



GLOSSARY

A

- AAA** authentication, authorization, and accounting. A network security service that provides the primary framework to set up access control on a Cisco router or access server. AAA is an architectural framework and modular means of configuring three independent, but closely related security functions in a consistent manner.
- Access Control List** See ACL.
- ACK** Acknowledgement. Notification sent from one network device to another to acknowledge that some event occurred (for example, the receipt of a message).
- Acknowledgement** See ACK.
- ACL** access control list. A list kept by routers to control access to or from the router for a number of services (for example, to prevent packets with a certain IP address from leaving a particular interface on the router).
- address family** See AF.
- Address Resolution Protocol** See ARP.
- affinity** Requirements of an MPLS traffic engineering tunnel on the attributes of the links it will cross. The tunnel's affinity bits and affinity mask bits of the tunnel must match the attribute bits of the various links carrying the tunnel.
- AF** address family. Set of related communication protocols in which all members use a common addressing mechanism to identify end points. Also called *protocol family*.
- AIS** Alarm Indication Signal. In a T1 transmission, an all-ones signal sent in lieu of the normal signal to maintain transmission continuity and to indicate to the receiving terminal that there is a transmission fault that is located either at, or upstream from, the sending terminal.
- Alarm Indication Signal** See AIS.
- AppleTalk Remote Access** See ARA.
- ARA** AppleTalk Remote Access. A protocol that provides Macintosh users direct access to information and resources at a remote AppleTalk site.
- ARM** ATM router module.

ARP	Address Resolution Protocol. A TCP/IP protocol used to obtain the physical address of a node so packets can be sent. An ARP request is sent onto the network with the IP address of the target node. The node with the requested address responds by sending back its physical address. ARP returns the Layer 2 address for a Layer 3 address.
AS	autonomous system. A collection of networks under a common administration sharing a common routing strategy. Autonomous systems are subdivided by areas. An autonomous system must be assigned a unique 16-bit number by the Internet Assigned Numbers Authority (IANA).
ASBR	Autonomous System Boundary Router. Located between an OSPF autonomous system and a non-OSPF network. ASBRs run both OSPF and another routing protocol, such as RIP. ASBRs must reside in a nonstub OSPF area.
Asynchronous Response Mode	See ARM.
Asynchronous Transfer Mode	See ATM.
ATM	Asynchronous Transfer Mode. The international standard for cell relay in which multiple service types (such as voice, video, or data) are conveyed in fixed-length (53-byte) cells. Fixed-length cells allow cell processing to occur in hardware, thereby reducing transit delays. ATM is designed to take advantage of high-speed transmission media, such as E3, SONET, and T3.
ATM router module	See ARM.
ATT	attached bit.
attached bit	See ATT.
attachment unit interface	See AUI.
AUI	attachment unit interface. IEEE 802.3 interface between a media attachment unit (MAU) and a NIC. Also called transceiver cable.
autonomous system	See AS.
Autonomous System Boundary Router	See ASBR.

B

bandwidth	The amount of data that can be sent in a fixed amount of time. For digital services, the bandwidth is usually expressed in bits per second (bps) or bytes per second.
BER	bit error rate. Ratio of received bits that contain errors.

BGP	Border Gateway Protocol. An interdomain routing protocol used between autonomous systems. It is the routing protocol that makes the Internet work. BGP is a distance vector routing protocol that carries connectivity information and an additional set of BGP attributes. These attributes allows for a rich set of policies for deciding the best route to reach a given destination.
bistate alarm	Alarm that is not active and cannot be cleared (an event). For example, a fan failure alarm is a bistate alarm.
bit error rate	See BER.
BOOTP	Bootstrap Protocol. A TCP/IP protocol used by nodes to obtain its IP address, server address, default gateway, and other network information. The node sends out a BOOTP request in a UDP packet to the BOOTP server, which returns the required information. The BOOTP request and response use an IP broadcast function that can send messages before a specific IP address is known.
Border Gateway Protocol	See BGP.
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C	
CC	client-to-client.
CDP	Cisco Discovery Protocol. Runs on all Cisco devices so that these devices can learn about neighboring devices and exchange information. CDP uses a well-known multicast Media Access Control (MAC) address. During system initialization, the application-specific integrated circuit (ASIC) is configured to forward these packets to the Cisco IOS Software CPU, which processes the packets.
Challenge Handshake Authentication Protocol	See CHAP.
CHAP	Challenge Handshake Authentication Protocol. Security feature supported on lines using PPP encapsulation that prevents unauthorized access. CHAP does not itself prevent unauthorized access, but merely identifies the remote end. The router or access server then determines whether that user is allowed access
Cisco Discovery Protocol	See CDP.
class map	Used for matching packets to a specific class.
class of service	See CoS.
CLI	command-line interface. A text-based user interface to an operating system. A CLI is a user interface to a computer's operating system or an application in which the user responds to a visual prompt by typing in a command on a specified line, receives a response back from the system, and then enters another command, and so forth. Typically, most of today's UNIX-based systems offer both a command-line interface and a graphical user interface.
client-to-client	See CC.

