

# Configurazione e verifica di DHCP in un fabric VxLAN per Nexus 9000 con NX-OS e Windows Server 2022

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## Introduzione

In questo documento viene descritto come configurare e risolvere i problemi relativi a DHCP in un fabric VxLAN con switch Nexus 9000.

## Prerequisiti

### Requisiti

Cisco raccomanda la conoscenza dei seguenti argomenti:

- Software Nexus NX-OS.
- Virtual Port Channel (vPC).
- VxLAN BGP L2VPN VPN
- IPv4 famiglia di indirizzi BGP
- OSPF
- PIM multicast (modalità sparse)
- DHCP

### Componenti usati

Le informazioni fornite in questo documento si basano sulle seguenti versioni software e hardware:

- Cisco Nexus 9000 con Cisco NX-OS.
  - N9K-C93180YC-EX
  - N9K-C93180YC-FX
  - NX-OS 10.3(4a)
- Windows Server 2022 Data Center

Le informazioni discusse in questo documento fanno riferimento a dispositivi usati in uno specifico ambiente di emulazione. Su tutti i dispositivi menzionati nel documento la configurazione è stata ripristinata ai valori predefiniti. Se la rete è operativa, valutare attentamente eventuali conseguenze derivanti dall'uso dei comandi.



Nota: per qualsiasi domanda sulla configurazione e sull'integrabilità di software o hardware di terze parti, non è previsto il supporto Cisco. L'uso di strumenti di terze parti è il modo migliore per dimostrare al cliente la configurazione e il funzionamento dell'apparecchiatura Cisco.

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## Premesse

### Configurazione della sovrapposizione e della sovrapposizione per VxLAN in laboratorio

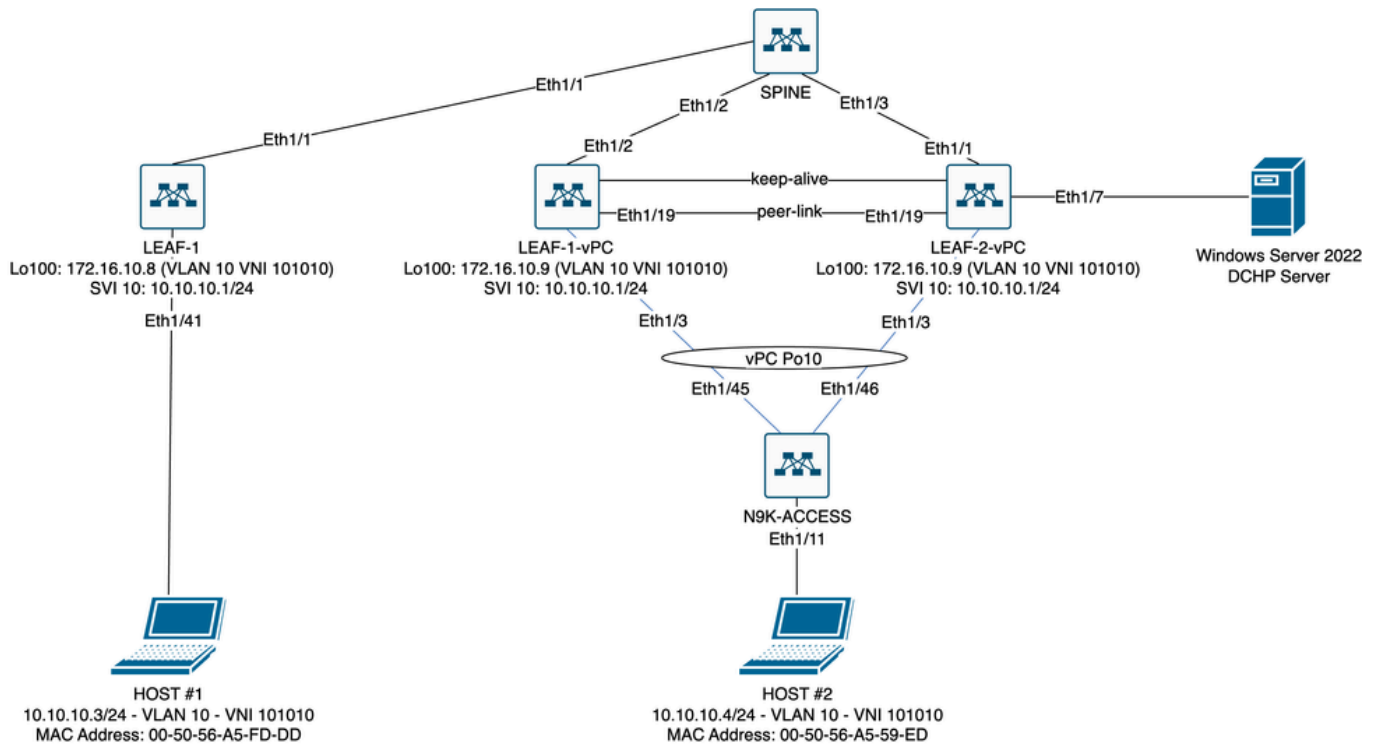


Diagramma fabric VxLAN in laboratorio

- DORSO:

- Questo switch Nexus invia pacchetti DHCP (Discover, Offre, Request, Ack) senza essere decapsulato in questo scenario. Viene utilizzata solo l'intestazione esterna.
- Funge da punto di routing centrale nel fabric di rete.
- Responsabile dell'interconnessione di tutti gli interruttori LEAF e della semplificazione del flusso di dati tra di essi.
- Partecipa a BGP per distribuire le route EVPN agli switch LEAF.
- Eseguce il routing IP e può instradare il traffico tra subnet diverse o segmenti VxLAN guardando le intestazioni IP esterne.
- Separa la rete sovrapposta (VxLAN) dalla rete fisica sottostante.
- Gestisce la sovrapposizione con i protocolli di routing IP tradizionali, mentre la sovrapposizione è gestita da VxLAN con BGP EVPN, fornendo un'architettura di rete scalabile e flessibile.

- FOGLIA-1:

- Gli switch LEAF offrono connettività fisica per endpoint quali server, dispositivi di storage e altri accessori di rete.
- Gli switch LEAF svolgono la funzione di VTEP, ossia incapsulano e decapsulano i pacchetti VxLAN.
- In questo scenario, HOST#1 effettua la richiesta dell'indirizzo IP.
- LEAF-1 è responsabile dell'incapsulamento dei pacchetti DHCP nell'intestazione VxLAN.
- L'HOST 1 riceve i pacchetti DHCP in modo trasparente come Ethernet classico.

- LEAF-1-vPC e LEAF-2-vPC:

- Gli switch LEAF partecipano al control plane EVPN eseguendo BGP e scambiando informazioni sulla route. Ciò consente la distribuzione delle informazioni sugli indirizzi

MAC e IP, garantendo che il traffico possa essere indirizzato in modo efficiente attraverso il fabric VxLAN.

- In questo scenario, il server DHCP viene associato alla VLAN 10 con il VNI 10101 e all'HOST 1. Questo significa che è solo un bridging VxLAN.
  - Se il server DHCP è stato associato a un VNI diverso da HOST#1, un L3VNI sarebbe strettamente necessario per il routing. È necessario creare il VNI di origine e di destinazione.
  - Il server DHCP riceve i pacchetti DHCP in modo trasparente come Ethernet classico.
  - Il traffico BUM viene ricevuto da entrambi gli switch Nexus in vPC, ma solo lo switch Nexus primario operativo in vPC invia il traffico. Lo switch Nexus secondario scarta il traffico. In questo scenario, LEAF-1-vPC è operativo primario.
  - L'uso delle infra-vlan è obbligatorio perché se l'interfaccia su LEAF-2-vPC su SPINE si interrompe, i pacchetti DHCP non possono essere inviati. Per inviare il traffico incapsulato VxLAN a LEAF-1-vPC, è necessaria questa VLAN di backup. In questo modo LEAF-1-vPC potrebbe inviare pacchetti DHCP a SPINE.
- ACCESSO N9K:
    - Questo switch Nexus fornisce connettività solo a entrambi i sistemi Leafs utilizzando un canale della porta vPC a scopo di ridondanza verso HOST#2

## DORSO

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

```
ip pim rp-address 192.168.11.11 group-list 224.10.10.0/24
ip pim ssm range 232.0.0.0/8
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
```

## FOGLIA-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 l2vpn 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

```

## LEAF-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 232.0.0.0/8

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 l2vpn evpn
  advertise-pip
  neighbor 192.168.0.11
    remote-as 65000
    update-source loopback0
  address-family l2vpn evpn
    send-community
    send-community extended
  neighbor 192.168.88.2
    remote-as 65000
    description OVERLAY_BACKUP
    update-source Vlan888
  address-family l2vpn 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

```

## LEAF-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 232.0.0.0/8

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 l2vpn evpn
  advertise-pip
  neighbor 192.168.0.11
    remote-as 65000
    update-source loopback0
  address-family l2vpn evpn
    send-community
    send-community extended
  neighbor 192.168.88.1
    remote-as 65000
    description OVERLAY_BACKUP
    update-source Vlan888
  address-family l2vpn evpn
    send-community
    send-community extended
  vrf tenant-a
    address-family ipv4 unicast
    redistribute direct route-map direct_routes_tenant-a
evpn
  vni 101010 l2
    rd auto
    route-target import auto
    route-target export auto
  vni 202020 l2
    rd auto
    route-target import auto
    route-target export auto

```

## N9K-ACCESS

```

feature lACP

vlan 1,10

interface port-channel10
  switchport
  switchport mode trunk

interface Ethernet1/11
  switchport
  switchport access vlan 10
  no shutdown

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

interface Ethernet1/46
  switchport
  switchport mode trunk

```

```
channel-group 10 mode active  
no shutdown
```

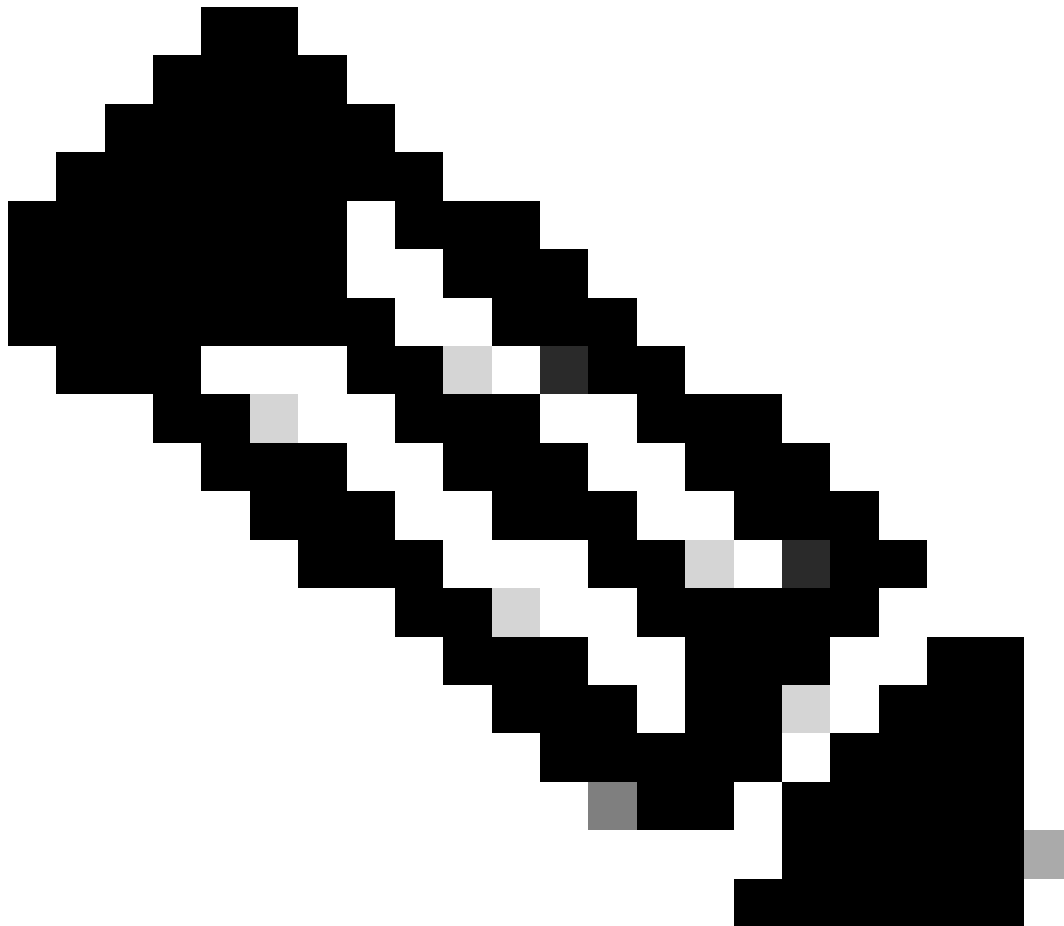
## Configurazione DHCP sugli switch Nexus

### FOGLIA-1

Passaggio 1. Attivare la funzionalità DHCP.

```
LEAF-1(config)# feature dhcp
```

---



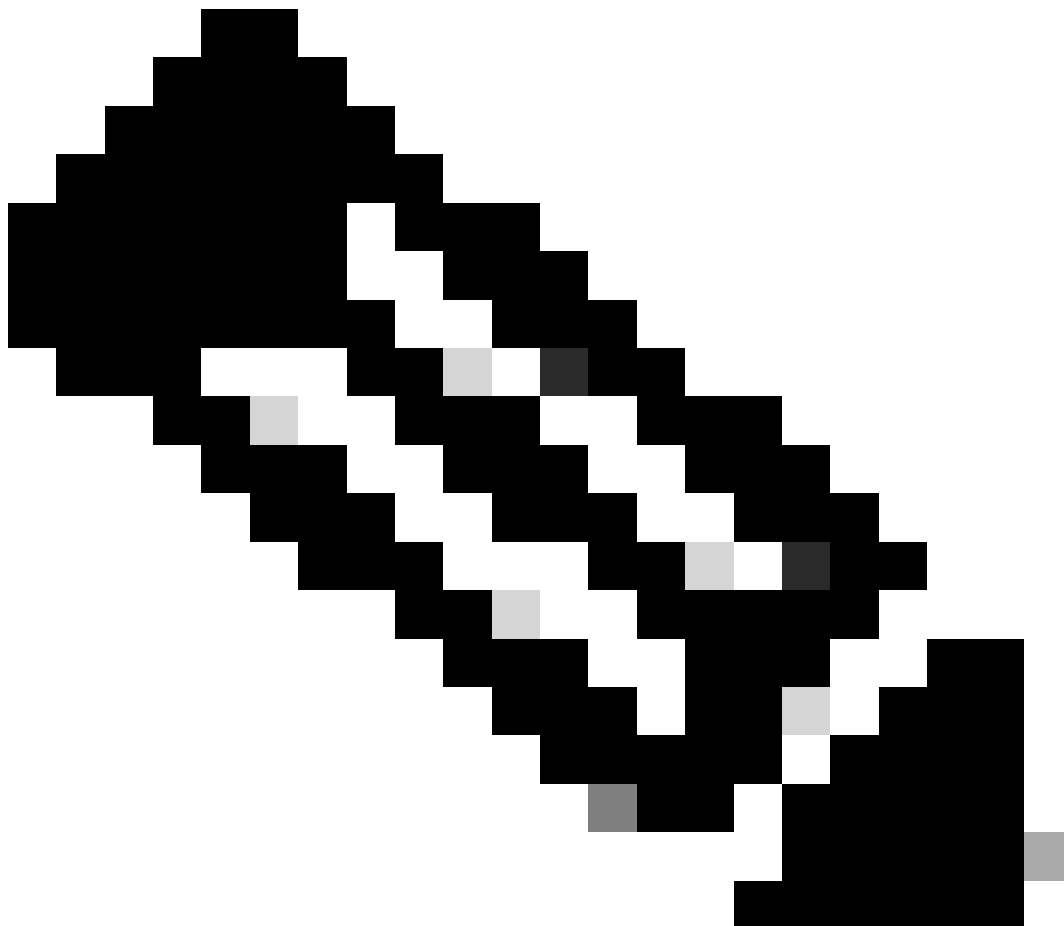
Nota: il server DHCP e il servizio di comando dell'agente di inoltro dhcp, ip dhcp relay e ipv6 dhcp relay sono abilitati per impostazione predefinita da NX-OS 7.x.

---

Passaggio 2. Applicare il comando ip dhcp relay information option.

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

---



Nota: questo comando consente all'agente di inoltro DHCP di inserire e rimuovere le informazioni dell'opzione 82 sui pacchetti inoltrati.

---

Passaggio 3. Applicare il comando ip dhcp relay information option vpn.

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





Nota: questo comando abilita le richieste di inoltro DHCP che arrivano su VRF diversi a cui appartiene il server DHCP.

---

Passaggio 4. Applicare il comando "ip dhcp relay address [ip address of DHCP server]".

---

Nota: nell'esempio, l'indirizzo IP del server DHCP è 10.10.150.

---

```
LEAF-1(config)# interface v1an 10  
LEAF-1(config-if)# ip dhcp relay address 10.10.10.150
```

Passaggio 5. Applicare il comando "ip dhcp relay source-interface [unique loopback]".



Nota: questo comando configura l'indirizzo IP di origine per l'agente di inoltro DHCP per gestire Discover, Offre, Request e ACK, per la comunicazione unicast che l'agente di inoltro DHCP utilizza come indirizzo IP di origine dell'agente di inoltro DHCP. Questa operazione non è desiderata perché l'indirizzo IP è condiviso da più VTEP ed è possibile che i pacchetti DHCP rimangano bloccati. Per evitare ciò, è necessario un indirizzo IP univoco (che utilizzi un'interfaccia di loopback) per distinguere ciascun VTEP.

---

```
LEAF-1(config)# interface v1an 10
LEAF-1(config-if)# ip dhcp relay source-interface loopback100
```

Passaggio 6. Nel tenant corrispondente VRF all'interno di BGP, redistribuzione diretta della route con un prefisso-elenco e una route-map che include l'indirizzo IP dell'interfaccia di loopback.

---

Nota: questa interfaccia di loopback appartiene al tenant di SVI.

---

```
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-af)# redistribute direct route-map direct_routes_tenant-a
```

Passaggio 7. Verificare che l'indirizzo IP dell'interfaccia di loopback venga annunciato in BGP L2VPN VPN agli Spine con il comando `show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]`.

