

Whitepaper

Cloud Adoption

Common Challenges for Banks and Financial Institutions



Executive Summary

Current century has witnessed drastic changes in technology evolution and to accommodate those essentials, Cloud technology has become a backbone for businesses today. Towards this, it is essential for banks and financial institutions that have not yet begun their cloud adoption journey to make use of its capabilities to cater to the expectations of their digitally savvy customers. However, this significant digital transformation journey is also fraught with challenges - The road is uneven and filled with obstacles, and at various points along the way, and there are choices to make, each of which influences the further journey to cloud adoption.



Financial Oversight & ROI Challenges

Discrepancies between cloud expectations and poor cost management result in budget overruns. This situation undermines the confidence of project sponsors. The first section of this paper focuses on adjusting Return on Investment (ROI) calculations to accurately represent the true value of the cloud, while also highlighting the critical role of FinOps practices to maintain financial benefits in the long run.



Cultural Resistance

Significant technological changes often lead to substantial adjustments within the workforce. This paper encourages the establishment of a culture centered on identifying and upskilling personnel for future role-based cloud technologies. By utilizing frameworks like the AWS Cloud Adoption during the initial phases, companies typically find it easier to mitigate this resistance.



Just Migration vs. Modernization Trade-off

While a lift-and-shift migration can quickly transfer workloads to the cloud, it often sacrifices key functionalities and advantages. Conversely, application modernization not only helps organizations reduce costs but also prepares them for the future. However, modernizing can take a considerable amount of time. This trade-off should be managed using a structured path that allows for multiple migration streams to operate simultaneously, reaping the benefits of both approaches.

This whitepaper, through real-life examples and actionable recommendations, aims to assist banks in overcoming these challenges. It also stresses that cloud migration should be viewed as more than just a technological shift; it is a complete business transformation involving people, processes, and technology.

Introduction

A perfect bank for the modern generation would be one that customers never have to visit in person. From authentication and booking deposits to applying for credit cards and cash withdrawals, customers expect banking operations to be quick and efficient, all without leaving their comfortable homes.

Due to the brevity of financial matters, banks were slow to adopt technological transformations. However, by the start of the century, they realized that to serve a modern customer base, they needed to at least keep pace with ongoing technology trends. In response to these needs, banks began migrating to cloud data centers with the likes of Amazon Web Services (AWS) being a pioneering choice. While doing so, they faced significant hurdles due to a complex landscape. This paper aims to highlight three common adoption challenges faced by banks and financial institutions in their cloud journeys and sheds light on their resolution.

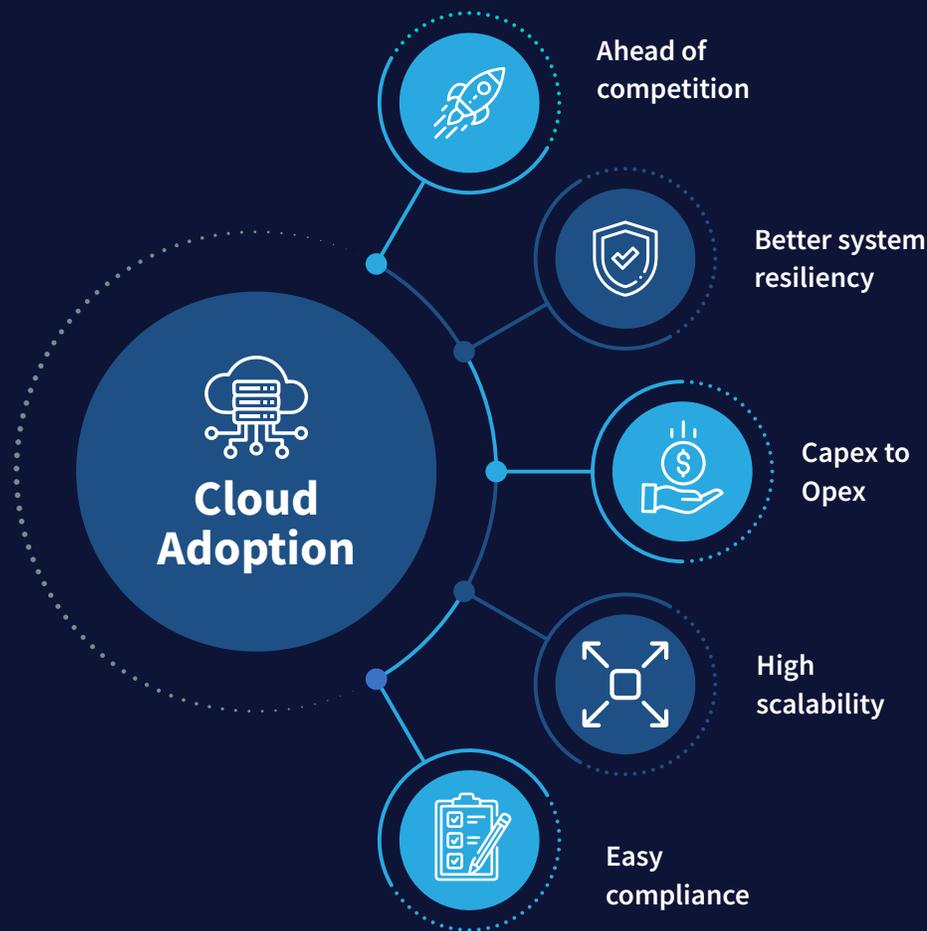
Nearly 80% of Banks Globally Remain in Nascent Stages of Their Hybrid Cloud Adoption ^[1]



