

# O ASR5500 FSC falhou devido a falha do Super Capacitor

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## Introduction

Este documento descreve um problema de hardware específico na malha e no cartão de armazenamento (FSC) nos Cisco Aggregated Service Routers (ASR) 5500.

## Problema: Os clientes relatam falhas no FSC 16 com raid Hd degradado

```
***** Show alarm outstanding verbose *****
```

```
Severity Object                Timestamp                Alarm ID
```

```
-----  
Alarm Details  
-----  
-----
```

```
Minor    Card 14                Sunday August 21 07:16:34 A    3610743104839221248
```

```
The Fabric & 2x200GB Storage Card in slot 14 is a single point of failure. Another Fabric & 2x200GB Storage Card of the same type is needed.
```

```
Minor    Card 15                Sunday August 21 07:16:34 A    3610743104839221249
```

```
The Fabric & 2x200GB Storage Card in slot 15 is a single point of failure. Another Fabric & 2x200GB Storage Card of the same type is needed.
```

```
Minor    Card 17                Sunday August 21 07:16:34 A    3610743104839221250
```

```
The Fabric & 2x200GB Storage Card in slot 17 is a single point of failure. Another Fabric & 2x200GB Storage Card of the same type is needed.
```

```
***** show card table all *****
```

```
Slot          Card Type                Oper State    SPOF  Attach
```

```
-----  
-----
```



Updated : Fri May 23 23:05:53 2014

Events : 0

Model : STEC Z16IZF2E-200UCU E4TC

Serial Number : STM000171E75

Size : 200GB (200049647616 bytes)

Disk hd16b

State : In-sync component

Created : Fri May 23 23:05:53 2014

Updated : Fri May 23 23:05:53 2014

Events : 0

Model : STEC Z16IZF2E-200UCU E4TC

Serial Number : STM000171E8B

Size : 200GB (200049647616 bytes)

## Troubleshoot

Esses erros são relatados quando você inicia a solução de problemas com syslogs.

```
[local-60sec34.188] [hdctrl 132011 critical] [5/0/7135 <hdctrl:0> rl_fsm_mirror.c:5938]
[software internal system critical-info syslog] hd16, FSC16 SAD17160089 failed from RAID
59a7ebf0:7f798af6:68869614:3210b2c6, MIO5 SAD1716021N.
```

```
[local-60sec34.188] [hdctrl 132016 error] [5/0/7135 <hdctrl:0> rl_fsm_mirror.c:3399] [software
internal system critical-info syslog] Error detected on hd16a (STEC Z16IZF2E-200UCU E4TC
STM000171E75), FSC16 SAD17160089: ioerr_cnt increased from 25 to 27
```

```
[local-60sec34.221] [alarmctrl 65201 info] [5/0/7072 <evlogd:0> alarmctrl.c:192] [software
internal system critical-info syslog] Alarm condition: id 321befb92b220000 (Minor): The Fabric &
2x200GB Storage Card in slot 14 is a single point of failure. Another Fabric & 2x200GB Storage
Card of the same type is needed.
```

```
[local-60sec34.222] [alarmctrl 65201 info] [5/0/7072 <evlogd:0> alarmctrl.c:192] [software
internal system critical-info syslog] Alarm condition: id 321befb92b220002 (Minor): The Fabric &
2x200GB Storage Card in slot 17 is a single point of failure. Another Fabric & 2x200GB Storage
Card of the same type is needed.
```

```
[local-60sec34.222] [alarmctrl 65201 info] [5/0/7072 <evlogd:0> alarmctrl.c:192] [software internal system critical-info syslog] Alarm condition: id 321befb92b220001 (Minor): The Fabric & 2x200GB Storage Card in slot 15 is a single point of failure. Another Fabric & 2x200GB Storage Card of the same type is needed.
```

Se você vir este log de erros:

```
Aug 21 07:16:34 evlogd: [local-60sec34.188] [hdctrl 132016 error] [5/0/7135 <hdctrl:0> rl_fsm_mirror.c:3399] [software internal system critical-info syslog] Error detected on hd16a (STEC Z16IZF2E-200UCU E4TC STM000171E75), FSC16 SAD17160089: ioerr_cnt increased from 25 to 27
```

**É sempre aconselhável executar o teste inteligente e verificar se esse problema não está relacionado à alta temperatura.**

```
[local]# show hd smart hd16a
```

```
smartctl 6.1 2013-03-16 r3800 [x86_64-linux-2.6.38-staros-v3-hw-64] (local build)
```

```
Copyright (C) 2002-13, Bruce Allen, Christian Franke, www.smartmontools.org
```

```
=== START OF INFORMATION SECTION ===
```

```
Vendor:                STEC
Product:               Z16IZF2E-200UCU
Revision:              E4TC
User Capacity:         200,049,647,616 bytes [200 GB]
Logical block size:    512 bytes
LU is resource provisioned, LBPRZ=1
Rotation Rate:         Solid State Device
Form Factor:           2.5 inches
Logical Unit id:       0x5000a72030079304
Serial number:         STM000171E75
Device type:           disk
Transport protocol:    SAS
Local Time is:         Mon Aug 22 16:49:11 2016 AST
SMART support is:      Available - device has SMART capability.
SMART support is:      Enabled
Temperature Warning:   Enabled
```

```
=== START OF READ SMART DATA SECTION ===
```

SMART Health Status: OK

SS Media used endurance indicator: 0%

Current Drive Temperature: 52 C

Drive Trip Temperature: 75 C

local]SAE-G168A-1# show hd smart hd16b

smartctl 6.1 2013-03-16 r3800 [x86\_64-linux-2.6.38-staros-v3-hw-64] (local build)

Copyright (C) 2002-13, Bruce Allen, Christian Franke, [www.smartmontools.org](http://www.smartmontools.org)

=== START OF INFORMATION SECTION ===

Vendor: XXXX

Product: Z16IZF2E-200UCU

Revision: E4TC

User Capacity: 200,049,647,616 bytes [200 GB]

Logical block size: 512 bytes

LU is resource provisioned, LBPRZ=1

Rotation Rate: Solid State Device

Form Factor: 2.5 inches

Logical Unit id: 0x5000a7203007932c

Serial number: STM000171E8B

Device type: disk

Transport protocol: SAS

Local Time is: Mon Aug 22 16:49:21 2016 AST

SMART support is: Available - device has SMART capability.

