

Original Article

A Cloud Transformation Framework to Help Financial Services with Digital and Cloud Transformation

Sudipta Kumar Ghosh

Director of Software Engineering, Capital One, Chicago, IL United States of America.

Received Date: 13 July 2021

Revised Date: 15 August 2021

Accepted Date: 27 August 2021

Abstract - With Fintechs becoming an enormous competitive threat, Financial institutions are left with no choice but to innovate. One of the decisions that most Financial companies struggle with is moving to the Cloud. The biggest reason comes from their mindset. They think of cloud transformation as an infrastructure decision; however, it's much more. Cloud transformation is the key to digital transformation. It enables personalized, real-time customer experiences, game-changing data, and analytics, which increase customer satisfaction and loyalty. This paper will identify a simple, but effective framework that can help Financial services get started on their cloud journey migration.

Keywords - Cloud Transformation, Fintech, Digital Transformation, Cloud Native Solutions.

I. INTRODUCTION

The financial services industry is seeing disruption every day. The rise of Fintech, consumer's affinity towards digital technology, and Pandemic have forced the traditional players to re-think their business model. Over the past decade, we have seen mobile-based start-ups such as Venmo, Paypal, Robinhood, Mint use machine learning and AI-based technologies to disrupt customer experience in the financial industry. Financial services need to quickly reinvent their customer experience and launch innovative products to compete in this crowded space. Cloud transformation is the key to achieve this.

II. LEGACY IT INFRASTRUCTURE & DRAWBACKS

Financial services have been slow to react to Fintech disruption mainly because of their heavy dependency on legacy platforms and infrastructure.

The legacy systems are built on complex mainframe technology and are hosted on outdated infrastructure owned by the financial services. These platforms and infrastructures cannot support the latest digital products, services, and applications that the bank needs to offer to compete with the Fintechs. Other drawbacks of legacy infrastructure are a slow time to market, increasing maintenance cost over time, use of ancient tools & analytical packages, hard to find talent.

III. CLOUD TRANSFORMATION

Cloud transformation is the process of moving an organization's platforms/data from on-premise servers to servers hosted on public/private Cloud.

Migrating to cloud-based infrastructure brings significant efficiency, speed, scalability, ability to use modern technologies, and faster reaction to government regulations for a company. Though the benefits are clear, few technology leaders have taken this necessary step for their organization. As per the latest research by Cornerstone Advisors, only 32% of Banks have already deployed parts of their platforms/data on the Cloud, and 46% of the banks have yet to start their cloud transformation journey. See Fig 1.

TABLE III: Banks' Emerging Technologies Plans for 2020

	Have already deployed	Planning to invest and/or implement in 2020	Have discussed at board or exec team level	Not on the radar
Cloud computing	32%	22%	37%	9%
APIs	21%	26%	33%	20%
Video collaboration/marketing	21%	21%	35%	23%
Machine learning	7%	13%	36%	45%
Robotic process automation (RPA)	6%	11%	24%	59%
Voice technologies (e.g., Alexa)	5%	10%	41%	44%
AI	4%	11%	44%	41%
IoT	4%	4%	43%	48%
Chatbots	3%	13%	43%	40%
Virtual (or augmented) reality	2%	1%	20%	77%
Blockchain	1%	2%	32%	66%

Source: Cornerstone Advisors survey of 300 community-based financial institution executives, Q4 2019

Fig. 1 Bank's Emerging Technologies Plans for 2020

Implementing such migration is indeed easier said than done. There are several reasons for a company executive to feel not confident to make this investment. Most executives lack understanding of the benefits of migrating to the Cloud. Others lack a clear migration strategy; cost overrun and significant disruption to business also concerns for some. Though these are valid concerns, a company executive should ask if the Company's legacy infrastructure and platforms can survive the pressure from Fintechs' innovation, customer expectation, and regulatory pressure. This paper will provide a simple framework to help company executives get started on the cloud journey.



IV. CLOUD TRANSFORMATION FRAMEWORK

Migrating to the Cloud has significant benefits; however, it's a multi-year journey. A company executive needs a sound strategy that will give them the confidence to invest in this transformation. Though there are several papers/articles written around Public/Private/Hybrid cloud, security on Cloud, etc., very few talk about the critical tactical steps that an executive should keep in mind while building a cloud transformation strategy for their organization. The Cloud Transformation framework defined in this paper address that gap. See Fig 2.

