Lancaster HEP Computing

HEPSYSMAN 2010

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A familiar story...

- In our offices you'll find a bunch of SL5 linux desk tops.

  - NFS mounting user's home areas.
    - Which are of course backed up nightly.
  - As well as several TB of user disk space.
    - Which gets gobbled up pretty darn quick.
  - All are part of the local batch system.
    - This batch system is supplemented by a handful of decommissioned grid nodes.

- Users are also provided access to a webserver, a video conferencing suite and access to not one but two Grid Uis.

- In the basement you'll find one of those Tier-2 Grid thingies.

# Recycling isn't just for beer cans.

- Decommissioned Grid Storage retasked as user scratch space.

- Along with the racks they came in.

- Previous success retasking Grid test worker nodes to suppliment local batch system.

- Local hardware purchased by piggy-backing off of larger Grid orders in the past, possibility for future financial collaborations.

Lancaster's Tier-2 Grid Thingie.

- Part of Northgrid.

- Computing Element running torque/maui.

  - Just shy of 600 jobslots.

  - Most jobslots come from dual and quad chassis Wns.

  - Workers configured using an nfs mounted tarball.

- Storage Element running DPM.

  - 300 TB online, 70 TB "in reserve"

  - 24-bay supermicro disk pools with 22x 1- or 2-TB disks.

- 10 Gb LAN, 1Gb light path to RAL.

- Everything held together by sweat, tears and cfengine, backed up with Bacula.

- Move to Virtual Machines for low load services.

Keeping an eye on it all.

- We use Ganglia, Nagios, syslog and homegrown (or brazenly stolen) scripts to keep tabs on everything.
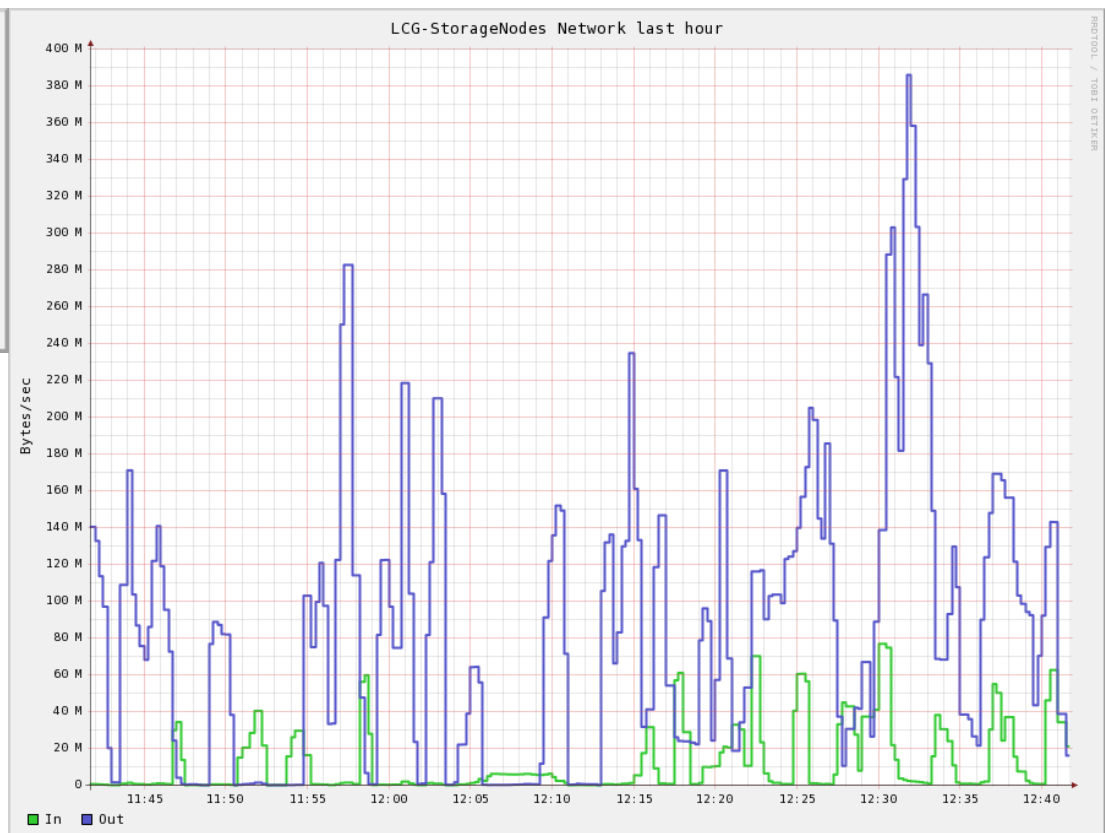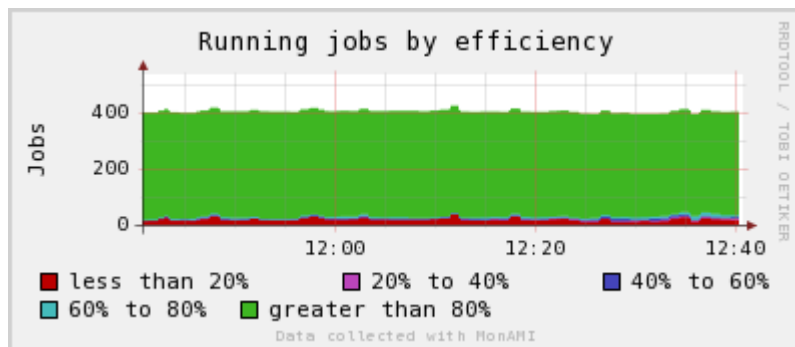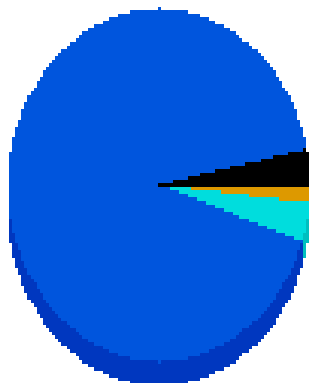
Highway to HEC.

