

在Cisco IOS XE设备上配置VXLAN功能

目录

简介

本文档介绍Cisco IOS® XE设备上的基本配置和故障排除。

先决条件

要求

Cisco 建议您了解以下主题：

- 对DCI重叠和组播的基本了解

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 运行软件03.16.00.S的ASR1004
- 运行软件3.16.03.S的CSR100v(VXE)

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

背景信息

虚拟可扩展LAN (VXLAN)作为数据中心互联(DCI)解决方案越来越受欢迎。VXLAN功能用于在第3层/公共路由域上提供第2层扩展。本文档讨论Cisco IOS XE设备上的基本配置和故障排除。

本文档的“配置”和“验证”部分涵盖两个场景：

- 方案A描述了组播模式下三个数据中心之间的VXLAN配置。
- 方案B描述了单播模式下两个数据中心之间的VXLAN配置。

配置

场景A：在组播模式的三个数据中心之间配置VXLAN

基本配置

组播模式需要站点之间的单播和组播连接。本配置指南使用开放最短路径优先(OSPF)提供单播连接

, 使用双向协议无关组播(PIM)提供组播连接。

以下是所有三个数据中心组播操作模式的基本配置：

```
<#root>
```

```
!  
DC1#  
  
show run | sec ospf  
  
router ospf 1  
network 10.1.1.1 0.0.0.0 area 0  
network 10.10.10.4 0.0.0.3 area 0  
!
```

PIM双向配置：

```
<#root>
```

```
!  
DC1#  
  
show run | sec pim  
  
ip pim bidir-enable  
ip pim send-rp-discovery scope 10  
ip pim bsr-candidate Loopback1 0  
ip pim rp-candidate Loopback1 group-list 10 bidir  
!  
access-list 10 permit 239.0.0.0 0.0.0.255  
!  
DC1#  
!
```

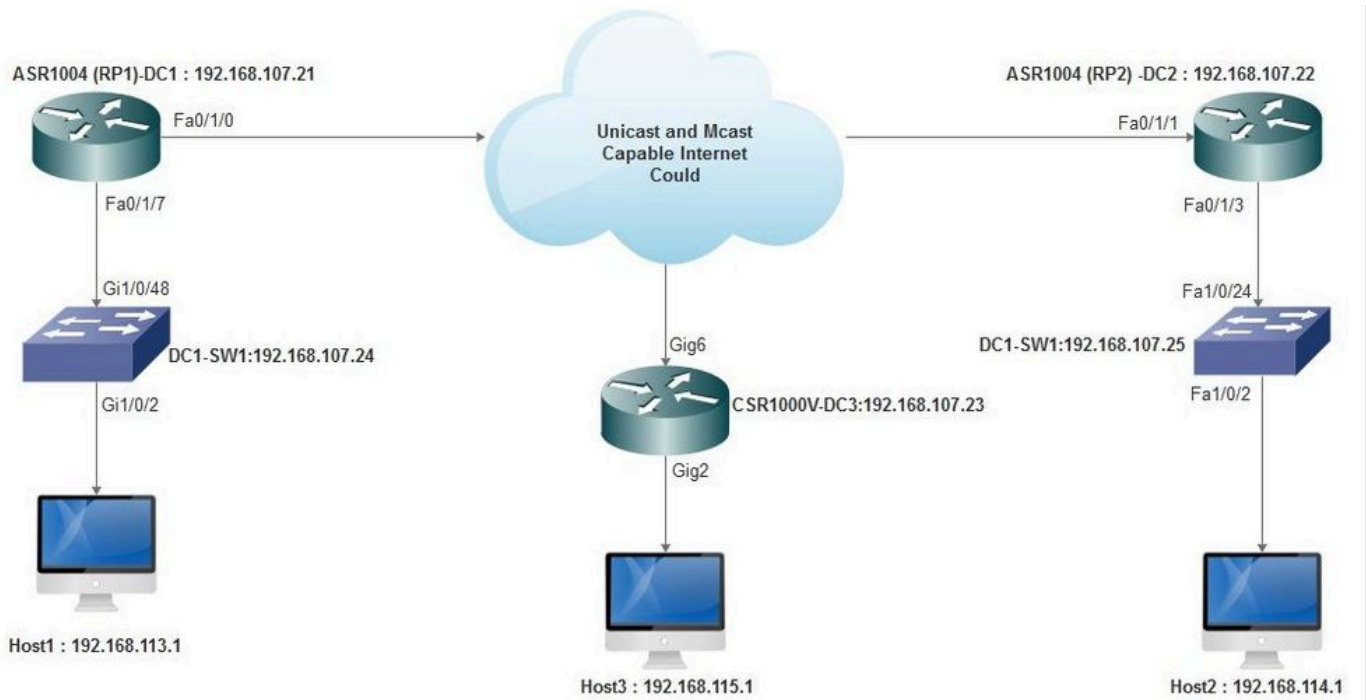
此外，在所有L3接口下启用PIM稀疏模式，包括环回：

```
<#root>
```

```
!  
DC1#  
  
show run interface lo1  
  
Building configuration...  
Current configuration : 83 bytes  
!  
interface Loopback1  
ip address 10.1.1.1 255.255.255.255  
ip pim sparse-mode  
end
```

