

Ptolemy: A Scalable LAN Monitoring System

Thursday 26 March 2009 08:00 (20 minutes)

The Network Engineering team at the SLAC National Accelerator Laboratory is required to manage an increasing number and variety of network devices with a fixed amount of human resources. At the same time, networking equipment has acquired more intelligence to gain introspection and visibility onto the network.

Making such information readily available for network engineers and user support personnel is still an unsolved problem. Features such as determining device inventories, capabilities, topology and the inter-relation of equipment at all networking layers as well as performance are fundamental to the understanding, problem remediation and continued operation of networking services. We have surveyed commercial and open source products and have concluded they typically only offer a small subset of the features that we outlined above.

At SLAC, we have established an effort to create an open source scalable network monitoring system to meet these needs. Named Ptolemy - Performance, TopOLogy and measurEMent sYstem monitoring, our design creates a clear separation between the collection, storage and presentation of the network services, utilizing open technologies such as Simple Network Monitoring Protocol, XML, Relational and Round Robin databases. Ptolemy is currently in production at SLAC monitoring over 500 network devices and 25,000 network interfaces.

In this paper, we describe Ptolemy in detail and demonstrate how it meets SLAC's security, scalability and performance objectives. We discuss architecture, extensibility, deployment, integration with other infrastructure services, and user interface.

Summary

At SLAC, we have established an effort to create an open source scalable network monitoring system. In this paper, we describe it in detail and demonstrate how it meets SLAC's security, scalability and performance objectives. We discuss architecture, extensibility, deployment, integration with other infrastructure services, and user interface.

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Session Classification: Poster session

Track Classification: Grid Middleware and Networking Technologies