

使用VPC任播网关配置基于SR MPLS的Nexus L2 EVPN

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简介

本文档介绍如何在Nexus9K上部署带虚拟端口通道的L2 Ethernet VPN over Segment Routing(SR)Multiprotocol Label Switching。

先决条件

要求

Cisco 建议您了解以下主题：

- 边界网关协议 (BGP)
- 开放最短路径优先(OSPF)
- MPLS
- 标签分发协议(LDP)
- 资源预留协议(RSVP)
- EVPN
- SR
- vPC

使用的组件

本文档中的信息基于以下软件和硬件版本:

- Nexus交换机92360C 运行版本9.3(10)的H1和H3。
- 运行版本10.2(3)的Nexus交换机93180YC-FX。
- 运行版本10.2(3)的Nexus交换机93240YC。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原

始(默认)配置。如果您的网络处于活动状态,请确保您了解所有命令的潜在影响。

背景信息

VPLS/L2-EVPN是一种多点到多点第2层VPN服务,通过IP/MPLS网络在单个逻辑交换架构中连接客户的多个分支。

第2层EVPN-MPLS SR概述

EVPN(RFC 7432)是基于BGP MPLS的解决方案,用于虚拟化数据中心网络中的下一代以太网服务。它使用来自现有MPLS技术的路由标识符(RD)、路由目标(RT)和虚拟路由和转发(VRF)等多个块。

与VPLS相比,EVPN在核心中启用基于控制平面的MAC学习。在EVPN中,参与EVPN实例的PE使用多协议(MP)-BGP协议在控制平面中学习自定义MAC路由。控制平面MAC学习提供了许多优点,可让EVPN解决VPLS的缺点,其中包括支持多宿主和每流负载均衡。

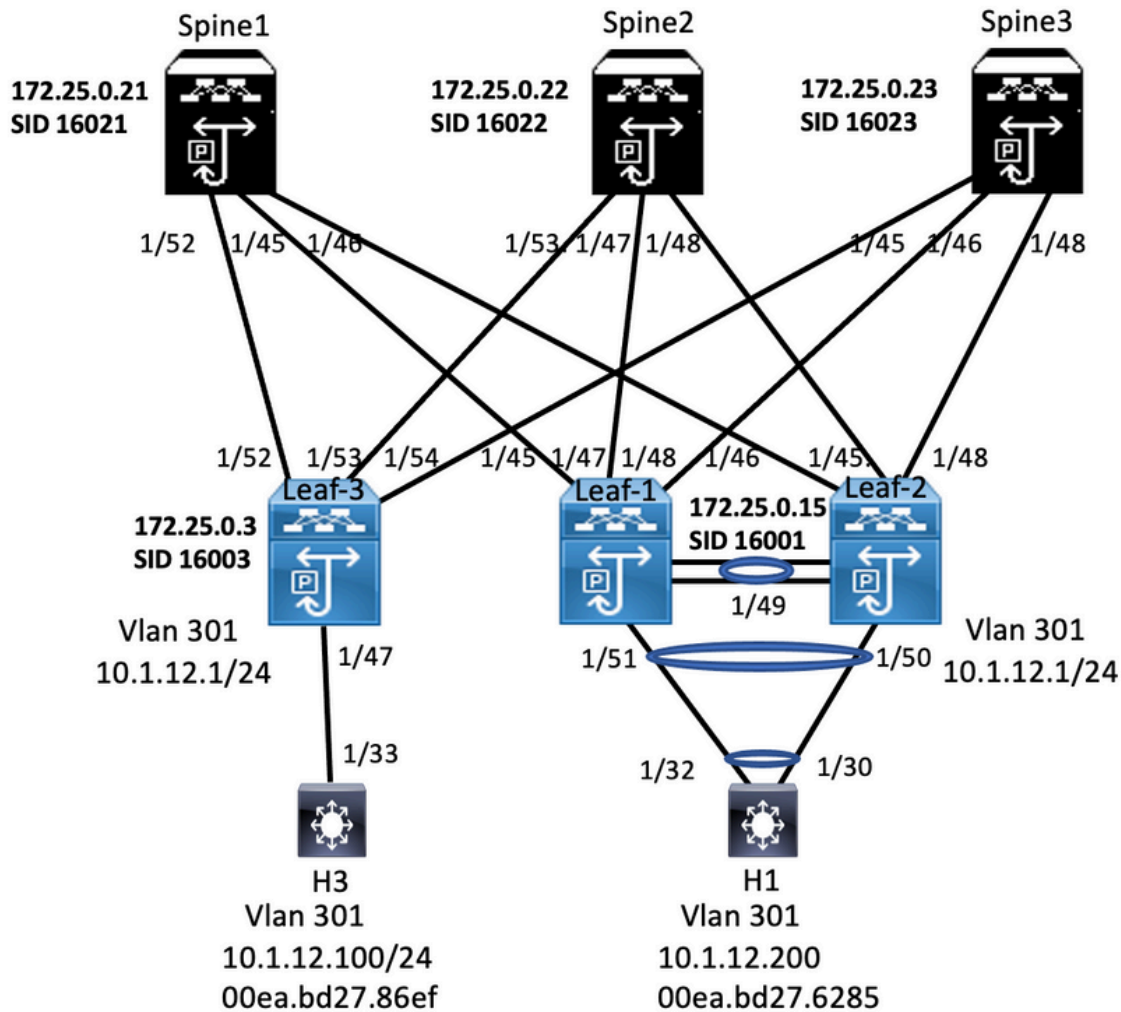
SR L2 EVPN是Nexus 9300 FX2系列平台支持的NXOS 9.3(1)中的新功能。

