SDSC
SAN DIEGO SUPERCOMPUTER CENTER

# User-level Grid Functionality and Performance Monitoring

*Inca detects Grid infrastructure problems by executing periodic, automated, user-level testing of Grid software and services.*

## Enables consistent user-level testing across resources:

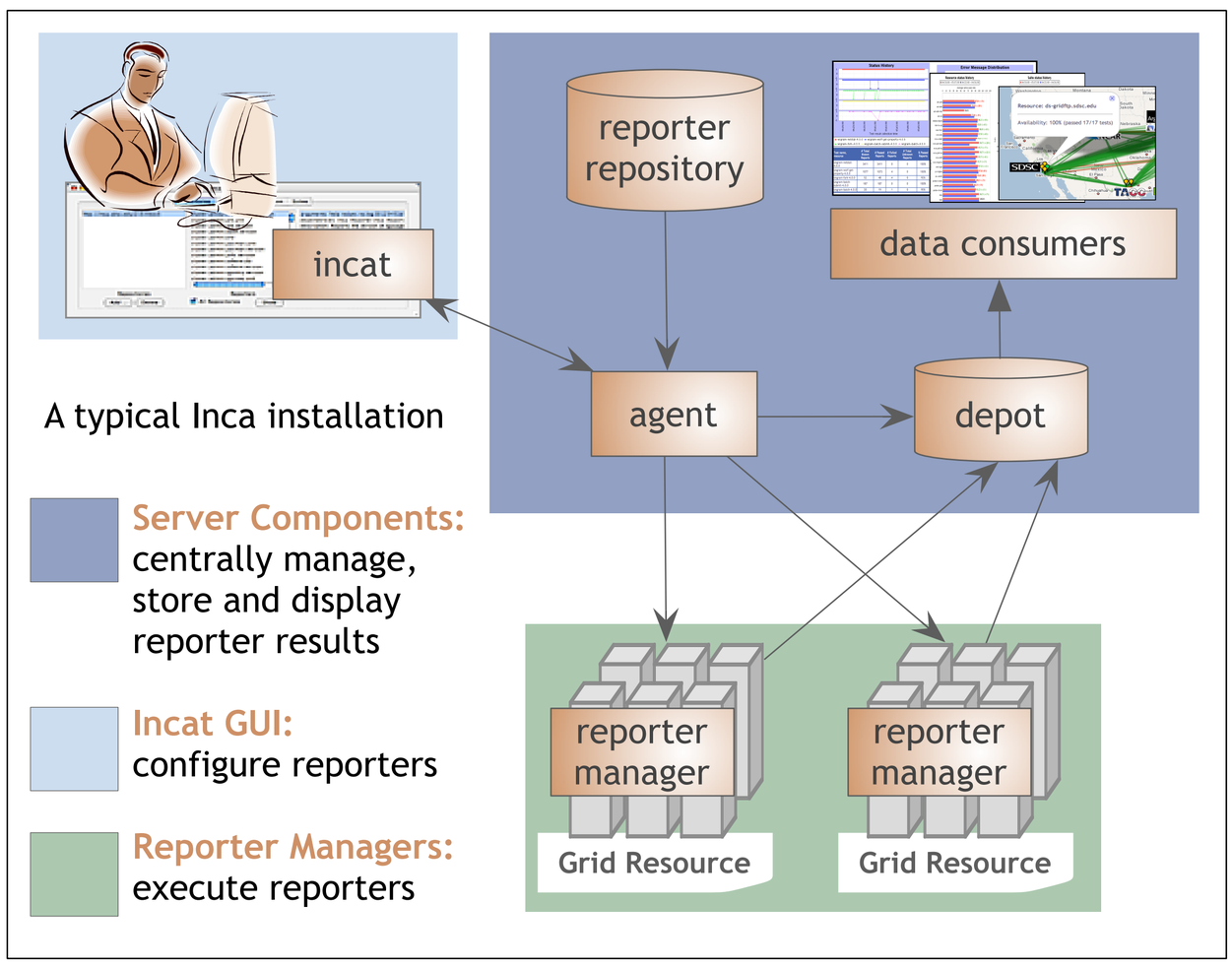
Emulates a Grid user by running under a standard user account and executing tests using a standard GSI credential. Ensures consistent testing across resources with centralized test configuration.

