Date: September 12, 2006

To: T10 Committee (SCSI)

From: George Penokie (IBM)

Subject: FCP-4: LS_RJT for REC Conflict between FC-LS and FCP-4

1 Overview

A recent change to the description of the REC ELS in the FC-LS standard has created a conflict in wording FCP. The new wording in FC-LS (see below) indicates a condition in which an LS_RJT would be returned that would indicate something other than that the REC ELS is not supported.

From FC-LS rev 1.4:

4.2.42 Read Exchange Concise (REC)

4.2.42.1 Description

This ELS shall be used only for purposes specific to an FC-4. The REC (Read Exchange Concise) Extended Link Service requests an Nx_Port to return Exchange information for the RX_ID and OX_ID originated by the S_ID specified in the Payload of the request Sequence. The S_ID specified in the Payload of the request Sequence may differ from address identifiers of both the source and destination of the REC request itself. The specification of OX_ID and RX_ID shall be provided for the destination Nx_Port to locate the status information requested. A Responder destination Nx_Port shall use the RX_ID and verify that the OX_ID is consistent, unless the RX_ID is unassigned (i.e., RX_ID = FFFFh). If the RX_ID is unassigned in the request, the Responder shall identify the Exchange by means of the S_ID specified in the Payload of the request Sequence and OX_ID. An Originator Nx_Port shall use the OX_ID and verify that the RX_ID is consistent.

If the destination Nx_Port of the REC request determines that the Originator S_ID, OX_ID, or RX_ID are inconsistent, then it shall reply with an LS_RJT Sequence with a reason code of "Unable to perform command request" and a reason code explanation of "Invalid OX_ID-RX_ID combination".

The value of the Parameter field in the frame header of an REC ELS and an LS_ACC in response to an REC ELS shall be specified by the FC-4 that sends the frame. The Relative offset present bit in the frame header of an REC ELS or an LS_ACC in response to an REC ELS shall be set to zero.

From FCP-4 rev 0:

4.6 Retransmission of unsuccessfully transmitted IUs

Error detection and IU retransmission algorithms are defined in clause 12.

The Read Exchange Concise (REC) ELS may be used by the initiator FCP_Port to determine the state of an ongoing Exchange. See 6.5.

Support for the REC ELS by both the initiator FCP_Port and target FCP_Port is indicated by the REC_SUPPORT bit in the PRLI request FCP Service Parameter page and PRLI accept FCP Service Parameter page (see 6.3.4 and 6.3.5).

If the target FCP_Port responds with the REC_SUPPORT bit set to one and an error is identified by any of the detection mechanisms defined in clause 12, then the initiator FCP_Port may use the REC ELS to determine the nature of the error.

Target FCP_Ports that do not support the REC_SUPPORT bit indicate they do not support REC by performing a Link Service Reject (LS_RJT) in response to an REC ELS. See 8.3.

2 Proposed Fix

Modify the FCP-4 text to the following:

Target FCP_Ports that do not support the REC_SUPPORT bit indicate they do not support REC by performing a Link Service Reject (LS_RJT) Sequence with a reason code of "Command not supported" in response to an REC ELS. See 8.3.