



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

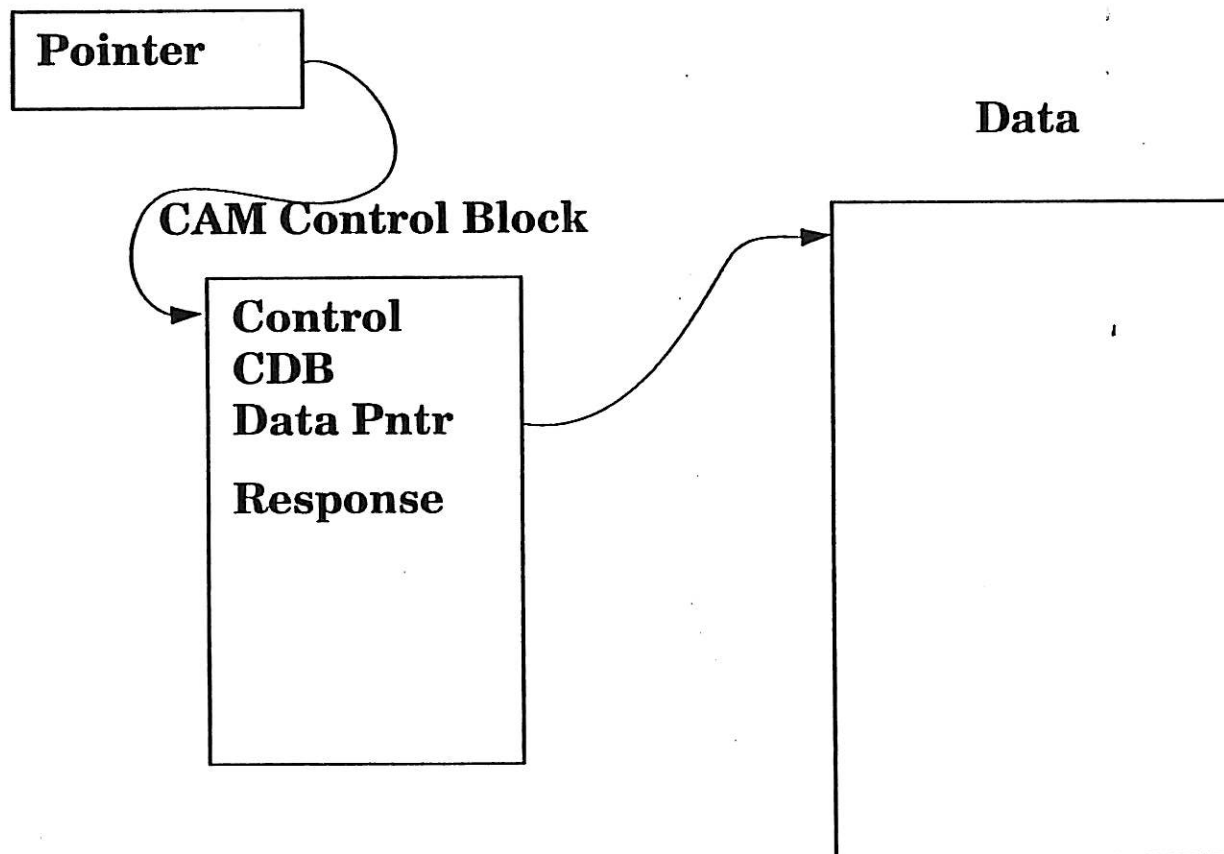


Assumptions and Model

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



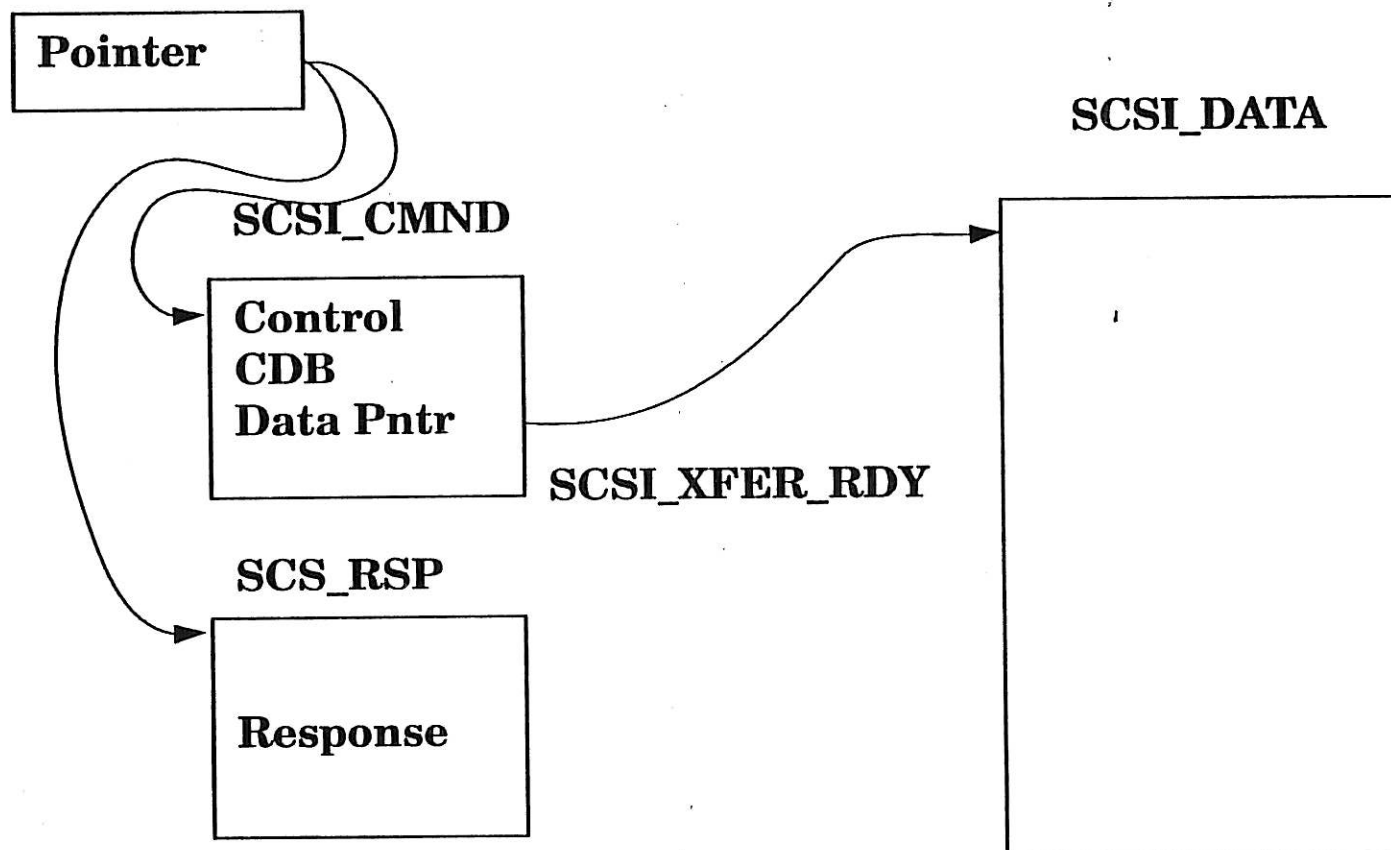
Model of SCSI CAM



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