另外，请确保您的设备上已启用组播路由，并且您看到正在填充的组播路由表。

网络图



支持单播和组播的互联网

DC1(VTEP1)配置

```
!  
!  
Vxlan udp port 1024  
!  
Interface Loopback1  
ip address 10.1.1.1 255.255.255.255  
ip pim sparse-mode  
!
```

在桥接域配置下定义VNI成员和成员接口：

```
!  
bridge-domain 1  
member vni 6001  
member FastEthernet0/1/7 service-instance 1  
!
```

创建网络虚拟接口(NVE)并定义需要通过WAN扩展到其他数据中心的VNI成员：

```
!  
interface nve1  
no ip address  
shut  
member vni 6001 mcast-group 10.0.0.10  
!  
source-interface Loopback1  
!
```

在LAN接口（即连接LAN网络的接口）上创建服务实例，以覆盖特定VLAN（802.1q标记流量）-在本例中为VLAN 1：

```
!  
interface FastEthernet0/1/7  
no ip address  
negotiation auto  
cdp enable  
no shut  
!
```

在通过重叠网络发送流量之前删除VLAN标记，并在返回流量发送到VLAN之后推送标记：

```
!  
service instance 1 ethernet  
encapsulation unagged  
!
```

DC2(VTEP2)配置

```
!  
!  
Vxlan udp port 1024  
!  
interface Loopback1  
ip address 10.2.2.2 255.255.255.255  
ip pim sparse-mode  
!  
!  
bridge-domain 1  
member vni 6001  
member FastEthernet0/1/3 service-instance 1  
!  
!  
interface nve1  
no ip address  
member vni 6001 mcast-group 10.0.0.10  
!  
source-interface Loopback1
```

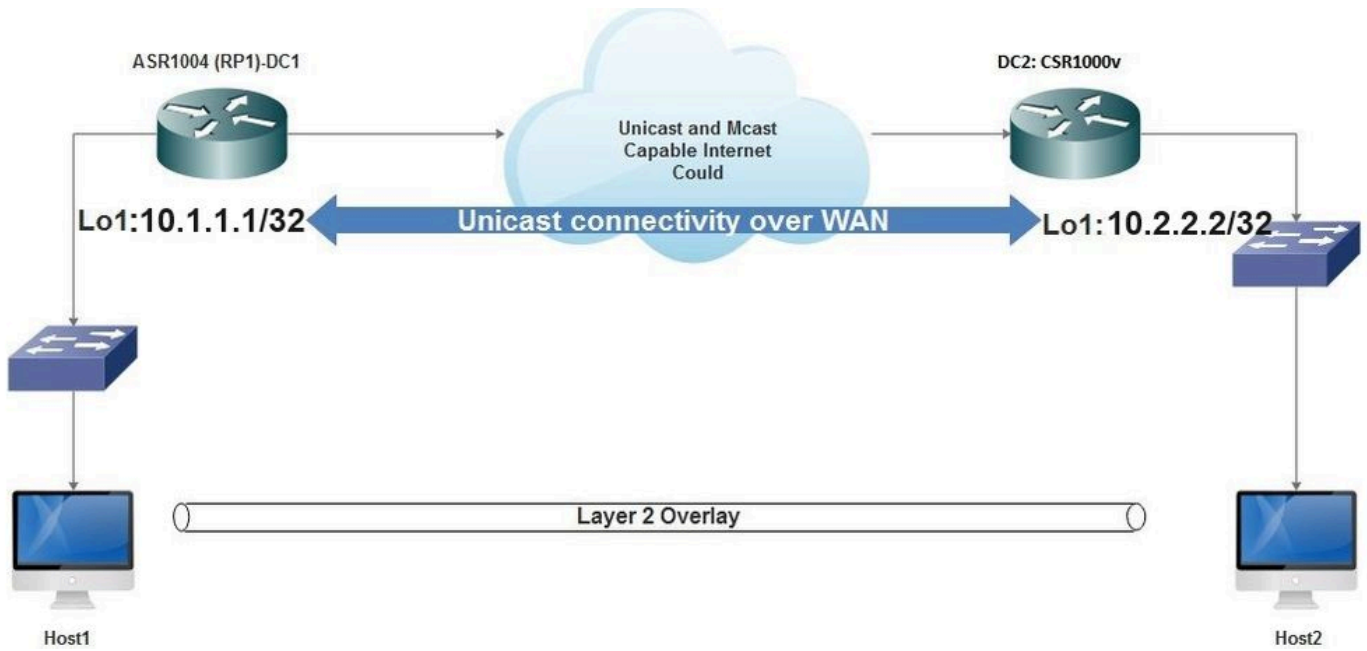
```
shut
!  
!  
interface FastEthernet0/1/3  
no ip address  
negotiation auto  
cdp enable  
no shut  
!  
service instance 1 ethernet  
encapsulation untagged  
!
```

