

LANL Site Presentation

HPSS User Forum

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Statistics (Open)

- Users 1,814
- Active users 537
- Files 7,261,156
- Total TB 195
- Accesses/month 216,891
- Cartridges 6,413

Statistics (Secure)

- Users 748
- Active users 191
- Files 7,996,733
- Total TB 523.58
- Accesses(month) 538,475
- Cartridges 16,259

HPSS Configuration (Open)

- Primary server 44P-270
- FTP server (H50)
- 18 9840 tape drives
- Clarion and SSA disk(app. 600 GB)
- 3 disk movers and 8 tape movers(44P-170)
- Data transfer network(Gig-E)

HPSS Configuration (Secure)

- Primary server 44P-270
- 36 9840 drives
- SSA and LSI disk(app. 2.3 TB)
- 6 disk movers and 18 tape movers(44P-170)
- Data transfer network(Gig-E)
- SN6K and 64 9940A drives for future RAIT mirroring

Current HPSS performance

- Small file insertion rate per user (3/sec).
- Aggregate(25-30/sec.)
- File deletion rate per user(8-10/sec.)
- 4 way tape stripe : 40-60 MB/sec.
- 1 way tape stripe : 10-17 MB/sec
- Non-striped disk : 10-30 MB/sec.
- Theoretical aggregate in secure should be app. 600MB/sec.

Future HPSS performance

- Attempt to achieve 200+ MB/sec using 16 wide stripes with RAIT mirroring.
- Have demonstrated 240 MB/sec with a 16 wide HPSS stripe over native 9840 drives.
- Above requires new PSI interface with multi-node capability.
- Expect HPSS 5.1 to at least double small file insertion and deletion rates.

Problems and concerns

- A few instances of orphaned nstext records in the Name Server.
- WAN transfers slow due to latency. This is helped some by HPSS 4.5 and should be helped more by the pdata push mods that will be a part of the next HPSS 4.5 patch.
- STK dropped RAIT striping. Will use RAIT mirroring and HPSS striping for now.

Unique features at LANL

- PSI – home grown interface. Integrated with LSF. Provides multi-node capability. Can configure striping width and number of nodes dynamically based on config files.
- Local mod to allow selected users to change ownership of files they own.
- Mercury – allow secure movement of data between systems.

Wish List

- Protocol improvements to help WAN transfers.(Pdata push,etc.)
- Alternative for STK RAIT striping.
- Enhanced change owner capability.
- Faster small file performance.
- Small file aggregation.
- Grid FTP with multi-node capability.