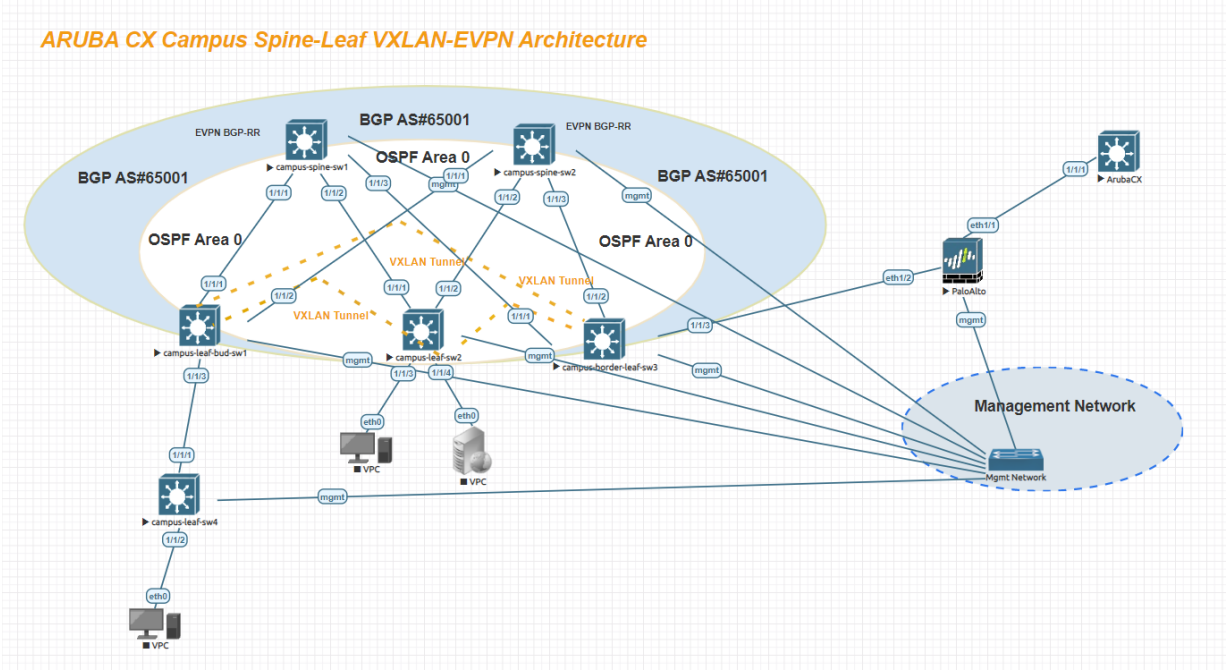
Aruba CX Campus Spine-Leaf VXLAN-EVPN

Creating an Aruba Spine-Leaf VXLAN-EVPN in EVE-NG



Creating an IP Underlay Fabric

Task 1 : Configure IP Underlay Interfaces

- Configure loopback and physical interfaces with the correct IP addresses

---

Spines Loopbacks/Interfaces

****campus-spine-sw1****

```
interface loopback 0
   ip address 192.168.1.5/32

interface 1/1/1
   no shutdown
   description Connection to campus-leaf-bud-sw1:1/1/1
```

```
    ip address 192.168.3.1/31

interface 1/1/2
    no shutdown
    description Connection to campus-leaf-sw2:1/1/1
    ip address 192.168.3.5/31

interface 1/1/3
    no shutdown
    description Connection to campus-leaf-border-sw3:1/1/1
    ip address 192.168.3.7/31
```

****campus-spine-sw2****

```
interface loopback 0
    ip address 192.168.1.6/32

interface 1/1/1
    no shutdown
    description Connection to campus-leaf-bud-sw1:1/1/2
    ip address 192.168.3.9/31

interface 1/1/2
    no shutdown
    description Connection to campus-leaf-sw2:1/1/2
    ip address 192.168.3.11/31

interface 1/1/3
    no shutdown
    description Connection to campus-leaf-border-sw3:1/1/2
    ip address 192.168.3.13/31
```

Leafs Loopbacks/Interfaces

---

campus-leaf-bud-sw1

```
interface loopback 0
   ip address 192.168.1.1/32

interface 1/1/1
   no shutdown
   description Connection to campus-spine-sw1:1/1/1
   ip address 192.168.3.0/31

interface 1/1/2
   no shutdown
   description Connection to campus-spine-sw2:1/1/1
   ip address 192.168.3.8/31

interface 1/1/3
   no shutdown
   description Connection to campus-leaf-sw4:1/1/1
   ip address 192.168.3.16/31
```

campus-leaf-sw2

```
interface loopback 0
   ip address 192.168.1.2/32

interface 1/1/1
   no shutdown
   description Connection to campus-spine-sw1:1/1/2
   ip address 192.168.3.4/31

interface 1/1/2
   no shutdown
   description Connection to campus-spine-sw2:1/1/2
   ip address 192.168.3.10/31
```

campus-border-leaf-sw3

```
interface loopback 0
   ip address 192.168.1.3/32
```

```
interface 1/1/1
   no shutdown
   description Connection to campus-spine-sw1:1/1/3
   ip address 192.168.3.6/31

interface 1/1/2
   no shutdown
   description Connection to campus-spine-sw2:1/1/3
   ip address 192.168.3.12/31
```

