

# Solución de problemas de EVPN/VxLAN en un entorno multisitio

## Contenido

[Introducción](#)

[Prerequisites](#)

[Requirements](#)

[Componentes Utilizados](#)

[Topología](#)

[Verificación del plano de control](#)

[Verificar tabla ARP en hoja de origen](#)

[Verificación de ruta de hoja 1 a columna 1 de DC-1](#)

[Verificación de ruta de hoja 1 a columna 2 de DC-1](#)

[DC-1 BGW-1](#)

[DC-2 BGW-2](#)

[Anuncio de ruta de columna a hoja de DC-2](#)

[Verificación de hoja 1 de DC-2](#)

[Resolución de problemas del plano de datos](#)

[Comprobación Básica En Host De Origen4](#)

[Comprobación de hoja 1 de destino](#)

[Configurar sesión de supervisión](#)

[Comprobaciones básicas en First Hop DC-2, Leaf-1](#)

[Supervisar sesión en hoja de origen](#)

[Supervisar sesión en hoja de destino](#)

[Capturar en hoja de origen](#)

[Comprobaciones básicas en el último salto DC-1, hoja-2](#)

## Introducción

Este documento describe cómo resolver problemas de Ethernet VPN/Virtual Extensible LAN (EVPN/VxLAN) en el entorno multisitio.

## Prerequisites

## Requirements

Cisco recomienda que tenga conocimiento sobre estos temas:

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

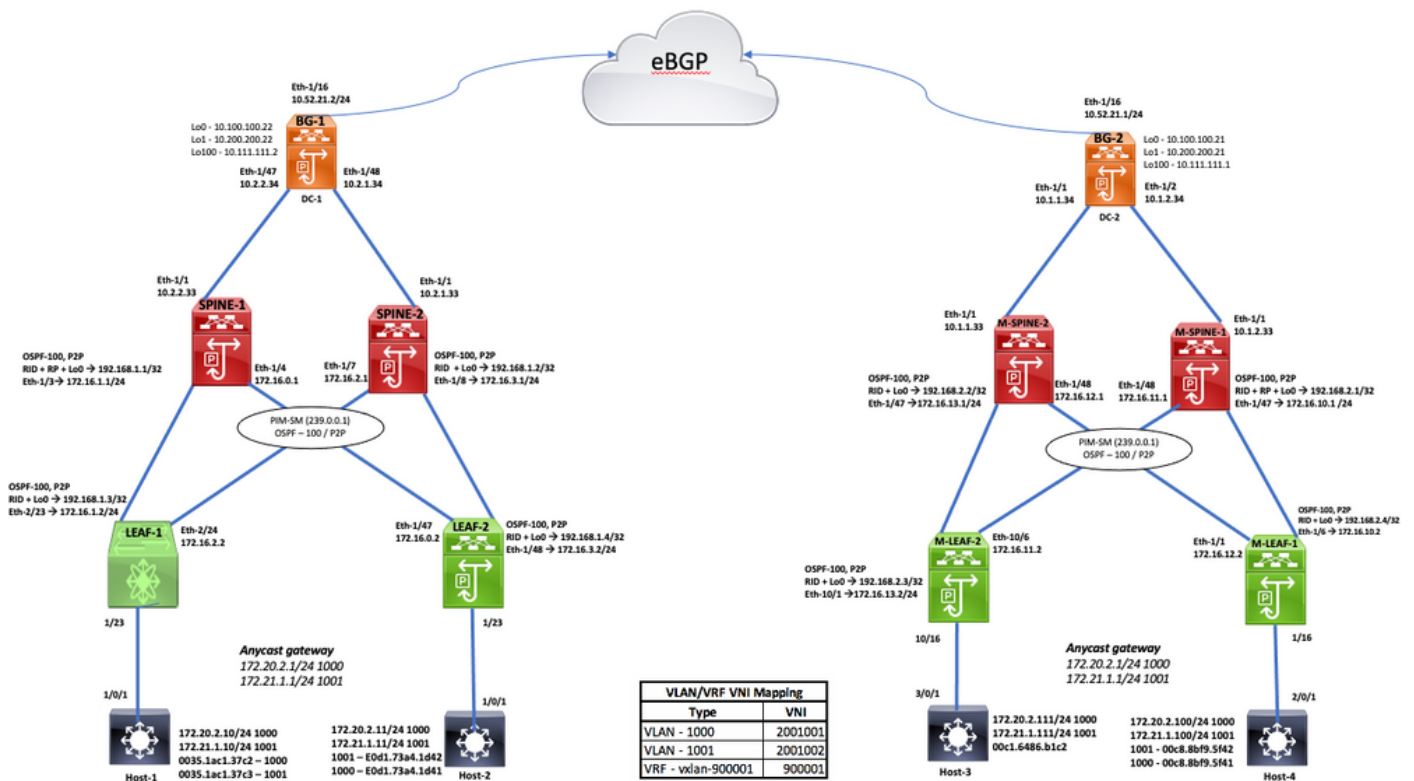
# Componentes Utilizados

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

leaf1#	N5K-C5672UP-16G-SUP	sistema: versión 7.3(0)N1(1)
leaf2#	N9K-C92160YC-X	NXOS: versión 9.2(3)
spine1#	N9K-C9396PX	NXOS: versión 9.2(3)
spine2#	N9K-C9396PX	NXOS: versión 9.2(3)
MultisiteBG1#	N9K-C93108TC-EX	NXOS: versión 9.2(3)
MultisiteBG2#	N9K-C93108TC-FX	NXOS: versión 9.3(1)
multisitespine2#	N9K-C9372TX-E	NXOS: versión 9.2(3)
Multistespine1#	N9K-C92160YC-X	NXOS: versión 9.2(3)
MultisteLeaf1#	N9K-C93108TC-EX	NXOS: versión 7.0(3)I7(5)

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

# Topología



Este documento describe desde dónde se origina el tráfico (DC-1, Host1/2 - 172.20.2.10/11) y luego caminar con nuestros paquetes hasta el destino DC-2, Host4 (172.20.2.100).

