

配置和檢驗雙面虛擬vPC

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簡介

本檔案介紹如何在Nexus 9000上部署第2層乙太網路VPN(EVPN)虛擬可擴充區域網路(VXLAN)雙面虛擬vPC。

必要條件

需求

思科建議您瞭解以下主題：

- 邊界閘道通訊協定(BGP)
- 開放最短路徑優先(OSPF)
- EVPN
- 虛擬vPC
- vPC

採用元件

本文中的資訊係根據以下軟體和硬體版本：

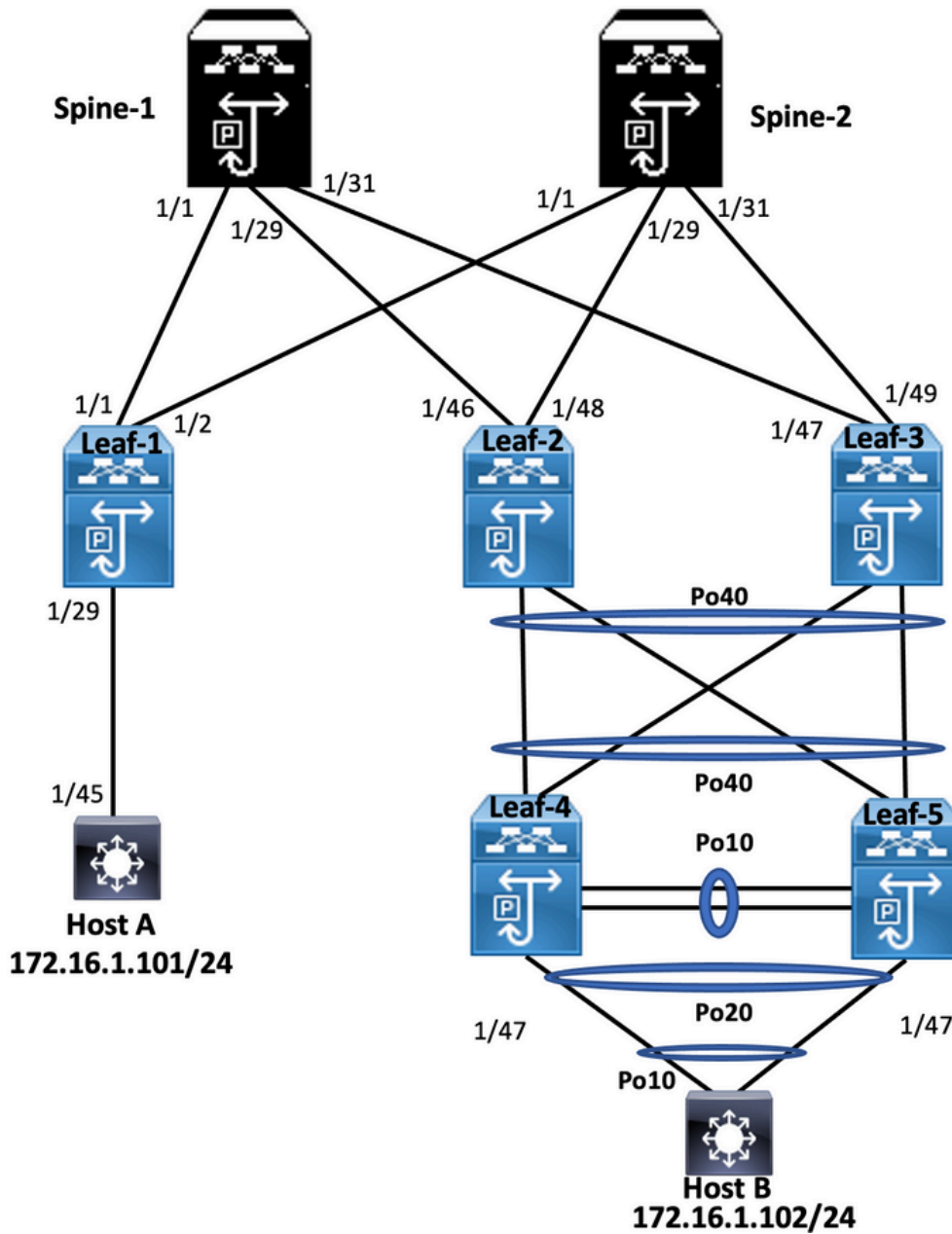
- 執行10.2(3)版的Cisco Nexus 93180YC-FX
- 執行10.2(3)版的Cisco Nexus 93180YC-FX

