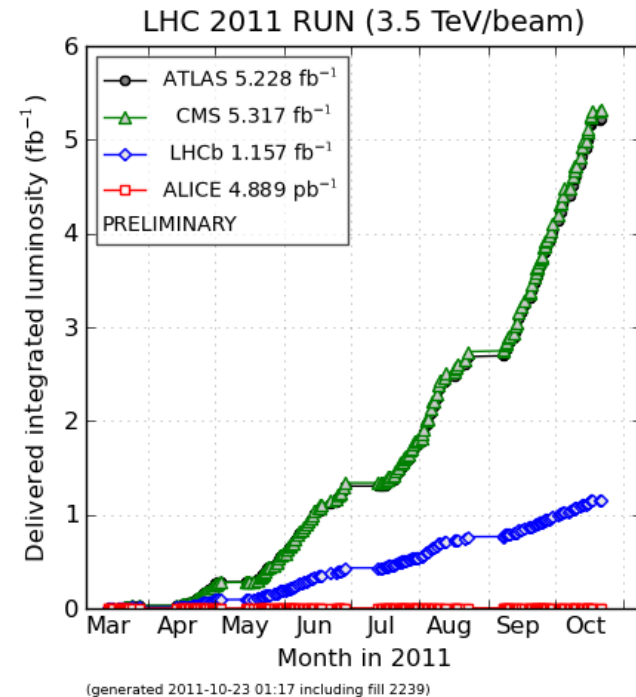# CERN IT Department

CERN Site Report

Helge Meinhard / CERN-IT

HEPiX Fall 2011 Vancouver

24 October 2011

- **Very smooth, successful LHC running**
  - Record intensities, record luminosities
    - Total of more than 5 fb^{-1} in Atlas and CMS each
      - Objective set in 2010 for end 2011 was 1 fb^{-1}!
  - Staying at 50 ns bunch spacing in 2011
    - High luminosities by number of protons per bunch and better focussing

LHC 2011 RUN (3.5 TeV/beam)

ATLAS 5.228 fb^{-1}
CMS 5.317 fb^{-1}
LHCb 1.157 fb^{-1}
ALICE 4.889 pb^{-1}
PRELIMINARY

(generated 2011-10-23 01:17 including fill 2239)

  - Confirmation to run until end 2012 at 2 x 3.5 TeV
    - Shutdown in 2013 and early 2014
    - Possibly physics run towards end 2014

CERN IT Department

- **Very smooth LCG operations**
  - Peaks of more than 200 TB written to tape a day (115 TB of which are experiment data, rest repack)
- **Service management**
  - Rather positive experience with Service-now
    - Introduced 15-Feb-2011
    - Incidents and requests fully implemented
    - Change management to come soon
    - Still a number of minor rough edges
  - All CERN IT user support staff now in service management unit
- **SL(C)6 certification and deployment**
  - Slow progress
  - Plan to review certification procedure and timescales

General Points (3)

- **Working group to review how we run our services**
  - Includes role of virtualisation and clouds, fabric management, …
  - Working group just started, more comprehensive report in future HEPiX
  - Working group on monitoring on-going
- **Minor structural changes**
  - User support people moved from UDS to DI/SM
  - Remainder of UDS renamed "Collaboration and information services"
  - OIS renamed "Operating systems and infrastructure services"
  - DB internally re-organised
- **Personnel changes: Alan Silverman retired…**

Computing Facilities (1)

- **External hosting**
  - Running part of our 'critical machines' in hosting centre 15 km away from CERN has become routine
- **Remote T0 facility**
  - Lots of discussions and visits following expressions of interest
  - Call for tenders is out now
  - Adjudication planned in spring 2012
- **B513 upgrade progressing**
- **Temperature risen in machine room**
  - Cold air from 14 deg to 21 deg
  - Using more free cooling from outside air

- New warranty repair procedures as of beginning 2012
  - Two months' stock of spare parts and servers to be included in delivery (and in adjudication price)
  - Dedicated CERN contractor performs repair
  - Broken parts sent back and replaced monthly
- Thailand floods impact humans… and hard drives
  - Expect delays in deliveries
  - Higher prices not excluded

Collaboration and Information Services

- **Decided to replace EVO by Vidyo**
  - Significant transition (and user handholding) period started
- **INSPIRE moved to production**
  - SPIRES switched off after many years of faithful service to HEP
- **Preparing a new contract for photocopiers and printshop services**
  - Aim is to integrate printers as well later
  - Tendency for multi-function machines