# Verificación del plano de control



## Flujo de tráfico:

## Paso

1. Verifique la IP y la VLAN correctas en el nodo de origen.

```
ToLeaf1#show ip interface brief | exclude down
```

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1000	172.20.2.10	YES	NVRAM	up	up
Vlan1001	172.21.1.10	YES	NVRAM	up	up
GigabitEthernet1/0/1	unassigned	YES	unset	up	up

```
ToLeaf1#
```

Ahora tiene el alcance desde el nodo de origen hasta su SVI-GW de Vlan-1000.

```
ToLeaf1#ping 172.20.2.1
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 172.20.2.1, timeout is 2 seconds:

```
!!!!!
```

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/205/1006 ms

```
ToLeaf1#
```

Paso 2. Pase al primer salto que es **leaf1** y verifique las cosas en el nivel de Capa 2 y Capa 3.

Ahora vea si **leaf1** aprende el mac, arp del nodo de origen o no.

Sí, la dirección mac (0035.1ac1.37c2), IP 172.20.2.10 del nodo de origen se aprende en eth1/23 a través de Vlan1000.

```
leaf1#show mac address-table
```

Legend:

\* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC

age - seconds since last seen,+ - primary entry using vPC Peer-Link

VLAN	MAC Address	Type	age	Secure	NTFY	Ports/SWID.SSID.LID
* 1001	0000.2222.3333	static	0	F	F	sup-eth2

```

* 1001    0035.1ac1.37c3    dynamic    500        F    F    Eth1/23
* 1001    005d.738e.a337    static     0          F    F    nve1/10.111.111.2
* 1001    00c8.8bf9.5f42    dynamic     0          F    F    nve1/10.111.111.2
* 1001    6cb2.ae91.38bf    static     0          F    F    nve1/10.200.200.22
* 1001    e0d1.73a4.1d42    dynamic     0          F    F    nve1/192.168.1.4
* 1000    0000.2222.3333    static     0          F    F    sup-eth2
* 1000    0035.1ac1.37c2    dynamic    70          F    F    Eth1/23
* 1000    005d.738e.a337    static     0          F    F    nve1/10.111.111.2
* 1000    00c8.8bf9.5f41    dynamic     0          F    F    nve1/10.111.111.2
* 1000    6cb2.ae91.38bf    static     0          F    F    nve1/10.200.200.22
* 1000    e0d1.73a4.1d41    dynamic     0          F    F    nve1/192.168.1.4

leaf1#

```

## Verificar tabla ARP en hoja de origen

```
leaf1#show ip arp vrf all
```

```

Flags: * - Adjacencies learnt on non-active FHRP router
       + - Adjacencies synced via CFSOE
       # - Adjacencies Throttled for Glean
       D - Static Adjacencies attached to down interface

```

```
IP ARP Table for all contexts
```

```
Total number of entries: 5
```

Address	Age	MAC Address	Interface
172.21.1.10	00:08:14	0035.1ac1.37c3	Vlan1001
<b>172.20.2.10</b>	<b>00:00:58</b>	<b>0035.1ac1.37c2</b>	<b>Vlan1000</b>
10.31.121.1	00:08:14	2c31.24b0.bf46	mgmt0
172.16.1.1	00:07:51	0081.c41c.f007	Ethernet2/23
172.16.2.1	00:08:14	cc46.d68f.d74b	Ethernet2/24

```
leaf1#
```

Esto muestra cómo leaf1 obtiene el mensaje para hacer una entrada IP/mac del nodo de origen.

```

leaf1#show system internal l2rib event-history mac | i 0035.1ac1.37c2 | be create

[04/24/20 13:10:09.721 UTC 6 4173] (1000,0035.1ac1.37c2,3):MAC route created with seq num:0,
flags:L (), soo:0, peerid:0

[04/24/20 13:10:09.732 UTC c 4173] (1000,0035.1ac1.37c2,3):Encoding MAC best route (ADD, client
id 4)

[04/24/20 13:10:09.871 UTC e 4173] (1000,0035.1ac1.37c2):Bound MAC-IP(172.20.2.10) to MAC, Total
MAC-IP linked: 1

[04/24/20 13:10:42.651 UTC 1a 4173] Received MAC ROUTE msg: addr: (1000-0035.1ac1.37c2) vni: 0
admin_dist: 0 seq_num: 0 rt_flags: L soo: 0 dg_count: 0 res: 0 esi: (F) nh_count: 1

[04/24/20 13:10:42.651 UTC 1c 4173] (1000,0035.1ac1.37c2):Mobility check for new rte from prod:
3

[04/24/20 13:10:42.651 UTC 1d 4173] (1000,0035.1ac1.37c2):Current non-del-pending route
local:yes, remote:no, linked mac-ip count:1

[04/24/20 13:10:42.651 UTC 1e 4173] (1000,0035.1ac1.37c2):Mobility type: local-to-local; New
route SOO: 0, Seq num: 0; Existing route SOO: 0, Seq num: 0

[04/24/20 13:10:42.651 UTC 1f 4173] (1000,0035.1ac1.37c2):Local Update, Add to DB

[04/24/20 13:10:42.651 UTC 20 4173] (1000,0035.1ac1.37c2,3):Using seq number from Recv-based
route

<.....snipped for brevity.....>

```

leaf1#

Una vez que haya verificado cómo la entrada mac/IP se ha realizado en leaf1, éste es uno de los puntos de observación importantes donde la información mac/mac-ip se vincula con BGP y se anuncia como rutas l2vpn/evpn.

