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## 简介

EtherChannel套件用于提供高带宽互联。此条款讨论应用对思科在运行Supervisor 720的Catalyst 6500交换机的EtherChannel以PFC3A、PFC3B或者PFC3BXL在EtherChannel成员接口能造成超出增加的限制。此限制与Layer2转发引擎涉及并且仅适用对第2层EtherChannel。

## 先决条件

### 要求

本文档没有任何特定的要求。

### 使用的组件

本文档中的信息根据运行Supervisor引擎720的Cisco Catalyst 6500系列交换机。WS-X6704-10GE用于此实验室setup.WS-X6704-10GE是Catalyst 6500模块没有超额预订&有20 Gbps 2结构信道连接中的每一。

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。

## 问题

Catalyst 6500也许体验接口被超出，当Layer2被分配的EtherChannel (DEC)时配置。DEC是与在不同的结构信道连接的在同一个线路卡，然而2个成员接口的一EtherChannel没有认为DEC。

超出计数器帐户次数接收方硬件无法递交接收的数据到硬件缓冲。换句话说，输入速率流量超出了接收方的能力处理数据。

在某些情况下，DFC提供功能重新传布数据包。再通行在ACL或QoS可以用于执行另外的查找三重内容可编址存储器，Netflow表或者转发信息库(FIB) TCAM表。数据包再通行在特定信息包信息包流仅发生;其他数据包流不受影响。数据包的重写在模块发生;数据包然后转发回到另外处理的策略特性卡(PFC)。

在信息包转发期间，当曾经第2层DEC时，数据包再通行在入口模块要求。如果Catalyst 6500在直

通业务模式运行与3B/3BXL PFC模式一起，再通行为多模块L2 EtherChannel也要求。

关于直通业务模式的更多信息可用的[在这里](#)。

当结构利用率到达大约50%时，超出计数器能开始增加。

## 排除故障&验证

1) 发现在体验的EtherChannel的成员接口增加超出。

2) 验证在成员接口的输入速率和超出计数器。

```
6500#show interfaces tenGigabitEthernet 2/1
TenGigabitEthernet2/1 is up, line protocol is up (connected)
Hardware is C6k 10000Mb 802.3, address is 0002.fcc1.21ac (bia 0002.fcc1.21ac)
MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 251/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 10Gb/s, media type is 10Gbase-SR
input flow-control is on, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output 00:00:51, output hang never
Last clearing of "show interface" counters 00:00:13
Input queue: 0/2000/5597178/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
30 second input rate 9868906000 bits/sec, 822409 packets/sec
30 second output rate 3000 bits/sec, 5 packets/sec
10968368 packets input, 16452552000 bytes, 0 no buffer
Received 0 broadcasts (0 multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 5597195 overrun, 0 ignored
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
79 packets output, 5596 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier, 0 PAUSE output
0 output buffer failures, 0 output buffers swapped out
```

```
6500#show interfaces tenGigabitEthernet 2/2
TenGigabitEthernet2/2 is up, line protocol is up (connected)
Hardware is C6k 10000Mb 802.3, address is 0002.fcc1.21ad (bia 0002.fcc1.21ad)
MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 251/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 10Gb/s, media type is 10Gbase-SR
input flow-control is on, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output 00:00:26, output hang never
Last clearing of "show interface" counters 00:00:03
Input queue: 0/2000/45043/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
30 second input rate 9868149000 bits/sec, 822345 packets/sec
30 second output rate 2000 bits/sec, 4 packets/sec
8823464 packets input, 13233496000 bytes, 0 no buffer
```

```
Received 0 broadcasts (0 multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 4575029 overrun, 0 ignored
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier, 0 PAUSE output
0 output buffer failures, 0 output buffers swapped out
```

