Domain Definitions and Linked Command Issues

Charles Monia,
Digital Equipment Corporation
August 18, 1992

Domain Assumptions

- A domain is one initiator’s "view" of an SCSI I/O subsystem.
- Defining domain boundaries is the responsibility of the system designer.
- The 3-level address hierarchy in SCSI-2 (device, LUN/TRN, I/O process) will be preserved in SCSI-3.
- If "third Party" commands are not supported in SCSI-3:
  - SCSI addresses and identifiers will never appear in an SCSI command descriptor.
  - The format for device addresses need not be defined by the architecture.
  - Each initiator’s "world view" can be different

Assumptions (cont)

- The device address within a domain will be implementation-specific.
- The LUN, TRN and I/O process address will be defined by the architecture.

Constraints

- Architectural Constraints
  - No two devices may have the same device address
- Non-constraints
  - Configuration of devices in the domain, mapping of identifiers to physical devices and LUN/TRNs may appear differently to each initiator in a domain
- Designers or bus standards may impose more constraints
Domain Examples

Host
P1394
(Array)

SCSI-2 Bus

Device A Domain

Device A Initiator
Device B
Device C
Device D

LUN 0

Domain Boundary

Charles Monia, Digital Equipment Corporation, August 18, 1992

Domain Examples (cont)

Host
P1394
(Array)

SCSI-2 Bus

Device A Domain

Host Domain

Device A

Host

LUN 0
LUN 1
LUN 2

(LB)

(CC)

(D)

Charles Monia, Digital Equipment Corporation, August 18, 1992

Linked Command Model

- Requirements:
  -- Must be compatible with SCSI-2
  -- Must allow an implementation to make use of
    memory-mapped command queuing
    mechanisms as specified in SPF and DCU.

Charles Monia, Digital Equipment Corporation, August 18, 1992
Linked Commands (cont)

- An I/O Command, consisting of two or more linked CDBs, can span several I/O requests.
- The ability to include more than one linked CDB in a single I/O request is an implementation option.
- The I/O response to a linked I/O request includes the status associated with each linked CDB comprising the request.

I/O_Command = [I/O_Request | 1[Linked_I/O_Request]]
I/O_Request = CDB
Linked_I/O_Request = 2[Linked_CDB]
I/O_Response = [CDB_Status | 1[Linked_CDB_Status]]