

# 配置EVPN Vxlan IPV6重疊配置示例

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## 簡介

本檔案介紹如何在Nexus 9000上部署L2以太網路VPN(EVPN)虛擬可擴充區域網路(VXLAN)IPv6重疊。

## 必要條件

### 需求

思科建議您瞭解以下主題：

- 邊界閘道通訊協定(BGP)
- 開放最短路徑優先(OSPF)
- EVPN
- IPV6

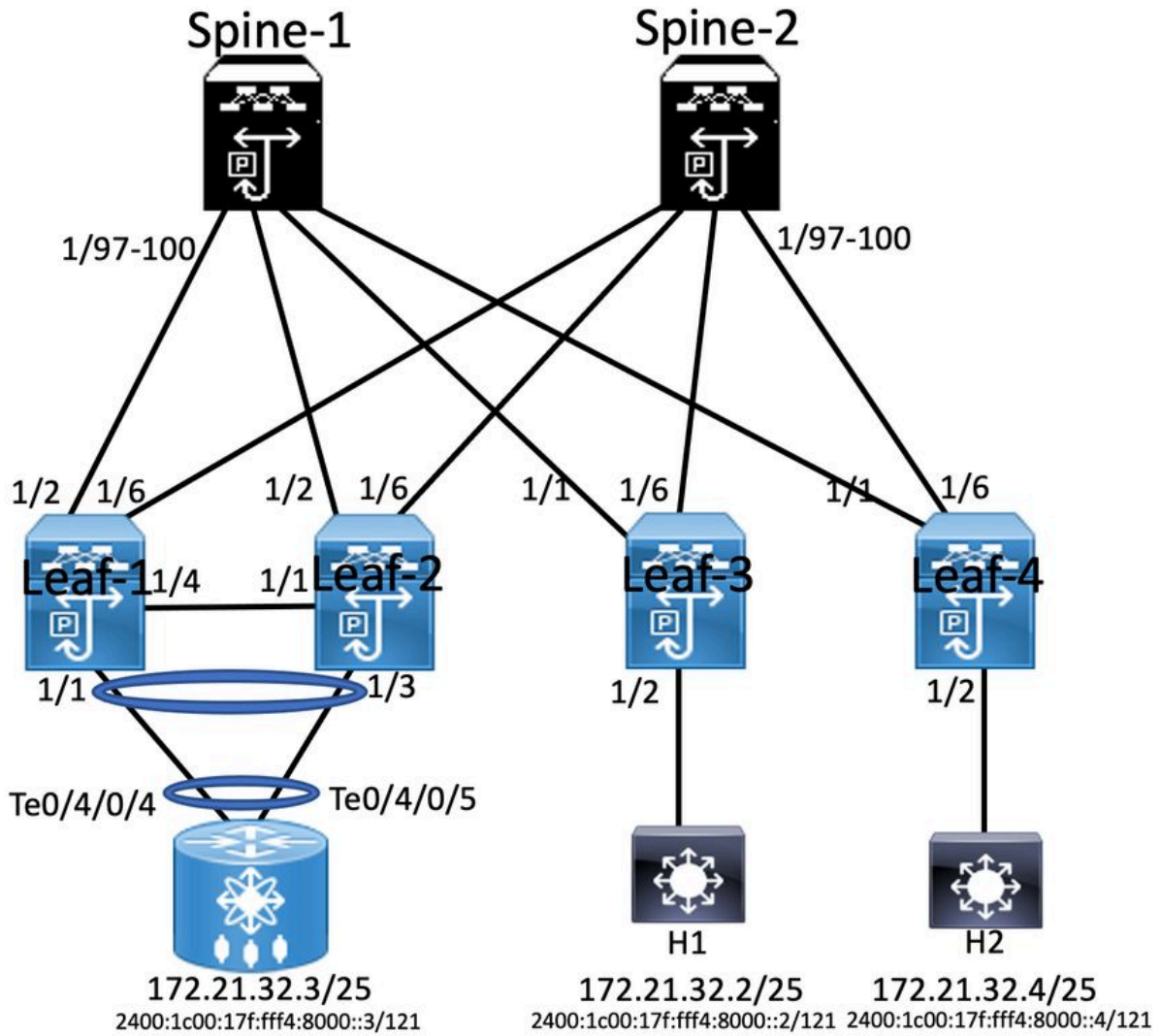
### 採用元件

本文中的資訊係根據以下軟體和硬體版本：

- 運行版本9.3.931809的Cisco N9K-C-YC-FX
- 運行版本9.3.932167的Cisco N9K-C-TC-FX2
- Cisco Aggregation Service Router(ASR)，具有為IPv4和IPv6啟用的終端主機
- 運行版本9.3.931808的Cisco N9K-C-YC-EX

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

### 網路圖表



## 高級配置

1. 安裝功能
2. 配置IP地址 — 襯底
3. 配置IGP - OSPF
4. 設定MP - BGP
5. 配置VLAN和EVPN重疊
6. 在主機和枝葉之間配置e-BGP

## 組態

Enabling Features	Interface Configuration	BGP/EVPN Configuration	VPC Configuration	VTEP Configuration
<pre> nv overlay evpn feature ospf feature bgp feature pim feature fabric forwarding feature interface-plan feature vn-segment-vlan-based feature lisp feature vpc feature nv overlay fabric forwarding anycast-gateway-mac 0000.2222.3333 ip pim rp-address 10.3.1.1 group-list 224.0.0.0/4 ip pim ssm range 232.0.0.0/8 vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894 vlan 100 vn-segment 10100 vlan 511 vn-segment 10511  route-map PERMIT-ALL permit 10 router ospf 100 router-id 10.1.1.1           </pre>	<pre> interface loopback0 ip address 10.1.1.1/32 ip address 10.10.10.10/32 secondary ip router ospf 100 area 0.0.0.0 ip pim sparse-mode lcam monitor scale  interface ethernet1/2 mtu 9216 ip address 192.168.0.1/24 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode  vrf context SGI_IAC vni 10100 rd auto address-family ipv4 