

NCS5500:封包的壽命 (傳輸、點選/注入、Ping路徑)

目錄

[簡介](#)

[資料包在轉發ASIC中的壽命](#)

[管道轉發ASIC](#)

[IRPP \(埠術語、解析器 \)](#)

[點線路徑](#)

[兩個CPU節點之間的分支路徑](#)

[從NPU到RP CPU的列印路徑](#)

[從RP CPU注射到NPU或LC CPU](#)

[從LC CPU向NPU插入路徑](#)

[CLI用於點選/插入調試](#)

[遠端Ping](#)

[封包路徑：回應請求](#)

[封包路徑：回應回覆](#)

[本地Ping](#)

[封包路徑：回應請求](#)

[封包路徑：回應回覆](#)

[有用的調試：](#)

[拓撲](#)

[用於檢查遠端Ping的命令](#)

[Echo Request:本地RP:TX](#)

[Echo Request:遠端LC:RX](#)

[Echo Reply:遠端節點\(LC\):TX](#)

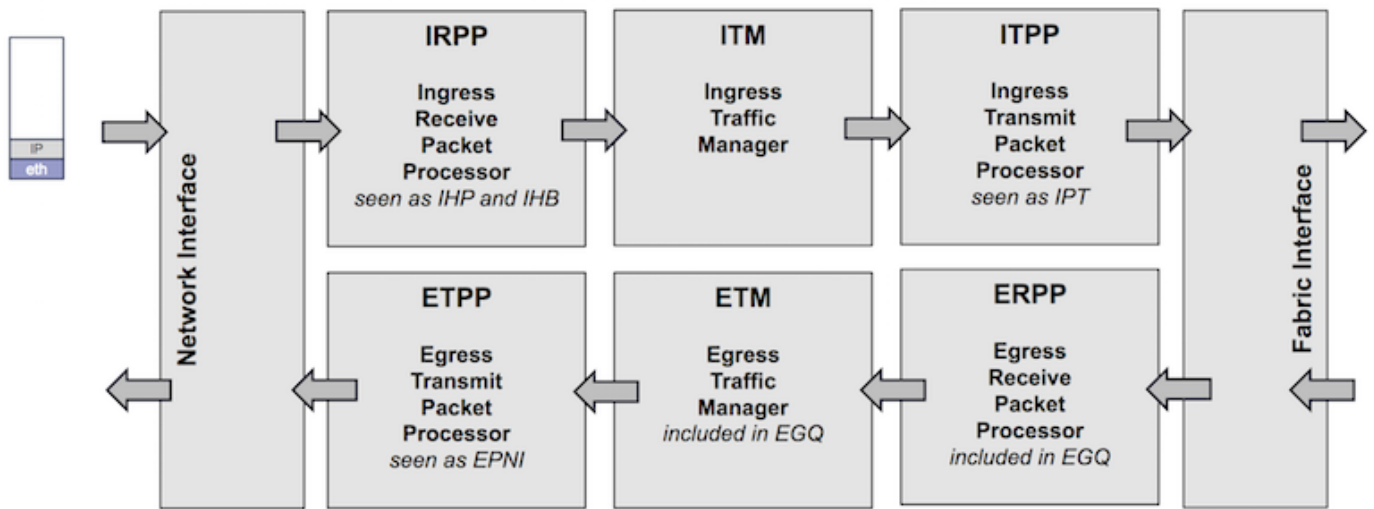
[Echo Reply:本地節點\(LC\):RX](#)

[本地Ping](#)

簡介

本檔案將說明NCS55xx(Fretta)方框中的ICMP回應請求/回應回覆封包所採用的路徑。

資料包在轉發ASIC中的壽命



IRPP

在介面上接收資料包，並將其傳遞到IRPP，在此提取和處理前128個位元組。因此，內部系統報頭會預先加好。

ITM

資料包儲存在DRAM/OCB中

ITPP

如果需要，請重寫系統報頭（組播複製、埠映象等）

資料包被拆分為信元並負載均衡到交換矩陣

ERPP

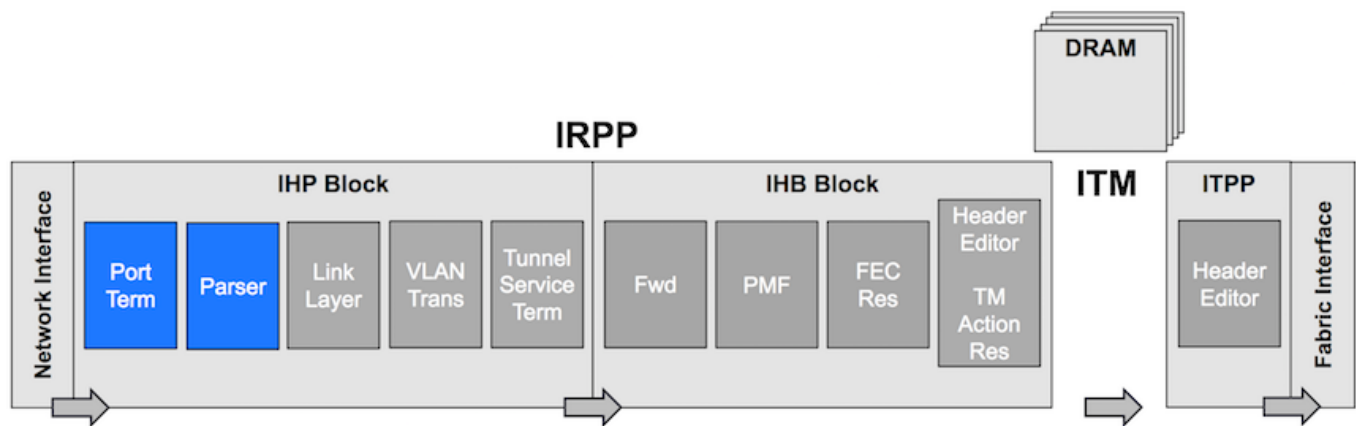
接收並重組信元。提取前128位元組，並套用所有連結層過濾器、輸出ACL、輸出複製（多點傳送）

