Second to none
SHARCNET to become one of Canada's most powerful HPC centres
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As the result of a grant from the Canada Foundation for Innovation (CFI), The Shared Hierarchical Academic Research Computing Network (SHARCNET), will soon be one of Canada's most powerful High Performance Computing (HPC) institutes.

Today, SHARCNET was awarded a total of $19,326,759 from the CFI, 100% of its original funding request. The CFI, an independent corporation established by the Government of Canada in 1997 to strengthen the capacity of Canadian universities, colleges, research hospitals, and other non-profit research organizations to carry out world-class research and technology development, has supported SHARCNET since 2001.

As a leading provider of HPC resources and services, SHARCNET accelerates the production of research results for some of Canada's pre-eminent academics; from increasing the understanding of outbreaks of diseases such as SARS to the development of new models to manage financial risk.

The SHARCNET consortium consists of an unprecedented 11 academic partners in South Central Ontario, and 6 private sector partners, all leading North American and European technology vendors.

Carmen Gicante, SHARCNET Executive Director, believes that this latest award reinforces the importance of SHARCNET's collaborative model and the exceptional research it enables.

"The sharing of expertise and resources, enabling research and innovation which would otherwise not be possible for a single institution – this is one of SHARCNET's two main strengths."

The other?

"Our researcher community," he confirms. "The calibre of research being conducted on SHARCNET systems was instrumental to the success of this (CFI) proposal."

Dr. Deborah Stacey, an Associate Professor at the University of Guelph, is using SHARCNET to create a software program to model outbreaks of Foot and Mouth Disease (FMD). Stacey's work, which is funded by federal and provincial health and agriculture ministries, may also have applications to the monitoring and combating of bioterrorism.

"SHARCNET is providing a research environment that is second to none," she says. "SHARCNET facilities were crucial in attracting this (FMD) project to Guelph. The CFI's continued support confirms that the innovation taking place within this community is crucial, not only to individual researchers, but to the province and the country as well."

When new equipment is fully deployed, SHARCNET will be Canada's largest HPC institute, with the greatest number of partners, and one of the nation's most powerful computing facilities.

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SHARCNET Backgrounder

What is HPC?
Also 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. (Source: http://www.epcc.ed.ac.uk/HPCinfo/intro.html)

About SHARCNET
SHARCNET's unique strength lies in the breadth and depth of its partnerships. SHARCNET is a consortium of 11 leading academic institutions across South Central Ontario. Led by The University of Western Ontario, SHARCNET includes the Universities of Guelph, McMaster, Wilfrid Laurier, Windsor, Waterloo, Brock, Ontario Institute of Technology and York, and colleges Fanshawe and Sheridan. SHARCNET is founded on academic-industrial collaboration. Its private sector partners include Hewlett Packard, Platform Computing, Bell Canada, Nortel Networks, Quadrics Ltd, and the Optical Regional Advanced Network of Ontario (ORANO).

Computing Tomorrow's Solutions
As a leading provider of HPC resources and services, SHARCNET accelerates the production of research results for some of Canada's pre-eminent academics. Ground breaking research currently being conducted on SHARCNET systems includes:

Combating outbreaks of foot and mouth disease (Prof. Deborah Stacey, Guelph); *Modeling the movement of urban pollution* (Prof. Nicholas Kevlahan, McMaster); *Investigating new materials for electronic devices* (Prof. Martin Muser, Western); *Developing new therapies for epilepsy and cystic fibrosis* (Profs. Saul Goldman, Chris Gray, Guelph); *Simulating the collapse and formation of planets* (Prof. James Wadsley, McMaster); *Investigating immune systems and drug resistance* (Prof. Lindi Wahl, Western); *Understanding the causes of skeletal birth defects* (Prof. Jonathon Stone, McMaster); *Advancing the treatment of bacterial infections* (Prof. Hermann Eberl, Guelph); *Improving weather prediction* (Prof. Bartosz Protas, McMaster).

SHARCNET is also widely recognized as a pioneer in the development and testing of emerging HPC tools and techniques, including the testing of pre-market products for partners such as HP, Nortel and Platform Computing.

Funding
SHARCNET is generously supported by the Canada Foundation for Innovation (CFI), Ontario Innovation Trust (OIT), Ontario Research and Development Challenge Fund (ORDCF), as well as by its institutional members and industrial partners.

In March 2004, SHARCNET was awarded an additional $19,326,759 in funding from the CFI.

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

The Canada Foundation for Innovation (CFI)-an innovation in its own right-was created as an independent organization by the federal government in 1997. The non-government status of CFI, plus its dedication to responding to funding priorities defined by research institutions across the country, ensures the credibility of its awards. It is this credibility that has won

support from provincial governments and private sector partners. CFI funding matched by these partners ensures that Canada's best and brightest can stay here to perform leading-edge research with modern tools in world-class environments.

With support from the Canada Foundation for Innovation, SHARCNET will:

- Expand its community by more than two-fold adding the Universities of Waterloo, Brock, York and Ontario Institute of Technology

- 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 new researchers

- Provide a test bed for innovative solutions in storage and visualization over a distributed network

- Focus the HPC community in South-Central Ontario to provide a cost-effective, internationally-competitive infrastructure

- *Enable research and innovation that would otherwise be impossible*

To accomplish this, SHARCNET will add the following to its leading-edge infrastructure:

- New computational capabilities
- Large amounts of distributed storage
- Satellite development sites
- Specialized facilities for grid research, computational chemistry and interconnect topology
- Scalable, cost-effective visualization across all sites
- A dedicated, world class optical network connecting computation nodes, storage facilities and partners

SHARCNET will also undertake a redeployment of existing infrastructure to extend the lifetime and ensure effective use of previous-generation equipment

In addition, a significant number of provincial and national research initiatives will 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)