基于SR MPLS的第2层EVPN的限制

- SR L2 EVPN泛洪基于入口复制机制
- 它使用EVPN类型3路由进行BUM流量
- MPLS核心不支持组播
- 不支持地址解析协议(ARP)抑制
- 不支持VPC上的一致性检查
- 不能同时配置同一L2 EVPN实例(EVI)和L3 EVI

配置

网络图



高级配置

1. 安装功能
2. 配置IP地址 — 基础
3. 配置IGP - OSPF
4. 配置MP - BGP
5. 配置VLAN和EVPN重叠
6. 在主机和枝叶之间配置e-BGP
7. 在枝叶1和2上配置VPC

Spine1		
Enable Feature, Label-Range, Route-map, Label-Index	Interface Configuration	BGP/EVPN Configuration
<pre>install feature-set mpls allow feature-set mpls feature-set mpls feature bgp feature mpls segment-routing feature mpls evpn feature interface-vlan feature mpls oam feature mpls segment-routing traffic-engineering segment-routing mpls global-block 16000 24000 connected-prefix-sid-map address-family ipv4 172.25.0.21/32 absolute 16021 ip prefix-list NH-RESTRICT seq 5 permit 0.0.0.0/0 ip prefix-list node-sid-loopback seq 5 permit 172.25.0.21/32 route-map NH-RESTRICT deny 10 match ip address prefix-list NH-RESTRICT route-map NH-RESTRICT permit 20 route-map NH_UNCHG permit 10 set ip next-hop unchanged</pre>	<pre>interface Ethernet1/45 description connected to Leaf1 - 1/45 - 192.168.1.9 mtu 9216 logging event port link-status no ip redirects ip address 192.168.1.10/30 ip arp timeout 14400 mpls ip forwarding interface Ethernet1/46 description connected to Leaf2- 1/46 - 192.168.2.9 mtu 9216 logging event port link-status no ip redirects ip address 192.168.2.10/30 ip arp timeout 14400 mpls ip forwarding interface Ethernet1/52 description connected to Leaf3 - 1/52 - 192.168.3.9 mtu 9216 logging event port link-status no ip redirects ip address 192.168.3.10/30 ip arp timeout 14400 mpls ip forwarding interface loopback0 ip address 172.25.0.21/32 icam monitor scale</pre>	<pre>router bgp 64087 router-id 172.25.0.21 bestpath as-path multipath-relax bestpath med missing-as-worst log-neighbor-changes nexthop suppress-default-resolution address-family ipv4 unicast network 172.25.0.21/32 maximum-paths 4 nexthop route-map NH-RESTRICT allocate-label route-map node-sid-label address-family ipv4 labeled-unicast prefix-priority high address-family I2vpn evpn retain route-target all neighbor 192.168.1.9 inherit peer EBGP-ACCESS neighbor 192.168.2.9 inherit peer EBGP-ACCESS neighbor 192.168.3.9 inherit peer EBGP-ACCESS template peer EBGP-ACCESS remote-as 65534 description EBGP-PEERING-to-ACCESS address-family ipv4 unicast disable-peer-as-check send-community send-community extended default-originate no advertise local-labeled-route soft-reconfiguration inbound address-family ipv4 labeled-unicast disable-peer-as-check send-community send-community extended soft-reconfiguration inbound address-family I2vpn evpn disable-peer-as-check send-community send-community extended route-map NH_UNCHG out encapsulation mpls</pre>

