

Troubleshoot EVPN/VxLAN in Multisite Environment

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Introduction

This document describes how to troubleshoot Ethernet VPN/ Virtual Extensible LAN (EVPN/VxLAN) in Multisite Environment.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Multiprotocol Label Switching (MPLS) Layer 3 VPN
- Multiprotocol-Border Gateway Protocol (MP-BGP)
- EVPN

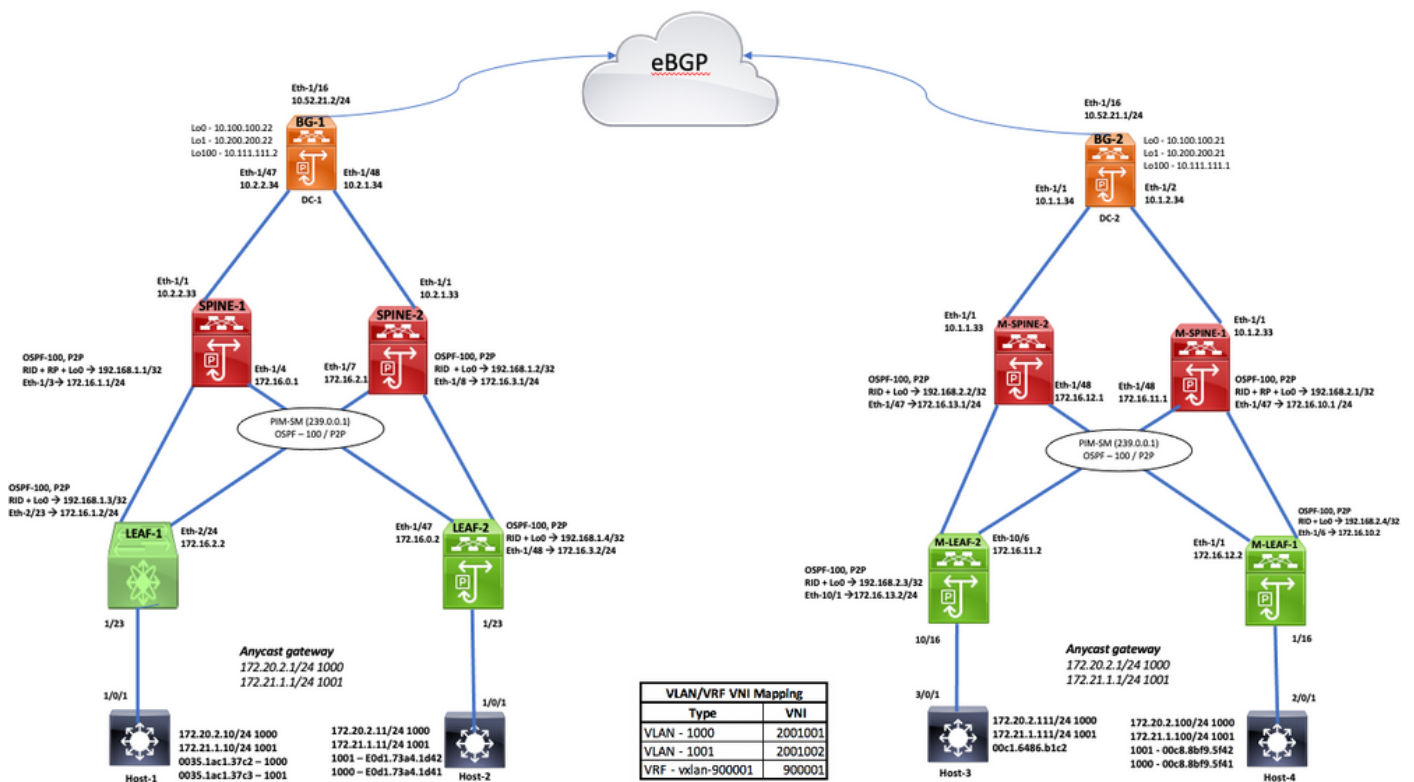
Components Used

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

| | | |
|------------------|---------------------|-----------------------------|
| leaf1# | N5K-C5672UP-16G-SUP | system: version 7.3(0)N1(1) |
| leaf2# | N9K-C92160YC-X | NXOS: version 9.2(3) |
| spine1# | N9K-C9396PX | NXOS: version 9.2(3) |
| spine2# | N9K-C9396PX | NXOS: version 9.2(3) |
| MultisiteBG1# | N9K-C93108TC-EX | NXOS: version 9.2(3) |
| MultisiteBG2# | N9K-C93108TC-FX | NXOS: version 9.3(1) |
| multisitespine2# | N9K-C9372TX-E | NXOS: version 9.2(3) |
| Multistespine1# | N9K-C92160YC-X | NXOS: version 9.2(3) |
| MultisteLeaf1# | N9K-C93108TC-EX | NXOS: version 7.0(3)I7(5) |

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.

Topology



This document describes where the traffic is originated from (DC-1, Host1/2 - 172.20.2.10/11) and then walk with our packets till destination DC-2, Host4 (172.20.2.100).

Control Plane Verification



Traffic Flow:

Step 1.

Check for the right IP, VLAN on the source node.

```
ToLeaf1#show ip interface brief | exclude down
```

| Interface | IP-Address | OK? | Method | Status | Protocol |
|----------------------|-------------|-----|--------|--------|----------|
| Vlan1000 | 172.20.2.10 | YES | NVRAM | up | up |
| Vlan1001 | 172.21.1.10 | YES | NVRAM | up | up |
| GigabitEthernet1/0/1 | unassigned | YES | unset | up | up |

```
ToLeaf1#
```

Now you have the reachability from the source node to its SVI-GW of Vlan-1000.

```
ToLeaf1#ping 172.20.2.1
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 172.20.2.1, timeout is 2 seconds:

```
!!!!!
```

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/205/1006 ms

```
ToLeaf1#
```

Step 2. Move on to the first-hop which is **leaf1** and verify things at Layer-2 & Layer-3 level.

Now see whether **leaf1** learn the mac, arp from source node or not.

Yes, mac-address (0035.1ac1.37c2), IP 172.20.2.10 of the source node is learned on eth1/23 through Vlan1000.

