为使用NX-OS和Windows Server 2022的Nexus 9000配置并验证VxLAN交换矩阵中的DHCP

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简介

本文档介绍如何在具有Nexus 9000交换机的VxLAN交换矩阵中配置DHCP并对其进行故障排除。

先决条件

要求

Cisco 建议您了解以下主题:

- Nexus NX-OS 软件。
- 虚拟端口通道(vPC)。
- VxLAN BGP L2VPN EVPN
- BGP address-family IPv4
- OSPF
- 组播PIM(稀疏模式)
- DHCP

使用的组件

本文档中的信息基于以下软件和硬件版本:

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

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原 始(默认)配置。如果您的网络处于活动状态,请确保您了解所有命令的潜在影响。



注意:有关第三方软件或硬件的配置和集成的任何问题均不在思科支持范围内。使用第三 方工具是向客户演示您使用思科设备的配置和操作的最佳方式。

背景信息

实验室中VxLAN的底层和重叠配置



实验室中的VxLAN交换矩阵图

- 主干:
 - 此Nexus交换机发送DHCP(发现、提供、请求、确认)数据包,在此场景中未解封。
 仅使用外部报头。
 - 充当网络交换矩阵中的中心路由点。
 - 。负责互连所有枝叶交换机并促进它们之间的数据流。
 - 。参与BGP以将EVPN路由分发到枝叶交换机。
 - ◎执行IP路由,并可通过查看外部IP报头在不同子网或VxLAN网段之间路由流量。
 - ◎ 将重叠网络(VxLAN)与底层物理网络分离。
 - 使用传统IP路由协议管理底层,而重叠则由采用BGP EVPN的VxLAN管理,从而提供可 扩展的灵活网络架构。
- 枝叶1:
 - 枝叶交换机为服务器、存储设备和其他网络设备等终端提供物理连接。
 - ◎ 枝叶交换机充当VTEP,这意味着它们会封装和解封VxLAN数据包。
 - 。在这种情况下,主机1发出IP地址请求。
 - 。LEAF-1负责在VxLAN报头中封装DCHP数据包。
 - 主机1以经典以太网透明方式接收DCHP数据包。
- 枝叶-1-vPC和枝叶-2-vPC:
 - 枝叶交换机通过运行BGP和交换路由信息参与EVPN控制平面。这允许分配MAC和IP地 址信息,确保流量可以通过VxLAN交换矩阵高效路由。
 - ◎ 在此场景中,DHCP服务器与VLAN 10和VNI 101010关联,就像主机1一样。这意味着 它只是VxLAN桥接。
 - ◎ 如果DHCP服务器与HOST#1以外的VNI关联,则路由严格需要L3VNI。必须创建源和目 标VNI。
 - 。DCHP服务器以经典以太网透明方式接收DCHP数据包。
 - ◎ vPC中的两台Nexus交换机均会接收BUM流量,但只有在vPC中运行的主要Nexus交换

机才会发送流量。辅助Nexus交换机丢弃流量。在此场景中,LEAF-1-vPC在操作上为主 要。

- 必须使用infra-vlan,因为如果LEAF-2-vPC到SPINE的接口断开,则无法发送DCHP数据
 包。要将VxLAN封装的流量发送到LEAF-1-vPC,需要此备份VLAN。这样,LEAF-1-vPC可以将DCHP数据包发送到SPINE。
- N9K-ACCESS :
 - ◎ 此Nexus交换机仅使用vPC端口通道提供到两个枝叶的连接,以实现到HOST#2的冗余

主干

```
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
```

枝叶-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

枝叶-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

枝叶-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 nvel 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交换机上的DHCP配置

枝叶-1

步骤1:启用功能DCHP。

LEAF-1(config)# feature dhcp



注意:自NX-OS 7.x以来,默认情况下启用DHCP服务器和中继代理命令service dhcp、ip dhcp relay和ipv6 dhcp relay。

第二步:应用命令ip dhcp relay information option。

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



注意:使用此命令,DHCP中继代理可以插入和删除选项82有关转发数据包的信息。

第三步:应用命令ip dhcp relay information option vpn。

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



注意:此命令启用到达DHCP服务器所属的不同VRF的DHCP中继请求。

第四步:应用命令"ip dhcp relay address [DCHP服务器的IP地址]"。



注意:在本示例中,DCHP服务器的IP地址为10.10.10.150。

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

第五步:应用命令"ip dhcp relay source-interface [unique loopback]"。



注意:此命令配置DHCP中继代理的源IP地址,以便处理发现、提供、请求和ACK单播通信 ,而DHCP中继代理使用SVI的IP地址作为DHCP中继代理的源IP地址。这是不需要的,因 为此IP地址由多个VTEP共享,并且可能发生对DHCP数据包的黑洞。要避免这种情况,需 要唯一IP地址(使用环回接口)来区分每个VTEP。

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

第六步:在BGP内对应租户的VRF中,使用前缀列表和路由映射(包括环回接口的IP地址)直接路 由重分配。



注意:此环回接口属于SVI的租户。

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-routes_tenant-a

步骤 7.使用命令show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]验证环回接口的IP地址是否已在 BGP L2VPN EVPN中通告给主干。 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

步骤 8验证环回接口的IP地址已注入到DHCP服务器所在的BGP L2VPN EVPN。



注意:如果vPC中有Nexus交换机,请确认它们都获取BGP L2VPN EVPN中环回接口的 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

步骤 9 使用命令show ip route [DHCP server IP] vrf [tenant vrf]验证源租户上是否存在DHCP服务器 的路由。



注意:要使用的路由条目必须从VxLAN到默认VRF。如果没有可用的路由,请检查VTEP是 否本地知道DCHP服务器IP地址。

```
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>
```

步骤 10使用命令ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf]验证DCHP服务 器IP是否可通过环回接口和相应的VRF作为VRF源来访问。

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

步骤 11检验DHCP中继代理的状态。

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

步骤 12检验option82,例如vpn选项和中继代理下的正确中继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>

步骤 13检验已处理和转发的数据包的统计信息。

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

步骤 14检验中继数据包的统计信息。

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 switch				
receives DHCP request packet with destination ip as broadcast				
address. If request is unicast it will be HW switched				

枝叶-1-vPC DHCP

步骤1:启用功能DCHP。

LEAF-1-VPC(config)#feature dhcp



注意:自NX-OS 7.x以来,默认情况下启用DHCP服务器和中继代理命令service dhcp、ip dhcp relay和ipv6 dhcp relay。

第二步:应用命令ip dhcp relay information option。

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



注意:使用此命令,DHCP中继代理可以插入和删除选项82有关转发数据包的信息。

第三步:应用命令"ip dhcp relay information option vpn"。

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



注意:此命令启用到达DHCP服务器所属的不同VRF的DHCP中继请求。

第四步:应用命令ip dhcp relay address [DCHP服务器的IP地址]。



注意:在本示例中,DCHP服务器的IP地址为10.10.10.150。

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

第五步:应用命令"ip dhcp relay source-interface [unique loopback]"。



注意:此命令配置DHCP中继代理的源IP地址,以便处理发现、提供、请求和ACK单播通信 ,而DHCP中继代理使用SVI的IP地址作为DHCP中继代理的源IP地址。这是不需要的,因 为此IP地址由多个VTEP共享,并且可能发生对DHCP数据包的黑洞。要避免这种情况,需 要唯一IP地址(使用环回接口)来区分每个VTEP。

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

第六步:在BGP内对应租户的VRF中,使用前缀列表和路由映射(包括环回接口的IP地址)直接路 由重分配。



注意:此环回接口属于SVI的租户。

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

步骤 7.使用命令show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]验证环回接口的IP地址是否已在 BGP L2VPN EVPN中通告给主干。 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 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

步骤 8验证环回接口的IP地址已注入到DHCP服务器所在的BGP L2VPN EVPN。



注意:如果vPC中有Nexus交换机,请确认它们都获取BGP L2VPN EVPN中环回接口的 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

步骤 9 使用命令show ip route [DHCP server IP] vrf[tenant vrf]验证源租户上是否存在DHCP服务器的路由。



注意:要使用的路由条目必须从VxLAN到默认VRF。如果没有可用的路由,请检查VTEP是 否本地知道DCHP服务器IP地址。

```
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
```
步骤 10使用命令ping [DHCP server IP] source-interface loopback [x] vrf [tenvrf]验证能否使用环回 接口和相应的VRF作为VRF源访问DCHP服务器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 ---

