

# 排除多站點環境中的EVPN/VxLAN故障

## 目錄

[簡介](#)

[必要條件](#)

[需求](#)

[採用元件](#)

[拓撲](#)

[控制平面驗證](#)

[檢驗Source-Leaf中的ARP表](#)

[DC-1枝葉1到骨幹1路由驗證](#)

[DC-1枝葉1到骨幹2路由驗證](#)

[DC-1 BGW-1](#)

[DC-2 BGW-2](#)

[DC-2主幹到枝葉路由通告](#)

[DC-2枝葉-1驗證](#)

[資料平面故障排除](#)

[對Source-Host4執行基本檢查](#)

[目標枝葉-1檢查](#)

[配置監控器會話](#)

[對第一跳DC-2、枝葉-1的基本檢查](#)

[在源枝葉上監控會話](#)

[監控目標枝葉上的會話](#)

[在源枝葉上捕獲](#)

[對最後一跳DC-1、枝葉-2的基本檢查](#)

## 簡介

本檔案介紹如何在多站點環境中對乙太網路VPN/虛擬可擴充區域網路(EVPN/VxLAN)進行疑難排解。

## 必要條件

### 需求

思科建議您瞭解以下主題：

- 多重協定標籤交換(MPLS)第3層VPN
- 多重通訊協定邊界閘道通訊協定(MP-BGP)
- EVPN

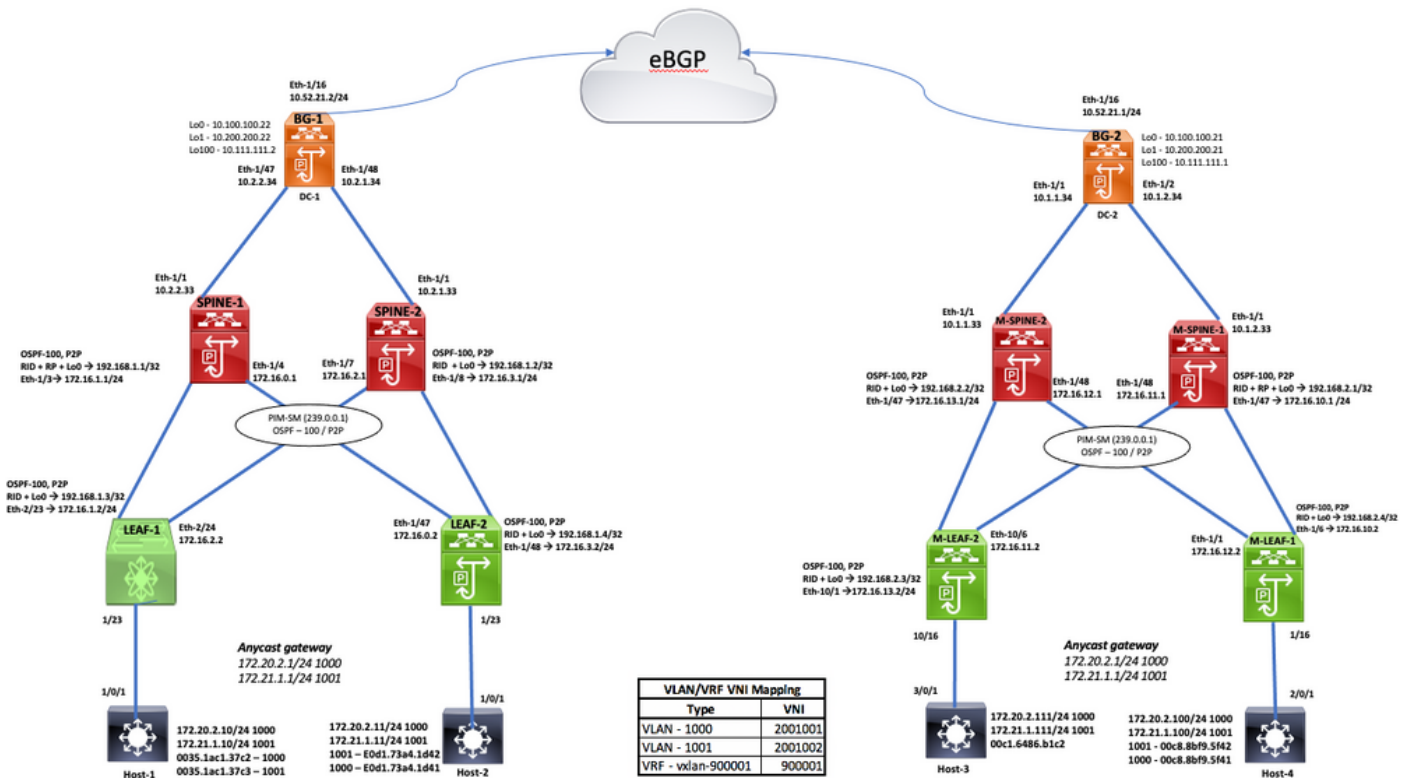
### 採用元件

本文中的資訊係根據以下軟體和硬體版本：

leaf1#	N5K-C5672UP-16G-SUP	系統：版本7.3(0)N1(1)
leaf2#	N9K-C92160YC-X	NXOS：版本9.2(3)
骨幹1#	N9K-C9396PX	NXOS：版本9.2(3)
骨幹2#	N9K-C9396PX	NXOS：版本9.2(3)
多站點BG1#	N9K-C93108TC-EX	NXOS：版本9.2(3)
多站點BG2#	N9K-C93108TC-FX	NXOS：版本9.3(1)
多站點骨幹2#	N9K-C9372TX-E	NXOS：版本9.2(3)
Multistespine1#	N9K-C92160YC-X	NXOS：版本9.2(3)
MultisteLeaf1#	N9K-C93108TC-EX	NXOS：版本7.0(3)I7(5)

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

## 拓撲



本檔案介紹流量源自哪裡(DC-1，主機1/2 - 172.20.2.10/11)，然後使用我們的封包前往目的地DC-2，主機4(172.20.2.100)。

## 控制平面驗證



流量傳輸：  
節點上檢查正確的IP和VLAN。

步驟1.在源

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#

現在，您可以從源節點連線到其SVI-GW的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#

步驟2.轉到leaf1的第一跳，在第2層和第3層驗證內容。

現在檢視leaf1是否從源節點獲取mac和arp。

是，在eth1/23上通過Vlan1000獲知源節點的mac-address(0035.1ac1.37c2)和IP 172.20.2.10。

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#

```

## 檢驗Source-Leaf中的ARP表

```
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
<b>172.20.2.10</b>	<b>00:00:58</b>	<b>0035.1ac1.37c2</b>	<b>Vlan1000</b>
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#
```

這顯示了leaf1如何獲取消息以生成源節點的IP/mac條目。

```
