Deploying perfSONAR end-to-end monitoring for production US CMS networking

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Abstract:

End-to-end (E2E) circuits are used to carry high impact data movement into and out of the US CMS Tier-1 Center at Fermilab. E2E circuits have been implemented to facilitate the movement of raw experiment data from Tier-0, as well as processed data to and from a number of the US Tier-2 sites. Troubleshooting and monitoring those circuits presents a challenge, since the circuits typically cross multiple research and education networks, each with its own management domain and customized monitoring capabilities. The perfSONAR monitoring project was established develop and deploy a common monitoring infrastructure across multiple network management domains. Fermilab has deployed perfSONAR across its E2E circuit infrastructure and enhanced the product with several tools that ease the monitoring and management of those circuits. This paper will present the current state of perfSONAR monitoring at Fermilab and detail our experiences using perfSONAR to manage our current E2E circuit infrastructure. We will describe how production network circuits are monitored by perfSONAR E2E Monitoring Points (MPs), and the benefits it has brought to production US CMS networking support.