CMS Tier-2 Belgium

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Introducing CMS Belgium

CMS Belgium: institutions and people

– 6 institutes:

UA (Antwerp)

UCL (Louvain-La-Neuve)

UGent (Ghent)

ULB (Brussels)

UMH (Mons)

VUB (Brussels)

– 40+ physicists doing analysis

– 6 IT engineers ($\approx$ 4 FTE) involved in multiple grid and CMS computing activities:

local CMS user support

official CMS production

development of grid cluster

CMS Belgium: physics analyses

– analysis activities:

Top quark physics

HEEP (High Energy Electrons and Photons)

Photon-Photon physics

Higgs bosons search

SUSY search

– most signatures of interest include

jets (particle flow, jet calibration)

electrons and photons

CMS Tier-2 Belgium

– In 2005, Belgian CMS community has introduced budget requests to build a nominal CMS Tier-2

– Federated structure with 2 sites:

UCL (Louvain-La-Neuve)

ULB-VUB (Brussels)

– Growth plan:

	2007	2008	2009	2010
CPU, MSi2k	0.4	0.9	1.4	2.3
Disk, PB	0.1	0.2	0.4	0.7

– Current resources:

CPU: 0.5 MSi2k

Disk: 80 TB (0.08 PB)

Network bandwidth: 1.3 Gb/sec

Official CMS MC production

– LCG5 production team

LCG5 team has 6 members, total of 1-2 FTE (depending on load and issues encountered)

Operators work on a rotating (1 or 2 weeks) basis

Started mid January 2007

Will stop mid December 2007

Team can join PADA, conditions not clear

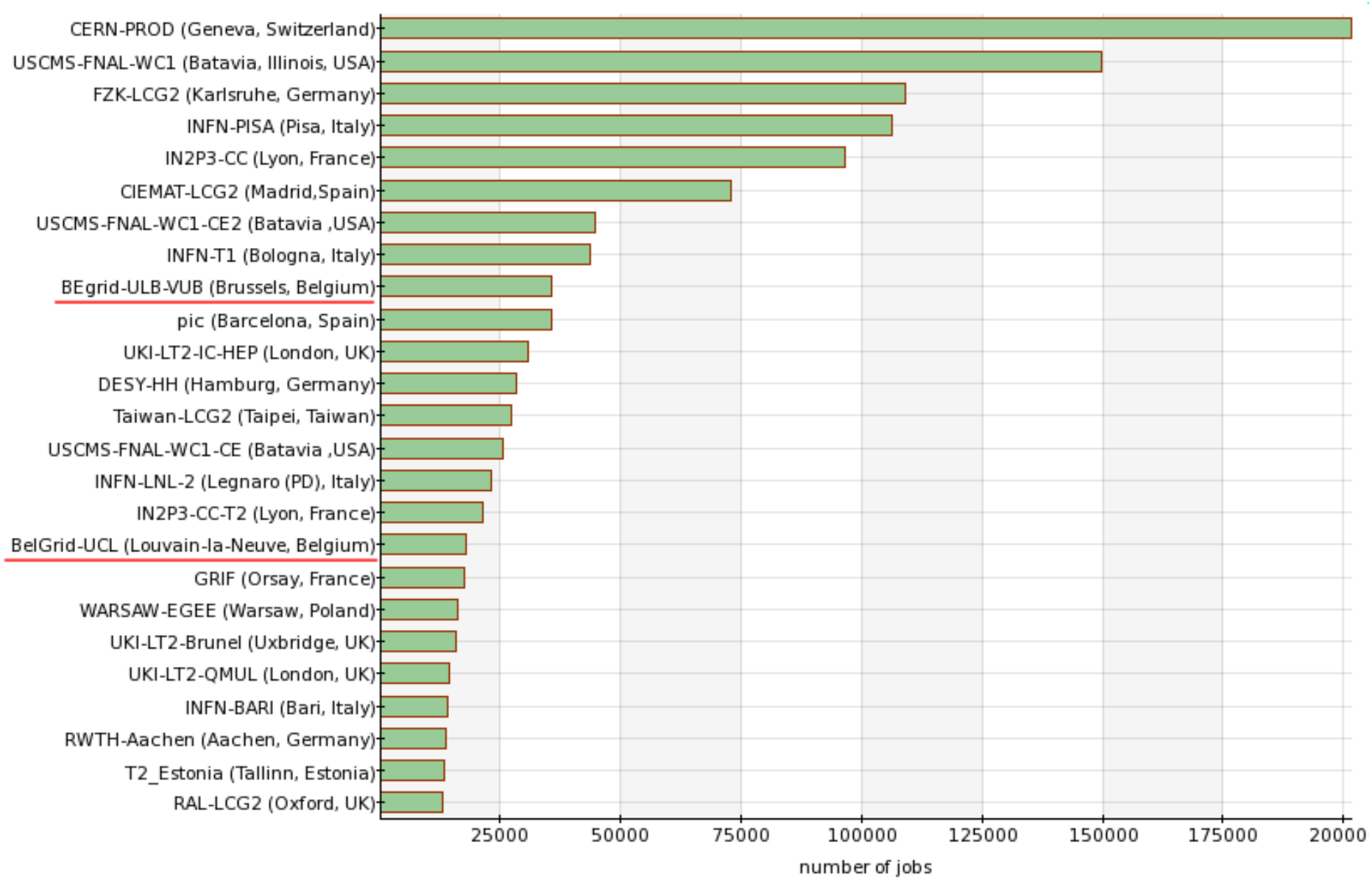
– ProdAgent development: to reduce the load on operators

one ProdAgent instance for all sites (threaded JobSubmitter and JobTracking speeds up tracking and submission)