command-line interface	See CLI.
complete sequence number protocol data unit	See CSNP.
confederation	A confederation is a group of routing domains (RDs) that appears to RDs outside the confederation as a single RD. (The confederation's topology is not visible to RDs outside the confederation.) Confederations help reduce network traffic by acting as internetwork firewalls. Confederations might be nested within one another.
CoS	class of service. An indication of how an upper-layer protocol requires a lower-layer protocol to treat its messages. In SNA subarea routing, CoS definitions are used by subarea nodes to determine the optimal route to establish a given session. A CoS definition comprises a virtual route number and a transmission priority field. Repetitive, regularly timed signals are used to control synchronous processes.
Craft Works Interface	See CWI.
CWI	Craft Works Interface.
CSNP	complete sequence number protocol data unit (PDU). PDU sent by the designated router in an OSPF network to maintain database synchronization.

D

dampening	A configurable exponential decay mechanism to suppress the effects of excessive interface flapping events on routing protocols and routing tables in the network. This feature allows the network operator to configure a router to automatically identify and selectively dampen a local interface that is flapping. Dampening an interface removes the interface from the network until the interface stops flapping and becomes stable. This feature improves convergence times and stability throughout the network by isolating failures so that disturbances are not propagated, which reduces the utilization of system processing resources by other devices in the network and improves overall network stability.
data communications channel	See DCC.
DCC	data communications channel. Channel that carries provisioning and maintenance data/information between network elements in the SONET overhead.
DHCP	Dynamic Host Configuration Protocol. Provides a mechanism for allocating IP addresses dynamically so that addresses can be reused when hosts no longer need them.
Designated Intermediate System	See DIS.
demilitarized zone	See DMZ.

DMZ	demilitarized zone. A middle ground between a trusted internal network and an untrusted, external network (for example, the Internet). The DMZ is a subnetwork (subnet) that may sit between firewalls or off one leg of a firewall.
DmzLinkBw	DMZ link bandwidth.
DMZ link bandwidth	See DmzLinkBw.
DIS	Designated Intermediate System. DIS is elected by priority on an interface basis. In the case of a tie, the router with the highest SNPA (MAC) address will become the DIS. DIS helps routers on a broadcast link to synchronize their IS-IS databases.
differentiated services code point	See DSCP.
distributed route processor	See DRP.
DNS	Domain Naming System. Mechanism used in the Internet and on private Intranets for translating names of host computers into addresses. The DNS also allows host computers not directly on the Internet to have registered names in the same style.
DR	designated router. A router that forms adjacencies with all other routers on a multiple access network
Domain Naming System	See DNS.
DRP	distributed route processor. The optional route processor board in the Cisco CRS-1 Series router, installed in the line card chassis to provide greater route update capacity.
DSCP	differentiated services code point. Protocol for specifying and controlling network traffic by class so that certain traffic types get precedence. DSCP specifies a specific per-hop behavior that is applied to a packet.
Dynamic Host Configuration Protocol	See DHCP.

E

eBGP	external Border Gateway Protocol. BGP sessions are established between routers in different autonomous systems. eBGPs communicate among different network domains.
EGP	Exterior Gateway Protocol. Internet protocol for exchanging routing information between different autonomous systems.
Ethernet	A type of networking technology for local-area networks.
extensible markup language	See XML.

