# 為使用NX-OS和Windows Server 2022的Nexus 9000配置並驗證VxLAN交換矩陣中的DHCP

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System         System           技工・         技工・           技工・         大工・           技工・         大工・           技工・         大工・           大工・         シーン・           大工・         シーン・           大工・         シーン・           大工・         シーン・           大工・         シーン・           シーン・         シーン・           シーン・         シーン・           シーン・         シーン・           シーン・         シーン・           シーン・         シーン・           シーン・         シーン・           シーン         シーン           シーン         シーン <t< td=""><td>N9K-ACCESS</td></t<>	N9K-ACCESS
技工         技工、PC DHCP         技工、PC DHCP         法理、PC DHCP         XII-UBCNS Server 2022上的DHCP伺服器配置         主機的P定址範圍配置。         建築的P定址範圍配置。         法SVI中環回的唯一P地址的範圍配置為DCHP中繼代理。         海ソムAN交換矩陣配置超級作用域。         在主機範圍內配置道項82。         VI-P資料包在VxLAN交換矩陣中從頭到尾進行週歷。         愛現由HOST-1傳送         査LEAF-1-使者         資生比 的發現         在LEAF-1-VPC上發現         在LEAF-1-VPC上發現         自CHP伺服器推送的DCHP優惠         LEAF-1-VPC上發現         日CHP伺服器推送的DCHP優惠         LEAF-1上的DHCP虛集         日CHPC提低VPC主幹         LEAF-1上的DHCP值集         LEAF-1上的DHCP位集         工EAF-1上的DHCP值集         LEAF-1上的DHCP值集         其LAF-1的直策         其上AF-1的讀求         工具工具工具         工具工具工具         工具工具         工具工具         工具工具         工具工具         工具工具         工具         工具     <	Nexus交換機上的DHCP配置
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DCHP資料包在VxLAN交換矩陣中從頭到尾進行遍歷。         發現由HOST-1傳送         査LEAF-1上發現         蒼柱上的發現         在LEAF-1-vPC上發現         在DCHP伺服器上接收的發現         由DCHP伺服器傳送的DCHP優惠         LEAF-2-vPC上的DCHP優惠         DHCP提供vPC主幹         LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在DCHP伺服器上收到要求	在主機範圍內配置選項82。
發現由HOST-1傳送         在LEAF-1上發現         脊柱上的發現         在LEAF-1-VPC上發現         在DCHP伺服器上接收的發現         由DCHP伺服器僅送的DCHP優惠         LEAF-2-VPC上的DCHP優惠         DHCP提供VPC主幹         LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         文目EAF-1的請求         主幹上的請求         在LEAF-2-VPC上請求         在DCHP伺服器上收到要求	DCHP資料包在VxLAN交換矩陣中從頭到尾進行遍歷。
在LEAF-1上發現         蒼柱上的發現         在LEAF-1-vPC上發現         在DCHP伺服器 #送收的發現         由DCHP伺服器 傳送的DCHP優惠         LEAF-2-vPC上的DCHP優惠         DHCP提供vPC主幹         LEAF-1上的DHCP提供         插水BHOST-1上接收的DHCP Offer         請求由HOST-1傳送         보LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在DCHP伺服器上收到要求	<u>發現由HOST-1傳送</u>
脊柱上的發現         在LEAF-1-vPC上發現         在DCHP伺服器上接收的發現         由DCHP伺服器傳送的DCHP優惠         LEAF-2-vPC上的DCHP優惠         DHCP提供vPC主幹         LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在LEAF-2-vPC上請求	<u>在LEAF-1上發現</u>
在LEAF-1-vPC上發現         在DCHP伺服器上接收的發現         由DCHP伺服器傳送的DCHP優惠         LEAF-2-vPC上的DCHP優惠         DHCP提供vPC主幹         LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在DCHP伺服器上收到要求	<u>脊柱上的發現</u>
在DCHP伺服器上接收的發現         由DCHP伺服器傳送的DCHP優惠         LEAF-2-vPC上的DCHP優惠         DHCP提供vPC主幹         LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在DCHP伺服器上收到要求	<u>在LEAF-1-vPC上發現</u>
<u>由DCHP伺服器傳送的DCHP優惠</u> <u>LEAF-2-vPC上的DCHP優惠</u> <u>DHCP提供vPC主幹</u> <u>LEAF-1上的DHCP提供</u> <u>在HOST-1上接收的DHCP Offer</u> <u>請求由HOST-1傳送</u> <u>對LEAF-1的請求</u> <u>主幹上的請求</u> <u>在LEAF-2-vPC上請求</u> <u>在DCHP伺服器上收到要求</u>	在DCHP伺服器上接收的發現
LEAF-2-vPC上的DCHP優惠         DHCP提供vPC主幹         LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在DCHP伺服器上收到要求	由DCHP伺服器傳送的DCHP優惠
DHCP提供vPC主幹         LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在DCHP伺服器上收到要求	LEAF-2-vPC上的DCHP優惠
LEAF-1上的DHCP提供         在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在DCHP伺服器上收到要求	DHCP提供vPC主幹
在HOST-1上接收的DHCP Offer         請求由HOST-1傳送         對LEAF-1的請求         主幹上的請求         在LEAF-2-vPC上請求         在DCHP伺服器上收到要求	<u>LEAF-1上的DHCP提供</u>
<u>請求由HOST-1傳送</u> <u>對LEAF-1的請求</u> <u>主幹上的請求</u> <u>在LEAF-2-vPC上請求</u> <u>在DCHP伺服器上收到要求</u>	<u>在HOST-1上接收的DHCP Offer</u>
<u>對LEAF-1的請求</u> <u>主幹上的請求</u> <u>在LEAF-2-vPC上請求</u> <u>在DCHP伺服器上收到要求</u>	<u>請求由HOST-1傳送</u>
<u>主幹上的請求</u> <u>在LEAF-2-vPC上請求</u> <u>在DCHP伺服器上收到要求</u>	<u>對LEAF-1的請求</u>
<u>在LEAF-2-vPC上請求</u> <u>在DCHP伺服器上收到要求</u>	<u>主幹上的請求</u>
<u>在DCHP伺服器上收到要求</u>	<u>在LEAF-2-vPC上請求</u>
	在DCHP伺服器上收到要求

<u>ACKEDUTF 间版                                   </u>
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<u>LEAF-2-vPC上的ACK</u>

<u>脊柱上的ACK</u>

<u>LEAF-1上的ACK</u>

<u>主機1上的ACK</u>

## <u>相關資訊</u>

# 簡介

本文檔介紹如何在具有Nexus 9000交換機的VxLAN交換矩陣中配置DHCP並對其進行故障排除。

# 必要條件

需求

思科建議您瞭解以下主題:

- Nexus NX-OS軟體。
- 虛擬連線埠通道(vPC)。
- VxLAN BGP L2VPN EVPN
- BGP address-family IPv4
- OSPF
- 多點傳送PIM (稀疏模式)
- DHCP

## 採用元件

本文中的資訊係根據以下軟體和硬體版本:

- Cisco Nexus 9000和Cisco NX-OS。
  - N9K-C93180YC-EX
  - N9K-C93180YC-FX
  - NX-OS 10.3(4a)
- Windows Server 2022資料中心

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除(預設) )的組態來啟動。如果您的網路運作中,請確保您瞭解任何指令可能造成的影響。



注意:有關第三方軟體或硬體的配置和整合的任何問題均不在思科支援範圍內。使用第三 方工具是向客戶演示思科裝置的配置和運行的最佳方法。

# 背景資訊

實驗室中VxLAN的底層與重疊配置



實驗室中的VxLAN交換矩陣圖

- 骨幹:
  - ◎ 此Nexus交換機傳送DHCP(發現、提供、請求、確認)資料包,在此場景中不會解除 封裝。僅使用外部標頭。
  - 充當網路交換矩陣中的中心路由點。
  - 。負責連線所有LEAF交換機並促進它們之間的資料流。
  - 參與BGP以將EVPN路由分發到枝葉交換機。
  - ◎執行IP路由,並可以透過檢視外部IP報頭來路由不同子網或VxLAN網段之間的流量。
  - ◎將重疊網路(VxLAN)與底層物理網路分離。
  - 使用傳統IP路由協定管理底層,而重疊則由使用BGP EVPN的VxLAN管理,從而提供可 擴展且靈活的網路架構。
- 枝葉1:
  - 枝葉交換機為伺服器、儲存裝置和其他網路裝置等終端提供物理連線。
  - ◎ 枝葉交換機充當VTEP,這意味著它們會封裝和解封VxLAN資料包。
  - 。在這種情況下,主機1發出IP地址請求。
  - 。LEAF-1負責封裝VxLAN報頭中的DCHP資料包。
  - 。HOST#1以傳統乙太網透明方式接收DCHP資料包。
- LEAF-1-vPC和LEAF-2-vPC:
  - ◎ 枝葉交換機透過運行BGP和交換路由資訊參與EVPN控制平面。這允許分配MAC和IP地 址資訊,確保流量可以透過VxLAN交換矩陣有效路由。
  - ◎ 在此場景中,DHCP伺服器與VLAN 10相關聯,VNI 101010與HOST#1相同。這表示它 只是VxLAN橋接。
  - ◎ 如果DHCP伺服器與HOST#1以外的VNI關聯,則路由嚴格需要L3VNI。必須建立源和目 標VNI。
  - 。DCHP伺服器作為傳統乙太網透明接收DCHP資料包。
  - ◎ vPC中的兩個Nexus交換機均接收BUM流量,但只有在vPC中運行的主要Nexus交換機

傳送流量。輔助Nexus交換機丟棄流量。在此場景中,LEAF-1-vPC在操作上為主要。 · 必須使用infra-vlan,因為如果LEAF-2-vPC到SPINE的介面斷開,則無法傳送DCHP資料 包。要將VxLAN封裝流量傳送到LEAF-1-vPC,需要此備份VLAN。這樣,LEAF-1vPC可以將DCHP資料包傳送到骨幹。

- N9K-ACCESS :
  - 。此Nexus交換機僅使用vPC埠通道為向HOST#2提供冗餘目的而提供到兩個枝葉的連線

#### 骨幹

```
nv overlay evpn
feature ospf
feature bgp
feature pim
feature netconf
feature nv overlay
ip pim rp-address 192.168.11.11 group-list 224.10.10.0/24
ip pim ssm range 232.0.0/8
ip pim anycast-rp 192.168.11.11 192.168.0.11
ip prefix-list direct_routes seq 5 permit 10.104.11.0/30 le 32
route-map redistribution permit 10
 match ip address prefix-list direct_routes
interface Ethernet1/1
 speed 1000
  ip address 10.104.11.1/30
 ip ospf network point-to-point
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
 no shutdown
interface Ethernet1/2
  ip address 10.102.11.1/30
 ip ospf network point-to-point
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
 no shutdown
interface Ethernet1/3
 speed 1000
 ip address 10.103.11.1/30
 ip ospf network point-to-point
  ip router ospf 1 area 0.0.0.0
  ip pim sparse-mode
 no shutdown
interface loopback0
 description ANYCAST-RP
 ip address 192.168.0.11/32
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
interface loopback1
 description ANYCAST-RP-CANDIDATE
  ip address 192.168.11.11/32
```

```
ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
router ospf 1
router bgp 65000
 neighbor 192.168.3.3
    remote-as 65000
    update-source loopback0
    address-family 12vpn evpn
      send-community
      send-community extended
      route-reflector-client
 neighbor 192.168.4.4
    remote-as 65000
    update-source loopback0
    address-family 12vpn evpn
      send-community
      send-community extended
      route-reflector-client
 neighbor 192.168.5.5
    remote-as 65000
    update-source loopback0
    address-family 12vpn evpn
      send-community
      send-community extended
      route-reflector-client
```

#### 枝葉-1

nv overlay evpn feature ospf feature bgp feature pim feature interface-vlan feature vn-segment-vlan-based feature dhcp feature nv overlay fabric forwarding anycast-gateway-mac 0000.0a0a.0a0a ip pim rp-address 192.168.11.11 group-list 224.10.10.0/24 ip pim ssm range 232.0.0/8 vlan 1,10,20,300 vlan 10 vn-segment 101010 vlan 20 vn-segment 202020 vlan 300 vn-segment 303030 spanning-tree vlan 10 priority 4096 ip prefix-list host\_subnets seq 5 permit 10.10.10.0/24 le 32 ip prefix-list host\_subnets seq 10 permit 192.168.20.0/24 le 32 ip prefix-list host\_subnets seq 15 permit 172.16.10.8/32

route-map direct\_routes\_tenant-a permit 10 match ip address prefix-list host\_subnets vrf context tenant-a vni 303030 rd auto address-family ipv4 unicast route-target both auto route-target both auto evpn interface Vlan10 no shutdown vrf member tenant-a no ip redirects ip address 10.10.10.1/24 no ipv6 redirects fabric forwarding mode anycast-gateway ip dhcp relay address 10.10.10.150 ip dhcp relay source-interface loopback100 interface Vlan20 no shutdown vrf member tenant-a no ip redirects ip address 192.168.20.1/24 no ipv6 redirects fabric forwarding mode anycast-gateway interface Vlan300 no shutdown vrf member tenant-a no ip redirects ip forward no ipv6 redirects interface nve1 no shutdown host-reachability protocol bgp source-interface loopback0 member vni 101010 suppress-arp mcast-group 224.10.10.10 member vni 202020 suppress-arp mcast-group 224.10.10.10 member vni 303030 associate-vrf interface Ethernet1/1 ip address 10.104.11.2/30 ip ospf network point-to-point ip router ospf 1 area 0.0.0.0 ip pim sparse-mode no shutdown interface loopback0 description UNDERLAY-VERIFICATION ip address 192.168.5.5/32 ip router ospf 1 area 0.0.0.0 ip pim sparse-mode interface loopback100 vrf member tenant-a

ip address 172.16.10.8/32 router ospf 1 router bgp 65000 address-family ipv4 unicast neighbor 192.168.0.11 remote-as 65000 update-source loopback0 address-family 12vpn evpn send-community send-community extended vrf tenant-a address-family ipv4 unicast redistribute direct route-map direct\_routes\_tenant-a evpn vni 101010 12 rd auto route-target import auto route-target export auto vni 202020 12 rd auto route-target import auto route-target export auto

### 枝葉-1-vPC

```
nv overlay evpn
feature ospf
feature bgp
feature pim
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature dhcp
feature vpc
feature nv overlay
fabric forwarding anycast-gateway-mac 0000.0a0a.0a0a
ip pim rp-address 192.168.11.11 group-list 224.10.10.0/24
ip pim ssm range 232.0.0/8
vlan 1,10,300,777
vlan 10
 vn-segment 101010
vlan 300
 vn-segment 303030
vlan 777
 name BACKUP_VLAN_ROUTING_NVE_INFRA
spanning-tree vlan 1,10,300 hello-time 4
ip prefix-list host_subnets seq 5 permit 10.10.10.0/24 le 32
ip prefix-list host_subnets seq 15 permit 172.16.10.9/32
route-map direct_routes_tenant-a permit 10
 match ip address prefix-list host_subnets
```

vrf context tenant-a vni 303030 rd auto address-family ipv4 unicast route-target both auto route-target both auto evpn system nve infra-vlans 777 vpc domain 1 peer-switch peer-keepalive destination 10.88.238.195 peer-gateway layer3 peer-router ip arp synchronize interface Ethernet1/3 switchport switchport mode trunk switchport trunk allowed vlan 1,10,20 channel-group 10 mode active no shutdown interface Ethernet1/19 switchport switchport mode trunk channel-group 1 mode active no shutdown interface port-channel1 switchport switchport mode trunk spanning-tree port type network vpc peer-link interface port-channel10 switchport switchport mode trunk switchport trunk allowed vlan 1,10 vpc 10 interface mgmt0 vrf member management ip address 10.88.238.194/29 interface loopback0 description UNDERLAY-VERIFICATION ip address 192.168.3.3/32 ip router ospf 1 area 0.0.0.0 ip pim sparse-mode interface loopback1 description OVERLAY-NVE ip address 192.168.13.1/32 ip address 192.168.13.254/32 secondary ip router ospf 1 area 0.0.0.0 ip pim sparse-mode interface loopback10 vrf member tenant-a ip address 172.16.10.1/32 interface loopback100

```
vrf member tenant-a
 ip address 172.16.10.9/32
interface Vlan10
 no shutdown
 vrf member tenant-a
 no ip redirects
 ip address 10.10.10.1/24
 no ipv6 redirects
 fabric forwarding mode anycast-gateway
 ip dhcp relay address 10.10.10.150
 ip dhcp relay source-interface loopback100
interface Vlan300
 no shutdown
 vrf member tenant-a
 no ip redirects
 ip forward
 no ipv6 redirects
interface Vlan777
 description BACKUP_UNDERLAY_INFRA-VLAN
 no shutdown
 no ip redirects
 ip address 10.255.77.1/30
 no ipv6 redirects
 ip ospf network point-to-point
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
interface Ethernet1/2
 ip address 10.102.11.2/30
 ip ospf network point-to-point
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
 no shutdown
interface nve1
 no shutdown
 host-reachability protocol bgp
 advertise virtual-rmac
 source-interface loopback1
 member vni 101010
    suppress-arp
    mcast-group 224.10.10.10
 member vni 303030 associate-vrf
router ospf 1
router bgp 65000
 address-family ipv4 unicast
 address-family 12vpn evpn
    advertise-pip
 neighbor 192.168.0.11
    remote-as 65000
    update-source loopback0
    address-family 12vpn evpn
      send-community
      send-community extended
 neighbor 192.168.88.2
    remote-as 65000
    description OVERLAY_BACKUP
```

```
update-source Vlan888
    address-family 12vpn evpn
      send-community
      send-community extended
 vrf tenant-a
    address-family ipv4 unicast
      redistribute direct route-map direct_routes_tenant-a
evpn
 vni 101010 12
    rd auto
    route-target import auto
    route-target export auto
 vni 202020 12
    rd auto
    route-target import auto
    route-target export auto
```

```
枝葉-2-vPC
```

```
nv overlay evpn
feature ospf
feature bgp
feature pim
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature dhcp
feature vpc
feature nv overlay
fabric forwarding anycast-gateway-mac 0000.0a0a.0a0a
ip pim rp-address 192.168.11.11 group-list 224.10.10.0/24
ip pim ssm range 232.0.0/8
vlan 1,10,20,300,777
vlan 10
 vn-segment 101010
vlan 20
 vn-segment 202020
vlan 300
 vn-segment 303030
vlan 777
 name BACKUP_VLAN_ROUTING_NVE_INFRA
spanning-tree vlan 1,10,20,300 hello-time 4
ip prefix-list host_subnets seq 5 permit 10.10.10.0/24 le 32
ip prefix-list host_subnets seq 10 permit 192.168.20.0/24 le 32
ip prefix-list host_subnets seq 15 permit 172.16.10.10/32
route-map direct_routes_tenant-a permit 10
 match ip address prefix-list host_subnets
vrf context tenant-a
 vni 303030
  rd auto
 address-family ipv4 unicast
```

```
route-target both auto
    route-target both auto evpn
system nve infra-vlans 777
vpc domain 1
 peer-switch
 peer-keepalive destination 10.88.238.194
 peer-gateway
 layer3 peer-router
 ip arp synchronize
interface Ethernet1/1
 ip address 10.103.11.2/30
 ip ospf network point-to-point
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
 no shutdown
interface Ethernet1/19
 switchport
 switchport mode trunk
 channel-group 1 mode active
 no shutdown
interface port-channel1
 switchport
 switchport mode trunk
 spanning-tree port type network
 vpc peer-link
interface port-channel10
  switchport
 switchport mode trunk
 switchport trunk allowed vlan 1,10,20
 vpc 10
interface mgmt0
 vrf member management
 ip address 10.88.238.195/29
interface loopback0
 description UNDERLAY-VERIFICATION
 ip address 192.168.4.4/32
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
interface loopback1
 description OVERLAY-NVE
 ip address 192.168.13.2/32
 ip address 192.168.13.254/32 secondary
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
interface loopback10
 vrf member tenant-a
 ip address 172.16.10.2/32
interface loopback100
 vrf member tenant-a
 ip address 172.16.10.10/32
interface Vlan10
```

no shutdown vrf member tenant-a no ip redirects ip address 10.10.10.1/24 no ipv6 redirects fabric forwarding mode anycast-gateway ip dhcp relay address 10.10.10.150 ip dhcp relay source-interface loopback100 interface Vlan20 no shutdown vrf member tenant-a no ip redirects ip address 192.168.20.1/24 no ipv6 redirects fabric forwarding mode anycast-gateway interface Vlan300 no shutdown vrf member tenant-a no ip redirects ip forward no ipv6 redirects interface Vlan777 description BACKUP\_UNDERLAY\_INFRA-VLAN no shutdown no ip redirects ip address 10.255.77.2/30 no ipv6 redirects ip ospf network point-to-point ip router ospf 1 area 0.0.0.0 ip pim sparse-mode interface nve1 no shutdown host-reachability protocol bgp advertise virtual-rmac source-interface loopback1 member vni 101010 suppress-arp mcast-group 224.10.10.10 member vni 202020 suppress-arp mcast-group 224.10.10.10 member vni 303030 associate-vrf router ospf 1 router bgp 65000 address-family ipv4 unicast address-family 12vpn evpn advertise-pip neighbor 192.168.0.11 remote-as 65000 update-source loopback0 address-family 12vpn evpn send-community send-community extended neighbor 192.168.88.1 remote-as 65000 description OVERLAY\_BACKUP

update-source Vlan888 address-family 12vpn evpn send-community send-community extended vrf tenant-a address-family ipv4 unicast redistribute direct route-map direct\_routes\_tenant-a evpn vni 101010 12 rd auto route-target import auto route-target export auto vni 202020 12 rd auto route-target import auto route-target export auto

