

# Distribuire EVPN di layer 3 su MPLS di routing dei segmenti in Nexus 9300

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## Introduzione

In questo documento viene descritto come distribuire/configurare VPN Ethernet (EVPN) di layer 3 (L3) su MPLS (Segment Routing) [Open Shortest Path First (OSPF) / Internal Border Gateway Protocol (iBGP)] di Multiprotocol Label Switching (MPLS) sui prodotti Nexus 9300.

## Prerequisiti

### Requisiti

Cisco raccomanda la conoscenza dei seguenti argomenti:

- Border Gateway Protocol (BGP)
- L3VPN
- EVPN
- SR

### Componenti usati

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

- SPINE Hardware - 93360YC-FX2 con release 9.3(3)
- LEAF Hardware - 93240YC-FX2 con release 9.3(3)
- CLIENT - 93216TC-FX2

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.

## Premesse

### Riepilogo MPLS L3VPN

Una VPN è:

- Rete IP che fornisce servizi di rete privati su un'infrastruttura pubblica.
- Insieme di siti a cui è consentito comunicare tra loro in privato tramite Internet o altre reti pubbliche o private.

Le VPN convenzionali vengono create configurando una rete completa di tunnel o circuiti virtuali permanenti (PVC) per tutti i siti di una VPN. Questo tipo di VPN non è facile da mantenere o espandere, in quanto l'aggiunta di un nuovo sito richiede una modifica a ciascun dispositivo periferico della VPN.

Le VPN basate su MPLS vengono create in L3 e sono basate sul modello peer. Il modello peer consente al provider di servizi e al cliente di scambiarsi informazioni di routing L3. Il provider di servizi inoltra i dati tra le sedi del cliente senza il coinvolgimento del cliente.

Le VPN MPLS sono più facili da gestire ed espandere rispetto alle VPN convenzionali. Quando si aggiunge un nuovo sito a una VPN MPLS, è necessario aggiornare solo il router perimetrale del provider di servizi che fornisce servizi alla sede del cliente.

Questi sono i componenti della VPN MPLS:

- Provider (P) router - Router nel nucleo della rete del provider. I router IP eseguono la commutazione MPLS e non collegano le etichette VPN ai pacchetti indirizzati. Le etichette VPN vengono utilizzate per indirizzare i pacchetti di dati alla rete privata corretta o al router perimetrale del cliente.
- Router PE: router che collega l'etichetta VPN ai pacchetti in arrivo in base all'interfaccia o alla sottointerfaccia su cui vengono ricevuti e che allega anche le etichette di base MPLS. Un router PE si collega direttamente a un router CE.
- Cliente (C) router - Router nella rete ISP (Internet Service Provider) o aziendale.
- Customer Edge (CE) router: router perimetrale sulla rete dell'ISP che si connette al router PE sulla rete. Un router CE deve interfacciarsi con un router PE.

### Panoramica di EVPN con L3VPN (MPLS SR)

Le implementazioni dei data center (DC) hanno adottato VXLAN EVPN o MPLS EVPN per i suoi vantaggi, quali l'apprendimento del control-plane EVPN, la multitenancy, la mobilità perfetta, la ridondanza e le aggiunte più semplici di POD. Analogamente, il CORE è una rete MPLS L3VPN basata su LDP (Label Distribution Protocol) o in transizione dalla tradizionale sublay basata su LDP di MPLS L3VPN a una soluzione più sofisticata come la SR.

La SR è adottata per i suoi vantaggi, quali:

- Piani di controllo IGP e MPLS unificati
- Metodi di progettazione del traffico più semplici
- Configurazione più semplice
- Adozione di SDN (Software-Defined Networking)

EVPN (RFC 7432) è una soluzione basata su BGP MPLS che è stata utilizzata per i servizi Ethernet di nuova generazione in una rete di centri dati virtualizzata. Utilizza diversi elementi di base, quali Route Distinguisher (RD), Route Target (RT) e Virtual Routing and Forwarding (VRF), dalle tecnologie MPLS esistenti.

L3 EVPN over SR, introdotto in NXOS 7.0(3)I6(1), utilizza la route EVPN Type-5 con incapsulamento MPLS. Offre multi-tenant, scalabilità e prestazioni elevate per i servizi evoluti del centro dati.

