Ejemplo de Configuración de Configuración de EVPN Vxlan IPV6 Overlay

Contenido

Introducción

Este documento describe cómo implementar L2 Ethernet VPN (EVPN) Virtual Extensible LAN (VXLAN) IPv6 Overlay en Nexus 9000.

Prerequisites

Requirements

Cisco recomienda que tenga conocimiento sobre estos temas:

- Border Gateway Protocol (BGP)
- Abrir primero la ruta más corta (OSPF)
- EVPN
- IPV6

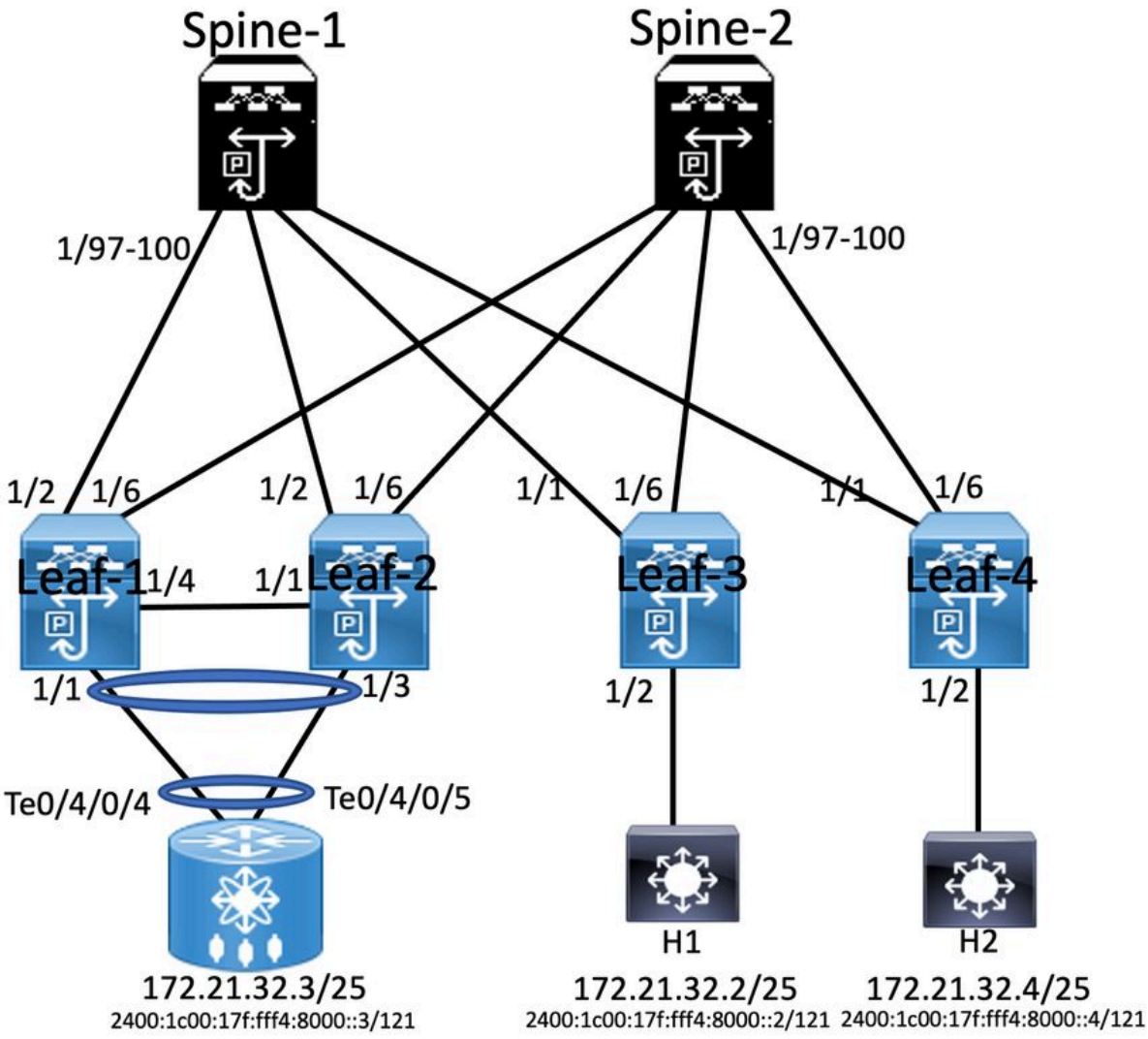
Componentes Utilizados

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

- Cisco N9K-C93180YC-FX que ejecuta la versión 9.3.1(9)
- Cisco N9K-C93216TC-FX2 que ejecuta la versión 9.3(7)
- Cisco Aggregation Service Router (ASR) con host final habilitado para IPv4 e IPv6
- Cisco N9K-C93180YC-EX que ejecuta la versión 9.3(8)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. Si tiene una red en vivo, asegúrese de entender el posible impacto de cualquier comando.