****campus-leaf-sw4****

```
interface loopback 0
   ip address 192.168.1.4/32

interface 1/1/1
   no shutdown
   description Connection to campus-leaf-bud-sw1:1/1/3
   ip address 192.168.3.17/31
```

Verify Interfaces Connectivity

---

sh lld neighbor-info

Task 2 : Configure IP Underlay : Routing (OSPF) is used for IP connectivity between the loopback to allow Overlay MPBGP Peering

- Configure OSPF and enable interface with OSPF

Spines Loopbacks/Interfaces/OSPF

****campus-spine-sw1****

```
interface loopback 0
   ip address 192.168.1.5/32

router ospf 1
   router-id 192.168.1.5
   area 0.0.0.0

interface 1/1/1
   no shutdown
   description Connection to campus-leaf-bud-sw1:1/1/1
   ip address 192.168.4.0/31
   ip ospf 1 area 0.0.0.0
   ip ospf network point-to-point

interface 1/1/2
   no shutdown
   description Connection to campus-leaf-sw2:1/1/1
   ip address 192.168.3.1/31
   ip ospf 1 area 0.0.0.0
   ip ospf network point-to-point

interface 1/1/3
   no shutdown
   description Connection to campus-leaf-border-sw3:1/1/1
   ip address 192.168.3.2/31
   ip ospf 1 area 0.0.0.0
   ip ospf network point-to-point
```

****campus-spine-sw2****

```
interface loopback 0
   ip address 192.168.1.6/32

router ospf 1
   router-id 192.168.1.6
   area 0.0.0.0
```

```
interface 1/1/1
   no shutdown
   description Connection to campus-leaf-bud-sw1:1/1/2
   ip address 192.168.3.3/31
   ip ospf 1 area 0.0.0.0
   ip ospf network point-to-point

interface 1/1/2
   no shutdown
   description Connection to campus-leaf-sw2:1/1/2
   ip address 192.168.3.4/31
   ip ospf 1 area 0.0.0.0
   ip ospf network point-to-point

interface 1/1/3
   no shutdown
   description Connection to campus-leaf-border-sw3:1/1/2
   ip address 192.168.3.5/31
   ip ospf 1 area 0.0.0.0
   ip ospf network point-to-point
```

Leafs Loopbacks/Interfaces

****campus-leaf-bud-sw1****

```
interface loopback 0
   ip address 192.168.1.1/32

router ospf 1
   router-id 192.168.1.1
   area 0.0.0.0

interface 1/1/1
   no shutdown
   description Connection to campus-spine-sw1:1/1/1
```

```
    ip address 192.168.3.6/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point

interface 1/1/2
    no shutdown
    description Connection to campus-spine-sw2:1/1/1
    ip address 192.168.3.7/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point

interface 1/1/3
    no shutdown
    description Connection to campus-leaf-sw4:1/1/1
    ip address 192.168.3.8/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point
```

****campus-leaf-sw2****

```
interface loopback 0
    ip address 192.168.1.2/32

router ospf 1
    router-id 192.168.1.2
    area 0.0.0.0

interface 1/1/1
    no shutdown
    description Connection to campus-spine-sw1:1/1/2
    ip address 192.168.3.9/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point

interface 1/1/2
    no shutdown
    description Connection to campus-spine-sw2:1/1/2
```

```
    ip address 192.168.3.10/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point
```

****campus-border-leaf-sw3****

```
interface loopback 0
    ip address 192.168.1.3/32

router ospf 1
    router-id 192.168.1.3
    area 0.0.0.0

interface 1/1/1
    no shutdown
    description Connection to campus-spine-sw1:1/1/3
    ip address 192.168.3.11/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point

interface 1/1/2
    no shutdown
    description Connection to campus-spine-sw2:1/1/3
    ip address 192.168.3.12/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point
```

****campus-leaf-sw4****

```
interface loopback 0
    ip address 192.168.1.4/32

router ospf 1
    router-id 192.168.1.3
    area 0.0.0.0

interface 1/1/1
    no shutdown
```

```
    description Connection to campus-leaf-bud-sw1:1/1/3
    ip address 192.168.3.11/31
    ip ospf 1 area 0.0.0.0
    ip ospf network point-to-point
```

