PRAGUE site report

Overview

- Supported HEP experiments and staff
- Hardware and software on Prague farms
- Brief statistics about running LHC experiments

Experiments and projects

- Three institutions in Prague
  - Academy of Sciences of the Czech Republic
  - Charles University in Prague
  - Czech Technical University in Prague
- Collaborate on experiments
  - CERN – **ATLAS, ALICE**, TOTEM, AUGER
  - FNAL – **D0**
  - BNL - STAR
  - DESY – H1
- Involved in LCG, EGEE (future EGEE2) projects
  - LCG
    - Production site
  - EGEE
    - VOCE (regional computing)
    - Certification testbed for ROC CE
    - PPS

People

- Collaborating community 125 persons
  - 60 researchers
  - 43 students and PHD students
  - 22 engineers and 21 technicians
- LCG/EGEE Computing staff
  - Jiri Kosina – LCG, experiment software support, networking
  - Jiri Chudoba – ATLAS and ALICE SW and running
  - Jan Svec – HW, operating system, PbsPro, networking, D0 SW support (SAM, JIM)
  - Lukas Fiala – HW, networking, web
  - Tomáš Kouba – LCG, sw support

Available HW in Prague

- Two independent farms in Prague
  - GOLIAS – Institute of Physics AS CR
    - LCG2 (ATLAS, ALICE, H1 production),
    - D0 (SAM and JIM installation)
    - STAR, AUGER - locally
  - SKURUT – CESNET, z.s.p.o.
    - LCG2 production (ATLAS, ALICE)
    - EGEE production (VOCE)
    - EGEE certification testbed for ROC CE
    - EGEE preproduction site
  - Sharing of resources D0:ATLAS:rest= 50:40:10 (dynamically changed when needed)

GOLIAS

Available HW in Prague

- GOLIAS (IOP AS CR)
  - Server room: 18 racks, 200kVA UPS (Newave Maxi) + 380kVA F.G.Wilson diesel, 2 air condition units Liebert-Hiross (120kW) + reserved space for third
- 110 nodes
  - 32 HP LP1000r dual CPU nodes PIII1.13GHz, 1GB RAM
  - 53 HP DL140 dual XEON 3.06GHz, 2GB RAM
  - 14 HP DL140 dual XEON 3.06GHZ, 4GB RAM
  - 4 HP DL360 dual XEON 2.8GHz, 2GB RAM
  - 3 HP DL145 dual Opteron 244, 2GB RAM
  - 10 HP BL35p dual CPU dual Core Opteron 275, 4GB RAM

Golias data storage

- 3 disk arrays
  - 1TB – 15x73GB SCSI 10000 RPM, RAID5, ext3
  - 10TB, EasySTOR 1400RP, 3(boxes)x14x250GB ATA, 7200RPM/16MB, connected via UltraSCSI160 to fileserver with Adaptec aic7899 SCSI controller, RAID5, ext3
  - 30TB, EasySTOR 1600RP 6(boxes)x16x300GB SATA 7200RPM/16MB, connected via UltraSCSI160 to fileserver with Adaptec aic7899 SCSI controller, RAID6, xfs
  - All disk capacities are raw. Arrays exported to SE via NFS.
  - Performance problems under heavy load -> looking for alternate solutions (infortrend, ...)

Golias software

- Scientific linux CERN 3.06
- LCG 2_7_0
- PBSPro version 5.2 (migrating to 7.1) with own infoproviders for LCG and scp tweaking
- SAM + JIM
- Currently problems with DPM pools over NFS (different kernels on NFS client and server)