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#
```

一旦您驗證了leaf1中的mac/IP條目的生成方式，這就是mac/mac-ip資訊與BGP繫結並被通告為l2vpn/evpn路由的重要觀察點之一。

```
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:
```

```
RT:200:2001002
```

```
Path-id 1 advertised to peers: <<<<<<<<<<<<<<<<<<<<<<<<< Here we see MAC address is advertised as
mac-only route to its SPINE peers
```

```
192.168.1.1 192.168.1.2
```

```
BGP routing table entry for [2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272, version 4
```

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



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枝葉1到骨幹2路由驗證

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-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#

由於存在多個主幹，請檢查不同主幹上的不同命令以確認（保持路由更新不變）。

在DC-1中，SPINE-1和SPINE-2與Leaf1、Leaf2和BGW-1具有EVPN鄰居關係

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#
```

到目前為止，您已經到達了SPINE層，現在請檢視這是否傳遞到邊界網關(DC-1、BGW-1)。

```
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-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
```

```
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#

<<<<<<<<<

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#

```

在DC-1的BORDER層進行檢驗，路由將從該層傳播到其他站點。

然後，您可以看到在BGW-1中交換了哪些路由、哪些路由型別以及有多少路由

## 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#

在DC-2/BGW-2上收到路由後，您確實會看到通往其連線的SPINE-1(192.168.2.1)的路由通告

## 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#
```

路由會進一步通告到目的地所連線的DC-2和Leaf-1。

## DC-2主幹到枝葉路由通告

```
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#
```

現在您會看到，第2層拓撲已從DC-1、枝葉-1擴展到DC-2、枝葉-1。

## DC-2枝葉-1驗證

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

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





DC-2、Leaf-1通過Vlan1000學習了主機-4 Mac。