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除 (預設

) 的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

設定

網路圖表



枝葉-1

```
Leaf-1# show run
hostname Leaf-1

cfs eth distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric forwarding
feature interface-vlan
```

```
feature vn-segment-vlan-based
feature lACP
feature nv overlay

fabric forwarding anycast-gateway-mac 0000.2222.3333
ip pim rp-address 10.10.10.10 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8

vlan 1-10
vlan 2
    vn-segment 10002
vlan 10
    vn-segment 10010

route-map PERMIT-ALL permit 10
vrf context test
    vni 10002
    rd auto
    address-family ipv4 unicast
        route-target both auto
        route-target both auto evpn

interface Vlan2
    no shutdown
    vrf member test
    no ip redirects
    ip forward
    no ipv6 redirects

interface Vlan10
    no shutdown
    vrf member test
    no ip redirects
    ip address 172.16.2.100/25
    fabric forwarding mode anycast-gateway

interface nve1
    no shutdown
    host-reachability protocol bgp
    source-interface loopback1
    member vni 10002 associate-vrf
    member vni 10010
        suppress-arp
        mcast-group 239.1.1.1

interface Ethernet1/1
    mtu 9216
    ip address 172.16.0.1/24
    ip ospf network point-to-point
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
    no shutdown

interface Ethernet1/29
    switchport
    switchport mode trunk
    no shutdown

interface loopback0
    ip address 10.1.1.1/32
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode

interface loopback1
```

```

ip address 10.2.1.1/32
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode

router ospf 100
  router-id 10.1.1.1
router bgp 6500
  router-id 10.1.1.1
  address-family ipv4 unicast
  address-family l2vpn evpn
    advertise-pip
  neighbor 10.10.10.10
    remote-as 6500
  update-source loopback0
  address-family ipv4 unicast
  address-family l2vpn evpn
    send-community
    send-community extended
vrf test
  address-family ipv4 unicast
evpn
vni 10010 12
  rd auto
  route-target import auto
  route-target export auto

```

骨幹-1

```

Spine-1# show run
cfs eth distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric forwarding
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature vpc
feature nv overlay

fabric forwarding anycast-gateway-mac 0000.2222.3333
ip pim rp-address 10.10.10.10 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
vlan 1,100

route-map PERMIT-ALL permit 10
vrf context management

interface Ethernet1/1
  mtu 9216
  ip address 172.16.0.2/24
  ip ospf network point-to-point
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown

interface Ethernet1/29
  mtu 9216
  ip address 172.16.2.2/24
  ip ospf network point-to-point
  ip router ospf 100 area 0.0.0.0

```

```

ip pim sparse-mode
no shutdown

interface Ethernet1/31
mtu 9216
ip address 172.16.1.2/24
ip ospf network point-to-point
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
no shutdown

interface loopback0
ip address 10.10.10.10/32
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode

router ospf 100
router-id 10.10.10.10
router bgp 6500
router-id 10.10.10.10
address-family ipv4 unicast
address-family l2vpn evpn
neighbor 10.1.1.1
remote-as 6500
update-source loopback0
address-family l2vpn evpn
send-community
send-community extended
route-reflector-client
neighbor 10.1.1.3
remote-as 6500
update-source loopback0
address-family l2vpn evpn
send-community
send-community extended
route-reflector-client
neighbor 10.1.1.4
remote-as 6500
update-source loopback0
address-family l2vpn evpn
send-community
send-community extended
route-reflector-client

```

枝葉-2

```

Leaf-2(config)# show run
hostname Leaf-2

cfs ipv4 distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric forwarding
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature vpc
feature nv overlay

