



## LEADING THE WAY TO TOMORROW'S INTERNET


 
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#### CENIC News

##### President's Message

As we come to the close of our sixth year of operation, we can only pause for a second to reflect on the progress we have made with the successful implementation of CalREN-2 and the Digital California Project (DCP).

We now face the challenges of a new era.

As a result of two years of planning and nearly a year of implementation, the new multi-tiered CalREN backbone will become operational by the end of this summer. We will have a fully operational fiber-based backbone serving the entire education and research community throughout California.

As we head into the new year, most of our attention will be focused on making sure the new CalREN is providing the highest quality services our California researchers, students, faculty and staff. However, some of our attention will focus on CENIC's participation in the implementation of the National LambdaRail (NLR), a fiber optic-based infrastructure with a national footprint to initially serve the high-end research community and perhaps ultimately all education.

At the same time, CENIC will act as the convener and catalyst for the "Gigabit or Bust" initiative in California. See the following article for more information on this activity.

Our plate continues to be full.

##### CENIC Launches One Gigabit or Bust Initiative with Event and Report

With the launch of its One Gigabit or Bust(tm) California Broadband Initiative, CENIC is taking a major step toward making next generation broadband a reality throughout California by the year 2010.

Today in California many researchers and educators, and even some communities, have access to advanced services networks with capacity ranging from 1 to 10 gigabits per second. CENIC's Next Generation Internet (NGI) Roundtable has accepted the challenge of forming a leadership team that will focus on the goal of One Gigabit or Bust(tm) to every home, business and school by 2010.

On June 16, 2003, an event was held in Sacramento to announce completion of a major milestone in the initiative. Dr. Larry Smarr from Cal-(IT)2 gave the opening and closing remarks. Kathie Hackler from Gartner Consulting gave an overview of the Gartner study, One Gigabit or Bust Initiative(tm) - A Broadband Vision for California, that had been commissioned by CENIC. Gartner was asked to interview many of the top

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broadband thinkers, policy makers and consumer advocates within California and throughout the United States with a view toward understanding the opportunities and challenges a next generation broadband initiative in California might face.

A panel, consisting of Bob Campbell from SBC, Milo Medin from TechNet, Tina Nerat from Redwood Technology Consortium and Carol Whiteside from Great Valley Center, discussed the challenges and strategies for realizing a next generation broadband infrastructure available for all Californians. Video clips of the presentations are available at [http://www.cenic.org/gb/events/launch/video\\_clips.htm](http://www.cenic.org/gb/events/launch/video_clips.htm)

The One Gigabit or Bust(tm) - A Broadband Initiative Report is available, both on-line and in hard copy. The report is available in two forms, summary and full. For the on-line version of the report, go to <http://www.cenic.org/gb/pubs/gartner/index.htm>. For a hard copy of the report, please send a 10x13 Self-Addressed Stamped Envelope (\$3.85 for one full and one summary, \$0.83 for only one summary) to:

Gartner Report  
C/O Aldea Communications  
7720 B El Camino Real #425  
Carlsbad, CA 92009

For multiple hard copies of the report, please send an e-mail to [editor@cenic.org](mailto:editor@cenic.org) with your request.

More information about the NGI initiative can be found at <http://www.cenic.org/gb/index.htm>

#### **CalREN Optical Infrastructure Update**

The new backbone infrastructure between San Diego and Sacramento via the coastal route has been installed and tested. All of the last mile fiber connections from the backbone to the campuses are completed. It is expected that the optical equipment between Los Angeles and Corning via the Central Valley path will be completely installed by late July or early August. CENIC engineers are in the process of installing and connecting IP equipment to the optical equipment at the hub sites. This work is expected to be completed by mid-July on the San Diego, Los Angeles, Sunnyvale to Sacramento path.

