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TO TOMORROW'S INTERNET**

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Volume 5, Issue 1
January 2002

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Quote of the Month

"... another of the ... true centers of excellence in this government, the National Science Foundation, where more than 95% of the funds you provide as taxpayers go out on a competitive basis directly to researchers pursuing the frontiers of science, a very low overhead cost."

- OMB Director Mitchell E. Daniels, Jr. quoted by American Institute of Physics Newsletter.

CENIC News

CENIC to Host IPv6 Implementation Workshop

CENIC will host a 2-day IPv6 Implementation Workshop at the Information Sciences Institute (ISI) in Marina del Rey near Los Angeles International Airport. The program, which runs from 1 pm on Monday February 11th until noon on Wednesday February 13th, 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.

Registration is \$100 per attendee and is being handled by Michael Van Norman of CENIC. Van Norman can be reached at mvn@ucla.edu. More information about the workshop, including a draft agenda, can be found at <http://ipv6.internet2.edu/workshop-cenic-la.shtml>.

CENIC Annual Conference in early May

CENIC's 6th annual conference will be held on May 5 through 7, 2002 at the Paradise Point Resort in San Diego, California. This is always a great event to learn about new technologies, new networking applications, and meet with your colleagues in a relaxed environment. Be sure to reserve the dates now.

We are planning joint Internet-based sessions with the concurrent Internet2 members meeting. Be sure to watch for the CENIC agenda in February!

New Telephone Numbers at CENIC

CENIC cut-over to its new Voice over IP (VoIP) phone system on January 22. The new number for CENIC President Tom West and the executive office is 562.346.2280. The facsimile number is 562.346.2288. Email addresses remain the same.

Johnson & Johnson -- New Connections; New Associate

Johnson & Johnson, a manufacturer of health care products and service provider for the consumer, pharmaceutical and professional markets, became an Internet2 Corporate Member in October 2000. With approximately 100,000 employees worldwide, Johnson & Johnson has more than 195 operating companies in 51 countries. Four major Johnson & Johnson research facilities are now connected via high-performance networks allowing scientists to collaborate with others throughout the Internet2 community in research and product development. Facilitated by Internet2 advanced networks, Johnson & Johnson is researching the integration of devices such as laser capture microscopes and other scientific instrumentation into the collaborative space via the Access Grid, a network of distributed computation, application, and collaboration resources. This will allow many scientists to share the output from different scientific instruments.

According to Stuart Kippelman, Corporate Director Advanced Technologies Research at Johnson & Johnson and the Executive Liaison to Internet2, "Our partnership with Internet2 is allowing us to conduct pioneering research into new methods of communication, collaboration, and visualization, bridging the gap between our science and the advanced computing technologies needed to conduct it. Ideally, these state-of-the-art tools will help improve productivity, creativity and innovation to help scientists speed the discovery of new drugs."

Johnson & Johnson will connect to Abilene via CalREN-2 at both Sunnyvale and San Diego hubs. They also became a CENIC Associate.

Johnson & Johnson's research in networking, graphics, visualization, databases, real-time systems, media, and human computer interaction is also helping to upgrade the collaborative space to support high-definition TV (HDTV).

<http://www.jnj.com/>
<http://www.internet2.edu/html/corporate.html>
<http://www-fp.mcs.anl.gov/fl/accessgrid/>

Additional Source: Internet 2

DCP Progress Report

The Digital California Project (DCP) reached a milestone of sorts in January when 50% or thirty-five (35) of the Round 1 node sites have now been successfully installed and are connected to the Digital California Network. About half of the installed sites have their local area networks connected to the DCP router. The feedback from the sites using their DCP connection continues to be very positive.

The Sunnyvale hub site is ready and 15 circuit segments are scheduled to be installed during the week of February 4, 2002, providing service to 11 node sites in the greater San Francisco Bay area. Although the Reno hub site is still pending, the outlook is good for bringing the Sacramento hub online in February. Ten node sites are connected to the Sacramento hub and are tentatively scheduled to be installed in late February.

Plans with recommendations for Round 2 funding options are due by the end of February. Round 2 decisions will be made in March. Since nearly all the Round 1 node sites are expected to be installed before the end of March, it is anticipated that the process of Round 2 implementations will begin as early as April of this year.

Source: Ed Smith, Network Implementation Project Manager

First CENIC Application Workshop: Demystifying QoS

CENIC's Application Workshop on Demystifying Internet Quality of Service (QoS) attracted more than 50 participants from industry and K-20 institutions. The workshop was held on Thursday, January 24, 2002 at the San Diego Supercomputer Center.