```

```
fabric forwarding anycast-gateway-mac 0000.2222.3333
ip pim rp-address 10.10.10.10 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8

vlan 1-2,10
vlan 2
  vn-segment 10002
vlan 10
  vn-segment 10010

route-map PERMIT-ALL permit 10
vrf context management
vrf context test
  vni 10002
  rd auto
  address-family ipv4 unicast
    route-target both auto
    route-target both auto evpn

vpc domain 1
  peer-switch
  peer-keepalive destination 10.201.182.26
  virtual peer-link destination 10.1.1.3 source 10.1.1.4 dscp 56
  peer-gateway
  ip arp synchronize

interface Vlan1
  no ip redirects
  no ipv6 redirects

interface Vlan2
  no shutdown
  vrf member test
  no ip redirects
  ip forward
  no ipv6 redirects

interface Vlan10
  no shutdown
  vrf member test
  no ip redirects
  ip address 172.16.2.100/25
  no ipv6 redirects
  fabric forwarding mode anycast-gateway

interface port-channel10
  switchport
  switchport mode trunk
  switchport trunk allowed vlan 10,20
  spanning-tree port type network
  vpc peer-link

interface port-channel20
  switchport
  switchport mode trunk
  switchport trunk allowed vlan 10,20
  vpc 20

interface port-channel40
  switchport
  switchport mode trunk
  switchport trunk allowed vlan 10,20
  vpc 40
```

```
interface nve1
no shutdown
host-reachability protocol bgp
advertise virtual-rmac
source-interface loopback1
member vni 10002 associate-vrf
member vni 10010
    suppress-arp
    mcast-group 239.1.1.1

interface Ethernet1/7
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown

interface Ethernet1/8
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown

interface Ethernet1/46
mtu 9216
port-type fabric
ip address 172.16.2.1/24
ip ospf network point-to-point
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
no shutdown

interface loopback0
ip address 10.1.1.4/32
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode

interface loopback1
ip address 10.2.1.4/32
ip address 10.2.1.10/32 secondary
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
icam monitor scale

router ospf 100
router-id 10.1.1.4
router bgp 6500
router-id 10.1.1.4
address-family ipv4 unicast
address-family l2vpn evpn
    advertise-pip
neighbor 10.10.10.10
    remote-as 6500
    update-source loopback0
    address-family l2vpn evpn
        send-community
        send-community extended
vrf test
    address-family ipv4 unicast
evpn
vni 10010 l2
rd auto
```

```
route-target import auto
route-target export auto
```

枝葉-3

```
Leaf-3(config-if-range)# show run
hostname Leaf-3
```

```
cfs ipv4 distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric forwarding
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature vpc
feature nv overlay
```

```
fabric forwarding anycast-gateway-mac 0000.2222.3333
ip pim rp-address 10.10.10.10 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
```

```
vlan 1-2,10
vlan 2
  vn-segment 10002
vlan 10
  vn-segment 10010
```

```
route-map PERMIT-ALL permit 10
vrf context management
vrf context test
  vni 10002
  rd auto
  address-family ipv4 unicast
    route-target both auto
    route-target both auto evpn
```

```
vpc domain 1
  peer-switch
  peer-keepalive destination 10.201.182.25
  virtual peer-link destination 10.1.1.4 source 10.1.1.3 dscp 56
  peer-gateway
  ip arp synchronize
```

```
interface Vlan1
  no ip redirects
  no ipv6 redirects
```

```
interface Vlan2
  no shutdown
  vrf member test
  no ip redirects
  ip forward
  no ipv6 redirects
```

```
interface Vlan10
  no shutdown
  vrf member test
  no ip redirects
  ip address 172.16.2.100/25
```



```
no ipv6 redirects
fabric forwarding mode anycast-gateway

interface port-channel10
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
spanning-tree port type network
vpc peer-link

interface port-channel20
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
vpc 20

interface port-channel40
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
vpc 40

interface nve1
no shutdown
host-reachability protocol bgp
advertise virtual-rmac
source-interface loopback1
member vni 10002 associate-vrf
member vni 10010
    suppress-arp
    mcast-group 239.1.1.1

interface Ethernet1/7
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown

interface Ethernet1/8
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown

interface Ethernet1/47
mtu 9216
port-type fabric
ip address 172.16.1.1/24
ip ospf network point-t-point
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
no shutdown

interface Ethernet1/48
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 20 mode active
no shutdown

interface loopback0
ip address 10.1.1.3/32
```

```
ip router ospf 100 area 0.0.0.0
ip pim sparse-mod

interface loopback1
ip address 10.2.1.3/32
ip address 10.2.1.10/32 secondary
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
icam monitor scale

router ospf 100
router-id 10.1.1.3
router bgp 6500
router-id 10.1.1.3
address-family ipv4 unicast
address-family l2vpn evpn
advertise-pip
neighbor 10.10.10.10
remote-as 6500
update-source loopback0
address-family l2vpn evpn
send-community
send-community extended
vrf test
address-family ipv4 unicast
evpn
vni 10010 l2
rd auto
route-target import auto
route-target export auto
```

