To: T10 Technical Committee
From: Rob Elliott, Compaq Computer Corporation (Robert.Elliott@compaq.com)
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Subject: T10/02-017r0 SPC-3 sense data size limit

Revision History
Revision 0 (18 December 2001) first revision. Split off from 01-199r2 which is getting bogged down in defining a brand new sense data format.

Related Documents
spc3r02 - SCSI Primary Commands - 3 revision 2
spi4r07 - SCSI Parallel Interface - 4 revision 7

Overview
The sense data format can be 263 bytes, but various means to retrieve sense data have different limits.

Sense data size limits

Protocol	Limit
Sense data formats 70h and 71h	263 bytes
SPC-3 REQUEST SENSE allocation length	255 bytes
SPI-4 autosense	32-bit field; even and less than or equal to 252 bytes
SRP autosense	32-bit field
FCP-2 autosense	32-bit field
iSCSI autosense	16-bit field
SPC-3 processor command set SEND command for AER	24-bit TRANSFER LENGTH field minus 12 bytes for a header

The sense data itself should be limited to the smallest of these so it can be delivered over any protocol. The September CAP WG recommended (discussing 01-199r0) imposing a 4 byte alignment on the length, thus making it 252 bytes. Protocol specifications should remain silent on any limits; SPC-3's sense data format should be the sole place this is enforced.

Suggested Changes to SPC-3
7.20.1 REQUEST SENSE command introduction
…
Device servers shall be capable of returning eighteen bytes of data in response to a REQUEST SENSE command. If the allocation length is eighteen or greater, and a device server returns less than eighteen bytes of data, the application client should assume that the bytes not transferred would have been zeros had the device server returned those bytes. Application clients may determine how much sense data has been returned by examining the ALLOCATION LENGTH field in the CDB and the ADDITIONAL SENSE LENGTH field in the sense data. Device servers shall not adjust the additional sense length to reflect truncation if the allocation length is less than the sense data available.

7.20.2 Sense data format
…
The ADDITIONAL SENSE LENGTH field indicates the number of additional sense bytes to follow. The ADDITIONAL SENSE LENGTH shall be less than or equal to 244, limiting the total length of the sense data to 252 bytes. If the allocation length of the REQUEST SENSE CDB is too small to transfer all of the additional sense bytes, the additional sense length is not adjusted to reflect the truncation.