This workshop addressed issues surrounding QoS development and deployment from both a research and industry perspective. Participants learned about the latest QoS research that is being implemented commercially as well as video over IP research.

The featured speakers were Susan Estrada, President, Aldea Communications, and Magda El-Zarki, Professor, Department of Information and Computer Science, UC Irvine, and Cal-(IT)2 Layer Leader for Networked Infrastructure. Co-sponsors for the QoS workshop included Cal-(IT)2 (see www.calit2.net) and CalNGI (see www.calngi.org). A majority of the attendees participated in the kickoff meeting for the Cal-(IT)2 QoS Special Interest Group to delve further into issues surrounding QoS in research, implementation, and education. The slides from the speakers are available on the CENIC web site.

The CENIC Application Workshops highlight and promote the use of high-performance networking for research, education and economic development in California. Each workshop will feature an industrial and academic perspective. The next workshop will be held in March on optical networks. For more information, please email workshops@cenic.org.

View presentations at: <http://www.cenic.org/pubs/presentations.htm>

CENIC Events Calendar Reminder

CENIC meetings, conferences, and other events can be found on the CENIC Events Calendar on the web at <http://www.cenic.org/events/index.html>.

National Networking News

NSF names Peter Freeman to head CISE

The National Science Foundation (NSF) has named veteran computer scientist and administrator Peter A. Freeman as the foundation's new assistant director for Computer and Information Science and Engineering (CISE). Dr. Freeman, currently John P. Imlay, Jr. Dean of Computing at Georgia Institute of Technology, will take office in May.

Since 1990, Dr. Freeman has served Georgia Tech as a professor and founding dean of the College of Computing. From 1992 to 1995, he also acted as the university's Chief Information Officer. He is a recognized leader in encouraging interdisciplinary work involving computer science. He has served on

numerous national panels and advisory committees, is a fellow of the Institute for Electrical and Electronics Engineers, the Association for Computing Machinery and the American Association for the Advancement of Science, and has been a member of the Board of Directors of the Computing Research Association since 1988.

Dr. Freeman chaired the Sam Nunn Nations Bank Policy Forum on information security in 1998. This forum led to the creation of the Georgia Tech Information Security Center, one of the first comprehensive centers in the United States concentrating on information security.

Dr. Freeman earned his Ph.D. in computer science from Carnegie-Mellon University. He is the author or coauthor of three books, editor of four, and author of dozens of research papers. He held previous faculty positions at George Mason University and the University of California at Irvine. From 1987 to 1989 he served as director of NSF's Computer and Computation Research Division within CISE, where he helped formulate the federal government's High-Performance Computing and Communications Initiative.

"Scaling to New Heights" Workshop Announced

Subject to funding, the NSF PACI leading-edge centers (NCSA, PSC, SDSC) and the Department of Energy laboratories, led by the Center for Computational Sciences at ORNL, are holding a workshop entitled: Scaling to New Heights. This workshop will explore the issues associated with scaling codes to thousands of processors. The workshop is planned for May 20-21, 2002 in Pittsburgh, PA.

For more information visit: www.psc.edu/scaling_workshop/workshop.html.

Source: Pittsburgh Supercomputer Center (PSC)

Factoid: Internet Growth Rate Remains Steady

The Internet has continued to grow at roughly the same rate it's been averaging since its aggressive growth began in the early 1990s, according to Lawrence Roberts, an Internet pioneer and now head of Caspian Networks (www.caspiannetworks.com). Roberts has examined data from the 20 leading tier-1 IP network service providers from April 2000 to the present and found Internet traffic to be growing annually by a factor of three.

There had been several reports in the media, accompanying the crash of dot-com and technology stocks, that Internet growth had slowed. In reality, growth rates, both in number of new users and in Internet traffic, had slowed from previously unsustainable rates. From April 2000 to April 2001, Roberts found that Internet traffic grew at a factor of four. When examining the long term, the 4x growth was a temporary anomaly on an otherwise smooth 3x curve.

"A longer sample illustrates how Internet growth rate fluctuates over time. There are peaks of faster growth and troughs of slower growth, but the overall growth rate since we started collecting our data is consistent with the Internet's historical 1990s growth rate," Roberts said. "The longer sample period also illuminates factors that affect the growth rate, such as seasonal variation, business developments in the industry and other factors."

Source: <http://www.cyberatlas.com/>

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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Last Update: December 14, 2004