Diagrama de la red



Configuración de alto nivel

1. Instalar características
2. Configurar dirección IP - Subyacente
3. Configurar IGP - OSPF
4. Configurar MP - BGP
5. Configuración de VLAN y EVPN Overlay
6. Configurar e-BGP entre hosts y hojas

Configuración

Leaf-1				
Enabling Features	Interface Configuration	BGP/EVPN Configuration	VPC Configuration	VTEP Configuration
			vpc domain 10	
			peer-switch	
			peer-keepalive destination 10.122.163.140 source 10.122.176.45	
nv overlay evpn	Interface loopback0	router bgp 6500	peer-gateway	interface vlan100
feature ospf	ip address 10.1.1.1/32	router-id 10.1.1.1	ipv6 nd synchronize	vrf member SGi_IAC
feature bgp	ip address 10.10.10.10/32 secondary	address-family ipv4 unicast	ip arp synchronize	no ip redirects
feature pim	ip router ospf 100 area 0.0.0.0	address-family ipv6 unicast	interface port-channel10	ip forward
feature fabric forwarding	ip pim spare-mode	address-family l2vpn evpn	switchport	no ipv6 redirects
feature interface-plan	icam monitor scale	advertise-pip	switchport mode trunk	
feature vn-segment-vlan-based		neighbour 10.3.1.1	spanning-tree port type network	interface vlan511
feature lacp	interface ethernet1/2	remote-as 6500	vpc peer-link	vrf member SGi_IAC
feature vpc	mtu 9216	update-source loopback0	interface ethernet 1/4	no ip redirects
feature nv overlay	ip address 192.168.0.1/24	address-family l2vpn evpn	switchport	ip address 172.21.32.6/25
fabric forwarding anycast-gateway-mac 0000.2222.3333	ip router ospf 100 area 0.0.0.0	send-community	switchport mode trunk	ipv6 address 2400:1c00:17f:fff4:8000::4/121
ip pim rp-address 10.3.1.1 group-list 224.0.0.0/4	ip pim sparse-mode	send-community extended	channel-group 10 mode trunk	no ipv6 redirects
ip pim ssm range 232.0.0.0/8			interface port-channel 20	fabric forwarding mode any cast-gateway
vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894	vrf context SGi_IAC	vrf SGi_IAC	switchport	
vlan 100	vni 10100	Address-family ipv4 unicast	switchport mode trunk	interface nve1
vn-segment 10100	rd auto		switchport trunk allowed vlan 511	advertise virtual-rmac
vlan 511	address-family ipv4 unicast	evpn	vpc 10	host-reachability protocol bgp
vn-segment 10511	route-target both auto	vni 10511 l2	interface ethernet1/1	source-interface loopback0
	route-target both auto evpn	rd auto	switchport	member vni 10100 associate-vhf
route-map PERMIT-ALL permit 10	address-family ipv6 unicast	route-target import auto	switchport mode trunk	member vni 10511
router ospf 100	route-target both auto	route-target export auto	switchport trunk allowed vlan 511	suppress-arp
router-id 10.1.1.1	route-target auto evpn		channel-group 20	mcast-group 239.1.1.1

