

# Konfigurieren des EVPN VXLAN IPV6-Overlay-Konfigurationsbeispiels

## Inhalt

[Einleitung](#)

[Voraussetzungen](#)

[Verwendete Komponenten](#)

[Netzwerkdiagramm](#)

[Allgemeine Konfiguration](#)

[Konfiguration](#)

[Überprüfung](#)

[Fehlerbehebung](#)

## Einleitung

In diesem Dokument wird die Bereitstellung von L2 Ethernet VPN (EVPN) Virtual Extensible LAN (VXLAN) IPv6 Overlay auf dem Nexus 9000 beschrieben.

## Voraussetzungen

### Anforderungen

Cisco empfiehlt, dass Sie über Kenntnisse in folgenden Bereichen verfügen:

- Border Gateway Protocol (BGP)
- Open Shortest Path First (OSPF)
- EVPN
- IPV6

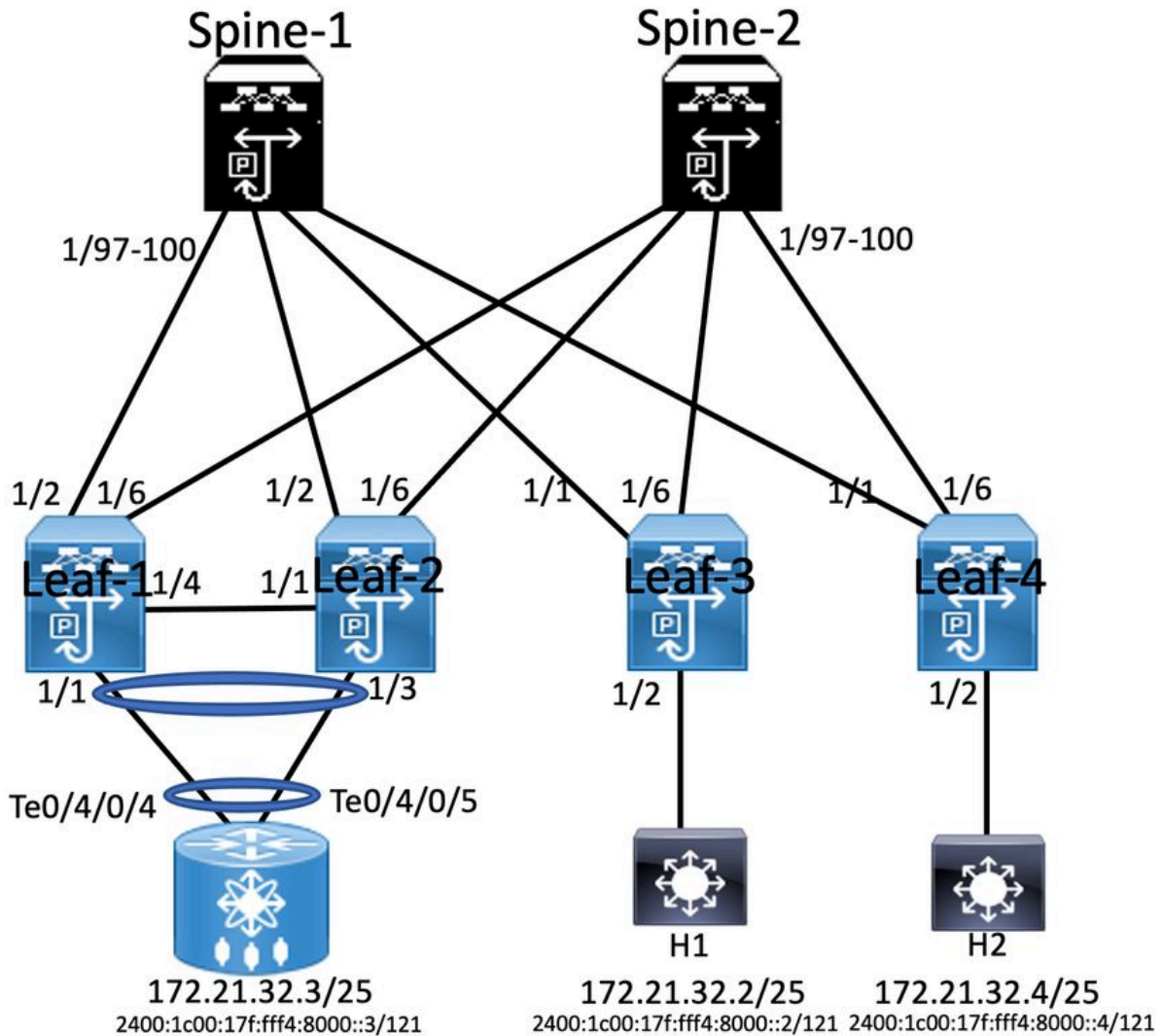
## Verwendete Komponenten

Die Informationen in diesem Dokument basierend auf folgenden Software- und Hardware-Versionen:

- Cisco N9K-C93180YC-FX mit Version 9.3.(9)
- Cisco N9K-C93216TC-FX2 mit Version 9.3(7)
- Cisco Aggregation Service Router (ASR) mit End-Host zur Unterstützung von IPv4 und IPv6
- Cisco N9K-C93180YC-EX mit Version 9.3(8)

Die Informationen in diesem Dokument beziehen sich auf Geräte in einer speziell eingerichteten Testumgebung. Alle Geräte, die in diesem Dokument benutzt wurden, begannen mit einer gelöschten (Nichterfüllungs) Konfiguration. Wenn Ihr Netzwerk in Betrieb ist, stellen Sie sicher, dass Sie die möglichen Auswirkungen aller Befehle verstehen.

## Netzwerkdiagramm



## Allgemeine Konfiguration

1. Funktionen installieren
2. IP-Adresse konfigurieren - Underlay
3. Konfiguration von IGP - OSPF
4. Konfigurieren von MP - BGP
5. VLAN und EVPN-Overlay konfigurieren
6. e-BGP zwischen Hosts und LEAFs konfigurieren

## Konfiguration

| 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 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 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 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 vpc 10 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 2400:1000:17f: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 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  |
| nv overlay evpn<br>feature ospf<br>feature bgp<br>feature pim<br>feature fabric forwarding<br>feature interface-plan<br>feature vn-segment-vlan-based<br>feature lacp<br>feature vpc<br>feature nv overlay<br>fabric forwarding anycast-gateway-mac 0000.2222.3333<br>ip pim rp-address 1.1.1.1 group-list 224.0.0.0/4<br>ip pim ssm range 232.0.0.0/8<br>vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894<br>vlan 100<br>vn-segment 10100<br>vni 511<br>vn-segment 10511<br>route-map PERMIT-ALL permit 10<br>router ospf 100<br>router-id 10.2.1.1 | interface loopback0<br>ip address 10.2.1.1/32<br>ip address 10.10.10.10/32 secondary<br>ip router ospf 100 area 0.0.0.0<br>ip pim sparse-mode<br>icam monitor scale<br>interface ethernet1/2<br>mtu 9216<br>ip address 192.168.3.2/24<br>ip router ospf 100 area 0.0.0.0<br>ip pim sparse-mode<br>vrf context SGI_IAC<br>vni 10100<br>rd auto<br>address-family ipv4 unicast<br>route-target both auto evpn<br>address-family ipv6 unicast<br>route-target both auto<br>route-target auto evpn | router bgp 6500<br>router-id 10.2.1.1<br>address-family ipv4 unicast<br>address-family ipv6 unicast<br>address-family l2vpn evpn<br>advertise-pip<br>neighbour 10.1.1.1<br>remote-as 6500<br>update-source loopback0<br>address-family l2vpn evpn<br>send-community<br>send-community extended<br>vrf SGI_IAC<br>Address-family ipv4 unicast<br>evpn<br>vni 10511 l2<br>rd auto<br>route-target import auto<br>route-target export auto | vpc domain 10<br>peer-switch<br>peer-keepalive destination 10.122.176.45 source 10.122.163.140<br>peer-gateway<br>ipv6 rd synchronize<br>ip arp synchronize<br>interface port-channel10<br>switchport<br>switchport mode trunk<br>spanning-tree port type network<br>vpc peer-link<br>interface ethernet 1/4<br>switchport<br>switchport mode trunk<br>channel-group 10 mode trunk<br>interface port-channel 20<br>switchport<br>switchport mode trunk<br>switchport trunk allowed vlan 511<br>vpc 10<br>interface ethernet1/1<br>switchport<br>switchport mode trunk<br>switchport trunk allowed vlan 511<br>channel-group 20 | interface vian100<br>vrf member SGI_IAC<br>no ip redirects<br>no ip redirects<br>no ipv6 redirects<br>interface vian511<br>vrf member SGI_IAC<br>no ip redirects<br>ip address 172.21.32.6/25<br>ipv6 address 2400:1c00:17f:fff4:8000::4/121<br>no ipv6 redirects<br>fabric forwarding mode any cast-gateway<br>interface vni1<br>advertise virtual-rmac<br>host-reachability protocol bgp<br>source-interface loopback0<br>member vni 10100 associate-vhf<br>member vni 10511<br>suppress-arp<br>mcast-group 239.1.1.1 |

