Center for Software Science

Mission

The Center for Software Science was established to create and operate an environment for the research and development of next generation system software.

The Center

The Center for Software Science, under the direction of Robert Kessler at the University of Utah, performs research and development in a broad range of software systems and tools. Research includes: programming language design and implementation, targeting portable lisp, C and C++ compliers as well as object-oriented programming systems and persistence; operating systems, particularly distributed memory machines, BSD Unix™ systems, virtual memory design, and Mach microkernel systems; parallelism, with regard to resource allocation, parallel lisp and parallel C++; and finally, system software for the integration of PCs and Unix systems.

Recently completed Center work has been done on the joint development with Hewlett-Packard research labs of the Mayfly, a distributed memory parallel processor and the programming languages (Concurrent Scheme and DC++) and operating systems supporting that machine. Ongoing work continues in the areas of operating systems (Mach and BSD), networking, distributed system management and file systems, optimizing compliers, debuggers, networked window systems, and software engineering. Also, Center personnel have made significant progress on an ARPA sponsored project that is attempting to utilize shared libraries in support of an object-management layer upon Mach.

The Center is known for its ability to perform research and development of systems and then produce software that is used by colleagues around the world. Successes include over 1000 copies of the Lisp system, hundreds of copies of BSD Unix™ for Hewlett-Packard workstations, and around 100 copies of MacDump, a utility for backing up Macintosh computers over the network. Recently, the Center has been distributing copies of the Mach operating system for HP workstations.

Successful technology transfer has occurred with the Center's spin-off company Hippo Software. Hippo Software, Inc. was founded in 1991 with technology developed by the research team at the Center for Software Science. Hippo Software is committed to providing the complete integration solution between UNIX and the new generation of powerful PCs. Hippo Software is currently distributing the HIPPIX software, a product designed to allow compatibility between PCs and Unix workstations, throughout the country. HIPPIX is actually two products. The first is command utilities, which consists of over 100 separate programs which give the customer the same operating commands and utilities that are present in the Unix system. The second product adds a library containing approximately 150 programming functions that permits someone to take Unix compatible software programs and run them on a PC. HIPPIX was released for IBM's OS/2 2.0 in March, 1993 and released for Windows NT in August, 1993.

Center Research

- Research and Development of object support in modern operating systems.
- Research in parallel programming languages and their software support (program development, visualization, and debugging).
- Development of a single address space and distributed operating system.
- Research into allowing local workstations to transparently participate as compute nodes in a large multicomputer.
- Research into tight integration of PCs and Unix systems, for example through enhanced ease of communication between PCs and Unix systems.

For more information, please contact:

Robert R. Kessler, PhD
Center for Software Science
University of Utah
Department of Computer Science
Salt Lake City, UT 84112
(801)581-4653