Enable Feature, Label-Range, Route-map, Label-Index	Spine2	Interface Configuration	BGP/EVPN Configuration
install feature-set mpls allow feature-set mpls feature-set mpls feature bgp feature mpls segment-routing feature mpls evpn feature interface-vlan feature mpls oam feature mpls segment-routing traffic-engineering segment-routing mpls global-block 16000 24000 connected-prefix-sid-map address-family ipv4 172.25.0.22/32 absolute 16022 ip prefix-list NH-RESTRICT seq 5 permit 0.0.0.0/0 ip prefix-list node-sid-loopback seq 5 permit 172.25.0.22/32 route-map NH-RESTRICT deny 10 match ip address prefix-list NH-RESTRICT route-map NH-RESTRICT permit 20 route-map NH_UNCHG permit 10 set ip next-hop unchanged	Ethernet1/47 description connected to Leaf1 - 1/47 - 192.168.1.13 mtu 9216 logging event port link-status no ip redirects ip address 192.168.1.14/30 ip arp timeout 14400 mpls ip forwarding interface Ethernet1/48 description connected to Leaf2 - 1/45 - 192.168.2.13 mtu 9216 logging event port link-status no ip redirects ip address 192.168.2.14/30 ip arp timeout 14400 mpls ip forwarding interface Ethernet1/53 description connected to Leaf3 - 1/53 - 192.168.3.13 mtu 9216 logging event port link-status no ip redirects ip address 192.168.3.14/30 ip arp timeout 14400 mpls ip forwarding interface loopback0 ip address 172.25.0.22/32 icam monitor scale	router bgp 64087 router-id 172.25.0.22 bestpath as-path multipath-relax bestpath med missing-as-worst log-neighbor-changes nexthop suppress-default-resolution address-family ipv4 unicast network 172.25.0.22/32 maximum-paths 4 nexthop route-map NH-RESTRICT allocate-label route-map node-sid-label address-family ipv4 labeled-unicast prefix-priority high address-family I2vpn evpn retain route-target all neighbor 192.168.1.13 inherit peer EBG-ACCESS neighbor 192.168.2.13 inherit peer EBG-ACCESS neighbor 192.168.3.13 inherit peer EBG-ACCESS	template peer EBG-ACCESS remote-as 65534 description EBG-PEERING-to-ACCESS address-family ipv4 unicast disable-peer-as-check send-community send-community extended default-originate no advertise local-labeled-route soft-reconfiguration inbound address-family ipv4 labeled-unicast disable-peer-as-check send-community send-community extended soft-reconfiguration inbound address-family I2vpn evpn disable-peer-as-check send-community send-community extended route-map NH_UNCHG out encapsulation mpls

