

# CLOUD TECHNOLOGY IN BANKING SERVICES – A STEP AHEAD

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**Abstract :** Cloud Technology is being one of the rapidly developing technologies it has gained massive traction in recent years. Cloud computing promises business agility, efficiency and speed at lower costs. In recent times, cloud technology is one of the key enablers of digital transformation. Cloud technologies help organizations to achieve scalability, increase operational flexibility and decrease time-to-market. Traditional banks have got a massive amount of current and historical data they can put to work, and the cloud is the perfect place for it. Banks these days offer a plethora of services, and hence they have varied requirements regarding the movement of applications to the cloud. Banks need to work on cloud reference architecture, and try to achieve business agility for business model transformation. Each bank and financial service organisation will have varying needs, and different business cases to address. However, the likely combination is going to involve public and private cloud usage, a hybrid cloud model.

**IndexTerms-** Cloud Banking, Cloud Models, Cloud Technology, IaaS, PaaS, SaaS.

## I. INTRODUCTION

Now time is money, and data is today's gold, so banks can use a solution such as this to make the most of the different types of cloud. Under this scenario, the new immense technology upgradation is obviously Cloud. To provide improved customer service that too through customized personalized financial services are need of the day. Especially in financial services industry like the Banking companies are started to design the services which will be specifically meet out the individual needs of the customers. To develop the services and offered to them at timely at the same at lowest possible cost are realizable only with the advent of improved technology applications like cloud computing. The banking services now-a-days starts using the cloud computing in an immense way to probe their banking activities and compete with the untapped competitors. The bankers now enjoy the low cost advantages using the cloud platform since it offers a scalable, manageable technology model that reduces IT hardware, maintenance and development costs. This in turn gives you the agility and flexibility to embrace new markets, new services and new channels, in line with consumer needs.

### Objectives

- To study the need of cloud technology for banking services
- To analyze the benefits of invasion of cloud technology in banking
- To evaluate the practical implications of cloud banking services

### Cloud Technology services

In recent days cloud equipped with industry centric proven methods, frameworks, multi-vendor alliances that accelerate the migration of your traditional infrastructure to the cloud at a most secured and cost effective manner. Some of our success stories in cloud enablement includes:

- <sup>1</sup> Consulting, design and deployment services of KYC solution to cloud
- <sup>2</sup> Engineered a cloud based analytics framework
- <sup>3</sup> Data center transformation to cloud
- <sup>4</sup> Mobile applications implementation on cloud for catering to services like Analytics and Risk and Compliance.

The robust and comprehensive service reduces time to market and operational cost while allowing a greater return on investment. The cloud based services include cloud consulting, implementation, migration and infrastructure management services.

## II Cloud Service Models

Cloud computing offers more flexible business models to the financial institutions which lowers operational costs. However, it is essential to select the cloud service model that best matches the core business requirements. By moving the front-end system to the cloud, it enable the ability to scale at a moment's notice, interfacing to the tried and tested backend systems in-house. With the cloud, banks can also benefit from a range of cloud services; such as

- DRaaS – Disaster Recovery as a Service
- BPaaS– Business Process-as-a-service- Used for general processes such as payroll, billing, human resources etc.
- SaaS– (Software-as-a-service) – Users can access the software and data from their browser, and business software and related data are housed by the cloud service provider. Accounting, enterprise resource planning (ERP), customer relation management (CRM), human resource management, invoicing, service desk management and content management software can be delivered using this model.
- IaaS (Infrastructure-as-a-service) – Rather than purchasing software, servers, network equipment or data centre space, the businesses can buy these resources as fully outsourced services.
- PaaS (Platform-as-a-service) – In this model, the cloud service provider offers a complete platform to the businesses to develop, run and manage their applications without engaging in the infrastructure complexities associated with application development and launch.

## Cloud and FinServ Industry

Like any industry, financial services organizations face challenges like managing risk, striving for new levels of growth and profitability, and providing great user experiences. But they also grapple with dynamic market forces and shifting regulations, and on top of that, many contend with decades worth of data and legacy systems. As a result, a growing number are turning to the cloud.

In fact, many financial institutions are seeing how tools like machine learning APIs can help them add intelligence to customer experiences from improved 'Chatbots' to intelligent case routing without needing to build and train their own models. Data analytics can help them drive more personalized user experiences. And as the risk landscape shifts, and bad actors grow increasingly savvy, machine learning can help them identify anomalies faster, reduce false positives, and thwart fraud attempts.