## N9K-ACCESS

feature lacp

vlan 1,10

interface port-channel10
 switchport
 switchport mode trunk

interface Ethernet1/11
 switchport
 switchport access vlan 10
 no shutdown

interface Ethernet1/45
switchport
switchport mode trunk
channel-group 10 mode active
no shutdown

interface Ethernet1/46
 switchport
 switchport mode trunk
 channel-group 10 mode active
 no shutdown

# Nexus交換機上的DHCP配置

## 枝葉-1

步驟 1.啟用功能DCHP。

LEAF-1(config)# feature dhcp



注意:自NX-OS 7.x以來,DHCP伺服器和中繼代理命令service dhcp、ip dhcp relay和ipv6 dhcp relay預設處於啟用狀態。

步驟 2.應用命令ip dhcp relay information option。

LEAF-1(config)# ip dhcp relay information option



注意:使用此命令,DHCP中繼代理可以插入和刪除選項82有關轉發資料包的資訊。

步驟 3.應用命令ip dhcp relay information option vpn。

LEAF-1(config)# ip dhcp relay information option vpn



注意:此命令用於啟用到達該DHCP伺服器所屬的不同VRF的DHCP中繼請求。

步驟 4.應用命令「ip dhcp relay address [DCHP server的ip地址]」。



注意:在本示例中,DCHP伺服器的IP地址為10.10.10.150。

LEAF-1(config)# interface vlan 10
LEAF-1(config-if)# ip dhcp relay address 10.10.10.150

步驟 5.應用命令「ip dhcp relay source-interface [unique loopback]」。



注意:此命令配置DHCP中繼代理的源IP地址,以針對單播通訊處理Discover、Offer、 Request和ACK,DHCP中繼代理將SVI的IP地址用作DHCP中繼代理的源IP地址。這是不需 要的,因為此IP地址由多個VTEP共用,並且可能會發生DHCP資料包的黑洞。要避免這種 情況,需要使用唯一的IP地址(使用環回介面)來區分每個VTEP。

LEAF-1(config)# interface vlan 10
LEAF-1(config-if)# ip dhcp relay source-interface loopback100

步驟 6.在BGP內對應的VRF租戶中,使用字首清單和路由對映(包括環回介面的IP地址)直接進行 路由重分配。



注意:此環回介面屬於SVI的租戶。

LEAF-1(config)# show running-config interface loopback 100 interface loopback100 vrf member tenant-a ip address 172.16.10.8/32 LEAF-1(config)# ip prefix-list host\_subnets seq 15 permit 172.16.10.8/32 LEAF-1(config)# route-map direct\_routes\_tenant-a permit 10 LEAF-1(config-route-map)# match ip address prefix-list host\_subnets LEAF-1(config-route-map)# router bgp 65000 LEAF-1(config-router)# vrf tenant-a LEAF-1(config-router-vrf)# address-family ipv4 unicast LEAF-1(config-router-vrf)# redistribute direct route-map direct\_routes\_tenant-a

步驟 7.使用命令show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]驗證是否已在BGP L2VPN EVPN中向主幹通告環回介面的IP地址。

LEAF-1(config)# show bgp 12vpn evpn 172.16.10.8 vrf tenant-a BGP routing table information for VRF default, address family L2VPN EVPN Route Distinguisher: 192.168.5.5:4 (L3VNI 303030) BGP routing table entry for [5]:[0]:[32]:[172.16.10.8]/224, version 421 Paths: (1 available, best #1) Flags: (0x000002) (high32 0000000) on xmit-list, is not in 12rib/evpn Advertised path-id 1 Path type: local, path is valid, is best path, no labeled nexthop Gateway IP: 0.0.0.0 AS-Path: NONE, path locally originated 192.168.5.5 (metric 0) from 0.0.0.0 (192.168.5.5) Origin incomplete, MED 0, localpref 100, weight 32768 Received label 303030 Extcommunity: RT:65000:303030 ENCAP:8 Router MAC:707d.b9b8.4daf Path-id 1 advertised to peers: 192.168.0.11 <<<< Spine

步驟 8.驗證環回介面的IP地址是否已注入DHCP伺服器所在的BGP L2VPN EVPN中。



注意:如果vPC中有Nexus交換機,請確認它們都獲取BGP L2VPN EVPN中環回介面的 IP地址。

LEAF-1# show bgp 12vpn evpn 172.16.10.8 BGP routing table information for VRF default, address family L2VPN EVPN Route Distinguisher: 192.168.5.5:4 BGP routing table entry for [5]:[0]:[32]:[172.16.10.8]/224, version 754 Paths: (1 available, best #1) Flags: (0x000002) (high32 0000000) on xmit-list, is not in l2rib/evpn, is not in HW Advertised path-id 1 Path type: internal, path is valid, is best path, no labeled nexthop Imported to 2 destination(s) Imported paths list: tenant-a L3-303030 Gateway IP: 0.0.0.0 AS-Path: NONE, path sourced internal to AS 192.168.5.5 (metric 45) from 192.168.0.11 (192.168.0.11) Origin incomplete, MED 0, localpref 100, weight 0 Received label 303030 Extcommunity: RT:65000:303030 ENCAP:8 Router MAC:707d.b9b8.4daf Originator: 192.168.5.5 Cluster list: 192.168.0.11

Path-id 1 not advertised to any peer

Path-id 1 not advertised to any peer

步驟 9. 使用命令show ip route [DHCP server IP] vrf [tenant vrf]驗證源租戶上是否存在DHCP伺服器 的路由。



注意:要使用的路由條目必須從VxLAN到預設VRF。如果沒有可用的路由,請檢查VTEP在 本機是否知道DCHP伺服器IP位址。

```
LEAF-1# show running-config interface vlan 10
interface Vlan10
no shutdown
vrf member tenant-a <<<< source tenant
no ip redirects
ip address 10.10.10.1/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
ip dhcp relay address 10.10.10.150 <<<< DHCP server
ip dhcp relay source-interface loopback100
LEAF-1# show ip route 10.10.10.150 vrf tenant-a
10.10.150/32, ubest/mbest: 1/0
    *via 192.168.13.254%default, [200/0], 2w0d, bgp-65000, internal, tag 65000, segid: 303030 tunnelid:</pre>
```

步驟 10.使用命令ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf]驗證是否可使 用環回介面和相應的VRF作為VRF源訪問DCHP伺服器IP。

LEAF-1# ping 10.10.10.150 source-interface loopback 100 vrf tenant-a PING 10.10.10.150 (10.10.10.150): 56 data bytes 64 bytes from 10.10.10.150: icmp\_seq=0 ttl=126 time=1.262 ms 64 bytes from 10.10.10.150: icmp\_seq=1 ttl=126 time=0.833 ms 64 bytes from 10.10.10.150: icmp\_seq=2 ttl=126 time=0.808 ms 64 bytes from 10.10.10.150: icmp\_seq=3 ttl=126 time=0.795 ms 64 bytes from 10.10.10.150: icmp\_seq=4 ttl=126 time=0.78 ms

--- 10.10.10.150 ping statistics ---5 packets transmitted, 5 packets received, 0.00% packet loss

步驟 11.檢驗DHCP中繼代理的狀態。

LEAF-1# show ip dhcp status Current CLI Operation: show ip dhcp status Last CLI Operation: DME: ip dhcp relay information option enable Last CLI Operation Status: SUCCESS

步驟 12.驗證選項82(例如vpn選項)和中繼代理下的正確中繼IP地址。

LEAF-1# show ip dhcp relay DHCP relay service is enabled <<<<< Insertion of option 82 is enabled <<<<< Insertion of option 82 customize circuitid is disabled TLV format in CircuitId and RemoteId suboptions is enabled Insertion of VPN suboptions is enabled <<<<<< Insertion of cisco suboptions is disabled Global smart-relay is disabled Relay Trusted functionality is disabled Relay Trusted Port is Globally disabled V4 Relay Source Address HSRP is Globally disabled Server-ID-override-disable is disabled

Smart-relay is enabled on the following interfaces:

Subnet-broadcast is enabled on the following interfaces:

Relay Trusted Port is enabled on the following interfaces:

Relay Source Address HSRP is enabled on the following interfaces:

Helper addresses are configured on the following interfaces:InterfaceRelay AddressVRF Name------------------Vlan1010.10.10.150<<<<<<<</td>

#### 步驟 13.檢驗已處理和轉發的資料包的統計資訊。

LEAF-1# show ip dhcp global statistics Packets processed 1297177 Packets received through cfsoe 0 Packets forwarded 1297175 Packets forwarded on cfsoe 0 Total packets dropped 0 Packets dropped from untrusted ports 0 Packets dropped due to MAC address check failure 0 Packets dropped due to Option 82 insertion failure 0 Packets dropped due to o/p intf unknown 0 Packets dropped which were unknown 0 Packets dropped due to no trusted ports 0 Packets dropped due to dhcp relay not enabled 0 Packets dropped due to no binding entry 0 Packets dropped due to interface error/no interface 0 Packets dropped due to max hops exceeded 0 Packets dropped due to Queue full 0

#### 步驟 14.檢驗中繼資料包的統計資訊。

LEAF-1# show ip dhcp relay statistics

Message Type	Rx	Tx		Drops	
Discover	260521	260520		0	
Offer	289330	289330		0	
Request(*)	267162	267161		0	
Ack	8322	8322		0	
Release(*)	181121	181121		0	
Decline	1	1		0	
Inform(*)	0	0		0	
Nack	289280	289280		0	
Total	1295737	1295735		0	
DHCP L3 FWD:					
Total Packets	Received		:	0	
Total Packets	Forwarded		:	0	
Total Packets	Dropped		:	0	
Non DHCP:					
Total Packets	Received		:	0	
Total Packets	Forwarded		:	0	
Total Packets	Dropped		:	0	
DROP:					

DHCP Relay not enabled	:	0
Invalid DHCP message type	:	0
Interface error	:	0
Tx failure towards server	:	0
Tx failure towards client	:	0
Unknown output interface	:	0
Unknown vrf or interface for server	:	0
Max hops exceeded	:	0
Option 82 validation failed	:	0
Packet Malformed	:	0
DHCP Request dropped on MCT	:	0
Relay Trusted port not configured	:	0
* - These counters will show correct value when	ı switch	
receives DHCP request packet with destination ip	as broad	dcast
address. If request is unicast it will be HW swit	tched	

枝葉1-vPC DHCP

步驟 1.啟用功能DCHP。

LEAF-1-VPC(config)#feature dhcp



注意:自NX-OS 7.x以來,DHCP伺服器和中繼代理命令service dhcp、ip dhcp relay和ipv6 dhcp relay預設處於啟用狀態。

步驟 2.應用命令ip dhcp relay information option。

LEAF-1-VPC(config)#ip dhcp relay information option



注意:使用此命令,DHCP中繼代理可以插入和刪除選項82有關轉發資料包的資訊。

步驟 3.應用命令「ip dhcp relay information option vpn」。

LEAF-1-VPC(config)# ip dhcp relay information option vpn



注意:此命令用於啟用到達該DHCP伺服器所屬的不同VRF的DHCP中繼請求。

步驟 4.應用命令ip dhcp relay address [DCHP伺服器的IP地址]。



注意:在本示例中,DCHP伺服器的IP地址為10.10.10.150。

LEAF-1-VPC(config)#interface vlan 10 LEAF-1-VPC(config-if)#ip dhcp relay address 10.10.10.150

步驟 5.應用命令「ip dhcp relay source-interface [unique loopback]」。



注意:此命令配置DHCP中繼代理的源IP地址,以針對單播通訊處理Discover、Offer、 Request和ACK,DHCP中繼代理將SVI的IP地址用作DHCP中繼代理的源IP地址。這是不需 要的,因為此IP地址由多個VTEP共用,並且可能會發生DHCP資料包的黑洞。要避免這種 情況,需要使用唯一的IP地址(使用環回介面)來區分每個VTEP。

LEAF-1-VPC(config)#interface vlan 10
LEAF-1-VPC(config-if)# ip dhcp relay source-interface loopback100

步驟 6.在BGP內對應的VRF租戶中,使用字首清單和路由對映(包括環回介面的IP地址)直接進行 路由重分配。



注意:此環回介面屬於SVI的租戶。

LEAF-1-VPC(config)# show running-config interface loopback 100
interface loopback100
vrf member tenant-a
ip address 172.16.10.9/32
LEAF-1-VPC(config)# ip prefix-list host\_subnets seq 15 permit 172.16.10.9/32
LEAF-1-VPC(config)# route-map direct\_routes\_tenant-a permit 10
LEAF-1-VPC(config-route-map)# match ip address prefix-list host\_subnets
LEAF-1-VPC(config-route-map)# router bgp 65000
LEAF-1-VPC(config-router)# vrf tenant-a
LEAF-1-VPC(config-router-vrf)# address-family ipv4 unicast
LEAF-1-VPC(config-router-vrf-af)# redistribute direct route-map direct\_routes\_tenant-a

步驟 7.使用命令show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]驗證是否已在BGP L2VPN EVPN中向主幹通告環回介面的IP地址。

LEAF-1-VPC# show bgp 12vpn evpn 172.16.10.9 vrf tenant-a BGP routing table information for VRF default, address family L2VPN EVPN Route Distinguisher: 192.168.3.3:4 (L3VNI 303030) BGP routing table entry for [5]:[0]:[32]:[172.16.10.9]/224, version 637 Paths: (1 available, best #1) Flags: (0x000002) (high32 00000000) on xmit-list, is not in 12rib/evpn Advertised path-id 1 Path type: local, path is valid, is best path, no labeled nexthop Gateway IP: 0.0.0.0 AS-Path: NONE, path locally originated 192.168.13.1 (metric 0) from 0.0.0.0 (192.168.3.3) Origin incomplete, MED 0, localpref 100, weight 32768 Received label 303030 Extcommunity: RT:65000:303030 ENCAP:8 Router MAC:6026.aa85.9887 Path-id 1 advertised to peers: 192.168.0.11

步驟 8.驗證環回介面的IP地址是否已注入DHCP伺服器所在的BGP L2VPN EVPN中。



注意:如果vPC中有Nexus交換機,請確認它們都獲取BGP L2VPN EVPN中環回介面的 IP地址。

LEAF-1-VPC# show bgp 12vpn evpn 172.16.10.9 BGP routing table information for VRF default, address family L2VPN EVPN Route Distinguisher: 192.168.3.3:4 (L3VNI 303030) BGP routing table entry for [5]:[0]:[32]:[172.16.10.9]/224, version 637 Paths: (1 available, best #1) Flags: (0x000002) (high32 0000000) on xmit-list, is not in 12rib/evpn Advertised path-id 1 Path type: local, path is valid, is best path, no labeled nexthop Gateway IP: 0.0.0.0 AS-Path: NONE, path locally originated 192.168.13.1 (metric 0) from 0.0.0.0 (192.168.3.3) Origin incomplete, MED 0, localpref 100, weight 32768 Received label 303030 Extcommunity: RT:65000:303030 ENCAP:8 Router MAC:6026.aa85.9887 Path-id 1 advertised to peers: 192.168.0.11

步驟 9. 使用命令show ip route [DHCP server IP] vrf[tenant vrf]驗證源租戶上是否存在DHCP伺服器的路由。



注意:要使用的路由條目必須從VxLAN到預設VRF。如果沒有可用的路由,請檢查VTEP在 本機是否知道DCHP伺服器IP位址。

```
LEAF-1-VPC# show running-config interface vlan 10
interface Vlan10
no shutdown
vrf member tenant-a <<<< source tenant
no ip redirects
ip address 10.10.10.1/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
ip dhcp relay address 10.10.10.150
ip dhcp relay source-interface loopback100
LEAF-1-VPC# show ip route 10.10.10.150 vrf tenant-a</pre>
```

```
10.10.10.150/32, ubest/mbest: 1/0, attached
*via 10.10.10.150, Vlan10, [190/0], 6d07h, hmm
```
步驟 10.使用命令ping [DHCP server IP] source-interface loopback [x] vrf [tenvrf],驗證是否可使用 環回介面和相應的VRF作為VRF源訪問DCHP伺服器IP。

LEAF-1-VPC# ping 10.10.10.150 source-interface loopback 100 vrf tenant-a PING 10.10.10.150 (10.10.10.150): 56 data bytes 64 bytes from 10.10.10.150: icmp\_seq=0 ttl=126 time=0.965 ms 64 bytes from 10.10.10.150: icmp\_seq=1 ttl=126 time=0.57 ms 64 bytes from 10.10.10.150: icmp\_seq=2 ttl=126 time=0.488 ms 64 bytes from 10.10.10.150: icmp\_seq=3 ttl=126 time=0.524 ms 64 bytes from 10.10.10.150: icmp\_seq=4 ttl=126 time=0.502 ms

--- 10.10.10.150 ping statistics ---

步驟 11.檢驗DHCP中繼代理的狀態。

LEAF-1-VPC# show ip dhcp status Current CLI Operation: show ip dhcp status Last CLI Operation: DME: ip dhcp relay information option vpn enable Last CLI Operation Status: SUCCESS

步驟 12.驗證選項82(例如vpn選項)和中繼代理下的正確中繼IP地址。

LEAF-1-VPC# show ip dhcp relay DHCP relay service is enabled <<<<< Insertion of option 82 is enabled <<<<<< Insertion of option 82 customize circuitid is disabled TLV format in CircuitId and RemoteId suboptions is enabled Insertion of VPN suboptions is enabled <<<<<< Insertion of cisco suboptions is disabled Global smart-relay is disabled Relay Trusted functionality is disabled Relay Trusted Port is Globally disabled V4 Relay Source Address HSRP is Globally disabled Server-ID-override-disable is disabled

Smart-relay is enabled on the following interfaces:

Subnet-broadcast is enabled on the following interfaces:

Relay Trusted Port is enabled on the following interfaces:

Relay Source Address HSRP is enabled on the following interfaces:

Helper addresses	are configured o	n the following	interfaces:
Interface	Relay Address	VRF Name	
Vlan10	10.10.10.150	<<<<<<	

# 步驟 13.檢驗已處理和已轉發的資料包的統計資訊。

LEAF-1-VPC# show ip dhcp global statistics Packets processed 263162 Packets received through cfsoe 0 Packets forwarded 263161 Packets forwarded on cfsoe 0 Total packets dropped 0 Packets dropped from untrusted ports 0 Packets dropped due to MAC address check failure 0 Packets dropped due to Option 82 insertion failure 0 Packets dropped due to o/p intf unknown 0 Packets dropped which were unknown 0 Packets dropped due to no trusted ports 0 Packets dropped due to dhcp relay not enabled 0 Packets dropped due to no binding entry 0 Packets dropped due to interface error/no interface 0 Packets dropped due to max hops exceeded 0 Packets dropped due to Queue full 0

# 步驟 14.檢驗中繼資料包的統計資訊。

### LEAF-1-VPC# show ip dhcp relay statistics

Message Type	Rx	Tx		Drops	
Discover	8	7		0	
Offer	29304	29304		0	
Request(*)	5029	5029		0	
Ack	6535	6535		0	
Release(*)	191482	191482		0	
Decline	0	0		0	
Inform(*)	3	3		0	
Nack	29281	29281		0	
Total	261642	261641		0	
Total Packate	Pacaivad			0	
Total Packets	Forwarded			0	
Total Packets Non DHCP:	Dropped		:	0	
Total Packets	Received		:	0	
Total Packets	Forwarded		:	0	
Total Packets DROP:	Dropped		:	0	
DHCP Relay no	t enabled		:	0	

Invalid DHCP message type	:	0
Interface error	:	0
Tx failure towards server	:	0
Tx failure towards client	:	0
Unknown output interface	:	0
Unknown vrf or interface for server	:	0
Max hops exceeded	:	0
Option 82 validation failed	:	0
Packet Malformed	:	0
DHCP Request dropped on MCT	:	0
Relay Trusted port not configured	:	0
* - These counters will show correct value	when swite	:h
receives DHCP request packet with destination	ip as bro	badcast
address. If request is unicast it will be HW	switched	

# 枝葉2-vPC DHCP

步驟 1.啟用功能DCHP。

LEAF-2-VPC(config)# feature dhcp



注意:自NX-OS 7.x以來,DHCP伺服器和中繼代理命令service dhcp、ip dhcp relay和ipv6 dhcp relay預設處於啟用狀態。

步驟 2.應用命令「ip dhcp relay information option」。

LEAF-2-VPC(config)# ip dhcp relay information option



注意:使用此命令,DHCP中繼代理可以插入和刪除選項82有關轉發資料包的資訊。

步驟 3.應用命令「ip dhcp relay information option vpn」。

LEAF-2-VPC(config)# ip dhcp relay information option vpn



注意:此命令用於啟用到達該DHCP伺服器所屬的不同VRF的DHCP中繼請求。

步驟 4.應用命令「ip dhcp relay address [DCHP server的ip地址]」。



注意:在本示例中,DCHP伺服器的IP地址為10.10.10.150。

LEAF-2-VPC(config)# interface vlan 10
LEAF-2-VPC(config-if)# ip dhcp relay address 10.10.10.150

