



## GLOSSARY

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### A

- ABR** See [area border router](#).
- address family** A specific type of network addressing supported by a routing protocol. Examples include IPv4 unicast and IPv4 multicast.
- adjacency** Two OSPF routers that have compatible configurations and have synchronized their link-state databases.
- administrative distance** A rating of the trustworthiness of a routing information source. In general, the higher the value, the lower the trust rating.
- area** A logical division of routers and links within an OSPF domain that creates separate subdomains. LSA flooding is contained within an area.
- area border router** A router that connects one OSPF area to another OSPF area.
- ARP** Address resolution protocol. ARP discovers the MAC address for a known IPv4 address.
- AS** See [autonomous system](#).
- ASBR** See [autonomous system border router](#).
- attributes** Properties of a route that are sent in BGP UPDATE messages. These attributes include the path to the advertised destination as well as configurable options that modify the best path selection process.
- autonomous system** A network controlled by a single technical administration entity.
- autonomous system border router** A router that connect a an OSPF autonomous system to an external autonomous system.
- AVF** Active virtual forwarder. **A gateway within a GLBP group elected to forward traffic for a specified virtual MAC address.**
- AVG** Active virtual gateway. **One virtual gateway within a GLBP group is elected as the active virtual gateway and is responsible for the operation of the protocol.**

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### B

- backup designated router** See [BDR](#).

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<b>bandwidth</b>	The available traffic capacity of a link.
<b>BDR</b>	Backup designated router. An elected router in a multi-access OSPF network that acts as the backup if the designated router fails. All neighbors form adjacencies with the backup designated router (BDR) as well as the designated router.
<b>BGP</b>	Border Gateway Protocol. BGP is an interdomain or exterior gateway protocol.
<b>BGP peer</b>	A remote BGP speaker that is an established neighbor of the local BGP speaker.
<b>BGP speaker</b>	BGP-enabled router.

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## C

<b>communication cost</b>	Measure of the operating cost to route over a link.
<b>converged</b>	The point at which all routers in a network have identical routing information.
<b>convergence</b>	See <a href="#">converged</a> .

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## D

<b>dead interval</b>	The time within which an OSPF router must receive a Hello packet from an OSPF neighbor. The dead interval is usually a multiple of the hello interval. If no Hello packet is received, the neighbor adjacency is removed.
<b>default gateway</b>	A router to which all unroutable packets are sent. Also called the router of last resort.
<b>delay</b>	The length of time required to move a packet from the source to the destination through the internetwork.
<b>designated router</b>	See <a href="#">DR</a> .
<b>DHCP</b>	Dynamic Host Control Protocol.
<b>Diffusing Update Algorithm</b>	See <a href="#">DUAL</a> .
<b>distance vector</b>	Defines routes by distance (for example, the number of hops to the destination) and direction (for example, the next-hop router) and then broadcasts to the directly connected neighbor routers.
<b>DNS client</b>	Domain Name System client. Communicates with DNS server to translate a host name to an IP address.
<b>DR</b>	Designated router. An elected router in a multi-access OSPF network that sends LSAs on behalf of all its adjacent neighbors. All neighbors establish adjacency with only the designated router and the backup designated router.
<b>DUAL</b>	Diffusing Update Algorithm. EIGRP algorithm used to select optimal routes to a destination.

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## E

- eBGP** External Border Gateway Protocol (BGP). Operates between external systems.
- EIGRP** Enhanced Interior Gateway Protocol. A Cisco routing protocol that uses the Diffusing Update Algorithm to provide fast convergence and minimized bandwidth utilization.

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## F

- feasible distance** The lowest calculated distance to a network destination in EIGRP. The feasibility distance is the sum of the advertised distance from a neighbor plus the cost of the link to that neighbor.
- feasible successor** Neighbors in EIGRP that advertise a shorter distance to the destination than the current feasibility distance.
- FIB** Forwarding Information Base. The forwarding table on each module that is used to make the Layer 3 forwarding decisions per packet.

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## G

- gateway** A switch or router that forwards layer 3 traffic from a LAN to the rest of the network.
- GLBP** Gateway Load Balancing Protocol. A Cisco proprietary protocol that provides high availability features to end hosts.
- graceful restart** A feature that allows a router to remain in the data forwarding path while a routing protocol reboots.

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## H

- hello interval** The configurable time between each Hello packet sent by an OSPF or EIGRP router.
- hello packet** A special message used by OSPF or IS-IS to discover neighbors. Also acts as a keep alive messages between established neighbors.
- high availability** The ability of a system or component to limit or avoid network disruption when a component fails.
- hold time** In BGP - Maximum time limit allowed in BGP between UPDATE or KEEPALIVE messages. If this time is exceeded, the TCP connection between the BGP peers is closed.  
In EIGRP, the maximum time allowed between EIGRP Hello messages. If this time is exceeded, the neighbor is declared unreachable.
- hop count** The number of routers that can be traversed in a route. Used by RIP.
- HSRP**

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**I**

**iBGP** Internal Border Gateway Protocol (BGP). Operates within an autonomous system.

**ICMP**

**IETF RFCs** Internet Engineering Task Force Request for Comments.

**IGP** Interior gateway protocol. Used between routers within the same autonomous system.

**instance** An independent, configurable entity, typically a protocol.

**IP tunnels**

**IPv4** Internet Protocol version 4.

**IPv6** Internet Protocol version 6.

**IS-IS** Intermediate System to Intermediate System. An ISO interior gateway protocol.

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**K**

**keepalive** A special message sent between routing peers to verify and maintain communications between the pair.

**key-chain management** A method of controlling authentication keys. See the *Cisco NX-OS Security Configuration Guide*.

