

## Sun StorEdge 3510 array: Multipathing sometimes fails to provide path redundancy following a controller failure in a dual-controller setup (Doc ID 1003900.1)

### APPLIES TO:

Sun Storage 3510 FC Array - Version Not Applicable and later  
All Platforms

### SYMPTOMS

Occasionally multipath configuration for Sun StorEdge[™] 3510 (SE3510) with a dual-controller configuration does not work as expected when a single controller failure has taken place.

It is expected that a dual-controller configuration should exhibit controller redundancy during a controller failure. There should not be any disruption to host I/O when dual-path host connections to different RAID I/O module(s) are set up and multipathing has been configured.

### CHANGES

### CAUSE

In a SE3510, both IOMs are on the same internal FCAL loop as both controllers, at all times. In other words, each host channel of the top IOM shares a loop with the matching host channel on the bottom IOM.

Each channel of each controller connects to a port bypass circuitry (PBC) and are then connected to each other through the midplane.

In addition, each of the 6 channel ports is mapped to the 3 FC controller chips on each IOM like follows:

```

+-+ +-+ +-+ +-+ +-+ +-+
|0| |1| |2| |2| |4| |5|
+++ +-+ +-+ +-+ +-+ +-+
|
+-@-----+
| | +-----+
| | | Top RAID IOM | | | | | | | | | | | | | | |
| | | +-----+ +-----+ +-----+ |
| | | ISP-2313 | | ISP-2313 | | ISP-2313 | |
| | | +---+---+ | | +---+---+ | | +---+---+ | |
| | | |CH0|CH1| | | |CH2|CH3| | | |CH4|CH5| | |
| | | ++-+-+---+---+---+---+---+---+---+---+---+---+
| | |
| | @-----+
| |
| | @-----+
| | |
| | | ++-+-+---+---+---+---+---+---+---+---+---+---+
| | | |CH0|CH1| | | |CH2|CH3| | | |CH4|CH5| | |
| | | | +---+---+ | | +---+---+ | | +---+---+ | |
| | | | ISP-2313 | | ISP-2313 | | ISP-2313 | |
| | | +-----+ +-----+ +-----+ |
| | | Bottom RAID IOM |
| | | +-----+
+-@-----+
|
+++ +-+ +-+ +-+ +-+ +-+
|0| |1| |3| |3| |4| |5|
+-+ +-+ +-+ +-+ +-+ +-+

```

**NOTE:**

Channels 1, 4 and 5 follow similar architecture as Channel 0.

@ : PBC(Port Bypass Circuit)

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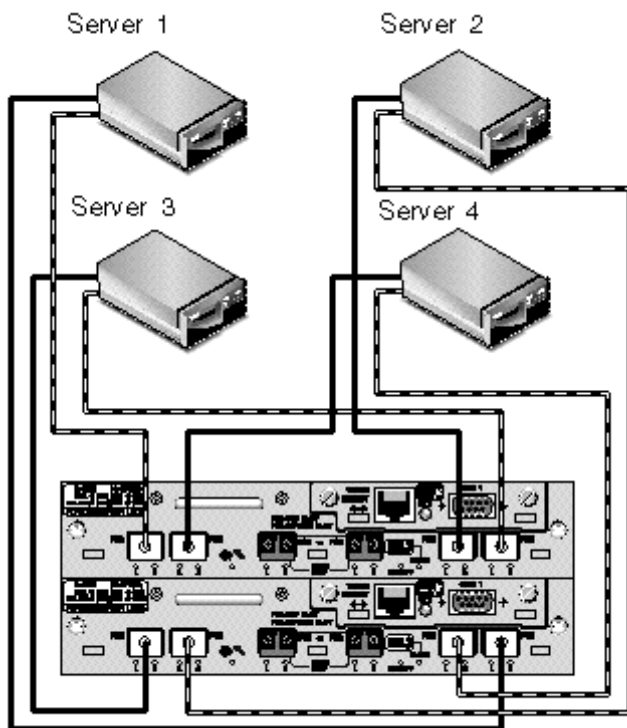
|n| : SFP(Small Form-factor Pluggable)

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If dual host paths are connected to the dual channels on a single FC controller chip (ie. CH0 & CH1 and/or CH4 & CH5), the FC chip fails for any reason, and controller failover does not work as expected; the host connection to the LUNs within the SE3510 will be lost even though the multipathing software was setup correctly.

**SOLUTION**

To avoid such failures on the SE3510, host cables should be connected to the different ports on different IOM and different FC controller chips. For example, if one host path was connected to the CH0 port on the top IOM, another host path should be connected to the CH4 or CH5 port on the bottom IOM. The following diagram is from [Sun StorEdge 3000 Family Best Practices Manual: Sun StorEdge 3510 FC and 3511 SATA Array](#), demonstrating an example of a best practice dual-controller multipath configuration. There is no single unique best configuration, but the diagram takes into account the issue described in this article.





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