unicast route-target both auto route-target both auto evpn address-family ipv6 unicast route-target both auto route-target auto evpn           </pre>	<pre> router bgp 6500 router-id 10.1.1.1 address-family ipv4 unicast address-family ipv6 unicast address-family l2vpn evpn advertise-pip neighbour 10.3.1.1 remote-as 6500 update-source loopback0 address-family l2vpn evpn send-community extended send-community extended  vrf SGI_IAC Address-family ipv4 unicast  evpn vni 10511 l2 rd auto route-target import auto route-target export auto           </pre>	<pre> vpc domain 10 peer-switch peer-keepalive destination 10.122.163.140 source 10.122.176.45 peer-gateway ipv6 nd synchronize ip arp synchronize interface port-channel10 switchport switchport mode trunk spanning-tree port type network vpc peer-link interface ethernet 1/4 switchport switchport mode trunk channel-group 10 mode trunk interface port-channel 20 switchport switchport mode trunk switchport trunk allowed vlan 511 switchport interface ethernet1/1 switchport switchport mode trunk switchport trunk allowed vlan 511 channel-group 20           </pre>	<pre> interface vlan100 vrf member SGI_IAC no ip redirects ip forward no ipv6 redirects  interface vlan511 vrf member SGI_IAC no ip redirects ip address 172.21.32.6/25 ip6 address 2400:1000:17fff4:8000::4/121 no ipv6 redirects fabric forwarding mode any-cast-gateway  interface vni1 advertise virtual-rmac host-reachability-protocol bgp source-interface loopback0 member vni 10100 associate-vhf member vni 10511 suppress-arp mcast-group 239.1.1.1           </pre>