步驟 5.應用命令「ip dhcp relay source-interface [unique loopback]」。



注意:此命令配置DHCP中繼代理的源IP地址,以針對單播通訊處理Discover、Offer、 Request和ACK,DHCP中繼代理將SVI的IP地址用作DHCP中繼代理的源IP地址。這是不需 要的,因為此IP地址由多個VTEP共用,並且可能會發生DHCP資料包的黑洞。要避免這種 情況,需要使用唯一的IP地址(使用環回介面)來區分每個VTEP。

LEAF-2-VPC(config)# interface vlan 10
LEAF-2-VPC(config-if)# ip dhcp relay source-interface loopback 100

步驟 6.在BGP內對應的VRF租戶中,使用字首清單和路由對映(包括環回介面的IP地址)直接進行路由重分配。



注意:此環回介面屬於SVI的租戶。

LEAF-2-VPC(config-if)# show running-config interface loopback 100
interface loopback100
vrf member tenant-a
ip address 172.16.10.10/32
LEAF-2-VPC(config)# ip prefix-list host\_subnets seq 15 permit 172.16.10.10/32
LEAF-2-VPC(config)# route-map direct\_routes\_tenant-a permit 10
LEAF-2-VPC(config-route-map)# match ip address prefix-list host\_subnets
LEAF-2-VPC(config-route-map)# router bgp 65000
LEAF-2-VPC(config-router)# vrf tenant-a
LEAF-2-VPC(config-router-vrf)# address-family ipv4 unicast
LEAF-2-VPC(config-router-vrf-af)# redistribute direct route-map direct\_routes\_tenant-a

步驟 7.使用命令show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]驗證是否已在BGP L2VPN EVPN中向主幹通告環回介面的IP地址。

LEAF-2-VPC(config-if)# show bgp 12vpn evpn 172.16.10.10 vrf tenant-a BGP routing table information for VRF default, address family L2VPN EVPN Route Distinguisher: 192.168.4.4:4 (L3VNI 303030) BGP routing table entry for [5]:[0]:[32]:[172.16.10.10]/224, version 49 5 Paths: (1 available, best #1) Flags: (0x000002) (high32 0000000) on xmit-list, is not in 12rib/evpn Advertised path-id 1 Path type: local, path is valid, is best path, no labeled nexthop Gateway IP: 0.0.0.0 AS-Path: NONE, path locally originated 192.168.13.2 (metric 0) from 0.0.0.0 (192.168.4.4) Origin incomplete, MED 0, localpref 100, weight 32768 Received label 303030 Extcommunity: RT:65000:303030 ENCAP:8 Router MAC:6026.aa85.9587 Path-id 1 advertised to peers: 192.168.0.11 <<<<< Spine

步驟 8.驗證環回介面的IP地址是否已注入DHCP伺服器所在的BGP L2VPN EVPN中。



注意:如果vPC中有Nexus交換機,請確認它們都獲取BGP L2VPN EVPN中環回介面的 IP地址。

LEAF-2-VPC(config-if)# show bgp 12vpn evpn 172.16.10.10 BGP routing table information for VRF default, address family L2VPN EVPN Route Distinguisher: 192.168.4.4:4 (L3VNI 303030) BGP routing table entry for [5]:[0]:[32]:[172.16.10.10]/224, version 49 5 Paths: (1 available, best #1) Flags: (0x000002) (high32 0000000) on xmit-list, is not in 12rib/evpn Advertised path-id 1 Path type: local, path is valid, is best path, no labeled nexthop Gateway IP: 0.0.0.0 AS-Path: NONE, path locally originated 192.168.13.2 (metric 0) from 0.0.0.0 (192.168.4.4) Origin incomplete, MED 0, localpref 100, weight 32768 Received label 303030 Extcommunity: RT:65000:303030 ENCAP:8 Router MAC:6026.aa85.9587 Path-id 1 advertised to peers: 192.168.0.11

步驟 9.使用命令show ip route [DHCP server IP] vrf[tenvrf]驗證源租戶上是否存在DHCP伺服器的路 由。



注意:要使用的路由條目必須從VxLAN到預設VRF。如果沒有可用的路由,請檢查VTEP在 本機是否知道DCHP伺服器IP位址。

LEAF-2-VPC(config-if)# show running-config interface vlan 10
interface Vlan10
no shutdown
vrf member tenant-a
no ip redirects
ip address 10.10.10.1/24
no ipv6 redirects
fabric forwarding mode anycast-gateway
ip dhcp relay address 10.10.10.150
ip dhcp relay source-interface loopback100
LEAF-2-VPC(config-if)# show ip route 10.10.10.150 vrf tenant-a
10.10.150/32, ubest/mbest: 1/0, attached

\*via 10.10.10.150, Vlan10, [190/0], 01:01:28, hmm

步驟 10.使用命令ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf]驗證是否可使 用環回介面和相應的VRF作為VRF源訪問DCHP伺服器IP。

LEAF-2-VPC(config-if)# ping 10.10.10.150 source-interface loopback 100 vrf tenant-a PING 10.10.10.150 (10.10.10.150): 56 data bytes 64 bytes from 10.10.10.150: icmp\_seq=0 ttl=127 time=0.928 ms 64 bytes from 10.10.10.150: icmp\_seq=1 ttl=127 time=0.475 ms 64 bytes from 10.10.10.150: icmp\_seq=2 ttl=127 time=0.455 ms 64 bytes from 10.10.10.150: icmp\_seq=3 ttl=127 time=0.409 ms 64 bytes from 10.10.10.150: icmp\_seq=4 ttl=127 time=0.465 ms

--- 10.10.10.150 ping statistics ---

步驟 11.檢驗DHCP中繼代理的狀態。

LEAF-2-VPC(config)# show ip dhcp status Current CLI Operation: show ip dhcp status Last CLI Operation: DME: ip dhcp relay information option vpn enable Last CLI Operation Status: SUCCESS

步驟 12.驗證選項82(例如vpn選項)和中繼代理下的正確中繼IP地址。

LEAF-2-VPC(config)# show ip dhcp relay DHCP relay service is enabled <<<<<< Insertion of option 82 is enabled <<<<<< Insertion of option 82 customize circuitid is disabled TLV format in CircuitId and RemoteId suboptions is enabled Insertion of VPN suboptions is enabled <<<<<< Insertion of cisco suboptions is disabled Global smart-relay is disabled Relay Trusted functionality is disabled Relay Trusted Port is Globally disabled V4 Relay Source Address HSRP is Globally disabled Server-ID-override-disable is disabled

Smart-relay is enabled on the following interfaces:

Subnet-broadcast is enabled on the following interfaces:

Relay Trusted Port is enabled on the following interfaces:

Relay Source Address HSRP is enabled on the following interfaces:

Helper addresses are configured on the following interfaces:InterfaceRelay AddressVRF Name------------------Vlan1010.10.10.150 <<<</td>

# 步驟 13.檢驗已處理和已轉發的資料包的統計資訊。

LEAF-2-VPC(config)# show ip dhcp global statistics Packets processed 103030 Packets received through cfsoe 0 Packets forwarded 103030 Packets forwarded on cfsoe 0 Total packets dropped 0 Packets dropped from untrusted ports 0 Packets dropped due to MAC address check failure 0 Packets dropped due to Option 82 insertion failure 0 Packets dropped due to o/p intf unknown 0 Packets dropped which were unknown 0 Packets dropped due to no trusted ports 0 Packets dropped due to dhcp relay not enabled 0 Packets dropped due to no binding entry 0 Packets dropped due to interface error/no interface 0 Packets dropped due to max hops exceeded 0 Packets dropped due to Queue full 0

# 步驟 14.檢驗中繼資料包的統計資訊。

LEAF-2-VPC# show ip dhcp relay statistics

Message Type	Rx	Tx		Drops	
Discover	29312	29311		0	
Offer	300001	300001		0	
Request(*)	29324	29324		0	
Ack	1574	1574		0	
Release(*)	191493	191493		0	
Decline	0	0		0	
Inform(*)	1540	1540		0	
Nack	472890	472890		0	
 Total 	1026134	1026133		0	
DHCP L3 FWD:					
Total Packets	Received		:	0	
Total Packets	Forwarded		:	0	
Total Packets Non DHCP:	Dropped		:	0	
Total Packets	Received		:	0	
Total Packets	Forwarded		:	0	
Total Packets DROP:	Dropped		:	0	
DHCP Relay no	t enabled		:	0	

Invalid DHCP message type	:	0
Interface error	:	0
Tx failure towards server	:	0
Tx failure towards client	:	0
Unknown output interface	:	0
Unknown vrf or interface for server	:	0
Max hops exceeded	:	0
Option 82 validation failed	:	0
Packet Malformed	:	0
DHCP Request dropped on MCT	:	0
Relay Trusted port not configured	:	0
* - These counters will show correct value w	when swit	ch
receives DHCP request packet with destination	ip as br	oadcast
address. If request is unicast it will be $\ensuremath{HW}$ s	switched	

# Windows Server 2022上的DHCP伺服器配置

# 主機的IP定址範圍配置。

步驟 1.開啟「伺服器管理員」,並確認儀表板的DCHP伺服器上沒有警報。



來自Windows Server 2022上的伺服器管理器的儀表板



步驟 2.打開DHCP Server應用程式。

# Tea Action View Hole If OPDE <

Windows Server 2022上的DHCP伺服器

THCP

# 步驟 3. 按一下右鍵IPv4並按一下New Scope。

# 👰 ОНСР File Action View Help 🔶 🔶 🔟 🕞 📰 🔒 CHCP Contents of DHCP Status cxlabs-win2k22dc W. . cxlabs-win2k22dc > B IPv4 > 🔓 IP **Display Statistics...** New Scope... New Superscope... New Multicast Scope... **Configure Failover... Replicate Failover Scopes...** Define User Classes... Define Vendor Classes... Reconcile All Scopes... Set Predefined Options... Refresh Properties Help

Г

# 步驟 4.按「Next」(下一步)。

New Scope Wizard	
	Welcome to the New Scope Wizard
	This wizard helps you set up a scope for distributing IP addresses to computers on your network.
	To continue, click Next.
	< Back Next > Cancel

步驟 5.寫下名稱和說明。在本例中,名稱是屬於VLAN 10的子網,說明是L2VNI,作為L2VNI列在 VLAN 10中。

New Scope Wizard				
Scope Name You have to pro a description.	ovide an identifying scope nam	ie. You also have	the option of pro	viding
Type a name an how the scope	nd description for this scope. T is to be used on your network.	his information hel	ps you quickly id	lentfy
Name:	10.10.10.0/24			
Description:	L2VNI 101010			
		< Back	Next >	Cancel

步驟 6.配置IP地址範圍。這是主機的池。

New Scope Wizard
IP Address Range You define the scope address range by identifying a set of consecutive IP addresses.
Configuration settings for DHCP Server
Enter the range of addresses that the scope distributes.
Start IP address: 10 . 10 . 1 . 1
End IP address: 10 . 10 . 254
Configuration settings that propagate to DHCP Client
Length: 24
Subnet mask: 255 . 255 . 255 . 0
< Back Next > Cancel

步驟 6.從VTEP中的SVI配置中排除共用IP地址。在本例中,介面VLAN 10的地址為IP.10.10.1/24。



警告:未能從SVI(或預設網關)中排除IP地址會導致重複IP地址並影響流量傳輸。

LEAF-1# show running-config interface vlan 10 <snip> interface Vlan10 no shutdown vrf member tenant-a no ip redirects ip address 10.10.10.1/24 no ipv6 redirects fabric forwarding mode anycast-gateway ip dhcp relay address 10.10.10.150 ip dhcp relay source-interface loopback100

New Scope Wizard
Add Exclusions and Delay Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCPOFFER message.
Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.
Start IP address:     End IP address:       I     .       I     .       I     .
Excluded address range: Address 10.10.10.1 Remove
Subnet delay in milli second:
< Back Next > Cancel

步驟 7.配置IP地址的租用期限。這是指主機在續約之前可以使用分配的IP地址的時間。

New	Scope Wizard
Le	ase Duration The lease duration specifies how long a client can use an IP address from this scope.
	Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.
	Set the duration for scope leases when distributed by this server.
	Limited to:
	Days: Hours: Minutes:
	< Back Next > Cancel

步驟 8.選擇Yes, I want to configure these options now。

New Scope Wizard
Configure DHCP Options You have to configure the most common DHCP options before clients can use the scope.
When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope. The settings you select here are for this scope and override settings configured in the
Server Options folder for this server. Do you want to configure the DHCP options for this scope now?
Yes, I want to configure these options now     No, I will configure these options later
< Back Next > Cancel

步驟 9.配置預設網關IP地址。

To add an IP address for a	router used by cli	ents, enter the a	ddress below.	
IP address:				
	Add			
10.10.10.1	Remove			
	Up			
	Down			

步驟 10.配置域名和DNS伺服器。

New Scope Wizard		
Domain Name and DNS Servers The Domain Name System (DNS) maps ar on your network.	nd translates domain names used t	by clients
You can specify the parent domain you want the DNS name resolution.	he client computers on your netwo	rk to use for
To configure scope clients to use DNS servers servers.	on your network, enter the IP add	resses for those
Server name:	IP address:	
google.com	142 . 250 . 114 . 102	Add
Resolve		Remove
		Up
		Down
	< Back Next >	Cancel

步驟 11.配置WINS伺服器(如果適用)。如果資訊未知,則可以跳過此步驟。

New Scope Wizard	
WINS Servers Computers running Windows can use WINS s names to IP addresses.	ervers to convert NetBIOS computer
Entering server IP addresses here enables Wir broadcasts to register and resolve NetBIOS na	ndows clients to query WINS before they use imes.
Server name:	IP address:
	Add
Resolve	Remove
	Up
	Down
To change this behavior for Windows DHCP o Type, in Scope Options.	lients modify option 046, WINS/NBT Node
	< Back Next > Cancel

步驟 12.選擇Yes, I want to activate this scope now。

New Scope Wizard Activate Scope Clients can obtain address leases only if a scop	e is activated.
Do you want to activate this scope now? (* Yes, I want to activate this scope now) (* No, I will activate this scope later	
	< Back Next > Cancel

將SVI中環回的唯一IP地址的範圍配置為DCHP中繼代理。

步驟 1.按一下右鍵IPv4並選擇IPv4Scope。



DCHP中的新作用域

步驟 2.寫下名稱和說明。在本示例中, name是用於具有環回地址的子網的子網。



IPte:在VxLAN租戶的整個VxLAN交換矩陣中,環回使用環回唯一IP地址。這必須在 BGP中的BGP L2VPN EVPN路由重分配中通告,BGP位於IPv4 address-famIPv4中相應租 戶的VRF內

LEAF-1# show running-config interface loopback 100
<snip>
interface loopback100
vrf member tenant-a
ip address 172.16.10.8/32

New Scope Wizard	
Scope Name You have to pr a description.	ovide an identifying scope name. You also have the option of providing
Type a name a how the scope	nd description for this scope. This information helps you quickly identify is to be used on your network.
Name:	172.16.10.0/24
Description:	Unique IP Gateway Address (SVI)
	< Back Next > Cancel

步驟 3. 配置IP地址範圍IP。這是環回的池。

New Scope Wizard	
IP Address Range You define the scope address range by identifying a set of consecutive IP addresses.	
Configuration settings for DHCP Server	
Enter the range of addresses that the scope distributes.	
Start IP address: 172 . 16 . 10 . 1	
End IP address: 172 . 16 . 10 . 254	
Configuration settings that propagate to DHCP Client	
Length: 24	
Subnet mask: 255 . 255 . 255 . 0	
< Back Next > Cancel	

步驟 4.配置排除(可選,因為DHCP伺服器租用的是屬於此子網的IP地址)。

New Scope Wizard
Add Exclusions and Delay Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCPOFFER message.
Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.
Start IP address:     End IP address:       I     I       I     I       I     I
Excluded address range:           Remove
Subnet delay in milli second:
< Back Next > Cancel

步驟 5.跳過租用期限,然後按一下下一步。

New Scope Wizard	
Lease Duration The lease duration specifies how long a client can use an IP address from this scope.	Ţ
Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.	
Set the duration for scope leases when distributed by this server. Limited to:	
Days: Hours: Minutes:	
< Back Next > Canc	el

步驟 6.選擇No, I will configure these options later。

New Scope Wizard	
Configure DHCP Options You have to configure the most common DHCP options before clients can use the scope.	
When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.	
The settings you select here are for this scope and override settings configured in the Server Options folder for this server.	
Do you want to configure the DHCP options for this scope now?	
C Yes, I want to configure these options now	
No, I will configure these options later	
< Back Next > Cancel	

步驟 7.按一下「Finish」(結束)。



步驟 8.在建立的範圍上按一下滑鼠右鍵,然後選取啟動。


為VxLAN交換矩陣配置超級作用域。

步驟 1.按一下右鍵IPv4並選擇New Superscope。

File Action V	liew Help				
🔶 🔶 👘 👘	🛛 🖸 🖓 🔒 🖬 🗖 🗖 🗖	æ			
the state of	Chipping Statistics New Scope New Scope New Scope New Multicast Scope Configure Failover Replicate Failover Define User Classes Define User Classes Define Vier Classes Set Predefined Options View Rafresh Export List Properties	Contents of DHCP Server Score (VT2.16.10.0/04 Songe (VT2.16.10.0/04 Server Options Pulicies Philos	Status Active Active	Description Unique IP Gateway Address (DV) L2VMI 101010	Falove Relationship
	Help				

### 步驟 2.按「Next」(下一步)。

📜 Dech

# New Superscope Wizard Welcome to the New Superscope With the second sec

New Superscope Wizard						
Superscope You hav	e Name e to provide an identifying superscope name.					
N <u>a</u> me:	Scopes for VxLAN Fabric (with Opt 82)					
	< <u>B</u> ack <u>N</u> ext > Cancel					

步驟 4.選擇屬於VxLAN交換矩陣的所有作用域。

New Superscope Wizard
Select Scopes You create a superscope by building a collection of scopes.
Select one or more scopes from the list to add to the superscope. Available scopes:
[10.10.10.0] 10.10.10.0/24 [172.16.10.0] 172.16.10.0/24
< <u>B</u> ack <u>N</u> ext > Cancel

步驟 5.選擇屬於VxLAN交換矩陣的所有作用域。

New Superscope Wizard					
Select Scopes You create a superscope by building a collection of scopes.					
Select one or more scopes from the list to add to the superscope. Available scopes:					
[10.10.10.0] 10.10.10.0/24 [172.16.10.0] 172.16.10.0/24					
< <u>B</u> ack <u>N</u> ext > Cancel					

步驟 6.驗證是否所有VxLAN交換矩陣超級作用域都已就位,然後按一下完成。

New Superscope Wizard			
	Completing the New Superscope Wizard		
You have successfully completed the New Superscope wizard.			
	The following superscope will be created:		
Name: Scopes for VxLAN Fabric (with Opt 82)			
	Scopes included in this superscope: [10.10.10.0] 10.10.10.0/24 [172.16.10.0] 172.16.10.0/24		
	To close this wizard, click Finish.		
	< <u>B</u> ack Finish Cancel		

# 在主機範圍內配置選項82。

步驟 1.按一下右鍵主機範圍內的策略(最後一個選項),然後按一下New Policy。

DHCP							
File Action View Help							
🕈 🔶 🙇 📷 🗟 🕞 🛛							
2 DHCP			Policy Name	Description	Processin	Level	Address Range
v 👔 estabo-win2k22de							
🗸 🚡 1944						Date are no	a items to show in this view.
🗸 🧾 Superscope Sco	pes for VicLAN Fab	ric (with Opt I	23				
🗸 📫 Scope (10.10	10.0 10.10.00.00						
Contract Pool							
Address	40045						
) 🛋 Reservati	076						
🛄 Scope Op	nions						
> Scope (17	New Policy						
Server Option	Deactivate						
Policies View > > 10 Fibers							
> 🔓 IP46	Refresh						
	Expert List						
	Help						



注意:在本示例中,建立策略是為了為VNI 101010 basedVNI Remote-ID(選項82的引數 )的枝葉1中的主機選擇IP編址palPicorly。

DHCP Policy Configuration Wizard						
Policy based IP /	Address and Option Assignment					
This feature allow clients based on c	s you to distribute configurable settings (IP address, DHCP options) to sertain conditions (e.g. vendor class, user class, MAC address, etc.).					
This wizard will gu Configuration Polic policy.	ide you setting up a new policy. Provide a name (e.g. VoIP Phone cy) and description (e.g. NTP Server option for VoIP Phones) for your					
Policy Name:	VNI 101010					
Description:	Policy to select scope for Leaf-1 using Remote-ID					
	< Back Next > Cancel					

步驟 3.按一下Add。在Criteria中選擇Relay Agent Information。在運算子中,選擇等於。然後選擇 Agent Remote ID並鍵入值。按一下OK,然後按一下Next。



註:遠端ID是從SVII關聯的SVI的MAC地址獲取的。



提示:透過增加更多條件並選擇OR而不是AND,可以將策略應用於多個遠端ID(或 VTEP)。

LEAF-1# show interface vlan 10 Vlan10 is up, line protocol is up, autostate enabled Hardware is EtherSVI, address is 707d.b9b8.4daf <<<< Internet Address is 10.10.10.1/24 <snip>

