Open Shortest Path First (OSPF) is a link-state routing protocol that is used to find the best path between the source and the destination router using its own Shortest Path First).  
  
 **How Open Shortest Path First works**

* OSPF divides AS into areas, with Area 0 as the backbone.
* Routers in the same area become neighbors, exchanging routing info via HELLO packets.
* Instead of constantly sending full routing tables, OSPF sends updates only when changes occur.
* Changes are multicast within the area to ensure all routers have the same info (flooding).
* Multicasts contain only the latest updates to avoid performance degradation.
* Convergence time is the time it takes for OSPF routers to adjust to changes and find the best path.

**Advantages of Open Shortest Path First**

* Complete network topology information enables OSPF routers to calculate routes meeting specific QoS requirements, aiding traffic engineering.
* OSPF allows rapid recalculation of routes, ensuring shorter convergence times after network topology changes, ideal for dynamic environments.
* Dividing the AS into areas helps manage routing traffic, reducing the size of link-state databases and minimizing delays by keeping area topologies separate.

**Drawbacks of Open Shortest Path First**

* OSPF is not well-suited for small networks due to its design optimized for large networks.
* Configuration of OSPF is more complex compared to older protocols like RIP, requiring more expertise and time.