Verify Interfaces Connectivity
---
sh ip ospf neighbors

Task 3 : Configure BGP-EVPN for Overlay Routing

- Configure EVPN
  - On spine switches, configure EVPN Route Reflectors (RR) towards the leaf switches (RR clients) using leaf loopback IPs as neighbors
    -

Spines Loopbacks/Interfaces/OSPF

****campus-spine-sw1****

```
interface loopback 0
    ip address 192.168.1.5/32

router ospf 1
    router-id 192.168.1.5
    area 0.0.0.0

router bgp 65001
    bgp router-id 192.168.1.5
    neighbor vtep peer-group
    neighbor vtep remote-as 65001
    neighbor vtep description Leaf RR clients
    neighbor leaf update-source loopback 0
    neighbor 192.168.1.1 peer-group vtep
```

```
    neighbor 192.168.1.2 peer-group vtep
    neighbor 192.168.1.3 peer-group vtep
    neighbor 192.168.1.4 peer-group vtep
    address-family l2vpn evpn
        neighbor vtep route-reflector-client
        neighbor vtep send-community extended
        neighbor 192.168.1.1 activate
        neighbor 192.168.1.2 activate
        neighbor 192.168.1.3 activate
         neighbor 192.168.1.4 activate
    exit-address-family
```

****campus-spine-sw2****

```
interface loopback 0
    ip address 192.168.1.6/32

router ospf 1
    router-id 192.168.1.6
    area 0.0.0.0

router bgp 65001
    bgp router-id 192.168.1.6
    neighbor vtep peer-group
    neighbor vtep remote-as 65001
    neighbor vtep description Leaf RR clients
    neighbor vtep update-source loopback 0
    neighbor 192.168.1.1 peer-group vtep
    neighbor 192.168.1.2 peer-group vtep
    neighbor 192.168.1.3 peer-group vtep
    neighbor 192.168.1.4 peer-group vtep
    address-family l2vpn evpn
        neighbor vtep route-reflector-client
        neighbor vtep send-community extended
        neighbor 192.168.1.1 activate
        neighbor 192.168.1.2 activate
```

```
        neighbor 192.168.1.3 activate
         neighbor 192.168.1.3 activate
    exit-address-family
```

Leafs Loopbacks/Interfaces

****campus-leaf-bud-sw1****

```
interface loopback 0
    ip address 192.168.1.1/32

router ospf 1
    router-id 192.168.1.1
    area 0.0.0.0

router bgp 65001
    bgp router-id 192.168.1.1
    neighbor RR peer-group
    neighbor RR remote-as 65001
    neighbor RR description RR peer-group
    neighbor RR update-source loopback 0
    neighbor 192.168.1.5 peer-group RR
    neighbor 192.168.1.6 peer-group RR
    address-family l2vpn evpn
        neighbor RR send-community extended
        neighbor 192.168.1.5 activate
        neighbor 192.168.1.6 activate
    exit-address-family
```

****campus-leaf-sw2****

```
interface loopback 0
    ip address 192.168.1.2/32

router ospf 1
    router-id 192.168.1.2
    area 0.0.0.0
```

```
router bgp 65001
   bgp router-id 192.168.1.2
   neighbor RR peer-group
   neighbor RR remote-as 65001
   neighbor RR description RR peer-group
   neighbor RR update-source loopback 0
   neighbor 192.168.1.5 peer-group RR
   neighbor 192.168.1.6 peer-group RR
   address-family l2vpn evpn
      neighbor RR send-community extended
      neighbor 192.168.1.5 activate
      neighbor 192.168.1.6 activate
   exit-address-family
```

****campus-border-leaf-sw3****

```
interface loopback 0
   ip address 192.168.1.3/32

router ospf 1
   router-id 192.168.1.3
   area 0.0.0.0

router bgp 65001
   bgp router-id 192.168.1.3
   neighbor RR peer-group
   neighbor RR remote-as 65001
   neighbor RR description RR peer-group
   neighbor RR update-source loopback 0
   neighbor 192.168.1.5 peer-group RR
   neighbor 192.168.1.6 peer-group RR
   address-family l2vpn evpn
      neighbor RR send-community extended
      neighbor 192.168.1.5 activate
      neighbor 192.168.1.6 activate
   exit-address-family
```

campus-leaf-sw4

```
interface loopback 0
   ip address 192.168.1.4/32

router ospf 1
   router-id 192.168.1.3
   area 0.0.0.0

router bgp 65001
   bgp router-id 192.168.1.3
   neighbor RR peer-group
   neighbor RR remote-as 65001
   neighbor RR description RR peer-group
   neighbor RR update-source loopback 0
   neighbor 192.168.1.5 peer-group RR
   neighbor 192.168.1.6 peer-group RR
   address-family l2vpn evpn
      neighbor RR send-community extended
      neighbor 192.168.1.5 activate
      neighbor 192.168.1.6 activate
   exit-address-family
```

