

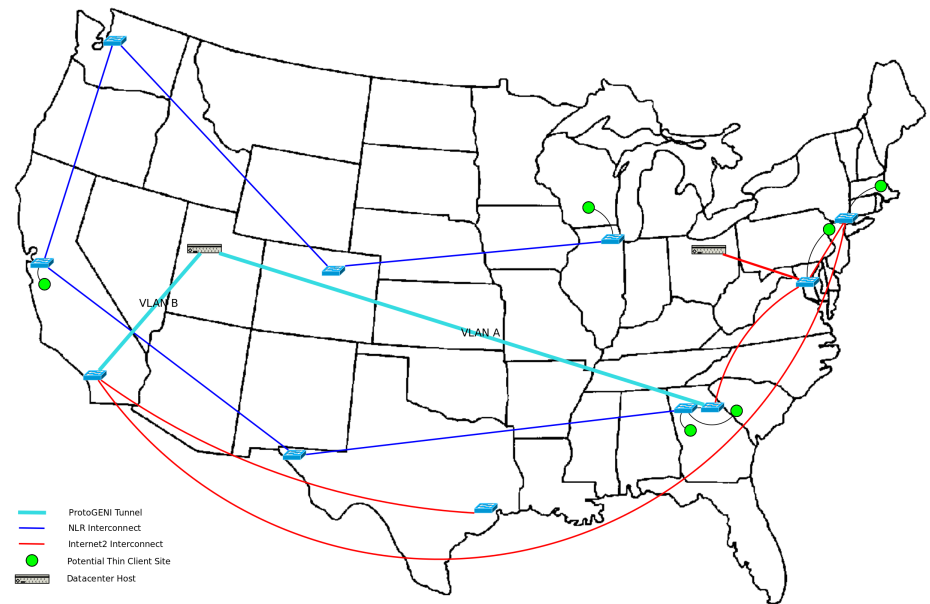
GENI

Experimentation Update

GENI Engineering Conference 14 Boston, Massachusetts

Mark Berman
July 10, 2012
www.geni.net

- **GENI is gaining traction with experimenters.**
 - More experimenters are signing up for credentials.
 - More experimenters are actively using GENI.
- **Experienced experimenters are pushing up against some limits. They want access to more GENI resources.**
 - More deeply programmable sites
 - More compute resources
 - Long-lived slices

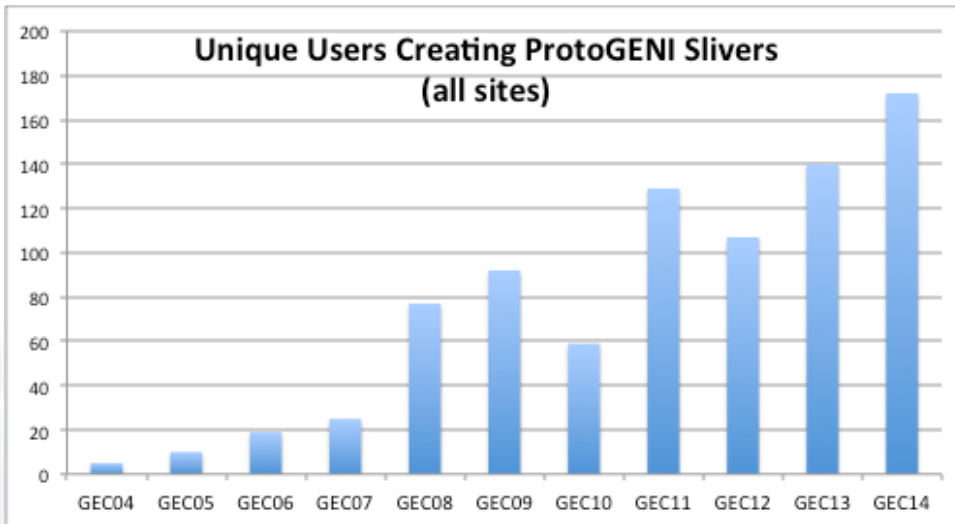


Planned GENI expansion significantly enhances experiment opportunities.