better control over submission: site-aware ResourceMonitor and JobQueue

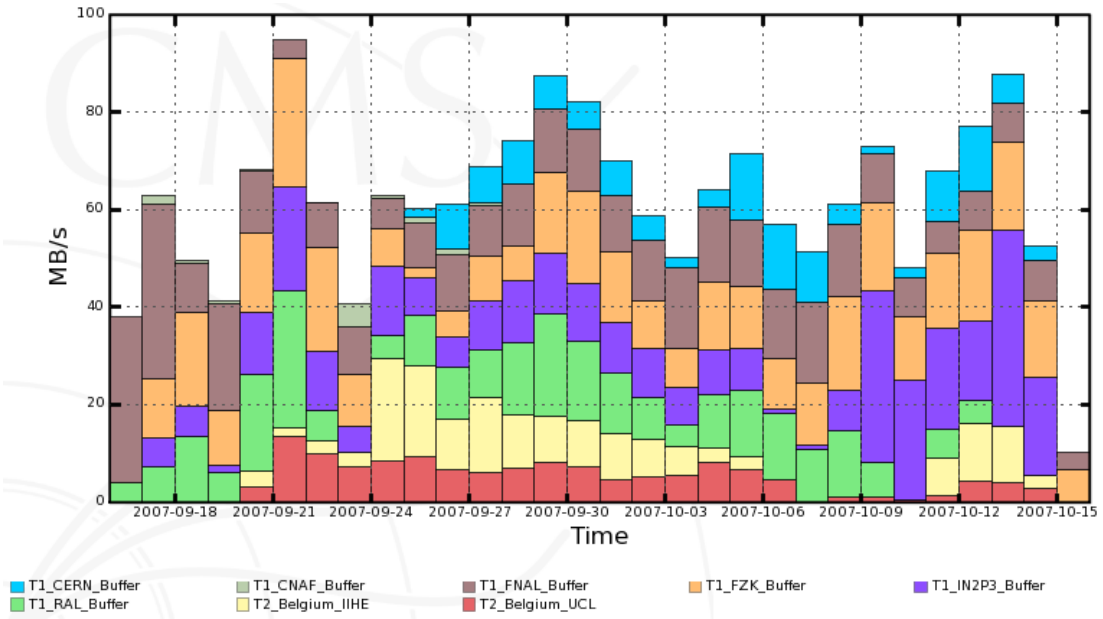
Some statistics

Number of CMS MC prod. jobs in 2007



Transfer rates

Transfers to Belgian Tier-2 ⇒



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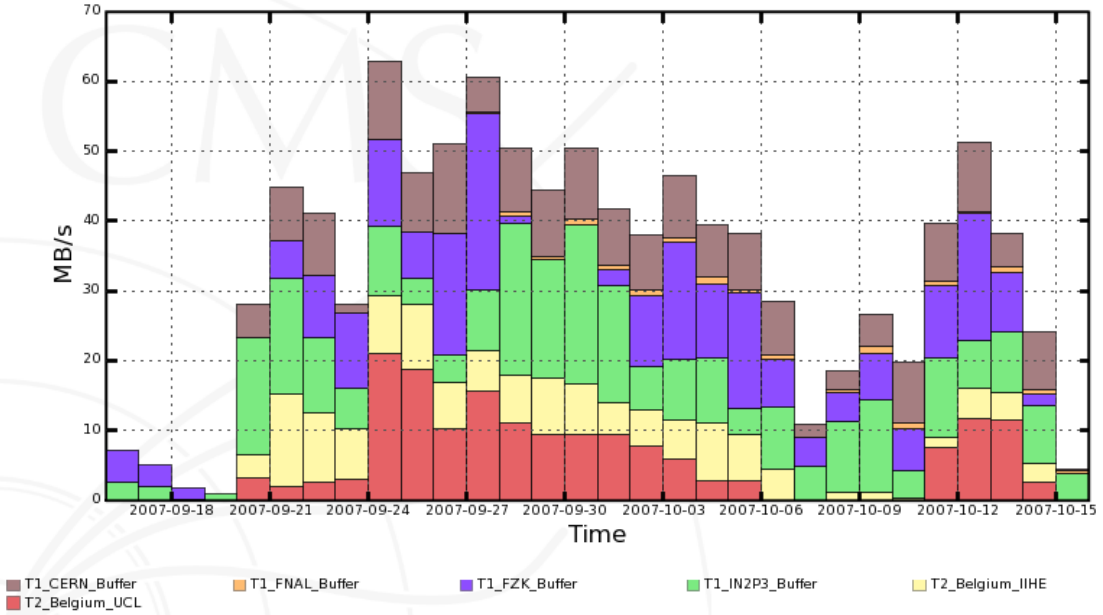

Concluding remarks

What is next:

- UCL

  deployment of the storage solution based on GlusterFS (end 2007)

  migration to new computer room with water cooling system (mid 2008)

- ULB/VUB

  migration to new computer room (Spring 2008)

Open issues:

- what is 1 kSPECint2000 exactly

  CERN takes 2.2 kSi2k/core for Dual-Core Intel Xeon 5160 3.0GHz

  other sources report 1.6 kSi2k/core for the same processor

- how to prioritize local users

  use grid-mapfile-local

  request a new group in the CMS VOMS server

Backup slides

Details on SE and WN nodes

– 10 boxes with:

≈ 5 TB of disk space

14 × 500 GB HDDs
(RAID 5 + 1 spare)

– 4 boxes with:

≈ 11 TB of disk space

14 × 1000 GB HDDs
(RAID 6 + 1 spare)

– 30 boxes with:

≈ 5 kSPECint2000

2 × Xeon (dual core, 3.0 GHz)

– 16 boxes with:

≈ 20 kSPECint2000

4 × Xeon (quad core, 2.33 GHz)