

GENI Meta-Operations Center Service Desk

Annual Status Report

Year ending September 30, 2013

Marianne Chitwood – Principal Investigator

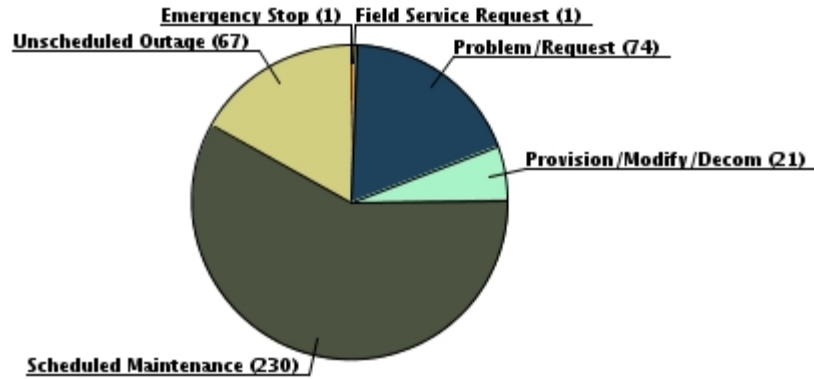
Summary

- *Operating within Budget*
- *Completed all remaining Service Desk Statement of Work milestones*
- *Continuing to work on current and consistently improving support for the GENI Community*
- *Implemented workflow for support of GENI Racks Outages/Maintenances*
- *Implemented stream-lined GENI Aggregate GMOC Turn-up Process*
- *Implemented GMOC Measurement API PII Policy and notified Operators*
- *Established a procedure for GENI LLR Requests - GENI LLR Procedure Workflow*
- *Implemented various GMOC-DB UI improvements for SD Support of Emergency Stop and LLR Requests*
- *Established and tested post-event review process for unexpected disruptive experiments and FlowVisor outages/crashes*
- *Continuing GENI Racks and Regionals turn-ups*



GlobalNOC Service Desk at CIB Indiana University - Bloomington, IN

Break-down of Tickets for Various Events on GENI Tracked by GMOC



Emergency Stop Requests	1
Field Service Requests	1
Problem/Requests – Various requests	74
Provision/Modify/Decom – GENI Aggregates turn-ups (Racks, Regionals, Campus Trials)	21
Scheduled Maintenances - FlowVisor, Mesoscale, Racks, Regionals, Tutorials, Disruptive Experiment Reservations, Maintenance Freezes	230
Unscheduled Outages – FlowVisor, Mesoscale, Racks, Regionals	67

I. Major Accomplishments

Milestones Achieved

- ***S4.g Complete revisions of processes and documentation and begin production operation of support desk. Plan to report on efforts and successes at subsequent GECs. (August, 2012)***

Continued training for the Service Desk 24/7 staff and Co-SST (Chris Pipes) of GMOC tools and current support – Emergency Stop, GENI Integrated Backbone Outages/Maintenances, I2/NLR/Indiana/MOXI FOAM workflow, GENI Tutorials, Disruptive Experiments Reservation and Maintenance Freeze workflows, GMOC Database training, GENI Racks Outage/Maintenance tracking, etc...

Service Desk has established a procedure document and workflow for handling GENI LLR Requests as well as several Gmoc-DB UI improvements for supporting LLR requests by being able to search and lookup IP/MAC addresses of GENI Resources. Service Desk continues to work with upcoming Regionals and GENI Racks to setup Emergency Stop contacts in the Gmoc database for GENI Aggregates and making sure they're sending data to Gmoc and other operational-ready tasks via a stream-lined [GENI Aggregate Gmoc Turn-up Process](#). Gmoc Service Desk worked with Gmoc Dev. project software engineers and the GPO to come up with and distribute to GENI Aggregate Operators a policy for Gmoc Measurement API PII. Finally



GlobalNOC Service Desk at ICTC IUPUI, Indianapolis, IN

Gmoc worked to establish, test and document post-event review process for unexpected disruptive experiments and FlowVisor outages and/or crashes. Gmoc has worked with both Internet2 and NLR to send FlowVisor crash data and bug reports to [ONL Gmoc Service Desk](#) has also attended GECs and updated the GENI community of current support as well as any new developments.

Deliverables Made

- GENI support processes and documentation updates and improvements
- Continued event tracking support of GENI Racks
- Continued database UI and functionality updates for Emergency Stop and LLR Requests
- Continued to provide turn-up for GENI Racks and other aggregates via the [GENI Aggregate Gmoc Turn-up Process](#).
- Implemented and documented post-event/outage review process for FlowVisor outages and disruptive experiments.



- Continued support and stream-lining processes for growing number of GENI Tutorials, maintenance freezes and other resource reservation requests.