ETPP/ETM

整個資料包將儲存在緩衝區中，直到計畫出資料包。系統標頭被移除。

管道轉發ASIC

IRPP（埠術語、解析器）

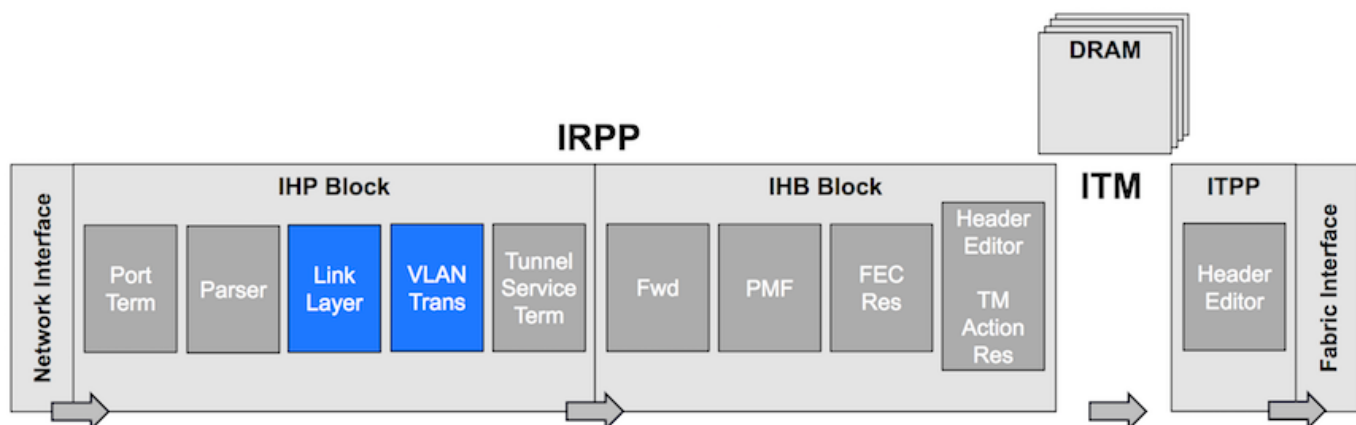


埠終止：從網路介面/CPU/Recycle收到的資料包

- 確定來源連線埠並標籤封包。
- 決定要在分析器中使用的初始程式。
- 確定網路報頭的起始位置。

分析器：提取Ethertype、MAC地址、確定管道中下一階段的偏移量。

IRPP (線路層 , VLAN傳輸)



鏈路層：對L2和源地址身份驗證進行過濾。

VLAN轉換：我們對映資料包的邏輯介面。

點線路徑

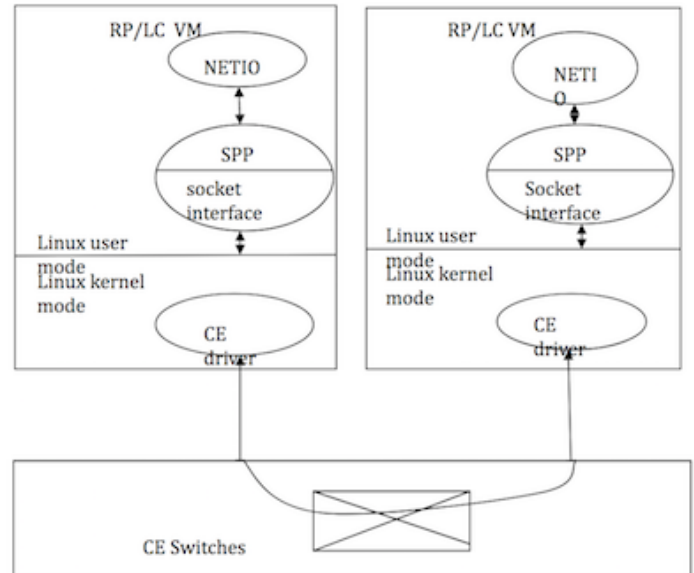
- 由於TCAM資源不足，NPU上只有幾個LPTS TCAM條目可用。
- 主要LPTS查詢在LC Netio上的SW LPTS Pre-IFIB中完成
- LPTS直接通過PMF TCAM查詢將資料包從NPU傳送到RP:
 - OSPF、OSPFv3廣播、ISIS資料包直接轉發到主用和備用RP
- 通過PMF TCAM查詢將資料包從NPU傳送到本地CPU:
 - 任何使用TCP、UDP的通訊協定；ICMP、ND
- 透過BRCM CPU陷阱將L2通訊協定封包傳送到LC:
 - ARP、RARP、CDP、LACP、LLDP、以太鏈路OAM、MACSec

