Inca TeraGrid Status

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Outline

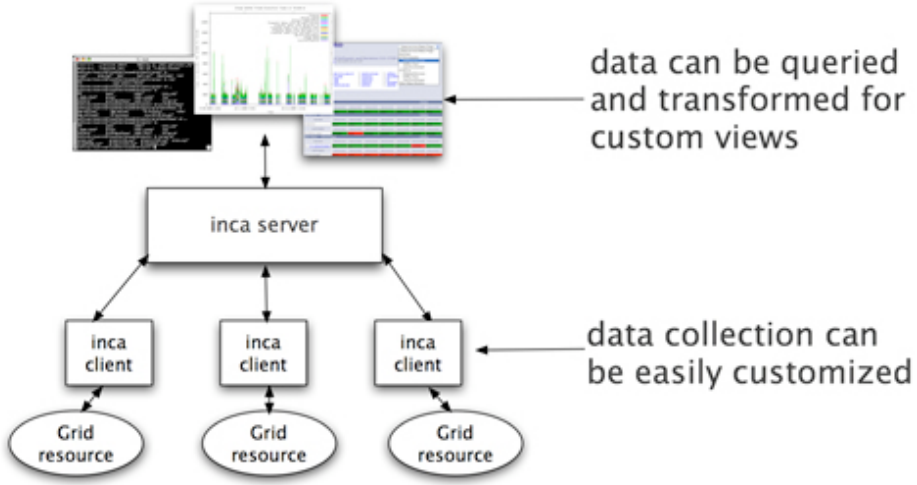
- Inca 2 overview
- CTSSv3 Inca deployment
- Current views of data
- Future work

Inca

Inca is a framework for the automated testing, benchmarking and monitoring of Grid resources

Inca:

- schedules execution of information gathering scripts (reporters)
- collects, archives, publishes data



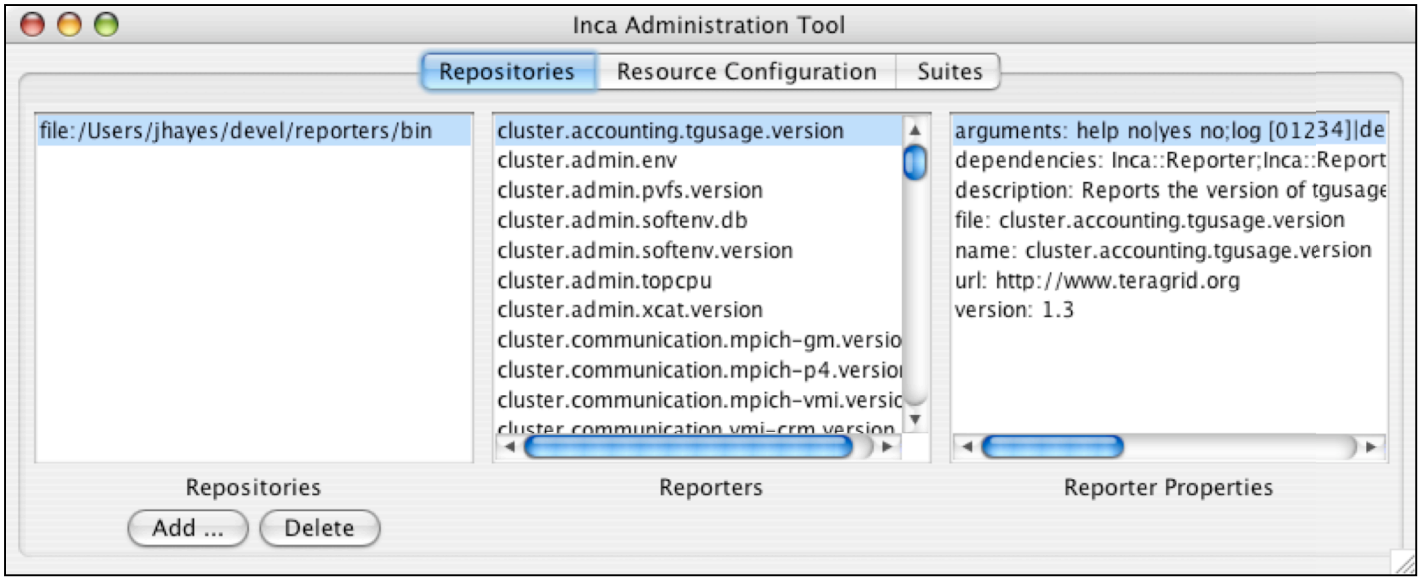
Motivation for Inca 2

- Inca 1 was a prototype
- Experiences using Inca:
  - Testing is an iterative refinement process
  - Testing is a trade-off between freshness of data and impact on resource
  - Needed more scalable and flexible data storage

Inca 2 Feature: Improved installation and configuration control

- GUI tool for centralized administration
- Reporter sharing via repositories
- Proxy management via MyProxy

Incat screenshot



Inca 2 feature: Full Report Archiving

Inca report - completed

```
...
 <body>
    <benchmark>
    <ID>download</ID>
    <statistic>
          <ID>bandwidth</ID>
          <value>105.26</value>
          <units>kb/sec</units>
     </statistic>
    </benchmark>
</body>
<exitStatus>
    <completed>1</completed>
</exitStatus>
...
```

