Open-FCoE Architecture

libfc, fcoe
What is Open-FCoE?

- The Open-FCoE project is an implementation of a FCoE initiator for the Linux OS targeting in-kernel acceptance and then distribution inclusion. The project enhances the Linux kernel by adding the following:
  - A modular and reusable FC library
  - A FCoE module that works for any Ethernet-capable adapter
- Open-FCoE is LLD of the SCSI subsystem as is any existing FC HBA
- Hosted at [www.Open-FCoE.org](http://www.Open-FCoE.org)
  - git repositories
  - Development mailing list
  - Bugzilla
  - Wiki
  - Announcements / Blog
- Desire is to build a FCoE community (not Intel only)
Open-FCoE: Current Status

- Initial Community Feedback
  - Re-architect stack to create FC assist library
  - Need better utilization of existing FC transport class infrastructure

- Current Status
  - Re-architecture Complete
    - Created a re-usable FC library for any FC HBA driver
    - Using FC transport class for rport management and sysfs for displaying information to userspace
  - Over 1,000 patches contributed to re-architecture
  - Reduced size
    - Pre-arch 85 files, 23,114 lines
    - Re-arch 25 files, 12,315 lines
  - RFC (Request For Comments) submitted to linux-scsi on 08/08/08

- TODO
  - Userspace components
    - fcoeadm
    - HBAAPI vendor library == HBAAPI Linux library
    - DCB integration
  - Stack validation and defect fixing
  - FIP (FCoE Initialization Protocol)
Open-FCoE Stack

fc transport class

Local Port

Discovery

Remote Port

SCSI-FCP

Exchange Manager

libfc

FCoE

netdev

scsi-ml
libfc

Local Port
(Manages local port’s interaction with fabric)

Discovery
(Manages discovery and rediscovery of entities in FC fabric)

Remote Port
(Manages discovered targets)

SCSI-FCP
(interacts with scsi-ml, handles scsi data/control path)

Exchange Manager
(Manages all incoming and outgoing frames/sequences/exchanges)

FCoE

fc transport class

scsi-ml
Discovery

Query NS (GPN_FT) for all N_Ports in FC Fabric
For each port it creates a fc_rport and logs into it

Triggers full re-discovery
Triggers per-rport re-discovery
Triggers rport removal

Exchange Manager
SCSI FCP

SCSI CMD handling
- Fragmentation

Reset handling
- LUNs
- Devices
- Host

Error Handling
- SRR
- REC

SCSI-FCP packet management (alloc, lookup, free, abort)
- fc_fcp_pkt(0)
- scsi_cmnd
- fc_seq

Send frame

Response callback

Exchange Manager