Exterior Gateway Protocol See EGP.

external Border Gateway Protocol See eBGP.

F

fast reroute See FRR.

flooding Traffic passing technique used by switches and bridges in which traffic received on an interface is sent out all the interfaces of that device except the interface on which the information was received originally.

Frame Relay Industry-standard, switched data link layer protocol that handles multiple virtual circuits using High-Level Data Link Control (HDLC) encapsulation between connected devices. Frame Relay is more efficient than X.25, the protocol for which it generally is considered a replacement.

FRR fast reroute. Automatically reroutes traffic on a label switch path (LSP) if a node or link in an LSP fails. FRR reduces the loss of packets traveling over an LSP.

G

Gbps Gigabits per second. The amount of data that can be sent in a fixed amount of time. 1 gigabit = 2^{30} bits, 1,073,741,824 bits.

Gigabit Ethernet An Ethernet technology that raises transmission speed to 1 Gbps. The standard for a high-speed Ethernet, approved by the IEEE 802.3z standards committee in 1996.

Gigabits per second See Gbps.

graceful restart Restart that does not impact any router processes.

graphical user interface See GUI.

GUI graphical user interface. Graphics-based user interface that incorporates windows, menus, buttons, and a mouse.

H

half life Amount of time it takes for half of an entity to undergo a specified process.

HDLC High-Level Data Link Controller. ISO communications protocol used in X.25 packet switching networks. HDLC provides error correction at the data link layer and contains the following subsets: LAP, LAPB, and SDLC.

hello packet	Multicast packet that is used by routers for neighbor discovery and recovery. Hello packets also indicate that a client is still operating and network-ready.
Hello protocol	Protocol used by OSPF systems for establishing and maintaining neighbor relationships.
hexidecimal	Means 16. The base 16 numbering system is used to represent binary numbers. Each half byte (four bits) is assigned a hex digit.
High-Level Data Link Controller	See HDLC.
hold time	Timing parameter.

I

iBGP	internal Border Gateway Protocol. BGP sessions are established between routers in the same autonomous system.
ICMP	Internet Control Message Protocol. Network layer Internet (TCP/IP) protocol that reports errors and provides other information relevant to IP packet processing.
IEP	IP explicit path. List of IP addresses, each representing a node or link in the explicit path.
IETF	Internet Engineering Task Force.
IGMP	Internet Group Management Protocol. Governs the management of multicast groups in a TCP/IP network. Used by IP hosts to report their multicast group memberships to an adjacent multicast router.
IGP	Interior Gateway Protocol. Internet protocol used to exchange routing information within an autonomous system. Examples of common Internet IGPs include IGRP, OSPF, and RIP.
IIH	IS IS hello. Message sent by all IS-IS systems to maintain adjacencies.
Incremental Shortest Path First	See ISPF.
Interior Gateway Protocol	See IGP.
Intermediate System-to-Intermediate System	See IS-IS.
Internal Border Gateway Protocol	See iBGP.
Internet Control Message Protocol	See ICMP.
Internet Engineering Task Force	See IETF.

Internet Group Management Protocol	See IGMP.
Internetwork Packet Exchange	See IPX.
IP explicit path	See IEP.
IPv4	IP Version 4. Network layer for the TCP/IP protocol suite. A connectionless, best-effort packet switching protocol.
IPv6	IP Version 6. Replacement for IPv4. A next generation IP protocol. IPv6 is backward compatible with and is designed to fix the shortcomings of IPv4, such as data security and maximum number of user addresses. IPv6 increases the address space from 32 to 128 bits, providing for an unlimited number of networks and systems. It also supports quality of service (QoS) parameters for real-time audio and video.
IP version 4	See IPv4.
IP version 6	See IPv6.
IPX	Internetwork Packet Exchange. NetWare network layer (Layer 3) protocol used for transferring data from servers to workstations. IPX is similar to IP and XNS.
IS-IS	Intermediate System-to-Intermediate System. OSI link-state hierarchical routing protocol based on DECnet Phase V routing, whereby ISs (routers) exchange routing information based on a single metric to determine network topology.
IS-IS hello	See IIS.
ISPF	Incremental Shortest Path First (SPF).

