



cenic

CORPORATION FOR EDUCATION NETWORK INITIATIVES IN CALIFORNIA
2006 - 07 ANNUAL REPORT

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CHAMINADE MIDDLE SCHOOL

CHICOS Cosmic Ray Observatory

LETTER FROM THE PRESIDENT

One of the rewards at this time of the year is the satisfaction resulting from looking back on a year of accomplishment on behalf of one of the most vibrant and innovative R&E communities in the world. Let me review the 2006-07 fiscal year and share with you some of its highlights I've reflected on, further details of which can be found in the "2006-07 CalREN Network Updates" section of this Annual Report.

This year, CENIC not only welcomed three new institutions to CalREN but also inaugurated a statewide refresh of the CalREN-DC network with the issuance of an RFP in late 2006 and subsequent contract award, followed by first implementation work.

At the end of the last fiscal year, CENIC and the Imperial County Office of Education worked together to plan circuit upgrades to K-12 county offices of education, nine of which were upgraded to Gigabit connectivity and one of which received a second DS-3 connection to CalREN during the year.

Considerable progress was made during the year in upgrading California's Community College connectivity to the CalREN backbone. Several districts were designated for Gigabit upgrades and some received them, including the San Bernardino Community College District, an Innovations in Networking award-winner for 2007. Other colleges received upgraded DS-3 connections to CalREN. And this past fiscal year also provided further benefit for the California community college in the Coachella Valley, where the College of the Desert received Gigabit connectivity along the 400-mile fiber path that was completed the previous year thanks to a grant from the H. N. and Frances C. Berger Foundation.



Jim Dolgonas
President & CEO
CENIC

The California State University's Campus Access Infrastructure Initiative (CAI) seeks to provide all CSU campuses with dual, diverse Gigabit connectivity to the CalREN backbone. As of the end of the fiscal year, I can report that six campuses now enjoy this level of connectivity to CalREN. Two other sites have received the first of their two diverse Gigabit connections, and installation projects are underway at two more.

This fiscal year was a year of continued progress for the University of California in terms of network connectivity to the CalREN backbone, with multiple projects in various stages of development to enhance UC connectivity. The UC system also began a migration to CalREN Video Services for their videoconference needs.

The R&E network and commodity peering initiatives Pacific Wave and TransitRail have also progressed well, the first with new members and the second with a now-completed national footprint that will enable research and education institutions to take advantage of low-cost network peering on a national scale.

Looking back on this list of achievements, it's easy to take pride in them as examples of what CENIC has accomplished to serve California's R&E community, but it's important for each and every one of our Associates, our corporate partners, and the members of our committees and councils as well as our staff to remember that CENIC itself is composed of all of you. Therefore, this list of achievements should be a source of pride for all of you as well because in a very real sense, you are CENIC.

Therefore, as much pleasure as I take in these achievements, I take even greater pleasure in congratulating you all on them, and I look forward to an even more impressive list at the end of the next fiscal year.

BOARD & COMMITTEES

2006-07 BOARD OF DIRECTORS

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University of Southern California

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CCC Chancellor's Office

John Dundas
Director, Information Technology
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California Institute of Technology

Catherine McKenzie
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Imperial County Office of Education

Gavin Payne
Chief Deputy Superintendent of Public
Instruction
California Department of Education

Paul Tichinin
County Superintendent
Mendocino County Office of Education

Ron Johnson
Vice President, Computing & Communi-
cations
University of Washington

Larry Smarr
Director, California Institute for
Telecommunications & Information
Technology
Harry E. Gruber Professor,
Jacobs School of Engineering
UC San Diego

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Doug Hartline
Director of Technology Planning &
Development, Office of the Vice
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UC Davis

HPR Technical Advisory Council Chair

John Haskins, before 1/1/2007
Communication Services
UC Santa Barbara

Ken Lindahl, after 1/1/2007
Infrastructure Services
UC Berkeley

DC Technical Advisory Council Chair

Dave Barnett
Network Manager
Santa Cruz County Office of Education

2006-07 BOARD COMMITTEES

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Jim Dolgonas, Ex Officio
Kristine Hafner
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Trevor Stewart
Butte-Glenn CCD

Audit Committee
Catherine McKenzie, Chair

Members:

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California State
University
Jim Dolgonas, Ex Officio
Doug Hartline
Patrick Perry
Paul Tichinin

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John Dundas, Chair

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UC San Diego
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DC Network Committee**
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Members:

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David Ernst
Louis Fox
University of Washington
Catherine McKenzie
Don McNelis
Butte County Office of
Education
John Silvester



Providing high-performance networking to California's K-20 public education puts CENIC in a unique position of being able to advocate for statewide research and education and also makes us a valuable collaborative partner for others who do so.

As a result, a CENIC presence in Sacramento is of enormous value to ourselves, our Associates, and others in the state who work to promote the benefits of broadband networking for the public good.

At the office, located in the heart of downtown Sacramento, our Director of Statewide Initiatives Stephanie Couch confers with officials at all levels of the California state government as well as representatives from organizations representing healthcare, community centers, libraries and museums, and the public education system. Through collaboration and mutual outreach, CENIC, our Associates, and many other organizations in California gain increased effectiveness in advocating for broadband access in California and the benefits it brings to the health, education, and daily lives of all Californians.

SPOTLIGHT ON THE CENIC SACRAMENTO OFFICE

Representing R&E Broadband in the State Capitol

CENIC NETWORK ASSOCIATES

CALIFORNIA'S K-12 SYSTEM:

Alameda COE	Humboldt COE	Napa Valley USD	Santa Cruz COE
Alpine COE	Imperial COE	Nevada Joint UHSD	Shasta COE
Amador COE	Kern COE	Northern Humboldt UHSD	Sierra COE - West
Bishop Union Elementary	Kings COE	Orange COE	Siskiyou COE
Butte COE	Lake COE	Placer COE	Solano COE
Calaveras COE	Lake Tahoe USD	Plumas COE	Sonoma COE
CA Department of Education	Lassen COE	Pomona USD	Stanislaus COE
Chaffey Joint UHSD	Los Angeles COE	Red Bluff High School	Sutter County Schools
Chowchilla School District	Los Angeles USD	Riverside COE	Trinity COE
Colusa COE	Loyalton High School	RCOE Indio Office	Truckee Donner PUD
Contra Costa COE	Madera COE	Sacramento COE	Tulare COE
Del Norte COE	Mammoth High School	San Benito COE	Tulelake Basin Joint USD
Dos Palos High School	Marin COE	San Bernardino CSS	Tuolumne COE
El Dorado COE	Mariposa COE	San Diego COE	Ventura COE
Eureka City Schools	Mendocino COE River Center	San Francisco COE	Victor Valley CC
Fort Bragg Mendocino Coast Ctr	Merced COE	San Joaquin COE	Yolo COE
Fresno COE	Modoc COE	San Luis Obispo COE	Yuba COE
Glenn COE	Monterey COE	San Mateo COE	
	Monterey Peninsula CC	Santa Barbara COE	
		Santa Clara COE	

CALIFORNIA'S COMMUNITY COLLEGES:

Chancellor's Office	Cuesta	Las Positas	Mt. San Jacinto	San Mateo
Alameda	Cuyamaca	Lassen	Napa Valley	Santa Ana
Allan Hancock	Cypress	Long Beach City	Ohlone	Santa Barbara City
American River	De Anza	Los Angeles City	Orange Coast	Santa Monica
Antelope Valley	Desert	Los Angeles Harbor	Oxnard	Santa Rosa
Bakersfield	Diablo Valley	Los Angeles Mission	Palomar	Santiago Canyon
Barstow	East Los Angeles	Los Angeles Pierce	Palo Verde	Sequoias
Berkeley City	El Camino	Los Angeles	Pasadena City	Shasta
Butte	Evergreen Valley	Southwest	Porterville	Sierra
Cabrillo	Feather River	Los Angeles	Redwoods	Siskiyou
Cañada	Folsom Lake	Trade Tech	Reedley	Skyline
Canyons	Foothill	Los Angeles Valley	Rio Hondo	Solano
Cerritos	Fresno City	Los Medanos	Riverside	Southwestern
Cerro Coso	Fullerton	Marin	Sacramento City	Taft
Chabot	Gavilan	Mendocino	Saddleback	Ventura
Chaffey	Glendale	Merced	San Bernardino	Victor Valley
Citrus	Golden West	Merritt	Valley	West Hills College
Coastline	Grossmont	MiraCosta	San Diego City	Coalinga
Columbia	Hartnell	Mission	San Diego Mesa	West Hills College
Contra Costa	Imperial Valley	Modesto Junior	San Diego Miramar	Lemoore
Copper Mountain	Irvine Valley	Monterey Peninsula	San Francisco City	West Los Angeles
Cosumnes River	Lake Tahoe	Moorpark	San Joaquin Delta	West Valley
Crafton Hills	Laney	Mt. San Antonio	San Jose City	Yuba

