

# 使用Ping测试，验证NCS6K缓慢的转发信息包路径

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## 简介

Ping信息包测验是排除故障连通性问题的常用的测验。本文将说明一系统化的方法为使用ping测试检查网络收敛系统6000 (NCS6K)缓慢的转发数据包。

## 先决条件

### 要求

本文档的读者应掌握以下这些主题的相关知识：

- 基本IP路由。
- XR操作系统。

### 使用的组件

本文为NCS6K平台创建。

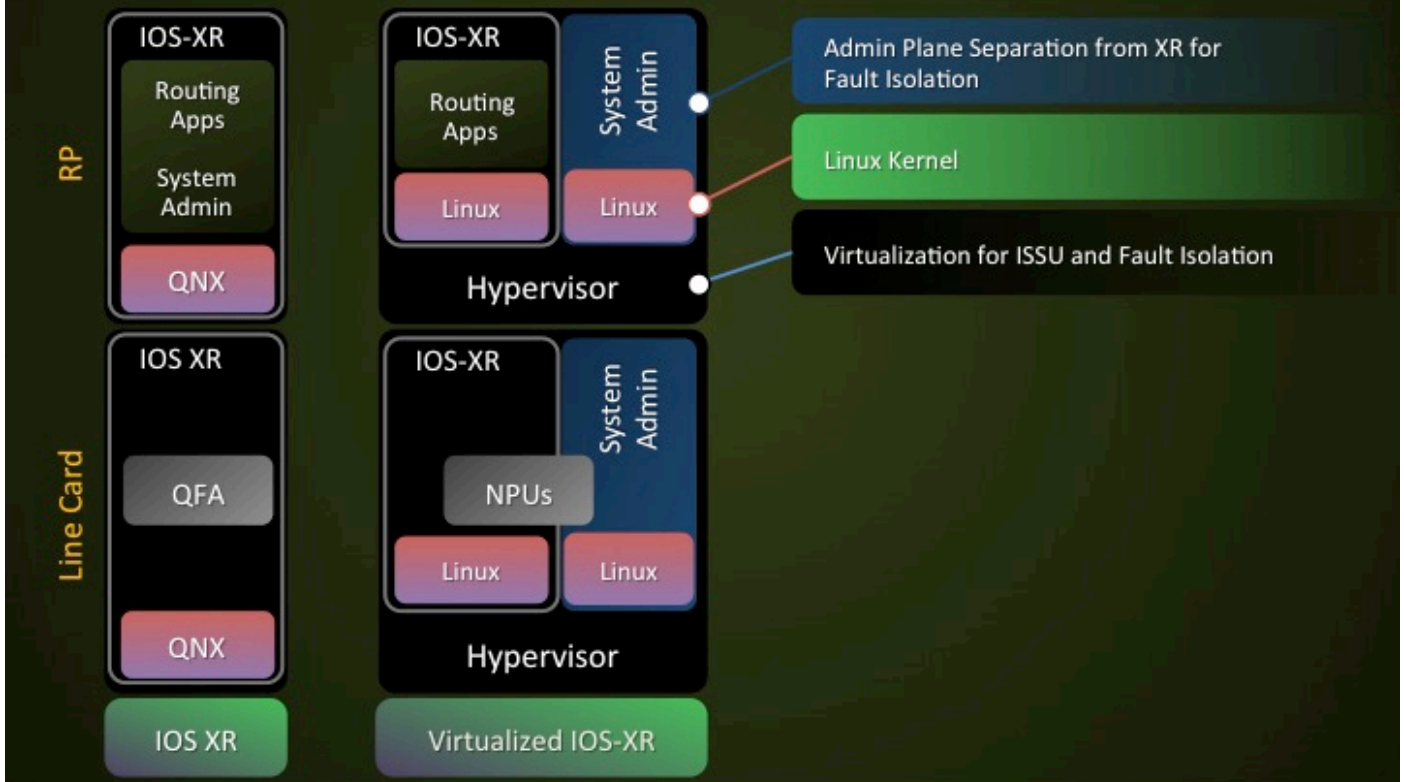
本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

## 背景信息

有NCS6K和传统IOS-XR平台之间的一关键区别：NCS6K使用虚拟化技术加强系统。每节点、路由处理器(RP)或线卡(LC)，可能运行几台Virtual机器(VM)类似系统管理员VM、IOS-XR VM1，IOS-XR VM2等，结合在一起创建一个功能完备的XR节点。跟随的图显示示例RP和LC运行一个IOS-XR VM的地方：

