

Glossary

A

active route	Route chosen from all the routes in the routing table to use to reach a destination. Active routes are installed into the forwarding table.
Address Resolution Protocol	<i>See ARP.</i>
ADM	Add/drop multiplexer.
aggregation	The coalescing of groups of routes that have common addresses into a single entry in the routing table.
APS	Automatic Protection Switching. A technology used by SDH/SONET ADMs to protect against circuit faults between the ADM and a router and to protect against failing routers.
area	In IS-IS and OSPF, a set of contiguous networks and hosts within an AS that have been administratively grouped together.
area border router	A router that belongs to more than one area.
ARP	Address Resolution Protocol. Protocol for mapping IP addresses to MAC addresses.
AS	Autonomous system. Set of routers under a single technical administration. Each AS normally uses a single interior gateway protocol (IGP) and metrics to propagate routing information within the set of routers. Also called <i>AS</i> or <i>routing domain</i> .
AS boundary router	In OSPF, routers that exchange routing information with routers in other ASs.
AS external link advertisements	An OSPF link-state advertisement sent by AS boundary routers to describe external routes that they know about. These link-state advertisements are flooded throughout the AS (except for stub areas).
AS path	In BGP, the route to a destination. The path consists of the AS numbers of all the routers a packet must go through to reach a destination. <i>See also path attribute.</i>
Automatic Protection Switching	<i>See APS.</i>
autonomous system	<i>See AS.</i>

B

backbone area In OSPF, an area that consists of all networks in area ID 0.0.0.0, their attached routers, and all area border routers.

BERT Bit error rate test. A test that can be run on a T3 interface to determine whether it is operating properly.

BGP Border Gateway Protocol. Exterior gateway protocol used to exchange routing information among routers in different ASs.

Border Gateway Protocol *See BGP.*

broadcast The operation of sending network traffic from one network node to all other network nodes.

bundle The collection of software that makes up a JUNOS software release.

C

CIDR Classless interdomain routing. A method of specifying IP addresses in which you explicitly specify the bits of the address that represent the network address instead of determining this information from the first octet of the address.

CLI Command-line interface. Interface provided for configuring and monitoring the routing protocol software.

client peer In a BGP route reflection, a member of a cluster that is not the route reflector. See also *nonclient peer*.

CLNP ISO connectionless network protocol.

cluster In BGP, a set of routers that have been grouped together. A cluster consists of one system that acts as a route reflector, along with any number of client peers. The client peers receive their route information only from the route reflector system. Routers in a cluster do not need to be fully meshed.

community In BGP, a group of destinations that share a common property. Community information is included as one of the path attributes in BGP update messages.

confederation A group of BGP systems that appears to external ASs as a single AS.

CSNP Complete sequence number PDU. Packet that contains a complete list of all the LSPs in the IS-IS database.

CSPF Constrained Shortest Path First. An algorithm used by MPLS that has been modified to take into account specific restrictions when calculating the shortest path across the network.

D

daemon Background process that performs operations on behalf of the system software and hardware. Daemons normally start when the system software is booted, and they run as long as the software is running.

damping A method of reducing the number of update messages sent between BGP peers, thereby reducing the load on these peers, without adversely affecting the route convergence time for stable routes

