



HPSS Upgrade and Reconfiguration

Consists of...

- ◆ 2 Additional Movers (pSeries 600 Model 6H1 4x600MHz)
- ◆ Migration from 9940A to 9940B for all but four tape drives (Archive).
- ◆ Almost complete migration to FC (required by the 9940B interface).

And of...

◆ Software upgrades:

- AIX 5.1
- DCE 3.2
- TxSeries 5.0
- HPSS 4.5

◆ Device driver replacements:

- Gresham(tape), Emulex(disk) -> IBM(native)

Not to forget the...

- ◆ Replacement of the library control:
 - Newer software version.
 - Different OS (Solaris/AIX).
 - Different hardware.

Movers (and not only...)

- ◆ Star/Phenix: upgraded from H70+H80 to H80+6H1.
- ◆ Phobos: receives an H70 server (in addition to the current H80).
- ◆ The core server has already been upgraded from H50 to H70.

Tape Drives

	Current*	Phase 1	Final conf.
Star	12	5	10
Phenix	8	5	10
Phobos	7	3	5(+2)
Brahms	3	3	3

SCSI to FC migration

- ◆ 9940B only FC interface (2Gb).
- ◆ 30tape + 16disk + 15svr = 61 ports.
- ◆ Phase 1: 3x16port switches.
- ◆ Phase 2: 2 2Gb multiloop hubs or 1 switch.

Software

- ◆ HPSS 4.5 requires:

- AIX5, DCE3.2, TxSeries5.0

- ◆ AIX5 requires:

- IBM tape device driver. (No Gresham drv.)
- IBM disk device driver. (No Emulex drv.)

- ◆ The lack of Emulex driver and the IBM tape device driver requires:

- IBM FC Adapter.

Library

- ◆ HPSS 4.5 and 9940B tape drives require:
 - ACSLS 6.1
 - More resourceful hardware.
- ◆ Experiment storage expansion space require:
 - Different silo allocation.

Switches vs. Hubs

Drives per server	5	5	5	5	3	2	3	2
Ports per loop	6	6	6	6	4	3	4	3
Hubs	1	1	1	1	0.5	0.5	0.5	0.5

3 switches = $3 \times 16 = 48$ ports.

Disks: $16 + 7 = 23$ ports.

Available: $48 - 23 = 24$ ports.

Switches vs. Hubs

- ◆ Switch ports are 10 times more expensive than hub ports.
- ◆ Tape devices use less than a 6th of the 2Gb link throughput.
- ◆ Phased testing and implementation:
 - 3 switches + 1 test hub.
 - 1 more hub or 1 switch.

Does it fit?

Sw1 (16/16)	Star tape (6)	Phenix tape (6)	Phenix disk (4)	(0)
Sw2 (14/16)	Star tape (6)	Star disk (4)	Phenix disk (4)	(2)
Sw3 (13/16)	Phenix tape (6)	Star disk (4)	Phobos disk (3)	(3)

When, How?

- ◆ Next week: adapters and switches (and tape drives).
- ◆ Phase 1 (soon after):
 - Four servers: 9940B + Disk arrays.
 - All others: only 9940A tape drives.
- ◆ Phase 1.5 (after Oct 1st):
 - FC adapters in all other servers. Start attaching additional disk arrays.
- ◆ Phase 2(Oct. – Dec.):
 - Full 9940B set.

More details...Phase 1:

- ◆ New OS, HPSS: all systems.
- ◆ DCE/Encina: core, rmds07,08, rcrsfm.
- ◆ Non-DCE HPSS: all movers but 07,08.
- ◆ Rmds12,11,09,06: 9940B and disk arrays. (New FC adapters, also)
- ◆ Rmds05,07,08,10: 9940A only.
- ◆ Batch: rmds07,08.

...Phase 1.5:

◆ After Oct. 1st:

- Full set of FC adapters: rmds05,07,08,10.
- Continue the addition of new disk arrays.
- Test FC Hub and decide on hub.vs.switch.
- Purchase SAN gear complement and install it.
- Run performance and reliability tests.
- Perform 9940A to 9940B repacks.
- Relocate tape cartridges.

...Phase 2:

◆ Oct. to Dec...:

- Complete the acquisition and installation of the 9940B tape drives. Remove the 9940A.

Summary and perspective:

- ◆ Complex procedure.
- ◆ Phased deployment to optimize the SAN infrastructure.
- ◆ Transition to non-DCE mover.
- ◆ Separation of batch/carousel from movers. Deployment of “gateway” nodes.