Solución de problemas de EVPN/VxLAN en la configuración multisitio

Contenido

Introducción

Este documento describe el enfoque para resolver problemas de Ethernet VPN/Virtual Extensible LAN (EVPN/VxLAN) en una configuración de varios sitios.

Prerequisites

Requirements

Cisco recomienda que tenga conocimiento sobre estos temas:

- VPN de capa 3 de switching de etiquetas multiprotocolo (MPLS)
- Protocolo de gateway fronterizo multiprotocolo (MP-BGP)
- EVPN

Componentes Utilizados

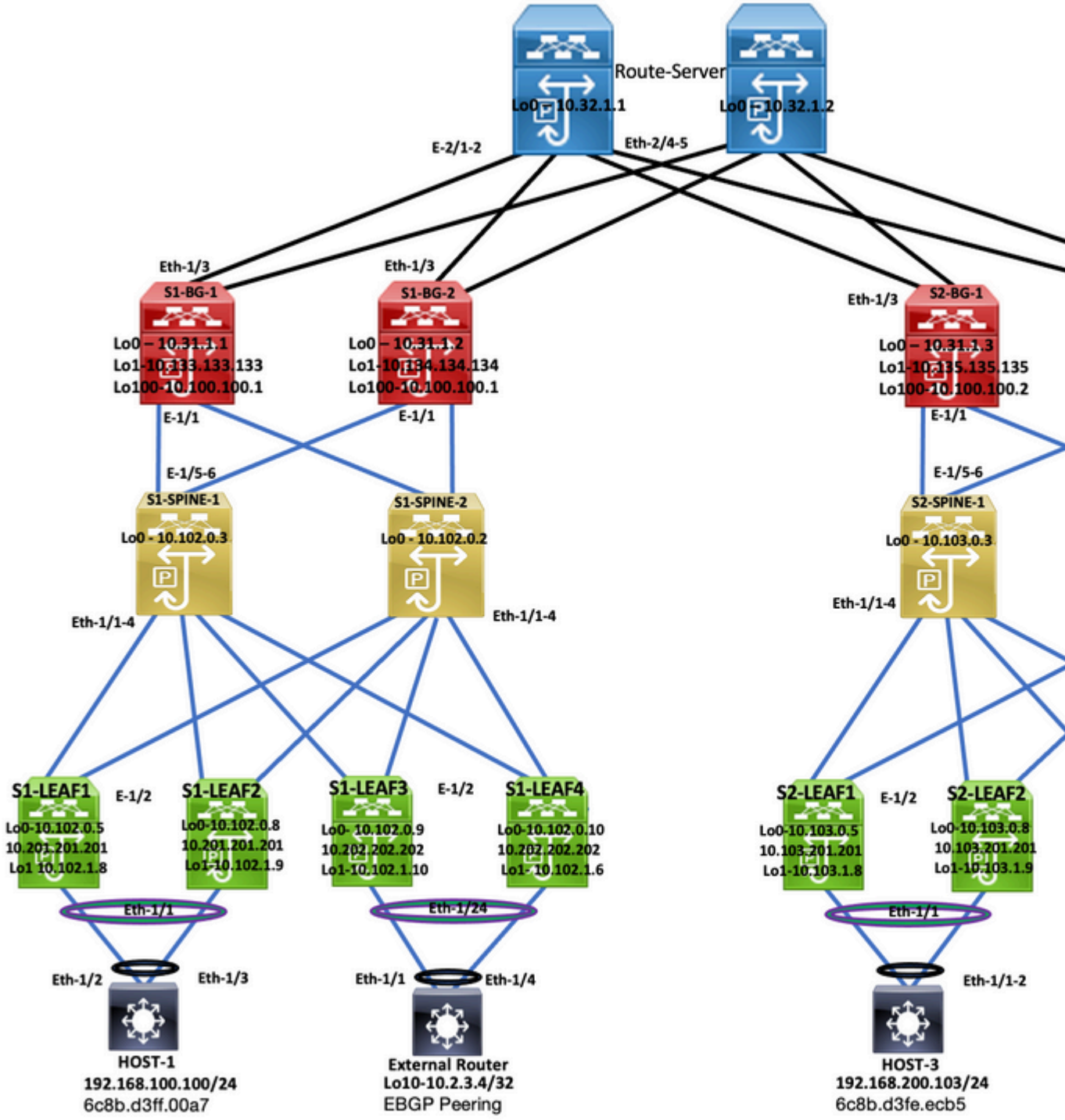
La información que contiene este documento se basa en las siguientes versiones de software y hardware.

