NX-OSとWindows Server 2022を使用したNexus 9000用のVxLANファブリックでのDHCPの設定 と確認

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はじめに

このドキュメントでは、Nexus 9000スイッチを使用してVxLANファブリックのDHCPを設定およびトラブルシューティングする方法について説明します。

前提条件

要件

次の項目に関する知識があることが推奨されます。

- ・ Nexus NX-OS ソフトウェア
- 仮想ポートチャネル(vPC)。
- VxLAN BGP L2VPN EVPN
- BGPアドレスファミリIPv4
- OSPF
- ・ マルチキャストPIM (スパースモード)
- DHCP

使用するコンポーネント

このドキュメントの情報は、次のソフトウェアとハードウェアのバージョンに基づいています。

- ・ Cisco Nexus 9000とCisco NX-OS
 - N9K-C93180YC-EX
 - N9K-C93180YC-FX
 - NX-OS 10.3(4a)
- ・ Windows Server 2022データセンター

このドキュメントの情報は、特定のラボ環境にあるデバイスに基づいて作成されました。このド キュメントで使用するすべてのデバイスは、クリアな(デフォルト)設定で作業を開始していま す。本稼働中のネットワークでは、各コマンドによって起こる可能性がある影響を十分確認して ください。



注:サードパーティ製のソフトウェアまたはハードウェアの構成と統合性に関する質問 は、シスコのサポート外です。サードパーティ製ツールの使用は、シスコ機器の設定と 動作をお客様にデモンストレーションするためのベストエフォートです。

背景説明

実習でのVxLANのアンダーレイとオーバーレイの設定



ラボのVxLANファブリック図

- ・スパイン:
 - このNexusスイッチは、このシナリオではカプセル化解除されずにDHCP(Discover、 Offer、Request、Ack)パケットを送信します。外側のヘッダーだけが使用されます。
 - ◎ ネットワークファブリックの中央ルーティングポイントとして機能します。
 - すべてのリーフスイッチを相互接続し、リーフスイッチ間のデータフローを容易にする。
 - 。BGPに参加して、EVPNルートをリーフスイッチに配布します。
 - IPルーティングを実行し、外部IPヘッダーを調べることで、異なるサブネット間また はVxLANセグメント間でトラフィックをルーティングできます。
 - ◎ オーバーレイネットワーク(VxLAN)をアンダーレイ物理ネットワークから分離します 。
 - 従来のIPルーティングプロトコルでアンダーレイを管理し、BGP EVPNを使用した VxLANでオーバーレイを管理して、スケーラブルで柔軟なネットワークアーキテクチャを提供します。
- ・ リーフ1:
 - リーフスイッチは、サーバ、ストレージデバイス、およびその他のネットワークアプ
 ライアンスなどのエンドポイントに物理接続を提供します。
 - リーフスイッチは、VTEPとして機能します。つまり、VxLANパケットをカプセル化 およびカプセル化解除します。
 - 。このシナリオでは、HOST#1がIPアドレスを要求します。
 - LEAF-1は、VxLANヘッダー内のDCHPパケットのカプセル化を担当します。
 - HOST#1は、DCHPパケットをクラシックイーサネットとして透過的に受信します。
- リーフ1-vPCとリーフ2-vPC:
 - リーフスイッチは、BGPを実行してルート情報を交換することで、EVPNコントロー ルプレーンに参加します。これにより、MACアドレスとIPアドレス情報の配布が可能

になり、トラフィックをVxLANファブリック経由で効率的にルーティングできるよう になります。

- 。このシナリオでは、DHCPサーバはVLAN 10とVNI 101010(HOST#1)に関連付けられ ています。これは、VxLANブリッジングだけであることを意味します。
- DHCPサーバがHOST#1以外のVNIに関連付けられている場合、L3VNIはルーティング に不可欠です。送信元および宛先VNIを作成する必要があります。
- DCHPサーバは、DCHPパケットをクラシックイーサネットとして透過的に受信します。
- BUMトラフィックはvPC内の両方のNexusスイッチで受信されますが、トラフィック を送信するのはvPC内の動作しているプライマリNexusスイッチだけです。セカンダ リNexusスイッチがトラフィックをドロップします。このシナリオでは、LEAF-1vPCは運用上プライマリです。
- リーフ2-vPCとスパイン間のインターフェイスがダウンすると、DCHPパケットを送 信できないため、infra-vlanの使用は必須です。VxLANカプセル化トラフィックを LEAF-1-vPCに送信するには、このバックアップVLANが必要です。このようにして、 LEAF-1-vPCはDCHPパケットをスパインに送信できます。
- N9Kアクセス:
 - このNexusスイッチは、vPCポートチャネルを使用して両方のリーフへの接続を提供 するだけで、ホスト#2への冗長性を実現します

スパイン

nv overlay evpn feature ospf feature bgp feature pim feature netconf feature nv overlav 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
```

リーフ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 232.0.0.0/8 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
```

リーフ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

リーフ2-vPC

nv overlay evpn feature ospf feature bgp feature pim feature interface-vlan feature vn-segment-vlan-based feature lacp feature dhcp feature vpc feature nv overlay fabric forwarding anycast-gateway-mac 0000.0a0a.0a0a ip pim rp-address 192.168.11.11 group-list 224.10.10.0/24 ip pim ssm range 232.0.0/8 vlan 1,10,20,300,777 vlan 10 vn-segment 101010 vlan 20 vn-segment 202020

vlan 300 vn-segment 303030 vlan 777 name BACKUP_VLAN_ROUTING_NVE_INFRA spanning-tree vlan 1,10,20,300 hello-time 4 ip prefix-list host_subnets seq 5 permit 10.10.10.0/24 le 32 ip prefix-list host_subnets seq 10 permit 192.168.20.0/24 le 32 ip prefix-list host_subnets seq 15 permit 172.16.10.10/32 route-map direct_routes_tenant-a permit 10 match ip address prefix-list host_subnets vrf context tenant-a vni 303030 rd auto address-family ipv4 unicast route-target both auto route-target both auto evpn system nve infra-vlans 777 vpc domain 1 peer-switch peer-keepalive destination 10.88.238.194 peer-gateway layer3 peer-router ip arp synchronize interface Ethernet1/1 ip address 10.103.11.2/30 ip ospf network point-to-point ip router ospf 1 area 0.0.0.0 ip pim sparse-mode no shutdown interface Ethernet1/19 switchport switchport mode trunk channel-group 1 mode active no shutdown interface port-channel1 switchport switchport mode trunk spanning-tree port type network vpc peer-link interface port-channel10 switchport switchport mode trunk switchport trunk allowed vlan 1,10,20 vpc 10 interface mgmt0 vrf member management ip address 10.88.238.195/29 interface loopback0 description UNDERLAY-VERIFICATION ip address 192.168.4.4/32 ip router ospf 1 area 0.0.0.0 ip pim sparse-mode

```
interface loopback1
 description OVERLAY-NVE
 ip address 192.168.13.2/32
 ip address 192.168.13.254/32 secondary
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
interface loopback10
 vrf member tenant-a
 ip address 172.16.10.2/32
interface loopback100
 vrf member tenant-a
 ip address 172.16.10.10/32
interface Vlan10
 no shutdown
 vrf member tenant-a
 no ip redirects
 ip address 10.10.10.1/24
 no ipv6 redirects
 fabric forwarding mode anycast-gateway
 ip dhcp relay address 10.10.10.150
 ip dhcp relay source-interface loopback100
interface Vlan20
 no shutdown
 vrf member tenant-a
 no ip redirects
 ip address 192.168.20.1/24
 no ipv6 redirects
 fabric forwarding mode anycast-gateway
interface Vlan300
 no shutdown
 vrf member tenant-a
 no ip redirects
 ip forward
 no ipv6 redirects
interface Vlan777
 description BACKUP_UNDERLAY_INFRA-VLAN
 no shutdown
 no ip redirects
 ip address 10.255.77.2/30
 no ipv6 redirects
 ip ospf network point-to-point
 ip router ospf 1 area 0.0.0.0
 ip pim sparse-mode
interface nve1
 no shutdown
 host-reachability protocol bgp
 advertise virtual-rmac
 source-interface loopback1
 member vni 101010
    suppress-arp
    mcast-group 224.10.10.10
 member vni 202020
    suppress-arp
    mcast-group 224.10.10.10
```

member vni 303030 associate-vrf router ospf 1 router bgp 65000 address-family ipv4 unicast address-family 12vpn evpn advertise-pip neighbor 192.168.0.11 remote-as 65000 update-source loopback0 address-family 12vpn evpn send-community send-community extended neighbor 192.168.88.1 remote-as 65000 description OVERLAY_BACKUP update-source Vlan888 address-family 12vpn evpn send-community send-community extended vrf tenant-a address-family ipv4 unicast redistribute direct route-map direct_routes_tenant-a evpn vni 101010 12 rd auto route-target import auto route-target export auto vni 202020 12 rd auto route-target import auto route-target export auto

N9Kアクセス

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スイッチでのDHCPの設定

リーフ1

ステップ1:DCHP機能を有効にします。

LEAF-1(config)# feature dhcp



注:NX-OS 7.x以降、DHCPサーバおよびリレーエージェントコマンドservice dhcp、ip dhcp relay、およびipv6 dhcp relayはデフォルトで有効になっています。

