

# cybera

## Cloud Computing Training in Alberta



**Results from a focus group study held  
March 2013**

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## Executive Summary

In March 2013, Cybera held a series of focus groups with representatives from Alberta's post-secondary and the entrepreneurial communities. The goal of the study was to assess the need for cloud computing training in Alberta.

The feedback from the focus group participants indicated that there is considerable unevenness in the understanding and application of cloud computing in Alberta, in both business and higher education. They identified an extensive need for training on the how's and why's of using cloud computing, as well as the need for in-depth training. In particular, participants noted a need to educate all levels of individuals within institutions – from students to administrators and managers – on the legal aspects of cloud computing.

This training would be best supplied through a collaborative pooling of resources and outreach tools at a post-secondary and business support level. This would involve shaping online reference documents that can be easily searched, as well as training guidelines for future workshops and classes.

# Background

## *Cloud Computing in Canada and Alberta*

In a May 2012 survey on [Data Protection and the Cloud](#), CA Technologies noted that: “While many Canadian executives see cloud computing as important to their company’s success, there is still much confusion about the concept. 62% of Canadian business executives and 23% of IT executives admit to being confused by the concept.”

In Alberta, a 2012 State of the Industry survey of organizations in Alberta’s ICT sector found that: “65% see challenges in hiring staff due to limited qualified candidates and/or high asking salaries. (Note: shortage of IT staff is forcing existing ICT staff to expand their skills.)”

## *Cybera*

Cybera is a strategic investment on the part of the Government of Alberta to accelerate the use of IT to strengthen and diversify the province’s economy. Through its applied projects, Cybera continually develops cloud-computing expertise, and is respected nationally and internationally for its work on this frontier.

Increasingly, from 2011 onwards, Cybera’s technical team has been asked to deliver cloud computing workshops at conferences and in classrooms, and its blog posts on “getting started on the cloud” are some of the most visited pages on Cybera’s website.

## *Study goal*

In the fall of 2012, Cybera proposed a focus group study to better understand 1) the specific nature of the need for cloud computing training in Alberta, and 2) the most useful form for this training to take (for example, in person, online, or informal groups).

This information would be used to shape how Cybera shares its expertise with others in a more efficient and user-oriented way.

The learning tools developed as a result of this study, as well as the new understanding gained, would be further shared with other organizations carrying out cloud training and looking to support initiatives across the country.

## *Participants*

Invitations were sent to representatives from Alberta’s 26 post-secondary institutions, as well as business incubator spaces across the province. Separate focus groups were held at the Alberta Innovates – Technology Futures building in Calgary on March 25 and

26, and the TEC Edmonton building on March 27 and 28.

The March 25 group consisted of five representatives from southern Alberta's entrepreneurial and business incubator communities, the March 26 group included four representatives from post-secondary institutions in southern Alberta; the session on March 27 was with three representatives from northern Alberta's entrepreneurial and business incubator communities, and the final session on March 28 included nine representatives from post-secondary institutions in northern Alberta.

## *Questions*

Participants in each group were asked:

1. What are the ICT goals and needs of your organization?
2. What steps have you taken to meet your ICT needs?
3. What needs are not being met?
4. What is your understanding of cloud computing?
5. Where are you currently going to seek training on cloud computing, if anywhere?
6. Are you willing to learn from online documents, or do you prefer in-person training?

# Education Responses

## *What are the ICT goals and needs of your organization?*

The higher education participants noted the difficulty, in this climate of reduced budgets, of predicting how higher education's ICT goals will evolve over the next year or two. However, they cited several ongoing primary ICT goals and needs:

- Operating their system on a 24/7 schedule.
- Keeping up with researcher needs, in terms of infrastructure and data storage (for example, researchers expect to receive terabytes of data storage – a need that did not exist a few years previously).
- Growing their network bandwidth to keep up with the movement towards e-learning and video conferencing, as well as cross-campus wireless networking.
- Keeping up with a more technically literate staff and student body, and fostering their development of digital tools and software, or ability to carry out data analysis.
- Moving to the cloud more for email and storage needs.
- Customizing technologies for their organization's individual needs, such as payroll software.

Shared services and cross-campus collaborations presented appealing options to them, though they raised concerns over new access and technology challenges.

*"The goal of collaborations should be to allow schools to focus on, and contribute, their core skills."*

## *What steps have you taken to meet your ICT needs?*

Generally, post-secondary institutions planned to expand and improve wireless speed and access. They were also reducing IT redundancies, such as having multiple servers and help desks for different departments.