Todos los folletos del sitio	N9K-C9336C-FX2	NXOS: 10.2(3)
S1_Columna1	N9K-C936C	NXOS: 10.2(4)
S1_Columna2	N9K-C936C	NXOS: 9.3(5)
S1_Puerta de enlace de frontera1, S2_Puerta de enlace de frontera2, S2_Puerta de enlace de frontera1	N9K-C9332C	NXOS: 9.3(9)
S1_Puerta de enlace de frontera2	N9K-C9332C	NXOS: 10.2(4)
Servidor de ruta	N9K-C9396PX	NXOS: 9.2(2)
Host-1	N3K-C3264C-E	NXOS:

		9.3(5)
Host-2 y Host-3	N3K-C3264C-E	NXOS: 9.2(2)

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

Topología



Topología

Este documento describe dónde se origina el tráfico del DC-2 Host-3 (192.168.200.104/24) y luego camina con los paquetes hasta el DC-1 Host-2 de destino (10.2.3.4).

Verificar el plano de control

Para verificar el plano de control, ingrese estos comandos:

<#root>

HOST_3#

show ip int brief

```
                      10.100.100.2                       100          0 300 100 65111 i


*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                      10.100.100.2                       100          0 300 100 i
*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                      10.100.100.2

S2-Leaf2#
```

show bgp l2vpn evp vrf vrf_2

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 4389, Local Router ID is 10.103.0.8
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: 10.103.0.8:5    (L3VNI 4000502)

*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                      10.100.100.2                       100          0 300 100 i
```

***>i[5]:[0]:[0]:[32]:[10.2.3.4]/224**
10.100.100.2 100 0 300 100 65111 i

```
*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                      10.100.100.2                       100          0 300 100 i
*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                      10.100.100.2                       100          0 300 100 i
S2-Leaf2#

S2-leaf3#
```

show bgp l2vpn evpn vrf vrf_2

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 4196, Local Router ID is 10.103.0.9
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: 10.103.0.9:5    (L3VNI 4000502)
*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                      10.100.100.2                       100          0 300 100 i
```

***>i[5]:[0]:[0]:[32]:[10.2.3.4]/224**
10.100.100.2 100 0 300 100 65111 i

```
*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                      10.100.100.2                       100          0 300 100 i
*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                      10.100.100.2                       100          0 300 100 i

S2-Leaf4#
S2-Leaf4#
```

show bgp l2vpn evpn vrf vrf_2

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 4381, Local Router ID is 10.102.0.10
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: 10.102.0.10:5 (L3VNI 4000502)
*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
           10.100.100.2 100 0 300 100 i

*>i[5]:[0]:[0]:[32]:[10.2.3.4]/224
           10.100.100.2 100 0 300 100 65111 i


*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
           10.100.100.2 100 0 300 100 i
*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
           10.100.100.2 100 0 300 100 i
S2-Leaf4#
S2-Leaf4#
```

<#root>

```
S2-Spine1#

show bgp  l2vpn evpn


BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 1235, Local Router ID is 10.103.0.3
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2
   Network            Next Hop            Metric     LocPrf     Weight Path
Route Distinguisher: 200:4000502
* i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                     10.100.100.2                       100          0 300 100
*>i                  10.100.100.2                       100          0 300 100 i

* i[5]:[0]:[0]:[32]:[10.2.3.4]/224
                     10.100.100.2                       100          0 300 100 65111 i
*>i                  10.100.100.2                       100          0 300 100 65111 i


* i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                     10.100.100.2                       100          0 300 100 i
*>i                  10.100.100.2                       100          0 300 100 i
* i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                     10.100.100.2                       100          0 300 100 i
*>i                  10.100.100.2                       100          0 300 100 i
```

<#root>

```
S2-BG1#

show ip int brie
```

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
Lo0                  10.31.1.3       protocol-up/link-up/admin-up
Lo1                  10.135.135.135  protocol-up/link-up/admin-up
Lo100                10.100.100.2    protocol-up/link-up/admin-up


Eth1/1               192.168.17.12   protocol-up/link-up/admin-up
Eth1/3               10.150.152.1    protocol-up/link-up/admin-up
S2-BG1#

S2-BG1#
```

show ip route 10.2.3.4 vrf vrf_2

```
IP Route Table for VRF "vrf_2"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>


10.2.3.4/32, ubest/mbest: 1/0
*via 10.100.100.1%default, [20/0], 04:09:46, bgp-200, external, tag 300, segid: 4000502 tunnelid: 0xa646


S2-BG1#

S2-BG1#
```

show bgp l2vpn evpn

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 6206, Local Router ID is 10.31.1.3
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2

   Network            Next Hop            Metric     LocPrf     Weight Path
Route Distinguisher: 100:4000502
*>e[5]:[0]:[0]:[24]:[192.168.100.0]/224
                      10.100.100.1                                     0 300 100 i

*>e[5]:[0]:[0]:[32]:[10.2.3.4]/224
                      10.100.100.1                                     0 300 100 65111 i


*>e[5]:[0]:[0]:[32]:[10.100.100.1]/224
                      10.100.100.1                                     0 300 100 i
*>e[5]:[0]:[0]:[32]:[10.100.100.2]/224
                      10.100.100.1                                     0 300 100 i