Inca report - error

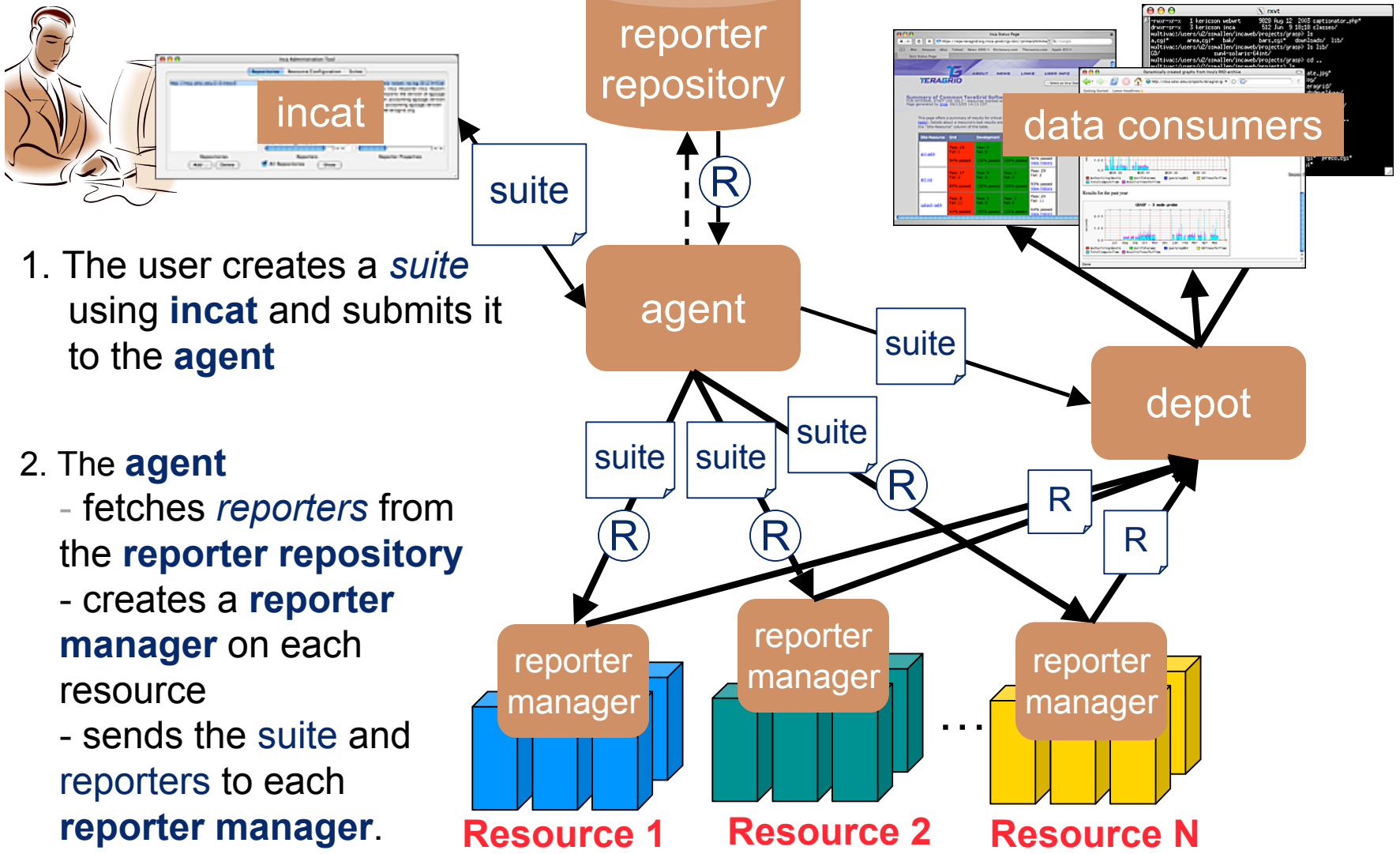
```
...
 <body></body>
<exitStatus>
   <completed>0</completed>
   <errorMessage>wget command
    failed: --15:29:23--
    http://www.nosite/
         =&gt; `/dev/null'
Resolving www.nosite... failed:
     Host not found.
   </errorMessage>
 </exitStatus>
...
```

Inca 2: Additional features

- Flexible querying interface - relational db backend (postgres for TG)
- Profile reporter system usage
- Inca components communicate using SSL

Inca 2 Architecture

4. **Data consumers** display collected data (*reports*) by querying the **depot**



1. The user creates a *suite* using **incat** and submits it to the **agent**

2. The **agent**
   - fetches *reporters* from the **reporter repository**
   - creates a **reporter manager** on each resource
   - sends the suite and reporters to each **reporter manager**.

3. Each **reporter manager** executes *reporters* according to its schedule and sends results (*reports*) to the **depot**

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Inca 2 TeraGrid Deployment: CTSSv3

32 packages:

Globus, SRB, Condor-G, MPICH, Softenv, etc.

123 possible Inca tests:

45 unit or functionality tests

- **Services**: BLAS, uberftp, etc.

29 compatible version tests

- **Version**: HDF, Condor-g, etc.

49 cross-site functionality tests

- **Cross-site**: Globus GRAM, GridFTP, gsissh

List of Running Tests

configured inca reporters

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ctss-v3	(77 reporter series described)
all2all:gram_to_@gatekeepers@	Checks that the gatekeeper at a host is accessible from the local machine
all2all:gridftp_to_@gridftpHosts@	Verifies the globus-url-copy service
all2all:ssh_to_@sshHosts@	This test verifies that you can login and run commands via the SSH service on the remote machine
ant-unit	ant hello world test
ant-version	Reports the version of Apache Ant
blas-level1	This test runs the level1 tests on blas
blas-level2	This test runs the level2 tests on blas
blas-level3	This test runs the level3 tests on blas
compiler-gcc-c	Tests that a specified compiler compiles hello world
compiler-gcc-c++	Tests that a specified compiler compiles hello world

List of Running Tests (cont)

```
#!/usr/bin/env perl

use strict;
use warnings;
use Inca::Reporter::SimpleUnit;

my $reporter = new Inca::Reporter::SimpleUnit(
  name => 'grid.middlew
  version => 2,
  description =>
    'Checks that the ga
  url => 'http://www.nc
  unit_name => 'remoteL
);
$reporter->addArg('host
$reporter->processArgv(
my $host = $reporter->a

my $output = $reporter-
if(!$output) {
  $reporter->unitFailur
} elsif($output !~ /GRA
  $reporter->unitFailur
} else {
  $reporter->unitSucces
}
$reporter->print();
```

Click here to see help informati

```
NAME:
  grid.middleware.globus.unit.gatekeeper
VERSION:
  2
DESCRIPTION:
  Checks that the gatekeeper at a host is accessible from the local machine
URL:
  http://www.ncsa.uiuc.edu/People/jbasney/teragrid-setup-test.html
SYNOPSIS:
  grid.middleware.globus.unit.gatekeeper -help=no -host -log=0 -verbose=1 -version=no
  -help
        display usage information (no|yes)
  -host
        gatekeeper host
  -log
        log message types included in report
  -verbose
        verbosity level (0|1|2)
  -version
        show reporter version (no|yes)
```

Click here to view the grid.middleware.globus.unit.gatekeeper reporter.

