

CARNEGIE MELLON UNIVERSITY

Computer Research Facilities at the School of Computer Science

Heterogeneous Distributed Computing

The Carnegie Mellon University (CMU) School of Computer Science (SCS) research facility has a large number and wide variety of computers available for faculty and graduate student use — approximately 4000 machines. About one-third are Linux/Unix on Intel and AMD platforms, 60% are Windows systems, and Macintosh computers make up the remainder. Every incoming graduate student is provided with a new, high-powered personal computer; some receive a dual-boot configuration – to provide both Windows and Linux. SCS facilities include a rich variety of computing infrastructure services of very high quality: email, shared file service (AFS), authentication, remote access services (vpn, iPass), backup, printing, software licensing, hardware repair, and so on. The SCS environment also includes a growing number of high-performance compute clusters; support services are available for the entire life-cycle of the cluster, including help for specification and purchasing. For all aspects of computing, there is a dedicated support (Help) staff within the facility, which provides full support for users, applications, machines, and services, via a menu of premium support services.

Beyond these college resources, the University maintains computation facilities of various kinds for general use. The Pittsburgh Supercomputing Center (PSC) is a joint effort of Carnegie Mellon and the University of Pittsburgh together with Westinghouse Corporation. It is supported by several federal agencies, the Commonwealth of Pennsylvania and private industry. It is a leading partner in the TeraGrid, the National Science Foundation's cyberinfrastructure program. It operates several supercomputing-class machines, including a Cray XT3 MPP machine with 2068 compute nodes and 4136 processors.

Networking

Carnegie Mellon operates a fully-interconnected, multimedia, multiprotocol campus network. The system incorporates state-of-the-art commercial technology and spans multiple segments to all campus buildings in a redundant backbone infrastructure that enables unfettered access among all campus systems, including the PSC supercomputers. The University currently provides wireless data communication campus-wide.

SCS has two 1Gbps links to the Carnegie Mellon campus network. The University has two redundant 1Gbps links to the Pittsburgh Supercomputing Center, and through PSC we connect to the commodity internet and the Abilene research network. This connection is shared with the University of Pittsburgh, Penn State University, and West Virginia University.