```
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]:[0]:[32]:[172.16.10.8]/224, version 421
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: 0.0.0.0
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
```

Passaggio 8. Verificare che l'indirizzo IP dell'interfaccia di loopback venga inserito nell'EVPN BGP L2VPN in cui si trova il server DHCP.

---

Nota: se vi sono switch Nexus in vPC, verificare che entrambi conoscano l'indirizzo IP dell'interfaccia di loopback in BGP L2VPN EVPN.

---

```
LEAF-1# show bgp l2vpn 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]:[0]:[32]:[172.16.10.8]/224, version 754
Paths: (1 available, best #1)
Flags: (0x000002) (high32 00000000) 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

Route Distinguisher: 192.168.3.3:4 (L3VNI 303030)  
BGP routing table entry for [5]:[0]:[0]:[32]:[172.16.10.8]/224, version 761  
Paths: (1 available, best #1)  
Flags: (0x000002) (high32 00000000) 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 from 192.168.5.5:4:[5]:[0]:[0]:[32]:[172.16.10.8]/224

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

Passaggio 9. Verificare che esista una route per il server DHCP nel tenant di origine con il comando show ip route [DHCP server IP] vrf [tenant vrf].

---

Nota: la voce della route da utilizzare deve essere da VxLAN a VRF predefinita. Se non è disponibile alcuna route, verificare che il VTEP conosca localmente l'indirizzo IP del server DHCP.

---

```
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
10.10.10.150/32, ubest/mbest: 1/0
  *via 192.168.13.254%default, [200/0], 2w0d, bgp-65000, internal, tag 65000, segid: 303030 tunnelid:
```



Passaggio 10. Verificare che l'indirizzo IP del server DHCP sia raggiungibile utilizzando l'interfaccia di loopback e il VRF corrispondente come origine VRF con il comando ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf].

```
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
```

Passaggio 11. Verificare lo stato dell'agente di inoltro DHCP.

```
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
```

Passaggio 12. Verificare l'opzione 82, ad esempio vpn option e l'indirizzo IP corretto del relay nell'agente di inoltro.

```
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:

Interface	Relay Address	VRF Name
Vlan10	10.10.10.150	<<<<<<<<<

Passaggio 13. Verificare le statistiche dei pacchetti elaborati e inoltrati.

```
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
```

Passaggio 14. Verificare le statistiche dei pacchetti relay.

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

```
-----
Message Type           Rx           Tx           Drops
-----
Discover                260521       260520         0
Offer                   289330       289330         0
Request(*)              267162       267161         0
Ack                      8322         8322           0
Release(*)              181121       181121         0
Decline                  1             1             0
Inform(*)                0             0             0
Nack                     289280       289280         0
-----
Total                    1295737     1295735         0
-----
```

DHCP L3 FWD:

```
Total Packets Received      :      0
Total Packets Forwarded     :      0
Total Packets Dropped       :      0
Non DHCP:
Total Packets Received      :      0
Total Packets Forwarded     :      0
```

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

## DHCP LEAF-1-vPC

Passaggio 1. Attivare la funzionalità DHCP.

```
LEAF-1-VPC(config)#feature dhcp
```



Nota: il server DHCP e il servizio di comando dell'agente di inoltro dhcp, ip dhcp relay e ipv6 dhcp relay sono abilitati per impostazione predefinita da NX-OS 7.x.

---

Passaggio 2. Applicare il comando ip dhcp relay information option.

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

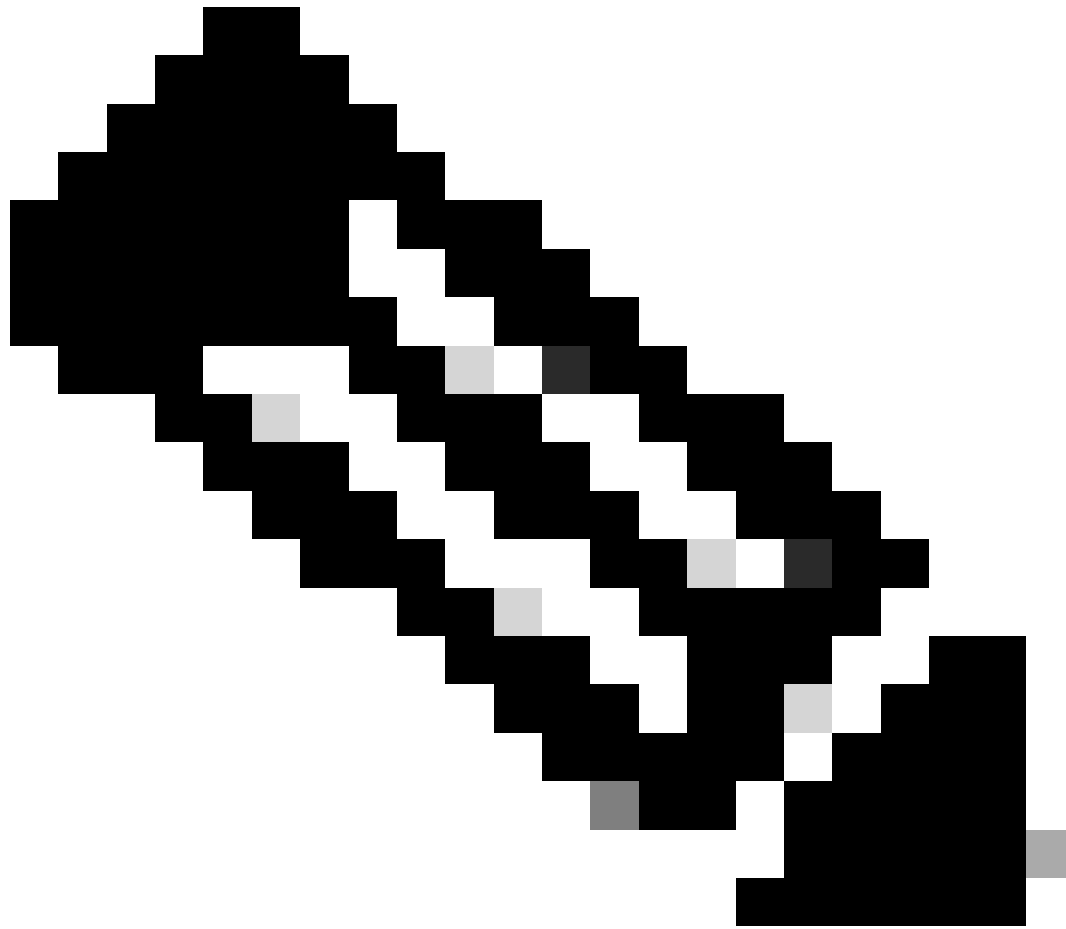


Nota: questo comando consente all'agente di inoltro DHCP di inserire e rimuovere le informazioni dell'opzione 82 sui pacchetti inoltrati.

---

Passaggio 3. Applicare il comando "ip dhcp relay information option vpn".

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



Nota: questo comando abilita le richieste di inoltro DHCP che arrivano su VRF diversi a cui appartiene il server DHCP.

---

Passaggio 4. Applicare il comando `ip dhcp relay address [ip address of DHCP server]`.

---

Nota: nell'esempio, l'indirizzo IP del server DHCP è 10.10.150.

---

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

Passaggio 5. Applicare il comando "ip dhcp relay source-interface [unique loopback]".



Nota: questo comando configura l'indirizzo IP di origine per l'agente di inoltro DHCP per gestire Discover, Offre, Request e ACK, per la comunicazione unicast che l'agente di inoltro DHCP utilizza come indirizzo IP di origine dell'agente di inoltro DHCP. Questa operazione non è desiderata perché l'indirizzo IP è condiviso da più VTEP ed è possibile che i pacchetti DHCP rimangano bloccati. Per evitare ciò, è necessario un indirizzo IP univoco (che utilizzi un'interfaccia di loopback) per distinguere ciascun VTEP.

---

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

Passaggio 6. Nel tenant corrispondente VRF all'interno di BGP, redistribuzione diretta della route con un prefisso-elenco e una route-map che include l'indirizzo IP dell'interfaccia di loopback.



---

Nota: questa interfaccia di loopback appartiene al tenant di SVI.

---

```
LEAF-1-VPC(config)# show running-config interface loopback 100
interface loopback100
  vrf member tenant-a
  ip address 172.16.10.9/32

LEAF-1-VPC(config)# ip prefix-list host_subnets seq 15 permit 172.16.10.9/32
LEAF-1-VPC(config)# route-map direct_routes_tenant-a permit 10
LEAF-1-VPC(config-route-map)# match ip address prefix-list host_subnets
LEAF-1-VPC(config-route-map)# router bgp 65000
LEAF-1-VPC(config-router)# vrf tenant-a
LEAF-1-VPC(config-router-vrf)# address-family ipv4 unicast
LEAF-1-VPC(config-router-vrf-af)# redistribute direct route-map direct_routes_tenant-a
```

Passaggio 7. Verificare che l'indirizzo IP dell'interfaccia di loopback venga annunciato in BGP L2VPN VPN agli Spine con il comando `show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]`.

```
LEAF-1-VPC# show bgp l2vpn 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]:[0]:[32]:[172.16.10.9]/224, version 637
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: 0.0.0.0
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
```

Passaggio 8. Verificare che l'indirizzo IP dell'interfaccia di loopback venga inserito nell'EVPN BGP L2VPN in cui si trova il server DHCP.

---

Nota: se vi sono switch Nexus in vPC, verificare che entrambi conoscano l'indirizzo IP dell'interfaccia di loopback in BGP L2VPN EVPN.

---

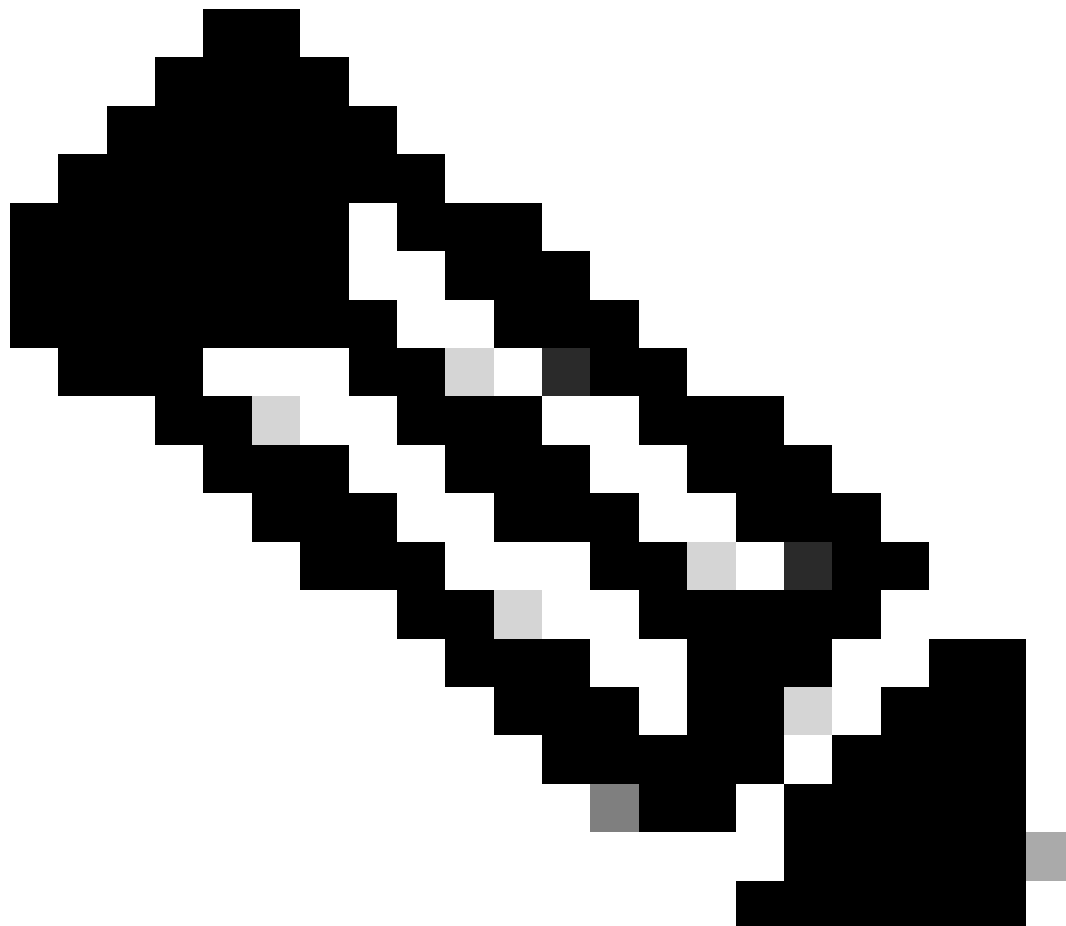
```
LEAF-1-VPC# show bgp l2vpn evpn 172.16.10.9
BGP routing table information for VRF default, address family L2VPN EVPN
Route Distinguisher: 192.168.3.3:4 (L3VNI 303030)
BGP routing table entry for [5]:[0]:[0]:[32]:[172.16.10.9]/224, version 637
Paths: (1 available, best #1)
Flags: (0x000002) (high32 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: 0.0.0.0
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
```

Passaggio 9. Verificare che nel tenant di origine sia presente una route per il server DHCP con il comando `show ip route [DHCP server IP] vrf[tenant vrf]`.

---



Nota: la voce della route da utilizzare deve essere da VxLAN a VRF predefinita. Se non è disponibile alcuna route, verificare che il VTEP conosca localmente l'indirizzo IP del server DHCP.

---

```
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
```

Passaggio 10. Verificare che l'indirizzo IP del server DHCP sia raggiungibile utilizzando l'interfaccia di loopback e il VRF corrispondente come origine VRF con il comando ping [DHCP server IP] source-interface loopback [x] vrf [tenvrf].

```
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 ---
```

Passaggio 11. Verificare lo stato dell'agente di inoltro DHCP.

```
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
```

Passaggio 12. Verificare l'opzione 82, ad esempio vpn option e l'indirizzo IP corretto del relay nell'agente di inoltro.

```
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	<<<<<<<<<

### Passaggio 13. Verificare le statistiche dei pacchetti elaborati e inoltrati.

```
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
```

### Passaggio 14. Verificare le statistiche dei pacchetti relay.

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

Message Type	Rx	Tx	Drops
Discover	8	7	0
Offer	29304	29304	0
Request(*)	5029	5029	0
Ack	6535	6535	0
Release(*)	191482	191482	0
Decline	0	0	0
Inform(*)	3	3	0
Nack	29281	29281	0
Total	261642	261641	0

```
DHCP L3 FWD:
Total Packets Received : 0
```

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

## DHCP LEAF-2-vPC

Passaggio 1. Attivare la funzionalità DHCP.

```
LEAF-2-VPC(config)# feature dhcp
```



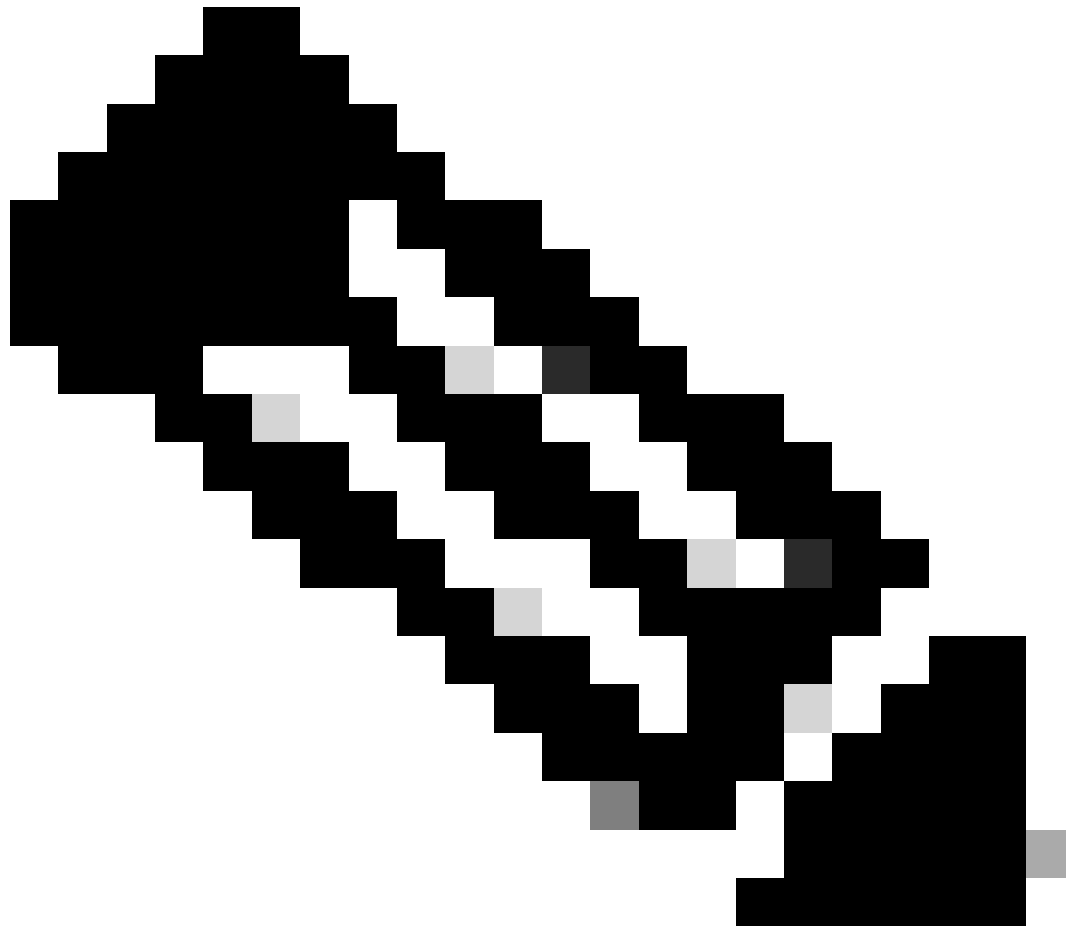
Nota: il server DHCP e il servizio di comando dell'agente di inoltro dhcp, ip dhcp relay e ipv6 dhcp relay sono abilitati per impostazione predefinita a partire da NX-OS 7.x.

---

Passaggio 2. Applicare il comando "ip dhcp relay information option".

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





Nota: questo comando consente all'agente di inoltro DHCP di inserire e rimuovere le informazioni dell'opzione 82 sui pacchetti inoltrati.