<#root>

S2-BG2#
```

show ip int brief

```
IP Interface Status for VRF "default"(1)
```

```
Interface            IP Address      Interface Status
Lo0                  10.31.1.4       protocol-up/link-up/admin-up
Lo1                  10.136.136.136  protocol-up/link-up/admin-up
Lo100                10.100.100.2    protocol-up/link-up/admin-up

Eth1/1               192.168.18.12   protocol-up/link-up/admin-up
Eth1/3               10.150.153.1    protocol-up/link-up/admin-up
S2-BG2#
S2-BG2#
S2-BG2#
```

show ip route 10.2.3.4 vrf vrf_2

```
IP Route Table for VRF "vrf_2"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

10.2.3.4/32, ubest/mbest: 1/0
    *via 10.100.100.1%default, [20/0], 04:15:13, bgp-200, external, tag 300, segid: 4000502 tunnelid: 0x

S2-BG2#
S2-BG2#
```

show bgp l2vpn evpn

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 5455, Local Router ID is 10.31.1.4
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2

        Network            Next Hop            Metric     LocPrf     Weight Path
Route Distinguisher: 100:4000502
*>e[5]:[0]:[0]:[24]:[192.168.100.0]/224
                     10.100.100.1                                     0 300 100 i

*>e[5]:[0]:[0]:[32]:[10.2.3.4]/224
                     10.100.100.1                                     0 300 100 65111 i


*>e[5]:[0]:[0]:[32]:[10.100.100.1]/224
                     10.100.100.1                                     0 300 100 i
*>e[5]:[0]:[0]:[32]:[10.100.100.2]/224
                     10.100.100.1                                     0 300 100 i
```

<#root>

```
Router_Server#
```

show ip int brief

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
Lo0                  10.32.1.1       protocol-up/link-up/admin-up
```

```
Eth2/1               10.150.150.2    protocol-up/link-up/admin-up
Eth2/2               10.150.151.2    protocol-up/link-up/admin-up
Eth2/4               10.150.152.2    protocol-up/link-up/admin-up
Eth2/5               10.150.153.2    protocol-up/link-up/admin-up
Router_Server#
Router_Server#
```

show ip route 10.100.100.1

```
IP Route Table for VRF "default"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>


10.100.100.1/32, ubest/mbest: 2/0
   *via 10.150.150.1, [20/0], 4d22h, bgp-300, external, tag 100
   *via 10.150.151.1, [20/0], 4d22h, bgp-300, external, tag 100


Router_Server#
Router_Server#
Router_Server#
```

show ip route 10.100.100.2

```
IP Route Table for VRF "default"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

10.100.100.2/32, ubest/mbest: 2/0
    *via 10.150.152.1, [20/0], 3w5d, bgp-300, external, tag 200
    *via 10.150.153.1, [20/0], 3w5d, bgp-300, external, tag 200


Router_Server#
Router_Server#
```

show bgp l2vpn evpn

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 4574, Local Router ID is 10.32.1.1
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2

    Network            Next Hop            Metric     LocPrf     Weight Path
Route Distinguisher: 200:4000100
* e[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                  10.100.100.2          2000                     0 200 i
*>e                   10.100.100.2          2000                     0 200 i

Route Distinguisher: 100:4000502
*>e[5]:[0]:[0]:[24]:[192.168.100.0]/224
                     10.100.100.1          2000                     0 100 i
* e                   10.100.100.1          2000                     0 100 i

* e[5]:[0]:[0]:[32]:[10.2.3.4]/224
                     10.100.100.1          2000                     0 100 65111 i
```

***>e 10.100.100.1 2000 0 100 65111 i**

```
*>e[5]:[0]:[0]:[32]:[10.100.100.1]/224
                    10.100.100.1          2000                    0 100 i
* e                   10.100.100.1          2000                    0 100 i
*>e[5]:[0]:[0]:[32]:[10.100.100.2]/224
>                     10.100.100.1          2000                    0 100 i
* e                   10.100.100.1          2000                    0 100 i
```

<#root>

```
S1_B2#
S1_B2#
```

show ip int brie

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
Lo0                  10.31.1.2       protocol-up/link-up/admin-up
Lo1                  10.134.134.134  protocol-up/link-up/admin-up
Lo100                10.100.100.1    protocol-up/link-up/admin-up
Eth1/1               192.168.16.12   protocol-up/link-up/admin-up
Eth1/3               10.150.151.1    protocol-up/link-up/admin-up
S1_B2#
S1_B2#
```

sho ip route 192.168.100.103 vrf vrf_2

```
IP Route Table for VRF "vrf_2"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

192.168.100.103/32, ubest/mbest: 1/0
    *via 10.100.100.2%default, [20/0], 4d23h, bgp-100, external, tag 300, segid: 4000502 tunnelid: 0xa64

