Description of SCSI FC-4

- What it is
  
  SCSI FC-4 describes Exchanges, Sequences, frames
  SCSI FC-4 describes required data formats for:
  
  SCSI FC-4 Command Sequences
  
  SCSI FC-4 Data Transfer Ready Sequences
  
  SCSI FC-4 Data Transfer Sequences
  
  SCSI FC-4 Response Sequences
  
  Functions from FC-2, FC-3 expected for SCSI FC-4

- What it isn’t
  
  Description of implementation
  
  Target/Initiator State Diagram
Assumptions and Model

- Class 2 for parallelism, high bus utilization
- Exchange = Unit of Parallelism = IO Process
- Sequence = Unit of Protocol = SCSI Phase
- SCSI Logical Interface = CAM = SCSA = ASPI = •••
- FC-2 handles Link Management
- FC-3 handles Aliasing, Hunt Groups, Striping using aliased D_ID, S_ID
- Fabric handles switching
Model of SCSI CAM

Pointer

CAM Control Block

Control
CDB
Data Pntr
Response

Data

Nexus = Initiator ID || Target ID || LUN || Q Tag

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Model of SCSI FC-4

FQXID = S_ID || D_ID || OX_ID || RX_ID
Model of FC-4

SCSI Initiator

SCSI Target

CMND
DATA
RSP

CMND
DATA
RSP

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Model of FC-4 Write Operation
SCSI FC-4 RULES

- Only one category of frame / sequence

- Normal sequence:
  
  \[ \text{CMND} \rightarrow [\text{XFER\textunderscore RDY} \rightarrow \text{DATA}] \rightarrow \text{RSP} \]

- SCSI\_DATA optionally divided into multiple sequences

- Every SCSI\_DATA sequence preceded by XFER\_RDY sequence
FYI: Sequences

- **SCSI_CMND**
  - SCSI_ENT_ADDR 16 bytes
  - SCSI_CDB_LEN 4 bytes
  - SCSI_CDB 16 bytes
  - SCSI_CNTL 8 bytes
  - SCSI_DL 8 bytes
  - reserved 12 bytes

- **SCSI_XFER_RDY**
  - SCSI_BURST_LEN 8 bytes

- **SCSI_RSP**
  - SCSI_STATUS
  - SCSI_LNK_STATUS
  - SCSI_SNS_LEN
  - SCSI_SNS_INFO
  - SCSI_RSP_LEN
  - SCSI_RSP_INFO
Entity Address

Level

7
6
5
4
3

0

0,0,0
0,0,1

0,0,2,0T

0,0,2,0,0

1

0

2

0

3

0,2

0,1,0,3,0