```
leaf1#show bgp l2vpn evpn 0035.1ac1.37c2
```

```
Route Distinguisher: 192.168.1.3:33767 (L2VNI 2001002)
```

```
BGP routing table entry for [2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216, version 99
```

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

```
Flags: (0x00010a) on xmit-list, is not in l2rib/evpn
```

```
Advertised path-id 1
```

```
Path type: local, path is valid, is best path
```

```
AS-Path: NONE, path locally originated
```

```
192.168.1.3 (metric 0) from 0.0.0.0 (192.168.1.3)
```

```
Origin IGP, MED not set, localpref 100, weight 32768
```

```
Received label 2001002
```

```
Extcommunity:
```



Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected

Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 10.100.100.21:33767					
Route Distinguisher: 10.100.100.21:33768					
Route Distinguisher: 10.100.100.22:33767					
Route Distinguisher: 10.100.100.22:33768					
<b>Route Distinguisher: 192.168.1.3:33767 (L2VNI 2001002)</b>					
<b>*&gt;1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216</b>					
	192.168.1.3		100	32768	i
<b>*&gt;1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272</b>					
	192.168.1.3		100	32768	i
<b>Route Distinguisher: 192.168.1.3:33768 (L2VNI 2001001)</b>					
<b>*&gt;1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216</b>					
	192.168.1.3		100	32768	i
<b>*&gt;1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272</b>					
	192.168.1.3		100	32768	i
Route Distinguisher: 192.168.1.4:33767					
Route Distinguisher: 192.168.1.4:33768					
Route Distinguisher: 192.168.2.4:33767					
Route Distinguisher: 192.168.2.4:33768					

Route Distinguisher: 192.168.1.3:3 (L3VNI 900001)

leaf1#

## Verificación de ruta de hoja 1 a columna 2 de DC-1

leaf1#show bgp l2vpn evpn neighbors 192.168.1.2 advertised-routes

Peer 192.168.1.2 routes for address family L2VPN EVPN:

BGP table version is 191, local router ID is 192.168.1.3

Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, \*-valid, >-best

Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected

Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 10.100.100.21:33767					
Route Distinguisher: 10.100.100.21:33768					
Route Distinguisher: 10.100.100.22:33767					
Route Distinguisher: 10.100.100.22:33768					
<b>Route Distinguisher: 192.168.1.3:33767 (L2VNI 2001002)</b>					
<b>*&gt;1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216</b>					
	192.168.1.3		100	32768	i
<b>*&gt;1[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272</b>					
	192.168.1.3		100	32768	i
<b>Route Distinguisher: 192.168.1.3:33768 (L2VNI 2001001)</b>					
<b>*&gt;1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216</b>					
	192.168.1.3		100	32768	i



```
*>1[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272
```

```
192.168.1.3
```

```
100
```

```
32768 i
```

```
Route Distinguisher: 192.168.1.4:33767
```

```
Route Distinguisher: 192.168.1.4:33768
```

```
Route Distinguisher: 192.168.2.4:33767
```

```
Route Distinguisher: 192.168.2.4:33768
```

```
Route Distinguisher: 192.168.1.3:3 (L3VNI 900001)
```

```
leaf1#
```

Dado que hay múltiples columnas, verifique los diferentes comandos en las diferentes columnas para confirmar (mantenga intactas las actualizaciones de rutas).

En DC-1, SPINE-1 y SPINE-2 tienen una vecindad EVPN con Leaf1, Leaf2 y BGW-1

```
spine1#show bgp l2vpn evpn summary
```

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

```
BGP router identifier 192.168.1.1, local AS number 200
```

```
BGP table version is 31, L2VPN EVPN config peers 3, capable peers 3
```

```
19 network entries and 19 paths using 4256 bytes of memory
```

```
BGP attribute entries [17/2788], BGP AS path entries [1/6]
```

```
BGP community entries [0/0], BGP clusterlist entries [0/0]
```

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
10.100.100.22	4	200	44002	43993	31	0	0	4w2d	11
192.168.1.3	4	200	43991	43989	31	0	0	4w2d	4
192.168.1.4	4	200	43996	43992	31	0	0	4w2d	4

```
spine1#
```

```
spine2#show bgp l2vpn evpn summary
```

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

```
BGP router identifier 192.168.1.2, local AS number 200
```

```
BGP table version is 65, L2VPN EVPN config peers 3, capable peers 3
```

```
19 network entries and 19 paths using 4256 bytes of memory
```

```
BGP attribute entries [17/2788], BGP AS path entries [1/6]
```

```
BGP community entries [0/0], BGP clusterlist entries [0/0]
```

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
10.100.100.22	4	200	47140	47115	65	0	0	4w4d	11
192.168.1.3	4	200	47115	47112	65	0	0	4w4d	4
192.168.1.4	4	200	47121	47116	65	0	0	4w4d	4

```
spine2#
```

Hasta ahora, ha llegado hasta la capa de COLUMNA, ahora vea si se pasa a la puerta de enlace de frontera (DC-1, BGW-1) o no.

```
spine2#show bgp l2vpn evpn neighbors 10.100.100.22 advertised-routes
```

```
Peer 10.100.100.22 routes for address family L2VPN EVPN:
```

```
BGP table version is 65, Local Router ID is 192.168.1.2
```

```
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
```

```
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redirect, I-injected
```

```
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2
```

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 10.100.100.21:33767					
Route Distinguisher: 10.100.100.21:33768					
Route Distinguisher: 10.100.100.22:27001					

Route Distinguisher: 10.100.100.22:33767

Route Distinguisher: 10.100.100.22:33768

**Route Distinguisher: 192.168.1.3:33767**

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

192.168.1.3 100 0 i

**Route Distinguisher: 192.168.1.3:33768**

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272

192.168.1.3 100 0 i

Route Distinguisher: 192.168.1.4:33767

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[32]:[172.20.2.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.1.4:33768

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[32]:[172.21.1.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.2.4:33767

Route Distinguisher: 192.168.2.4:33768

spine2#

<<<<<<<<<