---

Passaggio 3. Applicare il comando "ip dhcp relay information option vpn".

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



Nota: questo comando abilita le richieste di inoltro DHCP che arrivano su VRF diversi a cui appartiene il server DHCP.

---

Passaggio 4. Applicare il comando "ip dhcp relay address [ip address of DHCP server]".

---

Nota: nell'esempio, l'indirizzo IP del server DHCP è 10.10.150.

---

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

Passaggio 5. Applicare il comando "ip dhcp relay source-interface [unique loopback]".



Nota: questo comando configura l'indirizzo IP di origine per l'agente di inoltro DHCP per gestire Discover, Offre, Request e ACK, per la comunicazione unicast che l'agente di inoltro DHCP utilizza come indirizzo IP di origine dell'agente di inoltro DHCP. Questa operazione non è desiderata perché l'indirizzo IP è condiviso da più VTEP ed è possibile che i pacchetti DHCP rimangano bloccati. Per evitare ciò, è necessario un indirizzo IP univoco (che utilizzi un'interfaccia di loopback) per distinguere ciascun VTEP.

---

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

Passaggio 6. Nel tenant corrispondente VRF all'interno di BGP, redistribuzione diretta della route con un prefisso-elenco e una route-map che include l'indirizzo IP dell'interfaccia di loopback.

---

Nota: questa interfaccia di loopback appartiene al tenant di SVI.

---

```
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
```

Passaggio 7. Verificare che l'indirizzo IP dell'interfaccia di loopback venga annunciato in BGP L2VPN VPN agli Spine con il comando `show bgp l2vpn evpn [loopback IP] vrf [tenant vrf]`.

```
LEAF-2-VPC(config-if)# show bgp l2vpn 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]:[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: 0.0.0.0
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
```

Passaggio 8. Verificare che l'indirizzo IP dell'interfaccia di loopback venga inserito nell'EVPN BGP L2VPN in cui si trova il server DHCP.

---

Nota: se vi sono switch Nexus in vPC, verificare che entrambi conoscano l'indirizzo IP dell'interfaccia di loopback in BGP L2VPN EVPN.

---

```
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

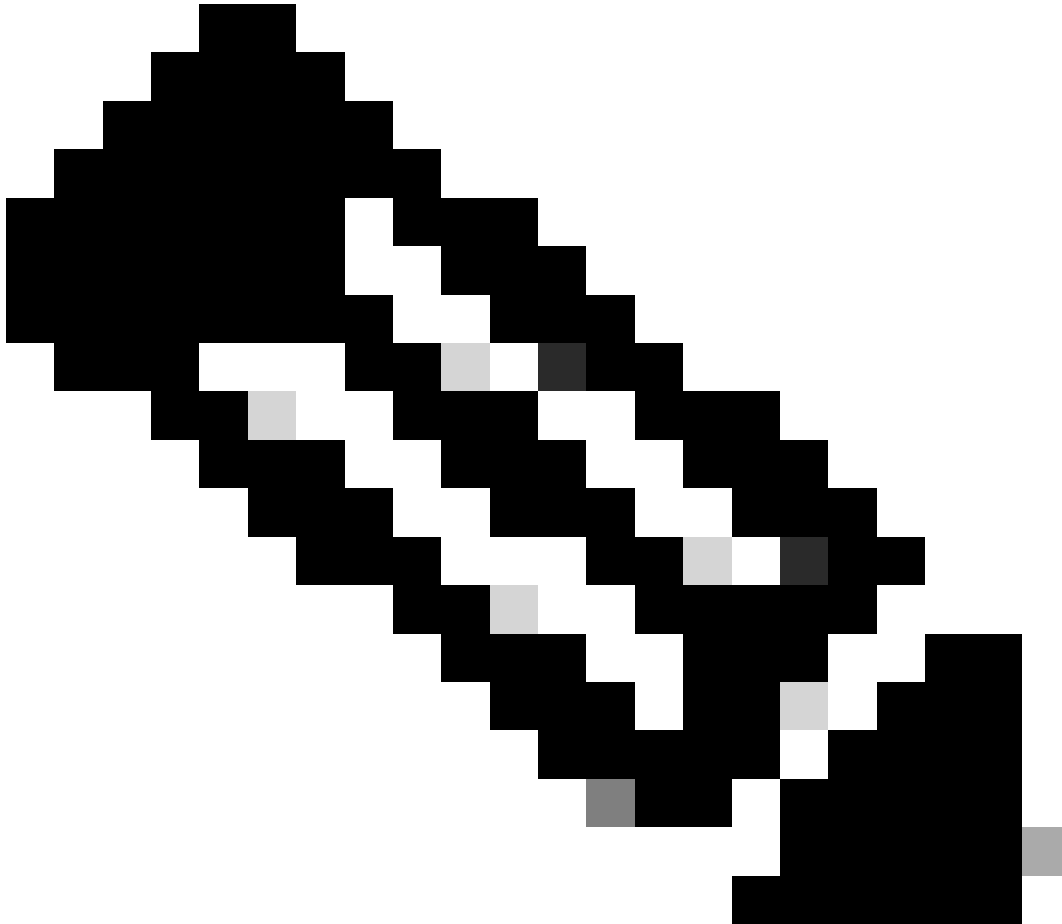
Advertised path-id 1
Path type: local, path is valid, is best path, no labeled nexthop
Gateway IP: 0.0.0.0
AS-Path: NONE, path locally originated
 192.168.13.2 (metric 0) from 0.0.0.0 (192.168.4.4)
  Origin incomplete, MED 0, localpref 100, weight 32768
  Received label 303030
  Extcommunity: RT:65000:303030 ENCAP:8 Router MAC:6026.aa85.9587

Path-id 1 advertised to peers:
```

192.168.0.11

Passaggio 9. Verificare che nel tenant di origine sia presente una route per il server DHCP con il comando `show ip route [DHCP server IP] vrf[tenvrf]`.

---



Nota: la voce della route da utilizzare deve essere da VxLAN a VRF predefinita. Se non è disponibile alcuna route, verificare che il VTEP conosca localmente l'indirizzo IP del server DHCP.

---

```
LEAF-2-VPC(config-if)# show running-config interface vlan 10
interface Vlan10
  no shutdown
  vrf member tenant-a
  no ip redirects
  ip address 10.10.10.1/24
  no ipv6 redirects
  fabric forwarding mode anycast-gateway
  ip dhcp relay address 10.10.10.150
```



```
ip dhcp relay source-interface loopback100
```

```
LEAF-2-VPC(config-if)# show ip route 10.10.10.150 vrf tenant-a  
10.10.10.150/32, ubest/mbest: 1/0, attached  
*via 10.10.10.150, Vlan10, [190/0], 01:01:28, hmm
```

Passaggio 10. Verificare che l'indirizzo IP del server DHCP sia raggiungibile utilizzando l'interfaccia di loopback e il VRF corrispondente come origine VRF con il comando ping [DHCP server IP] source-interface loopback [x] vrf [tenant vrf].

```
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 ---
```

Passaggio 11. Verificare lo stato dell'agente di inoltro DHCP.

```
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
```

Passaggio 12. Verificare l'opzione 82, ad esempio vpn option e l'indirizzo IP corretto del relay nell'agente di inoltro.

```
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:

Interface	Relay Address	VRF Name
Vlan10	10.10.10.150	<<<<

Passaggio 13. Verificare le statistiche dei pacchetti elaborati e inoltrati.

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

Passaggio 14. Verificare le statistiche dei pacchetti relay.

```
LEAF-2-VPC# show ip dhcp relay statistics
```

Message Type	Rx	Tx	Drops
Discover	29312	29311	0
Offer	300001	300001	0
Request(*)	29324	29324	0
Ack	1574	1574	0
Release(*)	191493	191493	0
Decline	0	0	0
Inform(*)	1540	1540	0
Nack	472890	472890	0
Total	1026134	1026133	0

