



Terminology

Avaya Ethernet Routing Switch 4500 Series

5.2
NN47205-103, 01.02
November 2010

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Chapter 1: New in this release

The following sections detail what's new in Avaya Ethernet Routing Switch 4500 Series Terminology (N47205-103) for release 5.2

[Other changes](#) on page 11

Other changes

See the following sections for information about changes that are not feature-related:

Terminology

Avaya Ethernet Routing Switch 4500 Series Terminology (NN47205-103) is a new document for release 5.2. This document consolidates all terminology and acronyms into one document. Use this document for information about common acronyms and terms used in the Avaya Ethernet Routing Switch 4500 Series documentation.

New in this release

Chapter 2: Introduction

This document provides information about the terms and acronyms used in the Avaya Ethernet Routing Switch 4500 Series documentation.

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Introduction

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Chapter 3: A

ACLI

Avaya Command Line Interface (ACLI) is a text-based, common command line interface used for device configuration and management across Avaya products.

ACLI modes

Differing command modes are available within the text-based interface, dependant on the level of user permissions determined by logon password. Each successive mode level provides access to more complex command sets, from the most restrictive—show level only, to the highest configuration levels for routing parameters, interface configuration, and security.

Agent Auto Unit Replacement (AAUR)

Enabled by default, AAUR inspects all units in a stack and downloads the stack software image to any joining unit with a dissimilar image.

add/drop multiplexer (ADM)

A network element in which facilities are added, dropped, or passed directly through for transmission to other network elements

Address Resolution Protocol (ARP)

Maps an IP address to a physical machine address, for example, maps an IP address to an Ethernet media access control (MAC) address.

Address Resolution Protocol Spoofing (ARP Spoofing)

The ARP Spoofing Quality of Service (QoS) application prevents man-in-the-middle attacks by installing a series of security policies on interfaces. See also Dynamic ARP Inspection (DAI).

address resolution unit (ARU)

An application specific integrated circuit (ASIC) that makes forwarding decisions that do not require CPU activity and, therefore; does not adversely affect forwarding speed.

Advanced Encryption Standard (AES)

A privacy protocol. AES is the current encryption standard (FIPS-197) intended for use by U.S. government organizations to protect sensitive information.

aggregate

A prefix length that is formed by combining several specific prefixes. The resulting prefix is used to combine blocks of address space into a single routing announcement.

American Standard Code for Information Interchange (ASCII)

A code for representing characters in computers. ASCII uses uppercase and lowercase alphabetic letters, numeric digits, and special symbols.

application-specific integrated circuit (ASIC)

An application-specific integrated circuit developed to perform more quickly and efficiently than a generic processor.

area border router (ABR)

A router attached to two or more areas inside an Open Shortest Path First (OSPF) network. An ABR plays an important role in OSPF networks by condensing the amount of disseminated OSPF information.

asymmetric digital subscriber line (ADSL)

A standard that allows digital broadband (over 6 Mbit/s) signals and telephone service to transmit up to 12000 feet over a twisted copper pair.

attenuation

The decrease in signal strength in an optical fiber caused by absorption and scattering.

AS (autonomous system)

A set of routers under a single technical administration, using Internet Gateway Protocols (IGP) and common metrics to route packets within the autonomous system, and using an Exterior Gateway Protocol (EGP) to route packets to other autonomous systems.

AS confederation

A single logical autonomous system that comprises multiple subautonomous systems to ensure scalability.

AS Number (autonomous system number)

A two-byte number that is used to identify a specific autonomous system.

attribute=value pairs (AV pairs)

Strings of text in the form attribute=value sent between a Network Access Server (NAS) and a Terminal Access Controller Access Control System Plus (TACACS+) daemon as part of the TACACS+ protocol.

Authentication, Authorization, Accounting (AAA)

Authentication is the action that determines who a user or entity is before allowing access to the network and network services. Authorization is the action that determines what an authenticated user is allowed to do. Accounting is the action of recording what a user is doing or has done.

Auto-Detection and Auto-Configuration (ADAC)

Provides automatic switch configuration for IP phone traffic support and prioritization. ADAC can configure the switch whether it is directly connected to the Call Server or uses a network uplink.

Auto MDIX

The automatic detection of transmit and received twisted pairs. When Auto MDIX is active, you can use any straight or crossover category 5 cable to provide connection to a port. You must enable Autonegotiation to activate Auto MDIX.

Auto polarity

Compensates for reversal of positive and negative signals on the receive cables. When you enable autonegotiation, auto polarity can reverse the polarity of a pair of pins to correct polarity of received data.

Auto Unit Replacement (AUR)

Allows users to replace a unit from a stack while retaining the configuration of the unit. Stack power must remain on during the unit replacement. AUR does not work in a stack of two units only.

Automatic PVID

Automatically sets the port-based VLAN ID when you add the port to the VLAN. The PVID value is the same value as the last port-based VLAN ID associated with the port.

Autonegotiation

Allows the switch to select the best speed and duplex modes for communication between two IEEE-capable devices.

Autosensing

Determines the speed of the attached device if it is incapable of autonegotiation or if it uses an incompatible form of autonegotiation. The switch reverts to half-duplex mode if the duplex mode of the attached device cannot be determined.

Autotopology

An Enterprise Network Management System (ENMS) protocol that automates and simplifies discovery and collection of network topology information, presented in a table.