枝葉-4

```
Leaf-4(config-if)# show run
hostname Leaf-4

cfs eth distribute
feature lacp
feature vpc

vlan 1,10,20

vpc domain 2
peer-switch
peer-keepalive destination 10.201.182.29 source 10.201.182.28
peer-gateway

interface port-channel10
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
spanning-tree port type network
vpc peer-link

interface port-channel20
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
vpc 20

interface port-channel40
switchport
```

```
switchport mode trunk
switchport trunk allowed vlan 10,20
vpc 40
```

```
interface Ethernet1/7
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown
```

```
interface Ethernet1/8
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown
```

```
interface Ethernet1/45
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 10 mode active
no shutdown
```

```
interface Ethernet1/47
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 20 mode active
no shutdown
```

枝葉-5

```
Leaf-5(config-if)# show run
```

```
cfs eth distribute
feature lacp
feature vpc
```

```
vlan 1,10,20
```

```
vpc domain 2
peer-switch
peer-keepalive destination 10.201.182.28 source 10.201.182.29
peer-gateway
```

```
interface port-channel10
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
spanning-tree port type network
vpc peer-link
```

```
interface port-channel20
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
vpc 20
```

```
interface port-channel40
switchport
switchport mode trunk
```

```
switchport trunk allowed vlan 10,20
vpc 40

interface Ethernet1/7
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown

interface Ethernet1/8
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 40 mode active
no shutdown

interface Ethernet1/45
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 10 mode active
no shutdown

interface Ethernet1/47
switchport
switchport mode trunk
switchport trunk allowed vlan 10,20
channel-group 20 mode active
no shutdown
```

主機A

```
Host-A(config-if)# show run
hostname Host-A

nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric forwarding
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature nv overlay

vlan 1-2,10,20

vrf context test

interface Vlan10
no shutdown
vrf member test
ip address 172.16.1.101/25

interface Ethernet1/45
switchport
switchport mode trunk
no shutdown
```

主機B

```
HOST-B(config-if)# show run
hostname HOST-B

feature ospf
feature bgp
feature pim
feature interface-vlan
feature lacp

vlan 1-2,10,20

vrf context test

interface Vlan10
  no shutdown
  vrf member test
  ip address 172.16.1.102/25

interface port-channel10
  switchport
  switchport mode trunk

interface Ethernet1/3
  switchport
  switchport mode trunk
  channel-group 10 mode active
  no shutdown

interface Ethernet1/4
  switchport
  switchport mode trunk
  channel-group 10 mode active
  no shutdown
```