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

| Leaf-3   |   |   |   |
|--|---|---|---|
| Enabling Features  | Interface Configuration   | BGP/EVPN Configuration  | VTEP Configuration  |
| nv overlay evpn<br>feature ospf<br>feature bgp<br>feature pim<br>feature fabric forwarding<br>feature interface-plan<br>feature vn-segment-vlan-based<br>feature lacp<br>feature nv overlay<br>fabric forwarding anycast-gateway-mac 0000.2222.3333<br>ip pim rp-address 10.3.1.1 group-list 224.0.0.0/4<br>ip pim ssm range 232.0.0.0/8<br>vlan 1,10,20,100,511-513,708-709,711,1179,1664-1665,1667-1668,1894<br>vlan 100<br>vn-segment 10100<br>vni 511<br>vn-segment 10511<br>route-map PERMIT-ALL permit 10<br>router ospf 100<br>router-id 10.4.1.1 | interface loopback0<br>ip address 10.4.1.1/32<br>ip router ospf 100 area 0.0.0.0<br>ip pim sparse-mode<br>icam monitor scale<br>interface ethernet1/1<br>mtu 9216<br>ip address 192.168.1.1/24<br>ip router ospf 100 area 0.0.0.0<br>ip pim sparse-mode<br>vrf context SGI_IAC<br>vni 10100<br>rd auto<br>address-family ipv4 unicast<br>route-target both auto<br>route-target both auto evpn<br>address-family ipv6 unicast<br>route-target both auto<br>route-target auto evpn | router bgp 6500<br>router-id 10.4.1.1<br>address-family ipv4 unicast<br>address-family ipv6 unicast<br>address-family l2vpn evpn<br>neighbour 10.3.1.1<br>remote-as 6500<br>update-source loopback0<br>address-family l2vpn evpn<br>send-community<br>send-community extended<br>vrf SGI_IAC<br>address-family ipv4 unicast<br>address-family ipv6 unicast<br>evpn<br>vni 10511 l2<br>rd auto<br>route-target import auto<br>route-target export auto | interface vian100<br>vrf member SGI_IAC<br>no ip redirects<br>ip forward<br>no ipv6 redirects<br>interface vian511<br>vrf member SGI_IAC<br>no ip redirects<br>ip address 172.21.32.6/25<br>ipv6 address 2400:1c00:17f:fff4:8000::4/121<br>no ipv6 redirects<br>fabric forwarding mode any cast-gateway<br>interface vni1<br>no shutdown<br>host-reachability protocol bgp<br>source-interface loopback0<br>member vni 10100 associate-vhf<br>member vni 10511<br>suppress-arp<br>mcast-group 239.1.1.1 |

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

# Überprüfung

Verwenden Sie diesen Abschnitt, um zu überprüfen, ob Ihre Konfiguration ordnungsgemäß funktioniert.

|   |  |
|---|--|
| <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> |
|---|--|

## Fehlerbehebung

In diesem Abschnitt finden Sie Informationen zur Behebung von Fehlern in Ihrer Konfiguration.

Verwenden Sie die folgenden Befehle zur Fehlerbehebung bei der Konfiguration:

**#show bgp l2vpn evpn**

**#show nve peer**

**#show nve vni**

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

## Informationen zu dieser Übersetzung

Cisco hat dieses Dokument maschinell übersetzen und von einem menschlichen Übersetzer editieren und korrigieren lassen, um unseren Benutzern auf der ganzen Welt Support-Inhalte in ihrer eigenen Sprache zu bieten. Bitte beachten Sie, dass selbst die beste maschinelle Übersetzung nicht so genau ist wie eine von einem professionellen Übersetzer angefertigte. Cisco Systems, Inc. übernimmt keine Haftung für die Richtigkeit dieser Übersetzungen und empfiehlt, immer das englische Originaldokument (siehe bereitgestellter Link) heranzuziehen.