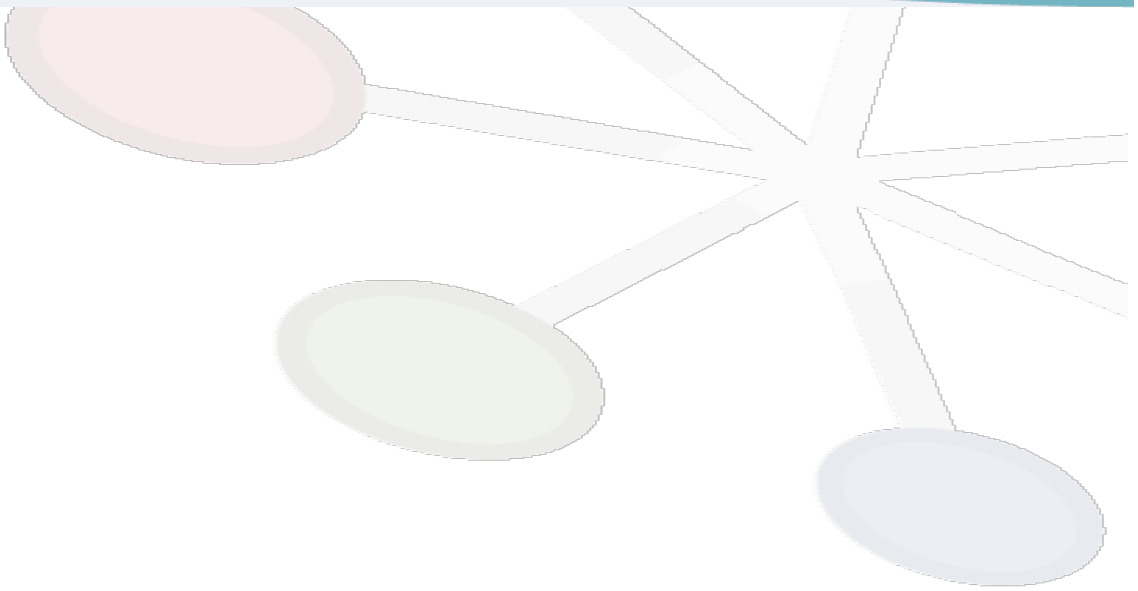
LHCb Status report
February 08



Activities since November '07

- **Core Software**
  - Test latest release of ROOT (5.18)
  - Certification of LCG 54
- **Production activities**
  - Simulation continued at a low pace (few physics requests)
  - Stripping of MC signal data
    - Took place at most Tier1s
    - Problems with data access / availability (as usual)
      - Files not present physically although in the local namespace
    - Putting in place integrity checking procedures
      - Mark files as absent when access unsuccessful
  - Preparation of datasets for CCRC'08
    - 1.5 GB files using "RAW data" from MC files (100 input files)
- **Core Computing**
  - Development of DIRAC3 for CCRC'08
    - Re-engineering of the whole DIRAC (WMS and DMS)
    - SRM v2.2 usage through gfal python API
    - gLite WMS usage

LHCb Computing Status

Site configuration

- LFC mirror
  - DB replication using 3D from CERN to all Tier1s
    - In place for 6 months
  - LFC service for scalability and redundancy
    - In production at CNAF, RAL, IN2P3 (GridKa coming)
- Site SE migration
  - RAL (dCache to Castor2)
    - T0D1 migration went rather smoothly (FTS copy of files)
    - T1D0 migration extremely painful (staging tape by tape)
      - Lasting for several months now…
  - PIC (Castor1 to dCache for T1D0)
    - Went very smoothly without file copy (file migration to Enstore)
    - Castor ready to be de-commissioned
  - CNAF (Castor2 to StoRM for TxD1)
    - No migration plan yet (as SRM v2) for existing files
    - Tested, to be used for CCRC'08 in May (stripping)

DIRAC3 for CCRC

LHCb Computing Status

- DIRAC3 being commissioned
  - Most components are ready, integrated and tested
  - Basic functionality (equivalent to DIRAC2)
- Lastweek: full rehearsal week
  - all developers are at CERN
  - Goal: follow progress of the challenge, fix problems ASAP
- DIRAC3 planning (as of 15 Nov)
  - 30 Nov 2007: Basic functionality
  - 15 Dec 2007: Production Management, start tests
  - 15 Jan 2008: Full CCRC functionality, tests start
  - 5 Feb 2008: Start tests for CCRC phase 1
  - 18 Feb 2008: Run CCRC
  - 31 Mar 2008: Full functionality, ready for CCRC phase 2 tests