- 異常資料包通過BRCM CPU陷阱傳送到LC。
 - TTL0、TTL1、MTU Exceed、選項資料包

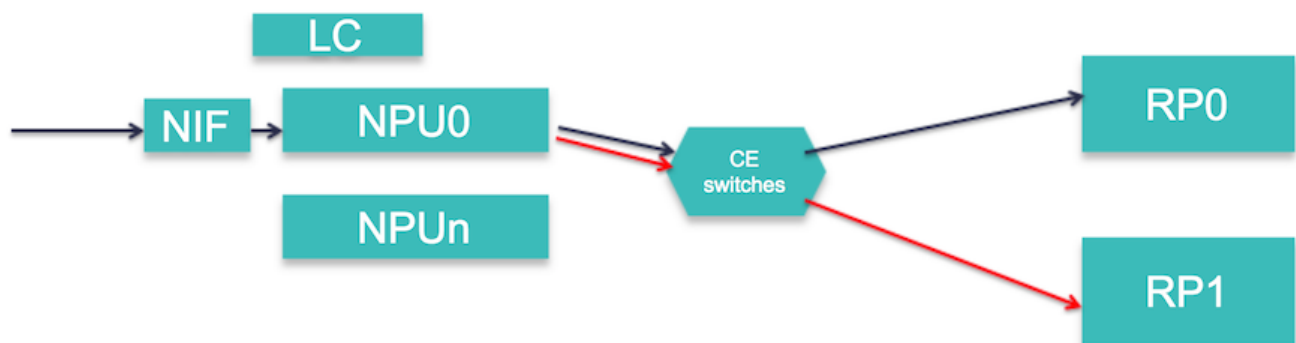
兩個CPU節點之間的分支路徑

NetIO→SPP→CE switches→SPP→NETIO

CE switches: SC, FC, LC switches

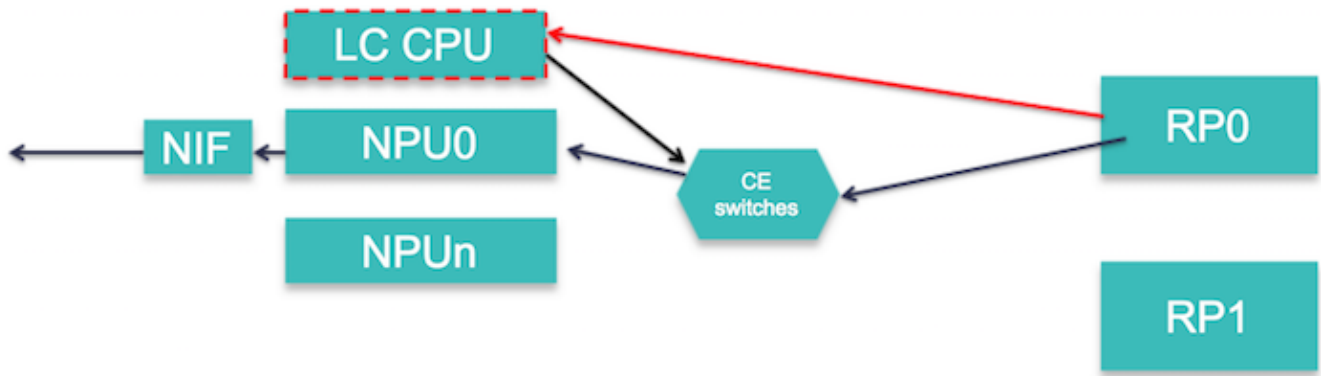


從NPU到RP CPU的列印路徑



RX Forus資料包在NPU上複製。一個被傳送到活動RP，另一個被傳送到站點RP

從RP CPU注射到NPU或LC CPU

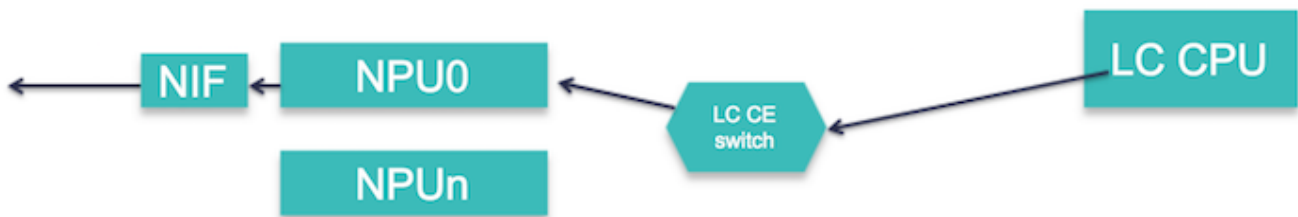


如果字首鄰接關係完成或它是預路由資料包，則直接將第3層資料包注入到NPU

在下列情況下，第3層封包會被注入到LC CPU:

- 字首鄰接為GLEN。
- MPLS路由前資料包
- 封包大小超過MTU。

從LC CPU向NPU插入路徑



從LC CPU向NPU注入以下資料包：

- ARP、ND、ICMP回應回覆、分段資料包
- CDP、LACP、LLDP、以太鏈路OAM資料包

CLI用於點選/插入調試

```
<#root>
```

```
Show SPP node counters location <>
```

```
show netio chain
```

```
location <>
```

```
show netio drop location <>
```

```
show ipv4/ipv6 traffic location <>
```

```
show fwd statistics location <>
```

```
show lpts pifib entry brief statistics location <>
```

```
show controllers fia diagshell
```

```
"diag counters g cdsp" location <>
```

```
show interface <> location <>
```

