Strategic Roadmap 2022-2025

cybera

Cybera is Alberta's research and education network facilitator, responsible for driving connections, collaborations and skills growth through the use of digital technology.

Our mission is to connect Alberta to the world, enabling and advocating for better services, collaborations and skills growth through the use of digital technology.

Our vision is to ensure a connected, secure and equitable digital future for every Albertan.

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Message from the President & CEO

We've introduced "moonshot" goals to our strategic roadmap — far-reaching targets for each activity Cybera carries out. Our overall vision is to ensure a connected, secure and equitable digital future for every Albertan. To accomplish this, our province needs the right infrastructure, tools, information, and skills in place. No one organization can deliver these alone. But working together? I think Alberta can truly foster the digital citizens of the future.

Collaboration will be a core element of Cybera's work in the next three years. With a shortage of technology talent in the province, and a rise in operational costs, we know the best way for our members to survive and thrive is through sharing their knowledge and tools. Cybera has a long history of being the facilitator of this kind of sharing, and we plan to increase these partnership opportunities in the near future.

The last three years of pandemics, social disruptions, and budgetary cutbacks have been incredibly tough for all Albertans. We've seen our education and public sector members overcome extreme odds to meet the needs of teachers, learners, and innovators. But the future is a blank slate, and things can quickly change (for the better or worse).

This is why, no matter what we are currently working on, Cybera staff will still keep one eye on the upcoming technological trends. Underlining every new or existing service/project mentioned in this roadmap is a commitment to tech exploration. We want to stay on top of the new tools and methodologies (for example, chatbots that can respond to student inquiries, or machine learning platforms that enable more efficient network management) that could help our members.

We need to be responsive to the changing landscape priorities while still doing what Cybera does best: connecting Albertans to the world, and supporting our members through our valued programs and services.

I continue to be optimistic about the future, and the goals our province and society at large can achieve. It's hard to be anything but optimistic when you work with such dedicated people — both within Cybera, and in our wider innovation community — who are committed to using their skills and knowledge to make the world a better place. I'm excited to work with our members to make our collective moonshots a reality!

Barb Carra, President and CEO

Roadmap for 2022-2025

The past three years have seen a big shift in the way Albertans conduct their business or educate the next generation. These changes have occurred simultaneously with increased focus on streamlining processes, tackling cybersecurity threats, adapting to the rapid pace of technology change, and navigating skilled personnel shortages. As we canvassed our community in the lead up to our 2022-25 Strategic Roadmap, it was no surprise the top priorities for most respondents were increasing collaborations on resource and knowledge sharing, and finding (and retaining) core technical staff.

While we know Cybera needs to maintain the unique services that members would find hard to receive from other providers, we also know how important it is to continue exploring solutions and opportunities in these emerging issues and trends. We are also committed to continue advocating for members, and the broader population, when it comes to digital access and equity issues.

This is why Cybera is focusing its efforts on these five key pillars:

- **Network**

- **Security**

- **Skills**

- **Collaboration**

- **Advocacy**

These pillars will guide us as we evolve our existing programs, and develop new projects and services. They will also define the role we play in Alberta's broader tech community, ensuring the province comes out of the next three years stronger and more resilient than ever before!

Overarching goals for the next three years

Build value
Continue to grow the services that are recognized by our member community as being valuable

Cooperate better
Increase collaborations and conversations with members to support their organizational needs

Increase equitable access
Seek out new opportunities to support underserved communities with skills development, job opportunities, technology support, or help in other areas of Cybera's expertise

Keep exploring
Investigate and trial new technology opportunities that emphasize cost-effective solutions for Albertans, including better ways to access broadband

Network

As well as operating and growing the province's Research and Education Network, Cybera is supporting its members to achieve faster, safer, and more efficient bandwidth. This will help them meet the growing communication, learning, and everyday working needs of Albertans.

