Key Features

Link State Routing Protocol
Dijkstra Algorithm
Multicast Address for OSPF communication – • 224.0.0.5 to all OSPF routers • 224.0.0.6 to DR and BDR
Administrative Distance = 110
VLSM support and CIDR support
Plaintext and MD5 Authentication
Protocol no 89
Cost as metric

Metric

Cost = 10^8 (bps)/link Bandwidth

Packet Types

Hello	Discover and maintain neighbors
Database Description (DD)	Summary of database
Link State Request (LSR)	Database download
Link State Update (LSU)	Database upload
Link State Ack (LSAck)	Flooding acknowledgment

Adjacency States

Down	**ExStart**: established M/S relation
Attempt (only NBMA)	**Exchange**: sends DD
Init: hello has been seen	**Loading**: sends link state request
2-way: has seen its own ID	**Full**: full adjacent

Basic Configuration commands

Router ospf <process id>
Network <network > <Wildcard mask> area <area id>
area area-id virtual-link router-id
area area-id range ip-address mask
router-id ip-address
area area-id stub [no-summary]

Status & Troubleshooting

show ip [route | protocols]
show ip ospf interface
show ip ospf neighbor
debug ip ospf

Link State Advertisements (LSA) Types

Type 1 (Router LSA)	• list all router's links / interfaces + cost • flooded only within the area
Type 2 (Network LSA)	• produced by the DR • list all attached routers • flooded only within area
Type 3 (Summary LSA)	• originated by ABRs • Advertised among areas
Type 4 (ASBR-Summary LSA)	• originated by ABRs • Used to advertise the presence of an ASBR within an area
Type 5 (External LSA)	• Originated by an ASBR • flooded throughout the AS to advertise a route external to OSPF
Type 7 (NSSA External LSA)	• originated by ASBRs within not-so-stubby areas (NSSAs) • flooded only within the not-so-stubby area in which it was originated

Router Types

Area border router (ABR)	Connects 2 or more areas
Autonomous system boundary router (ASBR)	Connects 2 or more AS
Internal router (IR)	All interfaces are in the same area
Backbone router (BR)	Atleast 1 interface in the area 0

Network Types

Network Type	Neighbor Discovery	Hello / Dead Interval	DR/BDR Election
Broadcast	Yes	10/40	Yes
Non-Broadcast	No	30/120	Yes
Point-to-Point	Yes	10/40	No
Point-to-Multipoint	Yes	30/120	No
Point-to-Multipoint Non-Broadcast	No	30/120	No

Area Type	LSA 1 &2	LSA 3 & 4	LSA 5	LSA 7
Backbone	Yes	Yes	Yes	No
Non-Backbone	Yes	Yes	Yes	No
Stub	Yes	Yes	No	No
Totally Stub	Yes	No	No	No
Not-so-Stubby	Yes	Yes	No	Yes