验证7600设备DFC线卡上的BFD硬件计数器

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简介

本文档介绍如何验证7600设备的分布式转发卡(DFC)线卡上的双向转发检测(BFD)硬件计数器。

先决条件

要求

Cisco 建议您具有以下主题的基础知识：

- 7600系列路由器的配置和功能
- DFC线卡模块配置

使用的组件

本文档中的信息基于7600 IOS版本15.3。

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

BFD是一种网络协议，旨在检测系统之间任何路径（直接物理链路、虚电路、隧道、MPLS LSP等）中的亚秒级通信故障。

DFC代表DFC，DFC和CFC线卡之间的主要区别是DFC线卡具有嵌入的子卡，带L2引擎和L3/4引擎，这可卸载转发查找，这些查找在CFC线卡上将发送到Supervisor，在线卡上本地完成。

BFD数据包在硬件中的处理方式不会影响CPU，这意味着在DFC卡中，数据包始终在不离开线卡的情况下接收和转发。

拓扑

R1(Te3/21)- R2

故障排除方法

您可以看到R1未在Tengig3/21上与邻居建立BFD邻接关系。

检查邻居详细信息：

```
R1# sh bfd nei det


IPv4 Sessions
NeighAddr                              LD/RD         RH/RS     State     Int
172.31.11.34                            1/0          Down      Down      Te3/21
Session Host: Hardware
OurAddr: 172.31.11.33
Handle: 1
Local Diag: 1, Demand mode: 0, Poll bit: 0
MinTxInt: 1000000, MinRxInt: 1000000, Multiplier: 5



Received MinRxInt: 200000, Received Multiplier: 5
Holddown (hits): 0(0), Hello (hits): 1000(0)
Rx Count: 37   ßNotice received packets are too low
Tx Count: 9401
Elapsed time watermarks: 0 0 (last: 0)
Registered protocols: ISIS CEF
Downtime: 02:36:34
Last packet: Version: 1                - Diagnostic: 0
             State bit: Up             - Demand bit: 0
             Poll bit: 0               - Final bit: 0
             C bit: 1
             Multiplier: 5             - Length: 24
             My Discr.: 77             - Your Discr.: 1
             Min tx interval: 200000   - Min rx interval: 200000
```

```
            Min Echo interval: 0
```

```
R1# sh bfd nei det
```

```
IPv4 Sessions
NeighAddr                              LD/RD         RH/RS     State     Int
172.31.11.34                            1/0          Down      Down      Te3/21
Session Host: Hardware
OurAddr: 172.31.11.33
Handle: 1
Local Diag: 1, Demand mode: 0, Poll bit: 0
MinTxInt: 1000000, MinRxInt: 1000000, Multiplier: 5
Received MinRxInt: 200000, Received Multiplier: 5
Holddown (hits): 0(0), Hello (hits): 1000(0)
Rx Count: 37   ß----------------------------------------------------Notice received packets are
not incrementing
Tx Count: 9456 ß---------------------------------------------------- Transmit packets are
incrementing
Elapsed time watermarks: 0 0 (last: 0)
Registered protocols: ISIS CEF
Downtime: 02:36:34
Last packet: Version: 1                - Diagnostic: 0
            State bit: Up              - Demand bit: 0
            Poll bit: 0                - Final bit: 0
            C bit: 1
            Multiplier: 5              - Length: 24
            My Discr.: 77              - Your Discr.: 1
            Min tx interval: 200000    - Min rx interval: 200000
            Min Echo interval: 0
```