```
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#
```

## 資料平面故障排除

在多個裝置上測試資料計畫驗證，以瞭解不同的資料包捕獲方法和變體。



在此示例中，放大目標葉的N5K。

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

## 對Source-Host4執行基本檢查

```
toMultisiteLeaf1#show ip interface brief | exclude down
```

```
Interface IP-Address OK? Method Status Protocol
Vlan1000 172.20.2.100 YES NVRAM up up
Vlan1001 172.21.1.100 YES NVRAM up up
GigabitEthernet2/0/1 unassigned YES unset up up

toMultisiteLeaf1#
```

```
INIATE 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#
```

## 目標枝葉-1検査

```
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#
```

現在瞭解如何檢查asic/例項對映。

```
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
lgbl/23 |2 |0 |1 |10 p |22 |b3 |en |up |1a016000|pass| 0.00
leaf1#
```

此處您可以看到從Leaf-1輸出到Host-1的資料包。

```
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 | 0x000000000000 |
| TRILL_OQTAG_VLD | 0 |
| TRILL_OQTAG_DE | 0 |
| TRILL_DCE_FTAG_VLD | 0 |
| TRILL_DCE_LID_VLD | 0 |
| TRILL_VRM | 0 |
| TRILL_OPT_VLD | 0 |
| TRILL_OPT_BYTE0 | 0 |
| CDCE_DA | 0x020abc000004 |
| CDCE_SA | 0x022001000000 |
| CDCE_DTAG_ETYP | 0x0200 |
| CDCE_DTAG_TTL | 32 |
| CDCE_DTAG_FTAG | 2 |
| NSH_WORD2 | 0x3e70080 |
| CE_DA | 0x00351ac137c2 |<<<<<<<<<<<<<<<<<<<<<<<<<<<< Destination Mac address (Host-1 172.20.2.10)
| CE_SA | 0x00c88bf95f41 |<<<<<<<<<<<<<<<<<<<<<<<<<<<< Source Mac address (Host-4 172.20.2.100)
| VNIC_VLD | 0 |
| CE_1Q_NUM | 1 |
| INT_VLAN | 999 |
| IP_RESV_0 | 0 |
| FCOE_VLD | 0 |
| MPLS_VLD | 0 |
| VEC_TYPE | 0 |
```

```

| TRILL_OSA | 0x000000000000 |
| CMD_SGT_VLD | 0 |
| CMD_SGT | 0 |
| CMD_DGT_VLD | 0 |
| CMD_DGT | 0 |
| HDRP_SNAP | 0 |
| L3_IPV6 | 0 |
| L3_SA | 172.20.2.100 | <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<< Source IP
| L3_DA | 172.20.2.10 | <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<< Destination IP
| L3_TOS | 0 |
| L3_FRAG | 0 |
| L3_MF | 0 |
| L3_TTL | 255 |
| L3_OPT_NONE | 0 |
| L3_NONE_HBH | 0 |
| L3_NONE_ROUTE | 0 |
| L3_NONE_FRAG | 0 |
| L3_NONE_DEST | 0 |
| L3_AH | 0 |
| L3_ESP | 0 |
| L3_PROT | 1 | <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<< ICMP
| L3_LENGTH | 100 |
| MAX_IPV6_HBH | 0 |
| MAX_IPV6_FRAG | 0 |
| L4_TCP_UDP | 0 |
| IP_RESV_1 | 0 |
+-----+
| PYLD_LEN | 4 |
| PARSE_ERR | 0 |
| PARSE_UNEXP | 0 |
| ECN_DROP | 0 |
| IDS_FAIL | 0 |
| IDS_CODE | 0 |
| LKUP_SPARE | 0 |
+-----+
leaf1(bigsur-elam)#

```

現在，您可以瞭解如何在N5K上捕獲資料包，讓我們在N9K上放大。



您可以從Host-4開始，對Host-2執行簡單ping。雖然這是LEAF交換機的中轉流量，但仍然檢查您是否能夠正確處理這些資料包。在DC-1/Leaf-2確認。

為了進行確認，請監控介面eth-1/23，並將這些資料包推到CPU並運行ethalyzer/dmirror進行確認。

## 配置監控器會話

