

memorandum



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To
INCITS T10 Committee

From
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Subject
SMC-3 Guidance from Data Protector

Date
17 January, 2005

Revision History

Revision 0 – Initial Document.

Comments

Mixed media support: SCSI standards allows query of storage elements but does not describe the medium type in a storage element. Some libraries allow multiple media types in a storage element; others limit the medium type per slot. Having visibility to the medium type in a storage element is a big plus.

Linked libraries: Data Protector would like to treat the combination as a single library. The library should select the fastest picker to move a medium. It would be useful for the library to indicate media 'close' to the picker. Close means that the medium doesn't have to pass through a link to reach a drive. In a non-SAN environment, Data Protector sequences multiple MOVE MEDIUM commands although concurrent MOVE MEDIUM commands occur under a few circumstances. In a SAN environment, multiple MOVE MEDIUM commands will occur due to multiple applications accessing the library. However, in general, the application issues MOVE MEDIUM commands sequentially. Normally the application waits for the drive to become free for a much greater amount of time than it waits for the robotics to complete a MOVE MEDIUM. Hence use of concurrent MOVE MEDIUM tasks generates little performance improvement.

TapeAlert Enhancements: Data protector uses TapeAlert to present informal messages to the user. Uneven implementation of optional TapeAlert flags limits the benefit of this feature, e.g., the Clean Now versus the Clean Periodic flags in tape drives. No conclusion yet of the benefit of TapeAlert enhancements to Data Protector.

Alternative element addressing scheme: Data Protector doesn't have an issue with element addressing because we've educated our users to use a fixed media repository. Media does not move from one storage element to another. Data Protector is fault-tolerant in the case of a mis-synchronized application and library inventory. Addressing by barcode label has some moderate benefit.

Prevent-Allow Media Removal and Import-Export Elements: Data Protector doesn't use Prevent-Allow Media Removal.

Virtual libraries: Data Protector requires a different type of license for libraries with more than 60 storage elements. A benefit exists for Data Protector to know when a large library with more than 60 storage elements has been partitioned into multiple virtual libraries with less than 60 storage elements, so that application can verify presence of the correct license. Since a virtual libraries may share a physical element (e.g., the medium transport element), backup application knowledge of the virtual to physical library mapping provides some benefit. Specifically, the backup application may use longer time-out periods with a virtual library to compensate for physical element sharing. Likewise in a set of virtual libraries that share a physical element, the backup application may use a hard failure message for a shared element in one virtual library to imply the same hard failure in other virtual libraries. This strategy allows the backup application to efficiently select a library from within a set of libraries. HP would like every virtual library to present its own unique identifiers. However on some VPD page, an identifier unique to the physical library (or identifiers unique to the library's physical elements) appears.

Grouping of elements: Data Protector use to include a flag for magazine support in DDS products. It was widely used. Newer devices do not use magazines. No need exists to address a magazine unless the library supports commands that affect an entire magazine. Data Protector would like visibility to which storage elements reside in which magazine or (in the case of barcode addressing) which media resides in which magazine.

Concurrent task execution: Data Protector might use a REQUEST SENSE to check the progress of a long-term command. Beyond that, it doesn't use concurrent commands. Currently a problem exists with media management applications interacting with backup applications and causing the backup to fail. This problem needs further investigation to identify the root cause.

Other topics:

Data Protector has problems getting the serial number of the tape drive. Data Protector uses the serial number to auto-configure the library. Serial number appears in different places in different tape drive products. Making the Unit Serial Number VPD page mandatory may help solve this problem although legacy devices will still present a problem. Data Protector needs to know not only what library a drive is in but also where within the library the drive resides.