图 1

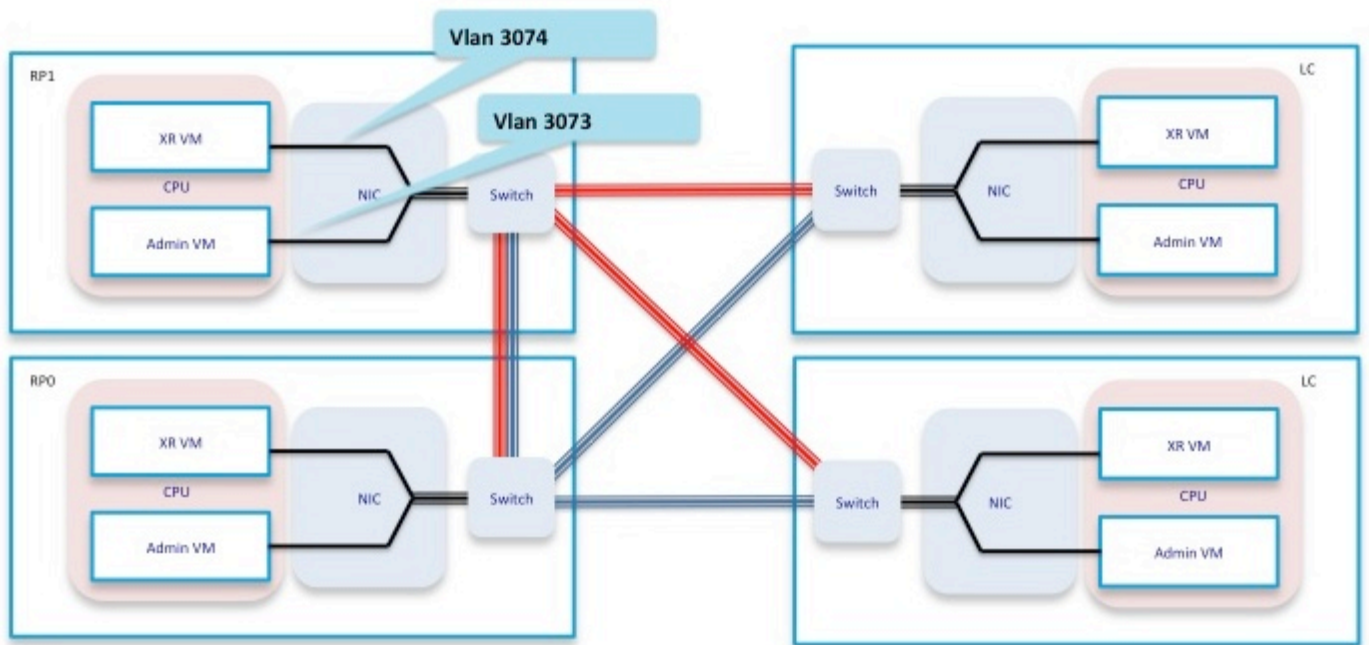
# Cisco NCS6K: Cisco IOS-XR → Virtualized IOS-XR



有连接RP和LCs的控制以太网。RP和LCs之间的控制层面流量将穿过此控制以太网。因为这是 virtualization 环境，问题，如这些数据包如何传送对特定VM，并且Nicantic (NIC)在RP或LC如何知道数据包被注定对他们？

简言之，VLAN用于区分不同的VMs流量，并且此进程由NIC完成。图2显示NIC如何将提供VLAN 3074流量对IOS-XR VM和对Admin VM的VLAN 3073流量。