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**L**

**link cost** An arbitrary number configured on an OSPF interface which is in shortest path first calculations.

**link-state** Shares information about a link, link cost to neighboring routers.

**link-state advertisement** See [LSA](#).

**LSA** Link-state advertisement. An OSPF message to share information on the operational state of a link, link cost, and other OSPF neighbor information.

**link-state database** OSPF database of all LSAs received. OSPF uses this database to calculate the best path to each destination in the network.

**link-state refresh** The time that OSPF floods the network with LSAs to ensure all OSPF routers have the same information.

**load** The degree to which a network resource, such as a router, is busy.

**load balancing** The distribution of network traffic across multiple paths to a given destination.

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## M

<b>message digest</b>	A one-way hash applied to a message using a shared password and appended to the message to authenticate the message and ensure the message has not been altered in transit.
<b>metric</b>	A standard of measurement, such as the path bandwidth, that is used by routing algorithms to determine the optimal path to a destination.
<b>MD5 authentication digest</b>	A cryptographic construction that is calculated based on an authentication key and the original message and sent along with the message to the destination. Allows the destination to determine the authenticity of the sender and guarantees that the message has not been tampered with during transmission.
<b>MTU</b>	Maximum transmission unit. The largest packet size that a network link will transmit without fragmentation.

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## N

<b>NDP</b>	Neighbor Discovery Protocol. The protocol used by IPv6 to find the MAC address associated with an IPv6 address.
<b>network layer reachability information</b>	BGP network layer reachability information (NRLI). Contains the a list of network IP addresses and network masks for networks that are reachable from the advertising BGP peer.
<b>next hop</b>	The next router that a packet is sent to on its way to the destination address.
<b>NSSA</b>	Not-So-Stubby-Area. Limits AS external LSAs in an OSPF area.

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## O

<b>OSPF</b>	Open Shortest Path First. An IETF link-state protocol. OSPFv2 supports IPv4 and OSPFv3 supports IPv6.
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## P

<b>path length</b>	Sum of all link costs or the hop count that a packet experiences when routed from the source to the destination.
<b>policy-based routing</b>	The method of using route maps to alter the route selected for a packet.

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## R

<b>redistribution</b>	One routing protocol accepts route information from another routing protocol and advertises it in the local autonomous system.
<b>Reliable Transport Protocol</b>	Responsible for guaranteed, ordered delivery of EIGRP packets to all neighbors.
<b>reliability</b>	The dependability (usually described in terms of the bit-error rate) of each network link.
<b>RIB</b>	Routing Information Base. Maintains the routing table with directly connected routes, static routes, and routes learned from dynamic unicast routing protocols.
<b>Route Policy Manager</b>	The process that controls route maps and policy-based routing.
<b>routing information base</b>	See <a href="#">RIB</a> .
<b>route map</b>	A construct used to map a route or packet based on match criteria and optionally alter the route or packet based on set criteria. Used in route redistribution and policy-based routing.
<b>route summarization</b>	A process that replaces a series of related, specific routes in a route table with a more generic route.
<b>router ID</b>	A unique identifier used by routing protocols. If not manually configured, the routing protocol selects the highest IP address configured on the system.

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## S

<b>SPF algorithm</b>	Shortest Path First algorithm. Dijkstra's algorithm used by OSPF to determine the shortest route through a network to a particular destination.
<b>split horizon</b>	Routes learned from an interface are not advertised back along the interface they were learned on, preventing the router from seeing its own route updates.
<b>split horizon with poison reverse</b>	Routes learned from an interface are set as unreachable and advertised back along the interface they were learned on, preventing the router from seeing its own route updates.
<b>static route</b>	A manually configured route.
<b>stub area</b>	An OSPF area that does not allow AS External (type 5) LSAs.
<b>stub router</b>	A router that has no direct connection to the main network and which routes to that network using a known remote router.
<b>SVI</b>	Switched Virtual Interface.

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**U**

<b>U6FIB</b>	Unicast IPv6 forwarding information base.
<b>UFIB</b>	Unicast IPv4 forwarding information base.
<b>U6RIB</b>	Unicast IPv6 routing information base. The unicast routing table that gathers information from all routing protocols and updates the forwarding information base for each module.
<b>URIB</b>	Unicast IPv4 routing information base. The unicast routing table that gathers information from all routing protocols and updates the forwarding information base for each module.

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**V**

<b>VDC</b>	Virtual Device Context. Used to split a physical system into secure, independent, logical systems.
<b>virtualization</b>	A method of making a physical entity act as multiple, independent logical entities.
<b>VRF</b>	Virtual Routing and Forwarding. A method used to create separate, independent Layer 3 entities within a system.
<b>VRRP</b>	Virtual Router Redundancy Protocol.

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