**Nota:** In DC, il piano dati può essere VXLAN o MPLS.

### VPN MPLS L3 tradizionale

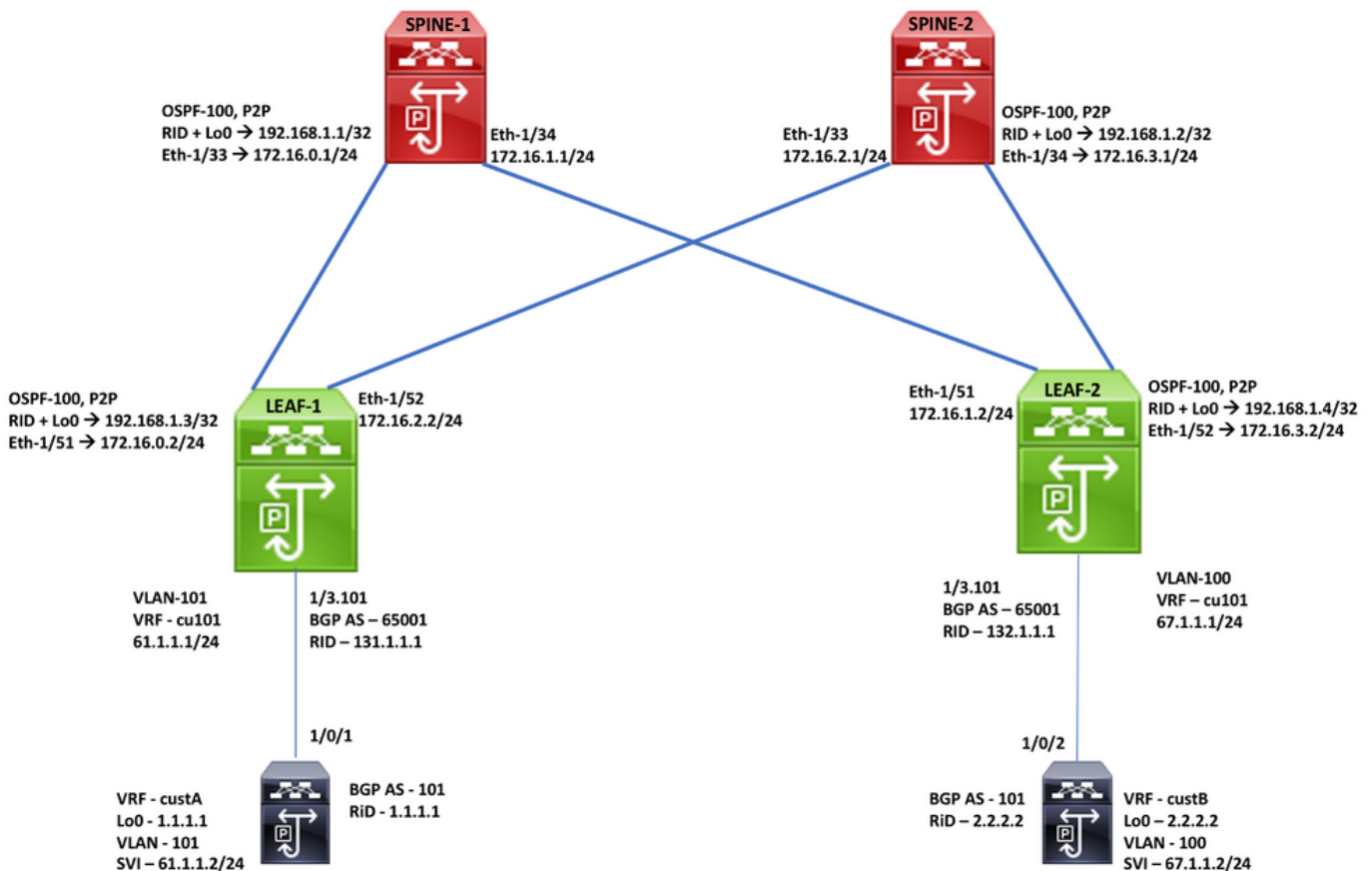
Blocchi di compilazione principali: RD, RT e VRF  
 Livello inferiore per trasporto: IGP, LDP e RSVP-TE  
 Livello overlay per servizio: VPNv4 e VPNv6