CALIFORNIA STATE UNIVERSITY:

Office of the Chancellor	CSU Bakersfield	CSU Monterey Bay	San Diego
California Maritime Academy	CSU Channel Islands	CSU Northridge	State University
California State Polytechnic University San Luis Obispo	CSU Chico	CSU Sacramento	San Francisco State University
California State Polytechnic University Pomona	CSU Dominguez Hills	CSU San Bernardino	San Jose State University
	CSU East Bay	CSU San Marcos	Sonoma State University
	CSU Fresno	CSU Stanislaus	
	CSU Fullerton	Humboldt State University	
	CSU Long Beach	Moss Landing Marine Laboratories	
	CSU Los Angeles		

UNIVERSITY OF CALIFORNIA:

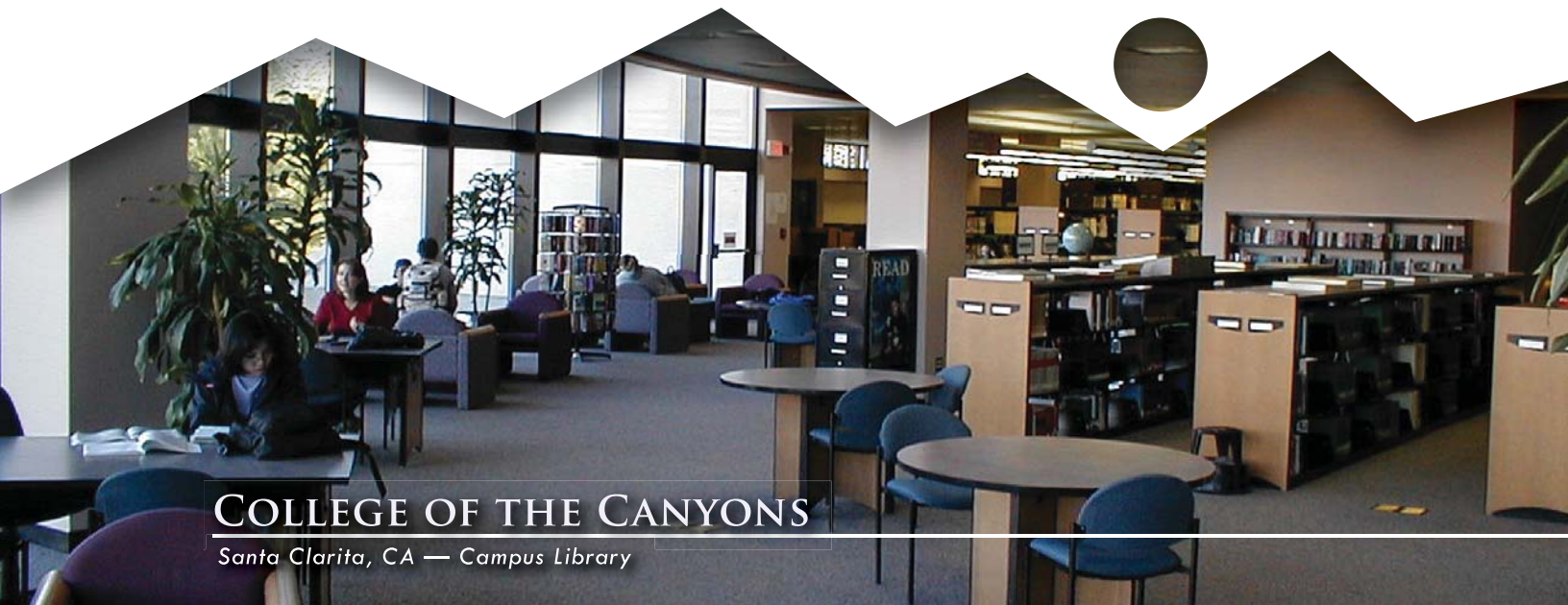
Office of the President	UC Irvine	UC Riverside	UC Santa Barbara
UC Berkeley	UC Los Angeles	UC San Diego	UC Santa Cruz
UC Davis	UC Merced	UC San Francisco	

CALIFORNIA PRIVATE UNIVERSITIES:

California Institute of Technology Jet Propulsion Laboratory	Stanford University Stanford Linear Accelerator Center Stanford Medical Center	University of Southern California Health Sciences Campus Information Sciences Institute
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CALREN ASSOCIATES

The Naval Postgraduate School	Monterey Bay Aquarium Research Institute
The Nevada System of Higher Education	University of San Diego
University of Arizona	University of San Francisco
Arizona State University	The Wharton School of the University of Pennsylvania
NASA Ames Research Center	Wharton West Campus



COLLEGE OF THE CANYONS

Santa Clarita, CA — Campus Library

THE CALREN NETWORK

California is the recognized world leader in technology and innovation. The Golden State boasts one of the largest and most robust economies in the world and defines the cutting edge for the high-tech industries that will lead the way into the 21st century – and the engine behind this vibrancy is California's research and education community.

The network over which California's schools, colleges, and universities connect with one another and their colleagues around the world is the California Research & Education Network or CaREN, a high-performance fiber-optic backbone stretching the length and breadth of the state. Via these 2,500 miles of high-bandwidth optical fiber, the state's entire public education system collaborates on topics like nanotechnology, seismic and deep ocean studies, metagenomics, high-tech networking, entertainment and the arts, telemedicine, and educational applications – topics that, in the years to come, will redefine the world and our place in it.

NETWORK RESEARCH AND DEVELOPMENT

FOR THE CALIFORNIA
RESEARCH & EDUCATION
COMMUNITY

Three independent networks operate simultaneously over the CaREN optical backbone, serving three distinct needs for K-20 research and education.

CALREN-DC: DAY-TO-DAY EDUCATIONAL USES

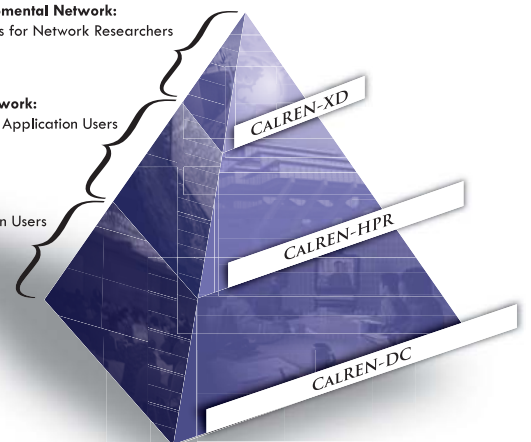
For everything from e-mail and web-surfing to more demanding applications like streaming rich media and high-quality videoconferencing through CaREN Video Services, the CaREN-DC network tier provides high-bandwidth networking for more than 9.5 million Californians every day at approximately 140 higher-education institutions and 8,000 elementary and high schools. Currently operating at a backbone speed of 2.5 Gb/s, the CaREN-DC network tier is undergoing a major network upgrade throughout the state that will increase this speed to 10 Gb/s.

California's Community College system uses CaREN-DC for communications among its campuses and off-campus centers. The California State University system

Experimental/Developmental Network:
Bleeding-edge Services for Network Researchers

High-Performance Research Network:
Leading-edge Services for Large Application Users

Digital California Network:
All K-20 California Research and Education Users



uses it to link their campus administrators to a central administrative computing facility in Salt Lake City, UT. And every week, well over 100 videoconferences are scheduled and conducted over CaREN-DC among CaREN Charter Associate sites.

California's connectivity to the commercial Internet is provided by this network tier.

CALREN-HPR: HIGH-PERFORMANCE APPLICATIONS

Oceanographic, seismic, and astronomical observatories require high levels of connectivity for researchers located around the world to control devices located on mountaintops, in deserts, and beneath the ocean depths, to harvest the enormous amounts of data these devices collect, and to collaborate with one another

on experiments. Some of California's universities also boast rich-media resources that require high-performance networks in order to benefit colleagues within and outside of California. For these applications and others with networking needs far above e-mail and even videoconferencing, such as distributed computing, the CalREN-HPR network tier provides the best in bandwidth and resiliency. The current backbone speed is 10Gb/s, but with a major network upgrade slated to begin in 2008, this will increase to 40 Gb/s.