遠端Ping

封包路徑：回應請求

```
Local Node[ICMP(RP) -> IP I/O(RP) -> NetIO/Forwarder(RP) -> SPP(RP) -> NPU] -> wire -> Remote[NPU -> LPTS(HW) -> SPP(RP) -> FWD/NetIO(LC) -> IP I/O(LC) -> ICMP(LC)]
```

封包路徑：回應回覆

```
Remote Node[IPv4/ICMP (LC) -> FWD/NetIO (LC) -> SPP (LC) -> NPU] -> wire -> Local Node[LPTS(HW) -> SPP(RP) -> FWD/NetIO(RP) -> IP I/O(RP) -> ICMP(RP)]
```

本地Ping

封包路徑：回應請求

RP(ICMP/IPv4 IO -> netio -> SPP -> CE) -> LC(SPP -> netio -> ICMP/ipv4 IO)

封包路徑：回應回覆

LC(IPv4 IO/ICMP -> Netio -> SPP -> CE) -> RP(SPP -> net -> ipv4 io/ICMP)

有用的調試：

```
debug icmp ipv4 location 0/0/CPU0
```

```
debug ipv4 packet location 0/0/CPU0
```

```
debug ipv4 ping events location 0/0/CPU0
```

拓撲

Fretta_1(GigabitEthernet0/0/0/16) <---->(GigabitEthernet0/0/0/16) Fretta_2

```
RP/0/RP0/CPU0:fretta_1# ping 1.1.16.2 count 10000
```

用於檢查遠端Ping的命令

Echo Request:本地RP:TX

Path: ICMP(RP) -> IP I/O(RP) -> NetIO/Forwarder(RP) -> SPP(RP) -> NPU

1. IP I/O:檢查是否產生回應請求：

<#root>

show ipv4 traffic brief

ICMP statistics:

Sent:

0 admin unreachable, 0 network unreachable
0 host unreachable, 0 protocol unreachable
0 port unreachable, 0 fragment unreachable
0 time to live exceeded, 0 reassembly ttl exceeded

10000 echo request

, 0 echo reply
0 mask request, 0 mask reply
0 parameter error, 0 redirects
10000 total

2. NetIO

<#root>

RP/0/RP0/CPU0:fretta_1#show netio clients location 0/rp0/cpu0

Counters	Errors/Total

Output	0/10019
Input	0/11804
Puntback	0/0
Jump	0/0
Driver Output	0/10002
Mutex Bypass Counters	Total

Egress handled	0
Egress chainwalked	10006
Egress dropped	0
Ingress handled	10000
Ingress chainwalked	0
Ingress dropped	0

ClientID	Drop/Total	Drop/Total	Cur/High/Max	Cur/High/Max

ipv6_icmp	0/0	0/0	0/0/1000	0/0/1000
icmp	0/10000			
	0/0	0/1/1000	0/0/1000	

If ping is failing then check if it is getting dropped in Netio:

RP/0/RP0/CPU0:fretta_1#show netio drops location 0/rP0/CPU0
Thu Apr 20 20:28:09.577 UTC

Drops for interfaces on node 0/RP0/CPU0

No drops

3. SPP

<#root>

RP/0/RP0/CPU0:fretta_1#show spp node-counters
Thu Apr 20 20:29:05.785 UTC

0/0/CPU0:

fretta/classify

forwarded to spp clients:	10006
forwarded NPU packet to NetIO:	10006
dropped in classify node:	24
Fwded to CoPP sampler:	1
PUNT ARP:	1
PUNT IFIB:	10006
IFIB RAWIP4_FM:	10000
IFIB RAWIP6_FM:	6

client/inject

pkts injected into spp:	10002
NetIO->NPU injected into spp:	2
NetIO->CPU injected into spp:	10000
NetIO->NPU PROTO ARP:	2
NetIO->CPU PKT LPTS:	10000

socket/rx

ether raw pkts:	10031
-----------------	-------

socket/tx

ce pkts: 10002

client/punt

punted to client:	10007
-------------------	-------

0/RP0/CPU0:

socket/rx

ether raw pkts:	10002
mgmt interface pkts:	3204

```

socket/tx
      ce pkts:          10000
      mgmt interface pkts: 5
-----
fretta/classify
      forwarded to spp clients: 13204
      forwarded CPU packet to NetIO: 10000
      forwarded Mgmt packet to NetIO: 3204
      dropped in classify node: 2
-----
client/inject
      pkts injected into spp: 10005
      NetIO->NPU injected into spp: 10000
      MGMT_IF injected into spp: 5
      NetIO->NPU PROTO IPV4_PREROUTE: 10000
-----
client/punt
      punted to client: 13204
-----

```

4.檢查是否將回應請求傳送到電線：

```

RP/0/RP0/CPU0:fretta_1#show controllers gigabitEthernet 0/0/0/16 stats | be Egress
Thu Apr 20 21:17:28.176 UTC

