

Fehlerbehebung für EVPN/VxLAN bei der standortübergreifenden Einrichtung

Inhalt

[Einleitung](#)

[Voraussetzungen](#)

[Anforderungen](#)

[Verwendete Komponenten](#)

[Topologie](#)

[Überprüfen der Kontrollebene](#)

[Überprüfen der Datenebene](#)

[Überprüfen der Datenebene](#)

[ELAM-Aufnahmen zur Überprüfung von Port-ASIC, Slice und SrcId](#)

Einleitung

In diesem Dokument wird der Ansatz zur Fehlerbehebung bei Ethernet VPN/Virtual Extensible LAN (EVPN/VxLAN) in einer Konfiguration mit mehreren Standorten beschrieben.

Voraussetzungen

Anforderungen

Cisco empfiehlt, dass Sie über Kenntnisse in folgenden Bereichen verfügen:

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

Verwendete Komponenten

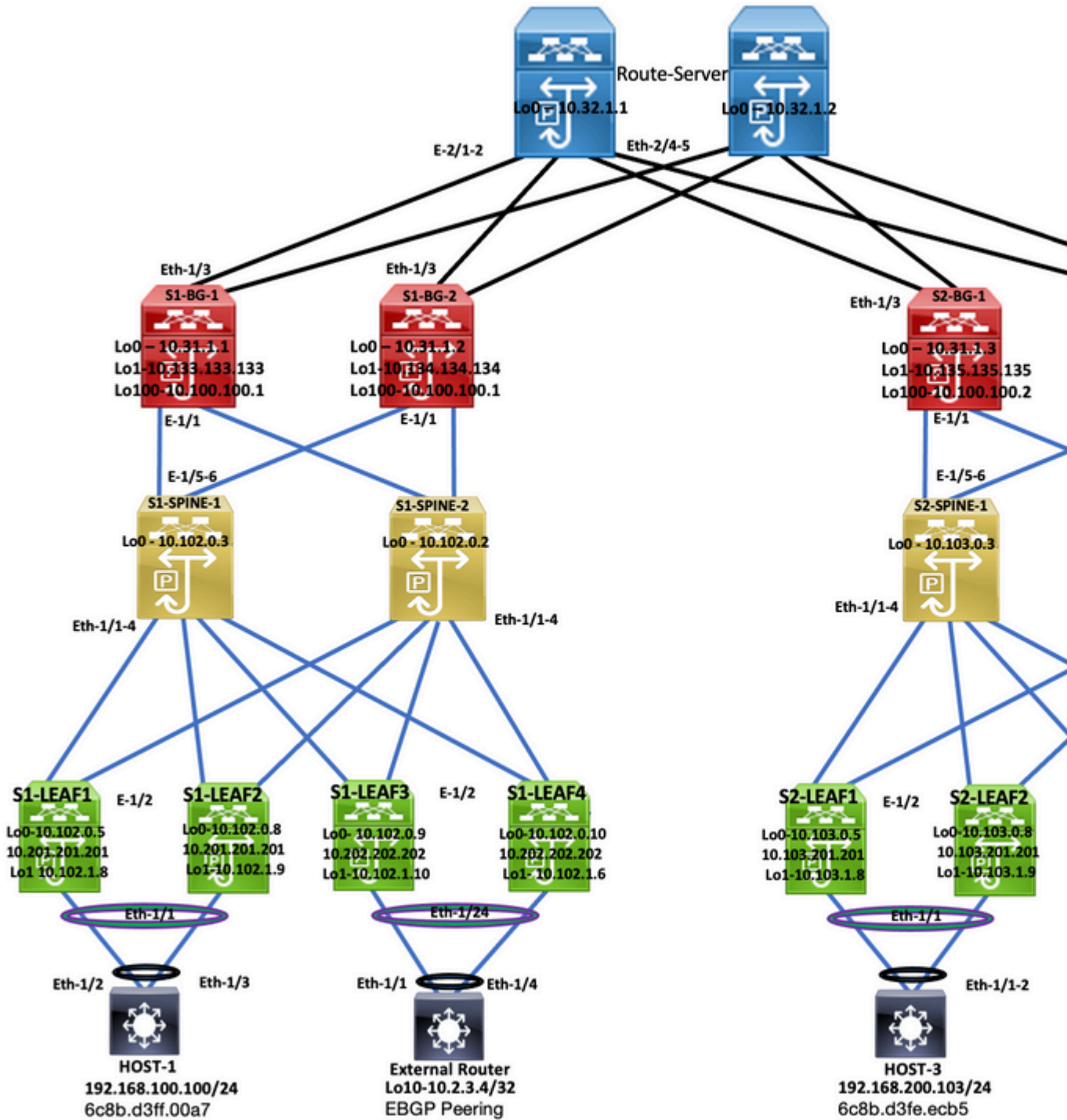
Die Informationen in diesem Dokument basierend auf folgenden Software- und Hardware-Versionen:

Alle Site-Leafs	N9K-C9336C-FX2	NX-OS: 10,2 (3)
S1_Spine1	N9K-C9364C	NX-OS: 10,2(4)
S1_Spine2	N9K-C9364C	NX-OS: 9.3(5)
S1_Border Gateway1, S2_Border Gateway2, S2_Border Gateway1	N9K-C9332C	NX-OS: 9.3(9)
S1_Border-Gateway2	N9K-C9332C	NX-OS: 10,2(4)
Routingserver	N9K-C9396PX	NX-OS: 9.2(2)
Host-1	N3K-C3264C-E	NX-OS: 9.3(5)
Host-2 und Host-3	N3K-C3264C-E	NX-OS: 9.2(2)

Die Informationen in diesem Dokument beziehen sich auf Geräte in einer speziell eingerichteten Testumgebung. Alle Geräte, die in diesem Dokument benutzt wurden, begannen mit einer gelöschten (Nichterfüllungs) Konfiguration. Wenn Ihr Netzwerk in Betrieb ist, stellen Sie sicher, dass Sie die

möglichen Auswirkungen aller Befehle kennen.

Topologie



Topologie

In diesem Dokument wird beschrieben, woher der Datenverkehr stammt: DC-2 Host-3 (192.168.200.104/24), und anschließend wird er zusammen mit den Paketen bis zum Ziel-DC-1 Host-2 (10.2.3.4) geführt.

Überprüfen der Kontrollebene

Geben Sie zum Überprüfen der Kontrollebene die folgenden Befehle ein:

```
<#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#

```

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
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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#

```

Überprüfen der Datenebene

Die Datenplanüberprüfung wird auf mehreren Geräten getestet, um die verschiedenen Methoden und Varianten der Paketerfassung zu verstehen.

Pingen Sie das Loopback 100 des externen Routers "10.2.3.4" von der Quell-IP-Adresse 192.168.100.103 auf 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#

```

Der Ethanalyser wird für Leaf-1 und Leaf-2 an Standort 2 verwendet, um zu bestätigen, welches Leaf den Datenverkehr für die Erreichbarkeit des externen Router-Loopbacks 10.2.3.4 empfängt/weiterleitet.

```
<#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)#
```

Die CLI-Ausgabe bestätigt Site 2 Leaf-2 empfängt und leitet die ICMP-Anforderung (Internet Control Message Protocol) für den externen Router 10.2.3.4 weiter.

Im nächsten CLI-Beispiel wird bestätigt, dass Standort 1 verifiziert, welches Leaf Pakete an das Ziel 10.2.3.4 weiterleitet.

```
<#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)#
```

Der Kunde antwortet, dass er Verbindungsprobleme zwischen Host-3 und dem externen Router hat. Der Kunde möchte sicherstellen, dass die VXLAN-Fabric einwandfrei funktioniert, und muss bestätigen, dass unser Leaf den Datenverkehr an den externen Router weiterleitet. Um dieses Problem zu beheben, gehen Sie wie folgt vor:

1. Initiieren Sie einen Ping zum externen Router, und überprüfen Sie, ob die IP-Adresse 10.2.3.4 erreichbar ist.
2. Nehmen Sie die ELAM-Aufnahmen (Embedded Logic Analyzer Module) sowohl auf S1-Leaf3 als auch auf S1-Leaf4 vor, um zu sehen, ob sie ausgelöst werden (abhängig von der Topologie und dem Datenverkehrsfluss).
3. Stellen Sie bei der ELAM-Erfassung sicher, dass das Paket von der Schnittstelle weitergeleitet wird und auf den externen Router verweist.
4. Site 2 - Mit dem Ethalyzer können wir die ICMP Anfrage sehen und beantworten. Wenn Sie keine Antwort erhalten, liegt das Problem auf der Gegenseite .
5. Wenn 10.2.3.4 von Host-4 aus erreichbar ist und Host-3 Probleme hat, kann dies ein hostspezifisches Problem sein. Überprüfen Sie die Zugriffskontrollliste (ACL), die CRC-Fehler (Cyclic Redundancy Check) und den Hashing-Link.

```
<#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
```

Überprüfen der Datenebene

ELAM-Aufnahmen zur Überprüfung von Port-ASIC, Slice und SrcId

<#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)#
```

Die Schlussfolgerung aus der ELAM-Ausgabe lautet, dass das Leaf den Datenverkehr an den externen Router weiterleitet, es jedoch keine Antwort vom externen Router gibt. Erkundigen Sie sich daher beim externen Router-Team nach der ICMP-Antwort.

Informationen zu dieser Übersetzung

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