

# Configuratie-voorbeeld van EVPN VLAN IPV6-overlay configureren

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## Inleiding

Dit document beschrijft hoe u L2 Ethernet VPN (EVPN) Virtual Extensible LAN (VXLAN) IPv6 Overlay kunt implementeren op Nexus 9000.

## Voorwaarden

### Vereisten

Cisco raadt kennis van de volgende onderwerpen aan:

- BGP-protocol (border gateway protocol)
- Open eerst het kortste pad (OSPF)
- EVPN
- IPV6

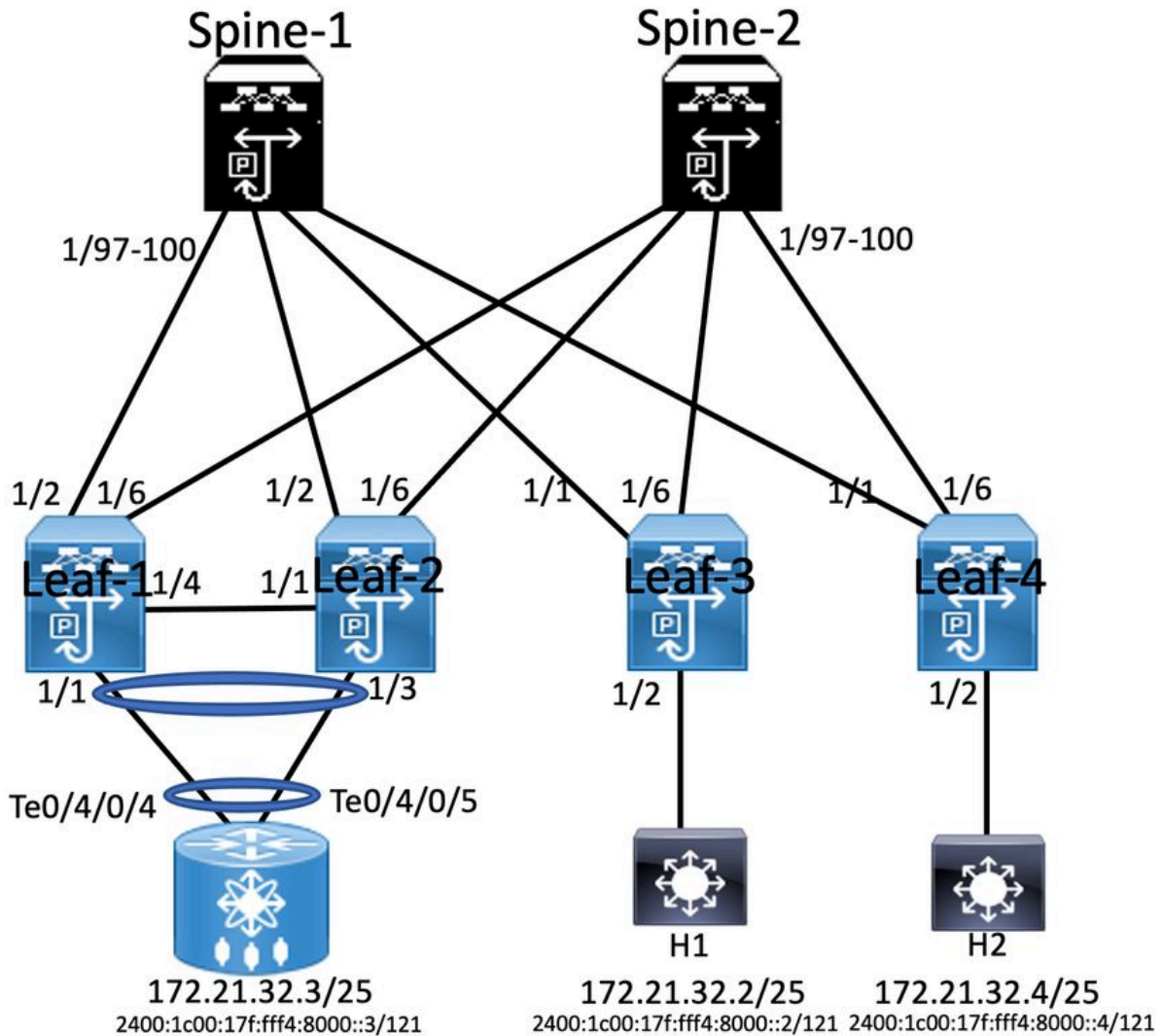
## Gebruikte componenten

De informatie in dit document is gebaseerd op de volgende software- en hardware-versies:

- Cisco N9K-C93180YC-FX waarin release 9.3 wordt uitgevoerd.(9)
- Cisco N9K-C93216TC-FX2 Series gebruikt release 9.3(7)
- Cisco Aggregation Service Router (ASR) met end-host inschakelen voor IPv4 en IPv6
- Cisco N9K-C93180YC-EX waarop release 9.3(8) wordt uitgevoerd

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u zorgen dat u de potentiële impact van elke opdracht begrijpt.

## Netwerkdigram



## Configuratie op hoog niveau

1. Installatiefuncties
2. IP-adres configureren - Underlay
3. IGP configureren - OSPF
4. MP configureren - BGP
5. VLAN- en EVPN-overlay configureren
6. E-BGP configureren tussen hosts en LEAF's

## Configuratie

Leaf-1	BGP/EVPN Configuration	VPC Configuration	VTEP Configuration
<b>Enabling Features</b> <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> router bgp 6500 router-id 10.1.1.1 address-family ipv4 unicast address-family ipv6 evpn advertise-pip neighbor 10.3.1.1 remote-as 6500 update-source loopback0 address-family i2vpn evpn send-community send-community extended  vrf SGI_IAC Address-family ipv4 unicast  evpn vni 10511 i2 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 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 ipv6 address 2400:1000:17f:fff4:8000::4/121 no ipv6 redirects fabric forwarding mode any-cast-gateway  interface vte1 advertise virtual-rmac host-reachability protocol bgp source-interface loopback0 member vni 10511 suppress-arp mcast-group 239.1.1.1 </pre>
<b>Interface Configuration</b> <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 ipam 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 evpn route-target both auto address-family ipv6 unicast route-target both auto route-target auto evpn </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 evpn 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 10.3.1.1 remote-as 6500 update-source loopback0 address-family l2vpn evpn send-community send-community extended  vrf SGI_IAC Address-family ipv4 unicast  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 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>

# Verifiëren

Gebruik deze sectie om te controleren of uw configuratie goed werkt.

<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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## Problemen oplossen

Deze sectie bevat informatie waarmee u problemen met de configuratie kunt oplossen.

Gebruik deze opdrachten om problemen met de configuratie op te lossen:

**#show bgp l2vpn evpn**

**#show nve peer**

**#show nve vni**

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

## Over deze vertaling

Cisco heeft dit document vertaald via een combinatie van machine- en menselijke technologie om onze gebruikers wereldwijd ondersteuningscontent te bieden in hun eigen taal. Houd er rekening mee dat zelfs de beste machinevertaling niet net zo nauwkeurig is als die van een professionele vertaler. Cisco Systems, Inc. is niet aansprakelijk voor de nauwkeurigheid van deze vertalingen en raadt aan altijd het oorspronkelijke Engelstalige document ([link](#)) te raadplegen.