

# The Lancaster Tier-2 LCG Site.

Matt Doidge, thanks to Alex for presenting this!

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# Overview.

- Part of the NorthGrid Regional Tier-2.
- Supplies both High Performance Computing and Storage to the LCG.
- Computing Element consists of 200 Dual-Xeon worker nodes-capable of running 400 jobs.
- Over 50 TB of storage available to the LCG from 2 Storage Elements (one 50 TB SRM, one 2 TB classic).
- Excellent reliability (only a few days downtime in the last year) and a good track record for dealing with problems and keeping the up to date with grid software releases.

# What's new over the last 12 months.

- After considerable effort and support, we have set up our 50 TB *dcache* SRM, making us one of the largest storage sites in the Tier-2.
- Through ESLEA we have a 1GB UKLight link between our SRM and both RAL and Manchester.
- Incorporated extensive monitoring of our nodes using both *ganglia* and *nagios*.
- Set up an RTT cluster from 8 of our old test nodes. The RTT (Real Time Testing) is to be used by Atlas to test their software, but is having some troubles due to AFS not liking to work behind a NAT.

# Tech Specs

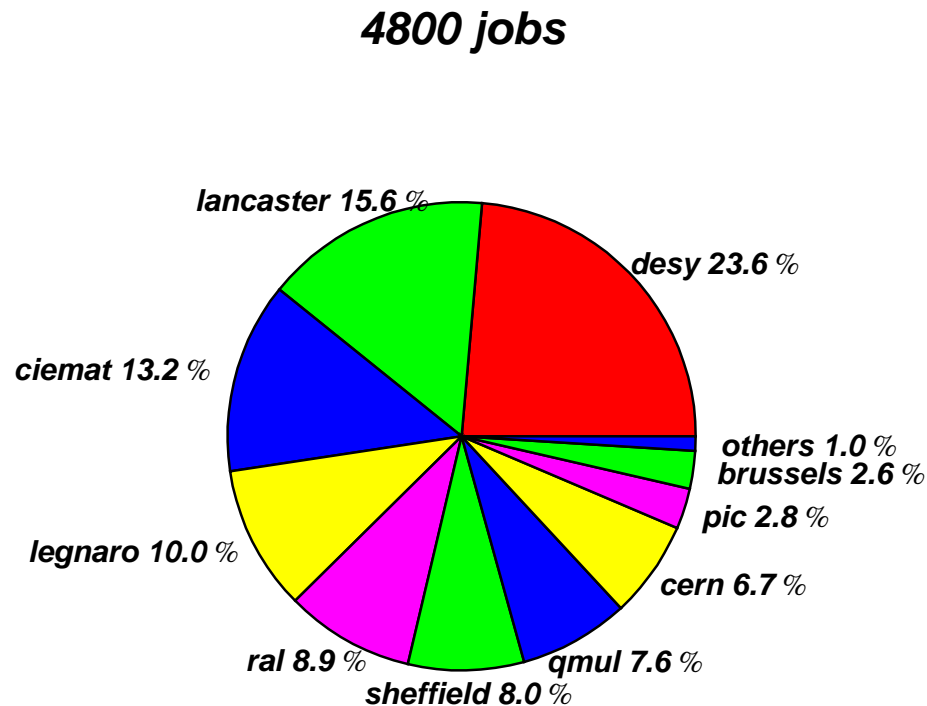
- Our 200 worker nodes pack dual 3 GHz Xeon processors with 1024Kb Cache, 2 GB of RAM and 80 GB S-ATA Harddrives.
- Our service nodes (CE, Monitoring box, User Interface, SRM Nodes) are of similar spec, but with 120GB harddrives.
- Our dcache SRM consists of 1 Admin node and 6 'Pool' nodes. Each Pool mounts by SCSI cable 2 external 5TB Raid arrays. All SE nodes have GB network connectivity.
- All our LCG machines run the latest LCG software release 2.7

# Other Activities.

- We now support 18 Virtual Organisations (more than twice from this time last year).
- Have 10 TB of storage and a node currently held out of the SRM for experimenting with the UKLight connections and testing new configurations.
- Also have a high-spec test machine purchased through ESLEA with 2TB storage on board for further networking and storage tests.

# Other Activities continued.

- Successful involvement in both the LCG 'Service Challenges' and the 'Data Challenges' held by the CMS (see below for a plot from the CMS data challenge) and Biomed VOs.



# Plans.

- Plan to install a third Gb Light Link to Edinburgh.
- Commissioning network infrastructure within the University to allow our CE to take advantage of the UKLight link.
- We are installing a homemade temperature monitoring system, using small 'i-button' thermosensors mounted on twisted pair wires. Once implemented we'll have realtime temperature monitoring of our machine room for around a 100 quid.
- And we will eventually upgrade our classic SE to an SRM interface.

# Conclusion and Concerns.

- The Lancaster site has reached a good level of maturity, and offers stable LCG services.
- We have concerns over equipment lifetimes being adversely effected by high machine room temperatures.
- We also have concerns about our CE being able to handle the strains of running the load presented by heavy grid use- this is considered to be more a software inefficiancy problem then a hardware concern.



# Summary

- All in all things are ticking along nicely here.
- Any questions or comments shouldn't be thrown Alex's way, instead email me at [m.doidge@lancaster.ac.uk](mailto:m.doidge@lancaster.ac.uk) and I'll do my best to answer them.