

memorandum



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T10/04-358r0

To INCITS T10 Committee From Michael Banther, HP Subject SSC-3 Investigation of TapeAlert deficiencies Date 28 October, 2004

Revision History

Revision 0 – Initial document.

Background

The TapeAlert feature suffers from several deficiencies. These deficiencies have inhibited its adoption by application clients. As a consequence, HP intends to propose substantial enhancements to TapeAlert in SSC-3.

This document seeks to identify all of the outstanding TapeAlert deficiencies so that HP can prepare a comprehensive proposal.

HP is aware of certain problems with TapeAlert as currently defined (SSC3r01b):

- a. Clause 4.2.16.1 *Introduction to TapeAlert application client interface* exceeds the scope of the standard (see 1 Scope) in the constraints it seeks to place on application clients;
- b. Clause 4.2.16.2 *TapeAlert log sense format* requires de-activation of all active TapeAlert flags on a per-initiator basis when a LOG SENSE command returns the TapeAlert log page. De-activating flags when read has not had the benefit to application clients originally anticipated as it requires the application client to remember the state of previously read flags. Keeping the log page on a per-initiator basis uses substantial memory in Fibre Channel devices.
- c. Clauses 4.2.16.2 *TapeAlert log sense format* and 8.2.3 *TapeAlert log page* define each TapeAlert flag as a separate log parameter. This format is inefficient and inconvenient for application clients that poll the TapeAlert log page.
- d. Clause 4.2.16.2 *TapeAlert log sense format* states that “the page control bits in the LOG SENSE command are not applicable and shall be ignored by the device server.” Nowhere does the standard state what value the device server assumes for the PC field of a LOG SENSE command. If the device server assumes Cumulative values (i.e., PC equal to 01b; the most likely choice), 8.2.3 *TapeAlert log page* requires the device server to contradict the behaviour for the DU bit required by SPC-3 (SPC3r21, 7.2.1 *Log page structure and page codes for all device types*).
- e. Clause 8.2.3 *TapeAlert log page* requires the device server to set the value of the TSD bit to zero. This value indicates that the device server, “implicitly saves the TapeAlert flag at vendor specific intervals.” Saving TapeAlert flags doesn’t make very good sense.
- f. Clause 8.2.3 *TapeAlert log page* unnecessarily prohibits a device server from implementing threshold values for TapeAlert flags.
- g. The text in clause 8.3.6 Informational Exceptions Control mode page is confusing to the point of being unreadable. It may or may not be compatible with the definition of the page in SPC-3 (the revision history for SPC3r21 records two changes to the mode page and two other changes that affect informational exceptions). The current SSC-3 text includes undefined terms such as “test/false informational exception condition”, “true informational exception condition”, “real informational exception condition”, and “real CHECK CONDITION” to name a few. The current SSC-3 text requires specific behaviour if the TEST and DEXCEPT bits equal one and the TEST FLAG NUMBER field equals zero, but it is silent in the case where the TEST and DEXCEPT bits equal one and the TEST FLAG NUMBER field does not equal zero. In general, the text in 8.3.6 does not meet the editorial conventions for a SCSI standard.
- h. Annex A is labelled as normative and contains a combination of normative and informative text for the 64 TapeAlert flags. Some of the informative text may exceed the scope of the standard. The text in Annex A needs clear labelling of what is normative and what is informative. Separation of the normative text – including the Code, Flag, Type, and Flag type columns – from the informative text may be in order.

If members of the T10 community are aware of other TapeAlert deficiencies, HP would like to know about them so that we can consider correcting them in our upcoming proposal.