

Draft
Advanced Research Computing
LCDRI Summit 2017
Breakout Room 1

Vision

Provide a sustainable, responsive, coordinated, and evolving advanced research computing (ARC) platform that enables Canada's researchers to undertake research for the betterment of all Canadians.

Future state

Where do we need to be in one to three years?

In one to three years' time, Canada's ARC platform will support:

- the full spectrum of user need in the academic community
- small and moderate users by giving them access to what they need, when they need it and large users by providing access through a competitive process based on merit
- large users by providing access through a competitive process based on merit.
- a nationally coordinated ARC platform that is well-managed, agile, creative, responsive to need, robust, innovative, resilient and internationally recognized for service excellence
- the right balance among scale, efficiency, innovation, and agility
- a shared delivery model in which mandates and roles are clearly understood by all stakeholders
- convergence around a shared vision, reflective of engagement with key stakeholders
- relationships among stakeholders that are strong, trust-based, and rooted in goodwill and a willingness to collaborate
- a national framework for sharing best practices in engaging and collaborating with researchers in other sectors
- the effective training of data scientists
- strengthened ARC training and adoption across disciplines, particularly among graduate students
- efforts to raise awareness among the general public and decision-makers about the importance of ARC

Goals

The goals for the ARC platform over the next one to three years are to:

1. provide a nationally coordinated platform that is inclusive of the seven core ARC functions* and responsive to the full spectrum of user need.
2. build a sustainable, internationally-recognized ARC system that is robust and stable, as well as innovative, resilient, nimble, and diverse.
3. develop a strategic planning process that is informed by, and responsive to, continual feedback from users across all disciplines, changes in technology, and continuous operational learning and improvement.
4. identify and work to ensure sustained and predictable funding that aligns operation and capital investment.
5. oversee a well-managed process for coordinated and collaborative service delivery across Canada.
6. develop initiatives and strategies to encourage greater awareness of and communities of practice in ARC, particularly among graduate students.
7. support communication and awareness-raising efforts to ensure that the essential impact of ARC is understood by decision-makers and the general public.

Principles

Canada's ARC platform:

- Enables research
- Is both nationally coordinated and locally supported
- Strikes the right balance between stability and innovation
- Provides seamless and integrated services for researchers
- Enables local innovation and supports the growth of successful initiatives into national services where appropriate
- Provides efficient, predictable, and flexible access for users
- Serves the full spectrum and diversity, driven by user need
- Is sustainable, efficient, and effective
- Is recognized for its innovation and leadership internationally
- Adds value continuously

Challenges

- No regular and sustainable capital or operational funding, which affects our ability

to grow and retain the valuable HQP, who are an essential component of ARC services, as well as our ability to undertake long-term planning to ensure the most effective and efficient use of ARC resources

- Lack of flexible funding models that allow for the most efficient and effective procurement of ARC resources
- Diversification of computing engines – new and emerging devices
- ARC demand growing and diversifying in terms of needs and user base i.e. across disciplines
- Environmental impact
- Lack of general public knowledge about the importance of ARC
- Can be difficult to support staff in adapting to new technologies and demands

Strengths

- Track record of strong adaptability
- Diversity e.g. academic training programmes, people, regions, disciplines
- A strong backbone network – a remarkable feat, given the vastness of our geography
- A strong team of technical staff, who have both breadth and depth, and who collaborate to provide national support services

*Seven Core ARC Functions:

- Computation
- Active storage
- Leadership, advice, support, and training
- Archival storage support
- Real-time data acquisition
- Software stewardship and support
- Privacy, security, and authentication