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Date: May 17, 1993

Project:

Ref. Doc.:

Reply to: G. Penokie

To: Membership of X3T9.2

From: Larry Lamers & George Penokie

Subject: Minutes of RAID Study Group Meeting (5/17/93)

Agenda

1. Opening Remarks
2. Attendance and Membership
3. Approval of Agenda
4. SCSI Disk Array Model (93-003r5) [Penokie]
5. RAID Drive Survey
6. RAID Issues from Trimm's Perspective (Gary Watson) [93-087r0]
7. Action Items
8. Meeting Schedule
9. Adjournment

Results of Meeting

1. Opening Remarks

George Penokie the RAID Study Group Chair, called the meeting to order at 5:00 pm, Monday April 17, 1993. He thanked Don Tolmie of Los Alamos National Labs for hosting the meeting.

As is customary, the people attending introduced themselves. A copy of the attendance list was circulated for attendance and corrections.

It was stated that the meeting had been authorized by X3T9.2 and would be conducted under the X3 rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the X3T9.2 task group. The voting rules for the meeting are those of the parent committee, X3T9.2. These rules are: one vote per company; and any participating company member may vote.

The minutes of this meeting will be posted to the SCSI BBS and the SCSI Reflector and will be included in the next committee mailing.

George stated that this is the sixth meeting of the RAID study group. The purpose of the group is to deal with interface issues related to using RAIDs. The study group will assess the issues and then formulate a strategy for dealing with them.

2. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for X3T9.2 membership. Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

The following people attended the meeting:

RAID Study Group Meeting Attenders

Name	S	Organization	Electronic Mail Address
Mr. Norm Harris	P	Adaptec, Inc.	harris@adaptec.com
Mr. Douglas Fields	A	Adaptec, Inc.	
Mr. Milton Scritsmier	S	Array Technology Corp/Tandem	milton@arraytech.com
Mr. Edward A. Gardner	A	Digital Equipment Corp.	gardner@ssag.enet.dec.com
Mr. William Dallas	A	Digital Equipment Corp.	dallas@wasted.enet.dec.com
Mr. Ralph Weber	A	Digital Equipment Corp.	weber@star.enet.dec.com
Mr. Richard Whalen	S	Digital Equipment Corp.	whalen@starch.enet.dec.com
Mr. I. Dal Allan	P	ENDL	2501752@mcimail.com
Mr. Howard Grill	O	Formation	
Mr. Jeffrey L. Williams	P	Hewlett Packard Co.	jlw@hpdmd48.boi.hp.com
Mr. Michael Nguyen	O	Hitachi Computer Products	m_nguyen@ipd.hitachi.com
Mr. George Penokie	P	IBM Corp.	gop@rchvmp3.vnet.ibm.com
Mr. Kevin R. Pokorney	O	Intellistor, Inc.	
Mr. Lawrence J. Lamers	P	Maxtor Corp.	71540.2756@compuserve.com
Mr. Ron Roberts	A	Maxtor Corp.	ron_roberts@maxtor.com
Mr. Joe Dambach	P	Molex Inc.	
Mr. John Lohmeyer	P	NCR Corp.	john.lohmeyer@ftcollinsco.ncr.com
Mr. Charles Binford	S	NCR Corp.	Charles.Binford@WichitaKS.NCR.COM
Mr. Gene Milligan	A	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Gary A. Glass	V	Storage Technology Corp.	Gary_Glass@Stortek.com

20 people present

Status Key: P - Principal
 A - Alternate
 O - Observer
 L - Liaison
 S,V - Visitor

3. Approval of Agenda

The agenda developed at the meeting was approved.

4. SCSI Disk Array Model (93-003r5) [Penokie]

George Penokie presented revision 5 of the SCSI Disk Array Model. This model improves the terminology for LBA ranges, sets, and mapping.

Several suggestions were made to the definition of mapping.

Maintenance service provides facilities for addressing individual components. Since this permits overriding the addressing scheme, systems can corrupt data.

George asked for help on the configuration services terminology definition. It was suggested to look at the work being done by the IEEE Mass Storage Model group.

George reviewed the exception reporting to the higher level. He noted that currently SCSI has no way to return information asynchronously without interrupting the flow of data (AEN is not widely supported).

One precept is that a failed drive does not interrupt the flow of information. This is the basis for giving a recovered error instead of a unit attention. The debate raged over what to do with failures during a recovery operation. George maintained that if your array can support a two drive failure nothing has changed as far as error reporting and unit attention should not be used since it forces the system to reissue the command.

A religious argument ensued with Dal on one side and most of the RAID folks on the other. Dal didn't like the "trust me" approach to storing his data.

5. RAID Drive Survey

Mike Fitzpatrick sent in a survey requesting information on what RAID vendors want in a disk drive. The survey should be returned by Friday.

6. RAID Issues from Trimm's Perspective (Gary Watson) [93-087r0]

George presented Gary Watson's views. Interesting, but mostly out of the scope of the RAID Study Group. The hot swap issue is within the groups domain and is being addressed in maintenance services.

7. Action Items

- 1) George Penokie will prepare revision 6 of the RAID Model.

8. Meeting Schedule

The next meeting of the RAID Study Group is planned for June 23, 1993 at the Hotel Sofitel in Bloomington, MN. The meeting is expected to start at 8:00am-11:00am in conjunction with the RAID Advisory Board.

George stated that in the even numbered months the RAID Study Group will plan to meet with the RAID Advisory Board. In the odd numbered months the RAID Study Group will meet on Thursday morning with X3T9.2.

9. Adjournment

The meeting was adjourned at 8:00 p.m. on Monday May 17, 1993.