ステップ2:コマンドip dhcp relay information optionを適用します。

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



注:このコマンドを使用すると、DHCPリレーエージェントは、転送されるパケットに関 するOption 82情報の挿入と削除を実行できます。

ステップ3:コマンドip dhcp relay information option vpnを適用します。

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



注:このコマンドは、DHCPサーバが属している異なるVRFに到着するDHCPリレー要求 をイネーブルにします。

ステップ 4:コマンド「ip dhcp relay address [ip address of DCHP server]」を適用します。



注:この例では、DCHPサーバのIPアドレスは10.10.150です。

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

ステップ 5:コマンド「ip dhcp relay source-interface [unique loopback]」を適用します。



注:このコマンドは、DHCPリレーエージェントがユニキャスト通信の検出、オファー、 要求、およびACKを処理するために送信元IPアドレスを設定します。ユニキャスト通信 では、DHCPリレーエージェントはSVIのIPアドレスをDHCPリレーエージェントの送信 元IPアドレスとして使用します。このIPアドレスは複数のVTEPによって共有され、 DHCPパケットのブラックホール化が発生する可能性があるため、これは望ましくありま せん。これを回避するには、一意のIPアドレス(ループバックインターフェイスを使用)を使用して各VTEPを区別する必要があります。

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

手順 6:BGP内のVRF対応テナントで、ループバックインターフェイスのIPアドレスを含むプレフィックスリストとルートマップによる直接ルート再配布。



注:このループバックインターフェイスはSVIのテナントに属しています。

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

手順 7:コマンドshow bgp l2vpn evpn [loopback IP] vrf [tenant vrf]を使用して、ループバックイ ンターフェイスのIPアドレスがBGP L2VPN EVPNでスパインにアドバタイズされていることを確

認します。

LEAF-1(config)# show bgp l2vpn 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

ステップ 8:ループバックインターフェイスのIPアドレスが、DHCPサーバが配置されている BGP L2VPN EVPNに挿入されていることを確認します。



注:vPCにNexusスイッチがある場合は、両方ともBGP L2VPN EVPNのループバックイ ンターフェイスのIPアドレスを学習していることを確認します。

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

ステップ9: show ip route [DHCP server IP] vrf [tenant vrf]コマンドを使用して、送信元テナント 上にDHCPサーバへのルートが存在することを確認します。



注:使用するルートエントリは、VxLANからデフォルトのVRFである必要があります。 使用可能なルートがない場合は、VTEPがDCHPサーバのIPアドレスをローカルに認識し ているかどうかを確認します。

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>

ステップ 10:ループバックインターフェイスを使用してDCHPサーバIPに到達できること、およびVRFソースとして対応するVRFに到達できることを、ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf]コマンドで確認します。

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

ステップ 11DHCPリレーエージェントのステータスを確認します。

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

ステップ 12vpnオプションなどのoption82と、リレーエージェントの下にある正しいリレーIPア ドレスを確認します。

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>

ステップ 13処理および転送されたパケットの統計情報を確認します。

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

ステップ14: リレーパケットの統計情報を確認します。

Message Type	Rx	Тх		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	
<pre>Inform(*)</pre>	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	

LEAF-1# show ip dhcp relay statistics

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 switc	hed			

リーフ1-vPC DHCP

ステップ1:DCHP機能を有効にします。

LEAF-1-VPC(config)#feature dhcp



注:NX-OS 7.x以降、DHCPサーバおよびリレーエージェントコマンドservice dhcp、ip dhcp relay、およびipv6 dhcp relayはデフォルトで有効になっています。

ステップ2:コマンドip dhcp relay information optionを適用します。

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



注:このコマンドを使用すると、DHCPリレーエージェントは、転送されるパケットに関するOption 82情報の挿入と削除を実行できます。

ステップ3:コマンド「ip dhcp relay information option vpn」を適用します。

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



注:このコマンドは、DHCPサーバが属している異なるVRFに到着するDHCPリレー要求 をイネーブルにします。

ステップ4:コマンドip dhcp relay address [ip address of DCHP server]を適用します。



注:この例では、DCHPサーバのIPアドレスは10.10.150です。

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

ステップ 5:コマンド「ip dhcp relay source-interface [unique loopback]」を適用します。



注:このコマンドは、DHCPリレーエージェントがユニキャスト通信の検出、オファー、 要求、およびACKを処理するために送信元IPアドレスを設定します。ユニキャスト通信 では、DHCPリレーエージェントはSVIのIPアドレスをDHCPリレーエージェントの送信 元IPアドレスとして使用します。このIPアドレスは複数のVTEPによって共有され、 DHCPパケットのブラックホール化が発生する可能性があるため、これは望ましくありま せん。これを回避するには、一意のIPアドレス(ループバックインターフェイスを使用)を使用して各VTEPを区別する必要があります。

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

手順6:BGP内のVRF対応テナントで、ループバックインターフェイスのIPアドレスを含むプレフィックスリストとルートマップによる直接ルート再配布。



注:このループバックインターフェイスはSVIのテナントに属しています。

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-routes_tenant-a)

```
手順 7:コマンドshow bgp l2vpn evpn [loopback IP] vrf [tenant vrf]を使用して、ループバックイ
ンターフェイスのIPアドレスがBGP L2VPN EVPNでスパインにアドバタイズされていることを確
認します。
```

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

ステップ 8: ループバックインターフェイスのIPアドレスが、DHCPサーバが配置されている BGP L2VPN EVPNに挿入されていることを確認します。



注:vPCにNexusスイッチがある場合は、両方ともBGP L2VPN EVPNのループバックインターフェイスのIPアドレスを学習していることを確認します。

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

ステップ 9: show ip route [DHCP server IP] vrf[tenant vrf]コマンドを使用して、送信元テナント 上にDHCPサーバへのルートが存在することを確認します。



注:使用するルートエントリは、VxLANからデフォルトのVRFである必要があります。 使用可能なルートがない場合は、VTEPがDCHPサーバのIPアドレスをローカルに認識し ているかどうかを確認します。

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 10.10.10.150/32, ubest/mbest: 1/0, attached *via 10.10.10.150, Vlan10, [190/0], 6d07h, hmm

ステップ 10:コマンドping [DHCP server IP] source-interface loopback [x] vrf [tenvrf]を使用して 、ループバックインターフェイスとVRFソースとしての対応するVRFを使用してDCHPサーバ IPに到達できることを確認します。

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 ---

ステップ 11DHCPリレーエージェントのステータスを確認します。

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

ステップ 12vpnオプションなどのoption82と、リレーエージェントの下にある正しいリレーIPア ドレスを確認します。

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: Interface Relay Address VRF Name

Vlan10	10.10.10.150	<<<<<<

ステップ 13処理および転送されたパケットの統計情報を確認します。

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

ステップ14:リレーパケットの統計情報を確認します。

Message Type	Rx	Тх	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	

LEAF-1-VPC# show ip dhcp relay statistics

DHCP L3 FWD: Total Packets Received

0

:

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

リーフ2-vPC DHCP

ステップ1:DCHP機能を有効にします。

LEAF-2-VPC(config)# feature dhcp



注:NX-OS 7.x以降、DHCPサーバおよびリレーエージェントコマンドservice dhcp、ip dhcp relay、およびipv6 dhcp relayはデフォルトで有効になっています。

ステップ2:コマンド「ip dhcp relay information option」を適用します。

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



注:このコマンドを使用すると、DHCPリレーエージェントは、転送されるパケットに関するOption 82情報の挿入と削除を実行できます。

ステップ3:コマンド「ip dhcp relay information option vpn」を適用します。

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



注:このコマンドは、DHCPサーバが属している異なるVRFに到着するDHCPリレー要求 をイネーブルにします。

ステップ 4:コマンド「ip dhcp relay address [ip address of DCHP server]」を適用します。



注:この例では、DCHPサーバのIPアドレスは10.10.150です。

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

ステップ 5:コマンド「ip dhcp relay source-interface [unique loopback]」を適用します。



注:このコマンドは、DHCPリレーエージェントがユニキャスト通信の検出、オファー、 要求、およびACKを処理するために送信元IPアドレスを設定します。ユニキャスト通信 では、DHCPリレーエージェントはSVIのIPアドレスをDHCPリレーエージェントの送信 元IPアドレスとして使用します。このIPアドレスは複数のVTEPによって共有され、 DHCPパケットのブラックホール化が発生する可能性があるため、これは望ましくありま せん。これを回避するには、一意のIPアドレス(ループバックインターフェイスを使用)を使用して各VTEPを区別する必要があります。

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

手順6:BGP内のVRF対応テナントで、ループバックインターフェイスのIPアドレスを含むプレフィックスリストとルートマップによる直接ルート再配布。



注:このループバックインターフェイスはSVIのテナントに属しています。

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

手順 7:コマンドshow bgp l2vpn evpn [loopback IP] vrf [tenant vrf]を使用して、ループバックイ ンターフェイスのIPアドレスがBGP L2VPN EVPNでスパインにアドバタイズされていることを確 認します。 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

ステップ 8:ループバックインターフェイスのIPアドレスが、DHCPサーバが配置されている BGP L2VPN EVPNに挿入されていることを確認します。



注:vPCにNexusスイッチがある場合は、両方ともBGP L2VPN EVPNのループバックイ ンターフェイスのIPアドレスを学習していることを確認します。

LEAF-2-VPC(config-if)# show bgp l2vpn 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]:[0]:[32]:[172.16.10.10]/224, version 49 5 Paths: (1 available, best #1) Flags: (0x000002) (high32 00000000) on xmit-list, is not in l2rib/evpn Advertised path-id 1 Path type: local, path is valid, is best path, no labeled nexthop Gateway IP: 0.0.00 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:

ステップ 9 : show ip route [DHCP server IP] vrf[tenvrf]コマンドを使用して、送信元テナント上に DHCPサーバへのルートが存在することを確認します。