S1_B2#
S1_B2#
```

show ip route 10.2.3.4 vrf vrf_2

```
IP Route Table for VRF "vrf_2"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>
```

10.2.3.4/32, ubest/mbest: 1/0
**   *via 10.102.1.10%default, [200/0], 05:04:19, bgp-100, internal, tag 65111, segid: 4000502 tunnelid:**

```
S1_B2#
S1_B2#
S1_B2#
```

show bgp l2vpn evpn

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 5449, Local Router ID is 10.31.1.2
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: 200:4000100

*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.df3b]:[32]:[192.168.100.104]/272
                     10.100.100.2                                       0 300 200 i
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                     10.100.100.2                                       0 300 200 i



<#root>

Route Distinguisher: 200:4000200
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.df3b]:[32]:[192.168.100.104]/272
                     10.100.100.2                                       0 300 200 i
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                     10.100.100.2                                       0 300 200 i

Route Distinguisher: 10.102.0.9:5
*>i[2]:[0]:[0]:[48]:[cc7f.76fa.118f]:[0]:[0.0.0.0]/216
                     10.202.202.202                     100          0 i
*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                     10.102.1.10                        100          0 i

*>i[5]:[0]:[0]:[32]:[10.2.3.4]/224
                     10.102.1.10                        100          0 65111 i


*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                     10.102.1.10                        100          0 i

Route Distinguisher: 10.102.0.10:5
*>i[2]:[0]:[0]:[48]:[cc7f.76c6.a673]:[0]:[0.0.0.0]/216
                     10.202.202.202                     100          0 i
*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                     10.102.1.6                         100          0 i
*>i[5]:[0]:[0]:[32]:[10.2.3.4]/224
                     10.102.1.6                         100          0 65111 i
*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                     10.102.1.6                         100          0 i

Route Distinguisher: 10.31.1.2:5    (L3VNI 4000502)
*>l[5]:[0]:[0]:[24]:[192.168.100.0]/224
                     10.134.134.134                     100          0 i
*>l[5]:[0]:[0]:[32]:[10.2.3.4]/224
                     10.134.134.134                     100          0 65111 i
*>l[5]:[0]:[0]:[32]:[10.100.100.1]/224
                     10.134.134.134                     100          0 i
*>l[5]:[0]:[0]:[32]:[10.100.100.2]/224
                     10.134.134.134                     100          0 i

S1_B2#



<#root>
```

```
S1-Bg1#
```

show ip int brie

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
Lo0                  10.31.1.1       protocol-up/link-up/admin-up
Lo1                  10.133.133.133  protocol-up/link-up/admin-up
Lo100                10.100.100.1    protocol-up/link-up/admin-up
Eth1/1               192.168.15.12   protocol-up/link-up/admin-up
Eth1/3               10.150.150.1    protocol-up/link-up/admin-up
S1-Bg1#

S1-Bg1#
```

show ip route 10.100.100.2 vrf vrf_2

```
IP Route Table for VRF "vrf_2"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

10.100.100.2/32, ubest/mbest: 1/0
    *via 10.102.1.10%default, [200/0], 4d23h, bgp-100, internal, tag 100, segid: 4000502 tunnelid: 0xa66



S1-Bg1#

S1-Bg1#
```

show ip route 192.168.100.103 vrf vrf_2

```
IP Route Table for VRF "vrf_2"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

192.168.100.103/32, ubest/mbest: 1/0
    *via 10.100.100.2%default, [20/0], 4d23h, bgp-100, external, tag 300, segid: 4000502 tunnelid: 0xa64



S1-Bg1#

S1-Bg1#
```

show ip route 10.2.3.4 vrf vrf_2

```
IP Route Table for VRF "vrf_2"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

