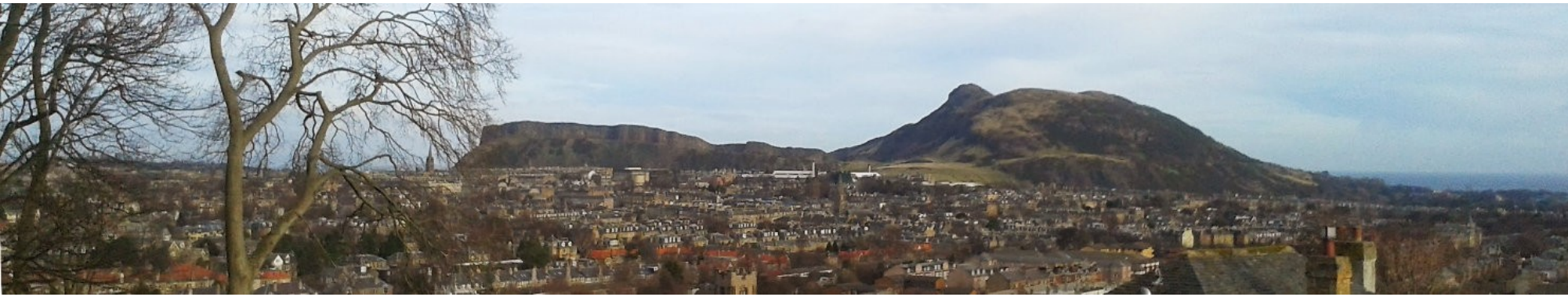
Edinburgh Site Summary



Robert Currie

Contents

Edinburgh PPE Group

Summary of the Edinburgh Group:

- 10 staff, 15 post-docs, 15 students, 10 summer students.
- Multiple different experiments:
  ATLAS, LHCb, HyperK, Dune, Lux, LZ, Titus.
- Have close contact with LSST and Euclid staff at RoE and LSST project members in EPCC within Edinburgh.

Changes to Computing staff

- Andy Washbrook – GridPP / Atlas
- Robert Currie (me) – GridPP / LHCb
  Joined Nov 2016 formerly a developer on Ganga
- Marcus Ebert – GridPP / LSST
  Now working in University of Victoria, Canada since April 2017
  Helped teach us a lot about ZFS, storage and monitoring
- Teng Li – GridPP / LSST
  New member of staff to join us in late 2017

Managing the Site

Have been tracking site issues and development through a Gitlab instance for approximately 18months.

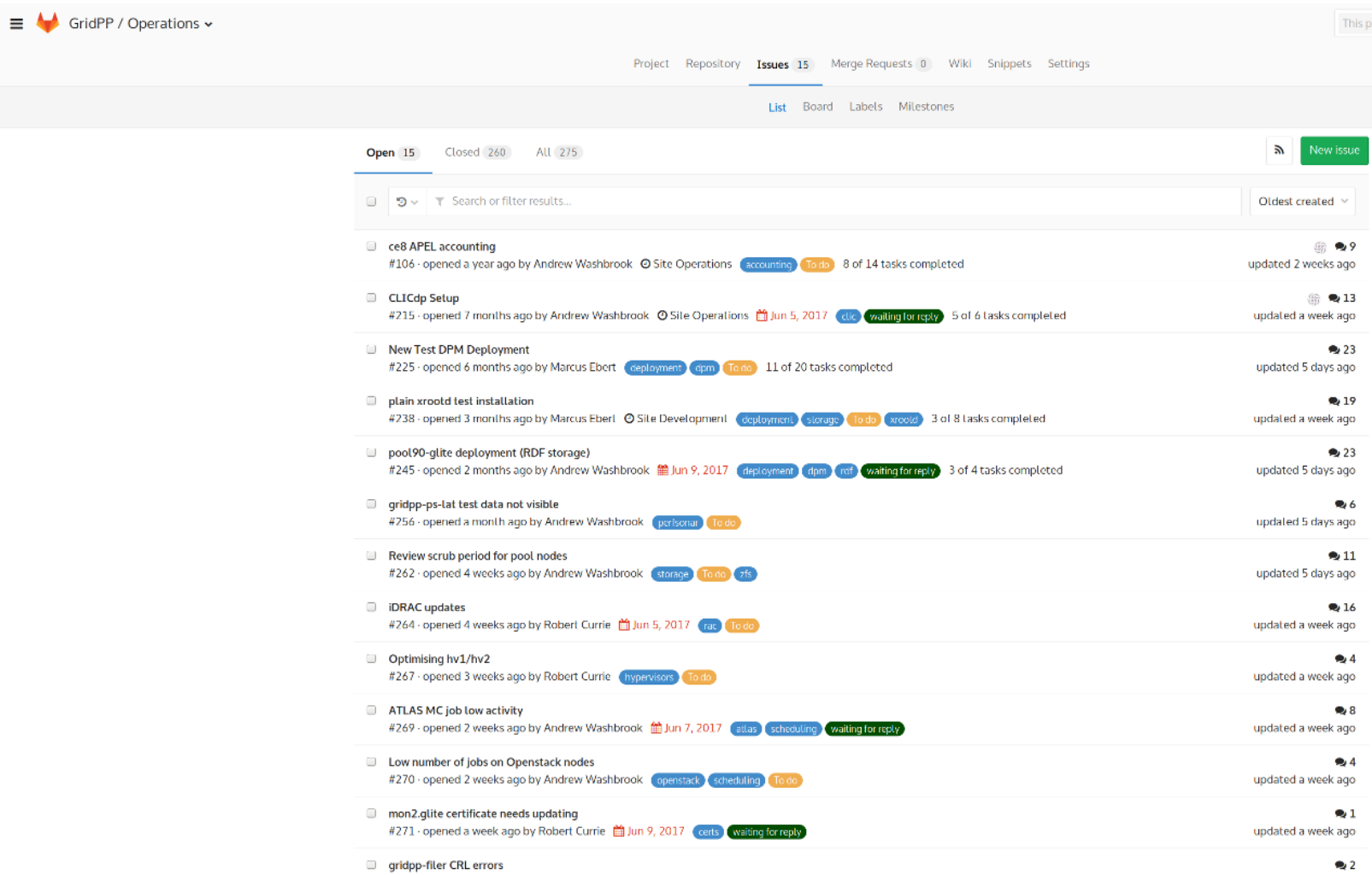
Gitlab gives us a wiki, issue tracker and git space for uploading scripts/playbooks.