注:使用するルートエントリは、VxLANからデフォルトのVRFである必要があります。 使用可能なルートがない場合は、VTEPがDCHPサーバのIPアドレスをローカルに認識し ているかどうかを確認します。

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

ステップ 10:ループバックインターフェイスを使用してDCHPサーバIPに到達できること、およびVRFソースとして対応するVRFに到達できることを、ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf]コマンドで確認します。

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 ---

ステップ 11DHCPリレーエージェントのステータスを確認します。

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

ステップ 12vpnオプションなどのoption82と、リレーエージェントの下にある正しいリレーIPア ドレスを確認します。

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>

ステップ13処理および転送されたパケットの統計情報を確認します。

_EAF-2-VPC(config)# show ip dhcp global statistics	
Packets processed 103030	
Packets received through cfsoe 0	
Packets forwarded 103030	
Packets forwarded on cfsoe O	
Fotal packets dropped O	
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 O	
Packets dropped which were unknown 0	
Packets dropped due to no trusted ports O	
Packets dropped due to dhcp relay not enabled O	
Packets dropped due to no binding entry O	
Packets dropped due to interface error/no interface ()
Packets dropped due to max hops exceeded 0	
Packets dropped due to Queue full 0	

ステップ14: リレーパケットの統計情報を確認します。

Message Type	Rx	Тх	Drops	
Discover	29312	29311	0	
Request(*)	29324	29324	0	
Ack Release(*)	1574 191493	1574 191493	0	
Decline	0	0	0	
Inform(*) Nack	1540 472890	1540 472890	0 0	
Total	1026134	1026133	0	

LEAF-2-VPC# show ip dhcp relay statistics

DHCP L3 FWD:		
Total Packets Received	:	0
Total Packets Forwarded	:	0
Total Packets Dropped	:	0
Non DHCP:		
Total Packets Received	:	0
Total Packets Forwarded	:	0
Total Packets Dropped	:	0
DROP:		
DHCP Relay not enabled	:	0
Invalid DHCP message type	:	0
Interface error	:	0
Tx failure towards server	:	0
Tx failure towards client	:	0
Unknown output interface	:	0
Unknown vrf or interface for server	:	0
Max hops exceeded	:	0
Option 82 validation failed	:	0
Packet Malformed	:	0
DHCP Request dropped on MCT	:	0
Relay Trusted port not configured	:	0
* - These counters will show correct value when	ı switch	
receives DHCP request packet with destination ip	as broadca	ast
address. If request is unicast it will be HW swit	ched	

Windows Server 2022でのDHCPサーバの設定

ホストのIPアドレス範囲の設定。

ステップ1:サーバマネージャを開き、ダッシュボードにDCHPサーバのアラームがないことを 確認します。



Windows Server 2022のサーバーマネージャーからのダッシュボード



ヒント:ダブルクリックすると画像が拡大します。

ステップ2:DHCPサーバアプリケーションを開きます。

Tea Action View Hole If the Image State is a state in the Image State in the Im

Windows Server 2022上のDHCPサーバ

THCP

ステップ3: IPv4を右クリックし、New Scopeをクリックします。



Г

ステップ 4 : [Next] をクリックします。

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

ステップ 5 : 名前と説明を入力します。この例では、名前はVLAN 10に属するサブネットで、説 明はVLAN 10にリストされているL2VNIとしてのL2VNIです。

New Scope Wizard	
Scope Name You have to pro a description.	ovide an identifying scope name. You also have the option of providing
Type a name an how the scope i	d description for this scope. This information helps you quickly identify s to be used on your network.
Name:	10.10.0/24
Description:	L2VNI 101010
	< Back Next > Cancel

手順 6:IPアドレス範囲を設定します。これはホスト用のプールです。

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
End IP address: 10 . 10 . 254
Configuration settings that propagate to DHCP Client
Length: 24
Subnet mask: 255 . 255 . 255 . 0
< Back Next > Cancel

手順 6:VTEPのSVI設定から共有IPアドレスを除外します。この例では、インターフェイス VLAN 10のアドレスはIP.10.10.1/24です。



警告: SVI(またはデフォルトゲートウェイ)からIPアドレスを除外しないと、IPアドレ スが重複し、トラフィック配信に影響を与える可能性があります。

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

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

手順 7:IPアドレスのリース期間を設定します。これは、ホストが割り当てられたIPアドレスを 更新する前に使用できる時間を示します。

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

ステップ 8: Yes, I want to configure these options nowを選択します。

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

ステップ 9 : デフォルトゲートウェイのIPアドレスを設定します。

Router (Default Gateway) You can specify the routers	, or default gatev	vays, to be distribu	ted by this scope	
To add an IP address for a r	outer used by cl	ents, enter the ad	dress below.	
IP address:	Add			
10.10.10.1	Remove			
	Up			
	Down			
		< Back	Next >	Cancel

ステップ 10:ドメイン名とDNSサーバを設定します。

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 the DNS name resolution. Parent domain: cisco.com To configure scope clients to use DNS servers	on your network, enter the IP add	to use for
servers.	ID address	
server name:	142 250 114 102	A44
Boodie roun	142 . 200 . 114 . 102	~~
Resolve		Remove
		Up
		Down
	< Back Next >	Cancel

ステップ 11必要に応じてWINSサーバを設定します。情報が不明な場合は、この操作をスキップ できます。

ew Scope Wizard WINS Servers Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.		
Entering server IP addresses he broadcasts to register and resol	re enables Windows clients to query WINS before they use ve NetBIOS names.	
Server name:	IP address:	
	bbA · · · Add	
	Resolve	
	Up	
	Down	
To change this behavior for Wir Type, in Scope Options.	ndows DHCP clients modify option 046, WINS/NBT Node	
	< Back Next > Cancel	

ステップ 12Yes, I want to activate this scope nowを選択します。

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

SVIのループバックから一意のIPアドレスのスコープをDCHPリレーエージェント として設定する。

ステップ1:IPv4を右クリックし、IPv4Scopeを選択します。

望 DHCP				
File Action View Help				
4 🕈 🔟	🗟 🛛 📆 🖳			
Colabs-	win2k22dc	Contents of DHCP	Status	
> 10 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			

DCHPの新しいスコープ

ステップ2:名前と説明を入力します。この例では、nameはループバックアドレスのサブネット に使用されるサブネットです。



IPte:ループバックは、VxLANテナントのVxLANファブリック全体でループバックの一 意のIPアドレスとして使用されます。これは、IPv4アドレスfamIPv4内の対応するテナン トのVRF内のBGP L2VPN EVPNルート再配布でアドバタイズする必要があります

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 prive a description.	ovide an identifying scope name. You also have the option of providing
Type a name an how the scope	id 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

ステップ3: IPアドレスrangelPを設定します。これはループバック用のプールです。

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

ステップ 4:除外を設定します(DHCPサーバがこのサブネットに属するIPアドレスをリースす るため、オプションです)。

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

ステップ 5 : リース期間をスキップして、Nextをクリックします。

New Scope Wizard	
Lease Duration The lease duration specifies how long a client can use an IP address from this scope.	¹
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

手順 6: No, I will configure these options laterを選択します。

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

手順 7 : [Finish] をクリックします。

New Scope Wizard	
	Completing the New Scope Wizard
	You have successfully completed the New Scope wizard.
	Before clients can receive addresses you need to do the following:
	1. Add any scope specific options (optional).
	2. Activate the scope.
	To provide high availability for this scope, configure failover for the newly added scope by right clicking on the scope and clicking on configure failover.
	To close this wizard, click Finish.
	< Back Finish Cancel

ステップ8:作成したスコープを右クリックし、activateを選択します。


VxLANファブリックのスーパースコープを構成しています。

ステップ1:IPv4を右クリックし、New Superscopeを選択します。

📜 рнся					
File Action	Yes Help				
++ 2	1 🛛 2 🕞 I 🖬 📆 🛡 🗸				
V DHCP		Contents of DHCP Server	Status Active	Description Unique IP Gateway Address (SVI)	Fallove Relationship
	Display Statistics	Scope (10.15.10.0) 10.10.00.04 Server Options	- Active -	L2VM 101010	
	New Scope	Pulicies			
	New Superscope	Filters			
5 🗷	New Multicast Scope				
-> % P	Configure Failover Replicate Failover Scopes				
	Define User Classes Define Vendor Classes				
	Reconcile All Scopes				
	Set Predefined Options				
	View	3			
	Refresh Export List				
	Properties				
	Help				

ステップ 2 : [Next] をクリックします。

New Superscope Wizard	
	Welcome to the New Superscope which expands the number of IP network addresses that you can use in a network. A superscope allows several distinct scopes to be logically grouped under a single name. To continue, click Next.
	< Back Next > Cancel

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

ステップ4:VxLANファブリックに属するすべてのスコープを選択します。

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

ステップ 5:VxLANファブリックに属するすべてのスコープを選択します。

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. Agailable 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

手順 6:すべてのVxLANファブリックスーパースコープが所定の位置にあることを確認し、 Finishをクリックします。

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

ホストスコープでオプション82を設定します。

ステップ1 : hostのスコープ内でPolicies(最後のオプション)を右クリックし、New Policyをク リックします。

🦞 онся							
File Action View Help							
💠 🔶 🙇 📷 🖄 🚔 🛛							
DHOP DHOP			Policy Name	Description	Processin	Level Diere are no R	Address Range arms to show in this view.
> Reservation	tions frights						
Score 112	New Policy						
C Server Option	Deactivate						
2 Policies View >							
> 2,94	Refresh Export List						
	Help						



