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Identifying and Localizing Network Problems using the PuNDIT Project

In today's world of distributed scientific collaborations, there are many challenges to providing reliable inter-domain network infrastructure. Network operators use a combination of active monitoring and trouble tickets to detect problems. However, some of these approaches do not scale to wide area inter-domain networks due to unavailability of data. The Pythia Network Diagnostic InfrasTructure (PuNDIT) project aims to create a scalable infrastructure for automating the detection and localization of problems across these networks.

The objective is to gather and analyze metrics from monitoring infrastructure to identify the signatures of possible problems and locate affected network links. A primary goal for PuNDIT is to convert complex network metrics into easily understood diagnoses in an automated manner.

PuNDIT is building upon the de-facto standard perfSONAR network measurement infrastructure deployed in Open Science Grid and the Worldwide LHC Computing Grid. The PuNDIT Team is working closely with the perfSONAR developers from ESnet and Internet2 to integrate PuNDIT as part of the perfSONAR Toolkit.

We will report on the project progress to-date in working with the OSG and WLCG communities and describe the current implementation architecture. We will also discuss some initial results, future plans and the project timeline.

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