Inca

Framework for Automated Monitoring of Grid Systems

http://tech.teragrid.org/inca

Inca is a general framework which can be configured to meet the needs of a specific Grid

Architecture

Data Flow

Display to Users

Aggregate and Store

Collect from Resources
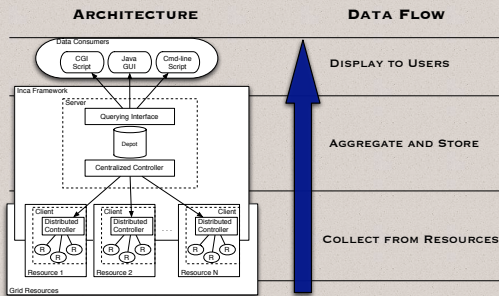
Use Cases:

The basic data collection and analysis framework provided by Inca supports a diverse set of use cases.

- Service Reliability
- Monitoring
- Benchmarking
- Site Interoperability Certification
- Software Stack Validation

Future Work

Over the next year Inca's capabilities will be expanded by:

- Automating configuration control mechanisms

- Improving data management and data archiving scalability

- Providing for reporter dependencies to improve test scheduling
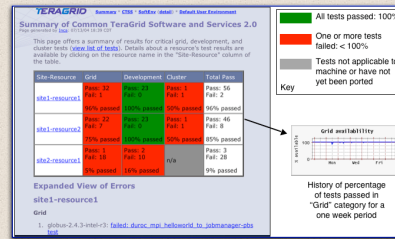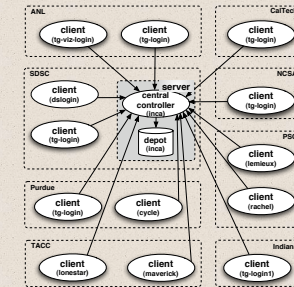
TeraGrid Project

TeraGrid is currently using Inca to ensure the proper operation of the TeraGrid hosting environment on participating resources.

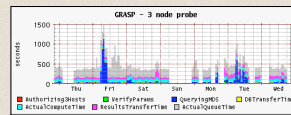### TeraGrid Critical Tests:

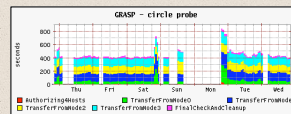### Inca TeraGrid Deployment:

Work is underway to use Inca to monitor changes in TeraGrid performance using:

### A) Grid benchmarks, GRASP (Grid Assessment probes)

This graph shows the time to transfer data from Caltech to SDSC, run a compute job at SDSC and transfer the results to NCSA. Measurements were taken every hour over a week in October 2004.

This graph shows the time to transfer data from Caltech, Purdue, and ANL to NCSA, run a compute job at NCSA and transfer the results to SDSC. Measurements were taken every hour over a week in October 2004.

B) Network performance probes, Pathload and Pathchirp
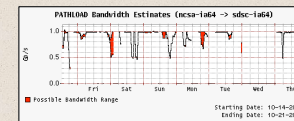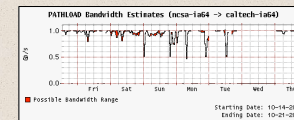
In the two graphs above, Pathload measures dynamic available bandwidth over time on two different end to end (e2e) paths (ncsa->caltech and ncsa->sdsc). Pathload [dovrolis et al] uses efficient and lightweight probes as part of a methodology called SLoPS (Self-Loading Periodic Streams) to accurately measure e2e available bandwidth from a user's perspective.