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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: Update from the CENIC Board Retreat

Last week, the CENIC Board met for a day and a half in a retreat format to review current goals and to plan for activities during the coming year. As part of the background for the discussion, I reviewed the breadth of the CalREN network. I'm pleased to relate that CalREN currently includes:

- 2500 miles of owned fiber,
- 474 routers,
- 81 Ethernet switches,
- 403 optical components, and
- 275 circuits.

While I can't establish where CalREN ranks in terms of size compared to other research and education networks, it is certainly among the largest. California State University and California Community College initiatives will increase these numbers even further during the year, as we work together to expand and upgrade the network and ensure that all our Associates benefit from the most reliable high-performance R&E networking.

During the retreat, the Board revised CENIC's goals and established some additional new initiatives. As these are refined, we'll publicize them on our web site and in publications such as upcoming issues of CENIC Today and involve our advisory groups in their implementation.

-- Jim Dolgonas, CENIC

##### 10 Gigabit Ethernet Connects TransLight/Pacific Wave and TransLight/StarLight

As of June 30th, TransLight/Pacific Wave and TransLight/Starlight are now directly connected through a 10 Gigabit Ethernet lightpath connection. The connection, donated by Cisco Systems in support of the TransLight project, is deployed by National LambdaRail. TransLight/StarLight and TransLight/Pacific Wave are projects funded by the National Science Foundation under the International Research Network Connections (IRNC) Program of the Office of CyberInfrastructure. Pacific Wave is a joint venture between CENIC and the Pacific Northwest Gigapop in collaboration with the University of Southern California and the University of Washington. A state-of-the-art international peering exchange facility, Pacific Wave enables any US or international network to connect at any of three locations along the US Pacific coast and offers the option to peer with any other Pacific Wave participant, regardless of physical location.

This new network fabric between the two TransLight entities creates a way for participating networks to easily configure direct connections whenever they are needed. In a demonstration of this new capability, engineers at SURFnet in Amsterdam and T-LEX (operated by WIDE) in Tokyo easily established a direct path between their two routed networks using the new Pacific Wave to StarLight network fabric and without using any routed third party network facilities.

Source: <http://mailman.nlr.net/pipermail/news/2006-July/000007.html>

#### **CalREN Update: Network Projects and Activities**

##### *K-12 Update:*

CENIC has placed orders to upgrade five K-12 circuits in order to provide our K-12 Associates with the latest in high-performance networking. The Tulare County Office of Education will receive an upgrade of its DS3 connection to OC-3, while the Los Angeles COE, the Los Angeles USD, the Sacramento COE and the Orange County Department of Education will receive Gigabit Ethernet connections in place of their current OC-3 connectivity. The K-12 High-Speed Network is in the process of reviewing the remaining sites which were eligible for circuit upgrades this fiscal year.

##### *CSU Update:*

The aim of the CSU's Campus Access Infrastructure Initiative is to provide dual Gigabit connectivity to CalREN for all the Cal State campuses, and San Jose State University and San Diego State University have joined the other campuses which have received such connectivity. Both campuses now enjoy dual connectivity with two redundant Gigabit connections . one over CENIC-managed fiber and the other a leased circuit. The Moss Landing Marine Laboratories also received a Gigabit Ethernet connection to CalREN as well. Operated by a consortium of seven CSU campuses (Fresno, Hayward, Monterey Bay, Sacramento, San Francisco, San Jose State, and Stanislaus), the Moss Landing Marine Laboratories is the second oldest marine lab on Monterey Bay, established in 1966.

##### *CCC Update:*

In the new California state budget, the Community College Chancellor's Office was provided with funding to extend CalREN network connectivity to their official offsite centers. CENIC has begun to prioritize, plan, and develop a schedule for connecting well over fifty such offsite centers, and we look forward to working together with the CCC Chancellor's Office to share with these centers the advantages of CalREN connectivity. Vista College's connectivity has also changed along with its name . Berkeley City College. This month, CENIC moved the college's DS3 circuit to its new location in downtown Berkeley, and we wish the college well in its new home.

