

Monitoring and operational management in USLHCNet

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USLHCNet provides transatlantic connections of the Tier1 computing facilities at Fermilab and Brookhaven with the Tier0 and Tier1 facilities at CERN as well as Tier1s elsewhere in Europe and Asia. Together with ESnet, Internet2 and the GEANT, USLHCNet also supports connections between the Tier2 centers. The USLHCNet core infrastructure is using the Ciena Core Director devices that provide time-division multiplexing and packet-forwarding protocols that support virtual circuits with bandwidth guarantees. The virtual circuits offer the functionality to develop efficient data transfer services with support for QoS and priorities.

In this paper we present the distributed service used for monitoring and operational management for the dynamic circuits in the entire USLHCNet network. This distributed service system provides in near realtime complete topological information for all the circuits, resource allocation and usage, accounting, detects automatically failures in the links and network equipment, generate alarms and has the functionality to take automatic actions. The system is developed based on the MonALISA framework, which provides a robust monitoring and controlling service oriented architecture, with no single points of failure.

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