

Configure and Verify Double-sided Virtual vPC

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Introduction

This document describes how to deploy L2 Ethernet VPN (EVPN) Virtual Extensible LAN (VXLAN) double-sided virtual vPC on Nexus 9000.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Border Gateway Protocol (BGP)
- Open Shortest Path First (OSPF)
- EVPN
- Virtual vPC
- vPC

Components Used

The information in this document is based on these software and hardware versions:

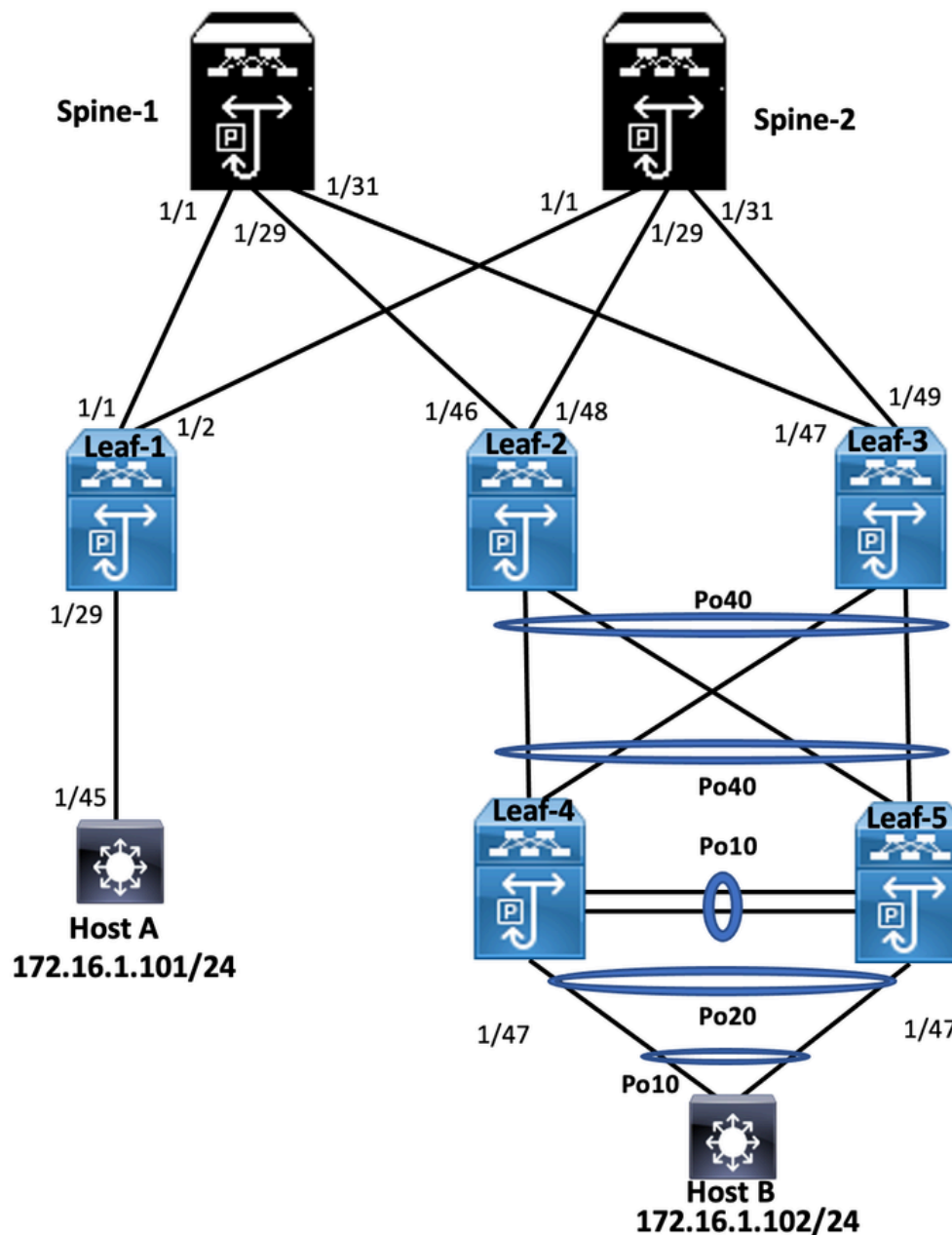
- Cisco Nexus 93180YC-FX that runs Release 10.2(3)
- Cisco Nexus 93180YC-FX that runs Release 10.2(3)

The information in this document was created from the devices in a specific lab environment. All of the

devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Configure

Network Diagram



Leaf-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

```

Spine-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

```

Leaf-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

```

Leaf-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

```

Leaf-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
```

Leaf-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

```

Verify

Use this section in order to confirm that your configuration works properly.

```

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

This section provides information you can use in order to troubleshoot your configuration.

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
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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

```