驗證

使用本節內容，確認您的組態是否正常運作。

```
HOST-B(config-if)# ping 172.16.1.101 vrf test
PING 172.16.1.101 (172.16.1.101): 56 data bytes
64 bytes from 172.16.1.101: icmp_seq=0 ttl=254 time=1.007 ms
64 bytes from 172.16.1.101: icmp_seq=1 ttl=254 time=0.608 ms
64 bytes from 172.16.1.101: icmp_seq=2 ttl=254 time=0.539 ms
64 bytes from 172.16.1.101: icmp_seq=3 ttl=254 time=0.522 ms
64 bytes from 172.16.1.101: icmp_seq=4 ttl=254 time=0.514 ms

--- 172.16.1.101 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.514/0.638/1.007 ms

HOST-B(config-if)# show ip arp 172.16.1.101 vrf test
Flags: * - Adjacencies learnt on non-active FHRP router
+ - Adjacencies synced via CFSOE
# - Adjacencies Throttled for Glean
CP - Added via L2RIB, Control plane Adjacencies
PS - Added via L2RIB, Peer Sync
RO - Re-Originated Peer Sync Entry
```

```
D - Static Adjacencies attached to down interface
IP ARP Table
Total number of entries: 1
Address      Age      MAC Address  Interface  Flags
172.16.1.101 00:00:04 4ce1.7638.2f37 Vlan10
```

```
Host-A(config-if)# ping 172.16.1.102 vrf tes
PING 172.16.1.102 (172.16.1.102): 56 data bytes
64 bytes from 172.16.1.102: icmp_seq=0 ttl=254 time=1.047 ms
64 bytes from 172.16.1.102: icmp_seq=1 ttl=254 time=0.86 ms
64 bytes from 172.16.1.102: icmp_seq=2 ttl=254 time=0.708 ms
64 bytes from 172.16.1.102: icmp_seq=3 ttl=254 time=0.509 ms
64 bytes from 172.16.1.102: icmp_seq=4 ttl=254 time=0.485 ms
```

```
--- 172.16.1.102 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.485/0.721/1.047 ms
Host-A(config-if)#
```

```
Host-A(config-if)# show ip arp 172.16.1.102 vrf test
Flags: * - Adjacencies learnt on non-active FHRP router
      + - Adjacencies synced via CFSOE
      # - Adjacencies Throttled for Glean
      CP - Added via L2RIB, Control plane Adjacencies
      PS - Added via L2RIB, Peer Sync
      RO - Re-Originated Peer Sync Entry
      D - Static Adjacencies attached to down interface
IP ARP Table
Total number of entries: 1
Address      Age      MAC Address  Interface  Flags
172.16.1.102 00:05:07 4ce1.7638.3257 Vlan10
Host-A(config-if)#
```

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

```
Leaf-2(config-if-range)# show spanning-tree
VLAN0001
Spanning tree enabled protocol rstp
Root ID      Priority      32769
Address      0023.04ee.be01
Cost         0
Port         0 ( )
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID    Priority      32769 (priority 32768 sys-id-ext 1)
Address      003a.9c28.2cc7
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec

Interface    Role Sts Cost      Prio.Nbr Type
-----
Eth1/47      Desg FWD 4         128.185 P2p

VLAN0002
Spanning tree enabled protocol rstp
Root ID      Priority      32770
Address      0023.04ee.be01
This bridge is the root
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID Priority 32770 (priority 32768 sys-id-ext 2)
Address 0023.04ee.be01
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Interface Role Sts Cost Prio.Nbr Type
-----
Eth1/47 Desg FWD 4 128.185 P2p
```

VLAN0010

```
Spanning tree enabled protocol rstp
Root ID Priority 32778
Address 0023.04ee.be01
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
Address 0023.04ee.be01
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Interface Role Sts Cost Prio.Nbr Type
-----
Po10 Desg FWD 4 128.4105 (vPC peer-link) Network P2p
Po40 Desg FWD 1 128.4135 (vPC) P2p
Eth1/47 Desg FWD 4 128.185 P2p
```

Leaf-2(config-if-range)# show port-channel summary

```
Flags: D - Down P - Up in port-channel (members)
I - Individual H - Hot-standby (LACP only)
s - Suspended r - Module-removed
b - BFD Session Wait
S - Switched R - Routed
U - Up (port-channel)
p - Up in delay-lACP mode (member)
M - Not in use. Min-links not met
```

```
-----
Group Port- Type Protocol Member Ports
channel
-----
10 Po10(SU) Eth NONE --
20 Po20(SD) Eth LACP Eth1/5(D)
40 Po40(SU) Eth LACP Eth1/7(P) Eth1/8(P)
```

Leaf-2(config-if-range)# show vpc brief

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id : 1
Peer status : peer adjacency formed ok
vPC keep-alive status : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role : primary
Number of vPCs configured : 2
Peer Gateway : Enabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status : Disabled
Delay-restore status : Timer is off.(timeout = 30s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Delay-restore Orphan-port status : Timer is off.(timeout = 0s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode : Enabled
```

vPC Peer-link status

```

-----
id   Port   Status Active vlans
--   ----   -----
1    Po10   up     10
  
```

vPC status

