

排除由于NPUMGR崩溃过多而关闭多个数据处理卡的故障

目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[缩写](#)

[问题](#)

[故障排除](#)

[解决方案](#)

简介

本文档介绍如何对因npumgr崩溃而在非常短的时间内关闭多个数据处理卡(DPC)时出现的问题进行故障排除。

先决条件

要求

Cisco 建议您了解以下主题：

- ASR5000/5500硬件知识
- StarOS
- 路由的基本知识

使用的组件

本文档不限于特定的软件和硬件版本。

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。如果您的网络处于活动状态，请确保您了解任何命令的潜在影响

缩写

SPGW
DPC
VLAN
NPU

服务和分组数据网络网关
数据处理卡
虚拟局域网
网络处理单元

问题

作为计划练习的一部分，新接口在VLAN中的端口完成下绑定。本练习的第二部分是通过这些接口创建静态路由。一旦为流量打开VLAN，npumgr崩溃就会开始，随后导致所有DPC卡多次关闭。

故障排除

本部分提供信息，以排除因npumgr崩溃而在非常短的时间内关闭多个DPC卡的问题。

此处显示收集的显示支持详细信息(SSD)、活动日志和系统日志，这些日志涵盖问题的日志。首先，检查rct统计数据，以查看这些关闭的原因。此处可以看到，由于npumgr崩溃过多，它们被关闭。

```
***** show rct stats verbose *****
Thursday September 19 03:57:04 IST 2019
RCT stats details (Last 18 Actions)
# Action Type From To Start Time Duration Status
-----
7 Shutdown N/A 2 10 2019-Sep-19+00:09:51.587 2.322 sec Success
8 Shutdown N/A 1 0 2019-Sep-19+00:10:14.541 0.005 sec Success
9 Shutdown N/A 3 0 2019-Sep-19+00:10:44.625 0.005 sec Success
10 Shutdown N/A 4 0 2019-Sep-19+00:11:03.428 0.005 sec Success
11 Shutdown N/A 7 0 2019-Sep-19+00:11:34.771 0.478 sec Success
12 Shutdown N/A 8 0 2019-Sep-19+00:11:54.328 0.005 sec Success
13 Shutdown N/A 9 0 2019-Sep-19+00:12:19.656 0.005 sec Success
14 Shutdown N/A 10 0 2019-Sep-19+00:12:39.706 0.004 sec Success
15 Shutdown N/A 1 9 2019-Sep-19+00:32:30.567 0.005 sec Success
16 Shutdown N/A 2 0 2019-Sep-19+00:32:36.282 0.031 sec Success
17 Shutdown N/A 3 0 2019-Sep-19+00:32:56.456 0.005 sec Success
18 Shutdown N/A 4 0 2019-Sep-19+00:33:30.426 0.005 sec Success
```

```
RCT stats summary
-----
Migrations = 2, Average time = 10.890 sec
Management Card = 2, Average time = 10.890 sec
Packet Card = 0
Switchovers = 2, Average time = 18.526 sec
```

```
RCT stats verbose
-----
Stats 7:
Action : Shutdown
Type : N/A
From : 2
To : 10
Start Time : 2019-Sep-19+00:09:51.587
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 2.322 sec
Graceful : Enabled
```

```
Stats 8:
Action : Shutdown
Type : N/A
From : 1
To : 0
Start Time : 2019-Sep-19+00:10:14.541
```

Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.005 sec
Graceful : Enabled

Stats 9:

Action : Shutdown
Type : N/A
From : 3
To : 0
Start Time : 2019-Sep-19+00:10:44.625
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.005 sec
Graceful : Enabled

Stats 10:

Action : Shutdown
Type : N/A
From : 4
To : 0
Start Time : 2019-Sep-19+00:11:03.428
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.005 sec
Graceful : Enabled

Stats 11:

Action : Shutdown
Type : N/A
From : 7
To : 0
Start Time : 2019-Sep-19+00:11:34.771
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.478 sec
Graceful : Enabled

Stats 12:

Action : Shutdown
Type : N/A
From : 8
To : 0
Start Time : 2019-Sep-19+00:11:54.328
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success

Facility : N/A
Instance : N/A
Duration : 0.005 sec
Graceful : Enabled

Stats 13:

Action : Shutdown
Type : N/A
From : 9
To : 0
Start Time : 2019-Sep-19+00:12:19.656
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.005 sec
Graceful : Enabled

Stats 14:

Action : Shutdown
Type : N/A
From : 10
To : 0
Start Time : 2019-Sep-19+00:12:39.706
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.004 sec
Graceful : Enabled

Stats 15:

Action : Shutdown
Type : N/A
From : 1
To : 9
Start Time : 2019-Sep-19+00:32:30.567
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.005 sec
Graceful : Enabled

Stats 16:

Action : Shutdown
Type : N/A
From : 2
To : 0
Start Time : 2019-Sep-19+00:32:36.282
Failure Reason : NPUMGR_TOO_MANY_CRASHES
Failure Device : CARD
Is Card Usable : Yes
Recovery Status : Success
Facility : N/A
Instance : N/A
Duration : 0.031 sec
Graceful : Enabled

Stats 17:

```
Action          : Shutdown
Type            : N/A
From            : 3
To              : 0
Start Time      : 2019-Sep-19+00:32:56.456
Failure Reason  : NPUMGR_TOO_MANY_CRASHES
Failure Device  : CARD
Is Card Usable  : Yes
Recovery Status : Success
Facility        : N/A
Instance        : N/A
Duration        : 0.005 sec
Graceful        : Enabled
```

Stats 18:

```
Action          : Shutdown
Type            : N/A
From            : 4
To              : 0
Start Time      : 2019-Sep-19+00:33:30.426
Failure Reason  : NPUMGR_TOO_MANY_CRASHES
Failure Device  : CARD
Is Card Usable  : Yes
Recovery Status : Success
Facility        : N/A
Instance        : N/A
Duration        : 0.005 sec
Graceful        : Enabled
```

然后，检查npumgr崩溃的详细信息。在此，您看到npumgr在函数nexthop_get崩溃。因此，当您尝试获取下一跳时，您会看到一些问题。

```
***** CRASH #09 *****
```

```
SW Version      : 21.9.7
Similar Crash Count : 16
Time of First Crash : 2019-Sep-19+00:08:16
```

Assertion failure at npu/npumgr/ares_npumgr_forwarding_handler.c:1829

```
Function: ares_npumgr_nexthop_get()
Expression: (nh_id) >= 0 && (nh_id) < ares_npumgr_db_get_count(SN_NPUSHM_TABREC_NH,
(ares_inst)->profile)
Procllet: npumgr (f=103000,i=30)
Process: card=3 cpu=0 arch=X pid=7066 cpu=~0% argv0=npumgr
Crash time: 2019-Sep-18+19:01:11 UTC
Recent errno: 11 Resource temporarily unavailable
Build_number: 71001
Stack (180240x0xffff0000):
 [ffffe430/X] __kernel_vsyscall() sp=0xffff0428
 [0c7df834/X] sn_assert() sp=0xffff0468
 [002fcedb/X] ares_npumgr_nexthop_get() sp=0xffff04b8
 [002feb23/X] ares_npumgr_fwd_ddf2_tcam_entry_update() sp=0xffff0948
 [00301896/X] ares_npumgr_lpm_add() sp=0xffff0e98
 [003c4345/X] ares_npumgr_fwd_add() sp=0xffff1768
 [003e38fa/X] ares_npumgr_fwd_func() sp=0xffff1bf8
 [003e444a/X] ares_sn_npumgr_forwarding_add_del_mod_handler() sp=0xffff2048
 [0c892918/X] sn_msg_arriving_handle() sp=0xffff4138
 [0c8713a6/X] sn_loop_run() sp=0xffff45e8
 [0c55a3b5/X] main() sp=0xffff4658
```

```
*****
```

```
***** CRASH #10 *****
```

```
SW Version          : 21.9.7
Similar Crash Count : 1
Time of First Crash : 2019-Sep-19+00:31:22
```

```
Assertion failure at npu/npumgr/ares_npumgr_port_handler.c:8409
Note: failed to find index of created lport 5/11#11-65: status=SN_STATUS_FAILURE[1]
Function: ares_sn_npumgr_port_lp_create_func()
Expression: 0
Code: CRASH
Procllet: npumgr (f=103000,i=11)
Process: card=1 cpu=1 arch=X pid=7181 argv0=npumgr
Crash time: 2019-Sep-18+19:01:22 UTC
Recent errno: 11 Resource temporarily unavailable
Build_number: 71001
Stack (14728@0x0xffcb8000):
 [ffffe430/X] __kernel_vsyscall() sp=0xffcb8a48
 [0c7df834/X] sn_assert() sp=0xffcb8a88
 [003bd590/X] ares_sn_npumgr_port_lp_create_func() sp=0xffcb8f18
 [003c10d4/X] ares_sn_npumgr_port_lp_create_handler() sp=0xffcb9368
 [0c892918/X] sn_msg_arriving_handle() sp=0xffcbb458
 [0c8713a6/X] sn_loop_run() sp=0xffcbb908
 [0c55a3b5/X] main() sp=0xffcbb978
*****
```

```
***** CRASH #11 *****
SW Version          : 21.9.7
Similar Crash Count : 107
Time of First Crash : 2019-Sep-19+00:09:03
```

```
Assertion failure at npu/npumgr/ares_npumgr_forwarding_handler.c:1829
Function: ares_npumgr_nexthop_get()
Expression: (nh_id) >= 0 && (nh_id) < ares_npumgr_db_get_count(SN_NPUSHM_TABREC_NH,
(ares_inst)->profile)
Procllet: npumgr (f=103000,i=80)
Process: card=8 cpu=0 arch=X pid=9130 cpu=~98% argv0=npumgr
Crash time: 2019-Sep-18+19:03:35 UTC
Recent errno: 115 Operation now in progress
Build_number: 71001
Stack (10360@0x0xffe58000):
 [ffffe430/X] __kernel_vsyscall() sp=0xffe58618
 [0c7df834/X] sn_assert() sp=0xffe58658
 [002fcedb/X] ares_npumgr_nexthop_get() sp=0xffe586a8
 [002feb23/X] ares_npumgr_fwd_ddf2_tcam_entry_update() sp=0xffe58b38
 [00301896/X] ares_npumgr_lpm_add() sp=0xffe59088
 [003c4345/X] ares_npumgr_fwd_add() sp=0xffe59958
 [003e1191/X] fwddb_import_add_entry() sp=0xffe59dd8
 [003e2452/X] ares_npumgr_fwddb_import() sp=0xffe5a2c8
 [0025e4ea/X] npumgr_rx_db_evt() sp=0xffe5a2f8
 [0c8660d4/X] sn_epoll_run_events() sp=0xffe5a348
 [0c872bca/X] sn_loop_run() sp=0xffe5a7f8
 [0c55a3b5/X] main() sp=0xffe5a868
*****
```