Leaf-2

Enabling Feature	Interface Configuration	BGP/EVPN Configuration	Vpc Configuration	VTEP Configuration
			vpc domain 10	
			peer-switch	
			peer-keepalive destination 10.122.176.45 source 10.122.163.140	
nv overlay evpn	interface loopback0		peer-gateway	interface vlan100
feature ospf	ip address 10.2.1.1/32	router bgp 6500	ipv6 nd synchronize	vrf member SGi_IAC
feature bgp	ip address 10.10.10.10/32 secondary	router-id 10.2.1.1	ip arp synchronize	no ip redirects
feature pim	ip router ospf 100 area 0.0.0.0	address-family ipv4 unicast	interface port-channel10	ip forward
feature fabric forwarding	ip pim spare-mode	address-family ipv6 unicast	switchport	no ipv6 redirects
feature interface-plan	icam monitor scale	address-family l2vpn evpn	switchport mode trunk	
feature vn-segment-vlan-based		advertise-pip	spanning-tree port type network	interface vlan511
feature lacp	interface ethernet1/2	neighbour 10.3.1.1	vpc peer-link	vrf member SGi_IAC
feature vpc	mtu 9216	remote-as 6500	interface ethernet 1/4	no ip redirects
feature nv overlay	ip address 192.168.3.2/24	update-source loopback0	switchport	ip address 172.21.32.6/25
fabric forwarding anycast-gateway-mac 0000.2222.3333	ip router ospf 100 area 0.0.0.0	address-family l2vpn evpn	switchport mode trunk	ipv6 address 2400:1c00:17f:fff4:8000::4/121
ip pim rp-address 1.1.1.1 group-list 224.0.0.0/4	ip pim sparse-mode	send-community	channel-group 10 mode trunk	no ipv6 redirects
ip pim ssm range 232.0.0.0/8		send-community extended	interface port-channel 20	fabric forwarding mode any cast-gateway
vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894	vrf context SGi_IAC		switchport	
vlan 100	vni 10100	vrf SGi_IAC	switchport mode trunk	interface nve1
vn-segment 10100	rd auto	Address-family ipv4 unicast	switchport trunk allowed vlan 511	advertise virtual-rmac
vlan 511	address-family ipv4 unicast		vpc 10	host-reachability protocol bgp
vn-segment 10511	route-target both auto	evpn	interface ethernet1/1	source-interface loopback0
	route-target both auto evpn	vni 10511 l2	switchport	member vni 10100 associate-vhf
route-map PERMIT-ALL permit 10	address-family ipv6 unicast	rd auto	switchport mode trunk	member vni 10511
router ospf 100	route-target both auto	route-target import auto	switchport trunk allowed vlan 511	suppress-arp
router-id 10.2.1.1	route-target auto evpn	route-target export auto	channel-group 20	mcast-group 239.1.1.1

Spine-1 Configuration

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

Leaf-3

Enabling Features	Interface Configuration	BGP/EVPN Configuration	VTEP Configuration
			interface vlan100
nv overlay evpn	interface loopback0	router bgp 6500	vrf member SGi_IAC
feature ospf	ip address 10.4.1.1/32	router-id 10.4.1.1	no ip redirects
feature bgp	ip router ospf 100 area 0.0.0.0	address-family ipv4 unicast	ip forward
feature pim	ip pim spare-mode	address-family ipv6 unicast	no ipv6 redirects
feature fabric forwarding	icam monitor scale	address-family l2vpn evpn	
feature interface-plan		neighbour 10.3.1.1	interface vlan511
feature vn-segment-vlan-based	interface ethernet1/1	remote-as 6500	vrf member SGi_IAC
feature lacp	mtu 9216	update-source loopback0	no ip redirects
feature nv overlay	ip address 192.168.1.1/24	address-family l2vpn evpn	ip address 172.21.32.6/25
	ip router ospf 100 area 0.0.0.0	send-community	ipv6 address 2400:1c00:17f:fff4:8000::4/121
fabric forwarding anycast-gateway-mac 0000.2222.3333	ip pim sparse-mode	send-community extended	no ipv6 redirects
ip pim rp-address 10.3.1.1 group-list 224.0.0.0/4			fabric forwarding mode any cast-gateway
ip pim ssm range 232.0.0.0/8	vrf context SGi_IAC	vrf SGi_IAC	
vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894	vni 10100	address-family ipv4 unicast	interface nve1
vlan 100	rd auto	address-family ipv6 unicast	no shutdown
vn-segment 10100	address-family ipv4 unicast		host-reachability protocol bgp
vlan 511	route-target both auto	evpn	source-interface loopback0
vn-segment 10511	route-target both auto evpn	vni 10511 l2	member vni 10100 associate-vhf
	address-family ipv6 unicast	rd auto	member vni 10511
route-map PERMIT-ALL permit 10	route-target both auto	route-target import auto	suppress-arp
router ospf 100	route-target auto evpn	route-target export auto	mcast-group 239.1.1.1
router-id 10.4.1.1			

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

Verificación

Utilize esta sección para confirmar que su configuración funcione correctamente.

```
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
```

```
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
```

Troubleshoot

En esta sección encontrará información que puede utilizar para solucionar problemas de configuración.

Utilice estos comandos para resolver problemas de configuración:

#show bgp l2vpn evpn

#show nve peer

#show nve vni

 # show ip arp <> >> On host side

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