A

Chapter 4: B

backup designated router (BDR)

Assumes the designated router (DR) role for the Open Shortest Path First (OSPF) protocol if the DR fails.

bandwidth

A measure of transmission capacity for a particular pathway, expressed in megabits per second (Mbit/s).

base unit (BU)

When you connect multiple switches into a stack, one unit, and only one unit, must be designated as a base unit to perform stack configuration tasks. The position of the unit select switch, on the back of the switch, determines base unit designation.

bit error rate (BER)

The ratio of the number of bit errors to the total number of bits transmitted in a given time interval.

Bootstrap Protocol (BootP)

A User Datagram Protocol (UDP)/Internet Protocol (IP)-based protocol that a booting host uses to configure itself dynamically and without user supervision.

bootstrap router (BSR)

A dynamically elected Protocol Independent Multicast (PIM) router that collects information about potential Rendezvous Point routers and distributes the information to all PIM routers in the domain.

Border gateway Protocol (BGP) neighbor

Border Gateway Protocol (BGP) routers that have interfaces to a common network.

boundary port

A bridge port that attaches a Multiple Spanning Tree (MST) bridge to a LAN in another region.

Bridge Protocol Data Unit (BPDU)

Configuration messages exchanged between bridges in the spanning tree; useful in network topology maintenance.

Bridge Protocol Data Units Filtering (BPDU Filtering)

Prevents end devices from influencing an existing spanning tree topology by disabling any port sending BPDUs for appropriately configured ports. TIP: Spanning Tree Protocol (STP) BPDU Filtering is not supported on MultiLink Trunk (MLT) ports.

bridging

A forwarding process, used on Local Area Networks (LAN) and confined to network bridges, that works on Layer 2 and depends on the Spanning Tree Protocol (STP) or Rapid Spanning Tree Protocol (RSTP). Bridging is also known as MAC forwarding.

router port

A single port VLAN that can route IP packets and bridge all non-routable traffic.

Chapter 5: C

cable assembly

An optical-fiber cable with connectors installed on one or both ends. The cable assembly interconnects the cabling system with opto-electronic equipment at either end of the system. Cable assemblies with connectors only on one end are called pigtailed. Cable assemblies with connectors on both ends are called jumpers or patch cords.

cable plant

All the optical elements, such as fiber connectors and splices, between a transmitter and a receiver.

candidate bootstrap router (C-BSR)

Provides backup protection in case the primary rendezvous point (RP) or bootstrap router (BSR) fails. Protocol Independent Multicast (PIM) uses the BSR and C-BSR.

cascade down

Refers to the stack configuration. The system automatically numbers the physical units based on the designated base unit, which is Unit 1. In the cascade down configuration, the base unit is physically located on the top of the stack and stacking cables are connected in the appropriate order.

cascade up

Refers to the stack configuration. The system automatically numbers the physical units based on the designated base unit, which is Unit 1. In the cascade up configuration, the base unit is physically located on the bottom of the stack and stacking cables are connected in the appropriate order.

Central Office (CO)

A major equipment center that serves the communication traffic of a specific geographical area.

Challenge Handshake Protocol (CHAP)

An access protocol that exchanges a random value between the server and the client and is encrypted with a challenge password.

Circuitless IP

A virtual interface that does not map to any physical interface. This interface is often called a loopback.

class of service (CoS)

A method used to manage traffic congestion based on the CoS level assigned to the packet.

classless interdomain routing (CIDR)

The protocol defined in RFCs 1517 and 1518 for using subnetwork masks, other than the defaults for IP address classes.

cluster

One or more route reflectors, and their associated clients, that form a relationship where the designated route reflectors provide route reflection for their clients, as well as nonclient peers.

coarse wavelength division multiplexing (CWDM)

A technology that uses multiple optical signals with different wavelengths to simultaneously transmit in the same direction over one fiber, and then separates by wavelength at the distant end.

command line interface (CLI)

A text-based command and response user interface. To use a CLI, you enter a command in response to a prompt and receive a system response to the command.

common and internal spanning tree (CIST)

The single spanning tree calculated by the Spanning Tree Protocol (STP) and Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP) to ensure that all LANs in a bridged Local Area Network (LAN) are simply and fully connected.

common spanning tree (CST)

The single spanning tree calculated by STP, RSTP, and MSTP to connect multiple spanning tree (MST) regions.

Custom Autonegotiation Advertisement (CANA)

Provides control of port speed and duplex mode advertisements by limiting advertisements to specified settings instead of all possible settings.

customer premise equipment (CPE)

Equipment or inside wiring at the customer site that connects to telecommunications equipment.

cyclic redundancy check (CRC)

Ensures frame integrity is maintained during transmission. The cyclic redundancy check (CRC) performs a computation on frame contents before transmission and on the receiving device. The system discards frames that do not pass the CRC.

Chapter 6: D

daemon

A program that services network requests for authentication and authorization. A daemon verifies, identifies, grants or denies authorizations, and logs accounting records.

Data Encryption Standard (DES)

A cryptographic algorithm that protects unclassified computer data. The National Institute of Standards and Technology publishes the DES in the Federal Information Processing Standard Publication 46-1.

Data Communications Equipment (DCE)

A network device (such as a modem) that establishes, maintains, and terminates a session.