II. Description of Work Performed During Last Year

Activities and Findings

The GMOC Service Desk continues to operate in full operational mode by providing following areas of support for the GENI Community:

- **GENI Emergency Stop:** Service Desk worked with GPO pre-GEC16 to perform Emergency Stop dry run tests with the GENI Racks teams (InstaGENI and ExoGENI).
- GMOC has continued with training for Service Desk staff to be better prepared on the 24x7 basis and further development of tools that may help in quicker response to Emergency Stop requests and other instabilities and outages in the GENI Infrastructure as well as provisions for LLR requests.
- **GENI Integrated OpenFlow Backbone network support:** GMOC Service Desk continues to streamline processes and procedures to provide 24/7 monitoring and MOC Service Desk support for operational issues on the GENI OpenFlow Backbone. GMOC worked with NLR towards better monitoring and visibility into the NLR OpenFlow Backbone via SNAPP Graphs for the NLR OpenFlow switches – <http://gmoc-db.grnoc.iu.edu/nlr-of/>.
- GENI Operations Mailing list and notifications: GMOC continues to provide notifications for the GENI community via the GENI Ops GENI-Ops@grnoc.iu.edu and Experimenters@geni.net mailing lists as requested. Monthly reminders continue to be sent to the Experimenters@geni.net mailing list to invite interested experimenters to the Ops list and update on any other GMOC developments and to point GENI users towards GMOC Operations Calendars and other tools GMOC provides for presenting the health of the GENI Infrastructure.
- **Disruptive Experiments and FlowVisor Outages Post-event Workflow:** GMOC Service Desk with GPO coordination began to provide a workflow to handle post-event review for potentially disruptive experiments and/or FlowVisor outages that may have negatively affected the GENI OpenFlow Mesoscale VLANs and other GENI resources that are being used by other experimenters across GENI. GMOC reviews all such events and works with GPO to track these



issues and provide possible resolution and/or reporting FlowVisor events/bugs to ONL. GMOC SST will work with GPO and others in the GENI community to review FlowVisor outages and instabilities as well as other unexpected disruptions via GMOC monitoring and measurement tools.

- **GENI Racks and Regionals Turn-up Workflow:** GMOC Service Desk and Engineering groups in coordination with GPO continue to connect GENI Racks and Regionals to the GENI OpenFlow Core by tracking turn-ups by following the [GENI Aggregate GMOC Turn-up Process](#), as well as engaging appropriate network and systems engineering groups to help troubleshoot any problems with connecting a GENI Regional to the Core backbone.

Project Participants

During this time, key participants in GMOC Service Desk included:

- Marianne Chitwood, PI
- Eldar Urumbaev, GENI SST
- Chris Pipes, GENI Co-SST
- Adam Williamson, GRNOC Service Desk Supervisor
- John Wilson, GRNOC Project Management Team Representative

Outreach Activities

GMOC web site: GENI GMOC web site is continuing to be updated to provide up-to-date information on GENI Service Desk support including ticketing system, documents, tools and operations calendars. Eldar Urumbaev presented about GMOC's current support and updates at GEC15, 16 and 17 during the GENI Rack Operations and Measurement sessions.

GMOC collaborated with Sarah Edwards from BBN to host a GENI Tutorial and Introduction to GENI presentation at IU/GRNOC in Bloomington, IN, in effort to provide GlobalNOC staff with a hands-on opportunity to get familiar with GENI and have a better high-level understanding of support that we provide to the GENI community.

Collaborations

GMOC Service Desk representatives have continued to join the bi-weekly Regionals call, GENI Rack Vendor calls as well as continuing representation on the Friday weekly calls with GPO:



Network-Core and Monitoring – providing GENI Ops agenda items and operational status report via a bi-weekly report as well as discuss any other operational items going forward. GMOC Service Desk has also worked closely with the GMOC Dev and GPO Software developers to implement improvements, identify bugs and fill-in gaps in GMOC-DB, measurement tools and other systems for continued support of the GENI Community as well as current Emergency Stop and LLR Request processes.

During GECs this year GMOC representatives focused on providing information on current support as well as discussing GMOC API PII policy, LLR Process, improved support for GENI Tutorials and experimenter support and other future challenges of de-centralized support model.

Planned Activities for Spiral 5 and 6

GMOC Service Desk will continue to provide full range of existing support as well as reach out into new areas of improved support including:

- Work on improving overall visibility and reporting in GENI.
 1. Transitioning GENI Core monitoring to GMOC.
 2. Other pro-active monitoring.
 3. LLR requests support by stream-lining process and performing dry-runs with GPO and GENI LLR representatives.
 4. GMOC-DB UI and schema improvements for looking up IPs/MACs, Project Owner data to be submitted to the GMOC-DB for supporting LLR requests by easily identifying GENI resources. Making sure all Campuses are sending IP data to GMOC and GMOC is able to lookup Project Owner data from Clearing House and Slice Authorities.
 5. Circuits and nodes representation in the GMOC-DB and SNAPP.
 6. Plan for targeted notifications.
- Continue to keep current the [GMOC website home page](#) and the [GENI Meta Ops page](#) on GENI Wiki to include current support features for experimenters and the GENI community as a whole.
- Plan another GENI Tutorial and training session at IU/GlobalNOC.