DHCP Policy Configuration Wizard		
Cor Add/Edit Condition	?	× S
Specify a condition for the policy being configured. Select a criteria, and values for the condition. Criteria: Relay Agent Information Operator: Equals Value (in hex) Relay Agent Information: Agent Circuit ID: Agent Circuit ID: Agent Remote ID: 707db3b84daf Subscriber ID: Prefix wildcard(*) Append wildcard(*)	operator	
<pre>Call</pre>	ice	Cancel

步驟 4.對透過ID選擇的VTEP配置現有IP可以使用的IP地址,然後按一下Next。



注意:在本示例中,只有一個虛擬機器連線到Leaf-1,因此只有一個IP地址需要IPd。此處 增加第二個IP地址,以防另一台主機連線。

DHCP Policy Configuration Wizard
Configure settings for the policy If the conditions specified in the policy match a client request, the settings will be applied.
A scope can be subdivided into multiple IP address ranges. Clients that match the conditions defined in a policy will be issued an IP Address from the specified range. Configure the start and end IP address for the range. The start and end IP addresses for the range must be within the start and end IP addresses of the scope. The current scope IP address range is 10.10.10.1 - 10.10.10.254 If an IP address range is not configured for the policy, policy clients will be issued an IP address from the scope range. Do you want to configure an IP address range for the policy:
Start IP address:       10.10.10.2         End IP address:       10.10.3         Percentage of IP address range:       0.8
< Back Next > Cancel

步驟 5.選擇DCHP Standard Option下003路由器左側的框。然後寫下屬於此策略的主機的預設網關的IP地址,然後按Add。按「Next」(下一步)。



注意:您可以選取多個選項,但是如果您不確定要輸入哪個值,請不要這樣做。配置不一 致或錯誤可能導致意外行為。

DHCP Policy Configuration	on Wizard	
Configure settings for If the conditions speciapplied.	r the policy cified in the policy mate	ch a client request, the settings will be
Vendor class:	DHCP Standard Op	otions 💌
Available Options		Description
002 Time Offset		UTC offset in seconds
003 Router		Array of router addresses order
C 004 Time Server		Array of time server addresses, ~
Data entry		
Server name:		
		Resolve
IP address:		
	Add	
10.10.10.1	Remove	
	Up	
	Down	
		< Back Next > Cancel

# 步驟 6.檢查策略條件並按一下Finish。

PHCP								-	0	×
File Action View Help										
C DHCP	Policy Name	Description	Processin	Level	Address Ranne	State	Actions	_	_	-
CXLabs-WIN2K22DC	VNI 101010	Policy to select scope for Leaf-1 using Remote-ID	1	Scope	10.10.10.2 - 10.10.10.3	Enabled	Policies			
<ul> <li>IPv4</li> <li>Superscope Scopes for VxLAN Fabric (with Opt 82)</li> <li>Scope [10.10.10.0] L2VNI 101010</li> <li>Address Leases</li> <li>Reservations</li> <li>Scope (172.16.10.0] 172.16.10.0/24</li> <li>Address Pool</li> <li>Address Pool</li> <li>Address Pool</li> <li>Address Pool</li> <li>Scope Options</li> <li>Scope Options</li> <li>Scope Options</li> <li>Server Options</li>     &lt;</ul>							More Actions			,

DCHP資料包在VxLAN交換矩陣中從頭到尾進行遍歷。

發現由HOST-1傳送

```
Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff
> Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255
> User Datagram Protocol, Src Port: 68, Dst Port: 67

    Dynamic Host Configuration Protocol (Discover)

    Message type: Boot Request (1)
    Hardware type: Ethernet (0x01)
    Hardware address length: 6
    Hops: 0
    Transaction ID: 0xe9e35087
    Seconds elapsed: 0

    Bootp flags: 0x8000, Broadcast flag (Broadcast)

      1... .... = Broadcast flag: Broadcast
      .000 0000 0000 0000 = Reserved flags: 0x0000
    Client IP address: 0.0.0.0
    Your (client) IP address: 0.0.0.0
    Next server IP address: 0.0.0.0
    Relay agent IP address: 0.0.0.0
    Client MAC address: 00:50:56:a5:fd:dd
    Client hardware address padding: 0000000000000000000
    Server host name not given
    Boot file name not given
    Magic cookie: DHCP

    Option: (53) DHCP Message Type (Discover)

      Length: 1
      <Value: 01>
      DHCP: Discover (1)
  Option: (61) Client identifier
      Length: 7
      <Value: 01005056a5fddd>
      Hardware type: Ethernet (0x01)
      Client MAC address: 00:50:56:a5:fd:dd

    Option: (12) Host Name

      Length: 10
      <Value: 43584c6162732d573130>
      Host Name: CXLabs-W10
  v Option: (60) Vendor class identifier
      Length: 8
      <Value: 4d53465420352e30>
      Vendor class identifier: MSFT 5.0

    Option: (55) Parameter Request List

      Length: 14
      <Value: 0103060f1f212b2c2e2f7779f9fc>
      Parameter Request List Item: (1) Subnet Mask
      Parameter Request List Item: (3) Router
      Parameter Request List Item: (6) Domain Name Server
      Parameter Request List Item: (15) Domain Name
      Parameter Request List Item: (31) Perform Router Discover
      Parameter Request List Item: (33) Static Route
      Parameter Request List Item: (43) Vendor-Specific Information
      Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
      Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
      Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
      Parameter Request List Item: (119) Domain Search
      Parameter Request List Item: (121) Classless Static Route
      Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
      Parameter Request List Item: (252) Private/Proxy autodiscovery

    Option: (255) End

      Option End: 255
    Padding: 000000000000000000
```

# 在LEAF-1上發現

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在LEAF-1上收到的發現	發現由LEAF-1傳送
	<ul> <li>Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97</li> <li>Internet Protocol Version 4, Src: 5.5.5, Dst: 13.13.13.254</li> <li>User Datagram Protocol, Src Port: 65233, Dst Port: 4789</li> <li>Virtual Extensible Local Area Metwork</li> </ul>
	> Flags: 0x0800, VXLAN Network ID (VNI) Group Policy ID: 0
Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff: Internet Protocol Version 4. Src: 0.0.0.0. Dst: 255.255.255.255	VXLAN Network Identifier (VNI): 303030 Reserved: 0
> User Datagram Protocol, Src Port: 68, Dst Port: 67	Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:de Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.150
<ul> <li>Dynamic Host Configuration Protocol (Discover)</li> </ul>	User Datagram Protocol, Src Port: 67, Dst Port: 67 Opnamic Host Configuration Protocol (Discover)
Hardware type: Ethernet (0x01)	Message type: Boot Request (1)
Hardware address length: 6	Hardware type: Ethernet (0x01) Hardware address length: 6
Hops: 0	Hops: 1 Transaction ID: 0xe9e35087
Seconds elapsed: 0	Seconds elapsed: 0 Booto flags: 0x8000, Broadcast flag (Broadcast)
<ul> <li>Bootp flags: 0x8000, Broadcast flag (Broadcast)</li> </ul>	Client IP address: 0.0.0
1 = Broadcast flag: Broadcast	Next server IP address: 0.0.0.0
Client IP address: 0.0.0.0	Relay agent IP address: 172.16.10.8 Client MAC address: 00:50:56:a5:fd:dd
Your (client) IP address: 0.0.0.0	Client hardware address padding: 000000000000000000000000000000000000
Next server IP address: 0.0.0.0	Boot file name not given
Client MAC address: 00:50:56:a5:fd:dd	<pre>v Option: (53) DHCP Message Type (Discover)</pre>
Client hardware address padding: 00000000000000000000	Length: 1 <value: 01=""></value:>
Server host name not given	DHCP: Discover (1)
Boot file name not given Magic cookie: DHCP	Length: 7
<ul> <li>Option: (53) DHCP Message Type (Discover)</li> </ul>	<value: 01005056563fddd=""> Hardware type: Ethernet (0x01)</value:>
Length: 1	Client MAC address: 00:50:56:a5:fd:dd ~ Option: (12) Host Name
<value: 01=""> DHCP: Discover (1)</value:>	Length: 10
Option: (61) Client identifier	Host Name: CXLabs-W10
Length: 7	Option: (60) Vendor class identifier Length: 8
<value: 01005056a5fddd=""></value:>	<value: 4d53465420352e30=""> Vendor class identifier: MSET 5.0</value:>
Client MAC address: 00:50:56:a5:fd:dd	<ul> <li>Option: (55) Parameter Request List</li> </ul>
Option: (12) Host Name	<pre>Length: 14 <value: 0103060f1f212b2c2e2f7779f9fc=""></value:></pre>
Length: 10	Parameter Request List Item: (1) Subnet Mask Parameter Request List Item: (3) Router
Host Name: CXLabs-W10	Parameter Request List Item: (6) Domain Name Server
v Option: (60) Vendor class identifier	Parameter Request List Item: (31) Perform Router Discover
Length: 8	Parameter Request List Item: (33) Static Route Parameter Request List Item: (43) Vendor-Specific Information
Vendor class identifier: MSFT 5.0	Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
<ul> <li>Option: (55) Parameter Request List</li> </ul>	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
Length: 14	Parameter Request List Item: (12) Domain Search Parameter Request List Item: (121) Classless Static Route
Parameter Request List Item: (1) Subnet Mask	Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery
Parameter Request List Item: (3) Router	Option: (82) Agent Information Option Length: 47
Parameter Request List Item: (6) Domain Name Server	<pre></pre>
Parameter Request List Item: (15) Domain Name Parameter Request List Item: (31) Perform Router Discover	Length: 14
Parameter Request List Item: (33) Static Route	<value: 0108000600018a9200a00000000=""> Agent Circuit ID: 0108000600018a9200a00000000</value:>
Parameter Request List Item: (43) Vendor-Specific Information	<ul> <li>Option 82 Suboption: (2) Agent Remote ID</li> <li>Length: 6</li> </ul>
Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type	<value: 707db9b84daf=""></value:>
Parameter Request List Item: (47) NetBIOS over TCP/IP Scope	Option 82 Suboption: (151) VRF name/VPN ID
Parameter Request List Item: (119) Domain Search	Length: 9 <value: 0074656e616e742d61=""></value:>
Parameter Request List Item: (121) Classless Static Route Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)	VRF name: [Event Info (Warning/Underoded): Trailing stray characters]
Parameter Request List Item: (252) Private/Proxy autodiscovery	• Option 82 Suboption: (11) Server ID Override (10.10.10.1)
> Option: (255) End	Length: 4 <value: 0a0a0a01=""></value:>
Padding: 00000000000000000	Server ID Override: 10.10.10.1 ~ Option 82 Suboption: (5) Link selection (10.10.10.0)
	Length: 4
	Link selection: 10.10.10.0
	Padding: 000000000000000



提示:連按兩下時,影像會放大。

# 脊柱上的發現

在主幹上收到發現 探索由SPINE傳送

Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 New Determon Protocol Version 4, Src: 5.7.5.7 Dete 130-05	Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 60:26:aa:85:98:87 Internet Protocol Version 4, Src: 5, 5, 5, 5, Det: 13, 13, 13, 254
> User Datagram Protocol, Src Port: 65233, USt Port: 4789 > Virtual eXtensible Local Area Network > Flaos: 8x8880.VXLN Network IV (VNI)	User Datagram Protocol, Src Port. 65233, Dst Port: 4789     Virtual extensible Local Area Network
Group Policy ID: 0 VXLAN Network Identifier (VNI): 303030	> Flags: 0x0800, VXLAN Network ID (WNI) Group Policy ID: 0
Reserved: 0 > Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:d6:0d:fe > Totorret Rotoral Marrian 4 Sec. 173 15 10 0 Dtt. 10 10 15 10	VXLAN Network Identifier (VNI): 303030 Reserved: 0 Ethernet II. Src: 70:7d:50:58:4d:af. Dst: 02:00:0d:0d:0d:fe
User Datagram Protocol, Src Port: 67, Dst Port: 67 Ovnamic Host Configuration Protocol (Discover)	Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 User Datagram Protocol, Src Port: 67, Dst Port: 67
Message type: Boot Request (1) Hardware type: Ethernet (0x01)	<ul> <li>Dynamic Host Configuration Protocol (Discover)</li> <li>Message type: Boot Request (1)</li> <li>Hardware type: Francest (9×01)</li> </ul>
Hardware address length: 6 Hops: 1 Transaction ID: Avege35887	Hardware dderess length: 6 Hops: 1
Seconds elapsed: 0 > Bootp flags: 0x8000, Broadcast flag (Broadcast)	Transaction ID: 0xe9e35087 Seconds elapsed: 0
Client IP address: 0.0.00 Your (client) IP address: 0.0.00	> Bootp flags: 0x8000, Broadcast flag (Broadcast) Client IP address: 0.0.0.0 Your (client) IP address: 0.0.0.0
Next server 1P address: 0.0.0 Relay agent IP address: 172.16.10.8 Client MAC address: 00:50:56:a5:rdidd	Next server IP address: 0.0.0.0 Relay agent IP address: 172.16.10.8
Client hardware address padding: 000000000000000000000000000000000000	Client MAC address: 00:50:56:a5:fd:dd Client hardware address padding: 0000000000000000000
Boot Tile name not given Magic cookie: DHCP • Ontion: (53) DHCP Messame Type (Discover)	Boot file name not given Magic cookie: DHCP
Length: 1 <value: 01=""></value:>	<ul> <li>Option: (53) DHCP Message Type (Discover) Length: 1</li> </ul>
DHCP: Discover (1) • Option: (61) Client identifier legeth 7	NHCP: Discover (1) Option: (61) Client identifier
<value: 01005056a5fddd=""> Hardware type: Ethernet (0x01)</value:>	Length: 7 <value: 01005056a5fddd=""></value:>
Client MAC address: 00:50:56:a5:fd:dd < Option: (12) Host Name	Hardware type: Ethernet (0x01) Client MAC address: 00:50:56:a5:fd:dd
Length: 10 <value: 43584c6162732d573130=""> Host Name: CXLabs—VID</value:>	Length: 10 <value: 43584c6162732d573130=""></value:>
<ul> <li>Option: (60) Vendor class identifier Length: 8</li> </ul>	Host Name: CXLabs-W10 · Option: (60) Vendor class identifier
<value: 4d53465420352e30=""> Vendor class identifier: MSFT 5.0</value:>	<value: 4d53465420352e30=""> Vendor class identifier: MSFT 5.0</value:>
<pre>v0pi10ff (55) Parameter Request List Length: 14 <value: 0103060f1f212b2c2e2f7779f9fc=""></value:></pre>	<ul> <li>Option: (55) Parameter Request List Length: 14</li> </ul>
Parameter Request List Item: (1) Subnet Mask Parameter Request List Item: (3) Router	<pre>value: 010000011212022e1//99105 Parameter Request List Item: (1) Subnet Mask Parameter Request List Item: (3) Router</pre>
Parameter Request List Item: (b) Domain Name Server Parameter Request List Item: (15) Domain Name Parameter Request List Item: (31) Perform Router Discover	Parameter Request List Item: (6) Domain Name Server Parameter Request List Item: (15) Domain Name
Parameter Request List Item: (33) Static Route Parameter Request List Item: (43) Vendor-Specific Information	Parameter Request List Item: (31) Perform Router Discover Parameter Request List Item: (33) Static Route Parameter Request List Item: (43) Vendor-Specific Information
Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type Parameter Request List Item: (47) NetBIOS over TCP/IP Scope	Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
Parameter Request List Item: (119) Domain Search Parameter Request List Item: (121) Classless Static Route	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search Parameter Request List Item: (121) Classless Static Route
Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery	Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery
<ul> <li>Option: Co2/ agent information option</li> <li>Length: 47</li> <li><value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:></li> </ul>	<ul> <li>Option: (82) Agent Information Option         Length: 47         Length: 47         Advance: 01001020000000000000000000000000000000</li></ul>
<ul> <li>Option 82 Suboption: (1) Agent Circuit ID Length: 14</li> </ul>	<ul> <li>Value: 0100100000000000000000000000000000000</li></ul>
<value: 01080000000018a9200a00000000<br="">Agent Circuit ID: 0108000600018a9200a000000000 - Ontion 82 Subnotion: (2) Anerga Remote ID</value:>	<value: 0108000600018a9200a00000000=""> Agent Circuit ID: 0108000600018a9200a0000000</value:>
Length: 6 <value: 707db9b84daf=""></value:>	<pre>v uprion 82 Sundorion: (2) Agent Remote ID Length: 6 <value: 049b88daf="" 707=""></value:></pre>
Agent Remote ID: 707db9b84daf • Option 82 Suboption: (151) VRF name/VPN ID Length: 9	Agent Remote ID: 707db9b84daf V Option 82 Suboption: (151) VRF name/VPN ID
<pre></pre> <pre>&lt;</pre>	Length: 9 <value: 00746566616e742d61=""> </value:>
<pre>&gt; [Expert Info (Warning/Undecoded): Trailing stray characters] &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)   control 4</pre>	<ul> <li>[Expert Info (Warning/Undecoded): Trailing stray characters]</li> <li>Option 82 Suboption: (11) Server ID Override (10.10.10.1)</li> </ul>
<value: 0a0a0a01=""> Server ID Override: 10.10.10.1</value:>	Length: 4 <value: 0a0a0a01=""> Server ID Override: 10.10.10.1</value:>
Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 «Value: 0000000»	<ul> <li>Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4</li> </ul>
Link selection: 10.10.10.00	<value: 00000000=""> Link selection: 10.10.0</value:>
Option End: 255 Padding: 00000000000000000	Padding: 0000000000000000