## Easy to collect data from resources:

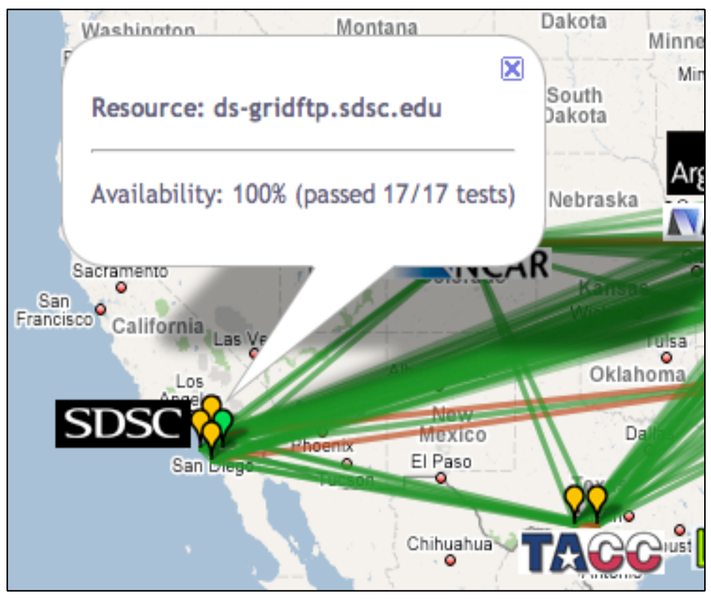
Data is collected by reporters, executables that measure some aspect of the system and output the result as XML. Multiple types of data can be collected. Perl APIs are provided to make it easy to write reporters; most are less than 30 lines of code.

## Easy to configure and maintain:

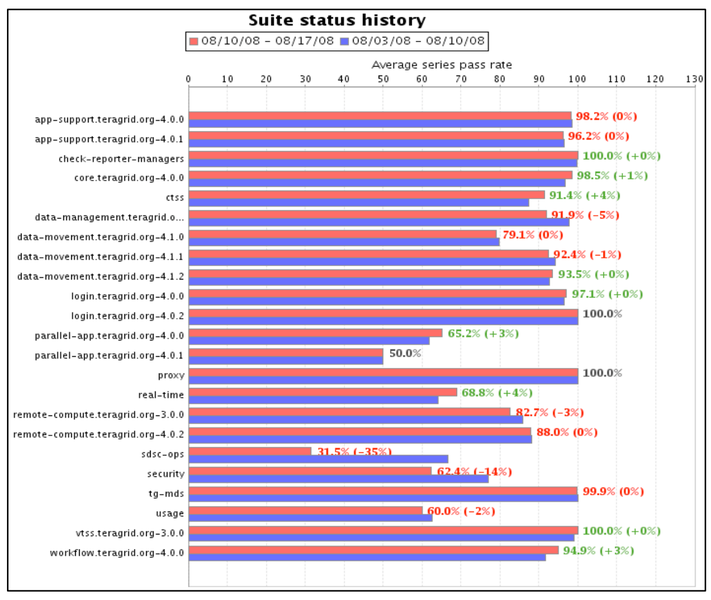
Manages and collects a large number of results through a GUI interface (incat). Measures resource usage of tests and benchmarks to help Inca administrators balance data freshness with system impact.