-- Ed Smith, CENIC

#### **NEES: A Premiere Example of a Network-Enabled Research Community**

Earthquake engineering researchers came together in Washington DC for the 4th Network for Earthquake Engineering Simulation (NEES) annual meeting. The conference provided powerful examples of ways CalREN is supporting joint research on National Science Foundation projects among faculty in California and across the nation in order to accelerate the adoption and implementation of earthquake engineering research in engineering practice and building code development, in order to improve the seismic design and performance of civil and mechanical infrastructure systems through the integration of people, ideas, and tools in a collaborative environment.

CENIC's Director of Statewide Initiatives, Stephanie Couch, participated in the conference as member of NEES's Education Outreach and Training (EOT) Committee. "The amazing work that takes place at the NEES equipment sites, the IT tools and expertise at NEES IT, and the resources faculty are creating as part of their research proposals have tremendous potential for use in California schools," Ms. Couch noted. She continued, "Now that the Committee has completed an execution plan for the EOT Strategic Plan, work will begin on facilitating greater awareness and use of the various "gold nuggets" that exist within the NEES community."

NEES consists of:

- 15 sites across the U.S. (including 5 sites in California located at UCB, UCD, UCLA, UCSD, and UCSB), that host next-generation research facilities used to investigate the effects of different types of earthquakes in order to predict the effect of earthquakes on prototype structures.
- The NEES Cyberinfrastructure (NEES CI), formerly called NEESgrid, which was developed by the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign and IT researchers at the University of Southern California's Information Sciences Institute, the University of Michigan's School of Information, and Argonne National Laboratory. NEES CI is now managed by NEESit, headquartered at the San Diego Supercomputer Center of the University of California at San Diego. The technology infrastructure provided by the NEES CI, such as data repositories, telepresence tools (e.g., enabling researchers at remote locations to view or control laboratory experiments), and networking, enables researchers outside the immediate area of each of the 15 equipment sites to benefit from each site's unique capabilities. Through the use of advanced services networks and other advanced IT capabilities, the distributed set of research facilities are made available for collaborative research on a shared-use basis. An investigator with an NSF NEES research grant need not be a faculty member at the institution operating an Equipment Site to have research access to that facility.
- Centralized IT services through NEESit which enable NEES researchers to use a common set of tools and large data sets to simulate different types of earthquakes in order to predict the effect of earthquakes on prototype structures.
- Funding from the National Science Foundation for individual research efforts that use the NEES equipment and IT services (which is likely to continue through 2014). NSF requires such proposals to contain education, outreach or training (EOT) components.
- An umbrella entity known as the NEES Consortium, Inc. (headquartered in Davis, CA and served by CalREN), to support the various components of NEES including coordination of the EOT efforts that take place as part of NEES research grants.

For more information, visit <http://www.nees.org/>.

-- Stephanie Couch, CENIC

### **CENIC's 2007 Annual Conference To Be Held In La Jolla, CA**

Located in the heart of sunny and beautiful San Diego County, the San Diego Marriott La Jolla Hotel is close to UC San Diego, the Birch Aquarium at Scripps, and lots of great shopping and dining as well as opportunities to enjoy the sun and surf in America's Finest City. Day trips to SeaWorld and the San Diego Zoo and Wild Animal Park are also a possibility for those who would like to sample some of the city's world-famous wildlife.

The conference itself will be packed with presentations, networking opportunities, updates about CalREN and the accomplishments of our Associates, and of course our 2007 Innovations in Networking Award winners as well. Be sure to stay in touch via CENIC Today to learn the dates, and we look forward to seeing you in La Jolla in 2007!

-- Janis Cortese, CENIC

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### **National Networking News**

#### **Penn State Connects to National LambdaRail**

Researchers and scientists at Penn State now have the ability to use virtually unlimited bandwidth to expand methods of data acquisition and collaboration. [...]

"As universities across the country invest in powerful new instruments to measure natural phenomena, the amounts of data collected are skyrocketing," said Kevin Morooney, senior director of ITS Academic Services and Emerging Technologies. "NLR will enable scientists to develop new strategies for analyzing this data, and research communities will be able to develop new ways to operate remote instruments and data collection facilities, opening the door to fundamentally new ways of conducting science."

According to Morooney, Penn State's connection to NLR already has begun accommodating University research traffic, but the physical implementation is only the first step. The next phase will involve faculty exploring how the infrastructure can facilitate their investigations in fields such as chemistry, astronomy, physics, biology, meteorology, visualization, engineering, mapping, 3D imaging, simulations and more.