Source: Edwin Smith, CENIC

#### **DCP Last Mile Report Now Available**

A new report, Broadband Networks in K-12 Public Education: Achieving Last Mile Connectivity to California Schools, is now available on the CENIC web site. This report examines the status of last mile connectivity to California's K-12 educational system as of December 2002, offering recommendations for increasing connectivity. In addition to the statewide report, a series of 11 regional/county reports is under development. These reports will provide a snapshot of current network connectivity, will build awareness of the importance of the last mile issue in California and offer potential approaches for helping 100 percent of California's K-12 schools obtain network connectivity.

This study of last mile connectivity was a cooperative effort of CENIC, the California Department of Education (CDE), K-12 networking professionals throughout California and telecommunications carriers in California. The CDE provided baseline information, including school enrollment data; the K-12 networking professionals throughout the state provided connectivity data; and CENIC and the telecommunications carriers' prepared cost data.

The report may be found at  
<http://www.cenic.org/dcp/pubs/lastmilejune03.pdf>

#### **Another CENIC First -- First 10 Gigabit Connection to Internet2 Abilene**

CalREN, California's high-performance research and education network, established the first 10 gigabit per second connection to the Internet2 Abilene backbone network. In addition to providing greater bandwidth, this connection will allow researchers, faculty, and students at institutions throughout California which are connected to CalREN to take advantage of advanced networking capabilities such as line-speed native IPv6 and scalable multicasting. The connection was first established to support the Internet2 Member Meeting held in Los Angeles during October 2002.

Harvey Newman, a professor of physics at Caltech, noted that "[t]his 10 Gigabit link between CalREN's optical network infrastructure and the Abilene network is on the critical path for data-intensive Grid systems that are enabling a new generation of experiments and projects in particle physics. It is exactly this type of next generation network capacity that will provide the foundation for future high performance collaborative infrastructures, enabling physicists all over the world to contribute effectively to the data analysis and the physics results."

Tom West, CENIC's president and CEO, said that "[t]his is an essential upgrade for both the CENIC and Internet2 research communities. In California alone there are many of the nation's premier research institutions with very large-scale applications using the CalREN-HPR infrastructure, an IP-based, 10 gigabit Ethernet wide area network. Just to name a few, there's the San Diego Supercomputer Center, the University of California Institutes for Science and Innovation, the Center for Advanced Computing Research at Caltech and its Jet Propulsion Lab, the University of Southern California and its Information Sciences Institute, Stanford University and the Stanford Linear Accelerator Center, as well as the national laboratories. All of these institutions are taking advantage of this network enhancement."

"We're extremely pleased that the CENIC community will be the first to take advantage of the new capabilities the Abilene upgrade provides," said Steve Corbató, director of Backbone Network Infrastructure for Internet2. "We expect Abilene will continue to be a catalyst for innovation, providing the research and education community a unique, large-scale leading-edge network environment."

## National Networking News

### Community Technology Centers (CTC) Program for Novice Applicants

The Office of Vocational and Adult Education has released the solicitation, program requirements and selection criteria for the Community Technology Centers (CTC) program for novice applicants. CTCs provide disadvantaged residents of economically distressed urban and rural communities with access to information technology and related training. The CTC program novice applicant competition gives absolute priority to those applicants who will focus on improving the academic achievement of low-achieving secondary school students while continuing to provide a community technology center for all members of their community. At least 25 percent of the funding will be reserved for novice applicants. Eligible applicants include institutions of higher education, state or local educational agencies, entities (such as a foundation, museum, library, for-profit business, public or private nonprofit organization, or community-based organization, including faith-based organizations), or consortia thereof, that also meet the definition of a novice applicant (see solicitation). As many as 30 one-year awards will be made, each ranging between \$300,000-\$500,000. A 1:1 match of nonfederal funding is required. Proposals may be due as early as July 7, 2003. More information is available at: <http://www.ed.gov/offices/OVAE/AdultEd/CTC/index.html>

### PUC Expands California Teleconnect Fund Program

The California Public Utilities Commission (PUC) expanded the California Teleconnect Fund (CTF) to focus efforts on providing educational institutions, health care institutions, community-based organizations and governmental institutions with access to advanced telecommunications services in recognition of their economic and societal impact.