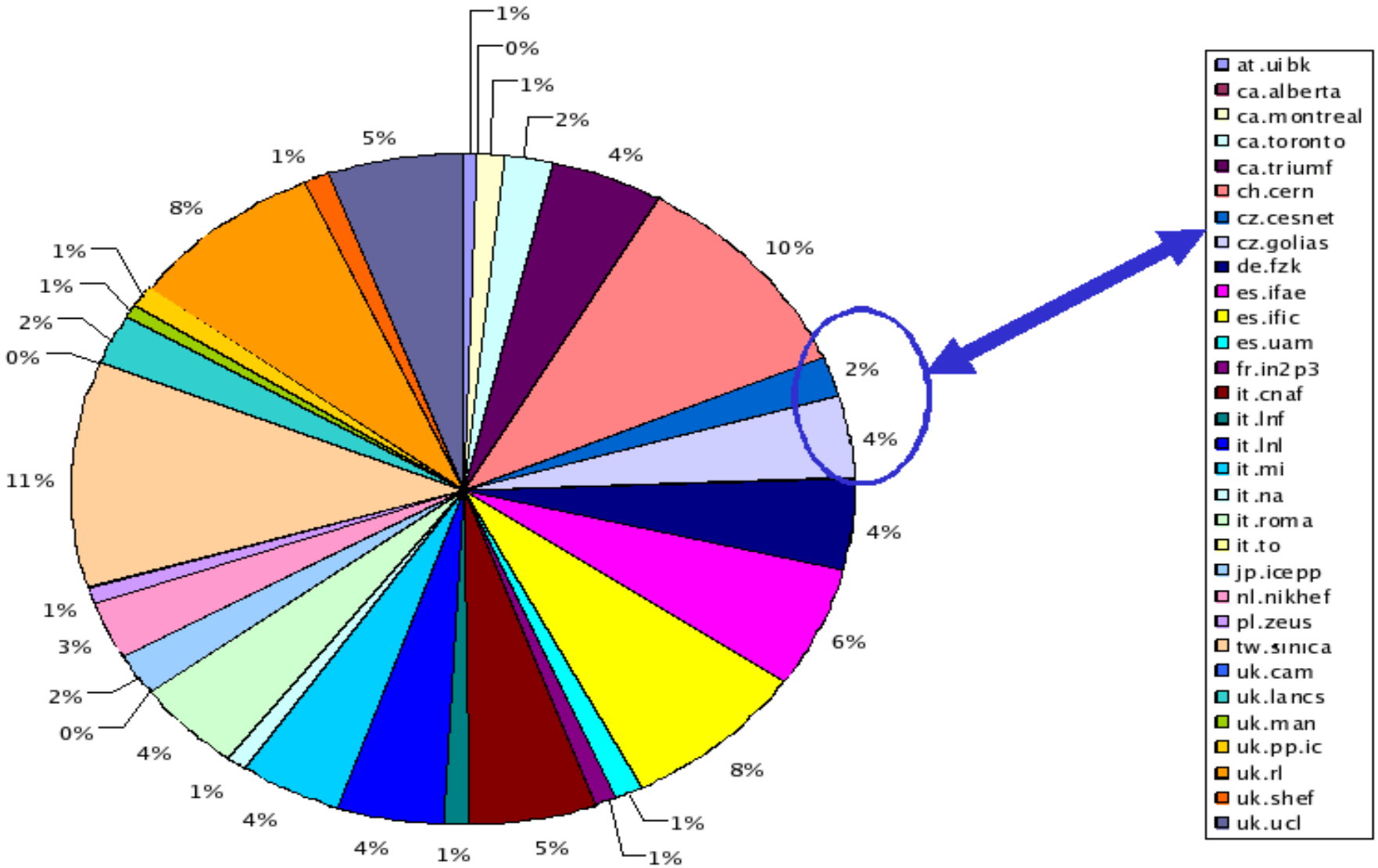
Skurut farm

- HW - located at CESNET
  - 32 dual CPU nodes PIII 700MHz, 1GB RAM
  - SE mounts disks via NFS from golias
- SW
  - SLC3.0.6 OS, Torque+Maui batch system
  - LCG2 installation: 1xCE+UI, 1xSE, 19xWNs
  - GILDA installation: 1xCE+UI, WNs are manually moved from LCG2 to GILDA, if needed.
  - Certification testbed: 1xCE
  - PPS installation: 1xCE, 1xSE, 1xWN (with gLite 1.5, planned 3.0)

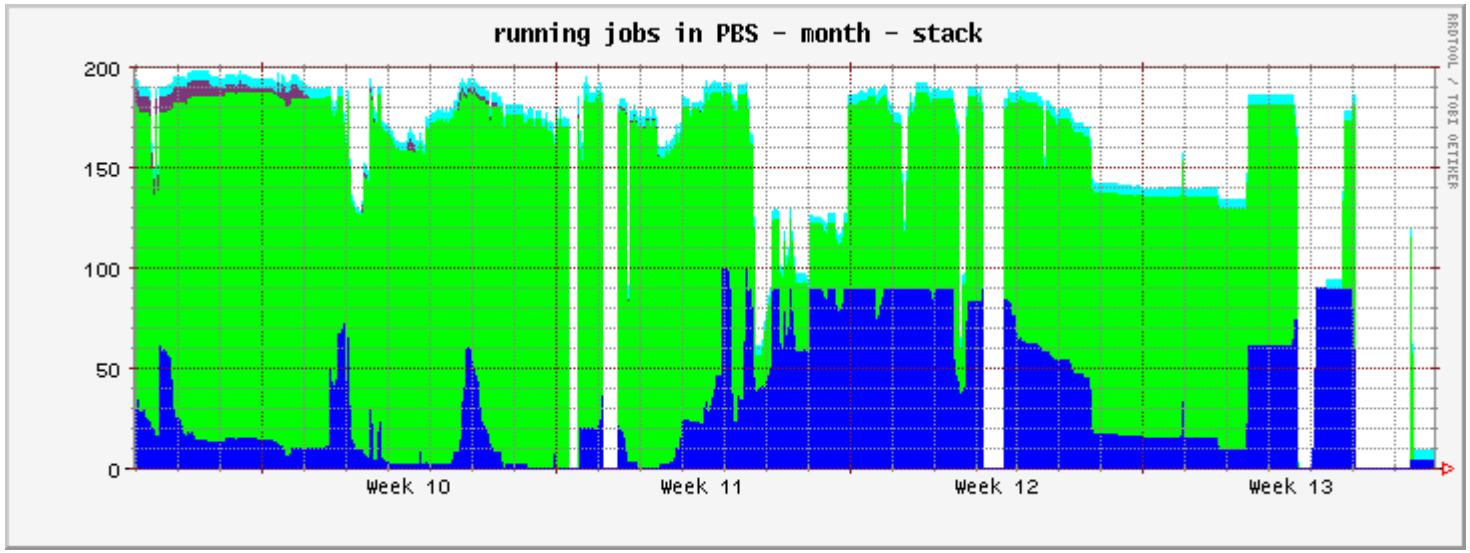
Network connection

- General – Geant connection
  - 2 Gbps (etherchannel) backbone at GOLIAS, over 10 Gbps Metropolitan Prague backbone
  - CZ - GEANT 2.5 Gbps (over 10 Gbps HW)
- Dedicated (fiber or lambda) connections – provided by CESNET within CzechLight project
  - 1Gbps optical connection to FNAL USA
  - 1Gbps optical connection to ASGC Taipei
  - 4x1Gbps optical connection to Prague Tier3 centers
  - Interconnected with Cisco catalyst 6503 switch (located at CESNET) using BGP for routing.
  - Major traffic is between IOP and other institutions => 1Gbps between IOP and CESNET is bottleneck => We plan an upgrade. (2x1 Gbps next week)

Computation results



Computation results



ATLAS queue
DO queue
AUGER queue
LONG queue