

# 关于优先级平湖B2B学分的技术说明在MD交换机

## 目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[了解优先级在MD交换机的平湖B2B学分](#)

[Inter-Switch Link \(ISL\)协议\(ISL\)中继接口](#)

[MD 9148S平台示例：](#)

[MD 9710交换机示例：](#)

## 简介

本文描述接收和传输缓冲区对缓冲区(B2B)除帐用不同的接口，是有用的，当您排除故障在光纤信道结构时的性能问题。

## 先决条件

### 要求

Cisco 建议您了解以下主题：

- 思科多层数据交换(MD)
- 光纤信道协议

### 使用的组件

本文档中的信息根据Cisco MDS 9000系列多层交换机。

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。如果您的网络实际，请保证您了解所有命令潜在影响。

## 了解优先级在MD交换机的平湖B2B学分

当您排除故障光纤信道结构网络的时缓慢的流失问题，确认接口的可用的除帐的简单的方法是**show interface**命令在MD交换机。

下列解释在MD接口的传输B2B除帐。

### Inter-Switch Link (ISL)协议(ISL)中继接口

当高优先权除帐是为交换机间链路控制流量时，低优先级的除帐使用数据流。这是在限制自己的发送方侧的一逻辑划分，以便不消耗在接收方的所有可用的接收(Rx)除帐。

例如，交换机MD Tempest (接收方)告诉该交换机MD的艺术大师(发送方)它有64笔Rx赊帐。

交换MD艺术大师标记56笔赊帐作为低优先级的Transmit(Tx)赊帐和8作为高优先权Tx赊帐。

在拥塞的情况下，当56笔低优先级的赊帐都不是可用的时，MD艺术大师停止发送数据流。

然而，它能仍然发送控制流量到MD Tempest使用联机8笔高优先权赊帐。

没有需要对于MD Tempest做在低或高优先权赊帐之间的一差异化。

**Note:**高优先级TX传输信用值编号取决于不同的硬件平台。

这是一般概念：一个出于八TX传输信用值将是一高优先权信用值，并且最大数量是15 -满足处理ELP或其他ISL控制消息。

此上下交替的优先级差异化仅是为E端口或TE端口之间的ISL链路和没有用于F端口。

### MD 9148S平台示例：

E端口接口：

```
Tempest# show int fc1/26 fc1/26 is trunking Hardware is Fibre Channel, SFP is short wave laser
w/o OFC (SN) Port WWN is 20:1a:00:2a:6a:b9:d2:30 Peer port WWN is 20:1a:00:2a:6a:56:f0:00 Admin
port mode is auto, trunk mode is on snmp link state traps are enabled Port mode is TE Port vsan
is 2 Admin Speed is auto Operating Speed is 4 Gbps Rate mode is dedicated Port flow-control is
R_RDY Transmit B2B Credit is 32 Receive B2B Credit is 64 B2B State Change Number is 14 Receive
data field Size is 2112 Beacon is turned off Logical type is core Trunk vsans (admin allowed and
active) (2) Trunk vsans (up) (2) Trunk vsans (isolated) () Trunk vsans (initializing) () 5
minutes input rate 160 bits/sec,20 bytes/sec, 0 frames/sec 5 minutes output rate 96 bits/sec,12
bytes/sec, 0 frames/sec 22464 frames input,1801536 bytes 0 discards,0 errors 0 invalid CRC/FCS,0
unknown class 0 too long,0 too short 22977 frames output,1318564 bytes 0 discards,0 errors 0
input OLS,0 LRR,0 NOS,2 loop inits 1 output OLS,2 LRR, 0 NOS, 1 loop inits 64 receive B2B credit
remaining 32 transmit B2B credit remaining
28 low priority transmit B2B credit remaining
Interface last changed at Thu Jul 20 15:40:32 2017

Last clearing of "show interface" counters : never
```

Tempest#

链路的orther末端显示总传输信用值是64，并且低优先级是56：

```
Maestro# show int fc1/26
fc1/26 is trunking
Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
Port WWN is 20:1a:00:2a:6a:56:f0:00
Peer port WWN is 20:1a:00:2a:6a:b9:d2:30
Admin port mode is auto, trunk mode is on
snmp link state traps are enabled
Port mode is TE
Port vsan is 2
Speed is 4 Gbps
Rate mode is dedicated
Transmit B2B Credit is 64
Receive B2B Credit is 32
B2B State Change Number is 14
```

```
Receive data field Size is 2112
Beacon is turned off
admin fec state is down
oper fec state is down
Trunk vsans (admin allowed and active) (2)
Trunk vsans (up) (2)
Trunk vsans (isolated) ()
Trunk vsans (initializing) ()
5 minutes input rate 160 bits/sec,20 bytes/sec, 0 frames/sec
5 minutes output rate 216 bits/sec,27 bytes/sec, 0 frames/sec
 23189 frames input,1330368 bytes
   0 discards,0 errors
   0 invalid CRC/FCS,0 unknown class
   0 too long,0 too short
22677 frames output,1818076 bytes
   0 discards,0 errors
1 input OLS,2 LRR,0 NOS,3 loop inits
1 output OLS,0 LRR, 0 NOS, 1 loop inits
32 receive B2B credit remaining
64 transmit B2B credit remaining
56 low priority transmit B2B credit remaining
Interface last changed at Wed Jul 19 16:39:58 2017

Last clearing of "show interface" counters 1w 5d
```