Challenge 1

Value for Money

When a digital transformation project starts picking pace, CIOs and investors often report higher burn rate on migration initiatives. This leads to concerns that the anticipated cost savings may fall short of their expectations. Additionally, there is apprehension that the cloud may merely function as another data centre, expected to host the same workloads similarly as on-premises solutions.



Observation

Many migration projects exceed their budgets due to factors such as the approach taken, the business case created, and the ineffective planning. This often results in failing to align expectations, right from the outset. Leaders frequently compare on-premises infrastructure costs to cloud bills, only to find minimal savings. When adding cloud migration expenses, the ROI appears significantly lower than anticipated, sometimes even negative.

One issue lies in how cloud costs are calculated. Comparing infrastructure costs directly with cloud bills is unjustified when transitioning to such advanced technologies. The cloud enables capabilities previously unavailable - Big Data, Artificial Intelligence, and Machine Learning – that can enhance product development when the right services are used. For example, AWS Connect can improve customer retention rates in contact centers. A mobile application that leverages modern features is more likely to attract customers than outdated web applications. Additionally, advanced monitoring, alerting, and automation systems can prevent issues and maintain application performance, resulting in higher uptime and greater customer satisfaction for their banks. Traditional ROI calculations often overlook these critical factors.

Parallely, engineering teams continuously engage in resource cost optimization efforts. Despite their constant endeavours—such as back-tagging resources, shutting down unused instances, and retiring old volumes—these actions seldom lead to significant improvements in the long term. The reality is that there will always be more complexities to address than the day before, and the time and costs associated with cleaning up these resources will not justify the savings achieved in bills.

Cost of Running Data On-premise = Infrastructure Cost (Including Data Center, Utilities, Hardware, Internet etc)
+ Cost of Software and Licenses

Cost of Cloud Data Centre = Cloud Bill

Net Benefits = Cost of Running Data On-premise - Cost of Cloud Data Centre

$$\text{ROI} = \frac{\{ \text{Cloud Bill} + \text{Licenses} \} - \{ \text{OnPrem Infra Cost} \}}{\text{Number of years}}$$

Recommendation

The cloud is not just another data center; it represents a consumption-based collection of services that businesses can leverage for various foundational needs as well as gaining competitive advantages in market. Consultants typically emphasize these advantages when drafting business cases for banks. As organizations transition to the cloud, it is crucial to continuously review these business benefits and align migration choices with the objectives. Utilizing the appropriate cloud services for specific business requirements should be a continuous focus area throughout the migration process and beyond. Additionally, the symbolic monetary value of benefits that were not available before such as benefits due to high uptime of the app, better customer experiences due to AI-managed self-service portal, low cost of managing infrastructure due to the availability of managed services, etc. must be factored into the ROI calculations for cloud investments.