注:この例では、ポリシーはVNI 101010ベースのLeaf-1内のホストに対してIPアドレッ シングpalPicularlyを選択するように作成されます。VNI Remote-ID(オプション82のパ ラメータ)。

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.).								
Configuration Polic policy.	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							

ステップ 3: [Add] をクリックします。Criteriaで、Relay Agent Informationを選択します。「演算 子」で、「等しい」を選択します。次に、Agent Remote IDを選択して、値を入力します。OKを クリックし、次にNextをクリックします。



注:リモートIDは、SVIが関連付けられているSVIのMACアドレスから取得されます。



ヒント:条件を追加し、ANDの代わりにORを選択することで、1つのポリシーを複数の リモートID(またはVTEP)に適用できます。

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

DHCP Policy Configuration Wizard		
Cor Add/Edit Condition	?	× S
A Specify a condition for the policy being configured. Select a criteria, and values for the condition.	operator	74
S Criteria: Relay Agent Information		
Value (in hex) C Relay Agent Information: C Agent Circuit ID: Agent Remote ID: 707db9b84daf C Subscriber ID: Prefix wildcard(*) Append wildcard(*)		
Ok Ca	ncel	
< Back Next >		Cancel

ステップ4:IDで選択したVTEPで既存のIPが使用できるIPアドレスを設定し、Nextをクリックし ます。



注:この例では、リーフ1に接続されている仮想マシンは1つだけなので、IPdが必要な仮 想マシンは1つだけです。ここでは、別のホストが接続する場合に2番目のIPアドレスが 追加されます。

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 C 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

ステップ 5: DCHP Standard Optionの下の003 Routerの左側にあるボックスを選択します。次に 、このポリシーに属するホストのデフォルトゲートウェイのIPアドレスを書き込み、Addを押し ます。[Next] をクリックします。



注意:複数のオプションを選択できますが、入力する値がわからない場合は、選択しないでください。設定に一貫性がないか、誤りがあると、予期しない動作が発生する可能 性があります。

DHCP Policy Configurat	ion Wizard		
Configure settings for If the conditions spe applied.	or the policy scified in the policy mate	ch a client request, the settings will be	(j)
Vendor class:	DHCP Standard Op	otions	•
Available Options		Description	^
002 Time Offset		UTC offset in seconds	
003 Router		Array of router addresses on	der
C 004 Time Server		Array of time server address	es. ~ >
Data entry			
Server name:			
		Resolve	
IP address:			
	Add		
10.10.10.1	Remove		
	Up		
	Down		
		< Back Next >	Cancel

手順 6:ポリシー条件を確認し、Finishをクリックします。

									-	
PHCP DHCP								-	D	×
File Action View Help										
🗢 🔶 📶 🛛 😹 🖬 📆										
P DHCP	Policy Name	Description	Processin Lev	vel Ad	ddress Range	State	Actions			
CXLabs-WIN2K22DC	VNI 101010	Policy to select scope for Leaf-1 using Remote-ID	1 Sco	оре 10.	0.10.10.2 - 10.10.10.3	Enabled	Policies			
 Profession Superscope Scopes for VxLAN Fabric (with Opt 82) Scope [10.10.0] (2VNI 101010 Address Pool Address Rearvations Scope Options Pelicities Server Options Pelicities Pelicities							More Actions			•

VxLANファブリックでのDCHPパケットの最初から最後まで移動

HOST-1によって送信されるディスカバリ

```
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
```

LEAF-1での検出

LEAF-1で検出を受信	LEAF-1によって送信されるディスカバリ
	 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: 65233, Dst Port: 4789 Virtual eXtensible Local Area Network
	> Flags: 0x0000, VXLAN Network ID (VNI) Group Policy ID: 0
> Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff	VXLAN Network Identifier (WNI): 303030
Internet Protocol Version 4, Src: 0.0.0.0, DSt: 255.255.255.255	> Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe
> Dynamic Host Configuration Protocol (Discover)	User Datagram Protocol, Src Port: 67, Dst Port: 67
Message type: Boot Request (1)	V Dynamic Host Configuration Protocol (Discover) Message type: Boot Request (1)
Hardware address length: 6	Hardware type: Ethernet (0x01) Hardware address length: 6
Hops: 0	Hops: 1 Transaction ID: 0xe9e35087
Fransaction ID: 0xe9e35087 Seconds elapsed: 0	Seconds elapsed: 0
 Bootp flags: 0x8000, Broadcast flag (Broadcast) 	Client IP address: 0.0.0
1 = Broadcast flag: Broadcast	Next server IP address: 0.0.0.0
Client IP address: 0.0.0.0	Relay agent IP address: 172.16.10.8 Client MAC address: 00:50:56:a5:fd:dd
Your (client) IP address: 0.0.0.0	Client hardware address padding: 000000000000000000000000000000000000
Next server IP address: 0.0.0.0	Boot file name not given
Client MAC address: 00:50:56:a5:fd:dd	 Option: (53) DHCP Message Type (Discover)
Client hardware address padding: 00000000000000000000	Length: 1 <value: 01=""></value:>
Server host name not given	DHCP: Discover (1) ~ Option: (61) Client identifier
Magic cookie: DHCP	Length: 7
 Option: (53) DHCP Message Type (Discover) 	Hardware type: Ethernet (0x01)
Value: 01>	 Option: (12) Host Name
DHCP: Discover (1)	Length: 10 <value: 43584c6162732d573130=""></value:>
Option: (61) Client identifier	Host Name: CXLabs-W10
<pre></pre>	Length: 8
Hardware type: Ethernet (0x01)	Vendor class identifier: MSFT 5.0
Client MAC address: 00:50:56:a5:fd:dd	 Option: (55) Parameter Request List Length: 14
Length: 10	<value: 0103060f1f212b2c2e2f7779f9fc=""> Parameter Request List Item: (1) Subnet Mask</value:>
<value: 43584c6162732d573130=""></value:>	Parameter Request List Item: (3) Router Parameter Request List Item: (6) Domain Name Server
Host Name: CXLabs-W10	Parameter Request List Item: (15) Domain Name Parameter Request List Item: (13) Parform Reuter Discover
Length: 8	Parameter Request List Item: (31) Perform Roller Discover
<value: 4d53465420352e30=""></value:>	Parameter Request List Item: (43) Vendor-Specific Information Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
Vendor class identifier: MSFT 5.0	Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type Parameter Request List Item: (47) NetBIOS over TCP/IP Scope
Length: 14	Parameter Request List Item: (119) Domain Search Parameter Request List Item: (121) Classless Static Route
<value: 0103060f1f212b2c2e2f7779f9fc=""></value:>	Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
Parameter Request List Item: (1) Subnet Hask	 Option: (82) Agent Information Option
Parameter Request List Item: (6) Domain Name Server	Length: 47 <value: 010e0108000600018a9200a0000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:>
Parameter Request List Item: (15) Domain Name	 Option 82 Suboption: (1) Agent Circuit ID Length: 14
Parameter Request List Item: (33) Static Route	<value: 0108000600018a9200a000000000=""> Agent Circuit ID: 0108000600018a9200a00000000</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	<value: 707db9b84daf=""></value:>
Parameter Request List Item: (47) NetBIOS over TCP/IP Scope	Agent Remote 1D: 7070090840aT • Option 82 Suboption: (151) VRF name/VPN ID
Parameter Request List Item: (119) Domain Search	Length: 9 <value: 0074656e616e742d61=""></value:>
Parameter Request List Item: (121) Classless Static Route Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)	VRF name: > [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
> Option: (255) End	<value: 0a0a0a01=""></value:>
rauting, ananananananananan	Server 10 override: 10.10.10.1 v Option 82 Suboption: (5) Link selection (10.10.10.0)
	Length: 4 <value: 0a0a0a00=""></value:>
	Link selection: 10.10.10.0
	Padding: 0000000000000000



