INVESTING STRATEGICALLY IN ADVANCED TECHNOLOGY

A ROADMAP FOR CYBERA 2013–2016

cybera

CYBERA IS A STRATEGIC INVESTMENT ON THE PART OF THE GOVERNMENT OF ALBERTA TO KEEP ALBERTA AT THE FOREFRONT OF INFORMATION TECHNOLOGY ADOPTION, ESPECIALLY AS IT BRINGS SOCIAL AND ECONOMIC BENEFITS TO ALBERTANS.

CYBERA'S STRATEGIC PLAN DIRECTS AN ANNUAL ACTION PLAN. EACH ACTION PLAN TRANSLATES THE VISION AND STRATEGY OF CYBERA INTO A RESULTS-BASED PROGRAM THAT SETS OUT OBJECTIVES, TARGETS AND METRICS FOR MEASURING RESULTS. THAT WAY, WE STAY AGILE AS THE LANDSCAPE EVOLVES.

MESSAGE FROM THE PRESIDENT

"A VISION FOR ALBERTA'S INFORMATION TECHNOLOGY INFRASTRUCTURE THAT IS EFFICIENT AND FLEXIBLE IN AN ENVIRONMENT OF CONSTANT CHANGE"

Alberta is a province that excels in technology development and adoption for the energy sector and in many areas of science and medicine. Most Albertans are aware of this. What they might not know is that we are also strong in the information technology sector.

Cybera is one of the agencies in Alberta working to accelerate information technology adoption for Alberta's economic benefit.

Cybera is the architect and guardian of Alberta's research and education network, a very fast broadband network that connects Alberta's research universities to the rest of the world, and has done so for 20 years.

More recently, Cybera has been applying its significant and internationally recognized cloud computing expertise to help Alberta educational institutions find ways to collaborate on the provision of IT services. These kinds of shared services help to contain costs for Alberta post-secondaries by allowing them to take advantage of economies of scale.

Now, Cybera is expanding its network and associated programs to entrepreneurs – to support high-tech discovery in business. This is an important area of economic stimulation for the province, applying technology to diversify and strengthen our resource-based economy.

The developments planned by Cybera for 2013–16 are specific tools for building a better Alberta. Cybera – as a neutral, arms-length, specialized agency – is honoured to play a leading role in building and evolving Alberta's ever more crucial technology infrastructure.

Robin Winsor
President and CEO

ABOUT CYBERA:
AN ALBERTA
INNOVATION AGENCY

Cybera is the Alberta not-for-profit agency responsible for the ultra high-speed network connecting Alberta's institutions to each other and the world.

Cybera's work facilitates Alberta's economic future through strategic projects that support a high-quality education system and a broader and more diverse economy.

