



The HEPiX IPv6 Working Group

David Kelsey (STFC-RAL)

WLCG GDB, CERN

8 Oct 2014

Outline

- F2F meeting of HEPiX IPv6 WG – CERN 6/7 Oct 2014
 - 12 people in the room
 - ~ 3 remote
- <https://indico.cern.ch/event/331983/>
- Plans for testing and the deployment of WLCG dual-stack services

IPv6 F2F meeting 6/7 Oct

- Agenda included
 - Updates from Sites and Experiments
 - Including detailed report from GridPP (UK)
 - Operational security and IPv6
 - OSG and IPv6
 - CHEP2015 abstract submission
 - Plans for testing
 - Plans for deployment of dual-stack services

News from Experiments

- ALICE – apologies from Costin Grigoras
- ATLAS – Alastair Dewhurst
 - See slides
 - Dual stack pilot factory works to dual-stack CE
 - Had planned to test dual-stack Panda submitting to IPv6-only WN
 - But not yet
 - Would like to see FTS3 transfers via http
 - Testing of dual-stack Squid3 soon
 - See later for IPv6 site requests

Experiments (2)

- CMS – Andrea Sciaba and Tony Wildish
 - GlideinWMS essential
 - HTCondor will soon allow mixed IPv4 and IPv6 pools
 - Wisconsin running out of IPv4 addresses
 - Would like to have a substantial fraction of CMS data accessible via AAA through IPv6 by end 2015 - to use from IPv6-only WN (GDB Sep 2014)
- LHCb – Raja Nandakumar
 - See slides
 - Testing dual-stack and IPv6-only UI at Oxford
 - CVMFS access works on dual-stack and IPv6-only
 - As uses dual-stack Squid
 - DIRAC binds by default to just IPv4 but easy to update to use IPv6 (and works)
 - Working with developer to patch

News from sites

- KIT – Started work on FTS3 incl. testbed dCache 2.10
- DESY – Network is ready – waiting for users
- RAL – DNS still not yet IPv6 ready
- INFN CNAF – new router to be deployed soon
- Nordic – Recent meeting to encourage all
- PIC – testing dCache 2.10 but problem with old firewall
- Imperial – dCache 2.10 & testing new GFAL utils
- QMUL – STORM SE, webDAV, xrootd 4, VM host (CE and SE)
- Other UK sites – many waiting on Univ network team

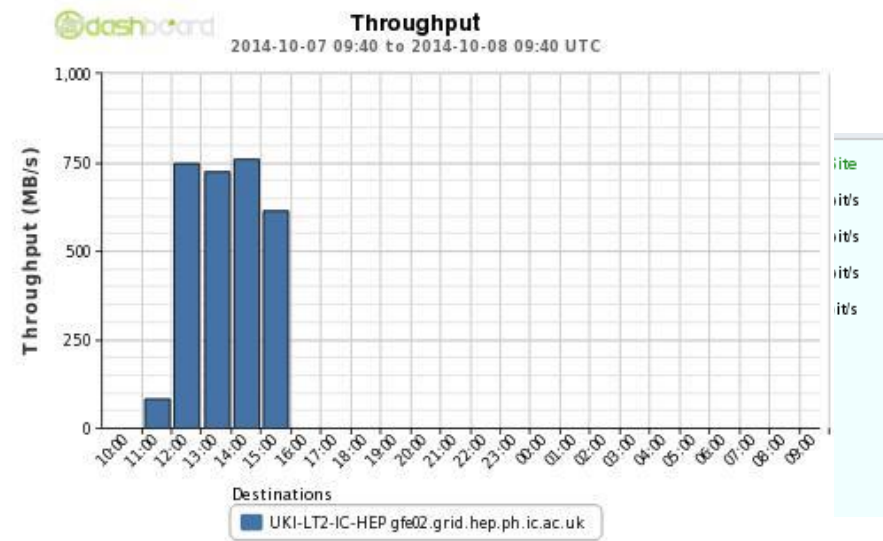
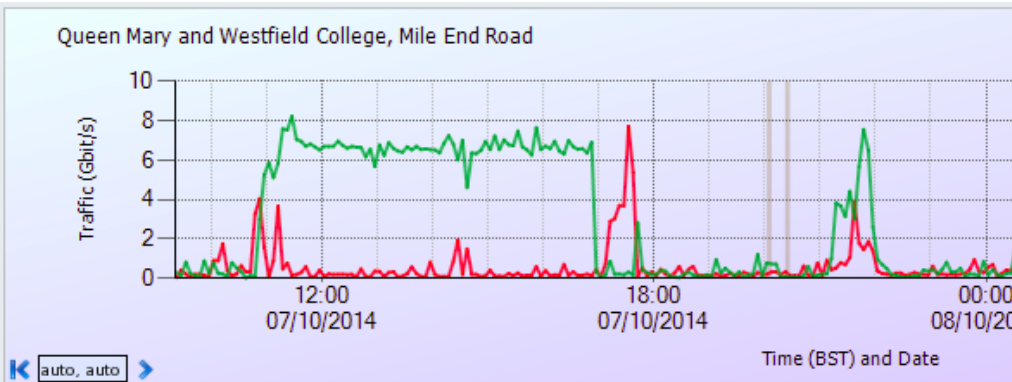
Some IPv6 testing news

