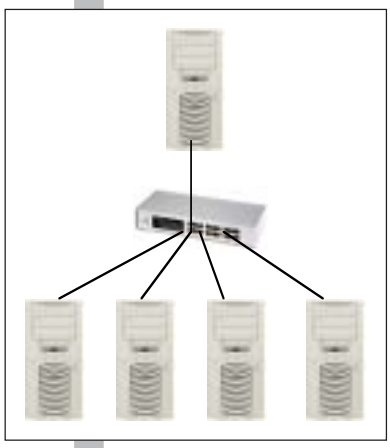
Cluster Computing Research Project

Bringing Supercomputing to Middletown USA

The Project

The Cluster Computing Research Project began in the Fall of 2001 as a team-project. Five students in Dr. Kitchens' *System Analysis and Design* class built the first working model. Since then, the project has continued with new team members.



This class focuses less on technical details, and more on "what is it good for," and "how do we make it affordable?" During the process, students gain valuable problem-solving skills and communication skills. Because the system is built with older equipment, compatibility and bottleneck issues must be overcome at every step. The process of writing grants, applications, requests, and status reports provide exercises in real-world communications that few undergraduate students receive.

Cluster computing projects are rarely offered at the undergraduate level. When they are taught at schools such as the University of Southern California and Monash University in Australia, they are honors or graduate level classes in engineering or computer science. *This is the first cluster-computing course offered in a college of business.* Following the team's presentation at the *Federation of Business Disciplines* conference, two other universities became interested in adding cluster computing to their business curriculum —Northern Illinois and Western Carolina.

Including real applications in the Information Systems curriculum will prepare students to offer value to their potential employers. As these students share innovative ideas about cluster computing, they will also highlight the outstanding quality of College of Business students.

Background

Our Mission is to develop high-performance computing systems and business application software, at an affordable price. We will do this by creating cluster computers.

Cluster computers consist of a dedicated network of personal computers. These computers are networked and operate to harness the cumulative power of all computers in the cluster. Cluster computing in and of itself is not a new concept. Clustering has been used in supercomputers for many years, however, this concept has recently been applied to inexpensive personal computers. By combining enough of these low-cost personal computers, a cluster can rival even the fastest supercomputers.

As shown in the figure at left, the Beowulf Architecture was chosen for this project. This design allows the Beowulf cluster-computer to accept computers of any speed, manufacturer, or configuration. The system can be scaled up by adding more computers to the cluster. The current system began with computers from Ball State University's Excess Inventory. Additional computers have come from donations, including old PCs by Gateway, Dell, Compaq, Integraph, Tenex, and even Sun workstations.

For more information go to:
www.ClusterComputingResearch.com

Ball State University

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Help Build A Supercomputer

A Ball State University research team will do the work—you only need to donate your old computers

What can be donated?

We accept any donations of finances or computer hardware towards the Ball State University Computer Cluster Research Project.

Donations may be *Tax Deductible.*

How do we donate?

Contact:

Fred Kitchens, Ph.D.
Project Director
765.285.5305
Kitchens@BallState.Net

Who delivers the computers?

The research team will pick up your donation at your convenience.

How can we learn more about this and other projects?

Log on to:
http://www.ClusterComputingResearch.com

or

Fill out:
the form below and receive an E-Newsletter.

Name: _____

Phone Number: _____ E-Mail: _____

Comments: _____

_____

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Check all that apply:

- ❑ I would like to receive an E-Newsletter
- ❑ Please contact me
- ❑ I have things to donate

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