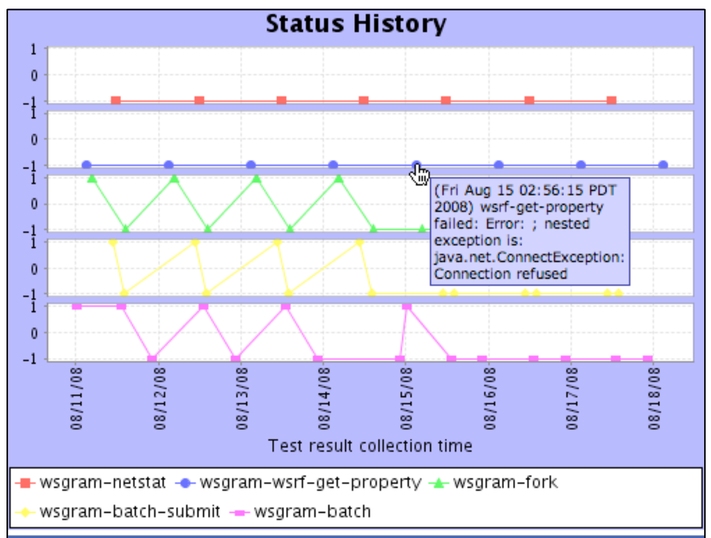

A standard Inca installation



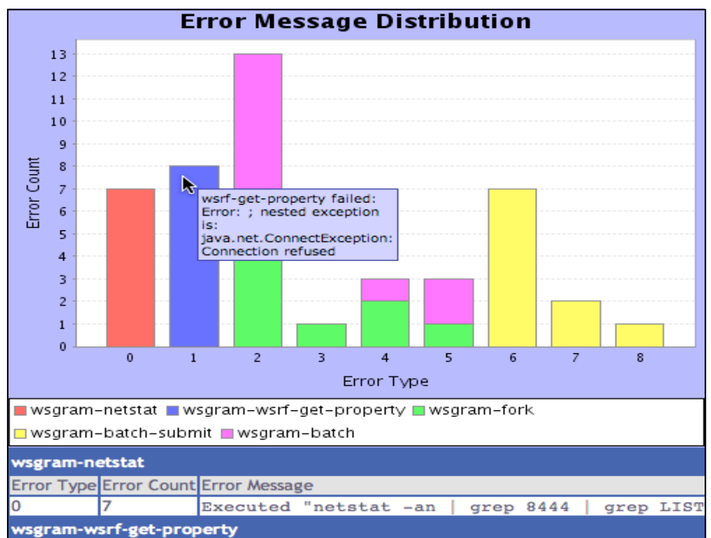

Google map view of resource status




Weekly status report by test category




| Test name, resource | # Total Known Reports | # Passed Reports | # Failed Reports | # Total Unknown Reports | % Passed Reports |
|---|---|---|---|---|---|
| wsgram-netstat | 7 | 0 | 7 | 0 | 0% |
| wsgram-wsrf-get-property | 8 | 0 | 8 | 0 | 0% |
| wsgram-fork | 14 | 4 | 10 | 0 | 29% |
| wsgram-batch-submit | 14 | 4 | 10 | 0 | 29% |
| wsgram-batch | 15 | 5 | 10 | 0 | 33% |




| wsgram-netstat | | |
|---|---|---|
| Error Type | Error Count | Error Message |
| 0 | 7 | Executed "netstat -an \| grep 8444 \| grep LIST |
| **wsgram-wsrf-get-property** | | |
| Error Type | Error Count | Error Message |
| 1 | 8 | wsrf-get-property failed: Error: ; nested exc java.net.ConnectException: Connection |
| **wsgram-fork** | | |
| Error Type | Error Count | Error Message |
| 2 | 6 | globusrun-ws failed: Delegating user credenti globusrun-ws: Error trying to delegate globus_xio: Unable to connect to grid-hg.ncsa globus_xio: System error in connect: Connecti globus_xio: A system call failed: Connection |
| 3 | 1 | Unable to create temporary file, /tmp/grid.mi |

Detailed status history and error types of Globus jobmanager service on a TeraGrid resource

## Comprehensive views of data:

Offers a variety of Grid data views from cumulative summaries to reporter execution details and result histories.

## Archived results support troubleshooting:

Furthers understanding of Grid behavior by storing and archiving complete monitoring results. Allows system administrators to debug detected failures using archived execution details.

## Secure:

Inca components communicate using SSL. Securely manages short-term proxies for Grid service testing.

**For more information visit**
**http://inca.sdsc.edu**

Inca is supported by:

TeraGrid
NSF