  - Current status: on time with above schedule
    - Several features (e.g. SRM-related) to be ironed out

CCRC'08 for LHCb

LHCb Computing Status

- Raw data upload: Online → Tier0 storage (CERN Castor)
  - Use DIRAC transfer framework
    - exercise two transfer tools (Castor rfcp, Grid FTP)
- Raw data distribution to Tier1s
  - Reminder: CNAF, GridKa, IN2P3, NIKHEF, PIC, RAL
  - Use gLite File Transfer System (FTS)
    - based on SRM v2.2
  - Share according to resource pledges from sites
- Data reconstruction at Tier0+1
  - Production of RDST, stored locally (using SRM v2.2)
  - Data access using also SRM v2 (various storage back-ends: Castor and dCache)
- For May: stripping of reconstructed data
  - Initially foreseen in Feb, but de-scoped
  - Distribution of streamed DSTs to Tier1s
  - If possible include file merging

Tier1 resources for CCRC'08

- Data sharing according to Tier1 pledges
  - as of February 15th (!!!)
- LHCb SRM v2.2 space token descriptions are:
  - LHCb_RAW (T1D0)
  - LHCb_RDST (T1D0)
  - LHCb_M-DST (T1D1) – not needed for February CCRC (no stripping)
  - LHCb_DST (T0D1) – not at CERN
  - LHCb_FAILOVER (T0D1)
    - used for temporary upload in case of destination unavailability
- All data can be scrapped after the challenge
  - Test SRM bulk removal (tested already during the challenge)
- Based on 2 weeks run
  - 28,000 files (42 TB)
- CCRC'08 in May
  - 4 weeks continuous running
  - Established services and procedure

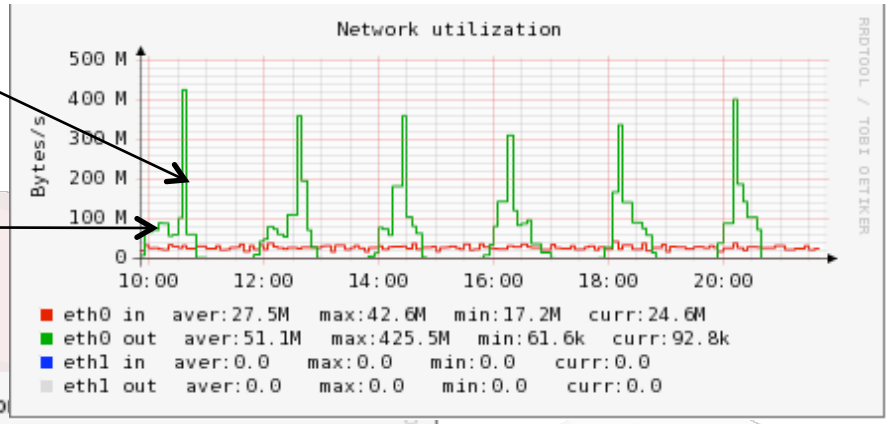
CCRC Feb Resources	CERN	FZK	IN2P3	CNAF	NIKHEF	PIC	RAL	Total
Request (kSI2k)	326	242	569	215	591	97	242	2282
CPU(kSI2k)	326	250	587	222	610	100	250	2345
Coverage (%)	100%	103%	103%	103%	103%	103%	103%	103%
Contribution	14%	11%	25%	9%	26%	4%	11%	100%
Share of raw data		12%	29%	11%	30%	5%	12%	
disk(TB)	8	8	8	8	8	8	8	
tape(TB)	53	6.9	13	6.8	19.7	3.3	17.9	