The CalREN-HPR network tier connects the major research institutions and national laboratories in California, including the San Diego Supercomputer Center, the Jet Propulsion Laboratory, and the University of California Institutes for Science and Innovation: the California Institute for Quantitative Biomedical Research (QB3), the California Institute for Telecommunications and Information Technology (Calit2), the California Nanosystems Institute (CNSI), and the Center for Information Technology Research in the Interest of Society (CITRIS).

California's connectivity to Internet2 and National LambdaRail's packet-based network PacketNet are provided by this network tier.

THE CALREN NETWORK BACKBONE

Gigabits in the Golden State



CALREN-XD: BLEEDING-EDGE NETWORK RESEARCH

The research that results in tomorrow's advanced networks must be carried out on the networks of today, and push those networks to and even beyond tolerance. For network researchers eager to push the envelope on one of the most advanced such networks in the world, the CaIREN-XD network tier provides them access to the lowest layers of the network on which to perform their research.

Thanks to CaIREN's state-of-the-art optical fiber backbone, all three of these networks can operate independently, with different services and performance objectives. Researchers can perform network experiments on the CaIREN-XD network tier without fear that they will interfere with the normal, daily

operation of the other tiers for the benefit of the K-20 education community.

Participants include the San Diego Supercomputer Center, the University of California Institutes for Science and Innovation, the Center for Advanced Computing Research and NASA's Jet Propulsion Lab (both at Caltech), the University of Southern California and its Information Sciences Institute, Stanford University and the Stanford Linear Accelerator Center, national laboratories, and other major research entities which collaborate with researchers in California.

California's connectivity to NLR's WaveNet (lambda-based) and FrameNet (Ethernet-based) networks are provided by this network tier.

Internet2 • www.internet2.edu

Internet2 is a not-for-profit advanced networking consortium comprising more than 200 U.S. universities in cooperation with 70 leading corporations, 45 government agencies, laboratories and other institutions of higher learning as well as over 50 international partner organizations.

Internet2 members leverage our high-performance network infrastructure and extensive worldwide partnerships to support and enhance their educational and research missions. Beyond just providing network capacity, Internet2 actively engages our community in the development of important new technology including middleware, security, network research and performance measurement capabilities which are critical to the progress of the Internet.

In Southern California, CENIC provides its associates with a 10 Gb/s connection to Abilene, the national Internet2 backbone. It is the first such connection in the nation. By taking advantage of Pacific Wave, CENIC also provides a redundant 10 Gb/s connection to Abilene in Seattle.

National LambdaRail • www.nlr.net

National LambdaRail is advancing the research, clinical, and educational goals of members and other institutions by establishing and maintaining a unique nationwide network infrastructure that is owned and controlled by the U.S. research community. Ownership of the underlying optical infrastructure ensures the research community unprecedented control and flexibility in meeting the requirements of the most advanced network applications and providing the resources demanded by cutting-edge network research.

The defining characteristic of the NLR infrastructure is its ability to support many distinct networks for the U.S. research community using the same core infrastructure. Experimental and production networks exist side-by-side but are physically and operationally separate. Production networks support cutting-edge applications by providing users guaranteed levels of reliability, availability, and performance. At the same time, experimental networks enable the deployment and testing of new networking technologies, providing researchers national-scale test beds without the limitations typically associated with production networks.

The Nevada System of Higher Education • system.nevada.edu

The Nevada System of Higher Education (NSHE) represents the state's three research institutions and six community colleges. The NSHE operates NevadaNet, which serves higher education plus K-12 schools in 17 counties. NSHE is a CENIC network Associate with a dark-fiber connection between Reno and Sacramento.



THE CENIC NETWORK OPERATIONS CENTER

The three tiers of CaIREN are monitored and managed 24/7 by the CENIC Network Operations Center (NOC), staffed by a team of network engineers. The NOC is responsible for such activities as circuit installations and upgrades; monitoring and managing the optical (Layer 1), Ethernet (Layer 2), and routing (Layer 3) components of the network; responding to network abuse complaints; planning and notification of maintenance events, diagnosing equipment failures; and developing and maintaining network operations processes and documentation. Since November 2003, the CENIC NOC has also provided Layer 1 (fiber and optronics) support for the nationwide National LambdaRail network.

In order to ensure that CENIC is able to provide ongoing NOC services in the event that the primary NOC site in Cypress is unusable, CENIC developed a Disaster Recovery Plan in early 2005. UC Irvine serves as a recovery location. Critical tools and data are replicated at UCI, and plans to redirect phone services have been practiced and documented. CENIC is also currently searching for a suitable site in northern California to house yet another alternate NOC should both southern California facilities become unusable.

EDUCAUSE • www.educause.edu

EDUCAUSE is the nation's leading professional organization for information technology in higher education. CENIC is a member of the EDUCAUSE Net@EDU program, which formed the Broadband Pricing Group (BPG) with CENIC as an active participant. The goals of the BPG are to provide all research and education institutions with cost-efficient bandwidth, and to facilitate the deployment of a seamless and robust nationwide network.

Some of the ideas and strategies of CENIC's Optical Network Infrastructure Initiative originated with the BPG in the form of white papers and recommendations submitted to UCAID, now Internet2, and EDUCAUSE.

Association of Pacific Rim Universities • www.apru.org

The Association of Pacific Rim Universities (APRU) was founded with the goal of helping these geographically linked institutions become more effective contributors to the development of an increasingly integrated Pacific Rim community, a goal analogous to and supportive of the efforts of the Asia Pacific Economic Cooperation. By increasing mutual understanding among the chief executives of these leading universities, APRU aims to stimulate cooperation throughout the fields of teaching and research on issues of importance to the Pacific Rim community.

Internet Educational Equal Access Foundation • www.ieeaf.org

The Internet Educational Equal Access Foundation (IEEAF) is a public-private partnership whose goal is to obtain donations of unused communications and networking assets and international bandwidth to enable global collaboration in research and education. CENIC's participation resulted from an MOU between CENIC and Geographic Network Affiliates, Inc. in February 2000.

The IEEAF is a broker among educational entities, corporations, governments, and regional and national network organizations. It identifies and accepts donated assets and matches them to educational needs. The partnership's vision is to accelerate the global growth of Internet2 in order to achieve universal educational access, and to help solve the digital divide on a global scale through the use of submarine and terrestrial dark fiber, carrier hotels, licenses to rights-of-way, and other assets.

APRU

Association of Pacific Rim Universities



2006-07 CALREN UPDATES

The 2005-06 fiscal year included the approval for the CaIREN-DC network “refresh” plan. The CaIREN-DC Refresh Project is currently underway and consists of upgrading and standardizing the existing DWDM optical system and a combination of activities to replace and upgrade existing routers. In addition, leading-edge IP-over-DWDM equipment will be installed within the CaIREN-DC network tier. A substantial undertaking, the project includes statewide infrastructure upgrades and standardization activities, installation, and migration of existing network services, followed by removal of numerous systems throughout the backbone. In addition, the project involves considerable logistics management, inventory, and asset management activities. With its completion, the CaIREN-DC network’s current backbone speed of 2.5 Gb/s will be increased to 10 Gb/s. The CaIREN-HPR

Refresh Project is slated to begin in 2008 after the issuance of an RFP.

CENIC also welcomed three new institutions onto CaIREN. The Monterey Bay Aquarium Research Institute together with both the University of San Diego and the University of San Francisco currently enjoy high-bandwidth connectivity to CaIREN and through it, California’s K-20 research and education community and colleagues throughout the world.

Connectivity to the Naval Postgraduate School was enhanced with the replacement of a managed-service Gigabit connection to the CaIREN backbone with a fiber connection, capable of providing even higher speed connectivity than the campus previously enjoyed.