```

Egress:

```

      Output total bytes          = 1140270
      Output good bytes           = 1140270

      Output total packets        = 10004
      Output 802.1Q frames        = 0
      Output pause frames         = 0
      Output pkts 64 bytes        = 1
      Output pkts 65-127 bytes    = 10003
      Output pkts 128-255 bytes   = 0
      Output pkts 256-511 bytes   = 0
      Output pkts 512-1023 bytes  = 0
      Output pkts 1024-1518 bytes = 0
      Output pkts 1519-Max bytes  = 0

      Output good pkts            = 10004
      Output unicast pkts         = 10000
      Output multicast pkts       = 3
      Output broadcast pkts       = 1

      Output drop underrun        = 0
      Output drop abort           = 0
      Output drop other           = 0

      Output error other          = 0

```

Echo Request:遠端LC:RX

Path: NPU -> LPTS(HW) -> SPP(LC) -> NetIO/Forwarder(LC) -> LPTS(SW)(LC) -> IP I/O (LC) -> ICMP (LC)

1.檢查是否從線路收到封包：

<#root>

RP/0/RP0/CPU0:fretta_2#show controllers gigabitEthernet 0/0/0/16 stats
Thu Apr 20 20:44:22.115 UTC
Statistics for interface GigabitEthernet0/0/0/16 (cached values):

Ingress:
Input total bytes = 1140270
Input good bytes = 1140270

Input total packets = 10004
Input 802.1Q frames = 0
Input pause frames = 0
Input pkts 64 bytes = 1

Input pkts 65-127 bytes = 10003

2.檢查LPTS計數器。

RP/0/RP0/CPU0:fretta_2#show lpts pifib hardware entry brief location 0/0/CPU0 | i ICMP
Thu Apr 20 20:45:54.687 UTC

<#root>

DestIP	SrcIP	vrf	L4	LPort/Type	RPort	npu	Flowtype	DestNo
0.0.0.0	0.0.0.0	0	1	ECHO	0	0		

ICMP- local

Local LC MEDIUM
10000
0

3. SPP

RP/0/RP0/CPU0:fretta_2#show spp node-counters location 0/0/CPU0

<#root>

```
fretta/classify
  forwarded to spp clients:      10006
  forwarded NPU packet to NetIO: 10006
  dropped in classify node:      22
    Fwded to CoPP sampler:      2
      PUNT ARP:                 2
      PUNT IFIB:                10006
    IFIB IPv4_STACK:            10000
    IFIB RAWIP6_FM:             6
```

```
-----
client/inject
  pkts injected into spp:      10002
  NetIO->NPU injected into spp: 10002
    NetIO->NPU PROTO ARP:      2
    NetIO->NPU PROTO IPV4:     10000
  -----
```

socket/rx

```
ether raw pkts: 10030
```

```
-----
socket/tx
  ce pkts: 10002
  -----
```

```
client/punt
  punted to client: 10008
  -----
```

4. Netio

show netio chains gigabitEthernet 0/0/0/16 location 0/0/cpu0

<#root>

<12> (ipv4) Stats IN: 10000 pkts, 1140000 bytes; OUT: 10000 pkts, 1140000 bytes

<#root>

Protocol	SAFI	Pkts In	Bytes In	Pkts Out	Bytes Out
ipv4	Unicast	10000			
1140000	10000	1000000			
ipv4	Multicast	0	0	0	0
ipv4	Broadcast	0	0	0	0
ipv6	Unicast	0	0	0	0
ipv6	Multicast	0	0	0	0

<#root>

RP/0/RP0/CPU0:fretta_2#show netio clients location 0/0/CPU0
Thu Apr 20 20:52:26.802 UTC

Counters	Errors/Total
Output	0/10002
Input	0/10008
Puntback	0/0
Jump	0/0
Driver Output	0/10002

XIPC queues	Dropped/Queued	Cur/High/Max
OutputL	0/10000	0/1/6000
OutputH	0/2	0/1/3000
Puntback	0/0	0/0/6000

ClientID	Input Drop/Total	Punt Drop/Total	XIPC InputQ Cur/High/Max	XIPC PuntQ Cur/High/Max
ipv6_icmp	0/0	0/0	0/0/1000	0/0/1000
icmp	0/10000	0/0	0/1/1000	0/0/1000
clns	L 0/0	0/0	L 0/0/1000	0/0/0
	H 0/0		H 0/0/1000	
ipv6_io	0/0	0/0	0/0/1000	0/0/1000
ipv6_nd	0/0	0/0	0/0/1500	0/0/1000
l2snoop	0/0	0/0	0/0/1000	0/0/0
ether_sock	0/0	0/0		
tp_oam	0/0	0/0	0/0/1000	0/0/1000
icmpv6_unreach_jump	0/0	0/0	0/0	
arp	0/2	0/0	0/1/1000	0/0/1000
mpls_io	0/0	0/0	0/0/1000	0/0/1000
ipv4	0/0	0/0	0/0/1000	0/0/1000
ipv6	0/0	0/0	0/0/1000	0/0/1000

Key:

L = queue for lower priority packets
H = queue for higher priority packets

5. FWD統計資料

<#root>

RP/0/RP0/CPU0:fretta_2#show fwd statistics all location 0/0/cpu0
Thu Apr 20 20:51:50.347 UTC
RECEIVE STATISTICS SUMMARY:

rx_pkts: 10008

punt_pkts: 10008

```
ingress_total_drops: 0
TRANSMIT STATISTICS SUMMARY:
inject_pkts: 10002
tx_pkts: 10002
egress_total_drops: 0
RP/0/RP0/CPU0:fretta_2#
```

