Fiber Optic Network Development Begins

By Michael A. Saginow

Lincoln Laboratories, Digital Equipment Corporation, and AT&T Bell Laboratories are pooling their expertise to develop a fiber optic test-bed for research in high speed and high volume network communication technology.

Fiber optic cables have the capacity to carry vast quantities of information at ultra-high speeds.

"There's the vision of the time when people will transmit images and multimedia data through fiber optic cables," said Marc W. Bockrath, the manager of the fiber optics program at Lincoln Laboratories.

The test-bed, however, all information traveling between the nodes must be converted to electrical form. This is done through a process called optical/electrical conversion. The output of the fiber optic cable is an intensity of light. In this network, a node is typically an entire center like Lincoln Laboratories. When the test-bed is finished, the test-bed will only have 10 to 15 nodes. The network is expected to be complete by the end of the year.

Another common technique for distinguishing images is time division multiplexing. The message is transmitted as a series of pulses that are sent periodically, and the receiver then selects the appropriate pulses at the appropriate time. Time division multiplexing is used in the test-bed because the technology for optical time division is not as advanced as that for frequency division multiplexing.

The test-bed will also test the effectiveness of consortia in bringing technology from the laboratory to the marketplace. Three parties in the consortium have overlapping knowledge and experience in optical and communications technology, yet each party has its own specialty, according to Kennedy. Bell Laboratories brings to the project its competence in optical devices technology, while both the DEC and HP models are expected to support the technology. The HP model was also expected to support the DEC and HP models.

Bockrath wrote, "If you want to make sure you can do absolutely anything, you'll be able to do it today. The DEC will only be available for 10 to 20 months, it's going to go very fast.

As millions of light-encoded messages travel over the test-bed simultaneously, one message is distinguished from the others by its frequency, according to Professor of Electrical Engineering and Computer Science Robert S. Kennedy Sc D '93, who is heavily involved in the project. This is known as frequency division multiplexing.

Athena Considers New Printers

By Jeremy Hytton

Since the beginning of spring break, Athena users have been evaluating a pair of high-speed laser printers that will replace the printers used in the Athena cluster this summer.

Users have given free access to an Hewlett Packard Laser Jet 6L and a DEC LNS17 to test them and offer feedback to an Information Systems team that has supervised the printers, which send and receive laser beams.

We asked several of the users when they had time to test the printers.

"I haven't had time to test them yet," said by John E. M. Metel '93. "We've been having a bunch of other problems in the lab.

Project leader Darrin E. Robinson expects to make a recommendation to Athena administrators in a few weeks to replace 29 printers in public clusters.

"We are trying to deploy printers while people are printing from somewhere else. We don't want to move printers while people are printing from somewhere else," said Robinson.

Students were invited to send evaluations of the printer to an Athena mailing list. The reaction to the Hewlett Packard printer was overwhelmingly positive. "On the whole, it was wonderfully impressive and with it and would like to see it be the next Athena printer," wrote Max E. Metel '93.

The DEC printer was less enthusiastic. Marc W. Bockrath '93 wrote, "It doesn't seem to be much of an improvement over the existing printers."

The Hewlett Packard Packard printer ended its test earlier this week, but the DEC printer will be available through the end of the year. The DEC printer uses the same 300 dots per inch (dpi) 300 dpi. The HP printer also supports Adobe's PostScript Level 2 description language, while the DEC printers support only Adobe's PostScript Level 1 description language.

The age of the current printers is one of the main issues driving the project. The LNS17s, purchased over five years ago, were expected to have been replaced, and running was called "the most important component of the service," according to Robinson.

"It is a wonder that they've made it," Robinson wrote. "They've exceeded their "/life and were a great investment."

The current printers are also being replaced by the DEC and HP models. The LNS17s were designed to print 14 pages per minute, while the LNS17s print 14 pages per minute. The HP printer has a higher resolution, which makes it faster. The LNS17 prints 300 dpi, while the HP printer is 600 dpi. The HP printer also supports Adobe's PostScript Level 2 description language, while the DEC printers support only Adobe's PostScript Level 1 description language.

Chinese Dissident Describes Change

By Vipal Bhushan

Chinese dissident leader Shen Tong spoke about the turbulent political revolution in his homeland at a Tuesday evening Lecture Series Committee talk in Kresge Auditorium. Complementing his own second year graduate student in political science at the University, Tong chose the chair of the Democratic movement in China, which is also known as the Tiananmen Square massacre.

Tong was one of the first pre-democracy activists to escape China after the 1989 Tiananmen Square massacre. After fleeing China four years ago, Tong is a graduate student at Berkeley University. In September 1992 Tong made a much-publicized return to China, where he was arrested hours before he was to give a press conference. He relaid the events leading up to the Tiananmen Square massacre and offered analysis of the massacre and its aftereffects.

After Mao Tse-tung's death in the 1970s and Deng Xiaoping's subsequent rise to power, China changed dramatically, Tong said. Deng instituted internal reforms and opened China to the world, he said.

In the 1980s, China experienced impressive economic growth. Living standards improved, and the country looked "glamorous" to the outside world, Tong said. This economic boom was "the main force" behind major social change, he said, and previously banned literature became available.

But Tong added that "without fundamental change on the political side, there was no way economic development and gradual societal changes could continue." With loosened restrictions, pro-democracy movements emerged in early 1989, there was no government response to weeks of pro-democracy demonstrations and hunger strikes. Soviet leader Mikhail Gorbachev visited China in May 1989, and it was by this coincidence that the world's attention first became focused on demonstrations in Beijing.

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Bioengineering Program Starts

Program to Encourage Collaboration with Other Area Groups

By Kevin S. Subramanya

Dean of Engineering Joel Moses PhD '77 announced the formation of the Program in Biomedical Engineering which will coordinate research efforts between MIT, Harvard, and various Boston hospitals.

The program was devised by MIT faculty from the School of Engineering and the Harvard-MIT Division of Health Sciences and Technology and will be based at MIT.

"Most departments in the School of Engineering and the Harvard-MIT Division of Health Sciences and Technology will be based at MIT."

"Athena users have been evaluating a pair of high-speed laser printers that are expected to be used in all public Athena clusters."