10.2.3.4/32, ubest/mbest: 1/0
```

***via 10.102.1.10%default, [200/0], 05:21:41, bgp-100, internal, tag 65111, segid: 4000502 tunnelid:**

S1-Bg1#
S1-Bg1#

show bgp l2vpn evpn

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 6654, Local Router ID is 10.31.1.1
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2

   Network            Next Hop            Metric     LocPrf     Weight Path
Route Distinguisher: 200:4000100
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.df3b]:[32]:[192.168.100.104]/272
                      10.100.100.2                                    0 300 200 i
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                     10.100.100.2                                    0 300 200 i

Route Distinguisher: 200:4000200
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.df3b]:[32]:[192.168.200.104]/272
                     10.100.100.2                                    0 300 200 i
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.200.103]/272
                     10.100.100.2                                    0 300 200 i

Route Distinguisher: 10.31.1.1:32867    (L2VNI 4000100)
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                     10.100.100.2                                    0 300 200 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ff09]:[32]:[192.168.100.102]/272
                      10.202.202.202                    100          0 i
* i                   10.202.202.202                    100          0 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3ff.00a7]:[32]:[192.168.100.100]/272
                      10.201.201.201                    100          0 i
* i                   10.201.201.201                    100          0 i
*>e[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.200.103]/272
                      10.100.100.2                                    0 300 200 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ff09]:[32]:[192.168.200.102]/272
                      10.202.202.202                    100          0 i
* i                   10.202.202.202                    100          0 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3ff.00a7]:[32]:[192.168.200.100]/272
                      10.201.201.201                    100          0 i
* i                   10.201.201.201                    100          0 i

Route Distinguisher: 10.102.0.10:5
*>i[2]:[0]:[0]:[48]:[cc7f.76c6.a673]:[0]:[0.0.0.0]/216
                     10.202.202.202                   100          0 i
*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                      10.102.1.6                       100          0 i
*>i[5]:[0]:[0]:[32]:[10.2.3.4]/224
                      10.102.1.6                       100          0 65111 i
*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                      10.102.1.6                       100          0 i



Route Distinguisher: 10.31.1.1:5    (L3VNI 4000502)
*>l[5]:[0]:[0]:[24]:[192.168.100.0]/224
```

```
                      10.133.133.133                     100          0 i
*>l[5]:[0]:[0]:[32]:[10.2.3.4]/224
                      10.133.133.133                     100          0 65111 i
*>l[5]:[0]:[0]:[32]:[10.100.100.1]/224
                      10.133.133.133                     100          0 i
*>l[5]:[0]:[0]:[32]:[10.100.100.2]/224
                      10.133.133.133                     100          0 i
S1-Bg1#
```

<#root>

```
S1-Leaf1#
```

show ip int brief

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
Lo0                  10.102.0.5      protocol-up/link-up/admin-up
Lo1                  10.102.1.8      protocol-up/link-up/admin-up
Eth1/2               192.168.17.12   protocol-up/link-up/admin-up
S1-Leaf1#
```

```
S1-Leaf1#
```

show bgp l2vpn evpn vrf vrf_2

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 918, Local Router ID is 10.102.0.5
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: 10.102.0.5:5    (L3VNI 4000502)
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                    10.100.100.1                       100          0 300 200 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.200.103]/272
                    10.100.100.1                       100          0 300 200 i
*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                    10.102.1.10                        100          0 i
* i                    10.102.1.6                        100          0 i

*>i[5]:[0]:[0]:[32]:[10.2.3.4]/224
                     10.102.1.10                        100          0 65111 i
* i                   10.102.1.6                         100          0 65111 i


*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                     10.102.1.6                         100          0 i
*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                     10.102.1.10                        100          0 i
S1-Leaf1#
```

```
S1-Leaf2#
```

show ip int brie

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
```

```
Lo0                  10.102.0.8      protocol-up/link-up/admin-up
Lo1                  10.102.1.9      protocol-up/link-up/admin-up
Eth1/2               192.168.18.12   protocol-up/link-up/admin-up
S1-Leaf2#
S1-Leaf2#
S1-Leaf2#
```

show bgp l2vpn evpn vrf vrf_2

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 680, Local Router ID is 10.102.0.8
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: 10.102.0.8:5    (L3VNI 4000502)
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                      10.100.100.1                       100          0 300 200 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.200.103]/272
                     10.100.100.1                       100          0 300 200 i
*>i[5]:[0]:[0]:[24]:[192.168.100.0]/224
    10.102.1.10                       100          0 i
* i                   10.102.1.6                       100          0 i
```

*** i[5]:[0]:[0]:[32]:[10.2.3.4]/224**

10.102.1.6 100 0 65111 i

***>i 10.102.1.10 100 0 65111 i**

```
*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                      10.102.1.6                       100          0 i
*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                      10.102.1.10                      100          0 i
S1-Leaf3#
S1-Leaf3#
```

show ip int brie

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
Lo0                  10.102.0.9      protocol-up/link-up/admin-up
Lo1                  10.102.1.10     protocol-up/link-up/admin-up
Eth1/2               192.168.19.12   protocol-up/link-up/admin-up
S1-Leaf3#
S1-Leaf3#
S1-Leaf3#
S1-Leaf3#
```

show bgp l2vpn evpn vrf vrf_2

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 5431, Local Router ID is 10.102.0.9
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: 10.102.0.9:5    (L3VNI 4000502)
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                     10.100.100.1                       100          0 300 200 i
* i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                     10.102.1.6                         100          0 i
*>l                  10.102.1.10                        100      32768 i
```

`* i[5]:[0]:[0]:[32]:[10.2.3.4]/224`

```
                     10.102.1.6                         100          0 65111 i
```

`*>l                  10.102.1.10                                     0 65111 i`

```
*>i[5]:[0]:[0]:[32]:[10.100.100.1]/224
                     10.102.1.6                         100          0 i
*>l[5]:[0]:[0]:[32]:[10.100.100.2]/224
                     10.102.1.10                        100      32768 i
S1-Leaf3#

S1_Leaf4#
S1_Leaf4#
```