### MPLS L3 VPN over SR

Blocchi di compilazione principali: RD, RT e VRF  
 Livello inferiore per trasporto: IGP/BGP-LU e SR-TE  
 Livello overlay per servizio: EVPN

## Configurazione

### Topologia



### Configurazione di alto livello

1. Funzionalità di installazione
2. Configura indirizzo IP - Sottolineato
3. Configurare IGP - OSPF
4. Configurazione MP - BGP
5. Configurazione della sovrapposizione VLAN ed EVPN
6. Configurazione di e-BGP tra host e FOGLIA

SPINE-1 Configuration		
Enabling Features, Label-Range, Route-map, Label-Index	OSPF Configuration	BGP/EVPN Configuration
feature-set mpls	interface Ethernet1/33	router bgp 65001
feature ospf	ip address 172.16.0.1/24	router-id 192.168.1.1
feature bgp	ip ospf network point-to-point	address-family ipv4 unicast
feature mpls segment-routing	ip router ospf 100 area 0.0.0.0	network 192.168.1.1/32 route-map label-index-spine1
feature mpls evpn	mpls ip forwarding	allocate-label all
feature interface-vlan	no shutdown	address-family ipv4 labeled-unicast
feature mpls oam		address-family l2vpn evpn
	interface Ethernet1/34	template peer EVPN
	ip address 172.16.1.1/24	remote-as 65001
	ip ospf network point-to-point	update-source loopback0
mpls label range 5000 450000	ip router ospf 100 area 0.0.0.0	address-family l2vpn evpn
segment-routing	mpls ip forwarding	send-community extended
mpls	no shutdown	route-reflector-client
global-block 16000 25000		encapsulation mpls
connected-prefix-sid-map	interface loopback0	template peer Labeled-unicast
address-family ipv4	ip address 192.168.1.1/32	remote-as 65001
192.168.1.1/32 index 211	ip router ospf 100 area 0.0.0.0	address-family ipv4 labeled-unicast
		send-community extended
		route-reflector-client
route-map label-index-spine1 permit 10		next-hop-self
set label-index 211	router ospf 100	soft-reconfiguration inbound always
	segment-routing mpls	neighbor 172.16.0.2
	router-id 192.168.1.1	inherit peer Labeled-unicast
		neighbor 172.16.1.2
		inherit peer Labeled-unicast
		neighbor 192.168.1.3
		inherit peer EVPN
		neighbor 192.168.1.4
		inherit peer EVPN

SPINE-2 Configuration		
Enabling Features, Label-Range, Route-map, Label-Index	OSPF Configuration	BGP/EVPN Configuration
feature-set mpls	interface Ethernet1/33	router bgp 65001
feature ospf	ip address 172.16.2.1/24	router-id 192.168.1.2
feature bgp	ip ospf network point-to-point	address-family ipv4 unicast
feature mpls segment-routing	ip router ospf 100 area 0.0.0.0	network 192.168.1.2/32 route-map label-index-spine2
feature mpls evpn	mpls ip forwarding	allocate-label all
feature interface-vlan	no shutdown	address-family ipv4 labeled-unicast
feature mpls oam		address-family l2vpn evpn
	interface Ethernet1/34	template peer EVPN
	ip address 172.16.3.1/24	remote-as 65001
	ip ospf network point-to-point	update-source loopback0
mpls label range 5000 450000	ip router ospf 100 area 0.0.0.0	address-family l2vpn evpn
segment-routing	mpls ip forwarding	send-community extended
mpls	no shutdown	route-reflector-client
global-block 16000 25000		encapsulation mpls
connected-prefix-sid-map	interface loopback0	template peer Labeled-unicast
address-family ipv4	ip address 192.168.1.2/32	remote-as 65001
192.168.1.2/32 index 221	ip router ospf 100 area 0.0.0.0	address-family ipv4 labeled-unicast
		send-community extended
		route-reflector-client
route-map label-index-spine2 permit 10		next-hop-self
set label-index 221	router ospf 100	soft-reconfiguration inbound always
	segment-routing mpls	neighbor 172.16.2.2
	router-id 192.168.1.2	inherit peer Labeled-unicast
		neighbor 172.16.3.2
		inherit peer Labeled-unicast
		neighbor 192.168.1.3
		inherit peer EVPN
		neighbor 192.168.1.4
		inherit peer EVPN

