

# Probleemoplossing voor EVPN/VXLAN in multi-site installatie

## Inhoud

[Inleiding](#)

[Voorwaarden](#)

[Vereisten](#)

[Gebruikte componenten](#)

[Topologie](#)

[Controleer het besturingsplane](#)

[Verifieer het gegevensvlak](#)

[Verifieer het gegevensvlak](#)

[Neem ELAM Captures om poortanalyse, segment en SRCid te verifiëren](#)

## Inleiding

In dit document wordt de aanpak beschreven voor het oplossen van problemen met Ethernet VPN/Virtual Extensible LAN (EVPN/VxLAN) in een installatie op meerdere locaties.

## Voorwaarden

### Vereisten

Cisco raadt kennis van de volgende onderwerpen aan:

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

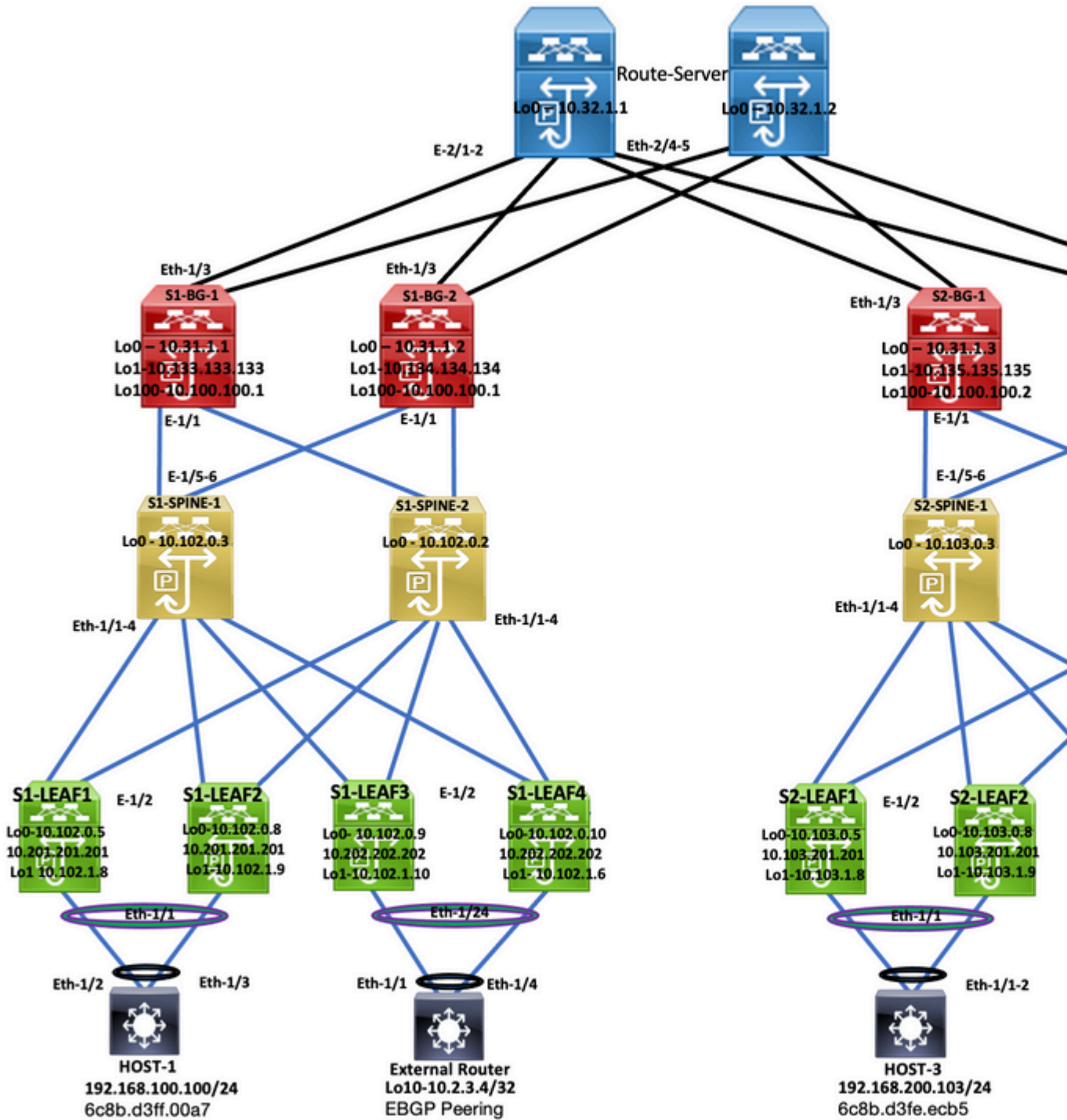
### Gebruikte componenten

De informatie in dit document is gebaseerd op de volgende software- en hardware-versies:

Alle pagina's	N9K-C936C-FX2 switch	NXOS: 10.2(3)
S1_ruggengraat1	N9K-C9364C switch	NXOS: 10.2(4)
S1_Spine2	N9K-C9364C switch	NXOS: 9.3(5)
S1_Border Gateway1, S2_Border Gateway2, S2_Border Gateway1	N9K-C932C switch	NXOS: 9.3(9)
S1_border-gateway2	N9K-C932C switch	NXOS: 10.2(4)
Routeserver	N9K-C9396PX switch	NXOS: 9.2(2)
Host-1	N3K-C3264C-E switch	NXOS: 9.3(5)
Host-2 en Host-3	N3K-C3264C-E switch	NXOS: 9.2(2)

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u zorgen dat u de potentiële impact van elke opdracht begrijpt.

## **Topologie**



### Topologie

Dit document beschrijft waar het verkeer afkomstig is van DC-2 Host-3 (192.168.200.104/24) en loopt vervolgens met de pakketten tot de bestemming DC-1 Host-2 (10.2.3.4).

## Controleer het besturingsplane

Geef deze opdrachten op om het bedieningsvlak te controleren:

```
<#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 evpn 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#

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: 0xa64

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: 0
```

```
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: 0xa66

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        100          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#

```

## Verifieer het gegevensvlak

De verificatie van het gegevensplan wordt op meerdere apparaten getest om verschillende pakketopnamemethoden en -varianten te begrijpen.

Ping de externe router loopback 100 "10.2.3.4" van het IP-bronadres 192.168.100.103 op 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 wordt genomen op Site 2 Leaf-1 en Leaf-2 om te bevestigen welk blad ontvangt/voorwaarts verkeer voor externe router loopback 10.2.3.4 bereikbaarheid.

```
<#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=0xc
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=0xc
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=0xc
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=0xc
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)#
```

De CLI-output bevestigt Site 2 Leaf-2 ontvangt en verstuurt het ICMP-verzoek (Internet Control Message Protocol) voor de externe router 10.2.3.4.

Het volgende CLI voorbeeld bevestigt Site 1 verifieert welke bladvoorwaartse pakketten naar bestemming 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=0xc
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=0xc
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=0xc
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=0xc
```

```
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)#
```

```
ethalyzer 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)#
```

De klant antwoordt dat zij connectiviteitsproblemen van Host-3 aan de externe router onder ogen zien. De klant wil bevestigen dat alles in orde is in de VXLAN-stof en heeft bevestiging nodig dat ons blad voorwaarts verkeer naar de externe router. De stappen om dit probleem op te lossen zijn:

1. Start een ping naar de externe router en bevestig als het IP-adres 10.2.3.4 al dan niet bereikbaar is.
2. Neem Embedded Logic Analyzer Module (ELAM) op zowel S1-Leaf3 als S1-Leaf4 om te zien of het geactiveerd wordt (gebaseerd op de topologie en verkeersstroom).
3. Bevestig met de ELAM-opname dat het pakket uit de interface wordt doorgestuurd en naar de externe router wijst.
4. Site 2- Met de ethalyzer kunnen we het ICMP-verzoek en antwoord zien. Als er geen antwoord is, ligt het probleem aan de andere kant .
5. Als 10.2.3.4 bereikbaar is vanuit Host-4 en Host-3 problemen heeft, kan dit een host-specifiek probleem zijn. Controleer de toegangscontrolelijst (ACL), fouten in de cyclische redundantiecontrole (CRC) en de hashinglink.

```
<#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
```

## Verifieer het gegevensvlak

**Neem ELAM Captures om poortanalyse, segment en SRCid te verifiëren**

<#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)#

De conclusie van de ELAM output is het blad voorwaartse verkeer aan de externe router, maar er is geen reactie van de externe router. Controleer daarom met het externe routerteam of de ICMP-respons correct is.

## Over deze vertaling

Cisco heeft dit document vertaald via een combinatie van machine- en menselijke technologie om onze gebruikers wereldwijd ondersteuningscontent te bieden in hun eigen taal. Houd er rekening mee dat zelfs de beste machinevertaling niet net zo nauwkeurig is als die van een professionele vertaler. Cisco Systems, Inc. is niet aansprakelijk voor de nauwkeurigheid van deze vertalingen en raadt aan altijd het oorspronkelijke Engelstalige document ([link](#)) te raadplegen.