Leaf-2				
Enabling Feature	Interface Configuration	BGP/EVPN Configuration	Vpc Configuration	VTEP Configuration
<pre> nv overlay evpn feature ospf feature bgp feature pim feature fabric forwarding feature interface-plan feature vn-segment-vlan-based feature lacp feature vpc feature nv overlay fabric forwarding anycast-gateway-mac 0000.2222.3333 ip pim rp-address 1.1.1.1 group-list 224.0.0.0/4 ip pim ssm range 232.0.0.0/8 vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894 vlan 100 vn-segment 10100 vlan 511 vn-segment 10511  route-map PERMIT-ALL permit 10 router ospf 100 router-id 10.2.1.1 </pre>	<pre> interface loopback0 ip address 10.2.1.1/32 ip address 10.10.10.10/32 secondary ip router ospf 100 area 0.0.0.0 ip pim sparse-mode icam monitor scale  interface ethernet1/2 mtu 9216 ip address 192.168.3.2/24 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode  vrf context SGI_IAC vni 10100 rd auto address-family ipv4 unicast route-target both auto address-family ipv6 unicast route-target both auto route-target auto evpn </pre>	<pre> router bgp 6500 router-id 10.2.1.1 address-family ipv4 unicast address-family ipv6 unicast address-family l2vpn evpn advertise-pip neighbour 10.1.1.1 remote-as 6500 update-source loopback0 address-family l2vpn evpn send-community send-community extended  vrf SGI_IAC Address-family ipv4 unicast  evpn vni 10511 l2 rd auto route-target import auto route-target export auto </pre>	<pre> vpc domain 10 peer-switch peer-keepalive destination 10.122.176.45 source 10.122.163.140 peer-gateway ipv6 rd synchronize ip arp synchronize interface port-channel10 switchport switchport mode trunk spanning-tree port type network vpc peer-link interface ethernet 1/4 switchport switchport mode trunk channel-group 10 mode trunk interface port-channel 20 switchport switchport mode trunk switchport trunk allowed vlan 511 vpc 10 interface ethernet1/1 switchport switchport mode trunk switchport trunk allowed vlan 511 channel-group 20 </pre>	<pre> interface vian100 vrf member SGI_IAC no ip redirects no ip forward no ipv6 redirects  interface vian511 vrf member SGI_IAC no ip redirects ip address 172.21.32.6/25 ipv6 address 2400:1c00:17f:fff4:8000::4/121 no ipv6 redirects fabric forwarding mode any cast-gateway  interface vne1 advertise virtual-rmac host-reachability protocol bgp source-interface loopback0 member vni 10100 associate-vhf member vni 10511 suppress-arp mcast-group 239.1.1.1 </pre>

Spine-1 Configuration		
Enabling Features	Interface Configuration	BGP/EVPN Configuration
<pre> nv overlay evpn feature ospf feature bgp feature pim feature fabric forwarding feature interface-plan feature vn-segment-vlan-based feature lacp feature nv overlay  ip pim rp-address 10.3.1.1 group-list 224.0.0.0/4 ip pim ssm range 232.0.0.0/8 vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894  Interface loopback0 IP address 1.1.1.1/32 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode icam monitor scale  Router ospf 100 Router-id 10.3.1.1 Router bgp 6500 Router-id 10.3.1.1 </pre>	<pre> interface Ethernet1/97 mtu 9216 ip address 172.168.0.2/24 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode  interface Ethernet1/98 mtu 9216 ip address 172.168.2.2/24 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode  interface Ethernet1/99 mtu 9216 ip address 192.168.1.2/24 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode  interface Ethernet1/100 mtu 9216 ip address 172.168.3.1/24 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode </pre>	<pre> router bgp 6500 address-family ipv4 unicast address-family ipv6 unicast address-family l2vpn evpn neighbour 10.1.1.1 remote-as 6500 update-source loopback0 address-family l2vpn evpn send-community send-community extended route-reflector-client neighbour 10.2.1.1 remote-as 6500 update-source loopback0 address-family l2vpn evpn send-community send-community extended route-reflector-client neighbour 10.4.1.1 remote-as 6500 update-source loopback0 address-family l2vpn evpn send-community send-community extended route-reflector-client </pre>