## LEAF-1 Configuration

Enabling Features, Label-Range, Route-map, Label-Index	OSPF Configuration	BGP/EVPN Configuration
feature-set mpls	interface Ethernet1/3.101	router bgp 65001
feature ospf	encapsulation dot1q 101	router-id 192.168.1.3
feature bgp	vrf member cu101	address-family ipv4 unicast
feature mpls segment-routing	ip address 61.1.1.1/24	network 192.168.1.3/32 route-map label-index-leaf-1
feature mpls evpn	no shutdown	allocate-label all
feature interface-vlan		address-family ipv4 labeled-unicast
feature mpls oam	interface Ethernet1/51	address-family l2vpn evpn
	ip address 172.16.0.2/24	template peer EVPN
	ip ospf network point-to-point	remote-as 65001
mpls label range 5000 450000	ip router ospf 100 area 0.0.0.0	update-source loopback0
	mpls ip forwarding	address-family l2vpn evpn
	no shutdown	send-community extended
segment-routing		encapsulation mpls
mpls	interface Ethernet1/52	template peer Labeled-unicast
global-block 16000 25000	ip address 172.16.2.2/24	remote-as 65001
connected-prefix-sid-map	ip ospf network point-to-point	address-family ipv4 labeled-unicast
address-family ipv4	ip router ospf 100 area 0.0.0.0	send-community extended
192.168.1.3/32 index 311	mpls ip forwarding	soft-reconfiguration inbound always
	no shutdown	template peer cu1
route-map label-index-leaf-1 permit 10		address-family ipv4 unicast
set label-index 311		as-override
	interface loopback0	send-community
vrf context cu101	ip address 192.168.1.3/32	soft-reconfiguration inbound always
rd auto	ip router ospf 100 area 0.0.0.0	neighbor 172.16.0.1
address-family ipv4 unicast		inherit peer Labeled-unicast
route-target import 1:101	router ospf 100	neighbor 172.16.2.1
route-target import 1:101 evpn	segment-routing mpls	inherit peer Labeled-unicast
route-target export 1:101	router-id 192.168.1.3	neighbor 192.168.1.1
route-target export 1:101 evpn		inherit peer EVPN
		neighbor 192.168.1.2
		inherit peer EVPN
		vrf cu101
		router-id 131.1.1.1
		address-family ipv4 unicast
		advertise l2vpn evpn
		neighbor 61.1.1.2
		inherit peer cu1
		remote-as 101

## LEAF-2 Configuration

Enabling Features, Label-Range, Route-map, Label-Index	OSPF Configuration	BGP/EVPN Configuration
feature-set mpls feature ospf feature bgp feature mpls segment-routing feature mpls evpn feature interface-vlan feature mpls oam	interface Ethernet1/3.101 encapsulation dot1q 100 vrf member cu101 ip address 67.1.1.1/24 no shutdown	router bgp 65001 router-id 192.168.1.4 address-family ipv4 unicast network 192.168.1.4/32 route-map label-index-Leaf2 allocate-label all address-family ipv4 labeled-unicast address-family l2vpn evpn template peer EVPN remote-as 65001 update-source loopback0 address-family l2vpn evpn send-community extended encapsulation mpls
mpls label range 5000 450000	interface Ethernet1/51 ip address 172.16.1.2/24 ip ospf network point-to-point ip router ospf 100 area 0.0.0.0 mpls ip forwarding no shutdown	template peer Labeled-unicast remote-as 65001 address-family ipv4 labeled-unicast send-community extended soft-reconfiguration inbound always
segment-routing mpls global-block 16000 25000 connected-prefix-sid-map address-family ipv4 192.168.1.4/32 index 321	interface Ethernet1/52 ip address 172.16.3.2/24 ip ospf network point-to-point ip router ospf 100 area 0.0.0.0 mpls ip forwarding no shutdown	template peer cu1 address-family ipv4 unicast as-override send-community soft-reconfiguration inbound always
route-map label-index-Leaf2 permit 10 set label-index 321	interface loopback0 ip address 192.168.1.4/32 ip router ospf 100 area 0.0.0.0	neighbor 172.16.1.1 inherit peer Labeled-unicast neighbor 172.16.3.1 inherit peer Labeled-unicast neighbor 192.168.1.1 inherit peer EVPN neighbor 192.168.1.2 inherit peer EVPN
vrf context cu101 rd auto address-family ipv4 unicast route-target import 1:101 route-target import 1:101 evpn route-target export 1:101 route-target export 1:101 evpn	router ospf 100 segment-routing mpls router-id 192.168.1.4	vrf cu101 router-id 132.1.1.1 address-family ipv4 unicast advertise l2vpn evpn neighbor 67.1.1.2 inherit peer cu1 remote-as 101

