





# Mid-Atlantic Crossroads

Advanced Regional Internetworking for  
Higher Education and Research

Office: 8400 Baltimore Avenue  
Suite 102  
College Park, Maryland 20740  
301.405.6666

October 31, 2007

rollton Landover, 8330 Corporate Drive, Landover, MD, 20785, (301) 577-3373. The hotel is located just off Route 50 by the juncture with Route 495. A hot buffet lunch will be served and a link to an agenda will be sent out shortly.

## IPv6 Deployment Progress Report

Mike Leber has put together an IPv6 Deployment Progress Report whose statistics are updated daily. <http://bgp.he.net/ipv6-progress-report.cgi>

He also has provided a link to a paper entitled "Going Native" that documents the experience of one network provider's transition to native IPv6 peering. <http://bgp.he.net/going-native.pdf>

On a more whimsical note, the following link shows a map of the IPv4 space: <http://www.xkcd.com/195/> based upon: <http://www.isi.edu/ant/address/index.html>.

## Quilt Actions

As has been in the planning for the past year, the Quilt, a coalition of advanced regional network organizations, recommended to transition the operations of the organization to The Quilt, Inc., a separate business entity. The Quilt has been engaged with the membership in a process to evaluate it's mission, programs, and ongoing activities to support the regional networking organizations within the research and education community. A major portion of this process has been the re-evaluation of current organizational status to determine which structure would best allow for achieving it's goals and provide the best possible framework for meeting the needs of the membership. This action was voted upon and approved by the membership at a recent Fall Member Meeting in Austin, Texas. <http://www.thequilt.net/>

## GENI Engineering Conference

The Global Environment for Network Innovation (GENI) is an experimental facility intended to support research in a wide variety of areas including communications, networking, distributed systems, cyber-security, networked services and networked applications. The goal of GENI is to enable researchers to experiment with radical network designs in a way that is far more realistic than any alternative available today. Jerry Sobieski and Peter O'Neil attended the first engineering forum October 9-11 at the University of Minnesota.

MAX is considering possible responses and partners to an initial solicitation expected to appear this December. The first link below is to the working groups currently in effect and the second to the conference agenda and meeting slide materials. <http://www.geni.net/wg/wg.html>  
<http://www.geni.net/geni-engineering-conference/geni-engineering-conference.html>

## Swarms

An active area of research on nonlinear, dynamical, and adaptive systems focuses on swarms, or large numbers of individual agent based behaviors and the modeling tools to study such interactions. [http://swarm.org/wiki/Main\\_Page](http://swarm.org/wiki/Main_Page)

The following Wired article highlights the application of this work on "crowds" by Intel to find promising new software development efforts and the book publisher Simon & Schuster to use collective judgments to evaluate book proposals. [http://www.wired.com/techbiz/startups/news/2007/10/intel\\_coolsw](http://www.wired.com/techbiz/startups/news/2007/10/intel_coolsw)



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## DNSSEC Workshop

NIST, in collaboration with Sparta, DHS and the <http://www.dnssec-deployment.org/> initiative, hosted a hands-on, policy-to-practice, workshop for USG DNS operators October 24 and 25, 2007 at NIST. The workshop aimed to help USG network operators understand, pilot and deploy DNSSEC technologies in accordance with recent NIST technical guidance and FISMA policies.

<http://csrc.nist.gov/groups/SMA/fisma/index.html>  
<http://csrc.nist.gov/publications/drafts/800-53A/SP-800-53A-tpd-final-sz.pdf>

## EDUCAUSE New CEO

The EDUCAUSE Board of Directors has announced that Diana G. Oblinger, vice president of EDUCAUSE, will become president and CEO of the association effective January 1, 2008. Oblinger succeeds Brian L. Hawkins, who has led EDUCAUSE since it was formed in 1998.

In making the announcement, John E. Bucher, chair of the board and chief technology officer at Oberlin College, said, "Diana Oblinger brings an impressive breadth and depth of experience to this critical leadership position—as an innovative leader and dedicated professional at several institutions; as a long-time active contributor to key higher education organizations, including EDUCAUSE; and as a forceful voice for change and advancement in the profession. Diana will bring vision and energy to moving EDUCAUSE into its second decade of realizing the mission of ‘advancing higher education by promoting the intelligent use of information technology.’"