```
spine2#show bgp l2vpn evpn neighbors 10.100.100.22 advertised-routes | i 0035.1ac1.37c2
p 1 n 1
```

Route Distinguisher: 192.168.1.3:33767

```
*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216
```

```
192.168.1.3 100 0 i
```

```
*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272
```

```
192.168.1.3 100 0 i
```

spine2#

Verifique en la capa BORDER de DC-1, desde donde las rutas se propagan a un sitio diferente.

A continuación, podrá ver con quién, qué tipo de rutas y cuántas rutas se intercambian en BGW-1

## DC-1 BGW-1

```
MultisiteBG1#show bgp l2vpn evpn summary
```

BGP summary information for VRF default, address family L2VPN EVPN

BGP router identifier 10.100.100.22, local AS number 200

BGP table version is 233, L2VPN EVPN config peers 3, capable peers 3

37 network entries and 45 paths using 7296 bytes of memory

BGP attribute entries [37/6068], BGP AS path entries [1/6]

BGP community entries [0/0], BGP clusterlist entries [4/16]

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
10.100.100.21	4	100	47145	47121	233	0	0	4w4d	8
192.168.1.1	4	200	47153	47125	233	0	0	18:52:35	8
192.168.1.2	4	200	47139	47119	233	0	0	4w4d	8

Neighbor	T	AS	PfxRcd	Type-2	Type-3	Type-4	Type-5
----------	---	----	--------	--------	--------	--------	--------

```

10.100.100.21  E   100 8         6         2         0         0
192.168.1.1   I   200 8         8         0         0         0
192.168.1.2   I   200 8         8         0         0         0

```

MultisiteBG1#

MultisiteBG1#**show bgp l2vpn evpn neighbors 10.100.100.21 advertised-routes**

Peer 10.100.100.21 routes for address family L2VPN EVPN:

BGP table version is 233, Local Router ID is 10.100.100.22

Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, \*-valid, >-best

Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected

Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 10.100.100.21:33767					
Route Distinguisher: 10.100.100.21:33768					
Route Distinguisher: 10.100.100.22:27001 (ES [0300.0000.0000.c800.0309 0])					
*>l[4]:[0300.0000.0000.c800.0309]:[32]:[10.200.200.22]/136					
	10.200.200.22		100	32768	i
Route Distinguisher: 10.100.100.22:33767 (L2VNI 2001002)					
*>l[2]:[0]:[0]:[48]:[6cb2.ae91.38bf]:[0]:[0.0.0.0]/216					
	10.200.200.22		100	32768	i
*>l[3]:[0]:[32]:[10.200.200.22]/88					
	10.200.200.22		100	32768	i
Route Distinguisher: 10.100.100.22:33768 (L2VNI 2001001)					
*>l[2]:[0]:[0]:[48]:[6cb2.ae91.38bf]:[0]:[0.0.0.0]/216					
	10.200.200.22		100	32768	i
*>l[3]:[0]:[32]:[10.200.200.22]/88					
	10.200.200.22		100	32768	i

Route Distinguisher: 192.168.1.3:33767

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272

192.168.1.3 100 0 i

Route Distinguisher: 192.168.1.3:33768

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[0]:[0.0.0.0]/216

192.168.1.3 100 0 i

\*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c3]:[32]:[172.21.1.10]/272

192.168.1.3 100 0 i

Route Distinguisher: 192.168.1.4:33767

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d41]:[32]:[172.20.2.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.1.4:33768

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[0]:[0.0.0.0]/216

192.168.1.4 100 0 i

\*>i[2]:[0]:[0]:[48]:[e0d1.73a4.1d42]:[32]:[172.21.1.11]/272

192.168.1.4 100 0 i

Route Distinguisher: 192.168.2.4:33767

Route Distinguisher: 192.168.2.4:33768

MultisiteBG1#

```
MultisiteBG1#show bgp l2vpn evpn neighbors 10.100.100.21 advertised-routes | i 0035.1ac1.37c2  
p 1 n 1
```

```
Route Distinguisher: 192.168.1.3:33767
```

```
*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216
```

```
192.168.1.3 100 0 i
```

```
*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272
```

```
192.168.1.3 100 0 i
```

```
MultisiteBG1#
```

Una vez que se reciben las rutas en DC-2/BGW-2, se ve el anuncio de ruta a su SPINE-1 conectado (192.168.2.1)

## DC-2 BGW-2

```
MultisiteBG2#show bgp l2vpn evpn summary
```

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

```
BGP router identifier 10.100.100.21, local AS number 100
```

```
BGP table version is 142, L2VPN EVPN config peers 3, capable peers 2
```

```
43 network entries and 43 paths using 7680 bytes of memory
```

```
BGP attribute entries [33/5412], BGP AS path entries [1/6]
```

```
BGP community entries [0/0], BGP clusterlist entries [1/4]
```

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
10.100.100.22	4	200	47169	47124	142	0	0	4w4d	12
192.168.2.1	4	100	47136	47124	142	0	0	4w4d	4
192.168.2.2	4	100	45969	45963	0	0	0	19:21:40	Idle

Neighbor	T	AS	PfxRcd	Type-2	Type-3	Type-4	Type-5
10.100.100.22	E	200	12	10	2	0	0
192.168.2.1	I	100	4	4	0	0	0
192.168.2.2	I	100	Idle	0	0	0	0

```
MultisiteBG2#
```

```
MultisiteBG2#show bgp l2vpn evpn neighbors 192.168.2.1 advertised-routes | i 0035.1ac1.37c2 p 1 n 1
```

```
Route Distinguisher: 192.168.1.3:33767
```

```
*>e[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216
```

```
10.111.111.2 2000 0 200 i
```

```
*>e[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272
```

```
10.111.111.2 2000 0 200 i
```

```
MultisiteBG2#
```

Las rutas se anuncian además a DC-2, Leaf-1, donde está conectado el destino.

## Anuncio de ruta de columna a hoja de DC-2

```
Multistespinel#show bgp l2vpn evpn summary
```

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

