



## LEADING THE WAY TO TOMORROW'S INTERNET


 Search

[About CENIC](#)
[Network](#)
[Services](#)
[Projects](#)
[Associates](#)
[Publications](#)
[Events](#)


## PUBLICATIONS

Volume 5, Issue 6  
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### IN THIS ISSUE:

Quote of the Month

### CENIC News

- Introducing James Dolgonas, CENIC's New COO
- CENIC Launches NGI Roundtable
- UCSC/Internet2 Collaboration
- CENIC to Host IPv6 Implementation Workshop

### National Networking News

- CISE Assistant Director Peter Freeman Visits UCSD
- Web Services is The Glue for Unified Messaging
- NSF Doubling Bill Takes A Quantum Leap Towards Enactment

### About CENIC

- Subscription Information

### QUICK LINKS

[CENIC Today](#)
[DCP Today](#)
[GB Today](#)
[Brochures](#)
[Reports](#)
[Presentations](#)
[Video](#)
[Presentations](#)
[Other Documents](#)
[CENIC Home](#)

### Quote of the Month

" This is a big deal, my friends."

-- Governor Gray Davis at the ground breaking ceremony for the new California Institute for Telecommunications and Information Technology (Cal-IT<sup>2</sup>) facility.

### CENIC News

#### Introducing James Dolgonas, CENIC's New COO

CENIC is pleased to announce the appointment of James Dolgonas as CENIC's Chief Operating Officer. Mr. Dolgonas is the former Vice President of Information Systems and Computing for the Office of the President, University of California. He brings over 25 years of management and executive level experience in all facets of higher education information technology. He is a member of the EDUCAUSE Advisory Group, Board Member of Project ASSIST and Chair of the Intersegmental Coordinating Council Subcommittee on Information Technology to name a few. As CENIC's new Chief Operating Officer, he will be responsible for the daily oversight and management of applications coordination for higher education; DCP applications coordinations; communications/public relations; CENIC associates program; financial services; administrative report and, legal services.

#### CENIC Launches NGI Roundtable

The State of California recently awarded a \$2M grant to CENIC to conduct research and development on the Next Generation Internet via the Next Generation Internet (NGI) Roundtable and Centers Initiative. Through this initiative, CENIC is creating a unique framework for building and sustaining a powerful partnership comprised of individual representing a wide range of organization that have an interest in advancing NGI.

CENIC's NGI Roundtable addresses critical technical, policy, financial and organizational issues facing the development of a coherent and comprehensive strategy to achieve the delivery of robust end-to-end broadband internet capabilities to every education institution, business and home in California. The NGI Roundtable provides a forum that brings the research, education, commerce, state and local government and general public interests together to address these challenges. As its goal, the NGI Roundtable will focus on bringing 1 Gb broadband to all Californians by 2010 or, in California "shorthand", 1 Gb or Bust™.

The NGI Roundtable offers opportunities for involvement and support for organizations and individuals that have a stake in a viable Next Generation Internet. CENIC NGI Roundtable members will include higher education institutions, science and engineering research organizations, state and local agencies, community-based organizations, and small, medium, and large corporations - organizations who require a viable Next Generation Internet research and development activity. For more information on membership and sponsorship opportunities, email [molly@cenic.org](mailto:molly@cenic.org)

To receive the latest NGI Roundtable news, subscribe to the NGI Today newsletter by sending e-mail to [listproc@cenic.org](mailto:listproc@cenic.org) with the following request in the message body

subscribe ngi-today your email address

### **UCSC/Internet2 Collaboration**

This month, a 45 Mbps microwave link from the UC Santa Cruz campus to Monterey Bay, and Multicast Video Streams to Mystic, CT was successfully established. This effort was in support of a research and education initiative led by Dr. Robert Ballard, marine scientist and deep-ocean explorer who is most famous as the discoverer of the Titanic.

Dr. Ballard's Institute for Exploration, based at the Mystic Aquarium, is involved in a major program with NOAA's National Marine Sanctuary Program. Their long-term goal is to use underwater technology to provide researchers and the public at-large accesses on a real-time, continuous, high-bandwidth basis to the various marine sanctuaries of America.