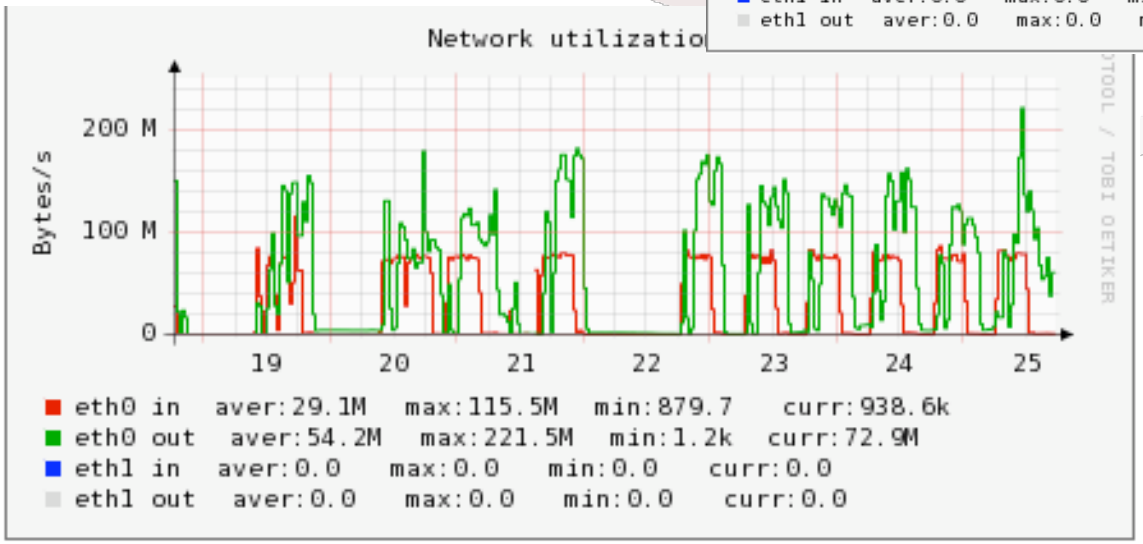
Pit 8 to Tier0-Castor transfers

- First weeks in February: continuous transfers at low rate
- As of 18 Feb: nominal rate (70 MB/s) with ~50% duty cycle
  - A few longer stops for SW upgrades

