Contribution ID: **5** Type: **Poster**

Connecting PIC Tier-1 into the network of the future

Monday, 16 September 2013 09:00 (8h 30m)

Description of Work

This contribution presents the activity in PIC to deploy the LHCONE network, in coordination with the NREN (RedIris) and all of the Tier-2 sites associated to PIC, mainly in Spain and Portugal. The deployment of the perfSONAR-PS based network monitoring infrastructure and its coordination is as well presented, and some performance results. The ongoing activities in deploying the IPv6 schema and integration into the Grid services for testing and validation of the components under the HEPIX IPv6 working group are as well discussed.

Printable Summary

Since the beginning, the Worldwide LHC Computing Grid (WLCG) infrastructure has evolved from a very rigid network topology to a more relaxed system, where data movement between regions or countries is much more flexible, using more standard and better performing transfer protocols. This has implied changes at the LHC experiment's management levels, and more important, followed by a global re-adaptation of the network system which interconnects all of the computing centers in WLCG. An extension of the so-called LHCOPN, a dedicated private network which interconnects Tier-1s and Tier-0 with Tier-1, is considered for Tier-2 sites (LHCONE). This network provides traffic over adequately provisioned, isolated network paths for these sites and enables the communication of all of the Tiers through a private, stable and high performing network, opening the possibility to use the network as an important part of the LHC data processing itself (e.g. remote access to data via xrootd protocol). How to properly monitor the increasing number of possible network paths has become a critical issue in order to provide a global reliable network service. The deployment of the perfSONAR-PS network monitoring system drives this task, allowing to plan and execute latency and bandwidth tests between sites through a central scheduling configuration. Another important topic in network today is the exhaustion of the IPv4 addresses, which means that all of the network-connected devices should adopt the IPv6 protocol. This, of course, affects the HEP and WLCG community, as many services need to be tested and integrated under this scenario. Even the network topology would need to accommodate as well to this new schema. In this contribution we present our activity in PIC to deploy the LHCONE network, in coordination with the NREN (RedIris) and all of the Tier-2 sites associated to PIC, mainly in Spain and Portugal. The deployment of the perfSONAR-PS based network monitoring infrastructure and its coordination is as well presented, and some performance results. The ongoing activities in deploying the IPv6 schema and integration into the Grid services for testing and validation of the components under the HEPIX IPv6 working group are as well discussed.

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