memorandum

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T10/05-310r4

To	From	Subject		Date
INCITS T10 Committee	Michael Banther, HP	ADC-2	Add Identification Descriptors to SMC Logical Unit Descriptor Format	6 March 2006

Revision History

Revision 0 – Initial document.

Revision 1 – Corrected value of ADDITIONAL DESCRIPTOR LENGTH field.

Revision 2 – Changed from using identification descriptors to using LUN and added restrictions on automation application client and remote SMC device server for ensure coherent and world-wide unique reporting of identification descriptors.

Revision 3 – Clarified model clause and added a separate LUN field for the remote SMC device server reworking existing text as needed.

Revision 4 – Struck model clause changes in 4.2.3.3, added model clause changes in 4.2.3.2 and 4.2.3.4, and reverted to LOGICAL UNIT NUMBER field for the local SMC device server.

Related documents

Automation/Drive Interface – Commands – 2 (ADC-2), T10/1741-D, revision 02a, 14 September 2005.

Background

At present a local SMC logical unit can acquire its identification descriptor(s) only by having the bridging manager request them from the remote SMC logical unit through an INQUIRY command for VPD page 83h. This method presents some difficulties:

a) The automation device may present multiple logical units to the bridging manager. How does the bridging manager know which one to use to obtain its identification descriptor(s)?

b) Nothing in the definition of remote SMC logical unit behavior requires it to respond to different bridging managers with different values of identification descriptor. If a remote SMC logical unit uses a constant value for an identification descriptor, then a configuration with multiple bridged DT devices may result in the same logical unit world-wide name appearing in different local SMC logical units within different DT devices. SAM-x clearly states that a logical unit exists within a SCSI device, i.e. the separate local SMC logical units cannot claim to be a single logical unit, so this situation represents a breakdown of world-wide uniqueness.

This proposal provides both a local and a remote SMC LUN and places some restrictions on the automation application client and remote SMC device server regarding reporting of identification descriptors.

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Changes to draft standard

4.2.3.2 Local SMC device server operation

ADI bridging is enabled and disabled via the SMC Logical Unit descriptor of the ADC Device Server Configuration mode page implemented by the ADC device server (see 6.2.2.4.3). The descriptor specifies the logical unit number of the corresponding local SMC device server.

The local SMC device server shall support commands as required by the SCSI Medium Changer device type. Because the transport protocol connecting the bridging manager and the remote SMC device server may not carry information about which initiator port originated a request, the remote SMC device server is not able to implement the complete set of commands. Thus, the local SMC device server shall service commands and task management functions that require knowledge of the originating initiator port.

4.2.3.4 Bridging manager operation

ADI bridging is enabled and disabled via the SMC Logical Unit descriptor of the ADC Device Server Configuration mode page implemented by the ADC device server (see 6.2.2.4.3). The descriptor specifies the logical unit number of the corresponding remote ~~local~~ SMC device server. When bridging is disabled, the logical unit shall not be reported to a REPORT LUNS command (see SPC-3) and the local SMC device server shall not respond to commands through the DT device primary port.

6.2.2.4.3 SMC logical unit descriptor format

The descriptor format for an SMC logical unit is defined in table 53.

Table 53 — SMC logical unit descriptor format

Byte \ Bit	7	6	5	4	3	2	1	0
0	LOGICAL UNIT INDEX							
1	DEVICE TYPE (08h)							
2	(MSB)							
3	ADDITIONAL DESCRIPTOR LENGTH (0804h)							(LSB)
4								
5	LOGICAL UNIT NUMBER							
6	Reserved						CACHE	ENABLE
7	Reserved							
8								
9	REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER							
10	Reserved							
11	Reserved							

The LOGICAL UNIT NUMBER field specifies, for the SMC logical unit when accessed through the DT device primary port(s):

a) The LUN if access controls are not in effect; or

b) The default LUN if access controls are in effect (see SPC-3).

The bridging manager shall use the value of the REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER field when addressing the automation device logical unit containing the remote SMC device server (see 4.2.3).

The LOGICAL UNIT NUMBER field and the REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER field contain~~s~~ the first two bytes (i.e., bytes 0 and 1) of a single level logical unit structure or the contents of a two byte extended logical unit address (see SAM-3). The LOGICAL UNIT NUMBER field and the REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER field shall be ignored if the ENABLE bit is set to zero. The ADC device server shall return a CHECK CONDITION to a MODE SELECT command when multiple descriptors with the ENABLE bit set to one have the same value in the LOGICAL UNIT NUMBER field. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to INVALID FIELD IN PARAMETER LIST.