Label switching features

Label switching features are a suite of networking technologies, most notably Segment Routing Multiprotocol Label Switching (SR-MPLS), that forward traffic based on a short, pre-assigned label rather than performing a complex network-layer address lookup at every hop. This approach enables high-speed packet forwarding and supports advanced services such as Traffic Engineering, Quality of Service, and the creation of Virtual Private Networks (VPNs).

Starting with Cisco NX-OS Release 10.6(1s), you can configure these label switching features on the Cisco N9324C-SE1U, Cisco N9348Y2C6D-SE1U switches.

- Segment Routing Layer 3 VPN feature with SR-MPLS underlay

Segment Routing Layer 3 VPN feature with SR-MPLS underlay

Segment Routing Layer 3 VPN with an SR-MPLS underlay is a network service that creates isolated routing domains for multiple tenants by using BGP to distribute VPN routes while leveraging a simplified and scalable Segment Routing-based MPLS core for packet transport, eliminating the need for traditional protocols like LDP.

For more information, see Configuring Segment Routing.

- Label switching feature guidelines, on page 1

Label switching feature guidelines

This section outlines feature support, guidelines, and limitations for label switching functionalities on Cisco N9324C-SE1U, Cisco N9348Y2C6D-SE1U switches.

Table 1: Supported features and releases

Features	Release
Segment Routing Layer 3 VPN feature with SR-MPLS underlay	10.6(1s)

Supported Segment Routing Layer 3 VPN feature with SR-MPLS underlay features:

- The chassis can be positioned as either a LEAF or a SPINE switch in the SR-MPLS fabric.
- SR-MPLS underlay is supported with BGP-LU, OSPF, and ISIS underlay protocols.

- L3VPN and L3 EVPN overlays over SR-MPLS underlay are supported using eBGP.
- The implementation supports Node-SID, Prefix-SID, and Adj-SID.
- SR-MPLS features are supported on L3 physical, L3 sub-interface, L3 Port-channel (PO), and L3 PO sub-interface types.
- Hierarchical ECMP (Level-1 and Level-2) is supported for SR-MPLS paths.
- Per-VRF VPN label encapsulation is supported.
- MPLS Decap Statistics are supported for VPN label termination.
- SVI (Switched Virtual Interface) is supported as an MPLS interface type.

Segment Routing Layer 3 VPN feature with SR-MPLS underlay limitations:

- MPLS TTL propagation operates in Uniform Mode.
- DSCP-EXP handling is Uniform during encapsulation and Pipe during decapsulation (tentative).
- Default load-sharing for SR-MPLS traffic is based on Label and IP (up to 5-tuple).