data-link connection identifier	<i>See DL CI.</i>
dcd	The JUNOS software interface process.
default address	Router address that is used as the source address on unnumbered interfaces.
designated router	In OSPF, a router selected by other routers that is responsible for sending <i>link-state advertisements</i> that describe the network, which reduces the amount of network traffic and the size of the routers' topological databases.
destination prefix length	Number of bits of the network address used for host portion of an IP address. Previously called the subnet mask.
DHCP	Dynamic Host Configuration Protocol. Allocates IP addresses dynamically so that they can be reused when they are no longer needed.
Dijkstra algorithm	<i>See SPF.</i>
direct routes	<i>See interface routes.</i>
DLCI	Data-link connection identifier. Identifier for a Frame Relay virtual connection (also called a logical interface).
DVMRP	Distance Vector Multicast Routing Protocol. Distributed multicast routing protocol that dynamically generates IP multicast delivery trees using a technique called reverse path multicasting (RPM) to forward multicast traffic to downstream interfaces.
Dynamic Host Configuration Protocol	<i>See DHCP.</i>
E	
EBGP	External BGP. BGP configuration in which sessions are established between routers in different ASs.
edge router	A router located at the beginning or end of a label-switching tunnel. When at the beginning of a tunnel, an edge router applies labels to new packets entering the tunnel. When at the end of a tunnel, the edge router removes labels from packets exiting the tunnel. <i>See also MPLS.</i>
EGP	Exterior gateway protocol, such as BGP.
egress router	Last router in a label-switched path (LSP). <i>See also ingress router.</i>
end system	Network entity that sends and receives packets.
export	To place routes from the routing table into a routing protocol.
external BGP	<i>See EBGP.</i>
external metric	A cost included in a route when OSPF exports route information from external ASs. There are two types of external metrics: Type 1 and Type 2. Type 1 external metrics are equivalent to the link-state metric; that is, the cost of the route, used in the internal AS. Type 2 external metrics are greater than the cost of any path internal to the AS.

F

- FEAC** Far-end alarm and control. T3 signal used to send alarm or status information from the far-end terminal back to the near-end terminal and to initiate T3 loopbacks at the far-end terminal from the near-end terminal.
- filter** *See policy.*
- flap damping** *See damping.*
- flapping** *See route flapping.*
- Flexible PIC Concentrator** *See FPC.*
- forwarding information base** *See forwarding table.*
- forwarding table** JUNOS software forwarding information base. The JUNOS routing protocol process installs active routes from its routing tables into the Routing Engine forwarding table. The kernel copies this forwarding table into the Packet Forwarding Engine, which is responsible for determining the interface out which the packets are transmitted.
- FPC** Flexible PIC Concentrator. A card that slides into a slot in the router. *See also PIC.*
- ## G
- group** A collection of related BGP peers.
- ## H
- hold time** In BGP, the maximum number of seconds allowed to elapse between when a BGP system receives successive keepalive or update messages from a peer.
- ## I
- IANA** Internet Assigned Numbers Authority. Regulatory group that maintains all assigned and registered Internet numbers, such as IP and multicast addresses. *See also NIC.*
- IBGP** Internal BGP. BGP configuration in which sessions are established between routers in the same ASs.
- ICMP** Internet Control Message Protocol.
- IETF** Internet Engineering Task Force.
- IGMP** Internet Group Membership Protocol. Used with multicast protocols to determine whether group members are present.
- IGP** Interior gateway protocol, such as IS-IS, OSPF, and RIP.
- import** To install routes from the routing protocols into a routing table.
- ingress router** First router in a label-switched path (LSP). *See also egress router.*
- inter-AS routing** Routing of packets among different ASs. *See also EBGP.*
- intercluster reflection** In a BGP route reflection, the redistribution of routing information by a route reflector system to all nonclient peers (BGP peers not in the cluster). *See also intracuster reflection.*

- intermediate system** Network entity that sends and receives packets and that also can route packets.
- interface routes** Networks learned because an interface is directly connected to that network. Routes that are in the routing table because interfaces have been configured with an IP address. Also called *direct routes*.
- internal BGP** *See IBGP.*
- intra-AS routing** The routing of packets within a single AS. *See also IBGP.*
- intracluster reflection** In a BGP route reflection, the redistribution of routing information by a route reflector system to all client peers in that cluster. *See also inter cluster reflection.*
- IP** Internet Protocol.
- IS-IS** Intermediate System to Intermediate System, a link-state IGP for IP networks that also uses the shortest-path-first (SPF) algorithm to determine routes.
- ISO** Internal Organization for Standardization.
- J**
- jitter** Small random variation introduced into the value of a timer to prevent multiple timer expirations from becoming synchronized.
- K**
- kernel forwarding table** *See forwarding table.*
- L**
- label-switched path (LSP)** Sequence of routers that cooperatively perform MPLS operations for a packet stream. The first router in an LSP is called the *ingress router* and the last router in the path is called the *egress router*. An LSP is a point-to-point, half-duplex connection from the ingress router to the egress router. (The ingress and egress routers cannot be the same router.)
- label switching** *See MPLS.*
- link-state PDU (LSP)** Packets that contain information about the state of adjacencies to neighboring systems.
- local preference** Optional BGP path attribute carried in internal BGP update packets that indicates the degree of preference for an external route.
- LSP** *See label-switched path (LSP) and link-state PDU (LSP).*
- M**
- martian address** Network address about which all information is ignored.
- mask** *See destination prefix length.*
- MBGP** Multiprotocol BGP. An extension to BGP that allows you to connect multicast topologies within and between BGP ASs.
- MBone** Internet multicast backbone. An interconnected set of subnetworks and routers that support the delivery of IP multicast traffic. The MBone is a virtual network that is layered on top of sections of the physical Internet.