步骤 11检验DHCP中继代理的状态。

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

步骤 12检验option82,例如vpn选项和中继代理下的正确中继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 on the following interfaces:InterfaceRelay AddressVRF Name------------------Vlan1010.10.10.150<<<<<<<</td>

步骤 13检验已处理和已转发的数据包的统计信息。

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

步骤 14检验中继数据包的统计信息。

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	
DHCP L3 FWD:	.			<u> </u>	
lotal Packets	Received		:	0	
Total Packets	Forwarded		:	0	
lotal Packets	Dropped		:	0	
Non DHCP:					
Iotal 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	ch
receives DHCP request packet with destination	ip as bro	oadcast
address. If request is unicast it will be HW	switched	

枝叶-2-vPC DHCP

步骤1:启用功能DCHP。

LEAF-2-VPC(config)# feature dhcp



注意:自NX-OS 7.x以来,默认情况下启用DHCP服务器和中继代理命令service dhcp、ip dhcp relay和ipv6 dhcp relay。

第二步:应用命令"ip dhcp relay information option"。

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



注意:使用此命令,DHCP中继代理可以插入和删除选项82有关转发数据包的信息。

第三步:应用命令"ip dhcp relay information option vpn"。

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



注意:此命令启用到达DHCP服务器所属的不同VRF的DHCP中继请求。

第四步:应用命令"ip dhcp relay address [DCHP服务器的IP地址]"。



注意:在本示例中,DCHP服务器的IP地址为10.10.10.150。

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

第五步:应用命令"ip dhcp relay source-interface [unique loopback]"。



注意:此命令配置DHCP中继代理的源IP地址,以便处理发现、提供、请求和ACK单播通信 ,而DHCP中继代理使用SVI的IP地址作为DHCP中继代理的源IP地址。这是不需要的,因 为此IP地址由多个VTEP共享,并且可能发生对DHCP数据包的黑洞。要避免这种情况,需 要唯一IP地址(使用环回接口)来区分每个VTEP。

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

第六步:在BGP内对应租户的VRF中,使用前缀列表和路由映射(包括环回接口的IP地址)直接路 由重分配。



注意:此环回接口属于SVI的租户。

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-routes_tenant-a)

步骤 7.使用命令show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]验证环回接口的IP地址是否已在 BGP L2VPN EVPN中通告给主干。 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

步骤 8验证环回接口的IP地址已注入到DHCP服务器所在的BGP L2VPN EVPN。



注意:如果vPC中有Nexus交换机,请确认它们都获取BGP L2VPN EVPN中环回接口的 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

步骤 9使用命令show ip route [DHCP server IP] vrf[tenvrf]验证源租户上是否存在DHCP服务器的路 由。



注意:要使用的路由条目必须从VxLAN到默认VRF。如果没有可用的路由,请检查VTEP是 否本地知道DCHP服务器IP地址。

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

步骤 10使用命令ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf]验证DCHP服务 器IP是否可通过环回接口和相应的VRF作为VRF源来访问。

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 ---

步骤 11检验DHCP中继代理的状态。

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

步骤 12检验option82,例如vpn选项和中继代理下的正确中继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>

步骤 13检验已处理和已转发的数据包的统计信息。

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

步骤 14检验中继数据包的统计信息。

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	
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	vhen swit	ch
receives DHCP request packet with destination	ip as br	oadcast
address. If request is unicast it will be HW s	switched	

Windows Server 2022上的DHCP服务器配置

主机的IP寻址范围配置。

步骤1:打开服务器管理器,并验证控制面板中的DCHP服务器上没有警报。



Windows Server 2022上服务器管理器的仪表板



第二步:打开DHCP Server(DHCP服务器)应用程序。

The Action View Hole Action 2 State - which is Action I mith-which is Action

Windows Server 2022上的DHCP服务器

DHCP

第三步:右键单击IPv4并单击New Scope。

📜 рнср File Action View Help 🔶 🔶 🔟 🕞 📰 🔒 CHCP Contents of DHCP Status cxlabs-win2k22dc \mathcal{M}^{1} 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

E

第四步:单击 Next。

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		

第五步:写下名称和说明。在本示例中,名称是属于VLAN 10的子网,说明是L2VNI,作为L2VNI列 于VLAN 10。

New Scope Wizard		
Scope Name You have to pro a description.	ovide an identifying scope name. You also have the option of providing	Ð
Type a name an how the scope i	nd description for this scope. This information helps you quickly identify is to be used on your network.	
Name:	10.10.10/24	
Description:	L2VNI 101010	
	< Back Next > Cancel	

第六步:配置IP地址范围这是主机池。

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

第六步:从VTEP中的SVI配置中排除共享IP地址。在本示例中,接口VLAN 10的地址为 IP.10.10.1/24。



警告:未能从SVI(或默认网关)中排除IP地址可能会导致重复IP地址并影响流量传输。

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 I
Excluded address range: Address 10.10.10.1 Remove
Subnet delay in milli second:
< Back Next > Cancel

步骤 7.配置IP地址的租用期限。这是指主机在更新之前可以使用分配的IP地址的时间。

New Scope Wizard	
Lease 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]

步骤 8选择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
C No, I will configure these options later
< Back Next > Cancel

步骤 9配置默认网关IP地址。

New Scope Wizard				
Router (Default Gateway) You can specify the routers	or default gateways.	to be distribute	d by this scope.	Ċ,
To add an IP address for a r	outer used by clients,	enter the addre	ess below.	
IP address:				
	Add			
10.10.10.1	Remove			
	Up			
	Down			
		< Back	Next >	Cancel

步骤 10配置域名和DNS服务器

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

步骤 11配置WINS服务器(如果适用)。如果信息未知,可以跳过此步骤。

w Scope Wizard WINS Servers Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.			
Entering server IP ar broadcasts to registe	ddresses here enables W er and resolve NetBIOS n	Indows clients to query Will ames.	NS before they use
Server name:		IP address:	
		1	Add
	Resolve		Remove
			Up
			Down
To change this beha Type, in Scope Opti	avior for Windows DHCP ons.	clients modify option 046. V	WINS/NBT Node
		< Back Nex	t> Cancel

步骤 12选择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.	Ĵ
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 > Car	ncel

将SVI中环回的唯一IP地址的范围配置为DCHP中继代理。

步骤1:右键单击IPv4并选择IPv4Scope。



DCHP中的新作用域

第二步:写下名称和说明。在本示例中,name是环回地址子网使用的子网。



IPte:在整个VxLAN交换矩阵中,VxLAN租户使用环回唯一IP地址。必须在IPv4 addressfamIPv4中相应租户的VRF内的BGP L2VPN EVPN路由重分配中通告此路由

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

第三步: 配置IP地址范围IP。这是环回地址池。

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

第四步:配置例外项(可选,因为DHCP服务器确实租用属于此子网的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: Image: I
Excluded address range: Remove
Subnet delay in milli second:
< Back Next > Cancel

第五步:跳过租期,然后单击下一步。

New Scope Wizard	
Lease Duration The lease duration specifies how long a client can use an IP address from this scope.	Z
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 > Cance	ł

第六步:选择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

步骤 7.单击 完成。



步骤 8右键单击已创建的范围,然后选择"激活"。


为VxLAN交换矩阵配置超级作用域。

步骤1:在IPv4中单击鼠标右键,然后选择New Superscope。

File Action	View Help				
🔶 🔶 👘	1 II 2 2 2 II	2			
V DHCP V colds w	v-3x22de Display Statistics	Contents of DHCP Server Scope (1172.16.10.0) 172.16.10.0/24 Scope (10.10.10.0) 10.10.10.0/24 Server Options	Status Active Active	Description Unique IP Gateway Address (DV) L2VNI 101010	Falover Relationship
	New Scope New Superscope New Multicent Scope	Policies Filters			
> 10	Centigure Failever Replicate Failever Scopes				
	Define User Classes Define Vendor Classes				
	Reconcile All Scopes				
	Set Predefined Options				
	View				
	Refresh Export List				
	Properties				
	Help				

第二步:单击 Next。

📜 Dech



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

第四步:选择属于VxLAN交换矩阵的所有范围。

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

第五步:选择属于VxLAN交换矩阵的所有范围。

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					

第六步:验证所有VxLAN交换矩阵超级作用域都已就位,然后单击完成。

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.
	< Back Finish Cancel

配置主机范围中的选项82。

步骤1:右键单击主机范围内的策略(最后一个选项),然后单击New Policy。

DHCP							
💠 💠 🙇 📰 🗟 🕞							
Conce Conce Control of the set	pes for WiLAN Fabr (10.0) 10.10.10.0/04 Pool Leases ons ptions New Policy Deactivate View Refresh Export List Help	ric (with Oys 82)	Policy Name	Description	Processin	Level Dare are no	Address Range items to show in this view.