您可以检查活动日志，下面是发生事件的时间表。在练习中，创建接口后跟静态路由。

```
show ipv6 interface summary
```

```
Thursday September 19 00:09:16 IST 2019
Interface Name          Address/Mask          Port          Status
=====
SGi_LAG100_vlan50      2401:4900:c:f::201/126 5/10 vlan 50      UP          [sec]
SGi_LAG100_vlan64_VO4G_SBC 2401:4900:c:10::1/126 5/10 vlan 64      UP
SGi_LAG200_vlan51      2401:4900:c:f::205/126 5/11 vlan 51      UP          [sec]
```

SGi_LAG200_vlan65_VO4G_SBC 2401:4900:c:10::5/126 5/11 vlan 65 UP

Total interface count: 4

```
(config-ctx)# ipv6 route a:b:c:d:1/128 next-hop x:y:z:w::2 interface A
Thursday September 19 00:07:13 IST 2019
(config-ctx)#
(config-ctx)# ipv6 route a:b:c:d:1/128 next-hop x:y:z:w::2 interface B
Thursday September 19 00:07:21 IST 2019
Failure: Invalid Nexthop address!
(config-ctx)#
(config-ctx)# ipv6 route a:b:c:d:1/128 next-hop x:y:z:w::6 interface C
Thursday September 19 00:07:36 IST 2019
(config-ctx)# exit
Thursday September 19 00:07:50 IST 2019
[SGi]MOH-C25-SPG-04(config)#
```

然后，VLAN在端口内配置，并在9月19日00:08:16前后为流量打开。

```
(config)# port ethernet 5/10
Thursday September 19 00:08:01 IST 2019
(config-port-5/10)# vla
(config-port-5/10)# vlan 64
Thursday September 19 00:08:05 IST 2019
(config-port-5/10-vlan-64)# bind interface C SGi
Thursday September 19 00:08:14 IST 2019
(config-port-5/10-vlan-64)# no shu
(config-port-5/10-vlan-64)# no shutdown
Thursday September 19 00:08:17 IST 2019
(config-port-5/10-vlan-64)# exit
Thursday September 19 00:08:19 IST 2019
(config-port-5/10)# exit
Thursday September 19 00:08:21 IST 2019
```

在此，创建接口和静态路由的计划活动的步骤和配置后跟VLAN内部绑定，看起来不错。但在此之后不久，我们可以看到npumgr开始崩溃，然后DPC卡因太多npumgr崩溃而关闭。

```
show snmp trap history verbose | grep -i mgr
Thursday September 19 00:20:22 IST 2019
Thu Sep 19 00:08:18 2019 Internal trap notification 73 (ManagerFailure) facility npumgr instance
30 card 3 cpu 0
Thu Sep 19 00:08:18 2019 Internal trap notification 150 (TaskFailed) facility npumgr instance 30
on card 3 cpu 0
Thu Sep 19 00:08:18 2019 Internal trap notification 73 (ManagerFailure) facility npumgr instance
40 card 4 cpu 0
Thu Sep 19 00:08:18 2019 Internal trap notification 150 (TaskFailed) facility npumgr instance 40
on card 4 cpu 0
```