图 2

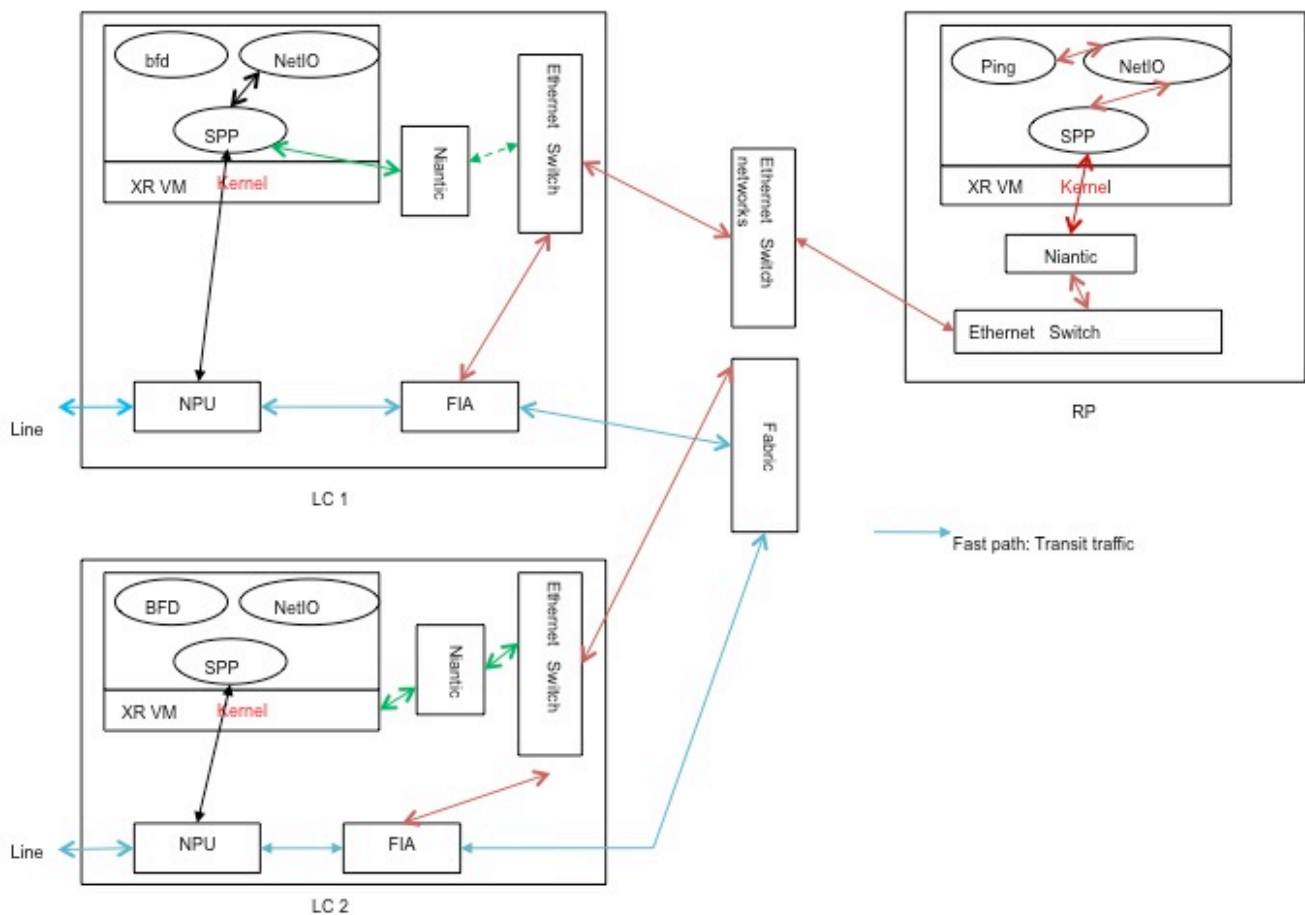


如图3.所显示，放置这些转发组件一起，您获得ping测试方案的简化的转发路径。

当进行从RP时的ping测试，数据包采取以下转发路径在方框里面：

RP\_PING <—> RP\_NETIO <—> RP\_SPP <—> RP\_Linux\_Kernel\_Socket <—> 交换机 <—> LC\_FIA <—> LC\_NPU (请包括PSE， PLIM\_ASIC) <—> 线路

图 3



## 验证

对于本文的其余，ping从RP将启动的方案将被采取为例。ping将直接地启动到在Te0/0/0/2/0的一台连接的主机。以下步骤将显示一逐步方法验证此ping信息包路径。

```
RP/0/RP0/CPU0:NCS6k-Deploy#show ip interface brief
```

```
Interface                               IP-Address      Status          Protocol
Bundle-Ether671                         10.67.2.2       Up              Up
Bundle-Ether672                         10.67.3.2       Down            Down
Loopback0                               10.17.17.17    Up              Up
MgmtEth0/RP0/CPU0/0                    10.7.54.11     Up              Up
TenGigE0/0/0/2/0                       10.67.1.2     Up             Up
TenGigE0/0/0/2/1                       unassigned      Up              Up
TenGigE0/0/0/2/2                       unassigned      Up              Up
TenGigE0/0/0/2/3                       unassigned      Up              Up
TenGigE0/0/0/2/4                       unassigned      Up              Up
TenGigE0/0/0/2/5                       unassigned      Down            Down
[snip]
```

```
RP/0/RP0/CPU0:NCS6k-Deploy#show run interface Ten 0/0/0/2/0
interface TenGigE0/0/0/2/0
  ipv4 address 10.67.1.2 255.255.255.252
  load-interval 30
```

```
RP/0/RP0/CPU0:NCS6k-Deploy#ping 10.67.1.1
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.67.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 5/6/7 ms
```

## 1. “请显示IPv4在RP节点的流量”计数器，将显示多少互联网控制消息协议(ICMP)响应被派出了，并且多少ICMP回复返回。

```
RP/0/RP0/CPU0:NCS6k-Deploy#show ipv4 traffic
```

### IP statistics:

```
Rcvd: 1495334 total, 80112 local destination
      0 format errors, 0 bad hop count
      23 unknown protocol, 0 not a gateway
      0 security failures, 0 bad source, 0 bad header
      133207 with options, 0 bad, 0 unknown
Opts: 0 end, 0 nop, 0 basic security, 0 extended security
      0 strict source rt, 0 loose source rt, 0 record rt
      0 stream ID, 0 timestamp, 133207 alert, 0 cipso
Frgs: 0 reassembled, 0 timeouts, 0 couldn't reassemble, 0 fragments received
      0 fragmented, 0 fragment count, 0 fragment max drop
Bcast: 0 sent, 0 received
Mcast: 1361652 sent, 1376283 received
      Drop: 0 encapsulation failed, 237 no route, 0 too big
      Sent: 1437435 total
```

### ICMP statistics:

```
Sent: 0 admin unreachable, 63 network unreachable
      8 host unreachable, 0 protocol unreachable
      16 port unreachable, 0 fragment unreachable
      0 time to live exceeded, 0 reassembly ttl exceeded
      24 echo request, 30024 echo reply
      0 mask request, 0 mask reply
      0 parameter error, 0 redirects
      30131 total
Rcvd: 0 admin unreachable, 21 network unreachable
      0 host unreachable, 0 protocol unreachable
      0 port unreachable, 0 fragment unreachable
      0 time to live exceeded, 0 reassembly ttl exceeded
      30024 echo request, 15 echo reply
      0 mask request, 0 mask reply
      0 redirect, 0 parameter error
      0 source quench, 0 timestamp, 0 timestamp reply
      0 router advertisement, 0 router solicitation
      30063 total, 0 checksum errors, 0 unknown
```

## 2. 检查网络输入-输出(NETIO)组件。下一步是检查RP FINT NETIO一系列计数器。您必须发现IPv4节点“OUT”计数器在netio一系列的。如果它增加，含义数据包到达了NETIO组件和从NETIO组件被派出。

Check initial NETIO counter value.

```
RP/0/RP0/CPU0:NCS6k-Deploy#sh netio chains FINT loc 0/rp0/cpu0 | in Stats
```

```
<Protocol number> (name) Stats
<6> (fint_n2n) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<10> (clns) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<12> (ipv4) Stats IN: 2788 pkts, 115373 bytes; OUT: 2816 pkts, 117933 bytes
<13> (mpls) Stats IN: 16482 pkts, 2467508 bytes; OUT: 0 pkts, 0 bytes
<18> (lpts) Stats IN: 47234 pkts, 10381065 bytes; OUT: 0 pkts, 0 bytes
<19> (ipv6) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<30> (ipv4_preroute) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<32> (ipv6_preroute) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
```

```
<34> (fint_proto_tp) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<36> (l2transport) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
```