注意:在本示例中,创建策略是为了为Leaf-1中的主机选择IP编址palPicorly,以便使用VNI 101010 basedVNI Remote-ID(选项82的参数)。

DHCP Policy Configuration Wizard							
Policy based IP Address and Option Assignment							
This feature allows you to distribute configurable settings (IP address, DHCP options) to clients based on certain 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						

第三步:单击 Add。在Criteria中,选择Relay Agent Information。在Operator中,选择Equals。然 后选择Agent Remote ID并键入值。单击OK,然后单击Next。



注意:远程ID从SVI的MAC地址获取,而SVI与SVII相关联。



提示:通过添加更多条件并选择OR而不是AND,可以将策略应用于多个远程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	?	\times	5				
Specify a condition for the policy being configured. Select a criteria. and values for the condition. Criteria: Relay Agent Information	operator						
Prefix wildcard(*) Append wildcard(*)							
Ok Ca	ncel						
< Back Next >		Cano	cel				

第四步:在通过ID选择的VTEP上配置现有IP可以使用的IP编址,然后单击Next。



注意:在本示例中,只有一个虚拟机连接到枝叶1,因此只有一个IP地址需要IPd。这里添加了第二个IP地址,以备其它主机连接。

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: Yes No Start IP address: 10.10.10.2 End IP address: 10.10.10.3 Percentage of IP address range: 0.8
< Back Next > Cancel

第五步:选中DCHP Standard Option下003路由器左侧的框。然后写下属于此策略的主机的默认网 关的IP地址,并按Add。单击 Next。



注意:您可以选择多个选项,但如果不确定要输入哪个值,请不要选择。配置不一致或错 误会导致意外行为。

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

第六步:检查策略条件并单击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			
 IPv4 Superscope Scopes for VxLAN Fabric (with Opt 82) Scope [10.10.10.0] L2VNI 101010 Address Leases Reservations Scope (172.16.10.0] 172.16.10.0/24 Address Pool Address Pool Address Pool Address Pool Scope Options Scope Options Scope Options Server Options <							More Actions			,

在VxLAN交换矩阵中,DCHP数据包从头到尾遍历。

发现由HOST-1发送

```
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上收到的发现	发现由LEAF-1发送
	Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 5.5.5, Dst: 13.13.13.254 User Datagram Protocol, Src Port: 65:233, Dst Port: 4789
	Virtual eXtensible Local Area Network > Flags: 0x0800, VXLAN Network ID (VNI)
Ethernet II. Src: 00:50:56:a5:fd:dd. Dst: ff:ff:ff:ff:ff:ff	Group Policy ID: 0 VXIAN Network Identifier (VNI): 303030
> Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255	Reserved: 0
> User Datagram Protocol, Src Port: 68, Dst Port: 67	Ethernet II, Src: 70:7d:D9:b8:4d:ar, Dst: 02:00:0d:0d:0d:0d:re Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150
> Dynamic Host Configuration Protocol (Discover)	> User Datagram Protocol, Src Port: 67, Dst Port: 67
Message type: boot Request (1) 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
 Booto flags: 0x8000, Broadcast flag (Broadcast) 	> Bootp flags: 0x8000, Broadcast flag (Broadcast) Client IP address: 0.0.0.0
1 Broadcast flag: Broadcast	Your (client) IP address: 0.0.0.0
.000 0000 0000 0000 = Reserved flags: 0x0000	Relay agent IP address: 172.16.10.8
Client IP address: 0.0.0	Client MAC address: 00:50:56:a5:fd:dd Client hardware address padding: 000000000000000000
Your (client) IP address: 0.0.0.0 Next server IP address: 0.0.0.0	Server host name not given
Relay agent IP address: 0.0.0.0	Boot file name not given Magic cookie: DHCP
Client MAC address: 00:50:56:a5:fd:dd	Option: (53) DHCP Message Type (Discover) leadth: 1
Client hardware address padding: 00000000000000000000	<value: 01=""></value:>
Server host name not given	DHCP: Discover (1)
Magic cookie: DHCP	Length: 7
 Option: (53) DHCP Message Type (Discover) 	<value: 010050556357ddd=""> Hardware type: Ethernet (0x01)</value:>
Length: 1	Client MAC address: 00:50:56:a5:fd:dd
<value: 01=""></value:>	Length: 10
DHCP: Discover (1)	<value: 43584c6162732d573130=""> Host Name: CXLabs=W10</value:>
Length: 7	Option: (60) Vendor class identifier
<value: 01005056a5fddd=""></value:>	Length: 8 <value: 4d53465420352e30=""></value:>
Hardware type: Ethernet (0x01)	Vendor class identifier: MSFT 5.0
Client MAC address: 00:50:50:35:T0:00	Length: 14
Length: 10	<value: 0103060f1f212b2c2e2f7779f9fc=""> Parameter Request List Item: (1) Subnet Mask</value:>
<value: 43584c6162732d573130=""></value:>	Parameter Request List Item: (3) Router
Host Name: CXLabs-W10	Parameter Request List Item: (15) Domain Name
 Option: (60) Vendor class identifier 	Parameter Request List Item: (31) Perform Router Discover Parameter Request List Item: (33) Static Route
<value: 4d53465420352e30=""></value:>	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
Option: (55) Parameter Request List	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search
Length: 14	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
Parameter Request List Item: (6) Domain Name Server	<value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:>
Parameter Request List Item: (15) Domain Name	 Option 82 Suboption: (1) Agent Circuit ID Length: 14
Parameter Request List Item: (31) Ferform Router Discover	<value: 0108000600018a9200a000000000=""></value:>
Parameter Request List Item: (43) Vendor-Specific Information	 Option 82 Suboption: (2) Agent Remote ID
Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server	Length: 6 <value: 707db9b84daf=""></value:>
Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type	Agent Remote ID: 707db9b84daf
Parameter Request List Item: (47) Netblos over ICP/IP Scope	<pre>> Uption 82 Suboption: (151) VRF name/VPN 1D Length: 9</pre>
Parameter Request List Item: (121) Classless Static Route	<value: 0074656e616e742d61=""></value:>
Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)	> [Expert Info (Warning/Undecoded): Trailing stray characters]
Parameter Request List Item: (252) Private/Proxy autodiscovery	Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4
Padding: 00000000000000000	<value: 0a0a0a01=""></value:>
. addrig. ananonananan	<pre>> Option 82 Suboption: (5) Link selection (10.10.10.0)</pre>
	Length: 4 <value: 0a0a0a00=""></value:>
	Link selection: 10.10.10.0
	Padding: 000000000000000



提示:双击时,图像会增大。

主干上的发现

<pre>Herrer II, Src: 20:20:00:00:40:40:45, Dit: MetbleGo.44:85:97 http://dites.box/dit</pre>	<pre>thermet II, Src: BiblidiskiBi97, Dit 00:25:abB3987 Thermet Protecol Wersion 4, Src: 25:35.5, Dit 11:15:15:25 Virtual Accessible Local Area Network ''Flas: Adda Area Netw</pre>

在LEAF-1-vPC上的发现

在LEAF-1-vPC上收到的发现	发现由LEAF-1-vPC发送
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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 NECKOFK	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 anotation a
- Internet (Fordet (Fisien 4) Ster All Die Die 1 (11) (11) (11)	seconds etapsed: 0
User Datagram Protocol, Src Port: 67, Dst Port: 67	 Bootp flags: 0x8000, Broadcast flag (Broadcast)
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: 0xe9e35087	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	 option; (55) DRCP Message Type (Discover)
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	 Option: (61) Client identifier
Magic cookie: DHCP	Length: 7
 Option: (53) DHCP Message Type (Discover) 	-151.000 0100505555fddd
Length: 1	//d/nc: araabababababababababababababababababab
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
 Option: (12) Host Name 	<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
 Option: (60) Vendor class identifier 	
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	 Option 82 Suboption: (1) Agent Circuit ID
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/	 Ontion 82 Subortion: (2) Agent Remote TD
<value: 010e0108000500018a9200a00000000000205707db9b84daf97090074655e616e742d610b040a0a0a0105040a0a0a00=""></value:>	Landth 6
 Option 82 Suboption: (1) Agent Circuit ID 	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>> [cxpert into (warning/undecoded): frailing stray characters]</pre>
Option 82 Subortion: (151) VRF name/VPN TD	[Trailing stray characters]
Least of Subjectory (151) the Halley ter 10	<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]	Option 82 Suboption: (11) Server ID Override (10.10.10.1)
Compare and the final formation and the second seco	Length: 4
 option az suboption: (11) Server ID Override (10.10.10.1) 	
Length: 4	Synthe: popopopt/
<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
 <value: 0a0a0a0j=""></value:> Server 1D Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0) 	Server ID Override: 10.10.10.1 ∽ Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4
 <value: 00000001<="" li=""> Server ID 0verride: 10.10.10.1 > Option 82 Suboption: (5) Link selection (10.10.00) Length: 4 </value:>	Server ID Override: 10.10.10.1 ∨ Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 0a0a0a00=""></value:>
 <value: 0a0a0a0j=""></value:> Server 1D Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 0a0a0a0b=""></value:> 	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:>
 <value: 00000001<="" li=""> Server ID Override: 10.10.10.1 > Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: 00000000-<br="">Link celection: 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: 0a0a0a000=""> Link selection: 10.10.10.0</value:> Votion: (255) End
- <value: 0@a@a@ad<br="">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 > Option 02 Suboption: (5) Link selection (10.10.10.0) Length: 4 Link selection: 10.10.10.0 > 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 > Option 02 Suboption: (5) Link selection (10.10.10.0) Length: 4 Link selection: 10.10.10.0 > 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数据包,但此数据包仅进行交换。目的MAC地址属于 DHCP服务器。

在DCHP服务器上接收的发现