```

-----
Id   Port           Status Consistency Reason           Active vlans
--   ----           -----
20   Po20           down*  success    success    -
40   Po40           up     success    success    10
  
```

Leaf-3(config-if-range)# show spanning-tree

VLAN0010

Spanning tree enabled protocol rstp

```

Root ID      Priority      32778
Address      0023.04ee.be01
This bridge is the root
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
  
```

```

Bridge ID    Priority      32778 (priority 32768 sys-id-ext 10)
Address      0023.04ee.be01
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
  
```

```

-----
Interface    Role Sts Cost      Prio.Nbr Type
-----
Po10         Root FWD 4         128.4105 (vPC peer-link) Network P2p
Po40         Desg FWD 1         128.4135 (vPC) P2p
  
```

Leaf-3(config-if-range)# show vpc brief

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```

vPC domain id      : 1
Peer status        : peer adjacency formed ok
vPC keep-alive status : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role           : secondary
Number of vPCs configured : 2
Peer Gateway       : Enabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status : Disabled
Delay-restore status : Timer is off.(timeout = 30s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Delay-restore Orphan-port status : Timer is off.(timeout = 0s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode : Enabled
  
```

vPC Peer-link status

```

-----
id   Port   Status Active vlans
--   ----   -----
1    Po10   up     10
  
```

vPC status

```

-----
Id   Port           Status Consistency Reason           Active vlans
--   ----           -----
20   Po20           down*  success    success    -
40   Po40           up     success    success    10
  
```


Please check "show vpc consistency-parameters vpc <vpc-num>" for the consistency reason of down vpc and for type-2 consistency reasons for any vpc.

Leaf-4(config-if)# show spanning-tree

VLAN0010

Spanning tree enabled protocol rstp

Root ID Priority 32778
Address 0023.04ee.be01
Cost 5
Port 4105 (port-channel10)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
Address 0023.04ee.be02
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po10	Root	FWD	4	128.4105	(vPC peer-link) Network P2p
Po20	Desg	FWD	1	128.4115	(vPC) P2p
Po40	Root	FWD	1	128.4135	(vPC) P2p

VLAN0020

Spanning tree enabled protocol rstp

Root ID Priority 32788
Address 0023.04ee.be02
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32788 (priority 32768 sys-id-ext 20)
Address 0023.04ee.be02
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po10	Root	FWD	4	128.4105	(vPC peer-link) Network P2p
Po20	Desg	FWD	1	128.4115	(vPC) P2p
Po40	Desg	FWD	1	128.4135	(vPC) P2p

Leaf-4(config-if)# show vpc brief

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

vPC domain id : 2
Peer status : peer adjacency formed ok
vPC keep-alive status : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role : secondary
Number of vPCs configured : 2
Peer Gateway : Enabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status : Disabled
Delay-restore status : Timer is off.(timeout = 30s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode : Disabled

vPC Peer-link status

```

id      Port      Status Active vlans
--      -
1       Po10     up      10,20

```

vPC status

```

-----
Id      Port      Status Consistency Reason      Active vlans
--      -
20     Po20     up      success  success  10,20
40     Po40     up      success  success  10,20

```

Please check "show vpc consistency-parameters vpc <vpc-num>" for the consistency reason of down vpc and for type-2 consistency reasons for any vpc.

Leaf-4(config-if)# show port-channel summary

```

Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched      R - Routed
        U - Up (port-channel)
        p - Up in delay-lacp mode (member)
        M - Not in use. Min-links not met

```

```

-----
Group Port-      Type      Protocol  Member Ports
   Channel
-----
10   Po10(SU)    Eth       LACP      Eth1/45(P)
20   Po20(SU)    Eth       LACP      Eth1/47(P)
40   Po40(SU)    Eth       LACP      Eth1/7(P)   Eth1/8(P)

```

Leaf-5(config-if)# show spanning-tree

VLAN0010

```

Spanning tree enabled protocol rstp
Root ID      Priority      32778
             Address      0023.04ee.be01
             Cost          1
             Port          4135 (port-channel40)
             Hello Time    2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID    Priority      32778 (priority 32768 sys-id-ext 10)
             Address      0023.04ee.be02
             Hello Time    2 sec  Max Age 20 sec  Forward Delay 15 sec

