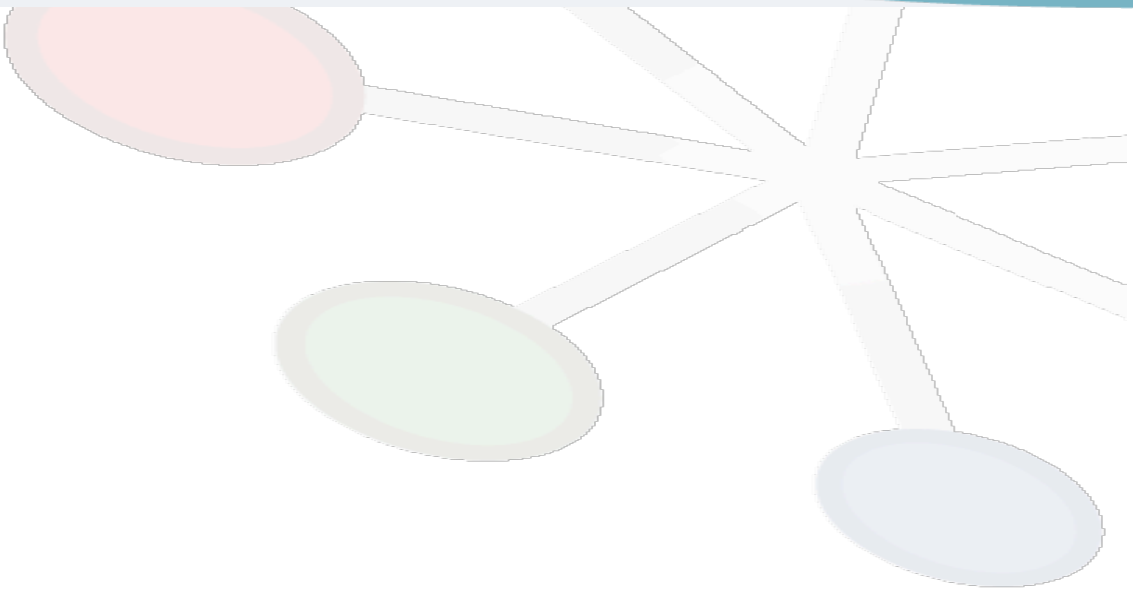
LHCb QR 2009-2



Applications

- All applications moved to latest LCG-AA releases
  - No problem with slc4 compatibility with ROOT
  - Older versions deprecated, will not be ported to slc5
- Software distribution and environment setting
  - Major re-engineering of the SW distribution
  - Now used as well for Dirac client distribution
    - Relies on LCG-AA deployment of middleware
- Since May, all application releases are also built for slc5
  - Only 64-bit
- SL(C)4 compatibility
  - Work with SPI for identifying compatibility libraries
    - Running slc4-built applications on slc5
  - This is a real pain and should be provided by RH!

DIRAC and production system

- Many releases of DIRAC
  - Optimisation of pilot job submission
  - Interface to production system
  - Many bug fixes…
- Production system
  - New scripts to generate automatically complex productions
  - Systematic merging of output data from simulation
    - Performed on Tier1s, from data stored temporarily in T0D1
    - Distribution policy performed on merged files
    - Merged files of 5 GB (some even larger, up to 15 GB)
- New proposal for DIRAC central services HW implementation
  - Better load balancing
  - Failover on central DB
  - New certification service
  - Provision of HW currently being discussed with IT

Activities in Q2

- Commissioning of MC production
  - Physics application software
  - Geant4 tuning
  - Generator and decay settings tuning
  - Completed end May
- MC09 simulation production
  - Large samples for preparing 2009-10 data taking
  - Uncertainties on LHC configuration
    - Energy, ν: average number of collisions/crossing (important for b physics
    - Chosen 5 TeV/beam (optimistic) and ν = 1, no splill-over
  - Samples requested
    - 10^9 events minimum bias (10^6 jobs)
      - 28 TB (no MC truth)
    - Signal samples: < 10^6 each