```
leaf1#show mac address-table
```

Legend:

* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC

age - seconds since last seen,+ - primary entry using vPC Peer-Link

| VLAN | MAC Address | Type | age | Secure | NTFY | Ports/SWID.SSID.LID |
|--------|----------------|--------|-----|--------|------|---------------------|
| * 1001 | 0000.2222.3333 | static | 0 | F | F | sup-eth2 |

```

* 1001    0035.1ac1.37c3    dynamic    500        F    F    Eth1/23
* 1001    005d.738e.a337    static     0           F    F    nve1/10.111.111.2
* 1001    00c8.8bf9.5f42    dynamic     0           F    F    nve1/10.111.111.2
* 1001    6cb2.ae91.38bf    static     0           F    F    nve1/10.200.200.22
* 1001    e0d1.73a4.1d42    dynamic     0           F    F    nve1/192.168.1.4
* 1000    0000.2222.3333    static     0           F    F    sup-eth2
* 1000    0035.1ac1.37c2    dynamic    70          F    F    Eth1/23
* 1000    005d.738e.a337    static     0           F    F    nve1/10.111.111.2
* 1000    00c8.8bf9.5f41    dynamic     0           F    F    nve1/10.111.111.2
* 1000    6cb2.ae91.38bf    static     0           F    F    nve1/10.200.200.22
* 1000    e0d1.73a4.1d41    dynamic     0           F    F    nve1/192.168.1.4

leaf1#

```

Verify ARP Table in Source-Leaf

```
leaf1#show ip arp vrf all
```

```

Flags: * - Adjacencies learnt on non-active FHRP router
       + - Adjacencies synced via CFSOE
       # - Adjacencies Throttled for Glean
       D - Static Adjacencies attached to down interface

```

```
IP ARP Table for all contexts
```

```
Total number of entries: 5
```

| Address | Age | MAC Address | Interface |
|--------------------|-----------------|-----------------------|-----------------|
| 172.21.1.10 | 00:08:14 | 0035.1ac1.37c3 | Vlan1001 |
| 172.20.2.10 | 00:00:58 | 0035.1ac1.37c2 | Vlan1000 |
| 10.31.121.1 | 00:08:14 | 2c31.24b0.bf46 | mgmt0 |
| 172.16.1.1 | 00:07:51 | 0081.c41c.f007 | Ethernet2/23 |
| 172.16.2.1 | 00:08:14 | cc46.d68f.d74b | Ethernet2/24 |

```
leaf1#
```

This shows how does leaf1 gets the message to make an IP/mac entry of source node.

```

leaf1#show system internal l2rib event-history mac | i 0035.1ac1.37c2 | be create

[04/24/20 13:10:09.721 UTC 6 4173] (1000,0035.1ac1.37c2,3):MAC route created with seq num:0,
flags:L (), soo:0, peerid:0

[04/24/20 13:10:09.732 UTC c 4173] (1000,0035.1ac1.37c2,3):Encoding MAC best route (ADD, client
id 4)

[04/24/20 13:10:09.871 UTC e 4173] (1000,0035.1ac1.37c2):Bound MAC-IP(172.20.2.10) to MAC, Total
MAC-IP linked: 1

[04/24/20 13:10:42.651 UTC 1a 4173] Received MAC ROUTE msg: addr: (1000-0035.1ac1.37c2) vni: 0
admin_dist: 0 seq_num: 0 rt_flags: L soo: 0 dg_count: 0 res: 0 esi: (F) nh_count: 1

[04/24/20 13:10:42.651 UTC 1c 4173] (1000,0035.1ac1.37c2):Mobility check for new rte from prod:
3

[04/24/20 13:10:42.651 UTC 1d 4173] (1000,0035.1ac1.37c2):Current non-del-pending route
local:yes, remote:no, linked mac-ip count:1

[04/24/20 13:10:42.651 UTC 1e 4173] (1000,0035.1ac1.37c2):Mobility type: local-to-local; New
route SOO: 0, Seq num: 0; Existing route SOO: 0, Seq num: 0

[04/24/20 13:10:42.651 UTC 1f 4173] (1000,0035.1ac1.37c2):Local Update, Add to DB

[04/24/20 13:10:42.651 UTC 20 4173] (1000,0035.1ac1.37c2,3):Using seq number from Recv-based
route

<.....snipped for brevity.....>

```

```
leaf1#
```

Once you have verified how the mac/IP entry has made in leaf1, this is one of the important observation points where the mac/mac-ip information gets tied with BGP and is advertised as l2vpn/evpn routes.

```
leaf1#show bgp l2vpn evpn 0035.1ac1.37c2
```

```
Route Distinguisher: 192.168.1.3:33767 (L2VNI 2001002)
```

```
BGP routing table entry for [2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216, version 99
```

