Accredited Standards Committee*
X3, Information Technology
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Reply to: Steve Sicola

To: Membership of X3T10

From: Steve Sicola, HA Study Group Chair

Subject: Minutes of High Availability Study Group Meeting
Colorado Springs, CO -- July 10, 1995

Agenda

1. Opening Remarks

2. What/Why/How of Controller Fault Tolerant Configurations

3. Suggestions for how to achieve in SCSI-3. What is there already and what is needed? Any assumptions?

4. Conclusions

5. Adjournment until September meeting.

Results of Meeting

1. Opening Remarks

Steve Sicola, the HA Study group chair opened the meeting at ~1:15 p.m., after which everyone introduced themselves. Attendees from Amdahl, IBM, Digital, Symbios, Sun, and HP were present.

2. What/Why/How of Controller Fault Tolerant Configurations
Steve Sicola presented the slides on Fault Tolerant Controller Configurations for SCSI. These were basically the same slides presented to the Working group and for this meeting have a document number of X3T10/95-273r0

3. Suggestions for how to achieve in SCSI-3. What is there already and what is needed? Any assumptions?

Steve Sicola suggested some use of SCC's spare and report commands to register the configuration and report on its state. George Penokie stated that Attachment command and Report Attachment commands were the appropriate place for which raised more questions about how to use them to 'register' and 'report' configurations with multiple controllers sharing the access to attached devices.

George then went to the overhead and we then started going through in much greater detail what it meant to use SCC and what assumptions had to be made about the configuration. Bob Snively, Charles Binford, Dave Thiel, and others stated that assumptions about the controllers sharing configuration was vital for the controller attachment and fault tolerant configuration to be 'useful' to hosts. This basically meant that under SCC, any controllers associated with other controllers would report the same configuration through LUN0. Furthermore, there were assumptions based on this that all LUNs will have consistent naming based on the v.lui's names etc. Also, other issues came up about the speed of failover, during which it was granted that a couple more ASC/ASCQ's the denote Failover/Failback would be very helpful to host operating systems in cluster environments to speed failover of customer data between controllers.

After this we started talking about the name of the attachment, after which people talked about using concatenated serial numbers for the name. This would not work according to Charles Binford, Dave Thiel, and others because of the issue of replacing controllers. Others suggested that backplane keyed 'serial numbers' could be used, but other said this cannot be assumed. Some other way to name them must be figured out for use in host systems to identify multi-controller configurations sharing the same devices.

4. Conclusions

The results of the meeting were that after the presentation, George's trip to the overhead, and the rest of the attendees going through what was missing and assumed about the controller configuration, that the use of SCC, Persistent Reserve, and a couple new ASC/ASCQ's would adequately cover multi-controller configurations for fault tolerance as well as load balancing. The remaining issue was around naming of the controller configuration that did not use any of the underlying controller's serial numbers because of possible replacement after failure, and the subsequent host confusion that might cause. This was reason for another meeting along with the need to see a 'profile' of how to use SCC, Persistent Reserve, & the ASC/ASCQ's for host support of Fault Tolerant Controller Configurations.

5. Adjournment until September meeting

We ended the meeting about 3:45 after agreeing that another meeting was necessary to review the profile as well as resolve any issues with configuration naming