CERN Site Report

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HEPiX Spring 2009 Umea

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- CERN Directorate
  - Rolf Heuer (Director General)
  - Sergio Bertolucci (Research and Computing)
  - Stephen Myers (Accelerators and Technology)
  - Sigurd Lettow (Administration and General Infrastructure)
- IT Department
  - Department head: Frédéric Hemmer
  - Deputy: David Foster
- Two former IT groups changed department
  - CO (now in Engineering Department as Industrial Controls and Electronics)
  - AIS (now in General Infrastructure Services Department)

LHC

- First circulating beams in LHC: 10 September
  - Very large press coverage
  - Web servers hit 20 times more often than usually
- Incident on 19 September 2008
  - During attempt to ramp beam energy up to 7 TeV, a leak occurred in the cold mass causing significant loss of helium
- Repair work is ongoing
  - Instrumentation for detecting this kind of problem being added
- Schedule: beam end September 2009, collisions end October 2009, running until autumn 2010
  - Collision energy: 5 + 5 TeV
  - Short technical stop at Christmas 2009
- Work on schedule

Databases and Engineering Support

- TWiki
  - Started at CERN in 2003
  - Now 5'000 active users, 44'000 topics, 30'000 monthly updates
  - Atlas and CMS are heavy users
  - Security enhancements: write access to CERN accounts only, campaign to disable anonymous read
- Subversion
  - "A better version control system"
  - Following successful beta test, went into production in January 2009
  - Coexistence with cvs for quite some time

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- Linux
  - Certification etc.
    - SLC4 is current production version, mostly x86_64 on servers
      - Laptops problematic since 2006, desktops since a little later
    - SLC5 ongoing, formal certification delayed because of CERNLIB
    - Because of demand for SLC5, lxplus and (very sizeable) lxbatch facilities established, publicly open now
    - Recommendation for experienced users without any known dependency on SLC4 is SLC5
  - DNS incidents: Found that with RH5, the DNS lookup is conforming more closely with RFC 3484
    - No longer the first IP, or a random choice, but the "geographically next" IP is returned
  - Change of responsible: Jan van Eldik takes over from Jan Iven

- ## Infrastructure
  - New computer centre
    - New directorate very favourable towards CC project
      - Green solution: link new CC to heating of respective site (Prévessin)
    - 4 detailed design studies delivered in 2008
    - Tender for "client advisor"
    - Subsequently (unique) tender for construction
  - Total of 60 water-cooled racks of 10 kW each: Infrastructure ready
    - Delivery of CPUs and disks in September 2008 will use them
- ## Backup
  - Growth remains higher than expectations (~ 35%)
    - Users don't know what they want…
  - Alex Iribarren took over from David Asbury as service manager

- ## Procurements (1)
  - – Change of LHC running schedule required procurement planning to be adapted
    - Initially: 2 big rounds for 2009, 2 big rounds for 2010
    - After September 19th: Only one round for 2009, one for 2010
    - February: "Emergency" procedure added to have additional equipment in October 2009
  - – Tenders open or in preparation

Type	Production	Volume
CPU servers	October 2009	50'000 HEP-SPEC06 (about 500 systems)
Small disk servers	October 2009	50 systems
Large disk servers	October 2009	4 PB usable (about 200 systems)
Servers and iSCSI backends	October 2009	1 PB usable
Oracle servers	October 2009	90 systems
Midrange servers	> October 2009	50 systems
FC disk arrays	> October 2009	50 systems
CPU servers	March 2010	150'000 HEP-SPEC06 (about 1'500 systems)
Large disk servers	March 2010	10 PB usable (about 500 systems)

CERN CC currently (March 2009)

- 5'700 systems, 34'600 processing cores
  - CPU servers, disk servers, infrastructure servers
- 13'900 TB usable on 41'500 disk drives
- 34'000 TB on 45'000 tape cartridges (56'000 slots), 160 tape drives

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- Procurements (2) – Fun points
  - Defective memory modules
  - Yet another supplier went out of business in January
    - > 100 systems in CC under warranty no longer maintained
  - Memory manufacturer insolvent
  - Late deliveries
  - Spurious error messages due to defective firmware
    - Almost 1'000 systems upgraded: BIOS and BMC
  - Disk drive problems: thousands of drives upgraded
    - drives dropped out of RAID under heavy load
    - I/O errors on disk drives
    - Corruptions on disk drives
    - Risk to make drives inoperable
    - Default expiration date
    - ...
  - RAID controller / SAS expander incompatibilities
    - Causing data corruptions, required firmware fix for RAID controller
  - I/O errors on disk array in JBOD mode
  - Dropped connections (or none at all) via BMC SOL
  - Unphysical (aka crazy) CPU accounting
  - Loss of network connection to BMC

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- # Tapes
  - Following successful tests, drives upgraded to newest generation supporting ~1 TB, media being repacked
  - After many years of dealing with tapes, Charles Curran retired
    - Vlado Bahyl has agreed to take over
- # R&D
  - Lustre pilot project (see Arne Wiebalck's talk)
  - iSCSI tests (see Andras Horvath's talk)

Internet Services (1)

- **Windows services**
  - Terminal services remain very popular, number steeply increasing (now ~ 60 in production, i.e. 40% growth over 2008)
    - Ivan Deloose taking management over from Michael Kwiatek

- **Windows clients**
  - Vista default for sufficiently powerful machines (e.g. 2 GB or more), but XP remains a choice. Issue on Technical Network because of activation
  - Michael Kwiatek taking over from Rafal Otto

- Mail services
  - Migration of mailing lists and archives to e-groups completed
  - Mailboxes being moved to Exchange 2007
  - Plagued by Thunderbird "bug" exhausting IMAP connections

User Support

- Preparing for re-tendering the desktop / helpdesk contract
  - New contract as of 01-Jan-2010
  - Current helpdesk workflow in Remedy being re-implemented until September 2009
- Printing under consideration
  - (Far) Too many printers, too many different printer models, high (but mostly hidden) cost
  - Proposal for small number of multi-function devices, pay-by-sheet

Security

- Incidents include
  - Well-known attack on network protocol on Linux machines back
  - Increased phishing attacks – some users really give their passwords away…
  - Users posting sensitive information on open channels (mailing lists, Web including TWiki etc.)
- Measures taken include
  - Tor added to list of blocked applications
  - Access to remote DNS servers blocked
- Skype: Trial ongoing under certain conditions
  - "Tolerated as long as configured correctly and not more problems than expected occur"
- Training courses for users and developers well received

ITIL

- Information Technology Infrastructure Library
- CERN-IT getting serious about it…
- In some places not far off, but rigour sometimes missing
  - Meetings are working well, but invested effort can't be compared with measurable improvements of services
  - No clear separation yet of change management, incident management, service level management
- Hope is to reduce stress and 'heroism' to run services
- KPI difficult in our environment
- Aim is to demonstrate that best practices are applied
- IT Service Review meeting being instantiated (role of DTF changes)
  - Need to unify approach of service review, avoid multiple meetings

Miscellaneous

- CERN Openlab
  - Phase III started
  - Siemens joined as a partner for automation and controls
  - Oracle, Intel and HP renewed membership
- SURE monitoring retired after 15 years