作为一种直接的解决方法，VLAN会从端口中删除。在您删除VLAN后，npumgr崩溃很快停止。

```
configure
Thursday September 19 00:29:31 IST 2019
(config)# port eth
(config)# port ethernet 5/10
Thursday September 19 00:33:13 IST 2019
(config-port-5/10)# no vlan 64
Thursday September 19 00:33:23 IST 2019
(config-port-5/10)# exit
Thursday September 19 00:33:38 IST 2019
(config)# port ethernet 5/11
Thursday September 19 00:33:42 IST 2019
```

```
(config-port-5/11)# no vlan 65
Thursday September 19 00:33:50 IST 2019
(config-port-5/11)# end
Thursday September 19 00:33:52 IST 2019
```

```
***** show crash list *****
```

```
Thursday September 19 03:54:39 IST 2019
```

```
==== =====
# Time Process Card/CPU/ SW HW_SER_NUM
PID VERSION MIO / Crash Card
==== =====
 9 2019-Sep-19+00:31:11 npumgr 03/0/07066 21.9.7 FLM221503A5/FLM221404FF
10 2019-Sep-19+00:31:22 npumgr 01/1/07181 21.9.7 FLM221503A5/FLM221404FH
11 2019-Sep-19+00:33:35 npumgr 08/0/09130 21.9.7 FLM221503A5/FLM221404FU
```

当您进一步检查系统日志时，可以看到系统尝试获取下一跳，但在9月19日00:08:16（即为流量打开VLAN后不久）未成功。

```
Sep 19 00:08:16 10.107.211.36 evlogd: [local-60sec16.758] [npumgr-fwd 168001 error] [3/2/7024
Sep 19 00:08:18 10.107.211.36 evlogd: [local-60sec18.448] [sitmain 4103 warning] [1/0/7008
Sep 19 00:08:18 10.107.211.36 evlogd: [local-60sec18.852] [sitmain 4027 critical] [2/0/6993
Sep-18+18:38:16(hex time 5d827998) card 02 cpu 00 pid 07146 procname npumgr crash_details
Assertion failure at npu/npumgr/ares_npumgr_forwarding_handler.c:1829 Function:
ares_npumgr_nexthop_get() Expression: (nh_id) >= 0 && (nh_id) <
ares_npumgr_db_get_count(SN_NPUSHM_TABREC_NH, (ares_inst)->profile) Proclet: npumgr
(f=103000,i=20) Process: card=2 cpu=0 arch=X pid=7146 cpu=~0% argv0=npumgr Crash time: 2019-
Sep-18+18:38:16 UTC Recent errno: 11 Resource temporarily unavailable Build_number: 71001
Stack (20600@0x0xffce5000): [ffffe430/X] __kernel_vsyscall() sp=0xffce5e38 [0c7df834/X]
sn_assert() sp=0xffce5e78 [002fcedb/X] ares_npumgr_nexthop_get() sp=0xffce5ec8
[002feb23/X] ares_npumgr_fwd_ddf2_tcam_entry_update() sp=0xffce6358 [00301896/X]
ares_npumgr_lpm_add() sp=0xffce68a8 [003c4345
```

当您从SSD进一步检查配置时，还可以看到在计划活动（接口和静态路由配置）开始之前已存在一条静态路由。

```
context SGi
ipv6 route a:b:c:d:1/128 next-hop x:y:z:w::1 interface C
#exit
```

从配置中可以看到，已经存在通过接口C下一跳作为跳x:y:z:w::1的IP a:b:c:d:1/128静态路由。但是，在本练习中，将下一跳定义为跳x:y:z:w::2。

因此，当VLAN为流量打开时，系统无法获得首先定义的下一跳x:y:z:w::1。此外，还有日志表明到下一跳的等价多路径(ECMP)路由不成功，因为它不可达。因此，它无法转发这些VLAN流量的数据包，这些数据包最终导致npumgr崩溃。

多卡切换是系统上npumgr崩溃过多的副产品。

解决方案

有多条静态路由通过同一接口到达同一目的地，但导致npumgr的不同下一跳无法转发数据包，随后会发生npumgr崩溃。

因此，错误的静态路由会从配置中删除。然后，在另一个维护窗口中成功应用相同的配置，而不会出现任何问题。