`show ip int brief`

```
IP Interface Status for VRF "default"(1)
Interface            IP Address      Interface Status
Lo0                  10.102.0.10     protocol-up/link-up/admin-up
Lo1                  10.102.1.6      protocol-up/link-up/admin-up
Eth1/2               192.168.20.12   protocol-up/link-up/admin-up
S1_Leaf4#
S1_Leaf4#
S1_Leaf4#
```

`show bgp l2vpn evpn vrf vrf_2`

```
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 5118, Local Router ID is 10.102.0.10
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: 10.102.0.10:5    (L3VNI 4000502)
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.100.103]/272
                     10.100.100.1                       100          0 300 200 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.ecb5]:[32]:[192.168.200.103]/272
                     10.100.100.1                       100          0 300 200 i
*>i[2]:[0]:[0]:[48]:[6c8b.d3ff.00a7]:[32]:[192.168.100.100]/272
                     10.201.201.201                     100          0 i
* i                  10.201.201.201                     100          0 i
* i[5]:[0]:[0]:[24]:[192.168.100.0]/224
                      10.102.1.10                        100          0 i
*>l                  10.102.1.6                         100      32768 i
```

`*>l[5]:[0]:[0]:[32]:[10.2.3.4]/224`

```
                     10.102.1.6                                       0 65111 i


* i                  10.102.1.10                      100             0 65111 i


*>l[5]:[0]:[0]:[32]:[10.100.100.1]/224
                     10.102.1.6                       100         32768 i
*>i[5]:[0]:[0]:[32]:[10.100.100.2]/224
                     10.102.1.10                      100             0 i
S1_Leaf4#
```

Verificar el plano de datos

La verificación del plan de datos se prueba en varios dispositivos para comprender diferentes variantes y métodos de captura de paquetes.

Haga ping al loopback del router externo 100 "10.2.3.4" desde la dirección IP de origen 192.168.100.103 en el Host-3.

<#root>

```
HOST_3#
HOST_3#
```

ping 10.2.3.4 source 192.168.100.103

```
PING 10.2.3.4 (10.2.3.4) from 192.168.100.103: 56 data bytes
64 bytes from 10.2.3.4: icmp_seq=0 ttl=250 time=1.153 ms
64 bytes from 10.2.3.4: icmp_seq=1 ttl=250 time=0.569 ms
64 bytes from 10.2.3.4: icmp_seq=2 ttl=250 time=0.562 ms
64 bytes from 10.2.3.4: icmp_seq=3 ttl=250 time=0.525 ms
64 bytes from 10.2.3.4: icmp_seq=4 ttl=250 time=0.527 ms
--- 10.2.3.4 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.525/0.667/1.153 ms
HOST_3#
```

Ethanalyzer se toma en el Sitio 2 Leaf-1 y Leaf-2 para confirmar qué hoja recibe/reenvía el tráfico para el alcance del loopback 10.2.3.4 del router externo.

<#root>

```
S2-Leaf1(config-monitor)#
```

sho clock

```
Warning: No NTP peer/server configured. Time may be out of sync.
07:11:37.455 UTC Tue Feb 21 2023
Time source is NTP
S2-Leaf1(config-monitor)#
S2-Leaf1(config-monitor)#
```

show run section monitor

```
show running-config | section monitor
icam monitor scale
monitor session 1
  source interface port-channel100 both
  destination interface sup-eth0
  no shut
S2-Leaf1(config-monitor)#
S2-Leaf2(config-monitor)#
S2-Leaf2(config-monitor)#
```

ethanalyzer local interface inband display-filter "ip.addr==10.2.3.4 && ip.addr==192.168.100.103 && icmp

```
Capturing on 'ps-inb'
1385 2023-02-21 07:10:46.424195144 192.168.100.103 â†’ 10.2.3.4     ICMP 102 Echo (ping) request  id=0xc
 1386 2023-02-21 07:10:46.424818423     10.2.3.4 â†’ 192.168.100.103 ICMP 98 Echo (ping) reply    id=0xc
 1387 2023-02-21 07:10:46.425263621 192.168.100.103 â†’ 10.2.3.4     ICMP 102 Echo (ping) request  id=0x
 1388 2023-02-21 07:10:46.425486046     10.2.3.4 â†’ 192.168.100.103 ICMP 98 Echo (ping) reply    id=0xc
 1389 2023-02-21 07:10:46.425856150 192.168.100.103 â†’ 10.2.3.4     ICMP 102 Echo (ping) request  id=0x
 1390 2023-02-21 07:10:46.426095692     10.2.3.4 â†’ 192.168.100.103 ICMP 98 Echo (ping) reply    id=0xc
 1391 2023-02-21 07:10:46.426438174 192.168.100.103 â†’ 10.2.3.4     ICMP 102 Echo (ping) request  id=0x
 1392 2023-02-21 07:10:46.426642605     10.2.3.4 â†’ 192.168.100.103 ICMP 98 Echo (ping) reply    id=0xc
 1393 2023-02-21 07:10:46.427004108 192.168.100.103 â†’ 10.2.3.4     ICMP 102 Echo (ping) request  id=0x
 1394 2023-02-21 07:10:46.427210984     10.2.3.4 â†’ 192.168.100.103 ICMP 98 Echo (ping) reply    id=0xc
10
S2-Leaf2(config-monitor)#
S2-Leaf2(config-monitor)#
```

sho clock

```
Warning: No NTP peer/server configured. Time may be out of sync.
07:12:31.069 UTC Tue Feb 21 2023
Time source is NTP
S2-Leaf2(config-monitor)#
```