Enable Feature, Label-Range, Route-map, Label-Index	Leaf-1	Interface Configuration	BGP/EVPN Configuration
install feature-set mpls feature-set mpls nv overlay evpn feature bgp feature mpls segment-routing feature mpls evpn feature interface-vlan feature lisp feature vpc feature mpls oam feature nv overlay fabric forwarding anycast-gateway-mac 0000.0000.1111 vlan 1,301-310 segment-routing mpls global-block 16000 24000 connected-prefix-sid-map address-family ipv4 172.25.0.15/32 absolute 16001 vlan 301 evl auto vrf context VPN-A evl 30001 vrf context VPN-B rd auto address-family ipv4 unicast route-target import 302:302 route-target import 302:302 evpn route-target export 302:302 route-target export 302:302 evpn ip prefix-list node-sid-loopback seq 10 permit 172.25.0.15/32 ip as-path access-list LOCALLY-ORIGINATE seq 1 permit *65534* ip as-path access-list LOCALLY-ORIGINATE seq 2 permit **5* route-map NODE-SID-MED permit 10 match ip address prefix-list node-sid-loopback set metric 100 route-map NODE-SID-MED permit 20 route-map SET_NH permit 5 match community MATCH-65534-65534 set ip next-hop unchanged route-map SET_NH permit 10 match as-path LOCALLY-ORIGINATE set ip next-hop 172.25.0.15	vpc domain 21 peer-switch peer-keepalive destination 10.88.238.243 source 10.88.238.242 peer-gateway ip arp synchronize interface Ethernet1/49 switchport switchport mode trunk switchport trunk allowed vlan 301-310 channel-group 10 mode active interface Ethernet1/51 switchport switchport mode trunk switchport trunk allowed vlan 301-310 channel-group 30 mode active interface port-channel10 switchport switchport mode trunk switchport trunk allowed vlan 301-310 spanning-tree port type network vpc peer-link interface port-channel30 switchport mode trunk switchport trunk allowed vlan 301-310 vpc 30	interface Ethernet1/45 description connected to spine1 - 1/45 - 192.168.1.10 mtu 9216 logging event port link-status no ip redirects ip address 192.168.1.9/30 ip arp timeout 14400 mpls ip forwarding no shutdown interface Ethernet1/47 description connected to spine2 - 1/47 - 192.168.1.14 mtu 9216 logging event port link-status no ip redirects ip address 192.168.1.13/30 ip arp timeout 14400 mpls ip forwarding interface Vlan301 no shutdown vrf member VPN-A no ip redirects ip address 10.1.12.1/24 ip directed-broadcast ip-dir-bcast no ipv6 redirects ip arp timeout 720 fabric forwarding mode anycast-gateway	router bgp 65534 router-id 172.25.0.1 disable-policy-batching bestpath as-path multipath-relax bestpath med missing-as-worst log-neighbor-changes event-history detail size large nexthop suppress-default-resolution address-family ipv4 unicast network 172.25.0.1/32 network 172.25.0.15/32 network 172.25.0.201/32 maximum-paths 4 maximum-paths ibgp 4 allocate-label route-map node-sid-label address-family ipv4 labeled-unicast prefix-priority high address-family I2vpn evpn neighbor 192.168.1.10 inherit peer EBG-SPINE neighbor 192.168.1.14 inherit peer EBG-SPINE vrf VPN-A bestpath as-path multipath-relax allocate-index 2001 address-family ipv4 unicast network 10.1.12.0/24 advertise I2vpn evpn maximum-paths 4 vrf VPN-B bestpath as-path multipath-relax allocate-index 2002 address-family ipv4 unicast network 10.1.13.0/24 advertise I2vpn evpn maximum-paths 4 evpn evl 1000 encapsulation mpls source-interface loopback0

