To: T10 Technical Committee
From: Cris Simpson, Intel Corp.  cris.simpson@intel.com
Date: 6 March 2001
Subject: SRP Initiator Inactivity Timeout Proposal

Revision History
Revision 1: 6 March 2001
Revision 0: First Revision

Related Documents
srp-r02 - SCSI over RDMA protocol

Overview
To allow recovery of connection resources, an SRP target may close the connection with the initiator after a period of inactivity. The minimum length of this period is the Initiator Inactivity Timeout (IIT). This value is established when the SRP_LOGIN_REQ and SRP_LOGIN_RSP IUs are exchanged.

Summary of Proposed Changes
Add a one-byte field, IIT_EXP, to the SRP_LOGIN_REQ and SRP_LOGIN_RSP IUs. This field represents the IIT value, interpreted as follows:

- IIT_EXP = 0  Target may logout whenever there are no commands pending from initiator
- IIT_EXP = 1-31  IIT = \( 2^{\text{IIT_EXP}-1} \) seconds  \( (2^{30} \text{ s } \equiv 34 \text{ years}) \)
- IIT_EXP = 32-254  Reserved
- IIT_EXP = 255  Target may never logout

The IIT value is proposed by the initiator in the SRP_LOGIN_REQ IU. The value to be used is returned by the target in the SRP_LOGIN_RSP IU. If the value returned by the target is unacceptable to the initiator, the initiator may logout.

This standard does not specify how the target’s IIT value is determined.

NOTE 1 - This proposal assumes an SRP_LOGOUT IU, which has yet to be defined.
Proposed Changes

5.2 SRP_LOGIN_REQ information unit

The EXP_IIT field contains the exponent of the Initiator Inactivity Timeout value being requested by the initiator. The field is to be interpreted as:

- IIT_EXP = 0  Target may logout whenever there are no commands pending from initiator.
- IIT_EXP = 1-31  IIT = 2^{IIT_EXP-1} seconds
- IIT_EXP = 32-254  Reserved
- IIT_EXP = 255  Target may never logout

A target shall not send an SRP_LOGOUT IU before the IIT period has elapsed since the target sent the SRP_RSP IU for the last pending command from the initiator. (See NOTE 2.) Receipt of an IU from the initiator shall cause the IIT period to be restarted upon sending the last pending command from the initiator.

NOTE 2 - There may be a significant delay between the target 'sending' the SRP_RSP IU and it actually being placed on the wire (not to mention being received by the initiator). I'd like to start the timer on receipt of the IB ACK from the initiator, but that implies a tight coupling between IOC and TCA which we can not assume. There appears to be no way to handle this delay other than the initiator choosing a 'big enough' IIT.
5.3 SRP_LOGIN_RSP information unit

Table 3 - SRP_LOGIN_RSP information unit

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<tr>
<th>Bit Byte</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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</table>

The value of the EXP_IIT field represents the IIT that will be used by the target. This field is interpreted as defined for SRP_LOGIN_REQ. A target may, but is not required to issue an SRP_LOGOUT upon completion of the IIT period.