To complement profit maximization, FinOps practice plays a vital role in governing cloud expenses. It regulates cloud usage by embracing automation and fostering a culture of cost ownership. Cost optimization is a key component of FinOps - it is essential to distinguish between cost optimization efforts and broader FinOps practices.

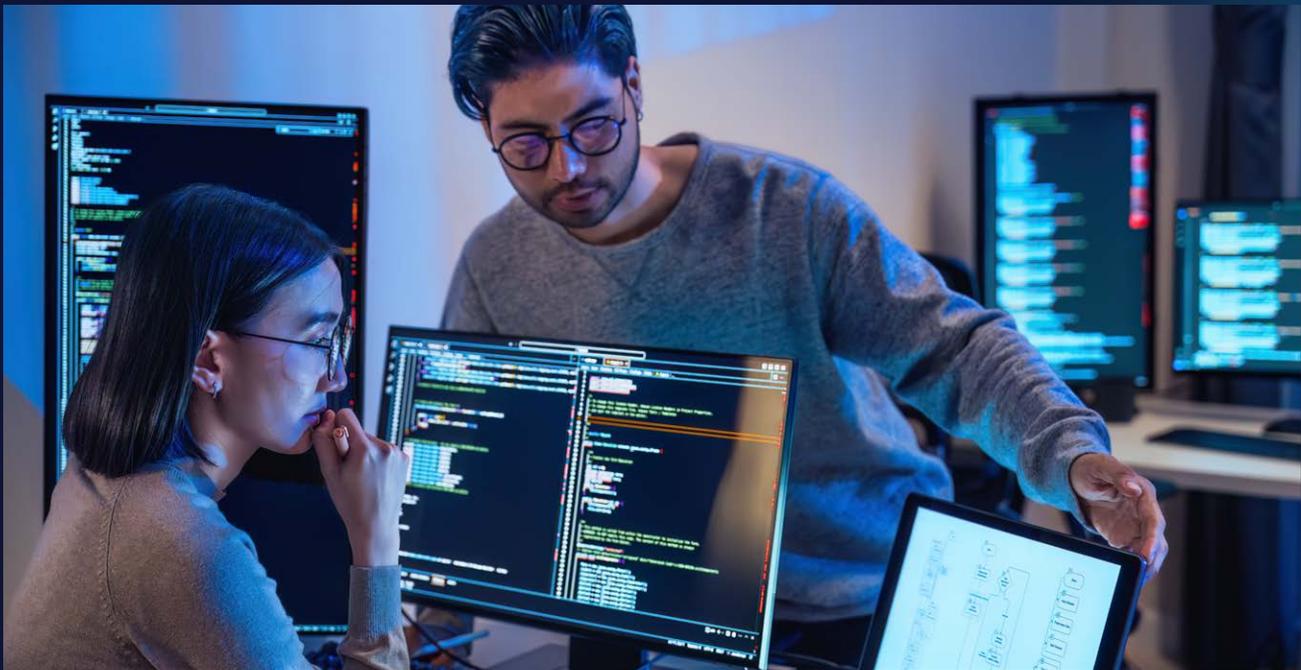
The impact of cloud on business value, when integrated with transformative levers, is 20x greater than the potential economic realization as a standalone strategy. Successful banks often prioritize collaboration and innovation both within and across their enterprise boundaries. ^[2]

$$\begin{aligned} \text{ROI} = & \{ \text{Cloud Bill} + \text{S/W License} \} - \{ \text{Cost of Data Center} \} \\ & + \{ \text{Benefit due to operation excellence} \} \\ & + \{ \text{Enhanced Profit due to High System Up time} \} \\ & + \{ \text{Profit due to high customer Retention Rate} \} \\ & \underline{\hspace{10em}} \\ & \text{Number of years} \end{aligned}$$

Challenge 2

New Ways of Working

Many banks are burdened by legacy technology stacks, which often foster a primitive mindset among their personnel. When cloud solutions are introduced, some individuals resist the change while others feel uncertain about their future roles. This creates an environment where some team members actively resist digital transformation initiatives, presenting a significant obstacle in the journey.



