CNS /Update Newsletter Feature

UF Joins Internet2 to Grow A New Network

UF Information Technology

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The Information Revolution is happening almost too fast -- demand is exceeding capacity as millions of users ride daily on the increasingly congested Internet, the first-generation model of the "Information Superhighway." Recently, representatives from UF and NERDC participated in a San Francisco conference to lay the groundwork for Internet2 -- a Next Generation Internet (NGI) data network to be planned and built by a consortium of major U.S. universities, federal agencies, and private sector firms. Internet2, like the existing Internet, grew out of a need for universities and researchers to efficiently transfer data from one site to another.

NERDC and UF joined the Internet2 project along with six other Florida state universities and many more institutions around the nation. "Participation in Internet2 allows UF to continue to rank as a leading graduate research institution, and helps us contribute to improved national networking among institutions," said NERDC Director Ron Schoenau.

Following the Internet2 conference, Dr. Mark Hale, CIRCA director, and Dave Pokorney, NERDC network services coordinator, presented the scope and progress of the project to members of the NERDC Instruction and Research Users' Committee at the group's March meeting.

Once Internet2 is established, Hale and Pokorney said, professors at UF will be able to reserve chunks of bandwidth (at specific times) for special projects, brainstorm with colleagues around the country with real-time videoconferencing, and participate in other data-intensive collaborative projects which are inconceivable on the existing Internet due to network traffic and lack of bandwidth.

"Many professors have been using the Internet as a highway for research. But we've been deluged by commercialization. Now we have situations where there are projects we'd like to carry on that we just cannot do due to the traffic," said Hale.

According to Hale and Pokorney, Internet2 will provide high-reliability infrastructure for advanced services with a tenfold increase in bandwidth over the current Internet, low latency (i.e., delay in receipt of data due to bottlenecks), and no packet losses end to end.

Scientists and others in academe will develop new ways to interact and new applications that take advantage of Internet2 speed and bandwidth. Interaction possibilities include reserveable and scheduleable bandwidth sufficient for numerically intensive computing, and the delivery of CD-quality sound for medical auditory applications.

"The Internet2 project, as it is known, will bring focus, energy and resources to the development of a new family of advanced applications to meet emerging academic requirements in research, teaching and learning," according to Internet2 literature.

The educational institutions which join Internet2 (105 at last count) will be joined regionally at what what have been dubbed "gigapops" -- connection points offering reliable high-speed routing. In Florida, tentative plans call for a distributed gigapop serving Gainesville, Boca Raton, Miami, Orlando, Tampa, and Tallahassee.

According to the March I&R presentation, Internet2 will be an exclusive network for the universities involved, separate from the now-commercialized Internet, but the technology that will be utilized in creating Internet2 may eventually benefit the current Internet.
The cost for this improved delivery is high, and varies from institution to institution.

"Bandwidth is not cheap. From Gainesville to Georgia Tech (approximately 325 miles) it (costs) roughly $45,000 a month for a connection that runs at 155 Megabits per second," said Pokorney.

Membership in Internet2 also involves an initial $500,000 infrastructure and services investment and $15,000 in yearly dues to connect. Neither of these figures includes improving campus backbones to accommodate wider bandwidth.

"The (original) estimates turned out to be low. A number of people (in the Midwest) found out they'll have to spend a million and a half (dollars)," said Hale, "because of the long distance between some institutions and (existing) national (data) backbones." According to Pokorney, the costs shouldered by Internet2 members won't keep Florida schools with smaller budgets from accessing Internet2.

"We're trying to make sure we're facilitating every SUS (State University System) institution to have the same level of Internet2-like services available from within the SUS. In essence, we are also building the next-generation state of Florida post-secondary-education Intranet,” Pokorney said.

For more information about Internet2, please see: http://www.internet2.edu.

Your Comments are Welcome

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