Enable Feature, Label-Range, Route-map, Label-Index	Leaf-2	Interface Configuration	BGP/EVPN Configuration
install feature-set mpls allow feature-set mpls feature-set mpls nv overlay evpn feature bgp feature mpls segment-routing feature mpls evpn feature interface-vlan feature lisp feature vpc feature mpls oam feature nv overlay forwarding anycast-gateway-mac 0000.0000.1111 vlan 1,301-310 segment-routing mpls global-block 16000 24000 connected-prefix-sid-map address-family ipv4 172.25.0.15/32 absolute 16001 vlan 301 evl auto ip prefix-list node-sid-loopback seq 10 permit 172.25.0.15/32 ip as-path access-list LOCALLY-ORIGINATE seq 1 permit *65534* ip as-path access-list LOCALLY-ORIGINATE seq 2 permit **5* route-map NODE-SID-MED permit 10 match ip address prefix-list node-sid-loopback set metric 100 route-map NODE-SID-MED permit 20 route-map SET_NH permit 5 match community MATCH-65534-65534 set ip next-hop unchanged route-map SET_NH permit 10 match as-path LOCALLY-ORIGINATE set ip next-hop 172.25.0.15 vrf context VPN-A evl 30001 vrf context VPN-B rd auto address-family ipv4 unicast route-target import 302:302 route-target import 302:302 evpn route-target export 302:302 route-target export 302:302 evpn	vpc domain 21 peer-switch peer-keepalive destination 10.88.238.242 source 10.88.238.243 peer-gateway ip arp synchronize port-channel10 switchport switchport mode trunk switchport trunk allowed vlan 301-310 spanning-tree port type network vpc peer-link interface port-channel30 switchport switchport mode trunk switchport trunk allowed vlan 301-310 vpc 30 interface Ethernet1/49 switchport switchport mode trunk switchport trunk allowed vlan 301-310 channel-group 10 mode active interface Ethernet1/50 switchport switchport mode trunk switchport trunk allowed vlan 301-310 channel-group 30 mode active	interface loopback0 ip address 172.25.0.1/32 ip address 172.25.0.15/32 secondary interface interface loopback1 ip address 172.25.0.201/32 icam monitor scale description connected to spine2 - 1/48 - 192.168.2.14 mtu 9216 logging event port link-status no ip redirects ip address 192.168.2.13/30 ip arp timeout 14400 mpls ip forwarding no shutdown interface Ethernet1/46 description connected to Spine1 - 1/46 - 192.168.2.10 mtu 9216 logging event port link-status no ip redirects ip address 192.168.2.9/30 ip arp timeout 14400 mpls ip forwarding no shutdown interface Vlan1 no ip redirects no ipv6 redirects interface Vlan301 no shutdown vrf member VPN-A no ip redirects ip address 10.1.12.1/24 ip directed-broadcast ip-dir-bcast no ipv6 redirects ip arp timeout 720 fabric forwarding mode anycast-gateway	router bgp 65534 template peer EBG-SPINE remote-as 64087 description EBG-PEERING-to-AGG address-family ipv4 unicast allows-in 1 send-community send-community extended route-map NODE-SID-MED out no advertise local-labeled-route soft-reconfiguration inbound address-family ipv4 labeled-unicast allows-in 1 send-community send-community extended route-map NODE-SID-MED out soft-reconfiguration inbound always address-family I2vpn evpn allows-in 1 send-community send-community extended filter-list LOCALLY-ORIGINATE out route-map SET_NH out encapsulation mpls vrf VPN-A bestpath as-path multipath-relax allocate-index 2001 address-family ipv4 unicast network 10.1.12.0/24 advertise I2vpn evpn maximum-paths 4 vrf VPN-B bestpath as-path multipath-relax allocate-index 2002 address-family ipv4 unicast network 10.2.13.0/24 advertise I2vpn evpn maximum-paths 4 evpn evl 1000 encapsulation mpls source-interface loopback0