The first step in this program is to install and operate a series of cameras and a remotely operated vehicle in the Monterey Bay Marine Sanctuary. A production facility at Mystic Aquarium will serve as the distribution center and initial presentation effort.

Starting this month, the public will be able to enter a 30-foot diameter interactive theater and participate in a series of "live" tours in the kelp forest and sea lion haul-outs of Monterey Bay. This entire program will be distributed via CENIC's CalREN Internet2. Once perfected the plan is to make it available to other interested educational institutions as well as to interested scientists who want to take advantage of this high bandwidth link that will operate on a 24-hour basis.

The link is from UCSC to Cannery Row (next to the Monterey Bay Aquarium), a distance of 27 miles. The radio sets were furnished and installed by a contractor (RFnetworks). The radios are 18 GHz with 4 ft diameter parabolic antennas. The application traffic is 4 MPEG2 high-resolution video streams produced by vBrick encoders.

Links:

<http://www.mysticaquarium.org>

<http://seastudios.com>

Source: Jim Warner, UCSC

### **CENIC to Host IPv6 Implementation Workshop**

On August 26-28, 2002, CENIC will host a 2-day IPv6 Implementation Workshop at UC Berkeley. The program, which is tentatively set to begin at 1:00pm on August 26 and end in the afternoon on August 28, will include the design and set-up of a functioning IPv6 network connected to the Internet2 IPv6 network. The workshop is intended to enable network engineers to engineer their own IPv6 networks and to help engineers explain IPv6 engineering to peers.

Topics to be covered include router configuration; BGP configuration; addressing; BIND configuration; application space; transition issues; and IPv6 services.

More information about the workshop, including a draft agenda, can be found at <http://ipv6.internet2.edu/workshops/workshop-berkeley.shtml>.

### **National Networking News**

#### **CISE Assistant Director Peter Freeman Visits UCSD**

"Infrastructure is the main challenge," said new Assistant Director of the Computer and Information Science and Engineering (CISE) Directorate of the National Science Foundation (NSF), Peter A. Freeman, who paid a visit to UCSD.

Freeman and Acting Division Director for Advanced Computational Infrastructure and Research, Richard Hirsh, spent May 23 at SDSC. A highlight of the visit was the open Q&A Session hosted by Freeman and Hirsh over the lunch hour, in a packed SDSC Auditorium.

Freeman, who took up his NSF post on May 6, introduced himself as a computer scientist, "largely a software person," although he pointed out that over a long career he had once been involved in hardware system design "with a then largely unknown computer architect named Gordon Bell." Freeman has been at the Georgia Institute of Technology since 1990, where he was the founding Dean of the College of Computing. In the late 1980s, he had been a Division Director for Computer and Computation Research at NSF. Earlier, he was a faculty member in the Department of Information and Computer Science at the UC Irvine.

Questions to Freeman were focused on a number of issues, notably the challenges and opportunities that are in prospect for the NSF and the CISE Directorate in the coming period. "One of NSF's biggest challenges in the next five to ten years is infrastructure," Freeman said, "not just cyberinfrastructure, but also buildings and major research equipment needed in all fields of science." While noting that there has been some impetus in Congress toward doubling the NSF budget, he cautioned that the real question was not the size of an arbitrary multiplier but what amounts of money and resources are needed to foster the scientific research agenda for the benefit of the nation as a whole. "It is a good sign that there appears to be a strong consensus that the science and engineering research agenda is not as well served as the health science

agenda is by NIH," he said. "That bodes well for some increases, and NSF and CISE both have to have a strategy for dealing with those increases as NSF becomes a much bigger agency and as activities like the PACI program can be supported more effectively and efficiently."

Source: NPACI Online

### **Web Services is The Glue for Unified Messaging**

The University of California, Berkeley, is spearheading an effort to create a unified communications system. The system will tie e-mail, voice mail and fax to a single in-box and allow access to it from anywhere - be it an e-mail client, a telephone, or a mobile phone or device.