La salida CLI confirmada Sitio 2 Hoja-2 recibe y reenvía la solicitud del Protocolo de mensajes de control de Internet (ICMP) para el router externo 10.2.3.4.

El siguiente ejemplo de CLI confirma que el Sitio 1 verifica qué hoja reenvía los paquetes hacia el destino 10.2.3.4.

<#root>

```
S1-Leaf3(config-monitor)#
S1-Leaf3(config-monitor)#
```

ethanalyzer local interface inband display-filter "ip.addr==10.2.3.4 && ip.addr==192.168.100.103 && icmp

```
Capturing on 'ps-inb'
  253 2023-02-21 07:10:50.379741403 192.168.100.103 â†’ 10.2.3.4     ICMP 98 Echo (ping) request  id=0xc
  254 2023-02-21 07:10:50.380357311     10.2.3.4 â†’ 192.168.100.103 ICMP 102 Echo (ping) reply    id=0x
  255 2023-02-21 07:10:50.380810012 192.168.100.103 â†’ 10.2.3.4     ICMP 98 Echo (ping) request  id=0xc
  256 2023-02-21 07:10:50.381025676     10.2.3.4 â†’ 192.168.100.103 ICMP 102 Echo (ping) reply    id=0x
  257 2023-02-21 07:10:50.381401968 192.168.100.103 â†’ 10.2.3.4     ICMP 98 Echo (ping) request  id=0xc
  258 2023-02-21 07:10:50.381631838     10.2.3.4 â†’ 192.168.100.103 ICMP 102 Echo (ping) reply    id=0x
  259 2023-02-21 07:10:50.381984272 192.168.100.103 â†’ 10.2.3.4     ICMP 98 Echo (ping) request  id=0xc
  260 2023-02-21 07:10:50.382176820     10.2.3.4 â†’ 192.168.100.103 ICMP 102 Echo (ping) reply    id=0x
```

```
  261 2023-02-21 07:10:50.382549820 192.168.100.103 â†’ 10.2.3.4     ICMP 98 Echo (ping) request  id=0xc
  262 2023-02-21 07:10:50.382746640     10.2.3.4 â†’ 192.168.100.103 ICMP 102 Echo (ping) reply    id=0x
```

```
S1-Leaf3(config-monitor)#
```

sho clock

```
Warning: No NTP peer/server configured. Time may be out of sync.
07:11:22.514 UTC Tue Feb 21 2023
Time source is NTP
S1-Leaf3(config-monitor)#

S1-Leaf3(config-monitor)#
```

show run section monitor

```
show running-config | section monitor
monitor session 1
  source interface port-channel2 both
  destination interface sup-eth0
  no shut
S1-Leaf3(config-monitor)#
S1-Leaf3(config-monitor)#
```

show moni sess 1

```
   session 1
---------------
type              : local
state             : up
acl-name          : acl-name not specified
source intf       :
    rx            : Po2
    tx            : Po2
    both          : Po2
source VLANs      :
    rx            :
    tx            :
    both          :
filter VLANs      : filter not specified
source fwd drops  :
destination ports : sup-eth0
source VSANs      :
    rx            :

S1-Leaf3(config-monitor)#

S1_Leaf4(config-monitor)#
```

ethanalyzer local interface inband display-filter "ip.addr==192.168.100.103" limit-captured-frames 0

```
Capturing on 'ps-inb'
S1_Leaf4(config-monitor)#
S1_Leaf4(config-monitor)#
```

sho clock

```
Warning: No NTP peer/server configured. Time may be out of sync.
07:11:15.187 UTC Tue Feb 21 2023
Time source is NTP
```

```
S1_Leaf4(config-monitor)#
```

El cliente responde que se enfrenta a problemas de conectividad desde el host 3 al router externo. El cliente desea confirmar que todo está bien en el fabric VXLAN y necesita confirmación de que nuestra hoja reenvía el tráfico hacia el router externo. Los pasos para resolver este problema son:

1. Inicie un ping hacia el router externo y confirme si la dirección IP 10.2.3.4 es alcanzable o no.
2. Tome capturas de Embedded Logic Analyzer Module (ELAM) en S1-Leaf3 y S1-Leaf4 para ver si se activa (en función de la topología y el flujo de tráfico).
3. Con la captura de ELAM, confirme que el paquete se reenvía fuera de la interfaz y apunta al router externo.
4. Sitio 2 - Con el etanalyzer podemos ver la solicitud y respuesta de ICMP. Si no hay respuesta, el problema está en el lado remoto .
5. Si 10.2.3.4 es accesible desde el Host-4 y el Host-3 tiene problemas, podría ser un problema específico del host. Compruebe los errores de la lista de control de acceso (ACL), la comprobación de redundancia cíclica (CRC) y el enlace de hashing.