#### Initiate 10 ping packets.

```
RP/0/RP0/CPU0:NCS6k-Deploy#ping 10.67.1.1 coun 10
Type escape sequence to abort.
Sending 10, 100-byte ICMP Echos to 10.67.1.1, timeout is 2 seconds:
!!!!!!!!!!!!
Success rate is 100 percent (10/10), round-trip min/avg/max = 4/7/8 ms
```

#### Check NETIO counter again. You would see increment of 10 packets.

```
RP/0/RP0/CPU0:NCS6k-Deploy#sh netio chains FINT loc 0/rp0/cpu0 | in Stats
<Protocol number> (name) Stats
<6> (fint_n2n) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<10> (clns) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<12> (ipv4) Stats IN: 2788 pkts, 115373 bytes; OUT: 2826 pkts, 118933 bytes
<13> (mpls) Stats IN: 16482 pkts, 2467508 bytes; OUT: 0 pkts, 0 bytes
<18> (lpts) Stats IN: 47234 pkts, 10381065 bytes; OUT: 0 pkts, 0 bytes
<19> (ipv6) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<30> (ipv4_preroute) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<32> (ipv6_preroute) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<34> (fint_proto_tp) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
<36> (l2transport) Stats IN: 0 pkts, 0 bytes; OUT: 0 pkts, 0 bytes
```

您能也使用KornShell (ksh)命令“show\_netio\_fwder\_stats -g”检查是否请注入/平底船计数器增量。 **Note:**在生产环境，可能有使困难检查的其他后台流量ping信息包是否到达了此组件。作为应急方案，您能以超时0使用数据包大量：“ping x.x.x.x计数10000次0”和检查计数器是否突然增加或有尖峰。

#### Check initial counter value.

```
RP/0/RP0/CPU0:NCS6k-Deploy#run show_netio_fwder_stats -g
RECEIVE STATISTICS SUMMARY:
rx_pkts: 2224455
punt_pkts: 2224447
ingress_total_drops: 8
TRANSMIT STATISTICS SUMMARY:
inject_pkts: 2077319
tx_pkts: 2058041
egress_total_drops: 2
RECEIVE STATISTICS DETAILS:
Rx Pkt type stats:
  lpts_pkts: 2220753
Rx Listener tag stats:
  ipv4: 1116092
  ipv6: 658627
  clns: 112549
  ipv4_l: 286252
  raw4: 23
  raw6: 43984
  ospf_mc4: 45
  ospf_mc6: 2
  udp4: 7
  tcp4: 405
  isis: 2767
Rx Punt reason stats:
  IFIB: 2220753
Rx Drop stats:
  null_fint_ifh_drops: 8
  ingress_total_drops: 8
TRANSMIT STATISTICS DETAILS:
Tx Pkt type stats:
```

```
ipv4: 2852
mpls: 42647
osi: 78760
ipv4_preroute: 1339401
ipv6_preroute: 613659
Tx Protocol Id stats:
  clns: 78760
  ipv4: 2852
  mpls: 42647
  ipv4_preroute: 1339401
  ipv6_preroute: 613659
Tx Drop stats:
  invalid_queue_drops: 2
  hdr_init_drops: 2
  egress_total_drops: 2
```

**Initiate 10 ping packets.**

```
RP/0/RP0/CPU0:NCS6k-Deploy#ping 10.67.1.1 coun 10
Type escape sequence to abort.
Sending 10, 100-byte ICMP Echos to 10.67.1.1, timeout is 2 seconds:
!!!!!!!!!!
Success rate is 100 percent (10/10), round-trip min/avg/max = 3/4/7 ms
```

**Check counter again to check to se increment of 10 packets.**

```
RP/0/RP0/CPU0:NCS6k-Deploy#run show_netio_fwder_stats -g
```

```
RECEIVE STATISTICS SUMMARY:
```

```
rx_pkts: 2224465
```

```
punt_pkts: 2224457
```

```
ingress_total_drops: 8
```

```
TRANSMIT STATISTICS SUMMARY:
```

```
inject_pkts: 2077332
```

```
tx_pkts: 2058051
```

```
egress_total_drops: 2
```

```
RECEIVE STATISTICS DETAILS:
```

```
Rx Pkt type stats:
```

```
  lpts_pkts: 2220763
```

```
Rx Listener tag stats:
```

```
  ipv4: 1116102
```

```
  ipv6: 658627
```

```
  clns: 112549
```

```
  ipv4_l: 286252
```

```
  raw4: 23
```

```
  raw6: 43984
```

```
  ospf_mc4: 45
```

```
  ospf_mc6: 2
```

```
  udp4: 7
```

```
  tcp4: 405
```

```
  isis: 2767
```

```
Rx Punt reason stats:
```

```
  IFIB: 2220763
```

```
Rx Drop stats:
```

```
  null_fint_ifh_drops: 8
```

```
  ingress_total_drops: 8
```

```
TRANSMIT STATISTICS DETAILS:
```

```
Tx Pkt type stats:
```

```
  ipv4: 2865
```

```
  mpls: 42647
```

```
  osi: 78760
```

```
  ipv4_preroute: 1339401
```

```
  ipv6_preroute: 613659
```

```
Tx Protocol Id stats:
```

```
  clns: 78760
```

```
  ipv4: 2865
```

```
mpls: 42647
ipv4_preroute: 1339401
ipv6_preroute: 613659
Tx Drop stats:
  invalid_queue_drops: 2
  hdr_init_drops: 2
  egress_total_drops: 2
RP/0/RP0/CPU0:NCS6k-Deploy#
```