Enable Feature, Label-Range, Route-map, Label-Index	Leaf-3 Interface Configuration	BGP/EVPN Configuration	
<pre> install feature-set mpls feature-set mpls nv overlay evpn feature bgp feature mpls segment-routing feature mpls evpn feature mpls oam feature nv overlay fabric forwarding anycast-gateway-mac 0000.0000.1111 vlan 1,301 segment-routing mpls global-block 16000 24000 connected-prefix-sid-map address-family ipv4 172.25.0.3/32 absolute 16003 vlan 301 evi auto ip prefix-list node-sid-loopback seq 10 permit 172.25.0.3/32 ip as-path access-list LOCALLY-ORIGINATE seq 1 permit **65534* ip as-path access-list LOCALLY-ORIGINATE seq 2 permit **5* route-map NODE-SID-MED permit 10 match ip address prefix-list node-sid-loopback set metric 100 route-map NODE-SID-MED permit 20 route-map SET_NH permit 5 match community MATCH-65534-65534 set ip next-hop unchanged route-map SET_NH permit 10 match as-path LOCALLY-ORIGINATE set ip next-hop 172.25.0.3 vrf context VPN-A evi 30001 vrf context VPN-B rd auto address-family ipv4 unicast route-target import 302:302 route-target export 302:302 evpn route-target export 302:302 evpn </pre>	<pre> ip access-group deny-to-core_ra in vrf member VPN-A no ip redirects ip address 10.1.12.1/24 fabric forwarding mode anycast-gateway interface Vlan302 ip access-group deny-to-core_ra in vrf member VPN-B no ip redirects ip address 10.3.13.1/24 ip directed-broadcast ip-dir-bcast ip arp timeout 720 Ethernet1/47 switchport switchport mode trunk switchport trunk allowed vlan 301-310 interface Ethernet1/53 description connected to Spine1 - 1/52 - 192.168.3.10 mtu 9216 logging event port link-status no ip redirects ip address 192.168.3.9/30 ip arp timeout 14400 mpls ip forwarding interface Ethernet1/53 description connected to Spine2 - 1/53 - 20.1.1.14 mtu 9216 logging event port link-status no ip redirects ip address 192.168.3.13/30 ip arp timeout 14400 mpls ip forwarding no shutdown interface loopback0 ip address 172.25.0.3/32 icam monitor scale </pre>	<pre> router bgp 65534 router-id 172.25.0.3 disable-policy-batching bestpath as-path multipath-relax bestpath med missing-as-worst log-neighbor-changes event-history detail size large nexthop suppress-default-resolution address-family ipv4 unicast network 172.25.0.3/32 maximum-paths 4 allocate-label route-map node-sid-label address-family ipv4 labeled-unicast prefix-priority high address-family I2vpn evpn neighbor 192.168.3.10 inherit peer EBG-SPINE neighbor 192.168.3.14 inherit peer EBG-SPINE vrf VPN-A bestpath as-path multipath-relax allocate-index 2001 address-family ipv4 unicast advertise I2vpn evpn maximum-paths 4 vrf VPN-B bestpath as-path multipath-relax allocate-index 2002 address-family ipv4 unicast network 10.3.13.0/24 advertise I2vpn evpn maximum-paths 4 evpn evi 1000 encapsulation mpls </pre>	<pre> template peer EBG-SPINE remote-as 64087 description EBG-PEERING-to-AGG address-family ipv4 unicast allows-in 1 send-community send-community extended route-map NODE-SID-MED out no advertise local-labeled-route soft-reconfiguration inbound address-family ipv4 labeled-unicast allows-in 1 send-community send-community extended route-map NODE-SID-MED out soft-reconfiguration inbound always address-family I2vpn evpn allows-in 1 send-community send-community extended route-map SET_NH out encapsulation mpls </pre>

Host-1 (H1) Configuration	Host-3 (H3) Configuration
---------------------------	---------------------------

```

interface Ethernet1/30
  switchport
  switchport mode trunk
  switchport trunk allowed vlan 301-310
  channel-group 30 mode active
  no shutdown

interface Vlan301
  no shutdown
  no ip redirects
  ip address 10.1.12.100/24

interface Ethernet1/32
  switchport
  switchport mode trunk
  switchport trunk allowed vlan 301-310
  channel-group 30 mode active
  no shutdown

interface port-channel30
  switchport
  switchport mode trunk
  switchport trunk allowed vlan 301-310

```

```

interface Vlan301
  no shutdown
  no ip redirects
  ip address 10.1.12.200/24

interface Ethernet1/33
  switchport
  switchport mode trunk
  switchport trunk allowed vlan 301-310
  no shutdown

```

验证

参阅本部分来确认配置是否正常运行

```

ping 10.1.12.200
PING 10.1.12.200 [10.1.12.200]: 56 data bytes
64 bytes from 10.1.12.200: icmp_seq=0 ttl=254 time=1.34 ms
64 bytes from 10.1.12.200: icmp_seq=1 ttl=254 time=0.687 ms
64 bytes from 10.1.12.200: icmp_seq=2 ttl=254 time=0.658 ms
64 bytes from 10.1.12.200: icmp_seq=3 ttl=254 time=0.636 ms
64 bytes from 10.1.12.200: icmp_seq=4 ttl=254 time=0.699 ms
--- 10.1.12.200 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.636/0.763/1.14 ms

H3# show ip int br
IP Interface Status for VRF "default"(1)
Interface IP Address Interface Status
Vlan301 10.1.12.100 protocol-up/link-up/admin-up

H3# show mac address-table
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen, - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan
VLAN MAC Address Type age Secure NTFY Ports
-----
* 301 0000.0000.1111 dynamic O F F Po30
* 301 00ea.bd27.86ef dynamic O F F Po30
G - 00ea.bd27.6285 static - F F sup-eth1(R)
G 301 00ea.bd27.6285 static - F F sup-eth1(R)

