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To: T10 Technical Committee
From: Bill Galloway
Subj: SAS Wide Link Rules

Change from:

9.2.2 Information unit sequences
Initiator ports may send COMMAND and TASK IUs unsolicited.

Target ports shall only send XFER_RDY IUs while processing a write or bidirectional command.
Initiator ports shall only send DATA IUs in response to an XFER_RDY IU. Target ports shall not
send an XFER_RDY IU before receiving all write data for the previous XFER_RDY IU.

Target ports shall only send DATA IUs while processing a read or bidirectional command.

Target ports shall only send RESPONSE IUs in response to a COMMAND or TASK IU after all
required data transfers have been performed.

Target ports may send an AEN IU when an asynchronous event occurs (see 9.2.4). Initiator ports
shall send an AEN_RESPONSE IU in response to each AEN IU.

Change to:
9.2.2 Information unit sequences

9.2.2.1 COMMAND Information unit sequence
Initiator ports send COMMAND IUs unsolicited.

A wide initiator may send COMMAND IUs on multiple links simultaneously.

9.2.2.2 TASK Information unit sequence
Initiator ports send TASK IUs unsolicited.

The initiator shall not send a TASK IU for a given I_T_L_Q if the initiator is sending any IU for the same I_T_L_Q on another link. The initiator shall not send a TASK IU for a given I_T_L_Q if the initiator is waiting for a link layer acknowledgement for that I_T_L_Q on any link.

9.2.2.3 XFER_RDY Information unit sequence
The target shall only send XFER_RDY IUs in response to a COMMAND IU for a write or bidirectional command.

The target shall not send a XFER_RDY IU for a given I_T_L_Q until it has provided link layer acknowledgement for all of the previous write DATA IUs for that I_T_L_Q. The target shall not send a XFER_RDY IU for a given I_T_L_Q after it has sent a RESPONSE IU that terminates the task for that I_T_L_Q (e.g., a RESPONSE IU with STATUS or a RESPONSE IU for an ABORT task management request).

9.2.2.4 DATA Information unit sequence
The initiator shall only send DATA IUs in response to a XFER_RDY IU or an implied XFER_RDY IU as a result of the FIRST BURST SIZE field (see xxx).

The target shall only send DATA IUs in response to a COMMAND IU for a read or bidirectional command.

A wide device shall only send DATA IUs for a give I_T_L_Q on one link at a time. The wide device may switch links for DATA IUs once all of the previous DATA IUs have been acknowledged by the link layer. Read DATA IUs and write DATA IUs for the same I_T_L_Q may be sent simultaneously and may be on the same or different links.

The initiator shall not send a DATA IU for a given I_T_L_Q after it has sent a TASK IU that terminates the task for that I_T_L_Q.

The target shall not send a DATA IU for a given I_T_L_Q after it has sent a RESPONSE IU that terminates the task for that I_T_L_Q (e.g., a RESPONSE IU with STATUS or a RESPONSE IU for an ABORT task management request).

9.2.2.5 RESPONSE Information unit sequence
The target shall only send a RESPONSE IU in response to a COMMAND or TASK IU.

The target shall not send a RESPONSE IU for a given I_T_L_Q if the target is sending any IU for the same I_T_L_Q on another link. The target shall not send a RESPONSE IU for a given I_T_L_Q if the target is waiting for a link layer acknowledgement for that I_T_L_Q on any link.

9.2.2.6 AEN Information unit sequence
The target may send an AEN IU when an asynchronous event occurs (see 9.2.4).

9.2.2.7 AEN_RESPONSE Information unit sequence
The initiator ports shall only send an AEN_RESPONSE IU in response to an AEN IU.