**3. 检查组分的SPP。请使用SPP CLI发现数据包是否到达了SPP。  
Check initial counter value.**

```
RP/0/RP0/CPU0:NCS6k-Deploy#sh spp node-counters
0/0/CPU0:
```

```
pdma/rx
      slicel high pkts:          10
-----
pdma/tx
      slicel low pkts:          10
-----
panini/classify
  forwarded to spp clients:      10
-----
client/inject
  pkts injected into spp:       10
-----
client/punt
  punted to client:             10
-----
```

```
0/RP0/CPU0:
panini/classify
  forwarded to spp clients:      22070
-----
client/inject  pkts injected into spp:      4640
-----
socket/rx
      ce low pkts:              45
      mgmt interface pkts:      22025
-----
socket/tx
      ce pkts:                  45
      mgmt interface pkts:      4595
-----
client/punt  punted to client:      22070
-----
```

**Initiate 100 ping packets.**

```
RP/0/RP0/CPU0:NCS6k-Deploy#ping 10.67.1.1 count 100
```

Type escape sequence to abort.

Sending 100, 100-byte ICMP Echos to 10.67.1.1, timeout is 2 seconds:

!!

!! Success rate is 100 percent (100/100), round-trip

min/avg/max = 3/3/8 ms

**Check counter again to see increment of 100 packets.**

```
RP/0/RP0/CPU0:NCS6k-Deploy#sh spp node-counters
0/0/CPU0:
```

```
pdma/rx
      slicel high pkts:          10
-----
pdma/tx
      slicel low pkts:          10
```



```

-----
panini/classify
    forwarded to spp clients:                10
-----
client/inject
    pkts injected into spp:                  10
-----
client/punt
    punted to client:                        10
-----

0/RP0/CPU0:
panini/classify
    forwarded to spp clients:                22172
-----
client/inject  pkts injected into spp:      4740
-----
socket/rx
    ce low pkts:                             145
    mgmt interface pkts:                     22027
-----
socket/tx
    ce pkts:                                  145
    mgmt interface pkts:                     4595
-----
client/punt punted to client:              22172
-----

```

#### 4. 请使用tcpdump工具转存从Linux内核组件的数据包。 从输出下面，在NCS6K XR VM ksh下，您能看到几个子接口：

```

RP/0/RP0/CPU0:NCS6008-SJ#
RP/0/RP0/CPU0:NCS6008-SJ#run
Tue Jun 24 10:51:51.972 UTC
[xr-vm_node0_RP0_CPU0:/]$
[xr-vm_node0_RP0_CPU0:/]$ ifconfig -a
eth-vf1  Link encap:Ethernet  HWaddr 46:91:EE:A5:48:A8
         inet6 addr: fe80::4491:eeff:fea5:48a8/64 Scope:Link
         UP BROADCAST RUNNING MULTICAST  MTU:9700  Metric:1
         RX packets:518403076C3 errors:0 dropped:0 overruns:0 frame:0 TX packets:969599306
errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000 RX bytes:138405352234
(128.9 GiB) TX bytes:242828863250 (226.1 GiB) eth-vf1.514 Link encap:Ethernet HWaddr
4C:4E:35:B6:63:68 inet6 addr: fe80::4e4e:35ff:feb6:6368/64 Scope:Link UP BROADCAST RUNNING
MULTICAST MTU:9700 Metric:1 RX packets:13547000 errors:0 dropped:0 overruns:0 frame:0 TX
packets:116957 errors:0 dropped:10 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX
bytes:623478135C3 (594.5 MiB) TX bytes:26876899 (25.6 MiB) eth-vf1.3073 Link encap:Ethernet
HWaddr 4C:4E:35:B6:63:69 inet addr:192.0.0.4 Bcast:192.255.255.255 Mask:255.0.0.0 inet6
addr: fe80::4e4e:35ff:feb6:6369/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:9700
Metric:1 RX packets:102364757 errors:0 dropped:0 overruns:0 frame:0 TX packets:100689507
errors:0 dropped:3 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:29925046692
(27.8 GiB) TX bytes:7562528012 (7.0 GiB) eth-vf1.3074 Link encap:Ethernet HWaddr
4E:41:50:00:10:01 inet addr:172.0.16.1 Bcast:172.255.255.255 Mask:255.0.0.0 inet6 addr:
fe80::4c41:50ff:fe00:1001/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:9700 Metric:1 RX
packets:402491385 errors:0 dropped:0 overruns:0 frame:0 TX packets:350389778 errors:0
dropped:6 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:100599198478 (93.6 GiB)
TX bytes:96834116492 (90.1 GiB) lo Link encap:Local Loopback inet addr:127.0.0.1
Mask:255.0.0.0 inet6 addr: ::1/128 Scope:Host UP LOOPBACK RUNNING MTU:16436 Metric:1 RX
packets:1029861486 errors:0 dropped:0 overruns:0 frame:0 TX packets:1029861486 errors:0
dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:201624257033 (187.7 GiB)
TX bytes:201624257033 (187.7 GiB)

```

**eth-vf1.514**使用与Mgmtether接口的通信，但是您看不到IPv4地址。在XR VM的Mgmtether接口依靠IOS-XR IP协议栈而不是在Linux的IP协议栈。**ether-vf1.3073**使用与Admin VM的通信。**ether-vf1.3074**使用XR VM涉及的控制层面流量。Ping测试数据包将穿过此sub-interface (使用