```
Paths: (1 available, best #1)
```

```
Flags: (0x00010a) on xmit-list, is not in l2rib/evpn
```

```
Advertised path-id 1
```

```
Path type: local, path is valid, is best path
```

```
AS-Path: NONE, path locally originated
```

```
192.168.1.3 (metric 0) from 0.0.0.0 (192.168.1.3)
```

```
Origin IGP, MED not set, localpref 100, weight 32768
```

```
Received label 2001002
```

```
Extcommunity:
```


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

| Network | Next Hop | Metric | LocPrf | Weight | Path |
|---|-------------|--------|--------|--------|------|
| Route Distinguisher: 10.100.100.21:33767 | | | | | |
| Route Distinguisher: 10.100.100.21:33768 | | | | | |
| Route Distinguisher: 10.100.100.22:33767 | | | | | |
| Route Distinguisher: 10.100.100.22:33768 | | | | | |
| Route Distinguisher: 192.168.1.3:33767 (L2VNI 2001002) | | | | | |
| *>1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216 | | | | | |
| | 192.168.1.3 | | 100 | 32768 | i |
| *>1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272 | | | | | |
| | 192.168.1.3 | | 100 | 32768 | i |
| Route Distinguisher: 192.168.1.3:33768 (L2VNI 2001001) | | | | | |
| *>1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216 | | | | | |
| | 192.168.1.3 | | 100 | 32768 | i |
| *>1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272 | | | | | |
| | 192.168.1.3 | | 100 | 32768 | i |
| Route Distinguisher: 192.168.1.4:33767 | | | | | |
| Route Distinguisher: 192.168.1.4:33768 | | | | | |
| Route Distinguisher: 192.168.2.4:33767 | | | | | |
| Route Distinguisher: 192.168.2.4:33768 | | | | | |

Route Distinguisher: 192.168.1.3:3 (L3VNI 900001)

leaf1#

DC-1 Leaf1 To Spine2 Route Verification

leaf1#show bgp l2vpn evpn neighbors 192.168.1.2 advertised-routes

Peer 192.168.1.2 routes for address family L2VPN EVPN:

BGP table version is 191, local router ID is 192.168.1.3

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-redirect, I-injected

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

| Network | Next Hop | Metric | LocPrf | Weight | Path |
|---|-------------|--------|--------|--------|------|
| Route Distinguisher: 10.100.100.21:33767 | | | | | |
| Route Distinguisher: 10.100.100.21:33768 | | | | | |
| Route Distinguisher: 10.100.100.22:33767 | | | | | |
| Route Distinguisher: 10.100.100.22:33768 | | | | | |
| Route Distinguisher: 192.168.1.3:33767 (L2VNI 2001002) | | | | | |
| *>1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216 | | | | | |
| | 192.168.1.3 | | 100 | 32768 | i |
| *>1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272 | | | | | |
| | 192.168.1.3 | | 100 | 32768 | i |
| Route Distinguisher: 192.168.1.3:33768 (L2VNI 2001001) | | | | | |
| *>1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216 | | | | | |
| | 192.168.1.3 | | 100 | 32768 | i |


```
*>1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272
```

```
192.168.1.3
```

```
100
```

```
32768 i
```

```
Route Distinguisher: 192.168.1.4:33767
```

```
Route Distinguisher: 192.168.1.4:33768
```

```
Route Distinguisher: 192.168.2.4:33767
```

```
Route Distinguisher: 192.168.2.4:33768
```

```
Route Distinguisher: 192.168.1.3:3 (L3VNI 900001)
```

```
leaf1#
```

As there are multiple spines, check different commands on different spines to confirm (keep route updates intact).

In DC-1, SPINE-1 and SPINE-2 have EVPN neighborship with Leaf1, Leaf2, and BGW-1

```
spine1#show bgp l2vpn evpn summary
```

```
BGP summary information for VRF default, address family L2VPN EVPN
```

```
BGP router identifier 192.168.1.1, local AS number 200
```

```
BGP table version is 31, L2VPN EVPN config peers 3, capable peers 3
```

```
19 network entries and 19 paths using 4256 bytes of memory
```

```
BGP attribute entries [17/2788], BGP AS path entries [1/6]
```

```
BGP community entries [0/0], BGP clusterlist entries [0/0]
```

| Neighbor | V | AS | MsgRcvd | MsgSent | TblVer | InQ | OutQ | Up/Down | State/PfxRcd |
|---------------|---|-----|---------|---------|--------|-----|------|---------|--------------|
| 10.100.100.22 | 4 | 200 | 44002 | 43993 | 31 | 0 | 0 | 4w2d | 11 |
| 192.168.1.3 | 4 | 200 | 43991 | 43989 | 31 | 0 | 0 | 4w2d | 4 |
| 192.168.1.4 | 4 | 200 | 43996 | 43992 | 31 | 0 | 0 | 4w2d | 4 |

```
spine1#
```

```
spine2#show bgp l2vpn evpn summary
```

```
BGP summary information for VRF default, address family L2VPN EVPN
```

```
BGP router identifier 192.168.1.2, local AS number 200
```

```
BGP table version is 65, L2VPN EVPN config peers 3, capable peers 3
```

```
19 network entries and 19 paths using 4256 bytes of memory
```

```
BGP attribute entries [17/2788], BGP AS path entries [1/6]
```

```
BGP community entries [0/0], BGP clusterlist entries [0/0]
```

| Neighbor | V | AS | MsgRcvd | MsgSent | TblVer | InQ | OutQ | Up/Down | State/PfxRcd |
|---------------|---|-----|---------|---------|--------|-----|------|---------|--------------|
| 10.100.100.22 | 4 | 200 | 47140 | 47115 | 65 | 0 | 0 | 4w4d | 11 |
| 192.168.1.3 | 4 | 200 | 47115 | 47112 | 65 | 0 | 0 | 4w4d | 4 |
| 192.168.1.4 | 4 | 200 | 47121 | 47116 | 65 | 0 | 0 | 4w4d | 4 |

```
spine2#
```

So far, you have reached till SPINE Layer, now see whether this is passed on to border gateway (DC-1, BGW-1) or not.

