



## LEADING THE WAY TO TOMORROW'S INTERNET


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Welcome to CENIC Today, the monthly newsletter of the Corporation for Education Network Initiatives in California.

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#### CENIC News

##### President's Message

There are so many exciting events and initiatives to share this month that I'll have to be selective. Major issues range from new directions out of the FCC to highlighting information about specific projects within CENIC.

Recent activities at the federal level may help stimulate broadband deployment significantly. The FCC, as part of its Triennial Review Order, limited unbundling obligations imposed on mass market FTTH (fiber to the home) deployment to remove disincentives to the deployment of advanced telecommunications. On October 18 the FCC announced that it was extending the same regulatory treatment to incumbent LEC's (Local Exchange Carriers) FTTC (fiber to the curb) deployments. In its Order the Commission indicates that "unbundling relief is targeted to FTTC deployments that are designed to bring increased advanced services capability to users." This provides the elimination of a major barrier telecommunication companies have reported in the deployment of fiber. Though only time will tell, this relief may significantly help in moving towards the objective contained in CENIC's One Gigabit or Bust Initiative: one gigabit to every home and business by the year 2010. And, of course, if we obtain true broadband to our homes, students, teachers, faculty and staff at all level of educational institution will benefit from improved access to online educational materials.

Speaking of the One Gigabit or Bust Initiative, CENIC's next One Gigabit or Bust Roundtable will be held next month in Sacramento (see [www.cenic.org](http://www.cenic.org) for further information). While the FCC relief on FTTC will assist in achieving the goals of the Gigabit initiative, the Gartner report commissioned by CENIC in 2002 (see <http://www.cenic.org/gb/pubs/gartner/index.htm>) indicated that the single largest obstacle to ubiquitous next generation broadband in California is lack of leadership. While CENIC has played a major leadership role in the first two years of the Gigabit project, a broad coalition is necessary to help California reap the benefits from ubiquitous broadband. Over the remainder of the fiscal year CENIC will be attempt to raise the level of recognition of the importance of broadband in the State and help stimulate formation of a the type of leadership the Gartner report indicates is required for success.

One of CENIC's short term goals has been to increase networking with educational institutions in Mexico. Educational institutions at all levels in California require reliable high speed networking to Mexico. Among the examples is the San Diego County Office of Education's work, led by Superintendent Rudy Castruita and Assistant Superintendent Rich Thome, with agencies of the Mexican government to share educational materials. CENIC believes it has a good chance of receiving external funding to purchase fiber and optronics

to create a high speed, fiber-based network connection across the border. The resulting network would not only provide high speed communications with the Mexican educational network, CUDI, but also it will provide long term cost containment since on going costs would be limited to fiber maintenance and maintenance and replacement of equipment.

Last, I'll mention a project underway to connect NASA, initially, and other organizations at the NASA Ames site later, to CENIC's CalREN backbone. Completion of this project next year will provide the high speed bandwidth required to support collaborations between researchers at NASA Ames and those at CalTech's JPL and other CENIC Associate institutions. And, through CENIC's participation in national networks such as Internet 2 and NLR, connection to CalREN will provide Ames' researchers, like those at other CalREN Associate sites, access to IP-based networks supported by those organizations.

Source: Jim Dolgonas, CENIC

### **NOC Report**

Two senior Cisco optical engineers, part of the Cisco 15808 optical development and support group, traveled from Monza, Italy to CENIC headquarters in Cypress for two weeks of intensive training and troubleshooting sessions with CENIC engineers. These sessions were focused on best practices for maintenance of the 15808 equipment, which is at the core of CENIC's optical network. This training by Cisco's product engineers helps assure that our engineering staff are trained on all of the latest management and support techniques for this equipment.

These sessions led to a subsequent session where CENIC and Cisco staff provided training for Level(3) technicians in the 15808 equipment. This training, held in CENIC's lab in Cypress, was intended to ensure that Level(3) technicians, who provide support for CENIC equipment in remote locations, have the necessary expertise to perform maintenance on this equipment.

The extraordinary, customized training Cisco offered CENIC on this high-end optical equipment is indicative of the level of support we receive.

Source: Brian Court, CENIC

### **What's New in CalREN**

There are three different items to report this month. The first has to do with CENIC's affiliation with the Quilt. The second is about CENIC's participation in the Supercomputing conference, and the third refers to new TAC subcommittees.

In collaboration with the Quilt, a national consortium of gigapops, CENIC has been able to combine its buying power with that of several other states, resulting in significantly lower costs for Internet access to the CENIC associates. CENIC recently lowered the cost of Internet access for California Associates to \$99/megabit/month.