ヒント:ダブルクリックすると画像が拡大します。

スパインでの検出

LEAF-1-vPCで受信したディスカバリ LEAF-1-vPCによって送信されるディスカバリ

LEAF-1-vPCでの検出

ſ

Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254	Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 60:26:aa:85:98:87
> User Datagram Protocol, Src Port: 65233, Dst Port: 4789 > Virtual eXtensible Local Area Network	 User Datagram Protocol, Src Port: 65233, DSt Port: 4789 Virtual extensible local Area Network
Group Policy ID: 0	> Flags: 0x0800, VXLAN Network ID (WI) Group Policy ID: 0
Reserved: 0	VXLAN Network Identifier (VNI): 303030 Reserved: 0
Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 User Datagram Protocol, Src Port: 67, Dst Port: 67	 Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:0d:fe Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150
 Dynamic Host Configuration Protocol (Discover) Message type: Boot Request (1) 	 > User Datagram Protocol, Src Port: 67, Dst Port: 67 > Dynamic Host Configuration Protocol (Discover)
Hardware type: Ethernet (0x01) Hardware address length: 6	Message type: Boot Request (1) Hardware type: Ethernet (0x01)
Hops: 1 Transaction ID: 0xe9e35087	Hardware address length: 6 Hops: 1
Seconds elapsed: 0 > Bootp flags: 0x8000, Broadcast flag (Broadcast)	Iransaction 10: 0xe9e35007 Seconds elapsed: 0
Client IP address: 0.0.0.0 Your (client) IP address: 0.0.0.0	Client IP address: 0.0.0 Your (client IP address: 0.0.0
Next Server in Address: 0.0.00 Relay agent IP Address: 172.16.10.8 Cliner McC.addrecs: 00.50.55.54.44	Next server IP address: 0.0.0 Relay agent IP address: 172.16.10.8
Client haw duress: 00:30:30:d3:00:00 Client hardware address padding: 00000000000000000000 Server host hame of clien	Client MAC address: 00:50:56:a5:fd:dd Client hardware address padding: 000000000000000000
Boot file name not given Magic cookie: DHCP	Server host name not given Boot file name not given
<pre>Option: (53) DHCP Message Type (Discover) Length: 1</pre>	Magic cookie: DHCP ~ Option: (53) DHCP Message Type (Discover)
<value: 01=""> DHCP: Discover (1)</value:>	Length: 1 <value: 01=""></value:>
 Option: (61) Client identifier Length: 7 	DHCP: Discover (1) ~ Option: (61) Client identifier
<value: 01005056a5fddd=""> Hardware type: Ethernet (0x01)</value:>	Lengin: / <value: 01005056a5fddd=""> Hardware tung: Ethernet (0x01)</value:>
Client MAC address: 00:50:56:a5:fd:dd > Option: (12) Host Name	Client MAC address: 00:50:56:a5:fd:dd
Length: 10 <value: 43584c6162732d573130=""> Hoct: Mame: CV.abc.w10</value:>	Length: 10 <value: 43584c6162732d573130=""></value:>
<pre>v Option: (6) Vendor class identifier Length: 8</pre>	Host Name: CXLabs-W10 ~ Option: (60) Vendor class identifier
<value: 4d53465420352e30=""> Vendor class identifier: MSFT 5.0</value:>	Length: 8 <value: 4d53465420352e30=""></value:>
 Option: (55) Parameter Request List Length: 14 	Vendor class identifier: MSFT 5.0 • Option: (55) Parameter Request List
<value: 0103060f1f212b2c2e2f7779f9fc=""> Parameter Request List Item: (1) Subnet Mask</value:>	Length: 14 <value: 0103060f1f212b2c2e2f7779f9fc=""> Parameter Request List Tram: (1) Subnet Mask</value:>
Parameter Request List Item: (3) Router Parameter Request List Item: (6) Domain Name Server	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: (15) Domain Name Parameter Request List Item: (31) Perform Router Discover
Parameter Request List Item: (33) Static Koute Parameter Request List Item: (43) Vendor-Specific Information Bacameter Request List Item: (44) NetBoo Aver TCP/TP Name Server	Parameter Request List Item: (33) Static Route Parameter Request List Item: (43) Vendor-Specific Information
Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type Parameter Request List Item: (47) NetBIOS over TCP/IP Node Type	Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
Parameter Request List Item: (119) Domain Search Parameter Request List Item: (121) Classless Static Route	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search
Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery	Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
Option: (82) Agent Information Option Length: 47	 Option: (82) Agent Information Option Jennth: 47
<pre><value: 010e0108000600018a9200a00000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""> </value:></pre> Option 82 Suboption: (1) Agent Circuit ID	<pre></pre>
Length: 14 <value:010800600018a9200a000000000 //////////////////////////</value:010800600018a9200a000000000 	Length: 14 <value: 0108000600018a9200a00000000=""></value:>
 Option 82 Suboption: (2) Agent Remote ID 	Agent Circuit ID: 0108000600018a9200a00000000 V Option 82 Suboption: (2) Agent Remote ID
<value: 707db9b84daf=""> Agent Remote ID: 707db9b84daf</value:>	Length: 6 <value: 707db9b84daf=""></value:>
Option 82 Suboption: (151) VRF name/VPN ID Length: 9	Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID
<value: 0074656e616e742d61=""> VRF name:</value:>	<pre><value: 0074656e616e742d61=""> </value:></pre>
 [Expert Info (Warning/Undecoded): Trailing stray characters] Option 82 Suboption: (11) Server ID Override (10.10.10.1) 	[Expert Info (Warning/Undecoded): Trailing stray characters] Option 82 Suboption: (11) Server ID Override (10.10.10.1)
Length: 4 <value: 0a0a0a01=""></value:>	Length: 4 <value: 0a0a0a01=""></value:>
server ID 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)
<pre></pre> <value: 0a0a0a00=""> Link selection: 10.10.10.0</value:>	Length: 4 <value: 00000000=""></value:>
Option: (255) End Option End: 255	LINK SELECTION: 10.10.20.0 > Option: (255) End Padding: 000000000000000
Padding: 0000000000000000	rauuliy, uaaadoooooooooooooooooooooooooooooooooo

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 riotocot, sit Port: 0/, Ust Port: 0/
Virtual extensione Local AFEA NECKOTK	Uynamic Host Configuration Protocol (Discover)
> Flags: 0x0800, VXLAN Network ID (VNI)	Message type: Boot Request (1)
Group Policy ID: 0	Hardware type: Ethernet (0x01)
VXLAN Network Identifier (VNI): 303030	Ward are address leads 6
Presented A	hardware address length: 6
Reserved: 0	Hops: 1
> Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe	Transaction ID: 0xe9e35087
Internet Protocol Version 4, Src: 172, 16, 10, 8, Dst: 10, 10, 10, 150	Forende al 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: 0xe9e35067	Relay agent IP address: 172.16.10.8
Seconds elapsed: 0	Client MAC address: 00:50:56:a5:fd:dd
Booto flags: 0x8000, Broadcast flag (Broadcast)	
Client ID address, 0.0.0.0	ctient hardware address padding: 0000000000000000000
CLEAR IF ADDRESS: 0.0.0.0	Server host name not given
Your (client) IP address: 0.0.0.0	Boot file name not given
Next server IP address: 0.0.0.0	Manie cookie: DHCP
Relay agent TP address: 172 16 18 8	hagit cookie. Dhep
Client MAC address An Co. Co. C. Advad	 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: araabababinngs
Long the A	Hardware type: Ethernet (0x01)
<value: 01=""></value:>	Client MAC address: 00:50:56:a5:fd:dd
DHCP: Discover (1)	Ontion: (12) Host Name
Option: (61) Client identifier	option: (12) Host Name
- vyskavni (vaz) eskent avelltilter	Length: 10
Length: 7	<value: 43584c6162732d573130=""></value:>
<value: 01005056a5fddd=""></value:>	Host Name: CVI abs-W10
Hardware type: Ethernet (0x01)	TOST Malle. CALabs-MID
	Option: (60) Vendor class identifier
Client MAC address: 00:50:56:a5:Td:dd	Length: 8
 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 Hame/ the Lo	<pre><message: characters="" stray="" trailing=""></message:></pre>
Length: 9	[Severity Jave] + 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 10 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=""> 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:LEAF-2-vPCはDiscovertパケットを受信しますが、これは単にスイッチングされるだけです。宛先MACアドレスがDHCPサーバに属している。

