ASR5000切换STM1/OC3通道化卡，带APS模式冗余

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简介

本文档介绍在Cisco ASR5000上执行同步传输模块(STM)/OC3卡切换所需的步骤。

背景信息

ASR5000上的STM1/OC3卡提供STM-1端口，因此需要特别小心处理。

的 **STM-1** (**级别1**)是同步数字层次结构(SDH)ITU-T光纤网络传输标准。其比特率为155.52 Mb/s。

SDH与以太网不同，并且包含一些必须考虑的细节。

问题

该设置有一对STM1/OC3卡，配置了自动保护交换(APS)模式冗余 — 卡21和卡37。卡37处于活动状态，卡21处于备用状态。端口21/1和21/2处于关闭状态，APS工作。37/1和37/2端口已启用，并受APS保护。

```
card 21
redundancy aps-mode
aps 1+1 uni-directional non-revertive
framing sdh e1
initial-e1-framing crc4
service-type frame-relay
#exit

******** show card table all *******
Slot Card Type Oper State SPOF Attach
---------- ------------------------------------ ------------- ---- ------
21: LC 4 PORT STM1/OC3 Channelized Card Standby          -    5
37: LC 4 PORT STM1/OC3 Channelized Card Active          No    5


[local]gre2mme01# show aps info 37/1

Port :37/1
Role : Protected
Mode : 1+1
Revertive : No
```

```
State : Active
Direction : Uni
Wait To Restore(sec) : 0
 Redundant Port : 21/1
Lockout : No

[local]gre2mme01# show aps info 21/1
Port :21/1
Role : Working
Mode : 1+1
Revertive : No
State : Standby
Direction : Uni
Wait To Restore(sec) : 0
Redundant Port : 37/1
Lockout : No

[local]mme01# show port table
Thursday March 08 11:20:20 CET 2018
Port Role Type Admin Oper Link State Pair Redundant
----- ---- ---------------------- -------- ---- ---- ------- ----- ---------
21/1 Srvc STM1/OC3 Channelized Enabled - Down Standby 37/1 APS Workn
21/2 Srvc STM1/OC3 Channelized Enabled - Down Standby 37/2 APS Workn

37/1 Srvc STM1/OC3 Channelized Enabled - Up Active 21/1 APS Protd
37/2 Srvc STM1/OC3 Channelized Enabled - Up Active 21/2 APS Protd
```

在卡21和37之间执行切换的代表因“冗余模式错误”错误而失败。

```
[local]gre2mme01# card switch from 37 to 21
Friday March 09 00:28:10 CET 2018
Failure: wrong redundancy mode
```

解决方案

具有APS模式冗余的STM1/OC3卡不支持从X到Y的卡切换。

必须使用APS特定命令。

```
aps { clear slot#/port# | exercise slot#/port# | lockout slot#/port# | switch { force | manual }
slot#/port# }

switch { force | manual } slot#/port#
Switch to either the working port or the protection port:

force: Forces a switch of ports, even if there is an active alarm state.
manual: Implements a switch of ports if there are no active alarms.
slot#/port# is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number
(CLC2 valid range is 1 - 4; OLC2 valid value is 1)
```

在本例中，问题通过以下方式解决：

```
aps switch manual 37/1
aps switch manual 37/2
```

> **注意**：如果手动切换失败，可能是因为端口上的错误。使用“show aps port-status <card/slot>”验证端口状态。 切换仍然可以使用“force”选项强制进行。

```
[local]gre2mme01# show aps port-status 21/1
Friday March 09 13:19:49 CET 2018
  Port                      : 21/1
  Role                      : Working
  Lockout                   : No
  APS  Signal Failure       : No
  APS  Signal Degrade       : No
  Switch Over               : No
  Far End Failiure          : No
  Remote Not Compatible     : No
  Current Command           : No Request
  Switch Status             : No request

[local]gre2mme01#
[local]gre2mme01# show aps port-status 37/1
Friday March 09 13:20:07 CET 2018
  Port                      : 37/1
  Role                      : Protected
  Lockout                   : No
  APS  Signal Failure       : No
  APS  Signal Degrade       : No
  Switch Over               : No
  Far End Failiure          : No
  Remote Not Compatible     : No
  Current Command           : No Request
  Switch Status             : No request
  Invalid K1 K2             : No
  Rx K1                     : Reqest : 0x 0  (--              Channel - 0)
  Rx K2                     : Status : 0x 0  (--              Channel - 0)
  Tx K1                     : Reqest : 0x 0  (No Request      Channel - 0)
  Tx K2                     : Status : 0x 4  (UNI,1+1         Channel - 0)
```