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.

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.

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 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.

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

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.

MVRP multi-VLAN registration protocol

N

N-PE network-facing provider edge

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

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

NEtO Network Element Overview

A GUI-based 9500 MPR NE manager.

network topology A network topology is the layout of a network, which can include the way in which elements in a network, such as nodes, are connected and how they communicate.

networkstation The term used for a station on which the 5620 NM client software runs.

NIST National Institute of Standards and Technology

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 nodes or two frame relay nodes.

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 nodes 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.

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

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.

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.

OCS offline charging system

A system that gathers accounting information for network resource usage from IMS network nodes and forwards it to the subscriber billing system.

ODU optical channel data unit

outdoor unit

OEO optical-to-electrical to optical

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

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 an 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.

OPEX Operating Expenditures

Option 82 *See* Relay Information Option.

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 operating system

OS 6400 OmniSwitch 6400

The Alcatel-Lucent OmniSwitch 6400 family is a set of stackable Layer 2+ Gigabit Ethernet LAN switches. Up to eight switches can be stacked to form a single virtual chassis.

OS 6850 OmniSwitch 6850

An advanced fixed configuration family of Ethernet switches. OS 6850 switches provide wire-rate Layer 2 forwarding and Layer 3 routing with advanced services. Up to eight switches can be stacked to form a single virtual chassis.

OS 6855 OmniSwitch 6855

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

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:

- node-to-node
- 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 3R functionality (retiming, reshaping, reamplification) and perform fault management and performance monitoring (non-intrusive monitoring) on the SONET/SDH and WaveWrapper signal.

OTN Optical Transport Network. A fiber-optic network designed to transport customer traffic, such as an SDH or SONET network.

OTU optical transport unit

OUI organizationally unique identifier

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

P

P2MP point to multi-point

P provider core

P-GW *See* PGW.

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

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 signalling). 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-offs, tracking, and traffic analysis.

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.

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 functionality that is needed to interface with the customer and with the MPLS network. A PE can be a router or a switch. All the MPLS tunnels are set up and terminated in the PE. All VPN functions reside in the PE.

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.

PEM power entry module

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

Multicast routing architecture that allows the addition of IP multicast routing on existing IP networks. PIM is unicast routing protocol independent and can be operated in two ways—dense and sparse.

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.

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.

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.

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.

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.

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

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 nodes.

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.

Q

Q in Q Q in Q 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.

QCI quality of service class identifier

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

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.

R

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

R-APS ring automatic protection switching

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, WiMAX.*

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.

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 The reference point between an IP multimedia subsystem (IMS) element and the offline charging system (OCS).

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

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.

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.

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 (marshalled) 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

RRH remote radio head

RS-232-C recommended standard - 232 - current

The physical interface and protocol used to connect serial devices.

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 nodes in a network. RSVP uses a soft-state mechanism to maintain path and reservation states on each node 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.

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 node

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 protocol data units (PDU) between the eNodeB and the serving-gateway (S-GW). It is built on Internet Protocol (IP) transport, and GPRS Tunnelling Protocol-User Plane (GTP-U) is used on top of User Data Protocol (UDP) / Internet Protocol (IP) to carry the user plane PDUs between the eNodeB and the S-GW. It supports inter-eNodeB path switching during handover. See 3GPP TS36.300 Section 19.1 and TS36.414.*

S5 The interface between a serving-gateway (S-GW) and a packet data network gateway (P-GW) in the same public land mobile network (PLMN).*

S8 The interface between a serving-gateway (S-GW) and a packet data network gateway (P-GW) in different public land mobile networks (PLMN).*

SA security association

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

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.*

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.

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

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.

SDP service distribution path

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-level agreement *See* SLA.

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.

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.

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.

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.

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.

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 internets. Formal descriptions of the structure are provided using ASN.1. SMI is defined in RFC 1155.

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 the node has detected a node 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.

SON self-organizing network

SON is a 3GPP standard for LTE RAN that includes functionality 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.

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.

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 a local and a remote node.

srTCM single rate three color marking

SSAP source service access point

SSH secure shell

The SSH protocol is used to protect communications between two hosts by encrypting a Telnet, FTP, or SCP connection between the nodes. 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.

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.

SSO single sign on

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 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

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 nodes of a network 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.

T

T-LDP targeted-label distribution protocol

An LDP session between indirect connect peers.

T-PE terminating PE node

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.

TCA Threshold-crossing alert

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

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.

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. This 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 centre 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.

TLS transparent LAN service

The interconnection of LANs at different sites to appear as one LAN to users. TLS is used to transport subscriber VLAN traffic across a network, while keeping traffic in each VLAN secure and separate from other subscriber VLANs. In the 7250 SAS and Telco devices, TLS is a mechanism that tags the encapsulated source Ethernet frames for transport across the provider network to the destination.

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 masthead amplifier

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 functionality for 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.

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.

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.

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.

Tx transmit

U

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, the OS required by a 5620 SAM main server, auxiliary server, database, or client delegate server, and which also supports 5620 SAM single-user client installation.

URL uniform resource locator

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.

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.

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 nodes, 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.

VLL virtual leased line

A virtual leased line is a type of VPN where IP is transported in a point-to-point manner. CPE devices are connected through nodes, and the nodes are connected to an IP tunnel.

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.

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.

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

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.

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 x the bit rate of the TDM channel.

web services

Web services are a way of developing functionality and putting it out on the web so other programs can access it through a well defined interface. The metalanguage XML, and the protocol SOAP, allow the definition and transmission of messages between software components running on heterogeneous platforms. This allows development teams to independently build components that run as distributed, independent implementations, linked only by their XML interface.

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.

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.

WO

work order

A WO is an XML file that contains eNodeB configuration data. WOs are created by the 9452 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.

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.

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.*

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.

XNS Xerox network standard

The term for the suite of Internet protocols developed by researchers at the Xerox Corporation.

Z

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.

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Customer documentation

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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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