```
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服务器发送的DCHP提供

```
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优惠

在LEAF-2-vPC上接收的产品	提供通过LEAF-2-vPC发送
<pre>> Ethernet II, Src: 00:30:56:63:dc:ca, Dst: 00:00:0a:0a:0a Internet Protocol Version 4, Src: 10.10.10,150, Dst: 172.16.10.5 User Datagram Protocol, Src Port: 67, Dst Port: 67 PmameLMSX Configuration Protocol (Offer) Mardware address Length: 6 Nops: 6 Transaction ID: 0x:0e303007 Seconds elapsed: 0 Transaction ID: 0x:0e303007 Seconds elapsed: 0 Tootor Flags: 0x:000, Broadcast flag (Broadcast) i.e. income income Preserved flags: 0x:000 Client IP address: 0:0.0.0 Toru r(lent) IP address: 10:10.10.3 Next server IP address: 10:10.10.3 Next server IP address: 10:2.16.10.3 Client Andware address 10:2.16.10.3 Client Andware address 10:2.16.10.3 Client Andware address 10:2.16.20.3 Client Mardware address padding: 000000000000000 Server Nost name not given Magic cookie: DNF Option: (53) DNCP Message Type (Offer) Length: 1 -value: 02> DHCP: Offer (2) Option: (59) Rebinding Time Value Length: 4 -value: 02> Coption: (59) Rebinding Time Value Length: 4 -value: 000 Subret Mask: 255.255.255.0 Subnet Mask: 255.255.255.0 PREDiction State Time Value: 12 hours (75600) - Option: (51) IP Address Lease Time Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Lease Time Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (52) DPC Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value Length: 4 -value: 00005100 - DPC: 01; (51) REPS Second Time Value -value: 00005000000000000000 - DPC: 01; (51) Reps Second Time Value -value: 00005000000000</pre>	<pre>> User Datagram Protocol, Src Port: 65318, Dst Port: 4789 > Virtual Schensible Local Area Network > Flags: 0x8000, VXLNN Network ID (WI): Group Policy ID: 0 VXLNN Network Identifier (WI): 303030 Reserved 0 2 Ethernet II, Src: 0x200040040616, Dst: 70:70:04:09:08:44:af Intermet Protocol Version 4, Src: 10:10:10.156, Dst: 172.16.10.8 > User Datagram Protocol, Src Port: 07, Dst Port: 07 > Dmale Bodt Configuration (C) (Confere) Marware type: Ethernet (0x01) Harware address Length: 6 + Boot Flags: 0x8000, Broadcast flag (Broadcast) 1 Broadcast flag: Broadcast 1 Broadcast flag: Broadcast - Boot Flags: 0x8000, Broadcast flag: Broadcast - Norm (Cleint) IP address: 10:10.10.3 Next server IP address: 10:10.10.3 Next server IP address: 10:10.8; 0x8000 Client IP address: 10:10.10.3 Next server IP address: 10:10.10.3 Next server IP address: 10:2.16.10.3 Next server IP address: 10:2.16.10.3 Next server IP address: 10:2.16.10.3 Next server IP address: 10:2.16.10.3 Next server IP address: 10:2.16.10.4 Client Andware address padding: 000000000000000 Server host name not given Mojot client Broadcast flag: 0000000000000000 Server host name not given Majc cookie: DirPc - Option: (13) DHCP Message Type (Offer) - Length: 4 - value: ffffff00- Submet Mask: 255.255.255.0 - Option: (150) MECH Mask (255.255.255.0 - Option</pre>
Agent Circuit ID: 0108000600013092000000000 © Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 7070b9b84daf=""> Agent Remote ID: 7070b9b84daf © Option 82 Suboption: (151) VRF name/VPN ID</value:>	<pre>cuput: i1ee108000600018a9200a0000000000206707db9084daf97090074656e616e742d610b040a0a0a0165040a0a000> Option 82 Suboption: (1) Agent Circuit ID Length: 14 Agent Circuit ID: 0108000600018a9200a0000000 Option 82 Suboption: (2) Agent Remote ID </pre>
Length: 9 <value: 007465666166742d61=""> < VRF name:</value:>	Length: 6 ≺Value: 707db9b84daf> Agent Remote ID: 707db9b84daf
 [Expert into (warning/Undecoded): Trailing stray characters] [Trailing stray characters] dessage: Trailing stray characters> 	<pre>> Option 82 Suboption: (151) VRF name/VPN ID Length: 9 <value: 007465566166742d61=""></value:></pre>
[Severity level: Warning] [Group: Undecoded] • Option & Suboption: (11) Server ID Override (10.10.10.1) Length: 4	 VRF name: [Expert Info (Warning/Undecoded): Trailing stray characters] [Trailing stray characters] «Message: Trailing stray characters>
-√value: 0a0a0a01> Server 10 Override: 10.10.10.1 ∨ Option 82 Suboption: (5) Link selection (10.10.10.0)	[Severity level: Warning] Goroup: Undecoded) ~ Option & Suboption: (11) Server ID Override (10.10.10.1)
Length: 4 <value: 8040808=""> //n.e.election: 10.10.0</value:>	Length: 4 <value: 00408001=""> Server To Duranida: 10 10 10</value:>
Option: (255) End Option End: 255	<pre>> Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4</pre>
	<value: 0a0a0a00=""> Link selection: 10.10.0</value:>
	Option: (255) End Option End: 255

DHCP提供vPC主干

主干上接收的产品 提供通过SPINE发送

5 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Ethernet II, Src: 60:26:aa:85:95:87, Dst: 10:D3: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 	
Flags 8y8888, VXIAN Network TD (VNT)	
Frags. bables to a	
Group Policy ID: 0	Ethernat TT Cro. 10:b2:d6:ad:95:07 Dct. 70:7d:b0:b0:dd:af
VXLAN Network Identifier (VNI): 303030	2 Ethernet 11, Sic: 10:05:00:044:05:97, DSt: 70:70:09:00:44:01
Reserved: 0	> Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5
Ethernet II Src, 07:00:0d:0d:0d:0d: Drt, 70:7d:b0:b0:dd:af	> User Datagram Protocol, Src Port: 65518, Dst Port: 4789
	Virtual extensible Local Area Network
> Internet Protocol Version 4, Src: 10.10.100, Dst: 172.16.10.8	Entrance of the second of the
> User Datagram Protocol, Src Port: 67, Dst Port: 67	Flags: 0x0000, VXLAN NELWORK ID (VNI)
 Dynamic Host Configuration Protocol (Offer) 	Group Policy ID: 0
Marcana tunai Roat Banju (2)	VXLAN Network Identifier (VNI): 303030
hessage type, boot kepty (2)	Reserved: 0
Hardware type: Ethernet (0x01)	
Hardware address length: 6	> Ethernet 11, 51C: 02:00:00:00:00:00:00:00:00:00:00:00:00:0
Hops: 0	> Internet Protocol Version 4, Src: 10.10.100, Dst: 172.16.10.8
Transaction ID+ AvaDa25897	> User Datagram Protocol, Src Port: 67, Dst Port: 67
Transaction ib: excession/	Dynamic Host Configuration Protocol (Offer)
Seconds elapsed: 0	by manue hose configuration recorder (offer)
 Bootp flags: 0x8000, Broadcast flag (Broadcast) 	Message type: Boot Repty (2)
1 Broadcast flag: Broadcast	Hardware type: Ethernet (0x01)
	Hardware address length: 6
.000 0000 0000 = Reserved rtags: 0x0000	Hone: A
Client IP address: 0.0.0.0	hops. o
Your (client) IP address: 10.10.10.3	Transaction ID: 0Xe9635087
Next server TP address: 10.10.10.150	Seconds elapsed: 0
Delay access 70 address 173 16 10 0	Bootp flags: 0x8000, Broadcast flag (Broadcast)
netay agent 1r d001055: 1/2:10.10.0	Client TP address: 0.0.0.0
Client MAC address: 00:50:56:a5:fd:dd	Value (aliante) PD aliances (aliante)
Client hardware address padding: 00000000000000000000	rour (citent) 1P address: 10.10.10.3
Server host name not given	Next server IP address: 10.10.10.150
Part file and and align	Relay agent IP address: 172.16.10.8
boot file name not given	Client MAC address: 00:56:35:fd:dd
Magic cookie: DHCP	Client hard states and the construction
 Option: (53) DHCP Message Type (Offer) 	client nardware address padding: 000000000000000000000
length: 1	Server host name not given
design a des	Boot file name not given
svatue: 02>	Manic cookie: DHCP
DHCP: Offer (2)	hagic cookle. Dher
