

Grid Configuration Monitoring on Worker Nodes

Job Wrapper Tests revisited

- extracting configuration data from the sites -

Thomas Low

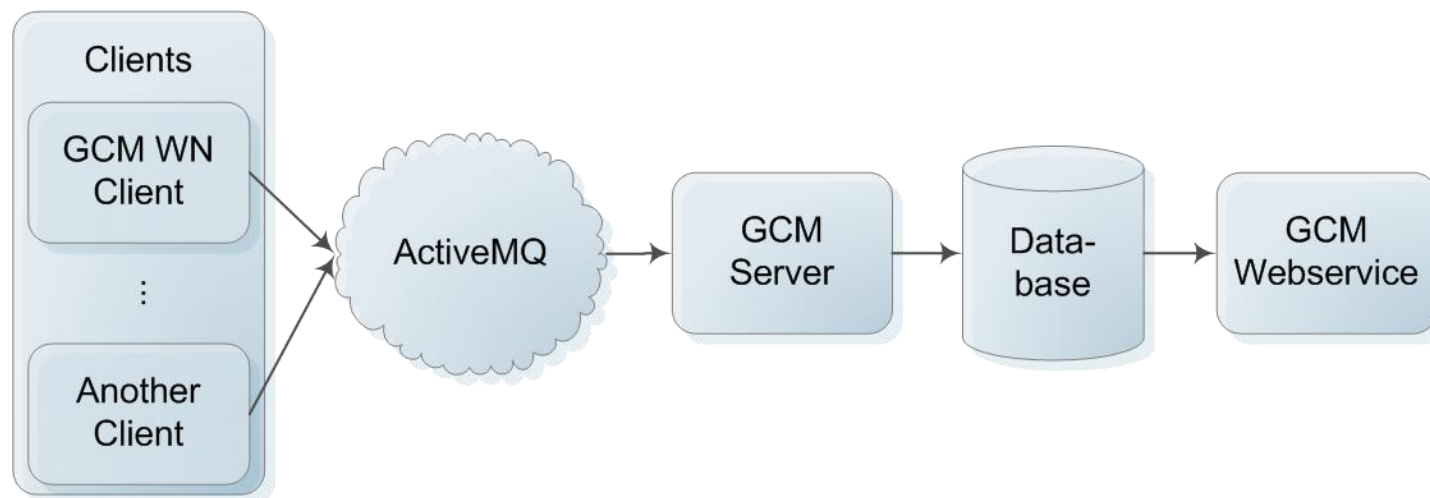
2/11/2009

- Collect and visualize information of the Grid for statistical analysis and data mining
 - Structural information (hostname, queue, ce, site)
 - Job information (id, vo, voms group/role/cap)
 - System information (os name, processor, RAM)
 - Version of java, perl, python, gLite, GFAL
- For example:
 - graphs of the distribution of GFAL versions (over time)
 - aggregated values for MainMemoryVirtualSize

- Deployment team
 - Check for deprecated versions of GFAL
- Virtual Organization
 - Average CPU speed to schedule jobs properly
- WLCG management
 - Verify deploy capacity (what WNs actually run jobs at a Site)
- Site managers
 - Check whether a single WN is misconfigured

A monitoring tool which ...

- Works on every Worker Node
- Uses a reliable communication system
- Does not disturb regular Grid activities
 - Ends after e.g. 30 seconds no matter what
- Displays
 - distributions of version information
 - aggregated values (max, min, sum, average)
 - memberships between WN – CE



Client

- Executed before each Job by a Jobwrapper
- Runs a set of tests to a certain probability (every day/week as required)
- Dumps a file with results for the Job
- Sends messages according to Grid Monitoring Probe Spec [\[3\]](#) using MSG

Server

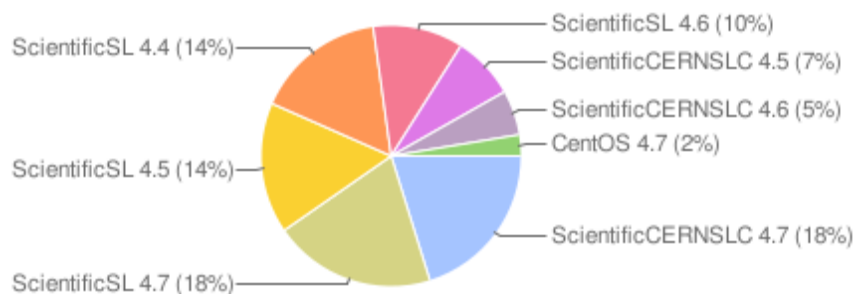
- Receives messages
- Stores data in a DB using Django Models [\[4\]](#)
- Raises alarms using SAM/Nagios [\[5\]](#)