THE NAVAL POSTGRADUATE SCHOOL

Monterey, CA — CaIREN Associate since 2005

CALREN NETWORK UPDATES FOR 2006-07

● INDEPENDENT SITES

The Monterey Bay Aquarium Research Institute, The Naval Postgraduate School, University of San Diego, University of San Francisco

★ K12 SITES

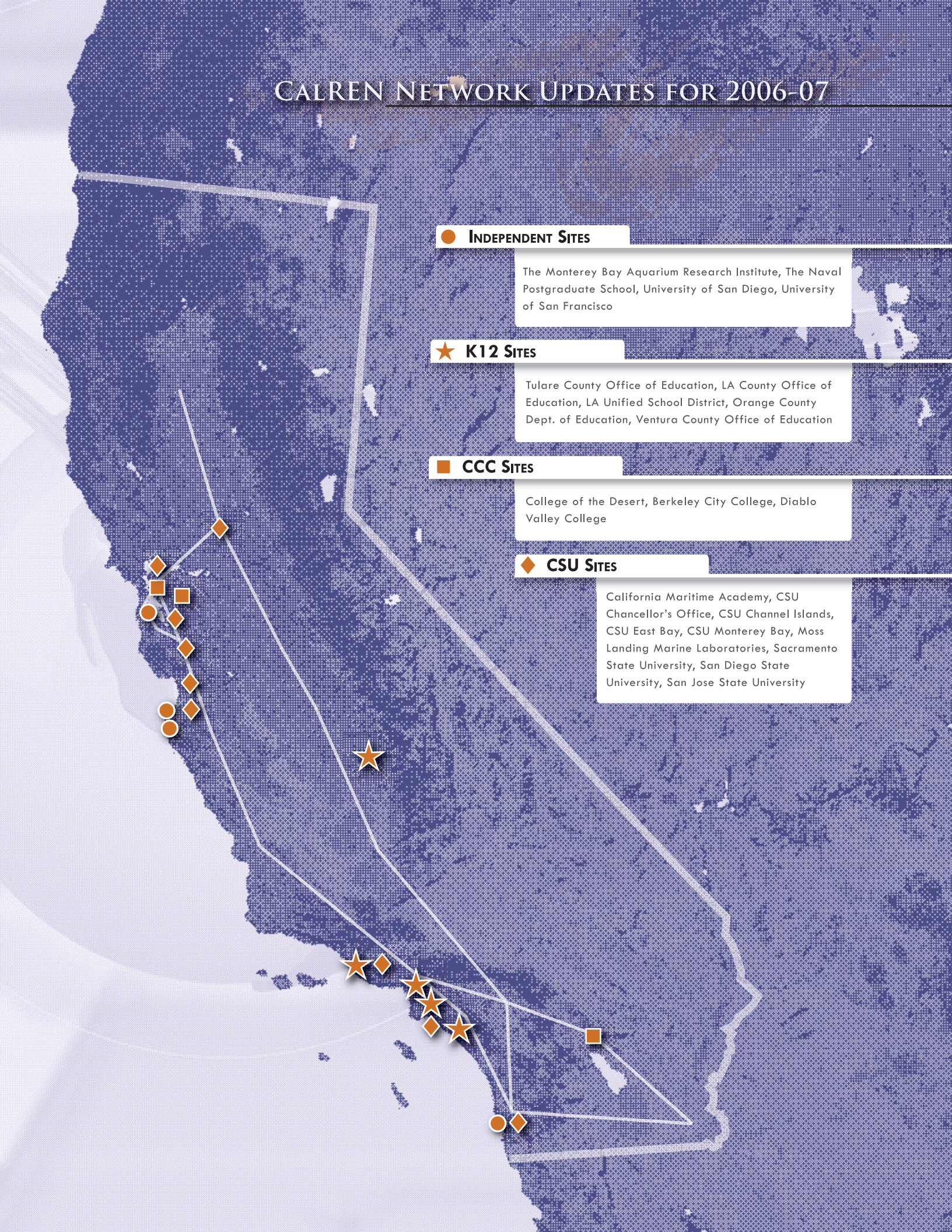
Tulare County Office of Education, LA County Office of Education, LA Unified School District, Orange County Dept. of Education, Ventura County Office of Education

■ CCC SITES

College of the Desert, Berkeley City College, Diablo Valley College

◆ CSU SITES

California Maritime Academy, CSU Chancellor's Office, CSU Channel Islands, CSU East Bay, CSU Monterey Bay, Moss Landing Marine Laboratories, Sacramento State University, San Diego State University, San Jose State University



K12 UPDATES:

At the end of the last fiscal year, CENIC and the Imperial County Office of Education worked together to plan needed circuit upgrades for various K-12 node sites around the state. In July 2006, several sites were identified as requiring additional bandwidth, and the end of the 2006 calendar year saw the Tulare County Office of Education's existing DS-3 connection upgraded to an OC-3 connection. The LA Unified School District, the Orange County Department of Education, and the Sacramento County Office of Education all received Gigabit connections in place of their previous OC-3 connections, and the LA County Office of Education was also targeted for similar upgrade and can look forward to receiving it in the coming fiscal year.

In Fall 2006, CENIC also began to collaborate with the K12 High-Speed Network to prepare the E-Rate application for K-12 networking services. The filing window closed on February 7, 2007. The completed application exceeded 1,400 pages but enabled California's K-12 system to benefit significantly from E-Rate funding.

In April 2007, three more K-12 node sites were identified to receive Gigabit connections: the Santa Cruz and Monterey County Offices of Education along with the San Bernardino County Superintendent of Schools will receive these connections, as well as the Kings County Office of Education whose faculty, students, and staff all benefited significantly from the increased bandwidth thanks to the Kings County Last Mile Project, an Innovations in Networking award-winner at **Making Waves**, the CENIC annual conference which took place in La Jolla in March 2006.

Also during April 2007, the Ventura County Office of Education was identified as needing a Gigabit connection, and while awaiting the completion of construction work toward that end, a second DS-3 circuit was ordered to provide needed bandwidth relief.

CALIFORNIA COMMUNITY COLLEGE UPDATES:

Last year, the CalREN backbone increased significantly in performance and robustness with the addition of a 400-mile fiber path through the Coachella Valley, thanks to a grant from the H. N. and Frances C. Berger Foundation. The beginning of the 2006-07 fiscal year saw Gigabit connectivity to CalREN via this fiber path for the College of the Desert, the area's largest higher education institution with an enrollment of over 10,000. Vista College also changed its name to Berkeley City College, and the campus's DS-3 connection was moved to its new location in downtown Berkeley. The 2007 calendar year opened with the San Ramon Valley campus of Diablo Valley College receiving a DS-3 connection to CalREN.

Further good news came in January 2007 for two community college districts which received approval for Gigabit connections. The Coast Community College District is comprised of Coastline Community College, Golden West College, and Orange Coast College while the San Diego Community College District includes San Diego City College, Miramar College, and Mesa College; its hub is located at Miramar College, which is where the district's connection to CalREN will be located. Soon after, Los Rios Community College District was chosen to become the first of California's community college districts to receive dual, diverse connectivity to CalREN. Consequently, a large number of students can look forward to benefiting from the increased bandwidth for their institutions.

In Spring 2007, other community college sites were also identified for Gigabit connectivity to CalREN, including the San Bernardino Community College District hub at San Bernardino Valley College, another Innovations in Networking award-winner for their rich-media distance education EduStream.org project. The West Hills College Lemoore site was upgraded to full campus status, and the CCC Chancellor's Office authorized a DS-3 for the site.

CSU UPDATES

(CAMPUS ACCESS INFRASTRUCTURE INITIATIVE):

The Campus Access Infrastructure Initiative (CAI) seeks to provide all California State University campuses with diverse Gigabit connectivity to the CaIREN backbone. The 2006-07 fiscal year opened for the CSU with San Jose State University and San Diego State University each receiving their second Gigabit connections to CaIREN in July. Both campuses now enjoy the dual, diverse Gigabit connectivity to CaIREN that the CAI aims to provide. During July, the Moss Landing Marine Laboratories also received Gigabit connectivity to CaIREN-DC. (Subsequently, August 2006 saw the previously mentioned Monterey Bay Aquarium Research Institute obtain Gigabit connectivity to the CaIREN-HPR network via Moss Landing Marine Laboratories.) In September, the California Maritime Academy received the first of its projected dual/diverse Gigabit connections to the Oakland node of the CaIREN backbone over CENIC-managed fiber.

October 2006 saw Sacramento State University receive dual/diverse Gigabit connectivity to CaIREN with the second of its two Gigabit connections brought into production, and the CSU Chancellor's Office obtained Gigabit connectivity to the Los Angeles node site as well; the office also enjoys DS-3 connectivity to the Tustin node site to provide diversity. Also in

October, the California Maritime Academy's second Gigabit connection to the Sacramento node site was brought into production, giving the Academy the target level of connectivity.

November 2006 saw the CSU Channel Islands campus receive the first of its dual/diverse Gigabit connections to CaIREN, and saw CSU East Bay receive its second. East Bay now enjoys Gigabit connectivity to both the Sunnyvale and Oakland CaIREN nodes. CSU Monterey Bay's dual/diverse Gigabit connections were tested, and the beginning of the 2007 calendar year saw them brought into production.

UC UPDATES:

This fiscal year was a year of continued progress for the University of California in terms of network connectivity to the CaIREN backbone, with multiple projects in various stages of development to enhance UC connectivity. A second fiber path to the CaIREN backbone was approved for UC Santa Barbara, the planning to provide fiber connectivity to UC Santa Cruz was completed, and implementation of a fiber path to the Medical Center at UC San Diego is nearing completion.

The UC system also began a migration to CaIREN Video Services for their videoconference needs.

