OSPF – Most used Interior Gateway Protocol

The **IETF** (Internet Engineering Task Force) formed a working group in **1998** to develop a new routing protocol in **response to the limitations** of the most common routing protocol RIP (Routing Information Protocol) at that time. Then in **1991**, the IETF published **RFC 1247**, which defined the **first version of OSPF**. In **1998**, the IETF published **RFC 2328** which defines the current version of OSPF (**OSPFv2**) and the last version of OSPF (**OSPFv3**) for IPv6 was published in **1999** (**RFC 2740**). And it is now one of the **most widely used routing protocols** in the world. OSPF is known for its scalability, reliability and support for advanced features such as authentication and traffic engineering. Some key features of OSPF is given below:

- OSPF stands for **Open Shortest Path First** - uses Dijkstra's Algorithm (SPF).
- **IGP** (Interior Gateway Protocol) - route traffic within a **single AS** (Autonomous System).
- **Standard Protocol** – Cisco/Non-Cisco devices.
- **Link-State Protocol** – sent LSAs (Link-State Advertisement) periodically.
- Thus, convergence is **Fast** (40 seconds).
- Protocol number **89**.
- AD (Administrative Distance) value **110**.
- Multicast address **224.0.0.5** for normal communication and **224.0.0.6** for update to DR/BDR (Designated Router/Backup Designated Router).
- Supports equal **Load Balancing**.
- No automatic summarization.
- Multiple **Areas**.
- Different **OSPF Processes** in a single autonomous system.
- Supports **CIDR** (Classless Inter-Domain Routing).
- **No limit** for number of **Hops** (routers) connected.
- Supports **IPv6** IP addresses in OSPFv3.
- Supports various **Authentication** types including Cryptographic Authentication (MD5).
- OSPF is an IGP (Interior Gateway Protocol) but it can also **Redistribute External Routes** from different Autonomous Systems into its routing table.

OSPF is a powerful and versatile routing protocol that can be used in a wide variety of networks. It is a good choice for networks of all sizes, from small networks with a few routers to large networks with thousands of routers.