**FutureGrid Software Report**

Lead: Gregor von Laszewski

**SUMMARY (**[**FG-1423**](http://jira.futuregrid.org/browse/FG-1423) **- All)**

Inca and GLUE2 monitoring data are now being published into the FutureGrid messaging system, a new Inca CUDA test was deployed, and bug fixes and enhancements were made to the FutureGrid monitoring dashboard prototype. The IU GRNOC has completed orders for the 10G upgrade to the perfSONAR machines as well as cluster node at each site. A system administrator from IU has left the project and we are transitioning his tasks. IU finalized a paper describing our plans for a system to conduct cloud-shifting with the help of metrics. We worked with the FG admins to develop a plan to deploy PAPI-V for testing on any FG platforms. Mats Rynge reported that, during the software call last week, ISI presented on experiment management with workflows. The presentation included current state, and activities for the next 6 months. ISI has also spent time on going over Jira tasks, closing tasks not related to the current activities, and opening new ones for upcoming activities.

**ADMINISTRATION (**[**FG-907**](http://jira.futuregrid.org/browse/FG-907) **- IU Gregor von Laszewski)**

Sharif Isalm, one of our system administrators, has accepted a position with UIUC. Tasks assigned to him have been reassigned to the team members. A new job position has been posted at IU to replace him. Gregor von Laszewski, Koji Tanaka, Javier DIaz, and Fugang Wang did held extensive meetings to transition the tasks and to prioritize the work at IU in regards to systems work. We will be including the result of our agile meetings into jira within this week. Koji Tanaka has requested to use jira for the Hardware reports.

Updated: 139 issues includes closed and resolved tasks
Closed: 0 issues
Resolved: 17 issues
Created: 18 issues

**HPC SERVICES**

**HPC services at IU (**[**FG-1577**](http://jira.futuregrid.org/browse/FG-1577) **IU Koji Tanaka)**

We developed a cygwin standalone executable to simplify access to FG resources from Windows.

**Unicore (**[**FG-927**](http://jira.futuregrid.org/browse/FG-927)**) (Vanamala Venkataswamy UVA)**

*Please see site report from UVA.*

**Genesis (**[**FG-933**](http://jira.futuregrid.org/browse/FG-933)**) (Vanamala Venkataswamy UVA)**

*Please see site report from UVA.*

**EXPERIMENT MANAGEMENT**

**Experiment Management (**[**FG-518**](http://jira.futuregrid.org/browse/FG-518) **Warren Smith, Mats Rynge)**

Mats Rynge reported that, during the software call last week, ISI presented on experiment management with workflows. The presentation included current state, and activiities for the next 6 months. ISI has also spent time on going over Jira tasks, closing tasks not related to the current activities, and opening new ones for upcoming activities.

**Integration of Pegasus into Experiment Management (**[**FG-412**](http://jira.futuregrid.org/browse/FG-412) **- ISI Mats Rynge)**

Mats Rynge reported that, during the software call last week, ISI presented on experiment management with workflows. The presentation included current state, and activiities for the next 6 months. 2 new example experiments will be set up with Pegasus, and documentation will be updated.

**Experiment management with support of Experiment Harness (**[**FG-906**](http://jira.futuregrid.org/browse/FG-906) **- TACC Warren Smith)**

*Please see site report from TACC.*

**Image Management (**[**FG-899**](http://jira.futuregrid.org/browse/FG-899) **- Creation, Repository, Provisioning - IU Javier Diaz)**

We have created the documentation of FG Move. Moreover, we have planned to install FG Move on Sierra during the next week to immediately support Eucalyptus and HPC. We would also like to support Nimbus, so we have been looking into the commands that it would be needed.

We have created a new tool that allows regular users to change their own password for the OpenStack dashboard (https://github.com/javidiaz/passwdstack). This will be deployed in the production OpenStack placed on India. We have also created the documentation of this tool (http://javidiaz.github.com/passwdstack/index.html).