Oblinger has served as an EDUCAUSE vice president since 2004 and leads the EDUCAUSE Learning Initiative. Prior to joining EDUCAUSE, she held positions in academia and business. She served as vice president for information resources and chief information officer for the 16-campus University of North Carolina system, and was a faculty member at Michigan State University and a faculty member and academic administrator at the University of Missouri-Columbia. Oblinger is currently an adjunct professor of adult and higher education at North Carolina State University. Her corporate experience has included senior positions at IBM and Microsoft. Internationally known for her expertise in information technology and higher education, she has authored or edited numerous books and articles and is a popular keynote speaker. Oblinger holds BS, MS, and PhD degrees from Iowa State University. <http://www.educause.edu/>

## GAO Report

### *INTERNET INFRASTRUCTURE*

*Challenges in Developing a Public/Private Recovery Plan* was recently released. The report found that a major disruption to the Internet could be caused by a physical incident (such as a natural disaster or an attack that affects key facilities), a cyber incident (such as a software malfunction or a malicious virus), or a combination of both physical and cyber incidents. Recent physical and cyber incidents, such as Hurricane Katrina, have caused localized or regional disruptions but have not caused a catastrophic Internet failure.



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Federal laws and regulations that address critical infrastructure protection, disaster recovery, and the telecommunications infrastructure provide broad guidance that applies to the Internet, but it is not clear how useful these authorities would be in helping to recover from a major Internet disruption. Specifically, key legislation on critical infrastructure protection does not address roles and responsibilities in the event of an Internet disruption. Other laws and regulations governing disaster response and emergency communications have never been used for Internet recovery.

<http://www.gao.gov/new.items/d08212t.pdf>

## ARIN

ARIN released a modified version of the Legacy Registration Services Agreement incorporating suggestions from the community. This announcement has generated lots of discussion amongst the GigaPoP and university community.

The Legacy RSA is offered to those organizations and individuals in the ARIN service region who hold legacy Internet number resources not covered by any other Registration Services Agreement with ARIN. A legacy number resource is an IPv4 address or Autonomous System number that was issued by an Internet Registry (InterNIC or its predecessors) prior to ARIN's inception on Dec. 22, 1997.

Legacy holders who sign the Legacy RSA are guaranteed the same registration services afforded to organizations that sign the standard Registration Services Agreement (RSA). There is a \$100 annual main-

tenance fee associated with the Legacy RSA, which may be waived if an organization voluntarily returns unused address space to ARIN.

ARIN will not reclaim un-utilized address space from legacy holders who sign this RSA. If a legacy holder chooses not to sign the Legacy RSA, ARIN has no plans to "take away" their legacy resources. This Legacy RSA also contractually promises that ARIN Internet number resource policies adopted after the contract is signed will not lessen the Legacy RSA address holder's contract rights.

To view the Legacy RSA, complete the Legacy application or view the FAQ, please see

<http://www.arin.net/registration/legacy/> The agreement can be found at

[http://www.arin.net/registration/agreements/legacy\\_rsa.pdf](http://www.arin.net/registration/agreements/legacy_rsa.pdf)

## Network Path & Application Diagnosis

The NPAD project is the implementation of a proposal written by Matt Mathis and Peter O'Neil, with help from Raghurama Reddy, Janet Brown and Wendy Huntoon. The proposal was submitted by PSC and NCAR to the NSF's Strategic Technologies for the Internet program in mid-2003. Funding for this project was provided by the National Science Foundation (NSF) under Grant Number ANI-0334061.

The primary goal of the Network Path and Applications Diagnostics (NPAD) project was to develop network diagnostic techniques that address the effects of path delay inherent in transmitting data



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across wide area networks. This effort investigates an unexplored area of the Internet end-to-end performance problem. The prototype diagnostic tool (pathdiag) has been refined and successfully deployed at multiple GigaPoPs and lab sites across the United States. It has also been installed in a dozen Points-of-Presence across National Lambda Rail and the TeraGrid. Locally, NPAD tests can be run from the NLRview server at McLean, VA.