## End-Host Configuration

VRF, Loopback Configuration	Interface, SVI Configuration	BGP Configuration
vrf definition custA rd 101:1 ! address-family ipv4 exit-address-family !	interface GigabitEthernet1/0/1 switchport trunk allowed vlan 101 switchport trunk encapsulation dot1q switchport mode trunk !	router bgp 101 bgp log-neighbor-changes no bgp default ipv4-unicast !
vrf definition custB rd 101:2 ! address-family ipv4 exit-address-family	interface GigabitEthernet1/0/2 switchport trunk allowed vlan 100 switchport trunk encapsulation dot1q switchport mode trunk	address-family ipv4 vrf custA bgp router-id 1.1.1.1 network 1.1.1.1 mask 255.255.255.255 redistribute connected neighbor 61.1.1.1 remote-as 65001 neighbor 61.1.1.1 activate neighbor 61.1.1.1 send-community neighbor 61.1.1.1 soft-reconfiguration inbound exit-address-family
interface Loopback0 vrf forwarding custA ip address 1.1.1.1 255.255.255.255 !	interface Vlan100 vrf forwarding custB ip address 67.1.1.2 255.255.255.0 !	address-family ipv4 vrf custB bgp router-id 2.2.2.2 network 2.2.2.2 mask 255.255.255.255 redistribute connected
interface Loopback1 vrf forwarding custB ip address 2.2.2.2 255.255.255.255	interface Vlan101 vrf forwarding custA ip address 61.1.1.2 255.255.255.0 !	neighbor 67.0.0.1 soft-reconfiguration inbound neighbor 67.1.1.1 remote-as 65001 neighbor 67.1.1.1 activate neighbor 67.1.1.1 send-community neighbor 67.1.1.1 soft-reconfiguration inbound exit-address-family

## Verifica

Fare riferimento a questa sezione per verificare che la configurazione funzioni correttamente.



**Leaf 1 Captures : Control Plane and MPLS Data Plane:**

**Leaf1(config)# show ip bgp 1.1.1.1 vrf cul01**

```
BGP routing table information for VRF cul01, address family IPv4 Unicast
BGP routing table entry for 1.1.1.1/32, version 4
Paths: (2 available, best #1)
Flags: (0x880c0014) (high32 0x000020) on xmit-list, is in urib, is best urib route, is in HW, exported, has label
vpn: version 3, (0x00000000100002) on xmit-list
local label: 492288

Advertised path-id 1, VRF AF advertised path-id 1
Path type: external, path is valid, is best path, no labeled nexthop, in rib
AS-Path: 101 , path sourced external to AS
61.1.1.2 (metric 0) from 61.1.1.2 (1.1.1.1)
Origin IGP, MED 0, localpref 100, weight 0
Extcommunity: RT:1:101

Path type: external, path is valid, received only, no labeled nexthop
AS-Path: 101 , path sourced external to AS
61.1.1.2 (metric 0) from 61.1.1.2 (1.1.1.1)
Origin IGP, MED 0, localpref 100, weight 0

VRF advertise information:
Path-id 1 not advertised to any peer

VRF AF advertise information:
Path-id 1 not advertised to any peer
```