Web application

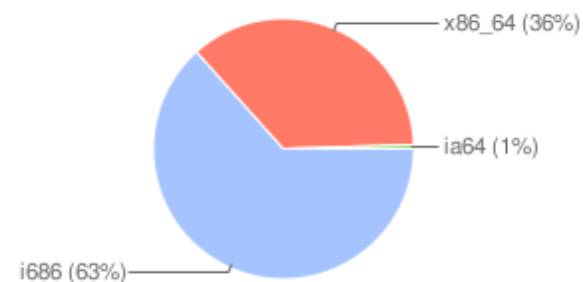
- Displays results using Django Views and Google Charts [\[6\]](#)

Currently it is in PPS and looks like ...

OperatingSystemNameRelease



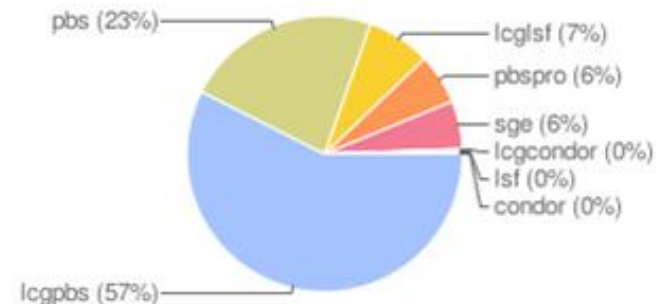
GlueHostArchitecturePlatformType



GlueHostMainMemoryVirtualSize in MB

show	aggregator	value
<input type="checkbox"/>	count	582
<input checked="" type="checkbox"/>	minimum	759
<input checked="" type="checkbox"/>	maximum	462801
<input type="checkbox"/>	sum	11346339
<input type="checkbox"/>	standard deviation	23680.435
<input type="checkbox"/>	variance	560762999.661
<input checked="" type="checkbox"/>	average	19495.428

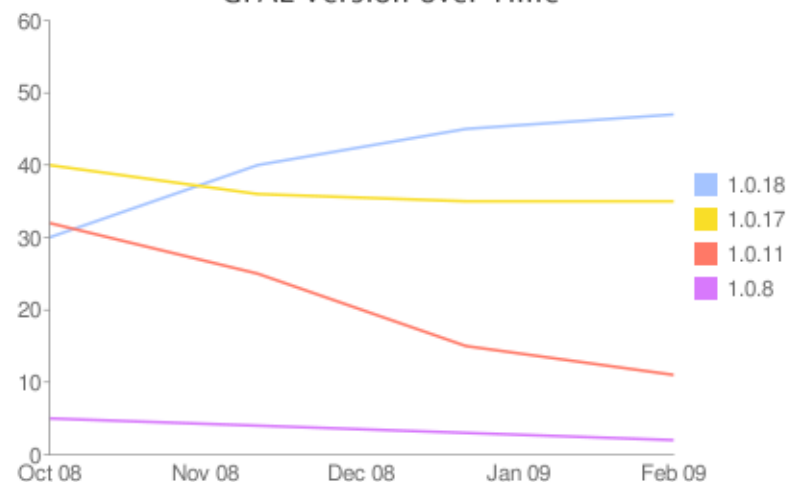
JobManagerType



GFAL Version

show	aggregator	value
<input checked="" type="checkbox"/>	1.10.18	47.09%
<input checked="" type="checkbox"/>	1.10.17	35.67%
<input checked="" type="checkbox"/>	1.10.11	11.62%
<input type="checkbox"/>	1.10.8	3.61%
<input type="checkbox"/>	1.10.15	1.20%
<input type="checkbox"/>	1.10.7	0.60%
<input type="checkbox"/>	1.10.6	0.20%

GFAL Version over Time



GFAL Version by Site in Region UKI

no	Site	S	F	M	T	1.10.11	1.10.18	1.10.17	1.10.8
1	EFDA-IET	1			1		1		
2	RAL-LCG2	24			24	24			
3	UKI-LT2-Brunel	5		1	6		3	2	
4	UKI-LT2-IC-HEP	1			1	1			
5	UKI-LT2-IC-LeSC	1			1			1	
6	UKI-LT2-QMUL	3			3			3	
7	UKI-LT2-RHUL	6	5		11		6		
8	UKI-LT2-UCL-HEP		3		3				
9	UKI-NORTHGRID-LANCS-HEP	2			2		2		

