

ةيساسأ تامولعم

تاقببطللاو نيذختلاو ةيباسحلا ةقاطلا ىلع يوتحت دراوم ةومجم وه تانايبلا زكرم لمع ةئيب ةيأ معدل ةيرورضلا.

ةيمهألا غلاب ارمأ تانايبلا زكرم ةيساسألا ةينبلا ميمصتلا ميلسلا طيطختلا دعي ةببلة ةيفيكو، تايفش تسملا تاكبش لثم، ةيرورضلا تابلطتملا دن تسملا اذو طغي اهزواجت وأ تابلطتملا كلت.

ىلى تانايبلا زكارمو تامولعمل ةينقتل ةثيدحلا ةيساسألا ةينبلا رشن تايلمع جاتحت تاقوالا عيمج ي ف قئاف ءادأو عرسأ لدع مبريوطتلا ىلع ةردقو (HA) ةيلع رفوت ةينكامل.

ةحاسم ي ف اهفاشكتسا مت ي تلال ةيويحلا تابلطتملا نم ليلق ددع نمضتي يلى ام DC لاجملا ب مكحتلا ةدحو ةينب/ميمصت:

- (FEX) ةينبلا تالصوملا عسوم ةطساوب ذفنملا ةفاثك ني سحت متي.
- (UCS) ةزهجالل ةيضارتفالا ةاكامل لال خ نم ةب سوحلا ةعس ني سحت متي.
- ذفنملا ةانق ةطساوب لوصولا ةقب طابترال ي ددرتلا قاطنلا ني سحت متي.
- vPC ةينقت ةطساوب لكيله لىوتسم ىلع راركتلا ني سحت متي.
- ةيساسألا ةينبلا ةطساوب (SDN) جماربلا ةفرعملا ةكبشلا ةينب ني سحت مت ي ف فيلغل تالو ساسألا ةتمتأ ىلع لمعت ي تلال - (ACI) تاقببطللا ىلع ةزكترملا ةيساسألا.
- زكرم ةكبش ري دم ةطساوب ةديجلا تامدخل معدلاو عيرسلا رشنلا ني سحت متي (DCNM) تانايبلا.
- ةمدخل لال خ نم ىدملا ةليوط تاقببطللا ي ددرتلا قاطنلا تابلطتم ني سحت متي ةم لظملا ةجوملا لوط وأ فايلا.

تانايبلا زكرم ةئيب عيسوتل ةيسئيرلا تامسلا نم جردتلاو يفارغجلا راركتلا نم لك دعي لاضفأ (DCI) ي لخد لاصلتا لولح ريفوت ىلع عاقوملا ةددعتم VXLAN/EVPN ةكبش دعاست تانايبلا زكارملا.

ةكبش وأ، تترتنإلا ىلى: ةكبشلا ةيقبب تانايبلا زكرم ليصوت يجرخال لاصلتالا نمضتي لاصلتالا ةمدقملا تارايلال عيمج نوكت. ي عجمال مرحلا وأ، (WAN) قاطنلا ةعساو لاصلتالا ةكبشلا تالاجم ىلى (L3) 3 ةقبطلال لقن ىلع زكرتو ددعتملا رجأتسملل ةيعاو يجرخال ةيجرخال.

رصتقي ال وهو. يلاتلا ليحلا نم تانكاملإا ددعتم (VPN) ةيرهاظ ةصاخ ةكبش ل ح وه EVPN هنإ لب، (VPN) ةيرهاظلا ةصاخلا تاكبشلا لىرألا تاي نقتلا نم ديدعلا فئاظو ءادأ ىلع يلى ام تازيملا نمضتتو. اضيأ لاضفأ:

- ةمدقل تاكبشلا عم جم دل.
- تاكبش - طقف (L2) 2 ةقبطلال عيسوتب مق: يئاقنالا قحلمل/نالعال تالاجم عيسوتب مق 2. عونلا نم تاراسملا مادختساب ةددحمل ةيعرفلا تاكبشلا/VLAN 5. عونلا نم تاراسم مادختساب ثلاثلا لىوتسملا نم ةددحمل - طقف L3.
- 4. عونلا نم تاراسملا مادختساب راركتلا ةومجم يئاقنلتلا فاشكتالا.
- ددعتملا هاجتإلا رشؤم، نيوانعلل ي عجمال بحسلا، مدختسملا مساقوف ةباتكلا 1. عونلا نم تاراسم عم (MH) (SH) مسقنملا قفالل.


```
vlan 2001
vn-segment 4000502
vrf context L3VNI4000999
vni 4000999
rd auto
address-family ipv4 unicast
route-target both auto
route-target both auto evpn
vrf context vrf_1
vni 4000501
rd auto
address-family ipv4 unicast
route-target both auto
route-target both auto evpn
vrf context vrf_2
vni 4000502
rd auto
address-family ipv4 unicast
route-target both auto
route-target both auto evpn
vpc domain 100
peer-switch
peer-keepalive destination 10.197.214.54 source 10.197.214.53
virtual peer-link destination 10.102.1.9 source 10.102.1.8 dscp 56
delay restore 150
peer-gateway
ip arp synchronize
interface Vlan100
no shutdown
mtu 9216
vrf member vrf_2
no ip redirects
ip address 192.168.100.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan200
no shutdown
mtu 9216
vrf member vrf_2
no ip redirects
ip address 192.168.200.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan301
no shutdown
mtu 9216
vrf member vrf_1
no ip redirects
ip address 172.16.11.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan302
no shutdown
mtu 9216
vrf member vrf_1
no ip redirects
ip address 172.16.12.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan303
no shutdown
mtu 9216
```

```
vrf member vrf_1
no ip redirects
ip address 172.16.13.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan2001
no shutdown
mtu 9000
vrf member vrf_2
no ip redirects
ip forward
ipv6 address use-link-local-only
no ipv6 redirects
interface port-channel10
switchport
switchport mode trunk
switchport trunk allowed vlan 100,200,300-350,2001
spanning-tree port type network
vpc peer-link
interface port-channel100
switchport
switchport mode trunk
switchport trunk allowed vlan 100,200
mtu 9216
vpc 100
interface nve1
no shutdown
host-reachability protocol bgp
advertise virtual-rmac
source-interface loopback1
member vni 4000100
suppress-arp
mcast-group 231.0.0.1
member vni 4000200
suppress-arp
mcast-group 231.0.0.2
member vni 4000502
associate-vrf
interface Ethernet1/1
switchport
switchport mode trunk
switchport trunk allowed vlan 100,200
mtu 9216
channel-group 100
no shutdown
interface Ethernet1/2
mtu 9216
port-type fabric
medium p2p
ip address 192.168.17.12/24
ip ospf network point-to-point
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
no shutdown
interface loopback0
ip address 10.102.0.5/32
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
interface loopback1
ip address 10.102.1.8/32
ip address 10.201.201.201/32 secondary
ip router ospf 100 area 0.0.0.0
```

```
ip pim sparse-mode
router ospf 100
router-id 10.102.0.5
router bgp 100
router-id 10.102.0.5
log-neighbor-changes
address-family l2vpn evpn
advertise-pip
neighbor 10.102.0.2
remote-as 100
update-source loopback0
address-family ipv4 unicast
address-family ipv6 unicast
send-community
send-community extended
address-family l2vpn evpn
send-community
send-community extended
neighbor 10.102.0.3
remote-as 100
update-source loopback0
address-family ipv4 unicast
address-family ipv6 unicast
send-community
send-community extended
address-family l2vpn evpn
send-community
send-community extended
evpn
vni 4000100 12
rd auto
route-target import auto
route-target export auto
vni 4000200 12
rd auto
route-target import auto
route-target export auto
vni 4000301 12
rd auto
route-target import auto
route-target export auto
vni 4000302 12
rd auto
route-target import auto
route-target export auto
vni 4000303 12
rd auto
route-target import auto
route-target export auto
```