```

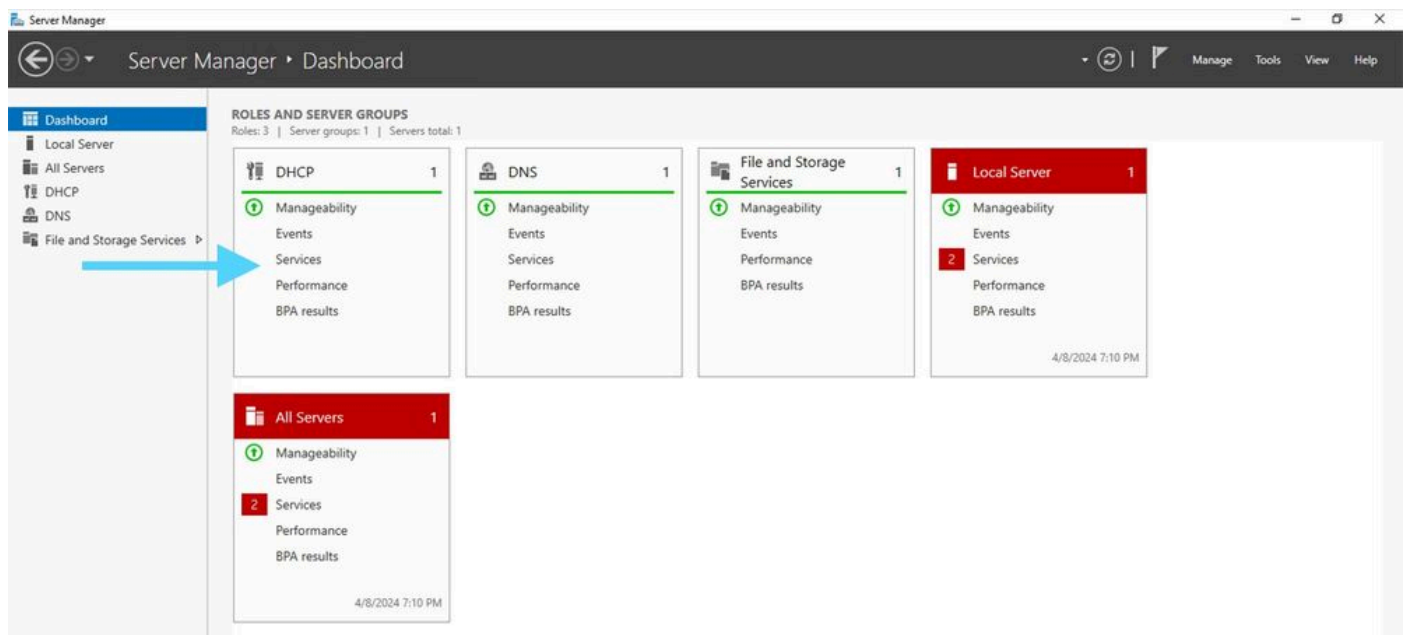
DHCP L3 FWD:
Total Packets Received      :      0
Total Packets Forwarded    :      0
Total Packets Dropped      :      0
Non DHCP:
Total Packets Received      :      0
Total Packets Forwarded    :      0
Total Packets Dropped      :      0
DROP:
DHCP Relay not enabled     :      0
Invalid DHCP message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

```

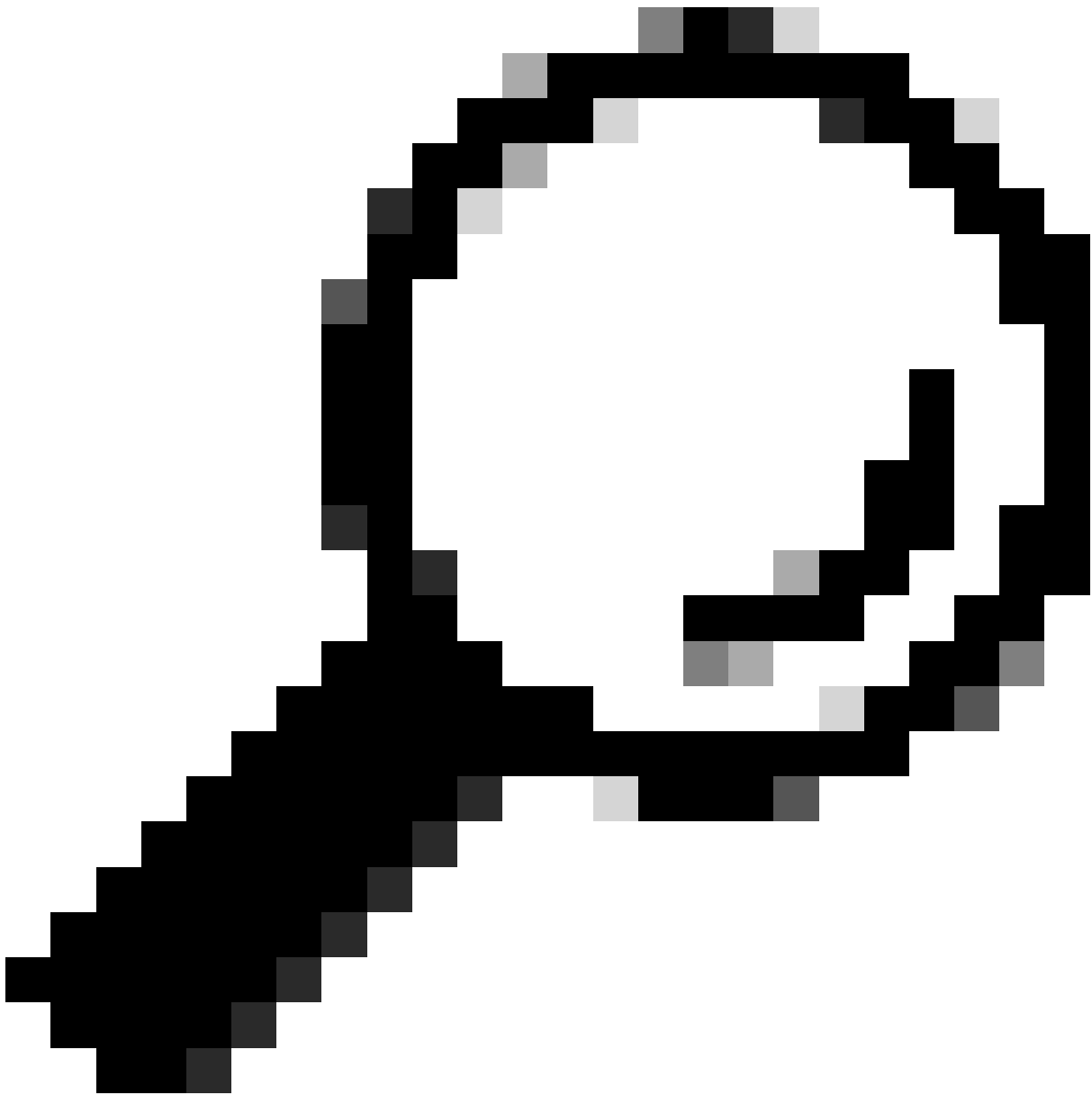
## Configurazione del server DHCP in Windows Server 2022

Configurazione dell'ambito di indirizzamento IP per gli host.

Passaggio 1. Aprire Server Manager e verificare che non vi siano allarmi sul server DHCP nel dashboard.



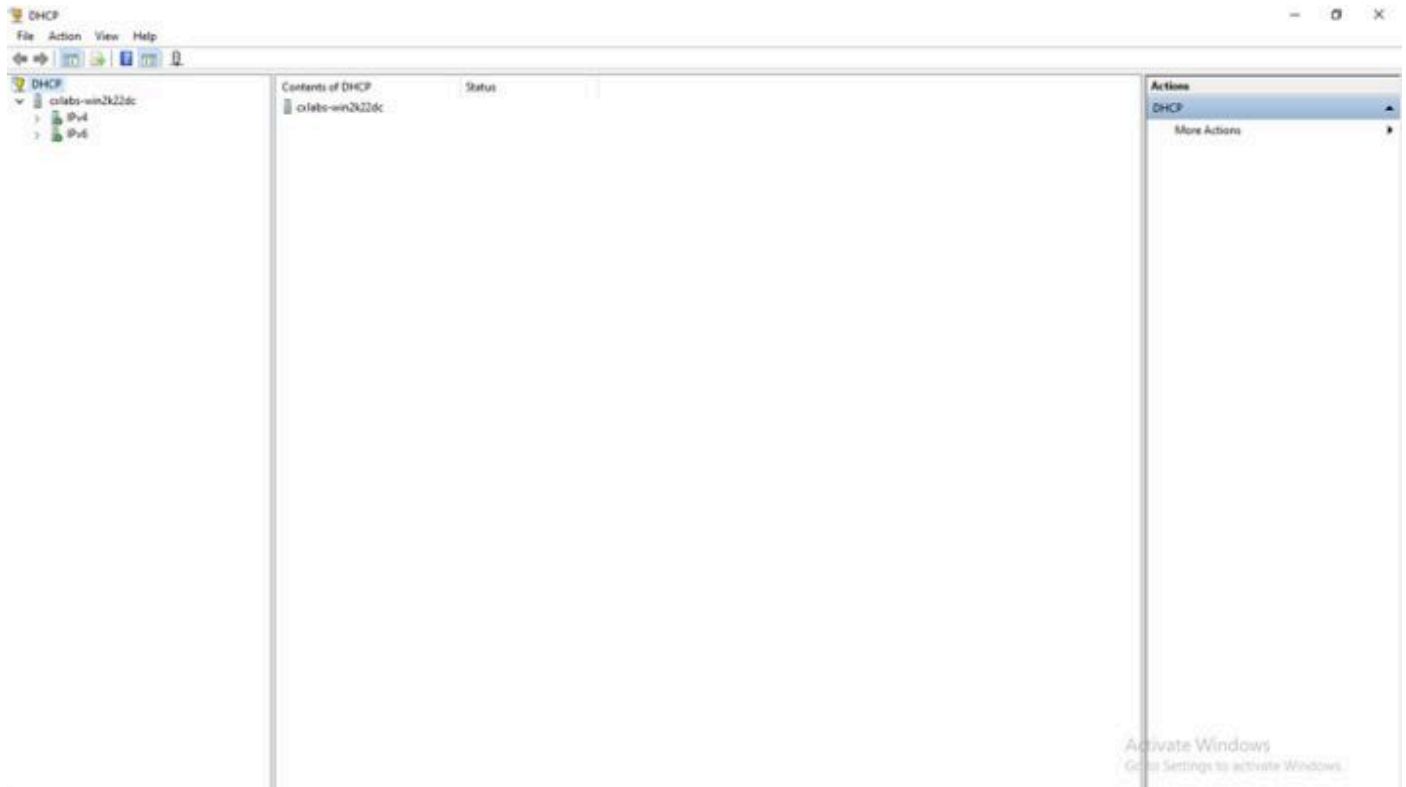
Dashboard da Server Manager in Windows Server 2022



Suggerimento: quando si fa doppio clic, l'immagine si ingrandisce.

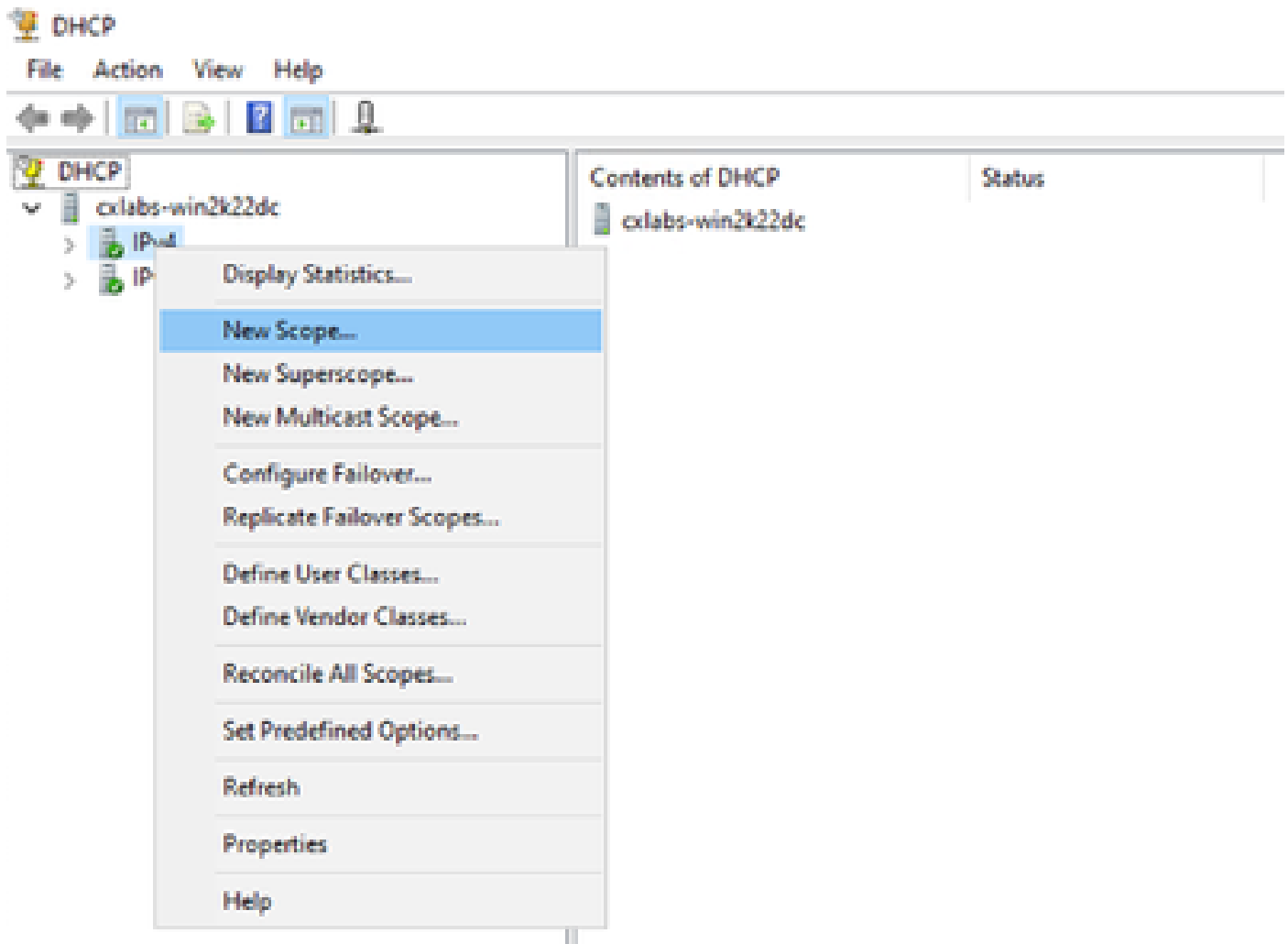
---

Passaggio 2. Aprire l'applicazione server DHCP.



Server DHCP su Windows Server 2022

Passaggio 3. Fare clic con il pulsante destro del mouse su IPv4 e selezionare New Scope (Nuovo ambito).



Nuovo ambito in DCHP

Passaggio 4. Fare clic su Next (Avanti).

## 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

Passaggio 5. Scrivere un nome e una descrizione. Nell'esempio, il nome è la subnet che appartiene alla VLAN 10 e la descrizione è l'L2VNI come L2VNI elencato nella VLAN 10.

## New Scope Wizard

### Scope Name

You have to provide an identifying scope name. You also have the option of providing a description.



Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.

Name:

Description:

Passaggio 6. Configurare l'intervallo di indirizzi IP. Pool per gli host.



## 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:

End IP address:

#### Configuration settings that propagate to DHCP Client

Length:

Subnet mask:

< Back

Next >

Cancel

Passaggio 6. Escludere l'indirizzo IP condiviso dalla configurazione SVI nei VTEP. In questo esempio, l'interfaccia VLAN 10 ha l'indirizzo IP.10.10.1/24.



Avviso: se non si esclude l'indirizzo IP dall'SVI (o gateway predefinito), è possibile che gli indirizzi IP vengano duplicati e il traffico recapitato venga compromesso.

---

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

## New Scope Wizard

### Add Exclusions and Delay

Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER 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:

Add

Excluded address range:

Address 10.10.10.1

Remove

Subnet delay in milli second:

< Back

Next >

Cancel

Passaggio 7. Configurare la durata del lease dell'indirizzo IP. Questo valore si riferisce alla quantità di tempo durante la quale un host può utilizzare l'indirizzo IP assegnato prima di rinnovarlo.

## 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

Passaggio 8. Selezionare Sì, configurare le opzioni ora.

## 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

Passaggio 9. Configurare l'indirizzo IP del gateway predefinito.

## New Scope Wizard

### Router (Default Gateway)

You can specify the routers, or default gateways, to be distributed by this scope.



To add an IP address for a router used by clients, enter the address below.

IP address:

Add

Remove

Up

Down

< Back

Next >

Cancel

Passaggio 10. Configurare il nome di dominio e il server DNS.

## 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 client computers on your network to use for DNS name resolution.

Parent domain:

To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.

Server name:

IP address:

Passaggio 11. Configurare il server WINS, se applicabile. Questa operazione può essere ignorata se le informazioni non sono note.

## New Scope Wizard

### WINS Servers

Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.



Entering server IP addresses here enables Windows clients to query WINS before they use broadcasts to register and resolve NetBIOS names.

Server name:

Resolve

IP address:

Add

Remove

Up

Down

To change this behavior for Windows DHCP clients modify option 046, WINS/NBT Node Type, in Scope Options.

< Back

Next >


Cancel

Passaggio 12. Selezionare Sì, attiva l'ambito ora.



New Scope Wizard

**Activate Scope**  
Clients can obtain address leases only if a scope is activated.



Do you want to activate this scope now?

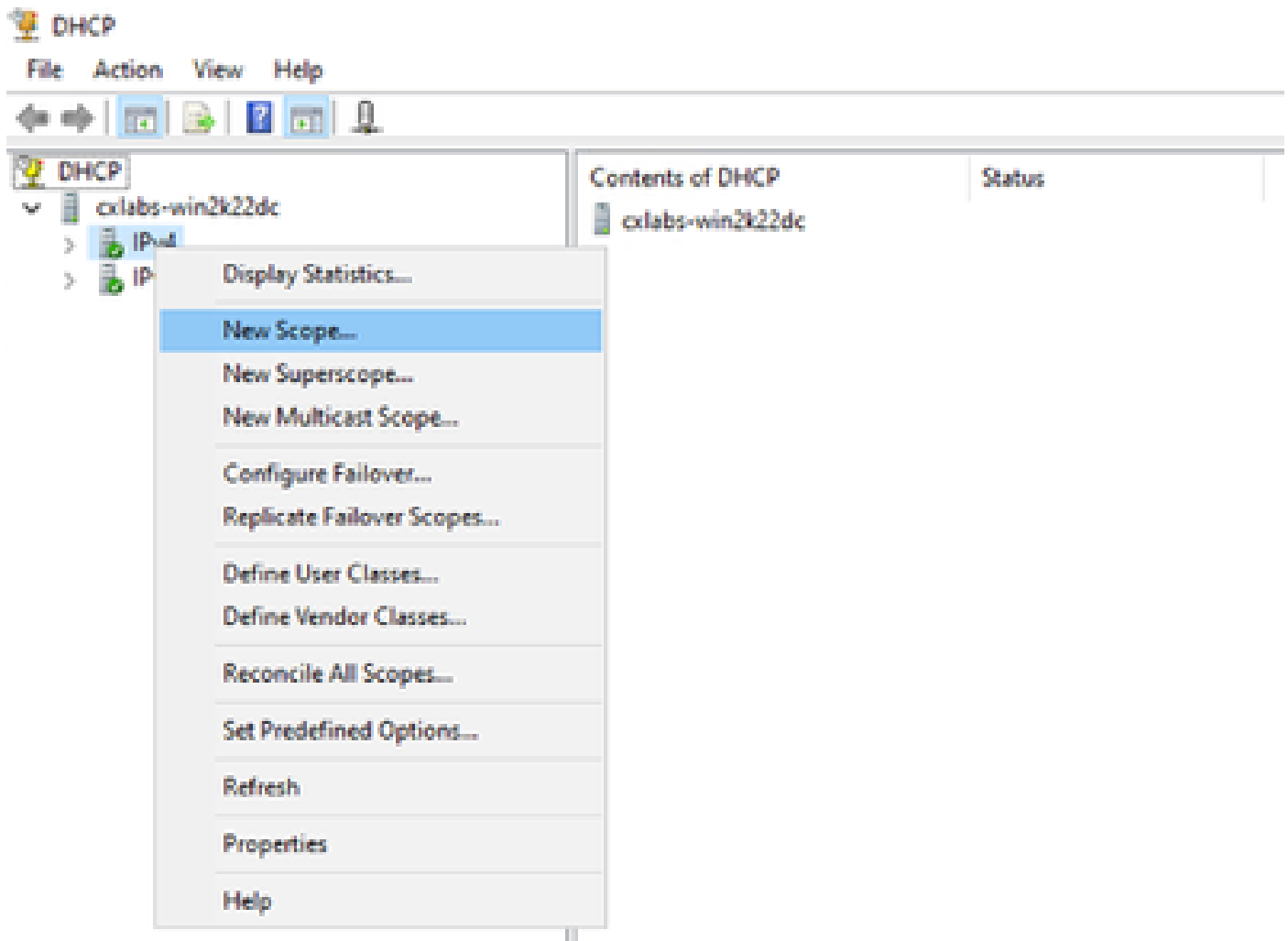
Yes, I want to activate this scope now

No, I will activate this scope later

< Back   Next >   Cancel

Configurazione dell'ambito per gli indirizzi IP univoci dai loopback in SVI come agente di inoltro DHCP.

Passaggio 1. Fare clic con il pulsante destro del mouse su IPv4 e selezionare IPv4Scope.



Nuovo ambito in DCHP

Passaggio 2. Scrivere un nome e una descrizione. In questo esempio, name è la subnet utilizzata per la subnet con indirizzo di loopback.



IPte: viene utilizzato un loopback per un indirizzo IP univoco loopback in tutta la struttura VxLAN per il tenant VxLAN. Questo deve essere annunciato nella redistribuzione della route VPN BGP L2VPN in BGP all'interno del VRF del tenant corrispondente nell'indirizzo IPv4-famIPv4

---

```
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 provide an identifying scope name. You also have the option of providing a description.



Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.

Name:

Description:

Passaggio 3. Configurare l'intervallo di indirizzi IP. Pool di loopback.

## 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:

End IP address:

#### Configuration settings that propagate to DHCP Client

Length:

Subnet mask:

< Back

Next >

Cancel

Passaggio 4. Configurare le esclusioni (facoltativo perché il server DHCP non assegna in lease indirizzi IP appartenenti a questa subnet).

## 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 DHCP OFFER 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:

Add

Excluded address range:

Remove

Subnet delay in milli second:

< Back

Next >

Cancel

Passaggio 5. Ignorare la durata del lease e fare clic su Avanti.

## 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

Passaggio 6. Selezionare No. Queste opzioni verranno configurate in seguito.

## 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

Passaggio 7. Fare clic su Finish (Fine).



## 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*.

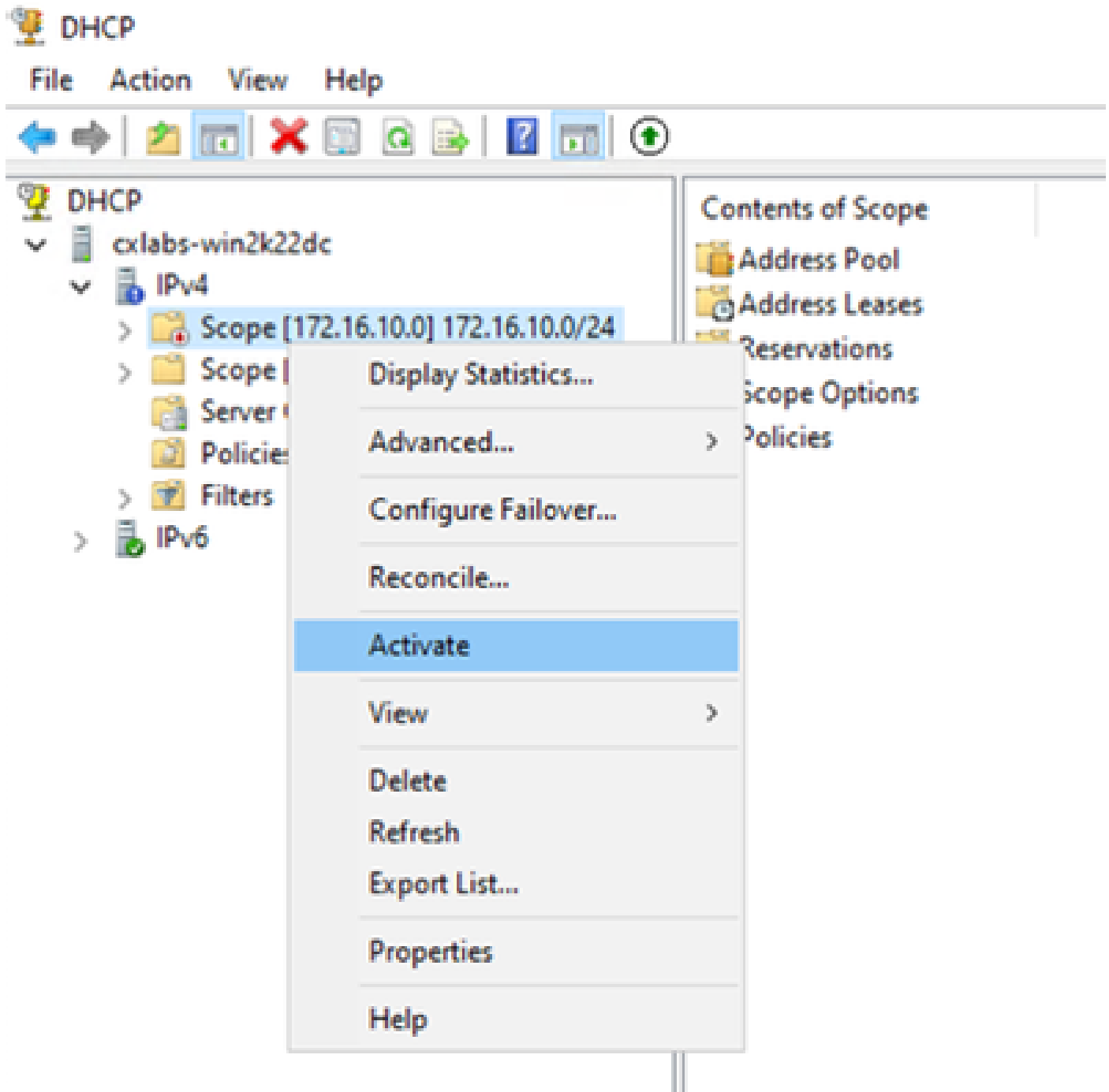
To close this wizard, click *Finish*.

< Back

Finish

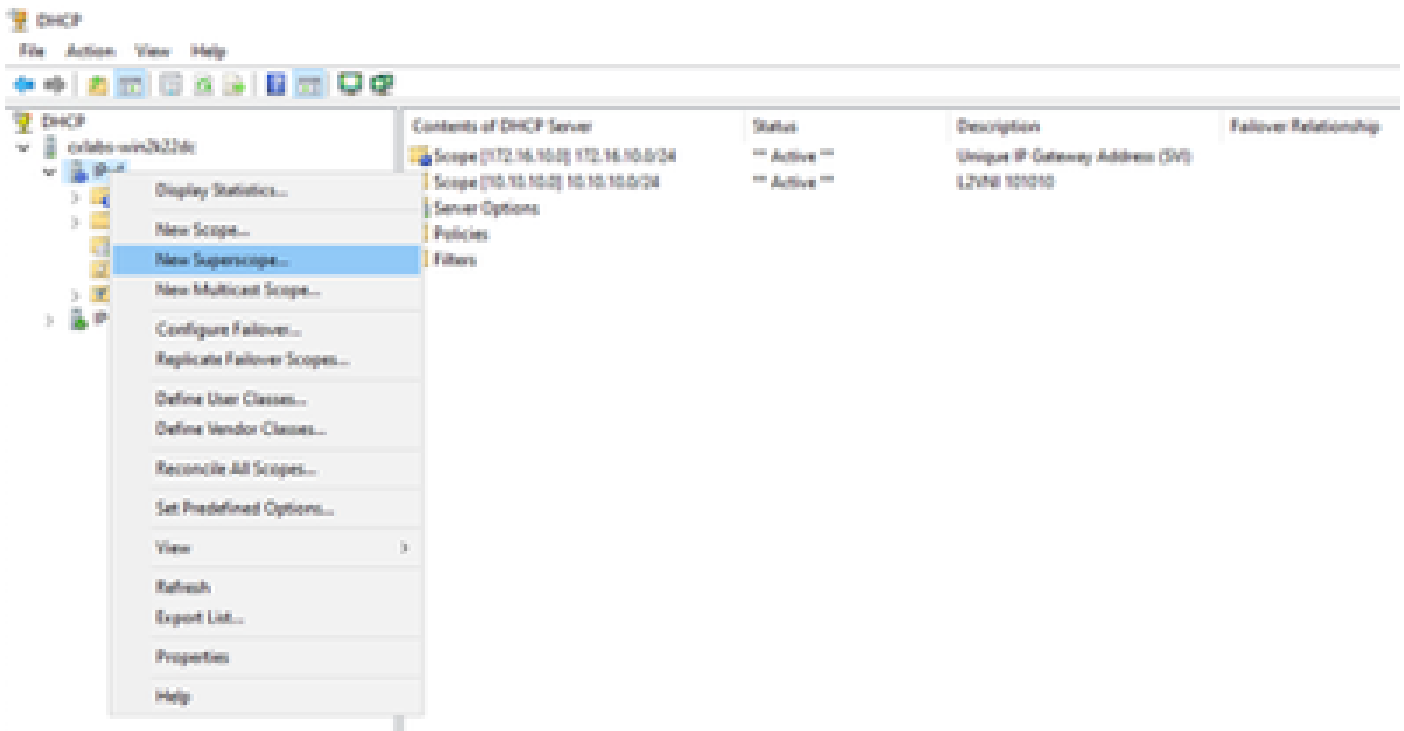
Cancel

Passaggio 8. Fare clic con il pulsante destro del mouse sull'ambito creato e selezionare attiva.