CIIX: The CENIC International Internet eXchange • www.ciix.net

Formerly known as the Los Angeles Access Point (LAAP) and previously administered by the University of Southern California, CIIX provides physical interconnections in the Los Angeles area for its participants to exchange Internet traffic through co-operative bi-lateral peering agreements.

ISPs, content providers, cable networks, universities, nonprofits, etc. are all welcome to join CIIX providing they meet some criteria. Organizations who think they may meet CIIX participation criteria and are interested in participating are encouraged to contact CENIC.

Previously a project of the Information Sciences Division of the University of Southern California, CIIX features locations at the most interconnected building on Earth — One Wilshire at 624 S. Grand — with interconnections to Telehouse's LAIIX located at 626 Wilshire Blvd.



BEYOND CALIFORNIA

A global economy means global collaboration for researchers and educators in the Golden State – with one another as well institutions throughout the US and the world. To that end, CENIC has taken the initiative in operating, participating in, and supporting a wide range of ventures and network partnerships designed to extend worldwide both the benefits of advanced-services networking and the vision of the California research and education community. Thanks to these initiatives, CaIREN empowers Associates to connect at Gigabit speeds to fellow researchers and educators throughout North and South America, Europe, and the Pacific Rim.

In 1999, CENIC signed a Memorandum of Understanding with the Corporación Universitaria para el Desarrollo de Internet (CUDI), the Mexican nonprofit corporation whose purpose is to promote and coordinate the development of high-capacity telecommunications and computer networks to assist the development of scientific and educational activities in Mexico.

Composed of members from both the public and private sector, CUDI supports an advanced high-speed network in Mexico and has agreements with a number of carriers that provide high-performance applications to higher education and research institutions throughout the country.

In 2000, a high-speed direct link was established between CUDI and CaIREN, and this connection was later upgraded from DS-3 to 1 Gigabit with funding from the NSF.

Originally, this Gigabit connection to CUDI was also shared by RedCLARA, the Cooperación Latino-Americana de Redes Avanzadas, an international conglomeration of South American advanced networks. The six main nodes of the RedCLARA backbone are located in São Paulo, Buenos Aires, Santiago, Panama, Tijuana, and Miami. From Brazil, RedCLARA connects the Latin-American National Research and Education Networks to GÉANT2, the Pan-European advanced network, and to the US Atlantic Coast.

In 2005, the 1 Gigabit link previously shared by both CUDI and RedCLARA was broken out to two dedicated 1 Gigabit links, one for each. Via this link, RedCLARA now connects to CaIREN at Tijuana, and through CaIREN to the Pacific Wave international peering facility.

Headquartered in Ottawa, Ontario, Canada's CANARIE is dedicated to the research and implementation of advanced networks and applications that will stimulate economic growth and increase Canada's international competitiveness. The network deployed by CANARIE is CA*net 4, one of the most advanced and extensive optical networks in the world.

In June 2006, a 1 Gigabit link between CA*net 4 and CaIREN was announced to attendees of the California-Canada Strategic Innovation Summit in Vancouver as a demonstration of the capabilities of a new OC-192 connection between the two networks at the Pacific Northwest Gigapop in Seattle.

Thanks to peering connections between CaIREN and the Abilene and National LambdaRail backbones, an uncongested, high-performance networking path is also available to Europe for California's R&E community, enabling collaboration with some of the world's most advanced remote laboratories.

The Canada/California connection also supports the Global Lambda Integrated Facility (GLIF) and through this, enables collaboration with Europe ...



▲ CANARIE • www.canarie.ca

CANARIE has succeeded in enhancing Canadian R&D Internet speeds by a factor of almost one million since its inception in 1993.

CANARIE also intends to act as a catalyst and partner with governments, industry, and the research community to increase overall IT awareness, ensure continuing promotion of Canadian technological excellence and ultimately, foster long-term productivity and improvement of living standards.

SEATTLE

SUNNYVALE

SAN DIEGO

● Corporación Universitaria para el Desarrollo de Internet • www.cudi.edu.mx

The Corporación Universitaria para el Desarrollo de Internet (CUDI) is a Mexican nonprofit corporation founded in 1999 which funds an advanced, high-speed research and education network that reaches throughout Mexico, RedCUDI.

Over 150 members institutions (research centers, universities) participate in CUDI, located in all 31 Mexican states. CUDI's purpose is to develop and deploy advanced network applications and technologies such as IPv6, IP multicasting, quality of service, and other technologies.

◆ Cooperación Latino-Americana de Redes Avanzadas • www.redclara.net

The initial idea for the creation of RedCLARA arose during the June 2002 meeting in Toledo, Spain of the CAESAR (Connecting All European and South American Researchers) project, a European Commission funded feasibility study to evaluate the possibility of a direct interconnection between the pan-European research network GÉANT2 and similar activities in Latin America.

CALREN'S DIRECT INTERNATIONAL CONNECTIONS

North, Central, and South America

NETWORKING WITHOUT BORDERS

In an industry whose corporate arm is normally dominated by profit motives, an agreement to share resources freely for mutual benefit seems strange, but the Internet was born in academia, where the free sharing of resources is seen as part of a vibrant spirit of collaboration, vital to ensure progress.

For worldwide Research & Education Networks such as CalREN, for whom collaboration is their reason for being, the ultimate expression of this philosophy is

settlement-free peering. In a settlement-free peering agreement, two networks agree to connect to one another without payment at a peering facility to share each other's downstream traffic, enabling much more efficient and higher-performance collaboration for their users. Even more useful is a distributed peering facility with multiple connection points available in popular locations, open to participants from all over the world.

PACIFIC WAVE & TRANSITRAIL NETWORKS

Enabling Global Networking without Borders

QATAR
FOUNDATION

KREONET2/KOREN

T-LEX, GEMNET, SINET,
SOFTBANK TELECOM,
TRANSPAC2

TWAREN

SINGAREN, NUS GIGAPOP

MIMOS BERHAD

Pacific Wave • www.pacificwave.net

Pacific Wave is a state-of-the-art international peering exchange facility designed to serve research and education networks throughout the Pacific Rim and the world. A joint project between CENIC and the Pacific Northwest Gigapop (PNWGP) in collaboration with the University of Southern California and the University of Washington, Pacific Wave creates a new peering paradigm by removing the geographical barriers of traditional peering facilities. It enables any US or international network to connect at any of three major metropolitan areas along the US Pacific coast, as well as offering the option to peer with any other Pacific Wave participant, regardless of physical location.

By presenting a seamless, unified, international peering exchange facility at strategic Pacific coast locations, the Pacific Wave peering facility is a magnet for research and education partners throughout Canada, Mexico, South America, and the Pacific Rim.

In September 2006 at the WHREN/LILA Steering and Technical Committee meeting in Santiago, Chile, RedCLARA Executive Director Florencio Utreras and Jim Dolgonas, President/CEO of CENIC, signed the Pacific Wave agreement leading the way to a proposed redesign of the California connection to support both CLARA and CUDI connecting directly to Pacific Wave. Two months earlier, at the start of the fiscal year, a 10-Gigabit connection was also established between Translight/Pacific Wave and Translight/StarLight, enabling researchers worldwide to establish a direct path between one another using the Pacific Wave-to-StarLight network fabric and without using any routed third-party network facilities. TransLight/StarLight and TransLight/Pacific Wave are complementary efforts funded by the U.S. National Science Foundation (NSF) to provide multi-Gigabit links and supporting infrastructure to interconnect U.S., European, and Pacific Rim research and education networks.

KAREN



TransitRail • www.transitrail.net

TransitRail is a national-level AUP-free commodity peering program also jointly implemented and operated by CENIC and the Pacific Northwest Gigapop in a consortia-type arrangement with TransitRail members.

The full TransitRail national footprint is comprised of five nodes in Seattle, Sunnyvale/Palo Alto, Los Angeles, Ashburn, and Chicago, enabling research and education institutions to take advantage of low-cost network peering on a national scale.

The Ashburn node was announced by both CENIC and PNWGP in March 2007, with the final node in Chicago becoming active in June. With the Chicago node active and the national footprint in place, even greater interest is anticipated, and the next phase of growth for the program will involve a new round of peering points driven by partnership opportunities.

Participant networks connect to TransitRail via their National LambdaRail (NLR) connection, leveraging NLR's cutting-edge national infrastructure. TransitRail's U.S. footprint is connected by 10 Gb/s waves provided by NLR. Each TransitRail node will be connected to, and accessible at, NLR points of presence throughout the United States.

TransitRail peers with major ISPs, and its current participant base represents a substantial segment of the research and education community within the United States. TransitRail is available to any interested R&E network groups.