Linux网络协议栈)。 Tcpcmdump关联与Linux有批次关于怎样的选项转存关注数据流。另外，您能使用tcpcmdump工具探测安全域路由器(SDR)控制层面流量(VLAN 3074)或探测其他流量类似在VLAN 3073的Inter Process Communication (IPC)通信。

```
xr-vm_node0_RP0_CPU0:/]$ tcpcmdump -i eth-vf1.3074 -XX -vv
tcpcmdump: listening on eth-vf1.3074, link-type EN10MB (Ethernet), capture size 65535 bytes
01:49:21.798386 IP (tos 0x6,ECT(0), ttl 1, id 0, offset 0, flags [DF], proto UDP (17),
length 340)
```

```
172.0.16.1.10150 > 239.255.0.4.10150: [bad udp cksum ab2a!] UDP, length 312
0x0000: 0100 5e7f 0004 4e41 5000 1001 0800 4506 ..^...NAP.....E.
0x0010: 0154 0000 4000 0111 cc8e ac00 1001 efff .T..@.....
0x0020: 0004 27a6 27a6 0140 ad56 abcd abcd 0000 ..'..'..@.V.....
0x0030: 0000 0280 f502 0000 0000 0000 0000 0000 .....
0x0040: 0000 0000 0000 7856 3412 0128 0204 0000 .....xV4..(....
0x0050: 0000 5508 0100 0100 0000 3c25 2600 0000 ..U.....<%&...
0x0060: 0000 d007 0000 0000 0000 ffff 0000 0000 .....
0x0070: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0080: 0000 0000 0000 4800 0000 0200 0000 0000 .....H.....
0x0090: 0000 8800 0000 0000 0000 0000 0000 0000 .....
0x00a0: 0000 0100 0000 0000 0000 0000 0000 0000 .....
0x00b0: 0000 0000 0000 c2ca 0031 0000 0000 0000 .....1.....
0x00c0: 0000 0000 0000 0000 0000 5508 0000 6510 .....U...e.
0x00d0: 0000 ed53 4c00 0000 0000 0000 0000 0000 ...SL.....
0x00e0: 0000 0000 0000 0000 0000 0000 0000 6264 .....bd
0x00f0: 7863 0000 0000 0000 0000 0000 0000 0000 xc.....
0x0100: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0110: 0000 0100 0000 0000 0000 0000 0000 30ff .....0.
0x0120: 0002 0000 0000 0000 0000 0000 0000 0000 .....
0x0130: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0140: 0000 0000 0000 0000 0000 0c00 0000 0000 .....
0x0150: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0160: 0000 ..
```

```
01:49:21.799167 IP (tos 0x6,ECT(0), ttl 64, id 0, offset 0, flags [DF], proto UDP (17),
length 380)
```

```
172.0.0.1.8197 > 172.0.16.1.8197: [udp sum ok] UDP, length 352
0x0000: 4e41 5000 1001 4e41 5000 0001 0800 4506 NAP...NAP.....E.
0x0010: 017c 0000 4000 4011 d168 ac00 0001 ac00 .|.@.
0x0040: 0000 0000 0000 7856 3412 0128 0204 0000 .....xV4..(....
0x0050: 0000 5508 0100 0100 0000 3d25 2600 0000 ..U.....=%&...
0x0060: 0000 d007 0000 0000 0000 ffff 0000 0000 .....
0x0070: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0080: 0000 0000 0000 4800 0000 0200 0000 0000 .....H.....
0x0090: 0000 8800 0000 0000 0000 0000 0000 0000 .....
0x00a0: 0000 0100 0000 0000 0000 0000 0000 0000 .....
0x00b0: 0000 0000 0000 c2ca 0031 0000 0000 0000 .....1.....
0x00c0: 0000 0000 0000 0000 0000 5508 0000 6510 .....U...e.
0x00d0: 0000 ee53 4c00 0000 0000 0000 0000 0000 ...SL.....
0x00e0: 0000 0000 0000 0000 0000 0000 0000 6264 .....bd
0x00f0: 7863 0000 0000 0000 0000 0000 0000 0000 xc.....
0x0100: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0110: 0000 0100 0000 0000 0000 0000 0000 30ff .....0.
0x0120: 0002 0000 0000 0000 0000 0000 0000 0000 .....
0x0130: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0140: 0000 0000 0000 0000 0000 0c04 0000 0000 .....
0x0150: 0000 0000 0000 0000 0000 0000 0000 0000 .....
0x0160: 0000 ..
```

```
01:49:21.802982 IP (tos 0x6,ECT(0), ttl 64, id 0, offset 0, flags [DF], proto UDP (17),
length 380)
```

```
172.0.0.1.8197 > 172.0.16.1.8197: [udp sum ok] UDP, length 352
0x0000: 4e41 5000 1001 4e41 5000 0001 0800 4506 NAP...NAP.....E.
0x0010: 017c 0000 4000 4011 d168 ac00 0001 ac00 .|.@.@.h.....
0x0020: 1001 2005 2005 0168 672f abcd abcd 0000 .....hg/.....
0x0030: 0000 3c80 f502 0000 0000 0000 0000 0000 ..<.....
0x0040: 0000 0000 0000 7856 3412 0411 0008 0000 .....xV4.....
```

```
0x0050: 0000 5508 0000 0100 0000 3d25 2600 0000 ..U.....=%&...
0x0060: 0000 d007 0100 0000 0000 ffff 0000 0000
```

[snip]