SMART support is: Enabled

Temperature Warning: Enabled

=== START OF READ SMART DATA SECTION ===

SMART Health Status: OK

SS Media used endurance indicator: 0%

Current Drive Temperature: 50 C

Drive Trip Temperature: 75 C

Como o teste inteligente está ok, você pode concluir que ele não está relacionado a problemas de alta temperatura.

## Solução

### Falha do Super Capacitor em unidades de FSC único

Às vezes, uma ou ambas as unidades em um único FSC movem-se para **Partição inválida ou estado de imagem**.

Isso pode acontecer se o Super Capacitor falhar, que está na unidade de um único FSC. Essa falha não pode ser recuperada, pois é uma falha permanente da unidade em que a unidade é substituída ou a FSC.

Entre em contato com o Cisco TAC para obter assistência.

Se isso for visto para qualquer unidade, há uma falha de supercapacitor nessa unidade.

Esses registros são vistos nos registros do console de depuração da placa de entrada/saída de gerenciamento ativa (MIO).

```
2016-Aug-21+07:16:34.038 card 5-cpu0: [974499.606697] sd 0:0:2:0: [sde] Unhandled sense code^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.611565] sd 0:0:2:0: [sde] Result: hostbyte=DID_OK  
driverbyte=DRIVER_SENSE^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.618877] sd 0:0:2:0: [sde] Sense Key : Data  
Protect [current] ^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.625214] sd 0:0:2:0: [sde] Add. Sense: Write  
protected^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.630840] sd 0:0:2:0: [sde] CDB: Write(10): 2a 00 00  
00 08 08 00 00 08 00^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.638173] end_request: I/O error, dev sde, sector  
2056^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.643558] md: super_written gets error=-5,  
uptodate=0^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.648872] md/raid:md0: Disk failure on md16,  
disabling device.^M
```

```
2016-Aug-21+07:16:34.139 card 5-cpu0: [974499.648873] md/raid:md0: Operation continuing on 3  
devices.^M
```

```
2016-Aug-21+07:16:34.238 card 5-cpu0: [974499.712047] sd 0:0:2:0: [sde] Sense Key : Recovered  
Error [current] ^M
```

```
2016-Aug-21+07:16:34.238 card 5-cpu0: [974499.718637] sd 0:0:2:0: [sde] <<vendor>> ASC=0x80
ASCQ=0x0ASC=0x80 ASCQ=0x0^M
```

```
2016-Aug-21+07:21:37.112 card 5-cpu0: [974802.605115] sd 0:0:2:0: [sde] Sense Key : Recovered
Error [current] ^M
```

```
2016-Aug-21+07:21:37.112 card 5-cpu0: [974802.611712] sd 0:0:2:0: [sde] <<vendor>> ASC=0x80
ASCQ=0x0ASC=0x80 ASCQ=0x0^M
```

```
2016-Aug-21+07:26:37.099 card 5-cpu0: [975102.612464] sd 0:0:2:0: [sde] Sense Key : Recovered
Error [current] ^M
```

## Verifique os registros de erros específicos

1. Saídas do console de depuração da placa MIO ativa
2. Debug hdctrl mapping
3. Debug hdctrl history

E isto confirma a falha do supercapacitor.

```
**** debug console card <Active MIO card> cpu 0 tail 10000 only ****
```

```
[sde] <> ASC=0x80 ASCQ=0x0ASC=0x80 ASCQ=0x0
```

```
***** debug hdctrl history *****
Thursday March 31 02:29:03 EDT 2016
```

Primary HDCTRL:

```
2016-Mar-31+02:13:38.632 move fsm=hd15#6 src=DISK_CHECK dst=DISK_FAILED arg=disk I/O error #
hdctrl/hdctrl_fsm_disk.c : 4354 @ disk_fsm_enter()
```

Below is the mapping of the disks to device name:

```
***** debug hdctrl mapping ***** Local card (5): Disk Device Number SCSI Size ----- --
----- ----- ----- hd14a sdb 8:16 0:0:0:0 186 GB hd15a sdd 8:48 0:0:1:0 186 GB hd16a sde
8:64 0:0:2:0 186 GB hd17a sdg 8:96 0:0:3:0 186 GB hd14b sda 8:0 1:0:0:0 186 GB hd15b sdc 8:32
1:0:1:0 186 GB hd16b sdf 8:80 1:0:2:0 186 GB hd17b sdh 8:112 1:0:3:0 186 GB
```

Below highlited logs indicating a failure of the super capacitor on the solid state drive of FSC card disk 16a.

```
hd16a <==>sde
-----
```

```
2016-Aug-21+07:21:37.112 card 5-cpu0: [974802.611712] sd 0:0:2:0: [sde] <<vendor>> ASC=0x80
ASCQ=0x0ASC=0x80 ASCQ=0x0^M
```

```
2016-Aug-21+07:26:37.099 card 5-cpu0: [975102.612464] sd 0:0:2:0: [sde] Sense Key : Recovered
Error [current] ^M
```