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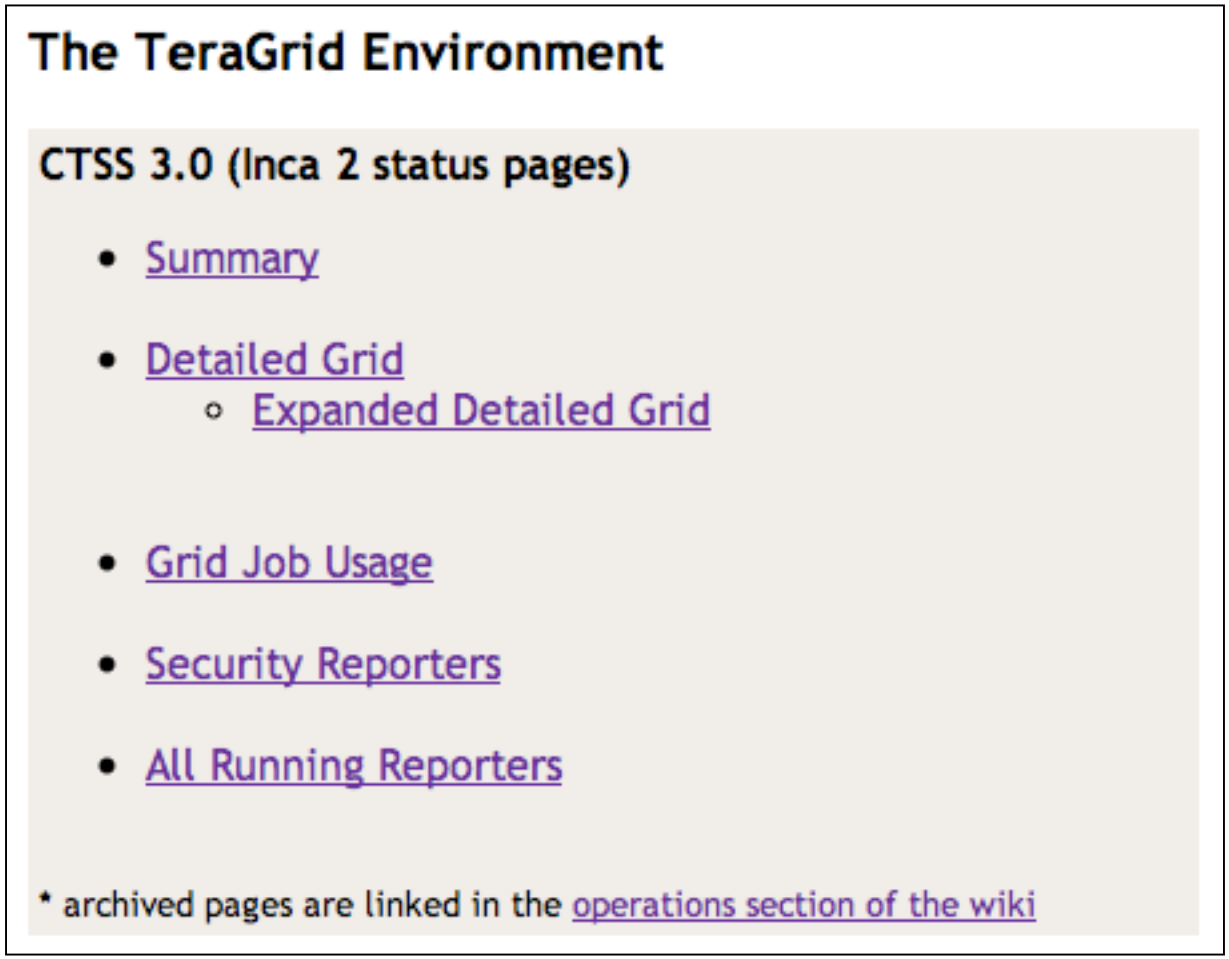
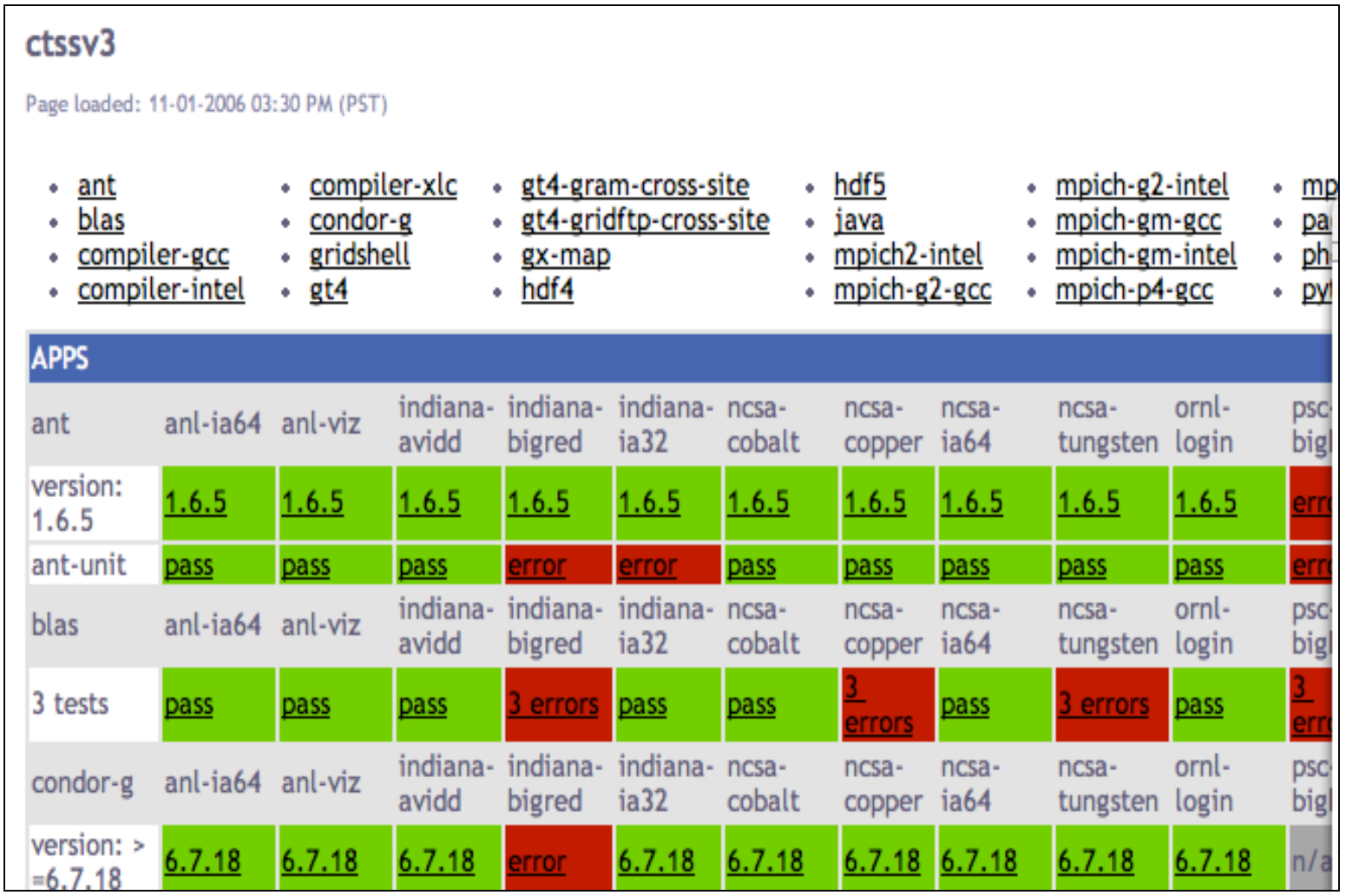
Current Pages Linked from Repo