```
spine2#show bgp l2vpn evpn neighbors 10.100.100.22 advertised-routes
```

```
Peer 10.100.100.22 routes for address family L2VPN EVPN:
```

```
BGP table version is 65, Local Router ID is 192.168.1.2
```

```
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-redirect, I-injected
```

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

| Network | Next Hop | Metric | LocPrf | Weight | Path |
|--|----------|--------|--------|--------|------|
| Route Distinguisher: 10.100.100.21:33767 | | | | | |
| Route Distinguisher: 10.100.100.21:33768 | | | | | |
| Route Distinguisher: 10.100.100.22:27001 | | | | | |

Route Distinguisher: 10.100.100.22:33767

Route Distinguisher: 10.100.100.22:33768

Route Distinguisher: 192.168.1.3:33767

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

192.168.1.3 100 0 i

Route Distinguisher: 192.168.1.3:33768

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272

192.168.1.3 100 0 i

Route Distinguisher: 192.168.1.4:33767

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[32]:[172.20.2.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.1.4:33768

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[32]:[172.21.1.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.2.4:33767

Route Distinguisher: 192.168.2.4:33768

spine2#

<<<<<<<<<Snipped output >>>>>>

spine2#show bgp l2vpn evpn neighbors 10.100.100.22 advertised-routes | i 0035.1ac1.37c2 p 1 n 1

Route Distinguisher: 192.168.1.3:33767

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

| | | | |
|-------------|-----|---|---|
| 192.168.1.3 | 100 | 0 | i |
|-------------|-----|---|---|

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

| | | | |
|-------------|-----|---|---|
| 192.168.1.3 | 100 | 0 | i |
|-------------|-----|---|---|

spine2#

Verify at the BORDER layer of DC-1, from where routes are propagated to a different site.

You are then able to see with whom, what type of routes and how many routes are exchanged in BGW-1

DC-1 BGW-1

MultisiteBG1#show bgp l2vpn evpn summary

BGP summary information for VRF default, address family L2VPN EVPN

BGP router identifier 10.100.100.22, local AS number 200

BGP table version is 233, L2VPN EVPN config peers 3, capable peers 3

37 network entries and 45 paths using 7296 bytes of memory

BGP attribute entries [37/6068], BGP AS path entries [1/6]

BGP community entries [0/0], BGP clusterlist entries [4/16]

| Neighbor | V | AS | MsgRcvd | MsgSent | TblVer | InQ | OutQ | Up/Down | State/PfxRcd |
|---------------|---|-----|---------|---------|--------|-----|------|----------|--------------|
| 10.100.100.21 | 4 | 100 | 47145 | 47121 | 233 | 0 | 0 | 4w4d | 8 |
| 192.168.1.1 | 4 | 200 | 47153 | 47125 | 233 | 0 | 0 | 18:52:35 | 8 |
| 192.168.1.2 | 4 | 200 | 47139 | 47119 | 233 | 0 | 0 | 4w4d | 8 |

| Neighbor | T | AS | PfxRcd | Type-2 | Type-3 | Type-4 | Type-5 |
|---------------|---|-----|--------|--------|--------|--------|--------|
| 10.100.100.21 | E | 100 | 8 | 6 | 2 | 0 | 0 |
| 192.168.1.1 | I | 200 | 8 | 8 | 0 | 0 | 0 |

192.168.1.2 I 200 8 8 0 0 0

MultisiteBG1#

MultisiteBG1#show bgp l2vpn evpn neighbors 10.100.100.21 advertised-routes

Peer 10.100.100.21 routes for address family L2VPN EVPN:

BGP table version is 233, Local Router ID is 10.100.100.22

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: 10.100.100.21:33767 | | | | | |
| Route Distinguisher: 10.100.100.21:33768 | | | | | |
| Route Distinguisher: 10.100.100.22:27001 (ES [0300.0000.0000.c800.0309 0]) | | | | | |
| *>l[4]:[0300.0000.0000.c800.0309]:[32]:[10.200.200.22]/136 | | | | | |
| | 10.200.200.22 | | 100 | 32768 | i |
| Route Distinguisher: 10.100.100.22:33767 (L2VNI 2001002) | | | | | |
| *>l[2]:[0]:[0]:[48]:[6cb2.ae91.38bf]:[0]:[0.0.0.0]/216 | | | | | |
| | 10.200.200.22 | | 100 | 32768 | i |
| *>l[3]:[0]:[32]:[10.200.200.22]/88 | | | | | |
| | 10.200.200.22 | | 100 | 32768 | i |
| Route Distinguisher: 10.100.100.22:33768 (L2VNI 2001001) | | | | | |
| *>l[2]:[0]:[0]:[48]:[6cb2.ae91.38bf]:[0]:[0.0.0.0]/216 | | | | | |
| | 10.200.200.22 | | 100 | 32768 | i |
| *>l[3]:[0]:[32]:[10.200.200.22]/88 | | | | | |
| | 10.200.200.22 | | 100 | 32768 | i |

Route Distinguisher: 192.168.1.3:33767

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

192.168.1.3 100 0 i

Route Distinguisher: 192.168.1.3:33768

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272

192.168.1.3 100 0 i

Route Distinguisher: 192.168.1.4:33767

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[32]:[172.20.2.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.1.4:33768

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[32]:[172.21.1.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.2.4:33767

Route Distinguisher: 192.168.2.4:33768

MultisiteBG1#

MultisiteBG1#show bgp l2vpn evpn neighbors 10.100.100.21 advertised-routes | i 0035.1ac1.37c2
p 1 n 1

Route Distinguisher: 192.168.1.3:33767

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

192.168.1.3 100 0 i

MultisiteBG1#

Once the routes are received at DC-2/BGW-2, you do see the route advertisement to its connected SPINE-1 (192.168.2.1)

DC-2 BGW-2

MultisiteBG2#**show bgp l2vpn evpn summary**

BGP summary information for VRF default, address family L2VPN EVPN

BGP router identifier 10.100.100.21, local AS number 100

BGP table version is 142, L2VPN EVPN config peers 3, capable peers 2

43 network entries and 43 paths using 7680 bytes of memory

BGP attribute entries [33/5412], BGP AS path entries [1/6]

BGP community entries [0/0], BGP clusterlist entries [1/4]

| Neighbor | V | AS | MsgRcvd | MsgSent | TblVer | InQ | OutQ | Up/Down | State/PfxRcd |
|---------------|---|-----|---------|---------|--------|-----|------|----------|--------------|
| 10.100.100.22 | 4 | 200 | 47169 | 47124 | 142 | 0 | 0 | 4w4d | 12 |
| 192.168.2.1 | 4 | 100 | 47136 | 47124 | 142 | 0 | 0 | 4w4d | 4 |
| 192.168.2.2 | 4 | 100 | 45969 | 45963 | 0 | 0 | 0 | 19:21:40 | Idle |

| Neighbor | T | AS | PfxRcd | Type-2 | Type-3 | Type-4 | Type-5 |
|---------------|---|-----|--------|--------|--------|--------|--------|
| 10.100.100.22 | E | 200 | 12 | 10 | 2 | 0 | 0 |
| 192.168.2.1 | I | 100 | 4 | 4 | 0 | 0 | 0 |
| 192.168.2.2 | I | 100 | Idle | 0 | 0 | 0 | 0 |

MultisiteBG2#

MultisiteBG2#**show bgp l2vpn evpn neighbors 192.168.2.1 advertised-routes | i 0035.1ac1.37c2 p 1 n 1**

Route Distinguisher: 192.168.1.3:33767

*>e[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

10.111.111.2 2000 0 200 i

*>e[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

10.111.111.2 2000 0 200 i

MultisiteBG2#

Routes are further advertised to DC-2, Leaf-1 where the destination is connected to.

DC-2 Spine To Leaf Route Advertisement

Multistespinel#show bgp l2vpn evpn summary

BGP summary information for VRF default, address family L2VPN EVPN

BGP router identifier 192.168.2.1, local AS number 100

BGP table version is 50, L2VPN EVPN config peers 3, capable peers 2

19 network entries and 19 paths using 4256 bytes of memory

BGP attribute entries [15/2460], BGP AS path entries [1/6]

BGP community entries [0/0], BGP clusterlist entries [0/0]

| Neighbor | V | AS | MsgRcvd | MsgSent | TblVer | InQ | OutQ | Up/Down | State/PfxRcd |
|---------------|---|-----|---------|---------|--------|-----|------|---------|--------------|
| 10.100.100.21 | 4 | 100 | 47152 | 47131 | 50 | 0 | 0 | 4w4d | 15 |
| 192.168.2.3 | 4 | 100 | 0 | 0 | 0 | 0 | 0 | 4w4d | Idle |
| 192.168.2.4 | 4 | 100 | 47135 | 47131 | 50 | 0 | 0 | 4w4d | 4 |

Multistespinel#

Multistespinel#show bgp l2vpn evpn neighbors 192.168.2.4 advertised-routes | i 0035.1ac1.37c2 p 1 n 1

Route Distinguisher: 192.168.1.3:33767

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

10.111.111.1 2000 100 0 200 i

*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

10.111.111.1 2000 100 0 200 i

Multistespinel#

Now you see, the layer-2 topology got extended from DC-1, Leaf-1 to DC-2, Leaf-1.

DC-2 Leaf-1 Verification