6. IP IOS

```
show ipv4 traffic brief location 0/0/CPU0
```

```
<#root>
```

Rcvd:

```
0 admin unreachable, 0 network unreachable
  0 host unreachable, 0 protocol unreachable
  0 port unreachable, 0 fragment unreachable
  0 time to live exceeded, 0 reassembly ttl exceeded
```

10000 echo request

```
, 0 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
  10000 total, 0 checksum errors, 0 unknown
```

Echo Reply:遠端節點(LC):TX

```
Path: IPv4/ICMP (LC) -> FWD/NetIO (LC) -> SPP (LC) -> NPU
```

1. IP IO

```
RP/0/RP0/CPU0:fretta_2#show ipv4 traffic brief location 0/0/CPU0
```

```
<#root>
```

```
ICMP statistics:
```

Sent:

0 admin unreachable, 0 network unreachable
0 host unreachable, 0 protocol unreachable
0 port unreachable, 0 fragment unreachable
0 time to live exceeded, 0 reassembly ttl exceeded
0 echo request,

10000 echo reply

0 mask request, 0 mask reply
0 parameter error, 0 redirects
10000 total

2. Netio

show netio chains gigabitEthernet 0/0/0/16 location 0/0/cpu0

<#root>

<12> (ipv4) Stats IN: 10000 pkts, 1140000 bytes; OUT: 10000 pkts, 1140000 bytes

<#root>

Protocol	SAFI	Pkts In	Bytes In	Pkts Out	Bytes Out
-----	-----	-----	-----	-----	-----
ipv4	Unicast	10000	1140000		
10000					
1000000					
ipv4	Multicast	0	0	0	0
ipv4	Broadcast	0	0	0	0
ipv6	Unicast	0	0	0	0
ipv6	Multicast	0	0	0	0

<#root>

RP/0/RP0/CPU0:fretta_2#show netio clients location 0/0/CPU0
Thu Apr 20 20:52:26.802 UTC

Counters	Errors/Total
-----	-----
Output	0/10002
Input	0/10008
Puntback	0/0
Jump	0/0
Driver Output	0/10002

XIPC queues	Dropped/Queued	Cur/High/Max
-----	-----	-----
OutputL	0/10000	0/1/6000
OutputH	0/2	0/1/3000
Puntback	0/0	0/0/6000

3. FWD統計資訊

<#root>

RP/0/RP0/CPU0:fretta_2#show fwd statistics all location 0/0/cpu0

Thu Apr 20 20:51:50.347 UTC

RECEIVE STATISTICS SUMMARY:

rx_pkts: 10008

punt_pkts: 10008

ingress_total_drops: 0

TRANSMIT STATISTICS SUMMARY:

inject_pkts: 10002

tx_pkts: 10002

egress_total_drops: 0

4. SPP

show spp node-counters location 0/0/CPU0

<#root>

```
fretta/classify
  forwarded to spp clients:          10006
  forwarded NPU packet to NetIO:    10006
  dropped in classify node:          22
    Fwded to CoPP sampler:           2
      PUNT ARP:                      2
      PUNT IFIB:                     10006
      IFIB IPv4_STACK:               10000
      IFIB RAWIP6_FM:                6
-----
client/inject
  pkts injected into spp:           10002
  NetIO->NPU injected into spp:     10002
    NetIO->NPU PROTO ARP:             2
    NetIO->NPU PROTO IPV4:           10000
-----
socket/rx
  ether raw pkts:                   10030
```

socket/tx

ce pkts: 10002

client/punt

punted to client: 10008

5.檢查資料包是否發往電線。

<#root>

RP/0/RP0/CPU0:fretta_2#show controllers gigabitEthernet 0/0/0/16 stats

Thu Apr 20 21:20:22.593 UTC

Statistics for interface GigabitEthernet0/0/0/16 (cached values):

Egress:

Output total bytes = 1140270
Output good bytes = 1140270

Output total packets = 10004
Output 802.1Q frames = 0
Output pause frames = 0
Output pkts 64 bytes = 1

Output pkts 65-127 bytes = 10003

Output pkts 128-255 bytes = 0
Output pkts 256-511 bytes = 0
Output pkts 512-1023 bytes = 0
Output pkts 1024-1518 bytes = 0
Output pkts 1519-Max bytes = 0

Output good pkts = 10004
Output unicast pkts = 10000
Output multicast pkts = 3
Output broadcast pkts = 1

Output drop underrun = 0
Output drop abort = 0
Output drop other = 0

Output error other = 0

6.介面統計資訊

<#root>

```
RP/0/RP0/CPU0:fretta_2#show int gigabitEthernet 0/0/0/16
Thu Apr 20 21:21:37.942 UTC
GigabitEthernet0/0/0/16 is up, line protocol is up
  Interface state transitions: 1
  Hardware is GigabitEthernet, address is 008a.964a.7040 (bia 008a.964a.7040)
  Internet address is 1.1.16.2/24
  MTU 1514 bytes, BW 1000000 Kbit (Max: 1000000 Kbit)
    reliability 255/255, txload 0/255, rxload 0/255
  Encapsulation ARPA,
  Full-duplex, 1000Mb/s, link type is force-up
  output flow control is off, input flow control is off
  Carrier delay (up) is 10 msec
  Loopback not set,
  Last link flapped 01:00:13
  ARP type ARPA, ARP timeout 04:00:00
  Last input 00:56:58, output 00:56:58
  Last clearing of "show interface" counters never
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    10004 packets input, 1140270 bytes, 0 total input drops
    3 drops for unrecognized upper-level protocol
  Received 1 broadcast packets, 3 multicast packets
    0 runts, 0 giants, 0 throttles, 0 parity
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
```