Data Terminating Equipment (DTE)

A computer or terminal on the network that is the source or destination of signals.

denial of service (DoS)

Attacks that prevent a target server or victim device from performing its normal functions through flooding, irregular protocol sizes (for example, ping requests aimed at the victim server) and application buffer overflows.

denial of service Nachia (DoS Nachia)

Drops Internet Control Multicast Protocol (ICMP) traffic with a byte pattern of 0xaaaaaa, starting at byte 48 of a tagged packet.

denial of service SQLSlam (DoS SQLSlam)

A Quality of Service (QoS) application that drops User Datagram Protocol (UDP) traffic with a destination port of 1434 and byte pattern of 0x0401010101001, starting at byte 47 of a tagged packet.

denial of service TCP SynFinScan (DoS TCP SynFinScan)

A quality of Service (QoS) application that drops Transport Control Protocol (TCP) traffic that has the SYN:FIN TCP flags set.

denial of service Xmas (DoS Xmas)

A Quality of Service (QoS) application that drops Transport Control Protocol (TCP) traffic that has the URG:PSH TCP flags set.

dense wavelength division multiplexing (DWDM)

A technology that uses many optical signals (16 or more) with different wavelengths to simultaneously transmit in the same direction across one fiber, and then separates by wavelength at the distant end.

demultiplexing

The wavelength separation in a wavelength-division multiplexing system. The opposite of multiplexing.

designated router (DR)

A single router elected as the designated router (DR) for the network. In a broadcast or nonbroadcast multiple access (NBMA) network running the Open Shortest Path First (OSPF) protocol, a DR ensures all network routers synchronize with each other and advertises the network to the rest of the autonomous system (AS). In a multicast network running Protocol Independent Multicast (PIM), the DR acts as a representative router for directly connected hosts. The DR sends control messages to the rendezvous point (RP) router, sends register messages to the RP on behalf of directly connected sources, and maintains RP router status information for the group.

Device Manager (DM)

A graphical user interface (GUI) used to configure and manage the switch; also known as Java Device Manager (JDM).

Differentiated Services (DiffServ)

A network architecture enabling service providers and enterprise network environments to offer varied levels of service for different traffic types.

Differentiated Services boundary or access point (DiffServ boundary or access point)

The edge of a Differentiated Services (DiffServ) domain in which classifiers and traffic conditioners are deployed.

Differentiated Services Quality of Service (DiffServ QoS)

Allows specific level of performance designation, on a packet-by-packet basis, for high performance and reliable service for voice or video over IP, or for preferential treatment of data over other traffic.

DS field

Formerly called the IPv4 Type of Service (TOS) octet or the IPv6 Traffic Class octet. The DS field provides the Differentiated Services Code Point (DSCP) that is used for packet forwarding. These fields are part of the standard IPv4 header.

Differentiated Services Code Point (DSCP)

The first six bits of the Differentiated Services (DiffServ) field. The DSCP uses packet marking to guarantee a fixed percentage of total bandwidth to each of several applications (guarantees Quality of Service).

dispersion

The broadening of input pulses as they travel the length of an optical fiber. The following types of dispersion exist:

- modal dispersion—caused by the many optical path lengths in a multimode fiber
- chromatic dispersion—caused by the differential delay at various wavelengths in an optical fiber
- waveguide dispersion—caused by light traveling through both the core and cladding materials in single-mode fibers

Distributed MultiLink Trunking (DMLT)

A point-to-point connection that aggregates similar ports from different modules to logically act like a single port, but with the aggregated bandwidth.

distribution tree

A set of multicast routers and subnetworks that allow the group members to receive traffic from a source.

Domain Name System (DNS)

A system that maps and converts domain and host names to IP addresses.

Duplicate Address Detection (DAD)

A method used to discover duplicate addresses in an IPv6 network.

Dynamic Address Resolution Protocol Inspection (DAI)

Validates Address Resolution Protocol (ARP) packets in the network to prevent malicious user attacks on hosts, switches, and routers connected to the Layer 2 network by intercepting, logging, and discarding ARP packets with invalid IP-to-MAC address bindings. See also ARP Spoofing.

Dynamic Host Configuration Protocol (DHCP)

A standard Internet Protocol that dynamically configures hosts on an Internet Protocol (IP) network. DHCP extends the Bootstrap Protocol (BOOTP).

Dynamic Host Configuration Protocol relay (DHCP Relay)

Allows forwarding of client requests to DHCP servers residing on different IP subnets from the client.

Dynamic Host Configuration Protocol Snooping (DHCP Snooping)

Prevents DHCP Spoofing attacks by ensuring client ports can only request appropriate DHCP information and are not permitted to source DHCP leases.

Dynamic Host Configuration Protocol Spoofing (DHCP Spoofing)

Combats rogue DHCP servers by requiring the identification of the valid DHCP server address and ports where DHCP Spoofing support resides. This action causes the installation of policies on the interfaces that pass or drop traffic, depending on user-defined criteria in the policies.

Chapter 7: E

Electromagnetic Interference (EMI)

Electromagnetic radiation released from an electronic device that disrupts the operation or performance of another device.

Electrostatic Discharge (ESD)

The discharge of stored static electricity that can damage electronic equipment and impair electrical circuitry that results in complete or intermittent failures.

equal cost multipath (ECMP)

Allows routers to determine equal cost paths to the same destination prefix. The multiple paths can be used for traffic-load sharing and to allow faster convergence to other active paths in the case of network failure.

Ethernet switches (ES)

A family of frame-based computer networking technologies for local area networks (LAN).

Extensible Authentication Protocol over LAN (EAPoL)

Allows the exchange of authentication information between any end station or server connected to the switch and an authentication server; for example, a RADIUS server. EAPoL-based security operates in conjunction with a RADIUS-based server to extend the benefits of remote authentication to internal LAN clients; that is, EAPoL prevents network access prior to authentication.