 Option: (1) Subnet Mask (255,255,26) 	 Option: (53) DHCP Message Type (Offer)
Longths 4	Length: 1
	<value: 02=""></value:>
<value: ffffff00=""></value:>	
Subnet Mask: 255.255.255.0	DHCP: UTTER (2)
Option: (58) Reneval Time Value	 Option: (1) Subnet Mask (255.255.25)
option, too renewat time value	Length: 4
Length: 4	svalue: ffffff00>
<value: 0000a8c0=""></value:>	Cubert Harts OFF DEF DEF A
Renewal Time Value: 12 hours (43200)	Subnet Mask: 255.255.25.0
Ontion: (59) Rebinding Time Value	v Option: (58) Renewal Time Value
in the second seco	Length: 4
Length: 4	<value: 0000a8c0=""></value:>
<value: 00012750=""></value:>	
Rebinding Time Value: 21 hours (75600)	Renewal Time Value: 12 hours (43200)
Ontion: (51) TP Address Lease Time	 Option: (59) Rebinding Time Value
· option. (31) IP Address Lease The	Length: 4
Length: 4	dialus, 00012750-
<value: 00015180=""></value:>	<value: 00012="" 30=""></value:>
IP Address Lease Time: 1 day (86400)	Rebinding Time Value: 21 hours (75600)
Privaticas (Ed.) put Constraint Transitions (10 10 10 10 1)	 Option: (51) IP Address Lease Time
· Option: (54) DHCP Server identifier (10.10.10.1)	Length: 4
Length: 4	Length: 4
<value: 0a0a0a01=""></value:>	<value: 00015180=""></value:>
DHCP Server Identifier: 10 10 10 1	IP Address Lease Time: 1 day (86400)
	Option: (54) DHCP Server Identifier (10.10.10.1)
Option: (3) Router	Leasth: A
Length: 4	Length: 4
<value: 0a0a0a01=""></value:>	<value: 0a0a0a01=""></value:>
	DHCP Server Identifier: 10.10.10.1
Router: 10.10.10.1	Options (15) Depaid Name
 Option: (15) Domain Name 	· Option: (15) Domain Name
Length: 10	Length: 10
<value: 636973636f2e636f6d00=""></value:>	<value: 636973636f2e636f6d00=""></value:>
Domain Mamor sizes com	Domain Name: cisco.com
Domain Name: cisco.com	Denote (12) Acception Detion
Option: (82) Agent Information Option	operation (ber Agene intelligation operation
Lepoth: 47	Length: 47
2/13/10- 010-0102000500012:00700:0000000000000000000000000000	 <
19/16: 0106010900000019937009000000700/0/0020940913/020001402060106/47001004090909010204090909090</td <td> Option 82 Suboption: (1) Agent Circuit ID </td>	 Option 82 Suboption: (1) Agent Circuit ID
v uption 82 suboption: (1) Agent Circuit ID	length: 14
Length: 14	
<value: 0108000600018a9200a00000000=""></value:>	/10/06/00/06/06/06/06/06/06/06/06/06/06/06
Apont Circuit TD- 010000660019307003000000	Agent Lircuit ID: 0108000600018a9200a00000000
Agent circuit in: 010000000103200300000000	
Antine AD Cohertica (D) treat Denote Th	 Option 82 Suboption: (2) Agent Remote ID
 Option 82 Suboption: (2) Agent Remote ID 	Option 82 Suboption: (2) Agent Remote ID Length: 6
 Option 32 Suboption: (2) Agent Remote ID Length: 6 	 Option 82 Suboption: (2) Agent Remote ID Length: 6 display=27d78b984dafs
 Option 82 Suboption: (2) Agent Remote ID Length: 6 Comparison of Comparison of Compariso	Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 707db9b84daf=""></value:>
 Option 82 Suboption: (2) Agent Remote ID Length: 6 	○ Option 82 Suboption: (2) Agent Remote ID Length: 6 <\value: 707db9b8daf> Agent Remote ID: 707db9b8daf
 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 7070b9b84daf=""></value:> Agent Remote ID: 707db9b84daf 	 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 707db9b84daf=""></value:> Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 797d9bb4daf=""></value:> Agent Remote ID: 797d9bB4daf Option 82 Suboption: (151) VRF name/VPN ID
 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 707db9b8daf=""></value:> Agent Remote ID: 707db9b8daf Option 82 Suboption: (151) VRF name/VPN ID Length: 9 	<pre> Option 82 Suboption: (2) Agent Remote ID Length: 6 Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID Length: 9 vd5teset5c72045ta </pre>
<pre> Option 82 Suboption: (2) Agent Remote ID Length: 6 <pre></pre></pre>	 ○ Option 82 Suboption: (2) Agent Remote ID Length: 6
<pre> Option 82 Suboption: (2) Agent Remote ID Length: 6 </pre> <pre></pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 797db9b8daf=""> Agent Remote ID: 787db9b8daf Option 82 Suboption: (131) VRF name/VPN ID Length: 9 <value: 807455666166742d61=""> VRF name: Option 82 Suboption: (11) Server ID Override (10.10.10)</value:></value:></pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 797dsbb8daf=""></value:> Option 82 Suboption: (151) VRF name/VPN ID Length: 9 <value: 897ds5be616e742d61=""></value:> >VBF name: Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 797049b84daf=""></value:> Option 82 Suboption: (151) VKF name/VPN ID Length: 9 <value: 80745566616742d61=""></value:> VKF name: Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6 <</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: ?07db9b8daf=""></value:> Agent Remote ID: ?07db9b8daf Option 82 Suboption: (151) VKF name/VPN ID Length: 9 <value: 007d556e516c742d51=""></value:> VKF name: Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 <value: 007de08ada01=""></value:> Server ID Override: 10.10.1
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: ?07db9b8daf=""></value:> Agent Remote ID: ?07db9b8daf Option 82 Suboption: (151) VKF name/VPN ID Length: 9 <value: 007d505e6166742661=""></value:> VKF name: Option 82 Suboption: (11) Server ID override (10.10.10.1) Length: 4 <value: 0043e0a00=""></value:> Server ID Override: 10.10.10 Option 82 Suboption: (5) Link selection (10.10.00) Length: 4 <value: (10.10.10.00)<br="" 0040e0000:="">Length: 4</value:> <value: (10.10.00)<br="" 0040e0000:="">Length: 4</value:> <value: (10.10.00)<br="" 0040e00000:="">Length: 4</value:> <value: (10.10.00)<="" 0040e00000:="" li=""> </value:>
<pre>option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6
<pre> Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 707dbyb84daf=""> Agent Remote ID: 707dbyb84daf Option 82 Suboption: (151) VKF name/VPN ID Length: 9 <value: 807d656e516e742d51=""></value:></value:></pre>	<pre>> Option 82 Suboption: (2) Agent Remote ID Length: 6</pre>
<pre> Option 82 Suboption: (2) Agent Remote ID Length: 6 <value: 707db9b8daf=""> Agent Remote ID: 707db9b8daf> Option 82 Suboption: (15) VRF name/VPN ID Length: 9 <value: 807db5be6i6c742d61=""> VFF name:</value:></value:></pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6
<pre> Option 82 Suboption: (2) Agent Remote ID Length: 6 <vlatue: 707db9b8daf=""> Agent Remote ID: 707db9b8daf Option 82 Suboption: (151) VKF name/VFN ID Length: 9 <vlatue: 007d650e616e7d2d51=""></vlatue:></vlatue:></pre>	 Option 82 Suboption: (2) Agent Remote ID Length: 6

LEAF-1上的DHCP提供

生LEAF-1上收到优惠

	> 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	 Dynamic Host Configuration Protocol (Offer)
> 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>> 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>> 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
 Option: (51) IP Address Lease Time Length: 4 	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)
 Option 82 Suboption: (2) Agent Remote ID 	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
Option 82 Suboption: (5) Link selection (10.10.10.0)	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

HOST-1上接收的DHCP提供