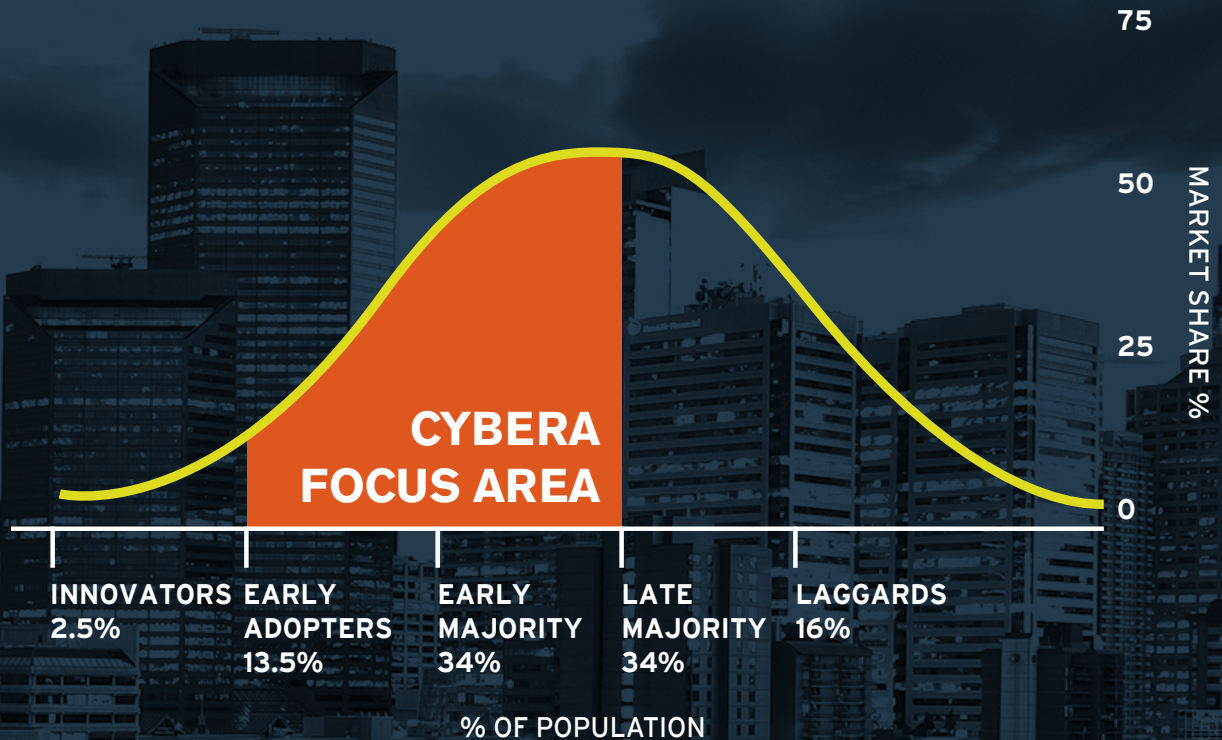**Cybera achieves this through its work in three key areas:**

1. DESIGNING AND OPERATING CYBERANET, ALBERTA'S PUBLIC ULTRA HIGH-SPEED NETWORK.

2. PILOTING RESEARCH AND INNOVATION PROJECTS THAT APPLY THE POWER OF THIS NETWORK.

3. FOSTERING BUSINESS GROWTH BY OPENING UP THIS NETWORK TO ENTREPRENEURS WORKING ON BRINGING TECHNOLOGY TO MARKET.

In every case, Cybera works as a catalyst in the early adopter stage of technology. It is not the inventor of broadband networks and above-the-network services. Nor does it work where commercial companies are offering competitive services in this realm. Instead, Cybera focuses on the piloting and rapid scaling stage of new technologies to demonstrate the value they can bring to the post-secondary sector and new businesses.

MARKET SHARE %

75

50

25

0

CYBERA FOCUS AREA

INNOVATORS 2.5%

EARLY ADOPTERS 13.5%

EARLY MAJORITY 34%

LATE MAJORITY 34%

LAGGARDS 16%

% OF POPULATION

CONNECTING ALBERTA TO THE WORLD

Cybera connects the province to an international system of research and education (R&E) networks. Cybera operates in this global context, providing guidance for Alberta infrastructure that takes into account international, national and provincial systems of IT infrastructure, including:

AN INTERNATIONAL SYSTEM OF 42 RESEARCH AND EDUCATION NETWORKS

NATIONAL ALLIANCE OF NETWORKS UNDER THE CANARIE UMBRELLA

PROVINCIAL PARTNERSHIP WITH SUPERNET

A TRUSTED EXPERT AGENCY DRIVEN BY VALUES

Cybera's expert team shares values that influence how we work.

INCLUSIVE

We work in a fair and open manner, without privilege or partiality to any individual or interest, and are broadly inclusive of all organizations in the sectors we serve.

OPEN

We coordinate across jurisdictions and institutions to create a climate of sharing to achieve economies of scale.

EFFECTIVE

We build on a strong track record of inter-jurisdictional project management and stable infrastructure that creates confidence among all partners.

CHANGE AGENTS

We bring constructive solutions to traditional systems to benefit individuals and communities through new implementations of technology.

EXPERTS

We are committed to hiring and supporting team members who have superior and specialized skills and talents.

COURAGEOUS

We explore, advocate and facilitate ideas, projects and initiatives that are leading edge.

NEUTRAL AND UNBIASED

We continually assess and use technology based on the results it can achieve, and have no bias toward any one vendor or product.

THE ROADMAP FOR CYBERA FOR 2013–16

Over the next three years, Cybera will work inclusively with post-secondary institutions and business incubators in the province to build and use bandwidth effectively to innovate and compete with the best in the world.