```
BGP router identifier 192.168.2.1, local AS number 100
```

```
BGP table version is 50, L2VPN EVPN config peers 3, capable peers 2
```

```
19 network entries and 19 paths using 4256 bytes of memory
```

```
BGP attribute entries [15/2460], BGP AS path entries [1/6]
```

```
BGP community entries [0/0], BGP clusterlist entries [0/0]
```

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
10.100.100.21	4	100	47152	47131	50	0	0	4w4d	15
192.168.2.3	4	100	0	0	0	0	0	4w4d	Idle
192.168.2.4	4	100	47135	47131	50	0	0	4w4d	4

```
Multistespinel#
```

```
Multistespinel#show bgp l2vpn evpn neighbors 192.168.2.4 advertised-routes | i 0035.1ac1.37c2 p 1 n 1
```

```
Route Distinguisher: 192.168.1.3:33767
```

```
*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[0]:[0.0.0.0]/216
```

```
10.111.111.1 2000 100 0 200 i
```

```
*>i[2]:[0]:[0]:[48]:[0035.1ac1.37c2]:[32]:[172.20.2.10]/272
```

```
10.111.111.1 2000 100 0 200 i
```



Multistespinel#

Ahora ve, la topología de capa 2 se amplió de DC-1, hoja-1 a DC-2, hoja-1.

### Verificación de hoja 1 de DC-2

MultisteLeaf1#show bgp l2vpn evpn summary

BGP summary information for VRF default, address family L2VPN EVPN
BGP router identifier 192.168.2.4, local AS number 100
BGP table version is 188, L2VPN EVPN config peers 2, capable peers 1
36 network entries and 36 paths using 6120 bytes of memory
BGP attribute entries [16/2560], BGP AS path entries [1/6]
BGP community entries [0/0], BGP clusterlist entries [1/4]

Table with 9 columns: Neighbor, V, AS, MsgRcvd, MsgSent, TblVer, InQ, OutQ, Up/Down, State/PfxRcd. Rows show neighbor 192.168.2.1 and 192.168.2.2.

MultisteLeaf1#

MultisteLeaf1#show mac address-table

Legend:

\* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen,+ - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan

Table with 7 columns: VLAN, MAC Address, Type, age, Secure, NTFY, Ports. Shows entries for VLANs 1, 101, 1000, and 1001.

```

* 1001    00c8.8bf9.5f42    dynamic  0          F        F        Eth1/16
C 1001    e0d1.73a4.1d42    dynamic  0          F        F        nve1(10.111.111.1)
G  -      0000.2222.3333    static   -          F        F        sup-eth1(R)
G  -      00be.75f4.544d    static   -          F        F        sup-eth1(R)
G  101    00be.75f4.544d    static   -          F        F        sup-eth1(R)
G  1000   00be.75f4.544d    static   -          F        F        sup-eth1(R)
G  1001   00be.75f4.544d    static   -          F        F        sup-eth1(R)

```

MultisteLeaf1#

DC-2, Leaf-1 aprendió Host-4 Mac a través de Vlan1000.

MultisteLeaf1#**show ip arp vrf vxlan-900001**

```

Flags: * - Adjacencies learnt on non-active FHRP router
+ - Adjacencies synced via CFSOE
# - Adjacencies Throttled for Glean
CP - Added via L2RIB, Control plane Adjacencies
PS - Added via L2RIB, Peer Sync
RO - Re-Originated Peer Sync Entry
D - Static Adjacencies attached to down interface

```

IP ARP Table for context vxlan-900001

Total number of entries: 2

Address	Age	MAC Address	Interface	Flags
172.21.1.100	00:04:09	00c8.8bf9.5f42	Vlan1001	
<b>172.20.2.100</b>	<b>00:04:09</b>	<b>00c8.8bf9.5f41</b>	<b>Vlan1000</b>	

MultisteLeaf1#

## Resolución de problemas del plano de datos

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



```

-----
0 0 Nexus 72UP 16GFC Supervisor N5K-C5672UP-16G-SUP active *
1 24 Nexus 24xSFP Ethernet Module N5600-72UP16GFC ok <<<<<<<<<<<<<<<< To DC-1/Host-1
2 24 Nexus 24xSFP Ethernet/FC Module N5600-72UP16GFC-FC ok
3 6 Nexus 6xQSFP Ethernet Module N5600-72UP16GFC-M6Q ok

```

Mod Sw Hw World-Wide-Name(s) (WWN)

```

-----
0 7.3(0)N1(1) 1.5 --
1 7.3(0)N1(1) 1.5 --
2 7.3(0)N1(1) 1.5 --
3 7.3(0)N1(1) 1.5 --

```

Mod MAC-Address(es) Serial-Num

```

-----
0 00de.fb01.9f88 to 00de.fb01.9f88 FOC20162AGC
1 00de.fb01.9f88 to 00de.fb01.9f9f FOC20162AGC
2 00de.fb01.9fa0 to 00de.fb01.9fb7 FOC20162AGC
3 00de.fb01.9fb8 to 00de.fb01.9fcf FOC20162AGC

```

leaf1#

Ahora vea cómo puede verificar la asignación básica/de instancia.

```
leaf1#show platform fwm info pif eth1/23 | i i slot_asic
```

```

Eth1/23 pd: slot 0 logical port num 22 slot_asic_num 1 global_asic_num 2 fw_inst 10 phy_fw_inst
2 fc 0
leaf1#

```

```
leaf1#show hardware internal bigsur all-ports | i "asic|idx|1/23"
```

```

Port |asic|inst|inst|
name |idx |slot|asic|eport|logi|flag|adm|opr|if_index|diag|ucVer
1gb1/23 |2 |0 |1 |10 p |22 |b3 |en |up |1a016000|pass| 0.00
leaf1#

```

Aquí puede ver los paquetes que salen de la hoja 1 al host 1.