Storage expansion was also on the priority list for many facilities, although participants said it was difficult to find a reliable storage provider in Alberta.

Many of the IT staff were investigating shared services and increased collaborations with other educators. Some institutions already had moved, or were looking into moving, their email system to the cloud. Many were investigating other cloud services, such as cloud-based storage and printing.

## *What needs are not being met?*

Participants flagged several issues and needs in their institutions:

- Professors often do not plan ahead of time for their IT infrastructure requirements (storage or hardware needs), leaving IT staff scrambling.
- Students and teachers have made demands for wireless speeds on campus that are “nearly impossible” to meet (the network speeds students have at home is often much faster than what they get at school).
- The transition to new technologies is slow and difficult for many higher education IT teams, particularly those that feel they have no structured and long-term IT plan in place.
- Finding skilled labour, or qualified IT trainers, is an ongoing issue, and the knowledge and experience of those who have been hired to IT departments seems to vary greatly.
- The regulations on data use seems to keep changing at an institutional or government level, leaving staff confused as to what file-sharing tools they can use, or what information they can share.
- There seems to be a lack of reliable data centres in Alberta for storage:

*“It would be great to have a central data repository, and shared platform-as-a-service, across the province (for example, a digital storage infrastructure that could accommodate different operating systems).”*

*“We need flexibility in our data storage, and how we pay for it. Perhaps all post-secondaries could come together as a collective in Alberta to request a shared 200PB of storage?”*

Finally, respondents expressed concern about IT being cut out of the business decisions made by facility leaders, as they believed it should be informing many of the business processes.

## *What is your understanding of cloud computing?*

The respondents were generally well-informed of the benefits and applications of cloud computing. However, when talking to colleagues on both the academic and administrative side, they indicated that many were unsure of how the cloud works. These colleagues had often expressed reluctance to use cloud computing because of

security concerns, even though many seemed to have no issue using the cloud for personal use.

*“There are no guidelines at our university for staff’s personal use of the cloud. Many don’t realize that files they store on their Dropbox account are no longer, legally, the property of the university.”*

*“What data can we let students access?”*

*“Security training is more important than any other kind of technical training.”*

Shared services through the cloud were seen as a good solution to staffing and budgetary issues. However, participants raised concerns about facilities losing their independence or uniqueness through over-reliance on shared services.

## *Where are you currently going to seek training on cloud computing, if anywhere?*

Some of the post-secondary representatives said their institutions partnered with local agencies, or their IT suppliers, to get tech advice and training.

*“The problem with vendors is that they only push their technologies.”*

*“We need a provincial community of technical services and support that all post-secondaries could draw from.”*

Many said they did in-house training, where staff learned from each other. Some of the bigger facilities would also fly in trainers from other provinces or the USA, at great cost.

*“Post-secondaries should collaborate and teach each other more, perhaps through regular informal groups.”*

## *Are you willing to learn from online documents, or do you prefer in-person training?*

Participants said virtual classes were sufficient for managers, but IT staff required more

hands-on, interactive training.

## Enterprise Responses

### *What are the ICT goals and needs of your organization?*

The primary ICT goals and needs cited by entrepreneurs were:

- Being agile and ahead of the curve.
- Having staff members who are trained and aware of both the business and technical needs of the company.
- Technical needs, from an IT perspective, are primarily related to access, storage and security.

However, companies pointed out that their business needs revolve around gaining new customers, something that IT or cloud computing does not guarantee.

Having access to cloud technology that is affordable, and can scale with the business as it grows, was appealing.

### *What steps have you taken to meet your ICT needs?*

Startups said they often look to government and other funding agencies to provide at least some technical advice, as well as services.

### *What needs are not being met?*

Finding tech-savvy employees, or trainers to teach them, was indicated as a very difficult task for small companies, especially those who cannot afford dedicated IT staff.

For business incubators and advisors, the biggest challenge they saw for startup entrepreneurs was a lack of awareness of all their technology needs (participants said this was a particular issue in Alberta, less so in Ontario and Quebec, where businesses have a better understanding of the digital tools required to run their operations). And there seemed to be few to no technical advisors in the province who startups could turn to for this understanding.

Respondents also said that energy and agriculture firms are slow to adapt new ICT tools.