```
> 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
```

请求由HOST-1发送

```
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
```

对LEAF-1的请求

在LEAF-1上收到的请求	请求由LEAF-1发送
<pre>> Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff:ff:</pre>	<pre>> Ethernet II, Src: 70:7d:b9: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: S1730, Dst Port: 4789 > Virtual extensible Local Area Network > Flags: ex8800, VLNUN Network ID (VNI) Group Policy ID: 0 VLKUN Network Identifier (VMI): 303030 Reserved: 0 Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 22:00:0d:dd:0d:fe Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 User Datagram Protocol, Src Port: 67, Dst Port: 67 Oymamic Most Configuration Protocol (Request) Macdware address length: 6 Hops: 1 Transaction ID: 0xe9e35087 Seconds elapsed: 0 > Bootp flags: 0x8000, Broadcast flag (Broadcast) Client IP address: 0.0.0 Your (Client) IP address: 0.0.0 Relay agent IP address: 172.16.10.8 Client Mc address: 04:50:60 Scient Starter Protocol Version 4, Src: 172.16.10.8 Client Mc address: 04:50:60 Patter Starter Start</pre>
Client MAC address: 00:30:30:30:10:00 Client hardware address padding: 00000000000000000000 Server host name not given Magic cookie: DHCP Option: (53) DHCP Message Type (Request) Length: 1 <value: 03=""> DHCP: Request (3) V Option: (61) Client identifier Length: 7 <value: 00505655fddd=""></value:></value:>	Client MAL address: de:3e:3e:3e:3e:3e:3e:3e:3e:3e:3e:3e:3e:3e
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: 00000003=""> Requested IP Address: 10.10.10.3</value:> 	Length: 4 <value: 00000003=""> Requested IP Address: 10.10.10.3 © Option: (54) DHCP Server Identifier (10.10.10.150) Length: 4 <value: 000003965-<br="">DHCP Server Identifier: 10.10.10.150 © Option: (12) Most Name</value:></value:>
 Option: (54) DHCP Server Identifier (10.10.10.1) Length: 4 <value: 0a00a001=""> DHCP Server Identifier: 10.10.10.1</value:> Option: (12) Host Name Length: 10 <value: 43584c6162732d573130=""></value:> 	Length: 10 <pre><value: 43584c6162732d573130=""> Host Name: CXLabs-W10 <pre>Option: (81) Ctient Fully Qualified Domain Name Length: 13 <value: 00000043584c6162732d573130=""> > Flags: 0x00 A-RR result: 0 PTR-RR result: 0 PTR-RR result: 0 Client name: CXLabs-W10</value:></pre></value:></pre>
<pre>Host Name: CXLabs=M0 Option: (81) Client Fully Qualified Domain Name Length: 13 <value: 00000043584c6162732d573130=""> Flags: 0x00 0000 = Reserved flags: 0x0 0 = Server DDNS: Some server updates 0 = Server SCII encoding </value:></pre>	 Option: (60) Vendor class identifier Length: 8 <pre> <pre> </pre> </pre>
Client name: CXLabs-W10 ~ Option: (60) Vendor class identifier Length: 8 <value: 4d53465420352e30=""> Vendor class identifier: MSFT 5.0</value:>	Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type Parameter Request List Item: (17) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search Parameter Request List Item: (24) Private/Classless Static Route Parameter Request List Item: (24) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery
 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: (3) Domain Name Server Parameter Request List Item: (15) Domain Name Server 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: (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: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery</value:> Option: (255) End Option End: 255 	<pre>Length: 47 </pre> <pre>cValue: 01e012000000000000000000000000000000000</pre>

主干上的请求

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: 00:50:56:65:67:61:dd 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 densitien WFFF E 0 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 &2 Suboption: (1) Agent Circuit II Length: 1080006000183220000000000 Agent Circuit ID: 0180006000183220000 Option &2 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: 13/30, Dst Port: 4789 Virual eXtensible Local Area Network - Flags: 0x0806, 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;0b;0b;4d;ar, Dst: 02:00:0d:0d:0d;0d;1fe 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: 00185563a5fddd
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

枝叶-2-vPC上的请求

在LEAF-2-vPC上请求接收PCd	请求通过vPCAF-2-vPC发送
Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 60:26:aa:85:95:87 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: 0x0800, VXLAN Network ID (VNI) Group Policy ID: 0	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
VXLAN Network Identifier (VNI): 303030 Reserved: 0	User Datagram Protocol, Src Port: 67, Dst Port: 67 Dynamic Host Configuration Protocol (Request)
Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.150	Message type: Boot Request (1) Hardware type: Ethernet (0x01)
User Datagram Protocol, Src Port: 67, Dst Port: 67	Hardware address length: 6
Message type: Boot Request (1)	Transaction ID: 0xe9e35087
Hardware address length: 6	Bootp flags: 0x8000, Broadcast flag (Broadcast)
Hops: 1 Transaction ID: 0xe9e35087	Client IP address: 0.0.0.0 Your (client) IP address: 0.0.0.0
Seconds elapsed: 0 > Bootp flags: 0x8000, Broadcast flag (Broadcast)	Next server IP address: 0.0.0.0 Relay agent IP address: 172.16.10.8
Client IP address: 0.0.0.0	Client MAC address: 00:50:56:a5:fd:dd
Next server IP address: 0.0.0	Server host name not given
Retay agent 1P address: 1/2.10.10.8 Client MAC address: 00:50:56:a5:fd:dd	Boot file name not given Magic cookie: DHCP
Client hardware address padding: 000000000000000000000000000000000000	 Option: (S3) DHCP Message Type (Request) Length: 1
Boot file name not given Magic cookie: DHCP	<value: 03=""> DHCP: Request (3)</value:>
Option: (53) DHCP Message Type (Request)	Option: (61) Client identifier
<pre></pre>	Length: 7 <value: 01005056a5fddd=""></value:>
DHCP: Request (3) ~ Option: (61) Client identifier	Hardware type: Ethernet (0x01) Client MAC address: 00:50:56:a5:fd:dd
Length: 7	<pre>v Option: (50) Requested IP Address (10.10.10.3) length: 4</pre>
Hardware type: Ethernet (0x01)	<value: 0a0a0a03=""></value:>
Client MAC address: 00:50:56:a5:fd:dd ~ Option: (50) Requested IP Address (10.10.10.3)	Requested IP Address: 10.10.10.3 Option: (54) DHCP Server Identifier (10.10.10.150)
Length: 4 <value: 8a8a8a83=""></value:>	Length: 4 <value: 8a8a8a96=""></value:>
Requested IP Address: 10.10.10.3	DHCP Server Identifier: 10.10.10.150
Length: 4	Length: 10
<value: 0a0a0a96=""> DHCP Server Identifier: 10.10.10.150</value:>	<value: 43584c6162732d573130=""> Host Name: CXLabs-W10</value:>
 Option: (12) Host Name Length: 10 	 Option: (81) Client Fully Qualified Domain Name Length: 13
	<pre><value: 00000043584c6162732d573130=""></value:></pre>
Host Name: CXLabs-W10 ~ Option: (81) Client Fully Qualified Domain Name	A-RR result: 0
Length: 13 <value: 00000043584c6162732d573130=""></value:>	PTR-RR result: 0 Client name: CXLabs-W10
Flags: 0x00	 Option: (60) Vendor class identifier
PTR-RR result: 0	<value: 4d53465420352e30=""></value:>
Client name: CXLabs-W10 ~ Option: (60) Vendor class identifier	Vendor class identifier: MSFT 5.0 • Option: (55) Parameter Request List
Length: 8 <value: 4d53465420352e30=""></value:>	Length: 14 <value: 01030600f1f212b2c2e2f7770f9fc=""></value:>
Vendor class identifier: MSFT 5.0	Parameter Request List Item: (1) Subnet Mask
Length: 14	Parameter Request List Item: (3) Router Parameter Request List Item: (6) Domain Name Server
<value: 0103060f1f212b2c2e2f7779f9fc=""> Parameter Request List Item: (1) Subnet Mask</value:>	Parameter Request List Item: (15) Domain Name Parameter Request List Item: (31) Perform Router Discover
Parameter Request List Item: (3) Router Parameter Request List Item: (6) Domain Name Server	Parameter Request List Item: (33) Static Route Parameter Request List Item: (43) Vendor-Specific Information
Parameter Request List Item: (15) Domain Name	Parameter Request List Item: (44) Vendor operation in Vendor Server
Parameter Request List Item: (31) Perform Router Discover Parameter Request List Item: (33) Static Route	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: (43) Vendor-Specific Information Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server	Parameter Request List Item: (119) Domain Search Parameter Request List Item: (121) Classless Static Route
Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type Parameter Request List Item: (47) NetBIOS over TCP/IP Score	Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
Parameter Request List Item: (119) Domain Search	• Option: (82) Agent Information Option
Parameter Request List Item: (121) Classless Static Route Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)	Lengtn: 4/ <value: 010e0108000600018a9200a000000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a8a0a00=""></value:>
Parameter Request List Item: (252) Private/Proxy autodiscovery Votion: (82) Agent Information Option	 Option 82 Suboption: (1) Agent Circuit ID Length: 14
Length: 47	<value: 0108000600018a9200a000000000=""></value:>
• Option 82 Suboption: (1) Agent Circuit ID	• Option 82 Suboption: (2) Agent Remote ID
Length: 14 <value: 0108000600018a9200a00000000=""></value:>	Length: 6 <value: 707db9b84daf=""></value:>
Agent Circuit ID: 0108000600018a9200a00000000 v Option 82 Suboption: (2) Agent Remote ID	Agent Remote ID: 707db9b84daf
Length: 6	Length: 9
Agent Remote ID: 707db9b84daf	<pre>>VRF name: >VRF name:</pre>
<pre>v Uption %2 Suboption: (151) VRF name/VPN ID Length: 9</pre>	Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4
<value: 007465666166742d61=""></value:>	<value: 0a0a0a01=""> Server ID Override: 10.10.10.1</value:>
• Option 82 Suboption: (11) Server ID Override (10.10.10.1)	Option 82 Suboption: (5) Link selection (10.10.10.0)
<value: 0a0a0a01=""></value:>	<value: 0a0a0a00=""></value:>
Server ID Override: 10.10.10.1 • Option 82 Suboption: (5) Link selection (10.10.10.0)	Link selection: 10.10.10.0 √ Option: (255) End
Length: 4 <value: 0a0a8a80=""></value:>	Option End: 255
Link selection: 10.10.10.0	
Option End: 255	

DCHP服务器上收到的请求

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服务器发送
```
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ACK	ACK通过LEAF-2-vPC发送
<pre>*Example II, SCI MASSAGINGLIN, NIT MAN BALARA, M. Internet Provide Variation & Art 1997, 10, 100, 100, 100, 100, 100, 100, 100</pre>	<pre> Elsevent 11, Sec 0426isabbitMit, Det HebbitGistBitMit Interver Protocol Versite 4, Sec 21, 11, 12-9, AUX 53, 53, 53 Inter History Protocol, Sec Versite 10, 15, 11, 12-9, AUX 53, 53, 53 Were History Protocol, Sec Versite 10, 15, 11, 12-9, AUX 53, 53, 53 Were History Protocol, Sec Versite 10, 10, 11 Were History Protocol, Sec Versite 10, 11, 12-9, 10, 11, 11 Were History Protocol, Sec Versite 10, 11, 12-9, 11, 12-14, 14 Were History Protocol, Sec Versite 10, 11, 12-9, 12, 13, 14 Were History Protocol, Sec Versite 10, 11, 12-9, 12, 13, 14 Were History Protocol, Sec Versite 10, 11, 12-9, 12, 13, 14 Were History Protocol, Sec Versite 10, 12-10</pre>