Validate EVPN neighbors are up on the leaf switches

- show bgp l2vpn evpn summary

Task 4 : Configure Overlay on the Leaf Switches: EVPN RD and RTs/VLANs/VXLAN Interface

- Configure EVPN
  - RD are used to avoid any mac/ip overlap; RT are used to import or export EVPN instances into BGP (vice-versa)
    - RD and Route-Target can be left as auto for BGP EVPN

campus-leaf-bud-sw1

```
vlan 10
```

```
    name Production Traffic
vlan 20
    name User Traffic

evpn
    vlan 10
        rd auto
        route-target export auto
        route-target import auto
    vlan 20
        rd auto
        route-target export auto
        route-target import auto
```

****campus-leaf-sw2****

```
vlan 10
    name Production Traffic
vlan 20
    name User Traffic

evpn
    vlan 10
        rd auto
        route-target export auto
        route-target import auto
    vlan 20
        rd auto
        route-target export auto
        route-target import auto
```

****campus-border-leaf-sw3****

```
vlan 10
    name Production Traffic
vlan 20
    name User Traffic

evpn
```

```
   vlan 10
      rd auto
      route-target export auto
      route-target import auto
   vlan 20
      rd auto
      route-target export auto
      route-target import auto
```
campus-leaf-sw4
```
vlan 10
   name Production Traffic
vlan 20
   name User Traffic

evpn
   vlan 10
      rd auto
      route-target export auto
      route-target import auto
   vlan 20
      rd auto
      route-target export auto
      route-target import auto
```

- Configure Leaf Switches with VXLAN
  - On the leaf switches, configure the VLANs to be VXLAN encapsulated

campus-leaf-bud-sw1
```
interface vxlan 1
   source ip 192.168.1.1
   no shutdown
   vni 10010
      vlan 10
   vni 10020
      vlan 20
```

campus-leaf-sw2
```
interface vxlan 1
   source ip 192.168.1.2
   no shutdown
   vni 10010
      vlan 10
   vni 10020
      vlan 20
```

campus-border-leaf-sw3
```
interface vxlan 1
   source ip 192.168.1.3
   no shutdown
   vni 10010
      vlan 10
   vni 10020
      vlan 20
```

campus-leaf-sw4
```
interface vxlan 1
   source ip 192.168.1.4
   no shutdown
   vni 10010
      vlan 10
   vni 10020
      vlan 20
```

On the leaf switches, configure the VLANs to be VXLAN encapsulated on the ports towards hosts

campus-leaf-sw4
```
interface 1/1/2
   description Connection to Host-Desktop:eth0
   no shutdown
   no routing
   vlan access 10
```
campus-leaf-sw2

```
interface 1/1/3
   description Connection to Host-Desktop:eth0
   no shutdown
   no routing
   vlan access 20
!
!
interface 1/1/4
   description Connection to Server:eth0
   no shutdown
   no routing
   vlan access 10
```

- Validate the VXLAN interface is up with correct source, destination VTEP peer IPs via EVPN and VNI/VLAN mapping
    - sh int vxlan

Task 5 : Configure VRF and Centralized L3 Gateway on the border Leaf

- Configure
    - Configure Hosts with the IPs and default gateway (the default gateway doesn't exist on the network as L2 VXLAN is used but is a required config in VPCS)

****campus-border-leaf-sw3****

```
 vrf VRF1
 rd 192.168.1.3:1
!
interface vlan 10
vrf attach VRF1
ip address <>/24
active-gateway ip mac 12:00:00:00:01:00
active-gateway ip <>
!
interface vlan 20
vrf attach VRF1
ip address <>/24
```

active-gateway ip mac 12:00:00:00:01:00
active-gateway ip <>
!

Task 5 : Verification and Validation

Validate local and remote MACs are seen on the leaf switches as expected
Leaf1 is L2 VTEP therefore only MACs are seen
Leaf1# sh mac-ad

Leaf3 is centralized L3 VTEP therefore both MACs and ARPs are seen
Leaf3# sh mac-ad

show interface vxlan vteps

Validate local and remote MACs/IPs are also seen in the EVPN table
Leaf1# sh bgp l2vpn evpn
==========
campus-spine-sw1# show bgp l2vpn evpn summary
VRF : default
BGP Summary

```
 Local AS              : 65001        BGP Router Identifier  : 192.168.1.5
 Peers                 : 4            Log Neighbor Changes   : No
 Cfg. Hold Time        : 180          Cfg. Keep Alive        : 60
 Confederation Id      : 0

 Neighbor        Remote-AS MsgRcvd MsgSent   Up/Down Time State        AdminStatus
 192.168.1.1     65001       4       4       00h:01m:08s  Established   Up
 192.168.1.2     65001       3       3       00h:00m:32s  Established   Up
 192.168.1.3     65001       3       3       00h:00m:14s  Established   Up
 192.168.1.4     65001       5       5       00h:02m:29s  Established   Up
```