DC3(VTEP3)配置

```
!  
!  
Vxlan udp port 1024  
!  
interface Loopback1  
ip address 10.3.3.3 255.255.255.255  
ip pim sparse-mode  
!  
!  
bridge-domain 1  
member vni 6001  
member GigabitEthernet2 service-instance 1  
!  
interface nve1  
no ip address  
shut  
member vni 6001 mcast-group 10.0.0.10  
!  
source-interface Loopback1  
!  
interface gig2  
no ip address  
negotiation auto  
cdp enable  
no shut  
!  
service instance 1 ethernet  
encapsulation untagged  
!
```

场景B：以单播模式配置两个数据中心之间的VXLAN

网络图



WAN上的单播连接

DC1配置

```

!
interface nve1
no ip address
member vni 6001
! ingress replication should be configured as peer data centers loopback IP address.
!
ingress-replication 10.2.2.2
!
source-interface Loopback1
!
!
interface gig0/2/1
no ip address
negotiation auto
cdp enable
!
service instance 1 ethernet
encapsulation untagged

!
!
!
bridge-domain 1
member vni 6001
member gig0/2/1 service-instance 1

```

DC2配置

```

!
```

```
interface nve1
no ip address
member vni 6001
ingress-replication 10.1.1.1
!
source-interface Loopback1
!

!
interface gig5
no ip address
negotiation auto
cdp enable
!
service instance 1 ethernet
encapsulation untagged

!
!
bridge-domain 1
member vni 6001
member gig5 service-instance 1
```

验证

场景A：在组播模式的三个数据中心之间配置VXLAN

完成场景A的配置后，每个数据中心内连接的主机必须能够在同一广播域内相互通信。

使用以下命令验证配置。场景B下提供了一些示例。

```
<#root>
```

```
Router#
```

```
show nve vni
```

```
Router#
```

```
show nve vni interface nve1
```

```
Router#
```

```
show nve interface nve1
```

```
Router#
```

```
show nve interface nve1 detail
```

```
Router#
```

```
show nve peers
```

场景B：以单播模式配置两个数据中心之间的VXLAN

在DC1上 :

<#root>

DC1#

show nve vni

Interface	VNI	Multicast-group	VNI state
nve1	6001	N/A	Up

DC1#

show nve interface nve1 detail

Interface: nve1, State: Admin Up, Oper Up Encapsulation: Vxlan
source-interface: Loopback1 (primary:10.1.1.1 vrf:0)
Pkts In Bytes In Pkts Out Bytes Out
60129 6593586 55067 5303698

DC1#

show nve peers

Interface	Peer-IP	VNI	Peer state
nve1	10.2.2.2	6000	-

在DC2上 :

DC2#show nve vni

Interface	VNI	Multicast-group	VNI state
nve1	6000	N/A	Up

DC2#show nve interface nve1 detail

Interface: nve1, State: Admin Up, Oper Up Encapsulation: Vxlan
source-interface: Loopback1 (primary:10.2.2.2 vrf:0)
Pkts In Bytes In Pkts Out Bytes Out
70408 7921636 44840 3950835

