



# CERN Site Report

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# LHC Status (1)

Date	Event
10-Sep-2008	First beam in LHC
19-Sep-2008	Leak when magnets ramped to full field for 7 TeV/beam
20-Nov-2009	First circulating beams since Sep-2008
23-Nov-2009	Circulating beams both ways, first collisions at 2 * 450 GeV
30-Nov-2009	World record: 2 * 1.18 TeV, collisions soon after
16-Dec-2009	End of run, more than one million collisions recorded by each of the four experiments
28-Feb-2010	Beams back
19-Mar-2010	Another world record: 2 * 3.5 TeV
30-Mar-2010	First collisions at 2 * 3.5 TeV, special day for the press

- Future plans
  - Run for 18...24 months at  $2 * 3.5$  TeV to collect one inverse femtobarn
  - 2012: Shutdown to prepare machine for  $2 * 7$  TeV

- **Unchanged:**
  - CS (Communication Systems, GL: Jean-Michel Jouanigot)
  - UDS (User and Document Services, GL: Tim Smith)
  - DI (Departmental Infrastructure, GL: Alan Silverman)
- **CF (Computing Facilities, GL: Wayne Salter)**
  - SAO (System Administration and Operations)
  - ASI (Automated Services for Infrastructure)
  - FPP (Facility Planning and Procurement)
- **DB (Database Services, GL: Tony Cass)**
  - DIS (Database Infrastructure)
  - SIS (System Infrastructure Services)
  - PDS (Physics Database Services)

- DSS (Data and Storage Services, GL: Alberto Pace)
  - DT (Design and Transition)
  - FDO (File and Data Operations)
  - TAB (Tape, Archives and Backups)
- ES (Experiment Support, GL: Jamie Shiers)
  - DAS (Distributed Analysis Support)
  - MND (Monitoring and Dashboard)
  - VOS (VO Services)
- GT (Grid Technology, GL: Markus Schulz)
  - DMS (Data Management Software)
  - OPS (Operations)
  - SL (Software Lifecycle)
  - TOM (Tools for Operation and Monitoring)

- OIS (Operating Systems and Information Services, GL: Christian Isnard)
  - ODS (Operating Systems and Desktop Services)
  - IN (Internet Infrastructure)
- PES (Platform and Engineering Services, GL: Helge Meinhard)
  - ES (Engineering Services)
  - PS (Platform Services)
- IT Service Manager (Mats Moller)

- Coping well with initial data taking
  - ATLAS exporting data from T0 at 1 GB/s
  - Others at design specs as well
  - Tests have shown up to 3 GB/s

- ‘Best practices’ approach
- Most IT staff followed course and passed exam
- Service catalog (with dependencies) done
- Incident management workflow done
- Change fulfilment workflow done
- Implementation ongoing
  - Resulting in a common service desk for IT and GS



- Addressing shortfalls of capacity in CC
  - Critical power: running 340 kW on a supply safely designed for 250 kW
  - Non-critical (“physics”) power: need to extend 2.5 MW for upgrades required for LHC
  - Remote hosting: short-term
    - Hosting centre selected at ~15 km from CERN
    - 15 racks, 40 m<sup>2</sup>, 100 kW
    - Intense preparations
    - First systems to be moved in May/June
  - Remote hosting: long-term
    - Some expressions of interest from CERN member states
    - Awaiting concrete offers

- Addressing shortfalls of capacity in CC (cont'd)
  - Containers
    - Price enquiries/tenders ongoing
    - Location on CERN site identified
  - Extension of building 513: Refurbishment of “barn” area
    - Planning started
- Shutdown procedures for non-critical services established
  - Operators will shut down equipment if power lost for more than 3 minutes

- Procurements: Volume
  - Recent deliveries include
    - 2'188 CPU servers
      - All as four dual-CPU (Nehalem) systems in a 2U enclosure
    - 613 Disk servers
      - 4U, 24 \* 2 TB, single Nehalem, RAID card
    - 1 PB external (iSCSI) storage with front-end servers
    - 224 midrange servers
    - 60 tape servers
    - 38 small disk servers
    - 109 disk arrays
  - Market survey for servers, and one for storage, done
  - Tenders for 2011 capacity have started









- Procurements: Fun points
  - MCE errors
  - Memory messup (non-uniform across delivery)
  - RAID controller fun
  - Soldering interventions on mainboards
  - Systematic disk drive drops
  - Upgrades of BIOS and BMC
  - Disk drive firmware upgrades
  - ...



- Re-tendering blanket purchase contracts for routers and switches
- SIM card replacement: More than 3'500 SIM cards replaced during one week



- Oracle and LHC running
  - Production databases on Oracle 10
  - Support for 10 ends by mid 2011, i.e. before the end of the run
  - Extending support for 10 will cost money (also for T1 centres requiring it)
  - Upgrade to 11 in time may be difficult

- Lustre evaluation completed
  - See Tim Bell's talk
- All disk servers upgraded to SLC5
- Backup will continue with TSM
- Castor stagers upgraded to 2.1.9

- Windows support
  - Windows 7 (both for 32-bit and 64-bit) supported for selected HW configs since Jan-2010, general support since 31-Mar-2010
  - Phase out Vista within the next months (no new installs)
    - Exception for engineering PCs requiring Vista 64bit
  - Phase out XP to be clarified
- Mail services
  - Due to incompatibility with pine and alpine clients, Exchange 2007 will be skipped
- Sharepoint
  - Sites being migrated to MOSS 2007 SP2

- Anti-virus
  - Migration from Symantec anti-virus to Microsoft Forefront
- Print infrastructure
  - New print servers about to be released in production
  - Some client-side changes, including on Linux, being deployed
- Linux support
  - Support for ia64 stopped
  - Existing machines will still get security updates

- Lxplus
  - Alias not yet moved from SLC4 to SLC5
    - Requires more interaction with users
  - Numerous packages added to minimalistic setup that SLC5-based release started with
- Lxbatch / lxparc
  - Some users with need for parallel applications
  - Fitting 40 dual-CPU nodes with 10GE interconnect
- Linux updates
  - Changes to monthly update procedure: Preparing versioned package list rather than pushing update onto all machines actively

- Virtualization
  - See Ulrich Schwickerath's talk
  - Performance issues under Hyper-V with external storage and Linux guests
- Twiki
  - See Pete Jones' talk
  - Storage backend moved from AFS to NFS
- SVN
  - Ramping up, projects and activity on the rise, replacing in most cases cvs repositories
  - Moving servers from cvs to svn
  - Svn server is 1.5, clients on RHEL/SL/SLC are 1.4
    - Interoperability issues

- Indico
  - New version released in production
  - Development contributions by FNAL, DESY, GSI
    - Perhaps more to come

- ssh attacks continuing
- Web servers disclosing confidential information
- Campaign to promote secure coding
- Scan of AFS file space to detect directories with files containing confidential information not protected properly
- Phishing attacks – CERN users getting used
- Security base lines for servers, Web space, ...
- Planning for a security awareness day
- Firewall openings being reviewed
- Looking into source code analysis tools



- Solaris and Sparc phased out
  - Replaced mostly by Linux
  - Few services with Windows