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# 在LEAF-1-vPC上發現

在LEAF-1-vPC上收到的發現	由LEAF-1-vPC傳送的發現
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Ethernet II, Src: 10:D3:06:84:85:97, Dst: 60:26:88:85:98:87	> Ethernet II, Src: 60:26:aa:85:98:87, Dst: 00:50:56:a5:dc:ca
> Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254	Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150
User Datagram Protocol, Src Port: 65233, Dst Port: 4789	liser Datagram Protocol Src Port: 67 Dat Port: 67
Vietnal avtancibla Local Area Naturak	user batagram Frotocot, Stc Port: 07
Virtual extensione Local AFEA NECKOTK	Uynamic Host Configuration Protocol (Discover)
> Flags: 0x0800, VXLAN Network ID (VNI)	Message type: Boot Request (1)
Group Policy ID: 0	Hardware type: Ethernet (0x01)
VXLAN Network Identifier (VNI): 303030	Ward are address leads 6
Presented A	hardware address length: 6
Reserved: 0	Hops: 1
> Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe	Transaction ID: 0xe9e35087
Internet Protocol Version 4, Src: 172, 16, 10, 8, Dst: 10, 10, 10, 150	Forende al anno 100000000
- Internet (Fordet (Fisien 4) Ster All Die Die 1 (11) (11) (11)	seconds etapsed: 0
User Datagram Protocol, Src Port: 67, Dst Port: 67	<ul> <li>Bootp flags: 0x8000, Broadcast flag (Broadcast)</li> </ul>
V Dynamic Host Configuration Protocol (Discover)	1 = Broadcast flag: Broadcast
Message type: Boot Request (1)	200,0000,0000,0000 = December 1 2 and 1 2 an
	.000 0000 0000 = Reserved rtags: 0x0000
hardware type: Ethernet (0x01)	Client IP address: 0.0.0.0
Hardware address length: 6	Your (client) IP address: 0.0.0.0
Hops: 1	Next conver TD address 0.0.0.0
Transaction TD: 0ve0e3E007	Next Server 1P address: 0.0.0.0
Transaction iD: 0xe9e35067	Relay agent IP address: 172.16.10.8
Seconds elapsed: 0	Client MAC address: 00:50:56:a5:fd:dd
Booto flags: 0x8000, Broadcast flag (Broadcast)	
Client ID address, 0.0.0.0	ctient hardware address padding: 0000000000000000000
CLEAR IF ADDRESS: 0.0.0.0	Server host name not given
Your (client) IP address: 0.0.0.0	Boot file name not given
Next server IP address: 0.0.0.0	Manie cookie: DHCP
Relay agent TP address: 172 16 18 8	hagit cookie. Dhep
Client MAC address An Co. Co. C. Advad	<ul> <li>option; (55) DRCP Message Type (Discover)</li> </ul>
CTTGUT NWC 900(L622: 00:20:20:30:40:00	Length: 1
Client hardware address padding: 00000000000000000000	<value: 01=""></value:>
Server host name not given	DUCD. Discourse (1)
Boot file some not given	UNCP: DISCOVER (1)
DOOL LILE NAME HOL GIVEN	<ul> <li>Option: (61) Client identifier</li> </ul>
Magic cookie: DHCP	Length: 7
<ul> <li>Option: (53) DHCP Message Type (Discover)</li> </ul>	-1(5).00.0100505555fddd
Length: 1	//d/nc: araabababinngs
Long the A	Hardware type: Ethernet (0x01)
<value: 01=""></value:>	Client MAC address: 00:50:56:a5:fd:dd
DHCP: Discover (1)	Ontion: (12) Host Name
Option: (61) Client identifier	option: (12) Host Name
- vyskavni (vaz) eskent avelltilter	Length: 10
Length: 7	<value: 43584c6162732d573130=""></value:>
<value: 01005056a5fddd=""></value:>	Host Name: CVI abs-W10
Hardware type: Ethernet (0x01)	TOST Malle. CALabs-MID
	Option: (60) Vendor class identifier
Client MAC address: 00:50:56:a5:Td:dd	Length: 8
<ul> <li>Option: (12) Host Name</li> </ul>	<value: 4d53d65420352e30=""></value:>
Length: 10	
Value: 42594c6162722d573120-	Vendor class identifier: HSFI 5.0
<value: 31362<="" 3203="" 43364c0102="" td=""><td>v Option: (55) Parameter Request List</td></value:>	v Option: (55) Parameter Request List
Host Name: CXLabs-W10	length: 14
<ul> <li>Option: (60) Vendor class identifier</li> </ul>	
length: 8	<value: 010300011121202c2221="" 9191c=""></value:>
	Parameter Request List Item: (1) Subnet Mask
<value: 4053465420352e30=""></value:>	Parameter Request List Item: (3) Router
Vendor class identifier: MSFT 5.0	Parameter Pequert Lift Item: (6) Demain Name Server
Option: (55) Parameter Request List	Parameter Request List item: (6) Domain Name Server
i anatis 14	Parameter Request List Item: (15) Domain Name
Length: 14	Parameter Request List Item: (31) Perform Router Discover
<value: 0103060f1f212b2c2e2f7779f9fc=""></value:>	Parameter Request List Item (22) Static Reute
Parameter Request List Item: (1) Subnet Mask	Parameter Request List item: (33) Static Route
Descretes Descret List Them, (2) Dester	Parameter Request List Item: (43) Vendor-Specific Information
Parameter Request List Item: (3) Router	Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
Parameter Request List Item: (6) Domain Name Server	Parameter Request List Item; (46) NetBIOS over TCP/ID Node Type
Parameter Request List Item: (15) Domain Name	Parameter Request List item. (40) Netbros over iter/ir noue type
Parameter Pequest List Item: (21) Perform Pouter Discover	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
Parameter Request List Item. (51) Perform Router Discover	Parameter Request List Item: (119) Domain Search
Parameter Request List Item: (33) Static Route	Parameter Request List Item: (121) Classless Static Route
Parameter Request List Item: (43) Vendor-Specific Information	Fordineter Request List item. (122) classics static Route
Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server	Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
Parameter negative Light Ltem: (44) Netblog Ver Ltr/ir Home Scive	Parameter Request List Item: (252) Private/Proxy autodiscovery
Parameter Request List Item: (46) NetBIDS over ILP/IP Node Type	Antion: (82) Agent Information Ontion
Parameter Request List Item: (47) NetBIOS over TCP/IP Scope	length a
Parameter Reguest List Item: (119) Domain Search	Length: 4/
December Dequest List Team, (121) Classifier Static Poute	<value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:>
Forameter nequest List item; (iii) tidsstess static Koute	<ul> <li>Option 82 Suboption: (1) Agent Circuit ID</li> </ul>
Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)	Landby 14
Parameter Request List Item: (252) Private/Proxy autodiscovery	Lengths 14
Option: (82) Agent Information Option	<value: 0108000600018a9200a00000000=""></value:>
Longhi 47	Agent Circuit ID: 0108000600018a9200a00000000
Length: 4/	<ul> <li>Ontion 82 Subortion: (2) Agent Remote TD</li> </ul>
<value: 010e0108000500018a9200a00000000000205707db9b84daf97090074655e616e742d610b040a0a0a0105040a0a0a00=""></value:>	Landth 6
<ul> <li>Option 82 Suboption: (1) Agent Circuit ID</li> </ul>	rendru: o
length: 14	<value: 707db9b84daf=""></value:>
Legin at	Agent Remote ID: 707db9b84daf
<a9 010200000189370090000000="" nd:=""></a9>	Option 82 Subortion: (151) VPE page/VPN TD
Agent Circuit ID: 0108000600018a9200a00000000	- opcion of Subprion: (151) VKr name/VFW 10
Option 82 Subortion: (2) Agent Remote ID	Length: 9
Longth: 6	<value: 0074656e616e742d61=""></value:>
	VRF name:
<value: d="" db9b84dat=""></value:>	[Event Toto (Warning/Undecoded): Trailing stress sharestern]
Agent Remote ID: 707db9b84da1	<pre>&gt; [cxpert into (warning/undecoded): frailing stray characters]</pre>
Option 82 Subortion: (151) VRF name/VPN TD	[Trailing stray characters]
Least of Subjectory (151) the Hame/ the Lo	<pre><message: characters="" stray="" trailing=""></message:></pre>
Length: 9	[Severity level   Marging]
<value: 0074656e616e742d61=""></value:>	(severity tevet; warning)
VRF name:	[Group: Undecoded]
[Evpert Info (Warping/Undecoded): Trailing stray characters]	<ul> <li>Option 82 Suboption: (11) Server ID Override (10.10.10.1)</li> </ul>
Compare and the final formation and the second seco	Length: 4
<ul> <li>option az suboption: (11) Server ID Override (10.10.10.1)</li> </ul>	
Length: 4	Synthe: popopopte
<value: 0a0a0a01=""></value:>	Server ID Override: 10.10.1
<value: 0a0a0a01=""> Server ID Override: 10 10 10</value:>	Server ID Override: 10.10.10.1 • Option 82 Suboption: (5) Link selection (10.10.10.0)
<value: 0a0a0a01=""> Server ID Override: 10.10.10.1</value:>	Server ID Override: 10.10.10.1 • Option 82 Suboption: (5) Link selection (10.10.10.0) i enoth 4
<ul> <li><value: 0a0a0a0j=""></value:></li> <li>Server 1D Override: 10.10.10.1</li> <li>Option 82 Suboption: (5) Link selection (10.10.10.0)</li> </ul>	Server ID Override: 10.10.10.1 ∽ Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4
<ul> <li><value: 00000001<="" li=""> <li>Server ID 0verride: 10.10.10.1</li> <li>&gt; Option 82 Suboption: (5) Link selection (10.10.00) Length: 4</li> </value:></li></ul>	Server ID Override: 10.10.10.1 ∨ Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 0a0a0a00=""></value:>
<ul> <li><value: 0a0a0a0j=""></value:></li> <li>Server 10 Override: 10.10.10.1</li> <li>Option 82 Suboption: (5) Link selection (10.10.10.0)</li> <li>Length: 4</li> <li><value: 0a0a0a0b=""></value:></li> </ul>	Server ID Override: 10.10.10.1 ∽ Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 0a0080005<br="">Link selection: 10.10.10.0</value:>
<ul> <li><value: 00000001<="" li=""> <li>Server ID Override: 10.10.10.1</li> <li>&gt; Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4</li> <li><value: 00000000-<br="">Link celection: 10.10.10.0</value:></li> </value:></li></ul>	Server ID Override: 10.10.10.1 <ul> <li>Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4</li> <li><value: 0a0a0a000=""> Link selection: 10.10.10.0</value:></li> <li>Votion: (255) End</li> </ul>
- <value: 0@a@a@ad=""> Server ID Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 - <value: 0@a@a@a@a.<br="">Link selection: 10.10.10.0</value:></value:>	Server ID Override: 10.10.10.1 ~ Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 ~ Value: 0a0080000> Link selection: 10.10.10.0 ~ Option: (255) End
<pre> Server ID Override: 10.10.10.1 &gt; Option 02 Suboption: (5) Link selection (10.10.10.0) Length: 4  Link selection: 10.10.10.0 &gt; Option: (255) End</pre>	Server ID Override: 10.10.10.1 ~ Option & Suboption: (5) Link selection (10.10.10.0) Length: 4 ~ value: 08003008> Link selection: 10.10.10.0 ~ Option: (255) End Option End: 255
<pre> Server ID Override: 10.10.10.1 </pre> Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 Link selection: 10.10.10.0 Option: (255) End Padding: 0000000000000000	Server ID Override: 10.10.10.1 <pre>     Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 0a080808=""> Link selection: 10.10.10.0 </value:></pre> <pre>     Option: (255) End Option End: 255 </pre> Padding: 080000000000000
<pre> Server ID Override: 10.10.10.1 &gt; Option 02 Suboption: (5) Link selection (10.10.10.0) Length: 4  Link selection: 10.10.10.0 &gt; Option: (255) End Padding: 000000000000000</pre>	Server ID Override: 10.10.10.1 ∽ Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 0a808080<br="">Link selection: 10.10.10.0 ∽ Option: (255) End Option End: 255 Padding: 00000000000000</value:>



注意:LEAF-2-vPC接收Discovert資料包,但僅交換此資料包。目的MAC地址屬於DHCP伺服器。

在DCHP伺服器上接收的發現

```
Ethernet II, Src: 60:26:aa:85:98:87, Dst: 00:50:56:a5:dc:ca
Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150
User Datagram Protocol, Src Port: 67, Dst Port: 67
Dynamic Host Configuration Protocol (Discover)
  Message type: Boot Request (1)
  Hardware type: Ethernet (0x01)
  Hardware address length: 6
  Hops: 1
  Transaction ID: 0xe9e35087
  Seconds elapsed: 0
 Bootp flags: 0x8000, Broadcast flag (Broadcast)
    1... .... = Broadcast flag: Broadcast
    .000 0000 0000 0000 = Reserved flags: 0x0000
  Client IP address: 0.0.0.0
  Your (client) IP address: 0.0.0.0
  Next server IP address: 0.0.0.0
  Relay agent IP address: 172.16.10.8
  Client MAC address: 00:50:56:a5:fd:dd
  Client hardware address padding: 0000000000000000000
  Server host name not given
  Boot file name not given
  Magic cookie: DHCP
 Option: (53) DHCP Message Type (Discover)
    Length: 1
    <Value: 01>
    DHCP: Discover (1)

    Option: (61) Client identifier

    Length: 7
    <Value: 01005056a5fddd>
    Hardware type: Ethernet (0x01)
    Client MAC address: 00:50:56:a5:fd:dd

    Option: (12) Host Name

    Length: 10
    <Value: 43584c6162732d573130>
    Host Name: CXLabs-W10

    Option: (60) Vendor class identifier

    Length: 8
    <Value: 4d53465420352e30>
    Vendor class identifier: MSFT 5.0
Option: (55) Parameter Request List
    Length: 14
    <Value: 0103060f1f212b2c2e2f7779f9fc>
    Parameter Request List Item: (1) Subnet Mask
    Parameter Request List Item: (3) Router
    Parameter Request List Item: (6) Domain Name Server
    Parameter Request List Item: (15) Domain Name
    Parameter Request List Item: (31) Perform Router Discover
    Parameter Request List Item: (33) Static Route
    Parameter Request List Item: (43) Vendor-Specific Information
    Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
    Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
    Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
    Parameter Request List Item: (119) Domain Search
    Parameter Request List Item: (121) Classless Static Route
    Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
    Parameter Request List Item: (252) Private/Proxy autodiscovery

    Option: (82) Agent Information Option

    Length: 47
    <Value: 010e0108000600018a9200a0000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00>

    Option 82 Suboption: (1) Agent Circuit ID

      Length: 14
      <Value: 0108000600018a9200a00000000>
      Agent Circuit ID: 0108000600018a9200a00000000

    Option 82 Suboption: (2) Agent Remote ID

      Length: 6
      <Value: 707db9b84daf>
      Agent Remote ID: 707db9b84daf

    Option 82 Suboption: (151) VRF name/VPN ID

      Length: 9
      <Value: 0074656e616e742d61>
     VRF name:

    [Expert Info (Warning/Undecoded): Trailing stray characters]

           [Trailing stray characters]
           <Message: Trailing stray characters>
           [Severity level: Warning]
           [Group: Undecoded]

    Option 82 Suboption: (11) Server ID Override (10.10.10.1)

      Length: 4
      <Value: 0a0a0a01>
      Server ID Override: 10.10.10.1
   Option 82 Suboption: (5) Link selection (10,10,10,0)
      Length: 4
      <Value: 0a0a0a00>
      Link selection: 10.10.10.0
 Option: (255) End
    Option End: 255
  Padding: 000000000000000000
```

# 由DCHP伺服器傳送的DCHP優惠

```
Ethernet II, Src: 60:26:aa:85:98:87, Dst: 00:50:56:a5:dc:ca
Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150
User Datagram Protocol, Src Port: 67, Dst Port: 67
Dynamic Host Configuration Protocol (Discover)
  Message type: Boot Request (1)
  Hardware type: Ethernet (0x01)
  Hardware address length: 6
  Hops: 1
  Transaction ID: 0xe9e35087
  Seconds elapsed: 0
  Bootp flags: 0x8000, Broadcast flag (Broadcast)
    1... .... = Broadcast flag: Broadcast
    .000 0000 0000 0000 = Reserved flags: 0x0000
  Client IP address: 0.0.0.0
  Your (client) IP address: 0.0.0.0
  Next server IP address: 0.0.0.0
  Relay agent IP address: 172.16.10.8
  Client MAC address: 00:50:56:a5:fd:dd
  Client hardware address padding: 0000000000000000000
  Server host name not given
  Boot file name not given
  Magic cookie: DHCP

    Option: (53) DHCP Message Type (Discover)

    Length: 1
    <Value: 01>
    DHCP: Discover (1)

    Option: (61) Client identifier

    Length: 7
    <Value: 01005056a5fddd>
    Hardware type: Ethernet (0x01)
    Client MAC address: 00:50:56:a5:fd:dd

    Option: (12) Host Name

    Length: 10
    <Value: 43584c6162732d573130>
    Host Name: CXLabs-W10

    Option: (60) Vendor class identifier

    Length: 8
    <Value: 4d53465420352e30>
    Vendor class identifier: MSFT 5.0

    Option: (55) Parameter Request List

    Length: 14
    <Value: 0103060f1f212b2c2e2f7779f9fc>
    Parameter Request List Item: (1) Subnet Mask
    Parameter Request List Item: (3) Router
    Parameter Request List Item: (6) Domain Name Server
    Parameter Request List Item: (15) Domain Name
    Parameter Request List Item: (31) Perform Router Discover
    Parameter Request List Item: (33) Static Route
    Parameter Request List Item: (43) Vendor-Specific Information
    Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
    Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
    Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
    Parameter Request List Item: (119) Domain Search
    Parameter Request List Item: (121) Classless Static Route
    Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
Parameter Request List Item: (252) Private/Proxy autodiscovery

    Option: (82) Agent Information Option

    Length: 47
    <Value: 010e0108000600018a9200a0000000000206707db9b84da197090074656e616e742d610b040a0a0a0105040a0a0a00>

    Option 82 Suboption: (1) Agent Circuit ID

      Length: 14
       <Value: 0108000600018a9200a00000000>
      Agent Circuit ID: 0108000600018a9200a00000000
  · Option 82 Suboption: (2) Agent Remote ID
      Length: 6
       <Value: 707db9b84daf>
      Agent Remote ID: 707db9b84daf

    Option 82 Suboption: (151) VRF name/VPN ID

      Length: 9
       <Value: 0074656e616e742d61>
     VRF name:

    [Expert Info (Warning/Undecoded): Trailing stray characters]

           [Trailing stray characters]
           <Message: Trailing stray characters>
           [Severity level: Warning]
           [Group: Undecoded]

    Option 82 Suboption: (11) Server ID Override (10.10.10.1)

      Length: 4
       <Value: 0a0a0a01>
      Server ID Override: 10.10.10.1

    Option 82 Suboption: (5) Link selection (10.10.10.0)

      Length: 4
       <Value: 0a0a0a00>
      Link selection: 10.10.10.0
  Option: (255) End
    Option End: 255
  Padding: 00000000000000000
```

# LEAF-2-vPC上的DCHP優惠

在LEAF-2-vPC上收到優惠	透過LEAF-2-vPC傳送優惠
<pre>Sthernet II, Src: 00:50:56:a5:dc:ca, Dst: 00:00:0a:0a:0a:0a Intermet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8 User Datagma Protocol, Src Port: 67, Dst Port: 67 Pymaic Host Configuration Protocol (Offer) Message type: Boot Reply (2) Hardware type: Ethernet (0x01) Hardware duress length: 6 Hops: 0 Transaction ID: 0x9e3087 Seconds elapsed: 0 - Obsor Flags: Nob000, Nobdest Flag (Broadcast) - Doso Flags: Nob000, Nobdest Flag Relay agent IP address: 10,10.10,3 Relay agent IP address: 10,10.10,3 Relay agent IP address: 10,10.10,10 Relay agent Flags: 255,255,250 - Option: (15) DPR Message Type (Offer) Length: 1 - value: 00 Subnet Hask: 255,255,250,0 - Option: (15) Relay II hours (43200) - Option: (15) IP Address Lease Time Length: 4 - value: 00HISIGN - Paddress Lease Time: 1 day (06400) - Option: (15) IP Address Lease Time Length: 4 - value: 00HISIGN - Paddress Lease Time: 1 day (06400) - Option: (15) DPR Longth / A - value: 00HISIGN - Paddress Lease Time: 1 day (06400) - Option: (16) Router - Length: 4 - value: 00HISIGN - Deficion: (15) DPR Longth / A - value: 00HISIGN - Deficion: (16) Router - Length: 4 - value: 00HISIGN - Deficion: (16) Router - Length: 10 - value: 00HISIGN - Dosonn Name -</pre>	<pre>Intermet Protocol Version 4, Src: 13.13.13.254, DSt: 5.5.5.3 User Datagram Protocol, Src Port: 65.18, DSt Port: 4789 *Virtual extensible Local Area Network &gt; Flags: 80080, VLAW Network 10 (W1) Group Polley DD: 0 VLAW Network 10entifier (W1): 303030 Reserved: 0 Possion For Configuration Protocol, Src: Port: 67.101.0150, DSt: 172.16.10.8 User Datagram Protocol, Src: Port: 67. Dst Port: 67 Pmass for tope: Ethernet (0x01) Hardware address length: 6 Transaction ID: 8xe9e35087 Seconds elapsed: 0 Postor Hay Research (0x01) Hardware address length: 6 Hops: 0 Transaction ID: 8xe9e35087 Seconds elapsed: 0 Poot plags: 8x8000, Broadcast flag (Broadcast) I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</pre>
value: 010e0108000600018a9200a000000000206707db9b84da197090074656e616e742d610b040a0a0a0105040a0a0a00> • Option 82 Suboption: (1) Agent Circuit ID	<value: 636973636f2e636f6d00=""> Domain Name: cisco.com</value:>
Length: 14 <pre><value: 0180806080818a9200a000000000000000000000000000000000<="" td=""><td><ul>     <li>Option: (82) Agent Information Option         Length: 47         <ul>             <li>value: 01ce010800050001839200.0000000000000000000000000000000000</li></ul></li></ul></td></value:></pre>	<ul>     <li>Option: (82) Agent Information Option         Length: 47         <ul>             <li>value: 01ce010800050001839200.0000000000000000000000000000000000</li></ul></li></ul>
<pre><message: characters="" stray="" trailing=""> [Severity level: Warning] [Group: Indeceded]</message:></pre>	<value: 00746566166742d61=""> VRF name: French Tefe (Manning (Undersided)), Tep() (an etc): characters)</value:>
<pre>(aroup: undecoded)</pre>	<pre>     [Expert lin0 (Warning/Undecoded): frailing stray characters]     [Trailing stray characters]     -dtessage: Trailing stray characters&gt;     [Severity level: Warning]     [Group: Undecoded]     Option &amp; 2 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     -dvalue: 80008001     Server ID Override: 10.10.10     Option &amp; 2 Suboption: (5) Link selection (10.10.10.0)     Length: 4     -dvalue: 8000800-     Link selection: 10.10.10     Option End: 255 </pre>