DCHPサーバで受信されたディスカバリ

```
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
```

```
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でのDCHPオファー

LEAF-2-vPCで受信したオファー	LEAF-2-vPCで送信されるオファー
<pre>> Ethernet II, Src: 00:50:56:a5:dc:ca, Dst: 00:00:0a:0a:0a:0a Internet Protocol Version 4, Src: 10.1a.0a.150, Dst: 172.16.1a.0a User Datagma Protocol, Src Port: 67, Dst Port: 67 Pymaic Host Configuration Protocol (0ffer) Message type: Boot Reply (2) Mardware type: Ethernet (0k01) Mardware address length: 6 Mops: 0 Transaction ID: 0k:0e30807 Seconds elapsed: 0 Bootp flags: 0k0000, Broadcast flag (Broadcast) i Broadcast flags Invodast 000 000 0000 0000 ence Reserved flags: 0k0000 flags is 0 flags is 0k000, Broadcast flags Invodast 000 000 0000 0000 ence Reserved flags: 0k0000 flags is 0 into is 0k000 flags is 0 into is 0k0000 flags is 0 into is 0k0000 flags is 0 into is 0k0000 flags is 0 into is 0k00000000 flags is 0 into is 0k000000000 flags is 0 into is 0k000000000 flags is 0 into is 0k0000000000000000000000000000000000</pre>	<pre>Internet Protocol Version 4, Src 13,13,13,24, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65318, Dst Port: 4789 Virtual eXtensible Local Area Metwork Flag: BookBoo, WiLAN Metwork 10 (WI) Group Pollcy 10: 0 ViLAN Metwork Identifier (WI): 303030 Reserved: 0 Ethermet I, Src: 02:00:00:00:00:00:00:00:00:00:00:00:00:0</pre>
Lengtn: ¶/ ≺Value: 010e01080006600018a9200a0000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00> ∨ Option 82 Suboption: (1) Agent Circuit ID	<value: 636973636f2e636f6d00=""> Domain Name: cisco.com</value:>
Length: 14 <pre><value: 0108000600018a92000a00000000000000000000000000000000<="" td=""><td><pre>> Option: (82) Agent Information Option Length: 47 <value: 01e0180800500012000000000000000000000000000<="" td=""></value:></pre></td></value:></pre>	<pre>> Option: (82) Agent Information Option Length: 47 <value: 01e0180800500012000000000000000000000000000<="" td=""></value:></pre>
[Trailing stray characters] Message: Trailing stray characters>	<pre>v uprion ac suboprion: (151) VKr name/VFN LU Length: 9 <value: 0074656e616e742d61=""></value:></pre>
[Severity Level: Warning] [Group: Undecoded] → Option 82 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 - <value: ba080801=""> Server ID Override: 10.10.10.1 → Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 - <value: ba080808=""> Link selection: 10.10.10.0 → Option: (25) End Option End: 255</value:></value:>	<pre>VWF name: [Expert Info (Warning/Undecoded): Trailing stray characters] [Trailing stray characters] dessage: Trailing stray characters> [Severity level: Warning] Group: Undecoded] option a2 Suboption: (11) Server ID Override (10.10.10.1) Length: 4 <value: badabadb=""> Server ID Override: 10.10.10. Option 42 Suboption: (5) Link selection (10.10.10.0) Length: 4 <value: badabadb=""> Link selection: 10.10.10. Option 1255 Option End: 255 </value:></value:></pre>

DHCPオファーvPCスパイン

SPINEで受信したオファー

オファーはSPINEで送信

> Fthernet II. Src: 60:26:aa:85:95:87. Dst: 10:h3:d6:a4:85:97	
Internet Protocol Version 4. Src: 13.13.13.254. Dst: 5.5.5	
liser Datagram Protocol. Src Port: 65518. Det Port: 4789	
Virtual attancible local Area Nature	
S Flager By Real WIN Network TD (MIT)	
Grags ballout, TD, When the Wirk in (Wirk)	
WW Network Teletifier (1817), 202020	Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 70:7d:b9:b8:4d:af
VALW REWORK IDENTIFIER (VNI): 505050	> Internet Protocol Version 4. Src: 13.13.13.254. Dst: 5.5.5.5
Reserved: 0	> User Datagram Protocol, Src Port: 65518, Dst Port: 4789
2 Ethernet 11, Src: 02:00:00:00:00:00:00:00:00:00:00:00:00:0	Virtual extensible Local Area Network
Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8	Flags: 0x0800 VII AN Network TD (WIT)
> User Datagram Protocol, Src Port: 67, Dst Port: 67	Group Bolicy This A
 Dynamic Host Configuration Protocol (Offer) 	Vy W Notwork Tdentifier (UNI), 202020
Message type: Boot Reply (2)	VALAN NELWORK IDENTIFIER (WIL): 505050
Hardware type: Ethernet (0x01)	Reserved: 0
Hardware address length: 6	> Ethernet 11, Src: 02:00:00:00:00:00:00:00:00:00:00:00:00:0
Hops: 0	> Internet Protocol Version 4, Src: 10.10.10.150, DSt: 172.16.10.8
Transaction ID: 0xe9e35087	> User Datagram Protocol, Src Port: 67, DSt Port: 67
Seconds elapsed: 0	 Dynamic Host Configuration Protocol (Offer)
 Bootp flags: 0x8000, Broadcast flag (Broadcast) 	Message type: Boot Reply (2)
1 = Broadcast flag: Broadcast	Hardware type: Ethernet (0x01)
.000 0000 0000 = Reserved flags: 0x0000	Hardware address length: 6
Client IP address: 0.0.0.0	Hops: 0
Your (client) TD address: 10 10 10 3	Transaction ID: 0xe9e35087
Novi control TD adverses 1 20 10 10 10	Seconds elapsed: 0
Reference in a destruction and a second and	Bootp flags: 0x8000, Broadcast flag (Broadcast)
Client MC address, 02:00:00:0	Client IP address: 0.0.0
Citerit hac address: 00:50:50:30:10:00	Your (client) IP address: 10.10.10.3
Calera hai ywart duuress pauling, oocoocoocoocoocoo	Next server IP address: 10.10.10.150
berver nost name not gaven	Relay agent IP address: 172.16.10.8
boot rile name not given	Client MAC address: 00:50:56:a5:fd:dd
magic cookie: Unite	Client bardware address padding: 000000000000000000
<pre>v uption: (5s) uHCP Message Type (Offer)</pre>	Server hast name and niven
Length: 1	Boot file and five gaven
<value: 02=""></value:>	Manie conkie DRCD
DHCP: Offer (2)	nagit Cuvnic, Unic
 Option: (1) Subnet Mask (255.255.25.0) 	 Option: (53) DHCP Message Type (Offer)
Length: 4	Length: 1
<value: ffffff00=""></value:>	<value: 02=""></value:>
Subnet Mask: 255.255.0	DHCP: Offer (2)
Ontion: (58) Renewal Time Value	 Option: (1) Subnet Mask (255.255.25)
length: 4	Length: 4
doi:10.0000/0000000000000000000000000000000</td <td><value: ffffff00=""></value:></td>	<value: ffffff00=""></value:>
Peneural Time Value: 12 hours (42200)	Subnet Mask: 255.255.255.0
Action (5) Poblar There (3)	 Option: (58) Renewal Time Value
option: (55) Redining The Value	Length: 4
closer 4	<value: 0000a8c0=""></value:>
	Renewal Time Value: 12 hours (43200)
Rebinding Time Value: 21 nours (75600)	 Ontion: (59) Rebinding Time Value
 Option: (51) IP Address Lease Time 	lenath: 4
Length: 4	cV3/usi 00013750~
<value: 00015180=""></value:>	Pahinding Time Value: 21 hours (75600)
IP Address Lease Time: 1 day (86400)	Replacing Line Values 21 norts (7500)
 Option: (54) DHCP Server Identifier (10.10.10.1) 	option: (51) IP Address Lease Time
Length: 4	Length: 4
<value: 0a0a0a01=""></value:>	<value: 00015180=""></value:>
DHCP Server Identifier: 10.10.10.1	IP Address Lease Time: 1 day (86400)
 Ontion: (3) Router 	 Option: (54) DHCP Server Identifier (10.10.10.1)
Length: 4	Length: 4
Value 0s0s0s015	<value: 0a0a0a01=""></value:>
Postar 10 10 10 1	DHCP Server Identifier: 10.10.10.1
Obtion: (15) Domin Name	v Option: (15) Domain Name
option. (1) bondin waie	Length: 10
Length: 10	<value: 636973636f2e636f6d00=""></value:>
<vatue: 0509="" 305012030t0000=""></vatue:>	Domain Name: cisco.com
Domain Name: Cisco.com	- Option: (22) Agent Toformation Option
Option: (82) Agent Information Option	loacht 47
Length: 47	LUTY LITE A 100010800060001830070030000000000000000000000000000
<value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:>	Value: 0.00000000000000000000000000000000000
 Option 82 Suboption: (1) Agent Circuit ID 	Landbi 14
Length: 14	LCTUSTI, 44
<value: 0108000600018a9200a00000000=""></value:>	 <volute: 0.10000000001643200300000000000<="" li=""> </volute:> <volute: 0.10000000001643200300000000000<="" li=""> </volute:>
Agent Circuit ID: 0108000600018a9200a00000000	Agent Lifelit II: 0:0000000001632/00400000000
 Option 82 Suboption: (2) Agent Remote ID 	v uption az suboption: (2) Agent Kemote ID
Length: 6	Length: b
<value: 707db9b84daf=""></value:>	<value: 07db9b84da1=""></value:>
Agent Remote ID: 787db9b84daf	Agent Remote ID: 707db9b84daf
Option 82 Subortion: (151) VRF name/VPN TD	Option 82 Suboption: (151) VRF name/VPN ID
length 9	Length: 9
	<value: 0074656e616e742d61=""></value:>
VIDE name	> VRF name:
[Event Toto [Harping/Hadecaded]: Trailing chart sharester]	 Option 82 Suboption: (11) Server ID Override (10.10.10.1)
(Trailing (Warning/Undecoded): Trailing Stray Characters)	Length: 4
[Iralling stray Characters]	<value: 0a0a0a01=""></value:>
<pre><message: characters="" iraling="" stray=""></message:></pre>	Server ID Override: 10.10.10.1
[Severity level: Warning]	 Option 82 Suboption: (5) Link selection (10.10.10.0)
[Group: Undecoded]	Length: 4
 Option 82 Suboption: (11) Server ID Override (10.10.10.1) 	<value: 0a0a0a00=""></value:>
Length: 4	link selection: 10.10.10.0
<value: 0a0a0a01=""></value:>	 Option: (255) End
Server ID Override: 10.10.10.1	Ontion End 255
 Option 82 Suboption: (5) Link selection (10.10.10.0) 	option and app
Length: 4	
<value: 0a0a0a00=""></value:>	
Link selection: 10.10.10.0	
 Option: (255) End 	
Option End: 255	

LEAF-1のDHCPオファー

LEAF-1で受信したオファー	LEAF-1でのオファー送信
-----------------	----------------

	> 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

DHCPオファーをHOST-1で受信