campus-spine-sw1# show ip route

Displaying ipv4 routes selected for forwarding

```
Origin Codes: C - connected, S - static, L - local
              R - RIP, B - BGP, O - OSPF
Type Codes:   E - External BGP, I - Internal BGP, V - VPN, EV - EVPN
              IA - OSPF internal area, E1 - OSPF external type 1
              E2 - OSPF external type 2

VRF: default

Prefix            Nexthop         Interface     VRF(egress)      Origin/   Distance/    Age
                                                                  Type      Metric
-----------------------------------------------------------------------------------------------
-------
192.168.1.1/32      192.168.3.0      1/1/1         -              O        [110/100]    00h:02m:02s
192.168.1.2/32      192.168.3.4      1/1/2         -              O        [110/100]    00h:01m:50s
192.168.1.3/32      192.168.3.6      1/1/3         -              O        [110/100]    00h:01m:36s
192.168.1.4/32      192.168.3.0      1/1/1         -              O        [110/200]    00h:03m:54s
192.168.1.5/32      -                loopback0     -              L        [0/0]        -
192.168.1.6/32      192.168.3.4      1/1/2         -              O        [110/200]    00h:02m:10s
                    192.168.3.0      1/1/1         -                       [110/200]    00h:02m:10s
                    192.168.3.6      1/1/3         -                       [110/200]    00h:02m:10s
192.168.3.0/31      -                1/1/1         -              C        [0/0]        -
192.168.3.1/32      -                1/1/1         -              L        [0/0]        -
192.168.3.4/31      -                1/1/2         -              C        [0/0]        -
192.168.3.5/32      -                1/1/2         -              L        [0/0]        -
192.168.3.6/31      -                1/1/3         -              C        [0/0]        -
192.168.3.7/32      -                1/1/3         -              L        [0/0]        -
192.168.3.8/31      192.168.3.0      1/1/1         -              O        [110/200]    01h:37m:44s
192.168.3.10/31     192.168.3.4      1/1/2         -              O        [110/200]    01h:34m:09s
192.168.3.12/31     192.168.3.6      1/1/3         -              O        [110/200]    00h:11m:35s
192.168.3.16/31     192.168.3.0      1/1/1         -              O        [110/200]    01h:37m:44s

Total Route Count : 16
```

```
campus-leaf-sw4# show evpn mac-ip evi 10010
```

```
Flags:  Local(L), Remote(R), Sticky bit(S)

MAC                 IP              Next-hop                Seq-Num   Flags
--------------------------------------------------------------------------------
12:00:00:00:01:00   172.16.2.254    vxlan1(192.168.1.3)     0         R,S
```

```
campus-leaf-sw4# show evpn evi summary
  L2VNI     VLAN              Status
  -------------------------------------
  10010     10                Up
  10020     20                Up

  EVPN instances    : 2
  EVPN instances Up : 2
```

```
campus-leaf-sw4# show evpn evi
L2VNI : 10010
   Route Distinguisher       : 192.168.1.4:10
   VLAN                      : 10
   Status                    : up
   RT Import                 : 65001:268445466
   RT Export                 : 65001:268445466
   Local MACs                : 0
   Remote MACs               : 1
   Peer VTEPs                : 3

L2VNI : 10020
   Route Distinguisher       : 192.168.1.4:20
   VLAN                      : 20
   Status                    : up
   RT Import                 : 65001:268445476
   RT Export                 : 65001:268445476
   Local MACs                : 0
   Remote MACs               : 1
   Peer VTEPs                : 3
```

```
campus-leaf-sw4# show evpn
  evi     EVPN instance
  mac-ip  EVPN MAC-IP information
campus-leaf-sw4# show evpn mac-ip
Flags:  Local(L), Remote(R), Sticky bit(S)

EVI    MAC                IP              Next-hop              Seq-Num   Flags
-------------------------------------------------------------------------------
10010  12:00:00:00:01:00  172.16.2.254    vxlan1(192.168.1.3)    0         R,S
10020  12:00:00:00:01:00  172.16.4.254    vxlan1(192.168.1.3)    0         R,S
```

```
campus-leaf-sw4# show evpn mac-ip evi 10010
Flags:  Local(L), Remote(R), Sticky bit(S)

MAC                IP              Next-hop              Seq-Num   Flags
-------------------------------------------------------------------------
12:00:00:00:01:00  172.16.2.254    vxlan1(192.168.1.3)    0         R,S

MACs          : 1
Remote MACs   : 1
```

```
campus-leaf-sw4# show evpn evi 10010
L2VNI : 10010
   Route Distinguisher       : 192.168.1.4:10
   VLAN                      : 10
   Status                    : up
   RT Import                 : 65001:268445466
   RT Export                 : 65001:268445466
   Local MACs                : 0
   Remote MACs               : 1
   Peer VTEPs                : 3
```