Software Stack Detail View

Resources →

SW packages ↓



ctssv3

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- ant
- blas
- compiler-gcc
- compiler-intel
- compiler-xlc
- condor-g
- gridshell
- gt4
- gt4-gram-cross-site
- gt4-gridftp-cross-site
- gx-map
- hdf4
- hdf5
- java
- mpich2-intel
- mpich-g2-gcc
- mpich-g2-intel
- mpich-gm-gcc
- mpich-gm-intel
- mpich-p4-gcc
- mp
- pa
- ph
- py

APPS

ant	anl-ia64	anl-viz	indiana-avidd	indiana-bigred	indiana-ia32	ncsa-cobalt	ncsa-copper	ncsa-ia64	ncsa-tungsten	ornl-login	psc bigl
version: 1.6.5	1.6.5	1.6.5	1.6.5	1.6.5	1.6.5	1.6.5	1.6.5	1.6.5	1.6.5	1.6.5	err
ant-unit	pass	pass	pass	error	error	pass	pass	pass	pass	pass	err
blas	anl-ia64	anl-viz	indiana-avidd	indiana-bigred	indiana-ia32	ncsa-cobalt	ncsa-copper	ncsa-ia64	ncsa-tungsten	ornl-login	psc bigl
3 tests	pass	pass	pass	3 errors	pass	pass	3 errors	pass	3 errors	pass	3 err
condor-g	anl-ia64	anl-viz	indiana-avidd	indiana-bigred	indiana-ia32	ncsa-cobalt	ncsa-copper	ncsa-ia64	ncsa-tungsten	ornl-login	psc bigl
version: >=6.7.18	6.7.18	6.7.18	6.7.18	error	6.7.18	6.7.18	6.7.18	6.7.18	6.7.18	6.7.18	n/a

Software Stack Summary View

ctssv3 (summary)

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- anl-ia64
- anl-viz
- indiana-avidd
- indiana-bigred
- indiana-ia32
- ncsa-cobalt
- ncsa-copper
- ncsa-ia64
- ncsa-tungsten
- ornl-login
- psc-bigben
- psc-lemieux
- psc-rachel
- purdue-lear
- sdsc-bg
- sdsc-datastar
- sdsc-ia64
- tacc-lonestar
- tacc-viz

---

123 possible tests (45 unit, 29 version, 49 cross-site)

anl-ia64	94% passed Tests: 119 (42 unit, 28 version, 49 cross-site) Errors: 7 (3 unit/version) 1. gt4-seven-step 2. mpich2-intel-version 3. phdf5-unit (4 cross-site) 1. gram_to_gatekeeper.bigred.iu.teragrid.org 2. gram_to_grid-cu.ncsa.teragrid.org 3. gridftp_to_gridftp.bigred.iu.teragrid.org 4. gridftp_to_gridftp-cu.ncsa.teragrid.org
anl-viz	91% passed Tests: 116 (40 unit, 27 version, 49 cross-site)

Single Result View

Result:

did not complete

```
globusrun failed:
GRAM Authentication test failure: connecting to the
job manager failed. Possible reasons: job
terminated, invalid job contact, network problems,
...
```

Reporter details:

reporter name	grid.middleware.globus.unit.gatekeeper (click name for more info)

Execution information:

ran at	10-31-2006 07:24 PM (PST)
age	20 hours 16 minutes
cron	?=21 ?=21 * * *
ran on (hostname)	tg-login2.uc.teragrid.org
memory usage (MB)	19.0938
cpu time (secs)	2.69336
wall clock time (secs)	181.135

Single Result View (cont.)

Reporter command log:

Command used to execute the reporter

```
% bash -l -c 'set -a; cd /home/inca/inca2install-
ia64; cp ~/.soft.v3 ~/.soft.v3.$$ && soft-msc ~/
.soft.v3.$$ && source ~/.soft.v3.$$.cache.sh &&
export PERL5LIB=/home/inca/inca2install-ia64/var/
reporter-packages/lib/perl:${HOME}/inca/install-ia64/
lib/perl &&/home/inca/inca2install-ia64/var/reporter-
packages/bin/grid.middleware.globus.unit.gatekeeper-
2 -help="no" -host=
"gatekeeper.bigred.iu.teragrid.org" -log="3" -
verbose="1" -version="no"; rm -f ~/.soft.v3.$$*';
```

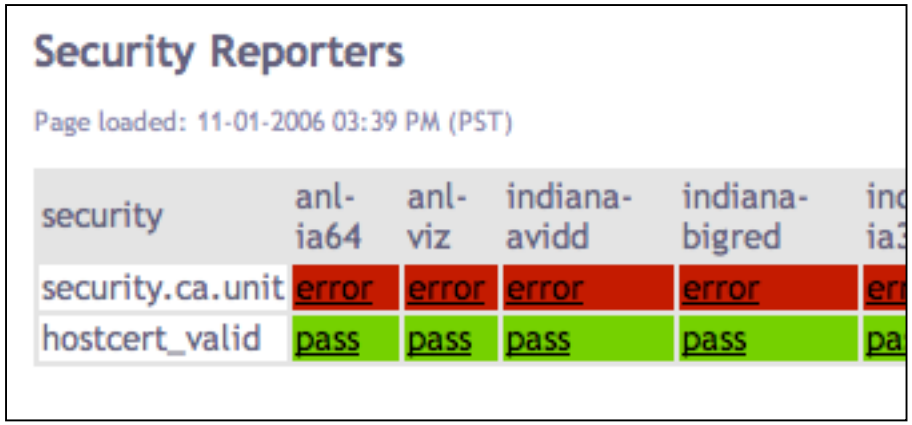
System commands executed by the reporter. Note that the reporter may execute other actions in between system commands (e.g., change directories).

```
% globusrun -a -r gatekeeper.bigred.iu.teragrid.org
```

Cross-site Tests

CROSS-SITE												
gt4-gram-cross-site	anl-ia64	anl-viz	indiana-avidd	indiana-bigred	indiana-ia32	ncsa-cobalt	ncsa-copper	ncsa-ia64	ncsa-tungsten	ornl-login	psc-bigben	psc-lemie
tg-login-ia32.iu.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass	pass	pass	pass	pass
tg-login1.iu.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass	pass	pass	pass	pass
gatekeeper.bigred.iu.teragrid.org	error	error	error	error	error	error	error	pass	error	error	error	pass
grid-co.ncsa.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass	pass	pass	pass *	pass
grid-hg.ncsa.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass	pass	pass	pass	error
grid-cu.ncsa.teragrid.org	error	error	pass	error	pass	pass	pass	pass	pass	pass	pass	pass
grid-w.ncsa.teragrid.org	error	error	error	error	error	error	error	error	error	error	error	error
tg-login.ornl.teragrid.org	pass	pass	error	error	pass	pass	pass	pass	pass	pass	pass	pass
gt4-submit.psc.teragrid.org	error	error	error	error	error	error	error	error	error	error	error	error
tg-gatekeeper.purdue.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass	pass	pass	pass	pass
bglogin.sdsc.edu	error	error	error	error	error	error	error	error	error	error	error	error
tg-login1.sdsc.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass *	pass	pass	pass	pass
dslogin.sdsc.edu	pass *	pass	pass	error	pass	pass	pass	pass	pass	pass	error	pass
tg-login.tacc.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass	pass	pass	pass	pass
tg-viz-login.tacc.teragrid.org	pass	pass	pass	error	pass	pass	pass	pass	pass	pass	pass	pass
tg-grid1.uc.teragrid.org	pass	pass	error	error	pass	pass	error	pass	pass	pass	pass	pass

