

To: T10 Technical Committee
 From: Dan Mazina, Compaq Computer Corporation (Dan.Mazina@compaq.com)
 Rob Elliott, Compaq Computer Corporation (Robert.Elliott@compaq.com)
 Date: 14 November 2000
 Subject: Logical unit groups

Revision History

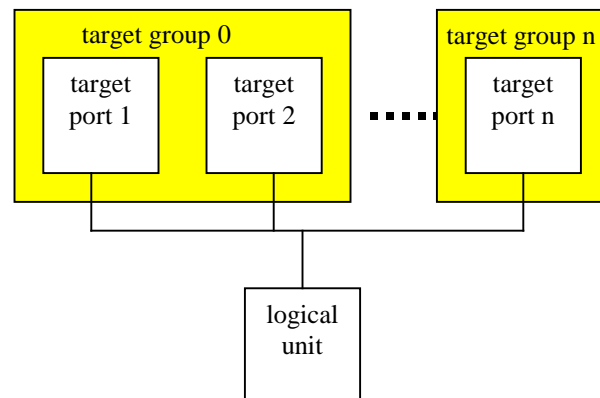
Revision 0: first revision

Related Documents

99-245r9 Access Controls describes how logical units may be assigned different logical unit numbers for multiple target ports. This is called LUN mapping.

00-232r2 Asymmetric Target Behavior discusses how multiple target ports connected to a single logical unit may each exhibit different target behavior states affecting performance and command set support. This is called asymmetric target behavior. A set of target ports with symmetric target behavior towards a given LU is called a target group. Target groups are identified with Target Group Identifiers in the VPD Device Identification page; a target group is a list of relative port identifiers (which are defined starting with 1, not 0).

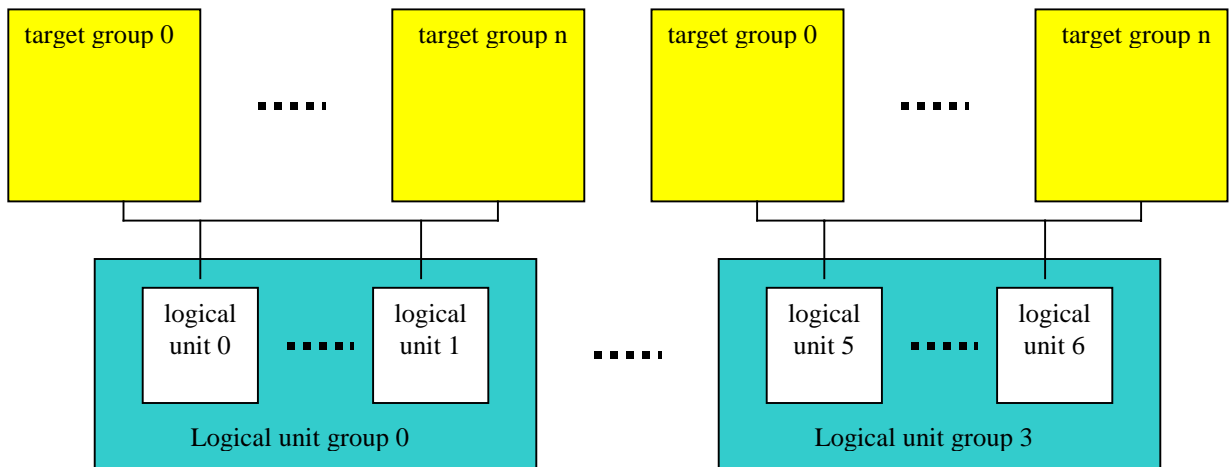
Target group example.



Overview

Some logical units may be dependent on each other with regards to asymmetric target behavior. Logical units with this requirement are called a logical unit group. The target groups for each logical unit in the same logical unit group are identical. The target groups for logical units in different logical unit groups may be different. If the target behavior state is changed for any target group accessible via a logical unit within a LU group, the target behavior states for the same target group accessible via other logical units in that LU group will also change.

Logical unit group and target group example



For example, virtual logical units formed from one physical logical unit (e.g. virtual disk drive volumes created from the same physical disk) may need to share the same target behavior states.

Hosts can avoid sharing LUs in the same LU group to reduce resource contention

In a LUN mapping bridge where targets and LUs on the far side are mapped as LUNs on the near side, the relationship between LUs is lost. All the LUs from all the targets are merged into one target. With LU groups, the LUs can be identified as related.

If a target reset is issued to the near side target port, only the LUs within the same group need to be reset.

Any change in target behavior state for a target group for any logical unit in the logical unit group affects the same target group for all other logical units in the logical unit group.

This concept may also have other uses, although those are not currently requested in this proposal. In a protocol bridge (e.g. SRP to FC) that maps logical units on multiple targets on the remote network to logical units within one target on the local network, logical unit groups could indicate which logical units came from the same targets.

Suggested changes for SPC-3

8.4.4 Device identification page

[Add to the table:]

Table 181 — Identifier type

Value	Description
5h	[Target group identifier. See 00-232.]
6h	If the ASSOCIATION value is 1h, the IDENTIFIER value contains the logical unit group identifier as defined in table xxx. For this case, the CODE SET field shall be set to 1h and the IDENTIFIER LENGTH field shall be set to 28. If the ASSOCIATION value is not 1h, use of this identifier type is reserved.
7h – Fh	Reserved.

[Add this after the target group identifier description:]

A logical unit group is a group of logical units that share the same target group definitions. The target groups maintain the same target behavior states for all logical units in the same logical unit group. A logical unit shall be in no more than one logical unit group.

Table xxx defines the logical unit group identifier. The first 8 bytes of the identifier field are a Vendor ID (see annex C). The organization associated with the Vendor ID is responsible for ensuring that the remainder of the identifier field is unique. [any more suggestions for making this unique?]

Table xxx – Logical unit group identifier

offset/bit	7	6	5	4	3	2	1	0
0 – 3	Vendor ID							
4 – 7								
8 – 23	Vendor-specific portion of logical unit identifier							