- **New experimenters want training and ease-of-use improvements**
 - Simplified setup
 - Top concerns we are hearing include: key management, tool configuration
 - Better documentation
 - More online training material
 - Example experiments and configurations
- **Prototype clearinghouse / portal addresses some of these issues**
 - Come back this afternoon for a preview
- **Is the classroom GENI's next frontier?**
 - NSF-sponsored workshop this past Sunday on distributed systems curriculum development

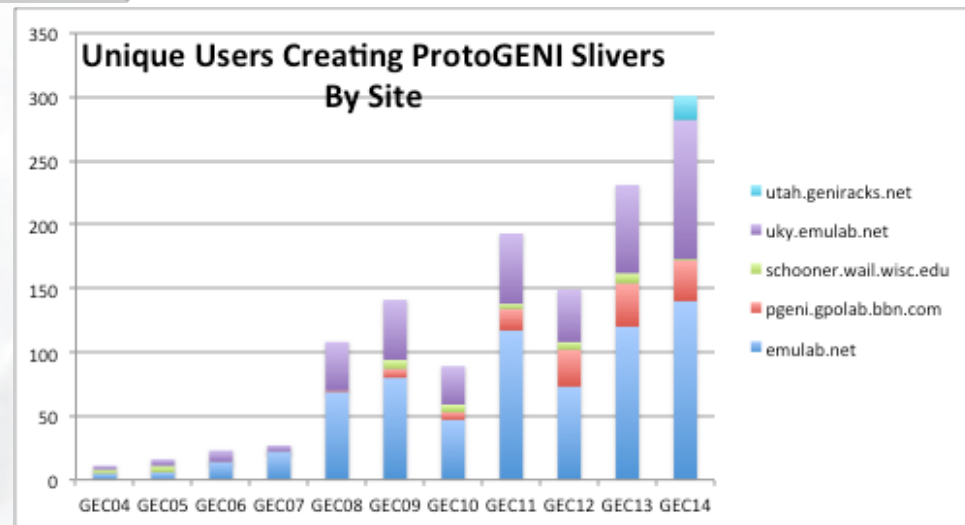
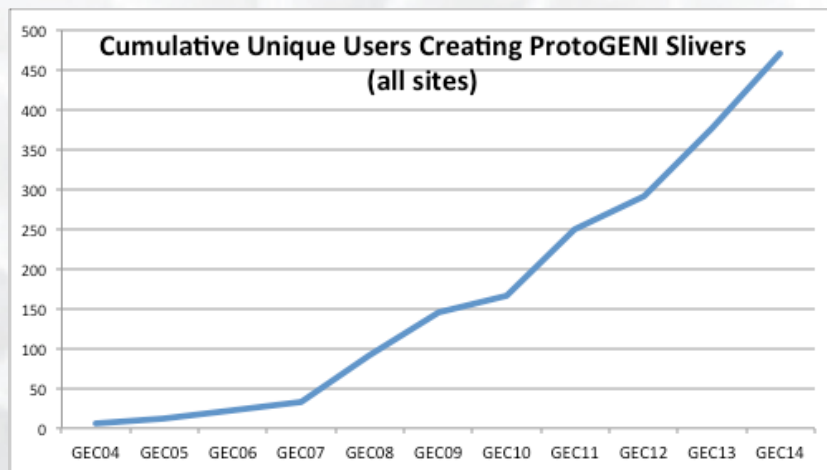
The GENI target audience includes newcomer experimenters.

