



Site report: CERN

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Re-organisation

- (No, really, there isn't any this time...)

Fabric Infrastructure and Operations (1)

- Main theme: Preparing for LHC
- Data and Service challenges:
 - With Castor2, achieved >750 MB/s sustained over a week – peak over 1 GB/s disk-to-disk from CERN to a number of Tier-1 sites
 - CERN-internally: more than 1.5 GB/s disk (48 servers) to tape (30 drives)
 - Castor2: Development and deployment
 - At least firm plans for all LHC experiments for migration from Castor1 to Castor2
- Unlike 2005, major experiments will take data in 2006
 - NA48 (/1,/2), Compass, Dirac

Fabric Infrastructure and Operations (2)

- Hardware procurement:
 - Installed since last HEPIX at SLAC:
 - 1200 farm PCs (800 1U systems), 65 large disk servers (5TB), 23 small disk servers (1TB), 30 disk arrays, 13 FC switches, 70 tape servers
 - Robots from IBM and STK, 80 drives (IBM, STK, LTO-3)
 - Expected soon: 65 more large disk servers, 100 console headnodes, 35 dual AMD systems
 - Tenders running for ~600 CPU servers, ~100 small disk servers, ~60 disk arrays, ~180 midrange servers; tenders for tape servers, tape drives/media/robotics in preparation
 - CPU tender for total number of SPECint, not a given number of machines
 - For next round of tenders: Evaluating option of readily cabled racks

Fabric Infrastructure and Operations (3)

- Refurbishment of CC nearing completion
 - Not easy to run major refurbishment and provide increasing services at the same time!
 - 05-Jan: LV alarm on control circuit caused complete blackout
 - 19-Jan: Bad intervention on power in B613, some systems damaged
 - 24-Jan: Bad 2000A circuit breaker in substation caused major blackout
 - 26/27-Mar: Work on air conditioning delayed because of more asbestos with old pipes than expected; fine spring weather... and temperatures of 40 deg and more in machine room! Many systems and services shut down

Fabric Infrastructure and Operations (4)

- Linux support
 - RedHat 7.3 phased out
 - Support stopped end 2005
 - Current default: Scientific Linux CERN 3
 - RHEL 5 too late for LHC startup, plan for massive SLC4 deployment
 - SLC4 certified (31-Mar-2006)
 - Switchover of default version in October 2006
 - SLC3 will be supported until October 2007

Database and Engineering Services

- BOINC (Berkeley open infrastructure for network computing)
 - Recycling old farm PCs for LHC@home
 - Desktop screen savers used as well
 - Applications: LHC beam orbit studies, Geant4, quantum processes (Feynman@home), epidemiological simulations (Africa@home), event generators, field calculations in wire chambers, ...
 - LHC@home: more than 15'000 clients, 163 CPU years (2.8 GHz Xeon) delivered until September 2005
- Several engineering applications migrated from Solaris to Windows

Internet Services

- Running XP without admin privileges
 - Pilot in autumn 2005
 - Now default for new installations
 - Application deployed that can grant admin privileges on the spot
- User authentication with certificates and smartcards
- Web authoring methods transmitting clear-text passwords banned
- Windows domain controllers now running on Windows Server 64bit

Physics Services Support

- Oracle RACs deployed successfully
 - For physics databases: commodity hardware
 - PC servers (not RedHat-certified HW), Infortrend arrays, Qlogic FC switches)
 - First installation with 20 servers, 20 arrays in production
 - Second installation with 30 servers, 30 arrays being commissioned
 - Third installation with 60 servers, 60 arrays being tendered now (production in September)

Communication Systems

- Core LAN rejuvenated
 - Force-10 routers interconnected via 10GigE
- New 10-Gigabit links to New York and Chicago
- WLAN in all CERN hostels

Computer Security

- IRC and P2P applications banned, use of VPN going down
 - Positive effect very visible: 1174 incidents in 2004, 995 in 2005
- Biggest problem: the User
 - Non-centrally “managed” systems
 - E-mail with malicious attachments
 - Some viruses simply faster than the antivirus update
 - Web pages with malware

Miscellaneous

- EGEE-II: 91 partners, 32 countries, 10 activities, 36.9 MEUR funding requested
 - Passed all approval stages
 - Serious discussions about grid infrastructure support after EGEE-II
- OpenLab: Phase II launched
 - Intel, HP, Oracle as partners, some contributors on board already
- CRA (Computing Resource Administration)
 - AIS application, replaced userreg, spaceadm etc.