CENIC is providing very high bandwidth connectivity to researchers throughout California at the Supercomputing 2004 conference (<http://www.sc-conference.org/sc2004/>), to be held in Pittsburgh in November. Researchers at SLAC, Caltech, and UC San Diego will be provided with dedicated 10Gbps connections over CENIC's and National LambdaRail's optical networks for this purpose.

Subcommittees of the HPR and DC TACs are being formed to provide ongoing consultation with CENIC staff in design and engineering of the network. These groups are currently being engaged to begin discussions on the design of the next generation of the CalREN/HPR network.

Source: Brian Court, CENIC

### **Pacific Wave**

CENIC and Pacific NorthWest GigaPop (PNWGP), with participation from the University of Southern California, have entered into an agreement to collaborate in offering exchange services on the West Coast. This arrangement greatly increases our ability to attract parties to our exchange services.

Participants of Pacific Wave will be able to access peers in the combined exchanges, adding more research and educational networks to the long list of peerings that CENIC already has. CENIC has already started peering with PNWGP and with CA\*net, the Canadian research network, over this new infrastructure. These new peerings will not only improve latency to these direct peers and support research between participants, but will add more resilience to CENIC's ISP service by bypassing transit carriers to reach these participants.

Pacific Wave is now operational between Seattle and Los Angeles. Using a 10-gigabit lambda from CENIC and NLR, the two exchanges are accepting new participants, now that the infrastructure has been tested and new address space obtained from ARIN. Parts of the old Los Angeles Access Point (LAAP) exchange infrastructure will be migrated to Pacific Wave South (the CENIC exchange) in the coming months. The first new PWave-South participant will be the Qatar Foundation which has just been connected to one of the CENIC managed PWave switches. A connection from Abilene is pending.

For more information about Pacific Wave, contact [info@pacificwave.net](mailto:info@pacificwave.net) or Celeste Anderson at 213-740-1462.

Source: Celeste Anderson, USC

### **What's New in Video**

*We Just Keep Growing* - During 2004, CalREN Video Services has grown substantially. Over 90 sites have migrated from the legacy H.320-based video network, including K-12 schools, California Community Colleges and California State University campuses. Videoconferencing at CCC and CSU sites has been used for distance learning for quite some time. However, based on available statistics, it seems that use of videoconferencing for administrative meetings is on the rise. Most attribute this to the need throughout the education community to cut back on travel expenses without sacrificing the personal connection that face-to-face communication provides. If your site has not yet migrated to CVS, please contact the CVS Coordinator, Kelly Stack by sending email to: [kstack@cenic.org](mailto:kstack@cenic.org)

*Nothing Fishy Here* - Videoconference administrators and technicians who need to test videoconference connectivity are treated to a Jacques Cousteau experience when they connect to CENIC's CVS test site. The CENIC fish tank features 10 aquatic inhabitants to amaze and delight you. The CVS videoconference test site is available 24 hours a day, 7 days a week. Due to the constant movement of our fishy friends, video problems are immediately apparent when you test with us. Drop in to take a look. The dial string is 1009001000; the IP address is 137.164.83.157.

*CVS Goes to Hollywood* - High school and college students in California are meeting with experts in animation from major studios such as Pixar, Disney, Dreamworks, Warner Brothers, and Sony, thanks to CENIC and a program known as ACME. Students learn digital animation skills and important lessons about working in the animation industry through their discussions with professional animators. The ACME Animation Program has been using videoconferencing to connect industry professionals with eager scholars since 2000, but this fall the program is expanding its reach due to CENIC's CVS project, which allows schools to use IP-based videoconferencing over CalREN. Five schools in California have already been added this fall to the growing number of participating sites. For more information about ACME, please visit <http://www.acmeonair.org/>.

Source: Sherilyn Evans, CENIC

### **CENIC 2005 – Registration Opens November 8**

CENIC invites you to its ninth annual conference, Pathways to Discovery. Quite possibly the most important networking and educational event of the year, CENIC 2005 is your opportunity to connect with California's key high-performance networking professionals – educators, researchers, business people and government representatives – and help advance the vision of tomorrow's Internet. The 2005 conference offers three days, March 7-9th, of stimulating tracks, influential speakers and a rich array of collaborative panels amidst the engaging backdrop of the Ritz-Carlton in Marina del Rey, California.

For more information and to reserve your hotel and conference space, visit <http://www.cenic.org/events/cenic2005/index.htm>.

