



Taking a bite out of the world's most complex scientific problems

Thanks to a government investment, the SHARCNET consortium of 11 Ontario institutions is expected to be among the top 70 most powerful research facilities in the world

FOR IMMEDIATE RELEASE

LONDON, ON – Friday July 23, 2004 – Thanks to an investment from the Canada Foundation for Innovation (CFI) and the Ontario government, confirmed this week, the Shared Hierarchical Academic Research Computing Network (or SHARCNET), will be soon be among the world's most powerful High Performance Computing (HPC) centres.

HPC, sometimes called supercomputing, allows scientists to employ extremely powerful computers to accelerate the pace of their research in a cost-effective virtual environment and in many cases, to tackle complex scientific problems that could not otherwise be studied.

SHARCNET supports the research of some of Canada's preeminent academics, from strategies to combat Foot and Mouth and Mad Cow disease to new models to manage financial risk, by providing state-of-the-art HPC facilities; facilities that are hundreds or thousands of times faster than a regular desktop computer. Put in perspective, a Canadian researcher using SHARCNET can produce results that would have normally taken a year or more on a personal computer in a single day.

The total investment in this phase of SHARCNET is \$50M: \$19.3M from the CFI, \$19.3M in matching funds from the Ontario government and an additional \$10M from SHARCNET's institutional and private sector partners. SHARCNET's 11 partners comprise more than 50% of Ontario's research faculty.

"This unprecedented investment clearly illustrates the importance of SHARCNET resources and services to the provincial and national research community," says Carmen Gicante, SHARCNET Executive Director. "SHARCNET is positioned to help both the province and the country become global leaders in research and innovation."

It is anticipated that once fully installed, the SHARCNET systems, housed at 11 leading academic institutions in Ontario, will be the most powerful in Canada and that SHARCNET will have at least one system within the top 70 in the world (according Top500.org supercomputers list). In addition, SHARCNET will have data storage facilities that are the equivalent of tens of thousands of today's top-of-the-line personal computers and provide facilities that can visualize enormous sets of data, like the formation of stars and planets. It will also include affiliations with some of the province's leading research centres, including the Robarts Research Institute, Perimeter Institute, and Fields Institute.

"In just under 4 years of operation, SHARCNET has attracted a world-leading academic community," states SHARCNET Scientific Director Hugh Couchman. "In this next evolution, SHARCNET will provide researchers with HPC facilities that are second to none in Canada and accelerate the production of results which are of benefit to our economy, health, environment, scientific knowledge and culture."

The expansion is expected to support breakthroughs in such areas as human genomics, environmental protection, financial risk management, the containment of infectious human and animal diseases, and the development nano-scale electronic devices.



“SHARCNET is a key driver in the attraction of many international researchers, including myself, to Canada,” confirms Dr. Hermann Eberl, a University of Guelph Professor of Mathematics and SHARCNET Chair in Bio-computing who was attracted to Guelph because of SHARCNET facilities. “The technology and support services they provide enable scientific investigations that would otherwise be extremely difficult, even impossible in some cases.”

Dr. Eberl joined the Ontario research community in 2003 from the German National Research Center for Environment and Health. Using High Performance Computing, he studies microbial bio-processes that play a role in areas such as biological wastewater purification, the treatment of bacterial infections with antibiotics, and food safety.

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BACKGROUNDER

About High Performance Computing (HPC)

Sometimes called “supercomputing”, HPC is the technology that is used to provide solutions to problems that require significant computational power, need to either access, or process, very large amounts of data quickly, or need to operate interactively across a geographically distributed network.

About SHARCNET (www.sharcnet.ca)

SHARCNET is a multi-institutional High Performance Computing network that spans 11 academic institutions in South Central Ontario. SHARCNET’s mission is to provide leading edge computational resources and services to accelerate the production of world-leading research results. SHARCNET is lead by the University of Western Ontario, and includes the Universities of Guelph, McMaster, Wilfrid Laurier, Windsor, York, Brock, Waterloo and Ontario Institute of Technology, and colleges Fanshawe and Sheridan. The network also includes affiliations with the Robarts Research Institute, Perimeter Institute, and Fields Institute. Its private sector partners include Hewlett Packard, Platform Computing, Bell Canada, Nortel Networks, Quadrics Ltd, and the Optical Regional Advanced Network of Ontario (ORANO). SHARCNET supports some of Canada’s preeminent academics (over 200 research groups.) SHARCNET is generously supported by the Canada Foundation for Innovation and the Ontario government as well as by its institutional members and industrial partners.

Applications of the ground breaking research currently being conducted on SHARCNET include:

Understanding outbreaks of diseases like SARS; Combating outbreaks of foot and mouth disease; Modeling the movement of urban pollution; Investigating new materials for electronic devices; Developing new therapies for epilepsy and cystic fibrosis; Simulating the collapse and formation of planets; Investigating immune systems and drug resistance; Understanding the causes of skeletal birth defects; Advancing the treatment of bacterial infections; Improving weather prediction.

With this new infrastructure, SHARCNET will:

- Expand its community by more than two-fold adding computational equipment at the Universities of Waterloo, Brock, York and Ontario Institute of Technology (bringing its total of number of academic partners to 11)
- Expand its capabilities to satisfy the demand for HPC by new fields and research groups, such as Bioinformatics and Biocomputation, Financial Mathematics, High Performance Computing Tools, Computational Social Sciences
- Meet the growing demands for HPC in established research areas, including Engineering and Applied Science, Physics and Chemistry, Astrophysics
- Attract and retain outstanding international researchers



- Provide a test bed for innovative solutions in data storage and visualization over a distributed network
- Focus HPC resources in South-Central Ontario to provide a cost-effective, internationally-competitive infrastructure
- *Enable research and innovation that would otherwise be impossible*

A significant number of provincial and national research initiatives will now leverage SHARCNET resources:

- Western Ontario Bioinformatics Initiative
- The Ontario Microarray Network
- The BioTron
- Centre for Advanced Studies in Finance
- Brock Institute for Scientific Computation
- Mathematical Models in Finance Science and Testing Laboratory
- The Ontario Research Centre for Computer Algebra (ORCCA)

About the Canada Foundation for Innovation (CFI) (www.innovation.ca)

The Canada Foundation for Innovation (CFI) is an independent corporation created in 1997 by the Government of Canada to fund research infrastructure. The CFI's mandate is to strengthen the ability of Canadian universities, colleges, research hospitals, and other non-profit institutions to carry out world-class research and technology development that will benefit Canadians. CFI support is awarded following a thorough merit-based assessment process that involves researchers, research administrators, and research users from Canada and abroad who review proposals and make funding recommendations. Support from the CFI enables institutions to set their own research priorities in response to areas of importance to Canada. This allows researchers to compete with the best from around the world, and helps to position Canada in the global, knowledge-based economy.