```

```

Interface      Role Sts Cost      Prio.Nbr Type
-----
Po10           Desg FWD 4          128.4105 (vPC peer-link) Network P2p
Po20           Desg FWD 1          128.4115 (vPC) P2p
Po40           Root FWD 1          128.4135 (vPC) P2p

```

VLAN0020

```

Spanning tree enabled protocol rstp
Root ID      Priority      32788
             Address      0023.04ee.be02
             This bridge is the root
             Hello Time    2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID    Priority      32788 (priority 32768 sys-id-ext 20)
             Address      0023.04ee.be02
             Hello Time    2 sec  Max Age 20 sec  Forward Delay 15 sec

```

```

Interface      Role Sts Cost      Prio.Nbr Type
-----

```

```
Po10      Desg FWD 4      128.4105 (vPC peer-link) Network P2p
Po20      Desg FWD 1      128.4115 (vPC) P2p
Po40      Desg FWD 1      128.4135 (vPC) P2p
```

Leaf-5(config-if)# show vpc brief

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id          : 2
Peer status            : peer adjacency formed ok
vPC keep-alive status  : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role               : primary
Number of vPCs configured : 2
Peer Gateway           : Enabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status   : Disabled
Delay-restore status   : Timer is off.(timeout = 30s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode  : Disabled
```

vPC Peer-link status

```
-----
id   Port   Status Active vlans
--   -
1    Po10   up     10,20
```

vPC status

```
-----
Id   Port   Status Consistency Reason          Active vlans
--   -
20   Po20   up     success    success    10,20
40   Po40   up     success    success    10,20
```

Please check "show vpc consistency-parameters vpc <vpc-num>" for the consistency reason of down vpc and for type-2 consistency reasons for any vpc.

Leaf-1# show bgp l2vpn evpn

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 558, Local Router ID is 10.1.1.1
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2
```

```
Network          Next Hop          Metric   LocPrf   Weight Path
Route Distinguisher: 10.1.1.1:32777 (L2VNI 10010)
*>i[2]:[0]:[0]:[48]:[003a.9c28.2cc7]:[0]:[0.0.0.0]/216
    10.2.1.10      100         0 i
*>i[2]:[0]:[0]:[48]:[003a.9c28.2f67]:[0]:[0.0.0.0]/216
    10.2.1.10      100         0 i
*>l[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[0]:[0.0.0.0]/216
    10.2.1.1       100        32768 i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[0]:[0.0.0.0]/216
    10.2.1.10      100         0 i
* i               10.2.1.10      100         0 i
*>l[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[32]:[172.16.1.101]/272
```

```

10.2.1.1 100 32768 i
* i[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[32]:[172.16.1.102]/272
10.2.1.10 100 0 i
*>i 10.2.1.10 100 0 i

```

Route Distinguisher: 10.1.1.3:3

```

*>i[2]:[0]:[0]:[48]:[003a.9c28.2f67]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i

```

Route Distinguisher: 10.1.1.3:32777

```

*>i[2]:[0]:[0]:[48]:[003a.9c28.2f67]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[32]:[172.16.1.102]/272
10.2.1.10 100 0 i

```

Route Distinguisher: 10.1.1.4:3

```

*>i[2]:[0]:[0]:[48]:[003a.9c28.2cc7]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i

```

Route Distinguisher: 10.1.1.4:32777

```

*>i[2]:[0]:[0]:[48]:[003a.9c28.2cc7]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[32]:[172.16.1.102]/272
10.2.1.10 100 0 i

```

Route Distinguisher: 10.1.1.1:3 (L3VNI 10002)

```

*>i[2]:[0]:[0]:[48]:[003a.9c28.2cc7]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i
*>i[2]:[0]:[0]:[48]:[003a.9c28.2f67]:[0]:[0.0.0.0]/216
10.2.1.10 100 0 i
*>l[2]:[0]:[0]:[48]:[005d.73b2.9647]:[0]:[0.0.0.0]/216
10.2.1.1 100 32768 i
* i[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[32]:[172.16.1.102]/272
10.2.1.10 100 0 i
*>i 10.2.1.10 100 0 i