What we will do

- Connect more communities, not-for-profit organizations, municipalities, and research centres
- Work with members to identify gaps and solutions for overcoming their network bottlenecks
- Expand network capacity and explore new network technologies, including automation
- Build out Cybera's network offerings to include more services (e.g. security, monitoring, and network support)

Moonshot target

Every Alberta public & education organization can access 100 Gbps speeds by 2027

# *Specific achievables*

By March 31, 2023

- Expand eduroam to 1 new municipality and 2 more education institutions
- Launch 1 new service focused on growing the broader value of the network
- Investigate and grow peering relationships and capacity to major cloud providers in Canada
- Work with members to identify bottlenecks in their network

By March 31, 2024

- Expand eduroam to 1 new municipality and 2 more education institutions
- Launch 1 new service focused on growing the broader value of the network
- Work with members to eliminate bottlenecks in their network
- Work with wider member community to identify and deliver a new community network service

By March 31, 2025

- Expand eduroam to 1 new municipality and 3 more education institutions
- Pilot a non-fibre (e.g. LEO satellite) network project
- Connect 2 additional First Nations communities to Cybera's network
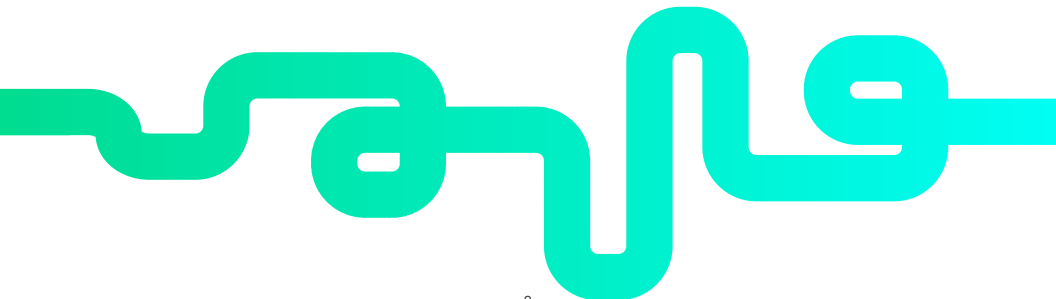
Security

With cybersecurity threats growing in scale and complexity, we are amplifying our efforts to improve the safety posture of all Alberta public and education organizations. We are also increasing collaborations with provincial and national partners on security initiatives.

What we will do

- Continue developing in-house expertise

- Support the development of key security skills in member institutions (see Skills and Advocacy goals for more details)

- Explore open-source or automated systems that strengthen institutions' security postures while reducing costs

- Expand security services beyond governance and assessment programs, to implementation, monitoring and response support

- Work through the five functions of NIST (Identify, Protect, Detect, Respond, Recover) to develop services related to each

- Collaborate with other non-profit institutions to share and implement resources and best practices

Moonshot target

Alberta's public & education organizations will have equitable access to the security resources they need by 2027

Specific achievables

By March 31, 2023

- Launch 4 new security services for wider member community
- Expand intrusion detection service (Miridor) to include alerting and reporting
- Use assessment results to build a security profile of Alberta's education sector
- ShareIT to begin 1 new security RFP
- Support the development of new backup solutions for members

By March 31, 2024

- Pilot a DDoS mitigation service
- Integrate advanced analytics into Miridor
- Launch a breach coaching solution (via partnership)
- Pilot an open source Virtual Firewall Service offering
- Use assessment results to advocate for funding to fill gaps in security maturity
- Explore the creation of a Security Operations Centre in Alberta with government and Cybera members

By March 31, 2025

- Launch a production level DDoS mitigation service
- Offer a complete service catalogue for all five NIST functions
- Launch a production-level, open source Virtual Firewall Service offering
- Explore machine learning with Miridor
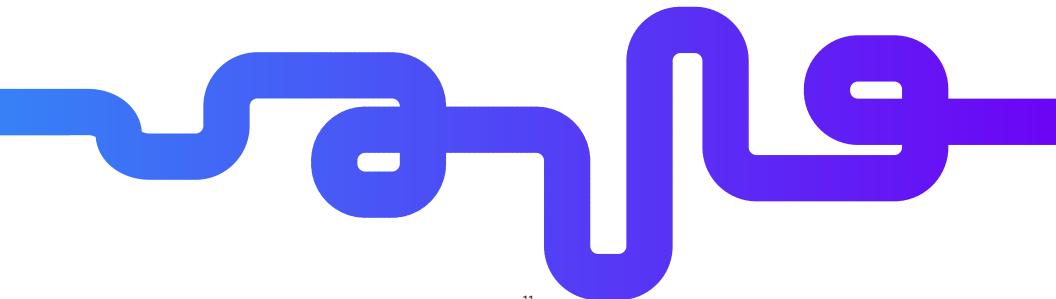
Skills

To address the increasing gaps in Alberta's technical fields (and help transition the province to a more diversified economy), Cybera is committed to building technical skills and digital literacy in the province.

