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Computers take on blue-collar tasks

Partnership aims to use powerful machines to do work that currently takes a lot of time and money

Friday, January 12, 2007

MONIQUE CURET
THE COLUMBUS DISPATCH

If the leader of the Ohio Supercomputer Center has his way, blue-collar work in the state will be transformed by machines, but not the kind traditionally used in those industries. Stan Ahalt envisions high-performance computers handling time-consuming, labor-intensive tasks, giving workers the opportunity to do less mundane work.

"This is the industry of tomorrow," said Ahalt, executive director of the state-run organization that provides computer and networking services for universities and industry.

With that in mind, the center about a year ago started the Blue Collar Computing program, giving businesses remote access to the center's high-powered computers and software. The program is focused on smaller companies and can cut costs and improve quality, making businesses more competitive.

The philosophy is that if computerization saves companies time and money, supercomputers can compound those benefits. "Our focus is to enrich the economy of Ohio," Ahalt said.

Most time and money is devoted to two kinds of computing: desktop, the most common type, and very high-end computing done by organizations such as the U.S. Department of Energy and the National Science Foundation.

Between the two, "There is this vast wasteland," and it's a blue-collar marketplace, Ahalt said.

The supercomputer center recently announced a partnership with the Edison Welding Institute, which will give the institute's 250 member companies access to high-performance computing and software. Edison is a Columbus nonprofit organization that provides consulting and research-and-development services.

The supercomputer center also has formed partnerships with the Ohio Manufacturers' Association and PolymerOhio, and is working on developing relationships with other organizations.

Now, engineers can use supercomputers to simulate a weld instead of building physical prototypes.

Welding requires computer models, and the welding institute was allowing members to use its computers for those tasks, said Henry Cialone, president and chief executive. But the process generally took a few days, and companies told the institute they needed results more quickly.

The collaboration with the Supercomputer Center allows the institute to provide that, Cialone said.

Now, a company might do one or two physical experiments to complete a project, rather than the dozen it might have done in the past, he said. It's an important change because the experiments can be costly. For example, one company that's working on a project involving pressure vessels spent \$500,000 for each mock-up.

Before the partnership with the Edison Welding Institute, the supercomputer center recruited eight or nine companies from the automotive, polymer-science, welding and plastics industries to join the Blue Collar Computing program.

The center hasn't set fees for its supercomputing services but plans eventually to charge based on levels of use, Ahalt said. The Blue Collar Computing program costs about \$250,000 annually and receives its funding from the state and federal government.

Smaller companies will benefit from the program, because they can't afford supercomputing and don't have the expertise necessary to use it, said Fusun Oguner, an Ohio State University professor specializing in high-performance computing.

Eventually, the Blue Collar Computing program could lead to better-quality products, because of the precision of the computer simulations, she said.

Rather than replacing workers with computers, Ahalt thinks workers could move from dirty, dangerous tasks to fulfilling work using sophisticated tools.

He hopes to "see Ohio transform into a place where companies want to locate because the infrastructure and work force are so capable."

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SIMILAR THERE WILL BE LESS OF THIS:



Scuchi Khurana, a senior engineer with Edison Welding Institute, inspects a connector that joins two pipes used in oil drilling. Use of supercomputer modeling could improve the speed and quality of this type of work.

... AND MORE OF THIS:



Khurana shows a model of an oilpipe connector. This is an example of work that will be done more quickly using the super computer.