

```
modifier_ob.  
set mirror object to mirror  
mirror_mod.mirror_object  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
#selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_ob.  
mirror_ob.select = 0  
= bpy.context.selected_object  
data.objects[one.name].select  
  
print("please select exactly  
OPERATOR CLASSES -----  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```

Cloud Transformation in Banking: The 2020 State of Play

A New Decade

As we enter a decade of innovation and change, financial institutions are facing a myriad of challenges in the form of shifting customer expectations, emerging technologies, and alternative business models.

Yet as the industry tries to grapple with these challenges perhaps its best solution is to look to a technology that more than a decade ago was making disruptive waves in the technology industry: cloud computing.

Cloud has been around for a long time. While data-sharing solutions were available in the early 1970s, the 1990s saw telecoms companies create virtual private network (VPN) services switching traffic between servers, something which evolved to cover all network infrastructure.

It was then that technology firms saw the potential of cloud on a large scale. Amazon founded Amazon Web Services in August 2006, introducing its Elastic Compute Cloud. Google followed in April 2008, launching the beta version of its App Engine. Microsoft unveiled Microsoft Azure in 2010, having announced its development two years prior.

CLOUD TIMELINE

- 1960s** First experiments in virtualisation by IBM and DEC
- 1970s** Data and time-sharing solutions pioneered by Multics, MIT
- 1990s** Telecoms firms develop virtual private networks
- 1994** General Magic coins the term “cloud”
- 2006** Amazon created Amazon Web Services
- 2007** IBM begins developing enterprise cloud solutions
- 2008** Google launches Google App Engine
- 2009** Alibaba founds Alibaba Cloud
- 2010** Microsoft releases Microsoft Azure

In 2020 cloud computing, once thought of as the bleeding edge of technological development, has become part of mainstream IT. The global public cloud service market is projected to reach \$266 billion in 2020¹. 94% of enterprises use a public cloud in some form or another², while 66% have a central team dedicated to the development of cloud-based technologies³.

While financial institutions have been initially either slow on the uptake of cloud computing and newer technologies, market challengers and start-ups have not. At the end of 2018 14% of retail and commercial banking revenue had shifted to new entrants, many based on cloud-first and agile technology⁴.

¹ <https://www.gartner.com/en/newsroom/press-releases/2019-11-13-gartner-forecasts-worldwide-public-cloud-revenue-to-grow-17-percent-in-2020>

² <https://resources.flexera.com/web/media/documents/rightscale-2019-state-of-the-cloud-report-from-flexera.pdf>

³ <https://www.flexera.com/blog/cloud/2019/02/cloud-computing-trends-2019-state-of-the-cloud-survey/#94%20Percent%20of%20Respondents%20Use%20Cloud>

⁴ https://www.accenture.com/_acnmedia/pdf-85/accenture-technology-advisory-cloud-readiness-banking.pdf

Why Do We Still Talk About Cloud?

As we march through 2020 and beyond, the financial service sector is facing a global slowdown in terms of interest rates, compressing in turn the profitability of major banks. Regulation remains a major factor for financial institutions, with global watchdogs continuing to scrutinise, legislate, and reprimand.

While both of these factors are squeezing major banks, their customers are demanding faster, responsive experiences when interacting with their products driven by an example set by technology giants.

As a result, a greater focus is being placed on the front office and away from the traditional engine room of banking operations. Banks are beginning to see the profitability that comes from providing customers with an innovative experience.

Despite a desire to innovate and provide faster experiential services to their clients and customers, banks must also be wary of regulatory constraints and punishments for attempting to adopt the “fail fast” mantra of agile start-ups and new market entrants.

Although regulators across the world will vary in both their stringency and toughness, their approaches share several features in common. Regulators identify specific risks to consider in the selection of a service provider. They impose ongoing risk assessment and management duties, including monitoring procedures and recurring audits.

“ The front office is where the game is. Cloud naturally comes into its own as a technology in this space. It enables banks to take advantage of everything you hear about open banking, open APIs, microservices, collaboration, and the ability to interact with customers in a nimbler way.



Shanker Ramamurthy, general manager – strategy & market development, IBM.