Security Status Page



Security Reporters

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security	anl-ia64	anl-viz	indiana-avidd	indiana-bigred	inc ia3
security.ca.unit	error	error	error	error	err
hostcert_valid	pass	pass	pass	pass	pa

Grid Jobs Status Page (Users)

Machine	Reporter Status	Start/End Time (GMT)	User's Distinguished Name (DN)	Num. Jobs
anl-grid	missing			
indiana-avidd	pass	2006071020:00:00 to 2006071120:00:00	/C=US/O=SDSC/OU=SDSC/CN=Sima Patel/UID=patelsk	140
			/C=US/O=SDSC/OU=SDSC/CN=Inca User Account/UID=inca	67
			/C=US/O=NPACI/OU=SDSC/CN=Jiahua He/UID=ux454809	1
indiana-ia32	pass			
ncsa-copper	pass			
ncsa-ia64	pass	2006071019:00:00 to 2006071119:00:00	/C=US/O=National Center for Supercomputing Applications/CN=LEAD Community User	58
			/C=US/O=SDSC/OU=SDSC/CN=Inca User Account/UID=inca	44
			/C=US/O=NPACI/OU=SDSC/CN=Jiahua He/UID=ux454809	1
			/C=US/O=National Center for Supercomputing Applications/CN=Doru I Marcusiu	1
ncsa-tungsten	pass	2006071019:00:00 to 2006071119:00:00	/C=US/O=SDSC/OU=SDSC/CN=Inca User Account/UID=inca	67
			/C=US/O=National Center for Supercomputing Applications/CN=Doru I Marcusiu	4
ornl-login	pass			
purdue-linux	pass			
sdsc-ia64	pass	2006071017:00:00 to 2006071117:00:00	/C=US/O=SDSC/OU=SDSC/CN=Inca User Account/UID=inca	67
			/C=US/O=SDSC/OU=SDSC/CN=Hunter Francoeur/UID=francoeu	58
			/C=US/O=NPACI/OU=SDSC/CN=Jiahua He/UID=ux454809	7
			/C=US/O=SDSC/OU=SDSC/CN=Sima Patel/UID=patelsk	7
			/C=UK/O=eScience/OU=Edinburgh/L=NeSC/CN=owain kenway	6
			/DC=org/DC=doegrids/OU=People/CN=Mei-Hui Su 508922	2

Grid Jobs Status Page (CA)

Machine	Reporter Status	Start/End Time (GMT)	Certificate Authority (CA)	Total User Jobs	Unique User Jobs
anl-grid	missing				
indiana-avidd	pass	2006071020:00:00 to 2006071120:00:00	SDSC	207	2
			NPACI	1	1
indiana-ia32	pass				
ncsa-copper	pass				
ncsa-ia64	pass	2006071019:00:00 to 2006071119:00:00	National Center for Supercomputing Applications	59	2
			SDSC	44	1
			NPACI	1	1
ncsa-tungsten	pass	2006071019:00:00 to 2006071119:00:00	SDSC	67	1
			National Center for Supercomputing Applications	4	1
ornl-login	pass				
purdue-linux	pass				
sdsc-ia64	pass	2006071017:00:00 to 2006071117:00:00	SDSC	132	3
			NPACI	7	1
			eScience	6	1
			doegrids	2	1
tacc-viz	pass	2006071019:00:00 to 2006071119:00:00	SDSC	58	1

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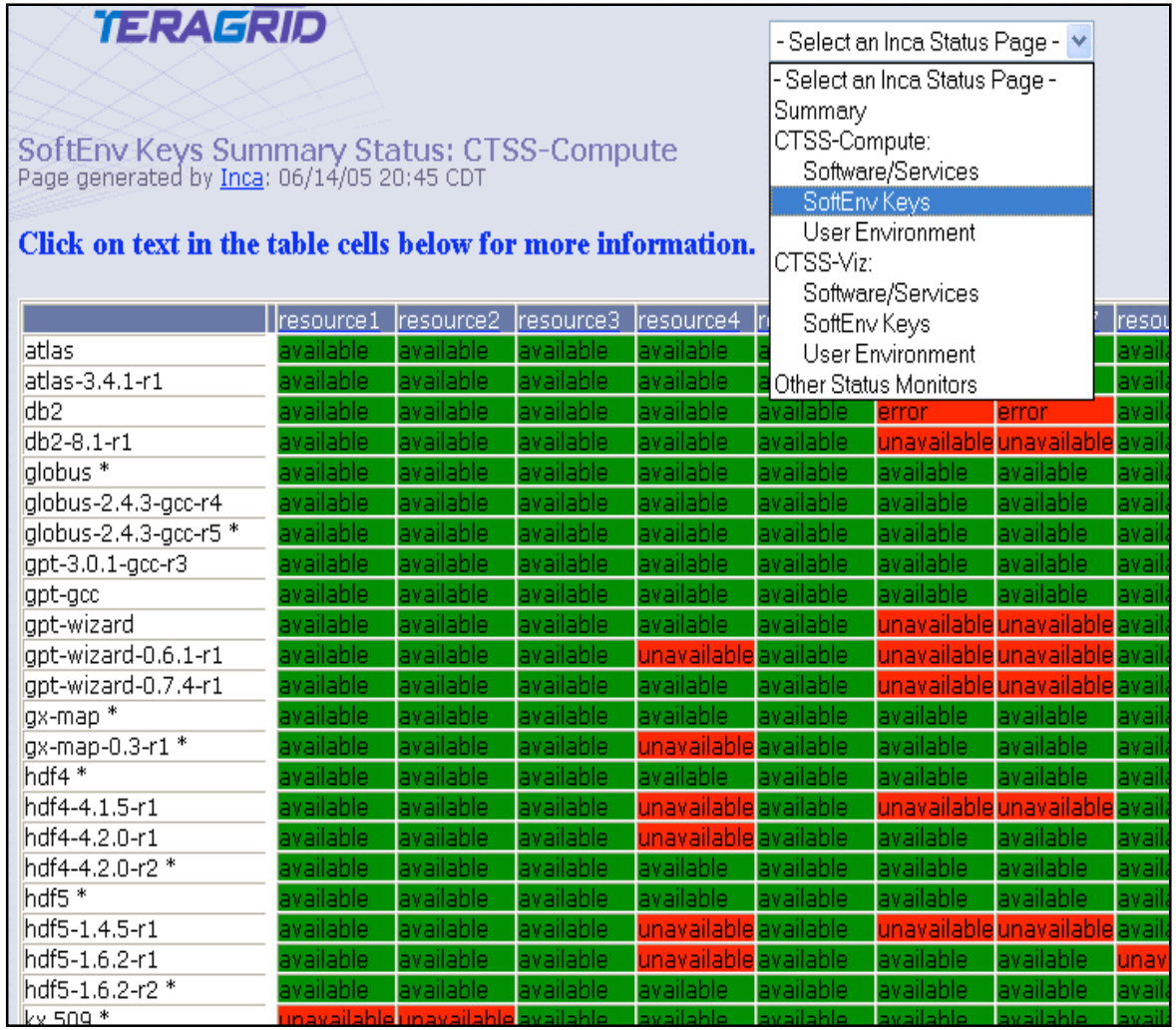
Softenv