Leaf-3			
Enabling Features	Interface Configuration	BGP/EVPN Configuration	VTEP Configuration
<pre> nv overlay evpn feature ospf feature bgp feature pim feature fabric forwarding feature interface-plan feature vn-segment-vlan-based feature lacp feature nv overlay  fabric forwarding anycast-gateway-mac 0000.2222.3333 ip pim rp-address 10.3.1.1 group-list 224.0.0.0/4 ip pim ssm range 232.0.0.0/8 vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894 vlan 100 vn-segment 10100 vlan 511 vn-segment 10511  route-map PERMIT-ALL permit 10 router ospf 100 router-id 10.4.1.1 </pre>	<pre> interface loopback0 ip address 10.4.1.1/32 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode icam monitor scale  interface ethernet1/1 mtu 9216 ip address 192.168.1.1/24 ip router ospf 100 area 0.0.0.0 ip pim sparse-mode  vrf context SGI_IAC vni 10100 rd auto address-family ipv4 unicast route-target both auto route-target both auto evpn address-family ipv6 unicast route-target both auto route-target auto evpn </pre>	<pre> router bgp 6500 router-id 10.4.1.1 address-family ipv4 unicast address-family ipv6 unicast address-family l2vpn evpn neighbour 10.3.1.1 remote-as 6500 update-source loopback0 address-family l2vpn evpn send-community send-community extended  vrf SGI_IAC address-family ipv4 unicast address-family ipv6 unicast  evpn vni 10511 l2 rd auto route-target import auto route-target export auto </pre>	<pre> interface vian100 vrf member SGI_IAC no ip redirects ip forward no ipv6 redirects  interface vian511 vrf member SGI_IAC no ip redirects ip address 172.21.32.6/25 ipv6 address 2400:1c00:17f:fff4:8000::4/121 no ipv6 redirects fabric forwarding mode any cast-gateway  interface vne1 no shutdown host-reachability protocol bgp source-interface loopback0 member vni 10100 associate-vhf member vni 10511 suppress-arp mcast-group 239.1.1.1 </pre>

Host 1 Configuration	ASR Router	Host 2 Configuration
<pre> interface Bundle-Ether1.511 description JE-PCN01-PC-UP-SGI_IAC vrf SGI_IAC ipv4 address 172.21.32.2 255.255.255.128 ipv6 address 2400:1c00:17f:fff4:8000::2/121 encapsulation dot1q511 </pre>	<pre> interface Bundle-Ether1.511 description JE-PCN01-PC-UP-SGI_IAC vrf SGI_IAC ipv4 address 172.21.32.3 255.255.255.128 ipv6 address 2400:1c00:17f:fff4:8000::3/121 encapsulation dot1q511 </pre>	<pre> interface Bundle-Ether1.511 description JE-PCN01-PC-UP-SGI_IAC vrf SGI_IAC ipv4 address 172.21.32.4 255.255.255.128 ipv6 address 2400:1c00:17f:fff4:8000::5/121 encapsulation dot1q511 </pre>

## 驗證

使用本節內容，確認您的組態是否正常運作。

<pre>RP/0/RSP1/CPU0:ASR-9906-A#ping vrf SGi_IAC 172.21.32.2 Tue Jul 12 03:35:33.528 UTC Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 172.21.32.2, timeout is 2 seconds: !!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/3 ms RP/0/RSP1/CPU0:ASR-9906- A#ping vrf SGi_IAC 2400:1c00:17f:fff4:8000::2 Tue Jul 12 03:35:36.536 UTC Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 2400:1c00:17f:fff4:8000::2, timeout is 2 seconds: !!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms</pre>	<pre>H1#ping 172.21.32.3 Tue Jul 12 03:36:00.993 UTC Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 172.21.32.3, timeout is 2 seconds: !!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms H1#ping vrf SGi_IAC 2400:1c00:17f:fff4:8000::3 Tue Jul 12 03:36:03.789 UTC Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 2400:1c00:17f:fff4:8000::3, timeout is 2 seconds: !!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/3 ms</pre>
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## 疑難排解

本節提供的資訊可用於對組態進行疑難排解。

使用以下命令對組態進行疑難排解：

**#show bgp l2vpn evpn**

**#show nve peer**

**#show nve vni**

**# show ip arp <> >> On host side**

## 關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。