This gives us a good platform for being able to collaborate and track site issues whilst recording what was done for posterity.

Using this has encouraged us to be using best practices in tracking and working on tasks.

(We're also making use of a scotgrid slack instance for collaborating when working remotely)

Managing the Site (Cont)



Tier2 Resources

We get access to worker nodes provided on resources managed by UoE Research services and hosted by the ACF:

- Still using a fraction of the nodes Research Services managed batch system 'Eddie3'(full system has 6k available cores). Have additional resources on new Research Services managed openstack service.
- 1Pb+ of dedicated ZFS storage.
- Additionally exploiting opportunistic resources.
- Working with RDF to make additional storage available. We've made available a containerised pool node which is almost ready to put into production.

Tier2 Resources (Cont)

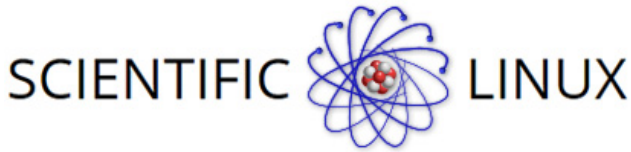
There are some long gestating tests to run an the Archer (HPC) service at Edinburgh.

These have worked in principle but stalled in testing due to performance issues around their use of a shared filesystem.

This work has been ressurected over last summer due to interest from both sides in Singularity deployment on the service.

We've agreed to be a beta tester using ATLAS workloads and this is also applicable to new National Tier-2 HPC (Cirrus).

SL7 Migration



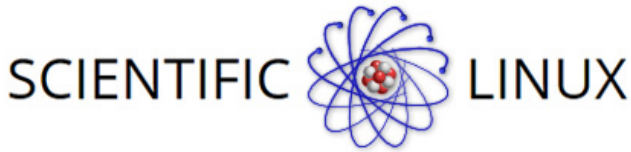
We were forced to move early because of the change of cluster and we dont directly manage those machines.

The early move meant we had to work with ATLAS to understand some of the issues we saw.

The SL7 migration also coincided with other changes we needed to perform as part of the cluster move.

We did not need to use a WN tarball as dependencies were covered in the SL7 compatibility rpm and through CVMFS.

SL7 Migration (Cont)



The major bottleneck was ATLAS physics validation which took 2-3 months to pass but has been fine ever since.

Lack of support for SL7 Analysis queue forced us to look for an alternative (i.e. SL6 openstack queue).

We are still largely running SL6 based nodes for grid services although plan to evaluate SL7 when making new deployments.

Tier3 Computing

Within the physics department at Edinburgh there are 700-800 computing cores which have been purchased by various groups.

There is interest from computing support to consolidate all of these resources into a small batch system which will allow for physicists in the school to take advantage of the available resources for small to medium workloads.

Providing expertise in tuning the batch system (SGE) to accomodate typical LHC like workloads.

The intention is that this will help bridge the gap between user's desktop and the University batch sytems.

Tier 3 Storage

We have been encouraging local users to use both grid and local storage solutions.

University provides a large storage service (several PBs) for all staff and students for which the PPE group has a nominal share.

This has worked well as a datastore with a modest capacity.

Users who need more than 10Tb are helped to migrate their workflow to use the grid storage within Edinburgh.
We have incorporated grid client tools such as xrdfs and gfalfs into the desktop build to allow convenient access.

Site Development

We also work with physicsists within Edinburgh PPE on interesting development projects.

Currently we have 4-5 servers for hosting unsupported bespoke applications within the Physics department.
Eg:

- Deep learning (GPU) applications for LHCb and undergraduate courses
- Jupyter notebook hosting
- Continuous integration testing (Jenkins, Gitlab) for ATLAS

We're hoping to build on these novel development/computing projects.

Middleware Redeployment Plans

Looking to (re)deploy our ARC-CE using an Ansible playbook.

Will be deploying CE again in the future with the same or similar configuration so automating the deployment is beneficial.

Currently using DPM 1.9 without dome in production. Plan to investigate deploying dome and memcached plugins on the site and studying performance.

Have just finished deploying a manual test DPM install on SL7. The plan is to convert the instructions we've collected into an Ansible playbook.

Middleware Redeployment Plans

After evaluating different configuration managment systems we're looking to work with Ansible to manage the Edinburgh site.

One of the big things that makes Ansible attractive is the simplicity of the playbooks.

We don't manage our WN or the openstack service. We plan to maintain our current workflow of providing common base image on WN.

Future Interventions

Currently in talks with Research Services to arrange short downtime next month (July).

Have to move our storage and servers to other side of server room which will involve moving the servers and recabling all of the equipment.

This also involved powering down and moving some old equipment, now out of warranty so care needs to be taken so that everything survives.

Thanks for listening!