Resources

Softenv keys

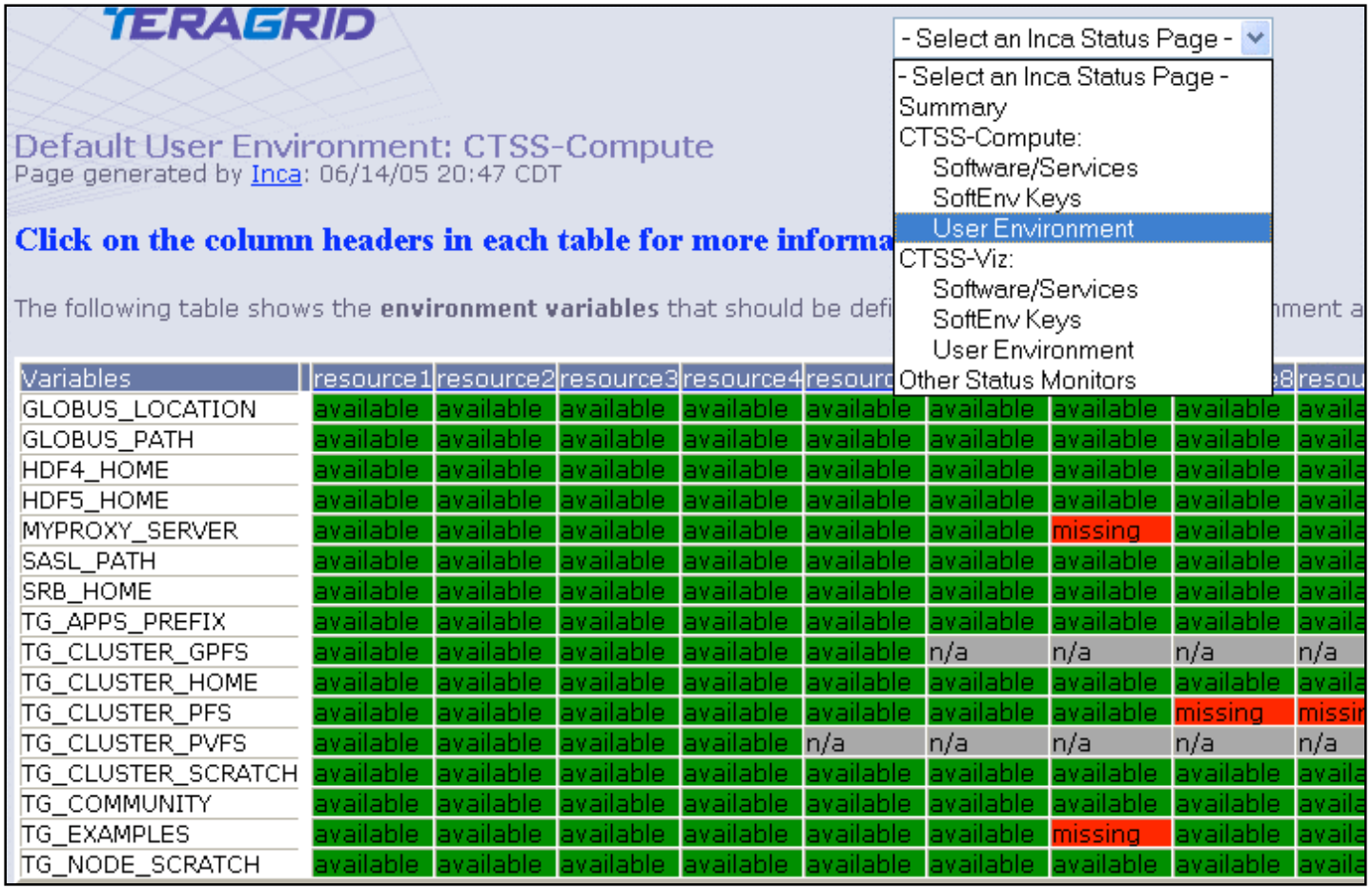


	resource1	resource2	resource3	resource4				
atlas	available	available	available	available				
atlas-3.4.1-r1	available	available	available	available				
db2	available	available	available	available	available	error	error	
db2-8.1-r1	available	available	available	available	available	unavailable	unavailable	
globus *	available	available	available	available	available	available	available	
globus-2.4.3-gcc-r4	available	available	available	available	available	available	available	
globus-2.4.3-gcc-r5 *	available	available	available	available	available	available	available	
gpt-3.0.1-gcc-r3	available	available	available	available	available	available	available	
gpt-gcc	available	available	available	available	available	available	available	
gpt-wizard	available	available	available	available	available	unavailable	unavailable	
gpt-wizard-0.6.1-r1	available	available	available	unavailable	available	unavailable	unavailable	
gpt-wizard-0.7.4-r1	available	available	available	available	available	unavailable	unavailable	
gx-map *	available	available	available	available	available	available	available	
gx-map-0.3-r1 *	available	available	available	unavailable	available	available	available	
hdf4 *	available	available	available	available	available	available	available	
hdf4-4.1.5-r1	available	available	available	unavailable	available	unavailable	unavailable	
hdf4-4.2.0-r1	available	available	available	unavailable	available	available	available	
hdf4-4.2.0-r2 *	available	available	available	available	available	available	available	
hdf5 *	available	available	available	available	available	available	available	
hdf5-1.4.5-r1	available	available	available	unavailable	available	unavailable	unavailable	
hdf5-1.6.2-r1	available	available	available	unavailable	available	available	available	
hdf5-1.6.2-r2 *	available	available	available	available	available	available	available	
kx 509 *	unavailable	unavailable	available	available	available	available	available	