```
> 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
```

HOST-1で送信された要求

```
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
```

LEAF-1での要求

LEAF-1で受信した要求	LEAF-1で送信される要求
> Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff	 Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254
> Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255	 User Datagram Protocol, Src Port: 51730, Dst Port: 4789 Visturi extensible local Area Network
 User Datagram Protocol, Src Port: 68, Dst Port: 67 Dupamic Most Configuration Protocol (Request) 	> Flags: 0x0800, VXLAN Network ID (VNI)
Message type: Boot Reguest (1)	Group Policy ID: 0 VXLAN Network Identifier (VNI): 303030
Hardware type: Ethernet (0x01)	Reserved: 0
Hardware address length: 6	 Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150
Hops: 0	 User Datagram Protocol, Src Port: 67, Dst Port: 67 Dynamic Host Configuration Protocol (Reguest)
Seconds elapsed: 0	Message type: Boot Request (1)
 Bootp flags: 0x8000, Broadcast flag (Broadcast) 	Hardware address length: 6
1 = Broadcast flag: Broadcast	Hops: 1 Transaction ID: 0xe9e35087
Client IP address: 0.0.0.0	Seconds elapsed: 0
Your (client) IP address: 0.0.0.0	Client IP address: 0.0.0.0
Next server IP address: 0.0.0.0	Next server IP address: 0.0.0.0
Client MAC 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	Client hardware address padding: 000000000000000000000000000000000000
Server host name not given	Boot file name not given
Boot file name not given	Magic cookie: DHCP ~ Option: (53) DHCP Message Type (Request)
 Option: (53) DHCP Message Type (Request) 	Length: 1
Length: 1	CVGLUE: 035 DHCP: Request (3)
<value: 03=""></value:>	Option: (61) Client identifier Length: 7
Ontion: (61) Client identifier	<value: 01005056a5fddd=""></value:>
Length: 7	Client MAC address: 00:50:56:a5:fd:dd
<value: 01005056a5fddd=""></value:>	 Option: (50) Requested IP Address (10.10.10.3) Length: 4
Hardware type: Ethernet (0x01)	<value: 0a0a0a03=""></value:>
 Option: (50) Requested IP Address (10.10.10.3) 	 Option: (54) DHCP Server Identifier (10.10.10.150)
Length: 4	Length: 4 <value: 0a0a0a96=""></value:>
<value: 0a0a0a03=""></value:>	DHCP Server Identifier: 10.10.10.150
Requested IP Address: 10.10.10.3	Length: 10
Length: 4	<value: 43584c6162732d573130=""> Host Name: CXLabs-W10</value:>
<value: 0a0a0a01=""></value:>	 Option: (81) Client Fully Qualified Domain Name Length: 13
DHCP Server Identifier: 10.10.10.1	<value: 00000043584c6162732d573130=""></value:>
Length: 10	A-RR result: 0
<value: 43584c6162732d573130=""></value:>	PTR-RR result: 0 Client name: CXLabs-W10
Host Name: CXLabs-W10	 Option: (60) Vendor class identifier
<pre>> Option: (81) Client Fully Qualified Domain Name Length: 13</pre>	Length: 8 <value: 4d53465420352e30=""></value:>
<value: 00000043584c6162732d573130=""></value:>	Vendor class identifier: MSFT 5.0
Flags: 0x00	Length: 14
0000 = Reserved flags: 0x0	<value: 0103000t17212b2c2e2t7="" 79t9tc=""> Parameter Request List Item: (1) Subnet Mask</value:>
	Parameter Request List Item: (3) Router Parameter Request List Item: (6) Domain Name Server
0. = Server overrides: No override	Parameter Request List Item: (15) Domain Name
0 = Server: Client	Parameter Request List Item: (31) Perform Router Discover Parameter Request List Item: (33) Static Route
A-KK RESULT: 0	Parameter Request List Item: (43) Vendor-Specific Information Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server
Client name: CXLabs-W10	Parameter Request List Item: (46) NetBIOS over TCP/IP Node Type
 Option: (60) Vendor class identifier 	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search
Length: 8	Parameter Request List Item: (121) Classless Static Route Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
Vendor class identifier: MSFT 5.0	Parameter Request List Item: (252) Private/Proxy autodiscovery
Option: (55) Parameter Request List	Length: 47
Length: 14	<value: 010e0108000600018a9200a0000000000206707db9b84da197090074656e516e742d610b040a0a0a0105040a0a0a00=""></value:>
<value: 0103060t1t212d2c2e2t77="" 9t9tc=""> Parameter Request List Item: (1) Subnet Mask</value:>	Length: 14
Parameter Request List Item: (3) Router	<value: 0100000000018032000000000000000000000000<="" td=""></value:>
Parameter Request List Item: (6) Domain Name Server	Option 82 Suboption: (2) Agent Remote ID Length: 6
Parameter Request List Item: (15) Domain Name	<value: 707db9b84daf=""></value:>
Parameter Request List Item: (33) Static Route	Option 82 Suboption: (151) VRF name/VPN ID
Parameter Request List Item: (43) Vendor-Specific Information	Length: 9 <value: 0074656e616e742d61=""></value:>
Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server	VRF name: [Expert Info (Warning/Undecoded): Trailing stray characters]
Parameter Request List Item: (40) NETBIOS OVER ICP/IP NODE Type Parameter Request List Item: (47) NetBIOS over TCP/IP Scope	 Option 82 Suboption: (11) Server ID Override (10.10.10.1)
Parameter Request List Item: (119) Domain Search	Length: 4 <value: 0a0a0a01=""></value:>
Parameter Request List Item: (121) Classless Static Route	Server ID Override: 10.10.10.1 - Option 82 Suboption: (5) Link selection (10.10.10.0)
Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery	Length: 4
v Option: (255) End	Link selection: 10.10.10.0
Option End: 255	<pre>> Option: (255) End Option End: 255</pre>

SPINEに対する要求

要求をスパインで受信

SPINEによるリクエスト送信

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: 0.02.16.10.8 Client Mc address: 005/05/a5/fd/dd Seconds elapsed: 0 Client MAC address: 00:50:56:65:66:d0 Client hardware address padding: 0000000000000000000 Server host name not given Boot file name not given Magic cookie: DHKP Option: (53) DHCP Message Type (Request) Length: 1 <Value: 03-> DHCP: Remust (3) DHCP: Request (3) Option: (61) Client identifier Length: 7 <Value: 010050056a5fddd> Hardware type: Ethernet (0x01) Client M& address: 00:50:56:a5:fd:dd Option: (50) Requested IP Address (10.10.10.3) ption: (50) Requested IP Address (10.10.10.3) Length: 4 <Value: 0000003> Requested IP Address: 10.10.10.3 ption: (54) DHCP Server Identifier (10.10.10.150) Length: 4 <Value: 0000005> DHCP Server Identifier: 10.10.10.150 Option: (12) Host Name Value: 43584c6162732d573138> Host Name: CXLabs-W10 Option: (81) Client Fully Qualified Domain Name Length: 13 <Value: 00000043584c6162732d573130> <Value: 00000043584c6162732d573130>
Flags: 0x00
A-RR result: 0
PTR-RR result: 0
Client name: CXLabs-W10
Option: (60) Vendor class identifier
Length: 8
<Value: 4d53465420352438>
Vendor Usi 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

LEAF-2-vPCでの要求

リーフ2-vPCでのrecevPCdの要求	要求はvPCAF-2-vPCで送信
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: 51/30, 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 (Reguest)
Ethernet II, Src: 70:7d:b9:b0:4d:af, Dst: 02:00:0d:0d:0d:de	Message type: Boot Request (1) Hardware type: Ethernet (8x81)
> User Datagram Protocol, Src Port: 67, Dst Port: 67	Hardware address length: 6
Message type: Boot Request (1)	Hops: 1 Transaction ID: 0xe9e35087
Hardware type: Ethernet (0x01) Hardware address length: 6	Seconds elapsed: 0 > Bootp flags: 0x8000, Broadcast flag (Broadcast)
Hops: 1	Client IP address: 0.0.0
Seconds elapsed: 0	Next server IP address: 0.0.0.0
> Bootp flags: 0x8000, Broadcast flag (Broadcast) Client IP address: 0.0.0.0	Relay agent IP address: 172.16.10.8 Client MAC address: 00:50:56:a5:fd:dd
Your (client) IP address: 0.0.0.0 Next server IP address: 0.0.0.0	Client hardware address padding: 000000000000000000000000000000000000
Relay agent IP address: 172.16.10.8	Boot file name not given
Client hardware address padding: 0000000000000000000	 Option: (53) DHCP Message Type (Request)
Server host name not given Boot file name not given	Length: 1 <value: 03=""></value:>
Magic cookie: DHCP	DHCP: Request (3)
Length: 1	Length: 7
<value: 03=""> DHCP: Request (3)</value:>	<value: 010050565550005=""> Hardware type: Ethernet (0x01)</value:>
 Option: (61) Client identifier Length: 7 	Client MAC address: 00:50:56:a5:fd:dd ~ Option: (50) Requested IP Address (10.10.10.3)
<value: 01005056a5fddd=""></value:>	Length: 4
Client MAC address: 00:50:56:a5:fd:dd	Requested IP Address: 10.10.10.3
Option: (50) Requested IP Address (10.10.10.3) Length: 4	Option: (54) DHCP Server Identifier (10.10.10.150) Length: 4
<value: 0a0a0a03=""> Requested TP Address: 10.10.10.3</value:>	<value: 0a0a0a96=""> DHCP Server Identifier: 10.10.10.150</value:>
Option: (54) DHCP Server Identifier (10.10.10.150)	• Option: (12) Host Name
<value: 0a0a0a96=""></value:>	Lengtn: 10 <value: 43584c6162732d573130=""></value:>
DHCP Server Identifier: 10.10.10.150 v Option: (12) Host Name	Host Name: CXLabs-W10 v Option: (81) Client Fully Qualified Domain Name
Length: 10	Length: 13
Host Name: CXLabs-W10	Flags: 0x00
Length: 13	A-RR result: 0 PTR-RR result: 0
<value: 00000043584c6162732d573130=""> > Elags: 0x00</value:>	Client name: CXLabs-W10
A-RR result: 0	Length: 8
Client name: CXLabs-W10	<value: 405340542052250=""> Vendor class identifier: MSFT 5.0</value:>
 Option: (60) Vendor class identifier Length: 8 	 Option: (55) Parameter Request List Length: 14
<value: 4d53465420352e30=""></value:>	<value: 0103060f1f212b2c2e2f7779f9fc=""> Parameter Repuert List Tem: (1) Submet Mark</value:>
Option: (55) Parameter Request List	Parameter Request List Item: (3) Router
<pre>Lengtn: 14 <value: 0103060#11f212b2c2e2f7779f9fc=""></value:></pre>	Parameter Request List Item: (6) Domain Name Server Parameter Request List Item: (15) Domain Name
Parameter Request List Item: (1) Subnet Mask Parameter Request List Item: (3) Router	Parameter Request List Item: (31) Perform Router Discover Parameter Request List Item: (33) Static Route
Parameter Request List Item: (6) Domain Name Server	Parameter Request List Item: (43) Vendor-Specific Information
Parameter Request List Item: (31) Perform Router Discover	Parameter Request List Item: (46) NetBIOS over TCP/IP Nome Server
Parameter Request List Item: (33) Static Route Parameter Request List Item: (43) Vendor-Specific Information	Parameter Request List Item: (47) NetBIOS over TCP/IP Scope Parameter Request List Item: (119) Domain Search
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: (121) Classless Static Route Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)
Parameter Request List Item: (47) NetBIOS over TCP/IP Scope	Parameter Request List Item: (252) Private/Proxy autodiscovery
Parameter Request List Item: (11) Classless Static Route	Length: 47
Parameter Request List Item: (249) Private/Classless Static Route (Microsoft) Parameter Request List Item: (252) Private/Proxy autodiscovery	<value: 010e0108000600018a9200a0000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a000=""></value:>
 Option: (82) Agent Information Option Length: 47 	Length: 14
<value: 010e0108000600018a9200a0000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:>	Agent Circuit ID: 0108000600018a9200a00000000
Length: 14	Length: 6
<value: d108000000008a9200a0000000000=""> Agent Circuit ID: 0108000600018a9200a00000000</value:>	<value: 707db9b84daf=""> Agent Remote ID: 707db9b84daf</value:>
 Option 82 Suboption: (2) Agent Remote ID Length: 6 	 Option 82 Suboption: (151) VRF name/VPN ID Length: 9
<value: 707db9b84daf=""></value:>	<value: 00746566166742d61=""></value:>
Option 82 Suboption: (151) VRF name/VPN ID	<pre>v Option 82 Suboption: (11) Server ID Override (10.10.10.1)</pre>
Length: 9 <value: 0074656e616e742d61=""></value:>	Length: 4 <value: 0a0a0a01=""></value:>
> VRF name: < Option 82 Suboption: (11) Server ID Override (10.10.10.1)	Server ID Override: 10.10.10.1
Length: 4	Length: 4
Server ID Override: 10.10.10.1	<value: 02020200=""> Link selection: 10.10.10.0</value:>
 Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4 	Option: (255) End Option End: 255
<value: 0a0a0a00=""></value:>	
 Option: (255) End 	
Option End: 255	

DCHPサーバで要求を受信

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

DCHPサーバから送信されたACK
```
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でのACK

