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 is the federal partner in Canada's National Research and Education Network (NREN). The NREN is an essential collective of infrastructure, tools and people that bolsters Canadian leadership in research, education, and innovation. CANARIE and its twelve provincial and territorial partners form Canada's NREN. The NREN connects Canada's researchers, educators and innovators to each other and to data, technology, and colleagues around the world.

> The CANARIE network stretches 31,000 km from coast-to-coast-to-coast

> Network speeds up to 100 Gigabits per second (enough to download a 2 hour HD video in 4/10ths of a second)

> CANARIE Network transmitted 313,000 terabytes of data in 2018-19 (equal to about 81,900,000 HD movies, which would take over 18,000 years to watch)

Security Program

Through cybersecurity collaborations, partnerships, and program initiatives, CANARIE works 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 in the NREN ecosystem. Working with Canadian and internati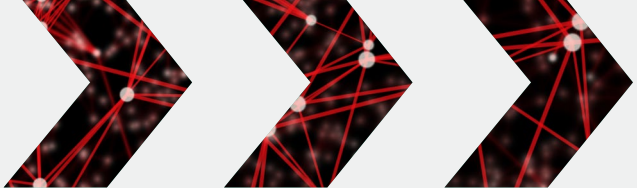onal collaborators, CANARIE and its twelve provincial and territorial network partners are building a collaborative community of security innovators to contribute to a shared security strategy, with the goal of enhancing capabilities in cyber threat detection, and increasing cybersecurity services and mitigation strategies.

Current CANARIE Security activities include:

> Funding the deployment of a common monitoring tool across all the NREN partners, along with the creation of a community of practice of NREN security professionals

> Increasing opportunities for collaboration and data sharing between institutions via the Joint Security Project

> Working with institutions to facilitate the development of a proof-of-concept for a shared Security Operations Centre for Higher Education

Research Software Program

The Research Software Program's broad goals are to promote software reuse and adaptation, software engineering best practices, and long-term software sustainability. CANARIE works to achieve these goals by funding reusable and adaptable research software, by funding research support teams at institutions, and by promoting the development of a community of research software developers in Canada.

A range of reusable software tools and platforms, funded by CANARIE and others, is available for free at 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

> To create a community of practice for research software developers and to encourage best practices in software development, CANARIE hosts an annual Canadian Research Software Conference

Identity and Access Management: Canadian Access Federation

To support "anytime, any place" research and education by 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 between 15 - 29 million eduroam logins per month

> Nearly 170 institutions and service providers participate in CAF

Research Data Management

The ability to reuse research data accelerates opportunities for creating new knowledge and maximizes the return on investment of research funding. The research data management (RDM) workflow, broadly encompassing data creation, storage, access and reuse, is enabled by a range of software components and tools.

CANARIE's Research Data Management Program funds the development of software components and tools to enable Canadian researchers to adopt best practices and comply with policy throughout the RDM workflow.

> CANARIE is currently funding 9 RDM platforms as a result of a funding call that focussed on priorities developed through a community consultation

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. RDC acts as a hub to bring together key stakeholders to develop policy directions, facilitate discussions and partnerships, promote education and training, measure progress, and bring attention to gaps in Canada's data management ecosystem.

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 data across disciplines

Private Sector Innovation: DAIR Cloud Program and Partnership with CENGN

The Digital Accelerator for Innovation and Research (DAIR) Program provides Canadian startups with free, high-performance, made-in-Canada cloud resources for product development, testing, and demonstration.

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

> 1200+ 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

> CANARIE is currently running a DAIR pilot project to encourage Canadian SMEs to use transformative technologies, such as machine learning and Internet of Things (IoT)

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