The Laboratory for Computer Science Research: Research Computing Environment

-- The Laboratory for Computer Science Research (LCSR) is a technical center that makes available to all funded projects within the Division of Computer and Information Science the following environment and software. The main objective of LCSR is to provide a focus for computer science research in the University, and a base for the support functions that are needed for this research: administrative, technical and clerical support and appropriate computer and communication/networking facilities. Additionally, our researchers use specialized equipment at other sites on the Internet.

The equipment and software falls into the following major categories:

- Individual desktop workstations -- primarily running Linux, Solaris, MacOS-X, or Windows.
- Shared, multi-user cycle servers -- primarily running Linux and Solaris.
- Several terabytes of fully backed-up, professionally administered, network accessible disk storage.
- RUnet 2000, a $100 million networking infrastructure.
- Access to the Internet-II experimental high-speed national network.
- Wireless access from all offices and labs to all services.
- A shared SUN E10,000; 128 processors (UltraSparc II - 400 MHz), 64 gigabytes of memory, and 1.75 terabytes of disk.
- A shared SUN Starfire 12,000; 36 processors (UltraSparc III - 900 MHz), 72 gigabytes of memory, and 0.5 terabytes of disk.
- CPU server cluster (24 IBM rack-mount commodity servers, 2.8 GHz dual-processor Intel P4, 2 Gbyte RAM, 40 GByte local disk) connected by Gbit switched Ethernet, sharing an 800 GByte RAID disk array.
- Software languages; including Java, PERL, Prolog, Lisp, Eiffel, C, C++, and Fortran.
- Various specialized tools for specific research areas, e.g. Mathematica, Matlab and Maple (Mathematical analysis packages).
- Document preparation tools such as TeX, LATex, OpenOffice, and MS-Office and a number of black-and-white or color printers, including a large-format printer.
- Other shared facilities such as networked conference rooms and lecture halls.

Currently all faculty and graduate student offices have workstations at least as powerful as a Sun Ultra-5. All systems are networked. The network is
based on a pair of Cisco switches and one router capable of handling multiple Gbps of traffic. Connections to offices are switched Ethernet capable of 100 Mbps to each workstation. Switched Gbit Ethernet connects all servers and other systems that need high-speed connections.

The LCSR Computing Facility is comprised of a total full-time staff of eleven members, who support LCSR research and instructional computing for the Department of Computer Science, and various projects for the University as a whole. The support staff responsible for research computing includes:

- 2 hardware staff (along with additional part-time technicians), doing hardware and network installation and maintenance
- 3 Unix support staff plus several student programmers
- 1 Database Administrator
- 1 Applications programmer
- 2 Macintosh and PC support people
- Several part-time student computer center operators
- 1 Assistant Director
- 1 Associate Director

These personnel provide a stable computing base available to all projects associated with the Laboratory for Computer Science Research.