Perl PerfSONAR MP Service for Ping and Traceroutes

Background

There is a growing need to provide reverse traceroute and ping information in order to help determine where on a network a problem occurs.

PerfSONAR is a architecture that offers open source, web services based access to network information. This project focuses upon the PerfSONAR Measurement Point (MP) design whereby a service will listen for NMWG XML documents, checks and validates the payload and instantiate the necessary measurements.

In particular, we are interested in re-engineering the current reverse traceroute script to support the PerfSONAR MP standards.

Goals

1. Set up a reverse traceeroute server at the site to understand the functionality etc.
2. Understand the security aspects of CGI coding
3. Decompose and classify the security requirements of the above
4. Understand XML and related technologies such as XPath, XQuery, XUpdate in the context of Perl
5. Understand and contribute to the NMWG XML specifications
6. Create a Perl-based HTTP/SOAP Server which contains the PerfSONAR MP Service
7. Create business logic, based on the incoming NMWG/XML document to instantiate the necessary ping/traceroute with serious considerations of the security aspects as defined above.
8. Understand, and use the functionality of existing Perl code (Object Orientated) to analyse the output of the test.
9. Return NMWG compliant XML to the user of the decomposed results of the test.
10. Create and thouroughly test a installation method using Makefiles.
11. Help to integrate into the Internet2 Live CD distribution
12. Documentation for both developers and end-users

Further Goals

1. Contribute to the design of a generic NMWG Perl Library
2. Create a flexible backend to faciliate the registration of any and all command line tools (based upon the characteristics hierarchy defined in the NMWG)
3. Identify and deploy on various sites around the world

Project Duration

This project should take no longer than 3-6 months.

Other information

All necessary code shall be versioned in SVN at SLAC. This will require the student to apply for a computer account at SLAC.

Contacts

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