```
leaf1#elam slot 1 asic bigsur instance 1
```

```
leaf1(bigsur-elam)#trigger lu egress ipv4 if destination-ipv4-address_ipv4 172.20.2.10
```

```
leaf1(bigsur-elam)#start capture
```

```
leaf1(bigsur-elam)#show capture lu
```

```
Egress Interface: Ethernet1/23 IS NOT A PC <<<<<<<<<<<<<<<<<< ELAM is smart, we have a catalyst switch as HOST-1 :-)
```

```

+-----+
| Lookup Vector |
+-----+-----+
| Field | Raw Value |
+-----+-----+
| SID | 21 |
| PKT_ID | 13 |
| TUN_VLD | 0 |
| TUN_TYPE | 0 |
| TUN_IF | 0 |
| TUN_INST | 0 |
| ERSPAN_TERM_VLD | 0 |
| ERSPAN_DST_IF_IDX | 0 |
| L2MP_VLD | 1 |
| TRILL_ODA | 0x000000000000 |
| TRILL_OQTAG_VLD | 0 |
| TRILL_OQTAG_DE | 0 |

```

```

| TRILL_DCE_FTAG_VLD | 0 |
| TRILL_DCE_LID_VLD | 0 |
| TRILL_VRM | 0 |
| TRILL_OPT_VLD | 0 |
| TRILL_OPT_BYTE0 | 0 |
| CDCE_DA | 0x020abc000004 |
| CDCE_SA | 0x022001000000 |
| CDCE_DTAG_ETYPE | 0x0200 |
| CDCE_DTAG_TTL | 32 |
| CDCE_DTAG_FTAG | 2 |
| NSH_WORD2 | 0x3e70080 |
| CE_DA | 0x00351ac137c2 |<<<<<<<<<<<<<<<<<<<<<<<<< Destination Mac address (Host-1 172.20.2.10)
| CE_SA | 0x00c88bf95f41 |<<<<<<<<<<<<<<<<<<<<<<<<< Source Mac address (Host-4 172.20.2.100)
| VNIC_VLD | 0 |
| CE_1Q_NUM | 1 |
| INT_VLAN | 999 |
| IP_RESV_0 | 0 |
| FCOE_VLD | 0 |
| MPLS_VLD | 0 |
| VEC_TYPE | 0 |
| TRILL_OSA | 0x000000000000 |
| CMD_SGT_VLD | 0 |
| CMD_SGT | 0 |
| CMD_DGT_VLD | 0 |
| CMD_DGT | 0 |
| HDRP_SNAP | 0 |
| L3_IPV6 | 0 |
| L3_SA | 172.20.2.100 |<<<<<<<<<<<<<<<<<<<<<<<<< Source IP
| L3_DA | 172.20.2.10 |<<<<<<<<<<<<<<<<<<<<<<<<< Destination IP
| L3_TOS | 0 |
| L3_FRAG | 0 |
| L3_MF | 0 |
| L3_TTL | 255 |
| L3_OPT_NONE | 0 |
| L3_NONE_HBH | 0 |
| L3_NONE_ROUTE | 0 |
| L3_NONE_FRAG | 0 |
| L3_NONE_DEST | 0 |
| L3_AH | 0 |
| L3_ESP | 0 |
| L3_PROT | 1 |<<<<<<<<<<<<<<<<<<<<<<<<< ICMP
| L3_LENGTH | 100 |
| MAX_IPV6_HBH | 0 |
| MAX_IPV6_FRAG | 0 |
| L4_TCP_UDP | 0 |
| IP_RESV_1 | 0 |
+-----+
| PYLD_LEN | 4 |
| PARSE_ERR | 0 |
| PARSE_UNEXP | 0 |
| ECN_DROP | 0 |
| IDS_FAIL | 0 |
| IDS_CODE | 0 |
| LKUP_SPARE | 0 |
+-----+
leaf1(bigsur-elam)#

```

Ahora puede entender cómo capturar paquetes en N5K, permite acercarse



N9K.

Puede comenzar desde el Host-4 y hacer un ping simple al Host-2. Aunque es un tráfico de tránsito para los switches LEAF, aún verifique si puede manejar estos paquetes correctamente o no. Confirme en DC-1/Leaf-2.

Para confirmar, monitoree la interfaz eth-1/23, y dirija esos paquetes a la CPU y ejecute ethanalyzer/dmirror para el mismo.

## Configurar sesión de supervisión

```
leaf2#configure terminal
leaf2(config)#monitor session 1
leaf2(config-monitor)#source interface ethernet 1/23
leaf2(config-monitor)#destination interface sup-eth 0
leaf2(config-monitor)#no shut
leaf2(config-monitor)#exit
```

```
toMultisiteLeaf1#ping 172.20.2.11 repeat 2
Type escape sequence to abort.
Sending 2, 100-byte ICMP Echos to 172.20.2.11, timeout is 2 seconds:
!!
Success rate is 100 percent (2/2), round-trip min/avg/max = 1/1/1 ms
toMultisiteLeaf1#
```

```
leaf2#ethanalyzer local interface inband mirror
```

```
Capturing on inband
2020-05-27 12:20:57.081654 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.082193 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply
2020-05-27 12:20:57.084902 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.087406 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply

4 packets captured
leaf2#
```

```
leaf2#ethanalyzer local interface inband display-filter "ip.addr==172.20.2.100 &&
ip.addr==172.20.2.11 && icmp" limit-captured-frames 0
```

```
Capturing on inband
2020-05-27 12:20:57.081654 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.082193 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply
2020-05-27 12:20:57.084902 172.20.2.100 -> 172.20.2.11 ICMP Echo (ping) request
2020-05-27 12:20:57.087406 172.20.2.11 -> 172.20.2.100 ICMP Echo (ping) reply

4 packets captured
leaf2#
```

En caso de que desee enviar algunos datos desde el origen y capturar en la hoja de destino, este es el procedimiento:

1. Inicie un ping del Host-4 al Host-2.
2. FUENTE: 172.20.2.100 // Dirección MAC de origen: 00:C8:8B:F9:5F:41

3. DESTINATION: 172.20.2.11 // Dirección MAC de destino: E0:D1:73:A4:1D:41
4. Tamaño de paquete: 777
5. No fragmentar: Sí
6. Cadena de patrón de datos: beef

En este ejemplo, dispone de suficientes recuentos de paquetes para poder capturar los paquetes en las hojas de origen y destino.