We have been looking into Cygwin as alternative of putty for the Windows users that want to access FutureGrid. This is specially aimed to ease the FutureGrid outreach. We have uploaded into the portal a Cygwin version that only need to be uncompress to work. This can be found in https://portal.futuregrid.org/sites/default/files/cygwin.zip. Therefore, the only difference between UNIX and Windows users will be that Windows users have to download this zip file, uncompress it, and execute cygwin.bat. After that, ALL users will follow the same procedure. We have created a manual in the portal https://portal.futuregrid.org/accessing-futuregrid-resources-ssh.

**ACCOUNTING**

**Accounting for Clouds (**[**FG-1301**](http://jira.futuregrid.org/browse/FG-1301) **- IU Hyungro Lee)**

A meeting took place between Shava Smallen, Warren Smith, Hyungro Lee, and Gregor von Laszewski to clarify the overlap and differences between the work conducted by Shava and Hyungro Lee. We pointed out that the work at IU is already ongoing for a year and that Hyungros framework is able to provide information based on log file and other analysis for Eucalyptus and OpenStack. The inclusion for Nimbus data is ongoing. As this framework can produce real time data also, it could be integrated into Shavas and Warrens information services effort developed as part of the experiment management. We decided that Hyungro's work is a valuable add on to the current Inca activities and that it can be used as part of the ongoing experiment management component development conducted by TACC.

A meeting with John Bresnahan took place in order to discuss the best way to integrate the Nimbus logging information into our Metrics framework that is already used by OpenStack and Eucalyptus. We discussed several methods and decided that the best way would be to provide direct access to the database. This access is the fastest and allows that not much load will be done on the Nimbus management node.

**Account Metrics (**[**FG-1377**](http://jira.futuregrid.org/browse/FG-1377) **- Gregor von Laszewski IU)**

We did held a meeting with XSEDE developers to discuss the integration of Project requests being conducted via XSEDE. We came up with a pathway to enable this while needing to set up AMIE Gold at IU, modification of the portal, modification of the AMIE software through UIUC staff, and the integration of the various accounting systems to AMIE that do not yet exists as we target clouds instead of HPC. We are evaluating the effort needed to complete the task.

**FG SUPPORT SOFTWARE AND FG CLOUD SERVICES**

**Nimbus (**[**FG-842**](http://jira.futuregrid.org/browse/FG-842) **- John Bresnahan)**

Over the past two week the Nimbus team improved the usage metric tools by fixing some bugs in the existing tools and creating a new system which will propagate custom created SQLite databases into the already existing FutureGrid metric system. We also began working with the "galaxy" community. This community has the potential to make great use of FutureGrid. We worked with them to use our existing tools (cloudinitd) and we are exploring ways they can make use of the Phantom service which is running on FutureGrid and which we continued to improve.

**Eucalyptus (**[**FG-1587**](http://jira.futuregrid.org/browse/FG-1587) **- IU Sharif Islam)**

Koji Tanaka has started with the deployment of a new version of Eucalyptus. The old version was based on a RedHat 5. The new version will be based on RedHat 6. The use of Redhat 6 was done several month ago, but was not yet executed due to other priorities. With the departure of Sharif Islam and to overcome a bug in Eucalyptus 3.1 (that does not allow us to properly integrate with LDAP this activity) this activity has become one of our most high priority items. In addition, the disk space to host images in Eucalyptus is insufficient on india. Indias nodes are unfortunately only 1U and can hold only 1 3.5 inch drive. The current configuration has a 7200rpm SATA II 500GB drive. However, the motherboard only supports SATA I. We decided to try a replacement of the 500GB drive with a 3TB drive and see if we can get two test servers to properly function with these commodity drives. If they do, we probably will replace more nodes on india with such drives. The drives have arrived and the test will be conducted this week.

**OpenStack (**[**FG-1203**](http://jira.futuregrid.org/browse/FG-1203) **IU – Koji Tanaka/Javier Diaz/Fugang Wang)**

Just as in Eucalyptus the disk space on the management node is to restrictive, we will be trying to create a new management node with a 3TB drive. We have so far held of using the OpenStack GUI due to the issue that it does not allow users to change their passwords. There are three solutions we investigated:

1. The integration of a patch into the GUI,
2. the creation of a service through the portal that resets the password once the portal password is changed
3. the creation of a command line client and server for changing the password to be installed on india.