Current participant networks and institutions include CalREN, Pacific Northwest Gigapop, Front Range Gigapop, Oklahoma OneNet, Pittsburgh Supercomputing Center, the University of Utah/Utah System of Higher Education, MidAtlantic Terascale Partnership, The North Carolina Research & Education Network, MERIT Network, Inc., Florida LambdaRail, Southern CrossRoads, and the Education Networks of America.



Pacific Wave participant networks include:

Australia
AARNet

New Zealand
KAREN

Canada
CA*net 4

Japan
GEMnet
NII/SINET
Softbank Telecom (ODN)
T-LEX

Korea
KREONet2/KOREN

Qatar
The Qatar Foundation

Malaysia
MIMOS Berhad

Taiwan
TANET2/TWAREN

Singapore
NUS-Gigapop
SingAREN

South America
redCLARA

United States
Abilene/Internet2
CENIC
DREN
ESnet
Google
L-Root (ICANN)
Los Nettos
Microsoft Corporation
NREN
National LambdaRail
Pacific Northwest Gigapop
TransPAC2
Ultralight

CALREN VIDEO SERVICES

Through CalREN Video Services (CVS), CENIC offers videoconferencing services over CalREN to over 200 K-20 sites throughout California. CVS also connects seamlessly to the Internet2 Commons to allow CVS users to schedule videoconferences with hundreds of K20 sites nationally.

The CVS Scheduling Desk puts the power to schedule conferences directly in the hands of the Video Administrators. With it, Video Administrators can schedule videoconferences, manage videoconferences in progress, and send notifications of scheduled videoconferences to other Video Administrators via the online CVS Scheduling Desk, launched in June 2006.

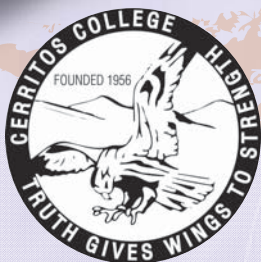
Videoconferencing among CalREN Associates for both academic and administrative purposes is on the rise, with a significant increase in the total number of conferences scheduled annually through CVS. In 2006-07, 4,839 videoconferences were scheduled in this first full year of operation using the new online

CVS Scheduling Desk. This number represents 36,000 hours of videoconferencing activity.

As expected, peak usage times are mid-semester (September-November and February-May), with lower usage during the summer. However, the summer slow down gets shorter each year and the month of August 2006 showed a sharp increase, more than doubling from roughly 200 scheduled videoconferences in 2005 to over 400 in 2006.

Future plans for CVS include expansion of services into webcasting, video archiving and live streaming, and the integration of CVS with data sharing and collaboration tools.

For information on participation in CVS as a certified CVS site please contact CENIC via e-mail at SchedDesk@cenic.org. Additional information about CVS is available at cvs.cenic.org.



PALOMAR COLLEGE
Learning for Success



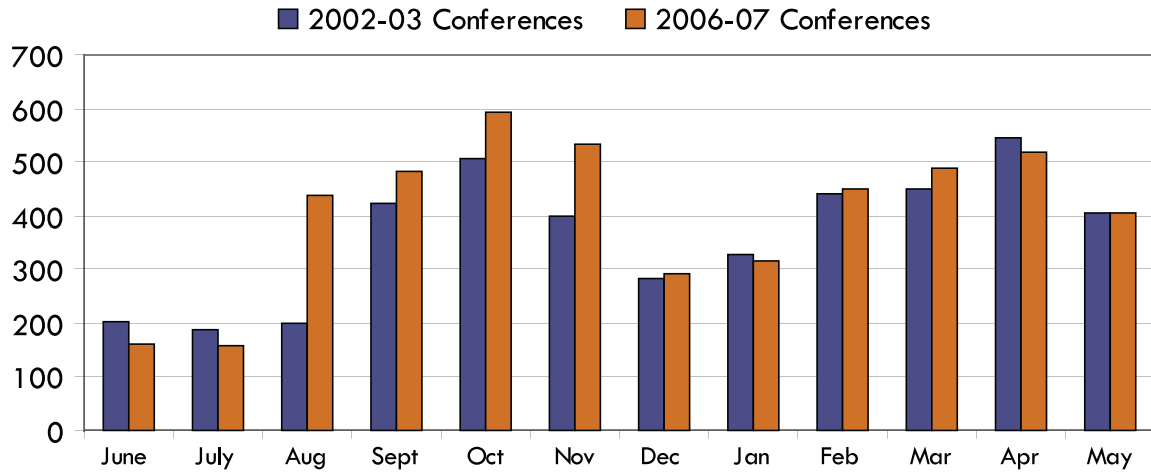
San José State
UNIVERSITY

The CalREN Video Services Roadshow

In April 2007, CalREN Video Services went on the road, working with host sites to create regional Roadshow opportunities for Video Administrators around California. The Roadshow provided video administrators with an opportunity to get together and learn more about CVS and the innovative uses of videoconferencing enabled by it. These half-day seminars took place at Cerritos College, Palomar College, and San Jose State University and included presentations by Video Administrators on creative uses of videoconferencing over CalREN and a tutorial by Cassandra Patrizio, CENIC's CVS Coordinator, on the advanced features of the CVS Scheduling Desk.

Attendees were enthusiastic about the opportunity to learn more about the CVS Scheduling Desk and videoconferencing. Meeting and sharing ideas and solutions to common challenges with colleagues from other campuses was also a highlight. 100% of attendees said that they would attend the Roadshow again and would recommend it to their colleagues. CVS will hit the road again in 2008, so please watch cvs.cenic.org for more information regarding upcoming Roadshow events.

TOTAL CVS VIDEOCONFERENCES BY MONTH



2006-07 CENIC OUTREACH

In Fall 2006, two key international workshops focusing on the future of optical networking in service of research and education took place in Tokyo: the Optical Network Testbeds Workshop 3 (ONT3) on September 8, and the 6th Annual Global LambdaGrid Workshop on September 12. Chief Technology Officer Dave Reese represented CENIC at both events.

On the other side of the world, CENIC President and CEO Jim Dolgonas attended the meeting of the WHREN/LILA Steering and Technical Committees in Santiago, Chile. Florencio Utreras, Executive Director of RedCLARA and Dolgonas signed a Pacific Wave agreement to connect the RedCLARA conglomeration of South American R&E networks to the world through Pacific Wave and opening a new era of international collaboration for the continent.

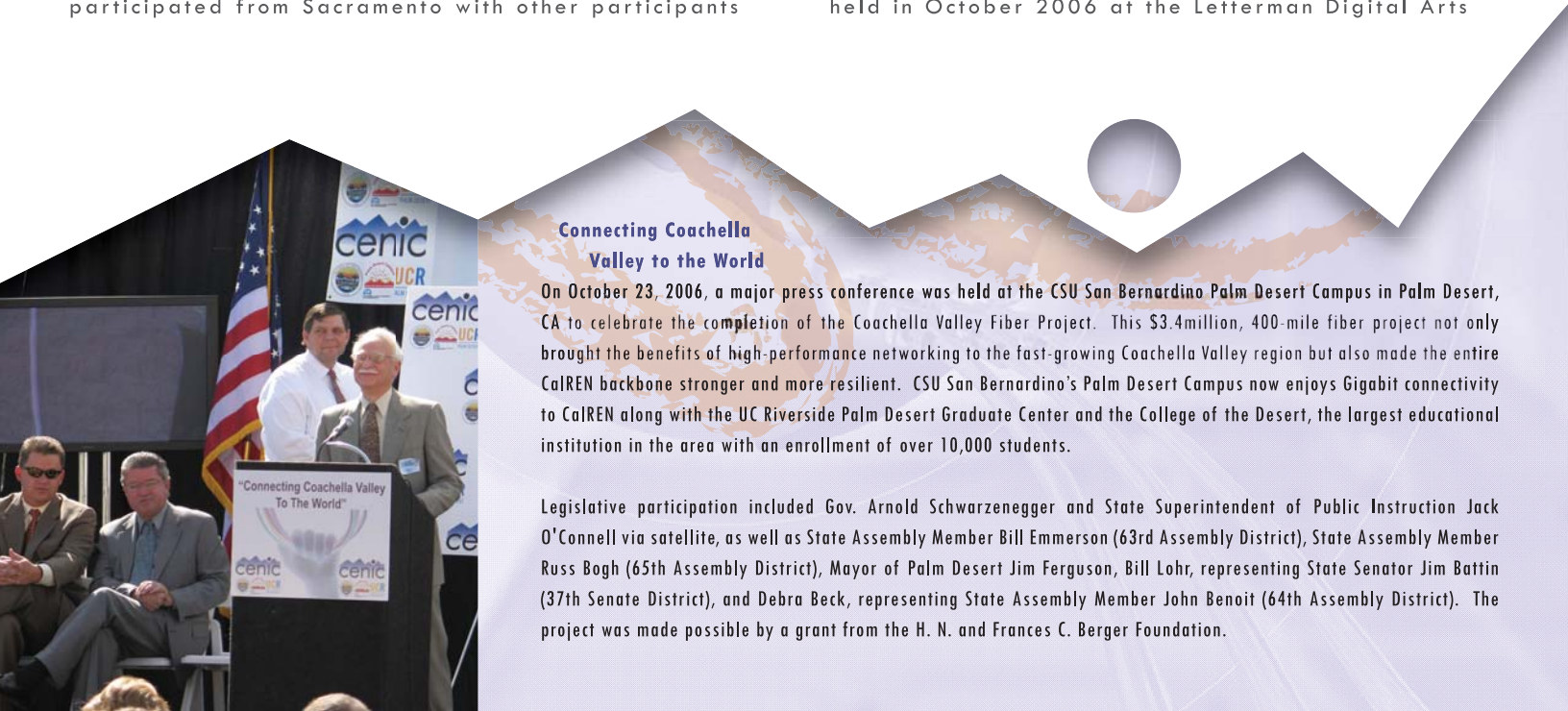
Fall of 2006 also saw the first of two Broadband Policy Forums sponsored by CENIC, TechNet, the California Community Technology Policy Group, and the Broadband Institute of California. Through CalREN Video Services, legislative experts participated from Sacramento with other participants