In the post-secondary sector, activities will focus on cost-avoidance pilots alongside support for research.

In the start-up sector, work will focus on infrastructure and programs for entrepreneurs that stimulate the use of information technology (IT).

Cybera's three-year strategy focuses on the optimal application of specialized technology to ensure Alberta's economic prosperity in four distinct areas:

1 EXPAND THE HIGH-PERFORMANCE UNMETERED NETWORK

CYBERA'S CORE ROLE STARTS WITH CYBERANET. THIS IS ALBERTA'S PUBLICLY FUNDED, ULTRA HIGH-SPEED RESEARCH AND EDUCATION NETWORK.

THEN WE WILL PUT THE NETWORK TO USE:

2 TO CONTAIN COSTS FOR ALBERTA POST-SECONDARY INSTITUTIONS

3 TO LEAD ON DATA-INTENSIVE FRONTIERS

4 TO STIMULATE ENTREPRENEURIAL IT

Each area has specific targets outlined in the pages that follow.

1 EXPAND THE HIGH-PERFORMANCE UNMETERED NETWORK

Cybera's core role starts with CyberaNet, designed and operated for 20 years to keep Alberta's research universities competitive and connected to the international system of research networks.

CyberaNet is an unmetered network, which means that connected institutions pay an annual flat fee instead of being charged by volume. This creates a climate of creativity, collaboration and entrepreneurial thinking.

THE CHALLENGE

Post-secondary institutions need access to a high-performance network that is powerful in capacity and comprehensive in reach. This is critical for Alberta universities with a research mandate since they compete on a global stage and it is important for post-secondary institutions and school districts that are increasingly reliant on data and information exchange.

Entrepreneurs and business innovators may require access to emerging IT tools and development platforms to be able to explore and bring ideas to market and reach their full potential.

THE
SOLUTION

1. Cybera will take a leadership role in collaboration with the Alberta Association in Higher Education for Information Technology (AAHEIT) to define and meet the needs of all 26 Alberta post-secondary institutions to keep pace with national and international network developments.

2. Cybera will expand CyberaNet directly, as an unmetered research network, to all nine Alberta post-secondary institutions with a research mandate by exploring optimal options for contracts, leases and purchasing of fibre.

3. In parallel with the expansion to a comprehensive research network, Cybera will engage all non-research intensive post-secondary institutions about meeting their networking needs through a direct or SuperNet-enabled connection to CyberaNet so they can take advantage of shared network services.

4. Cybera will continue to advocate for a "model of abundance" in which bandwidth is not scarce or limited, to foster a climate that cultivates new ways of thinking and doing business.

5. Cybera will connect the three major municipalities in Alberta (Calgary, Edmonton and Lethbridge) to create efficiencies.

6. Cybera will connect up to five business incubators to CyberaNet directly in a one-year pilot project called the Alberta Enterprise Broadband Testbed.

RESULTS

By 2016, all nine institutions with research mandates will be connected directly to CyberaNet. Over 75 percent of Alberta post-secondary institutions will be connected either directly or indirectly over SuperNet and using network services.

2 PUT THE NETWORK TO USE:

TO CONTAIN COSTS FOR ALBERTA POST-SECONDARY INSTITUTIONS

Cybera provides a basic shared IT service to Alberta's post-secondary institutions and is well-positioned to accelerate the use of efficient "above the network" services. New cloud technologies open up a range of shared IT services with the potential to create economies of scale in post-secondary IT service requirements. In partnership with Alberta institutions, Cybera will pilot shared IT services for the post-secondary sector to find system-wide solutions to the rapidly escalating costs of IT.

THE CHALLENGE

IT demands at Alberta post-secondary institutions are growing at a time when budgets are being reduced.

Cloud-based technologies make it possible to develop shared IT services for participating institutions, curbing escalating costs for large institutions and making it more affordable for smaller institutions to adopt new technologies.

THE
SOLUTION

1. Focus on connecting all institutions to CyberaNet, so they can take advantage of available shared networking services.

2. Adopt a proactive and inclusive approach to Alberta post-secondary institutions as a whole to ensure that they are aware of the options available to them to evolve their technologies and achieve greater efficiency through shared IT services.