K

keepalive interval	Period of time between each keepalive message sent by a network device.
keepalive message	Message sent by one network device to inform another network device that the virtual circuit between the two is still active.

L

Label Distribution Protocol	See LDP.
label switch path	See LSP.
label switch router	See LSR.

LAIS	Line Alarm Indication Signal. Signal sent downstream indicating that an upstream failure has occurred. LAIS prevents the generation of unnecessary downstream failures being declared or alarms being raised.
Layer 2	Layer 2 refers to the Data Link layer of the commonly referenced multilayered communication model, Open Systems Interconnection (OSI). The Data Link layer contains the address inspected by a bridge or switch. Layer 2 processing is faster than layer 3 processing, because less analysis of the packet is required.
Layer 3	Layer 3 refers to the Network layer of the commonly referenced multilayered communication model, OSI. The Network layer is concerned with knowing the address of the neighboring nodes in the network, selecting routes and quality of service, and recognizing and forwarding to the Transport layer incoming messages for local host domains.
LCP	Link Control Protocol. Protocol that establishes, configures, and tests data-link connections for use by PPP.
LDP	Label Distribution Protocol. A standard protocol between MPLS-enabled routers to negotiate the labels (addresses) used to forward packets. The Cisco proprietary version of this protocol is the Tag Distribution Protocol (TDP).
Line Alarm Indication Signal	See LAIS.
Line Remote Defect Indication	See LRDI.
Link Control Protocol	See LCP.
link flap	Unstable data link.
link-state packet	See LSP.
LLQ	low latency queueing. Way of handling packets that require high priority (high-priority queueing).
logical router	See LR.
loopback	Send the outgoing signals back to the receiving side for testing purposes.
LOP	Loss of Pointer. Failure state in the SONET signal where a receiving network cannot identify or lock on the pointer value of the H1 and H2 bytes to show the location of synchronous payload envelope (SPE).
low latency queueing	See LLQ.
LR	logical router. A collection of line cards and Route Processors that form a complete router. Each router contains its own instance of dynamic routing, IP stack, system database, interface manager, and event notification system.
LRDI	Line Remote Defect Indication.

LSP	label switch path and link-state packet.
LSR	label switch router. The role of an LSR is to forward packets in an MPLS network by looking only at the fixed-length label.
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M	
mask	Pattern of bits used to reject or accept bit patterns in another set of data.
maximum transmission unit	See MTU.
Mbps	megabits per second. A bit rate expressed in millions of binary bits per second.
MD5	Message Digest 5. A one-way hashing algorithm that produces a 128-bit hash. MD5 is designed to strengthen the security of the MD4 hashing algorithm. Used for message authentication in SNMP. Verifies the integrity of the communication, authenticates the origin, and checks for timeliness.
MED	Multi Exit Discriminator. BGP metric that provides information to external neighbors about the preferred path into an autonomous system.
Message Digest 5	See MD5.
media independent interface	See MII.
Microsoft CHAP	See MS-CHAP.
MII	media independent interface. Standard specification for the interface between network controller chips and their associated media interface chips. MII automatically senses 10- and 100-MHz Ethernet speeds.
MOSPF	Multicast OSPF. Intradomain multicast routing protocol used in OSPF networks. Extensions are applied to the base OSPF unicast protocol to support IP multicast routing.
MPLS	Multiprotocol Label Switching. A mechanism whereby packets are forwarded by reading and replacing a fixed-length label that is attached to the packet.
MPLS-TE	Multiprotocol Label Switching traffic engineering.
MS-CHAP	Microsoft Challenge Handshake Authentication Protocol. Security feature supported on lines using PPP encapsulation that prevents unauthorized access. CHAP does not itself prevent unauthorized access, but merely identifies the remote end. The router or access server then determines whether that user is allowed access.
MTU	maximum transmission unit. The size of the largest packet that can be processed by an interface.
multicast OSPF	See MOSPF.
Multi Exit Discriminator	See MED.

Multiprotocol Label Switching See MPLS.

Multiprotocol Label Switching traffic engineering See MPLS-TE.

N

NACK negative acknowledgement. Response sent from a receiving device to a sending device indicating that the information received contained errors.