您还可以检查硬件的相同命令，该命令提供相同的输出，RX未收到。

```
R1#show bfd neighbors hardware details
```

```
IPv4 Sessions
```

```
NeighAddr                               LD/RD         RH/RS     State     Int
172.31.11.34                             1/0          Down      Down      Te3/21
Session Host: Hardware
OurAddr: 172.31.11.33
Handle: 1
Local Diag: 1, Demand mode: 0, Poll bit: 0
MinTxInt: 1000000, MinRxInt: 1000000, Multiplier: 5
Received MinRxInt: 200000, Received Multiplier: 5
Holddown (hits): 0(0), Hello (hits): 1000(0)
Rx Count: 37
Tx Count: 19337
Elapsed time watermarks: 0 0 (last: 0)
Registered protocols: ISIS CEF
Downtime: 05:22:16
Last packet: Version: 1                  - Diagnostic: 0
            State bit: Up               - Demand bit: 0
            Poll bit: 0                 - Final bit: 0
            C bit: 1
            Multiplier: 5               - Length: 24
            My Discr.: 77               - Your Discr.: 1
            Min tx interval: 200000     - Min rx interval: 200000
            Min Echo interval: 0
R1#show bfd neighbors hardware details
IPv4 Sessions
NeighAddr                               LD/RD         RH/RS     State     Int
172.31.11.34                             1/0          Down      Down      Te3/21
Session Host: Hardware
OurAddr: 172.31.11.33
Handle: 1
Local Diag: 1, Demand mode: 0, Poll bit: 0
MinTxInt: 1000000, MinRxInt: 1000000, Multiplier: 5
Received MinRxInt: 200000, Received Multiplier: 5
```

```
Holddown (hits): 0(0), Hello (hits): 1000(0)

Rx Count: 37

Tx Count: 19348

Elapsed time watermarks: 0 0 (last: 0)

Registered protocols: ISIS CEF

Downtime: 05:22:28

Last packet: Version: 1                  - Diagnostic: 0

            State bit: Up               - Demand bit: 0

            Poll bit: 0                 - Final bit: 0

            C bit: 1

            Multiplier: 5               - Length: 24

            My Discr.: 77               - Your Discr.: 1

            Min tx interval: 200000     - Min rx interval: 200000
```

之后，您可以继续直接检查线卡上的计数器。

为此，您需要在show bfd neighbors details输出中的Local Discriminator(LD)值，对于本例，LD值为1。

LD，该值用于唯一标识此会话，并且对于此设备中的所有BFD会话，该值必须是唯一且非零的。

您会显**示模块**，并看到线卡3是DFC。

在要检查BFD值的位置附加线路卡，在本例中为线路卡3。

```
R1# attach 3


R1-dfc3# show platform npc bfd ld 1


bfd_pak_big 0

bfd_pak_authenticated 0

bfd_x40g_xlifid_ifnum0 0


bfd_wd_hash_table_retry_count 0


bfd_ld_hash_table_retry_count 0


x40g_sso_differ_ld_count 0

Current normal_event_qsize 0 and 0 paks crossed the limit.
```

```
****BFD Session info for ld(1) avlnode ld (1) ****

ifnum(25), slotunit(21), txtimer(1000000) detect_timer(0)

p bit(0), f bit(0), srcip(172.31.11.33) dstip(172.31.11.34)

wdog cnterid(65664) tags inner(0) outer(0) tx sess info(0x19F4B7E0)

ADJ registered(0x1) tag_count(0) tx sessid(830)

dmac(dccc.eeee.aaaa), smac(5033.eeeee.8888), rx statid(508546), tx statid(508545)

RX pkt count(5838365), TX pkt count (5208864) ß---------------------------------------- Here
you can see the counters for the RX and TX

IPV6 SA(::), IPV6 DA(::), no_adj_retry_tx (0)

R1# show platform npc bfd ld 1

bfd_pak_big 0

bfd_pak_authenticated 0


bfd_x40g_xlifid_ifnum0 0


bfd_wd_hash_table_retry_count 0


bfd_ld_hash_table_retry_count 0


x40g_sso_differ_ld_count 0

Current normal_event_qsize 0 and 0 paks crossed the limit.


****BFD Session info for ld(1) avlnode ld (1) ****

ifnum(25), slotunit(21), txtimer(1000000) detect_timer(0)

p bit(0), f bit(0), srcip(172.31.11.33) dstip(172.31.11.34)

wdog cnterid(65664) tags inner(0) outer(0) tx sess info(0x19F4B7E0)

ADJ registered(0x1) tag_count(0) tx sessid(830)

dmac(dccc.eeee.aaaa), smac(5033.eeeee.8888), rx statid(508546), tx statid(508545)

RX pkt count(5838365), TX pkt count (5208864)  ß------------------------- RX is not increasing

IPV6 SA(::), IPV6 DA(::), no_adj_retry_tx (0)
```

此时，请进一步排除故障，并建议在相邻设备上捕获SPAN，以查看该设备是否确实发送了数据包。