To learn more about Penn State's new NLR connection visit the University's National LambdaRail information page at <http://its.psu.edu/nlr> online.

#### **Senate Commerce, Science and Transportation Committee Hearing on HPC**

On July 19, the Subcommittee on Technology, Innovation, and Competitiveness of the Senate Committee on Commerce, Science and Transportation held its first hearing on high performance computing (HPC). On behalf of NLR, Tom West submitted testimony for the hearing record. The statement highlighted the importance of high performance networks in HPC. An excerpt:

"The hallmark of 21st century big science applications is multi-disciplinary, multi-investigator research collaborations across time and space. This distributed approach can lead to more rapid and systematic solutions to society's most intractable challenges. High-capacity optical networks are critical to leveraging innovation across these worldwide assets.

"Moreover, there is a growing urgency to develop new network technologies that scale to the growing needs of the worldwide R&E community and, later, to commodity Internet users."

Mr. West's statement can be found in its entirety at <http://www.nlr.net/newsroom/pres/twesthpc.php>.

#### **ResearchChannel Announces Matching Fund for Video Programming**

ResearchChannel invites universities and nonprofit research institutions to submit proposals to develop programming that showcases research. This pilot call for proposals and matching fund award will reimburse winning entrants for one-half the cost of the video production (e.g., interview, panel, documentary, or performance), up to \$6,000.

Submissions must contribute to and support public awareness of the value of research, contribute to and support public knowledge of, familiarity with, and thinking about major issues and discoveries that affect our lives and futures.

The purpose of these awards is to provide a showcase for the outstanding work being done by world-class researchers at leading research and academic institutions and to make that content available to the public. These awards also seek to encourage institutions and researchers that otherwise would not have sufficient production funds to create quality video programming to document and share their research.

The call is open to all accredited universities and nonprofit research institutions. Preference will be given to ResearchChannel participant organizations.

Complete details are available online at <http://www.researchchannel.org/news/news.asp>.

#### **Mississippi Plans Self-paced, Online Courses**

Mississippi Superintendent of Education Hank Bounds announced a \$20 million proposal that asks students to choose from among seven possible career paths. The plan would allow students to take self-paced online courses as an alternative to graduation. The state hopes to reduce the high school dropout rate and better prepare students for higher education and the workforce.

The plan is called "Redesigning Education for the 21st Century Workforce in Mississippi." High school students would select classes related to their desired career field, similar to majors in college. The state will offer online courses to students who want to graduate early or to those that are behind in school.

The program should be in place by fall 2008. Students could select from: health care; agriculture and natural resources; transportation; business management and marketing; construction and manufacturing; science, engineering, technology and math; and human services.

Source: <http://www.eschoolnews.com/news/showStory.cfm?ArticleID=6311>

### **CompassLearning Launches Odyssey® ThinkScience en Español Curriculum; Software Enables K-6 English Language Learners to Learn the Same Science Curriculum in Parallel with Native English Speakers**

CompassLearning, the leading provider of K-12 education software that empowers educators to teach and students to learn more effectively, announced today the availability of Odyssey® ThinkScience en Español, a standards-aligned science curriculum for K-6 students whose native language is Spanish that prepares them for high-stakes testing in science.

Designed to enrich a classroom's general science curriculum, Odyssey® ThinkScience en Español provides science instruction in Spanish to help English Language Learners (ELL) improve their annual progress and academic language acquisition, meeting Title I, Title III and IDEA accountability requirements. In addition, it may be used simultaneously with the new Odyssey® ThinkScience in English curriculum, thereby meeting the needs of bilingual instruction settings and enabling English- and Spanish-speaking students to learn the same lessons together, side-by-side, in their native languages.

Source: <http://hispanicprwire.com/news.php?l=in&id=6567&cha=12>

### **Rensselaer Polytechnic Institute Collaborates with New York State and IBM to Create \$100 Million Supercomputing Center**

Rensselaer Polytechnic Institute has partnered with IBM and New York State to create a \$100 million supercomputing center. The Computational Center for Nanotechnology Innovations (CCNI), which is based on the Rensselaer campus, will design a wide array of nanotechnology devices.

CCNI will focus its efforts on reducing the time and costs in designing and manufacturing nanoscale materials, devices and systems. The center will also serve as an important resource for companies to perform research in the areas of nanotechnology.