```

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#

```

如果要從源傳送某些資料並在目標枝葉上捕獲，請執行以下步驟：

1. 啟動從Host-4到Host-2的ping。
2. 來源：172.20.2.100 //源MAC地址：00:C8:8B:F9:5F:41
3. 目的地：172.20.2.11 // Dst MAC地址：E0:D1:73:A4:1D:41
4. 資料包大小：777
5. Do-Not-Fragment：是
6. 資料模式字串：牛肉

在此範例中，您的封包計數足夠，因此您可以在來源和目的地枝葉上擷取封包。

```

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#

```

















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 .....  
01e0 be ef be ef be ef be ef be ef be ef be ef be ef .....  
01f0 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0200 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0210 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0220 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0230 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0240 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0250 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0260 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0270 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0280 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0290 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 .....  
02b0 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 .....  
02d0 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: 0000000014675F78BEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEF...

[Length: 749]

**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 ef .....g\_.....  
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#

## 對最後一跳DC-1、枝葉-2的基本檢查



```
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)
Eth1/48 121 R S s N9K-C9396PX Eth1/8

Total entries displayed: 3
leaf2#
leaf2#show hardware internal tah interface ethernet1/23
#####
IfIndex: 0x1a002c00
DstIndex: 6056
IfType: 26
Asic: 0 <<<<<<<<<<<
Asic: 0
AsicPort: 2
SrcId: 4 <<<<<<<<<<<
Slice: 0 <<<<<<<<<<<
PortOnSlice: 2
<.....snipped for brevity.....>
leaf2#

leaf2#show system internal ethpm info interface ethernet 1/23 | grep slice
IF_STATIC_INFO: port_name=Ethernet1/23,if_index:0x1a002c00,ltl=6056,slot=0,
nxos_port=88,dmod=1,dpid=2,unit=0,queue=65535,xbar_unitbmp=0x0,ns_pid=255,slice_num=0,port_on_sl
ice=2,src_id=4
leaf2#
```



運行電子郵件並檢查您是否看到傳送的內容（請記得我們新增了更多引數 — Packet Size、DF-Bit、Data-Pattern）。

```
leaf2#configure terminal
leaf2(config)#attach module 1
module-1#debug platform internal tah elam asic 0
module-1(TAH-elam)#trigger init asic 0 in-select 6 out-select 0 use-src-id 4
param values: start asic 0, start slice 0, lu-a2d 1, in-select 6, out-select 0, src_id 4
module-1(TAH-elam-insel6)# start
module-1(TAH-elam-insel6)# report
Initting block addresses
```

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

**Incoming Interface: Eth1/23**  
Src Idx : 0x59, Src BD : NA  
Outgoing Interface Info: dmod 1, dpid 35  
Dst Idx : 0xbd, Dst BD : 1000

Packet Type: IPv4

Dst MAC address: 00:C8:8B:F9:5F:41  
Src MAC address: E0:D1:73:A4:1D:41  
**.1q Tag0 VLAN: 1000, cos = 0x0 <<<<<<<<<<<<<<<<<<<<<<<<< VLAN-ID**

Dst IPv4 address: 172.20.2.100  
Src IPv4 address: 172.20.2.11  
**Ver = 4, DSCP = 0, Don't Fragment = 1 <<<<<<<<<<<<<<<<<<<<<< DF-bit is SET**  
Proto = 1, TTL = 255, More Fragments = 0  
**Hdr len = 20, Pkt len = 777, Checksum = 0x13dc <<<<<<<<<<<<<<<<<<<<<< Pakekt size = 777**

L4 Protocol : 1  
**ICMP type : 0 <<<<<<<<<<<<<<<<<<<<<< (Echo (ping) reply)**  
ICMP code : 0

Drop Info:  
-----

LUA:  
LUB:  
LUC:  
LUD:  
Final Drops:

vntag:  
vntag\_valid : 0  
vntag\_vir : 0  
vntag\_svif : 0

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



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 .....  
01e0 be ef be ef be ef be ef be ef be ef be ef be ef .....  
01f0 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0200 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0210 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0220 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0230 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0240 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0250 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0260 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0270 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0280 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0290 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 .....  
02b0 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 .....  
02d0 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 ef .....J.....  
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 .....  
01e0 be ef be ef be ef be ef be ef be ef be ef be ef .....

01f0 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0200 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0210 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0220 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0230 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0240 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0250 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0260 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0270 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0280 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0290 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 .....  
02b0 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 .....  
02d0 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: 00000000147F4AFDBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEF...

[Length: 749]

## 關於此翻譯

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