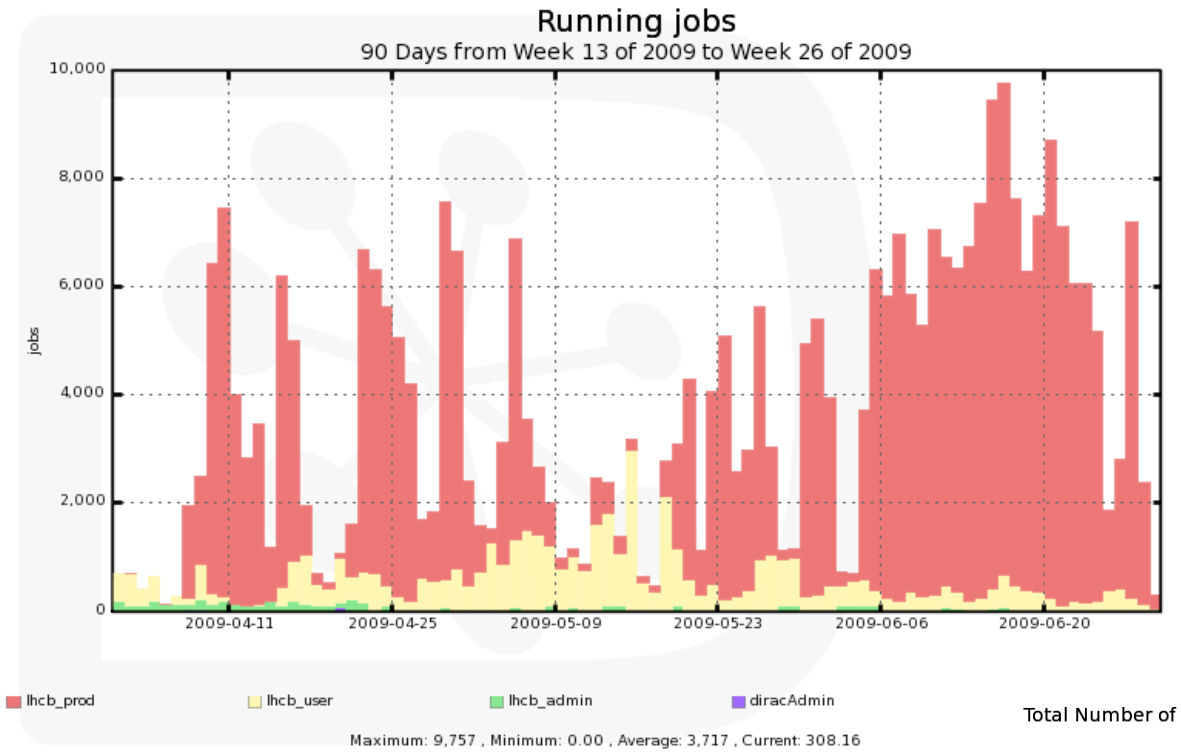
Activities in Q2 (2)

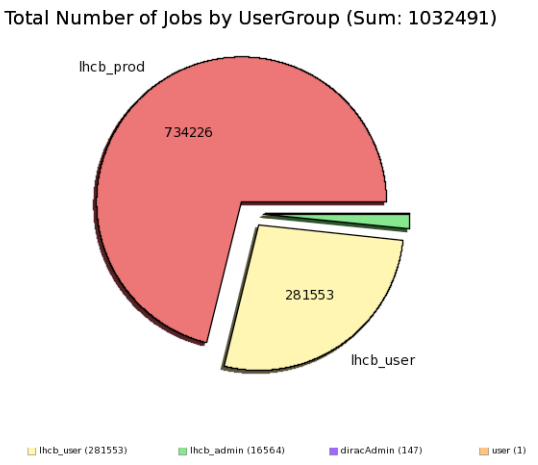
- FEST/STEP'09
  - See next week's report
  - Data transfers: OK
    - Some minor problems with Tier1 transfers
  - Data reconstruction
    - Jeopardised by CondDB access: bad usage of LFC in CORAL for getting Oracle credentials
      - Moved to using sQlite snapshot
      - Now using encrypted credentials rather than LFC
      - Would like CORAL-LFC to work!
  - Re-processing
    - Data transferred during first week of June, removed from cache
    - Re-processing (with staging) launched on Monday 8th
      - Staging went fine, reconstruction hit by above problem
- TED run
  - These are LHCb's "cosmics" data, from the SPS transfer line
  - Run WE just before STEP (6-7 June): very successful
    - Castor failed to migrate TED run data… recovered