```
toMultisiteLeaf1#ping 172.20.2.11 repeat 200000 data beef df-bit validate size 777
Type escape sequence to abort.
Sending 200000, 777-byte ICMP Echos to 172.20.2.11, timeout is 2 seconds:
Packet sent with the DF bit set
Packet has data pattern 0xBEEF
Reply data will be validated
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

<.....>
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (7376/7376), round-trip min/avg/max = 1/5/151 ms
toMultisiteLeaf1#
```

## Comprobaciones básicas en First HopDC-2, Leaf-1



```
MultisteLeaf1#show module
Mod Ports Module-Type Model Status
-----
1 54 48x10GT + 6x40G/100G Ethernet Module N9K-C93108TC-EX active *

Mod Sw Hw Slot
-----
1 7.0(3)I7(5) 1.3 NA

Mod MAC-Address(es) Serial-Num
-----
1 00-be-75-f4-54-46 to 00-be-75-f4-54-95 FDO220225UX

Mod Online Diag Status
-----
1 Pass

* this terminal session
MultisteLeaf1#
```





**Src MAC address: 00:C8:8B:F9:5F:41**

.1q Tag0 **VLAN: 1000**, cos = 0x0

**Dst IPv4 address: 172.20.2.11**

**Src IPv4 address: 172.20.2.100**

Ver = 4, DSCP = 0, **Don't Fragment = 1**

Proto = 1, TTL = 255, More Fragments = 0

Hdr len = 20, **Pkt len = 777**, Checksum = 0xcffe

**L4 Protocol : 1**

**ICMP type : 8**

ICMP code : 0

Drop Info:

-----

LUA:

LUB:

LUC:

LUD:

Final Drops:

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

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

```
module-1# exit
```

```
MultisteLeaf1#
```

Si desea ver como pcap, déjelo hacer ping continuamente, la sesión de monitoreo se configura en la hoja de origen y destino.

## Supervisar sesión en hoja de origen

```
MultisteLeaf1#show run | section monitor
```

```
monitor session 1
```

```
source interface Ethernet1/16 both
```

```
destination interface sup-eth0
```

```
no shut
```

```
MultisteLeaf1#
```

## Supervisar sesión en hoja de destino

```
leaf2(config)#show run | section monitor
```

```
monitor session 1
```

```
source interface Ethernet1/23 both
```

```
destination interface sup-eth0
```

```
no shut
```

```
leaf2(config)#
```

## Capturar en hoja de origen

```
MultisteLeaf1#ethanalyzer local interface inband display-filter "ip.addr==172.20.2.100 &&  
ip.addr==172.20.2.11 && icmp" limit-captured-frames 0 detail
```

```
Capturing on inband
```

```
Frame 1 (791 bytes on wire, 791 bytes captured)
```

```
Arrival Time: May 31, 2020 15:44:46.767411000
```

```
[Time delta from previous captured frame: 0.000000000 seconds]
```











**Frame 4 (795 bytes on wire, 795 bytes captured)**

Arrival Time: May 31, 2020 15:44:46.888728000  
[Time delta from previous captured frame: 0.047867000 seconds]  
[Time delta from previous displayed frame: 0.047867000 seconds]  
[Time since reference or first frame: 0.121317000 seconds]  
Frame Number: 4  
Frame Length: 795 bytes  
Capture Length: 795 bytes  
[Frame is marked: False]  
[Protocols in frame: eth:vlan:ip:icmp:data]  
Ethernet II, Src: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41), Dst: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)  
Destination: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)  
Address: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)  
.... 0 = IG bit: Individual address (unicast)  
... 0. = LG bit: Globally unique address (factory default)  
Source: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)  
Address: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)  
.... 0 = IG bit: Individual address (unicast)  
... 0. = LG bit: Globally unique address (factory default)  
Type: 802.1Q Virtual LAN (0x8100)  
802.1Q Virtual LAN, PRI: 0, CFI: 0, ID: 1000  
000. = Priority: 0  
... 0 = CFI: 0  
... 0011 1110 1000 = ID: 1000  
Type: IP (0x0800)  
Internet Protocol, Src: 172.20.2.100 (172.20.2.100), Dst: 172.20.2.11 (172.20.2.11)  
Version: 4  
Header length: 20 bytes  
Differentiated Services Field: 0x00 (DSCP 0x00: Default; ECN: 0x00)  
0000 00.. = Differentiated Services Codepoint: Default (0x00)  
... 0. = ECN-Capable Transport (ECT): 0  
... 0 = ECN-CE: 0  
Total Length: 777  
Identification: 0xaf65 (44901)  
Flags: 0x02 (Don't Fragment)  
0.. = Reserved bit: Not Set  
.1. = Don't fragment: Set  
..0 = More fragments: Not Set  
Fragment offset: 0  
Time to live: 255  
Protocol: ICMP (0x01)  
Header checksum: 0xbd1b [correct]  
[Good: True]  
[Bad : False]  
Source: 172.20.2.100 (172.20.2.100)  
Destination: 172.20.2.11 (172.20.2.11)  
Internet Control Message Protocol  
Type: 8 (Echo (ping) request)  
Code: 0 ()  
Checksum: 0x704a [correct]  
Identifier: 0x001c  
Sequence number: 7430 (0x1d06)  
Data (749 bytes)

0000 00 00 00 00 14 67 5f aa be ef be ef be ef be ef .....g\_.....  
0010 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0020 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0030 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0040 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0050 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0060 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0070 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0080 be ef be ef be ef be ef be ef be ef be ef be ef .....