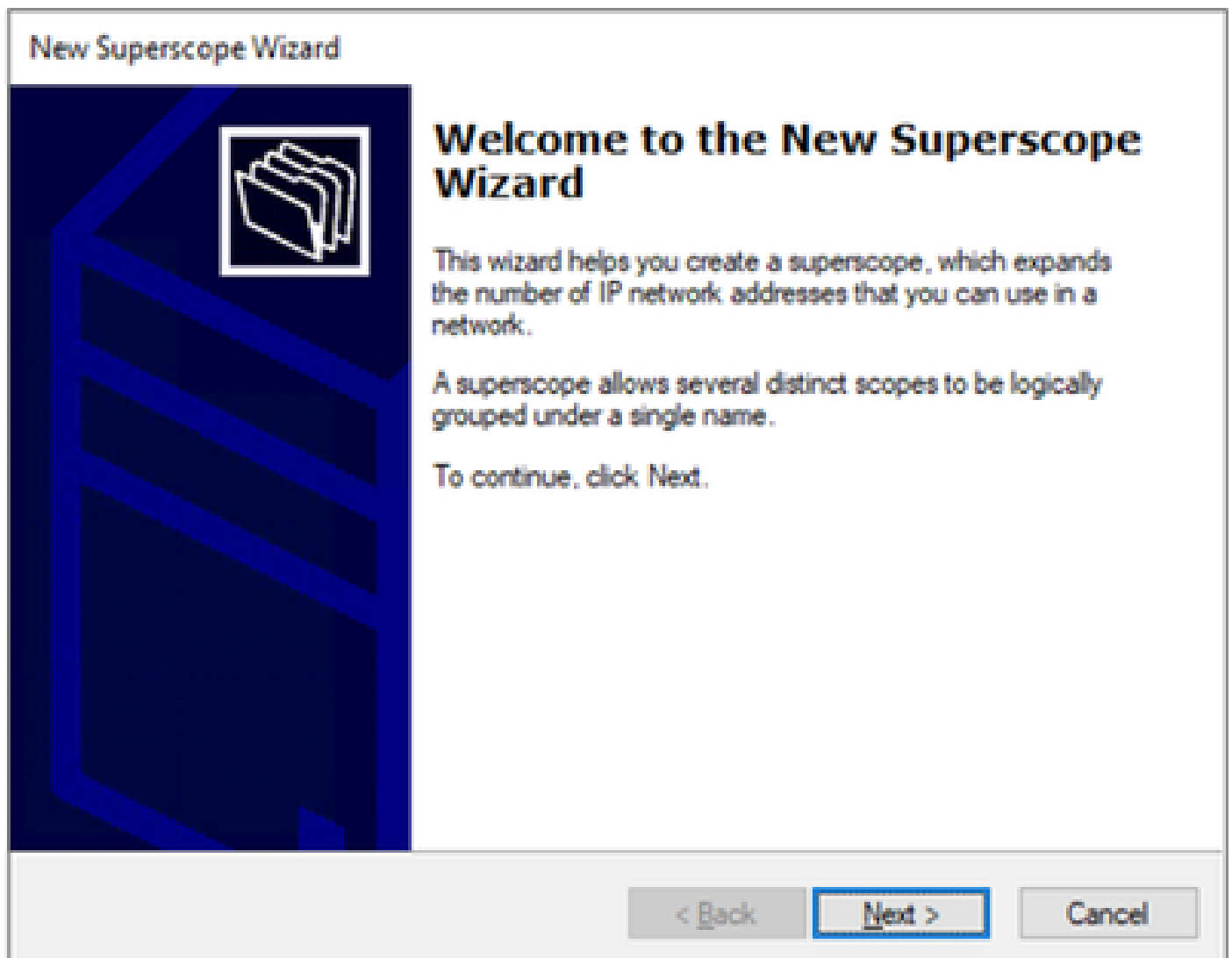


Configurazione dell'ambito esteso per l'infrastruttura VxLAN.

Passaggio 1. Fare clic con il pulsante destro del mouse su IPv4 e selezionare Nuovo ambito esteso.



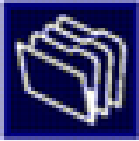
Passaggio 2. Fare clic su Next (Avanti).



Passaggio 3. Scrivere il nome dell'ambito esteso.

**New Superscope Wizard**

**Superscope Name**  
You have to provide an identifying superscope name.



Name:

< Back   **Next >**   Cancel

Passaggio 4. Selezionare tutti gli ambiti che appartengono a VxLAN Fabric.

## 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

< Back

Next >

Cancel

Passaggio 5. Selezionare tutti gli ambiti che appartengono a VxLAN Fabric.

## 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:

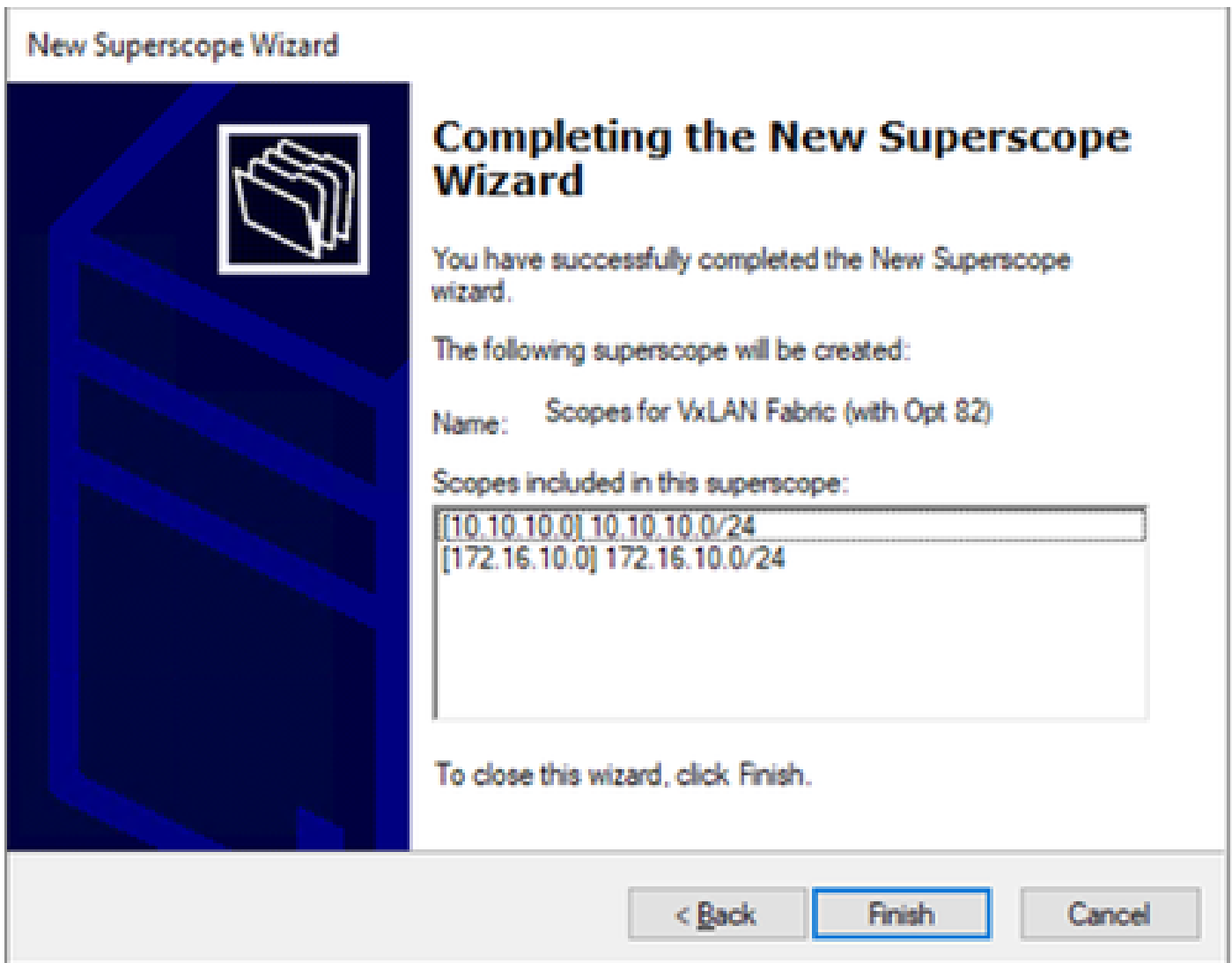
[10.10.10.0] 10.10.10.0/24  
[172.16.10.0] 172.16.10.0/24

< Back

Next >

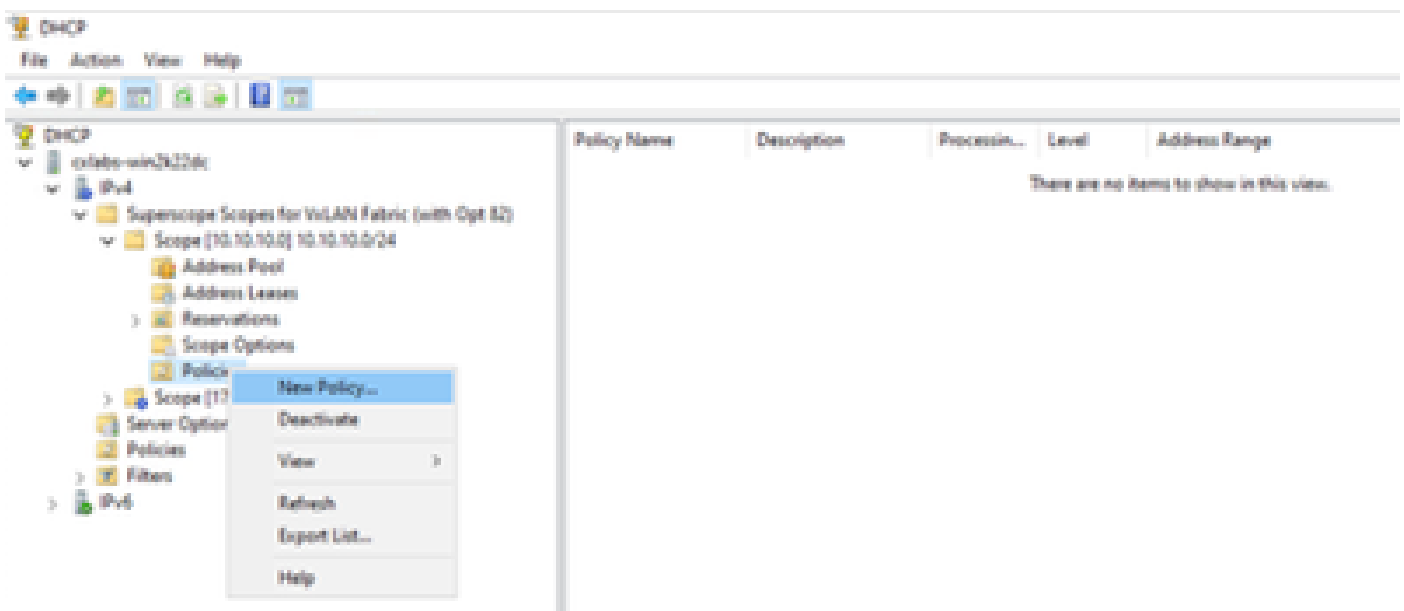
Cancel

Passaggio 6. Verificare che tutto l'ambito esteso dell'infrastruttura VxLAN sia presente e fare clic su Fine.



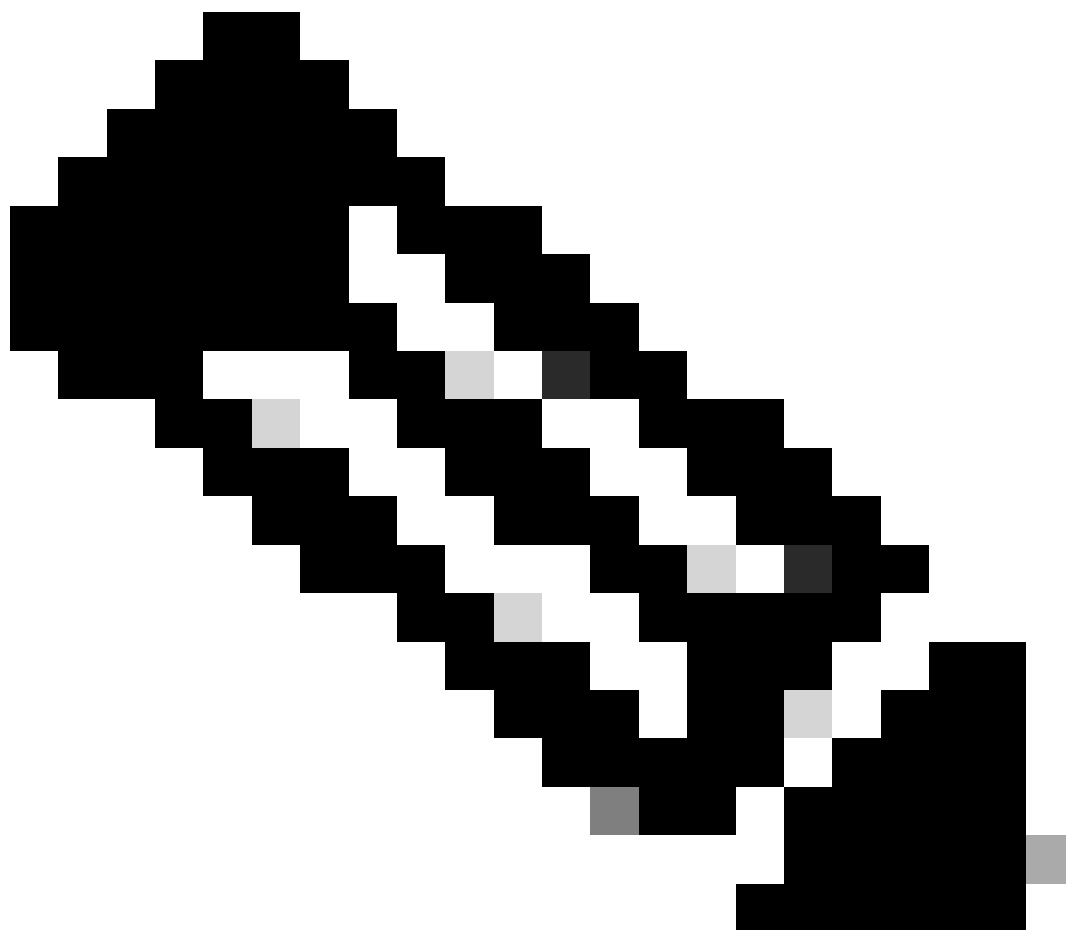
Configurare l'opzione 82 negli ambiti host.

Passaggio 1. Fare clic con il pulsante destro del mouse su Policy (ultima opzione) all'interno dell'ambito per l'host e fare clic su New Policy.



Passaggio 2. Scrivere un nome e una descrizione e fare clic su Avanti.

---



Nota: in questo esempio, il criterio viene creato per selezionare paIP di indirizzamento IP, in particolare per gli host in Leaf-1 per VNI 101010 basedVNI Remote-ID (parametro dell'opzione 82).

---



## DHCP Policy Configuration Wizard

### Policy based IP Address and Option Assignment



This feature allows you to distribute configurable settings (IP address, DHCP options) to clients based on certain conditions (e.g. vendor class, user class, MAC address, etc.).

This wizard will guide you setting up a new policy. Provide a name (e.g. VoIP Phone Configuration Policy) and description (e.g. NTP Server option for VoIP Phones) for your policy.