LEAF-2-vPCでACKを受信	LEAF-2-vPCによって送信されたACK
LEAF-2-vPCCCACKを受信	LEAF-2-VPCCLよって送信されたACK

脊椎のACK

スパインでACKを受信	スパインによるACK送信
Ethernet II, Src: 60:26:aa:85:95:87, Dst: 10:b3:d6:a4:85:97	Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 70:70:b9:b8:4d:af Internet Protocol Version 4, Src: 12 13 13 254, Dst: 5 5 5 5
User Datagram Protocol, Src Port: 65518, Dst Port: 4789	User Datagram Protocol, Src Port: 65518, Dst Port: 4789
> Flags: 0x0800, VXLAN Network ID (VNI)	Virtual eXtensible Local Area Network Flags: 0x0800, VXLAN Network ID (VNI)
Group Policy ID: 0 VXLAN Network Identifier (VNI): 303030	Group Policy ID: 0
Reserved: 0	Reserved: 0
Internet II, Src: 020010010010010010, 0st: 70109900140101 Internet Protocol Version 4, Src: 10.10.10, 1051 172.16.10.8	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
 User Datagram Protocol, Src Port: 67, Dst Port: 67 Dynamic Host Configuration Protocol (ACK) 	 User Datagram Protocol, Src Port: 67, Dst Port: 67 Dynamic Most Configuration Protocol (4CK)
Message type: Boot Reply (2)	Message type: Boot Reply (2)
Hardware address length: 6	Hardware type: Ethernet (0x01) Hardware address length: 6
Hops: 0 Transaction ID: 0xe9e35087	Hops: 0 Transaction ID: 0xe9e35087
Seconds elapsed: 0	Seconds elapsed: 0
1 = Broadcast flag: Broadcast	<pre>> Bootp flags: example, Broadcast flag (Broadcast) 1 = Broadcast flag: Broadcast</pre>
.000 0000 0000 = Reserved flags: 0x0000 Client IP address: 0.0.0.0	.000 0000 0000 = Reserved flags: 0x0000 Client IP address: 0.0.0.0
Your (client) IP address: 10.10.10.3	Your (client) IP address: 10.10.10.3
Relay agent IP address: 0.0.0.0 Relay agent IP address: 172.16.10.8	Relay agent IP address: 0.0.0 Relay agent IP address: 172.16.10.8
Client MAC address: 00:50:56:a5:fd:dd Client hardware address padding: 000000000000000000000	Client MAC address: 00:50:56:a5:fd:dd Client hardware address padding: 00000000000000000000
Server host name not given	Server host name not given
Magic cookie: DHCP	Magic cookie: DHCP
Option: (53) DHCP Message Type (ACK) Length: 1	 Option: (53) DHCP Message Type (ACK) Length: 1
<value: 05=""></value:>	<value: 05=""></value:>
 Option: (58) Renewal Time Value 	 Option: (58) Renewal Time Value
Length: 4 <value: 0000a8c0=""></value:>	Length: 4 <value: 0000a8c0=""></value:>
Renewal Time Value: 12 hours (43200)	Renewal Time Value: 12 hours (43200)
Length: 4	Length: 4
<value: 00012750=""> Rebinding Time Value: 21 hours (75600)</value:>	<value: 00012750=""> Rebinding Time Value: 21 hours (75600)</value:>
 Option: (51) IP Address Lease Time Length: 4 	 Option: (51) IP Address Lease Time Length: 4
<value: 00015180=""></value:>	<value: 00015180=""></value:>
 Option: (54) DHCP Server Identifier (10.10.10.1) 	 Option: (54) DHCP Server Identifier (10.10.10.1)
Length: 4 <value: 0a0a0a01=""></value:>	Length: 4 <value: 0a0a0a01=""></value:>
DHCP Server Identifier: 10.10.10.1	DHCP Server Identifier: 10.10.10.1
Length: 4	Length: 4
<value: fffff00=""> Subnet Mask: 255.255.0</value:>	<value: ffffff00=""> Subnet Mask: 255.255.0</value:>
 Option: (81) Client Fully Qualified Domain Name Length: 3 	 Option: (81) Client Fully Qualified Domain Name Length: 3
<value: 00ffff=""></value:>	<value: 00fff=""></value:>
0000 = Reserved flags: 0x0	0000 = Reserved flags: 0x0
<pre> 0 = Server DDNS: Some server updates 0 = Encoding: ASCII encoding</pre>	0 = Server DDNS: Some server updates 0 = Encoding: ASCII encoding
A-RR result: 255	A-RR result: 255
PTR-RR result: 255 Option: (3) Router	<pre>> Option: (3) Router</pre>
Length: 4	Length: 4 <value: 0a0a0a01=""></value:>
Router: 10.10.10.1	Router: 10.10.10.1
Length: 10	Length: 10
<value: 636973636f2e636f6d00=""> Domain Name: cisco.com</value:>	<value: 636973636f2e636f6d00=""> Domain Name: cisco.com</value:>
<pre>> Option: (82) Agent Information Option</pre>	Option: (82) Agent Information Option Length: 47
<pre><value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:></pre>	<value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00=""></value:>
 Option 82 Suboption: (1) Agent Circuit ID Length: 14 	Length: 14
<value: 0108000600018a9200a000000000=""></value:>	<value: 0108000600018a9200a000000000=""> Agent Circuit ID: 0188000600018a9200a0000000</value:>
• Option 82 Suboption: (2) Agent Remote ID	 Option 82 Suboption: (2) Agent Remote ID
<pre>Length: 6 <value: 707db9b84daf=""></value:></pre>	<value: 707db9b84daf=""></value:>
Agent Remote ID: 707db9b84daf	Agent Remote ID: 787db9b84daf V Option 82 Suboption: (151) VRF name/VPN ID
Length: 9	Length: 9 <value: 0074656e616e742d61=""></value:>
VRF name:	VRF name: [Event Info (Warning/Undecoded): Trailing stray characters]
 [Expert Info (Warning/Undecoded): Trailing stray characters] [Trailing stray characters] 	[Trailing stray characters]
<pre>Hessage: Trailing stray characters> [Severity level: Warning]</pre>	<message: characters="" stray="" trailing=""> [Severity level: Warning]</message:>
(Group: Undecoded)	[Group: Undecoded] - Ontion 82 Subortion: (11) Server ID Override (18.10.10.1)
<pre>v upiion oz Suboption: (11) Server 10 override (10.10.10.1) Length: 4</pre>	Length: 4
<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) Length: 4 	 Option 82 Suboption: (5) Link selection (10.10.10.0) Length: 4
<value: 0a0a0a00=""></value:>	<value: 0a0a0a00=""> Link selection: 10.10.10.0</value:>
LINK selection: 10.10.10.0 • Option: (255) End	 Option: (255) End Option: 5.45
Option End: 255	uption End: 255

LEAF-1でのACK

LEAF-1でACKを受信	LEAF-1によって送信されたACK

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

ホスト1に対する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

関連情報

<u>VXLAN BGP EVPNの設定</u>

<u>VXLANの設定</u>

<u>Nexus 9000でのDHCP関連の問題のトラブルシューティング</u>

Cisco Nexus 9000シリーズNX-OS VXLANコンフィギュレーションガイド、リリース10.4(x)

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