3. Organize a series of capacity building meetings and workshops at post-secondary institutions in the province in partnership with AAHEIT. These workshops will increase awareness among post-secondary institutions of what is possible, develop a shared understanding of needs and timelines and assess their readiness for moving IT services to the cloud.

4. Build on the successful Learning Management Cloud pilot by adding universities and colleges.

RESULTS

By 2016, it is expected that 75 percent of Alberta post-secondary institutions (20 of 26) will be connected to CyberaNet and sharing some IT services. It is expected that two to four additional institutions will be added per year to Alberta's Learning Management Cloud and, working with AAHEIT, to have 50 percent of Alberta post-secondary institutions (13 of 26) taking advantage of cloud-based IT services.

3 PUT THE NETWORK TO USE:

TO LEAD ON DATA-INTENSIVE FRONTIERS

The bandwidth provided by CyberaNet is critical for the flow of data between the high performance computers available to Albertans. Cybera will continue to partner with the provincial and national providers of compute resources to provide the right connectivity. At the same time, Cybera will support new projects that involve volumes of data that are only possible over an ultra high-speed network.

THE
CHALLENGE

Moving large data sets across networks requires a suite of specialized network and middleware tools. CyberaNet, Alberta's ultra high-speed network, is the only network in the province that can move the high volumes of data that can peak in research and business.

Alberta requires e-infrastructure for a data-intensive future that is as yet unknown. One of the core roles for next-generation networks like Cybera's is using what we know now to anticipate and plan for emerging needs.

THE
SOLUTION

1. Cybera will provide connectivity for high performance computing in Alberta and will support two new flagship projects that require the power of Alberta's advanced technology infrastructure.

2. Cybera will develop a plan for an energy and environmental analytics cluster in 2013–2014 and move to provide the network support for the pilot project in 2014–2015.

3. Cybera will develop a plan and provide network support for a big data/analytics pilot, and provide networking support to the development of a large-scale data-intensive international project.

RESULTS

These three years will be important development years for seeding, supporting and accelerating large-scale projects that involve massive amounts of data, in both the research and entrepreneurial sectors. Cybera's support role in at least two major projects will be evident as the provider of bandwidth and expertise.

4 PUT THE NETWORK TO USE:
TO STIMULATE ENTREPRENEURIAL USES OF IT

Cybera will begin providing direct access to CyberaNet for Alberta-based entrepreneurs working in some of the province's business incubators. This will open up the network as a testbed to a wider community of entrepreneurs, and will amplify the impact and reach of existing and new product development acceleration programs.

THE
CHALLENGE

Many businesses in today's economy rely on technology to find competitive advantages. This can be challenging for start-ups since the infrastructure and expertise needed to launch new products or services can be very expensive.

This provision of low-risk, low-cost access to networking and computing can be compelling for companies who do not have start-up dollars.

THE
SOLUTION

Cybera will approach the 24 business incubators in the province to make available its publicly funded advanced infrastructure and expertise to help entrepreneurs. Cybera will allocate project management, technical support and communications expertise to support these pilots through two major projects:

1. Alberta Enterprise Broadband Testbed Pilot

    Led by Cybera, this pilot will be focused on entrepreneurs, providing them with access to CyberaNet as a no-cost broadband testbed through a physical connection and technical support at Alberta business incubators.