Chapter 8: F

far end fault indication (FEFI)

Determines that one of two unidirectional fibers, that form the connection between two switches, fails.

File Transfer Protocol (FTP)

A Protocol that governs file transfer between nodes, as documented in RFC 959. FTP is not secure and does not encrypt transferred data. Use FTP access only after you determine it is safe in your network.

flash memory

All switch configuration parameters are stored in flash memory. If you store switch software images in flash memory, you can update switch software images without changing switch hardware.

Frame Check Sequence (FCS)

The extra checksum characters added to a frame for error detection and correction.

Chapter 9: G

Gigabit Ethernet (GE)

Ethernet technology with speeds up to 1 Gbit/s.

Gigabit Interface Converter (GBIC)

A hotswappable input and output enhancement component, designed for use with Avaya products, that allows Gigabit Ethernet ports to link with other Gigabit Ethernet ports over various media types.

graphical user interface (GUI)

A graphical (rather than textual) computer interface.

Chapter 10: H

hotswap

Addition or removal of a component without switch power disconnection.

Hypertext Transfer Protocol (HTTP)

Communications protocol for the Web.

Hypertext Transfer Protocol, Secure (HTTPS)

Communications protocol used to access a secure Web server.

Chapter 11: I

Institute of Electrical and Electronics Engineers (IEEE)

An international professional society that issues standards and is a member of the American National Standards Institute and the International Standards Institute, and the International Standards Organization.

internal router (IR)

A router with interfaces within a single area only inside an Open Shortest Path First (OSPF) network.

Internet Assigned Numbers Authority (IANA)

The central registry for various assigned numbers, for example, Internet Protocol parameters (such as port, protocol, and enterprise numbers), options, codes, and types.

Internet Control Message Protocol (ICMP)

A collection of error conditions and control messages exchanged by IP modules in both hosts and gateways.

Internet Engineering Task Force (IETF)

A standards organization for IP data networks.

Internet Group Management Protocol (IGMP)

A host membership protocol used to arbitrate membership in multicast services.

Internet Protocol Control Packet (IPCP)

Establishes and configures Internet Protocol data transmission over a Point-to-Point Protocol link.

Internet Protocol Flow Information eXport (IPFIX)

Monitors traffic flows and exports sampled flow information from switch traffic.

Internet Protocol Manager (IP Manager)

Used to limit access to switch management features by defining IP addresses allowed access to the switch.

Internet Protocol multicast (IPMC)

The technology foundation for audio and video streaming, push applications, software distribution, multipoint conferencing, and proxy and caching solutions.

Internet Protocol routing (IP routing)

Provides a stable route or external gateway to leave an autonomous system by using self-learning and self-healing dynamic routing protocols such as Routing Information Protocol (RIP) or Open Shortest Path First (OSPF).

Internet Protocol security (IPsec)

A secure version of the Internet Protocol (IP) that provides optional authentication and encryption at the packet level.

Internet Protocol Source Guard (IPSG)

Provides network security by allowing transmission on only IP packets containing the source IP address registered for the port. The switch learns the appropriate list of source IP addresses for ports through the Dynamic Host Control Protocol (DHCP Snooping) Snooping application.

Internet Protocol version 4 (IPv4)

The protocol used to format packets for the Internet and many enterprise networks. Internet Protocol version 4 (IPv4) provides packet routing and reassembly.

Internet Protocol version 6 (IPv6)

An improved version of the IP protocol, IPv6 improves the IPv4 limitations of security and user address numbers.

Chapter 12: J

Java Device Manager (JDM)

A graphical user interface (GUI) used to configure and manage the switch; also known as Device Manager (DM).

jitter

The delay variance between received packets. Packets may not arrive at the destination address in consecutive order, or on a timely basis, and the signal can vary from its original reference timing. This distortion damages multimedia traffic.

Chapter 13: L

last member query interval (LMQI)

The interval between the exit of the last Internet Group Management Protocol (IGMP) member from the group and stream cessation.

latency

The transmit-to-receive interval a message takes to traverse between nodes; also referred to as propagation delay.

Layer 2 (L2)

The Data Link Layer of the Open System Interconnection (OSI) model. Examples of Layer 2 protocols are Ethernet and Frame Relay.

Layer 3 (L3)

The Network Layer of the OSI model. Examples of Layer 3 protocols are Internet Protocol (IP) and Internetwork Packet Exchange (IPX).

light emitting diode (LED)

A semiconductor diode that emits light when a current passes through.

Link Aggregation

Provides the mechanism to create and manage trunk groups automatically using Link Aggregation Control Protocol (LACP).

Link Aggregation Control Protocol (LACP)

A network handshaking protocol that provides a means to aggregate multiple links between appropriately configured devices. See also VLACP.

Link Aggregation Control Protocol Data Unit (LACPDU)

The Data Unit of the Link Aggregation Control Protocol (LACP) information packet exchange —when the exchange occurs between two devices connected by link aggregation using LACP.

Link Aggregation Group (LAG)

A group that increases the link speed beyond the limits of any one single cable or port and increases redundancy for higher availability; a trunk group formed by Link Aggregation.

Link Layer Discovery Protocol (LLDP, 802.1AB)

A protocol allowing LAN devices to advertise their capabilities to each other. These advertisements allow discovery of physical topology information for network management.

link-state advertisement (LSA)

Packets that contain state information about directly connected links (interfaces) and adjacencies. Each Open Shortest Path First (OSPF) router generates the packets.

link-state database (LSDB)

A database built by each OSPF router to store LSA information. The router uses the LSDB to calculate the shortest path to each destination in the autonomous system (AS), with itself at the root of each path.

load balancing (LB)

The practice of splitting communication into two (or more) routes or servers.

