GLOSSARY

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.

B

backup designated router   See BDR.

bandwidth	The available traffic capacity of a link.
BDR	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.
BGP	Border Gateway Protocol. BGP is an interdomain or exterior gateway protocol.
BGP peer	A remote BGP speaker that is an established neighbor of the local BGP speaker.
BGP speaker	BGP-enabled router.

C

communication cost	Measure of the operating cost to route over a link.
converged	The point at which all routers in a network have identical routing information.
convergence	See converged.

D

dead interval	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.
default gateway	A router to which all unroutable packets are sent. Also called the router of last resort.
delay	The length of time required to move a packet from the source to the destination through the internetwork.
designated router	See DR.
DHCP	Dynamic Host Control Protocol.
Diffusing Update Algorithm	See DUAL.
distance vector	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.
DNS client	Domain Name System client. Communicates with DNS server to translate a host name to an IP address.
DR	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.
DUAL	Diffusing Update Algorithm. EIGRP algorithm used to select optimal routes to a destination.

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.

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   Fowarding Information Base. The forwarding table on each module that is used to make the Layer 3 forwarding decisions per packet.

G

gateway   A switch or router that forwards Layer 3 traffic from a LAN to the rest of the network.

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 keepalive message between established neighbors.

hold time   In BGP, the 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.

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.

K

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

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.

M

message digest	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.
metric	A standard of measurement, such as the path bandwidth, that is used by routing algorithms to determine the optimal path to a destination.
MD5 authentication digest	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.
MTU	Maximum transmission unit. The largest packet size that a network link will transmit without fragmentation.

N

network layer reachability information   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.

next-hop   The next router that a packet is sent to on its way to the destination address.

NSSA   Not-So-Stubby-Area. Limits AS external LSAs in an OSPF area.

O

OSPF   Open Shortest Path First. An IETF link-state protocol. OSPFv2 supports IPv4.

P

path length   Sum of all link costs or the hop count that a packet experiences when routed from the source to the destination.

R

redistribution   One routing protocol accepts route information from another routing protocol and advertises it in the local autonomous system.

Reliable Transport Protocol   Responsible for guaranteed, ordered delivery of EIGRP packets to all neighbors.

reliability   The dependability (usually described in terms of the bit-error rate) of each network link.

RIB   Routing Information Base. Maintains the routing table with directly connected routes, static routes, and routes learned from dynamic unicast routing protocols.

routing information base   See RIB.

route map   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.

route summarization   A process that replaces a series of related, specific routes in a route table with a more generic route.

router ID   A unique identifier used by routing protocols. If not manually configured, the routing protocol selects the highest IP address configured on the system.

S

SPF algorithm	Shortest Path First algorithm. Dijkstra's algorithm used by OSPF to determine the shortest route through a network to a particular destination.
split horizon	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.
split horizon with poison reverse	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.
static route	A manually configured route.
stub area	An OSPF area that does not allow AS External (type 5) LSAs.
stub router	A router that has no direct connection to the main network and which routes to that network using a known remote router.
SVI	Switched Virtual Interface.

U

UFIB	Unicast IPv4 forwarding information base.
URIB	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.

V

virtualization	A method of making a physical entity act as multiple, independent logical entities.
VRF	Virtual Routing and Forwarding. A method used to create separate, independent Layer 3 entities within a system.
VRRP	Virtual Router Redundancy Protocol.