**Note:**因为它是VM方案，流量发送对VM可能用VM在外面报头的接口地址封装，以便此流量能到达VM接口。

上述数据包转储是用与来源/目的地172.0.16.1的UDP数据包报头实际上封装，是eth-vf1.3074在IOS-XR VM的IP地址。 **Note:**被采取的捕获是展示方法，并且没有互联网控制消息协议(ICMP)流量。

## 5. 检查在线卡的FIA组件。

Check initial counter value.

```
RP/0/RP0/CPU0:NCS6k-Deploy#sh controllers fia statistics instance 1 loc 0/0/cpu0
```

```
FIA Statistics Rack: 0, Slot: 0, Asic instance: 1
```

```
FIA Rx (To Fabric) Statistics.
```

```
----- Input Pkt counters
Pkts Bytes Rx pkts from pse : 250 53000 Rx pkts from switch : 993528 349564509 bcast pkts
from switch : 0 mcast pkts from switch : 993278 ucast pkts from switch      :
250
```

```
Rx pkts enqueued(IQM)           :           500           86500
Rx pkts dequeued(IQM)           :           500           86500
Rx pkts sent to fabric           :           500
```

```
Cell counters:
```

```
Data cells sent to fabric        :           500           86500
Control cells sent to fabric     :    183039783411
```

```
Drop counters:
```

```
Rx burst error drops(NBI)       :           0
Rx error drops(Switch)           :           0
Rx error drops(pse)              :           0
Rx pkt discard drops(IQM)        :    993277           334570329
Pkt crc error drops(FDT)         :           0
Unreachable dest cell drops     :           0
Internal Error Count             :    41984110
Internal Drop Count              :           0
```

```
FIA Tx (From Fabric) Statistics
```

```
----- Cell counters:
Pkts Bytes Data cells : 500 Control cells : 179368087015 Reassembled packet counters: Pkts
received from fabric : 500 Tx Ucast pkts : 500 86500 Tx Mcast pkts : 0 0 Tx pkts (EPNI) :
500 81000 Tx pkts sent to switch: 250 53000 Bcast pkts sent to switch : 0 Mcast pkts sent
to switch : 0 Ucast pkts sent to switch : 250 Tx segments sent to pse      :
250           29000
```

```
Tx pkts sent to pse (NBI)       :           500           49000
```

```
Drop counters:
```

```
Tx pkts dropped EPNI             :           0
Tx Ucast pkts dropped            :           0
Tx Mcast pkts dropped            :           0
Tx pkts dropped in EGQ(RQP + EHP):           0
Control cell Drops               :           0
Data cell Drops                  :           0
Tx pkts dropped switch           :           0
Tx pkts dropped pse              :           0
Internal Error Count             :           0
Internal Drop Count              :           0
```

Initiate ping of 1000 packets.

```
RP/0/RP0/CPU0:NCS6k-Deploy#ping 10.67.1.1 count 1000 Type escape sequence to abort. Sending
1000, 100-byte ICMP Echos to 10.67.1.1, timeout is 2 seconds:
```





**Packets: 2250**  
Bytes: 477000

EGRESS

-----

From Fabric:

**Packets: 2250**  
Bytes: 261000

To TM:

Packets: 2272

To L2 [LSIM]:

**Packets: 2261**  
Bytes: 256962

TO/FROM CPU

-----

To CPU:

Packets: 11

From CPU:

Packets: 11

## 7. 检查物理层接口模块(PLIM) ASIC抵抗。

Check initial counter value.

```
RP/0/RP0/CPU0:NCS6k-Deploy#sh controllers plim ASIC statistics interface Te0/0/0/2/0
Node: 0/0/CPU0
```

```
-----
TenGigE0/0/0/2/0 Tx Statistics ----- Total Packets
: 2256 Total Bytes : 265884 Total Good Packets : 2256 Total Good Bytes : 265884 Unicast
```

<b>Packets</b>	<b>: 2256</b>	Multicast Packets	<b>: 0</b>
Broadcast Packets	: 0	64 Byte Packets	: 6
65to127 Byte Packets	: 2250	128to255 Byte Packets	: 0
256to511 Byte Packets	: 0	512to1023 Byte Packets	: 0
1024to1518 Byte Packets	: 0	1519to1522 Byte Packets	: 0
1523to1548 Byte Packets	: 0	1549to2000 Byte Packets	: 0
2001to_MRU Byte Packets	: 0	Non Pause BPDU Packets	: 0
Classic Pause Packets	: 0		
Class Based Pause Pkts 0	: 0	Class Based Pause Pkts 1	: 0
Class Based Pause Pkts 2	: 0	Class Based Pause Pkts 3	: 0
Class Based Pause Pkts 4	: 0	Class Based Pause Pkts 5	: 0
Class Based Pause Pkts 6	: 0	Class Based Pause Pkts 7	: 0

Dropped Packets

=====

Drained Packets	: 0	Abort	: 0
Length Error	: 0	Giant	: 0
Tail Drop: HP Queue	: 0	Tail Drop: LP Queue	: 0

TenGigE0/0/0/2/0 Rx Statistics

-----

```
Total Packets : 2256 Total Bytes : 265884 Total Good Packets : 2256 Total Good Bytes :
265884 Unicast Packets : 2256 Multicast Packets : 0
```