Almost all regulators expect banks to ensure the security of data and systems in the cloud. This applies particularly to customer data. Many impose specific limitations on data use and processing and on the control and location of data. Banks are expected to plan for contingencies in the event of disruption or the termination of a service arrangement with a cloud provider.

The location of an institution and its relative size and global reach will affect the intensity of regulatory scrutiny. European regulators place particular emphasis on the disclosure of critical or important functions that may be outsourced outside the bloc.

“ Banks have been prudently cautious in ensuring the security of the customers’ data all the way from the front to the backend systems. Inherently we have to protect our customer data and that has to be a top priority.



Justin Arbuckle, senior vice president, platform organization and enterprise architecture, Scotiabank

What Is a 2020 Cloud Transformation?

Since banks first started using computers in the 1950s, the sector has never been too far behind the technological curve. Between 1963 and 1968 the proportion of commercial banks using on-premises computers rose from less than 10% to more than half⁵. Since those days, banks have relied on IT infrastructure hosted on-site or sited in off-site locations they either owned or co-owned.

Yet, to cope with increasing IT demands and to better innovate their services to customers, many major banks have kicked off large-scale digital transformation projects worth hundreds of millions. The pace at which financial institutions are now adopting cloud platforms is accelerating, and a symbol of the sectors strong intent to rely on this technology for the foreseeable future.

“ There is a need to match technological agility with business agility. 30 years ago, the speed at which companies evolved was down to large companies that released new products or updates every quarter, or every year. We now have nightly builds. In that world to try and hold back the ocean is futile.

Justin Arbuckle, Scotiabank

⁵ Horst Brand and John Duke, Productivity in commercial banking: computers spur the advance, 105 Monthly Lab. Rev. 19, 22–23 (December 1982)

The market is evidently different for a bank undergoing a transformation today as opposed to one kicked off in 2015. Regulators have opened the industry out to the deployment of open banking standards and better integration with start-ups and fintechs. The perspective of the banks has shifted, too. No longer are fintechs and new market entrants potential rivals and major competitors, but rather potential partners and developmental collaborators.

Over the few years the relationship between banks and fintechs has become one dominated by cooperation and complimentary relationships⁶. For financial institutions a greater threat has emerged in the increasing pressure that global technology companies are putting on the fringes of the financial services space.

Big Tech firms typically have large, established customer networks and enjoy name recognition and trust. They also possess the deadly combination of up to date technology infrastructure and a culture and ability to apply the latest technology innovations at scale and speed. These market pressures have made a transition to a more agile operating model a greater imperative for banks.

The pace of change in the market has meant that the tools, partners and systems available to a financial institution making a transition to the cloud have changed fundamentally from those available five or more years ago.

“ If you’re a financial institution and you want to move to the cloud, the range of technology tools, the range of technology options, the range of optionality that’s available in the open community, as well as the development tools available in the communities, have made this journey easier than it was four or five years ago.

Shanker Ramamurthy, IBM

“ There will always be a gap between our evaluation of the latest new feature and our implementation of it. This is prudent. There must always be a focus on caution when we want to translate new technology into technology that our customers interact with.