The Commission previously established the CTF to provide discounts on selected telecommunications services to qualified schools, libraries, municipal or county government owned and operated hospitals or health clinics and Community Based Organizations (CBOs) offering health care, job training, job placement and/or education instruction. The program offers varying discounts and quantities of services to the different types of qualifying entities. The CTF program discounts are funded by surcharges on consumer telephone bills.

The CTF rules currently provide different types and quantities of services at varying discount levels. The changes to the CTF program rules adopted today will allow all qualifying entities to receive the same quantities and types of services at the highest discount levels, 50 percent. Among the services available to participating entities, Digital Subscriber Line (DSL) service is specifically named as a service eligible for CTF funding.

Source: [http://www.cpuc.ca.gov/PUBLISHED/NEWS\\_RELEASE/25994.htm](http://www.cpuc.ca.gov/PUBLISHED/NEWS_RELEASE/25994.htm)

### Pentagon Wants Next Generation Internet by 2008

According to a report, the Defense Department plans to integrate its high-tech weaponry, battlefield sensors, and other communications systems with the next generation Internet operating system by 2008.

According to the report, John Stenbit, the Pentagon's chief information officer, said the current system, IPv4, which has been in use by the Defense Department for nearly 30 years, was not reliable or secure enough to meet the needs of today's high-tech military.

The new Internet protocol, known as IPv6, will facilitate integration of the essential elements of DOD's Global Information Grid -- its sensors, weapons, platforms, information, and people. Adoption of the new standard also promises to expand availability of IP address space, improve end-to-end security, facilitate mobile communications, enhance quality of digital services, and ease system management.

Source: HPCwire

### NSF Releases Strategic Plan; Seeks Public Input

Earlier this month the National Science Foundation released a draft Strategic Plan for FY 2003 through FY 2008. The foundation is now seeking public comment on this report.

There is little that is surprising in this thirty-page report required by the Government Performance and Results Act of 1993. A centerpiece of the Clinton's Administration early efforts to make government agencies more efficient and effective, the act requires that agencies submit an updated strategic plan every three years. An earlier NSF plan was for the years FY 2001-2006. NSF Director Rita Colwell, in a cover letter, explained, "The views of the science and engineering community and the public are very important to us and will be reflected in the final draft of the updated plan." The letter and plan can be viewed at [http://www.nsf.gov/od/stratplan\\_03-08/draft-stratplan.htm](http://www.nsf.gov/od/stratplan_03-08/draft-stratplan.htm). The comment deadline is July 15.

Source: The American Institute of Physics Bulletin of Science Policy News

### IPv6: Necessary for Mobile and Wireless Internet

Internet architecture is going through an exciting evolution with the emergence of wireless access technologies. This new Internet not only requires a larger IP address space, but also a number of fundamental features to enable wireless networking and mobility. The current state of IPv4-NAT architecture simply does not adequately serve this new Internet especially in terms of security, mobility, extensibility, and dynamic reconfigurability. IPv6 is rapidly emerging as the preferred platform to meet the many needs of the new Internet.

The briefing can be downloaded/viewed in the following formats:

pdf <http://www.isoc.org/briefings/014/briefing14.pdf>

HTML <http://www.isoc.org/briefings/014/index.html>

ASCII <http://www.isoc.org/briefings/014/isocbriefing014.txt>

Source: Internet Society

### **About CENIC**

CENIC is a not-for-profit corporation serving California Institute of Technology, California State University, Stanford University, University of California, University of Southern California, California Community Colleges and the statewide K-12 school system.

CENIC's mission is to facilitate and coordinate the development, deployment and operation of a set of robust multi-tiered advanced network services for this research and education community.

More information about CENIC can be found at [www.cenic.org](http://www.cenic.org).

### **Subscription Information**

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