Tier1 Transfers

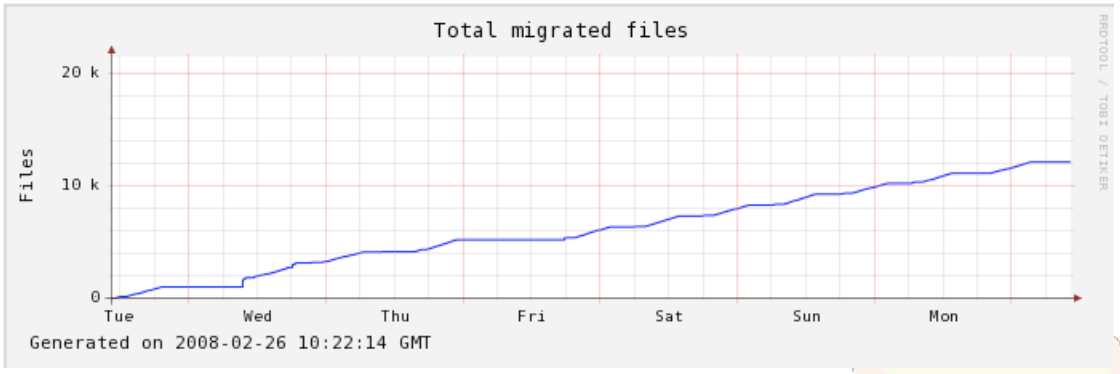
Migration

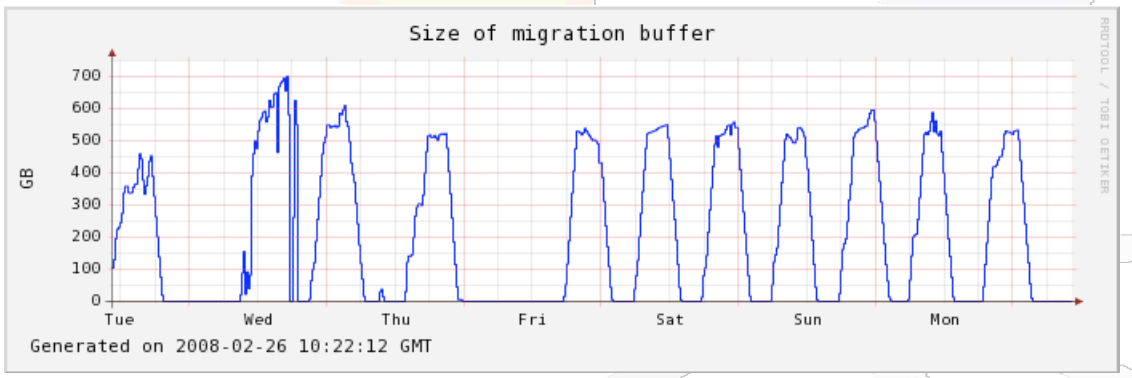


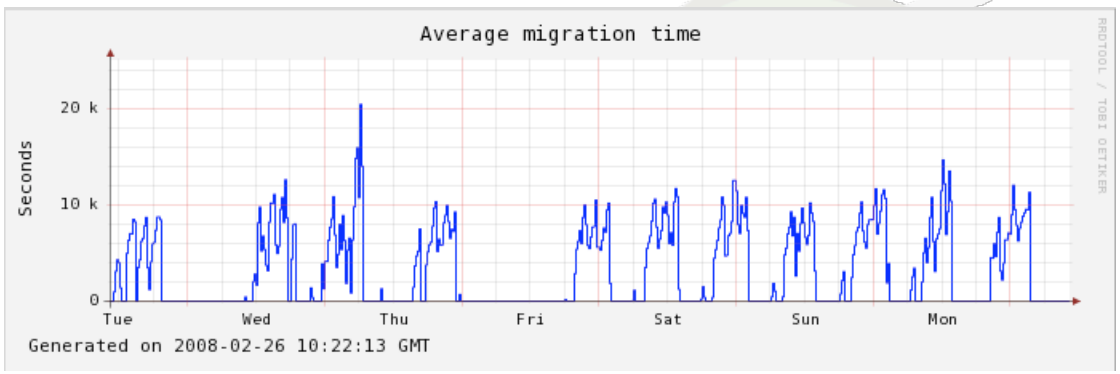


Castor migration

LHCb Computing Status

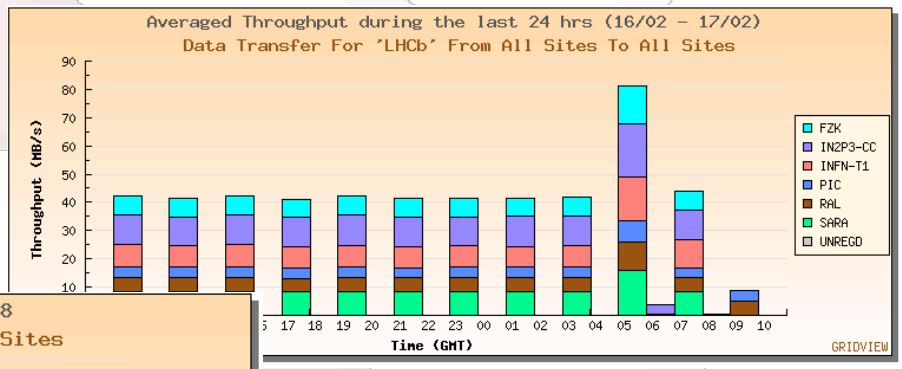


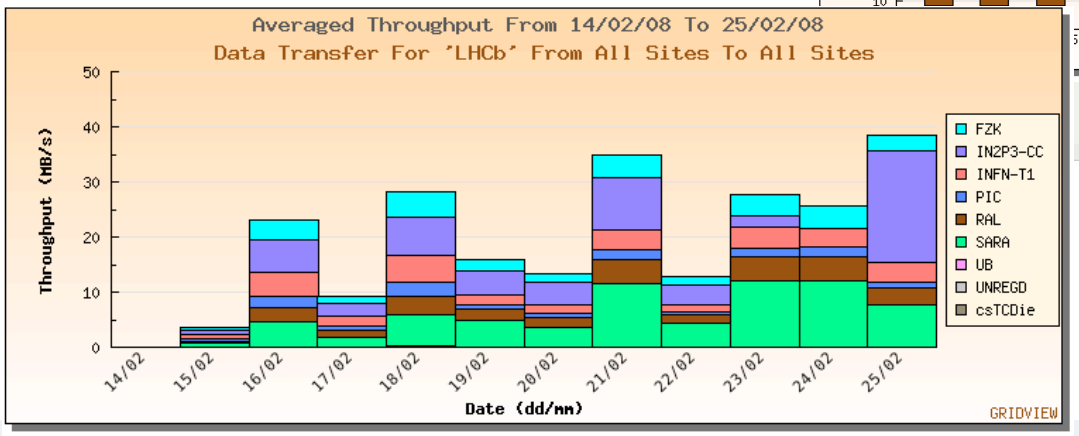




Tier0 to Tier1 transfers

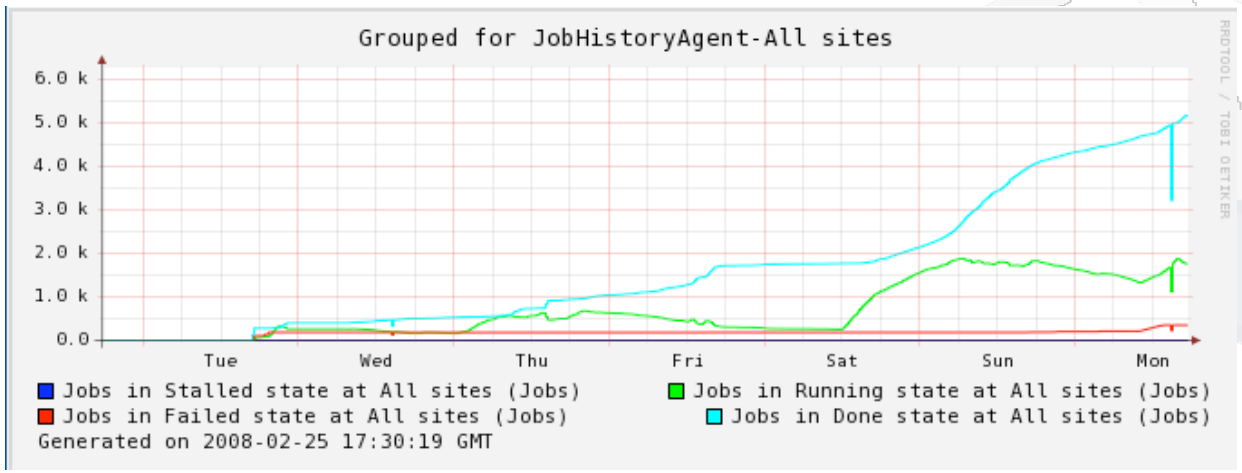
- Transfers to the 6 Tier1s
  - Share according to pledges works OK
  - Some backlog effects observed, even at low rate
    - Files are only transferred after successful migration and CRC check
  - Problems seen at IN2P3 (dCache configuration)
    - "Space full" even on T1D0… reported to dCache
- File removal
  - SRM v2 removal works
    - Space not recovered…





Tier0-1 reconstruction

- New DIRAC3 WMS
  - Uses gLite WMS for launching pilot jobs
    - Also at Tier0
  - Using SRM v2.2 for file access (srmPrepareToGet)
    - Reminder: data access from disk servers (rootd, rfio or gsidcap)
- Slow start (debugging…), but now…
  - jobs submitted steadily and running at all sites
  - Hiccups: dCache sites resetting the gsidcap ports
    - Not caught properly by ROOT (believes EOF reached)
      - Job terminates successfully but not all events processed



Summary

- Last quarter mainly devoted to development and testing of DIRAC3
- Simulation, reconstruction and stripping activities ongoing at low pace using DIRAC2
  - Analysis (using ganga + DIRAC2) also ongoing at most sites
    - Distribution of analysis limited due to disk crisis at most sites
    - Most stripped data are CERN only…
- CCRC'08 well running now
  - New week: steady processing
  - March: introduce more complex workflows (stripping)
- Next steps
  - Fully commission DIRAC3 for simulation and analysis
  - Get ready for 4 weeks steady running at nominal rate in May
    - If possible include analysis (using generic pilot jobs)
      - proxy delegation tested already on production jobs
      - Ready as soon as approved by the ad-hoc committee and glexec deployed on sites