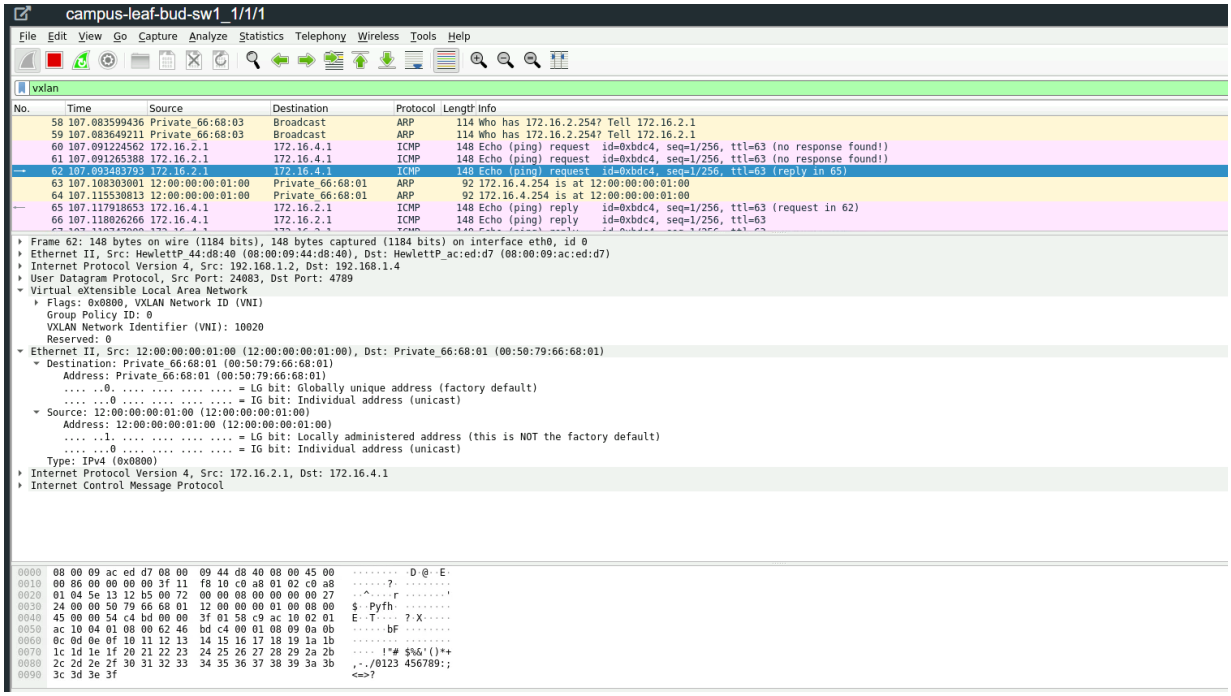
```
campus-leaf-sw4# show evpn evi detail
L2VNI : 10010
   Route Distinguisher       : 192.168.1.4:10
```

