

# Cloud Computing

Toronto's Opportunity Enabler

# Business Case

In association with:



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The Toronto Financial Services Alliance is a public/private initiative whose mandate is to enhance and promote the long-term competitiveness of Toronto as a premier North American financial services centre. Its membership encompasses core financial services companies – banks, brokerages, investment fund managers, insurance companies – as well as partner sectors – accounting, law and education. The TFSA was created in 2001 by the financial services industry, in partnership with the City of Toronto and with the support of the federal and provincial governments. For more information, please check our Website at [www.tfsa.ca](http://www.tfsa.ca).



As part of the Toronto Financial Services Alliance, the Centre of Excellence in Financial Services Education ([www.tfsa.ca/coe](http://www.tfsa.ca/coe)) acts as a catalyst to strengthen and expand Toronto's talent pool and elevate the region's global stature as a financial services capital. The Centre of Excellence aggregates research and information on Toronto's talent and educational strengths for the benefit of educators, employers and students/graduates; works with employers and educators to improve the focus and quality of education programs; encourages cross-sector dialogue on talent and education-related issues, and showcases the region's strengths and the career opportunities that await in the Toronto region. The Centre of Excellence is supported by the Ministry of Training, Colleges and Universities and the City of Toronto.

## 1.0 Overview

Cloud computing has emerged as an opportunity enabler, one that is shaping and redefining the digital landscape across the globe. Projected to become a \$241 billion global industry by 2020, the cloud is enabling enterprises in all sectors to improve their business and reduce costs.

In its simplest form, cloud computing is the virtual source for delivering and consuming computing resources on-demand, over the internet, and detached from the local environment.<sup>1</sup> Clouds provide a full-range of internet-based ICT applications, processing capabilities, and storage. Everything from virtual processing systems, application development, advanced hosting, and web-based software solutions can be provided over the cloud, replacing applications conventionally installed on the personal computers of end-users.<sup>2</sup>

Cloud computing is pushing the boundaries of traditional banking and financial transactions. Cloud computing allows the financial institution to become the socially-driven, multichannel digital ecosystem it needs to become to capitalize on emerging markets and counter the competitive pressures emanating from third-party, non-financial money management tools.

The cloud is the opportunity enabler that can reshape the Toronto region's financial ICT ecosystem. Today, we are on the cusp of the cloud revolution, with 15% of global IT budgets already tied to public clouds. Tomorrow, cloud-enabled services will become the dominant paradigm directing and influencing global IT.

## 2.0 Opportunity

### Changing the financial landscape

Cloud computing is creating endless opportunity for financial institutions looking to optimize their business in all spheres. In particular, cloud enables:

- Cost savings
- Efficiency gains
- Enterprise-wide IT standardization
- Scalability
- Faster time-to-market
- Mobility
- Data Virtualization
- Interoperability with other service platforms, such as mobile

The cloud is already empowering Toronto's financial institutions today, but its full impact has yet to materialize. With greater functionality on the horizon, the time is right for financial institutions to migrate to the cloud.

### Impact on mobile technologies

The growth of cloud computing has had a positive impact on the use of mobile devices, supporting more flexible working practices by providing services over the internet. With mobile applications increasingly becoming more sophisticated, interacting with cloud and residing on multiple interconnected devices allowing machine-to-machine (M2M) connectivity, additional opportunities will stem from the interaction of digital media with hardware and software.

Mobile technologies are being enabled by cloud services to connect backend systems and create an environment for making many decisions in-field on the front lines of where production is taking place.

## 3.0 Advantage of Increasing Adoption

Canadian financial institutions have demonstrated a propensity to shift to cloud computing in recent years, but global indicators point to Canada lagging considerably behind other industrialized nations in embracing it.

### Enhance IT governance standards

For some financial institutions, the challenge of migrating to the cloud relates to privacy and data

<sup>1</sup> Canarie (2009). "Cyber infrastructure and the Research Process in Canada." Findings from Toronto Workshop December 17, 18, 2009.