The university is in the midst of its three-month Unified Communications Technical Pilot, which will put standard interfaces on existing e-mail, voice mail and fax systems using Simple Object Access Protocol (SOAP) and XML. The latter is used to convert one system's output into XML documents, which are sent via a SOAP message to another system. The receiving system's Web services interface converts the sender's XML documents into an input it understands, letting the two communicate.

Web services provide a flexibility that the university has never had because it always has been locked into one technology for voice mail, one for e-mail and one for fax. Now the school can tie it all together without being required to change or replace anything as would be required in a typical monolithic unified communications system.

When a call comes in to the university's PBX, which is leased and runs off-site at Pacific Bell, it is routed to the telephony server, which sends a SOAP message that checks the call-routing rules on the web services server. If the rules call for the message to be delivered to the phone, it is routed to the receiver's phone. If the call is not answered, it is rolled over to the telephony server, which again uses a SOAP message to check the rules for what to do. If the call is to be routed to voice mail, the telephony server records the message as a .wav file and routes it to the message server again using an XML document carried by a SOAP message. The XML document is converted at the messaging server using its Web services interface to a format it understands. A message server that runs Sendmail, which was developed at UC-Berkeley in 1981, holds e-mail and voice mail, which is stored as a .wav file.

When a user checks e-mail, he can play the .wav file and even forward it to another user. If the user checks for messages via the phone, a VoiceXML interface announces new messages and provides options that can be selected from the keypad. The .wav file is then converted to analog on the telephony server and played over the phone. If the user wants to check e-mail, a text-to-speech system will be integrated with a Web services interface.

The biggest benefit is that the university is not locked into any device, vendor's technology or protocol. Tomorrow if the technology of choice is holograms it just becomes another type of message - another neutral object created using SOAP and Web services.

Source: CA\*net 3 News

### **NSF Doubling Bill Takes A Quantum Leap Towards Enactment**

On June 5, the full House passed a Science Committee bill, which would put the National Science Foundation on a track to double its budget in five years. H.R. 4664, the "Investing in America's Future Act," authorizes a 15 percent increase for NSF's budget for each of the next three years, and at the same time, imposes strict, new management requirements to ensure that NSF continues to use taxpayer money wisely. The bill passed by a vote of 397 to 25.

Rep. Sherwood Boehlert (R-NY), Science Committee Chairman and one of the bill's primary sponsors stated, "When we look at the new fields of science and engineering that will boost our economy in this new century, fields like nanotechnology, where do we turn to ensure that our nation's researchers stay at the cutting edge? NSF. When we look at the field of information technology, which facilitates every activity in today's economy, where do we turn to ensure that the U.S. remains at the cutting edge? NSF. When we consider our ever more urgent need for a highly skilled, technologically literate workforce, where do we turn to ensure that our education system from kindergarten through post-graduate work is preparing the people we need? NSF. We turn to NSF to solve some of our most pressing problems; we can't turn from NSF when we decide where to invest federal funds. It's time to give NSF the money it needs."

The legislation significantly boosts research into areas such as information technology and nanotechnology and bolsters funding for science, technology, engineering and mathematics education. Despite its great accomplishments and recent recognition by the President of outstanding fiscal management, NSF's funding has remained flat over the past decade. H.R. 4664 would reestablish NSF as the premier research institution in the world and would begin to close the gap in funding between the life sciences and physical sciences.

The bill now moves to the Senate for consideration.

Source: House Committee on Science, [www.house.gov/science](http://www.house.gov/science)

### **About CENIC**

CENIC is a not-for-profit corporation formed by the California Institute of Technology, the California State University, Stanford University, the University of California, and the University of Southern California to facilitate and coordinate the deployment, development, and operation of a set of seamless and robust advanced network services. The CENIC Associates program offers qualified companies the opportunity to collaborate with CENIC in pursuit of the goal of providing the most advanced network services for research and education. Cisco Systems, Nortel Networks, Pacific Bell, and the University and Community College System of Nevada are CENIC's Partner Associates.

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