Default Environment

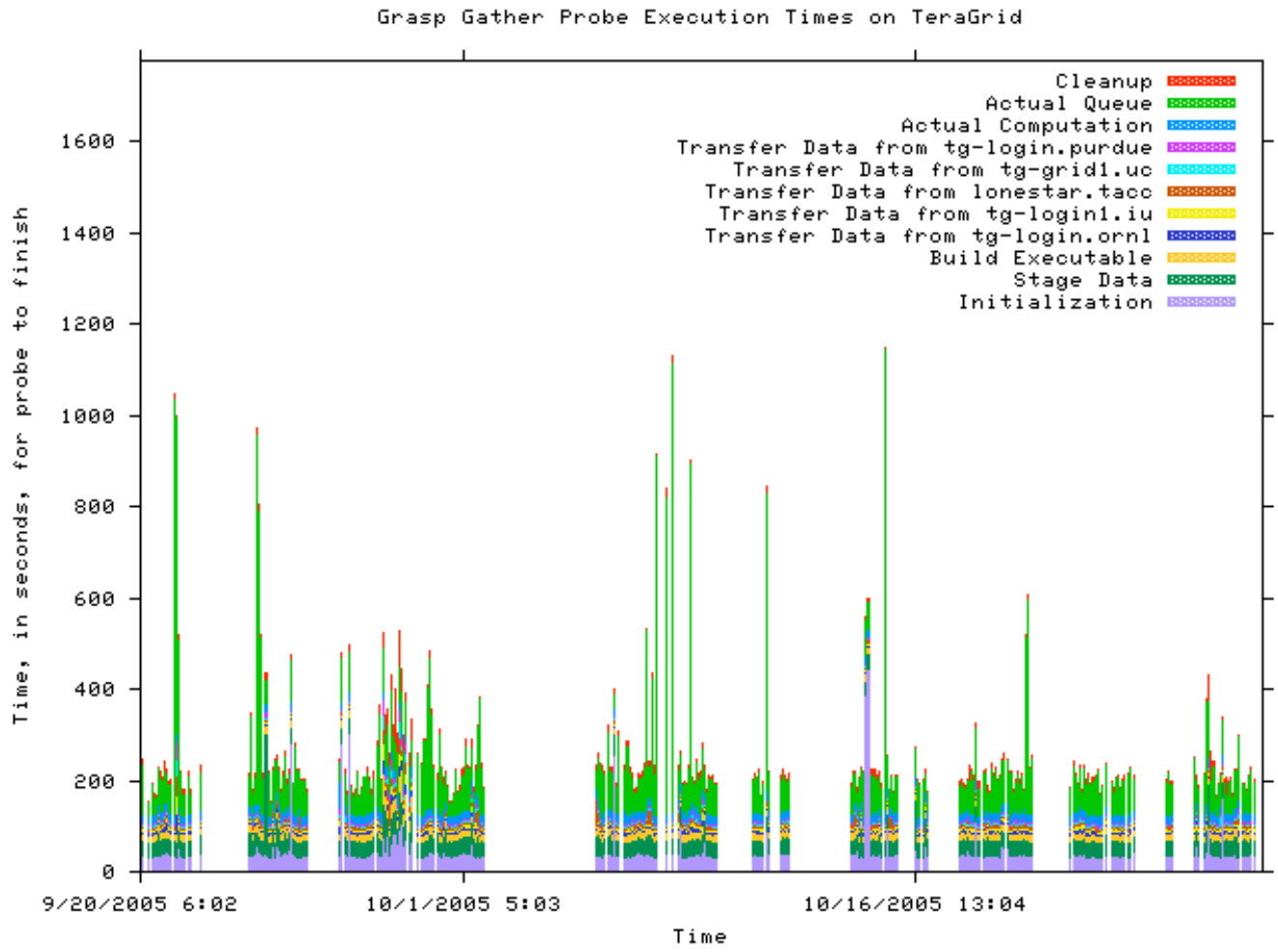
Resources

Environ variables

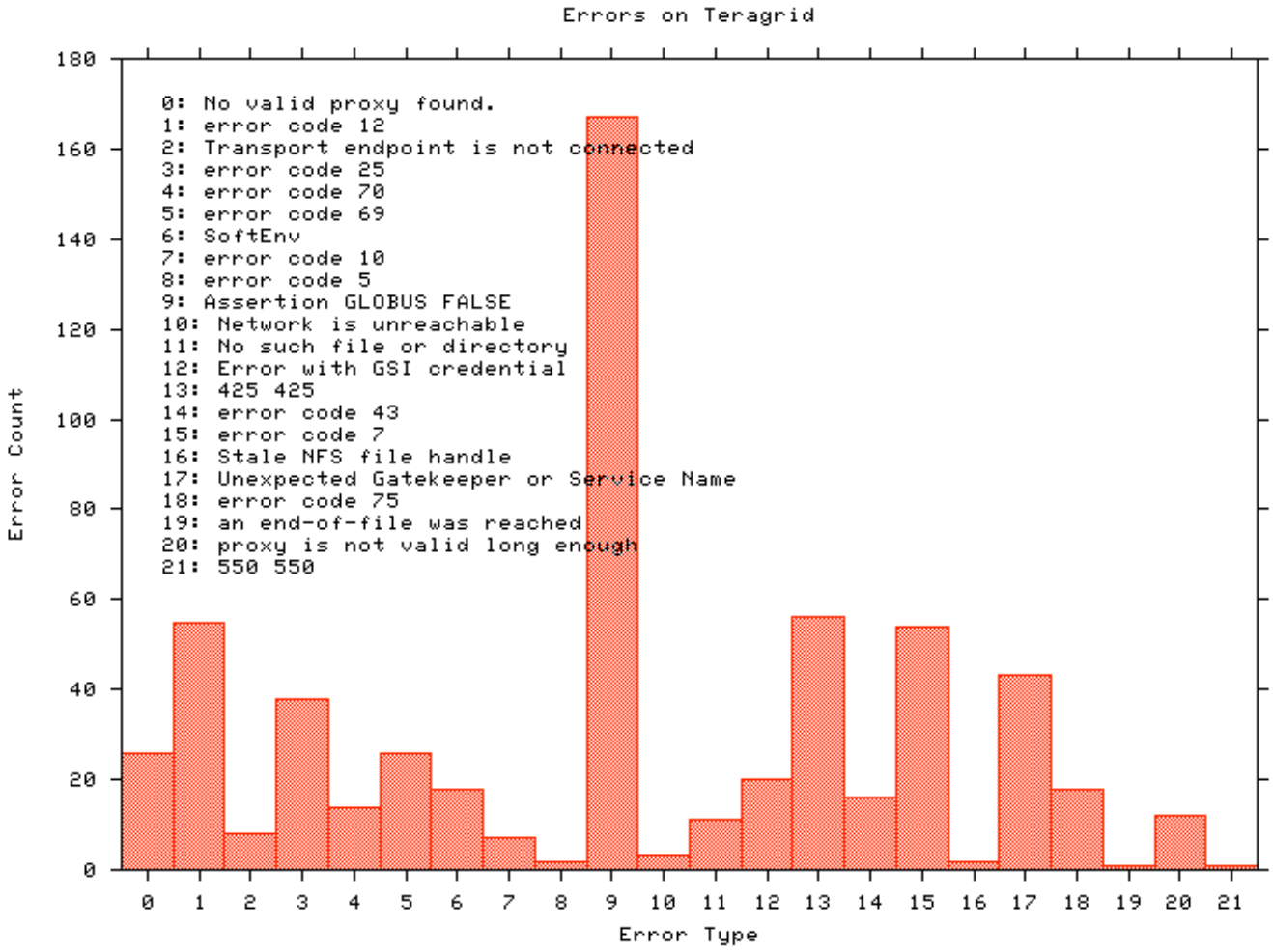


Variables	resource1	resource2	resource3	resource4	resourc				resou
GLOBUS_LOCATION	available	available	available	available	available	available	available	available	availa
GLOBUS_PATH	available	available	available	available	available	available	available	available	availa
HDF4_HOME	available	available	available	available	available	available	available	available	availa
HDF5_HOME	available	available	available	available	available	available	available	available	availa
MYPROXY_SERVER	available	available	available	available	available	available	missing	available	availa
SASL_PATH	available	available	available	available	available	available	available	available	availa
SRB_HOME	available	available	available	available	available	available	available	available	availa
TG_APPS_PREFIX	available	available	available	available	available	available	available	available	availa