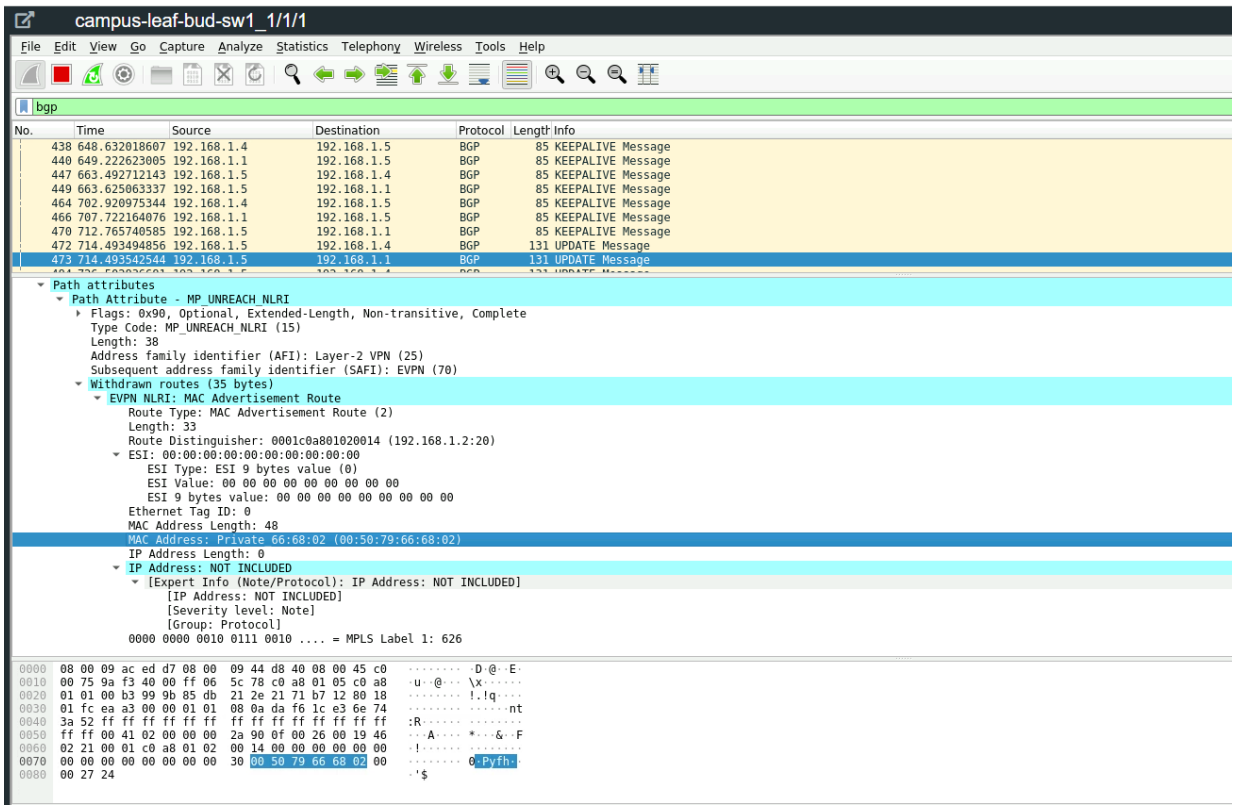
```
    VLAN                    : 10
    Status                  : up
    RT Import               : 65001:268445466
    RT Export               : 65001:268445466
    Local MACs              : 0
    Remote MACs             : 1
    Peer VTEPs              : 3

    Peer-VTEP-Address                    Remote-MACs
    ----------------------------------------------------
    192.168.1.3                          1
    192.168.1.1                          0
    192.168.1.2                          0

L2VNI : 10020
    Route Distinguisher     : 192.168.1.4:20
    VLAN                    : 20
    Status                  : up
    RT Import               : 65001:268445476
    RT Export               : 65001:268445476
    Local MACs              : 0
    Remote MACs             : 1
    Peer VTEPs              : 3

    Peer-VTEP-Address                    Remote-MACs
    ----------------------------------------------------
    192.168.1.3                          1
    192.168.1.1                          0
    192.168.1.2                          0
```


campus-leaf-bud-sw1_1/1/1
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
vxlan
No. Time Source Destination Protocol Length Info
58 107.083599436 Private_66:68:03 Broadcast ARP 114 Who has 172.16.2.254? Tell 172.16.2.1
59 107.083649211 Private_66:68:03 Broadcast ARP 114 Who has 172.16.2.254? Tell 172.16.2.1
60 107.091224562 172.16.2.1 172.16.4.1 ICMP 148 Echo (ping) request id=0xbdc4, seq=1/256, ttl=63 (no response found!)
61 107.091265388 172.16.2.1 172.16.4.1 ICMP 148 Echo (ping) request id=0xbdc4, seq=1/256, ttl=63 (no response found!)
62 107.093463793 172.16.2.1 172.16.4.1 ICMP 148 Echo (ping) request id=0xbdc4, seq=1/256, ttl=63 (reply in 65)
63 107.108303001 12:00:00:00:01:00 Private_66:68:01 ARP 92 172.16.4.254 is at 12:00:00:00:01:00
64 107.115530813 12:00:00:00:01:00 Private_66:68:01 ARP 92 172.16.4.254 is at 12:00:00:00:01:00
65 107.117918653 172.16.4.1 172.16.2.1 ICMP 148 Echo (ping) reply id=0xbdc4, seq=1/256, ttl=63 (request in 62)
66 107.118026266 172.16.4.1 172.16.2.1 ICMP 148 Echo (ping) reply id=0xbdc4, seq=1/256, ttl=63
Frame 62: 148 bytes on wire (1184 bits), 148 bytes captured (1184 bits) on interface eth0, id 0
Ethernet II, Src: HewlettP_44:d8:40 (08:00:09:44:d8:40), Dst: HewlettP_ac:ed:d7 (08:00:09:ac:ed:d7)
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 192.168.1.4
User Datagram Protocol, Src Port: 24083, Dst Port: 4789
Virtual eXtensible Local Area Network
Flags: 0x0800, VXLAN Network ID (VNI)
Group Policy ID: 0
VXLAN Network Identifier (VNI): 10020
Reserved: 0
Ethernet II, Src: 12:00:00:00:01:00 (12:00:00:00:01:00), Dst: Private_66:68:01 (00:50:79:66:68:01)
Destination: Private_66:68:01 (00:50:79:66:68:01)
Address: Private_66:68:01 (00:50:79:66:68:01)
.... ..0. .... = LG bit: Globally unique address (factory default)
....0 .... = IG bit: Individual address (unicast)
Source: 12:00:00:00:01:00 (12:00:00:00:01:00)
Address: 12:00:00:00:01:00 (12:00:00:00:01:00)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory default)
....0 .... = IG bit: Individual address (unicast)
Type: IPv4 (0x0800)
Internet Protocol Version 4, Src: 172.16.2.1, Dst: 172.16.4.1
Internet Control Message Protocol
0000 08 00 09 ac ed d7 08 00 09 44 d8 40 08 00 45 00
0010 00 86 00 00 00 00 3f 11 f8 10 c0 a8 01 02 c0 a8
0020 01 04 5e 13 12 b5 00 72 00 00 08 00 00 00 00 27
0030 24 00 00 50 79 66 68 01 12 00 00 00 01 00 08 00
0040 45 00 00 54 c4 bd 00 00 3f 01 58 c9 ac 10 02 01
0050 ac 10 04 01 08 00 62 46 bd c4 00 01 08 09 0a 0b
0060 0c 0d 0e 0f 10 11 12 13 14 15 16 17 18 19 1a 1b
0070 1c 1d 1e 1f 20 21 22 23 24 25 26 27 28 29 2a 2b
0080 2c 2d 2e 2f 30 31 32 33 34 35 36 37 38 39 3a 3b
0090 3c 3d 3e 3f