**Leaf1(config)# show bgp l2vpn evpn 1.1.1.1**

```
BGP routing table information for VRF default, address family L2VPN EVPN
Route Distinguisher: 192.168.1.3:3
BGP routing table entry for [5]:[0]:[0]:[32]:[1.1.1.1]/224, version 6
Paths: (1 available, best #1)
Flags: (0x000002) (high32 00000000) on xmit-list, is not in l2rib/evpn, has label
local label: 492288

Advertised path-id 1
Path type: local, path is valid, is best path, no labeled nexthop
Gateway IP: 0.0.0.0
AS-Path: 101 , path sourced external to AS
0.0.0.0 (metric 0) from 0.0.0.0 (192.168.1.3)
Origin IGP, MED 0, localpref 100, weight 0
Received label 0
Extcommunity: RT:1:101

Path-id 1 advertised to peers:
192.168.1.1 192.168.1.2
```

**Leaf1(config)# show bgp ipv4 labeled-unicast 192.168.1.3**

```
BGP routing table information for VRF default, address family IPv4 Label Unicast
BGP routing table entry for 192.168.1.3/32, version 8
Paths: (1 available, best #1)
Flags: (0x20c0002) (high32 00000000) on xmit-list, is not in urib, has label
label af: version 11, (0x00000000100002) on xmit-list
local label: 3

Advertised path-id 1, Label AF advertised path-id 1
Path type: local, path is valid, is best path, no labeled nexthop
AS-Path: NONE, path locally originated
0.0.0.0 (metric 0) from 0.0.0.0 (192.168.1.3)
Origin IGP, MED not set, localpref 100, weight 32768
Prefix-SID Attribute: Length: 10
Label Index TLV: Length 7, Flags 0x0 Label Index 311

Path-id 1 not advertised to any peer

Label AF advertisement
Path-id 1 advertised to peers:
172.16.0.1 172.16.2.1
```

**Leaf1(config)# show forwarding mpls 192.168.1.4/32**

```
slot 1
-----
Local |Prefix |FEC |Next-Hop |Interface |Out
Label |Table Id |(Prefix/Tunnel id) | | |Label
-----|-----|-----|-----|-----|-----
16321 |0x1 |192.168.1.4/32 |172.16.0.1 |Eth1/51 |16321 SWAP
" |0x1 |192.168.1.4/32 |172.16.2.1 |Eth1/52 |16321 SWAP
```

**Leaf 2 Captures : Control Plane and MPLS Data Plane:**

**Leaf2# show forwarding 1.1.1.1/32 vrf cul01**

```
slot 1
-----
IPv4 routes for table cul01/base
-----
Prefix | Next-hop | Interface | Labels | Partial Install
-----|-----|-----|-----|-----
1.1.1.1/32 | 172.16.1.1 | Ethernet1/51 | POSH 14311 492288
172.16.1.1 | 172.16.3.1 | Ethernet1/52 | POSH 14311 492288

Leaf2#
Leaf2#
```

**Leaf2# show forwarding 172.16.1.1/24**

```
slot 1
-----
IPv4 routes for table default/base
-----
Prefix | Next-hop | Interface | Labels | Partial Install
-----|-----|-----|-----|-----
172.16.1.0/24 | Attached | Ethernet1/51 | | |
Leaf2#
Leaf2#
```

**Leaf2# show forwarding mpls 192.168.1.3/32**

```
slot 1
-----
Local |Prefix |FEC |Next-Hop |Interface |Out
Label |Table Id |(Prefix/Tunnel id) | | |Label
-----|-----|-----|-----|-----|-----
16311 |0x1 |192.168.1.3/32 |172.16.1.1 |Eth1/51 |16311 SWAP
" |0x1 |192.168.1.3/32 |172.16.3.1 |Eth1/52 |16311 SWAP
```

**Leaf2# show forwarding 192.168.1.3/32**

```
slot 1
-----
IPv4 routes for table default/base
-----
Prefix | Next-hop | Interface | Labels | Partial Install
-----|-----|-----|-----|-----
192.168.1.3/32 | 172.16.1.1 | Ethernet1/51 | POSH 14311
172.16.3.1 | Ethernet1/52 | POSH 14311
```

