iGrid To Push Edge Of Networking Frontier By Demonstrating World's Most Demanding Applications

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UCSD, and the California Institute for Telecommunications and Information Technology will host iGrid 2005 in September. The goal of iGrid 2005 is to push research and development of optical networking with data-intensive applications. This fourth biennial international workshop will showcase the power of high-bandwidth 'extreme' networking to support the world's most demanding applications - from science to art - and international collaborations among partner institutions from Europe, North America, South America, and the Pacific Rim.

This workshop should appeal to those with a futuristic mindset who are curious about how today's state-of-the-art, globally distributed, collaborative applications might become the mainstream of tomorrow.

The event will take place Sept. 26-29 in the new Calit2 building at UCSD, one of the most 'wired' buildings on any U.S. campus.

"Calit2 is supporting iGrid," said Calit2 director Larry Smarr, a professor of Computer Science and Engineering in UCSD's Jacobs School of Engineering, "because of our focus on experimentation and prototyping of applications-driven infrastructure across scales from local to global. iGrid will allow us to make a year's worth of progress in less than a week."

"The unique capabilities of the Calit2 building at UCSD, including networking, computing, and visualization, will be put to their first important test by iGrid," said Calit2 UCSD division director Ramesh Rao, a professor of Electrical and Computer Engineering. "It is certainly an unconventional and exciting way of bringing the building online."

The iGrid workshop will be followed by the Global Lambda Integrated Facility meeting on Sept. 30. GLIF is an international virtual organization that supports persistent data-intensive scientific research and middleware development on 'lambdagrids,' natural extensions of the grid to include user control of lambdas (wavelengths of light on which gigabits of data are sent). The iGrid event earlier in the week will showcase international scientific projects enabled by the infrastructure that GLIF participants design and deploy year round.

Last held in 2002, iGrid is a coordinated effort to accelerate the use of many existing 10-gigabit-per-second international and national networks to advance scientific research and educate decision makers, academicians, and industry researchers on the benefits of these advanced networks. The 2005 event provides an international testbed for participants to collaborate on a global scale to advance the state of the art in high-performance computing and communications.

"CENIC and the National LambdaRail are bringing an additional 50 gigabits of bandwidth into UCSD in support of iGrid and GLIF activities," said Jim Dolgonas, president and chief operating officer of the Corporation for Education Network Initiatives in California.

The iGrid event consists of two tracks: real-time demonstrations and presentations about today's emerging global cyberinfrastructure.

The demos are driven by applications scientists, engineered by a worldwide collaboration among leaders in advanced networking, and enabled by grid middleware developers. Applications include art, astro- and particle physics, chemistry, earth and ocean sciences, neuroscience, and radio-astronomy, among others. To date, some 45 demonstration project proposals have been received from participants in 20 countries.

Attendees will learn about the underlying technologies, including high-performance optical networking, user control of lightpaths, remote control of instrumentation and supercomputer simulations, remote data gathering, interactive and high-definition TV to support distributed virtual lecture halls, visualization on large-format displays, virtual reality, global data sharing, ultra-high-performance file transfer, and other technologies.

"What's particularly exciting - and unusual - about this workshop is that it enables people at the edge of the technology curve to work with colleagues worldwide," said Maxine Brown, associate director of the Electronic Visualization Lab (EVL) at the University of Illinois at Chicago and co-chair of iGrid 2005. "Academicians, government researchers, and industry representatives work together to incorporate new grid networking technologies and hardware into their problem-solving environments, facilitating their research and creating new markets of opportunity."

"This international group of like-minded people work together briefly but intensely, and the results can be dramatic," said Tom DeFanti, co-chair of iGrid, director of EVL, and research scientist at Calit2. "We think of it as real-time guerrilla networking."

Much of the infrastructure put in place for iGrid will persist afterward and be available for long-term experimentation.

The results of the meeting will be published in a special issue of the Elsevier journal The International Journal of Grid Computing: Theory, Methods and Applications to be issued within a few months of the event. This issue will be edited by Cees de Laat, University of Amsterdam, Smarr, DeFanti, and Brown.

The iGrid event traditionally serves as a showcase for leading vendors and their latest capabilities, including pre-commercial technologies.

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