```
MultisteLeaf1#show bgp l2vpn evpn summary
```

```
BGP summary information for VRF default, address family L2VPN EVPN
```

```
BGP router identifier 192.168.2.4, local AS number 100
```

```
BGP table version is 188, L2VPN EVPN config peers 2, capable peers 1
```

```
36 network entries and 36 paths using 6120 bytes of memory
```

```
BGP attribute entries [16/2560], BGP AS path entries [1/6]
```

```
BGP community entries [0/0], BGP clusterlist entries [1/4]
```

```
Neighbor          V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down   State/PfxRcd
192.168.2.1       4   100   47152   47133    188   0   0      4w4d 14
192.168.2.2       4   100   45981   45968     0    0   0 19:26:17 Idle
```

```
MultisteLeaf1#
```

```
MultisteLeaf1#show mac address-table
```

Legend:

* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC

age - seconds since last seen,+ - primary entry using vPC Peer-Link,

(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan

```

VLAN        MAC Address           Type             age             Secure NTFY Ports
-----+-----+-----+-----+-----+-----+-----+-----
*   1      00c8.8bf9.5f01       dynamic          0                F      F      Eth1/16
*  101     00be.75f4.544d       static           -                F      F      Vlan101
*  101     0200.0a6f.6f01       static           -                F      F      nve1(10.111.111.1)
C 1000    0035.1ac1.37c2       dynamic          0                F      F      nve1(10.111.111.1) <<<<<<<<<<<<<<<<<<<<<
* 1000    00c8.8bf9.5f41       dynamic          0                F      F      Eth1/16
C 1000    e0d1.73a4.1d41       dynamic          0                F      F      nve1(10.111.111.1)
C 1001    0035.1ac1.37c3       dynamic          0                F      F      nve1(10.111.111.1)
* 1001    00c8.8bf9.5f42       dynamic          0                F      F      Eth1/16
C 1001    e0d1.73a4.1d42       dynamic          0                F      F      nve1(10.111.111.1)

```

```

G - 0000.2222.3333 static - F F sup-eth1(R)
G - 00be.75f4.544d static - F F sup-eth1(R)
G 101 00be.75f4.544d static - F F sup-eth1(R)
G 1000 00be.75f4.544d static - F F sup-eth1(R)
G 1001 00be.75f4.544d static - F F sup-eth1(R)

```

MultisteLeaf1#

DC-2, Leaf-1 learned Host-4 Mac through Vlan1000.

MultisteLeaf1#**show ip arp vrf vxlan-900001**

```

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 for context vxlan-900001

Total number of entries: 2

| Address | Age | MAC Address | Interface | Flags |
|---------------------|-----------------|-----------------------|-----------------|-------|
| 172.21.1.100 | 00:04:09 | 00c8.8bf9.5f42 | Vlan1001 | |
| 172.20.2.100 | 00:04:09 | 00c8.8bf9.5f41 | Vlan1000 | |

MultisteLeaf1#

Data-Plane Troubleshoot

The data plan verification is tested on multiple devices to understand different packet capture methods and variants.



Zoom-in at N5K which is a destination leaf in this example.

SOURCE: 172.20.2.100 (Host-4)
DESTINATION: 172.20.2.10 (Host-1)

Basic Check On Source-Host4

```
toMultisiteLeaf1#show ip interface brief | exclude down
Interface IP-Address OK? Method Status Protocol
Vlan1000 172.20.2.100 YES NVRAM up up
Vlan1001 172.21.1.1.100 YES NVRAM up up
GigabitEthernet2/0/1 unassigned YES unset up up

toMultisiteLeaf1#
```

```
INITIATE A PING TO HOST-1:
toMultisiteLeaf1#ping 172.20.2.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.20.2.10, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/8 ms
toMultisiteLeaf1#
```

Destination Leaf-1 Check

```
leaf1#show cdp neighbors
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
S - Switch, H - Host, I - IGMP, r - Repeater,
V - VoIP-Phone, D - Remotely-Managed-Device,
s - Supports-STP-Dispute

Device-ID Local Intrfce Hldtme Capability Platform Port ID
MX066-H-01-SW.cisco.com
mgmt0 178 S I WS-C2960X-48TS-L Gig1/0/26
ToLeaf1 Eth1/23 132 S I WS-C3750X-24S Gig1/0/1 <<<<<<<<<<<<<<<<<<<<<<<<< To DC-1/Host-1
spine1(SAL2024RRYF)
Eth2/23 136 R S s N9K-C9372PX-E Eth1/3
spine2(SAL1949UELD)
Eth2/24 138 R S s N9K-C9396PX Eth1/7
leaf1#
leaf1#
```

```
leaf1#show module
Mod Ports Module-Type Model Status
```

```

-----
0 0 Nexus 72UP 16GFC Supervisor N5K-C5672UP-16G-SUP active *
1 24 Nexus 24xSFP Ethernet Module N5600-72UP16GFC ok <<<<<<<<<<<<<<<<<<< To DC-1/Host-1
2 24 Nexus 24xSFP Ethernet/FC Module N5600-72UP16GFC-FC ok
3 6 Nexus 6xQSFP Ethernet Module N5600-72UP16GFC-M6Q ok