DC2#show nve peers

Interface	Peer-IP	VNI	Peer state
nve	10.1.1.1	6000	Up

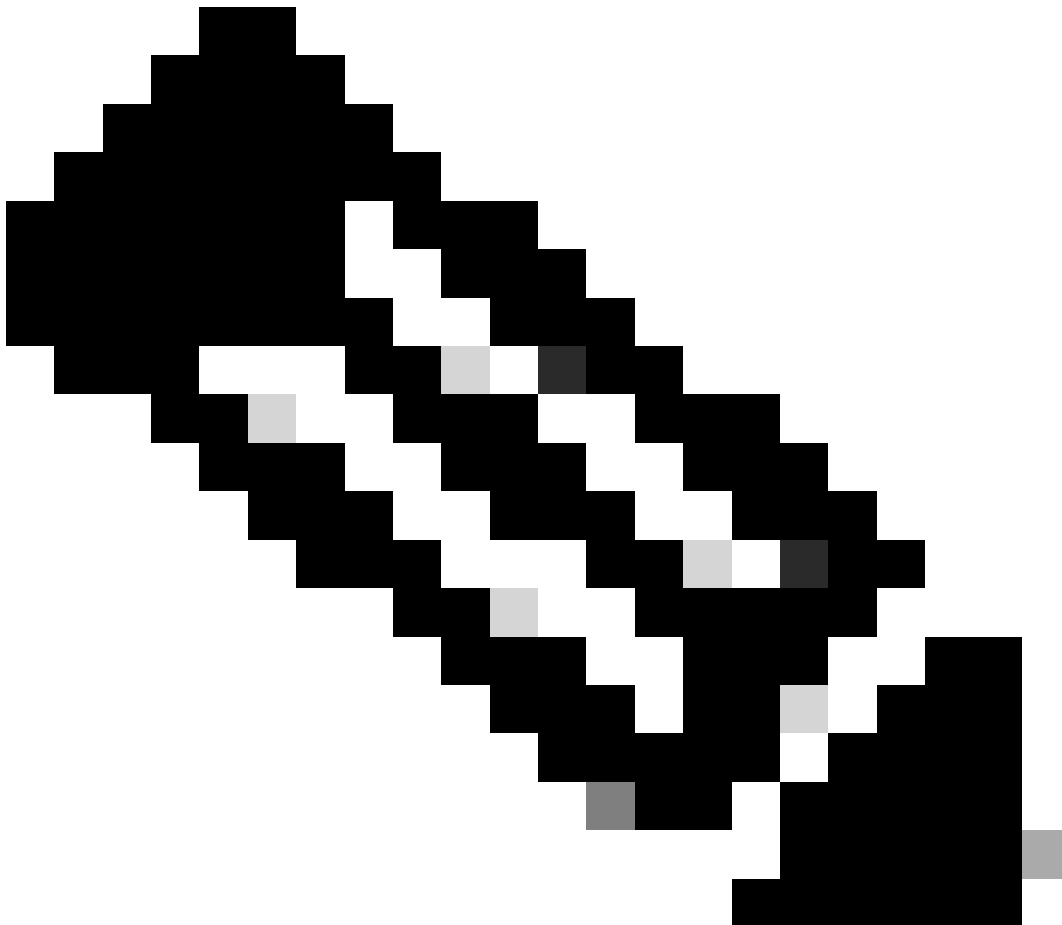
DC2#show bridge-domain 1

Bridge-domain 1 (3 ports in all)
State: UP Mac learning: Enabled
Aging-Timer: 300 second(s)
BD11 (up)
GigabitEthernet0/2/1 service instance 1
vni 6001
AED MAC address Policy Tag Age Pseudoport

0 7CAD.74FF.2F66 forward dynamic 281 nve1.VNI6001, VxLAN src: 10.1.1.1 dst: 10.2.2.2
0 B838.6130.DA80 forward dynamic 288 nve1.VNI6001, VxLAN src: 10.1.1.1 dst: 10.2.2.2
0 0050.56AD.1AD8 forward dynamic 157 nve1.VNI6001, VxLAN src: 10.1.1.1 dst: 10.2.2.2

故障排除

“验证”部分所述的命令提供基本故障排除步骤。当系统不工作时，这些额外的诊断程序可能会非常有用。



注意：其中某些诊断可能导致内存和CPU使用率增加。

调试诊断

#debug nve error

```
*Jan 4 20:00:54.993: NVE-MGR-PEER ERROR: Intf state force down successful for mcast nodes cast nodes
*Jan 4 20:00:54.993: NVE-MGR-PEER ERROR: Intf state force down successful for mcast nodes cast nodes
*Jan 4 20:00:54.995: NVE-MGR-PEER ERROR: Intf state force down successful for peer nodes eer nodes
*Jan 4 20:00:54.995: NVE-MGR-PEER ERROR: Intf state force down successful for peer nodes
```

#show nve log error

```
[01/01/70 00:04:34.130 UTC 1 3] NVE-MGR-STATE ERROR: vni 6001: error in create notification to Tunnel
[01/01/70 00:04:34.314 UTC 2 3] NVE-MGR-PEER ERROR: Intf state force up successful for mcast nodes
[01/01/70 00:04:34.326 UTC 3 3] NVE-MGR-PEER ERROR: Intf state force up successful for peer nodes
[01/01/70 01:50:59.650 UTC 4 3] NVE-MGR-PEER ERROR: Intf state force down successful for mcast nodes
[01/01/70 01:50:59.654 UTC 5 3] NVE-MGR-PEER ERROR: Intf state force down successful for peer nodes
[01/01/70 01:50:59.701 UTC 6 3] NVE-MGR-PEER ERROR: Intf state force up successful for mcast nodes
[01/01/70 01:50:59.705 UTC 7 3] NVE-MGR-PEER ERROR: Intf state force up successful for peer nodes
[01/01/70 01:54:55.166 UTC 8 61] NVE-MGR-PEER ERROR: Intf state force down successful for mcast nodes
[01/01/70 01:54:55.168 UTC 9 61] NVE-MGR-PEER ERROR: Intf state force down successful for peer nodes
[01/01/70 01:55:04.432 UTC A 3] NVE-MGR-PEER ERROR: Intf state force up successful for mcast nodes
[01/01/70 01:55:04.434 UTC B 3] NVE-MGR-PEER ERROR: Intf state force up successful for peer nodes
[01/01/70 01:55:37.670 UTC C 61] NVE-MGR-PEER ERROR: Intf state force down successful for mcast nodes
```