عقوم لل 2 ةحفصل نم 1 ةحفصل نيوكت

```
feature nxapi
feature sftp-server
cfs ipv4 distribute
nv overlay evpn
feature ospf
```

```
feature bgp
feature pim
feature fabric forwarding
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature vpc
feature nv overlay
fabric forwarding anycast-gateway-mac 0000.1111.2222
ip pim rp-address 10.102.0.2 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
vlan 1,100,200,300-350,2001
vlan 100
vn-segment 4000100
vlan 200
vn-segment 4000200
vlan 301
vn-segment 4000301
vlan 302
vn-segment 4000302
vlan 303
vn-segment 4000303
vlan 350
name L3-VNI
vn-segment 4000999
vlan 2001
vn-segment 4000502
vrf context L3VNI4000999
vni 4000999
rd auto
address-family ipv4 unicast
route-target both auto
route-target both auto evpn
vrf context vrf_1
vni 4000501
rd auto
address-family ipv4 unicast
route-target both auto
route-target both auto evpn
vrf context vrf_2
vni 4000502
rd auto
address-family ipv4 unicast
route-target both auto
route-target both auto evpn
vpc domain 100
peer-switch
peer-keepalive destination 10.197.214.53 source 10.197.214.54
virtual peer-link destination 10.102.1.8 source 10.102.1.9 dscp 56
delay restore 150
peer-gateway
ip arp synchronize
interface Vlan100
no shutdown
mtu 9216
vrf member vrf_2
no ip redirects
ip address 192.168.100.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan200
no shutdown
```

```
mtu 9216
vrf member vrf_2
no ip redirects
ip address 192.168.200.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan301
no shutdown
mtu 9216
vrf member vrf_1
no ip redirects
ip address 172.16.11.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan302
no shutdown
mtu 9216
vrf member vrf_1
no ip redirects
ip address 172.16.12.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan303
no shutdown
mtu 9216
vrf member vrf_1
no ip redirects
ip address 172.16.13.254/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
interface Vlan2001
no shutdown
mtu 9000
vrf member vrf_2
no ip redirects
ip forward
ipv6 address use-link-local-only
no ipv6 redirects
interface port-channel10
switchport
switchport mode trunk
switchport trunk allowed vlan 100,200,300-350,2001
spanning-tree port type network
vpc peer-link
interface port-channel100
switchport
switchport mode trunk
switchport trunk allowed vlan 100,200
mtu 9216
vpc 100
interface nve1
no shutdown
host-reachability protocol bgp
advertise virtual-rmac
source-interface loopback1
member vni 4000100
suppress-arp
mcast-group 231.0.0.1
member vni 4000200
suppress-arp
mcast-group 231.0.0.2
member vni 4000502
```

```
associate-vrf
interface Ethernet1/1
switchport
switchport mode trunk
switchport trunk allowed vlan 100,200
mtu 9216
channel-group 100
no shutdown
interface Ethernet1/2
mtu 9216
port-type fabric
medium p2p
ip address 192.168.18.12/24
ip ospf network point-to-point
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
no shutdown
interface loopback0
ip address 10.102.0.8/32
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
interface loopback1
ip address 10.102.1.9/32
ip address 10.201.201.201/32 secondary
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode
icam monitor scale
router ospf 100
router-id 10.102.0.8
router bgp 100
router-id 10.102.0.8
log-neighbor-changes
address-family l2vpn evpn
advertise-pip
neighbor 10.102.0.2
remote-as 100
update-source loopback0
address-family ipv4 unicast
address-family ipv6 unicast
send-community
send-community extended
address-family l2vpn evpn
send-community
send-community extended
neighbor 10.102.0.3
remote-as 100
update-source loopback0
address-family ipv4 unicast
address-family ipv6 unicast
send-community
send-community extended
address-family l2vpn evpn
send-community
send-community extended
evpn
vni 4000100 l2
rd auto
route-target import auto
route-target export auto
vni 4000200 l2
rd auto
route-target import auto
```

```
route-target export auto
vni 4000301 12
rd auto
route-target import auto
route-target export auto
vni 4000302 12
rd auto
route-target import auto
route-target export auto
vni 4000303 12
rd auto
route-target import auto
route-target export auto
```

هذه جمل لمالك التاني وكالتا ني مضت متي، هتعارق ة ني ناك م او دن تسم ل راصتخ ل جأ نم ة ني ن ب ل س ف ن ب ني وك ت لك مزت لي. ك انه اه ل ة راش ل ن ك مي و ر د ص م ل ي و ت ح م ي ف ة ي ف ا ض ل ا VLAN، ت اك ب ش د د ح ي و، ة ب و ل ط م ل ت ا ز ي م ل ر ف و ي ا م م، ه ا ل ع ا ح ض و م و ه ا م ك ة ي ل ي ص ف ت ل ا ني وك ت ل ل ة ف ا ض ل ا ب، ه ي ج و ت ل ا ت ا ل و ك و ت و ر ب و، ت ا ه ج ا و ل ا و، VRF ت اك ب ش و، VNI ت اك ب ش و ر و د ع م ب س ا ن ت ي ا م ب ع ق ا و م ل ا ة د د ع ت م د و د ح ل ا ة ر ا ب ع ت اك ح م و، BGP EVPN ة ك ب ش و، NVE ت اك ب ش و ز ا ه ج ل ك.