Main issues

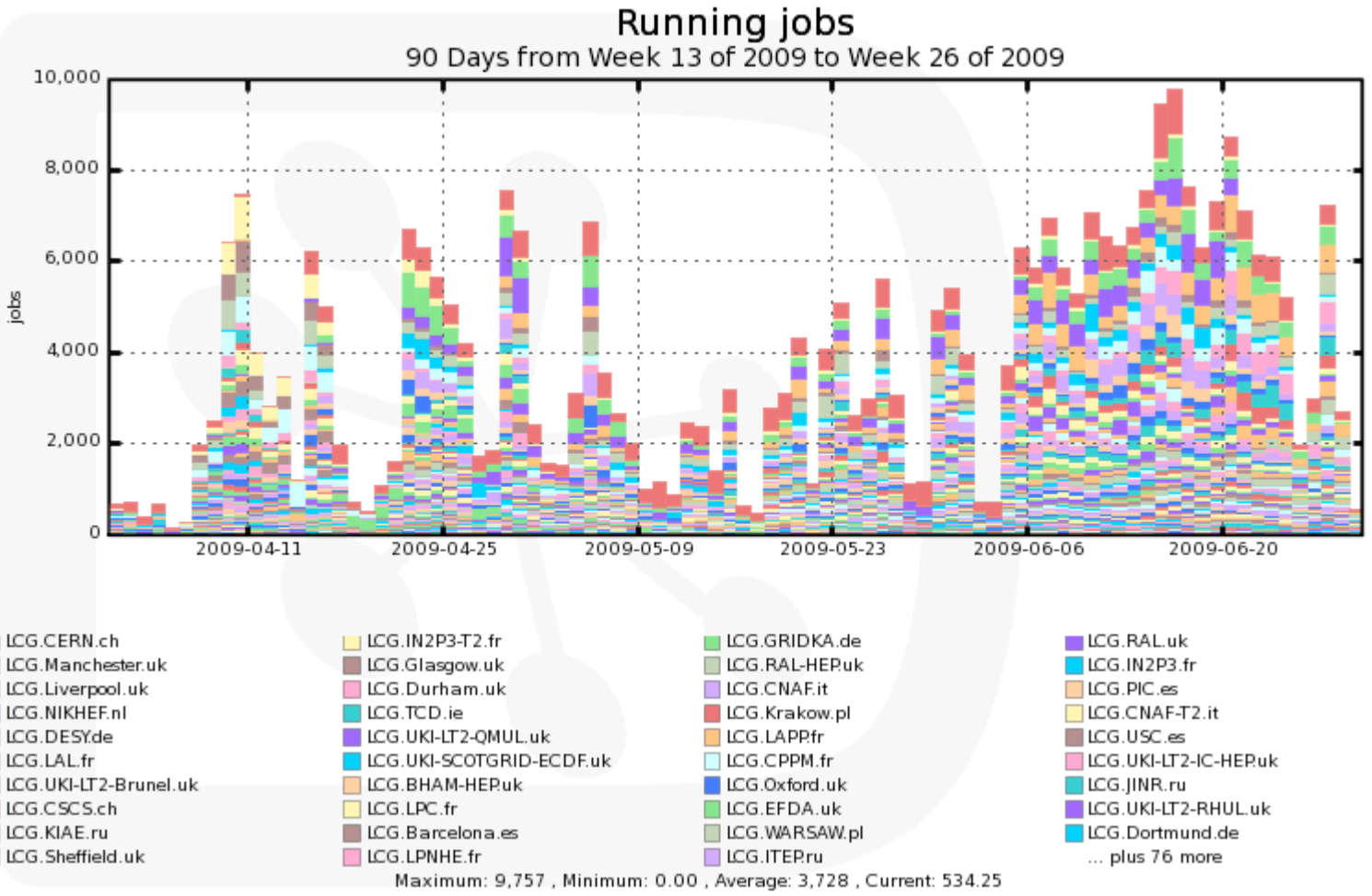
- Data management problems
  - File locality at dCache sites
    - "Nearline" reported even after BringOnline
  - SRM overloads
  - gsidcap access problem (incompatibility with ROOT plugin)
    - Fixed by quick release of dcache_client (and our deployment)
  - SRM spaces configuration problems
    - Fixed at site, need for a migration of files
  - Massive files loss at CERN
    - 7,000 files definitely lost (no replicas anywhere else)
    - Others could be located and replicated back to CERN
- DIRAC scalability
  - Currently limited to ~ 10,000 concurrent jobs
  - Working on defining and implementing a scalable and redundant infrastructure for central service (with IT)