#show nve log event

```
[01/04/70 19:48:51.883 UTC 1DD16 68] NVE-MGR-DB: Return vni 6001 for pi_hdl[0x437C9B68]
[01/04/70 19:48:51.884 UTC 1DD17 68] NVE-MGR-DB: Return pd_hdl[0x1020010] for pi_hdl[0x437C9B68]
[01/04/70 19:48:51.884 UTC 1DD18 68] NVE-MGR-DB: Return vni 6001 for pi_hdl[0x437C9B68]
[01/04/70 19:49:01.884 UTC 1DD19 68] NVE-MGR-DB: Return pd_hdl[0x1020010] for pi_hdl[0x437C9B68]
[01/04/70 19:49:01.884 UTC 1DD1A 68] NVE-MGR-DB: Return vni 6001 for pi_hdl[0x437C9B68]
[01/04/70 19:49:01.885 UTC 1DD1B 68] NVE-MGR-DB: Return pd_hdl[0x1020010] for pi_hdl[0x437C9B68]
[01/04/70 19:49:01.885 UTC 1DD1C 68] NVE-MGR-DB: Return vni 6001 for pi_hdl[0x437C9B68]
[01/04/70 19:49:11.886 UTC 1DD1D 68] NVE-MGR-DB: Return pd_hdl[0x1020010] for pi_hdl[0x437C9B68]
[01/04/70 19:49:11.886 UTC 1DD1E 68] NVE-MGR-DB: Return vni 6001 for pi_hdl[0x437C9B68]
[01/04/70 19:49:11.887 UTC 1DD1F 68] NVE-MGR-DB: Return pd_hdl[0x1020010] for pi_hdl[0x437C9B68]
[01/04/70 19:49:11.887 UTC 1DD20 68] NVE-MGR-DB: Return vni 6001 for pi_hdl[0x437C9B68]
[01/04/70 19:49:21.884 UTC 1DD21 68] NVE-MGR-DB: Return pd_hdl[0x1020010] for pi_hdl[0x437C9B68]
```

嵌入式数据包捕获

Cisco IOS XE软件中提供的嵌入式数据包捕获(EPC)功能可提供更多故障排除信息。

例如，此捕获说明数据包是由VXLAN封装的：

EPC配置（TEST_ACL是用于过滤捕获数据的访问列表）：

```
<#root>
```

```
#  
monitor capture TEST access-list TEST_ACL interface gigabitEthernet0/2/0 both  
  
#  
monitor capture TEST buffer size 10  
  
#  
monitor capture TEST start
```

以下是产生的数据包转储：

```
<#root>
```

```
#  
show monitor capture TEST buffer dump  
  
#  
monitor capture TEST export bootflash:TEST.pcap  
  
// with this command you can export the capture in pcap format to the bootflash, which can be download
```

以下示例说明了简单互联网控制消息协议(ICMP)如何在VXLAN上工作。

通过VXLAN重叠发送的地址解析协议(ARP)：

```
▶ Frame 58: 110 bytes on wire (880 bits), 110 bytes captured (880 bits)  
▶ Ethernet II, Src: CiscoInc_ef:79:20 (c4:64:13:ef:79:20), Dst: Vmware_b3:56:56 (00:50:56:b3:56:56)  
▶ Internet Protocol Version 4, Src: 10.1.1.1, Dst: 10.2.2.2  
▶ User Datagram Protocol, Src Port: 1024 (1024), Dst Port: 1024 (1024)  
# Virtual eXtensible Local Area Network  
  ▶ Flags: 0x0800, VXLAN Network ID (VNI)  
    Group Policy ID: 0  
    VXLAN Network Identifier (VNI): 6001  
    Reserved: 0  
▶ Ethernet II, Src: Vmware_87:4e:9c (00:50:56:87:4e:9c), Dst: Broadcast (ff:ff:ff:ff:ff:ff)  
# Address Resolution Protocol (request)  
  Hardware type: Ethernet (1)  
  Protocol type: IPv4 (0x0800)  
  Hardware size: 6  
  Protocol size: 4  
  Opcode: request (1)  
  Sender MAC address: Vmware_87:4e:9c (00:50:56:87:4e:9c)  
  Sender IP address: 192.192.192.1  
  Target MAC address: 00:00:00_00:00:00 (00:00:00:00:00:00)  
  Target IP address: 192.192.192.2
```