# DHCP提供vPC主幹

主幹上收到優惠 提供由SPINE傳送

Ethernet II Src+ 60-26-55-85-05-87 Dc++ 10+b2+46+54+85+07	
Toternet Protocol Version 4 Series 13:12-25 Det 5 5 5	
lice Datagram Protocol Src Dort: 65512 hct Part: 4789	
Victual avtanciale Local Area Naturek	
School guide Lotat Alega Herina (1911)	
Frags: Diblood, VALAN Network ID (VNI)	
Group Policy 10: 6	Ethernet II. Src: 10:b3:d6:a4:85:97. Dst: 70:7d:b9:b8:4d:af
VALWA Network Identifier (VNI): 503030	> Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5
Reserved: 0	liser Datagram Protocol Src Port: 65518 Dst Port: 4789
> Ethernet II, SrC: 02:00:0d:0d:0d:Te, DSt: 70:70:D9:D8:40:at	Virtual extensible Local Area Network
Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8	S Elance Avenable Locat Area network
> User Datagram Protocol, Src Port: 67, Dst Port: 67	Crags bacood, VLAN NEWOTK ID (VNI)
<ul> <li>Dynamic Host Configuration Protocol (Offer)</li> </ul>	UNUM Network Television (NUT), 202020
Message type: Boot Reply (2)	VALAN Network identifier (VNI): 303030
Hardware type: Ethernet (0x01)	Reserved: 0
Hardware address length: 6	> Ethernet 11, Src: 02:00:0d:0d:0d:Te, DSt: 70:7d:D9:D8:40:at
Hops: 0	Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8
Transaction ID: 0xe9e35087	User Datagram Protocol, Src Port: 67, Dst Port: 67
Seconds elapsed: 0	<ul> <li>Dynamic Host Configuration Protocol (Offer)</li> </ul>
Bootp flags: 0x8000. Broadcast flag (Broadcast)	Message type: Boot Reply (2)
1 = Broadcast flag: Broadcast	Hardware type: Ethernet (0x01)
.000 0000 0000 = Reserved flags: 0x0000	Hardware address length: 6
Client IP address: 0.0.0.0	Hops: 0
Your (client) TD address: 10 10 10 3	Transaction ID: 0xe9e35087
Novi control TD adverse 10 10 10 10 10	Seconds elapsed: 0
Polar agenti IP addressi IP 201	> Bootp flags: 0x8000, Broadcast flag (Broadcast)
Client MC address: 02:00:00:00	Client IP address: 0.0.0.0
Citent hac address: 00:30:30:30:30:10:00	Your (client) IP address: 10.10.10.3
citeri naruware auuress padding: dudddddddddddddddddd	Next server IP address: 10.10.10.150
server nost name not given	Relay agent IP address: 172.16.10.8
boot rate name not given	Client MAC address: 00:50:56:a5:fd:dd
Magic cookie: DHCP	Client bardware address padding: 000000000000000000
v uption: (53) UHCP message Type (Offer)	Server bast name not given
Length: 1	Root file age not given
<value: 02=""></value:>	Manie contribut given
DHCP: Offer (2)	nayit cuvrit; Unit
Option: (1) Subnet Mask (255.255.0)	option: (53) bhcP message type (offer)
Length: 4	Length: 1
<value: ffffff00=""></value:>	<value: 02=""></value:>
Subnet Mask: 255.255.25.0	DHCP: Offer (2)
Option: (58) Renewal Time Value	<ul> <li>Option: (1) Subnet Mask (255.255.0)</li> </ul>
Length: 4	Length: 4
<value: 0000a8c0s<="" td=""><td><value: ffffff00=""></value:></td></value:>	<value: ffffff00=""></value:>
Renewal Time Value: 12 hours (43200)	Subnet Mask: 255.255.25.0
Action (5) Poblar Tribers (45200)	<ul> <li>Option: (58) Renewal Time Value</li> </ul>
· option: (5) Rectricing the value	Length: 4
Length: 4	<value: 0000a8c0=""></value:>
<value: 00012="" 50=""></value:>	Renewal Time Value: 12 hours (43200)
Rebinding Time Value: 21 hours (75000)	Option: (59) Rebinding Time Value
<ul> <li>Option: (S1) IP Address Lease Time</li> </ul>	Length 4
Length: 4	dialue: 000127505
<value: 00015180=""></value:>	Pohinding Time Values 21 hours (75500)
IP Address Lease Time: 1 day (86400)	Reprinting Line Values 21 Hours (7500)
<ul> <li>Option: (54) DHCP Server Identifier (10.10.10.1)</li> </ul>	• Option: (51) IP Address Lease Time
Length: 4	Length: 4
<value: 0a0a0a01=""></value:>	<value: 00015180=""></value:>
DHCP Server Identifier: 10.10.10.1	IP Address Lease Time: 1 day (86400)
<ul> <li>Ontion: (3) Router</li> </ul>	<ul><li>Option: (54) DHCP Server Identifier (10.10.10.1)</li></ul>
Length: 4	Length: 4
- Value - 0x0a0a015	<value: 0a0a0a01=""></value:>
Pouter: 10 10 10 1	DHCP Server Identifier: 10.10.10.1
Outer, 10:10:10:1	Option: (15) Domain Name
option. (1) bondin Name	Length: 10
Length: 10	c/alue: 636973636f2e636f6d89>
Statute, usud/10030120030100002	Domain Name: cisco.com
Domain Name: Cisco.com	Option: (2) Agent Information Option
Option: (82) Agent Information Option	lonath 47
Length: 47	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩
<value: 010e0108000600018a9200a0000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:>	Value: 0100100000000000000000000000000000000
<ul> <li>Option 82 Suboption: (1) Agent Circuit ID</li> </ul>	Langhi 14
Length: 14	LCTUSTI, 24
<value: 0108000600018a9200a000000000=""></value:>	<ul> <li></li></ul> <li><ul> <li><ul> <li><ul></ul></li></ul></li></ul></li>
Agent Circuit ID: 0108000600018a9200a00000000	Agent Circuit 10: 01080000001832/003000000000
<ul> <li>Option 82 Suboption: (2) Agent Remote ID</li> </ul>	<ul> <li>vption az suboption: (2) Agent Remote ID</li> </ul>
Length: 6	Length: 6
<value: 707db9b84daf=""></value:>	<value: 07db9b84da1=""></value:>
Agent Remote ID: 787dh9h84daf	Agent Remote ID: 707db9b84daf
Action 92 Subortion: (11) VDE name/VDN TD	Option 82 Suboption: (151) VRF name/VPN ID
lenth 9	Length: 9
2/13/14/ 0074656661667424615	<value: 0074656e616e742d61=""></value:>
	> VRF name:
[Every Toto, [Marging/Hedecoded]), Trailing charge characters]	<ul><li>Option 82 Suboption: (11) Server ID Override (10.10.10.1)</li></ul>
(Trailing (Warning/Undecoded): Trailing stray Characters	Length: 4
[Iraling stray Characters]	<value: 0a0a0a01=""></value:>
<pre>sage: Trailing stray characters&gt;</pre>	Server ID Override: 10.10.10.1
[Severity level: Warning]	<ul> <li>Option 82 Suboption: (5) Link selection (10.10.10.0)</li> </ul>
[Group: Undecoded]	Length: 4
<ul> <li>Option 82 Suboption: (11) Server ID Override (10.10.10.1)</li> </ul>	<value: 0a0a0a00=""></value:>
Length: 4	Link selection: 10.10.0
<value: 0a0a0a01=""></value:>	Option: (255) End
Server ID Override: 10.10.10.1	Ontion End: 255
<ul> <li>Option 82 Suboption: (5) Link selection (10.10.10.0)</li> </ul>	option brok sup
Length: 4	
<value: 0a0a0a00=""></value:>	
Link selection: 10.10.10.0	
<ul><li>Option: (255) End</li></ul>	
Option End: 255	

# LEAF-1上的DHCP提供

在LEAF-1上收到優惠	在LEAF-1上傳送優惠
--------------	--------------

	> Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: ff:ff:ff:ff:ff:ff
February TT Con. 10,69,40,01,07,07, Date 70,74,60,60,44,04	> Internet Protocol Version 4, Src: 10.10.10.1, Dst: 255.255.255.255
> Enernet 11, Src: 10:03:00:04:85:97, Dst: 70:70:09:08:40:07	> User Datagram Protocol, Src Port: 67, Dst Port: 68
User Datagram Protocol, Src Port: 65518, Dst Port: 4789	<ul> <li>Dynamic Host Configuration Protocol (Offer)</li> </ul>
> Flags: 0x0800, VXLAN Network ID (VNI)	Message type: Boot Reply (2)
Group Policy ID: 0	Hardware type: Ethernet (0x01)
Reserved: 0	Hardware address length: 6
Ethernet II, Src: 02:00:0d:0d:0d:fe, Dst: 70:7d:b9:b8:4d:af	Hons: 0
> Internet Protocol Version 4, Src: 10.10.10.150, Dst: 1/2.16.10.8 > User Datagram Protocol. Src Port: 67. Dst Port: 67	Transaction ID: 0xe0e35087
Dynamic Host Configuration Protocol (Offer)	Seconds elansed: 0
Message type: Boot Repty (2) Hardware type: Ethernet (0x01)	Beets flags: 0x2000 Breadcast flag (Breadcast)
Hardware address length: 6	Client TD addresses 0.0.0.0
Hops: 0 Transaction ID: 0xe9e35087	Client IP address: 0.0.0
Seconds elapsed: 0	Your (client) IP address: 10.10.10.3
> Bootp Flags: 0x8000, Broadcast flag (Broadcast) Client IP address: 0.0.0.0	Next server IP address: 10.10.10.150
Your (client) IP address: 10.10.10.3	Relay agent IP address: 10.10.10.1
Next server IP address: 10.10.10.100 Relay agent IP address: 172.16.10.8	Client MAC address: 00:50:56:a5:fd:dd
Client MAC address: 00:50:56:a5:fd:dd	Client hardware address padding: 0000000000000000000
Server host name not given	Server host name not given
Boot file name not given	Boot file name not given
<pre>&gt; Option: (53) DHCP Message Type (Offer)</pre>	Magic cookie: DHCP
Length: 1	Option: (53) DHCP Message Type (Offer)
CValue: 02> DHCP: Offer (2)	Length: 1
<pre>&gt; Option: (1) Subnet Mask (255.255.25.0) </pre>	<value: 02=""></value:>
<value: ffffff00=""></value:>	DHCP: Offer (2)
Subnet Mask: 255.255.255.0	<pre>v Ontion: (1) Subnet Mask (255,255,255,0)</pre>
Length: 4	length: 4
<value: 0000a8c0=""> Renewal Time Value: 12 hours (43200)</value:>	Alalue: ffffff00
· Option: (59) Rebinding Time Value	Subpot Mocky 255 255 0
Length: 4	Sublet Mask; 255,255,255,0
Rebinding Time Value: 21 hours (75600)	v option: (56) Kenewal Time value
<ul> <li>Option: (51) IP Address Lease Time Length: 4</li> </ul>	Length: 4
<value: 00015180=""></value:>	<value: 0000a8c0=""></value:>
IP Address Lease Time: 1 day (86400) v Option: (54) DHCP Server Identifier (10.10.10.1)	Renewal Time Value: 12 hours (43200)
Length: 4	v Option: (59) Rebinding Time Value
<value: 0a0a0a01=""> DHCP Server Identifier: 10.10.10.1</value:>	Length: 4
Option: (15) Domain Name	<value: 00012750=""></value:>
Length: 10 <value: 636973636f2e636f6d00=""></value:>	Rebinding Time Value: 21 hours (75600)
Domain Name: cisco.com	v Option: (51) IP Address Lease Time
Option: (82) Agent Information Option Length: 47	Length: 4
<pre><value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:></pre>	<value: 00015180=""></value:>
<pre>v uption oz suboption: (1) Agent Circuit 10 Length: 14</pre>	IP Address Lease Time: 1 day (86400)
<value: 0108000600018a9200a000000000=""></value:>	Option: (54) DHCP Server Identifier (10.10.10.1)
<ul> <li>Option 82 Suboption: (2) Agent Remote ID</li> </ul>	Length: 4
Length: 6	<value: 0a0a0a01=""></value:>
Agent Remote ID: 707db9b84daf	DHCP Server Identifier: 10.10.10.1
Option 82 Suboption: (151) VRF name/VPN ID Length: 9	<pre>v Ontion: (3) Router</pre>
<value: 0074656e616e742d61=""></value:>	length: 4
VRF name: v Option 82 Suboption: (11) Server TD Override (10 10 10 1)	
Length: 4	Poutor: 10 10 10 1
<value: 0a0a0a01=""> Server ID Override: 10.10.10.1</value:>	Ontion: (15) Domain Name
<ul><li>Option 82 Suboption: (5) Link selection (10.10.10.0)</li></ul>	v option: (15) Domain Name
Length: 4 <value: 0a0a0a00=""></value:>	
Link selection: 10.10.10.0	<value: 3b3bt2eb3btbd00="" b3b9=""></value:>
Option: (255) End Option End: 255	Domain Name: cisco.com
	<pre>v Uption: (255) End</pre>
	Option End: 255

在HOST-1上接收的DHCP Offer

```
> Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: ff:ff:ff:ff:ff:ff
> Internet Protocol Version 4, Src: 10.10.10.1, Dst: 255.255.255.255
> User Datagram Protocol, Src Port: 67, Dst Port: 68

    Dynamic Host Configuration Protocol (Offer)

   Message type: Boot Reply (2)
   Hardware type: Ethernet (0x01)
   Hardware address length: 6
   Hops: 0
   Transaction ID: 0xe9e35087
    Seconds elapsed: 0
  > Bootp flags: 0x8000, Broadcast flag (Broadcast)
    Client IP address: 0.0.0.0
    Your (client) IP address: 10.10.10.3
   Next server IP address: 10.10.10.150
   Relay agent IP address: 10.10.10.1
    Client MAC address: 00:50:56:a5:fd:dd
    Client hardware address padding: 0000000000000000000
    Server host name not given
    Boot file name not given
   Magic cookie: DHCP

    Option: (53) DHCP Message Type (Offer)

      Length: 1
      <Value: 02>
      DHCP: Offer (2)

    Option: (1) Subnet Mask (255.255.255.0)

      Length: 4
      <Value: ffffff00>
      Subnet Mask: 255.255.255.0

    Option: (58) Renewal Time Value

      Length: 4
      <Value: 0000a8c0>
      Renewal Time Value: 12 hours (43200)
 Option: (59) Rebinding Time Value
      Length: 4
      <Value: 00012750>
      Rebinding Time Value: 21 hours (75600)
 v Option: (51) IP Address Lease Time
      Length: 4
      <Value: 00015180>
      IP Address Lease Time: 1 day (86400)
 v Option: (54) DHCP Server Identifier (10.10.10.1)
      Length: 4
      <Value: 0a0a0a01>
      DHCP Server Identifier: 10.10.10.1
 Option: (3) Router
      Length: 4
      <Value: 0a0a0a01>
      Router: 10.10.10.1

    Option: (15) Domain Name

      Length: 10
      <Value: 636973636f2e636f6d00>
      Domain Name: cisco.com

    Option: (255) End

      Option End: 255
```

請求由HOST-1傳送

```
Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff
 Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255
 User Datagram Protocol, Src Port: 68, Dst Port: 67

    Dynamic Host Configuration Protocol (Request)

   Message type: Boot Request (1)
   Hardware type: Ethernet (0x01)
   Hardware address length: 6
   Hops: 0
   Transaction ID: 0xe9e35087
   Seconds elapsed: 0

    Bootp flags: 0x8000, Broadcast flag (Broadcast)

     1... .... = Broadcast flag: Broadcast
      .000 0000 0000 0000 = Reserved flags: 0x0000
   Client IP address: 0.0.0.0
   Your (client) IP address: 0.0.0.0
   Next server IP address: 0.0.0.0
   Relay agent IP address: 0.0.0.0
   Client MAC address: 00:50:56:a5:fd:dd
   Client hardware address padding: 0000000000000000000
   Server host name not given
   Boot file name not given
   Magic cookie: DHCP

    Option: (53) DHCP Message Type (Request)

     Length: 1
     <Value: 03>
     DHCP: Request (3)
 Option: (61) Client identifier
     Length: 7
     <Value: 01005056a5fddd>
     Hardware type: Ethernet (0x01)
     Client MAC address: 00:50:56:a5:fd:dd
 Option: (50) Requested IP Address (10.10.10.3)
     Length: 4
     <Value: 0a0a0a03>
     Requested IP Address: 10.10.10.3

    Option: (54) DHCP Server Identifier (10.10.10.1)

     Length: 4
     <Value: 0a0a0a01>
     DHCP Server Identifier: 10.10.10.1

    Option: (12) Host Name

     Length: 10
     <Value: 43584c6162732d573130>
     Host Name: CXLabs-W10
 Option: (81) Client Fully Qualified Domain Name
     Length: 13
     <Value: 00000043584c6162732d573130>

    Flags: 0x00

        0000 .... = Reserved flags: 0x0
        .... 0... = Server DDNS: Some server updates
        .... .0.. = Encoding: ASCII encoding
        .... ..0. = Server overrides: No override
        .... ...0 = Server: Client
     A-RR result: 0
     PTR-RR result: 0
     Client name: CXLabs-W10
  Option: (60) Vendor class identifier
      Length: 8
      <Value: 4d53465420352e30>
      Vendor class identifier: MSFT 5.0

    Option: (55) Parameter Request List

      Length: 14
      <Value: 0103060f1f212b2c2e2f7779f9fc>
      Parameter Request List Item: (1) Subnet Mask
      Parameter Request List Item: (3) Router
      Parameter Request List Item: (6) Domain Name Server
      Parameter Request List Item: (15) Domain Name
      Parameter Request List Item: (31) Perform Router Discover
      Parameter Request List Item: (33) Static Route
      Parameter Request List Item: (43) Vendor-Specific Information
      Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
      Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
      Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
      Parameter Request List Item: (119) Domain Search
      Parameter Request List Item: (121) Classless Static Route
      Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
      Parameter Request List Item: (252) Private/Proxy autodiscovery

    Option: (255) End

      Option End: 255
```

# 對LEAF-1的請求

在LEAF-1上收到的請求	請求由LEAF-1傳送
<pre>&gt; Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff: &gt; Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255. &gt; User Datagram Protocol, Src Port: 68, Dst Port: 67 &gt; Dynamic Host Configuration Protocol (Request) Message type: Boot Request (1) Hardware type: Ethernet (0x01) Hardware address length: 6 Hops: 0 Transaction ID: 0xe9e35087 Seconds elapsed: 0 &gt; Bootp flags: 0x8000, Broadcast flag (Broadcast) 1 Broadcast flag: Broadcast .000 0000 0000 0000 = Reserved flags: 0x0000 Client IP address: 0.0.0 Your (client) IP address: 0.0.0 Next server IP address: 0.0.0</pre>	<pre>&gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 &gt; Internet Protocol Version 4, Src: 5.5.5, Dst: 13.13.13.254 &gt; User Datagram Protocol, Src Port: S1730, Dst Port: 4789 &gt; Virtual extensible Local Area Network &gt; Flags: 0x8080, VLANN Network ID (VNI) Group Policy ID: 0 VLANN Network Identifier (VNI): 303030 Reserved: 0 Ethernet II, Src: 77:d1:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe &gt; Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 &gt; User Datagram Protocol, Src Port: 67, Dst Port: 67 Opmanic Host Configuration Protocol (Request) Message type: Bot Request (1) Hardware type: Ethernet (0x01) Hardware address length: 6 Hops: 1 Transaction ID: 0x:e925087 Seconds elapsed: 0 Bootp flags: 0x8080, Broadcast flag (Broadcast) Client IP address: 0.0.0 Next server IP oddress: 0.0.0 Next server IP oddress: 0.0.0 Next server IP oddress: 0.0.0 Next server IP address: 0.0.0 Next serv</pre>
Client MAC address: 00:55:56:a5:fd:dd Client MAC address: 00:55:56:a5:fd:dd Client hardware address padding: 0000000000000000000 Server host name not given Magic cookie: DHCP © Option: (53) DHCP Message Type (Request) Length: 1 <value: 03=""> DHCP: Request (3) © Option: (61) Client identifier Length: 7</value:>	<pre>Relay agent IP approx 102.10.10.0 Client MarQuardess: 00505.57.47.40 Client hardware address padding: 000000000000000000000000000000000000</pre>
<value: 01005056a5fddd=""> Hardware type: Ethernet (0x01) Client MAC address: 00:50:56:a5:fd:dd  Option: (50) Requested IP Address (10.10.10.3) Length: 4 <value: 0a000003=""> Requested IP Address: 10.10.10.3</value:></value:>	<ul> <li>Up(101: (50) Requested IP Address (10.10.10.3) Length: 4</li> <li> Requested IP Address: 10.10.10.3</li> <li>Option: (54) DHCP Server Identifier (10.10.10.150) Length: 4</li> <li>DHCP Server Identifier: 10.10.10.150</li> <li>Option: (12) Host Name</li> </ul>
<pre>option: (54) DHCP Server Identifier (10.10.10.1) Length: 4</pre>	Length: 10 <value: 43584c6162732d573130=""> Host Name: CXLabs-M10 © Option: (31) Client Fully Qualified Domain Name Length: 13 <value: 00000043584c6162732d573130=""> &gt; Flags: 0x00 A-MR result: 0 PTN=RR result: 0</value:></value:>
<pre>Host Name: CXLabs-W10 Option: (81) Client Fully Qualified Domain Name Length: 13 <value: 000000043584c6162732d573130=""> Flags: 0x00 0000 = Reserved flags: 0x0 0 = Server DDNS: Some server updates 0 = Encoding: ASCII encoding0. = Server overrides: No override0 = Server: Client A-RR result: 0</value:></pre>	Clent name: CKL055-V10 Option: (60) Vendor Class identifier Length: 8 <value: 4d534652420352e30=""> Vendor class identifier: MSFT 5.0 Option: (55) Parameter Request List Length: 14 <value: 0103060f1f212b2c2c2f77919fc=""> Parameter Request List Iten: (1) Subnet Mask Parameter Request List Iten: (3) Router Parameter Request List Iten: (50 Domain Name Server Parameter Request List Iten: (15) Domain Name Server Parameter Request List Iten: (13) Perform Router Discover Parameter Request List Iten: (3) Static Router Parameter Request List Iten: (3) Static Router Parameter Request List Iten: (3) Static Router Parameter Request List Iten: (3) Static Router Discover Parameter Request List Iten: (3) Vendor-Specific Information</value:></value:>
PTR-RR result: 0 Client name: CXLabs-W10 Option: (60) Vendor class identifier Length: 8 <value: 4d53465420352e30=""> Vendor class identifier MFET 5 0</value:>	Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type Parameter Request List Item: (47) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search Parameter Request List Item: (121) Classless Static Route Parameter Request List Item: (22) Private/Classless Static Route (Microsoft) Parameter Request List Item: (22) Private/Proxy autodiscovery
<ul> <li>Option: (55) Parameter Request List Length: 14</li> <li><value: 0103060f1f212b2c2e2f7779f9fc=""></value:></li> <li>Parameter Request List Item: (1) Subnet Mask Parameter Request List Item: (3) Router</li> <li>Parameter Request List Item: (6) Domain Name</li> <li>Parameter Request List Item: (5) Domain Name</li> <li>Parameter Request List Item: (3) Perform Router Discover</li> <li>Parameter Request List Item: (3) Static Route</li> <li>Parameter Request List Item: (43) Vendor-Specific Information</li> <li>Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server</li> <li>Parameter Request List Item: (46) NetBIOS over TCP/IP Name Server</li> <li>Parameter Request List Item: (47) NetBIOS over TCP/IP Node Type</li> <li>Parameter Request List Item: (119) Domain Search</li> <li>Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)</li> <li>Parameter Request List Item: (252) Private/Proxy autodiscovery</li> <li>Option: (255) End</li> <li>Option End: 255</li> </ul>	<pre>9 Option: (82) Agent Information Option Length: 47 <value: 010e01080806600018a9200a0000000007067009084daf97090074656e616e742d610b040a0a0a0105040a0a0a000<br="">Option 82 Suboption: (1) Agent Circuit ID Length: 14 <value: 0108000600018a9200a00000000<br="">Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 707d09b04daf=""> Agent Circuit ID: 707d09b04daf Option 82 Suboption: (13) VMF name/VM ID Length: 9 <value: 0074656e616e742d61=""> <value: 0074656616e742d61=""> <value: 0074656616e742d61=""> <value: 0074656616e742d61=""> <value: 0074656742d61=""> <value: 0074657465742d61=""> <value: 008040=""> <value: 008040=""> <val< td=""></val<></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></value:></pre>