- MED** Multiple exit discriminator. Optional BGP path attribute consisting of a metric value that is used to determine the exit point to a destination when all other factors in determining the exit point are equal.
- MIB** Management Information Base. Definition of an object that can be managed by SNMP.
- MPLS** Mechanism for engineering network traffic patterns that functions by assigning short labels to network packets that describe how to forward them through the network. Also called *label switching* or *traffic engineering*.
- MTU** Maximum transmission unit. Maximum packet size, in bytes, that an interface can handle.
- multicast** The operation of sending network traffic from one network node to multiple network nodes.
- multiprotocol BGP** *See MBGP.*
- Multiprotocol Label Switching** *See MPLS.*

N

- neighbor** An immediately adjacent router. Also called a *peer*.
- NET** Network entity title. ISO NSAP in which the n-selector is 00.
- network link advertisement** An OSPF link-state advertisement flooded throughout a single area by designated routers to describe all the routers attached to the network.
- network service access point** *See NSAP.*
- NIC** Network Information Center. Internet authority responsible for assigning Internet-related numbers, such as IP addresses and AS numbers. *See also IANA.*
- NLRI** Network layer reachability information. Information that is carried in BGP packets and is used by MBGP.
- nonclient peer** In a BGP route reflection, a BGP peer that is not a member of a cluster. *See also client peer.*
- not-so-stubby area** *See NSSA.*
- NSAP** Network service access point. A connection to a network that is identified by a network address.
- NSSA** Not-so-stubby area. In OSPF, a type of stub area in which external routes can be flooded.
- n-selector** Last byte of an NSAP address.

O

- OSI** Open System Interconnection.
- OSPF** Open Shortest Path First, a link-state interior gateway protocol (IGP) that makes routing decisions based on the shortest-path-first (SPF) algorithm (also called the *Dijkstra algorithm*).

P

- package** A collection of files that make up a JUNOS software component.
- Packet Forwarding Engine** The architectural portion of the router that packets by forwarding them between input and output interfaces.
- path attribute** Information about a BGP route, such as the route origin, AS path, and next-hop router.
- PDU** Protocol data unit. IS-IS packets.
- peer** An immediately adjacent router with which a protocol relationship has been established. Also called a *neighbor*.
- PIC** Physical Interface Card. A network interface-specific card that can be installed on an FPC in the router.
- PIM** Protocol Independent Multicast. A protocol-independent multicast routing protocol. PIM Sparse Mode routes to multicast groups that might span wide-area and interdomain internets. PIM Dense Mode is a flood-and-prune protocol.
- policy** The ability to define conditions for accepting, rejecting, and modifying routes received in protocol updates. Also called *routing policy*.
- preference** Desirability of a route to become the active route. A route with a lower preference value is more likely to become the active route. The preference is an arbitrary value in the range 0 through 255 that the routing protocol process uses to rank routes received from different protocols, interfaces, or remote systems.
- preferred address** On an interface, the default local address used for packets sourced by the local router to destinations on the subnet.
- primary address** On an interface, the address used by default as the local address for broadcast and multicast packets sourced locally and sent out the interface.
- primary interface** Router interface that packets go out when no interface name is specified and when the destination address does not imply a particular outgoing interface.
- Protocol-Independent Multicast** *See PIM.*
- PSNP** Partial sequence number PDU. A packet that contains only a partial list of the LSPs in the IS-IS link-state database.
- R
- RADIUS** Remote Authentication Dial-In User Service. An authentication method for validating users who attempt to access the router using Telnet.
- Resource Reservation Protocol** *See RSVP.*
- RIP** Routing Information Protocol, a distance-vector interior gateway protocol (IGP) that makes routing decisions based on hop count.
- route identifier** IP address of the router from which a BGP or an OSPF packet originated.