ARP响应：

```

> Frame 59: 110 bytes on wire (880 bits), 110 bytes captured (880 bits)
> Ethernet II, Src: Vmware_b3:56:56 (00:50:56:b3:56:56), Dst: CiscoInc_ef:79:20 (c4:64:13:ef:79:20)
> Internet Protocol Version 4, Src 10.2.2.2 Dst: 10.1.1.1
> User Datagram Protocol, Src Port: 8457 (8457), Dst Port: 1024 (1024)
* Virtual eXtensible Local Area Network
  > Flags: 0x0800, VXLAN Network ID (VNI)
    Group Policy ID: 0
    VXLAN Network Identifier (VNI): 6001
    Reserved: 0
> Ethernet II, Src: Vmware_31:8a:5a (00:0c:29:31:8a:5a), Dst: Vmware_87:4e:9c (00:50:56:87:4e:9c)
* Address Resolution Protocol (reply)
  Hardware type: Ethernet (1)
  Protocol type: IPv4 (0x0800)
  Hardware size: 6
  Protocol size: 4
  Opcode: reply (2)
  Sender MAC address: Vmware_31:8a:5a (00:0c:29:31:8a:5a)
  Sender IP address: 192.192.192.2
  Target MAC address: Vmware_87:4e:9c (00:50:56:87:4e:9c)
  Target IP address: 192.192.192.1

```

ICMP请求：

```

> Frame 61: 124 bytes on wire (992 bits), 124 bytes captured (992 bits)
> Ethernet II, Src: CiscoInc_ef:79:20 (c4:64:13:ef:79:20), Dst: Vmware_b3:56:56 (00:50:56:b3:56:56)
> Internet Protocol Version 4, Src: 10.1.1.1 Dst: 10.2.2.2
> User Datagram Protocol, Src Port: 52141 (52141), Dst Port: 1024 (1024)
* Virtual eXtensible Local Area Network
  * Flags: 0x0800, VXLAN Network ID (VNI)
    0... .. = GBP Extension: Not defined
    .... ..0.. .. = Don't Learn: False
    .... 1... .. = VXLAN Network ID (VNI): True
    .... ..0... .. = Policy Applied: False
    .000 .000 0.00 .000 = Reserved(R): False
    Group Policy ID: 0
    VXLAN Network Identifier (VNI): 6001
    Reserved: 0
> Ethernet II, Src: Vmware_87:4e:9c (00:50:56:87:4e:9c), Dst: Vmware_31:8a:5a (00:0c:29:31:8a:5a)
> Internet Protocol Version 4, Src: 192.192.192.1, Dst: 192.192.192.2
> Internet Control Message Protocol

```

ICMP响应：

```

> Frame 66: 124 bytes on wire (992 bits), 124 bytes captured (992 bits)
> Ethernet II, Src: Vmware_b3:56:56 (00:50:56:b3:56:56), Dst: CiscoInc_ef:79:20 (c4:64:13:ef:79:20)
> Internet Protocol Version 4, Src 10.2.2.2 Dst: 10.1.1.1
> User Datagram Protocol, Src Port: 35478 (35478), Dst Port: 1024 (1024)
* Virtual eXtensible Local Area Network
  * Flags: 0x0800, VXLAN Network ID (VNI)
    0... .. = GBP Extension: Not defined
    .... ..0.. .. = Don't Learn: False
    .... 1... .. = VXLAN Network ID (VNI): True
    .... ..0... .. = Policy Applied: False
    .000 .000 0.00 .000 = Reserved(R): False
    Group Policy ID: 0
    VXLAN Network Identifier (VNI): 6001
    Reserved: 0
> Ethernet II, Src: Vmware_31:8a:5a (00:0c:29:31:8a:5a), Dst: Vmware_87:4e:9c (00:50:56:87:4e:9c)
> Internet Protocol Version 4, Src: 192.192.192.2, Dst: 192.192.192.1
* Internet Control Message Protocol
  Type: 0 (Echo (ping) reply)
  Code: 0
  Checksum: 0xeefb [correct]
  Identifier (BE): 1 (0x0001)
  Identifier (LE): 256 (0x0100)
  Sequence number (BE): 26207 (0x665f)
  Sequence number (LE): 24422 (0x5f66)
  [Request frame: 61]
  [Response time: 7.003 ms]
* Data (32 bytes)
  Data: 6162636465666768696a6b6c6d6e6f707172737475767761...
  [Length: 32]