```

```
Mod Sw Hw World-Wide-Name(s) (WWN)
-----
```

```

0 7.3(0)N1(1) 1.5 --
1 7.3(0)N1(1) 1.5 --
2 7.3(0)N1(1) 1.5 --
3 7.3(0)N1(1) 1.5 --

```

```
Mod MAC-Address(es) Serial-Num
-----
```

```

0 00de.fb01.9f88 to 00de.fb01.9f88 FOC20162AGC
1 00de.fb01.9f88 to 00de.fb01.9f9f FOC20162AGC
2 00de.fb01.9fa0 to 00de.fb01.9fb7 FOC20162AGC
3 00de.fb01.9fb8 to 00de.fb01.9fcf FOC20162AGC
leaf1#

```

Now see how you can check asic/instance mapping.

```

leaf1#show platform fwm info pif eth1/23 | i i slot_asic
Eth1/23 pd: slot 0 logical port num 22 slot_asic_num 1 global_asic_num 2 fw_inst 10 phy_fw_inst
2 fc 0
leaf1#

```

```

leaf1#show hardware internal bigsur all-ports | i "asic|idx|1/23"
Port |asic|inst|inst|
name |idx |slot|asic|eport|logi|flag|adm|opr|if_index|diag|ucVer
lgb1/23 |2 |0 |1 |10 p |22 |b3 |en |up |1a016000|pass| 0.00
leaf1#

```

Here you can see packets that egress out from Leaf-1 to Host-1.

```

leaf1#elam slot 1 asic bigsur instance 1
leaf1(bigsur-elam)#trigger lu egress ipv4 if destination-ipv4-address_ipv4 172.20.2.10
leaf1(bigsur-elam)#start capture
leaf1(bigsur-elam)#show capture lu
Egress Interface: Ethernet1/23 IS NOT A PC <<<<<<<<<<<<<<<<<<< ELAM is smart, we have a catalyst
switch as HOST-1 :-)

```

```

+-----+
| Lookup Vector |
+-----+-----+
| Field | Raw Value |
+-----+-----+
| SID | 21 |
| PKT_ID | 13 |
| TUN_VLD | 0 |
| TUN_TYPE | 0 |
| TUN_IF | 0 |
| TUN_INST | 0 |
| ERSPAN_TERM_VLD | 0 |
| ERSPAN_DST_IF_IDX | 0 |
| L2MP_VLD | 1 |
| TRILL_ODA | 0x0000000000000 |
| TRILL_OQTAG_VLD | 0 |
| TRILL_OQTAG_DE | 0 |

```




N9K.

You can start from Host-4 and do a simple ping to Host-2. Although its a transit traffic for LEAF switches, still check whether you are able to handle these packets properly or not. Confirm at DC-1/Leaf-2.

In order to confirm, monitor the interface eth-1/23, and punt those packets to CPU and run ethanalyzer/dmirror for the same.

Configure Monitor Session

```
leaf2#configure terminal
leaf2(config)#monitor session 1
leaf2(config-monitor)#source interface ethernet 1/23
leaf2(config-monitor)#destination interface sup-eth 0
leaf2(config-monitor)#no shut
leaf2(config-monitor)#exit
```

```
toMultisiteLeaf1#ping 172.20.2.11 repeat 2
Type escape sequence to abort.
Sending 2, 100-byte ICMP Echos to 172.20.2.11, timeout is 2 seconds:
!!
Success rate is 100 percent (2/2), round-trip min/avg/max = 1/1/1 ms
toMultisiteLeaf1#
```

```
leaf2#ethanalyzer local interface inband mirror
```

```
Capturing on inband
2020-05-27 12:20:57.081654 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.082193 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply
2020-05-27 12:20:57.084902 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.087406 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply

4 packets captured
leaf2#
```

```
leaf2#ethanalyzer local interface inband display-filter "ip.addr==172.20.2.100 && ip.addr==172.20.2.11 && icmp" limit-captured-frames 0
Capturing on inband
2020-05-27 12:20:57.081654 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.082193 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply
2020-05-27 12:20:57.084902 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.087406 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply

4 packets captured
leaf2#
```

In case if you want to send some data from the source and capture on the destination leaf, this is the procedure:

1. Initiate a ping from Host-4 to Host-2.
2. SOURCE: 172.20.2.100 // Src MAC address: 00:C8:8B:F9:5F:41

3. DESTINATION: 172.20.2.11 // Dst MAC address: E0:D1:73:A4:1D:41
4. Packet Size: 777
5. Do-Not-Fragment: YES
6. Data Pattern String: beef

You have enough packet counts in this example so that you can capture packets on the source and destination leaves.

```

toMultisiteLeaf1#ping 172.20.2.11 repeat 200000 data beef df-bit validate size 777
Type escape sequence to abort.
Sending 200000, 777-byte ICMP Echos to 172.20.2.11, timeout is 2 seconds:
Packet sent with the DF bit set
Packet has data pattern 0xBEEF
Reply data will be validated
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

<.....>
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (7376/7376), round-trip min/avg/max = 1/5/151 ms
toMultisiteLeaf1#

```

Basic Checks on First Hop DC-2, Leaf-1



```

MultisteLeaf1#show module
Mod Ports Module-Type Model Status
-----
1 54 48x10GT + 6x40G/100G Ethernet Module N9K-C93108TC-EX active *

Mod Sw Hw Slot
-----
1 7.0(3)I7(5) 1.3 NA

Mod MAC-Address(es) Serial-Num
-----
1 00-be-75-f4-54-46 to 00-be-75-f4-54-95 FDO220225UX

Mod Online Diag Status
-----
1 Pass

* this terminal session
MultisteLeaf1#