- UK IPv6 transfers – SE to WN (Steve Lloyd)

http://pprc.qmul.ac.uk/~lloyd/gridpp/nettest_v6.html

- Also

- Data transfers from dual-stack QMUL (STORM) to Imperial (dCache 2.10.4)
- Using IPv6 FTS at Imperial



Security and IPv6

- A useful discussion with the CERN security team
 - Lessons learned during CERN migration
 - Vulnerabilities in new protocols
 - Security tools
- Interesting conference paper
 - <https://www.usenix.org/system/files/conference/woot14/woot14-ullrich.pdf>
- Need to create a top-10 list of security issues for sites deploying IPv6
 - e.g. block all IPv6 traffic except ICMP at start
 - Unblock when requested
 - ensure that IPv4 and IPv6 firewall rules are identical, etc.
- The WG needs to check that logfiles for dual-stack services contain meaningful format IPv6 addresses
 - Challenge sites to confirm ability to deal with malicious IPv6

OSG and IPv6

- Rob Quick – see slides
- Have been working on this for 4 or 5 months
 - Both OSG Operations and OSG Technology
- Aim is to move to dual stack services
 - Testing before-hand on the integration testbed
 - Current testing is IPv4-only and dual-stack clients
 - We suggested they also consider IPv6-only clients
- <https://twiki.grid.iu.edu/bin/view/Sandbox/OperationsServicesIPv6CompatibilityTable>
- We need to collaborate
- Decisions on timetable for WLCG services should be agreed with WLCG operations and MB

IPv6 requests from ATLAS

"The demands of Run 2 mean that ATLAS needs to be able to take advantage of all computing resources available. This includes resources that may be only available via IPv6. One of the first use cases the IPv6 task forces foresee, is the provision of opportunistic WNs on IPv6 only. In order to make use of this our data will need to be stored on dual stack storage."

IPv6 and ATLAS (2)

“ATLAS understands that for many sites, deploying a dual stack SE is a very major project which will require significant time to implement. There are currently no resources available exclusively via IPv6 and we do not know when they may become available.”

IPv6 and ATLAS (3)

“ATLAS would therefore make the following requests to sites so that we can in a position to take advantage of IPv6 resources when they come available:

- Request that all Tier 1s engage with the HEPiX/WLCG IPv6 task force.
- Request that all Tier 1s provide a dual stack PerfSONAR machine by April 2015.
- Request that T2Ds provide a dual stack PerfSONAR machine by August 2015.”

IPv6 and ATLAS (4)

“The PerfSONAR machine should be located in their network to give an accurate performance monitoring of their Storage. We believe that the recently released perfSONAR 3.4 is fully compatible with IPV6 but we (IPV6 task force) will be testing this and hope to confirm this by November.

- ATLAS would support sites that wish to be early adopters and deploy dual stack SEs.”

Next steps & requests to WLCG

- Important for **ALL** Tier 1's to now be members of the IPv6 working group
 - On the mailing list, attending meetings, deploying dual-stack PerfSONAR, participating in dual-stack testing of SEs, joining the data transfer testbed
- Move the GridFTP data transfer testbed to PhEDEx and FTS3
- During next 6 months (by end of March 2015)
 - We aim to perform enough tests of dual-stack SE services with the sites in the working group to gain confidence
- Propose a fuller WLCG SE dual-stack deployment plan (April)
 - For consultation with Ops, Experiments, GDB and MB
 - Together with guidance for sites
- Some central services will also need to be dual-stack
- PerfSONAR remains a great place to start with dual-stack
 - Request Tier 1 to deploy by April 2015
 - Request Tier 2 (if possible) deploy before the long physics run (summer 2015)

Next IPv6 WG meetings

- 13 Nov 2014 – Vidyo – 16:00 – 17:00 CET
- 11 Dec 2014 – Vidyo – 16:00 – 17:00 CET
- Perhaps 21/22 January 2015 - F2F at CERN
– *Still tentative “to be confirmed”*

Further info

- HEPiX IPv6 web

<http://hepixonweb.cern.ch>

- Old HEPiX IPv6 wiki

<https://w3.hepixon.org/ipv6-bis/>

- Working group meetings

<http://indico.cern.ch/categoryDisplay.py?categId=3538>

- WLCG Operations IPv6 Task Force

<http://hepixonweb.cern.ch/content/wlcg-ipv6-task-force-0>



Questions?