```

其他调试和故障排除命令

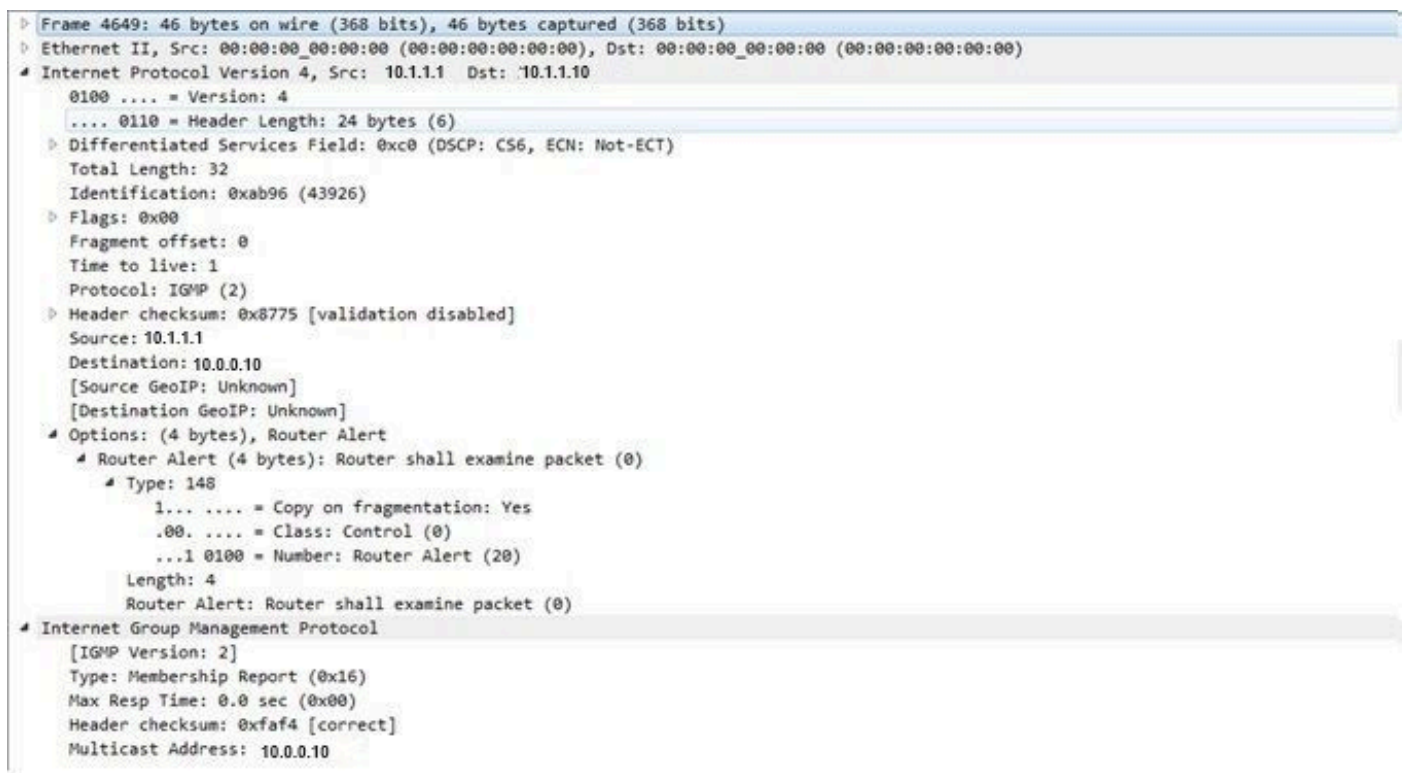
本部分还介绍了一些调试和故障排除命令。

在本例中，调试的突出显示部分显示NVE接口无法加入组播组。因此，未为VNI 6002启用VXLAN封装。这些调试结果指向网络中的组播问题。

#debug nve all

```
*Jan 5 06:13:55.844: NVE-MGR-DB: creating mcast node for 10.0.0.10
*Jan 5 06:13:55.846: NVE-MGR-MCAST: IGMP add for (0.0.0.0,10.0.0.10) was failure
*Jan 5 06:13:55.846: NVE-MGR-DB ERROR: Unable to join mcast core tree
*Jan 5 06:13:55.846: NVE-MGR-DB ERROR: Unable to join mcast core tree
*Jan 5 06:13:55.846: NVE-MGR-STATE ERROR: vni 6002: error in create notification to mcast
*Jan 5 06:13:55.846: NVE-MGR-STATE ERROR: vni 6002: error in create notification to mcast
*Jan 5 06:13:55.849: NVE-MGR-TUNNEL: Tunnel Endpoint 10.0.0.10 added
*Jan 5 06:13:55.849: NVE-MGR-TUNNEL: Endpoint 10.0.0.10 added
*Jan 5 06:13:55.851: NVE-MGR-EI: Notifying BD engine of VNI 6002 create
*Jan 5 06:13:55.857: NVE-MGR-DB: Return vni 6002 for pi_hdl[0x437C9B28]
*Jan 5 06:13:55.857: NVE-MGR-EI: VNI 6002: BD state changed to up, vni state to Down
```