```

MultisteLeaf1#show cdp neighbors

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
S - Switch, H - Host, I - IGMP, r - Repeater,
V - VoIP-Phone, D - Remotely-Managed-Device,
s - Supports-STP-Dispute

```
Device-ID Local Intrfce Hldtme Capability Platform Port ID
MX066-H-03-SW.cisco.com
mgmt0 141 S I WS-C2960X-48T Gig1/0/31
Multistespinel(FDO22150SJZ)
Eth1/6 142 R S s N9K-C92160YC- Eth1/47
toMultisiteLeaf1 Eth1/16 128 R S I WS-C3750X-24S Gig2/0/1 <<<<<<<<<<<<<< Towards Host-4
```

Total entries displayed: 3
MultisteLeaf1#

MultisteLeaf1#show hardware internal tah interface et1/16

```
#####
IfIndex: 0x1a001e00
DstIndex: 6084
IfType: 26
Asic: 0
Asic: 0 <<<<<<<<<<<<<<<<
AsicPort: 11
SrcId: 22 <<<<<<<<<<<<<<<<
Slice: 0 <<<<<<<<<<<<<<<<
PortOnSlice: 11
Table entries for interface Ethernet1/16
<.....snipped for brevity.....>
```

MultisteLeaf1#show system internal ethpm info interface ethernet 1/16 | grep slice
IF_STATIC_INFO: port_name=Ethernet1/16,if_index:0x1a001e00,ltl=6084,slot=0,
nxos_port=60,dmod=1,dpid=11,unit=0,queue=65535,xbar_unitbmp=0x0,ns_pid=255,slice_num=0,port_on_s
lice=11,src_id=22
MultisteLeaf1#

Check at the hardware level that did you really receive the packets from Host-4.

MultisteLeaf1#attach module 1
module-1#debug platform internal tah elam asic 0

module-1(TAH-elam)#trigger init asic 0 slice 0 in-select 6 out-select 0 use-src-id 22
param values: start asic 0, start slice 0, lu-a2d 1, in-select 6, out-select 0, src_id 22

module-1(TAH-elam-insel6)#start
module-1(TAH-elam-insel6)#report
Initting block addresses

SUGARBOWL ELAM REPORT SUMMARY
slot - 1, asic - 0, slice - 0
=====

Incoming Interface: Eth1/16
Src Idx : 0x3d, Src BD : 1000
Outgoing Interface Info: dmod 1, dpid 17
Dst Idx : 0x15, Dst BD : 1000

Packet Type: IPv4

Dst MAC address: E0:D1:73:A4:1D:41

Src MAC address: 00:C8:8B:F9:5F:41

.1q Tag0 **VLAN: 1000**, cos = 0x0

Dst IPv4 address: 172.20.2.11

Src IPv4 address: 172.20.2.100

Ver = 4, DSCP = 0, **Don't Fragment = 1**

Proto = 1, TTL = 255, More Fragments = 0

Hdr len = 20, **Pkt len = 777**, Checksum = 0xcffe

L4 Protocol : 1

ICMP type : 8

ICMP code : 0

Drop Info:

LUA:

LUB:

LUC:

LUD:

Final Drops:

```
module-1(TAH-elam-insel6)# exit
```

```
module-1(TAH-elam)# exit
```

```
module-1# exit
```

```
MultisteLeaf1#
```

If you want to see as a pcap, let it ping continuously, the monitor session is configured on the source and destination leaf.

Monitor Session on Source Leaf

```
MultisteLeaf1#show run | section monitor
```

```
monitor session 1
```

```
source interface Ethernet1/16 both
```

```
destination interface sup-eth0
```

```
no shut
```

```
MultisteLeaf1#
```

Monitor Session on Destination Leaf

```
leaf2(config)#show run | section monitor
```

```
monitor session 1
```

```
source interface Ethernet1/23 both
```

```
destination interface sup-eth0
```

```
no shut
```

```
leaf2(config)#
```

Capture on Source Leaf

```
MultisteLeaf1#ethanalyzer local interface inband display-filter "ip.addr==172.20.2.100 &&  
ip.addr==172.20.2.11 && icmp" limit-captured-frames 0 detail
```

```
Capturing on inband
```

```
Frame 1 (791 bytes on wire, 791 bytes captured)
```

```
Arrival Time: May 31, 2020 15:44:46.767411000
```

```
[Time delta from previous captured frame: 0.000000000 seconds]
```


Frame 4 (795 bytes on wire, 795 bytes captured)

Arrival Time: May 31, 2020 15:44:46.888728000
[Time delta from previous captured frame: 0.047867000 seconds]
[Time delta from previous displayed frame: 0.047867000 seconds]
[Time since reference or first frame: 0.121317000 seconds]
Frame Number: 4
Frame Length: 795 bytes
Capture Length: 795 bytes
[Frame is marked: False]
[Protocols in frame: eth:vlan:ip:icmp:data]
Ethernet II, Src: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41), Dst: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)
Destination: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)
Address: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)
.... 0 = IG bit: Individual address (unicast)
... 0. = LG bit: Globally unique address (factory default)
Source: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)
Address: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)
.... 0 = IG bit: Individual address (unicast)
... 0. = LG bit: Globally unique address (factory default)
Type: 802.1Q Virtual LAN (0x8100)
802.1Q Virtual LAN, PRI: 0, CFI: 0, ID: 1000
000. = Priority: 0
... 0 = CFI: 0
... 0011 1110 1000 = ID: 1000
Type: IP (0x0800)
Internet Protocol, Src: 172.20.2.100 (172.20.2.100), Dst: 172.20.2.11 (172.20.2.11)
Version: 4
Header length: 20 bytes
Differentiated Services Field: 0x00 (DSCP 0x00: Default; ECN: 0x00)
0000 00.. = Differentiated Services Codepoint: Default (0x00)
... 0. = ECN-Capable Transport (ECT): 0
... 0 = ECN-CE: 0
Total Length: 777
Identification: 0xaf65 (44901)
Flags: 0x02 (Don't Fragment)
0.. = Reserved bit: Not Set
.1. = Don't fragment: Set
..0 = More fragments: Not Set
Fragment offset: 0
Time to live: 255
Protocol: ICMP (0x01)
Header checksum: 0xbd1b [correct]
[Good: True]
[Bad : False]
Source: 172.20.2.100 (172.20.2.100)
Destination: 172.20.2.11 (172.20.2.11)
Internet Control Message Protocol
Type: 8 (Echo (ping) request)
Code: 0 ()
Checksum: 0x704a [correct]
Identifier: 0x001c
Sequence number: 7430 (0x1d06)
Data (749 bytes)

