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To: John Lohmeyer, Chairman X3T9.2

From: Dan Davies

Subj: Proposed Buffered Mode for Deferred Error Handling

Considerable discussion has been held regarding the problem of handling deferred error conditions for SCSI-2. Probably the most serious type of deferred error for tape devices is the failure to complete a buffered write operation. Under this situation, initiator data has been transferred to the target buffer, GOOD completion status has been returned, but some condition in the target has prevented transferring the data to the medium.

In a single initiator environment, the only problem at this point is how to inform the initiator of the deferred error. This problem is being addressed with the concept of Asynchronous Event Notification. However, a problem still exists for deferred write errors in a multiple initiator environment. Not only is it important to inform the initiator(s) of the deferred error, but it is also necessary to provide a means for any affected initiator to recover it’s unwritten data in the buffer. The currently defined buffered write mode does not have any provision for identifying which initiator "owns" the data that remains in the buffer if an error should occur. This implies that if a buffered write failure occurs, the only option is for one initiator to recover the entire buffer.

This proposal is for incorporation of a new buffered mode of operation which requires the target to maintain an initiator tag with buffered write data until that data is successfully written to the medium. By providing this "Tag Buffered Mode" a target would be able to inform the proper initiator(s) of the deferred error and allow the initiator(s) to recover only it’s data.