<http://test.wash.nlrview.nlr.net:8000/>

NPAD grew out of a body of work including the NSF funded Web100 project <http://www.web100.org/> and DOE funded Net100 project <http://www.csm.ornl.gov/~dunigan/net100/>. In addition, NPAD has had tangible effects influencing vendors such as Apple, Microsoft, IBM, and Linux to recognize and integrate auto tuning into their operating system designs. The recognition provided by these projects has been more pronounced than originally anticipated, which is encouraging, and bodes well for future adoption of these tools. The software is freely available at:

<http://www.psc.edu/networking/projects/pathdiag/siteadmin.php>

Additional information can be found at:

<http://www.ucar.edu/npad/>

## Some Telco's Get It

Our colleague to the North, Bill St. Arnaud from CANAIRE, wrote a thought provoking article at: [http://www.internetevolution.com/author.asp?section\\_id=506&doc\\_id=136710](http://www.internetevolution.com/author.asp?section_id=506&doc_id=136710)

Although many telcos are treated as the popular whipping boys for all that's wrong with today's telecom environment, there's a small number that are starting to understand the dynamics of the new marketplace.

A good example is Netherlands-based [KPN Telecom NV](#) (NYSE: KPN), which recently announced that it's joining forces with Reggefiber to speed up the rollout of FTTH (fiber to the home) in Almere, the fifth largest city in the Netherlands. Reggefiber already owns some networks in smaller towns and in parts of cities, including the project in Amsterdam.

Reggefiber builds open Internet networks. In open Internet networks, no carrier, service provider, or content provider has a monopoly on delivering services and applications. For traditional carriers, this is a significant change of mindset. They are used to being in a position to decide who uses their network (and at what cost). Of course, owning the infrastructure that other entities rely on to deliver services is the Holy Grail of those who believe in network neutrality, which is anathema to most telcos.

KPN, like many other telcos, is losing many customers to the local cable companies. Cablecos can offer full triple-play services -- high-speed Internet access, television, and telephone -- quite easily, whereas most telcos can only deliver Internet and telephony. Telcos are positioning themselves to take advantage of IPTV, but it's still an open question whether this technology will succeed over DSL networks. The rollout in Almere is likely to spur more cooperation between Reggefiber and KPN in other parts of The Netherlands.



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Swedish telco Telia came to the same conclusion that municipal open access networks may not be such a bad thing. Telia used to be a vociferous opponent of municipal open networks. But over time, many municipal networks are discovering that they don't have the necessary skills and financing to manage an open network. Many municipal networks in Sweden have issued calls for proposals from third parties to operate their open access networks. Guess who won most of these deals?

As part of the winning contract, the municipalities require Telia to operate these networks on an open access basis, much like Reggefiber in the Netherlands. But this turns out to be no more onerous than operating a regulated network in the good old days of being a monopoly. Telia is recognizing that municipal open access Internet networks are a really good thing -- someone else pays for the deployment of the fiber infrastructure and Telia ends up managing and operating the network.

What's even more surprising is that some telcos are also starting to realize that peer-to-peer (P2P) networks, and other nefarious applications, are actually good services that should be encouraged by their customers rather than penalized. Currently, most telcos treat P2P users as costly parasites on their networks, because only a small number of users consume most of the bandwidth. Their knee-jerk response has been to block such traffic with Layer 7 filters from companies like Sandvine Inc. (London: SAND) or, in extreme cases, to disconnect these power users entirely.

More advanced telcos are starting to deploy technologies from a number of P2P companies, such as BitTorrent Inc. and Joost, which enhance P2P traffic

experience for their customers rather than try to block it. By distributing super node servers throughout the network, Telcos can reduce unbalanced P2P traffic loads and provide a much better P2P experience for their customers. Increasingly, when P2P companies obtain licensing arrangements with the music and film industry, the threat of legal action and charges of abetting and aiding piracy become less of a concern.

As more telcos understand that their own survivability is at stake, the smarter ones will realize that new business models and relationships are critical to their success. The 20th century model of unregulated capitalist monopoly is not in their self interest. Although many telcos worldwide embrace the idea of unfettered regulation, the opposite is probably critical to their survival.