TG_CLUSTER_GPFS	available	available	available	available	available	n/a	n/a	n/a	n/a
TG_CLUSTER_HOME	available	available	available	available	available	available	available	available	availa
TG_CLUSTER_PFS	available	available	available	available	available	available	available	missing	missir
TG_CLUSTER_PVFS	available	available	available	available	n/a	n/a	n/a	n/a	n/a
TG_CLUSTER_SCRATCH	available	available	available	available	available	available	available	available	availa
TG_COMMUNITY	available	available	available	available	available	available	available	available	availa
TG_EXAMPLES	available	available	available	available	available	available	missing	available	availa
TG_NODE_SCRATCH	available	available	available	available	available	available	available	available	availa

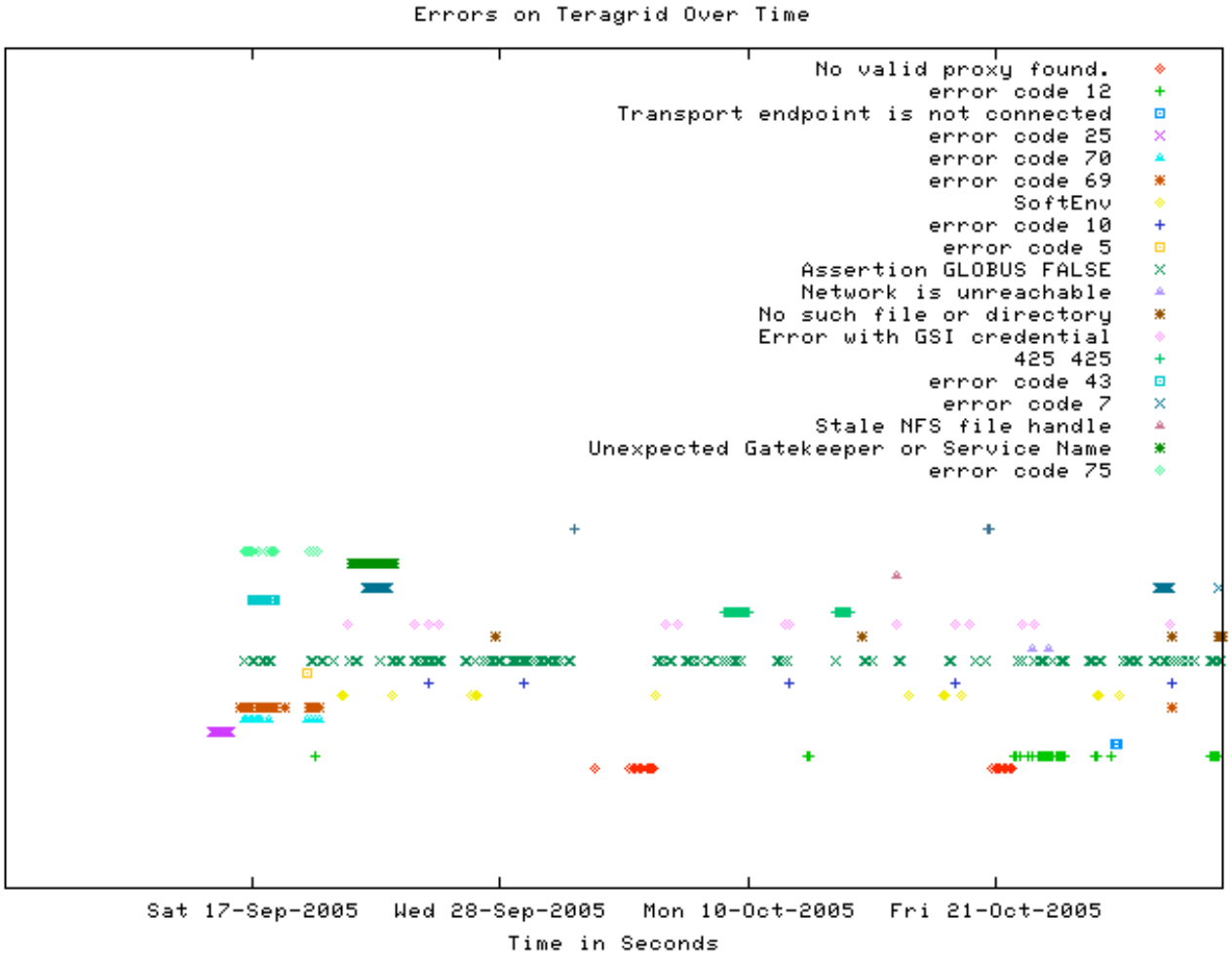
Historical Graphs



Historical Graphs



Error tracking over time



More information

- Inca Web Page:
  http://inca.sdsc.edu
- TeraGrid Inca Status Pages
  http://repo.teragrid.org
- Email
  - inca@sdsc.edu