## *What is your understanding of cloud computing?*

Companies said there was a murky understanding of cloud computing in Alberta. Most people they talked to in the province only seemed to relate it to storage. There was also a fear that they would lose control of their data if it was on the cloud – there was little to no understanding of data regulations in Canada when it comes to cloud computing.

*“Data security and legal regulations, especially intellectual property management, are one of the most important topics that businesses need to learn about. Yet this is not being taught. What and where can we store our data?”*

*“Businesses should have a simple agreement with their cloud host to ensure that their data is encrypted and can only be accessed by the business.”*

Businesses also expressed concerns, but little understanding, about the geographic requirements for hosting data.

*“Is it possible to restrict your data to a cache in a specific geographic location (i.e. tell Amazon that you need your data to be kept in Canada, and let them work it out)?”*

## *Where are you currently going to seek training on cloud computing, if anywhere?*

Many businesses felt that technical training could not be achieved at a traditional educational institution, as those facilities seemed to be “behind the curve”. Startups said they must look elsewhere for this understanding. For many in Alberta, this has meant self-education.

Some company tech experts looked to online technology chat rooms or conferences to share and learn from others.

*“It would be great if an outside agency could advise startups on the pros and cons of different cloud-based software and tools. Perhaps they could advise on what cloud providers and tools work best?”*

*“It would be also be good to have an aggregated database of technologies available for startups.”*

## *Are you willing to learn from online documents, or do you prefer in-person training?*

Business representatives felt that in-person training was preferable, with mentoring providing the ideal model.

*“If you are going to offer a web tutorial, the design of it is very important. It needs a storyboard to ensure good flow, and that it captures our interest. It should also walk you through the process, step-by-step, like Basecamp.”*

*“Online training videos should not be longer than two minutes.”*

*“The best online training tools are interactive.”*

# Conclusion

The focus groups suggested that there are common ICT issues faced by both the start-up and post-secondary communities, including:

- Finding skilled staff to build and operate the needed IT infrastructure.
- Finding the tools and setting up the environments for staff and students to collaborate on projects.
- Simplifying IT operations.

Many do not realize that there are cloud computing solutions to solve many of these problems. In fact, those participating in the focus groups said there was a sense of caution and confusion among their colleagues about the use of cloud computing.

The source of caution and confusion may lie in a lack of awareness. The managers and IT staff in the focus groups indicated that they are unaware of what cloud computing can offer their organization, beyond storage.

Perhaps related to the low level of understanding was a deep concern about the legal and security implications of moving data to the cloud. We heard that the business and security case must be made to both managers and IT staff *before* cloud computing services can be implemented and, in the case of the post-secondary institutions, cloud training should be further expanded to the remaining staff members, to ease any concerns they may have about using cloud computing.

Participants said it was vital that staff are made aware of the legal implications of hosting their data in a cloud, particularly in terms of: 1) What data they are allowed to place in the cloud, 2) What cloud tools they are allowed to use, and 3) Where those cloud servers can be located (ie inside of Canada or outside).

In terms of training, the focus groups suggest that individuals want clarity and step-by-step guidance. This is particularly the case for cloud computing.

Both entrepreneurs and post-secondary participants felt that technical training and legal guidance is best provided face-to-face, while the higher-level, more general teaching could be done online.

They felt that businesses and post-secondaries could come together in a shared session to receive this training, or one institution could take it upon itself to gain the detailed understanding, and impart it to other institutions through regular group sessions.

# Next Steps

## 1) Dissemination

Cybera will share the results of this study with:

- CANARIE
- Other provincial network organizations in Canada's advanced network alliance
- Participating members of the focus groups
- Cyber Summit planning committee

## 2) Input to current activities

- Cybera will use this data to sharpen the focus of its online knowledge-sharing activities, in particular its technical blogs, to address the interest areas that emerged in the focus groups.
- The information gathered will enrich the shape and content of workshops planned for both Alberta incubators and post-secondary institutions.
- Cybera will also use the focus groups' outcomes to shape the sessions in the annual Cyber Summit to appeal to all of its stakeholder audiences.

## 3) Shaping future training activities

- Rather than undertake the development of an online generalist cloud training program, Cybera will work with other organizations to provide input on training to a wider community of those wanting to learn about cloud computing. In other words, Cybera will focus its efforts on training the trainers, rather than providing direct training.
- Cybera will develop its training activities with increased focus on in-person and/or interactive hands-on training for more advanced or interested users, as the focus groups suggested.