Usage Statistics – ProtoGENI Sites (1 of 2)

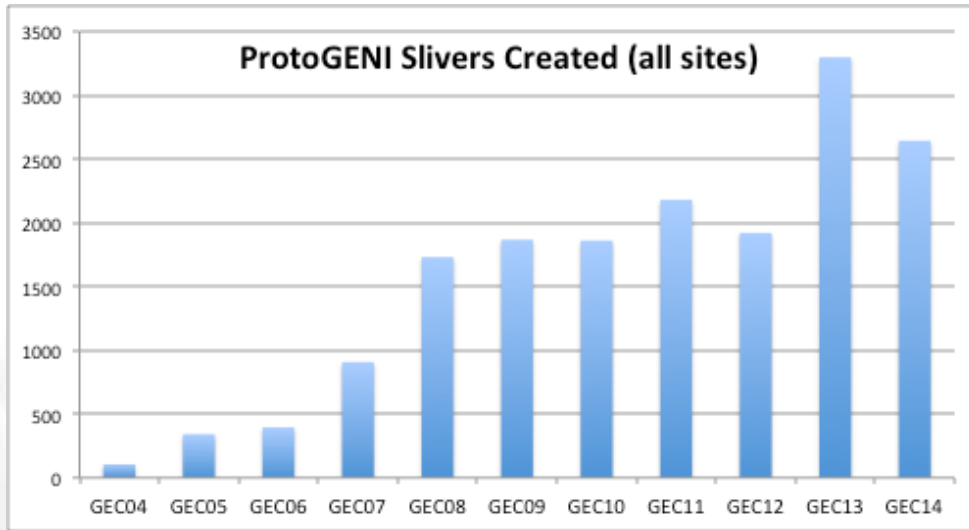


Notes

- ProtoGENI sites only (currently working on data from other GENI aggregates)
- Excludes test users and sites, includes tutorials
- Data as of 5 July 2012 (GEC14 period incomplete)

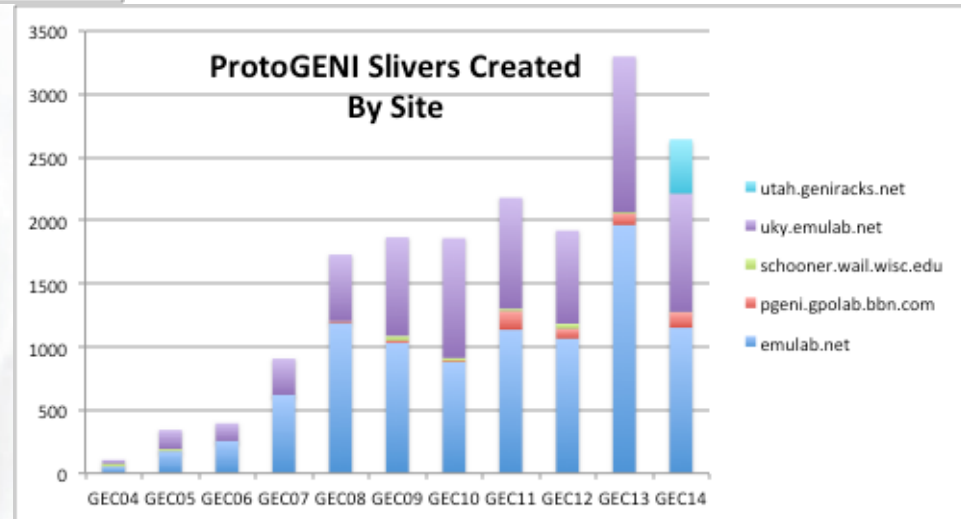
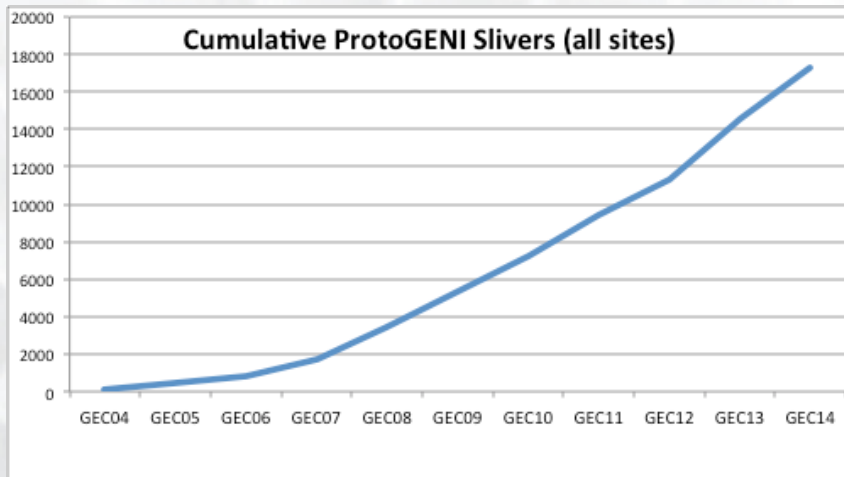


