

Configuración y verificación de vPC virtual de doble cara

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Introducción

Este documento describe cómo implementar Virtual Extensible LAN (VXLAN) VPN Ethernet de capa 2 (EVPN) virtual vPC de doble cara en Nexus 9000.

Prerequisites

Requirements

Cisco recomienda que tenga conocimiento sobre estos temas:

- Border Gateway Protocol (BGP)
- Abrir primero la ruta más corta (OSPF)
- EVPN
- vPC virtual
- vPC

Componentes Utilizados

La información que contiene este documento se basa en las siguientes versiones de software y

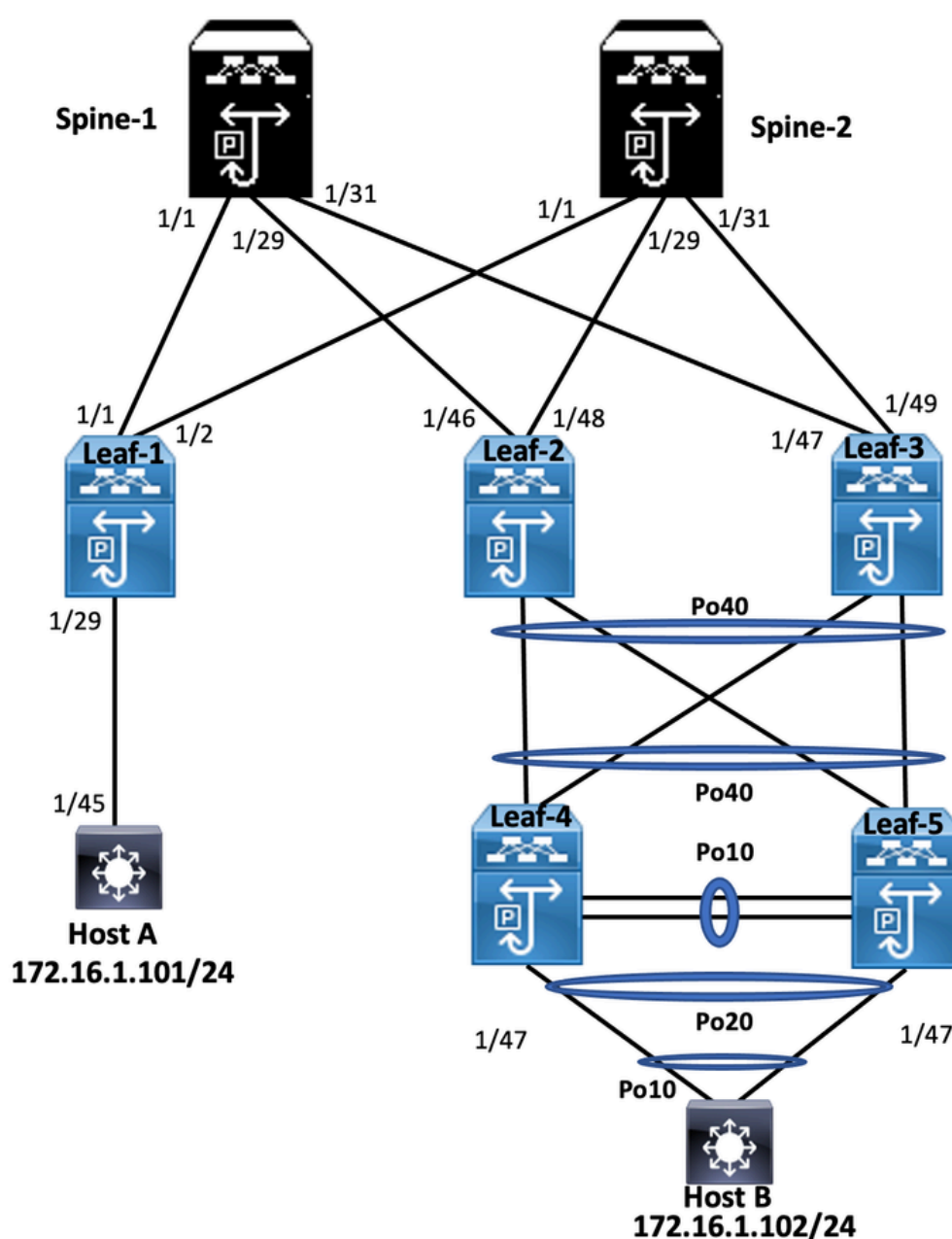
hardware.

- Cisco Nexus 93180YC-FX que ejecuta la versión 10.2(3)
- Cisco Nexus 93180YC-FX que ejecuta la versión 10.2(3)

La información que contiene este documento se creó a partir de los dispositivos en un ambiente de laboratorio específico. Todos los dispositivos que se utilizan en este documento se pusieron en funcionamiento con una configuración verificada (predeterminada). Si tiene una red en vivo, asegúrese de entender el posible impacto de cualquier comando.

Configurar

Diagrama de la red



```
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

```

Columna-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

Hoja-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 12
    rd auto
    route-target import auto
    route-target export auto

```

Hoja-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-to-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

```

Hoja-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
```

Hoja-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
```

Host-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
```

Host-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

```

Verificación

Utilize esta sección para confirmar que su configuración funcione correctamente.

```

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)#

Troubleshoot

En esta sección se brinda información que puede utilizar para resolver problemas en su configuración.

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-channel	Type	Protocol	Member Ports
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-Channel	Type	Protocol	Member Ports
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.

<#root>

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

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