```

Leaf-1#

Leaf-1# 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
* 10	4ce1.7638.2f37	dynamic	NA	F	F	Eth1/29
C 10	4ce1.7638.3257	dynamic	NA	F	F	nve1(10.2.1.10)
G -	0000.2222.3333	static	-	F	F	sup-eth1(R)
G -	005d.73b2.9647	static	-	F	F	sup-eth1(R)
G 2	005d.73b2.9647	static	-	F	F	sup-eth1(R)
G 10	005d.73b2.9647	static	-	F	F	sup-eth1(R)

Leaf-1#

Leaf-2(config-if-range)#

Leaf-2(config-if-range)# show bgp l2vpn evpn

BGP routing table information for VRF default, address family L2VPN EVPN

BGP table version is 45, Local Router ID is 10.1.1.4

Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best

Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected

Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 10.1.1.1:3					
*>i[2]:[0]:[0]:[48]:[005d.73b2.9647]:[0]:[0.0.0.0]/216	10.2.1.1		100	0	i

Route Distinguisher: 10.1.1.1:32777					
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[0]:[0.0.0.0]/216	10.2.1.1		100	0	i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[32]:[172.16.1.101]/272	10.2.1.1		100	0	i

Route Distinguisher: 10.1.1.4:32777 (L2VNI 10010)					
*>l[2]:[0]:[0]:[48]:[003a.9c28.2cc7]:[0]:[0.0.0.0]/216	10.2.1.10		100	32768	i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[0]:[0.0.0.0]/216	10.2.1.1		100	0	i
*>l[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[0]:[0.0.0.0]/216	10.2.1.10		100	32768	i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[32]:[172.16.1.101]/272	10.2.1.1		100	0	i
*>l[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[32]:[172.16.1.102]/272	10.2.1.10		100	32768	i

Route Distinguisher: 10.1.1.4:3 (L3VNI 10002)					
*>l[2]:[0]:[0]:[48]:[003a.9c28.2cc7]:[0]:[0.0.0.0]/216	10.2.1.10		100	32768	i
*>i[2]:[0]:[0]:[48]:[005d.73b2.9647]:[0]:[0.0.0.0]/216	10.2.1.1		100	0	i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[32]:[172.16.1.101]/272	10.2.1.1		100	0	i

Leaf-2(config-if-range)#

Leaf-3(config-if-range)# show bgp l2vpn evpn

BGP routing table information for VRF default, address family L2VPN EVPN

BGP table version is 89, Local Router ID is 10.1.1.3

Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best

Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected

Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 10.1.1.1:3					
*>i[2]:[0]:[0]:[48]:[005d.73b2.9647]:[0]:[0.0.0.0]/216	10.2.1.1		100	0	i

Route Distinguisher: 10.1.1.1:32777					
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[0]:[0.0.0.0]/216	10.2.1.1		100	0	i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[32]:[172.16.1.101]/272	10.2.1.1		100	0	i

Route Distinguisher: 10.1.1.3:32777 (L2VNI 10010)					
*>l[2]:[0]:[0]:[48]:[003a.9c28.2f67]:[0]:[0.0.0.0]/216	10.2.1.10		100	32768	i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[0]:[0.0.0.0]/216	10.2.1.1		100	0	i
*>l[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[0]:[0.0.0.0]/216	10.2.1.10		100	32768	i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[32]:[172.16.1.101]/272	10.2.1.1		100	0	i
*>l[2]:[0]:[0]:[48]:[4ce1.7638.3257]:[32]:[172.16.1.102]/272	10.2.1.10		100	32768	i

Route Distinguisher: 10.1.1.3:3 (L3VNI 10002)					
---	--	--	--	--	--

```
*>l[2]:[0]:[0]:[48]:[003a.9c28.2f67]:[0]:[0.0.0.0]/216
    10.2.1.10                100      32768 i
*>i[2]:[0]:[0]:[48]:[005d.73b2.9647]:[0]:[0.0.0.0]/216
    10.2.1.1                100          0 i
*>i[2]:[0]:[0]:[48]:[4ce1.7638.2f37]:[32]:[172.16.1.101]/272
    10.2.1.1                100          0 i
```

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。