NBMA nonbroadcast multiaccess. A multiaccess network that either does not support broadcasting (such as X.25) or in which broadcasting is not feasible (for example, an SMDS broadcast group or an extended Ethernet that is too large).

negative acknowledgement See NACK.

NET network entity title. A NET is a network service access point (NSAP) where the last byte is always zero.

Network Entity Title See NET.

network service access point See NSAP.

nonbroadcast multiaccess See NBMA.

nonstop forwarding See NSF.

not-so-stubby area See NSSA.

NSAP network service access point. Network addresses, as specified by ISO. An NSAP is the point at which OSI network service is made available to a transport layer (Layer 4) entity.

NSF nonstop forwarding. The ability of a router to continue to forward traffic toward a router that may be recovering from a transient failure. Also, the ability of a router recovering from a transient failure in the control plane to continue correctly forwarding traffic sent to it by a peer.

NSSA not-so-stubby area. Type of stub area in which external routes can be flooded.

O

Open Shortest Path First See OSPF.

Open Systems Interconnection See OSI.

ORF	Outbound Route Filter. Allows BGP speakers to push inbound policy to a neighbor who applies it as outbound policy, providing the ability to filter unneeded routes at the send side instead of receive side.
OSI	Open Systems Interconnection. International standardization program created by ISO and ITU-T to develop standards for data networking that facilitate multivendor equipment interoperability.
OSPF	Open Shortest Path First. Link-state, hierarchical IGP routing algorithm proposed as a successor to RIP in the Internet community. OSPF features include least-cost routing, multipath routing, and load balancing. OSPF was derived from an early version of the IS-IS protocol.
OUNI	Optical User Network Interface (UNI).
Outbound Route Filter	See ORF.
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P	
Packet over SONET	See PoS.
PAP	Password Authentication Protocol. Authentication protocol that allows PPP peers to authenticate one another. The remote router attempting to connect to the local router is required to send an authentication request. Unlike CHAP, PAP passes the password and the hostname or username in the clear (unencrypted). PAP does not itself prevent unauthorized access but merely identifies the remote end. The router or access server then determines whether that user is allowed access. PAP is supported only on PPP lines.
partial route calculations	See PRC.
Password Authentication Protocol	See PAP.
PDU	protocol data unit. A frame of data sent over Layer 2 (data link layer) in a network. Ethernet and Token Ring are examples of this layer.
PID	process identifier. Temporary number assigned to a process or service.
Point-to-Point Protocol	See PPP.
policy map	Specifies the traffic policy name and configures a traffic policy.
PoS	Packet over SONET. Enables core routers to send native IP packets directly over SONET or SDH frames.
PPP	Point-to-Point Protocol. Successor to SLIP that provides router-to-router and host-to-network connections over synchronous and asynchronous circuits. Whereas SLIP was designed to work with IP, PPP was designed to work with several network layer protocols, such as IP, IPX, and ARA. PPP also has built-in security mechanisms, such as CHAP and PAP. PPP relies on two protocols: LCP and NCP.
PQ	priority queueing.

PRC	partial route calculation.
priority queuing	See PQ.
process identifier	See PID.
protocol data unit	See PDU.

Q

QoS	quality of service. A set of parameters that describe a flow of data, such as guaranteed bandwidth, delay, and delivery guarantee.
quality of service	See QoS.

R

RD	Routing Domain.
Resource Reservation Protocol	See RSVP.
RIB	Routing Information Base. A RIB is a routing database used by IDRP. RIBs are built by each BIS from information received from within the RD and from other BISs. A RIB contains the set of routes chosen for use by a particular BIS.
RIP	Routing Information Protocol. A simple routing protocol that is part of the TCP/IP protocol suite and the most common IGP in the Internet. RIP determines a route based on the smallest hop count between source and destination. It is a distance vector protocol that broadcasts routing information to neighboring routers. It is known to use excessive bandwidth.
Route Processor	See RP.
route reflection	See RR.
Routing Information Base	See RIB.
Routing Information Protocol	See RIP.
RP	route processor. Processor module that contains the CPU, system software, and most of the memory components that are used in the router.
RR	route reflection.
RSVP	Resource Reservation Protocol. Network-control protocol that enables Internet applications to obtain special qualities of service for data flows. Applications running on IP end systems can use RSVP to indicate to other nodes the nature (bandwidth, jitter, maximum burst, and so on) of the packet streams they want to receive.

