cipher
data products, Inc.

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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.