

July 8, 2002

To: T10 Technical Committee
From: Brian Day
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Re: SAS COMMAND ID Removal

The COMMAND ID field in the SSP frame header is currently only used for handling the error case when the ACK transmitted from the initiator gets lost to the target when receiving a RESPONSE frame. If the initiator waits to determine if the ACK was received by the target, the COMMAND ID field is not necessary.

From the initiator's standpoint, the behavior of the target after sending the ACK for a RESPONSE frame indicates whether the target saw the ACK. After sending the ACK, the initiator can expect one of four cases to occur:

- A. . The initiator will see another frame received, or a DONE(CREDIT TIMEOUT). In this case the target saw the ACK, and had more frames to send. The RESPONSE frame can be sent up to the application client manager.
- B. The initiator will see a DONE(CLOSE CONNECTION). In this case the target saw the ACK, and did not have more frames to send. The RESPONSE frame can be sent up to the application client manager.
- C. The initiator will see a DONE(ACK/NAK TIMEOUT). In this case the target did not see the ACK. The RESPONSE frame can be discarded, because the target will send the RESPONSE frame again.
- D. Connection gets broken for other reason. Target may or may not have seen it. In this case, the initiator would establish a new connection and send a QUERY TASK to see if the target has completed the command or not. The initiator will have to do this type of recovery on ACK/NAK timeouts when trying to send the original command anyways, so this is not much more of an additional function of the initiator.

Changes relative to the SAS specification are:

Remove the field from section 9.2.1 Frame Format

Remove the words "(based on the COMMAND_ID field and the I_T_L_Q)," from section 9.2.5.4

To be discussed would be adding these specifics to the SSP port and transport state machines.