Maestro#

F端口接口：

一旦F端口，因为没有MD交换机和发起者/目标设备之间的控制流量此计算不应用。

然而，您能看到被标记作为数据流的低优先级的所有传输除帐在F端口。

例如，总计传输信用值是3，并且低优先级是3在以下输出中：

```
switch# show int fc1/47
fc1/47 is up
Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
Port WWN is 20:2f:00:2a:6a:56:f0:00
Admin port mode is F, trunk mode is on
snmp link state traps are enabled
Port mode is F, FCID is 0x570f00
Port vsan is 2
Speed is 4 Gbps
Rate mode is dedicated
Transmit B2B Credit is 3
Receive B2B Credit is 32
Receive data field Size is 2112
Beacon is turned off
admin fec state is down
oper fec state is down
5 minutes input rate 0 bits/sec,0 bytes/sec, 0 frames/sec
5 minutes output rate 16 bits/sec,2 bytes/sec, 0 frames/sec
 1220 frames input,74256 bytes
   0 discards,0 errors
   0 invalid CRC/FCS,0 unknown class
   0 too long,0 too short
2231 frames output,220056 bytes
   0 discards,0 errors
1 input OLS,1 LRR,0 NOS,0 loop inits
```

```
1 output OLS,0 LRR, 1 NOS, 0 loop inits
32 receive B2B credit remaining
3 transmit B2B credit remaining
3 low priority transmit B2B credit remaining
Interface last changed at Wed Jul 19 15:56:15 2017
```

Last clearing of "show interface" counters 1w 5d

switch#

## MD 9710交换机示例：

没有在MDS97xx交换机的高优先权Tx传输赊帐。然而，这可以由system命令默认tx信用值双队列更改。

最大Tx传输赊帐能从连接的交换机的接口也被看到。

拓扑：MD 9710伦纳德fc3/14紧接连接对MD 9148S Tempest fc1/13通过E端口。

## 默认设置：

默认情况下，MD 9710 DS-X9448-768K9线卡没有高优先权赊帐，全部64笔传输赊帐是视为的低优先级。

```
Leonard(config-if)# show int fc3/14 counter
fc3/14
 5 minutes input rate 320 bits/sec, 40 bytes/sec, 3 frames/sec
 5 minutes output rate 2688 bits/sec, 336 bytes/sec, 3 frames/sec
1416819 frames input, 77233324 bytes
 0 discards, 0 errors, 0 CRC/FCS
 0 unknown class, 0 too long, 0 too short
1416813 frames output, 138598368 bytes
 0 discards, 0 errors
 0 timeout discards, 0 credit loss
 53 input OLS, 85 LRR, 119 NOS, 0 loop inits
 77 output OLS, 7 LRR, 93 NOS, 0 loop inits
 14 link failures, 37 sync losses, 2 signal losses
 140 Transmit B2B credit transitions to zero
 92 Receive B2B credit transitions to zero
 0 2.5us TxWait due to lack of transmit credits
Percentage Tx credits not available for last 1s/1m/1h/72h: 0%/0%/0%/0%
 500 receive B2B credit remaining
64 transmit B2B credit remaining
64 low priority transmit B2B credit remaining
Last clearing of "show interface" counters : never
Leonard(config-if)#
```

## 使用tx信用值双队列：

在发出on命令以后请交换伦纳德系统默认tx信用值双队列

(需要由shut/no shut重置接口)

```
Leonard(config-if)# show int fc3/14 counter
fc3/14
 5 minutes input rate 320 bits/sec, 40 bytes/sec, 3 frames/sec
```

```

5 minutes output rate 2688 bits/sec, 336 bytes/sec, 3 frames/sec
1416819 frames input, 77233324 bytes
  0 discards, 0 errors, 0 CRC/FCS
  0 unknown class, 0 too long, 0 too short
1416813 frames output, 138598368 bytes
  0 discards, 0 errors
0 timeout discards, 0 credit loss
53 input OLS, 85 LRR, 119 NOS, 0 loop inits
77 output OLS, 7 LRR, 93 NOS, 0 loop inits
14 link failures, 37 sync losses, 2 signal losses
  140 Transmit B2B credit transitions to zero
  92 Receive B2B credit transitions to zero
  0 2.5us TxWait due to lack of transmit credits
  Percentage Tx credits not available for last 1s/1m/1h/72h: 0%/0%/0%/0%
  500 receive B2B credit remaining
64 transmit B2B credit remaining
64 low priority transmit B2B credit remaining
Last clearing of "show interface" counters : never
Leonard(config-if)#