Policy Name:

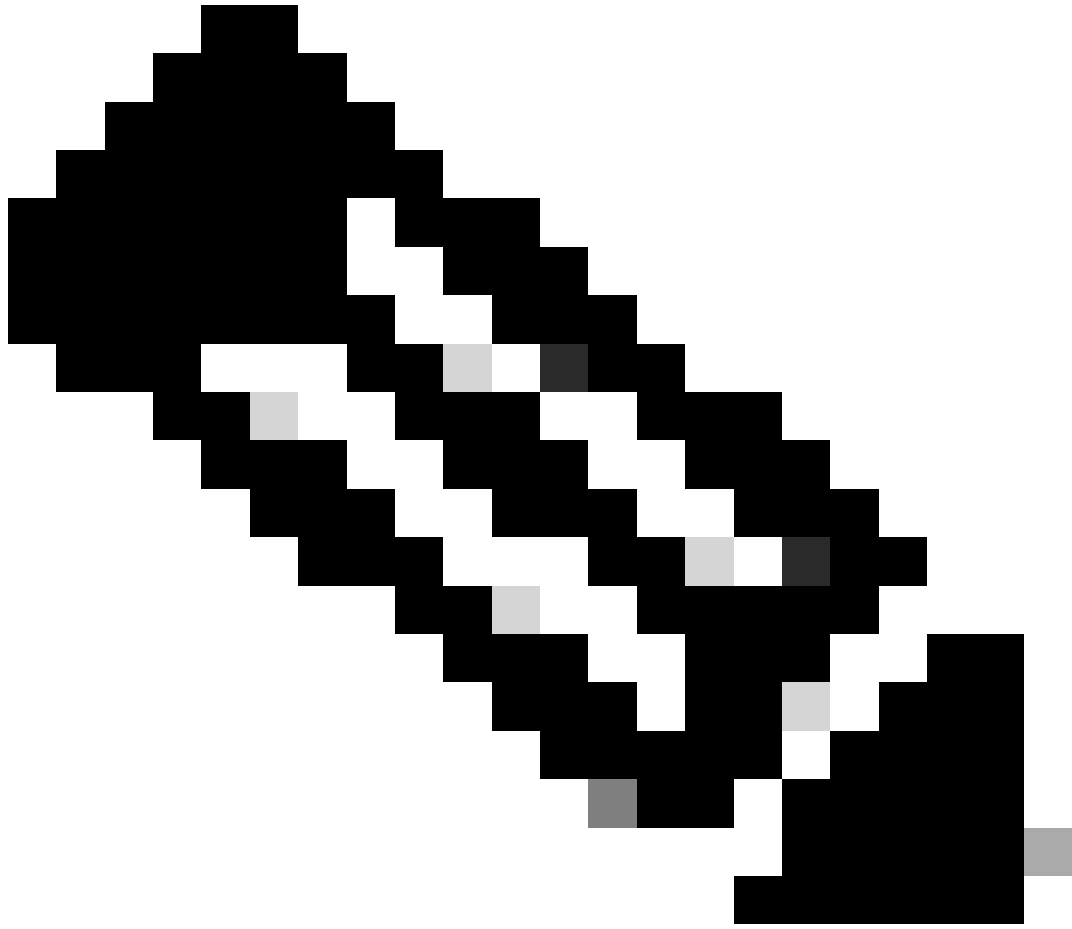
Description:

< Back

Next >

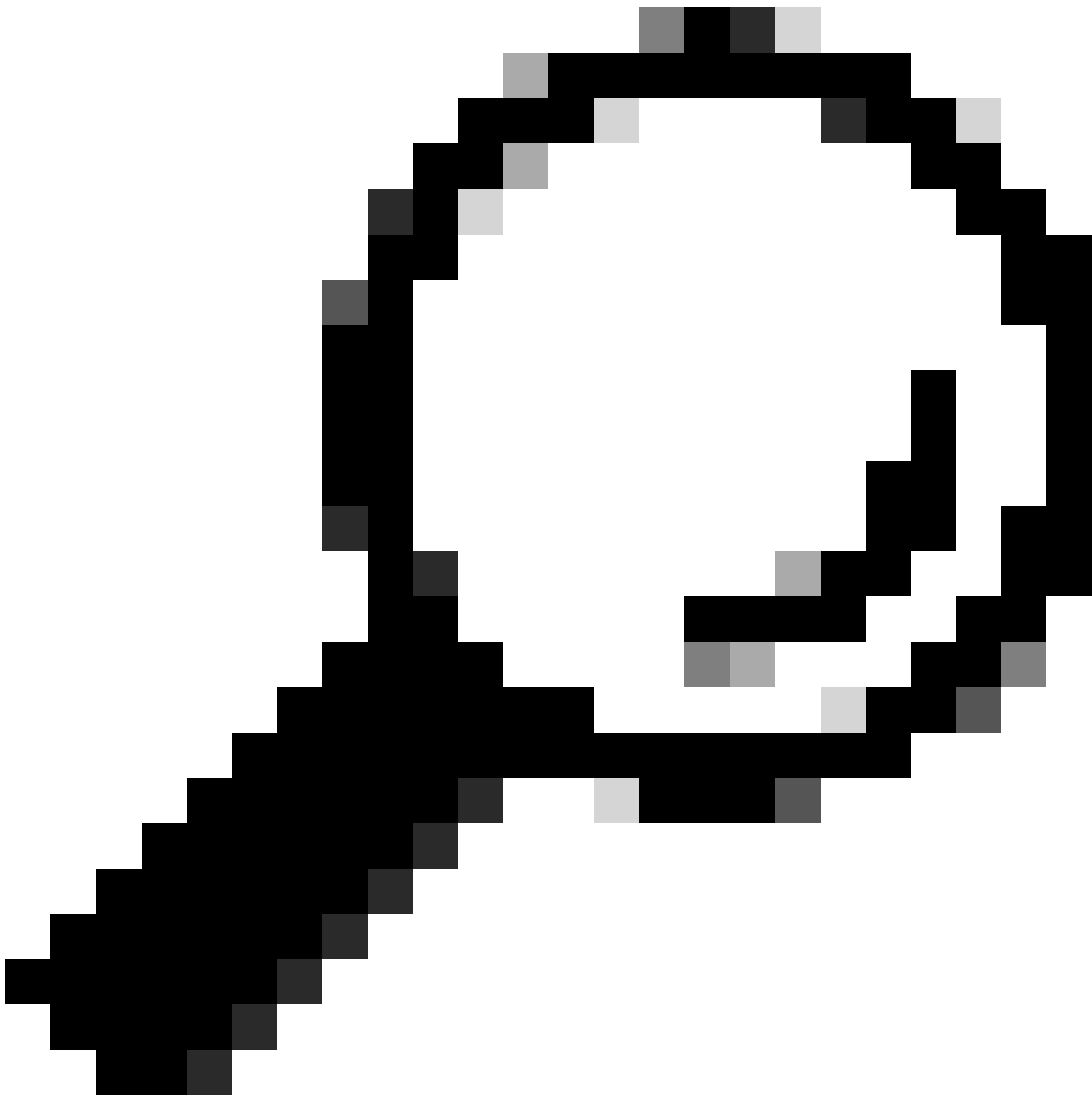
Cancel

Passaggio 3. Fare clic su Add. In Criteri, selezionare Inoltra informazioni sull'agente. In Operatore, selezionare Uguale a. Quindi selezionare Agent Remote ID e digitare il valore. Fare clic su OK, quindi su Avanti.



Nota: l'ID remoto viene ottenuto dall'indirizzo MAC dell'SVI a cui è associata la SVI.

---



Suggerimento: è possibile applicare un criterio a più ID remoti (o VTEP) aggiungendo ulteriori condizioni e selezionando OR anziché AND.

---

```
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

### Add/Edit Condition

Specify a condition for the policy being configured. Select a criteria, operator and values for the condition.

Criteria: Relay Agent Information

Operator: Equals

Value (in hex)

Relay Agent Information:

Agent Circuit ID:

Agent Remote ID:

Subscriber ID:

Prefix wildcard(\*)

Append wildcard(\*)

Ok

Cancel

< Back

Next >

Cancel

Passaggio 4. Configurare l'indirizzo IP che gli indirizzi IP esistenti possono utilizzare sui VTEP selezionati dall'ID, quindi fare clic su Avanti.



Nota: in questo esempio esiste solo una macchina virtuale connessa a Foglia-1, quindi è richiesto un solo indirizzo IP. Qui viene aggiunto un secondo indirizzo IPn caso un altro host si connetta.

---

## DHCP Policy Configuration Wizard

### Configure settings for the policy

If the conditions specified in the policy match a client request, the settings will be applied.



A scope can be subdivided into multiple IP address ranges. Clients that match the conditions defined in a policy will be issued an IP Address from the specified range.

Configure the start and end IP address for the range. The start and end IP addresses for the range must be within the start and end IP addresses of the scope.

The current scope IP address range is 10.10.10.1 - 10.10.10.254

If an IP address range is not configured for the policy, policy clients will be issued an IP address from the scope range.

Do you want to configure an IP address range for the policy:  Yes  No

Start IP address:

End IP address:

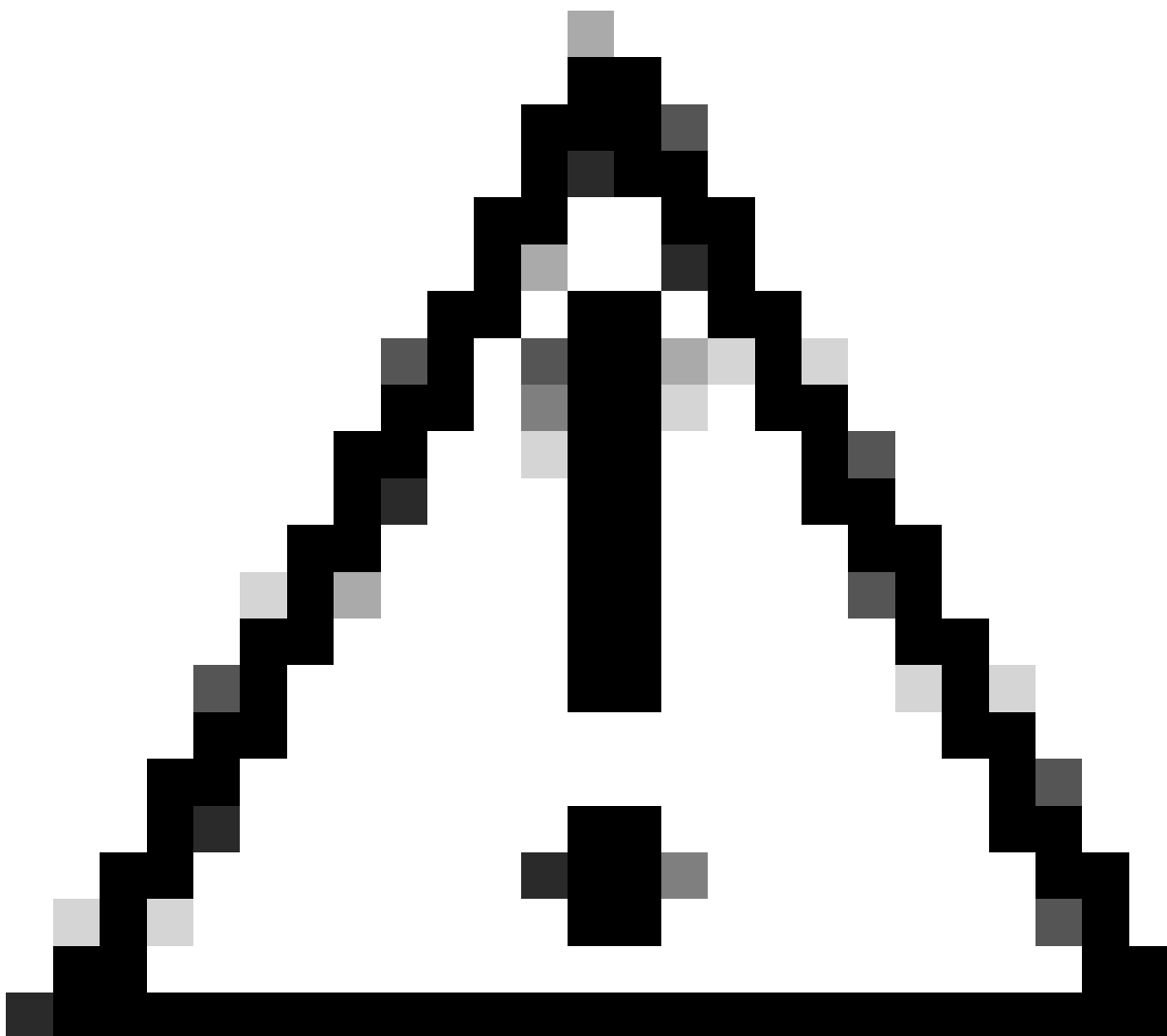
Percentage of IP address range: 0.8

< Back

Next >

Cancel

Passaggio 5. Selezionare la casella a sinistra di 003 Router in DHCP Standard Option. Scrivere quindi l'indirizzo IP del gateway predefinito per gli host che appartengono a questo criterio e premere Aggiungi. Fare clic su Next (Avanti).



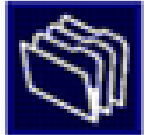
Attenzione: è possibile selezionare più di un'opzione, ma in caso di dubbi sul valore da immettere, non selezionarla. Una configurazione incoerente o errata può causare un comportamento imprevisto.

---

## 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.



Vendor class:

DHCP Standard Options

Available Options	Description
<input type="checkbox"/> 002 Time Offset	UTC offset in seconds
<input checked="" type="checkbox"/> 003 Router	Array of router addresses order
<input type="checkbox"/> 004 Time Server	Array of time server addresses.

#### Data entry

Server name:

Resolve

IP address:

Add

10.10.10.1

Remove

Up

Down

< Back

Next >

Cancel

Passaggio 6. Verificare le condizioni dei criteri e fare clic su Fine.

The screenshot shows the DHCP console interface. On the left is a tree view showing the hierarchy: DHCP > CXLabs-WIN2K22DC > IPv4 > Superscope Scopes for VxLAN Fabric (with Opt 82) > Scope [10.10.10.0] L2VNI 101010 > Policies. The main area displays a table with the following data:

Policy Name	Description	Processin...	Level	Address Range	State	Actions
VNI 101010	Policy to select scope for Leaf-1 using Remote-ID	1	Scope	10.10.10.2 - 10.10.10.3	Enabled	More Actions



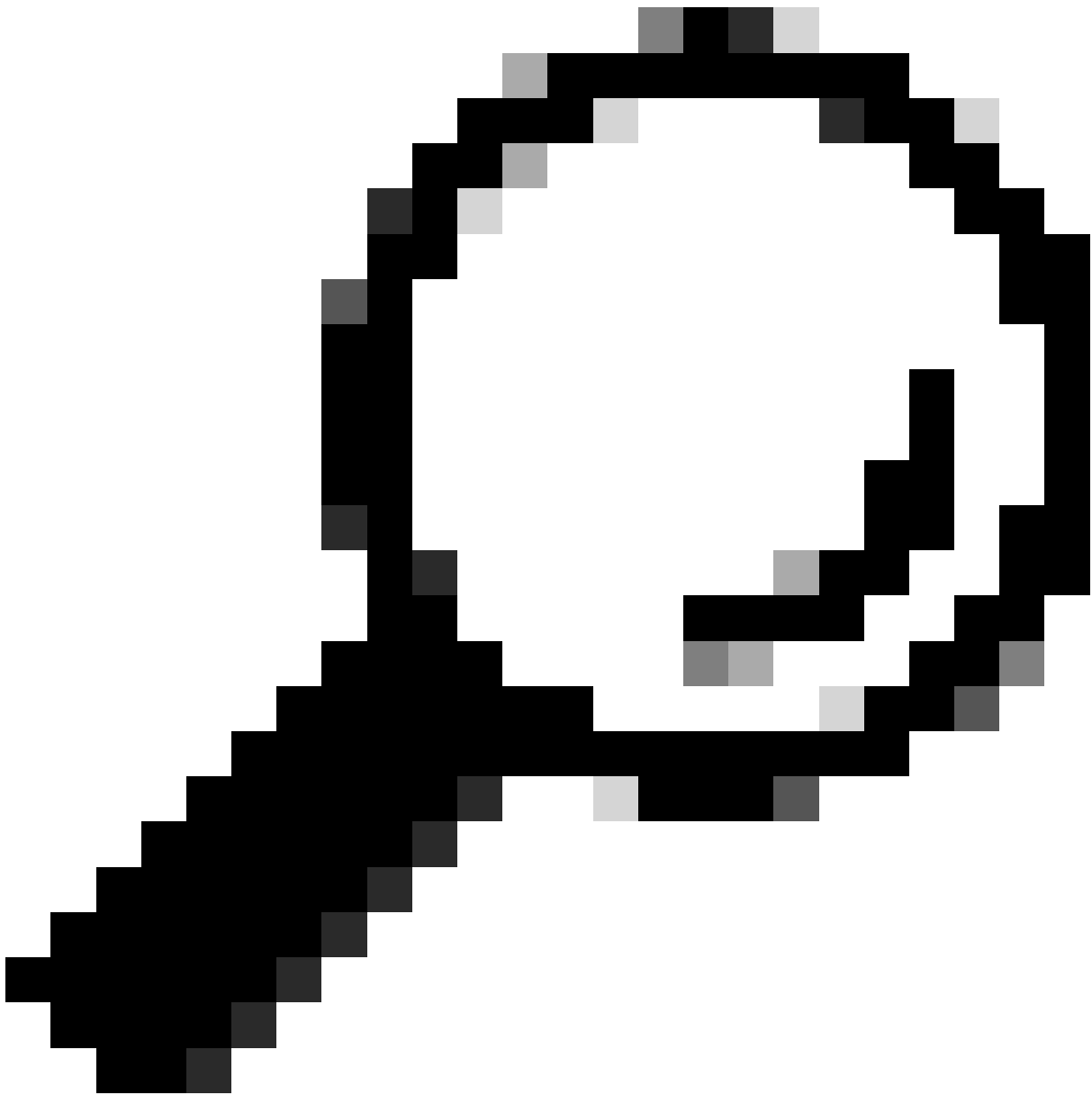
Packet-walk DCHP dall'inizio alla fine in VxLAN Fabric.

Discovery inviato dall'HOST-1