Justin Arbuckle, Scotiabank

⁶ <https://www.fsb.org/2019/02/fintech-and-market-structure-in-financial-services-market-developments-and-potential-financial-stability-implications/>

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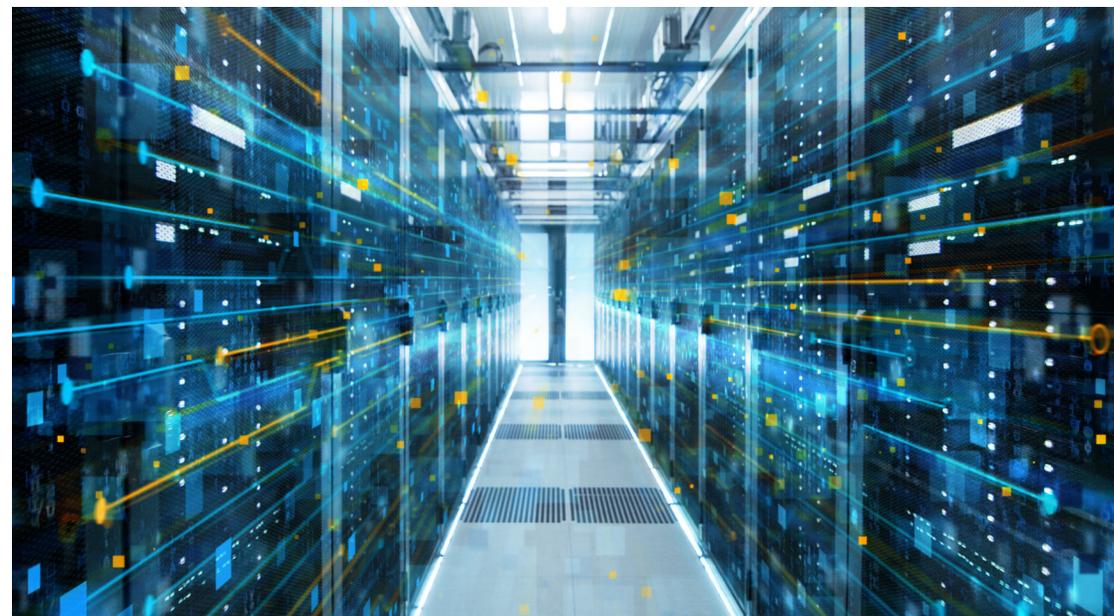
A 2020 cloud transformation is also under far more unique pressures than its predecessors. Customer expectations have changed at a rapid pace over the past few years, underpinned by the services they receive from technology firms and the applications they use in their daily lives. The emergence of several real-time service-based business models – Spotify, Uber, Deliveroo, and AirBnB – have introduced users to a world where formerly complex actions like booking a hotel or arranging a holiday can be performed all within their apps.

Taking up these lessons have been the challenger banks, which have adopted a cloud-first model to enable the fastest service to their users. Combined with a lack of legacy infrastructure, relatively low customer numbers (compared to major banks) and low overheads (due to a lack of physical infrastructure like branches), challenger banks have been able to provide a unique service to customers.

75% of customers are satisfied with the digital services offered by their challenger bank, compared to 64% for “traditional” banks, while more than a third of traditional bank customers report issues or problems when trying to access digital services provided by their lender⁷.

“ We have to take the view that the rate at which technology evolves outside of our organisation is the same rate of which our customers’ needs and requirements are evolving as well. Because today we are not being judged according to the rate of a large organisation. We’re being judged according to the rate at which our customers are living their lives.

Justin Arbuckle, Scotiabank



⁷ <https://www.fisglobal.com/pace>

A Hybrid Approach?

Focus has been put on the opportunities that lie in a multi-cloud approach. Proponents of the hybrid approach believe it to be a means of achieving the agility, cost and performance of a public cloud while addressing industry concerns over data portability and security. It has been a strategy that larger financial institutions have begun to rely on.

Almost by definition do global banks require a multi-cloud strategy when looking at a transformation. They usually have sophisticated data centres spread across many geographies and are often mandated by local regulators to ensure that the data in question does not move outside of national boundaries.

This situation requires the establishment of a hybrid model, where an interior private cloud can be used to house critical applications and data, and an exterior public cloud can be used to take advantage of the expansive infrastructure inherent in that environment. 85% of respondents across industry verticals and expressed a preference for the hybrid cloud model⁸.

Conclusions

Cloud computing and cloud deployment in financial services has matured considerably over the past few years. Yet while cloud-native strategy may have become a central focus for enterprise firms across multiple industry sectors, experiments are still underway at major banks.

There remains a risk that for some in the industry cloud has become a target to hit, rather than a method for the deployment of new customer-focused services. In a world where agility is crucial and downtime derided, a focus is needed on what a cloud transformation can do for an institution beyond affecting the bottom line.

As we enter a new decade cloud penetration in financial services is on the up. When the industry will actually reach true cloud, ubiquity is an estimate not many would like to make. The true question, as banks shift themselves off of legacy on-premises architecture is what their new technology can enable for them to do on behalf of their end users. It is likely that the battles of the future won't be fought over which cloud provider a firm utilises, or which hybrid strategy they employ, but on what all those things enable them to provide their customers.