Observation

Banks are deeply reliant on established processes and their personnel, many of whom have performed the same roles for decades. It is only natural for these individuals to feel anxious when the entire technological landscape is poised for transformation. Human beings instinctively resist change, and much of this resistance stems from uncertainty about their future roles—and the mental challenge of adapting to new technologies.

Recommendation

Digital transformation must address business and cultural shifts before implementing technological changes. Leaders involved in decision-making, who are often the first adopters of cloud technology within their organizations, play a crucial role in raising awareness about the positive business impacts of this transition.

In the context of cloud data centers, many legacy roles converge to form new positions, while entirely new roles emerge. For instance, system administrators, networking engineers, and database administrators may combine into roles such as 'SysOps Administrator' or 'Solutions Engineer,' while new positions like 'DevOps Engineer,' 'Cloud Architect,' 'Cloud Strategist,' and 'Machine Learning Engineer' will become available.

While encouraging upskilling is essential, leaders must also communicate potential future roles to all employees. Certification programs can build trust among staff, helping them view cloud and emerging technologies not as threats but as opportunities for growth.

In many cases, significant organizational restructuring is necessary. The AWS Cloud Operation model offers a framework to manage such transitions by dividing the IT organization into multiple capabilities and assigning them to specific groups to form cohesive teams. A well-defined operating model propels the overall transformation journey in a unified direction, assuring the existing technology workforce about their job stability. Organizations often struggle to get their operating model right on the first attempt; they may try, fail, and then restructure. This iterative process is common, and the key is to 'fail fast and learn fast.'

The establishment of a Cloud Center of Excellence (CCoE) has also become the new norm, where a team of experts drives the development of cloud templates, frameworks, and strategies. While this practice is mandate-based, it ensures that the organization adheres to consistent standards in an increasingly open ecosystem. Conversely, a Community of Practice (CoP) fosters an empathetic environment where domain experts are invited to lead initiatives, share their experiences, and impart their knowledge. This cultivates a culture of trust and learning in new technologies. Both CCoE and CoP are effective ways to honor skilled and senior technologists, ensuring they feel valued and empowered.



Challenge 3

Migration vs Modernization

Anecdote: “A leading bank expressed frustration that it had managed to migrate only 10% of its workload to the cloud over the past three years. The bank had anticipated that by this time, 75% of the migration would have been completed. Currently, they are incurring costs at three times their expected rate, and all indicators suggest that anticipated savings from the cloud may not materialize even after full migration. As a result, CIOs and program investors have lost confidence in the initiative and are considering a return to on-premises solutions if the project does not improve.”

The above phenomenon is very common among banks.

Half of the cloud-native transformations are abject failures ^[3]

Rehost vs Modernization Trade-Off

	Lift & Shift	Modernization
Time Taken for Migration	★★★★★	★★
Cost of Migration	★★★★★	★★
Cloud Benefits	★	★★★★★
Advanced Technology Benefits	★	★★★★
Operational Cost Saved	★★	★★★★
Future Ready Enterprise	★	★★★★

Observation

There are two approaches to migrating to a cloud data center: the fast and the right way. The fast version involves moving workloads to the cloud by migrating applications as-is, primarily using VM-to-VM migration. This method retains a similar infrastructure to on-premises systems - and often leads to inefficiencies as it underutilizes cloud-native tools and can result in higher costs than those incurred. While this method may be easier to manage due to familiar skill sets, it fails to leverage the full potential of the cloud.

In contrast, the right way to transition to the cloud involves employing 'AWS R-Lane Analysis,' a framework that helps application teams determine the optimal infrastructure for each application. This approach allows for choices between various services, such as EC2 for virtual machines, serverless Lambda, DynamoDB, and container services like ECS and EKS. The caveat of this method is that it is time-consuming and requires a high level of expertise while planning and executing. For instance, if an application needs to be rewritten for a microservices architecture, even if it remains in the same programming language, the process can be lengthy. Microservices must be developed from scratch, and the new architecture will require design and testing approvals, which can be particularly challenging for program sponsors. While significant development may occur simultaneously, tangible progress may not be visible, as only a few applications will be available in the cloud initially.

