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WLCG and IPv6 - the HEPiX IPv6 working group

Content :

The HEPiX (http://www.hepix.org) IPv6 Working Group has been investigating the many issues which feed into the decision on the timetable for the use of IPv6 networking protocols in HEP Computing, in particular in WLCG. RIPE NCC, the European Regional Internet Registry, ran out of IPv4 addresses in September 2012. The North and South America RIRs are expected to run out in 2014. In recent months it has become more clear that some WLCG sites, including CERN, are running short of IPv4 address space, now without the possibility of applying for more. This has increased the urgency for the switch-on of dual-stack IPv4/IPv6 on all outward facing WLCG services to allow for the eventual support of IPv6-only clients.

The activities of the group include the analysis and testing of the readiness for IPv6 and the performance of many required components, including the applications, middleware, management and monitoring tools essential for HEP computing. Many WLCG Tier 1 and Tier 2 sites are participants in the group's distributed IPv6 testbed and the major LHC experiment collaborations are fully engaged in the testing. We have worked closely with similar activities elsewhere, such as EGI and EMI. We are constructing a group web/wiki which will contain useful information for sites on the IPv6 readiness of the various software components. This includes advice on IPv6 configuration and deployment issues for sites (https://w3.hepix.org/ipv6-bis/doku.php?id=ipv6:siteconfig).

This paper will describe the work done by the HEPiX IPv6 working group since CHEP2012. This will include detailed reports on the testing of various WLCG services on IPv6 including data management, data transfer, workload management and system/network monitoring. It will also present the up to date list of those applications and services which function correctly in a dual-stack environment together with those that still have open issues. The plan for more testing on the production infrastructure with a dual-stack IPv4/IPv6 setup and the work required before the support of IPv6-only clients is realised will be described.

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