Broadcast Packets	: 0	64 Byte Packets	: 6
65to127 Byte Packets	: 2250	128to255 Byte Packets	: 0
256to511 Byte Packets	: 0	512to1023 Byte Packets	: 0
1024to1518 Byte Packets	: 0	1519to1522 Byte Packets	: 0
1523to1548 Byte Packets	: 0	1549to2000 Byte Packets	: 0
2001to_MRU Byte Packets	: 0	Non Pause BPDU Packets	: 0
Classic Pause Packets	: 0		
Class Based Pause Pkts 0	: 0	Class Based Pause Pkts 1	: 0
Class Based Pause Pkts 2	: 0	Class Based Pause Pkts 3	: 0
Class Based Pause Pkts 4	: 0	Class Based Pause Pkts 5	: 0
Class Based Pause Pkts 6	: 0	Class Based Pause Pkts 7	: 0



1024to1518 Byte Packets	: 0	1519to1522 Byte Packets	: 0
1523to1548 Byte Packets	: 0	1549to2000 Byte Packets	: 0
2001to_MRU Byte Packets	: 0	Non Pause BPDUs	: 0
Classic Pause Packets	: 0		
Class Based Pause Pkts 0	: 0	Class Based Pause Pkts 1	: 0
Class Based Pause Pkts 2	: 0	Class Based Pause Pkts 3	: 0
Class Based Pause Pkts 4	: 0	Class Based Pause Pkts 5	: 0
Class Based Pause Pkts 6	: 0	Class Based Pause Pkts 7	: 0

Dropped Packets

=====

Drained Packets	: 0	Abort	: 0
Length Error	: 0	Giant	: 0
Tail Drop: HP Queue	: 0	Tail Drop: LP Queue	: 0

TenGigE0/0/0/2/0 Rx Statistics

-----

Total Packets : 3256 Total Bytes : 383884 Total Good Packets : 3256 Total Good Bytes : 383884 **Unicast Packets : 3256** Multicast Packets : 0

Broadcast Packets	: 0	64 Byte Packets	: 6
65to127 Byte Packets	: 3250	128to255 Byte Packets	: 0
256to511 Byte Packets	: 0	512to1023 Byte Packets	: 0
1024to1518 Byte Packets	: 0	1519to1522 Byte Packets	: 0
1523to1548 Byte Packets	: 0	1549to2000 Byte Packets	: 0
2001to_MRU Byte Packets	: 0	Non Pause BPDUs	: 0
Classic Pause Packets	: 0		
Class Based Pause Pkts 0	: 0	Class Based Pause Pkts 1	: 0
Class Based Pause Pkts 2	: 0	Class Based Pause Pkts 3	: 0
Class Based Pause Pkts 4	: 0	Class Based Pause Pkts 5	: 0
Class Based Pause Pkts 6	: 0	Class Based Pause Pkts 7	: 0

Dropped Packets

=====

Runts	: 0	Fragments	: 0
Jumbo	: 0	Jabber	: 0
CRC	: 0	Code Error	: 0
Code Violation	: 0	Bad Preamble	: 0
IPG Violation	: 0		
Packet HPQ QoS Ctl Drop	: 0	Bytes HPQ QoS Ctl Drop	: 0
Packet HPQ QoS HP Drop	: 0	Bytes HPQ QoS HP Drop	: 0
Packet HPQ Ctl Tail Drop	: 0	Bytes HPQ Ctl Tail Drop	: 0
Packet HPQ HP Tail Drop	: 0	Bytes HPQ HP Tail Drop	: 0
Packet LPQ LP1 Tail Drop	: 0	Bytes LPQ LP1 Tail Drop	: 0
Packet LPQ LP2 Tail Drop	: 0	Bytes LPQ LP2 Tail Drop	: 0
Packet TCAM Miss	: 0	Bytes TCAM Miss	: 0
Packet EOP Abort Drop	: 0	Bytes EOP Abort Drop	: 0
Packet Policy Deny	: 0	Bytes Policy Deny	: 0

Rx Packet Drop Details

=====

Unknown Dest MAC Pkts	: 0		
Unknown E-Type Pkts	: 0		
Unknown Encap Pkts	: 0	Unknown Encap Bytes	: 0
Unknown VLAN Pkts	: 0	Unknown VLAN Bytes	: 0
L2 Subif VLAN Deny Pkts	: 0	L2 Subif VLAN Deny Bytes	: 0

Rx Accepted Packet Details

=====

Packet HPQ CTL Sent	: 6	Bytes HPQ CTL Sent	: 384
Packet HPQ HP Sent	: 0	Bytes HPQ HP Sent	: 0
Packet LPQ LP1 Sent	: 0	Bytes LPQ LP1 Sent	: 0
Packet LPQ LP2 Sent	: 0	Bytes LPQ LP2 Sent	: 0





MTU 1514 bytes, BW 10000000 Kbit (Max: 10000000 Kbit)  
reliability 255/255, txload 0/255, rxload 0/255  
Encapsulation ARPA,  
Full-duplex, 10000Mb/s, SR, link type is force-up  
output flow control is off, input flow control is off  
loopback not set,  
ARP type ARPA, ARP timeout 04:00:00  
Last input 00:00:00, output 00:00:00  
Last clearing of "show interface" counters 22:09:38  
30 second input rate 1000 bits/sec, 2 packets/sec  
30 second output rate 1000 bits/sec, 2 packets/sec  
**4256 packets input**, 484860 bytes, 0 total input drops  
0 drops for unrecognized upper-level protocol  
Received 0 broadcast packets, 0 multicast packets  
0 runts, 0 giants, 0 throttles, 0 parity  
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort  
**4256 packets output**, 484860 bytes, 0 total output drops  
Output 0 broadcast packets, 0 multicast packets  
0 output errors, 0 underruns, 0 applique, 0 resets  
0 output buffer failures, 0 output buffers swapped out  
0 carrier transitions