以下是互联网组管理协议(IGMP)成员身份报告，可在VNI加入组播组后发送：



```
> Frame 4649: 46 bytes on wire (368 bits), 46 bytes captured (368 bits) on interface 0
Ethernet II, Src: 00:00:00_00:00:00 (00:00:00:00:00:00), Dst: 00:00:00_00:00:00 (00:00:00:00:00:00)
Internet Protocol Version 4, Src: 10.1.1.1, Dst: 10.1.1.10
  0100 .... = Version: 4
  .... 0110 = Header Length: 24 bytes (6)
  Differentiated Services Field: 0xc0 (DSCP: CS6, ECN: Not-ECT)
  Total Length: 32
  Identification: 0xab96 (43926)
  Flags: 0x00
  Fragment offset: 0
  Time to live: 1
  Protocol: IGMP (2)
  Header checksum: 0x8775 [validation disabled]
  Source: 10.1.1.1
  Destination: 10.0.0.10
  [Source GeoIP: Unknown]
  [Destination GeoIP: Unknown]
  Options: (4 bytes), Router Alert
    Router Alert (4 bytes): Router shall examine packet (0)
      Type: 148
      1... .... = Copy on fragmentation: Yes
      .00. .... = Class: Control (0)
      ...1 0100 = Number: Router Alert (20)
      Length: 4
      Router Alert: Router shall examine packet (0)
  Internet Group Management Protocol
    [IGMP Version: 2]
    Type: Membership Report (0x16)
    Max Resp Time: 0.0 sec (0x00)
    Header checksum: 0xfaf4 [correct]
    Multicast Address: 10.0.0.10
```

如果组播按预期运行，此示例显示在NVE下为组播模式配置VNI后的预期调试结果：

```
*Jan 5 06:19:20.335: NVE-MGR-DB: [IF 0x14]VNI node creation
*Jan 5 06:19:20.335: NVE-MGR-DB: VNI Node created [437C9B28]
*Jan 5 06:19:20.336: NVE-MGR-PD: VNI 6002 create notification to PD
*Jan 5 06:19:20.336: NVE-MGR-PD: VNI 6002 Create notif successful, map [pd 0x1020017] to [pi 0x437C9B28]
*Jan 5 06:19:20.336: NVE-MGR-DB: creating mcast node for 10.0.0.10
```

*Jan 5 06:19:20.342: NVE-MGR-MCAST: IGMP add for (0.0.0.0,10.0.0.10) was successful

*Jan 5 06:19:20.345: NVE-MGR-TUNNEL: Tunnel Endpoint 10.0.0.10 added

*Jan 5 06:19:20.345: NVE-MGR-TUNNEL: Endpoint 10.0.0.10 added

*Jan 5 06:19:20.347: NVE-MGR-EI: Notifying BD engine of VNI 6002 create

*Jan 5 06:19:20.347: NVE-MGR-DB: Return pd_hdl[0x1020017] for pi_hdl[0x437C9B28]

*Jan 5 06:19:20.347: NVE-MGR-DB: Return vni 6002 for pi_hdl[0x437C9B28]

*Jan 5 06:19:20.349: NVE-MGR-DB: Return vni state Create for pi_hdl[0x437C9B28]

*Jan 5 06:19:20.349: NVE-MGR-DB: Return vni state Create for pi_hdl[0x437C9B28]

*Jan 5 06:19:20.349: NVE-MGR-DB: Return vni 6002 for pi_hdl[0x437C9B28]

*Jan 5 06:19:20.351: NVE-MGR-EI: L2FIB query for info 0x437C9B28

*Jan 5 06:19:20.351: NVE-MGR-EI: PP up notification for bd_id 3

*Jan 5 06:19:20.351: NVE-MGR-DB: Return vni 6002 for pi_hdl[0x437C9B28]

*Jan 5 06:19:20.352: NVE-MGR-STATE: vni 6002: Notify clients of state change Create to Up

*Jan 5 06:19:20.352: NVE-MGR-DB: Return vni 6002 for pi_hdl[0x437C9B28]

*Jan 5 06:19:20.353: NVE-MGR-PD: VNI 6002 Create to Up State update to PD successful

*Jan 5 06:19:20.353: NVE-MGR-EI: VNI 6002: BD state changed to up, vni state to Up

*Jan 5 06:19:20.353: NVE-MGR-STATE: vni 6002: No state change Up

*Jan 5 06:19:20.353: NVE-MGR-STATE: vni 6002: New State as a result of create Up

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- [Cisco CSR 1000V VxLAN支持](#)
- [Cisco ASR 1000系列聚合服务路由器软件配置指南](#)
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