<sup>2</sup> Data Protection Working Party (2012). Opinion 05/2012 on Cloud Computing. European Commission 01037/12/EN WP 196.

residency. Some financial institutions have not taken advantage of the cloud due to its perceived security shortcomings. However, cloud enables a hybrid approach to computing that gives financial institutions the opportunity to reap the benefits of cloud while maintaining a centralized approach to IT governance. This form of *hybrid IT* is only possible through the incorporation of cloud services, which ensures that the bulk of a financial firm's IT operations can be maintained offsite without handing over control of their data resources.

### Respond quickly to changing business needs

Cloud solutions are a proven strategy for driving growth. According to global cloud providers, more than half of firms migrating to the cloud do so for sales and marketing purposes. Financial institutions seeking innovative ways to connect with global clients and manage their relationships better can benefit from the speed and agility of the cloud. As mobile banking and payment platforms continue to grow in popularity, the cloud can greatly enhance the customer experience and reduce the infrastructure needed to deliver mobile solutions.<sup>3</sup>

### Become more customer-facing

Social media enterprises and third-party money management tools are increasing competitive pressures for financial disintermediation. Cloud computing provides an agile platform that integrates with the financial industry's growing mobile and social media efforts to provide a more customer-centric experience that reflects the changing demands of tech-savvy consumers.

## 4.0 Case Studies

ING and the Bank of Montreal have already capitalized on the opportunity enabler known as cloud. Here is a brief snapshot of some of their cloud adoption initiatives.

<sup>3</sup> KPMG (2012). Breaking through the cloud adoption barriers: KPMG Cloud Providers Survey. KPMG.

### ING's cloud journey spearheads adoption

ING's Toronto headquarters is one node among many that connects ING with 85 million private, corporate, and institutional customers in 40 countries. Through the power of cloud solutions, ING has improved organizational capabilities across its vast enterprise, and has done so by creating awareness around cloud adoption.

As an enterprise-level solution for its entire financial operation, ING spearheaded a cloud adoption strategy to build the skills and competencies needed to fully leverage cloud technology. By developing core cloud competencies, ING is ensuring it has the leading-edge skills to fully leverage cloud technology. Reduced costs, greater control of IT infrastructure, and stronger capacity to adapt newer technology and create a more agile business environment are the benefits ING enjoyed from its cloud campaign.<sup>4</sup>

By training a select cohort of its IT staff, ING's 100,000+ employees are better positioned to capitalize on the benefits of cloud computing. These benefits, once fully leveraged, will change the competitive and collaborative landscapes of ING. By the end of 2011, as much as 20% of ING's application portfolio was running on private cloud, a figure expected to grow in the future.<sup>5</sup>

### BMO making money make sense through cloud-based social media hub

BMO's SmartSteps for Parents is an online social media tool that provides parents with the resources they need to teach their children about money management. A multimedia suite consisting of blogs, games, interactive lessons, YouTube integration, and CRM tools, BMO SmartSteps leverages all of the tools cloud computing has to offer to provide a comprehensive resource for both parents and children. End-to-end cloud services have also allowed BMO to launch cloud-based mobile applications, enhancing business performance and service delivery.<sup>6</sup>

<sup>4</sup> Cloud Credential Council (2012). Cloud Computing Competency Development Case Study: ING. *Cloud Credential Council*.

<sup>5</sup> Penny Crossman (2 February 2011). "Q&A: Tony Kerrison, CTO of ING, on How Cloud Computing is Changing IT." *Bank Systems and Technology*.

<sup>6</sup> CG1 (31 May 2011). BMO Financial Group selects CGI cloud computing services to launch a comprehensive social media hub.

BMO's Smartsteps program and cloud-based mobile applications are just a few examples of how cloud-based services can leverage social and mobile media to transform the banking experience. Cloud platforms have enabled BMO to transform its products and reshape its core banking operations to become more customer-facing and efficient.<sup>7</sup>

## 5.0 Why Toronto

Toronto's globally-ranked financial hub and leading-edge ICT industry give the region a digital advantage when it comes to emerging tech adoption.

### Global smart city

Toronto is ranked among North America's top-7 intelligent communities, and is part of the global Smart21 Communities of 2013, ahead of New York, Silicon Valley, Chicago, and London. The Intelligent Community Forum recognizes Toronto as a global leader in using information technology to create local prosperity. Toronto's digital hub is at the forefront of economic growth, business attraction and retention, and skills development.