10004 packets output

```
, 1140270 bytes, 0 total output drops
  Output 1 broadcast packets, 3 multicast packets
  0 output errors, 0 underruns, 0 applique, 0 resets
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
```

Echo Reply:本地節點(LC):RX

LPTS(HW) -> SPP(LC) -> NetIO/Forwarder(LC) -> LPTS PreIFIB Lookup -> SPP(LC) -> CE(LC) -> SPP(RP) -> Ne

1.檢查資料包是否從線路進入。

<#root>

```
RP/0/RP0/CPU0:fretta_1#show controllers gigabitEthernet 0/0/0/16 stats
Thu Apr 20 21:17:28.176 UTC
Statistics for interface GigabitEthernet0/0/0/16 (cached values):
```

Ingress:

Input total bytes	= 1140270
Input good bytes	= 1140270
Input total packets	= 10004
Input 802.1Q frames	= 0
Input pause frames	= 0
Input pkts 64 bytes	= 1

Input pkts 65-127 bytes = 10003

Input pkts 128-255 bytes = 0
Input pkts 256-511 bytes = 0
Input pkts 512-1023 bytes = 0
Input pkts 1024-1518 bytes = 0
Input pkts 1519-Max bytes = 0

Input good pkts = 10004
Input unicast pkts = 10000
Input multicast pkts = 3
Input broadcast pkts = 1

Input drop overrun = 0
Input drop abort = 0
Input drop invalid VLAN = 0
Input drop invalid DMAC = 0
Input drop invalid encap = 0
Input drop other = 0

Input error giant = 0
Input error runt = 0
Input error jabbers = 0
Input error fragments = 0
Input error CRC = 0
Input error collisions = 0
Input error symbol = 0
Input error other = 0

Input MIB giant = 0
Input MIB jabber = 0
Input MIB CRC = 0

2. LPTS計數器

RP/0/RP0/CPU0:fretta_1#show lpts pifib hardware entry brief locatio 0/0/CPU0

<#root>

0.0.0.0 0.0.0.0 0 1

ECHOREPLY

0 0 ICMP-app-default Local LC LOW

10000

0

3. LC上的SPP

<#root>

RP/0/RP0/CPU0:fretta_1#show spp node-counters location 0/0/CPU0

Thu Apr 20 21:01:31.974 UTC

fretta/classify

forwarded to spp clients:	10006
forwarded NPU packet to NetIO:	10006
dropped in classify node:	24
Fwded to CoPP sampler:	1
PUNT ARP:	1
PUNT IFIB:	10006
IFIB RAWIP4_FM:	10000
IFIB RAWIP6_FM:	6

client/inject

pkts injected into spp:	10002
NetIO->NPU injected into spp:	2
NetIO->CPU injected into spp:	10000
NetIO->NPU PROTO ARP:	2
NetIO->CPU PKT LPTS:	10000

socket/rx

ether raw pkts:	10031
-----------------	-------

socket/tx

ce pkts:	10002
----------	-------

client/punt

punted to client:	10007
-------------------	-------

4. LC上的Netio

RP/0/RP0/CPU0:fretta_1# show netio chains gigabitEthernet 0/0/0/16 location 0/0/cpu0

<#root>

<12> (ipv4) Stats IN: 10000 pkts, 1140000 bytes; OUT: 0 pkts, 0 bytes

<#root>

Protocol SAFI counts:

Protocol	SAFI	Pkts In	Bytes In	Pkts Out	Bytes Out
-----	-----	-----	-----	-----	-----
ipv4	Unicast	10000	1140000		

0	0				
ipv4	Multicast	0	0	0	0
ipv4	Broadcast	0	0	0	0
ipv6	Unicast	0	0	0	0
ipv6	Multicast	0	0	0	0

5. LC的FWD統計資訊。

<#root>

RP/0/RP0/CPU0:fretta_1#show fwd statistics all location 0/0/CPU0

Thu Apr 20 21:04:27.767 UTC

RECEIVE STATISTICS SUMMARY:

rx_pkts: 10007

punt_pkts: 10007

ingress_total_drops: 0

TRANSMIT STATISTICS SUMMARY:

inject_pkts: 10002

tx_pkts: 10002

egress_total_drops: 0

RP/0/RP0/CPU0:fretta_1#

5. LC上的SPP傳送到RP上的SPP。

<#root>

RP/0/RP0/CPU0:fretta_1#show spp node-counters location 0/0/CPU0

Thu Apr 20 21:01:31.974 UTC

fretta/classify

forwarded to spp clients:	10006
forwarded NPU packet to NetIO:	10006
dropped in classify node:	24
Fwded to CoPP sampler:	1
PUNT ARP:	1
PUNT IFIB:	10006
IFIB RAWIP4_FM:	10000
IFIB RAWIP6_FM:	6

client/inject

pkts injected into spp:	10002
NetIO->NPU injected into spp:	2
NetIO->CPU injected into spp:	10000
NetIO->NPU PROTO ARP:	2
NetIO->CPU PKT LPTS:	10000

