Draft Minutes of Joint T10-T11.3
8/9/00
Seattle, WA

1) Dave Peterson opened the meeting, thanked the host Vixel, and started the usual round of introductions.

2) We approved the published agenda with modifications.

3) Dave called for a new Secretary. No one responded. Charles Binford agreed to record minutes for this meeting.

4) Approved last meetings minutes with no changes.

5) Reviewed old action items

    a) Bill Martin requested to review out-of-order proposal for corner case problems – overtaken by events. Closed.

    b) Bob Snively - Add to FC-FS changes to close a sequence with SRR and legalize SRR changing sequence initiative transfer in the exchange error recovery. Completed.

6) New action items

    a) Bob Snively, Bob Nixon and Dave Baldwin – publish a resolution to the FCP-2 problem recovering the proper command based on Dave Baldwin's proposed solution. – to be reviewed in this minute.

    b) Check or persistent reservation in SSC-2. Closed

    c) Carl Zeitler review R_A_TOV verses REC_TOV in D.5, also D.8, D.10. Closed

7) Matt Wakely proposed a new way to perform "sequence level error recovery". (document name AnnexD-new, distributed at the meeting.) Matt's approach uses a new exchange for the recovery to avoid the issues the working group has struggled with in recent meetings concerning establishing recovery qualifiers and the limited size of SEQ_CNT. The proposal uses a new retry bit in both the ABTS and the FCP_CMND to "move" the in-progress I/O to a new exchange. Matt pointed out that the initiator's "tape recovery algorithm" is very similar to its "disk recovery algorithm", both retransmit the FCP_CMND and all of the data and status again.

   D.1 – no change from previous version

   D.2 – no change from previous version

   D.3 – added a "Reclaim Recovery Qualifier"

   D.4 – Matt raised the question of what happens if the command finishes before the E_D_TOV timeout waiting for the lost ACK. We decided to create another case to show that scenario.

   D.5 – This figure has the first major change in error recovery. "Reclaim Recovery Qualifier" needs to be added to this figure.

   D.6 – Matt described a hole in the REC error detection of this scenario of this figure in the original annex. If the initiator used the optional REC method (class 2) to determine the state of things he will never get any useful information because under class 2 rules the target will still have SI (in this scenario). The initiator must base the detection on receipt of an ABTS from the target.

   D.7 – This figure (lost XFER_RDY ACK) was modified by the proposal to show the more typical case of the FCP_DATA being sent before the target would have time to hit the E_D_TOV timer for the ACK. The figure also mistakenly put the recovery qualifier on the initiator side instead of the target side. We argued over whether it is worth the complexity of the initiator detecting that the ABTS was indicating a lost ACK vs a lost XFER_RDY. In one case the initiator does not need to do any error recovery (this figure), in the other case recovery is required (D.6). Is the "optimization" worth the complexity? (question deferred – may want to add "initiator may use error recovery if it can not

distinguish the cause of the ABTS")
This figure also references a "useless" REC.

D.8 – This figure had slight modifications in the arrows, and needs some more modifications. This example (lost FCP_RSP) uses SRR instead of the retry with new exchange.

D.9 – Again, when the target sends an ABTS the use of REC is irrelevant. Also, this one is lost FCP_RSP so SRR is used.

D.10 – same comments as D.9

D.11 – no comments

D.12 – two types of recovery qualifiers – we need to develop a second convention to show each.

D.13 – this figure and others need to show recovery qualifiers when theABTS(retry) is used.

D.14 – (see D.16 comments)

D.15 – Matt's figure had deleted words from the previous annex. This change was confirmed to be correct.

D.16 – Charles suggested that at the point the initiator detects the error (E_D_TOV) it jump directly to the ABTS(retry).

D.17 – no comments

D.18 – The note referencing ACK_1 should instead say ACK_0.

[break from Matt's proposal)

8) Dave Peterson proposed the following:

Complete FCP-2 with:
- in order behavior only
- sequence level recovery
- a solution to the command ambiguity problem (first reported by Dave Baldwin)
- class 3 only

Follow with FCP-3 having:
- class 2 support
- Out of order support

Justification:
- Class 3 product is in the field based on FCP-2 rev 4
- Don't see class 2 and out-of-order being completed any time soon
- Moving to a state-less tape drive model

This proposal generated a fair amount of discussion.

George Penokie and Bob Snively made a counter proposal that we generate an FCP-2 rev 5 that has the resolution to the letter ballot comments plus the fix for the command ambiguity problem. That revision would be marked as stable. FCP-2 rev 6 would then contain the out-of-order and class 2 support with the new ABTS(retry)/FCP_CMND(retry) approach. The plan would be to letter ballot rev 6. Further discussion added words to "rev 5" 12.1.2 saying the annex D is a work in progress and the acknowledged class diagrams are incomplete.

The following was approved 8 yes, 0 no, 6 abstain.

Complete FCP-2 rev 5 with:
- in order behavior only
- sequence level recovery
- a solution to the command ambiguity problem (first reported by Dave Baldwin)
- class 3 only

Follow with FCP-2 rev 6 having:
- class 2 and 3 support

- Out of order support
- exchange level recovery [ABTS(retry)/FCP_CMND(retry)]

9) Dave Peterson requested the group review class 2 and consider potential changes that could be made to FS to simplify using class 2.

10) The ambiguity problem was discussed. A review of the problem and the proposed solutions was given. The possible solutions are: (with straw polls)

   a) Baldwin: FCP-2 handle in parameter field   7 y, 5 n

   b) Peterson: CRN and LUN in REC payload   3 y, 8n

   c) Attach handle after DL in FCP_CMND and append to REC.   2 y, 9 n

   d) Prohibit back to back reuse of OX_ID for each LUN   (rejected)

   e) Put handle in device header   4 y, 5 n

11) Next on the list was CRN. Currently it is defined to be LUN relative. However, there have been recent discussions and proposals to move it to target based. Straw poll results are:

   a) CRN stay in FCP-2   12 y, 0 n

   b) CRN stays LUN based   8 y, 3 n

   c) CRN changed to target based   3 y, 8 n

12) Next meeting schedule. Bob plans on having a rev 5 at the all day Monday September T10 meeting. T11, schedule 8 hours (1 to 9 pm)

Action items:

None.

Attendance List:
Paul Suhler	Seagate
Neil Wannamaker	Crossroads
Bob Nixon	Emulex
Adrienne Turenne	CMD
Ken Moe	Sun
Wayne Gentry	Unisys
Craig Stuber	JNI
Oscar Grijalva	Qlogic
Gerald Maurer	Qlogic
Elizabeth Rodriguez	Lucent
John Lohmeyer	LSI
Dennis Moore	KnowledgeTek
Ralph Weber	ENDL
George Penokie	IBM
Joe Breher	Exabyte
Bob Snively	Brocade
Charles Binford	LSI
Barry Reinhold	UNH
Matt Wakeley	Agilent
Horst Truestedt	True Focus
Robert Crawford	Solution Technology
Bob Kembel	Connectivity Solutions
Jim Coomes	Seagate
Carl Zeitler	Compaq
Dave Peterson	STK