# 主幹上的請求

Ethernet II, Src: 70:7d:D9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 5.5.5, Dst: 13.13.13.254 User Datagram Protocol, Src Port: 51730, Dst Port: 4789 Virtual eXtensible Local Area Network - Flags: 0x0000, VXLNN Network ID (WI) Group Policy ID: 0 VXLNN Network Identifier (WI): 303030 Reserved: 0 VALWW RETWOR A USERVATURE 1111 AND A CONSTRUCTION OF A CONSTRUCTIO Hops: 1 Seconds elapsed: 0 Bootp flags: 0x8800, Broadcast flag (Broadcast) Client IP address: 0.0.0.0 Next server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0 Relay agent IP address: 102.16.10.8 Client Mc address: 005:05:163:16;1dd Seconds elapsed: 0 Client MAC address: 00:50:56:65:66:d0 Client hardware address padding: 0000000000000000000 Server host name not given Boot file name not given Magic cookie: DHKP Option: (53) DHCP Message Type (Request) Length: 1 <Value: 03-> DHCP: Remust (3) DHCP: Request (3) Option: (61) Client identifier Length: 7 <Value: 010050056a5fddd> Hardware type: Ethernet (0x01) Client M& address: 00:50:56:a5:fd:dd Option: (50) Requested IP Address (10.10.10.3) ption: (50) Requested IP Address (10.10.10.3) Length: 4 <Value: 0000003> Requested IP Address: 10.10.10.3 ption: (54) DHCP Server Identifier (10.10.10.150) Length: 4 <Value: 0000005> DHCP Server Identifier: 10.10.10.150 Option: (12) Host Name Value: 43584c6162732d573138> Host Name: CXLabs-W10 Option: (81) Client Fully Qualified Domain Name Length: 13 <Value: 00000043584c6162732d573130> <Value: 00000043584c6162732d573130>
Flags: 0x00
A-RR result: 0
PTR-RR result: 0
Client name: CXLabs-W10
Option: (60) Vendor class identifier
Length: 8
<Value: 4d53465420352438>
Vendor Usi desident profiles Vendor class identifier: MSFT 5.0 Option: (55) Parameter Request List Tomor Coss Jackson Cossenses List Length: 14 «Value: 803860f1f212b2c2e2f7779f9fc> «Value: 803860f1f212b2c2e2f7779f9fc> Parameter Request List Item: (3) Bouter Parameter Request List Item: (3) Bouter Parameter Request List Item: (3) Bouter Parameter Request List Item: (3) Derform Router Discover Parameter Request List Item: (3) Derform Router Discover Parameter Request List Item: (3) Perform Router Discover Parameter Request List Item: (3) Perform Router Discover Parameter Request List Item: (3) Vendor-Specific Information Parameter Request List Item: (4) NetBIOS over TCP/IP Name Server Parameter Request List Item: (4) NetBIOS over TCP/IP Name Server Parameter Request List Item: (4) NetBIOS over TCP/IP Name Server Parameter Request List Item: (12) Itensless Static Route Parameter Request List Item: (12) Itensless Static Route (Microsoft) Parameter Request List Item: (22) Private/Classless Static Route (Microsoft) Parameter Request List Item: (22) Private/Classless Static Route (Microsoft) Parameter Request List Item: (22) Private/Proxy autodiscovery point: 47 «Value: 816e0188080660818a9208a8080000080286707db9b84daf97090074656e616e742d61 Lengtm: 47 <Value: 010e01080006600018a9200a000000000206707db9b84daf97090074656e616e742d610b640a0a0a0105040a0a0a00 Option 82 Suboption: (1) Agent Circuit ID uption 82 Suboption: (1) Agent Circuit II Length: 1080006000183220000000000 Agent Circuit ID: 018000600018320000 Option 82 Suboption: (2) Agent Remote ID Length: 6 <Value: 707db9b04daf> Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID Length: 9 <Value: 0074656e616e742d61> VRF name: > [Expert Info (Warning/Undecoded): Trailing stray characters] Option 82 Suboption: (11) Server ID Override (10.10.10.1)
 ption 82 Suboption: (11) Server ID Override (10.10. Length: 4 <Value: 000000> Server ID Override: 10.10.10.1 ption 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <Value: 0000000> Length: 4 <Value: 0a0a0a01> Link selection: 10.10.10.0 Optio Option: (255) End Option End: 255

Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 60:26:aa:85:95:87 Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 User Datagram Protocol, Src Port: 31730, Dst Port: 4789 Virual eXtensible Local Area Network - Flags: 0x0800, VXLAN Network ID (VMI) Group Policy ID: 0 VXLAN Network Identifier (VMI): 303030 Reserved: 0 VXLAN Network Identifier (VMI): 303030 Reserved: 0 Ethernet II, Src: 70:7d:b0:06:4d:ar, Dst: 02:00:0d:0d:0d:dd:fd Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.150 User Datagram Protocol, Src: Port: 67, Dst Port: 67 Dymaic Host Configuration Protocol (Request) Message type: Boo Request (1) Hardware type: Ethernet (0x01) Hardware address length: 6 Hoos: 1 Transaction ID: 0xe9e35087 Transaction ID: 0x9953087 Seconds elapsed: 0 Bootp flags: 0x8080, Broadcast flag (Broadcast) Client IP address: 0.0.0 Next server IP address: 0.0.0 Next server IP address: 0.0.0 Relay agent IP address: 00:0056:a5fdrdd Client MAC address: 00:0056:a5fdrdd Client MAC address: 00:50:50:50:10:00 Client hardware address padding: 00000000 Server host name not given Boot file name not given Magic cookie: DHCP Option: (53) DHCP Message Type (Request) Length: 1 <Value: 03> DHCP. Remoter (3) <Value: 03>
DHCP: Request (3)
Option: (61) Client identifier
Length: 7
<Value: 01005056a5fddd>
Hardware type: Ethernet (0x01)
Client MAC address: 0018556sa5fddd
Option: (50) Requested IP Address (10.10.10.3)
Length: 4 Option: (50) Requested IP Address (10.10.10.3) Length: 4 <Value: 0800808>> Requested IP Address: 10.10.10.3 Option: (54) DHCP Server Identifier (10.10.10.150) Length: 4 <Value: 08008096> DHCP Server Identifier: 10.10.10.150 Option: (12) Host Name Length: 0 Uption: 147 Length: 14 <Value: 43584c6162732d573130> Host Name: CXLabs=W10 Option: (81) Client Fully Qualified Domain Name Length: 13 <Value: 00000043584c6162732d573130> «Value: U0000043584cb102/32d3/31300 Flags: 00/00 A-RR result: 0 PTR-RR result: 0 Client name: CKLabs-W10 ption: (60) Vendor class identifier Length: 8 <Value: 4d53465420352e30> Vendor class identifier MEET 5 0 Vendor class identifier: MSFT 5.0 Option: (55) Parameter Request List Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID Length: 9 <Value: 0074656e616e742d61> VRF name: Option 82 Suboption: (11) Server ID Override (10.10.10.1) <Value: 0a0a0a01: Server ID Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <Value: 0a0a0a000-Link selection: 10.10.10.0 ption: (255) End

### 在LEAF-2-vPC上請求

在LEAF-2-vPC上請求接收PCd	請求透過vPCAF-2-vPC傳送
Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 60:26:aa:85:95:87 Intermet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 User Datagram Protocol, Src Port: 51730, Dst Port: 4789	
VITUAL EXTENSIBLE Local Area Network Flags: 408080, VCLM Network ID (VNI) Group Policy ID: 0 V/OLM Network Identifier (VAT): 30808	Ethernet II, Src: 60:26:aa:85:95:87, Dst: 00:50:56:a5:dc:ca Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 Near Dataves Percecol. Sc: Rott. 67, Det Port. 67, 57
Reserved: P Reserved: P Ethermet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:df Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150	Operate Tools of Start of Configuration Protocol (Request)     Message type: Boot Request (1)     Hardware type: Ethernet (0x01)
User Datagram Protocol, Src Port: 67. Dst Port: 67	Hardware address length: 6
- Dynamic Host Configuration Protocol (Request)	Hops: 1
Message type: Boot Request (1)	Transaction ID: 0x90=35087
Hardware type: Ethernet (0x01)	Seconds elapsed: 0
Hardware address length: 6	Bootp flags: 0x8000, Broadcast flag (Broadcast)
Hops: 1	Client IP address: 0.0.0.0
Transaction ID: 0xx9e35087	Your (client) IP address: 0.0.0
Seconds elapsed: 0	Next server IP address: 0.0.0
> Bootp flags: 0x80800, Broadcast flag (Broadcast)	Relay agent IP address: 172.16.10.0
Client Fouriers 0 0.0.0	Client MC address: 0.00.05.55.54 cdidd
Your (client) IP address: 0.0.0	Client hardware address badding: 0000000000000000000
Next server IP address: 0.0.0	Server host name not given
Relaw apent IP address: 172.16.10.8	Boot file name not given
Client MAC address: 00:50:55:a3:fd:dd	Magic cookie: DHCP
Client hardware address padding: 000000000000000000	© Option: (53) DHCP Message Type (Request)
Server host name not given	Length:1
Boot file name not given	<value: 03=""></value:>
Magic cookie: DHCP	DHCP: Request (3)
© Option: (S3) DHCP Message Type (Request)	∀ Option: (61) Client identifier
<pre>cvalue: 0&gt; OHCP: Request (3) ODCion: (6) Client identifier</pre>	Leng(n; ) <value: 01005056a5fddd=""> Hardware type: Ethernet (0x01) Client MAC address: 00550:56a3;fd:dd</value:>
Length: 7	Option: (50) Requested IP Address (10.10.10.3)
<value: 01005056a5fddd=""></value:>	Length: 4
Hardware type: Ethernet (0x01)	<∛alue: 80a0a03>
Client MAC address: 00:50:35:10:10	Requested IP Address: 10.10.10.3
• Option: (50) Requested IP Address (10.10.3)	Option: (54) DHCP Server Identifier (10.10.10.150)
Length: 4	Length: 4
+(5)	UTS June Address
Requested IP Address: 10.10.10.3 • Option: (54) DHCP Server Identifier (10.10.10.150) Length: 4	Value, usedado DHCP Server Identifier: 10.10.10.150 • Option: (12) Host Name Length: 10
<value: 0000096=""></value:>	<value: 43544c5162732c4573138=""></value:>
DHCP Server Identifier: 10.10.150	Host Name: CXLabs-W18
∨ Option: (12) Host Name	◇ Option: (81) Client Fully Qualified Domain Name
Length: 10 <pre><pre><pre>dvalue: 43584c6162732d573130&gt; Host Name: CMLabs-H10 </pre></pre></pre>	Length: 13 <value: 00000043584c6162732d573130=""> &gt; Flags: 0x00</value:>
Length: 12	Aron result: 0
_Length: 13	FTR-RR result: 0
_value: 0000043584c6162732d573130>	Client name: CXLabs-W10
> Flags: 0x00	· Option: (60) Vendor class identifier
A-RR result: 0	Length: 8
PTR-RR result: 0	<value: 4d53465420352e30=""></value:>
Client name: CXLabs-W10	Vendor class identifier: MSFT 5.0
<ul> <li>Option: (60) Vendor class identifier</li></ul>	<ul> <li>Option: (5) Parameter Request List</li></ul>
Length: 8 <li><value: 4053465420352c30=""></value:></li> <li>Mondor class identifiers NET 5 0</li>	Length: 14 <li><value: 0103060f1f212b22c2c2f7779f9fc=""></value:></li> <li>Bornerto Deword: List List (15: Schert Mark)</li>
Venuor Cluss Juencal Let : not / 3.0	Parameter Request List Item: (1) Judnet nask
Option: (S) Parameter Request List	Parameter Request List Item: (6) Rowler
Length: 14	Parameter Request List Item: (6) Domain Name Server
<value: 0103060f1f212b2c2e2f7779f9fc=""></value:>	Parameter Request List Item: (15) Domain Name
Parameter Request List Item: (1) Subnet Mask	Parameter Request List Item: (31) Perform Router Discover
Parameter Request List Item: (3) Router	Parameter Request List Item: (33) Static Route
Parameter Request List Item: (6) Domain Name Server	Parameter Request List Item: (43) Vendor-Specific Information
Parameter Request List Item: (15) Domain Name	Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
Parameter Request List Item: (13) Perform Router Discover	Parameter Request List Item: (46) NetBIOS over TCP/IP Node
Parameter Request List Item: (33) Static Route	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
Parameter Request List Item: (34) Under Granting	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
Parameter Request List Item: (44) NetBIOS over TCP/IP Nade Server	Parameter Request List Item: (12) Classless Static Route
Parameter Request List Item: (44) NetBIOS over TCP/IP Nade Server	Parameter Request List Item: (24) Private/Classless Static Route
Parameter Request List Item: (46) NetBIOS over TCP/IP Nade Type	Parameter Request List Item: (24) Private/Classless Static Route (Microsoft)
Parameter Request List Item: (47) NetBIOS over TCP/IP Node Type	Parameter Request List Item: (25) Private/Proxy autodiscovery
Parameter Request List Item: (119) Domain Search	✓ Option: (82) Agent Information Option
Parameter Request List Item: (121) Classless Static Route	Length: 47
Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)	<value: 010e0108000600018a9200a000000000206707db9b84da197090074656e616e742d610b040a0a0a0105040aa0a00=""></value:>
Parameter Request List Item: (252) Private/Proxy autodiscovery (Dotion: (82) Agent Information Option Length: 47 v/s/jun: 318an180808680815802088.98808888936737/h0b884+67308874656616674346186848.98.981858489.9898	<ul> <li>Option 82 Suboption: (1) Agent Circuit ID Length: 14</li> <li></li></ul> <li><ul> <li><ul> <li><ul></ul></li></ul></li></ul></li>
<pre>value: 2/cettodecedefileStatedecederBackTradsburgerStateTradsburgerStateTradsburgerStateStateStateStateStateStateStateSta</pre>	<pre>&gt; Appent Clicking College College</pre>
Agent Circuit ID: 0100000000000000000000000000000000000	Agent Remote ID: 787db9b84daf ∨ Option 82 Suboption: (151) VRF name/VPN ID Length: 9
<pre> Agent Remote ID: 707049084047 </pre> (option 82 Suboption: (151) VRF name/VPN ID	<value: 0074656e516e742d61=""> &gt; VMF name: &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)</value:>
<pre><value: 00746566616e742d61=""> &gt; \WWF name: option 82 Suboption: (11) Server ID Override (10.10.10.1)</value:></pre>	-√alue: 0a0a0a01> Server ID Override: 10.10.10.1 • Option 82 Suboption: (5) Link selection (10.10.00)
Length: 4	Length: 4
≺Value: 8080801>	<value: 80008000=""></value:>
Server ID Override: 10.10.10.1	Link selection: 10.10.10.0
✓ option %2 suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 08000000<br="">Link selection: 10.10.10.0</value:>	<ul> <li>Option: (255) End</li> <li>Option End: 255</li> </ul>
<ul> <li>Option: (255) End</li> <li>Option End: 255</li> </ul>	

在DCHP伺服器上收到請求

Ethernet II, Src: 60:26:aa:85:95:87, Dst: 00:50:56:a5:dc:ca Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 User Datagram Protocol, Src Port: 67, Dst Port: 67 Dynamic Host Configuration Protocol (Request) Message type: Boot Request (1) Hardware type: Ethernet (0x01) Hardware address length: 6 Hons: 1 Transaction ID: 0xe9e35087 Seconds elapsed: 0 Bootp flags: 0x8000, Broadcast flag (Broadcast) Client IP address: 0.0.0.0 Your (client) IP address: 0.0.0.0 Next server IP address: 0.0.0.0 Relay agent IP address: 172.16.10.8 Client MAC address: 00:50:56:a5:fd:dd Client hardware address padding: 00000000000000000000 Server host name not given Boot file name not given Magic cookie: DHCP Option: (53) DHCP Message Type (Request) Length: 1 <Value: 03> DHCP: Request (3) Option: (61) Client identifier Length: 7 <Value: 01005056a5fddd> Hardware type: Ethernet (0x01) Client MAC address: 00:50:56:a5:fd:dd Option: (50) Requested IP Address (10.10.10.3) Length: 4 <Value: 0a0a0a03> Requested IP Address: 10.10.10.3 · Option: (54) DHCP Server Identifier (10.10.10.150) Length: 4 <Value: 0a0a0a96> DHCP Server Identifier: 10.10.10.150 Option: (12) Host Name Length: 10 <Value: 43584c6162732d573130> Host Name: CXLabs-W10 Option: (81) Client Fully Qualified Domain Name Length: 13 <Value: 00000043584c6162732d573130> > Flags: 0x00 A-RR result: 0 PTR-RR result: 0 Client name: CXLabs-W10 Option: (60) Vendor class identifier Length: 8 <Value: 4d53465420352e30> Vendor class identifier: MSFT 5.0 Option: (55) Parameter Request List Length: 14 <Value: 0103060f1f212b2c2e2f7779f9fc> Parameter Request List Item: (1) Subnet Mask Parameter Request List Item: (3) Router Parameter Request List Item: (6) Domain Name Server Parameter Request List Item: (15) Domain Name Parameter Request List Item: (31) Perform Router Discover Parameter Request List Item: (33) Static Route Parameter Request List Item: (43) Vendor-Specific Information Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type Parameter Request List Item: (47) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search Parameter Request List Item: (121) Classless Static Route Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery Option: (82) Agent Information Option Length: 47 <Value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00> Option 82 Suboption: (1) Agent Circuit ID Length: 14 <Value: 0108000600018a9200a00000000> Agent Circuit ID: 0108000600018a9200a00000000 Option 82 Suboption: (2) Agent Remote ID Length: 6 <Value: 707db9b84daf> Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID Length: 9 <Value: 0074656e616e742d61> VRF name: Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 <Value: 0a0a0a01> Server ID Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <Value: 0a0a0a00> Link selection: 10.10.10.0 Option: (255) End Option End: 255

ACK由DCHP伺服器傳送
```
Ethernet II, Src: 00:50:56:a5:dc:ca, Dst: 00:00:0a:0a:0a:0a
Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8
User Datagram Protocol, Src Port: 67, Dst Port: 67
Dynamic Host Configuration Protocol (ACK)
  Message type: Boot Reply (2)
  Hardware type: Ethernet (0x01)
  Hardware address length: 6
  Hops: 0
  Transaction ID: 0xe9e35087
  Seconds elapsed: 0

    Bootp flags: 0x8000, Broadcast flag (Broadcast)

    1... .... = Broadcast flag: Broadcast
    .000 0000 0000 0000 = Reserved flags: 0x0000
  Client IP address: 0.0.0.0
  Your (client) IP address: 10.10.10.3
  Next server IP address: 0.0.0.0
  Relay agent IP address: 172.16.10.8
  Client MAC address: 00:50:56:a5:fd:dd
  Client hardware address padding: 00000000000000000000
  Server host name not given
  Boot file name not given
  Magic cookie: DHCP
  Option: (53) DHCP Message Type (ACK)
    Length: 1
    <Value: 05>
    DHCP: ACK (5)

    Option: (58) Renewal Time Value

    Length: 4
    <Value: 0000a8c0>
    Renewal Time Value: 12 hours (43200)

    Option: (59) Rebinding Time Value

    Length: 4
    <Value: 00012750>
    Rebinding Time Value: 21 hours (75600)
· Option: (51) IP Address Lease Time
    Length: 4
    <Value: 00015180>
    IP Address Lease Time: 1 day (86400)

    Option: (54) DHCP Server Identifier (10.10.10.1)

    Length: 4
    <Value: 0a0a0a01>
    DHCP Server Identifier: 10.10.10.1

    Option: (1) Subnet Mask (255.255.255.0)

    Length: 4
    <Value: ffffff00>
    Subnet Mask: 255.255.255.0
  Option: (81) Client Fully Qualified Domain Name
    Length: 3
    <Value: 00ffff>
    Flags: 0x00
    A-RR result: 255
    PTR-RR result: 255

    Option: (3) Router

    Length: 4
    <Value: 0a0a0a01>
    Router: 10.10.10.1

    Option: (15) Domain Name

    Length: 10
    <Value: 636973636f2e636f6d00>
    Domain Name: cisco.com

    Option: (82) Agent Information Option

    Length: 47
    <Value: 010e0108000600018a9200a00000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00>

    Option 82 Suboption: (1) Agent Circuit ID

      Length: 14
       <Value: 0108000600018a9200a00000000>
      Agent Circuit ID: 0108000600018a9200a00000000

    Option 82 Suboption: (2) Agent Remote ID

      Length: 6
       <Value: 707db9b84daf>
      Agent Remote ID: 707db9b84daf

    Option 82 Suboption: (151) VRF name/VPN ID

      Length: 9
       <Value: 0074656e616e742d61>
     VRF name:
        [Expert Info (Warning/Undecoded): Trailing stray characters]
           [Trailing stray characters]
<Message: Trailing stray characters>
           [Severity level: Warning]
           [Group: Undecoded]

    Option 82 Suboption: (11) Server ID Override (10.10.10.1)

      Length: 4
       <Value: 0a0a0a01>
      Server ID Override: 10.10.10.1
   Option 82 Suboption: (5) Link selection (10.10.10.0)
      Length: 4
       <Value: 0a0a0a00>
      Link selection: 10.10.10.0
  Option: (255) End
    Option End: 255
```