### **Register Today for November One Gigabit or Bust Roundtable**

The 4<sup>th</sup> One Gigabit or Bust Roundtable Meeting will be held on November 15-16, 2004 at the Sheraton Grand Sacramento.

The Roundtable is open to people interested in pursuing next generation broadband throughout California. Participants include, but are not limited to, representatives from service providers, content providers, state, county and municipal governments, state and local regulatory agencies, consumer groups, economic development groups, academics and technologists, and businesses with an interest in broadband.

This meeting, organized around topical Task Forces, will help to identify the opportunities and obstacles to achieving one gigabit throughout California by 2010 and establish an action plan to achieve this goal.

For agenda, registration and lodging information, visit <http://www.cenic.org/gb/events/rt1104/index.htm>.

### **National Networking News**

#### **Palomar Observatory Receives High-Speed Network Connectivity Via HPWREN**

More than 50 years have passed since astronomers first started using the Palomar Observatory's 48-inch Oschin telescope to study the night sky. Known throughout the world as the meter-class-aperture telescope with the largest field of view, the Oschin's most recent "claim to fame" is its link to an NSF-funded 45 Mbps network - the High Performance Wireless Research and Education Network (HPWREN).

Source: HPWREN News, <http://hpwren.ucsd.edu/news/010801.html>

#### **FCC Eases High-Speed Network Rules**

Telephone companies now don't have to lease new fiber installations to competitors at all, the FCC decided. But, the regulators ruled, the companies must share any existing copper connections to homes or offices once they are upgraded to fiber.

SBC Communications, one of the nation's four major local phone companies, or Baby Bells, applauded the decision. On Thursday, it said it now plans to build its fiber-optic network in half the time originally planned. "The shovel is in the ground, and we are ready to go," SBC CEO Edward E. Whitacre Jr. said in a statement. "The path forward is much clearer."

Source: CNet News.com, [http://bellsouth.com.com/FCC+eases+high-speed+network+rules/2100-1034\\_3-5410018.html](http://bellsouth.com.com/FCC+eases+high-speed+network+rules/2100-1034_3-5410018.html)

### California Scientists Wage Joint War on Internet Plagues

Computer scientists at the University of California, San Diego and the International Computer Science Institute (ICSI), affiliated with UC Berkeley, have joined forces to launch a full-scale assault on viruses, worms and other plagues afflicting the Internet. With \$6.2 million in funding over five years from the National Science Foundation (NSF) through its new Cyber Trust program, the scientists will develop technologies to detect, analyze and defend against large-scale Internet attacks.

The Center for Internet Epidemiology and Defenses (CIED) will be co-located in San Diego and Berkeley, CA. It will tackle what has been called a grand challenge problem for computer security researchers: defending against epidemic-style attacks.

Source: Cal-IT(2), [http://www.calit2.net/technology/features/9-21-04\\_internet.html](http://www.calit2.net/technology/features/9-21-04_internet.html)

### Internet2 Survey Results Highlight K20 Adoption of Advanced Networking Capabilities

More than 25,000 K-12 schools, libraries, and museums in 34 states have access to an Internet2 backbone network based on the results of a bi-annual survey announced today at the FCC's Symposium: Unleashing the Educational Power of Broadband\_. The survey conducted by Internet2 to assess the adoption of high-performance connectivity among educational institutions across the U.S., highlights the rapid work of Internet2 members and the broader education community to take advantage a program by which Internet2 university members provide state educations networks sponsored access to the Internet2 Abilene network, an advanced nationwide backbone.

Source: I2 News, <https://mail.internet2.edu/wvs/arc/i2-news/2004-10/msg00000.html>

### Schools Dial Up Cell-Phone Content

As more and more teenagers own cell phones, a small number of schools are making the most of the devices' popularity by finding legitimate educational and instructional uses for them.

Twenty-five schools in New Hampshire are encouraging their students who own web-enabled cell phones to use them to access homework, class assignments, and other content.

Source: eSchool News, <http://www.eschoolnews.com/news/showStoryts.cfm?ArticleID=5326>

### 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 <http://www.cenic.org>.

### Subscription Information

You can subscribe and unsubscribe to CENIC Today via the web at: <http://lists.cenic.org/mailman/listinfo/cenic-today>

Keep track of the One Gigabit or Bust Initiative by visiting the CENIC publications page or by subscribing directly to the publications. Visit <http://www.cenic.org/pubs/> for more information.

Website questions: [webmaster@cenic.org](mailto:webmaster@cenic.org)

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