Nexus 7000 F2/F2e长距离FCoE多跳入口缓冲区修改

目录

简介

本文档旨在展示如何修改Cisco Nexus 7000(N7k)Cisco Nexus 7000 48端口1和10千兆以太网F2系列模块(F2)和Cisco Nexus 7000增强型F2系列48端口光纤上的入口缓冲区用于虚拟通道3(VL3)的1和10千兆以太网模块(F2e)线卡。

此外，您还会看到修改这些值后为VL3获得的入口缓冲容量。

问题

在距离超过2千米的数据中心之间使用以太网光纤通道(FCoE)多跳连接可能导致输入丢弃。默认情况下，F2/F2e线卡在延迟缓冲区中有0页，以在发送暂停后对数据包进行排队，这将导致长距离FCoE多跳接口上的输入丢弃。

延迟缓冲区定义如下：

PL_STOP - HWM(PL_Pause)= LB（延迟缓冲区）

您会注意到上述值显示为页面。每页大约为384字节。

请注意，使用默认FCoE QoS策略的VL3的入口缓冲容量如下：

EX

```
module-10# show hardware internal mac port 1 qos configuration | begin IB | end EB
  IB
    Port page limit : 3584 (1376256 Bytes)
    VL#  HWM pages(bytes)  LWM pages(bytes) Used PL_STOP(HWM & LWM) SPAN
                                      pages                      THR
     0    1107 (  425088)   1035 (  397440)     0     1107   1035    100
     1       2 (     768)      1 (     384)     0        2      1      1
     2       2 (     768)      1 (     384)     0        2      1      1
     3    1053 (  404352)   1029 (  395136)     0     1053   1029    100
     4    1107 (  425088)   1083 (  415872)     0     1107   1083    100
     5     231 (   88704)    159 (   61056)     0      231    159     57
     6       2 (     768)      1 (     384)     0        2      1      1
     7       2 (     768)      1 (     384)     0        2      1      1
    Credited DWRR WT: 216 (0xd8) Uncredited DWRR WT: 144 (0x90)
    DWRR honor UC = FALSE
```

```
    Leak Lo weight = 0xd8, enabled = FALSE
  EB
```

PL_STOP和高水位标记(HWM)的值相同。在此，您可以看到延迟缓冲区默认有0页。要支持长距离FCoE，需要修改这些值。

解决方案

首先，您需要复制“default-4q-7e-in-policy”服务质量(QoS)策略映射：

```
Switch(config)# qos copy policy-map type queuing ?
*** No matching command found in current mode, matching in (exec) mode ***
  default-4q-7e-in-policy   Default 7-ethernet input queuing policy
  default-4q-7e-out-policy  Default 7-ethernet output queuing policy

Switch(config)# qos copy policy-map type queuing default-4q-7e-in-policy prefix 7I_
```

在下面，您将看到在修改服务策略后分配给VL3的延迟缓冲区的字节数。

注意：在将队列限制的至少60%分配给“丢弃”策略之前，您不会看到延迟缓冲区。

策略将以10为增量进行修改，最多99%

```
60/40 ingess buffer allocation
==============================
policy-map type queuing 7I_4q-7e-in
  class type queuing c-4q-7e-drop-in
    service-policy type queuing 7I_4q-7e-drop-in
    queue-limit percent 40
  class type queuing c-4q-7e-ndrop-in
    service-policy type queuing 7I_4q-7e-ndrop-in
    queue-limit percent 60

interface Ethernet2/5
  service-policy type queuing input 7I_4q-7e-in

module-2# show hardware internal mac port 5 qos configuration | begin IB | end EB
  IB
    Port page limit : 3584 (1376256 Bytes)
    VL#  HWM pages(bytes)  LWM pages(bytes) Used PL_STOP(HWM & LWM) SPAN
                                      pages                     THR
     0     624 (  239616)    576 (  221184)     0      624    576    100
     1       2 (     768)      1 (     384)     0        2      1      1
     2     624 (  239616)    576 (  221184)     0      624    576    100
     3    1913 (  734592)   1889 (  725376)     0     2126   1889    100
     4       2 (     768)      1 (     384)     0        2      1      1
     5     124 (   47616)     52 (   19968)     0      124     52     31
     6       2 (     768)      1 (     384)     0        2      1      1
     7       2 (     768)      1 (     384)     0        2      1      1
    Credited DWRR WT: 216 (0xd8) Uncredited DWRR WT: 144 (0x90)
    DWRR honor UC = FALSE
     Leak Lo weight = 0xd8, enabled = FALSE
  EB
```

60/40将向vl3延迟缓冲区分配81792字节。

PL_STOP - HWM * 384字节
2126 - 1913 = 213页* 384 = 81792字节

```
70/30 ingress buffer allocation
==============================
policy-map type queuing 7I_4q-7e-in
  class type queuing c-4q-7e-drop-in
    service-policy type queuing 7I_4q-7e-drop-in
    queue-limit percent 30
  class type queuing c-4q-7e-ndrop-in
    service-policy type queuing 7I_4q-7e-ndrop-in
    queue-limit percent 70

interface Ethernet2/5
  service-policy type queuing input 7I_4q-7e-in

module-2# show hardware internal mac port 5 qos configuration | begin IB | end EB
  IB
    Port page limit : 3584 (1376256 Bytes)
    VL#  HWM pages(bytes)  LWM pages(bytes) Used PL_STOP(HWM & LWM) SPAN
                                            pages                   THR
     0     463 (  177792)    415 (  159360)     0      463    415    100
     1       2 (     768)      1 (     384)     0        2      1      1
     2     463 (  177792)    415 (  159360)     0      463    415    100
     3    1987 (  763008)   1963 (  753792)     0     2484   1963    100
     4       2 (     768)      1 (     384)     0        2      1      1
     5      88 (   33792)     16 (    6144)     0       88     16     22
     6       2 (     768)      1 (     384)     0        2      1      1
     7       2 (     768)      1 (     384)     0        2      1      1
    Credited DWRR WT: 216 (0xd8) Uncredited DWRR WT: 144 (0x90)
    DWRR honor UC = FALSE
     Leak Lo weight = 0xd8, enabled = FALSE
  EB
```