S

SCTP	Stream Control Transmission Protocol. An alternative protocol to TCP. SCTP contains multiple transmission paths and is designed to facilitate SS7 signaling over TCP/IP, supporting multiple IP addresses from the same host and treating the data streams from these addresses as one session. It does not require a strict order of delivery like TCP. If one data stream fails, the other streams are allowed to continue.
SDH	Synchronous Digital Hierarchy. European standard that defines a set of rate and format standards that are sent using optical signals over fiber. SDH is similar to SONET, with a basic SDH rate of 155.52 Mbps, designated as STM-1.
Section Loss of Frame	See SLOF.
Section Loss of Signal	See SLOS.
sequence number protection	See SNP.
SF	signal failure.
shortest path first	See SPF.
signal failure	See SF.
Simple Network Management Protocol	See SNMP.
SLOF	Section Loss of Frame.
SLOS	Section Loss of Signal.
SNMP	Simple Network Management Protocol. SNMP is the protocol governing network management and the monitoring of network devices and their functions. It is not necessarily limited to TCP/IP networks.
SONET	Synchronous Optical Network. A broadband networking standard based on point-to-point optical fiber networks.
SNP	sequence number protection. 4-bit field in the header of the protocol data unit used to detect error in the sequence number field.
Spatial Reuse Protocol	See SRP.
SPE	Synchronous Payload Envelope. Portion of the SONET frame containing overhead information (POH and user data).
SPF	shortest path first. Routing algorithm that iterates on length of path to determine a shortest-path spanning tree. Commonly used in link-state routing algorithms. Sometimes called Dijkstra's algorithm.

SRP	spatial reuse protocol. Another name for Dynamic Packet Transport (DPT), which is a ring-based IP protocol.
Stream Control Transmission Protocol	See SCTP.
Synchronous Digital Hierarchy	See SDH.
Synchronous Optical Network	See SONET.
Synchronous Payload Envelope	See SPE.
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T	
TACACS+	Terminal Access Controller Access Control System. Authentication protocol, developed by the DDN community, that provides remote access authentication and related services, such as event logging. User passwords are administered in a central database rather than in individual routers, providing an easily scalable network security solution.
TCA	threshold crossing alert. An alert that is sent when a specified threshold is crossed.
TCP	Transmission Control Protocol. Connection-oriented transport layer protocol that provides reliable full-duplex data transmission. TCP is part of the TCP/IP protocol stack.
Terminal Access Controller Access Control System	See TACACS+.
Threshold Crossing Alert	See TCA.
TLV	type, length, and value. Methodology for coding parameters within a frame. Type indicates the parameter type, length indicates the length of its value, and value indicates the value of parameter.
ToS	type of service. An attribute used with the procedure code to identify a specific category of service.
Transmission Control Protocol	See TCP.
tunnel	Secure communication path between two peers, such as two routers.
type, length, and value	See TLV.
type of service	See ToS.

U

UDP User Datagram Protocol. Connectionless transport layer protocol in the TCP/IP protocol stack. UDP is a simple protocol that exchanges datagrams without acknowledgments or guaranteed delivery, requiring that error processing and retransmission be handled by other protocols. UDP is defined in RFC 768.

unicast When sending a message to one receiver in a communications network, and multiple users request the same data from the same server at the same time, duplicate data streams are sent, one to each user.

User Datagram Protocol See UDP.

V

Virtual Private Network See VPN.

VPN Virtual Private Network. Enables IP traffic to travel securely over a public TCP/IP network by encrypting all traffic from one network to another. A VPN uses "tunneling" to encrypt all information at the IP level.

X

XML extensible markup language. A standard maintained by the World Wide Web Consortium (W3C) that defines a syntax that lets you create markup languages to specify information structures. Information structures define the type of information (for example, subscriber name or address), not how the information looks (bold, italic, and so on). External processes can manipulate these information structures and publish them in a variety of formats. XML allows you to define your own customized markup language.