GFAL Version in Site UKI-LT2-RHUL

no	hostname	status	result	latest update
1	node020.cvos.cluster	successful	1.10.18	27-Jan-2009 16:45:28
2	node023.cvos.cluster	successful	1.10.18	22-Jan-2009 15:25:14
3	node025.cvos.cluster	successful	1.10.18	22-Jan-2009 15:42:15
4	node042.cvos.cluster	successful	1.10.18	28-Jan-2009 14:12:44
5	node046.cvos.cluster	successful	1.10.18	28-Jan-2009 11:40:26
6	node050.cvos.cluster	successful	1.10.18	27-Jan-2009 16:46:40
7	node13.beowulf.cluster	failed		20-Jan-2009 10:21:35
8	node64.beowulf.cluster	failed		29-Jan-2009 09:38:11
9	node68.beowulf.cluster	failed		22-Jan-2009 15:26:51
10	node70.beowulf.cluster	failed		20-Jan-2009 16:19:20
11	node73.beowulf.cluster	failed		26-Jan-2009 10:37:42

GFAL Version at node73.beowulf.cluster

no	date	status	result
1	26-Jan-2009 10:37:42	failed	
2	23-Jan-2009 09:59:48	failed	

GFAL Version - Test Detail

field	type	value
created	DateTimeField	2009-01-26 10:37:42.050483
executionStarttime	DateTimeField	2009-01-26 10:37:40.833073
executionEndtime	DateTimeField	2009-01-26 10:37:40.886095
testVersion	CharField	1.1
version	CharField	

Detailsdata

```
usage: lcg-cr [--config config_file] [-d dest_file | dest_host] [-g guid]
        [-h | --help] [-i | --insecure] [-l lfn] [-n nbstreams] [-P
relative_path]
        [--st spacetokendesc] [-t timeout] [-v | --verbose] [--vo vo]
src_file
lcg-cr didn't worked, try gfal_version
/tmp/https_3a_2f_2flb-
fzk.gridka.de_3a9000_2f4zHN3YpjKuBHuYlx7HN3Og/gcm/lib/gcm/tests/wn/grid_gfal:
  line 1: gfal_version: command not found
GFAL version could not be gathered.
```

GFAL Version - Test Detail

field	type	value
created	DateTimeField	2009-01-26 10:37:42.050483
executionStarttime	DateTimeField	2009-01-26 10:37:40.833073
executionEndtime	DateTimeField	2009-01-26 10:37:40.886095
testVersion	CharField	1.1
version	CharField	

Sourcecode

grid_gfal

```
1 #!/bin/bash
2 #
3 # Retrieves the version of GFAL.
4
5 version=`log-cr --version | grep GFAL | sed 's/GFAL-client-//'\`
6
7 if [ ! "$version" ] ; then
8     echo "log-cr didn't worked, try gfal_version" >&2
9     version=`gfal_version | sed 's/GFAL-client-//'\`
10 fi
11
12 if [ "$version" ] ; then
13     echo version:$version
14     echo summary:$version
15 else
16     echo "GFAL version could not be gathered." >&2
17 fi
```

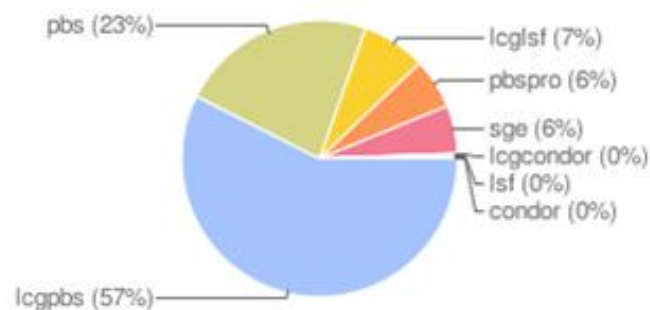
- Trigger the client by
 - Any Job using signed tar tests in VO's software dir
 - By Operators in case of problems
 - By VOs or Sites
 - Submitting the client in a Job like SAM
 - Setting up a Cron Job
- Setup the client to use different topics
 - `grid.config.workernode` (default)
 - `grid.config.workernode.vo.ATLAS`
 - `grid.config.workernode.site.GRIF`

- New monitoring tool for Worker Nodes
- Collects structural, job, system and version information
- Displays overviews, distributions, diagrams, ...
- Portal: <http://gridops.cern.ch/gcm/>

GFAL Version

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<input type="checkbox"/>	1.10.6	0.20%

JobManagerType



1. SAM Service Availability Monitoring
<https://lcg-sam.cern.ch:8443/sam/sam.py>
2. Apache ActiveMQ
<http://activemq.apache.org/>
3. Grid Monitoring Probe Specification
<https://twiki.cern.ch/twiki/bin/view/LCG/GridMonitoringProbeSpecification>
4. Django – A Python Web Framework
<http://www.djangoproject.com/>
5. Nagios - Enterprise-Class Open Source Monitoring
<http://www.nagios.org/>
6. Google Charts
<http://code.google.com/apis/chart/>