Model of SCSI FC-4



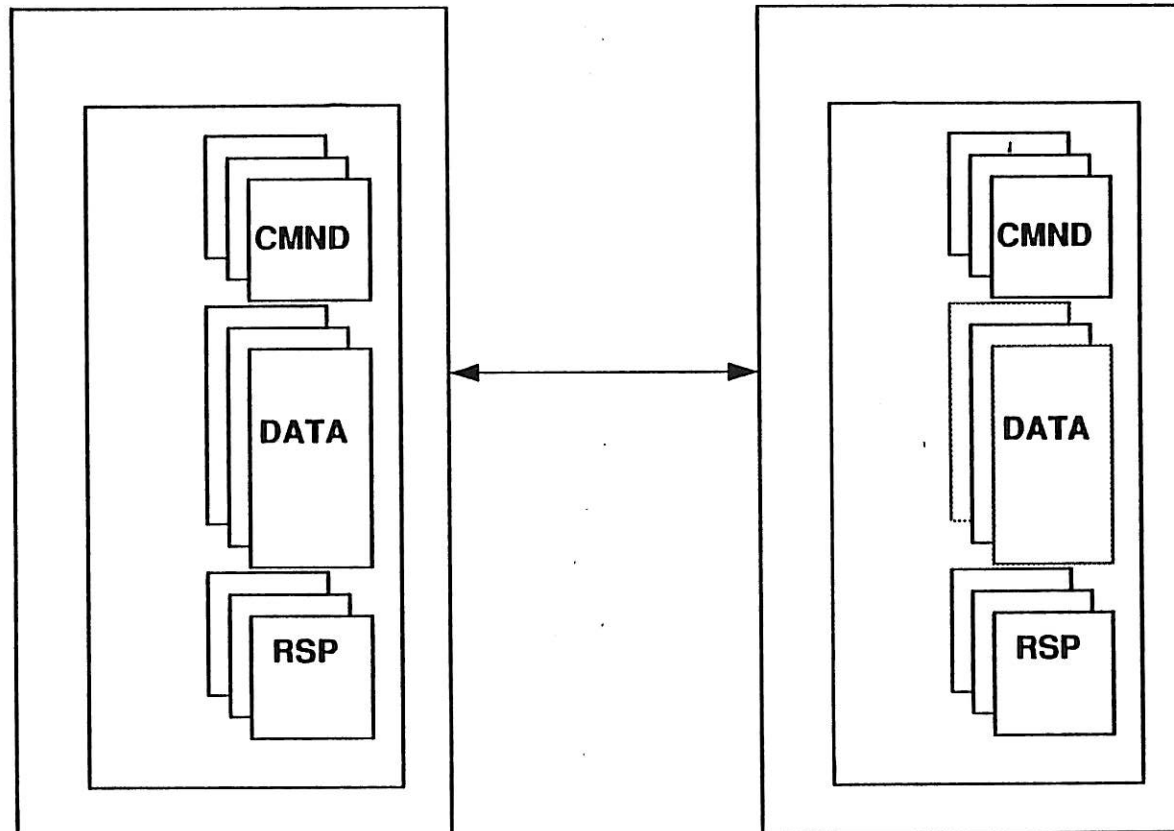
FQXID = S_ID || D_ID || OX_ID || RX_ID



Model of FC-4

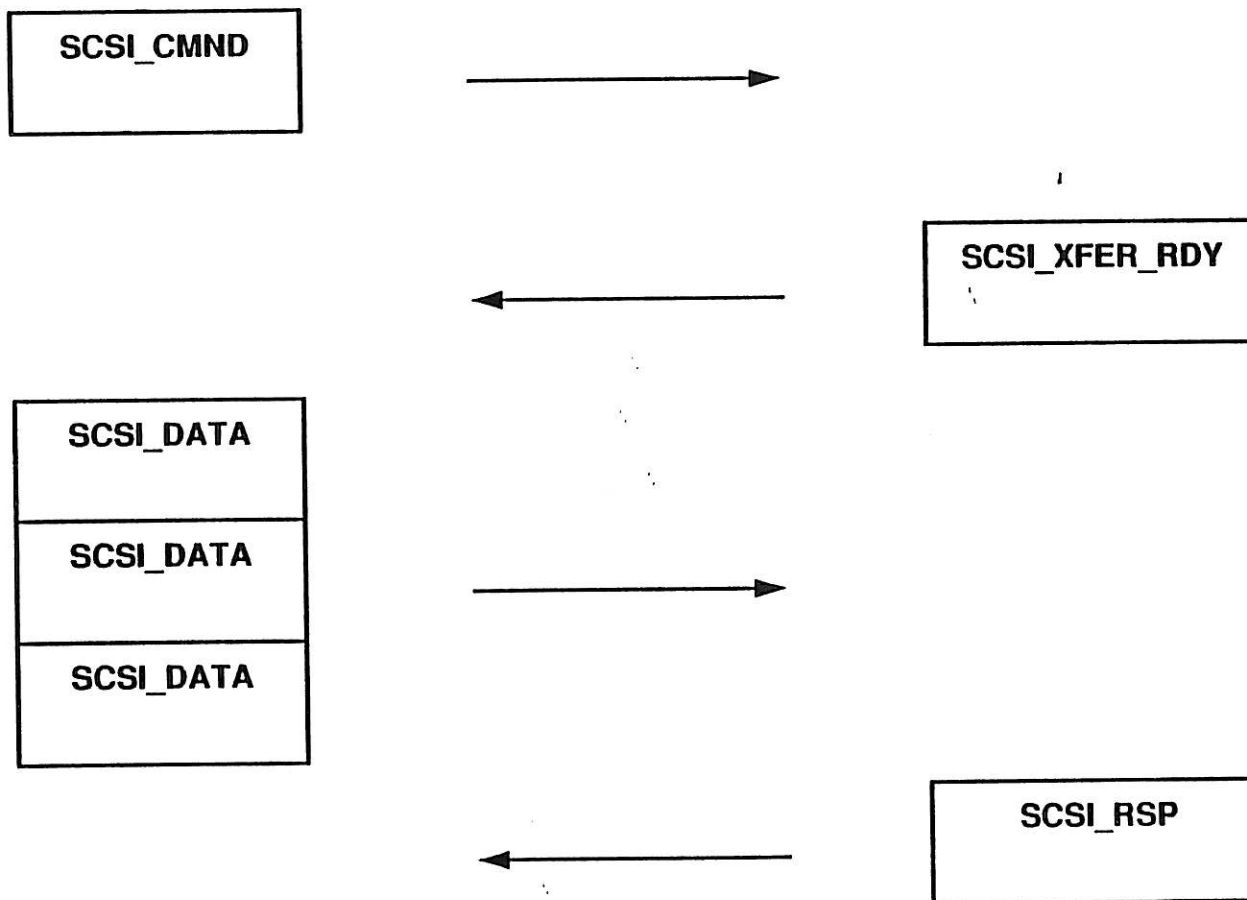
SCSI Initiator

SCSI Target





Model of FC-4 Write Operation





SCSI FC-4 RULES

- Only one category of frame / sequence

- Normal sequence:

CMND→[XFER_RDY→DATA]→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
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■ SCSI_RSP

SCSI_STATUS
SCSI_LNK_STATUS ?
SCSI_SNS_LEN
SCSI_SNS_INFO
SCSI_RSP_LEN
SCSI_RSP_INFO



Entity Address

LT	7	6	5	4	3	2	1	0
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Level