All hail Roger, Lord of HEC.

- Lancaster will soon(ish) open it's HEC facility, a joint venture between HPC interests at the University.

- The Tier-2 is a major player in this, with our indomitable boss Roger appointed director.

- It will give us access to:

  - (a share of) 1500 job slots in a LSF batch system.

  - A Panasas storage shelf to serve tarballs and software.

  - 245 TB of extra storage all for ourselves

  - A proper machine room!

After HEC we'll look something like...
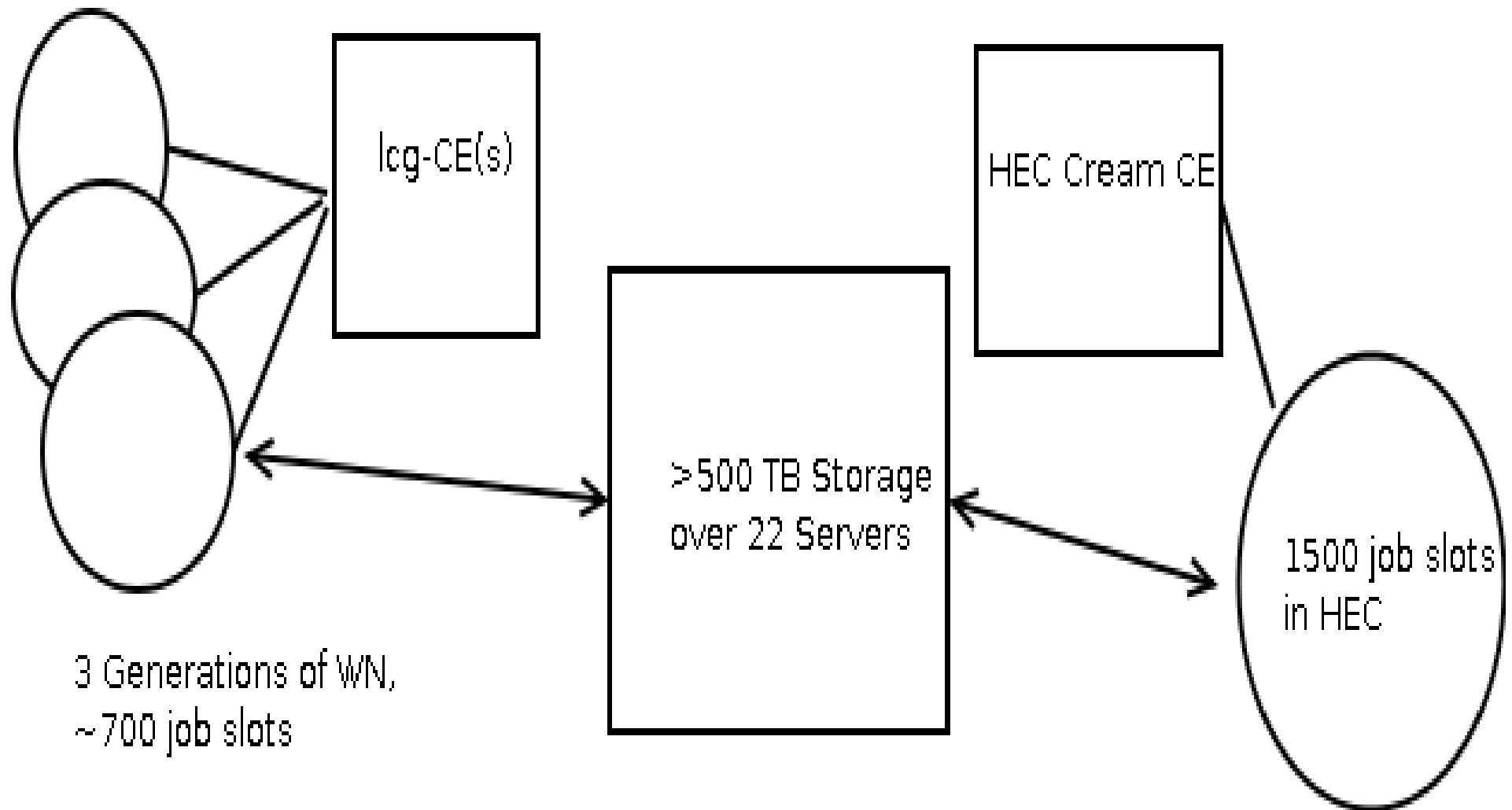
Lancaster's Grid Gotchas.

- Contention between lightpath traffic and other WAN traffic, causing connection troubles.

- Performance issues trying to serve tarball and experiment software from the same box.

- Grid backups are getting huge – 1TB for configs and 6 months of logs – not including the DPM database backups.

- Data access patterns by jobs to our SE need to be understood so we can tune access methods.

The Never Ending To-Do List.

- Beefing up our Janet link.

- Streamlining batch system access for local users.

- Rollout new services (we're still a CREAMless site).

- Understand and tune data access patterns.

    - We'll need to justify our fairshare.

- We still have to commission all that shiny new hardware when it arrives...

- And we've probably got 50 bazillion other things to be getting on with.