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To: T10 Technical Committee
From: Bill Galloway
Subj: Removing zero length data transfers with CRC

The DT data group format allows targets to send a CRC to the initiator without sending any data. This creates undue complications for the initiator. A target could go to DT DATA phase and just send a CRC when the initiator does not expect any data phase REQs. The current specification allows a target go to DT DATA phase on a Test Unit Ready command, send only a CRC and claim that it had never sent any data. This behavior should be disallowed by making the following changes.

8.3.2.3 Data group format

Each DT DATA IN phase and DT DATA OUT phase contains of one or more data groups. A data group consists of a non-zero length data field, followed by a pad field when pad bytes are needed, and then followed by a CRC field. The number of bytes transferred within a data group shall always be even and a multiple of four.

As a result of a data group always being an even number of transfers, the REQ and ACK signals are negated both before and after the transmission of the data group.

If the number of bytes in the data field is not a multiple of four the transmitting SCSI device shall place two pad bytes into the pad field. If the number of bytes in the data field is a multiple of four the transmitting SCSI device shall place no pad bytes into the pad field. ~~If the number of bytes in the data field is zero the transmitting SCSI device shall place no pad bytes into the pad field.~~ Regardless of the number of bytes in the data field the CRC field shall be the last four bytes of the data group.