



CANARIE

Research, Collaboration, Innovation. Anytime.

CANARIE's core purpose is the advancement of Canada's knowledge and innovation infrastructure. This infrastructure is the digital foundation supporting Canadian leadership in the global knowledge-based economy.

Discover how CANARIE's programs and services:

Accelerate scientific discovery ● Foster collaborative learning and research ● Bolster Canadian economic growth

Ultra-High-Speed Network

CANARIE's ultra-high-speed backbone network provides national and international connectivity that is integral to Canada's participation and collaboration in global science initiatives - in disciplines such as particle physics, genomics, astronomy, and neurology. Thirteen provincial and territorial network partners, together with CANARIE, collectively form Canada's National Research and Education Network. Collaboration is made possible when massive volumes of research data are shared at rapid speed, enabling Canadians to be part of today's leading scientific discoveries.

- > Millions of Canadians have access to the CANARIE Network
- > The CANARIE network stretches 31,000 km from coast-to-coast-to-coast
- > Speeds up to 100 Gigabits per second (enough to download a 2 hour HD video in 4/10ths of a second)
- > Transmitted 199,000 terabytes of data in 2016 (equal to about 52,200,000 HD movies, which would take over 11,000 years to watch in their entirety)

Private Sector Innovation: DAIR Cloud Program and Partnership with CENGN

The Digital Accelerator for Innovation and Research (DAIR) Cloud Program provides Canadian startups with free, high-performance, made-in-Canada cloud resources for product development, testing, and demonstration. DAIR Cloud encourages Canadians to benefit from the scale, speed, and agility of cloud technologies to transform their business processes and get to market faster.

CANARIE also provides the backbone network for the Centre of Excellence in Next Generation Networks (CENGN). CENGN brings together more than 20 members and partners, including Canada's leading service providers and technology firms. Along with many of the largest multi-national ICT equipment vendors, CENGN collectively combines their expertise and equipment to lower the barrier to entry for SMEs and researchers developing the next generation of network solutions.

- > 900+ Canadian startups have used the DAIR Cloud to build, test, and prototype their products
- > CANARIE's DAIR Cloud was one of the first large-scale OpenStack clouds in the world
- > CENGN's use of the CANARIE infrastructure led to 2 regional and 1 interprovincial collaboration that take lab trials to live network conditions



Research Software Program

CANARIE's Research Software Program funds, supports, and promotes the development of research software tools that accelerate scientific discovery. These tools are designed to be modular and re-usable, enabling researchers to focus on research rather than on software development. Software tools developed through this program, along with those contributed by researchers around the world, are available for free through the CANARIE Research Software Registry: science.canarie.ca

- > CANARIE was the first organization to fund the development of reusable research software services for Canadian researchers
- > More than 100 reusable Software Services and Platforms are currently available on the Research Software Registry

Research Data Canada

CANARIE provides funding and operational support to Research Data Canada (RDC). RDC is committed to improving the management of research data in Canada, with a goal to develop a national research data management framework. To fulfil this vision, RDC acts as a hub to bring together key stakeholders to develop a strategy, facilitate discussions and partnerships, promote education and training, measure progress, and bring attention to gaps in Canada's data management practices.

RDC aims to:

- > Preserve and increase access to research data, facilitating greater discovery and ability to verify results
- > Increase opportunities for collaboration and innovation
- > Make data available using international norms and standards, and
- > Increase the use and exchange of research across disciplines

Cybersecurity Initiatives

Through cybersecurity collaborations, partnerships, and program initiatives, CANARIE drives to strengthen the overall security of Canada's National Research and Education Network (NREN).

CANARIE champions the advancement of collaborative national security operations to strengthen the overall state of network security at connected institutions within Canada's NREN. Working with Canadian and international collaborators, CANARIE and its twelve provincial and territorial network partners are building a collaborative community of security innovators to contribute to a shared security strategy, with the goal of enhancing capabilities in cyber threat detection, and increasing cybersecurity services and mitigation strategies.

Identity and Access Management: Canadian Access Federation (CAF)

Today's research and education resources are globally dispersed. To support students and faculty at Canada's higher-education institutions, CANARIE manages and operates the Canadian Access Federation (CAF). CAF is a trusted access management environment that provides users Wi-Fi connectivity (through eduroam) and access to digital resources whether at home or abroad (through Federated Identity Management) - all using the log-in credentials of their home institution.

- > CANARIE supports more than 10 million eduroam logins per month
- > 75 Canadian universities and colleges currently participate in CAF
- > Supports easy single-identity access to wireless networks and specialized resources over 40,000 times a day