```
> 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
v 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
v 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: 00000000000000000000
  Server host name not given
  Boot file name not given
  Magic cookie: DHCP
v Option: (53) DHCP Message Type (Discover)
  Length: 1
  <Value: 01>
  DHCP: Discover (1)
v Option: (61) Client identifier
  Length: 7
  <Value: 01005056a5fddd>
  Hardware type: Ethernet (0x01)
  Client MAC address: 00:50:56:a5:fd:dd
v 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
v 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
v Option: (255) End
  Option End: 255
  Padding: 00000000000000000000
```

# Rilevamento su FOGLIA-1

Rilevamento ricevuto su LEAF-1	Individuazione invio da FOGLIA-1
<pre> &gt; Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff &gt; Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255 &gt; User Datagram Protocol, Src Port: 68, Dst Port: 67 &gt; 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   &gt; 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: 00000000000000000000   Server host name not given   Boot file name not given   Magic cookie: DHCP   &gt; Option: (53) DHCP Message Type (Discover)     Length: 1     &lt;Value: 01&gt;     DHCP: Discover (1)   &gt; Option: (61) Client identifier     Length: 7     &lt;Value: 01005056a5fddd&gt;     Hardware type: Ethernet (0x01)     Client MAC address: 00:50:56:a5:fd:dd   &gt; Option: (12) Host Name     Length: 10     &lt;Value: 43584c6162732d573130&gt;     Host Name: CXLabs-W10   &gt; Option: (60) Vendor class identifier     Length: 8     &lt;Value: 4d53465420352e30&gt;     Vendor class identifier: MSFT 5.0   &gt; Option: (55) Parameter Request List     Length: 14     &lt;Value: 0103060f1f212b2c2e2f779f9fc&gt;     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   &gt; Option: (255) End   Padding: 0000000000000000 </pre>	<pre> &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 &gt; Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 &gt; User Datagram Protocol, Src Port: 65233, Dst Port: 4789 &gt; Virtual Extensible Local Area Network   &gt; Flags: 0x8000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030     Reserved: 0   &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe   &gt; Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150   &gt; User Datagram Protocol, Src Port: 67, Dst Port: 67   &gt; 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   &gt; 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   &gt; Option: (53) DHCP Message Type (Discover)     Length: 1     &lt;Value: 01&gt;     DHCP: Discover (1)   &gt; Option: (61) Client identifier     Length: 7     &lt;Value: 01005056a5fddd&gt;     Hardware type: Ethernet (0x01)     Client MAC address: 00:50:56:a5:fd:dd   &gt; Option: (12) Host Name     Length: 10     &lt;Value: 43584c6162732d573130&gt;     Host Name: CXLabs-W10   &gt; Option: (60) Vendor class identifier     Length: 8     &lt;Value: 4d53465420352e30&gt;     Vendor class identifier: MSFT 5.0   &gt; Option: (55) Parameter Request List     Length: 14     &lt;Value: 0103060f1f212b2c2e2f779f9fc&gt;     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   &gt; Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a920aa00000000206707db9b84daf97090074656e616e742d610b040a0a0105040a0a0a0&gt;   &gt; Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0180000600018a920aa000000000&gt;     Agent Circuit ID: 0180000600018a920aa000000000   &gt; Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   &gt; Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]   &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   &gt; Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   &gt; Option: (255) End   Padding: 0000000000000000 </pre>



Suggerimento: quando si fa doppio clic, l'immagine si ingrandisce.

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## Rilevamento sul dorso

Rilevamento ricevuto su SPINE	Individuazione invio per SPINE
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<pre> &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 &gt; Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 &gt; User Datagram Protocol, Src Port: 65233, Dst Port: 4789 &gt; Virtual eXtensible Local Area Network   &gt; Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030     Reserved: 0 &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe &gt; Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 &gt; User Datagram Protocol, Src Port: 67, Dst Port: 67 &gt; 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   &gt; Bootp flags: 0x0000, 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   &gt; Option: (53) DHCP Message Type (Discover)     Length: 1     &lt;Value: 01&gt;     DHCP: Discover (1)   &gt; Option: (61) Client identifier     Length: 7     &lt;Value: 01005056a5fd&gt;     Hardware type: Ethernet (0x01)     Client MAC address: 00:50:56:a5:fd:dd   &gt; Option: (12) Host Name     Length: 10     &lt;Value: 43584c6162732d573130&gt;     Host Name: CXLabs-W10   &gt; Option: (60) Vendor class identifier     Length: 8     &lt;Value: 4d53465420352e30&gt;     Vendor class identifier: MSFT 5.0   &gt; Option: (55) Parameter Request List     Length: 14     &lt;Value: 0103060f1f212b2c2e2f7779f9fc&gt;     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   &gt; Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00&gt;   &gt; Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   &gt; Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   &gt; Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]   &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   &gt; Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   &gt; Option: (255) End     Option End: 255     Padding: 00000000000000000000 </pre>	<pre> &gt; Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 60:26:aa:85:98:87 &gt; Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 &gt; User Datagram Protocol, Src Port: 65233, Dst Port: 4789 &gt; Virtual eXtensible Local Area Network   &gt; Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030     Reserved: 0 &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe &gt; Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 &gt; User Datagram Protocol, Src Port: 67, Dst Port: 67 &gt; 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   &gt; Bootp flags: 0x0000, 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   &gt; Option: (53) DHCP Message Type (Discover)     Length: 1     &lt;Value: 01&gt;     DHCP: Discover (1)   &gt; Option: (61) Client identifier     Length: 7     &lt;Value: 01005056a5fd&gt;     Hardware type: Ethernet (0x01)     Client MAC address: 00:50:56:a5:fd:dd   &gt; Option: (12) Host Name     Length: 10     &lt;Value: 43584c6162732d573130&gt;     Host Name: CXLabs-W10   &gt; Option: (60) Vendor class identifier     Length: 8     &lt;Value: 4d53465420352e30&gt;     Vendor class identifier: MSFT 5.0   &gt; Option: (55) Parameter Request List     Length: 14     &lt;Value: 0103060f1f212b2c2e2f7779f9fc&gt;     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   &gt; Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00&gt;   &gt; Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   &gt; Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   &gt; Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]   &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   &gt; Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   &gt; Option: (255) End     Option End: 255     Padding: 00000000000000000000 </pre>
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## Discovery su LEAF-1-vPC

Rilevamento ricevuto su LEAF-1-vPC	Discovery inviato da LEAF-1-vPC
------------------------------------	---------------------------------

```
Ethernet II, Src: 10:b3:06:a4:85:97, Dst: 60:26:aa:85:98:87
> Internet Protocol Version 4, Src: 5.5.5.5, 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
  VXLAN Network Identifier (VNI): 303030
  Reserved: 0
> Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe
> Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150
> 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)
  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 (Discover)
  Length: 1
  <Value: 01>
  DHCP: Discover (1)
  Option: (61) Client identifier
  Length: 7
  <Value: 01005056a5fd>
  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: 0103060f1f212b2c2e2f779f9fc>
  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: 010e0108000600018a9200a000000000206707db9b84daf97090074656e16e742d610b040a0a0a0105040a0a00>
  Option 82 Suboption: (1) Agent Circuit ID
  Length: 14
  <Value: 0108000600018a9200a000000000>
  Agent Circuit ID: 0108000600018a9200a000000000
  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: 0074656e16e742d61>
  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
  Padding: 00000000000000000000

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: 00000000000000000000
  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: 01005056a5fd>
  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: 0103060f1f212b2c2e2f779f9fc>
  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: 010e0108000600018a9200a000000000206707db9b84daf97090074656e16e742d610b040a0a0a0105040a0a00>
  Option 82 Suboption: (1) Agent Circuit ID
  Length: 14
  <Value: 0108000600018a9200a000000000>
  Agent Circuit ID: 0108000600018a9200a000000000
  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: 0074656e16e742d61>
  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
  Padding: 00000000000000000000
```



Nota: LEAF-2-vPC riceve il pacchetto Discover, ma è solo commutato. L'indirizzo MAC di destinazione appartiene al server DHCP.

---

Rilevamento ricevuto sul server DHCP

```
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: 00000000000000000000
  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: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00>
  - Option 82 Suboption: (1) Agent Circuit ID
    Length: 14
    <Value: 0108000600018a9200a000000000>
    Agent Circuit ID: 0108000600018a9200a000000000
  - 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: 00000000000000000000
```



Offerta DHCP inviata dal server DHCP

```

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: 00000000000000000000
  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: 01005056a5fd<dd>
    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: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00>
  Option 82 Suboption: (1) Agent Circuit ID
    Length: 14
    <Value: 0108000600018a9200a000000000>
    Agent Circuit ID: 0108000600018a9200a000000000
  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: 00000000000000000000

```

# Offerta DHCP su LEAF-2-vPC

Offerta ricevuta su LEAF-2-vPC	Offerta inviata da LEAF-2-vPC
<pre> Ethernet II, Src: 00:50:56:a5:d5:c4, 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 (Offer)   Message type: Boot Reply (2)   Hardware type: Ethernet (0x01)   Hardware address length: 6   Hops: 0   Transaction ID: 0xe9e35087   Seconds elapsed: 0   Bootp flags: 0x0000, 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: 10.10.10.150   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 (Offer)     Length: 1     &lt;Value: 02&gt;     DHCP: Offer (2)   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff&gt;     Subnet Mask: 255.255.255.0   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a0c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a00&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]     [Trailing stray characters]     &lt;Message: Trailing stray characters&gt;     [Severity level: Warning]     [Group: Undecoded]   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End     Option End: 255           </pre>	<pre> Ethernet II, Src: 00:26:aa:85:95:87, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65518, Dst Port: 4789 Virtual extensible Local Area Network   Flags: 0x0000, VXLAN Network ID (VNI)   Group Policy ID: 0   VXLAN Network Identifier (VNI): 303030   Reserved: 0 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 (Offer)   Message type: Boot Reply (2)   Hardware type: Ethernet (0x01)   Hardware address length: 6   Hops: 0   Transaction ID: 0xe9e35087   Seconds elapsed: 0   Bootp flags: 0x0000, 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: 10.10.10.150   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 (Offer)     Length: 1     &lt;Value: 02&gt;     DHCP: Offer (2)   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff&gt;     Subnet Mask: 255.255.255.0   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a0c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a00&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]     [Trailing stray characters]     &lt;Message: Trailing stray characters&gt;     [Severity level: Warning]     [Group: Undecoded]   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End     Option End: 255           </pre>

# Offerta DHCP vPC SPINE

Offerta ricevuta su SPINE	Invia offerta per SPINE
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<pre> Ethernet II, Src: 60:26:aa:85:95:87, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65518, Dst Port: 4789 Virtual eXtensible Local Area Network   Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030     Reserved: 0 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 (Offer)   Message type: Boot Reply (2)     Hardware type: Ethernet (0x01)     Hardware address length: 6     Hops: 0     Transaction ID: 0xe9e35087     Seconds elapsed: 0   Bootp flags: 0x0000, 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: 10.10.10.150     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 (Offer)     Length: 1     &lt;Value: 02&gt;     DHCP: Offer (2)   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff&gt;     Subnet Mask: 255.255.255.0   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]     [Trailing stray characters]     &lt;Message: Trailing stray characters&gt;     [Severity level: Warning]     [Group: Undecoded]   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End     Option End: 255 </pre>	<pre> Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 70:7d:b9:b8:4d:af Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65518, Dst Port: 4789 Virtual eXtensible Local Area Network   Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030     Reserved: 0 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 (Offer)   Message type: Boot Reply (2)     Hardware type: Ethernet (0x01)     Hardware address length: 6     Hops: 0     Transaction ID: 0xe9e35087     Seconds elapsed: 0   Bootp flags: 0x0000, 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: 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 (Offer)     Length: 1     &lt;Value: 02&gt;     DHCP: Offer (2)   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff&gt;     Subnet Mask: 255.255.255.0   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End     Option End: 255 </pre>
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## Offerta DHCP su LEAF-1

Offerta ricevuta su LEAF-1	Invio offerta su FOGLIA-1
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<pre> &gt; Ethernet II, Src: 18:b3:d6:44:85:97, Dst: 70:7d:b9:b8:4d:af &gt; Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 &gt; User Datagram Protocol, Src Port: 65518, Dst Port: 4789 &gt; Virtual eXtensible Local Area Network   &gt; Flags: 0x8000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 383038     Reserved: 0 &gt; Ethernet II, Src: 02:00:0d:0d:0d:fe, Dst: 70:7d:b9:b8:4d:af &gt; Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8 &gt; User Datagram Protocol, Src Port: 67, Dst Port: 67 &gt; 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   &gt; 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: 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   &gt; Option: (53) DHCP Message Type (Offer)     Length: 1     &lt;Value: 02&gt;     DHCP: Offer (2)   &gt; Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffff00&gt;     Subnet Mask: 255.255.255.0   &gt; Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   &gt; Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   &gt; Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   &gt; Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   &gt; Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   &gt; Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00&gt;   &gt; Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   &gt; Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   &gt; Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:   &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   &gt; Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   &gt; Option: (255) End     Option End: 255 </pre>	<pre> &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: ff:ff:ff:ff:ff:ff &gt; Internet Protocol Version 4, Src: 10.10.10.1, Dst: 255.255.255.255 &gt; User Datagram Protocol, Src Port: 67, Dst Port: 68 &gt; 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   &gt; 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: 00000000000000000000   Server host name not given   Boot file name not given   Magic cookie: DHCP   &gt; Option: (53) DHCP Message Type (Offer)     Length: 1     &lt;Value: 02&gt;     DHCP: Offer (2)   &gt; Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffff00&gt;     Subnet Mask: 255.255.255.0   &gt; Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   &gt; Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   &gt; Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   &gt; Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   &gt; Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   &gt; Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   &gt; Option: (255) End     Option End: 255 </pre>
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Offerta DHCP ricevuta su HOST-1

```
> 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: 0000000000000000000000
  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: ffffffff00>
    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)
  > 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: (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
```

Richiesta inviata da HOST-1

```

> 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: 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 (10.10.10.1)
    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

```



# Richiesta su FOGLIA-1

Richiesta ricevuta su LEAF-1	Richiesta inviata da LEAF-1
<pre> &gt; Ethernet II, Src: 00:50:56:a5:fd:dd, Dst: ff:ff:ff:ff:ff:ff &gt; Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255 &gt; User Datagram Protocol, Src Port: 68, Dst Port: 67 &gt; Dynamic Host Configuration Protocol (Request)   Message type: Boot Request (1)   Hardware type: Ethernet (0x01)   Hardware address length: 6   Hops: 0   Transaction ID: 0xe9e35087   Seconds elapsed: 0   &gt; Bootp flags: 0x0000, 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: 00000000000000000000   Server host name not given   Boot file name not given   Magic cookie: DHCP   &gt; Option: (53) DHCP Message Type (Request)     Length: 1     &lt;Value: 03&gt;     DHCP: Request (3)   &gt; Option: (61) Client identifier     Length: 7     &lt;Value: 01005056a5fddd&gt;     Hardware type: Ethernet (0x01)     Client MAC address: 00:50:56:a5:fd:dd   &gt; Option: (50) Requested IP Address (10.10.10.3)     Length: 4     &lt;Value: 0a0a0a03&gt;     Requested IP Address: 10.10.10.3   &gt; Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   &gt; Option: (12) Host Name     Length: 10     &lt;Value: 43584c6162732d573130&gt;     Host Name: CXLabs-W10   &gt; Option: (81) Client Fully Qualified Domain Name     Length: 13     &lt;Value: 00000043584c6162732d573130&gt;     &gt; 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   &gt; Option: (60) Vendor class identifier     Length: 8     &lt;Value: 4d53465420352e30&gt;     Vendor class identifier: MSFT 5.0   &gt; Option: (55) Parameter Request List     Length: 14     &lt;Value: 0103060f1f212b2c2e2f779f9fc&gt;     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: (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   &gt; Option: (255) End     Option End: 255 </pre>	<pre> &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 10:b3:d6:a4:85:97 &gt; Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 &gt; User Datagram Protocol, Src Port: 51730, Dst Port: 4789 &gt; Virtual eXtensible Local Area Network   &gt; Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030     Reserved: 0   &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe   &gt; Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150   &gt; User Datagram Protocol, Src Port: 67, Dst Port: 67   &gt; Dynamic Host Configuration Protocol (Request)     Message type: Boot Request (1)     Hardware type: Ethernet (0x01)     Hardware address length: 6     Hops: 1     Transaction ID: 0xe9e35087     Seconds elapsed: 0     &gt; Bootp flags: 0x0000, 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     &gt; Option: (53) DHCP Message Type (Request)       Length: 1       &lt;Value: 03&gt;       DHCP: Request (3)     &gt; Option: (61) Client Identifier       Length: 7       &lt;Value: 01005056a5fddd&gt;       Hardware type: Ethernet (0x01)       Client MAC address: 00:50:56:a5:fd:dd     &gt; Option: (50) Requested IP Address (10.10.10.3)       Length: 4       &lt;Value: 0a0a0a03&gt;       Requested IP Address: 10.10.10.3     &gt; Option: (54) DHCP Server Identifier (10.10.10.150)       Length: 4       &lt;Value: 0a0a0a96&gt;       DHCP Server Identifier: 10.10.10.150     &gt; Option: (12) Host Name       Length: 10       &lt;Value: 43584c6162732d573130&gt;       Host Name: CXLabs-W10     &gt; Option: (81) Client Fully Qualified Domain Name       Length: 13       &lt;Value: 00000043584c6162732d573130&gt;       &gt; Flags: 0x00       A-RR result: 0       PTR-RR result: 0       Client name: CXLabs-W10     &gt; Option: (60) Vendor class identifier       Length: 8       &lt;Value: 4d53465420352e30&gt;       Vendor class identifier: MSFT 5.0     &gt; Option: (55) Parameter Request List       Length: 14       &lt;Value: 0103060f1f212b2c2e2f779f9fc&gt;       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     &gt; Option: (82) Agent Information Option       Length: 47       &lt;Value: 010e010800060018a9200a000000000206707db9b84daf97090074656e16e742d610b40a0a0105040a0a00&gt;     &gt; Option 82 Suboption: (1) Agent Circuit ID       Length: 14       &lt;Value: 0108000600018a9200a000000000&gt;       Agent Circuit ID: 0108000600018a9200a000000000     &gt; Option 82 Suboption: (2) Agent Remote ID       Length: 6       &lt;Value: 707db9b84daf&gt;       Agent Remote ID: 707db9b84daf     &gt; Option 82 Suboption: (151) VRF name/VPN ID       Length: 9       &lt;Value: 0074656e16e742d61&gt;       &gt; VRF name:       [Expert Info (Warning/Undecoded): Trailing stray characters]     &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)       Length: 4       &lt;Value: 0a0a0a01&gt;       Server ID Override: 10.10.10.1     &gt; Option 82 Suboption: (5) Link selection (10.10.10.0)       Length: 4       &lt;Value: 0a0a0a00&gt;       Link selection: 10.10.10.0     &gt; Option: (255) End       Option End: 255 </pre>

# Richiesta sul dorso

Richiesta ricevuta su SPINE	Richiesta inviata da SPINE
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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  
User Datagram Protocol, Src Port: 51730, Dst Port: 4789  
Virtual extensible Local Area Network  
Flags: 0x8000, VLAN Network ID (VNI)  
Group Policy ID: 0  
VLAN Network Identifier (VNI): 303030  
Reserved: 0

Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe  
Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150  
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  
Hops: 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: 010e018000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0105040a0a0a00>  
Option 82 Suboption: (1) Agent Circuit ID  
Length: 14  
<Value: 0108000600018a9200a000000000>  
Agent Circuit ID: 0108000600018a9200a000000000  
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]  
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

Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 00:26:aa:85:95:87  
Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254  
User Datagram Protocol, Src Port: 51730, Dst Port: 4789  
Virtual extensible Local Area Network  
Flags: 0x8000, VLAN Network ID (VNI)  
Group Policy ID: 0  
VLAN Network Identifier (VNI): 303030  
Reserved: 0

Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe  
Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150  
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  
Hops: 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: 010e018000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0105040a0a0a00>  
Option 82 Suboption: (1) Agent Circuit ID  
Length: 14  
<Value: 0108000600018a9200a000000000>  
Agent Circuit ID: 0108000600018a9200a000000000  
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

# Richiesta su LEAF-2-vPC

Richiesta receivePCd su LEAF-2-vPC	Richiesta di invio tramite vPCAF-2-vPC
<pre> Ethernet II, Src: 10:b3:d6:a4:85:97, Dst: 00:26:aa:85:95:87 Internet Protocol Version 4, Src: 5.5.5.5, Dst: 13.13.13.254 User Datagram Protocol, Src Port: 51730, Dst Port: 4789 Virtual extensible Local Area Network   Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030     Reserved: 0 Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: 02:00:0d:0d:0d:fe Internet Protocol Version 4, Src: 172.16.10.8, Dst: 10.10.10.150 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   Hops: 1   Transaction ID: 0xe9e35087   Seconds elapsed: 0   Bootp flags: 0x0000, 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   &lt;Value: 03&gt;   DHCP: Request (3) Option (61) Client identifier   Length: 7   &lt;Value: 01005056a5fddd&gt;   Hardware type: Ethernet (0x01)   Client MAC address: 00:50:56:a5:fd:dd Option (50) Requested IP Address (10.10.10.3)   Length: 4   &lt;Value: 0a0a0a03&gt;   Requested IP Address: 10.10.10.3 Option (54) DHCP Server Identifier (10.10.10.150)   Length: 4   &lt;Value: 0a0a0a96&gt;   DHCP Server Identifier: 10.10.10.150 Option (12) Host Name   Length: 10   &lt;Value: 43584c6162732d573130&gt;   Host Name: CXLabs-W10 Option (81) Client Fully Qualified Domain Name   Length: 13   &lt;Value: 00000043584c6162732d573130&gt;   Flags: 0x00   A-RR result: 0   PTR-RR result: 0   Client name: CXLabs-W10 Option (60) Vendor class identifier   Length: 8   &lt;Value: 4d53465428352e30&gt;   Vendor class identifier: MSFT 5.0 Option (55) Parameter Request List   Length: 14   &lt;Value: 0103060f1f212b2c2e2f779f9fc&gt;   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   &lt;Value: 010e0108000600018a920a000000000206707db9b84daf97090074656e16e742d610b040a0a0a0105040a0a0a00&gt; Option 82 Suboption: (1) Agent Circuit ID   Length: 14   &lt;Value: 0108000600018a920a0000000000&gt;   Agent Circuit ID: 0108000600018a920a0000000000 Option 82 Suboption: (2) Agent Remote ID   Length: 6   &lt;Value: 707db9b84daf&gt;   Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID   Length: 9   &lt;Value: 0074656e16e742d61&gt;   VRF name: Option 82 Suboption: (11) Server ID Override (10.10.10.1)   Length: 4   &lt;Value: 0a0a0a01&gt;   Server ID Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0)   Length: 4   &lt;Value: 0a0a0a00&gt;   Link selection: 10.10.10.0 Option (255) End Option End: 255 </pre>	<pre> Ethernet II, Src: 00:26: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   Relay agent IP address: 172.16.10.8   Hops: 1   Transaction ID: 0xe9e35087   Seconds elapsed: 0   Bootp flags: 0x0000, 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   &lt;Value: 03&gt;   DHCP: Request (3) Option (61) Client identifier   Length: 7   &lt;Value: 01005056a5fddd&gt;   Hardware type: Ethernet (0x01)   Client MAC address: 00:50:56:a5:fd:dd Option (50) Requested IP Address (10.10.10.3)   Length: 4   &lt;Value: 0a0a0a03&gt;   Requested IP Address: 10.10.10.3 Option (54) DHCP Server Identifier (10.10.10.150)   Length: 4   &lt;Value: 0a0a0a96&gt;   DHCP Server Identifier: 10.10.10.150 Option (12) Host Name   Length: 10   &lt;Value: 43584c6162732d573130&gt;   Host Name: CXLabs-W10 Option (81) Client Fully Qualified Domain Name   Length: 13   &lt;Value: 00000043584c6162732d573130&gt;   Flags: 0x00   A-RR result: 0   PTR-RR result: 0   Client name: CXLabs-W10 Option (60) Vendor class identifier   Length: 8   &lt;Value: 4d53465428352e30&gt;   Vendor class identifier: MSFT 5.0 Option (55) Parameter Request List   Length: 14   &lt;Value: 0103060f1f212b2c2e2f779f9fc&gt;   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   &lt;Value: 010e0108000600018a920a000000000206707db9b84daf97090074656e16e742d610b040a0a0a0105040a0a0a00&gt; Option 82 Suboption: (1) Agent Circuit ID   Length: 14   &lt;Value: 0108000600018a920a0000000000&gt;   Agent Circuit ID: 0108000600018a920a0000000000 Option 82 Suboption: (2) Agent Remote ID   Length: 6   &lt;Value: 707db9b84daf&gt;   Agent Remote ID: 707db9b84daf Option 82 Suboption: (151) VRF name/VPN ID   Length: 9   &lt;Value: 0074656e16e742d61&gt;   VRF name: Option 82 Suboption: (11) Server ID Override (10.10.10.1)   Length: 4   &lt;Value: 0a0a0a01&gt;   Server ID Override: 10.10.10.1 Option 82 Suboption: (5) Link selection (10.10.10.0)   Length: 4   &lt;Value: 0a0a0a00&gt;   Link selection: 10.10.10.0 Option (255) End Option End: 255 </pre>

# Richiesta ricevuta sul server DHCP

