

# LANL Site Presentation

HPSS User Forum

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# Statistics (Open)

- Users 1,814
- Active users 537
- Files 8,966,119
- Total TB 325
- Accesses/month 216,891
- Cartridges 8,529

# Statistics (Secure)

- Users 748
- Active users 191
- Files 22,700,000 (15 million in last year)
- Total Storage 1.3 Petabytes
- Accesses(month) 538,475
- Cartridges 26428

# HPSS Configuration (Open)

- Primary server 44P-470
- FTP server (44P -170)
- 8 9840 tape drives, 10 9940A tape drives
- 450 GB SSA and LSI disk
- 3 disk movers and 8 tape movers(44P-170)
- Data transfer network(Gig-E)

# HPSS Configuration (Secure)

- Primary server 44P-470
- 28 9840, 20 9940B, 22 9940A drives
- SSA and LSI disk(app. 3.5 TB)
- 6 disk movers and 43 tape movers.
- Data transfer network(Gig-E)
- 1 SN6K with 32 9940B drives for RAIT mirroring

# Current HPSS performance

- Small file insertion rate per user (2/sec).
- Aggregate(15-20/sec.)
- File deletion rate per user(8-10/sec.)
- 4 way tape stripe(9940B): 150-180 MB/sec.
- 16 way stripe(9940B): 600-650 MB/sec.
- Non-striped disk : 10-30 MB/sec.
- Theoretical aggregate in secure should be app. 2.6 GB/sec.

# Future HPSS performance

- Attempt to get 600+MB seconds using SN6K with mirroring.
- Expect HPSS 5.1 to at least double small file insertion and deletion rates.
- Tarring enhancements to PSI to greatly increase effective small file transfer rate.

# Problems and concerns

- SFS loading. Log volume compression.
- WAN transfers slow due to latency.  
Expecting help with pdata push protocol in 5.1
- STK dropped RAIT striping. Will use RAIT mirroring and HPSS striping for now.  
Looking for possible alternatives including software striping.

# 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.