```

0090 be ef be ef be ef be ef be ef be ef be ef be ef .....
00a0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00b0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00c0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00d0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00e0 be ef be ef be ef be ef be ef be ef be ef be ef .....
00f0 be ef be ef be ef be ef be ef be ef be ef be ef .....
0100 be ef be ef be ef be ef be ef be ef be ef be ef .....
0110 be ef be ef be ef be ef be ef be ef be ef be ef .....
0120 be ef be ef be ef be ef be ef be ef be ef be ef .....
0130 be ef be ef be ef be ef be ef be ef be ef be ef .....
0140 be ef be ef be ef be ef be ef be ef be ef be ef .....
0150 be ef be ef be ef be ef be ef be ef be ef be ef .....
0160 be ef be ef be ef be ef be ef be ef be ef be ef .....
0170 be ef be ef be ef be ef be ef be ef be ef be ef .....
0180 be ef be ef be ef be ef be ef be ef be ef be ef .....
0190 be ef be ef be ef be ef be ef be ef be ef be ef .....
01a0 be ef be ef be ef be ef be ef be ef be ef be ef .....
01b0 be ef be ef be ef be ef be ef be ef be ef be ef .....
01c0 be ef be ef be ef be ef be ef be ef be ef be ef .....
01d0 be ef be ef be ef be ef be ef be ef be ef be ef .....

```

MultisteLeaf1#

## Comprobaciones básicas en el último salto DC-1, hoja-2



```
leaf2#show module
```

```
Mod Ports Module-Type Model Status
```

```
-----
1 54 48x10G + 4x40G + 2x100G Ethernet Modu N9K-C92160YC-X active *
```

```
Mod Sw Hw Slot
```

```
-----
1 9.2(3) 1.3 NA
```

```
Mod MAC-Address(es) Serial-Num
```

```
-----
1 70-79-b3-3e-81-1c to 70-79-b3-3e-81-69 FDO22111H2V
```

```
Mod Online Diag Status
```

```
-----
1 Pass
```

```
* this terminal session
```

```
leaf2#show cdp neighbors
```

```
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
S - Switch, H - Host, I - IGMP, r - Repeater,
V - VoIP-Phone, D - Remotely-Managed-Device,
s - Supports-STP-Dispute
```

```
Device-ID Local Intrfce Hldtme Capability Platform Port ID
```

```
Toleaf2 Eth1/23 142 S I WS-C3750X-24S Gig1/0/1 <<<<<<<<<<<<<<<< Towards Host-2
```

```
switch(SAL2024RRYF)
```

```
Eth1/47 175 R S I s N9K-C9372PX-E Eth1/4
```

```
spine2(SAL1949UELD)
```









0290 be ef be ef be ef be ef be ef be ef be ef be ef be ef .....  
02a0 be ef be ef be ef be ef be ef be ef be ef be ef be ef .....  
02b0 be ef be ef be ef be ef be ef be ef be ef be ef be ef .....  
02c0 be ef be ef be ef be ef be ef be ef be ef be ef be ef .....  
02d0 be ef be ef be ef be ef be ef be ef be ef be ef be ef .....  
02e0 be ef be ef be ef be ef be ef be ef be ef 00 .....

Data: 00000000147F4ADBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEFBEEF...

[Length: 749]

Frame 2 (791 bytes on wire, 791 bytes captured)

Arrival Time: May 31, 2020 15:45:55.694904000

[Time delta from previous captured frame: 0.020346000 seconds]

[Time delta from previous displayed frame: 0.020346000 seconds]

[Time since reference or first frame: 0.020346000 seconds]

Frame Number: 2

Frame Length: 791 bytes

Capture Length: 791 bytes

[Frame is marked: False]

[Protocols in frame: eth:ip:icmp:data]

Ethernet II, Src: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41), Dst: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)

Destination: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)

Address: e0:d1:73:a4:1d:41 (e0:d1:73:a4:1d:41)

.... ..0 .... = IG bit: Individual address (unicast)

.... ..0. .... = LG bit: Globally unique address (factory default)

Source: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)

Address: 00:c8:8b:f9:5f:41 (00:c8:8b:f9:5f:41)

.... ..0 .... = IG bit: Individual address (unicast)

.... ..0. .... = LG bit: Globally unique address (factory default)

Type: IP (0x0800)

Internet Protocol, Src: 172.20.2.100 (172.20.2.100), Dst: 172.20.2.11 (172.20.2.11)

Version: 4

Header length: 20 bytes

Differentiated Services Field: 0x00 (DSCP 0x00: Default; ECN: 0x00)

0000 00.. = Differentiated Services Codepoint: Default (0x00)

.... ..0. = ECN-Capable Transport (ECT): 0

.... ..0 = ECN-CE: 0

Total Length: 777

Identification: 0x8237 (33335)

Flags: 0x02 (Don't Fragment)

0.. = Reserved bit: Not Set

.1. = Don't fragment: Set

..0 = More fragments: Not Set

Fragment offset: 0

Time to live: 255

Protocol: ICMP (0x01)

Header checksum: 0xea49 [correct]

[Good: True]

[Bad : False]

Source: 172.20.2.100 (172.20.2.100)

Destination: 172.20.2.11 (172.20.2.11)

Internet Control Message Protocol

Type: 8 (Echo (ping) request)

Code: 0 ( )

Checksum: 0x980f [correct]

Identifier: 0x001f

Sequence number: 2515 (0x09d3)

Data (749 bytes)

0000 00 00 00 00 14 7f 4a fd be ef be ef be ef be ef .....J.....  
0010 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0020 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0030 be ef be ef be ef be ef be ef be ef be ef be ef .....  
0040 be ef be ef be ef be ef be ef be ef be ef be ef .....



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