There may come a time when smart telcos will start behaving like sports teams that blackmail municipalities into building expensive sports stadiums. Rather than building an expensive stadium, telcos will convince the city to build an open-access Internet network that they will operate and manage. This is the only way the telcos will be able to compete effectively with the more nimble cablecos. — Bill St. Arnaud, Senior Director of Advanced Networks, Canarie Inc.

## Ig Nobel Awards

This month marked the annual Ig Nobel Prizes honoring those "achievements that first make people laugh, and then make them think. The prizes are intended to celebrate the unusual, honor the imaginative - and spur people's interest in science, medicine, and technology." <http://www.improbable.com/ig/>



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## Member Spotlight

### USC ISI - East

The Grid, co-developed at ISI and Argonne National Laboratories, has played a key role in IPCC climate change research, recognized October 11 by a Nobel Peace Prize shared with former Vice President Al Gore.

ISI grid researcher Ann Chervenak sent out this message October 12, the day after the announcement, making the connection between grid middleware developed by the [Globus Project](#) started by grid pioneers Carl Kesselman (of ISI) and Ian Foster (Argonne) and the prize: "As you have probably heard, the Nobel Peace Prize was awarded to Al Gore and the Intergovernmental Panel on Climate Change (IPCC), an international panel of thousands of scientists who share and compare their climate science results and come to consensus on how the earth's climate is changing and what needs to be done about it.

"You may not know that your efforts support the work of the IPCC through the Earth System Grid project. <http://www.earthsystemgrid.org/>

IPCC scientists in 13 countries publish and share their climate simulation models and results through the ESG portal at Lawrence Livermore National Lab. The latest stats on this portal:

**Holds 35 TB of data in 77,400 files**

**1,245 registered analysis projects**

**Downloads to date: 245 TB in 914,400 files**

**Download rate: 500 GB/day on average**

"Globus tools and services used by ESG include GridFTP, RLS, MDS4 Index and Trigger Services, and GSI. (ESG integrates other tools as well, including SRM and OpenDAP.)

"Our middleware helps to make this important climate science possible."

The University of Southern California's Information Sciences Institute (ISI) is a major contributor to the nation's information technology knowledge base, and is actively engaged in a broad spectrum of information processing research, as well as the development of advanced computer and communication technologies. <http://www.east.isi.edu/index.php>



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## MAX Participants

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- ATDnet - NRL, LTS, DISA
- D.C. Government
- Energy Sciences Network (ESNet)
- Laboratory for Telecommunications Sciences
- Library of Congress
- NASA / GSFC
- National Archives and Records Administration (NARA)
- National Institutes of Health (NIH)
- National Institute of Standards and Technology
- National Library of Medicine (NLM)
- National Oceanic and Atmospheric Administration (NOAA)
- National Science Foundation (NSF)
- USDA, Beltsville Agricultural Research Center
- U.S. Department of Health and Human Services
- U.S. Department of State (through GWU)
- U.S. Geological Survey
- U.S. Holocaust Memorial Museum

### Higher Education:

- Baltimore Education & Research Network
- Catholic University
- GEANT
- Georgetown University
- George Mason University
- George Washington University
- Johns Hopkins University

- Johns Hopkins University - Applied Physics Laboratory (JHU-APL)
- Montgomery College
- National Consortium for Supercomputing Applications / ACCESS
- Network Virginia
- Smithsonian Institution
- Southern Universities Research Association (SURA)
- University of California, D.C. campus
- University Consortium for Advanced Internet Development (UCAID / Internet2)
- University of Maryland, College Park
- University of Maryland, Baltimore
- University of Maryland, Baltimore Co.
- Univ. System of Maryland Network
- University of Southern California, Information Sciences Institute / East
- Washington Research Library Consortium

### Corporate and Non-profit:

- Columbia Telecommunications Corporation (CTC)
- Howard Hughes Med. Institute
- Fujitsu Labs of America
- Inter-American Development Bank (IADB)
- Northrop Grumman Corporation
- The Institute for Genomic Research
- Windber Professional Services, Inc.
- World Bank
- The Venter Institute