

EVVPN VXLAN ةيشغت ننيوكت لاثم ننيوكت IPv6

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ةمدقمل

LAN ةكبشل (EVPN) L2 تنرثي ةكبشل IPv6 ةيشغت رشن ةيفي ك دننتمسمل اذه حضوي Nexus 9000 لىع (VXLAN) ةيرهاظلا ةعسومل

ةيساسأل تابلطتم

تابلطتم

ةيلاتل عيضاوملاب ةفرعم كيدل نوكت ناب Cisco ي صوت:

- (BGP) ةيدودحل ةبابل لوكتورب
- (OSPF) آلوا راسم رصقأ حتف لوكتورب
- EVPN
- IPv6

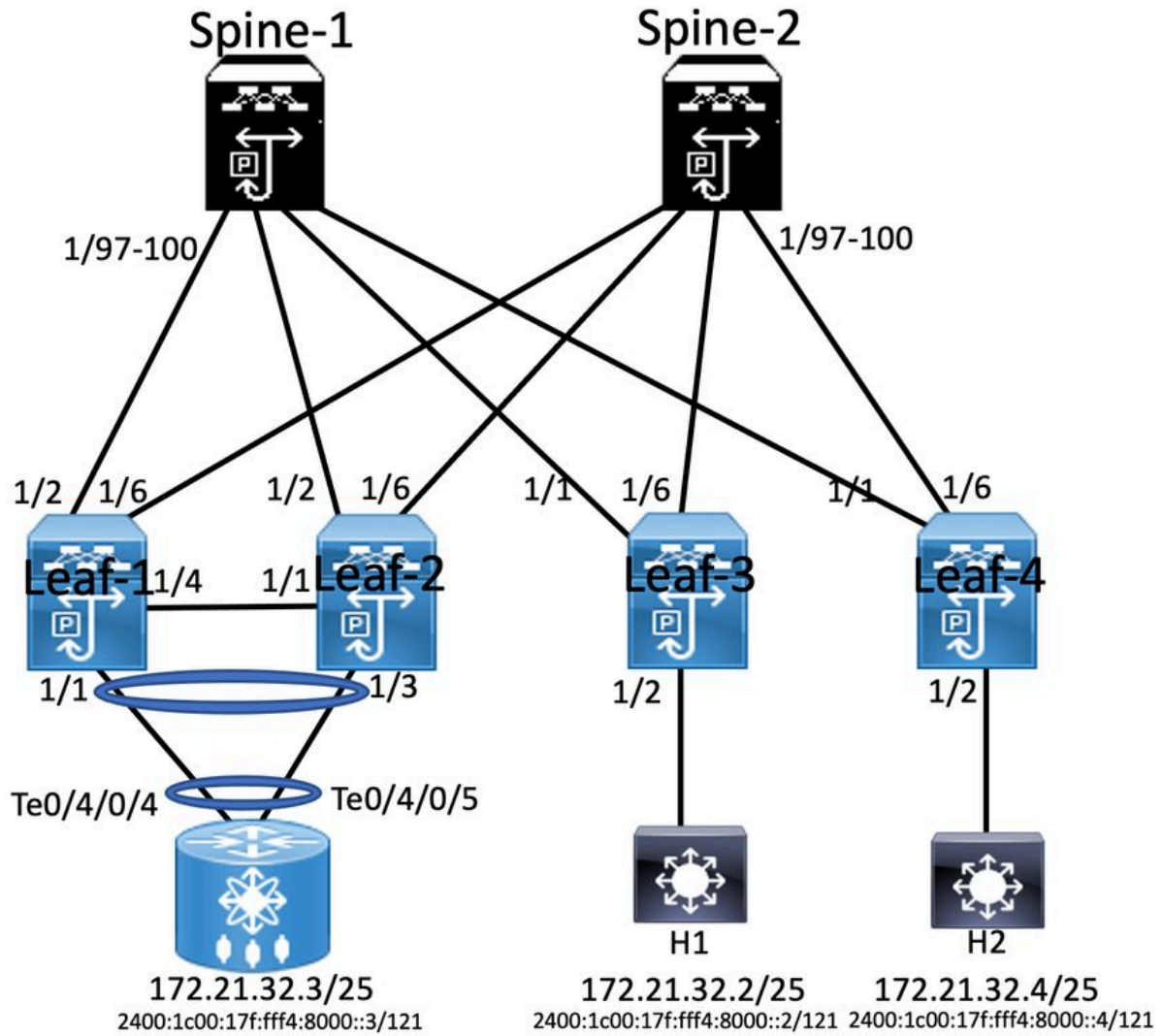
ةمدختسمل تانوكمل

ةيلاتل ةيدامل تانوكمل او جماربل تارادصل لىل دننتمسمل اذه يف ةدراول تامولعمل دننتمس:

- Cisco N9K-C93180YC-FX 9.3.(9) رادصل ل غشي يذل
- Cisco N9K-C93216TC-FX2 9.3(7) رادصل ل غشي يذل
- IPv4 و IPv6 ل يفرطال فيضممل نيكمت عم Cisco نم (ASR) عيمجتلا ةمدخ هجوم
- Cisco N9K-C93180YC-EX 9.3(8) رادصل ل غشي يذل

ةصاخ ةيلمعم ةئيب يف ةدوجومل ةزهجال نم دننتمسمل اذه يف ةدراول تامولعمل عاشن اذمت تناك اذ. (يضارفت). حوسمم ننيوكتب دننتمسمل اذه يف ةمدختسمل ةزهجال عيمجت اذب رمأ يال لمتمحمل ريثاتلل كمهف نم دكأتف، ليغشتلا ديقتك بشل

ةكبشلل يطيختل مسرل



يوتسمل اةل لاة ةئيهت

1. تازيمل تي ب ت
2. ري طس تل - IP ناو نع ني وكت
3. IGP - OSPF ني وكت
4. MP - BGP ني وكت
5. VLAN و EVPN ةيش غت ني وكت
6. ةي فر طال ت اء ءول او ة في ضم ال ةزه ءال ني ب e-BGP ني وكت

ني وكت ال

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 l2cp 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 ipcam 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 neighbor 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 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 ip6 address 2400:1000:17f:fff4:8000::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 lisp 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 lisp 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 lisp 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>

حصولنا من ققحتنا

حججص لكش ب نيوكتا لمع ديكتا مل مسقلا اذه مدختسا

<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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اهحال صاوا ءاطخأل فاشكتسا

اهحال صاوا نيوكتل ءاطخأ فاشكتسال اهم ادختسا كنكمي تامولعم مسقلا اذه رفوي

لبيكشتلا ىرحتي نأ رماً اذه تلمعتسا

#show bgp l2vpn evpn

#show nve peer

#show nve vni

show ip arp <> >> On host side

ةمچرتل هذه لوج

ةللأل تاي نقتل نمة ومة مادختساب دن تسمل اذة Cisco تمةرت
ملاعلاء انء مء مء نمة دختسمل معد و تمة مء دقتل ةر شبل او
امك ةق قء نوك ت نل ةللأل ةمچرت لصف أن ةظحال مء ءرء. ةصاأل مء تءل ب
Cisco ةلخت. فرتمة مچرت مء دقء ةل ةل ةفارتحال ةمچرتل عم لالحل وه
ىل إأمءءاد ءوچرلاب ةصوء و تامةرتل هذه ةقء نء اهءل وئس م Cisco
Systems (رفوتم طبارل) ةلصلأل ةزءل ءن إلل دن تسمل