ة ح ص ل ل ا ن م ق ق ح ت ل ا

EVPN-VXLAN ني وك ت ل ي غ ش ت د ي ك ا ت ل ل ا ث م ل ا ت ا ج ر خ م و ق ق ح ت ل ا ت ا و ط خ م س ق ل ا ا ذ ه ر ف و ي ع ق ا و م ل ا د د ع ت م.

ل ل ا ص ت ا ل ا ر ا ب ت خ ل م ا د خ ت س ا ب ل م ا ش ل ل ا ل ا ص ت ا ل ا ن م ق ق ح ت ل ا 1: ة و ط خ ل ا

```
Host2# ping 192.168.200.103
PING 192.168.200.103 (192.168.200.103): 56 data bytes
64 bytes from 192.168.200.103: icmp_seq=0 ttl=254 time=1.21 ms
64 bytes from 192.168.200.103: icmp_seq=1 ttl=254 time=0.627 ms
64 bytes from 192.168.200.103: icmp_seq=2 ttl=254 time=0.74 ms
64 bytes from 192.168.200.103: icmp_seq=3 ttl=254 time=0.737 ms
64 bytes from 192.168.200.103: icmp_seq=4 ttl=254 time=0.542 ms
--- 192.168.200.103 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.542/0.771/1.21 ms
```

ت ا ر ا ب ت خ ل م ا د خ ت س ا ب ل ل ا ل ا و ي ن ا ث ل ل ا ن ي و ت س م ل ا ل ل ا ل و ص و ل ا ة ني ن ا ك م ل ن م ق ق ح ت 2: ة و ط خ ل ا ة ي ف ا ض ل ل ا ص ت ا

```
Host2# ping 192.168.100.103
PING 192.168.100.103 (192.168.100.103): 56 data bytes
64 bytes from 192.168.100.103: icmp_seq=0 ttl=254 time=1.195 ms
64 bytes from 192.168.100.103: icmp_seq=1 ttl=254 time=0.613 ms
64 bytes from 192.168.100.103: icmp_seq=2 ttl=254 time=0.575 ms
64 bytes from 192.168.100.103: icmp_seq=3 ttl=254 time=0.522 ms
64 bytes from 192.168.100.103: icmp_seq=4 ttl=254 time=0.534 ms
```

```
--- 192.168.100.103 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.522/0.687/1.195 ms
```

```
Host2# ping 192.168.100.100
PING 192.168.100.100 (192.168.100.100): 56 data bytes
64 bytes from 192.168.100.100: icmp_seq=0 ttl=254 time=1.029 ms
64 bytes from 192.168.100.100: icmp_seq=1 ttl=254 time=0.561 ms
64 bytes from 192.168.100.100: icmp_seq=2 ttl=254 time=0.579 ms
64 bytes from 192.168.100.100: icmp_seq=3 ttl=254 time=0.511 ms
64 bytes from 192.168.100.100: icmp_seq=4 ttl=254 time=0.496 ms
--- 192.168.100.100 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.496/0.635/1.029 ms
```

```
HOST_3(config)# ping 192.168.100.100
PING 192.168.100.100 (192.168.100.100): 56 data bytes
64 bytes from 192.168.100.100: icmp_seq=0 ttl=254 time=1.319 ms
64 bytes from 192.168.100.100: icmp_seq=1 ttl=254 time=0.77 ms
64 bytes from 192.168.100.100: icmp_seq=2 ttl=254 time=0.505 ms
64 bytes from 192.168.100.100: icmp_seq=3 ttl=254 time=0.542 ms
64 bytes from 192.168.100.100: icmp_seq=4 ttl=254 time=0.486 ms
--- 192.168.100.100 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.486/0.724/1.319 ms
```

ARP لودج نم ققحتلا: 3 ةوطخلا

```
device# show ip arp
Flags: * - Adjacencies learnt on non-active FHRP router
+ - Adjacencies synced via CFSOE
# - Adjacencies Throttled for Glean
CP - Added via L2RIB, Control plane Adjacencies
PS - Added via L2RIB, Peer Sync
RO - Re-Originated Peer Sync Entry
D - Static Adjacencies attached to down interface

IP ARP Table for context default
Total number of entries: 8
Flags
```