The center is expected to be operational by the end of the year.

Source: <http://news.rpi.edu/update.do?artcenterkey=1540>

### **British Columbia Institute of Technology Extends Network with Strategic Wireless**

When the British Columbia Institute of Technology decided to implement a wireless network, it was building on a sophisticated wired network already in place on and between BCIT's five major campuses in Vancouver. With some 48,000 students, BCIT is Canada's leading polytechnic institute, offering degrees, diplomas, and certificates in a variety of studies.

On the main Burnaby campus in Vancouver, for example, BCIT already had wired desktops accessing the network at speeds of 100 Mbps, and a substantial investment in fiber optics at speeds of 1G and over. The Burnaby campus alone had some 90 wiring closets in place.

Source: [http://www.campus-technology.com/news\\_article.asp?id=18866&typeid=156](http://www.campus-technology.com/news_article.asp?id=18866&typeid=156)

### **SDSC Manages Data for National Optical Astronomy Observatory**

Because observing time on telescopes is scarce and the Universe is continually evolving, the hard-won data astronomers gather is a valuable and irreplaceable asset. In addition, opportunities for fundamentally new avenues of science are emerging as researchers develop tools to mine and compare growing archives of observational data. For example, the availability of infrared data led to the discovery of hidden active galactic nuclei potentially holding black holes, as well as star-forming regions unsuspected from looking at visible images alone. And being able to compare images of the same region of the sky over time has enabled detailed study of events such as exploding supernovae, leading to the discovery that the expansion of the Universe is actually accelerating.

All of these factors are driving the need for astronomers to be able to manage, integrate, share, and archive their growing data collections. To handle key parts of this challenge, researchers at the National Optical Astronomy Observatory (NOAO) have turned to the Storage Resource Broker (SRB), a powerful system for end-to-end data management developed at the San Diego Supercomputer Center (SDSC) at UC San Diego.

Source: <http://www.gridtoday.com/grid/717584.html>

### **Ohio and Michigan Establish Regional Optical Network Partnership**

The Ohio Supercomputer Center (OSC), and Merit Network, Inc. are pleased to announce a partnership to enhance regional optical networks in the Midwest.

This partnership between the two state research and education networks includes acquiring managed fiber from Toledo, Ohio, to Chicago, Illinois, as well as an agreement to jointly pursue fiber acquisition to the east of Ohio. In addition, the organizations will work to evolve Network Operations Center management to support Regional Optical Networks (RONs).

"The OSC-Merit partnership brings immense value to the table, resulting in far-reaching positive consequences beyond Ohio and Michigan," said Pankaj Shah, director of OARnet, OSC's networking divisions. "We predict that such partnerships can redesign the optical networking landscape for the entire region."

"With this collaboration, we are now one step closer to achieving a RON reaching from Chicago to New York," said Mary Eileen McLaughlin, Merit networking director.

Source: <http://www.supercomputingonline.com/article.php?sid=11593>

### **Free Virtual Public School Begins Recruiting California Students**

The Alpaugh Unified School District in California recently authorized Central California Connections Academy (CenCA), which will immediately begin accepting applications for the 2006-07 school year.

CenCA will eventually serve students in grades seven through 12, starting with grades seven through 10 in 2006-07. Students will complete schoolwork at home under online supervision and a "Learning Coach" - typically a parent or extended family member.

Source: <http://www.convergemag.com/story.php?catid=239&storyid=100169>

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### About CENIC

California's education and research communities leverage their networking resources under the umbrella of a nonprofit corporation known as CENIC, the Corporation for Education Network Initiatives in California, in order to obtain cost-effective, high-bandwidth networking to support their missions and answer the needs of their faculty, staff, and students. CENIC designs, implements, and operates CalREN, the California Research and Education Network, a high-bandwidth, high-capacity Internet network specially designed to meet the unique requirements of these communities, and to which the vast majority of the state's K-20 educational institutions are connected. In order to facilitate collaboration in education and research, CENIC also provides connectivity to non-California institutions and industry research organizations with which CENIC's Associate researchers and educators are engaged.

CENIC is governed by its member institutions. Representatives from these institutions also donate expertise through their participation in various committees designed to ensure that CENIC is managed effectively and efficiently, and to support the continued evolution of the network as technology advances.

For more information, visit [www.cenic.org](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>

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

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