We have currently done the later, as it was the fastest to execute. We will look into a portal integration of this tool once we have dealt with other more high priority items

**Inca (**[**FG-877**](http://jira.futuregrid.org/browse/FG-877) **- Shava Smallen, UCSD)**

We have deployed an enhancement to Inca to publish Inca monitoring data into the FutureGrid messaging system based on AMQP. Based on initial results, we have made some fixes to the format of the routing keys used to identify the type of message being published. We also wrote a simple hello world client example for our collaborators at SUNY Binghamton interested in using it for fault tolerance work.

Also a new Inca test was deployed to verify the CUDA enviroment on the Delta machine using test code developed by IU. The results can be found under ‘cuda-test’ at http://inca.futuregrid.org:8080/inca/HTML/rest/HPC\_Tests.

**ViNe: (**[**FG-140**](http://jira.futuregrid.org/browse/FG-140) **- UF Renato F. Mauricio T. Jose Fortes)**

The UF team continued to improve the ViNe2 management capabilities in order to support automatic overlay tuning. The goal is to dynamically adjust ViNe overlay routes as network conditions change – e.g., network congestion, network outages, changes in physical network connection of laptops where ViNe routers are deployed, etc. ViNe router monitoring capabilities are being developed in order to periodically collect connectivity conditions of ViNe routers and round-trip latencies among all active ViNe routers. In normal operation conditions, a ViNe router should be able to communicate with all active ViNe routers using the built-in firewall/NAT traversal mechanisms. Communication disruptions can occur, for example, if firewall or physical network configurations change. In such circumstances, ViNe overlay adjustments should be triggered to recover the full connectivity. Router-to-router round-trip latencies will be used to adjust ViNe overlay routes in order to improve the end-to-end performance.

**PERFORMANCE (UCSD Shava Smallen)**

**Vampir (**[**FG-955**](http://jira.futuregrid.org/browse/FG-955) **- Thomas Williams)**

Module usage data is currently being collected from Sierra and we will next document the deployment procedure so we can start collected data from other FutureGrid machines.

**PAPI (**[**FG-957**](http://jira.futuregrid.org/browse/FG-957) **- Piotr Luszczek (UTK))**

*See site report.*

**Performance: Interface monitoring data to the Experiment Harness (**[**FG-1098**](http://jira.futuregrid.org/browse/FG-1098) **- Shava Smallen SDSC)**

Inca and GLUE2 monitoring data (GLUE2 data available for Alamo) are currently being published to the FutureGrid messaging system based on AMQP. IU, TACC, and SDSC also had a scheduled telecon last week to discuss overlap of GLUE2 and the FutureGrid cloud metric work and came up with ways to leverage each other’s work.

**[FG-1097 - Performance: Provide better interfaces for viewing monitoring data in FutureGrid portal](https://jira.futuregrid.org/browse/FG-1097%22%20%5Ct%20%22_blank)**

We have been working with TACC on a portal dashboard that would allow users to create personal monitoring pages in the portal that allows them to mix and match monitoring data from each of the FutureGrid monitoring tools. So far Inca and Ganglia displays have been developed. In the last few weeks, some bug fixes and display improvements were deployed to the display of Ganglia data in the FutureGrid monitoring dashboard prototype currently at https://webdev.futuregrid.org/futuregrid-monitor-dashboard.

**[FG-1094 - Performance: Help coordinate setup of perfSONAR](https://jira.futuregrid.org/browse/FG-1094%22%20%5Ct%20%22_blank)**

The IU GRNOC has ordered hardware for the 10G upgrade to the perfSONAR machine and cluster node at each site and already all but one order has been received at IU. Once all the hardware has been received, the IU GRNOC will bundle and send out to each of the FutureGrid sites.

**Tickets**

**Tickets**

Lead: Koji Tanaka

**[FG-1626 - Activity: Biweekly report of the Ticket System](https://jira.futuregrid.org/browse/FG-1626%22%20%5Ct%20%22_blank)**

From 08/06 to 08/19

18 tickets created
34 tickets resolved

Currently:

63 tickets total
9 new tickets
52 open tickets
2 stalled tickets
10 unowned tickets