OSPF Network Types

OSPF's functionality is different across several different network topology types. They are mentioning below

Broadcast Multi-Access – indicates a topology where broadcast occurs.

- OSPF will elect DRs and BDRs.
- Traffic to DRs and BDRs is multicast to 224.0.0.6. Traffic from DRs and BDRs to other routers is multicast to 224.0.0.5.
- Neighbors do not need to be manually specified.
- Examples Ethernet

Point-to-Point – indicates a topology where two routers are directly connected.

- No DRs and BDRs.
- All OSPF traffic is multicast to 224.0.0.5.
- Neighbors do not need to be manually specified.

Point-to-Multipoint – indicates a topology where one interface can connect to multiple destinations. Each connection between a source and destination is treated as a point-to-point link.

- OSPF will not elect DRs and BDRs.
- All OSPF traffic is multicast to 224.0.0.5.
- Neighbors do not need to be manually specified.

Non-broadcast Multi-access Network (NBMA) – indicates a topology where one interface can connect to multiple destinations; however, broadcasts cannot be sent across a NBMA network.

- An example would be Frame Relay.
- OSPF will elect DRs and BDRs.
- OSPF neighbors must be manually defined, thus All OSPF traffic is unicast instead of multicast.

Remember: On non-broadcast networks, neighbors must be manually specified, as multicast Hello's are not allowed.

Related articles

- Difference between Linkstate and distance vector protocols
- OSPF neighbors
- OSPF DR and BDR election
- Basic Notes on OSPF (Open Shortest Path First)