

University of Kentucky Quarterly GENI Report

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1 Major accomplishments

The following highlights our accomplishments during Q1 2009

1.1 Milestones achieved

During the past quarter we made significant progress on several milestones, completing milestones associated with Task 1 and making significant progress toward milestones associated with Task 2. In summary we:

- Completed the upgrade to our Edulab facility including installation and incorporation of new hardware into the Edulab system. We also upgraded the University's Internet 2 network connection.
- Installed the latest copy of the Utah ProtoGENI code (i.e., the aggregate manager) on our Edulab.
- Integrated our Edulab with the ProtoGENI clearinghouse and demonstrated limited operations through the clearinghouse.

1.2 Deliverables made

None yet.

2 Description of work performed during last quarter

The following provides a more detailed description of our work and results from the last quarter.

2.1 Activities and findings

The focus of our activities this past quarter have been on completing the Edulab facility upgrade and then converting the software from the existing Emulab code to the new ProtoGENI code (i.e., aggregate manager code). On Utah's recommendation we also decided not to create a standalone aggregate, but rather to integrate with the ProtoGENI clearinghouse from the start.

During this quarter we completed the installation of the new equipment needed to expand and upgrade our Edulab facility. In particular, we installed 24 new PCs that can be allocated to experiments. We installed extra network interfaces in each PC so that each PC now has one interface on the control network and an additional 4 interfaces on the experimental network. We installed 5 existing and newly purchased switches to provide the ports that we needed for the control and experimental networks. We ran all the Ethernet wiring needed to connect the PCs to the switches, and we installed two power controllers to enable remote power cycling of the machines. We also upgraded



Figure 1: The newly added Kentucky Edulab resources.

the University's pathway to Internet 2 to be a 10 Gbps connection. Figure 1 shows the new equipment added to the Edulab facility.

Given the newly upgraded facility, we began the process of upgrading our software to run the ProtoGENI aggregate manager code. The process has been an iterative process, installing and trying the code, finding problems, working with Utah to address the issues, and then retesting the code. Although there were various problems that arose, Utah was very helpful and we were able to fix problems quickly and get the code working in a relatively short amount of time. Given the rapid rate at which Utah is enhancing the code, we have also upgraded the software multiple times already in just the last quarter.

We originally planned to create an independent ProtoGENI aggregate and then connect to the ProtoGENI clearinghouse at a later date. However, after discussing this with the Utah group, we decided against this approach and instead connected to the ProtoGENI clearinghouse from the start. The Kentucky ProtoGENI aggregate is now registered with, and connected to, the ProtoGENI clearinghouse. Kentucky certificates and resources are known to the ProtoGENI clearinghouse and can be verified/looked-up by clients. We are operating a local slice authority and component manager that are known to the clearinghouse and can be contacted to obtain details of the current resources that have been allocated. Because our system is integrated with the Utah clearinghouse, slices can be allocated across Utah and Kentucky resources, which was demonstrated at the GEC4 meeting.

2.2 Project participants

The following individuals have helped with the project in one way or another during the last quarter:

- Jim Griffioen - Project PI
- Zongming Fei - Project Co-PI
- Hussamuddin Nasir - The project's primary technician and programmer
- Lowell Pike - Network administrator
- Woody Marvel - Assists in Emulab administration

2.3 Publications

None yet.

2.4 Outreach activities

None yet.

2.5 Collaborations

Most of our collaborations continue to be with the Utah ProtoGENI team, and we continue to be actively involved in the bi-weekly meetings of the ProtoGENI cluster. We have also had discussions with colleagues at Internet 2, the University of Delaware, AT&T, and the GMOC about ways to collect, store, archive, and display measurement information using common formats and standards such as those used by perfSONAR.

2.6 Other Contributions

None yet.