Usage Statistics – ProtoGENI Sites (2 of 2)



Notes

- ProtoGENI sites only (currently working on data from other GENI aggregates)
- Excludes test users and sites, includes tutorials
- Data as of 5 July 2012 (GEC14 period incomplete)



1st GENI research and educational experiment workshop (GREE2012)

- At GEC13 (Los Angeles), March 15-16

GREE-SC2012 at RIT in May/June

- 4.5 days of tutorials, advice, one-on-one support, and project coding
- Eighteen attendees plus camp staff
 - Ten grants from ~30 applicants, plus eight self-funded
- Participants continue projects with an eye towards submission to GREE2013.



Next camp: June 2013 at UConn, Storrs, CT.

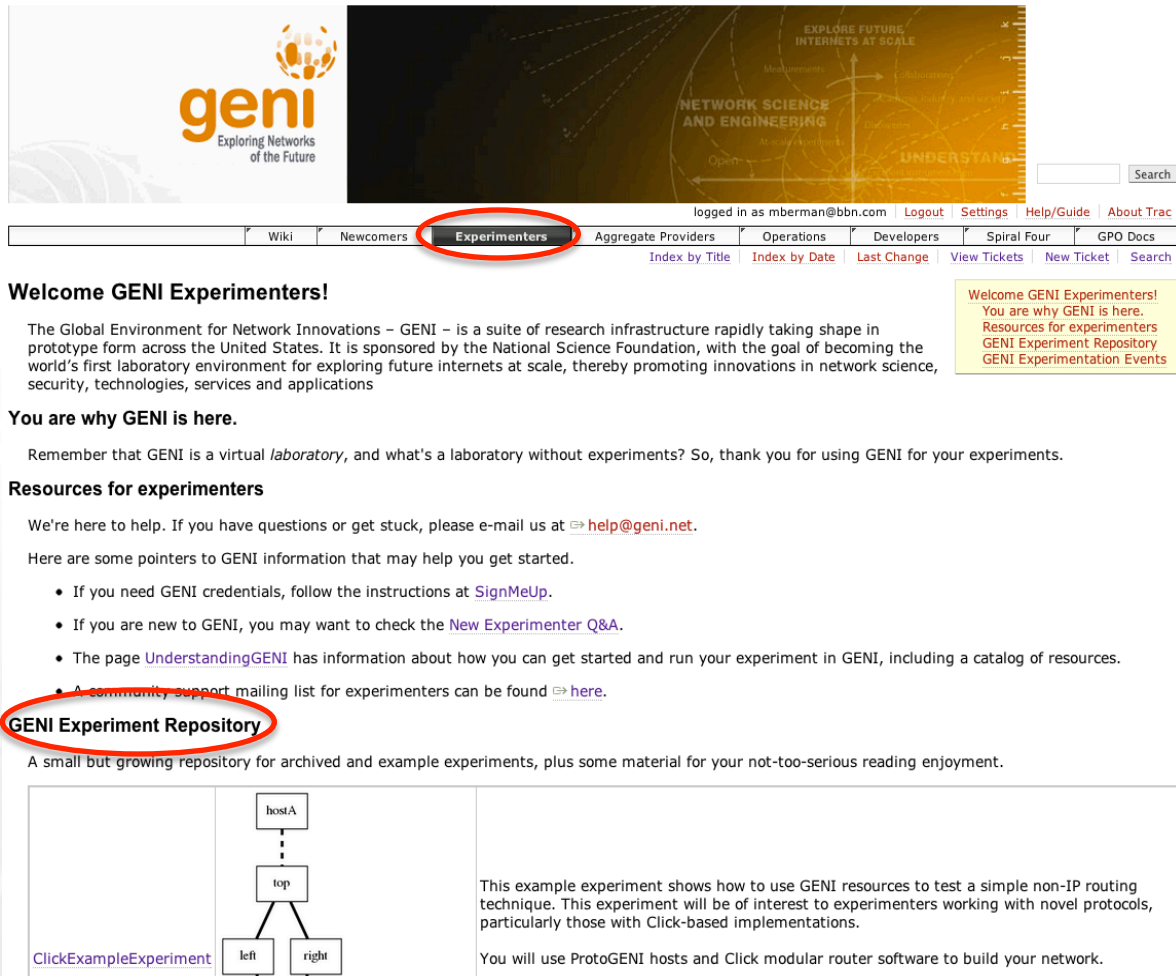
For info: Kaiqi Xiong <kxxics@rit.edu> or help@geni.net