However, this approach has a snowball effect; once common microservices are established, the rollout of applications becomes exponentially faster, allowing developers to reuse existing code. Applications developed through this method are future-ready and better equipped to utilize cloud-native tools, simplifying infrastructure management for organizations. As long as a company is willing to invest the necessary time and resources initially and has the right skills to modernize its applications, this method is considered a superior way to migrate to the cloud.

Recommendation

At this stage, architects are advised to utilize a proven framework, such as the Platform pillar of the AWS Cloud Adoption Framework. This approach helps avoid starting from scratch by leveraging past customer experiences and best practices for cloud modernization.

Today, 89% of financial services executives believe that a cloud-enabled platform is crucial for delivering the agility, flexibility, innovation, and productivity necessary to meet escalating business demands. Yet, most firms are still not cloud-native and instead tend to opt for a 'lift and shift' approach that hinders the full benefits of cloud-based systems' scalability and flexibility advantages. ^[4]

Different Streams of a Modernization Approach

While there are various paths to modernization, one effective strategy is to decompose monolithic projects into multiple parallel streams with minimal overlap in their schedules. These streams can converge at a later stage to showcase the benefits of modernization.



Landing Zone: Establishing a landing zone is essential for any organization transitioning to the cloud. Even while discussions about modernization are ongoing, the landing zone can serve as a foundation. This stream can begin early in the process and continue to produce best practices for cloud adoption, defining areas such as Service Control Policies, Cloud Formation Templates, Tagging Policies, Security Posture, and other shared services.



Quick Wins: Practicality suggests starting with small, manageable initiatives. Identifying applications suitable for re-hosting and pursuing this path can yield immediate results.



Minor Changes: Another area of interest involves applications that can benefit from managed services with minimal modifications. Examples include migrating a SQL database to AWS RDS, transitioning backup storage to S3, or shifting a self-managed queuing service to Amazon SQS.



Skill Gap Analysis and Upskilling: This critical stream focuses on preparing the technical team for cloud readiness. By offering role-based learning opportunities, this stream encourages team members to obtain relevant cloud certifications, ensuring they are equipped for larger projects in the future.



Refactor for Long-term Gains: This stream is where significant cost savings can occur. Although it requires time and investment, this stage enables organizations to fully embrace the cloud approach to deploy applications.



DevOps Culture: As all other streams progress in parallel, fostering a DevOps culture within the cloud environment offers numerous advantages. Doing this accelerates the pace of application development and management, streamlining operations by automating repetitive tasks and reducing human errors.



Consulting Services: Given the complexity of modernization projects and the hurdles they encounter, engaging seasoned cloud consultants as advisors can mitigate risks. Their expertise allows them to anticipate challenges and provide the migration team with the necessary support to navigate obstacles effectively.

Conclusion

While cloud services and their paths can be overwhelming, they ultimately benefit organizations by allowing to shift significant operational overheads to cloud vendors, enabling a stronger focus on core business products. Cloud adoption is no longer optional; competitors leveraging cloud solutions will always have an advantage over those that do not. However, the journey to the cloud varies from one organization to another. Some choose straightforward methods, while others take a more tactical approach. Some organizations are already equipped with the necessary skills, while others develop their capabilities during the migration process.

It is essential to recognize that cloud migration involves not just a technological transformation but also significant changes in business and culture. The unique combination of people, processes, and technology within each organization can help anticipate challenges and mitigate risks throughout this journey.



About the author



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Ashutosh has been a cloud computing enthusiast since 2010. He is a passionate advocate of cloud adoption and an AWS Evangelist. As a Senior Director at LTIMindtree, he leads the Cloud Strategy team, providing CIO advisory services to a global customer base. Ashutosh is a highly skilled and seasoned solutions architect. With an extensive knowledge of the AWS ecosystem, he has been a trusted advisor to many partners, ensuring their comfortable transition into the cloud data center. Ashutosh has made many public appearances in various forums as a key speaker. His knowledge extends to business-oriented domains such as FinOps, cloud security, adoption framework, and operating models.

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