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To: T10 Committee (SCSI)

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Subject: Names, Addresses, Identifiers, Oh my!

1 Overview

There needs to be a clear understanding of what SCSI identifiers, addresses and names are and how those relate to the objects defined in SAM-2 and the different protocol standards. This proposal does that.

2 Terms

2.0.1 identifier: A representation of an address of an object. Is only guaranteed to be unique within a SCSI domain and it may change.The term address and identifier are interchangeable.

2.0.2 address: A representation of an address of an object. Is only guaranteed to be unique within a SCSI domain and it may change. The term address and identifier are interchangeable.

2.0.3 name: A label of an object that is world wide unique and should never change. The term name, world wide name, and world wide identification (WWID) are interchangeable. A name may by an identifier but an identifier shall not be a name.

3 SCSI objects

The following is a list of SCSI objects.

a) initiator port (was initiator device)
b) target port (was target device)
c) logical unit
d) initiator device (new)
e) target device (new)

4 SCSI object and nexus relationship

The I_T_L_Q nexus defines the routing for tasks and task management functions and the identification of tasks. It is important to define the relationship between the nexus elements and the SCSI objects.

Table 1 - Nexus element to SCSI object relationship

Nexus element	SCSI object	Description
I	Initiator port	Routing and task identification information
T	Target port	Routing and task identification information
L	Logical unit	Routing and task identification information
Q	Task	Task identification information

5 Identifiers and names

SAM-2 defines identifiers for several, but not all, SCSI objects, however, it does not define any names for those SCSI objects. Up to now all names have been defined in the command standards or the protocol standards. This is causing confusion.

Table 2 - Object size and support requirements

Object	Identifier (note 1)		Name (note 2)	
	Size	Protocol Support	Size/Format	Protocol Support
Initiator port	8 bytes (max)	mandatory	?	optional
Target port	8 bytes (max)	mandatory	implementation specific (note 1)	optional
Logical unit	8 bytes (max)	mandatory	implementation specific (note 1)	mandatory
Initiator device	not defined	not defined	?	optional
Target device	not defined	not defined	?	optional

Note:
1-As defined in the current version of SAM-2
2-There are no names currently defined in SAM-2
3-Reported in VPD page 83h identifier.

Table 3 - Object identifier size requirements vs protocol

Object	Identifier			
	SPI-4	FCP-2	SRP	iSCSI
Initiator port	4 bits (note 1)	3 bytes	?	?
Target port	4 bits (note 1)	3 bytes	?	?
Logical unit	6 bits (data group transfers) 8 bytes (max) (packetized transfers)	8 bytes (max)	8 bytes (max)	8 bytes (max)
Initiator device	not defined	not defined	?	?
Target device	not defined	not defined	?	?

Note:
1-SPI uses 2 bytes but is limited to one port identifier per bit, therefore, the maximum number of SCSI ports is 16.

Table 4 - Object name size requirements vs protocol

Object	Name			
	SPI-4	FCP-2	SRP	iSCSI
Initiator port	none	8 bytes (FC port WWID)	?	?
Target port	none	8 bytes (FC port WWID)	?	?
Logical unit	implementation specific (note 1)	implementation specific (note 1)	implementation specific (note 1)	implementation specific (note 1)
Initiator device	none	not defined	?	?
Target device	none	not defined	?	?

Note:
1-Reported in VPD page 83h identifier

6 SCSI Command usage

There are operations defined within SPC that depend on the device server knowing identifier and/or name

information. These include:

a) reservations;
b) access controls; and
c) extended copy.

Each of those operations has different requirements in the amount of information needed about the identifier and/or name. In addition which object is used varies depending on the operation. (see table xxx).

Table 5 - Reservations

Protocol	Logical Unit's view of the I_T Nexus					
	Initiator port		Target port			
			Initial		Third Party	
	Identifier	Name	Identifier	Name	Identifier	Name
SPI-4	Used	Not used	Used	Not Used	Used	Not Used
FCP-2	Used	Used (note 1)	Used	Not Used	Used	Not Used
SRP	?	?	?	?	?	?
iSCSI	?	?	?	?	?	?

Note:
1-Only used at login to set the identifier to previous value.

Table 6 - Access Controls

Protocol	Logical Unit's view of the I_T Nexus (TransportID)				AccessID
	Initiator port		Target port		
			Initial		
	Identifier	Name	Identifier	Name	
SPI-4	Used	Not Used	Not Used	Not Used	Used
FCP-2	Not Used	Used	Not Used	Not Used	Used
SRP	?	?	Not Used	Not Used	Used
iSCSI	?	?	Not Used	Not Used	Used

Note:
1-

Table 7 - Extended copy

Protocol	Logical Unit's view of the extended copy operation					
	Initiator port		Target port			
			Initial target port		Copy target port(note 1)	
	Identifier	Name	Identifier	Name	Identifier	Name
SPI-4	Not Used	Not Used	Not Used	Not Used	Used	Used
FCP-2	Not Used	Not Used	Not Used	Not Used	Used	Used
SRP	Not Used	Not Used	Not Used	Not Used	?	Used
iSCSI	Not Used	Not Used	Not Used	Not Used	?	Used

Note:
1-The descriptor type of the extended copy operation determines which is used.