```

```

H3# show ip interface brief
Interface IP Address Interface Status
Vlan301 10.1.12.200 protocol-up/link-up/admin-up
H3# ping 10.1.12.100
PING 10.1.12.100 [10.1.12.100]: 56 data bytes
64 bytes from 10.1.12.100: icmp_seq=0 ttl=254 time=1.211 ms
64 bytes from 10.1.12.100: icmp_seq=1 ttl=254 time=0.694 ms
64 bytes from 10.1.12.100: icmp_seq=2 ttl=254 time=0.68 ms
64 bytes from 10.1.12.100: icmp_seq=3 ttl=254 time=0.673 ms
64 bytes from 10.1.12.100: icmp_seq=4 ttl=254 time=0.624 ms
--- 10.1.12.100 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.624/0.776/1.211 ms
H3# show int vlan 301
Vlan301 is up, line protocol is up, autostate-enabled
Hardware is EtherSVL, address is 00ea.bd27.86ef
H3# show mac address-table
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen, - primary entry using vPC Peer-Link,
VLAN MAC Address Type age Secure NTFY Ports
-----
* 301 0000.0000.1111 dynamic O F F Eth1/33
* 301 00ea.bd27.6285 dynamic O F F Eth1/33
G - 00ea.bd27.86ef static - F F sup-eth1(R)
G 301 00ea.bd27.86ef static - F F sup-eth1(R)

```

```

spine-1# show bgp l2vpn evpn
BGP routing table information for VRF default, address family L2VPN Evpn
BGP table version is 188, Local Router ID is 172.25.0.21
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *valid, >best
Path type: i-internal, e-external, c-confed, i-local, a-aggregate, r-redist, i-
njected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - Network
Next Hop Metric LocPrf Weight Path
Route Distinguisher: 172.25.0.15
*>e[5]([0]([24]([12.1.12.0]/24
172.25.0.15 4294967295 0 65534 i
Route Distinguisher: 172.25.0.137164
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 65534 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.15 4294967295 0 65534 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.15 4294967295 0 65534 i
Route Distinguisher: 172.25.0.237164
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 65534 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.3 4294967295 0 65534 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 65534 i
Route Distinguisher: 172.25.0.337164
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 65534 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 65534 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 65534 i

```

```

BGP routing table information for VRF default, address family L2VPN
Evpn
BGP table version is 188, Local Router ID is 172.25.0.21
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *valid,
>best
Path type: i-internal, e-external, c-confed, i-local, a-aggregate, r-redist, i-
njected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 -
Network Next Hop Metric LocPrf Weight Path
Route Distinguisher: 172.25.0.15
*>e[5]([0]([24]([12.1.12.0]/224
172.25.0.15 4294967295 0 65534 i
Route Distinguisher: 172.25.0.137164
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 65534 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.15 4294967295 0 65534 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 4294967295 0 65534 i
Route Distinguisher: 172.25.0.237164
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 65534 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.3 4294967295 0 65534 i
Route Distinguisher: 172.25.0.337164
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 65534 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 65534 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 65534 i

```

```

spine-1# show ip int br
IP Interface Status for VRF "default"(1)
Interface IP Address Interface Status
Lo0 172.25.0.21 protocol-up/link-up/admin-up
Eth1/45 192.168.1.10 protocol-up/link-up/admin-up
Eth1/46 192.168.2.10 protocol-up/link-up/admin-up
Eth1/52 192.168.3.10 protocol-up/link-up/admin-up
vswan-1#

```

```

spine2# show ip int br
IP Interface Status for VRF "default"(1)
Interface IP Address Interface Status
Lo0 172.25.0.22 protocol-up/link-up/admin-up
Eth1/47 192.168.1.14 protocol-up/link-up/admin-up
Eth1/48 192.168.2.14 protocol-up/link-up/admin-up
Eth1/53 192.168.3.14 protocol-up/link-up/admin-up
spine2#