0000 00 00 00 00 14 67 5f aa be ef be ef be ef be efg_.....
0010 be ef be ef be ef be ef be ef be ef be ef be ef
0020 be ef be ef be ef be ef be ef be ef be ef be ef
0030 be ef be ef be ef be ef be ef be ef be ef be ef
0040 be ef be ef be ef be ef be ef be ef be ef be ef
0050 be ef be ef be ef be ef be ef be ef be ef be ef
0060 be ef be ef be ef be ef be ef be ef be ef be ef
0070 be ef be ef be ef be ef be ef be ef be ef be ef
0080 be ef be ef be ef be ef be ef be ef be ef be ef

```

0090 be ef be ef be ef be ef be ef be ef be ef be ef .....
00a0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00b0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00c0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00d0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00e0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00f0 be ef be ef be ef be ef be ef be ef be ef be ef .....
0100 be ef be ef be ef be ef be ef be ef be ef be ef .....
0110 be ef be ef be ef be ef be ef be ef be ef be ef .....
0120 be ef be ef be ef be ef be ef be ef be ef be ef .....
0130 be ef be ef be ef be ef be ef be ef be ef be ef .....
0140 be ef be ef be ef be ef be ef be ef be ef be ef .....
0150 be ef be ef be ef be ef be ef be ef be ef be ef .....
0160 be ef be ef be ef be ef be ef be ef be ef be ef .....
0170 be ef be ef be ef be ef be ef be ef be ef be ef .....
0180 be ef be ef be ef be ef be ef be ef be ef be ef .....
0190 be ef be ef be ef be ef be ef be ef be ef be ef .....
01a0 be ef be ef be ef be ef be ef be ef be ef be ef .....
01b0 be ef be ef be ef be ef be ef be ef be ef be ef .....
01c0 be ef be ef be ef be ef be ef be ef be ef be ef .....
01d0 be ef be ef be ef be ef be ef be ef be ef be ef .....

```

MultisteLeaf1#

Basic Checks on Last Hop DC-1, Leaf-2



leaf2#**show module**

Mod Ports Module-Type Model Status

```
-----
1 54 48x10G + 4x40G + 2x100G Ethernet Modu N9K-C92160YC-X active *
```

Mod Sw Hw Slot

```
-----
1 9.2(3) 1.3 NA
```

Mod MAC-Address(es) Serial-Num

```
-----
1 70-79-b3-3e-81-1c to 70-79-b3-3e-81-69 FDO22111H2V
```

Mod Online Diag Status

```
-----
1 Pass
```

* this terminal session

leaf2#**show cdp neighbors**

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
S - Switch, H - Host, I - IGMP, r - Repeater,
V - VoIP-Phone, D - Remotely-Managed-Device,
s - Supports-STP-Dispute

Device-ID Local Intrfce Hldtme Capability Platform Port ID

```

Tleaf2 Eth1/23 142 S I WS-C3750X-24S Gig1/0/1 <<<<<<<<<<<<<<< Towards Host-2
switch(SAL2024RRYF)
Eth1/47 175 R S I s N9K-C9372PX-E Eth1/4
spine2(SAL1949UELD)

```


0290 be ef be ef be ef be ef be ef be ef be ef be ef be ef
02a0 be ef be ef be ef be ef be ef be ef be ef be ef be ef
02b0 be ef be ef be ef be ef be ef be ef be ef be ef be ef
02c0 be ef be ef be ef be ef be ef be ef be ef be ef be ef
02d0 be ef be ef be ef be ef be ef be ef be ef be ef be ef
02e0 be ef be ef be ef be ef be ef be ef be ef 00

Data: 00000000147F4ADBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEF...

[Length: 749]

Frame 2 (791 bytes on wire, 791 bytes captured)

Arrival Time: May 31, 2020 15:45:55.694904000

[Time delta from previous captured frame: 0.020346000 seconds]

[Time delta from previous displayed frame: 0.020346000 seconds]

[Time since reference or first frame: 0.020346000 seconds]

Frame Number: 2

Frame Length: 791 bytes

Capture Length: 791 bytes

[Frame is marked: False]

[Protocols in frame: eth:ip:icmp:data]

Ethernet II, Src: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41), Dst: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)

Destination: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)

Address: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)

.... ..0 = IG bit: Individual address (unicast)

.... ..0. = LG bit: Globally unique address (factory default)

Source: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)

Address: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)

.... ..0 = IG bit: Individual address (unicast)

.... ..0. = LG bit: Globally unique address (factory default)

Type: IP (0x0800)

Internet Protocol, Src: 172.20.2.100 (172.20.2.100), Dst: 172.20.2.11 (172.20.2.11)

Version: 4

Header length: 20 bytes

Differentiated Services Field: 0x00 (DSCP 0x00: Default; ECN: 0x00)

0000 00.. = Differentiated Services Codepoint: Default (0x00)

.... ..0. = ECN-Capable Transport (ECT): 0

.... ..0 = ECN-CE: 0

Total Length: 777

Identification: 0x8237 (33335)

Flags: 0x02 (Don't Fragment)

0.. = Reserved bit: Not Set

.1. = Don't fragment: Set

..0 = More fragments: Not Set

Fragment offset: 0

Time to live: 255

Protocol: ICMP (0x01)

Header checksum: 0xea49 [correct]

[Good: True]

[Bad : False]

Source: 172.20.2.100 (172.20.2.100)

Destination: 172.20.2.11 (172.20.2.11)

Internet Control Message Protocol

Type: 8 (Echo (ping) request)

Code: 0 ()

Checksum: 0x980f [correct]

Identifier: 0x001f

Sequence number: 2515 (0x09d3)

Data (749 bytes)

0000 00 00 00 00 14 7f 4a fd be ef be ef be ef be efJ.....

0010 be ef be ef be ef be ef be ef be ef be ef be ef

0020 be ef be ef be ef be ef be ef be ef be ef be ef

0030 be ef be ef be ef be ef be ef be ef be ef be ef

0040 be ef be ef be ef be ef be ef be ef be ef be ef

