Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP)

This chapter contains the following sections:

Information About Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP)

Data center deployments have adopted VXLAN EVPN for its benefits like EVPN control-plane learning, multitenancy, seamless mobility, redundancy, and easier POD additions. Similarly, the Core is either an LDP-based MPLS L3VPN network or transitioning from traditional an MPLS L3VPN LDP-based underlay to a more sophisticated solution like segment routing (SR). Segment routing is adopted for its benefits like unified IGP and MPLS control planes, simpler traffic engineering methods, easier configuration, and SDN adoption.

Guidelines and Limitations for Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP)

The following are the guidelines and limitations for Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP):

The following features are supported:

- Cisco Nexus 9504 and 9508 switches with -R and -RX line cards.
- Layer 3 orphans
- 256 peers/nodes within a VXLAN DC domain
- 24,000 ECMP routes is supported on -RX line cards.

Note If you enter the **no hardware profile mpls extended-ecmp** command, the mode is switched to 4 K ECMP routes. This is applicable only when the line card is -RX and the ECMP group has exactly 2 paths.

- The Egress RACL (e-RACL) TCAM and MPLS Extended ECMP features are mutually exclusive. To enable MPLS Extended ECMP (**hardware profile mpls extended-ecmp)** on the Cisco Nexus N9K-X9636C-RX line card, set the e-RACL TCAM carving to 0.

The following features are not supported:

- Subnet stretches across the DC domain
- vPC
- SVI/Subinterfaces

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These configuration steps are required on a Border Leaf switch to import and re-originate the routes from a VXLAN domain to an MPLS domain and back to a VXLAN domain.

SUMMARY STEPS

1. **configure terminal**
2. **feature mpls l3vpn**
3. **feature mpls ldp**
4. **nv overlay evpn**
5. **router bgp** *number*
6. **address-family ipv4 unicast**
7. **redistribute direct route-map** *route-map-name*
8. **exit**
9. **address-family l2vpn evpn**
10. **exit**
11. **neighbor** *address* **remote-as** *number*
12. **update-source** *type/id*
13. **ebgp-multihop** *ttl-value*
14. **address-family ipv4 unicast**
15. **send-community extended**
16. **exit**
17. **address-family vpnv4 unicast**
18. **send-community extended**
19. **import l2vpn evpn reoriginate**
20. **neighbor** *address* **remote-as** *number*

21. **address-family ipv4 unicast**
22. **send-community extended**
23. **address-family ipv6 unicast**
24. **send-community extended**
25. **address-family l2vpn evpn**
26. **send-community extended**
27. **import vpn unicast reoriginate**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `switch# configure terminal`	Enters global configuration mode.
Step 2	**feature mpls l3vpn** **Example:** `switch# feature mpls l3vpn`	Enables the MPLS Layer 3 VPN feature.
Step 3	**feature mpls ldp** **Example:** `switch# feature mpls ldp`	Enables the MPLS Label Distribution Protocol (LDP).
Step 4	**nv overlay evpn** **Example:** `switch(config)# nv overlay evpn`	Enables the EVPN control plane for VXLAN.
Step 5	**router bgp** *number* **Example:** `switch(config)# router bgp 100`	Configures BGP. The value of the *number* argument is from 1 to 4294967295.
Step 6	**address-family ipv4 unicast** **Example:** `switch(config-router)# address-family ipv4 unicast`	Configures the address family for IPv4.
Step 7	**redistribute direct route-map** *route-map-name* **Example:** `switch(config-router-af)# redistribute direct route-map passall`	Configures the directly connected route map.
Step 8	**exit** **Example:** `switch(config-router-af)# exit`	Exits command mode.
Step 9	**address-family l2vpn evpn** **Example:**	Configures the L2VPN address family.

	Command or Action	Purpose
	`switch(config-router)# address-family l2vpn evpn`	
Step 10	**exit** **Example:** `switch(config-router-af)# exit`	Exits command mode.
Step 11	**neighbor** *address* **remote-as** *number* **Example:** `switch(config-router)# neighbor 108.108.108.108 remote-as 22`	Configures a BGP neighbor. The range of the *number* argument is from 1 to 65535.
Step 12	**update-source** *type/id* **Example:** `switch(config-router-neighbor)# update-source loopback100`	Specifies the source of the BGP session and updates.
Step 13	**ebgp-multihop** *ttl-value* **Example:** `switch(config-router-neighbor)# ebgp-multihop 10`	Specifies the multihop TTL for the remote peer. The range of *ttl-value* is from 2 to 255.
Step 14	**address-family ipv4 unicast** **Example:** `switch(config-router-neighbor)# address-family ipv4 unicast`	Configures the unicast sub-address family.
Step 15	**send-community extended** **Example:** `switch(config-router-neighbor-af)# send-community extended`	Configures the community attribute for this neighbor.
Step 16	**exit** **Example:** `switch(config-router-neighbor-af)# exit`	Exits command mode.
Step 17	**address-family vpnv4 unicast** **Example:** `switch(config-router-neighbor)# address-family vpnv4 unicast`	Configures the address family for IPv4.
Step 18	**send-community extended** **Example:** `switch(config-router)# send-community extended`	Sends the extended community attribute.
Step 19	**import l2vpn evpn reoriginate** **Example:**	Reoriginates the route with a new RT.

	Command or Action	Purpose
	`switch(config-router)# import l2vpn evpn reoriginate`	
Step 20	**neighbor** *address* **remote-as** *number* **Example:** `switch(config-router)# neighbor 175.175.175.2 remote-as 1`	Defines the neighbor.
Step 21	**address-family ipv4 unicast** **Example:** `switch(config-router)# address-family ipv4 unicast`	Configures the address family for IPv4.
Step 22	**send-community extended** **Example:** `switch(config-router)# send-community extended`	Configures the community for BGP neighbors.
Step 23	**address-family ipv6 unicast** **Example:** `switch(config-router)# address-family ipv6 unicast`	Configures the IPv6 unicast address family. This is required for IPv6 over VXLAN with an IPv4 underlay.
Step 24	**send-community extended** **Example:** `switch(config-router)# send-community extended`	Configures the community for BGP neighbors.
Step 25	**address-family l2vpn evpn** **Example:** `switch(config-router)# address-family l2vpn evpn`	Configures the L2VPN address family.
Step 26	**send-community extended** **Example:** `switch(config-router)# send-community extended`	Configures the community for BGP neighbors.
Step 27	**import vpn unicast reoriginate** **Example:** `switch(config-router)# import vpn unicast reoriginate`	Reoriginates the route with a new RT.

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