

Accredited Standards Committee*
X3, Information Processing Systems

Doc. No.: X3T9.2/93-029 R0

Date: February 15, 1993

Project:

Ref. Doc.:

Reply to: G. Penokie

To: Membership of X3T9.2
From: George Penokie, Chair RAID Study Group
Subject: Minutes of RAID Study Group Meeting (2/15/93)

Agenda

1. Opening Remarks
2. Attendance and Membership
3. Approval of Agenda
4. Summary of SCSI Disk Array Items Submitted in the RAID Study Group (93-002) [Penokie]
5. SCSI Disk Array Model (93-003) [Penokie]
6. Dual Array Controllers [Todd]
7. Meeting Schedule
8. Adjournment

Results of Meeting

1. Opening Remarks

George Penokie the RAID Study Group Chair, called the meeting to order at 4:45 pm, Monday February 15, 1993. He thanked Mike Shoemake of Motorola 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 fourth meeting of the RAID study group. The purpose of the group is to deal with interface issues related to using RAID's. 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
------	---	--------------	-------------------------

People Present

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

3. Approval of Agenda

The agenda developed at the meeting was approved.

4. SCSI Disk Array Model (93-003r1) [Penokie]

George presented his latest model incorporating concepts from CAM. There is a concept of a transparent array and a concept of primary/secondary devices. The aim of the study group is to work on the primary devices, i.e., raid controller, instead of the secondary devices, i.e., disk drive.

Can drives be primary devices? They should not be. George will re-think the primary-secondary terminology in terms of topology. The new terms will be virtual and real.

The next model is of a hybrid array system in which part of the function is in the OS and part is in the disk drive.

	Logical	Physical
	P	S
Hostq	Virtual	Real
Host	Intermediate	Terminal
Root	Branch	Leaves

5. Performance Issues in Protocl Conversions (93-xxx) [Chan]

slots and watts

Workstation power consumption determined by IO needs.

Protoco conversion can approach, but not exceed native attach

RAID needs a lighter weight interface

SCSI needs to evolve
 eliminate queing or fix to depth of 2
 reduce checking required for reserved fields
 reduce number of mandatory features and optional commands
 focus on 20% of code causing 80% of problems

Bill measured 210 us on host - 400 us on target
 new host adapters get to 70 us on host.

Can't put enough drives on the bus. With fast, 32kb transfer lengths, 8.8 MB/sec on sequential reads.

6. Software Problems in RAIDS (93-xxx) [Dallas]

Bill Dallas stated that he currently needs five drivers to support multi-vendor arrays. Error recovery and configuration are the major issues.

7. Meeting Schedule

The next meeting of the RAID Study Group is planned for March 15, 1993 at the Hyatt Hotel in Newport Beach, CA. The meeting is expected to start at 4:00pm-5:00pm following the X3T9.2 plenary meeting. Plan to stay till 8:00pm.

8. Adjournment

The meeting was adjourned at 9:00 p.m. on Monday February 15, 1993.