脊柱上的ACK

主干上收到ACK	通过主干发送ACK
Ethernet II, Src: 60:26:aa:85:95:87, Dct: 18:b3:66: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	Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 70:7d:b9:b8:4d:af Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65:218, Dst Port: 4789
> Flags: 0x8080, VXLAN Network ID (WII) Group Policy ID: 0	✓ Virtual eXtensible Local Area Network > Flags: 0x08000, VXLAW Network ID (WII) Group Policy ID: 0
VXLNN Network Identifier (VNI): 303030 Reserved: 0 Ethernet II, Src: 02:00:0d:0d:0d:de; Dst: 70:7d:b9:b8:4d:af	VXLAN Network Identifier (VNI): 303030 Reserved: 0 Ethernet II. Src: 02:00:0d:0d:0d:de. Dst: 70:7d:D9:b8:4d:af
Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8 User Datagram Protocol, Src Port: 67, Dst Port: 67 Duranic Martine Conferencies Protocol (SC)	Internet Protocol Version 4, Src: 10.10.150, Dst: 172.16.10.8 User Datagram Protocol, Src Port: 67, Dst Port: 67
Message type: Bot Reply (2) Hardware type: Ethernet (0x01)	Uymanic Host Configuration Protocol (ACK) Message type: Boot Reply (2) Hardware type: Ethernet (0x01)
Hardware address length: 6 Hops: 0 Transation ID: 0xe0e35087	Hardware address length: 6 Hops:0 Transaction ID: 0x00035007
Seconds elapsed: 0 > Bootp flags: 0x8000, Broadcast flag (Broadcast)	Seconds elapsed: 0 > Bootp flags: 0x8000, Broadcast flag (Broadcast)
.000 0000 0000 0000 = Reserved flags: 0x0000 Client IP address: 0.0.0	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 Palau apart IP address: 17.16.10.8	Your (client) IP address: 10.10.10.3 Next server IP address: 0.0.0.0
Client Mardenses padding: 000000000000000000000000000000000000	Relay agent in adoress: inz.io.io Client MAC address: 00:50:556:35:16:id Client hardware address padding: 000000000000000000
Server host name not given Boot file name not given Manic cookie: DHCP	Server host name not given Boot file name not given Madic cookier DMCP
 Option: (53) DHCP Message Type (ACK) Length: 1 	Option: (S3) DHCP Message Type (ACK) Length: 1
<pre><value: 0="">> DHCP: ACK (5) </value:></pre> <pre>Option: (58) Renewal Time Value</pre>	<value: 05=""> DHCP: ACK (5) • Option: (58) Renewal Time Value</value:>
Length: 4 ≺Value: 0000a8c0> Renewal Time Value: 12 hours (43200)	Length: 4 <value: 0000a8c0=""> Repeat Time Value: 12 hours (41200)</value:>
Option: (59) Rebinding Time Value Length: 4	Option: (59) Rebinding Time Value Length: 4
<value: 00012730=""> Rebinding Time Value: 21 hours (75600) © Option: (51) IP Address Lease Time</value:>	<value: 00012730=""> Rebinding Time Value: 21 hours (75600) ~ Option: (51) IP Address Lease Time</value:>
Length: 4 <value: 00015180=""> TP ddface Lense Time: 1 day (86400)</value:>	Length: 4 <value: 00015180=""> TR Address Lasse Time: 1 day (86400)</value:>
option: (34) DHCP Server Identifier (10.10.10.1) Length: 4	<pre>option: (54) DHCP Server Identifier (10.10.10.1) Length: 4</pre>
<value: 0a00a001=""> DHCP Server Identifier: 10.10.10.1 Option: (1) Submet Mask (255.255.25,0)</value:>	<value: 00000001<br="">DHCP Server Identifier: 10.10.10.1 Option: (1) Subnet Mask (255.255.255.0)</value:>
Length: 4 <value: fffff@a=""></value:>	Length: 4 <value: fffff@e=""></value:>
<pre>Source Hask: 255.255.25.6 Option: (81) Client Fully Qualified Domain Name Length: 3</pre>	<pre>Option: (81) Client Fully Qualified Domain Name Length: 3</pre>
<value: 00fff=""> > Flags: 0x00 0000 = Reserved flags: 0x0</value:>	<value:00ffff> ∨ Flags: 0x00 0000 = Reserved flags: 0x0</value:00ffff>
0 = Server DDNS: Some server updates 0 = Encoding: ASCII encoding	0 = Server DDNS: Some server updates 0 = Encoding: ASCII encoding
PTR-RR result: 255 • Option: (3) Router	PTR-RR result: 255 • Option: (3) Router Leopth 4
<pre>cengen: 4 </pre> Router: 10.10.10.1	(value: 0a0a0a0)> Router: 10.10.10.1
Option: (15) Domain Name Length: 10 <value: 636073636f2e636f6d08=""></value:>	 Option: (15) Domain Name Length: 10 <li< td=""></li<>
Domain Name: cisco.com v Option: (82) Agent Information Option	Domain Name: cisco.com • Option: (82) Agent Information Option = energies data
Lengtn: 4/ <value: 010e010800600018a9200a00000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a000=""> < Option 82 Suboption: (1) Agent Circuit ID</value:>	<pre>cvalue: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105640a0a0000></pre>
Length: 14 	Length: 14 <value: 010800600018a9200a000000000<br="">Agent Circuit ID: 0108000600018a9200a0000000</value:>
 Option 82 Suboption: (2) Agent Remote ID Length: 6 	 Option 82 Suboption: (2) Agent Remote ID Length: 6
<value: 707db9b84daf=""> Agent Remote ID: 707db9b84daf • Option 82 Subpotion: (151) VRF name/VFN ID</value:>	Agent Remote 10: 787/d09b84daf Option 82 Suboption: (151) VRF name/VPN ID
Length: 9 <value: 007465566166742d61=""></value:>	Length: 9 <value: 0074656e616e742d61=""> VBF name:</value:>
<pre>vwr name: [Expert Info (Warning/Undecoded): Trailing stray characters] [Trailing stray characters]</pre>	 [Expert Info (Warning/Undecoded): Trailing stray characters] [Trailing stray characters]
<pre><hessage: characters="" stray="" trailing=""> [Severity level: Warning] [Group: Hinderoded]</hessage:></pre>	<pre>«Message: rrailing stray characters> [Severity level: Warning] [Group: Undecoded]</pre>
 Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 	<pre>> Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 <value: 80808081=""></value:></pre>
-vauue: 000000015 Server 10 Override: 10.10.10.1 ∨ Option 82 Suboption: (5) Link selection (10.10.10.0)	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</value:>	Lengtn: 4 <value: 0a0a0a00=""> Link selection: 10.10.0</value:>
 Option: (255) End Option End: 255 	Option: (255) End Option End: 255