2. Using the cloud to accelerate innovation

    Cybera will guide entrepreneurs and researchers to two programs: the Alberta Rapid Access Cloud and the national Digital Accelerator for Innovation and Research. Both provide fast and subsidized resources to cloud computing so innovators can focus on creative possibilities and improve their commercial ideas and offerings.
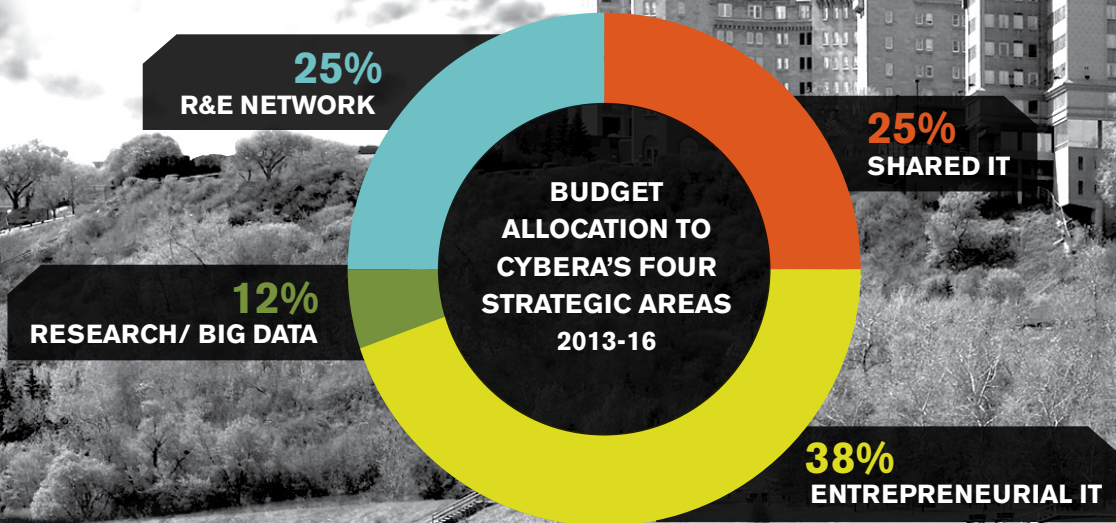
    In a rapidly evolving cloud landscape, Cybera will continue to develop cloud infrastructure that helps Alberta innovate.

RESULTS

By 2016, the Alberta Enterprise Broadband Testbed will have determined the entrepreneurial need for such a testbed, and will have supported over 50 individuals and companies with testing and launching cloud-based products and services.

RESOURCE ALLOCATION AND MAJOR MILESTONES

25%
R&E NETWORK

25%
SHARED IT

12%
RESEARCH/ BIG DATA

BUDGET ALLOCATION TO CYBERA'S FOUR STRATEGIC AREAS 2013-16

38%
ENTREPRENEURIAL IT

R&E NETWORK	BY MARCH 31, 2014	BY MARCH 31, 2015	BY MARCH 31, 2016
	Phase 1 CyberaNet expansion: 2 direct connects to CyberaNet, 5 service connects via SuperNet Capacity increase in Edmonton and Calgary (10GE Port density and capacity between the two cities)	**Phase 2** CyberaNet expansion: 3 more direct connects, 6 more service connects 100 Gbps backbone upgrade	**Phase 3** CyberaNet expansion: final 2 direct and final 5 service connects.

SHARED IT	BY MARCH 31, 2014	BY MARCH 31, 2015	BY MARCH 31, 2016
	All currently connected PSIs using shared network services 2 PSIs added to shared service pilot Begin transferring pilot projects to production services by August 2014	50% of all PSIs using shared network services 2 – 4 additional institutions added to shared service pilot Continue transferring pilot projects to production services by August 2015	All 26 post-secondary institutions are using network service 6 (or 25%) of Alberta PSIs are in shared service pilot 6 (or 25%) of Alberta PSIs transferred to production service

RESEARCH/ BIG DATA	BY MARCH 31, 2014	BY MARCH 31, 2015	BY MARCH 31, 2016
	1 major Alberta Network Enabled Platform initiative started for CANARIE's NEP3 program Energy and environment analytics cluster plan developed	Network support provided for energy and environment monitoring pilot Network support for big data/ analytics pilot 1 new pilot in big data analytics	Network support of major international experiment

ENTREPRENEURIAL IT	BY MARCH 31, 2014	BY MARCH 31, 2015	BY MARCH 31, 2016
	1 Software-Defined Networking (SDN) test pilot on CyberaNet 5 business incubators connected to and using CyberaNet 24 new Alberta entrepreneurs stewarded into provincial and federal cloud programs	Pending successful pilot, 10 business incubators connected to CyberaNet 24 new Alberta entrepreneurs stewarded into start-up support programs	1 advanced SDN test pilot on CyberaNet Pending successful pilot, final 10 business incubators connected to CyberaNet 24 new Alberta entrepreneurs stewarded into start-up support programs

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