## **Event Detection for perfSONAR Services**

## Background

perfSONAR [1] is an international project to aid the collection and sharing of network related performance data. It provides an interface to such data via XML via schemata provided through the NMWG [2]. Metrics currently include one [3] and two way [4] latency, bandwidth [5] and throughput and network topology. Such information is architected using technologies such as XML and SQL Database, XPath and XQuery, SOAP and WSDLs.

As perfSONAR provides primarily a framework for gathering and storing such performance information [6] in a distributed nature, an issue of data mining and data analysis becomes paramount in being able to sieve through such information and provide meaningful and concise reports in order to create network weathermaps, performance reports and performance trouble-shooting.

## Scope of Project

In order for the data provided by perfSONAR sources to be useful, it is important to be able to automatically alert and report on performance problems. Such problems may include sudden increases in network utilisation through a router (bottleneck), changes in network topology (due to network outage), or even host related performance issues (bad network settings etc).

This project aims to categorise such performance problems and to develop simple algorithms to:

- determine baseline performance of real life routers and hosts in projects such as LHC ATLAS, LSST, BaBar, LCLS.
- research and implement common event detection algorithms such as Plateau, Holt-Winters
- · cross correlate such problems to help identify the source of performance problems using data mining techniques

## **Future Reading**

- [1] http://www.perfsonar.net/
- [2] http://nmwg.internet2.edu/
- [3] http://www.internet2.edu/performance/owamp/
- [4] http://www-iepm.slac.stanford.edu/pinger/
- [5] http://www.internet2.edu/performance/bwctl/
- [6] http://psps.perfsonar.net/index.html