campus-leaf-bud-sw1_1/1/1
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
bgp
No. Time Source Destination Protocol Length Info
438 648.632018607 192.168.1.4 192.168.1.5 BGP 85 KEEPALIVE Message
440 649.222623005 192.168.1.1 192.168.1.5 BGP 85 KEEPALIVE Message
447 663.492712143 192.168.1.5 192.168.1.4 BGP 85 KEEPALIVE Message
449 663.625063337 192.168.1.5 192.168.1.1 BGP 85 KEEPALIVE Message
464 702.920975344 192.168.1.4 192.168.1.5 BGP 85 KEEPALIVE Message
466 707.722164076 192.168.1.1 192.168.1.5 BGP 85 KEEPALIVE Message
470 712.765740585 192.168.1.5 192.168.1.1 BGP 85 KEEPALIVE Message
472 714.493494856 192.168.1.5 192.168.1.4 BGP 131 UPDATE Message
473 714.493542544 192.168.1.5 192.168.1.1 BGP 131 UPDATE Message
Path attributes
Path Attribute - MP_UNREACH_NLRI
Flags: 0x90, Optional, Extended-Length, Non-transitive, Complete
Type Code: MP_UNREACH_NLRI (15)
Length: 38
Address family identifier (AFI): Layer-2 VPN (25)
Subsequent address family identifier (SAFI): EVPN (70)
Withdrawn routes (35 bytes)
EVPN NLRI: MAC Advertisement Route
Route Type: MAC Advertisement Route (2)
Length: 33
Route Distinguisher: 0001c0a801020014 (192.168.1.2:20)
ESI: 00:00:00:00:00:00:00:00:00:00
ESI Type: ESI 9 bytes value (0)
ESI Value: 00 00 00 00 00 00 00 00 00
ESI 9 bytes value: 00 00 00 00 00 00 00 00 00
Ethernet Tag ID: 0
MAC Address Length: 48
MAC Address: Private 66:68:02 (00:50:79:66:68:02)
IP Address Length: 0
IP Address: NOT INCLUDED
[Expert Info (Note/Protocol): IP Address: NOT INCLUDED]
[IP Address: NOT INCLUDED]
[Severity level: Note]
[Group: Protocol]
0000 0000 0010 0111 0010 .... = MPLS Label 1: 626
0000 08 00 09 ac ed d7 08 00 09 44 d8 40 08 00 45 c0
0010 00 75 9a f3 40 00 ff 06 5c 78 c0 a8 01 05 c0 a8
0020 01 01 00 b3 99 9b 85 db 21 2e 21 71 b7 12 80 18
0030 01 fc ea a3 00 00 01 01 08 0a da f6 1c e3 6e 74
0040 3a 52 ff ff ff ff ff ff ff ff ff ff ff ff ff ff
0050 ff ff 00 41 02 00 00 00 2a 90 0f 00 26 00 19 46
0060 02 21 00 01 c0 a8 01 02 00 14 00 00 00 00 00 00
0070 00 00 00 00 00 00 00 00 30 00 50 79 66 68 02 00
0080 00 27 24