Local Area Network (LAN)

A data communications system that lies within a limited spatial area, uses a specific user group and topology, and can connect to a public switched telecommunications network (but is not one).

Logical Link Control (LLC)

A protocol used in LANs to transmit protocol data units between two end stations. This LLC layer addresses and arbitrates data exchange between two endpoints.

L

Chapter 14: M

management information base (MIB)

Defines system operations and parameters used for the Simple Network Management Protocol (SNMP).

marking

A process that uses defined rules to assign the Differentiated Services Code Point (DSCP) in a packet.

mask

A bit string that is used along with an IP address to indicate the number of leading bits in the address that correspond with the network part.

maximum transmission unit (MTU)

The largest number of bytes in a packet—the maximum transmission unit of the port.

media

A substance that transmits data between ports; usually fiber optic cables or category 5 unshielded twisted pair (UTP) copper wires.

Media Access Control (MAC)

Arbitrates access to and from a shared medium.

media dependent adapter (MDA)

An independent module that features an input or output port that interfaces to a media connector.

media access unit (MAU)

The equipment in a communications system that adapts or formats signals, such as optical signals, for transmission over the propagation medium.

Message Digest 5 (MD5)

A one-way hash function that creates a message digest for digital signatures.

metropolitan area network (MAN)

A broadband network that covers an area larger than a Local Area Network.

microflow

A single instance of an application-to-application packet flow identified by source address, destination address, protocol ID, and source port.

mirrored port

The port to mirror. The port is also called the source port.

mirroring port

The port to which all traffic is mirrored, also referred to as the destination port.

mirroring MultiLink Trunk

The Multilink Trunk to which the traffic is mirrored.

mirroring VLAN

The virtual Local Area Network (VLAN) to which the traffic is mirrored.

multihomed AS

An autonomous system (AS), with multiple connections to one or more autonomous systems, which does not carry transit traffic.

multicast router discovery (MRDISC)

Provides the automatic discovery of multicast capable routers. By listening to multicast router discovery messages, Layer 2 devices can determine where to send multicast source data and Internet Group Management Protocol (IGMP) host membership reports.

Multicast Router Discovery Protocol (MRDP)

Discovers multicast routers in a Layer 2 bridged domain configured for Internet Group Management Protocol Snooping (IGMP Snooping).

MultiLink Trunking (MLT)

Allows multiple port grouping into a logical link that provides fault-tolerance and high-speed links between devices. MultiLink Trunking detects misconfigured or broken trunk links and redirects traffic to other trunk members. There are two types of MLT—switch-to-switch or switch-to-server.

multimode fiber (MMF)

A fiber with a core diameter larger than the wavelength of light transmitted that allows many modes of light to propagate. Multimode fiber is commonly used with LED sources for low speed and short distance lengths. Typical core sizes (measured in microns) are 50/125, 62.5/125, and 100/140.

multiplexing

Carriage of multiple channels over a single transmission medium; a process where a dedicated circuit is shared by multiple users. Typically, data streams intersperse on a bit or byte basis (time division), or separate by different carrier frequencies (frequency division).

multiplexer (MUX)

A device that combines two or more signals into a signal composite data stream for transmission on a single channel.

Multinetting

Allows association of multiple IP subnets with one Virtual Local Area Network (VLAN) so connected hosts can belong to different IP subnets on the same VLAN.

Multiple Spanning Tree bridge

A bridge that supports the common spanning tree (CST) and one or more multiple spanning tree instances (MSTI), and selectively maps frames classified in a VLAN to the CST or an MSTI.

Multiple Spanning Tree configuration identifier

A name for the revision level and summary of a specific allocation of VLANs to spanning trees.

Multiple Spanning Tree configuration table

Allocates every possible VLAN to the CST or a specific MSTI.

Multiple Spanning Tree instance (MSTI)

One of a number of spanning trees calculated by the Multiple Spanning Tree Protocol (MSTP) within an MST Region, to provide a simple and fully connected active topology for frames that belong to a VLAN mapped to the MSTI.

Multiple Spanning Tree Protocol (MSTP)

Configures multiple instances of the Rapid Spanning Tree Protocol (RSTP) on the switch.

Multiple Spanning Tree region

A set of local area networks and MST bridges physically connected by ports on the MST bridges.

Chapter 15: N

nanometer (nm)

One billionth of a meter (10⁹ meter). A unit of measure commonly used to express the wavelengths of light.

Network Access Server (NAS)

Any client, such as an Avaya Ethernet Routing Switch, Which makes Terminal Access Controller Access Control System Plus (TACACS+) authentication and authorization requests or generates TACACS+ accounting packets.

Network Basic Input/Output System (NetBIOS)

An application programming interface (API) that augments the DOS BIOS by adding special functions for Local Area Networks (LANs).

Network Interface Card (NIC)

A network interface device (NID) in the form of a circuit card installed in an expansion slot of a computer to provide network access.

Network Time Protocol (NTP)

A protocol that works with TCP that assures accurate local time keeping with reference to radio and atomic clocks located on the Internet. Network Time Protocol synchronizes distributed clocks within milliseconds over long time periods.

nonbase unit (NBU)

A nonbase unit is any unit in a stack except the base unit.

nondispersion-shifted fiber (NDSF)

A type of optical fiber optimized for the 1310 nm transmission window.

