To: T10 Technical Committee
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Subject: SRP Asynchronous Event Reporting

Revision History
Revision 0: first revision 28 November 2000
Revision 1: incorporated comments from 29 November 2000 SRP meeting

Related Documents
SAM-2 revision 14
SRP revision 1 (previously called SVP)
SPC-2 revision 18b
00-354r2 64-bit tags in SRP (Ed Gardner)

Overview
SAM-2 requires that "Each SCSI protocol specification shall describe a mechanism for
Asynchronous Event Reporting, including a procedure whereby an SCSI device can selectively
enable or disable asynchronous event reports from being sent to it by a specific target." SRP
revision 1 lacks such a definition.

Other SCSI protocols like SPI and FCP take the approach of letting the target switch to initiator
mode and run a SEND command to the host, which assumes target mode as a processor device.
SRP could do the same. However, a native approach would be preferred.

A new IU for reporting asynchronous events is proposed. This IU is initiated by the target. A
corresponding response IU is also defined so the target knows when it can send another IU.

The control mode page has bits to control whether the target may use AER to report ready, unit
attention, or an error state rather than creating a unit attention or reporting an error on the next
command. An SRP target supporting AER would support these bits.

A bridge that maps SRP to a protocol supporting the processor device type approach like FCP or
SPI will have difficulty mapping an SRP target's AER correctly. To avoid this problem, add a bit
to the IU negotiation that indicates whether SRP native AER is supported. An FCP bridge would
disable this feature. The SRP target not supporting the processor device model would then treat
its control mode page bits as reserved and not negotiate to enable AER.

This IU can also be used to communicate changes in the RequestLimitDelta without waiting for a
command to complete so an SRP_RSP IU can be sent.

Proposed changes

[Add two new information units:]
Table 1 – SRP information units

IU	TYPE value	Length (bytes)	Sent by	Description
SRP_AER	1Ch	40-296	Target	Asynchronous Event Reporting request
SRP_AER_RSP	1Dh	8	Initiator	Asynchronous Event Reporting response

[Add two new IU descriptions:]
5.xx SRP_AER information unit

An SRP_AER information unit (see table x) conveys a target request to report an asynchronous event. SRP_AER information units shall be sent as the minimum length VI message capable of carrying the fields. SRP targets shall not send an SRP_RSP information unit longer than the current value of TGTMAXRSPIU; instead the target shall truncate SENSE DATA as discussed below.

SRP_AER is a request information unit sent by an SRP target; it shall not be sent by an SRP initiator. SRP initiators shall promptly respond to an SRP_AER with an SRP_AER_RSP response unless the SRP VI connection is disconnected.

All SRP initiators shall support receiving SRP_AER and all SRP targets shall support generating SRP_AER.

Table x – SRP_AER information unit

Byte Bit	7	6	5	4	3	2	1	0
0	Type							
1-3	Reserved							
4-7	Tag							
8-11	RequestLimitDelta							
12-15	Reserved							
16-23	LogicalUnitNumber							
24-31	Reserved							
32-35	Sense Data List Length = n							
36-39	Reserved							
40-(40+n-1)	Sense Data (n bytes long)							

The TYPE field shall contain the value specified in table 1.

The TAG field may contain whatever value the target wishes.

The REQUESTLIMITDELTA field is defined in clause 4.3.

The LOGICAL UNIT NUMBER field shall identify the logical unit reporting the asynchronous event.

The SENSE DATA LIST LENGTH field shall specify the number of bytes in the SENSE DATA field. The SENSE DATA LIST LENGTH field shall only contain lengths that are multiples of four. If no sense data is provided, the SENSE DATA LIST LENGTH field shall be set to zero.

If returning all the sense data provided would cause the SRP_RSP information unit to be longer than TGTMAXRSPIU, the target shall return an SRP_RSP information unit whose length is TGTMAXRSPIU truncated to a multiple of four bytes. The SENSE DATA field shall be truncated as needed to achieve this length. SENSE DATA LIST LENGTH shall contain the length of the truncated SENSE DATA field.

The SENSE DATA field contains the information specified by the SCSI Primary Commands-2 standard for presentation by the REQUEST SENSE command. The proper sense data shall be presented when a SCSI status byte of CHECK CONDITION is presented as specified by the SCSI Primary Commands-2 standard. The SENSE DATA field shall contain the data that would be presented by a REQUEST SENSE command whose ALLOCATION LENGTH parameter contains the value:

TGTMAXRSPIU - 40 - RESPONSE DATA LIST LENGTH

5.xx SRP_AER_RSP information unit

An SRP_AER_RSP information unit (see table xx) conveys a response to an SRP_AER request received by an initiator. An SRP_AER_RSP information unit shall be sent as an 8 byte VI message. All SRP initiators shall support SRP_AER.

SRP_AER_RSP is a response information unit sent by an SRP initiator in response to an SRP_AER that the initiator has received. SRP initiators shall not send SRP_AER_RSP except in response to an SRP_AER. SRP targets shall not send an SRP_AER_RSP.

All SRP initiators shall support generating SRP_AER_RSP and all SRP targets shall support receiving SRP_AER.

Table xx – SRP_AER_RSP information unit

Byte Bit	7	6	5	4	3	2	1	0
0	Type							
1-3	Reserved							
4-7	Tag							

The TYPE field shall contain the value specified in table 1.

The TAG field shall contain the same value as the TAG field in the SRP_AER request for which this SRP_AER_RSP is a response.