socket/rx

ether raw pkts:	10031
-----------------	-------

socket/tx

ce pkts: 10002

client/punt

punted to client: 10007

6. RP上的SPP

<#root>

RP/0/RP0/CPU0:fretta_1#show spp node-counters location 0/rp0/CPU0
Thu Apr 20 21:06:33.045 UTC

socket/rx

ether raw pkts: 10002

mgmt interface pkts: 16651

socket/tx

ce pkts: 10000

mgmt interface pkts: 14

fretta/classify

forwarded to spp clients: 26651

forwarded CPU packet to NetIO: 10000

forwarded Mgmt packet to NetIO: 16651

dropped in classify node: 2

client/inject

pkts injected into spp: 10014

NetIO->NPU injected into spp: 10000

MGMT_IF injected into spp: 14

NetIO->NPU PROTO IPV4_PREROUTE: 10000

client/punt

punted to client: 26651

7. RP上的Netio。

<#root>

RP/0/RP0/CPU0:fretta_1#show netio clients location 0/RP0/CPU0
Thu Apr 20 21:05:05.977 UTC

Counters	Errors/Total
Output	0/10031
Input	0/25872
Puntback	0/0
Jump	0/0
Driver Output	0/10014

Mutex Bypass Counters	Total
Egress handled	0
Egress chainwalked	10018
Egress dropped	0
Ingress handled	10000
Ingress chainwalked	0
Ingress dropped	0

XIPC queues	Dropped/Queued	Cur/High/Max
OutputL	0/10004	0/1/6000
OutputH	0/14	0/1/3000
Puntback	0/0	0/0/6000
PMutex_egressL	0/10004	0/1/6000
PMutex_egressH	0/14	0/1/1500
PMutex_ingressL	0/0	0/0/6000
PMutex_ingressH	0/0	0/0/1500

ClientID	Input Drop/Total	Punt Drop/Total	XIPC InputQ Cur/High/Max	XIPC PuntQ Cur/High/Max
ipv6_icmp	0/0	0/0	0/0/1000	0/0/1000
icmp	0/10000	0/0	0/1/1000	0/0/1000
clns	L 0/0 H 0/0	0/0	L 0/0/1000 H 0/0/1000	0/0/0
eth_mgmt	0/0	0/0		
ipv6_io	0/0	0/4	0/0/1000	0/1/1000
ipv6_nd	0/4	0/0	0/1/1500	0/0/1000
l2snoop	0/0	0/0	0/0/1000	0/0/0
ether_sock	0/0	0/0		
icmpv6_unreach_jump	0/0	0/0	0/0	
raw	L 0/0 H 0/0	0/0	L 0/0/1600 H 0/0/1600	0/0/0
tcp	L 0/0 H 0/0	0/0	L 0/0/1600 H 0/0/1600	0/0/0
udp	L 0/307 H 0/0	0/0	L 0/1/1600 H 0/0/1600	0/0/0
arp	0/15565	0/0	0/4/1000	0/0/1000
mpls_io	0/0	0/0	0/0/1000	0/0/1000
lspv_server	0/0	0/0		
ipv4	0/0	0/0	0/0/1000	0/0/1000
ipv6	0/0	0/0	0/0/1000	0/0/1000

Key:

- L = queue for lower priority packets
- H = queue for higher priority packets

8. IP IO

RP/0/RP0/CPU0:fretta_1#

RP/0/RP0/CPU0:fretta_1#show ipv4 traffic brief

<#root>

Rcvd

: 0 admin unreachable, 0 network unreachable
 0 host unreachable, 0 protocol unreachable
 0 port unreachable, 0 fragment unreachable
 0 time to live exceeded, 0 reassembly ttl exceeded
 0 echo request,

10000 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
10000 total, 0 checksum errors, 0 unknown

9.介面統計資訊：

<#root>

RP/0/RP0/CPU0:fretta_1# show int gigabitEthernet 0/0/0/16

Thu Apr 20 21:22:12.822 UTC

GigabitEthernet0/0/0/16 is up, line protocol is up

 Interface state transitions: 1

 Hardware is GigabitEthernet, address is 008a.964b.7040 (bia 008a.964b.7040)

 Internet address is 1.1.16.1/24

 MTU 1514 bytes, BW 1000000 Kbit (Max: 1000000 Kbit)

 reliability 255/255, txload 0/255, rxload 0/255

 Encapsulation ARPA,

 Full-duplex, 1000Mb/s, link type is force-up

 output flow control is off, input flow control is off

 Carrier delay (up) is 10 msec

 loopback not set,

 Last link flapped 01:01:11

 ARP type ARPA, ARP timeout 04:00:00

 Last input 00:58:03, output 00:58:03

 Last clearing of "show interface" counters never

 5 minute input rate 0 bits/sec, 0 packets/sec

 5 minute output rate 0 bits/sec, 0 packets/sec

10004 packets input

, 1140270 bytes, 0 total input drops

```
3 drops for unrecognized upper-level protocol
Received 1 broadcast packets, 3 multicast packets
      0 runs, 0 giants, 0 throttles, 0 parity
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
10004 packets output, 1140270 bytes, 0 total output drops
Output 1 broadcast packets, 3 multicast packets
0 output errors, 0 underruns, 0 applique, 0 resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
```

RP/0/RP0/CPU0:fretta_1#

本地Ping

<待定>

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。