LEAF-1上的ACK

LEAF-1上收到ACK	ACK由LEAF-1发送

	> 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 Hear Datagram Protocol Src Part: 65518 Dst Part: 4780	> User Datagram Protocol, Src Port: 67, Dst Port: 68
 Virtual eXtensible Local Area Network 	> Dynamic Host Configuration Protocol (ACK)
Flags: 0x0800, VXLAN Network ID (VNI)	Message type: Boot Reply (2)
VXLAN Network Identifier (WNI): 303030	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 Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8	Hons: 0
> User Datagram Protocol, Src Port: 67, Dst Port: 67	Transaction TD: 0ve0e25097
 Dynamic Host Configuration Protocol (ACK) Machine Inner Root Reoth (2) 	Transaction ID: 0x89655067
Hardware type: Ethernet (0x01)	Seconds etapsed: 0
Hardware address length: 6	 Bootp flags: 0x8000, Broadcast flag (Broadcast)
Transaction ID: 0xe9e35087	<pre>1 = Broadcast flag: Broadcast</pre>
Seconds elapsed: 0	.000 0000 0000 0000 = Reserved flags: 0x0000
Bootp Tlags: 0x8000, Broadcast Tlag (Broadcast) 1 Broadcast flag: Broadcast	Client IP address: 0.0.0.0
.000 0000 0000 = Reserved flags: 0x0000	Your (client) IP address: 10.10.10.3
Client IP address: 0.0.0.0 Your (client) IP address: 10.10.10.3	Next server IP address: 0.0.0.0
Next server IP address: 0.0.0.0	Relay agent TP address: 10 10 10 1
Relay agent IP address: 172.16.10.8	Client MAC address: A0:50:56:55:fd:dd
Client hardware address padding: 000000000000000000	Client hardware address modding, ananananan
Server host name not given	Client nardware address padding: 00000000000000000000
Magic cookie: DHCP	Server host name not given
 Option: (53) DHCP Message Type (ACK) 	Boot file name not given
<value: 05=""></value:>	Magic cookie: DHCP
DHCP: ACK (5)	 Option: (53) DHCP Message Type (ACK)
 Option: (58) Renewal Time Value Length: 4 	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:>	• opcion. (56) Renewal Time value
• Option: (51) IP Address Lease Time	
Length: 4	<value: 0000a8c0=""></value:>
IP Address Lease Time: 1 day (86400)	Renewal Time Value: 12 hours (43200)
 Option: (54) DHCP Server Identifier (10.10.10.1) 	Option: (59) Rebinding Time Value
<value: 0a0a0a01=""></value:>	Length: 4
DHCP Server Identifier: 10.10.10.1	<value: 00012750=""></value:>
<pre>> Option: (1) Subnet Mask (255.255.0) Length: 4</pre>	Rebinding Time Value: 21 hours (75600)
<value: ffffff00=""></value:>	Option: (51) IP Address Lease Time
Subnet Mask: 255.255.255.0 Option: (81) Client Fully Qualified Domain Name	length: A
Length: 3	
<value: 00ffff=""></value:>	
0000 = Reserved flags: 0x0	IP Address Lease Time: I day (86400)
0 = Server DDNS: Some server updates	• Option: (54) DHCP Server Identifier (10.10.10.1)
	Length: 4
	<value: 0a0a0a01=""></value:>
PTR-RR result: 255	DHCP Server Identifier: 10.10.10.1
Option: (3) Router	 Option: (1) Subnet Mask (255.255.255.0)
<pre>Length: 4 <value: 0a0a0a01=""></value:></pre>	Length: 4
Router: 10.10.10.1	<value: fffff00=""></value:>
<pre>v Option: (15) Domain Name Length: 10</pre>	Subnet Mack: 255 255 255 0
<value: 63697363612e63616d00=""></value:>	 Ontion: (81) Client Fully Qualified Domain Name
Option: (82) Agent Information Option	· option. (or) client ructy quatrited bondin Name
Length: 47	Length: 5
<pre><value: 01000105000000000000000000000000000000<="" td=""><td><value: 00tttt=""></value:></td></value:></pre>	<value: 00tttt=""></value:>
Length: 14	Flags: 0x00
<value: 0108000500018a9200a00000000=""> Apent Circuit ID: 0108000500018a9200a0000000</value:>	0000 = Reserved flags: 0x0
 Option 82 Suboption: (2) Agent Remote ID 	<pre> 0 = Server DDNS: Some server updates</pre>
Length: 6 <value: 707db9b84daf=""></value:>	
Agent Remote ID: 707db9b84daf	0. = Server overrides: No override
Option 82 Suboption: (151) VRF name/VPN ID Length: 9	0 = Server: Client
<value: 0074656e616e742d61=""></value:>	A-RR result: 255
VRF name: [Expert Info (Warning/Undecoded): Trailing stray characters]	PTR-RR result: 255
(Trailing stray characters)	<pre>Ontion: (3) Bouter</pre>
<message: characters="" stray="" trailing=""></message:>	Length: A
[Group: Undecoded]	
 Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 	
<value: 0a0a0a01=""></value:>	KOUTER: 10.10.10.1
Server ID Override: 10.10.10.1	Option: (15) Domain Name
Length: 4	Length: 10
<value: 0a0a0a00=""></value:>	<value: 636973636f2e636f6d00=""></value:>
v Option: (255) End	Domain Name: cisco.com
Option End: 255	Option: (255) End
	Option End: 255

HOST-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 updates0.. = Encoding: ASCII encoding0. = Server overrides: No override0 = 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

相关信息

<u>配置VXLAN BGP EVPN</u>

<u>配置VXLAN</u>

排除Nexus 9000的DHCP相关问题

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

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