Communication Systems

- **Roll-out of new generation routers on-going**
  - Will take until summer 2012
  - New generation supports 100 GE
- **100 GE tested locally**
  - Incompatibility with 40 GE doesn't help
- **100 GE tested remotely**
  - Lyon, Amsterdam
- **Looking at virtual Ips**
  - Use case: e.g. virtual machines moving around in CC
- **IPv6 preparation**

Database Services

- Preparing upgrade to Oracle 11g
- Workshop on database futures
  - Oracle growth
    - Most demanding customer is LHC machine logging…
  - MySQL service
  - noSQL databases
  - …
- Oracle backup
  - Was directly to TSM
    - Difficult dependencies of ORACLE RMAN and TSM
  - Introducing a disk buffer in between

- Tape service: Successfully introduced
  - Buffered tape marks
  - One tape mark every 4 GB
- Castor scheduling: Migration from LSF to Transfer Manager completed
- EOS in full production for Atlas and CMS disk-only pools at CERN
- (Together with OIS) Further homogenisation of AFS and DFS
  - Same security model and enforcements
  - Same service levels (and terminology!)
  - Same default and maximum quotas
  - Quota increases mostly via Web portal self-service
  - Identical hardware

Operating Systems and Infrastructure Services (1)

- **Identity management**
  - Investigating user names > 8 characters and Unix ids of more than 16 bits
  - Password reset portal: link (valid for 10 mins) mailed to registered external mail address
- **Windows service**
  - Extension for XP support at CERN discussed in view of shift of LHC shutdown to 2013
  - Administrator rights for desktops only granted to primary accounts of responsible person and main user
  - Replacement for Hummingbird Exceed under study
- **Inventory**
  - Together with PES: software and hardware inventory for Linux and Windows machines

CERN IT Department

- Web services
  - Service for short URLs established
- Mail services
  - Limit introduced for number of mails a user id can send to addresses outside of CERN within a given period of time
    - Has prevented spam attacks from compromised accounts and hence blacklisting of the cern.ch domain
- iPhones, iPads
  - Community support established
    - IT provides advice, runs support infrastructure

Platform and Engineering Services (1)

- **New services:**
  - ActiveMQ: In production use by Atlas DDM
  - CVMFS: Stratum 1 and clients in production use, Stratum 0 ready to go, release nodes being tested by expts
  - JIRA: Central service in response to numerous requests for central issue tracking service, just starting
  - BOINC: CERN-IT will run middle layer (BOINC) infrastructure as well. Efforts started (Francfort book fair)
- **Virtualisation: Mostly covered by later talk**
  - Service consolidation (virtual VOboxes) very successful, now exceeding 400 machines

- CPU accounting for batch farm reworked
  - Ready to go
  - Publishing locally submitted as well as Grid jobs to APEL requires new APEL infrastructure to be put in production
- Software licensing: Some companies unwilling to offer (or willing to withdraw) acceptable (academic) conditions to/from CERN
  - Changed CFD tool and supplier
  - Promoting alternatives wherever they exist (for example for a popular math tool)
- Platform Computing (LSF supplier) has been acquired by IBM

Computer Security

- (see dedicated talk)
- Introduced self-mitigation of security incidents
- Participated in SSC5 – went rather well for CERN
- Campaign to enforce https for Web authentication, and for using different passwords for CERN accounts from weakly protected Web services
- Some 'fun' points
  - Bug in configuration component – password 'x'
  - Private cvs repositories went public via cvsweb
  - Document on personal Web page with username/password combinations
  - Devices with embedded controllers (mostly Windows) with open default credentials
  - DigiNotar certificates compromised
- Discussion about machine repairs – broken disks can contain sensitive data

Miscellaneous

- **CERN School of Computing**
  - 2011 in Denmark: 80+ applications, 60 selected students
  - Excellent results, atmosphere better than ever
  - 2012 in Uppsala (Sweden): preparations on-going
- **Openlab news**
  - Preparations for Phase IV well advanced, Siemens and HP Networking signed, Intel and Oracle to follow soon
  - Huawei signed contributor agreement for one year
  - Wolfgang von Rüden retired, Bob Jones taking over as head of Openlab
- **Working group on open-source software licence for CERN-developed software**
  - Recommends GPL/LGPL for most instances, Apache acceptable