**Spine 1 Captures**

**spine1# show bgp ipv4 labeled-unicast 1.1.1.1**

```
spine1# show bgp l2vpn evpn 1.1.1.1
BGP routing table information for VRF default, address family L2VPN EVPN
Route Distinguisher: 192.168.1.3:3
BGP routing table entry for [5]:[0]:[0]:[32]:[1.1.1.1]/224, version 5
Paths: (1 available, best #1)
Flags: (0x000002) (high32 00000000) on xmit-list, is not in l2rib/evpn, is not in HW

Advertised path-id 1
Path type: internal, path is valid, is best path
Gateway IP: 0.0.0.0
AS-Path: 101 , path sourced external to AS
192.168.1.3 (metric 0) from 192.168.1.3 (192.168.1.3)
Origin IGP, MED 0, localpref 100, weight 0
Received label 492288
Extcommunity: RT:1:101

Path-id 1 advertised to peers:
192.168.1.4
```

**spine1# show forwarding mpls 192.168.1.4/32**

```
slot 1
-----
-----
Local |Prefix |FEC |Next-Hop |Interface |Out
Label |Table Id |(Prefix/Tunnel id) | | |Label
-----|-----|-----|-----|-----|-----
16321 |0x1 |192.168.1.4/32 |172.16.1.2 |Eth1/34 |0 SWAP
```

**spine1# show bgp ipv4 labeled-unicast 192.168.1.3**

```
BGP routing table information for VRF default, address family IPv4 Label Unicast
BGP routing table entry for 192.168.1.3/32, version 5
Paths: (1 available, best #1)
Flags: (0x820c0012) (high32 00000000) on xmit-list, is in urib, is backup urib route, is in HW, has label
label af: version 7, (0x00000000100002) on xmit-list
local label: 16311

Advertised path-id 1, Label AF advertised path-id 1
Path type: internal, path is valid, received and used, is best path, no labeled nexthop, in rib
AS-Path: NONE, path sourced internal to AS
172.16.0.2 (metric 0) from 172.16.0.2 (192.168.1.3)
Origin IGP, MED not set, localpref 100, weight 0
Received label 3
Prefix-SID Attribute: Length: 10
Label Index TLV: Length 7, Flags 0x0 Label Index 311

Path-id 1 not advertised to any peer

Label AF advertisement
Path-id 1 advertised to peers:
172.16.1.2
```

## End-Host Captures

```
endhost#show ip int brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	unassigned	YES	NVRAM	up	up
Vlan100	67.1.1.2	YES	manual	up	up
Vlan101	61.1.1.2	YES	manual	up	up
Loopback0	1.1.1.1	YES	manual	up	up
Loopback1	2.2.2.2	YES	manual	up	up

```
endhost#ping vrf custB 1.1.1.1
```

```
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:  
!!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/7/17 ms
```

```
endhost#ping vrf custA 2.2.2.2
```

```
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 2.2.2.2, timeout is 2 seconds:  
!!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/8/17 ms
```

```
endhost#traceroute vrf custB 1.1.1.1
```

```
Type escape sequence to abort.  
Tracing the route to 1.1.1.1  
VRF info: (vrf in name/id, vrf out name/id)  
 1 67.1.1.1 0 msec 8 msec 0 msec  
 2 172.16.3.1 0 msec 0 msec 0 msec  
 3 172.16.0.2 0 msec  
   172.16.2.2 0 msec  
   172.16.0.2 8 msec  
 4 61.1.1.2 0 msec * 0 msec
```

```
endhost#traceroute vrf custA 2.2.2.2
```

```
Type escape sequence to abort.  
Tracing the route to 2.2.2.2  
VRF info: (vrf in name/id, vrf out name/id)  
 1 61.1.1.1 0 msec 17 msec 0 msec  
 2 172.16.2.1 17 msec  
   172.16.0.1 0 msec  
   172.16.2.1 9 msec  
 3 172.16.3.2 0 msec  
   172.16.1.2 0 msec  
   172.16.3.2 17 msec  
 4 67.1.1.2 8 msec * 0 msec  
endhost#
```

## Risoluzione dei problemi

Al momento non sono disponibili informazioni specifiche per la risoluzione dei problemi di questa configurazione.

## Informazioni correlate

- [Multiprotocollo BGP MPLS VPN](#)
- [White paper sul routing dei segmenti sugli switch con piattaforma Cisco Nexus 9500, 9300, 9200, 3200 e 3100](#)
- [Configurazione di EVPN di layer 3 e VPN di layer 3 su MPLS di routing del segmento](#)
- [Documentazione e supporto tecnico – Cisco Systems](#)