70/30将190848字节分配给VL3延迟缓冲区。

```
policy-map type queuing 7I_4q-7e-in
  class type queuing c-4q-7e-drop-in
    service-policy type queuing 7I_4q-7e-drop-in
    queue-limit percent 20
  class type queuing c-4q-7e-ndrop-in
    service-policy type queuing 7I_4q-7e-ndrop-in
    queue-limit percent 80

interface Ethernet2/5
  service-policy type queuing input 7I_4q-7e-in

module-2# show hardware internal mac port 5 qos configuration | begin IB | end EB
  IB
    Port page limit : 3584 (1376256 Bytes)
    VL#  HWM pages(bytes)  LWM pages(bytes) Used PL_STOP(HWM & LWM) SPAN
                                            pages                   THR
     0     302 (  115968)    254 (   97536)     0      302    254     75
     1       2 (     768)      1 (     384)     0        2      1      1
     2     302 (  115968)    254 (   97536)     0      302    254     75
     3    1875 (  720000)   1851 (  710784)     0     2841   1851    100
     4       2 (     768)      1 (     384)     0        2      1      1
     5      52 (   19968)     46 (   17664)     0       52     46     13
     6       2 (     768)      1 (     384)     0        2      1      1
     7       2 (     768)      1 (     384)     0        2      1      1
    Credited DWRR WT: 216 (0xd8) Uncredited DWRR WT: 144 (0x90)
```

```
    DWRR honor UC = FALSE
     Leak Lo weight = 0xd8, enabled = FALSE
  EB
```

80/20将370944字节分配给VL3延迟缓冲区。

```
policy-map type queuing 7I_4q-7e-in
  class type queuing c-4q-7e-drop-in
    service-policy type queuing 7I_4q-7e-drop-in
    queue-limit percent 10
  class type queuing c-4q-7e-ndrop-in
    service-policy type queuing 7I_4q-7e-ndrop-in
    queue-limit percent 90


interface Ethernet2/5
  service-policy type queuing input 7I_4q-7e-in

module-2# show hardware internal mac port 5 qos configuration | begin IB | end EB
  IB
    Port page limit : 3584 (1376256 Bytes)
    VL#  HWM pages(bytes)  LWM pages(bytes) Used PL_STOP(HWM & LWM) SPAN
                                           pages                    THR
     0     141 (   54144)     93 (   35712)     0      141     93     35
     1       2 (     768)      1 (     384)     0        2      1      1
     2     141 (   54144)     93 (   35712)     0      141     93     35
     3    1055 (  405120)   1031 (  395904)     0     3199   1031    100
     4       2 (     768)      1 (     384)     0        2      1      1
     5      16 (    6144)     10 (    3840)     0       16     10      4
     6       2 (     768)      1 (     384)     0        2      1      1
     7       2 (     768)      1 (     384)     0        2      1      1
    Credited DWRR WT: 216 (0xd8) Uncredited DWRR WT: 144 (0x90)
    DWRR honor UC = FALSE
     Leak Lo weight = 0xd8, enabled = FALSE
  EB
```

90/10将823296字节分配给VL3延迟缓冲区

```
policy-map type queuing 7I_4q-7e-in
  class type queuing c-4q-7e-drop-in
    service-policy type queuing 7I_4q-7e-drop-in
    queue-limit percent 1
  class type queuing c-4q-7e-ndrop-in
    service-policy type queuing 7I_4q-7e-ndrop-in
    queue-limit percent 99


interface Ethernet2/5
  service-policy type queuing input 7I_4q-7e-in

module-2# show hardware internal mac port 5 qos configuration | begin IB | end EB
  IB
    Port page limit : 3584 (1376256 Bytes)
    VL#  HWM pages(bytes)  LWM pages(bytes) Used PL_STOP(HWM & LWM) SPAN
                                           pages                    THR
     0      15 (    5760)      9 (    3456)     0       15      9      3
     1       2 (     768)      1 (     384)     0        2      1      1
     2      15 (    5760)      9 (    3456)     0       15      9      3
     3    1161 (  445824)   1137 (  436608)     0     3521   1137    100
     4       2 (     768)      1 (     384)     0        2      1      1
     5       3 (    1152)      0 (       0)     0        3      0      1
     6       2 (     768)      1 (     384)     0        2      1      1
```

```
    7       2 (     768)      1 (     384)     0        2      1      1
   Credited DWRR WT: 216 (0xd8) Uncredited DWRR WT: 144 (0x90)
   DWRR honor UC = FALSE
    Leak Lo weight = 0xd8, enabled = FALSE
EB
```

99/1将906240字节分配给VL3延迟缓冲区

注意：每个Clipper ASIC有6MB的缓冲容量。每个客户端有4个端口，因此这相当于每个端口约1.5MB的缓冲容量。对于99/1，您将看到~.9MB被分配到VL3延迟缓冲区，其余由HWM用于每个VL（大多数到VL3）。 当将每个VL HWM与VL3的LB相加时，您会看到它相当于约1.35MB缓冲容量。