



LONI Hardware Begins Rolling onto Louisiana Campuses

The Louisiana Optical Network Initiative, known more generally as LONI, took a giant step toward completion this week as the first of five new IBM P5 supercomputers to be connected through the network was delivered to Louisiana Tech in Ruston. LONI is a fiber-optics research network that will interconnect mainframe computers at Louisiana's major research universities and medical schools.

Tech's IBM P5-575, nicknamed "Bluedawg" (a reference to Tech's school colors and sports mascot) is the first LONI project server to be deployed beyond the LSU-Baton Rouge campus, which already has its LONI servers in place. Next in line to take delivery of their P5s are the University of Louisiana at Lafayette, the University of New Orleans, Tulane University and Southern University.

How fast are these computers? Faster than a speeding bullet or the blink of an eye, said Sumeet Dua, an assistant professor of computer science at Tech. "In the time it takes a bullet to travel one foot, Bluedawg will complete 330 million calculations; in the time it takes to blink, the computer will complete 2 billion calculations," he said, adding that "using high-speed optical fiber [like that employed by LONI], we can transfer the entire plain-text holdings of the Library of Congress from one coast to another in about 72 minutes. Using a standard cable modem, that would take more than three years."

The combination of the IBM P5s and LONI's connection to the National LambdaRail (NLR), a nationwide optical network infrastructure, will allow researchers to transmit data at speeds several thousand times faster than previously possible. As a direct consequence of LONI's creation, the Louisiana Board of Regents has become a member of NLR, often characterized as having the potential to be to our nation's technological development what the interstate highway system has been to interstate commerce.

"With its high-speed optical network and IBM supercomputers, LONI is a giant step forward, and puts Louisiana in a national leadership position, not only in deploying the most advanced high-tech infrastructure, but also in using it for scientific, engineering, arts, and business applications," said Edward Seidel, director of LSU's Center for Computation & Technology at LSU. Seidel, one of the originators of LONI, was recently named a member of the National LambdaRail's Science Research Council.

Les Guice, chairman of the LONI Management Council and Louisiana Tech's vice president for research and development, said the arrival of the high-performance computer on the Tech campus marked an important milestone toward getting LONI infrastructure into place in Louisiana to support the state's research community.

"All the machines were first delivered to LSU for testing, and this is the first one to be installed outside of LSU," he said. "It shows we are continuing to build out the LONI network and provide access to high-performing computing for our faculty."

Users, who will gain access based on a needs priority list, could come from virtually any discipline, Guice said, but will generally be science and engineering faculty. "Anyone, however, who has a need for high-performance computing can benefit. A business professor, for example, might need complex calculations for the stock market," Guice said.

Charlie McMahon, LSU's deputy chief information officer and executive director of Network Infrastructure and Research Enablement, said Louisiana's high-performance machines are "bigger and badder" than most.

"The P5 is in a class of its own," McMahon said, adding that, among its many virtues, the powerful machine uses a fairly small amount of floor space; it boasts industrial-strength IBM hardware that is "absolutely bulletproof" and which takes relatively little management and support; and it offers remarkable flexibility in program writing and use.

"The capabilities of these machines attract collaboration and bring researchers more tightly into the same web," he said. "We're creating an environment that leverages all our universities and helps them to solve bigger problems than any one researcher or university could solve on its own."

Bob Fudickar, technology industry director for the Louisiana Department of Economic Development and member of the LONI Management Council, was also on hand for Tech's P5 "plug-in" this week.

"The dynamics of academics, research and economic development depend heavily on technological superiority," Fudickar said. "Many of our state's current and future startup technology companies stand to benefit significantly from LONI, especially in the area of product development."

Delivery and installation of the remaining P5s destined for UNO, UL-Lafayette, Southern University and Tulane is expected to be completed by the end of the summer.