NonVolatile Random Access Memory (NVRAM)

Random Access Memory that retains its contents after electrical power turns off.

nonzero-dispersion-shifted fiber (NZDSF)

A type of optical fiber optimized for high bit-rate and dense wavelength-division-multiplexing applications.

NSNA

A policy-based, clientless, protective framework that can secure the network from endpoint vulnerability by enforcing policy compliance.

not so stubby area (NSSA)

Prevents the flooding of external link-state advertisements (LSA) into the area by providing them with a default route. An NSSA is a configuration of the Open Shortest Path First (OSPF) protocol.

Chapter 16: O

Open Shortest Path First (OSPF)

A link-state routing protocol that acts as an Interior Gateway Protocol (IGP) to route information between routers in a single, autonomous system (AS).

Open Systems Interconnection (OSI)

A suite of communication protocols, network architectures, and network management standards produced by the International Organization for Standardization (ISO). Systems that are OSI-compliant can communicate with other OSI-compliant systems for a meaningful exchange of information.

operation, administration, and maintenance (OAM)

All the tasks necessary for providing, maintaining, or modifying switching system services.

Optical Ethernet (OE)

Provides seamless Layer 2 Ethernet connectivity for enterprise customers across both metropolitan area networks (MAN) and wide area networks (WAN).

Optical Time Domain Reflectometer (OTDR)

Device used to inspect optical fiber links by sending optical pulses down the link and monitoring the light reflected back to the device. The OTDR can calculate overall fiber attenuation and highlight points of loss or breaks in the fiber.

○

out of band (OOB)

The capacity to deliver information using a modem or other asynchronous connection.

Chapter 17: P

packet loss

Expressed as a percentage of packets dropped over a specified interval. Keep packet loss to a minimum to deliver effective IP telephony and IP video services.

Password Authentication Protocol (PAP)

A procedure used by Point-to-Point Protocol (PPP) servers to validate a connection request. The PAP is the simplest method of allowing security on PPP links. During link establishment, the peer (caller) sends its peer ID and password to the authenticator. If the ID and password match the values stored by the authenticator, the connection proceeds.

policing

Ensures that a traffic stream follows the domain service provisioning policy or service level agreement (SLA).

policy-enabled networking

User-defined characteristics that can be set in policies used to control and monitor traffic.

port

A physical interface that transmits and receives data.

Port Access Entity (PAE)

Software that controls each port on the switch. The PAE, which resides on the Avaya Ethernet Routing Switch, supports authenticator functionality. The PAE works with the Extensible Authentication Protocol over LAN (EAPoL).

port mirroring

A feature that sends received or transmitted traffic to a second destination.

port VLAN ID

Used to coordinate VLANs across multiple switches. When you create a port-based VLAN on a switch, assign a VLAN identification number (VLAN ID) and specify the ports that belong to the VLAN.

prefix

A group of contiguous bits, from 0 to 32 bits in length, that defines a set of addresses.

Power over Ethernet (PoE)

The capacity of a switch to power network devices, according to the 802.3af standard, over an Ethernet cable. Devices include IP phones, Wireless LAN Access Points (WLAN AP), security cameras, and access control points.

Protocol Data Units (PDU)

A unit of data, specified in a layer protocol, which consists of the protocol-control information for the layer and, possibly, user data for the layer. The Layer 1 PDU is the bit. The Layer 2

PDU is the frame. The Layer 3 PDU is the packet and the Layer 4 PDU is the segment. In Layer 5 and above, the PDU is referred to as data.

Provider Edge (PE) device

A device, owned and operated by the service provider, which maintains knowledge of Virtual Private Network (VPN) information and enforces service level agreements. The PE device hosts the User Network Interfaces (UNI) that supply VPN services to customers and is logically adjacent to the customer edge router (CE).

Proxy Address Resolution Protocol (Proxy ARP)

Allows the switch to respond to an Address Resolution Protocol (ARP) request from a locally attached host (or end station) for a remote destination.

Chapter 18: Q

quality of service (QoS)

Used to allocate bandwidth to critical applications and place priorities against time- or delay-sensitive applications to establish appropriate service levels for selected applications.

Q

Chapter 19: R

Random Access Memory (RAM)

Memory into which you can write and read data. A solid-state memory device used for transient memory stores. You can enter and retrieve information from any storage position.

Rapid Spanning Tree Protocol (RSTP)

Reduces the recovery time after a network breakdown. RSTP enhances switch-generated Topology Change Notification (TCN) packets to reduce network flooding.

rate limiting

Rate limiting sets the percentage of traffic that is multicast, broadcast, or both, on specified ports.

Read Write All (RWA)

An access class that lets users access all menu items and editable fields.

real time clock

Provides the switch with time information if Simple Network Time Protocol (SNTP) time is unavailable.

Real-Time Streaming Protocol (RTSP)

An application-level protocol that addresses reliability, quality, fidelity, packet loss, and start and stop commands for audio and video real-time data streaming.

redundant power supply unit (RPSU)

Provides alternate backup power over a DC cable connection into an Avaya Ethernet Routing Switch.

remarking

Changes the Differentiated Services Code Point (DSCP) of a packet, in accordance with a service level agreement (SLA).

