

Risoluzione dei problemi di EVPN/VxLAN nella configurazione multisito

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Introduzione

Questo documento descrive l'approccio per la risoluzione dei problemi di VPN/LAN estendibile virtuale (EVPN/VxLAN) Ethernet in una configurazione multisito.

Prerequisiti

Requisiti

Cisco raccomanda la conoscenza dei seguenti argomenti:

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

Componenti usati

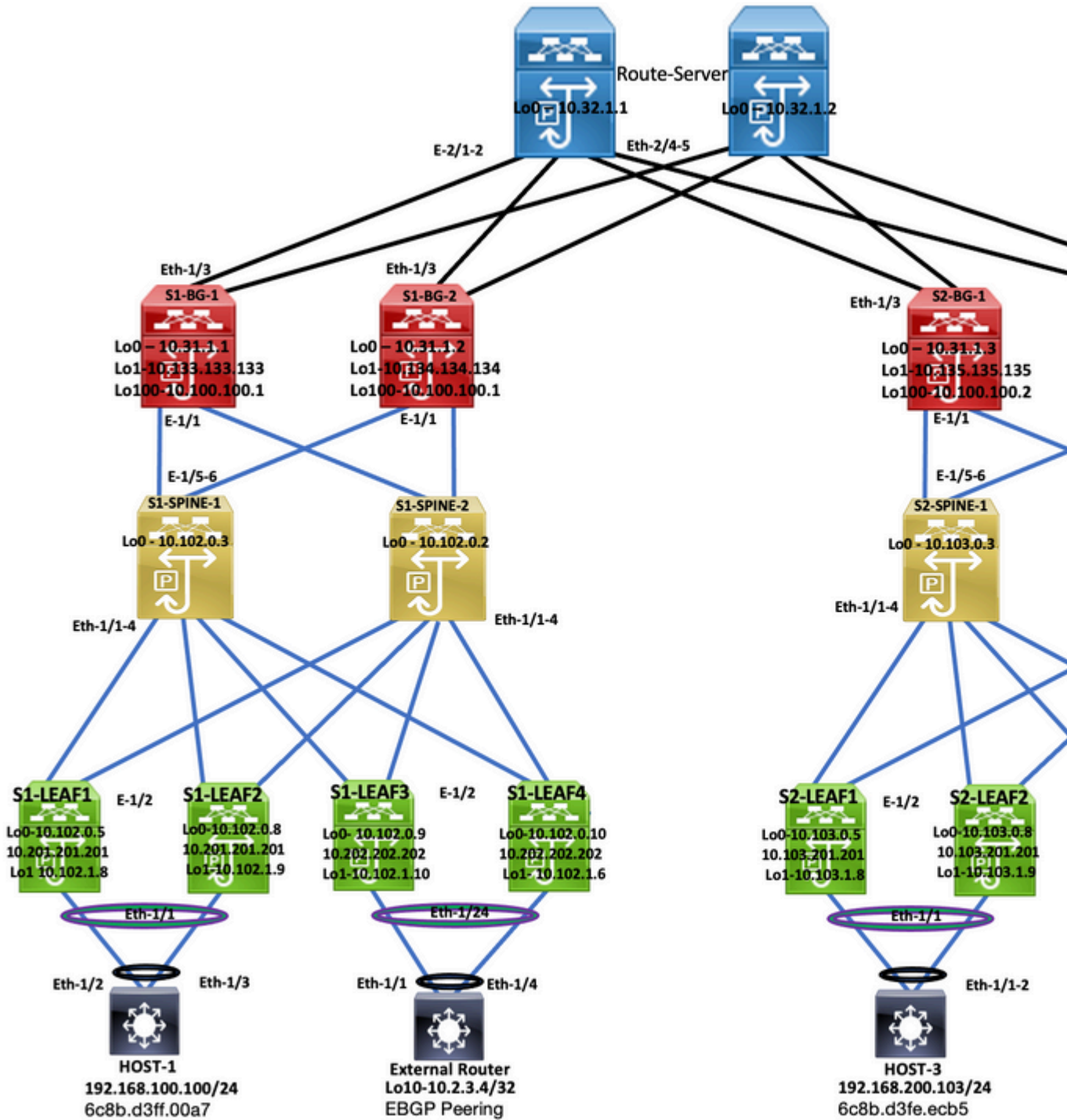
Le informazioni fornite in questo documento si basano sulle seguenti versioni software e hardware:

Tutti i fogli del sito	N9K-C9336C-FX2	NXOS: 10.2(3)
S1_Spine1	N9K-C9364C	NXOS: 10.2(4)
S1_Dorso2	N9K-C9364C	NXOS: 9.3(5)
S1_Border Gateway1, S2_Border Gateway2, S2_Border Gateway1	N9K-C932C	NXOS: 9.3(9)
S1_Border Gateway2	N9K-C932C	NXOS: 10.2(4)
Server di routing	N9K-C9396PX	NXOS: 9.2(2)
Host-1	N3K-C3264C-E	NXOS: 9.3(5)
Host-2 e Host-3	N3K-C3264C-E	NXOS: 9.2(2)

Le informazioni discusse in questo documento fanno riferimento a dispositivi usati in uno specifico ambiente di emulazione. Su tutti i dispositivi menzionati nel documento la configurazione è stata ripristinata ai valori predefiniti. Se la rete è operativa, valutare attentamente eventuali conseguenze derivanti dall'uso dei

comandi.

Topologia



Topologia

Questo documento descrive dove il traffico ha origine dall'host-3 DC-2 (192.168.200.104/24), quindi cammina con i pacchetti fino all'host-2 DC-1 di destinazione (10.2.3.4).

Verifica del piano di controllo

Per verificare il piano di controllo, immettere i seguenti comandi:

```
<#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
--	-------------	--	-----	---	---

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#

```

Verifica del piano dati

La verifica del piano dati viene testata su più dispositivi per comprendere diversi metodi e varianti di acquisizione dei pacchetti.

Eseguire il ping tra il loopback del router esterno 100 "10.2.3.4" e l'indirizzo IP di origine 192.168.100.103 sull'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#

```

L'analizzatore ethernet viene preso sul sito 2 Leaf-1 e Leaf-2 per confermare quale foglia riceve/inoltra il traffico per il loopback del router esterno 10.2.3.4 raggiungibilità.

```
<#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)#
```

L'output CLI ha confermato che il sito 2 Leaf-2 riceve e inoltra la richiesta ICMP (Internet Control Message Protocol) per il router esterno 10.2.3.4.

Il successivo esempio della CLI conferma che il sito 1 verifica quale foglia inoltra i pacchetti alla destinazione 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)#
```

Il cliente risponde che deve affrontare problemi di connettività dall'host 3 al router esterno. Il cliente desidera avere la conferma che tutto è a posto nel fabric VXLAN e che la foglia inoltra il traffico verso il router esterno. Per risolvere il problema, procedere come segue:

1. Eseguire il ping verso il router esterno e verificare che l'indirizzo IP 10.2.3.4 sia raggiungibile o meno.
2. Prendere le acquisizioni Embedded Logic Analyzer Module (ELAM) su S1-Leaf3 e S1-Leaf4 per verificare se viene attivato (in base alla topologia e al flusso del traffico).
3. Con l'acquisizione ELAM, confermare che il pacchetto venga inoltrato fuori dall'interfaccia e punti al router esterno.
4. Sito 2- Con l'etalyzer possiamo vedere la richiesta ICMP e la risposta. Se non c'è una risposta, il problema è sul lato remoto .
5. Se la versione 10.2.3.4 è raggiungibile dall'host 4 e l'host 3 ha dei problemi, potrebbe trattarsi di un problema specifico dell'host. Verificare gli errori ACL (Access Control List), CRC (Cyclic Redundancy Check) e il collegamento di 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
```

Verifica del piano dati

Acquisire immagini ELAM per verificare ASIC, Slice e SrcId delle porte

<#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 conclusione dell'output ELAM è che il traffico foglia viene inoltrato al router esterno, ma non c'è risposta dal router esterno. Pertanto, rivolgersi al team del router esterno per informazioni sulla risposta ICMP.

Informazioni su questa traduzione

Cisco ha tradotto questo documento utilizzando una combinazione di tecnologie automatiche e umane per offrire ai nostri utenti in tutto il mondo contenuti di supporto nella propria lingua. Si noti che anche la migliore traduzione automatica non sarà mai accurata come quella fornita da un traduttore professionista. Cisco Systems, Inc. non si assume alcuna responsabilità per l'accuratezza di queste traduzioni e consiglia di consultare sempre il documento originale in inglese (disponibile al link fornito).