### Source of leading IT talent

The Toronto region is home to the third largest ICT employment concentration in North America, ahead of New York and Chicago, and behind only Seattle and Dallas. Toronto is home to over 180,000 ICT professionals, and represents half of Canada's financial ICT workforce. The Toronto region also attracts half of all ICT immigrants to Canada. Combined with its world-class education sector, Toronto is home to a highly-educated ICT labour force driving the next wave of tech innovation. These professionals feed into a vibrant hub of financial activity, including banks, investment services, insurance providers, pension funds, and the Toronto Stock Exchange.

<sup>7</sup> Accenture (2012). A new era in banking: Cloud computing changes the game. Accenture.

| ICT Employment Concentration by City |                 |
|--------------------------------------|-----------------|
| 1. Seattle                           | 7. Boston       |
| 2. Dallas                            | 8. Calgary      |
| <b>3. Toronto</b>                    | 9. Vancouver    |
| 4. San Francisco                     | 10. Los Angeles |
| 5. Montreal                          | 11. Chicago     |
| 6. Halifax                           | 12. New York    |

Source: Toronto Board of Trade (2012). Toronto as a Global City: Scorecard on Prosperity – 2012.

### North American leader in ICT firm concentration

The Toronto region is home to over 13,000 ICT companies providing software, hardware and communications services to the region's financial industry. The Toronto region boasts the highest ICT firm concentration in North America, with more than double the North American average number of ICT firms.

As Canada's cloud computing hub, Toronto is home to a vibrant cloud start-up and SME economy capable of making the transition to the cloud more viable. Cloud adoption can help financial institutions developed an integrated ecosystem that enhances business performance and reduces costs.

## 6.0 The Way Forward

### The future of financial cloud computing

Cloud computing will impact the future of Toronto's financial services industry in four critical ways. Products, services, technologies, and customer service will all be redefined by the growing adoption of cloud.

*1. Redefine customer services:* By offering new and more convenient ways for customers to bank and stay connected, cloud computing will make personal banking even more personal. Social media and the cultural shift that has accompanied it mean that customers are demanding real-time services that mesh with their lifestyles and preferences. Growing consumer expectations provide financial

institutions with great opportunity, but not meeting these demands will likely create more space for non-financial competitors to deliver cloud-based, socially-driven money management tools.

*2. Integrate with the rest of the IT ecosystem:* One of the most resilient features of the cloud lies in its interoperability and ability to deliver all the IT needs financial institutions depend on, only more easily. Financial institutions have already begun the process of infrastructure virtualization; as more cloud-based financial products and services emerge, cloud will overlap and even replace other IT infrastructure.

*3. Increase collaboration among financial service providers themselves, as well as third-parties:* Just as telecom providers share network infrastructure, financial institutions will consolidate non-differentiated activities into joint ventures, enabling shared services that engage customers more easily, reduce transaction costs, and streamline the security process.

*4. Increase payments options and competitors:* Banks and other financial institutions unable to join their customers on the other side of the digital divide will soon find themselves losing control of the payments value chain. Cloud computing will have a huge impact across the entire payments domain. This is both a challenge and an opportunity for banks looking to stay ahead of the payments market.<sup>8</sup>

## 7.0 Three Reasons to Invest in Toronto's Financial Services Sector

1. Toronto is the epicentre of Canada's growing cloud industry and a hotbed for innovative solutions that can drive the financial service industry's adoption of cloud and hybrid IT. This means that IT operations maintained offsite are never out of reach.

2. The Toronto region's investment in social media, cloud computing, and actionable analytics ensures that the banking sector will remain at the head of the financial value chain.
3. Toronto's hybrid IT ecosystem makes experimenting with cloud computing much easier. Banks and other financial service providers retain a centralized approach to IT governance, which means that cloud experimentation is conducted in phases and across specific organizational boundaries.

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<sup>8</sup> Accenture (2012). A new era in banking: Cloud computing changes the game. Accenture.



The Toronto Financial Services Alliance (TFSA) is a unique public-private partnership dedicated to building Toronto as a global financial services centre.

For more information on the TFSA and Toronto's financial services sector, please visit **[tfsa.ca](http://tfsa.ca)** or call 416-933-6780.