What we will do

- Work with educators to increase computational thinking skills in Canadian K-12 classrooms

- Provide tools and training support for women, under-represented groups, not-for-profits and charities

- Collaborate with industry and academia to increase awareness and access to technical skills (data management / data science, security, community networks, etc) in Alberta through webinars / hackathons / internships / micro-credentials / work-integrated learning programs

- Utilize data science expertise to predict future IT trends and career pathway needs, and work with government and education to implement findings

Moonshot target

Albertans are leading Canada's digital economy by 2030

Specific achievables

By March 31, 2023

- Train 1,000+ teachers and 16,000+ grades 5-12 students in data science / computational thinking
- Train 16 interns and 4 companies across Alberta in data science
- Pilot a Cybersecurity Fellowship program (8 fellows and 5-8 companies)
- Host 6 public webinars on advanced technologies, security and/or equitable access to internet
- ShareIT Professional Development: host 12+ knowledge sharing sessions with members
- ShareIT Professional Development: establish a catalogue of technical and IT leadership certifications

By March 31, 2024

- Train 1,000+ teachers and 16,000+ grades 5-12 students in data science / computational thinking
- Train 24 interns and 6 companies across Alberta in data science
- Launch a national Cybersecurity Fellowship program (30 fellows and 20-30 companies)
- Host 8 public webinars on advanced technologies, security and/or equitable access to internet
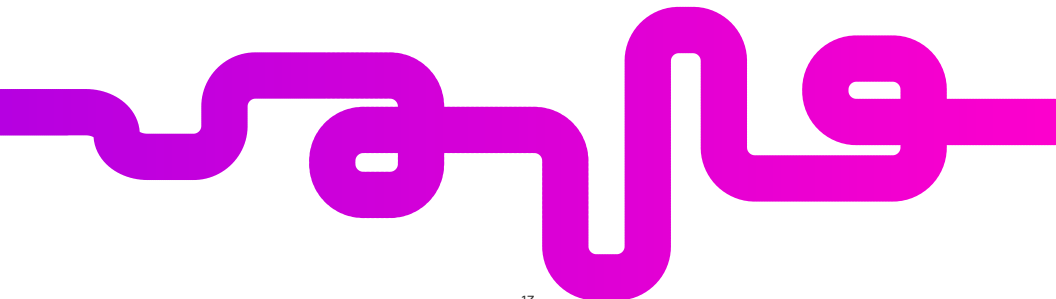
- ShareIT Professional Development: host 15+ knowledge sharing sessions with members
- Advise 2 member organizations on their data science pathways

By March 31, 2025

- Callysto program becomes a self-sustaining service
- Applied Data Science Lab becomes a self-sustaining program
- Expand Cybersecurity Fellowship program to 100+ fellows and 80-100+ companies)
- Host 10 public webinars on advanced technologies, security and/or equitable access to internet
- ShareIT Professional Development: host 15+ knowledge sharing sessions with members

Collaboration

More and more, Alberta's public and education sectors are realizing their interconnectedness and the value of shared knowledge and resources. As an unbiased champion for digital technologies that can benefit the education, public, and innovation sectors in the province, Cybera is in a unique position to facilitate these collaborations.

