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School computers aid cancer researchers

From eSchool News staff and wire service reports
August 24, 2004

School computers throughout Kentucky soon could be used to help cancer researchers develop new drugs to fight the disease.

Under the plan, public schools across the state would give researchers at the University of Louisville's James Graham Brown Cancer Center access to thousands of computers when students aren't using them. The scientists will harness the school computers to operate collectively as a virtual supercomputer.

The combined processing power can cut in half the time it takes to screen millions of molecular combinations for possible cancer-fighting therapies, officials said.

"We can translate basic science into potential drugs much faster," said John Trent, a computational biologist with the cancer center who is part of the project.

The partnership also would bring scientists and professors into the state's classrooms to tell students about the research.

The Kentucky initiative is led by Louisville-based Dataseam, which has worked with universities, schools, research companies, and state officials to develop the technology for research, said Brian Gupton, Dataseam's CEO.

Dataseam has identified 12,000 school computers in Kentucky districts that ultimately might be available, he said.

Schools were chosen to participate because their computers often are underused and many are on controlled networks, Gupton said. The school/cancer-research project is the first of its kind in the state.

The Brown Cancer Center's ongoing research--analyzing millions of molecular combinations as a first step in developing drugs targeting proteins related to tumor growth--requires crunching overwhelming amounts of data. The work also could help reduce the side effects of chemotherapy.

Trent said that's important work, because there are few effective anti-cancer drugs available.

Researchers say they'll be greatly helped by the school computers, but students won't notice any disruption, said Alan Whitworth, director of technology for Jefferson County public schools.

A network will send data to about 3,400 computers that are turned on but not being used. The computers will analyze the data and return the results automatically when their applications aren't being used, such as during lunchtime, between classes, or after school.

"It doesn't sound like much" time, Whitworth said. "But it adds up."

According to the proposed agreement, the district also would leave designated computers on 24 hours a day, seven days a week, to be used at night and on breaks.

Whitworth said the added cost of electricity would be "negligible" and well worth the benefits to science education and cancer research.

The proposed project is another example of the latest trend in supercomputing: linking standard processors together across vast distances, giving traditional desktop machines enough power to rival some of the nation's fastest supercomputers at a fraction of the cost.

In April, students and teachers at the University of San Francisco employed this technique when they organized Flashmob, a one-day event to determine whether they could knit together enough off-the-shelf computers to compete with the nation's top 500 supercomputers. (See "Researchers aim to 'democratize' supercomputing.")

Though they failed to make the list, many of the 600-plus volunteers who participated in Flashmob hoped their research would demonstrate how interconnected machines could be used to solve the kinds of real-world problems that require high-powered computing, such as AIDS research or global warming.

Last fall, students and teachers at Virginia Tech linked 1,100 Apple G5 PowerMacs together to create "Big Mac," the world's third fastest supercomputer, capable of processing 10.3 trillion operations per second. The cost: just $7 million--a far cry from the $250 million it cost to build Japan's Earth Simulator Center, officially the world's fastest machine, which has been clocked at an astonishing 33.9 trillion operations per second.

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