at six other locations throughout the state, and the two-hour September event was webcast for those who were unable to attend in person but still wanted to benefit from the insights obtained. Participants addressed legislation being considered in the Governor's office of importance to broadband access, including the Digital Infrastructure and Video Competition Act of 2006 and changes to the California Teleconnect Fund.

A second two-hour Forum took place in October 2006 further addressing changes to the California Teleconnect Fund and sponsored by CENIC, the K12 High-Speed Network, the Broadband Institute of California, the California Community Technology Policy Group, TechNet, the Northern Sierra Rural Health Network, and the California State Rural Health Association. This time, six sites located throughout the state participated.

... 4K digital motion pictures & 24-channel digital audio were streamed in real-time via CineGrid to San Francisco ...

CENIC also participated in several high-performance networking demonstrations and conferences, including the Audio Engineering Society (AES) conference in held in October 2006 at the Letterman Digital Arts



Connecting Coachella Valley to the World

On October 23, 2006, a major press conference was held at the CSU San Bernardino Palm Desert Campus in Palm Desert, CA to celebrate the completion of the Coachella Valley Fiber Project. This \$3.4million, 400-mile fiber project not only brought the benefits of high-performance networking to the fast-growing Coachella Valley region but also made the entire CalREN backbone stronger and more resilient. CSU San Bernardino's Palm Desert Campus now enjoys Gigabit connectivity to CalREN along with the UC Riverside Palm Desert Graduate Center and the College of the Desert, the largest educational institution in the area with an enrollment of over 10,000 students.

Legislative participation included Gov. Arnold Schwarzenegger and State Superintendent of Public Instruction Jack O'Connell via satellite, as well as State Assembly Member Bill Emmerson (63rd Assembly District), State Assembly Member Russ Bugh (65th Assembly District), Mayor of Palm Desert Jim Ferguson, Bill Lohr, representing State Senator Jim Battin (37th Senate District), and Debra Beck, representing State Assembly Member John Benoit (64th Assembly District). The project was made possible by a grant from the H. N. and Frances C. Berger Foundation.

TAMPA CONVENTION CENTER

Site of Supercomputing 06



Center in San Francisco. As part of the CineGrid@AES event, 4K digital motion pictures and 24-channel digital audio were streamed via CineGrid to San Francisco in real-time from Tokyo, Los Angeles and San Diego, for which CaIREN provided the California fiber path and Pacific Wave provided the cross-Pacific connectivity.

The annual Supercomputing (SC) conference is the premiere international conference for high-performance computing, networking, storage, and analysis. In November 2006 in Tampa, SC06 required an enormous, high-bandwidth network into the Tampa Convention Center to support the attendees as well as the many high-performance demos that were part of the conference itself. Along with many other organizations, CENIC was pleased to take part in providing the convention center with beyond-state-of-the-art connectivity which remained in place for future events.

CENIC also unveiled a new look and feel for its website at www.cenic.org, breaking out its Network Operations Center and CaIREN Video Services with separate sub-sites of their own (noc.cenic.org and

cvs.cenic.org).

At the NOC website, users find a cockpit of information including a maintenance calendar and management and network status tools, as well as ticket reports. The CVS website connects users to the new CVS Scheduling Desk as well as providing User and Equipment Guides and videoconferencing tutorials. The updating of CENIC's corporate look-and-feel continued with new literature, all of which can be found at www.cenic.org.

Toward the end of the fiscal year, CENIC's representation at professional events was further bolstered by Project Manager Ed Smith's presentation on rich media delivery over CaIREN at the CMS Technical User's Group in April 2007, and a joint presentation on CaIREN given by him and Catherine McKenzie of the CCC Chancellor's Office at the CCC Chief Information Systems Officers Association 2007 conference. April 2007 also saw Jim Dolgonas and Director of State-wide Initiatives Stephanie Couch at the American Educational Research Association's Annual Meeting in Chicago, where both participated in the session titled "International Research Collaborations and the Digital Highway: Possibilities, Innovations and Challenges."

Lastly, CENIC's partnership with the Open Student Television Network (OSTN), announced in February, was formally inaugurated with a well-attended web seminar on April 27, 2007. Attendance spanned all educational segments, and attendees learned how they could take advantage of the CENIC-OSTN partnership to enhance their own educational offerings and provide opportunities to participate for their students.

THE CENIC ANNUAL CONFERENCE

At **Making Waves**, held from March 12-14, 2007 in La Jolla, CA, attendees enjoyed presentations and demonstrations by dozens of members of the CaREN community and their collaborators from all over the globe. The three-day event was held at the San Diego La Jolla Marriot Hotel and showcased the uses of CaREN in all disciplines from hard science to the arts, as well as network researchers, and CENIC officers discussing CaREN, its present and its future.

On the second day of the conference, CENIC presented its annual Innovations in Networking Awards to recognize exemplary innovations that leverage the network and have the potential to improve the way instruction

and research is conducted, even when the impact of the innovation may not be felt immediately. This year's award winners are listed at right.

Making Waves was sponsored by Cisco Systems, AT&T, Force10 Networks, Verizon, Juniper Networks, ADVA Optical Networking, Cdigix, Qwest, and Vega Business Technologies.

CENIC's next annual conference, CENIC 08: Lightpath to the Stars, will take place March 10-12, 2008 in the scenic and historic city of Oakland, CA. For more information, visit cenic08.cenic.org.



SAN DIEGO SKYLINE FROM POINT LOMA

CENIC 2007 Annual Conference — "Making Waves"



Outstanding Individual Contribution Award: Jack McCredie

Jack McCredie provided outstanding leadership to CENIC during its first 5 years of existence. In the fall of 1997, Jack was appointed to a 2 year term as a Charter Director by former University of California President Atkinson. He continued to serve as a Director through June, 2002. During his tenure, his outstanding contributions helped shape the success of CENIC. He chaired the Search Committee in 1998 that resulted in the hiring of Tom West as CENIC's first full time Executive Director. He served as Vice Chair of the CENIC Board of Directors between June 1999 and June 30, 2002. He also chaired the Digital California Project Steering Committee between April 2000 and April 2003. CENIC would not be what it is today without Jack's visionary leadership.

Innovation Award for Educational Applications: EduStream.org

Like districts everywhere, the San Bernardino Community College District (SBCCD) enhances its educational offering with rich media, including telecourses. Such courses can sometimes confront limitations where face-to-face class time is often dedicated to testing instead of quality interactions between students and faculty and students themselves. Solving this problem with video-on-demand can be costly. The solution developed by the SBCCD is EduStream.org, an educational rich media application that empowers colleges to offer video content to enhance course offerings while addressing producers' authentication and copyright concerns.

Innovation Award for Gigabit/Broadband Applications: Kings County Last Mile Project

Kings County is a rural county situated in the southern Central Valley and, as a rural county faced with unique networking challenges, it required an innovative and visionary solution to bring the benefits of broadband to its K-12 students, faculty, and staff. Thanks to Jerry Waymire of the Kings County Office of Education, the county is now covered with high-capacity wireless microwave connections for all 54 schools and 11 wireless cells utilizing Motorola's Canopy product that provide for educational-use-only connectivity for students and faculty at home.