What we will do

- Investigate new shared IT platforms / services, and stand them up for members
- Expand scope of ShareIT to include preferred vendor solutions as well as non-IT solutions
- Develop collaborative projects with local non-profits and NREN partners
- Facilitate knowledge-sharing sessions, and create a shared repository for best practices
- Support the use of open-source technology tools in Alberta industry and academia
- Expand functionality of Rapid Access Cloud to support research and education uses

Moonshot target

By 2027, Cybera is being utilized by public and education organizations across Canada to collaborate on information and service sharing

Specific achievables

By March 31, 2023

- Launch ShareIT for K-12 governance model
- ShareIT catalogue expands to 25 offerings
- Work with Advanced Education to manage two collaboration projects for post secondaries
- Rapid Access Cloud: pilot a service focused on reducing friction in using cloud for data science

By March 31, 2024

- Pilot a ShareIT service for municipalities
- ShareIT catalogue expands to 30 offerings
- Explore a collaborative project with a non-profit / charity
- Launch a member repository for sharing resources on best practices
- Rapid Access Cloud: expand data science offerings to assist with low demand but common use cases
- Rapid Access Cloud: collaborate with researchers to explore innovative uses of the cloud (e.g. using AI)

By March 31, 2025

- ShareIT catalogue expands to 35 offerings
- Pilot a collaborative project with a non-profit partner
- Collaborate with a global Research and Education Network partner to offer open source tools for educators, researchers and start-ups
- Rapid Access Cloud: introduce additional architectures focused on reducing power consumption and environmental impact

Advocacy

Albertans — and Canadians as a whole — continue to experience large disparities between the "haves" and the "have-nots" when it comes to connectivity. Cybera will continue to advocate for reliable and equitable internet access. We will also advise on plans for Albertans' digital infrastructure needs.

What we will do

- Investigate non-fibre solutions (e.g. LEO satellites) and their impact on the public sector, and share findings with community and government funders

- Expand advocacy initiatives to include skilled labour shortage issues

- Facilitate knowledge and best-practice sharing among members on security, ethics, and privacy

- Use connectivity data to advocate for reducing the digital divide in Canada

- Continue intervening in CRTC / federal telecommunications hearings / panels

Moonshot target

Every Albertan is connected to high speed internet by 2027

Specific achievables

By March 31, 2023

- Hold 7 cross-Alberta roadshows to build collaborations and increase awareness of connectivity issues
- Work with the Government of Alberta to implement new provincial broadband strategy
- Alberta Rural Connectivity Coalition: expand membership to 50 organizations
- Alberta Rural Connectivity Coalition: update "First Mile" community broadband toolkit

By March 31, 2024

- Hold 8 cross-Alberta roadshows to build collaborations and increase awareness of connectivity issues
- Refresh *Alberta Digital Infrastructure Report*
- Launch a First Nations policy committee to focus on digital equity and inclusion needs
- Alberta Rural Connectivity Coalition: expand membership to 60 organizations
- Work with non-profit groups on a more detailed "broadband mapping" project

By March 31, 2025

- Hold 10 cross-Alberta roadshows to build collaborations and increase awareness of connectivity issues
- Alberta Rural Connectivity Coalition: expand membership to 75 organizations
- Investigate open data mining platforms that assess the impact of public submissions on government regulations
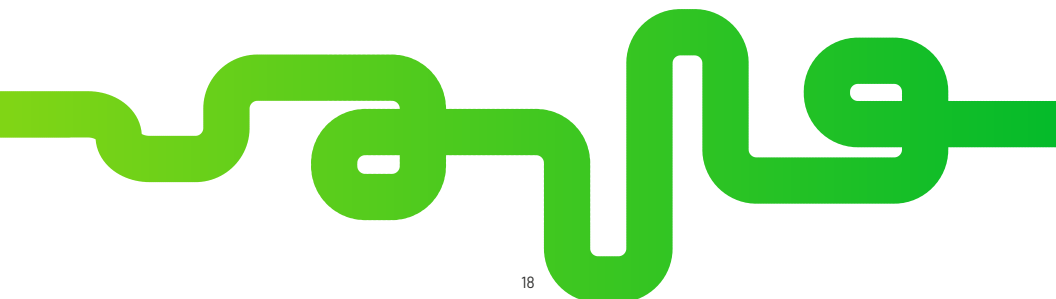
Testing the future

Cybera is keeping its eyes on the next-gen tools we think could offer real benefits for Alberta. These include: automation, quantum computing, open source alternatives to commercial software, supporting the adoption of open education resources, environmentally friendly tech, decentralization, blockchain, and Low Earth Orbit satellites.

Cyberans love exploring new technologies, and are excited to share what we discover with our wider community!

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