Time-to-Live (TTL)

Time-to-Live (TTL) is a 8-bit field in the MPLS label header which has the same function in loop detection of the IP TTL field.

Recall that the TTL value is an integer from 0 to 255 that is decremented by one every time the packet transits a router. If the TTL value of an IP packet becomes zero, the router discards the IP packet, and an ICMP message stating that the “TTL expired in transit” is sent to the source IP address of the IP packet. This mechanism prevents an IP packet from being routed continuously in case of a routing loop.

By default, the TTL propagation is enabled so a user can use “traceroute” command to view all of the hops in the network.

We can disable MPLS TTL propagation with the “no mpls ip propagate-ttl” command under global configuration.

When entering a label-switched path (LSP), the edge router will use a fixed TTL value (255) for the first label. This increases the security of your MPLS network by hiding provider network from customers.