

BNL Site Report

HEPIX @ Cornell

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General Facility News

- Increased utilization of new Data Center
 - Up to 230 kW of power usage now (132 kW of which since Lisbon)
- Power & Cooling
 - Water leak in cooling system on Oct. 1
 - Repair of water leak detection system
 - Failure of flywheel UPS #1 on July 4
 - Installation of new (independent) UPS monitoring system
 - Another power failure Nov. 1 (yesterday)
 - Routine maintenance of Generator/Flywheel UPS # 2
- Manpower turnover
 - Mass Storage group (HPSS & Unix sys admin) – 1 FTE
 - Linux Farm group (Linux & Condor sys admin) – 2 FTE
 - Two other openings not yet filled

New Data Center



General Facility News (cont.)

- Support for additional research efforts
 - Neutrino experiments (Daya Bay, LBNE)
 - Astrophysics (LSST)
 - RHIC R&D (EIC)
 - ATLAS Tier 3 (Wisconsin)
 - BNL Tier 3
- Areas
 - Condor
 - xROOTd

Updates Since Lisbon

• Hardware

- 247 worker nodes (ATLAS)
 - Two, quad-core Nehalem (X5560), 24 GB RAM and 4 x 500 GB local disks
- 279 worker nodes (RHIC)
 - Two, quad-core Nehalem (X5560), 32 GB RAM and 4 x 2 TB local disks
 - Hardware issues – overheating cpu's, failing HDD's?
- 20 Nexsan storage appliance boxes (1.2 PB) for ATLAS
- DDN storage appliance (2 PB) for ATLAS
- An additional 96 TB of BlueArc storage (NFS) for RHIC

• Network

- Migration from Cisco to Force10 core routers (w/ redundancy) complete
- 80 Gb/s inter-switch capacity for ATLAS, 40 Gb/s for RHIC
- ATLAS worker nodes migrated to 1 GigE non-blocking ports

Overheating CPU's



no thermal grease



with thermal grease

Updates Since Lisbon

- Software

- Condor 7.4.2 (first upgrade in 3 years)
 - Hard-wired configuration changed to group quotas (ATLAS, PHENIX)
 - Improved performance for grid (OSG) jobs for ATLAS and STAR
- Puppet
 - Software provisioning and configuration management tool
 - Unix centralization project (next slide)
- dCache
 - Upgraded to 1.94 (ATLAS) and 1.9.0 (PHENIX)
- pcache
 - Utilize (fraction of) scratch disk on Linux Farm to buffer data for batch jobs (diminish I/O load on dCache)

Unix Centralization Project

- Part of DOE mandated security protocol
 - Affects all computational devices (desktops, servers, printers, etc) at BNL
 - Standardized configuration management tools
 - Automatic updates for vulnerability patches
 - Centralized administrative privileges
- How it affects RACF
 - Must update RACF security compliance document (2007)
 - Include staff Unix desktops in document
 - Remain a separate enclave from BNL campus at large