Sample experiments available from the experimenter page on the GENI wiki

- Increase familiarity with GENI capabilities
- Good starting place after taking tutorials

Next steps

- GPO is seeking more sample experiments
- Modify / package for classroom use



logged in as mberman@bbn.com | Logout | Settings | Help/Guide | About Trac

Wiki | Newcomers | **Experimenters** | Aggregate Providers | Operations | Developers | Spiral Four | GPO Docs

Index by Title | Index by Date | Last Change | View Tickets | New Ticket | Search

Welcome GENI Experimenters!

The Global Environment for Network Innovations – GENI – is a suite of research infrastructure rapidly taking shape in prototype form across the United States. It is sponsored by the National Science Foundation, with the goal of becoming the world's first laboratory environment for exploring future internets at scale, thereby promoting innovations in network science, security, technologies, services and applications

You are why GENI is here.

Remember that GENI is a virtual *laboratory*, and what's a laboratory without experiments? So, thank you for using GENI for your experiments.

Resources for experimenters

We're here to help. If you have questions or get stuck, please e-mail us at help@geni.net.

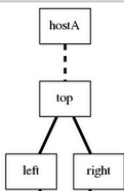
Here are some pointers to GENI information that may help you get started.

- If you need GENI credentials, follow the instructions at [SignMeUp](#).
- If you are new to GENI, you may want to check the [New Experimenter Q&A](#).
- The page [Understanding GENI](#) has information about how you can get started and run your experiment in GENI, including a catalog of resources.
- A [community support mailing list](#) for experimenters can be found [here](#).

GENI Experiment Repository

A small but growing repository for archived and example experiments, plus some material for your not-too-serious reading enjoyment.

[ClickExampleExperiment](#)



```

graph TD
    hostA[hostA] -.- top[top]
    top --- left[left]
    top --- right[right]
    
```

This example experiment shows how to use GENI resources to test a simple non-IP routing technique. This experiment will be of interest to experimenters working with novel protocols, particularly those with Click-based implementations.