Remote Authentication Dial-in User Service (RADIUS)

A distributed client and server system that assists in securing networks against unauthorized access by allowing a number of communication servers and clients to authenticate user identities through a central database; for instance, dialup or Virtual Private Network (VPN) remote access connections. The RADIUS server secures user information with a shared secret, and RADIUS authentication is a fully open and standard protocol defined by RFC 2865.

remote defect indication (RDI)

A signal transmitted upstream after a system detects a downstream fault.

remote login (rlogin)

An application that provides a terminal interface between hosts (usually UNIX) that use the TCP/IP network protocol. Unlike Telnet, rlogin assumes the remote host is, or behaves like, a UNIX host.

remote mirroring

A mirroring port that encapsulates traffic into a Layer 2 header and transmits it to a remote mirror target (RMT) for decapsulation. The packet transmits over a Layer 2 network and preserves the original packet.

Remote Network Monitoring (RMON)

Creates and displays alarms for user-defined events, gathers cumulative statistics for Ethernet interfaces, and tracks statistical history for Ethernet interfaces.

rendezvous point (RP)

The root of the shared tree. One RP exists for each multicast group. The RP gathers information about available multicast services through the reception of control messages and the distribution of multicast group information. Protocol Independent Multicast (PIM) uses RPs.

request for comments (RFC)

A document series published by the Internet Engineering Task Force (IETF) that describe Internet standards.

Reverse Address Resolution Protocol (RARP)

A protocol that maintains a database of mappings between physical hardware addresses and IP addresses.

routable VLAN

If an IP address is assigned to a Virtual Local Area Network (VLAN), and routing is enabled in Layer 3 mode, the VLAN becomes a routable VLAN capable of routing as well as Layer 2 switching.

route flapping

An instability that is associated with a prefix, where the associated prefix routes may exhibit frequent changes in availability over a period of time.

route policies

An Avaya proprietary improvement, route policies can forward packets based on rule sets created by the network administrator on routes learned through routing protocols or the introduction of static routes.

route table manager (RTM)

Determines the best route to a destination based on reachability, route preference, and cost.

Routing Information Protocol (RIP)

A standard, dynamic, distance vector routing protocol used as an Interior Gateway Protocol (IGP) that allows routers to exchange information to compute routes through an IPv4-based network.

Routing policy

Any form of routing that is influenced by factors other than the default algorithmically best route, such as the shortest or quickest path.

routing switch

Virtualizes the physical router interfaces to switches. A virtual router port, or interface, acts as a router port to consolidate switching and routing functions in the broadcast domain, or between broadcast domains, and enable IP routing for higher traffic volumes.

Chapter 20: S

SFP

Small form factor pluggable (SFP) transceiver capable of providing different optical or unshielded twisted pair (UTP) media for a switch. See also XFP.

Secure Shell (SSH)

Can replace Telnet to provide secure access to the user console menu and CLI interface. Avaya Ethernet Routing Switches use SSH2 for secure remote logon and other secure network services over an insecure network.

Secure Socket Layer (SSL)

SSL deployment provides a secure Web management interface. When you operate the system in secure mode, the Web server listens on Transport Control Protocol (TCP) port 443 and responds only to HTTPS client browser requests. All existing nonsecure connections with the browser are terminated.

service level agreement (SLA)

A service contract that specifies the forwarding service that traffic receives.

shortest path first (SPF)

A class of routing protocols that use Dijkstra's algorithm to compute the shortest path through a network, according to specified metrics, for efficient transmission of packet data.

Simple Network Time Protocol (SNTP)

Provides a simple mechanism for time synchronization of the switch to any RFC 2030-compliant Network Time Protocol (NTP) or SNTP server.

single- mode fiber (SMF)

One of the various light waves transmitted in an optical fiber. Each optical signal generates many modes, but in single-mode fiber only one mode is transmitted. Transmission occurs through a small diameter core (approximately ten micrometers), with a cladding that is ten times the core diameter. The potential bandwidth of these fibers is 50 to 100 GHz per kilometer.

single spanning tree bridge

A bridge that can support only a single spanning tree, the common spanning tree (CST).

SMLT client

A switch located at the edge of the network, such as in a wiring closet or CPE. an SMLT client switch performs link aggregation but does not require Split MultiLink Trunking (SMLT) intelligence.

spanning tree

A simple, fully-connected active topology formed from the arbitrary physical topology of connected bridged Local Area Network components by relaying frames through selected bridge ports. The protocol parameters and states that are used and exchanged to facilitate the calculation of the active topology and to control the bridge relay function.

Spanning Tree Group (STG)

A collection of ports in one spanning tree instance.

Split MultiLink Trunking (SMLT)

An Avaya extension to IEEE 802.3ad, Split MultiLink Trunking avoids loops by allowing two aggregation switches to appear as a single device to edge switches. Designed primarily for Layer 2, SMLT also provides benefits for Layer 3 networks. SMLT provides link failure protection, flexible bandwidth scaling, and improves the level of Layer 2 to Layer 3 resiliency by providing nodal protection.

Spanning Tree Protocol (STP)

MAC bridges use the STP to exchange information across Local Area Networks to compute the active topology of a bridged Local Area Network in accordance with the Spanning Tree Protocol algorithm.

stack

Stackable Avaya Ethernet Routing Switches can be connected in a stack configuration of two or more units, up to eight units maximum. A switch stack operates and is managed as a single virtual switch.

stack IP address

An IP address must be assigned to a stack so that all units can operate as a single entity.

stack MAC address

The stack MAC address is the stack base unit MAC address plus one.

stack unit

Any switch within a stack.

stand-alone

Refers to a single Avaya Ethernet Routing Switch operating outside a stack

Static Address Resolution Protocol (Static ARP)

When you configure a Static ARP entry, both the IP address and MAC address of a device are assigned to a physical port. You can use Static ARP entries to communicate with a device that does not respond to an ARP request and to prevent an existing ARP entry from aging out.

switch stack

Stackable Avaya Ethernet Routing Switches can be connected in a stack configuration of two or more units, up to eight units maximum. A switch stack operates and is managed as a single virtual switch.

