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Networking for WLCG: LHCOPN and LHCONE

Thursday, March 17, 2016 2:00 PM (20 minutes)

The Worldwide LHC Computing Grid (WLCG) is a global collaboration of almost 200 interconnected computing centres that provide global computing resources to store, distribute and analyse the massive volume of physics data generated by the Large Hadron Collider (LHC) experiments at CERN, Alice, ATLAS, CMS and LHCb.
The LHCOPN (LHC Optical Private Network) connects the Tier 0 and Tier 1 sites. It is reserved for LHC data transfers and analysis, has a highly resilient architecture and relies on dedicated long distance links.
The LHC Open Network Environment (LHCONE) is the network deployed to meet the requirements of the new computing model of he LHC experiments, which demands to transfers data among any pair of Tier1, Tier2 and Tier3 sites.
The LHCOPN and LHCONE both successfully supported the data transfer needs of the LHC community during Run 1 and have now evolved to serve the networking requirements of the new computing models for Run 2.
The presentation will explain how the two networks are designed and operates. The LHCONE will be described in more details because it's still open to all the Tier2 and Tier3 sites to connect. For this, the concept of Science DMZ (De Militarized Zone) and how it must be used to connect to LHCONE will be explained in details.
LHCONE consists of three main services: L3VPN, P2P, perfSONAR. L3VPN is the production service giving high throughput connectivity to more than 50 sites around the world. P2P is a prototype service still being designed which aims to provide on demand point to point dynamic circuits between any pairs of LHCONE sites. perfSONAR is the monitoring service used by the WLCG community, built using the perfSONAR tool suite.
Focus will be given to the current status and the key changes, notably the delivered and planned bandwidth increases, the ongoing work to better address the needs of the Asia-Pacific region, developments to improve redundancy and progress made for provisioning point-to-point links.

Summary

LHCOPN and LHCONE are the network that contributed to the LHC data distribution. The presentation describe the architectures of the two networks and the advantages they brought

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