MAC ناوع لودج نم ققحتلا: 4 ةوطخلا

```
device# show mac address-table
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen,
```

+ - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan

VLAN	MAC Address	Type	age	Secure	NTFY	Ports
-----+	-----+	-----+	-----+	-----+	-----+	-----+

BGP EVPN تاراسم نم ققحتلا: 5 ةوطخلا

```
device# show bgp l2vpn evpn
BGP routing table information for VRF default, address family L2VPN EVPN
BGP table version is 3291, Local Router ID is 10.102.0.5
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-inject
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup, 2 - best2
Network Next Hop Metric LocPrf Weight Path
*>i[2]:[0]:[0]:[48]:[6c8b.d3fe.df3b]:[32]:[192.168.100.104]/27 210. 100. 100. 1 100 0 300 200 i
...
```

vPC ةلاخ نم ققحتلا: 6 ةوطخلا

```
device# show vpc brief
Legend:(*) - local vPC is down, forwarding via vPC peer-link
vPC domain id      : 100
Peer status        : peer adjacency formed ok
vPC keep-alive status : peer is alive
Configuration consistency status : success
Per-vlan consistency status      : success
Type-2 consistency status       : success
vPC role            : secondary
Number of vPCs configured      : 1
Peer Gateway        : Enabled
Dual-active excluded VLANs     : -
Graceful Consistency Check     : Enabled
Auto-recovery status          : Disabled
Delay-restore status          : Timer is off.(timeout = 150s)
Delay-restore SVI status      : Timer is off.(timeout = 10s)
Delay-restore Orphan-port status: Timer is off.(timeout = 0s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode         : Enabled
vPC Peer-link status
id  Port    Status Active vlans
1   Po10   up     100,200,300-350,2001
vPC status
Id  Port    Status Consistency Reason  Active vlans
100 Po100  up     success  success  100,200
```

اهحالصإو ءاطخألا فاشكتسا

اهحالصإو ءاقوملا ددعتم EVPN-VXLAN نيوكت ءاطخأ فاشكتسال جهنورم او مسقلا اذه رفوي

ARP لودج نم ققحتلا: 1 ةوطخلا

```
device# show ip arp
Flags: * - Adjacencies learnt on non-active FHRP router
+ - Adjacencies synced via CFSOE
# - Adjacencies Throttled for Glean
CP - Added via L2RIB, Control plane Adjacencies
PS - Added via L2RIB, Peer Sync
RO - Re-Originated Peer Sync Entry
D - Static Adjacencies attached to down interface
```

```
IP ARP Table for context default
Total number of entries: 8
Flags
```

MAC ناوع لودج نم ققحتلا: 2 ةوطخلا

```
device# show mac address-table
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen,
+ - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan
```

VLAN	MAC Address	Type	age	Secure	NTFY	Ports
-----+-----+-----+-----+-----+-----+-----						

BGP EVPN نم ققحتلا: 3 ةوطخلا

```
device# show bgp l2vpn evpn
```

vPC ةلاح نم ققحتلا: 4 ةوطخلا

```
device# show vpc brief
```

Cisco CLI Analyzer م ادختسا: 5 ةوطخلا

رم اوأ (طبق نيلجسم لاءالم لول) (Cisco نم رماوأل رطس ةهجاو لولحم) Cisco CLI Analyzer م عدي ليلحت ضرعل (Cisco نم رماوأل رطس ةهجاو لولحم) Cisco CLI Analyzer م دختسا. ةنپعم show. رمال ج رمل show.

ةلص تاذا تامولعم

- [Cisco نم تاليزنتلا او ينفلما معدلا](#)

ةمچرتل هذه لوج

ةللأل تاي نقتل نم ةومچم مادختساب دن تسمل اذہ Cisco تچرت
ملاعلاء انءمچي فني مدختسمل معدى وتحم مي دقتل ةيرشبل او
امك ةقيقد نوك تنل ةللأل ةمچرت لصف أن ةظحال مچري. ةصاخل مهتبل ب
Cisco يلخت. فرتحم مچرت مامدقي يتل ةيفارتحال ةمچرتل عم لالحل وه
ىل إأمئاد ةوچرلاب يصوت وتامچرتل هذه ةقدنع اهتيلوئسم Cisco
Systems (رفوتم طبارل) يلصلأل يزي لچنل دن تسمل