Chapter 21: T

TCP DnsPort

The TCP DnsPort QoS application drops Transmission Control Protocol (TCP) traffic with the TCP SYN flag set having a source port of 53 with a destination port less than or equal to 1024.

TCP FtpPort

The TCP FtpPort QoS application drops Transmission Control Protocol (TCP) traffic with the TCP SYN flag set having a source port of 20 with a destination port less than or equal to 1024.

temporary base unit (TBU)

If an assigned base unit in a stack fails, the next unit in the stack automatically becomes the temporary base unit (TBU). The TBU maintains stack operations until the stack is restarted or the TBU fails. If the old base unit rejoins the stack, it does not take over from the TBU until the stack is reset.

Terminal Access Controller Access Control System Plus (TACACS+)

Provides a centralized mechanism to authenticate, authorize, and control management functions on a switch.

Time Domain Reflectometer (TDR)

Provides diagnostic capability on Ethernet copper ports to test connected cables for defects. The TDR interrupts 10/100 MB/s links but does not affect 1 GB/s links.

time-to-live (TTL)

The field in a packet used to determine the valid duration for the packet; the TTL determines the packet lifetime. The system discards a packet with a TTL of zero.

traffic profile

The temporal properties of a traffic stream, such as rate.

transit AS

An autonomous system (AS) with multiple connections to one or more autonomous systems and that is used (with certain policy restrictions) to carry both transit and local traffic.

Transmission Control Protocol (TCP)

Provides flow control and sequencing for transmitted data over an end-to-end connection.

Transmission Control Protocol/Internet Protocol (TCP/IP)

Provides communication across interconnected networks, between computers with diverse hardware architectures and various operating systems—TCP/IP signifies the family of common Internet Protocols that define the Internet. Transmission Control Protocol is connection-oriented and provides reliable communication and multiplexing, and IP is a connectionless protocol providing packet routing.

Trivial File Transfer Protocol (TFTP)

A protocol that governs transferring files between nodes without protection against packet loss.

trunk

A logical group of ports that behaves like a single large port.

type of service (TOS)

A field in the IPv4 header that determines the Class of Service prior to the standardization of Differentiated Services.

T

Chapter 22: U

unit select switch

Use the unit select switch on the back of a unit in the stack to designate the unit as the base or nonbase unit.

User Datagram Protocol broadcast forwarding (UDP broadcast forwarding)

Can selectively forward limited UDP broadcasts, received on an IP interface, to a configured IP address.

User Interface button (UI button)

A front panel-mounted button on some switch models that you can use for easy stacking configuration. The UI button is supported on the Avaya Ethernet Routing Switch 5000 Series of switches.

universal resource locator (URL)

A standardized addressing method used to locate different documents, media, and network services on the World Wide Web.

UNIX

A powerful and complex computer operating system that runs data processing and telephone systems. UNIX provides multitasking and multiuser capabilities.

unshielded twisted pair (UTP)

A cable with one or more pairs of twisted insulated copper conductors bound in a single plastic sheath.

user-based security model (USM)

A security model that uses a defined set of user identities for authorized users on a particular Simple Network Management Protocol (SNMP) engine.

user-based policies (UBP)

Establishes and enforces roles and conditions on an individual user basis for access ports in the network.

User Datagram Protocol (UDP)

In TCP/IP, a packet-level protocol built directly on the Internet Protocol layer. In TCP/IP host systems, use UDP for application-to-application programs.

Chapter 23: V

Virtual Link Aggregation Control Protocol (VLACP)

An extension of Link Aggregation Control Protocol (LACP) that allows detection of unidirectional or bidirectional link failures. See also LACP.

Virtual Local Area Network (VLAN)

Setting up a VLAN is a way to segment a network to increase capacity and performance without changing the physical network topology. There are two types of VLANS used to fine-tune broadcast domains: port-based and protocol-based.

Virtual Private Network (VPN)

A private communications network that uses public networks to transfer data. VPN users can be in geographically separate locations.

Virtual Router Redundancy Protocol (VRRP)

Designed to eliminate the single point of failure that occurs when an end station single, static, default gateway router fails to respond.

Voice over IP (VOIP)

The technology that delivers voice information in digital form in discrete packets using the Internet Protocol (IP) rather than the traditional circuit-committed protocols of the public switched telephone network (PSTN).

Chapter 24: W

wavelength division multiplexing (WDM)

Simultaneously transmits many colors (wavelengths) of laser light down the same optical fiber to increase the amount of transferred information.

weighted round robin (WRR)

A mechanism that uses the packet transmit opportunity (PTO) of a queue to determine which queue to process first.

Wide Area Network (WAN)

A network that provides communication services to a geographic area larger than that served by a Local Area Network or a metropolitan area network, and that can use or provide public communication facilities.

wiring closet (WC)

A central termination area for telephone or network cabling or both.

W

Chapter 25: X

XFP

A pluggable 10 gigabit transceiver capable of providing different optical media for a switch. The XFP is similar to an SFP transceiver but is larger in size. See also SFP.