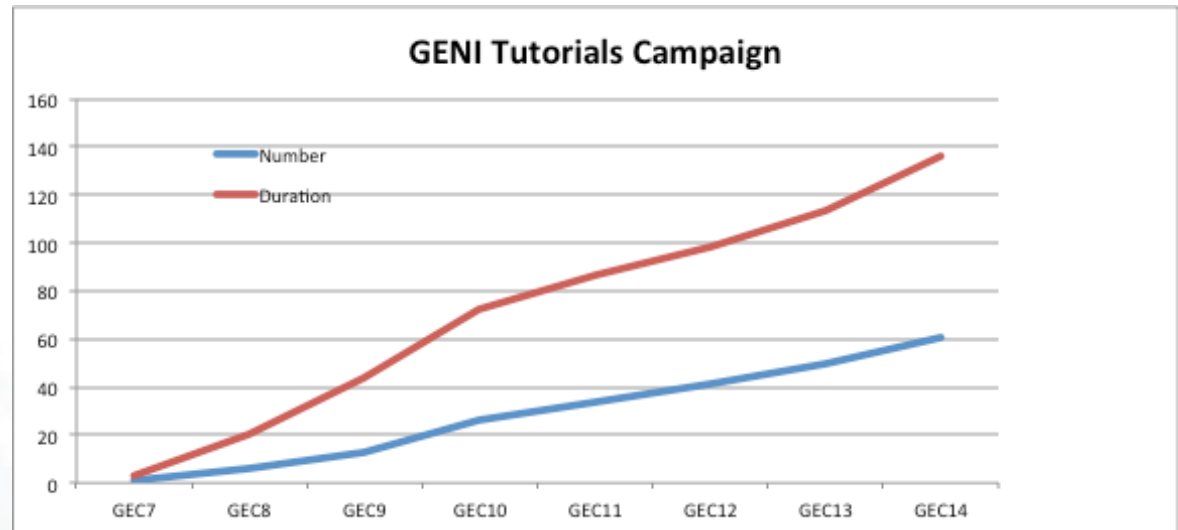
You will use ProtoGENI hosts and Click modular router software to build your network.

New Experimenters: Try these sample experiments

Experienced Experimenters: Make your experiment available to others

Tutorials at GECs have
been a great success.

It's time to branch out.



New approaches to GENI tutorials

- Present tutorials at non-GENI venues
 - TridentCom and SIGMETRICS tutorials offered in June 2012
- Make existing tutorials available online as “self-service”
 - E.g., Flack / INSTOOLS tutorial described in SIGCOMM CCR, Jan 2012, “Getting Started with GENI: A User Tutorial.”

Tutorial teams: make your tutorial available for self-service.

GENI expansion – GENI racks, more campuses

- Major impact on multi-campus resource availability

More help getting started

- Simplified key management and configuration
 - Initial improvements already available with new tools in recent omni releases: omni-configure and ready-to-login scripts.
 - More improvements coming with integrated clearinghouse and portal: attend session this afternoon to learn more
- Expanded on-line tutorials and examples
- Evaluating a downloadable, offline “GENI in a bottle” implementation as a first step in starting a GENI deployment

Continuing support for ongoing experiments

- GENI summer camps and workshops
- Operations support, helpdesk

Attend Experimenter Roundtable tomorrow to have your say.

Learn how to use GENI

- Attend tutorials
- Visit the wiki:
 - <http://groups.geni.net/geni/wiki/GeniExperimenterWelcome>

Get an account

- Instructions on wiki

Start experimenting

- Try a sample experiment
- Help is available
 - help@geni.net



Welcome GENI Experimenters!

The Global Environment for Network Innovations – GENI – is a suite of research infrastructure rapidly taking shape in prototype form across the United States. It is sponsored by the National Science Foundation, with the goal of becoming the world's first laboratory environment for exploring future internets at scale, thereby promoting innovations in network science, security, technologies, services and applications

You are why GENI is here.

Remember that GENI is a virtual *laboratory*, and what's a laboratory without experiments? So, thank you for using GENI for your experiments.

Resources for experimenters

We're here to help. If you have questions or get stuck, please e-mail us at help@geni.net.

Here are some pointers to GENI information that may help you get started.

- If you need GENI credentials, follow the instructions at [SignMeUp](#).
- If you are new to GENI, you may want to check the [New Experimenter Q&A](#).
- The page [Understanding GENI](#) has information about how you can get started and run your experiment in GENI, including a catalog of resources.
- A community support mailing list for experimenters can be found [here](#).

Welcome GENI Experimenters!
You are why GENI is here.
Resources for experimenters
GENI Experiment Repository
GENI Experimentation Events