



Ontario Research and
Innovation Optical Network
Réseau optique de recherche
et d'innovation de l'Ontario

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ORION HIGH-SPEED OPTICAL NETWORK POSITIONS SHARCNET AMONG THE WORLD'S FASTEST SUPERCOMPUTERS

GUELPH, Ontario – An agreement announced today with the Ontario Research and Innovation Optical Network (ORION) helped the Shared Hierarchical Academic Research Computing Network (SHARCNET) position itself among the world's fastest supercomputers, by combining the power of SHARCNET's geographically distributed sites to produce a computational infrastructure equivalent to those of the top 50 computer installations in the world.

The agreement, announced at the SHARCNET Annual General Meeting in Guelph, provides SHARCNET with a dedicated one-gigabit per second segment on the ORION network, linking SHARCNET's three main computational sites at the University of Western Ontario in London, the University of Guelph and McMaster University in Hamilton.

ORION's high-speed connectivity gives the computational facilities at these sites the combined processing power of over one Teraflop, or one trillion "floating operations per second", an internationally-recognized measure of processing power used by the Top500 Supercomputer Sites (Top500.org) to track the world's most powerful computer installations.

Although the world's top supercomputer rankings are constantly shifting, SHARCNET's capacity would currently be ranked among the top 50 sites in the world (November 2002) and would represent one of Canada's most powerful HPC sites. SHARCNET is currently conducting benchmarking tests to establish its official ranking for the Top500's bi-annual update in November 2003.

"This connection provides SHARCNET researchers with greater access to distributed computational resources, more opportunities for collaboration between institutions and the ability to undertake more computationally-intensive research of benefit to Ontario," said Carmen Gicante, SHARCNET's Executive Director.

"ORION was created to bring leading-edge network capability to Ontario's publicly funded research and education community," explained Phil Baker, President and CEO of ORANO, which owns and operates the ORION network. "This partnership with SHARCNET is the first of many innovative initiatives that ORION will now make possible throughout Ontario."

Distributed computing, a primary focus of SHARCNET, is based on the principle that applications requiring a large amount of computing power can be distributed across available processors to optimize time and efficiency. For example, if a SHARCNET researcher at McMaster required 64 processors to run a certain application, and only 32 were available, the computation could be distributed, via the ORION network, to available processors at Guelph and Western.

ORION, among the largest and most powerful optical research networks in the world, is a new 3,700-kilometre infrastructure that links Ontario's 43 post-secondary institutions and more than 50 publicly funded research institutions and organizations through 21 network connection points throughout Ontario.



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The agreement announced today provides SHARCNET with a dedicated connection over ORION to enable collaborative research and facilitate access to computational resources across SHARCNET partner institutions.

As part of this strategic partnership, SHARCNET and ORION will collaborate to provide the opportunity for researchers and staff within both organizations to gain knowledge and experience in the testing, development and management of an advanced optical-based R&D network.

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Established in June 2001, the Shared Hierarchical Academic Research Computing Network (SHARCNET) is Canada's largest High Performance Computing (HPC) research facility. SHARCNET is a consortium of five Southwestern Ontario universities and two community colleges that provides HPC services, at no cost, to the research community. Over 300 researchers currently use SHARCNET resources.

SHARCNET's academic partners include The University of Western Ontario, University of Guelph, McMaster University, University of Windsor, Wilfrid Laurier University, Fanshawe College and Sheridan College. Support for SHARCNET is provided by the Canada Foundation for Innovation (CFI), Ontario Innovation Trust (OIT), and the Ontario Research and Development Challenge Fund (ORDCF), as well as by corporate partners Hewlett Packard, Quadrics Supercomputing World, Platform Computing, Bell Canada and Nortel Networks.

Owned and operated by the Optical Regional Advanced Network of Ontario (ORANO), a not-for-profit organization, the Ontario Research and Innovation Optical Network (ORION) is one of the largest fully owned and operated optical research and education network in the world, providing affordable high-speed access and connectivity to Ontario's research and advanced education (R&E) institutions.

The Ontario Ministry of Enterprise, Opportunity and Innovation and Ontario's SuperBuild Corporation are ORION's primary funding partner, with an investment of \$32.3 million. The federal government has invested \$3.4 million through CANARIE, Canada's Advanced Internet Development Organization, which operates CA*net4. Additional private and public sector investments over the next three years will bring the value of the ORION project to over \$78 million.