INCA

User-level Grid Functionality Testing & Performance Measurement

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Is TeraGrid Up?

From a user's perspective, a Grid is "up" if the resources, services and software required to run their application are available and working as expected. By detailing a set of software, services, and features that a user needs, a Grid can be tested periodically by an automated system to verify its health and usability. To this end, we've developed Inca as a flexible framework for the automated testing, benchmarking and monitoring of Grid systems.

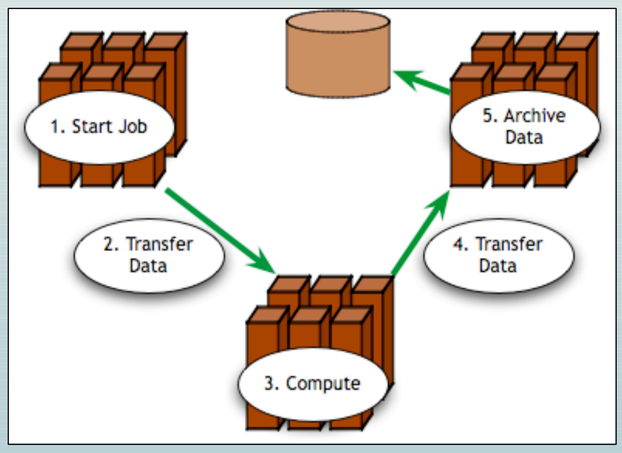

Figure 1: A sample TeraGrid application with computation, data transfer and data archival requirements

Sample Application Requirements:

- Can user login?
- Are Grid services the application [s] use available? Compatible versions?
- Are dataset[s] N accessible to user X? Credentials?

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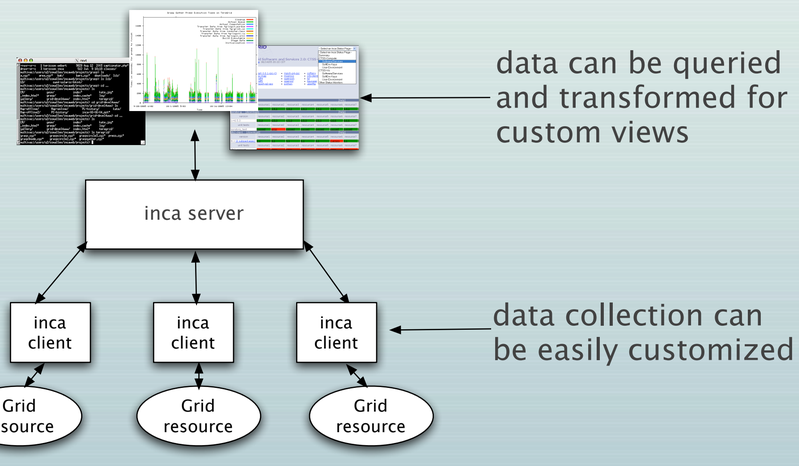

Figure 2: Inca data collection and customization

Inca is a flexible framework for the automated testing, benchmarking and monitoring of Grid systems. It includes mechanisms to schedule the execution of information gathering scripts and to collect, archive, publish, and display data.

Originally developed for the TeraGrid project, Inca is a general framework which can be configured to meet the needs of specific Grids or Grid users (see Figure 2).

Inca offers a diverse set of use cases including:

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

TeraGrid is currently using Inca to ensure the proper operation of Common TeraGrid Software and Services (CTSS) on its participating resources.

Inca is deployed on all TeraGrid resources (Figure 3) and is used primarily by system administrators and Grid management to verify software and service functionality across sites.

This year we would like to expand Inca's data collection and display (Figure 4) by developing custom views and data collection (as illustrated in Figure 2) that meet specific user requirements.

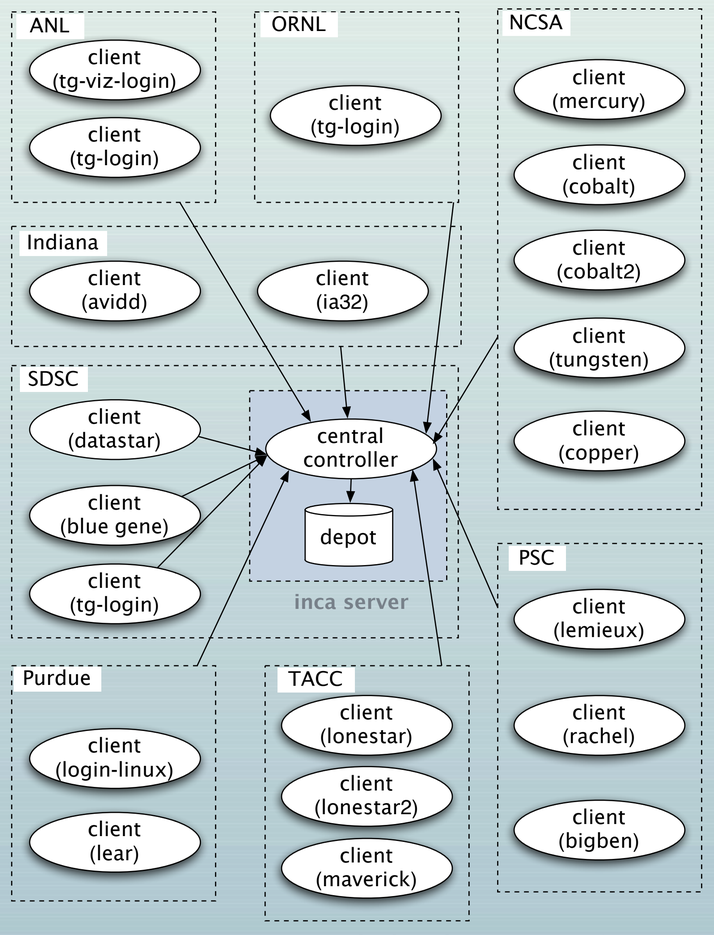

Figure 3: Inca TeraGrid deployment (June 2006)

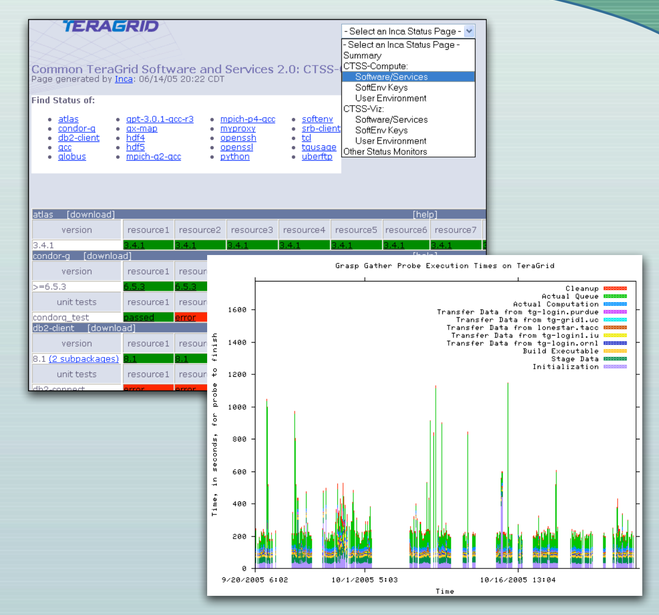

Figure 4: Examples of current data views – a software stack status page and a simple Grid application performance graph

For more information
visit http://inca.sdsc.edu or email inca@sdsc.edu