```

故障排除

本部分提供的信息可用于对配置进行故障排除。

```

Leaf1# show l2
l2 l2protocol l2rib l2route
Leaf1# show nve evl
EVI Vlan Label Oper State EVI State
-----
301 301 964878 UP evi-add-complete
Leaf1#
Leaf1# show bgp l2vpn evpn
Network Next Hop Metric LocPrf Weight Path
Route Distinguisher: 172.25.0.137164 (L2VNI 301)
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 64087 655
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.15 100 32768 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 100 32768 i
Route Distinguisher: 172.25.0.337164
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.100]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 100 32768 i
Route Distinguisher: 172.25.0.15
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([24]([12.1.12.0]/224
0.0.0.0 100 32768 i

```

```

Leaf2# show nve evl
EVI Vlan Label Oper State EVI State
-----
301 301 964878 UP evi-add-complete
Leaf2#
Leaf2# show bgp l2vpn evpn
Network Next Hop Metric LocPrf Weight Path
Route Distinguisher: 172.25.0.237164 (L2VNI 301)
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 100 32768 i
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.15 100 32768 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 100 32768 i
Route Distinguisher: 172.25.0.337164
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.100]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 100 32768 i
Route Distinguisher: 172.25.0.25
*>e[2]([0]([48]([00ea.bd27.86ef]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 64087 655
34 i

```

```

Leaf1# show bgp l2vpn evpn
Network Next Hop Metric LocPrf Weight Path
Route Distinguisher: 172.25.0.15
*>e[5]([0]([24]([12.1.12.0]/224
172.25.0.15 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.15 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.15 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 4294967295 0 64087 655
34 i
Route Distinguisher: 172.25.0.237164
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.100]/272
172.25.0.15 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.15 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 4294967295 0 64087 655
34 i
Route Distinguisher: 172.25.0.337164 (L2VNI 301)
*>e[2]([0]([48]([00ea.bd27.6285]([0]([0.0.0.0]/216
172.25.0.15 4294967295 0 64087 655
34 i
*>e[2]([0]([48]([00ea.bd27.6285]([32]([10.1.12.200]/272
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.3]/88
172.25.0.3 4294967295 0 64087 655
34 i
*>e[3]([0]([32]([172.25.0.15]/88
172.25.0.15 100 32768 i
*>e[2]([0]([48]([00ea.bd27.86ef]([0]([0.0.0.0]/216
172.25.0.3 4294967295 0 64087 655
34 i

```

```

Leaf1# show mac address-table
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen, - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan
(VLAN) - Not Applicable
VLAN MAC Address Type age Secure NTFY Ports
-----
+ 301 00ea.bd27.6285 dynamic NA F F Po30
C 301 00ea.bd27.86ef dynamic NA F F sr-peer(172.25.0.3)
G - 0000.0000.1111 static - F F sup-eth1(R)
G 301 c014.fea3.bc87 static - F F vPC Peer-Link(R)
G - c014.fea3.ca07 static - F F sup-eth1(R)
G 301 c014.fea3.ca07 static - F F sup-eth1(R)
Leaf1#

```

```

Leaf2# show mac address-table
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen, - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan,
(NA) - Not Applicable
VLAN MAC Address Type age Secure NTFY Ports
-----
+ 301 00ea.bd27.6285 dynamic NA F F Po30
C 301 00ea.bd27.86ef dynamic NA F F sr-peer(172.25.0.3)
G - 0000.0000.1111 static - F F sup-eth1(R)
G - c014.fea3.bc87 static - F F sup-eth1(R)
G 301 c014.fea3.bc87 static - F F sup-eth1(R)
G 301 c014.fea3.ca07 static - F F vPC Peer-Link(R)
Leaf2#

```

```

Leaf3# show mac address-table
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen, - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan,
(NA) - Not Applicable
VLAN MAC Address Type age Secure NTFY Ports
-----
C 301 00ea.bd27.6285 dynamic NA F F sr-peer(172.25.0.15)
* 301 00ea.bd27.86ef dynamic NA F F Eth1/47
G - 0000.0000.1111 static - F F sup-eth1(R)
G - c014.fea3.cadf static - F F sup-eth1(R)
G 301 c014.fea3.cadf static - F F sup-eth1(R)

```

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