### 3) 发现这些接口是存在的模块。

```
6500#show interfaces tenGigabitEthernet 2/1
TenGigabitEthernet2/1 is up, line protocol is up (connected)
Hardware is C6k 10000Mb 802.3, address is 0002.fcc1.21ac (bia 0002.fcc1.21ac)
MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 251/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 10Gb/s, media type is 10Gbase-SR
input flow-control is on, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output 00:00:51, output hang never
Last clearing of "show interface" counters 00:00:13
Input queue: 0/2000/5597178/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
30 second input rate 9868906000 bits/sec, 822409 packets/sec
30 second output rate 3000 bits/sec, 5 packets/sec
10968368 packets input, 16452552000 bytes, 0 no buffer
Received 0 broadcasts (0 multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 5597195 overrun, 0 ignored
0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
79 packets output, 5596 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier, 0 PAUSE output
0 output buffer failures, 0 output buffers swapped out
```

```
6500#show interfaces tenGigabitEthernet 2/2
TenGigabitEthernet2/2 is up, line protocol is up (connected)
Hardware is C6k 10000Mb 802.3, address is 0002.fcc1.21ad (bia 0002.fcc1.21ad)
MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 251/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 10Gb/s, media type is 10Gbase-SR
input flow-control is on, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output 00:00:26, output hang never
Last clearing of "show interface" counters 00:00:03
Input queue: 0/2000/45043/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
30 second input rate 9868149000 bits/sec, 822345 packets/sec
30 second output rate 2000 bits/sec, 4 packets/sec
8823464 packets input, 13233496000 bytes, 0 no buffer
Received 0 broadcasts (0 multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 4575029 overrun, 0 ignored
```

```

0 watchdog, 0 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier, 0 PAUSE output
0 output buffer failures, 0 output buffers swapped out

```

4) 发现矩阵接口利用率与这些模块相应。

```

6500#show fabric utilization
slot    channel    speed    Ingress %    Egress %
  2      0        20G      0            0
  2      1        20G     49            0
  3      0        20G      0            0
  3      1        20G      0            50
  5      0        20G      0            0

```

5) 如上所见，接口Tengigabitethernet 2/1和Tengigabitethernet 2/2运行以线路速率，但是超出(丢包)在入口发生由于入口流量控制。为了检查交换机是否体验流量控制和遇到下面限制描述的以上使用命令。

```

6500#show platform hardware capacity rewrite-engine performance slot 2
slot channel perf_id description          packets          total overruns
-----+-----+-----+-----+-----+-----+
2    0    0x235  FAB RX 0          41083            0
2    0    0x237  FAB RX 1            0                0
2    0    0x27B  FAB TX 0          1904             0
2    0    0x27F  FAB TX 1            0                0
2    0    0x350  REPLICATION ML3    0                0
2    0    0x351  REPLICATION ML2    0                0
2    0    0x352  RECIRC L2          0                0
2    0    0x353  RECIRC L3          0                0
2    0    0x34C  SPAN TX 0          0                0
2    0    0x34D  SPAN TX 1          0                0
2    0    0x34E  SPAN RX 0          0                0
2    0    0x34F  SPAN RX 1          0                0
2    0    0x354  SPAN TERMINATION  0                0
2    1    0x235  FAB RX 0       759500888        0
2    1    0x237  FAB RX 1            0                0
2    1    0x27B  FAB TX 0       4545890286       0
2    1    0x27F  FAB TX 1            0                0
2    1    0x350  REPLICATION ML3    0                0
2    1    0x351  REPLICATION ML2    0                0
2    1    0x352  RECIRC L2       68615145         1047 <<< L2 Recirculation
2    1    0x353  RECIRC L3            0                0
2    1    0x34C  SPAN TX 0          0                0
2    1    0x34D  SPAN TX 1          0                0
2    1    0x34E  SPAN RX 0          0                0
2    1    0x34F  SPAN RX 1          0                0
2    1    0x354  SPAN TERMINATION  0                0

```

上述输出表明入口复制引擎是执行的L2再通行由于L2 12月的出现由于再通行，数据包两次到达在复制引擎两次使用带宽的时间。换句话说，因为每每数据包两次被看到内部地，单个结构信道性能切成两半。