Production and user jobs



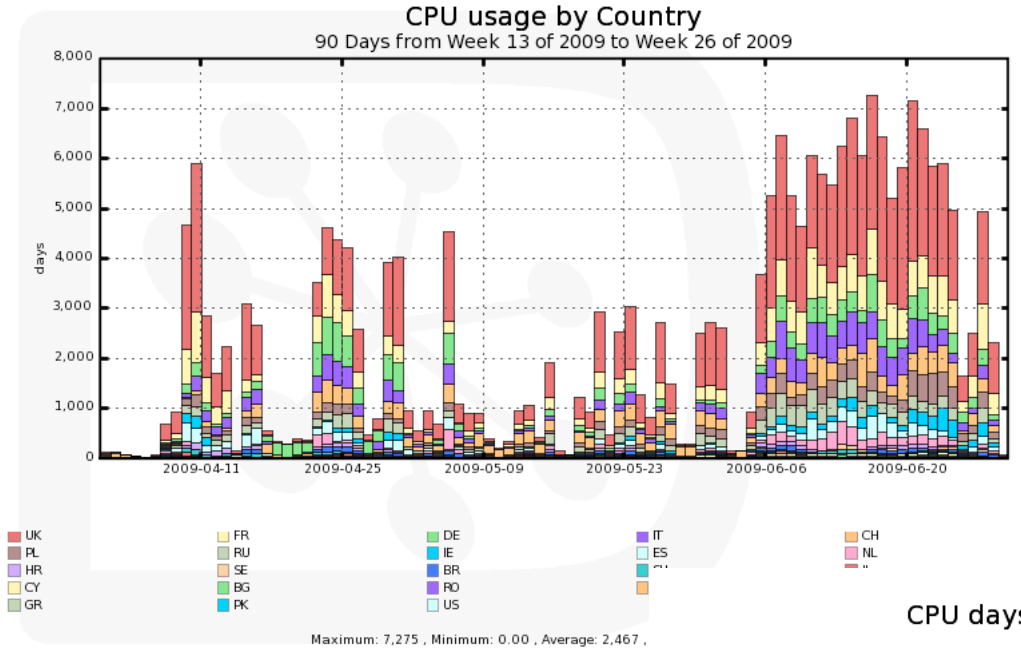


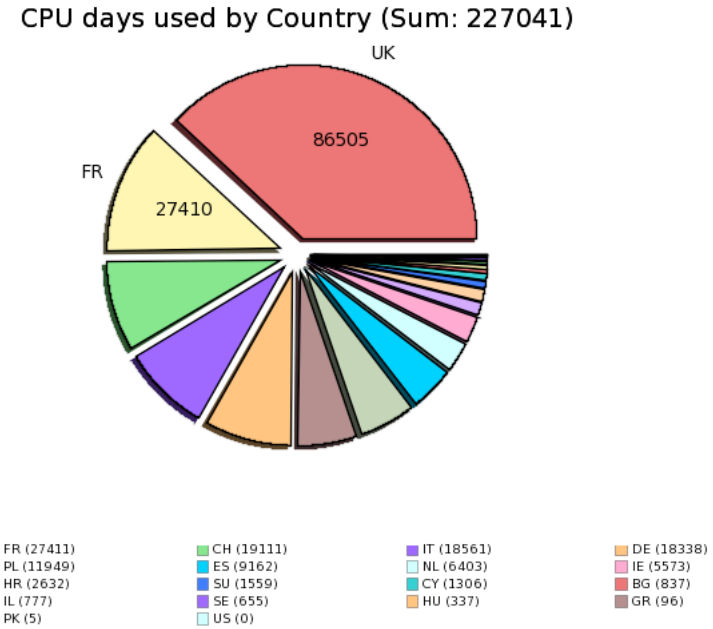
Used sites



115 sites hit

Countries' contribution

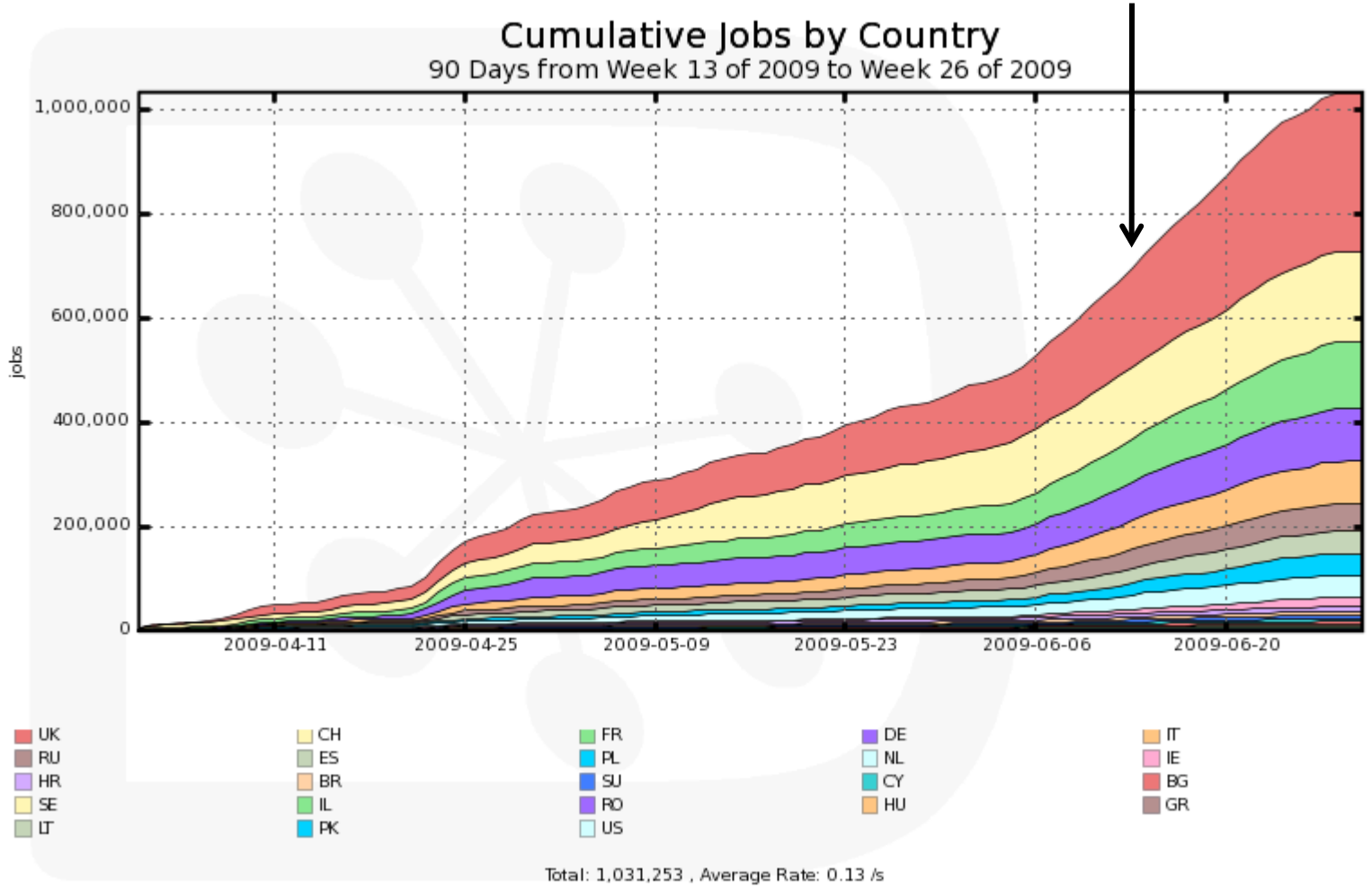




23 countries

Jobs run in Q2

Over 20,000 jobs /day



Summary and outlook

- Preparation of 2009-10 data taking is going on
  - Simulation running full steam
  - FEST regular activities (HLT, transfer, reconstruction)
- DIRAC consolidation
  - More redundancy and scalability
  - Working on HW setup
- Issues
  - Migration to slc5 lengthy (for compatibility with slc4 apps)
  - Still frequent data management issues (configuration, SW, data loss)