```

能被看到有8笔高优先级Tx传输B2B除帐和56笔低优先级的除帐：

```

Leonard(config-if)# show int fc3/14 counter
fc3/14
  5 minutes input rate 320 bits/sec, 40 bytes/sec, 2 frames/sec
  5 minutes output rate 256 bits/sec, 32 bytes/sec, 2 frames/sec
1420613 frames input, 77459300 bytes
  0 discards, 0 errors, 0 CRC/FCS
  0 unknown class, 0 too long, 0 too short
1420607 frames output, 138968464 bytes
  0 discards, 0 errors
0 timeout discards, 0 credit loss
54 input OLS, 87 LRR, 122 NOS, 0 loop inits
79 output OLS, 7 LRR, 95 NOS, 0 loop inits
14 link failures, 38 sync losses, 2 signal losses
  143 Transmit B2B credit transitions to zero
  94 Receive B2B credit transitions to zero
  0 2.5us TxWait due to lack of transmit credits
  Percentage Tx credits not available for last 1s/1m/1h/72h: 0%/0%/0%/0%
  500 receive B2B credit remaining
64 transmit B2B credit remaining
56 low priority transmit B2B credit remaining
Last clearing of "show interface" counters : never
Leonard(config-if)#

```

最大RX传输信用值是15从交换机MD 9148S Tempest：

从已连接MD 9148S, Tempest，能被看到最大Tx传输B2B除帐是15。

因此默认情况下MDS9710交换机伦纳德安排500个接收除帐MDS9148S交换机Tempest也有依然是500笔Tx传输B2B的除帐，但是15笔除帐(最大数量)被分配作为高优先级(500 - 485 = 15)。

```

Tempest# show int fc1/13 counter
fc1/13
  5 minutes input rate 2624 bits/sec, 328 bytes/sec, 3 frames/sec
  5 minutes output rate 1504 bits/sec, 188 bytes/sec, 3 frames/sec
1343331 frames input, 131489464 bytes
  0 discards, 0 errors, 0 CRC/FCS
  0 unknown class, 0 too long, 0 too short

```

```
1343332 frames output, 72878124 bytes
 0 discards, 0 errors
0 timeout discards, 0 credit loss
9 input OLS, 2 LRR, 0 NOS, 0 loop inits
12 output OLS, 20 LRR, 9 NOS, 0 loop inits
9 link failures, 0 sync losses, 0 signal losses
66 Transmit B2B credit transitions to zero
24 Receive B2B credit transitions to zero
0 2.5us TxWait due to lack of transmit credits
Percentage Tx credits not available for last 1s/1m/1h/72h: 0%/0%/0%/0%
64 receive B2B credit remaining
500 transmit B2B credit remaining
485 low priority transmit B2B credit remaining
Last clearing of "show interface" counters :never
Tempest#
```

当从MD 9710伦纳德的接收赊帐比120更改降低，然后一个出于八笔Tx赊帐将被标记作为高优先级：

```
Tempest# show int fc1/13 counter
fc1/13
5 minutes input rate 2624 bits/sec, 328 bytes/sec, 3 frames/sec
5 minutes output rate 1504 bits/sec, 188 bytes/sec, 3 frames/sec
1343331 frames input, 131489464 bytes
 0 discards, 0 errors, 0 CRC/FCS
 0 unknown class, 0 too long, 0 too short
1343332 frames output, 72878124 bytes
 0 discards, 0 errors
0 timeout discards, 0 credit loss
9 input OLS, 2 LRR, 0 NOS, 0 loop inits
12 output OLS, 20 LRR, 9 NOS, 0 loop inits
9 link failures, 0 sync losses, 0 signal losses
66 Transmit B2B credit transitions to zero
24 Receive B2B credit transitions to zero
0 2.5us TxWait due to lack of transmit credits
Percentage Tx credits not available for last 1s/1m/1h/72h: 0%/0%/0%/0%
64 receive B2B credit remaining
500 transmit B2B credit remaining
485 low priority transmit B2B credit remaining
Last clearing of "show interface" counters :never
Tempest#
```

```
Tempest# show int fc1/13 count
fc1/13
5 minutes input rate 1024 bits/sec, 128 bytes/sec, 3 frames/sec
5 minutes output rate 1536 bits/sec, 192 bytes/sec, 3 frames/sec
1360026 frames input, 133105756 bytes
 0 discards, 0 errors, 0 CRC/FCS
 0 unknown class, 0 too long, 0 too short
1360027 frames output, 73885304 bytes
 0 discards, 0 errors
0 timeout discards, 0 credit loss
14 input OLS, 2 LRR, 0 NOS, 0 loop inits
17 output OLS, 30 LRR, 14 NOS, 0 loop inits
14 link failures, 0 sync losses, 0 signal losses
91 Transmit B2B credit transitions to zero
34 Receive B2B credit transitions to zero
0 2.5us TxWait due to lack of transmit credits
Percentage Tx credits not available for last 1s/1m/1h/72h: 0%/0%/0%/0%
64 receive B2B credit remaining
```

**112 transmit B2B credit remaining**

**98 low priority transmit B2B credit remaining**

Last clearing of "show interface" counters :never  
Tempest#