⁸ <https://www.nutanix.com/enterprise-cloud-index>

Cloud adoption is no longer just a technology decision

By Naresh Govindarajan

Just before Christmas, I was talking to a mid-sized asset and wealth management enterprise in London. Their entire on-premise data centre was in prime real estate in central London servicing global cities where they had presence – New York, London, Singapore, Dubai and Sydney. The head of IT was unhappy with the rising costs of the data centre and an inefficiently managed services provider who just wanted to keep the 'lights on' and the revenue flowing. There couldn't have been a better technology business case for migration to the cloud.

However, the person who was the most enthusiastic about migration to the cloud was the head of risk and analytics. The reasons for his enthusiasm are fundamental to the belief that cloud adoption is no longer just a technology decision to reduce costs, it is a business imperative to reduce time to market, increase agility and improve the overall customer experience quotient of an enterprise.



Typically, in any evolution of technology and its applications, the financial services industry is generally an early adopter. However, in the case of the cloud, the industry has been lagging, primarily due to concerns around security and general fear around the concept by the regulators. However, over the last few years, these concerns have been allayed with enough exhibition of evidence by the large cloud vendors. Large financial institutions have been experimenting and successfully migrating several ancillary services to the cloud. These initiatives are still majorly focused on building the cloud business case around cost reduction. The paradigm of adopting the cloud must shift from just cost reduction to deriving other tangible benefits like accelerating scale, agility, new customer channels and revenue.

It is easier to start and evolve as a cloud business than transforming and migrating to a cloud business. Existing on-premise financial services businesses quote size and complexity as the two main challenges that need to be overcome for transformation and migration. But when we look under the covers, the main challenge is neither size nor complexity, it is the mindset or the cultural shift that is preventing large scale cloud adoption. With growing exposure to the world of cloud-based enterprises, business leaders across financial institutions are taking a keen interest to leverage the cloud and its benefits as an enabler rather than just a container.

The cloud adoption is a perfect transformational initiative to establish a much closer alignment between business and technology. Recently, at an investment management enterprise, the cloud adoption exercise started with an assessment of business needs rather than technology cost reduction imperatives. As consultants sat with business leaders in workshops, the discussion was not about which cloud, which migration tools or which technology applications are on the critical migration path. The discussion was more about how we increase speed to market for the new products and offerings to enable a competitive advantage, how can we trial and fail fast to innovate, can technology be delivered internally in a 'pay as you use' model.



With increased use of artificial intelligence, analytics, the internet of things and intelligent automation, the most common challenges are the volume and variety of data that is being transacted and distributed across these services. The challenge of volume of data can be easily comprehended but the more complex challenge is the wide variety of data, both structured and unstructured which are causing further adoption challenges of these innovative services. To enjoy the benefits of these innovations, the flexibility and agility of the technology infrastructure to deliver these services becomes crucial.

When the business case of the cloud adoption initiative is built around delivering specific business benefits, then the entire journey to the cloud is differentiated and is seen as an enterprise-wide initiative where everyone is involved, and everyone will benefit. Financial services' cloud adoption will not only catch up with the cloud adoption in other industries but will see new innovative services and offerings being delivered. Hopefully, then, large on-premise data centers in the expensive real estate of global cities will become a nostalgic conversation of the past.



Naresh Govindarajan, head of UK and Ireland banking & financial services, NIIT Technologies

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Written by:



Alex Hamilton is deputy editor at FinTech Futures. He has been reporting on the financial technology sector for more than five years across a variety of industry publications and has written extensively on digital transformation, cybersecurity, and enterprise technology. He holds a masters degree in ancient history from the University of Nottingham.

He can be contacted at: alex.hamilton@fintechfutures.com

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TO REACH NEW PROSPECTS TALK TO:

Jon Robson
Head of Sales
Email: jon.robson@fintechfutures.com
Tel: +44 (0)20 3377 3327

Sam Hutton
Business Development Executive
Email: sam.hutton@fintechfutures.com
Tel: +44 (0)20 7017 7017