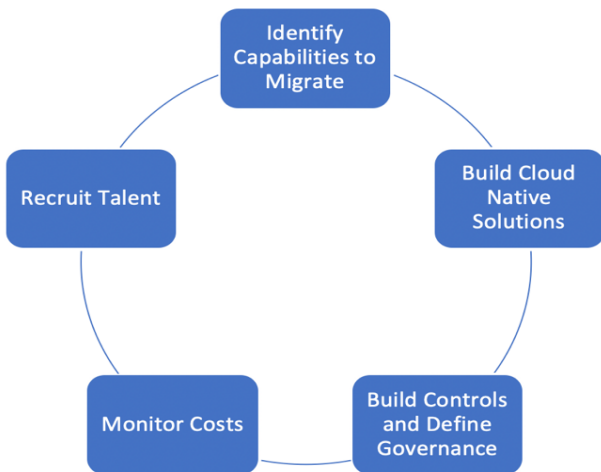


Fig. 2 The cloud transformation framework

Let's discuss the five critical steps in the framework in detail:

A. Identify the capabilities to migrate to Cloud

Most companies think that going big-bang to Cloud will help them realize value, but in reality, this is a recipe for failure. Not every application needs to be migrated to the Cloud, nor should it be done all at once. While identifying the first set of capabilities to migrate to the Cloud, company executives should exploit the single important benefit of cloud computing, i.e., scalability in the form of storage or computing. So, the first set of applications moving to the Cloud may require high computing or storage requirements. Once a set of applications have been identified, a study should be done to understand which application can be easily migrated first. Once the first application has been migrated, the Company should do a retrospective to understand what went well and what can be done better before migrating the next application.

B. Build Cloud-Native Solutions

When company executives identify the first set of capabilities to migrate to the Cloud, they should ask the question, "should we do lift-shift or rebuild the capability using cloud-native architectural principles?". Cloud-Native solutions are those that use micro-services architecture, run on containers, and uses DevOps principles. In a recent Mckinsey report, CIOs believe that business benefits like time to market, reliability, cost efficiency cannot be achieved by lifting and shifting applications to the Cloud. See Fig 3.

CIOs believe that business benefits cannot be achieved by lifting and shifting applications and need to rethink the infrastructure stack

CIO reasons for pursuing infrastructure modernization
100 points allocated across



Source: McKinsey expert interviews (N=52)

Fig. 3 CIO reason for pursuing infrastructure modernization

Cloud-native architecture has many benefits, including faster development time, high reusability, control on infrastructure provisions, use of CICD, etc. Aligning company's cloud migration schedule with legacy modernization will provide a tremendous return on investment.

C. Build controls and Define Governance

A governance board needs to be formed to work with developers and stakeholders to define a governance model. A key part of the governance model will be cloud controls. Cloud controls help an organization to ensure that the cloud services are deployed and maintained in a securely configured state. Some examples of controls are access controls, risk assessment, service configurations, etc. The overall governance model will also dictate what controls are needed, the lifecycle of control, whether to build new controls or use the controls provided by the cloud service provider, etc. Along with various controls, the governance board will also oversee risks and security of applications on the Cloud, approve various cloud services for use, develop best practices training for developers, etc.

D. Monitor Costs

Ensuring costs incurred are optimized is a critical part of cloud migration efforts. Cloud has unlimited capacity and computes power, so the cost can quickly go out of hand if the usage is not monitored. All cloud service providers have cost monitoring tools; however, these tools rarely help an organization identify where the bleeding is happening. Training the developers on various cloud infrastructure best practices and a robust governance model will help keep costs under control. Below are the five strategies to keep costs under control:

- a) Using the right instance size for your applications
- b) Use serverless wherever possible
- c) Choose the right pricing model
- d) Turn off non-production instances after work hours

E. Recruit & Retain Talent

The real heroes are the people that drive the transformation. Before starting the cloud transformation journey, an executive should ask, "do we have the right talent to support this cloud transformation and do we need

an operating model shift?” A McKinsey report shows that the talent gap is the top challenge for CIOs to deliver infrastructure modernization. See Fig 4.

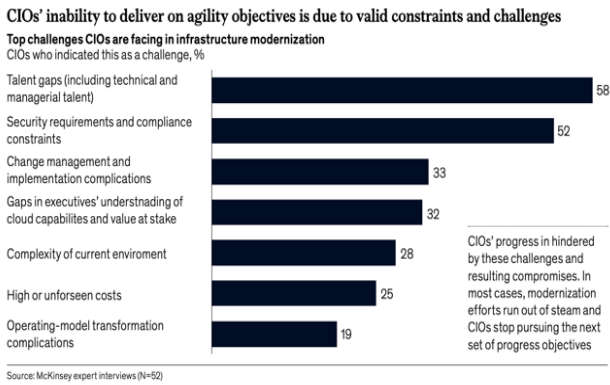


Fig. 4 Top challenges CIO’s are facing in infrastructure modernization

Traditionally IT functions were outsourced with heavy dependency on external vendors. Though in some cases, this model worked, but it failed to build a culture of innovation and continuous learning within the organization. The vendor’s resources also never had any appreciation for

the Company’s strategic needs. To be successful in this journey, the transformation of critical capabilities should be moved in-house than outsourced. Company executives should invest heavily in hiring the right talent to build a world-class tech force. Move to a team-based operating model where individuals form a team to deliver on a mission. The team should feel empowered to make tech decisions and focus on building innovative solutions. Organizations should also focus on retaining the existing talent by making significant investments to retrain, upskill, or reskill their employees.

V. CONCLUSION

Company executives can leverage this framework to come up with a sound cloud strategy. If done right, the new technology organization will build a solid foundation for other future transformations.

REFERENCES

- [1] Unlocking business acceleration in a hybrid cloud world by Arul Elumalai and Roger Roberts.
- [2] What’s Going on in Banking 2020 by Ron Shevlin.