- **route flapping** The situation in which BGP systems send an excessive number of update messages to advertise network reachability information.
- **route reflection** In BGP, configuring a group of routers into a cluster and having one system act as a route reflector, redistributing routes from outside the cluster to all routers in the cluster. The routers that form a cluster do not need to be fully meshed.
- **router link advertisement** An OSPF link-state advertisement flooded throughout a single area by all routers to describe the state and cost of the router's links to the area.
- **routing domain** *See AS.*
- **Routing Engine** The architectural portion of the router that handles all the routing protocol processes, as well as other software processes that control the router's interfaces, a few of the chassis components, system management, and user access to the router.
- **routing policy** *See polic y.*
- **routing table** Common routing protocol database of routes learned from one or more routing protocols. All routes are maintained by the JUNOS routing protocol process.
- **rpd** The JUNOS software routing protocol process.
- **RPM** Reverse path multicasting. Routing algorithm used by DVMRP to forward multicast traffic.
- **RSVP** Resource Reservation Protocol. Resource reservation setup protocol that is designed to interact with integrated services on the Internet.
- **S**
- **SAP** Session Announcement Protocol. Used with multicast protocols to handle session conference announcements.
- **SDP** Session Description Protocol. Used with multicast protocols to handle session conference announcements.
- **secure shell** *See SSH.*
- **shortest-path-first algorithm** *See SPF.*
- **simplex interface** An interface that assumes that packets it receives from itself are the result of a software loopback process. The interface does not consider these packets when determining whether the interface is functional.
- **SNMP** Simple Network Management Protocol, which allows you to manage objects on a network.
- **SPF** Shortest-path first, an algorithm used by IS-IS and OSPF to make routing decisions based on the state of network links. Also called the *Dijkstra algorithm*.
- **SSH** Secure shell. A software package that provides a secured method of logging in to a remote network system.
- **stub area** In OSPF, an area through which, or into which, AS external advertisements are not flooded.
- **subnet mask** *See destination pr efix length.*

summary link advertisement An OSPF link-statement advertisement flooded throughout the advertisement's associated areas by area border routers to describe the routes that they know about in other areas.

sysid System identifier. Portion of the ISO NSAP. The sysid can be any six bytes that are unique throughout a domain.

T

TACACS+ Terminal Access Controller Access Control System Plus. An authentication method for validating users who attempt to access the router using Telnet.

TCP Transmission Control Protocol.

ToS Type of service.

traffic engineering Task of mapping traffic flows onto an existing physical topology. *See also MPLS.*

transit area In OSPF, an area used to pass traffic from one adjacent area to the backbone or to another area if the backbone is more than two hops away from an area.

transit router In MPLS, any intermediate router in the LSP between the ingress router and the egress router.

U

unicast The operation of sending network traffic from one network node to another individual network node.

V

virtual circuit identifier Identifier for an ATM virtual connection (also called a logical interface).

virtual link In OSPF, a link created between two routers that are part of the backbone but are not physically contiguous.

virtual path identifier Identifier for an ATM virtual connection (also called a logical interface).

Virtual Router Redundancy Protocol *See VRRP.*

VCI *See virtual circuit identifier.*

VPI *See virtual path identifier.*

VRRP Virtual Router Redundancy Protocol. On Gigabit Ethernet interfaces, allows you to configure virtual default routers.

