

Design Concern	Ring	Hub and Spoke	Partial Mesh	Full Mesh
Scalability	Most scalable	Scalable but less scalable compare to ring	Less scalable compare to Ring and Hub and Spoke	Least scalable. All the nodes connected to each other
Use case	Service Provider Access network, Metro ethernet network	Enterprise WAN, Service Provider Access or Aggregation	Enterprise WAN, Service Provider Aggregation and Core, Datacenter	Service Provider Core, Datacenter
Cost	Least costly	Medium	More costly than Ring and Hub and Spoke	Most costly topology
Optimal Forwarding	Least optimal	More optimal compare to Ring but less optimal than partial mesh and full mesh	Optimal forwarding.	Most optimal forwarding, every node connected together
Convergence	Worst convergence characteristics	Better compare to ring, but there should be two Hubs and Spokes should be dual homed, or one Hub but two links from the Spokes	Better compare to Ring and Hub and Spoke	Fastest Convergence because each node is connected to other nodes in the network
Fast Reroute Support	Very hard for FRR protocols, tunnel is required	Easy and good FRR Support	Easy and good FRR support	You don't even need FRR protocol because ECMP can be used
Routing Protocol Support	Worst topology for all the routing protocol	Good	Good	Good but for the scalability OSPF and IS-IS have Mesh-group concept, EIGRP doesn't have. Full mesh is not scalable for EIGRP
Resource Requirement	Least	More than Ring	More than Ring and Hub and Spoke	Most resource intensive topology, physical ports, routing protocol neighborhood, routing table entries, from every aspect it consumes more resources compare to other topologies
Provisioning	Easiest	Harder than Ring, because more physical and logical entity	Harder than Ring and Hub and Spokes	Hardest topology for provisioning because more physical and logical entity compare to other topologies
Troubleshooting	Easiest	Harder than Ring, because more physical and logical entity	Harder than Ring and Hub and Spokes	Hardest topology, more physical and logical entity compare to other topologies