## LEAF-2-vPC上的ACK

在LEAF-2-vPC上收到的ACK	LEAF-2-vPC傳送的ACK
在LEAF-2-vPCL上收到的ACK: #ELEAF-2-vPCL比收到的ACK: #ELEAF-2-vPCL比收到的ACK: #ELEAF-2-vPCL比收到的ACK: #ELEAF-2-vPCL比收到的ACK: #ELEAF-2-vPCL比收到的ACK: #ELEAF-2-vPCL比收到的ACK: #ELEAF-2-vPCL比收到的ACK: #ELEAF-2-vPCLUV: #ELEAF-2	LEAF-2-vPC/#j260ACK
Length: 47 -value: 010e010500600013a9200a0000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00- · Option 82 Suboption: (1) Agent Circuit ID Length: 14 -value: 0108000600018a9200a000000000 · Option 82 Suboption: (2) Agent Remote ID Length: 6 -value: 707db9b84daf> Agent Remote ID: 707db9b84daf · Option 82 Suboption: (151) VFF name.VFN ID	Router: 10.10.10.1         * Option: (15) Domain Name         Length: 10                 Domain Name          Domain Name:          Domain Name:          Domain Name:          Domain Name:          Quite:          Quite:
<pre>&gt; Agent Remote 20: Forgotoedaan &gt; Option 82 Subption: (151) VMF name/VFN ID Length: 9 <value: 0074656e56e56e742d61=""> VMF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]     [Trailing stray characters]     dMessage: Trailing stray characters&gt;     [Severity Level: Warning]     [Group: Undecoded]     Option 82 Subpotion: (11) Server ID Override (10.10.10.1) </value:></pre>	Length: 14 <value: 010800600018s9200a00000000=""> Agent Circuit ID: 010800600018s9200a00000000 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 7070b984daf=""> Agent Remote ID: 7070b984daf  Option 82 Suboption: (151) VRF name/VFN ID Length: 9 <value: 00746556616e742d61=""></value:></value:></value:>
<ul> <li>Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4</li> <li><value: 00800808=""></value:></li> <li>Server ID Override: 10.10.10</li> <li>Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4</li> <li><value: 00800808=""></value:></li> <li>Link selection: 10.10.0</li> <li>Option: (255) End</li> <li>Option: End: 255</li> </ul>	<pre>VWF name: [Expert Info (Warning/Indecoded): Trailing stray characters] [Trailing stray characters] dressage: Trailing stray characters&gt; [Severity level: Warning] [Group: Undecoded] Option \$2 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 </pre>
<pre>&gt; Option End: 255</pre>	Length: 4 <value: 00000015<br="">Server ID Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.0) Length: 4 <value: 00000005<br="">Link selection: 10.10.00 Option: (255) End Option: End: 255</value:></value:>
	option contractor

## 脊柱上的ACK

脊柱上收到ACK	透過主幹傳送ACK
Ethernet II, Src: 60:26:aa:85:95:87, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 13.13.13:254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65518, Dst Port: 4789 Virtual eXtensible Local Area Network	<ul> <li>Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 70:7d:b9:b8:4d:af</li> <li>Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5</li> <li>User Datagram Protocol, Src Port: 65518, Dst Port: 4789</li> <li>Virtual eXtensible Local Area Network</li> </ul>
> Flags: 0x8800, VXLAN Network ID (VNI)	> Flags: 0x0800, VXLAN Network ID (VNI)
Group Policy ID: 0	Group Policy ID: 0
VXLAN Network Identifier (VNI): 303030	VXLAN Exercise (NNT), 202020
Reserved: 0 Ethernet II, Src: 02:00:0d:0d:0d:de, Dst: 70:7d:b9:b8:4d:af	VALWA Network Identifier (VMI): 303030 Reserved: 0 Ethernet II, Src: 02:00:0d:0d:0d:fe, Dst: 70:7d:b9:b8:4d:af
<ul> <li>Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8</li> <li>User Datagram Protocol, Src Port: 67, Dst Port: 67</li> <li>Dynamic Host Configuration Protocol (ACK)</li> </ul>	<ul> <li>Internet Protocol Version 4, Src: 10.10.150, Dst: 172.16.10.8</li> <li>User Datagram Protocol, Src Port: 67, Dst Port: 67</li> <li>Dwameic Most Configuration Protocol (4CK)</li> </ul>
Message type: Boot Reply (2)	Message type: Boot Reply (2)
Hardware type: Ethernet (0x01)	Hardware type: Ethernet (0x01)
Hops: 0 Transaction ID: 0xe9e35087	Hardware address length: 6 Hops: 0 Transaction ID: 0xe9e35087
Seconds elapsed: 0	Seconds elapsed: 0
> Bootp flags: 0x8000, Broadcast flag (Broadcast)	- Bootp flags: 0x8000, Broadcast flag (Broadcast)
- = = Broadcast flag: Broadcast	- Boodcast flag: Broadcast flag: Broadcast
.000 0000 0000 = Reserved flags: 0x0000	.000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0	Client IP address: 0.0.0.0
Your (client) IP address: 0.10.10.3	Your (client) IP address: 10.10.10.3
Next server IP address: 0.0.0.0	Next server IP address: 0.0.0
Relay agent IP address: 172.16.10.8	Relay agent IP address: 172.16.10.8
Client MAC address: 00:50:56:45:fd:dd	Client MAC address: 00:50:56:a5:fd:dd
Client hardware address padding: 0000000000000000000	Client hardware address padding: 000000000000000000
Boot file name not given Magic cookie: DHCP	Server nost name not given Boot file name not given Magic cookie: DHCP
<ul> <li>Option: (53) DHCP Message Type (ACK)</li></ul>	<ul> <li>Option: (53) DHCP Message Type (ACK)</li></ul>
Length: 1 <li>eValue: 45%</li>	Length: 1 <li>(43) DHCP Message Type (ACK)</li>
DHCP: ACK (5)	DBCP: ACK (5)
~ Option: (58) Renewal Time Value	V Option: (58) Renewal Time Value
Length: 4	Length: 4
≪Value: 0000a8c0≻	≪Value: 0000a8c0>
Renewal Time Value: 12 hours (43200)	Renewal Time Value: 12 hours (43200)
<ul> <li>Option: (59) Rebinding Time Value</li></ul>	<ul> <li>Option: (59) Rebinding Time Value</li></ul>
Length: 4	Length: 4
Rebinding Time Value: 21 hours (75600)	Rebinding Time Value: 21 hours (75600)
• Option: (51) IP Address Lease Time	• Option: (51) IP Address Lease Time
Length: 4	Length: 4
≺Value: 00015180≻	≪Value: 00015180≻
IP Address Lease Time: 1 day (86400)	IP Address Lease Time: 1 day (86400)
Option: (54) DHCP Server Identifier (10.10.10.1) Length: 4	<ul> <li>Option: (54) DHCP Server Identifier (10.10.10.1)</li> <li>Length: 4</li> </ul>
<pre>value: eedeededa</pre>	Value: 00000012
DHCP Server Identifier: 10.10.10.1	DHCP Server Identifier: 10.10.10.1
○ Option: (1) Subnet Mask (255.255.255.0)	· Option: (1) Subnet Mask (255.255.255.0)
Length: 4	Length: 4
≪Value: fffff00>	≪Value: ffffff00>
Subnet Mask: 255.255.0	Subnet Mask: 255.255.255.0
<ul> <li>Option: (81) Client Fully Qualified Domain Name</li></ul>	<ul> <li>Option: (81) Client Fully Qualified Domain Name</li></ul>
Length: 3	Length: 3
Value: 001117 V Flags: 0x00 0000 = Reserved flags: 0x0	√Flags: 0x00 0000 = Reserved flags: 0x0
0 = Server DDNS: Some server updates	0 = Server DUNS: Some server updates
0 = Encoding: ASCII encoding	0 = Encoding: ASCII encoding
8 = Server overrides . No override	0 = Server override: No override
A-RR result: 255	
PTR-RR result: 255	PTR-RR result: 255
© Option: (3) Router	© Option: (3) Router
Lenoth: 4	Length: 4
<value: 0a0a0a01=""> Router: 10.10.10</value:>	<value: 00000001=""> Router: 10.10.10.1 Option: (15) Depair Name</value:>
Length 10	Length: 10
300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016 </300/2016</td <td><value: 636973636f2e636f6d00=""></value:></td>	<value: 636973636f2e636f6d00=""></value:>
Domain Name: cisco.com • Option: (82) Agent Information Option	Domain Name: cisco.com • Option: (82) Agent Information Option length: 42
Length: 47 <value: 010e0108000600018a9200a0000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""> &lt; Option 82 Suboption: (1) Agent Circuit ID</value:>	value: 010e010800060001839200a00000000206707db9b84da197090074656e516e742d610b040a0a0a0105040a0a0a00> • Option 82 Suboption: (1) Agent Circuit ID
Length: 14	Length: 14
<value: 010800600018a9200a000000000<="" td=""><td><value: 010800600018a9200a00000000=""></value:></td></value:>	<value: 010800600018a9200a00000000=""></value:>
Apent Circuit TD: 0108000600018a9200a0000000	Agent Circuit ID: 0108000600018a9200a00000000
<ul> <li>Option 82 Suboption: (2) Agent Remote ID</li></ul>	<ul> <li>Option 82 Suboption: (2) Agent Remote ID</li></ul>
Length: 6	Length: 6 <li><pre>cv3ue: 78700088dafs</pre></li>
<pre><raule: #="" <br="" db="">Agent Remote ID: 787/db/bb/84daf </raule:></pre> Option 82 Subption: (151) VRF name/VPN ID	Agent Remote ID: 707db9b84daf © Option 82 Suboption: (151) VRF name/VPN ID
Length: 9 <value: 0074656e616e742d61=""></value:>	Length: 9 <value: 0074656e616e742d61=""> VRF name:</value:>
<ul> <li>Ver name:</li> <li>[Expert Info (Warning/Undecoded): Trailing stray characters]         [Trailing stray characters]</li> </ul>	<ul> <li>[Expert Info (Warning/Undecoded): Trailing stray characters] [Trailing stray characters]</li> </ul>
<pre><message: characters="" stray="" trailing=""> [Severity level: Warning] [Group: Hierogen]</message:></pre>	<pre>~message: rraiing stray characters&gt; [Severity level: Warning] [Group: Undecoded]</pre>
<ul> <li>Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4</li> </ul>	<pre>&gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 <value: 88888881=""></value:></pre>
<pre><rauce: useduates<br="">Server ID Override: 10.10.10.1 ○ Option 82 Suboption: (5) Link selection (10.10.10.0)</rauce:></pre>	Server ID Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0)
Length: 4	Lengun: ≄
<value: 0000000=""></value:>	<value: 0a0a0a00=""></value:>
Link selection: 10.10.0	Link selection: 10.10.0
<ul> <li>Option: (255) End</li> <li>Option End: 255</li> </ul>	Option: (255) End Option End: 255

LEAF-1上的ACK

在LEAF-1上收到的ACK	ACK由LEAF-1傳送
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	> Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: ff:ff:ff:ff:ff:ff
> Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 70:7d:b9:b8:4d:af	> Internet Protocol Version 4, Src: 10.10.10.1, Dst: 255.255.255.255
Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65518, Dst Port: 4789	> User Datagram Protocol, Src Port: 67, Dst Port: 68
Virtual eXtensible Local Area Network	> Dynamic Host Configuration Protocol (ACK)
> Flags: 0x0800, VXLAN Network ID (WNI) Group Policy ID: 0	Message type: Boot Reply (2)
VXLAN Network Identifier (WNI): 303030	Hardware type: Ethernet (0x01)
Reserved: 0	Hardware address length: 6
Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8	Hops: 0
> User Datagram Protocol, Src Port: 67, Dst Port: 67	Transaction ID: 0xe9e35087
Message type: Boot Reply (2)	Seconds elansed: 0
Hardware type: Ethernet (0x01)	<pre>_ Bootn flags: 0x8000 Broadcast flag (Broadcast)</pre>
Hops: 0	1 - Broadcast flag: Broadcast
Transaction ID: 0xe9e35087	And Anna Anna Anna - Diodacast Trag. Diodacast
<ul> <li>Bootp flags: 0x8000, Broadcast flag (Broadcast)</li> </ul>	Client TD address, 0.0.0
1 = Broadcast flag: Broadcast	Client IP address: 0.0.0.0
Client IP address: 0.0.0.0	Your (client) IP address: 10.10.10.3
Your (client) IP address: 10.10.10.3	Next server IP address: 0.0.0.0
Relay agent IP address: 172.16.10.8	Relay agent IP address: 10.10.10.1
Client MAC address: 00:50:56:a5:fd:dd	Client MAC address: 00:50:56:a5:fd:dd
Server host name not given	Client hardware address padding: 0000000000000000000
Boot file name not given	Server host name not given
• Option: (53) DHCP Message Type (ACK)	Boot file name not given
Length: 1	Magic cookie: DHCP
DHCP: ACK (5)	Option: (53) DHCP Message Type (ACK)
<ul> <li>Option: (58) Renewal Time Value</li> <li>Lemath: 4</li> </ul>	Length: 1
<value: 0000a8c0=""></value:>	<value: 05=""></value:>
Renewal Time Value: 12 hours (43200)	DHCP: ACK (5)
Length: 4	Ontion: (58) Renewal Time Value
<value: 00012750=""> Rebinding Time Value: 21 hours (75600)</value:>	· option. (58) Renewalt Time value
• Option: (51) IP Address Lease Time	Length; 4
Length: 4	<value: 0000a8c0=""></value:>
IP Address Lease Time: 1 day (86400)	Renewal Time Value: 12 nours (43200)
<ul> <li>Option: (54) DHCP Server Identifier (10.10.10.1)</li> <li>Length: 4</li> </ul>	Option: (59) Rebinding Time Value
<value: 0a0a0a01=""></value:>	Length: 4
DHCP Server Identifier: 10.10.10.1 - Option: (1) Subnet Mask (255.255.25.0)	<value: 00012750=""></value:>
Length: 4	Rebinding Time Value: 21 hours (75600)
<value: fffff00=""> Subnet Mask: 255.255.25.0</value:>	<ul> <li>Option: (51) IP Address Lease Time</li> </ul>
<ul> <li>Option: (81) Client Fully Qualified Domain Name</li> </ul>	Length: 4
<pre>Length: 3 </pre>	<value: 00015180=""></value:>
- Flags: 0x00	IP Address Lease Time: 1 day (86400)
0000 = Reserved flags: 0x0 0 = Server DDNS: Some server updates	<ul><li>Option: (54) DHCP Server Identifier (10.10.10.1)</li></ul>
	Length: 4
0 = Server overrides: No override 0 = Server: Client	<value: 0a0a0a01=""></value:>
A-RR result: 255	DHCP Server Identifier: 10.10.10.1
• Option: (3) Router	<pre>&gt; Ontion: (1) Subnet Mask (255,255,255,0)</pre>
Length: 4	Length: A
Router: 10.10.10.1	
<ul> <li>Option: (15) Domain Name</li> <li>Legath: 10</li> </ul>	Suboot Marky 255 255 0
<value: 636973636f2e636f6d00=""></value:>	Subnet Mask: 255.255.0
Domain Name: cisco.com	v uption: (81) client Fully qualified Domain Name
Length: 47	Length: 3
<pre><value: 01000108000600018a9200a0000000000206707db9b84daf97090074656c616e742d610b040a0a0a0105040a0a0a00=""> </value:></pre> Option 82 Suboption: (1) Agent Circuit ID	<value: 00tttt=""></value:>
Length: 14	∨ Flags: 0x00
<value: 0108000600018a9200a000000000=""> Agent Circuit ID: 0108000600018a9200a00000000</value:>	0000 = Reserved flags: 0x0
<ul> <li>Option 82 Suboption: (2) Agent Remote ID</li> </ul>	<pre> 0 = Server DDNS: Some server updates</pre>
<pre></pre> <pre></pre> <pre></pre> <pre>Length: 6 </pre> <pre></pre>	<pre>0 = Encoding: ASCII encoding</pre>
Agent Remote ID: 707db9b84daf	<pre>0. = Server overrides: No override</pre>
Option 82 Suboption: (151) VRF name/VPN 10 Length: 9	0 = Server: Client
<value: 0074656e616e742d61=""></value:>	A-RR result: 255
<pre>v VKr name: v [Expert Info (Warning/Undecoded): Trailing stray characters]</pre>	PTR-RR result: 255
(Trailing stray characters)	Option: (3) Router
<pre>sage: realing stray characters&gt; [Severity level: Warning]</pre>	Length: 4
[Group: Undecoded]	<value: 0a0a0a01=""></value:>
Length: 4	Bouter: 10.10.10.1
<value: 0a0a0a01=""></value:>	v Ontion: (15) Domain Name
<ul> <li>Option 82 Suboption: (5) Link selection (10.10.10.0)</li> </ul>	Length: 10
Length: 4	
Link selection: 10.10.10.0	<vatue: 0309="" 303012003010000=""></vatue:>
<ul> <li>Option: (255) End</li> <li>Option: End: 255</li> </ul>	Domain Name: Cisco.com
vpravn 6no. 433	• Option: (255) End
	Option End: 255

主機1上的ACK

Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: ff:ff:ff:ff:ff:ff Internet Protocol Version 4, Src: 10.10.10.1, Dst: 255.255.255.255 > User Datagram Protocol, Src Port: 67, Dst Port: 68 Dynamic Host Configuration Protocol (ACK) Message type: Boot Reply (2) Hardware type: Ethernet (0x01) Hardware address length: 6 Hops: 0 Transaction ID: 0xe9e35087 Seconds elapsed: 0 Bootp flags: 0x8000, Broadcast flag (Broadcast) 1... .... = Broadcast flag: Broadcast .000 0000 0000 0000 = Reserved flags: 0x0000 Client IP address: 0.0.0.0 Your (client) IP address: 10.10.10.3 Next server IP address: 0.0.0.0 Relay agent IP address: 10.10.10.1 Client MAC address: 00:50:56:a5:fd:dd Client hardware address padding: 0000000000000000000 Server host name not given Boot file name not given Magic cookie: DHCP Option: (53) DHCP Message Type (ACK) Length: 1 <Value: 05> DHCP: ACK (5) Option: (58) Renewal Time Value Length: 4 <Value: 0000a8c0> Renewal Time Value: 12 hours (43200) Option: (59) Rebinding Time Value Length: 4 <Value: 00012750> Rebinding Time Value: 21 hours (75600) Option: (51) IP Address Lease Time Length: 4 <Value: 00015180> IP Address Lease Time: 1 day (86400) Option: (54) DHCP Server Identifier (10.10.10.1) Length: 4 <Value: 0a0a0a01> DHCP Server Identifier: 10.10.10.1 Option: (1) Subnet Mask (255.255.255.0) Length: 4 <Value: ffffff00> Subnet Mask: 255.255.255.0 Option: (81) Client Fully Qualified Domain Name Length: 3 <Value: 00ffff> Flags: 0x00 0000 .... = Reserved flags: 0x0 .... 0... = Server DDNS: Some server updates .... .0.. = Encoding: ASCII encoding .... ..0. = Server overrides: No override .... ...0 = Server: Client A-RR result: 255 PTR-RR result: 255 Option: (3) Router Length: 4 <Value: 0a0a0a01> Router: 10.10.10.1 Option: (15) Domain Name Length: 10 <Value: 636973636f2e636f6d00> Domain Name: cisco.com Option: (255) End Option End: 255

## 相關資訊

<u>設定VXLAN BGP EVPN</u>

<u>配置VXLAN</u>

排除Nexus 9000上的DHCP相關問題

<u>Cisco Nexus 9000系列NX-OS VXLAN配置指南,版本10.4(x)</u>

## 關於此翻譯

思科已使用電腦和人工技術翻譯本文件,讓全世界的使用者能夠以自己的語言理解支援內容。請注 意,即使是最佳機器翻譯,也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準 確度概不負責,並建議一律查看原始英文文件(提供連結)。