```
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
  Hops: 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: 01005056a5fd00>
    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: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00>
  - Option 82 Suboption: (1) Agent Circuit ID
    Length: 14
    <Value: 0108000600018a9200a000000000>
    Agent Circuit ID: 0108000600018a9200a000000000
  - 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
```

Invio ACK dal server DHCP

```

> 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: ffffffff00>
    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: 010e0108000600018a9200a000000000206707db9b84daf97090074656e616e742d610b040a0a0105040a0a0a00>
  > Option 82 Suboption: (1) Agent Circuit ID
    Length: 14
    <Value: 0108000600018a9200a000000000>
    Agent Circuit ID: 0108000600018a9200a000000000
  > 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

```

# ACK su LEAF-2-vPC

ACK ricevuti su LEAF-2-vPC	ACK inviati da LEAF-2-vPC
<pre> 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: 0x0000, 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     &lt;Value: 05&gt;     DHCP: ACK (5)   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff00&gt;     Subnet Mask: 255.255.255.0   Option: (81) Client Fully Qualified Domain Name     Length: 3     &lt;Value: 00ffff&gt;     Flags: 0x00     A-RR result: 255     PTR-RR result: 255   Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]     [Trailing stray characters]     &lt;Message: Trailing stray characters&gt;     [Severity level: Warning]     [Group: Undecoded]   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End   Option End: 255 </pre>	<pre> Ethernet II, Src: 00:26:aa:85:95:07, Dst: 10:b3:d6:04:85:97 Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65518, Dst Port: 4789 Virtual eXtensible Local Area Network   Flags: 0x0000, VXLAN Network ID (VNI)   Group Policy ID: 0   VXLAN Network Identifier (VNI): 303030   Reserved: 0 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)   Message type: Boot Reply (2)   Hardware type: Ethernet (0x01)   Hardware address length: 6   Hops: 0   Transaction ID: 0xe9e35087   Seconds elapsed: 0   Bootp flags: 0x0000, 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     &lt;Value: 05&gt;     DHCP: ACK (5)   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff00&gt;     Subnet Mask: 255.255.255.0   Option: (81) Client Fully Qualified Domain Name     Length: 3     &lt;Value: 00ffff&gt;     Flags: 0x00     .000 .000 = Reserved flags: 0x0     ... 0... = Server DNS: Some server updates     .... 0. = Encoding: ASCII encoding     .... 0. = Server overrides: No override     .... 0 = Server: Client     A-RR result: 255     PTR-RR result: 255   Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0a0105040a0a0a00&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:     [Expert Info (Warning/Undecoded): Trailing stray characters]     [Trailing stray characters]     &lt;Message: Trailing stray characters&gt;     [Severity level: Warning]     [Group: Undecoded]   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End   Option End: 255 </pre>

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## ACK sul DORSO

ACK ricevuti su SPINE	ACK inviati da SPINE
<pre> Ethernet II, Src: 00:126:aa185:95:87, Dst: 10:b3:d6:a4:85:97 Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 User Datagram Protocol, Src Port: 65518, Dst Port: 4789 Virtual eXtensible Local Area Network   Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030   Reserved: 0 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)   Message type: Boot Reply (2)   Hardware type: Ethernet (0x01)   Hardware address length: 6   Hops: 0   Transaction ID: 0xe9e35087   Seconds elapsed: 0   Bootp flags: 0x0000, 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     &lt;Value: 05&gt;     DHCP: ACK (5)   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff00&gt;     Subnet Mask: 255.255.255.0   Option: (81) Client Fully Qualified Domain Name     Length: 3     &lt;Value: 00ffff&gt;     Flags: 0x00     0000 .... = Reserved flags: 0x0     .... 0... = Server DNS: Some server updates     .... .0.. = Encoding: ASCII encoding     .... .0.. = Server overrides: No override     .... ...0 = Server: Client   A-RR result: 255   PTR-RR result: 255   Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6000&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0105040a0a0000&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:       [Expert Info (Warning/Undecoded): Trailing stray characters]       [Trailing stray characters]       &lt;Message: Trailing stray characters&gt;       [Severity level: Warning]       [Group: Undecoded]   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End   Option End: 255 </pre>	<pre> Ethernet II, Src: 10:b3:d6:a4:85:97, 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: 65518, Dst Port: 4789 Virtual eXtensible Local Area Network   Flags: 0x0000, VXLAN Network ID (VNI)     Group Policy ID: 0     VXLAN Network Identifier (VNI): 303030   Reserved: 0 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)   Message type: Boot Reply (2)   Hardware type: Ethernet (0x01)   Hardware address length: 6   Hops: 0   Transaction ID: 0xe9e35087   Seconds elapsed: 0   Bootp flags: 0x0000, 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     &lt;Value: 05&gt;     DHCP: ACK (5)   Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;   Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff00&gt;     Subnet Mask: 255.255.255.0   Option: (81) Client Fully Qualified Domain Name     Length: 3     &lt;Value: 00ffff&gt;     Flags: 0x00     0000 .... = Reserved flags: 0x0     .... 0... = Server DNS: Some server updates     .... .0.. = Encoding: ASCII encoding     .... .0.. = Server overrides: No override     .... ...0 = Server: Client   A-RR result: 255   PTR-RR result: 255   Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6000&gt;     Domain Name: cisco.com   Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d610b040a0a0105040a0a0000&gt;   Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0108000600018a9200a000000000&gt;     Agent Circuit ID: 0108000600018a9200a000000000   Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;     VRF name:       [Expert Info (Warning/Undecoded): Trailing stray characters]       [Trailing stray characters]       &lt;Message: Trailing stray characters&gt;       [Severity level: Warning]       [Group: Undecoded]   Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   Option: (255) End   Option End: 255 </pre>

## ACK su FOGLIA-1

ACK ricevuti su FOGLIA-1	ACK inviati da FOGLIA-1
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<pre> &gt; Ethernet II, Src: 10:b3:06:a4:85:97, Dst: 70:7d:b9:b8:4d:af &gt; Internet Protocol Version 4, Src: 13.13.13.254, Dst: 5.5.5.5 &gt; User Datagram Protocol, Src Port: 65518, Dst Port: 4789 &gt; Virtual eXtensible Local Area Network   &gt; Flags: 0x0000, VLAN Network ID (VNI)     Group Policy ID: 0     VLAN Network Identifier (VNI): 303030     Reserved: 0 &gt; Ethernet II, Src: 02:00:0d:0d:0d:fe, Dst: 70:7d:b9:b8:4d:af &gt; Internet Protocol Version 4, Src: 10.10.10.150, Dst: 172.16.10.8 &gt; User Datagram Protocol, Src Port: 67, Dst Port: 67 &gt; 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   &gt; Bootp flags: 0x0000, 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   &gt; Option: (53) DHCP Message Type (ACK)     Length: 1     &lt;Value: 05&gt;     DHCP: ACK (5)   &gt; Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   &gt; Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   &gt; Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   &gt; Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   &gt; Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff00&gt;     Subnet Mask: 255.255.255.0   &gt; Option: (81) Client Fully Qualified Domain Name     Length: 3     &lt;Value: 00ffff&gt;     &gt; Flags: 0x00       0000 ... = Reserved flags: 0x0       ... 0... = Server DNS: Some server updates       ... .0.. = Encoding: ASCII encoding       ... ..0. = Server overrides: No override       ... ...0 = Server: Client     A-RR result: 255     PTR-RR result: 255   &gt; Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   &gt; Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   &gt; Option: (82) Agent Information Option     Length: 47     &lt;Value: 010e0108000600018a9200a00000000206707db9b84daf97090074656e616e742d6100040a0a0105040a0a000&gt;   &gt; Option 82 Suboption: (1) Agent Circuit ID     Length: 14     &lt;Value: 0180000600018a9200a00000000000&gt;     Agent Circuit ID: 0180000600018a9200a0000000000000   &gt; Option 82 Suboption: (2) Agent Remote ID     Length: 6     &lt;Value: 707db9b84daf&gt;     Agent Remote ID: 707db9b84daf   &gt; Option 82 Suboption: (151) VRF name/VPN ID     Length: 9     &lt;Value: 0074656e616e742d61&gt;   &gt; VRF name:     &gt; [Expert Info (Warning/Undecoded): Trailing stray characters]       [Trailing stray characters]       &lt;Message: Trailing stray characters&gt;       [Severity level: Warning]       [Group: Undecoded]   &gt; Option 82 Suboption: (11) Server ID Override (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     Server ID Override: 10.10.10.1   &gt; Option 82 Suboption: (5) Link selection (10.10.10.0)     Length: 4     &lt;Value: 0a0a0a00&gt;     Link selection: 10.10.10.0   &gt; Option: (255) End     Option End: 255 </pre>	<pre> &gt; Ethernet II, Src: 70:7d:b9:b8:4d:af, Dst: ff:ff:ff:ff:ff:ff &gt; Internet Protocol Version 4, Src: 10.10.10.1, Dst: 255.255.255.255 &gt; User Datagram Protocol, Src Port: 67, Dst Port: 68 &gt; 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   &gt; Bootp flags: 0x0000, 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: 00000000000000000000   Server host name not given   Boot file name not given   Magic cookie: DHCP   &gt; Option: (53) DHCP Message Type (ACK)     Length: 1     &lt;Value: 05&gt;     DHCP: ACK (5)   &gt; Option: (58) Renewal Time Value     Length: 4     &lt;Value: 0000a8c0&gt;     Renewal Time Value: 12 hours (43200)   &gt; Option: (59) Rebinding Time Value     Length: 4     &lt;Value: 00012750&gt;     Rebinding Time Value: 21 hours (75600)   &gt; Option: (51) IP Address Lease Time     Length: 4     &lt;Value: 00015180&gt;     IP Address Lease Time: 1 day (86400)   &gt; Option: (54) DHCP Server Identifier (10.10.10.1)     Length: 4     &lt;Value: 0a0a0a01&gt;     DHCP Server Identifier: 10.10.10.1   &gt; Option: (1) Subnet Mask (255.255.255.0)     Length: 4     &lt;Value: ffffffff00&gt;     Subnet Mask: 255.255.255.0   &gt; Option: (81) Client Fully Qualified Domain Name     Length: 3     &lt;Value: 00ffff&gt;   &gt; Flags: 0x00     0000 ... = Reserved flags: 0x0     ... 0... = Server DNS: Some server updates     ... .0.. = Encoding: ASCII encoding     ... ..0. = Server overrides: No override     ... ...0 = Server: Client   A-RR result: 255   PTR-RR result: 255   &gt; Option: (3) Router     Length: 4     &lt;Value: 0a0a0a01&gt;     Router: 10.10.10.1   &gt; Option: (15) Domain Name     Length: 10     &lt;Value: 636973636f2e636f6d00&gt;     Domain Name: cisco.com   &gt; Option: (255) End     Option End: 255 </pre>
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## ACK su HOST-1

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> 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: 000000000000000000000000
  Server host name not given
  Boot file name not given
  Magic cookie: DHCP
  Option: (53) DHCP Message Type (ACK)
    Length: 1
    <Value: 05>
    DHCP: ACK (5)
  Option: (58) Renewal Time Value
    Length: 4
    <Value: 0000a8c0>
    Renewal Time Value: 12 hours (43200)
  Option: (59) Rebinding Time Value
    Length: 4
    <Value: 00012750>
    Rebinding Time Value: 21 hours (75600)
  Option: (51) IP Address Lease Time
    Length: 4
    <Value: 00015180>
    IP Address Lease Time: 1 day (86400)
  Option: (54) DHCP Server Identifier (10.10.10.1)
    Length: 4
    <Value: 0a0a0a01>
    DHCP Server Identifier: 10.10.10.1
  Option: (1) Subnet Mask (255.255.255.0)
    Length: 4
    <Value: ffffff00>
    Subnet Mask: 255.255.255.0
  Option: (81) Client Fully Qualified Domain Name
    Length: 3
    <Value: 00ffff>
    Flags: 0x00
      0000 .... = Reserved flags: 0x0
      .... 0... = Server DDNS: Some server updates
      .... .0.. = Encoding: ASCII encoding
      .... ..0. = Server overrides: No override
      .... ...0 = Server: Client
    A-RR result: 255
    PTR-RR result: 255
  Option: (3) Router
    Length: 4
    <Value: 0a0a0a01>
    Router: 10.10.10.1
  Option: (15) Domain Name
    Length: 10
    <Value: 636973636f2e636f6d00>
    Domain Name: cisco.com
  Option: (255) End
    Option End: 255

```

## Informazioni correlate

[Configurazione di VXLAN BGP VPN](#)

[Configurazione di VXLAN](#)

[Risoluzione dei problemi relativi a DHCP su Nexus 9000](#)

[Guida alla configurazione di Cisco Nexus serie 9000 NX-OS VXLAN, versione 10.4\(x\)](#)

## Informazioni su questa traduzione

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