<#root>

```
HOST_3#
```

```
ping 10.2.3.4 source 192.168.100.103
```

```
PING 10.2.3.4 (10.2.3.4) from 192.168.100.103: 56 data bytes
Request 0 timed out
Request 1 timed out
Request 2 timed out
Request 3 timed out
Request 4 timed out
--- 10.2.3.4 ping statistics ---
5 packets transmitted, 0 packets received, 100.00% packet loss
HOST_3#
```

```
Host4#
```

```
ping 10.2.3.4 source 192.168.100.104
```

```
PING 10.2.3.4 (10.2.3.4) from 192.168.100.104: 56 data bytes
64 bytes from 10.2.3.4: icmp_seq=0 ttl=250 time=1.266 ms
64 bytes from 10.2.3.4: icmp_seq=1 ttl=250 time=0.62 m
64 bytes from 10.2.3.4: icmp_seq=2 ttl=250 time=0.603 ms
64 bytes from 10.2.3.4: icmp_seq=3 ttl=250 time=0.474 ms
64 bytes from 10.2.3.4: icmp_seq=4 ttl=250 time=0.457 ms
--- 10.2.3.4 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.457/0.684/1.266 ms
```

Verificar el plano de datos

Tomar capturas de ELAM para verificar el ASIC, el segmento y el SrcId del puerto

<#root>

show hardware internal tah interface

show system internal ethpm info interface

| i i src

<#root>

S1-Leaf3(TAH-elam)#

debug platform internal tah elam asic 0

S1-Leaf3(TAH-elam)#

trigger init asic 0 slice 1 in-select 7 out-select 0 use-src-id 8

Slot 1: param values: asic 0, slice 1, lu-a2d 1, in-select 7, out-select 0, src_id 8
S1-Leaf3(TAH-elam-insel7)#

set inner ipv4 src_ip 192.168.100.103

S1-Leaf3(TAH-elam-insel7)#

start

S1-Leaf3(TAH-elam-insel7)#

report

HEAVENLY ELAM REPORT SUMMARY
slot - 1, asic - 0, slice - 1
==========
Incoming Interface: Eth1/2

```
Src Idx : 0x5, Src BD : 2001
Outgoing Interface Info: dmod 1, dpid 52>>>>>>>>>>>>Pointing to Eth 1/24 towards external Router
Dst Idx : 0x601, Dst BD : 100
Packet Type: IPv4
Dst MAC address: CC:7F:76:FA:11:8F
Src MAC address: 4C:E1:75:F7:38:C7
Dst IPv4 address: 10.2.3.4
Src IPv4 address: 192.168.100.103
Ver     =  4, DSCP    =   0, Don't Fragment = 0
Proto   =  1, TTL     =  252, More Fragments = 0
Hdr len = 20, Pkt len =   84, Checksum       = 0xb712
L4 Protocol  : 1
ICMP type    : 8
ICMP code    : 0
Drop Info:
----------
LUA:
LUB:
LUC:
LUD:
Final Drops:
vntag:
vntag_valid    : 0
vntag_vir      : 0
vntag_svif     : 0

S1-Leaf3(TAH-elam-insel7)#

S1_Leaf4#
```

show system internal ethpm info interface ethernet 1/2 | grep slice

```
  IF_STATIC_INFO: port_name=Ethernet1/2,if_index:0x1a000200,ltl=6140,slot=0, nxos_port=4,
dmod=1,dpid=76,unit=0,queue=65535,xbar_unitbmp=0x0,ns_pid=255,slice_num=1,port_on_slice=4,src_id=8


S1_Leaf4(TAH-elam)#
```

debug platform internal tah elam asic 0

```
S1_Leaf4(TAH-elam)#
```

trigger init asic 0 slice 1 in-select 7 out-select 0 use-src-id 8

```
Slot 1: param values: asic 0, slice 1, lu-a2d 1, in-select 7, out-select 0, src_id 8
S1_Leaf4(TAH-elam-insel7)#
```

set inner ipv4 src_ip 192.168.100.103

```
S1_Leaf4(TAH-elam-insel7)#
```

start

```
S1_Leaf4(TAH-elam-insel7)#
```

report

```
ELAM not triggered yet on slot - 1, asic - 0, slice - 1
S1_Leaf4(TAH-elam-insel7)#
```

La conclusión de la salida de ELAM es que la hoja reenvía el tráfico al router externo, pero no hay respuesta del router externo. Por lo tanto, verifique con el equipo del router externo acerca de la respuesta ICMP.

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