## 解决方案

1) 配置没有影响的是受此限制的一非分布式EtherChannel。

要验证此理论，EtherChannel在同样模块(非DEC)的接口配置，并且注意到以数据包速率和上述一样，接口没有看到任何超出增加。这可以是绕过此问题的应急方案。

```

6500#show fabric utilization
slot    channel    speed    Ingress %    Egress %

```

2	0	20G	0	0
2	1	20G	99	0
3	0	20G	0	0
3	1	20G	0	99
5	0	20G	0	0

```
TenGigabitEthernet2/1 is up, line protocol is up (connected)
Hardware is C6k 10000Mb 802.3, address is 0002.fcc1.21ac (bia 0002.fcc1.21ac)
MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 251/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 10Gb/s, media type is 10Gbase-SR
input flow-control is on, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output 00:00:06, output hang never
Last clearing of "show interface" counters 00:36:12
Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
30 second input rate 9868487000 bits/sec, 822374 packets/sec
30 second output rate 3000 bits/sec, 6 packets/sec
 1783710310 packets input, 2675565466500 bytes, 0 no buffer
Received 0 broadcasts (0 multicasts)
 0 runs, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
13115 packets output, 946206 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier, 0 PAUSE output
 0 output buffer failures, 0 output buffers swapped out
```

```
TenGigabitEthernet2/2 is up, line protocol is up (connected)
Hardware is C6k 10000Mb 802.3, address is 0002.fcc1.21ad (bia 0002.fcc1.21ad)
MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 251/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 10Gb/s, media type is 10Gbase-SR
input flow-control is on, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output 00:00:11, output hang never
Last clearing of "show interface" counters 00:37:31
Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
30 second input rate 9868462000 bits/sec, 822371 packets/sec
30 second output rate 3000 bits/sec, 6 packets/sec
 1849499775 packets input, 2774249662500 bytes, 0 no buffer
Received 0 broadcasts (0 multicasts)
 0 runs, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
 0 watchdog, 0 multicast, 0 pause input
 0 input packets with dribble condition detected
13599 packets output, 980928 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier, 0 PAUSE output
 0 output buffer failures, 0 output buffers swapped out
```

2) 万-L2 DEC要求，请使用Catalyst 6500交换机在PFC 3C/3CXL模式。

**注意：**万一现有的模块运行DFC3A/ DFC3B/ DFC3BXL，DFC硬件升级将要求。

**3) 如果您的设计和配置适用于在[CSCti23324](#)的条件请升级IOS版本。**

此bug修复放松L2 DEC的再通行需求或Catalyst 6500交换机的多模块EtherChannel用67xx仅模块。此bug在Cisco IOS版本12.2(33)SXJ1和以上被解决。注意适用于此bug的下列问题。

a) bug修复放宽L2 DEC或多模块EC的再通行需求仅Catalyst 6500交换机67xx模块的。万一Catalyst 6500交换机有在所有更旧的DFC 67xx和6516/6818模块间的模块(即6516/6816)或组合的至少一个L2 DEC，再通行行为在系统配置的所有L2 DEC将强加。万一Catalyst 6500交换机有所有更旧的模块和配置与L2在67xx仅模块的DEC，不会强加再通行。

b) 所有67xx线卡出现不是去除DEC的再通行需求的足够。例如，如果有在2 6704在6748 CFC和另一Port-Channel间的DEC配置的DFCs，系统将检查Supervisor转发引擎(CFC模块)使用再通行，和开始。

c) 对于VS-SUP720-10G，此bug修复在L2 DEC至少一个端口在CFC线路卡/Supervisor的方案不工作。在此方案中再通行仍然发生。另外，邻接没有升级，并且再通行到位，即使您从Port-Channel取消supervisor/CFC可用的端口。在这样方案中，重新加载要求重编程序硬件，并且删除&重新配置Port-Channel/redundancy switchover/删除L2 VLAN等等不帮助。