Innovation Award for High-Performance Research Applications: iAnatomy

Using the Gigabit connectivity between CalREN and the Canadian research and education network CA*net4, via Pacific Wave, Stanford University has collaborated with the Northern Ontario School of Medicine to create iAnatomy, a project by which faculty and students can interact live with Stanford's Bassett Collection of high-resolution medical images, including 3-D images, during classroom presentations. As an illustration of the benefits of broadband connectivity for distributed medical learning, the iAnatomy project is particularly valuable. Not only does it offer an example of how to make expert resources available to the research and education community worldwide, but it functions quickly and seamlessly, without a prohibitively steep learning curve.

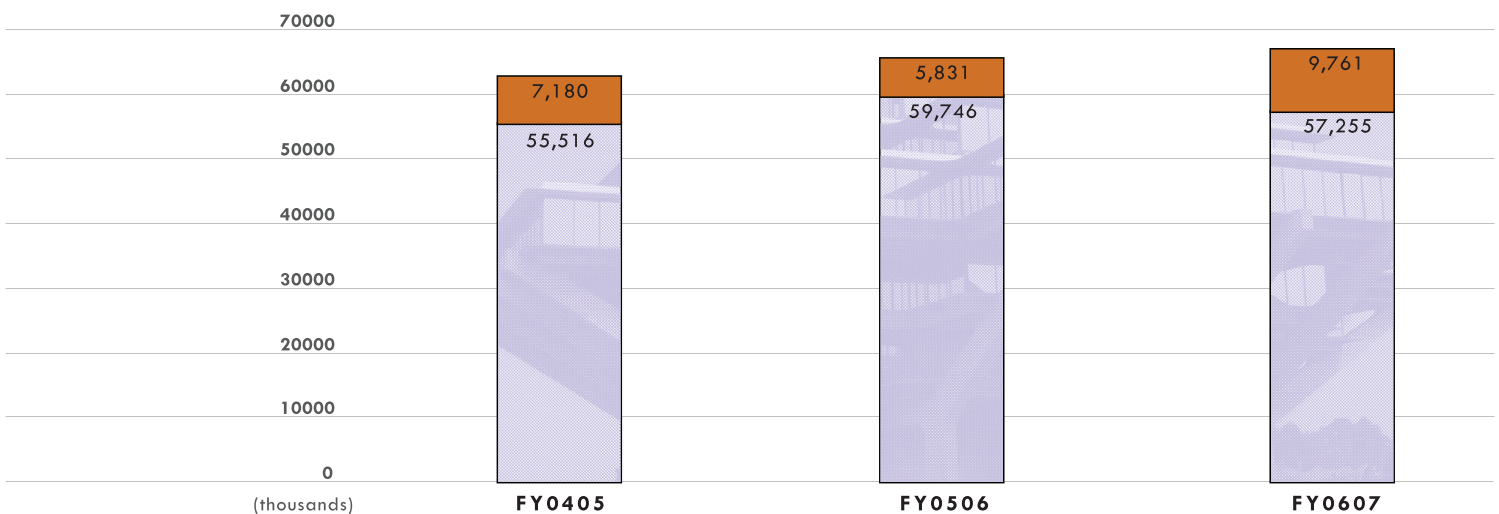
Innovation Award for Gigabit/Broadband Applications: Connecting Coachella Valley to the World

Robert Webb and the Webb Foundation's dream was to bridge the "digital divide" in their local community. The Foundation began an annual "Heads Up" technology seminar with local network administrators where they discussed advances in computers, networking, and local infrastructure needs. Subsequently, the Webb Foundation provided a planning grant to CENIC to identify opportunities for improving networking in the region. As a result of this work, and with the help of the H.N. and Frances C. Berger Foundation, CENIC, and its grantees, a 400-mile, \$3.4 million fiber path now extends the CalREN backbone through the Coachella Valley. The area now enjoys state-of-the-art broadband Internet connectivity which promises to educate as well as benefit the community at large for many years to come. Already, the University of California Riverside and the California State University San Bernardino's Palm Desert campuses, as well as the College of the Desert, currently enjoy world-class connectivity to their colleagues in California and around the world.

2006-07 FINANCIAL SUMMARY

	FY0405	FY0506	FY0607
Total Assets	62,696	65,577	67,016
Liabilities	7,180	5,831	9,761
Net Assets:	55,516	59,746	57,255

TOTAL ASSETS, LIABILITIES, & NET ASSETS



Prudent financial management together with the oversight provided by the CENIC Finance Committee has resulted in CENIC's having a strong balance sheet.



STANFORD LINEAR ACCELERATOR CENTER

Menlo Park, CA

California's higher education and research communities leverage their networking resources under 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 & Education Network**. CalREN is 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 CalREN for 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.

CENIC is committed to the following goals:

- Continuously improving a robust, cost-effective, state-of-the-art communications network, accessible to participating education and research institutions,
- Working with member institutions to define a value chain of services, and developing innovative ways to deliver scalable solutions to members,
- Leading efforts of participating institutions to provide end-to-end service quality and interoperability among member institutions, and promoting adoption across network boundaries,
- Advancing the collective interests of the institutions by leveraging their diversity and relationships to accrue benefits to individual members,
- Providing a competitive advantage in the global marketplace to the education and research communities,
- Communicating the value of CENIC as California's recognized provider of network services for education and research,
- Providing opportunities for innovation in teaching, learning, and research through use of the network, and
- Strengthening participation in the state, national, and international education and research networking communities.



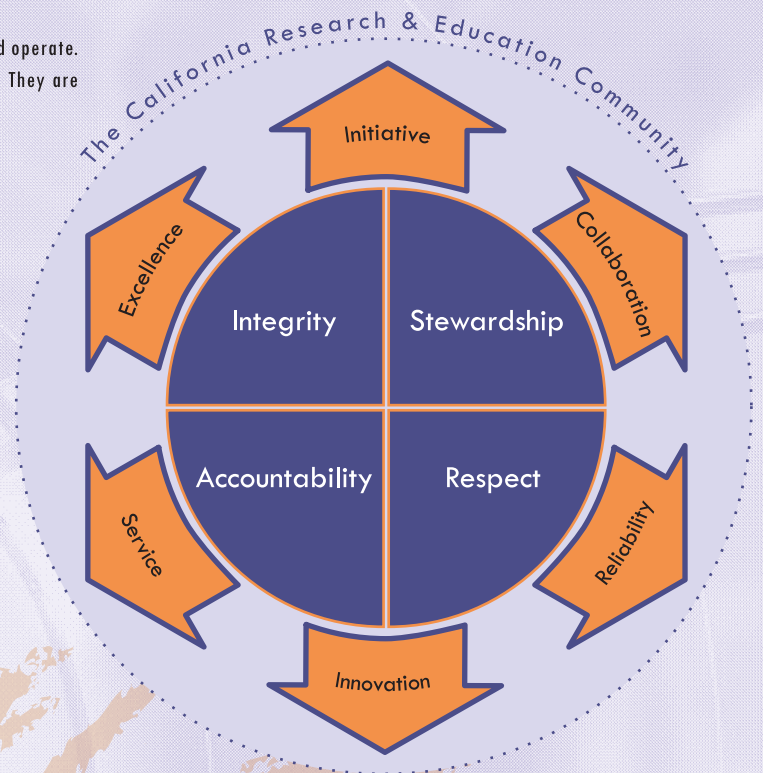
The **CENIC Core Values** describe the standards by which CENIC and its employees should operate. These values do not change with time or circumstance and should not be compromised. They are the underpinnings of our corporate culture and should be reflected in everything we do.

Integrity: We conduct ourselves according to high ethical standards.

Stewardship: We respect the resources our Associates have entrusted to us — time, money, effort, and intellectual capital — and pledge to act as responsible stewards of all of these.

Accountability: We take responsibility for our conduct in dealings with each other and our Associates.

Respect: We act with consideration, tolerance, and dignity towards others.



The **CENIC Guiding Principles** describe in broad terms the factors that inform and help determine CENIC's actions and decisions. In most cases, the actions and decisions reflect the application of CENIC Core Values to specific situations through striking a balance between or among extremes suggested by applying these principles in isolation.

Excellence: We conscientiously strive for quality and distinction in our work.

Initiative: We proactively identify and take the appropriate actions needed to provide solutions.

Collaboration: We work cooperatively with each other and with our Associates in support of shared goals and common interests.

Service: We recognize our role in helping our Associates achieve their missions.

Innovation: We value creativity in the pursuit of new technologies and solutions when appropriate.

Reliability: We recognize the importance of the services provided to our Associates and their dependence upon those services.

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