Adopters are driven by the prospects of increasing agility and gaining access to more computing resources for less money. Large institutions are building and managing private-cloud environments internally and, in some cases, procuring access to external public clouds for basic infrastructure services, development platforms, and whole applications. Smaller businesses are primarily buying public-cloud offerings, as they generally lack the scale to set up their own clouds.

## Banking in Cloud Technology

Banking industry needs to address the ever-growing data input demands, and there is a need to explore the systems that do not rely on like-system migration so that infrastructure can be modified without any disruption. Banks have been slow in adopting cloud computing as there are apprehensions regarding lack of control and environment sprawl which can lead to reliability issues and security risks. Banks also want their financial data to be secured with controlled access. Public clouds come with the issues such as location, regulation, recoverability and liability, and this has led to slow adoption and deployment of cloud computing in the banking sector.

Banks traditionally like to keep their IT in their vault, and so they have often been wary of using the public and hybrid clouds. The catalyst for the new-found confidence in cloud computing within the banking sector is said to be the level of security that's now available. Subsequently, the banks have more faith in cloud service providers that they used to have, but the arrival of the European Union's Payments Services Directive (PSD2) seem to have helped with building confidence in the viability of cloud technology. After hundreds of years of the same security methods that have been tried and tested, they are being forced to adopt new ways of delivering services to a generation of users that expect instant access to services online. This brings a new challenge to the way services are delivered at a time when the days of banks hiding away all their systems in back rooms away from scrutiny, have gone.

Although online banking has been around for a while now, it has tended to be via the use of the PC and primarily during the evening. Now, however, people expect to transact multiple times a day at any time during the day with mobile banking and payments. This, in turn, has led to changes in how these services are provided by banks.

Each bank and financial service organisation will have varying needs, and different business cases to address. However, the likely combination is going to involve public and private cloud usage, a hybrid cloud model, which must have the right security in place whenever there is a need to store, archive, manage, analyse and generally handle customer data.

## Need for Cloud technology in banking

Cloud computing is also a proven solution to many core banking problems. In fact, the cloud has been an enabler of many other disruptive technologies including big data, IoT, AI, etc. The common concerns of banks like interoperability, 24x7 uptime, secure storage etc. are all addressed by cloud. In this blog, we will examine the benefits, applications, and concerns regarding the use of cloud computing in banking and financial services.

## III Benefits of Cloud technology in banking

### Cost Effective

Cloud computing allows the bankers to save capital expenditure involved in establishing IT infrastructure for varying IT needs. A huge load of capital expenditure is converted into comparatively nominal operating expenses. This allows banks and financial institutions to focus on core banking functions and leave IT complications to experts.

### Reliability

The cloud infrastructure is highly reliable. By opting for private or hybrid cloud model it is possible for banks to secure their data while enjoying the speed and flexibility of the cloud. Even in the case of public clouds, the data can be encrypted and additional layers of security like permission-based access can be added to boost the level of security.

### Flexibility

The major reason accounting for the popularity of cloud is its pay-as-you-use billing model. This means that you will only need to pay for the resource you use. Banks and other financial service providers can manage the spikes in demand without investing in expensive in-house computing power, much of which would go unutilized under normal conditions. In case of cloud, it is also easier to pivot from one application to another making it a flexible choice.

### Security

Security in the cloud servers has been the primary concern of the entire banking and finance industry. The confidentiality and security of financial information of customers and internal company data are of paramount importance. Using an encrypted cloud service and storage of sensitive information in private storage are two common ways of managing the risk.

### Analytics

When your data is stored in the cloud it becomes easier to run third-party analysis by using tools like Hadoop, Hive, and Tableau. Major big data analysis tools offer direct integration with cloud service providers, in fact, some companies offer in-build tools for data analysis. This enables banking companies to gain insights using business intelligence solutions and enjoy benefits of data backed decision making.

### Synchronization

Today Banking companies offer customer service using many channels like social media, mobile apps, website, affiliate networks, chatbots and review sites. This makes it difficult to provide a similar experience across multiple channels. Cloud

computing helps manage data from multiple platforms using a single dashboard providing scope for improvement in omnichannel management.

#### **Business continuity**

In cloud computing, the service provider manages the technology, and banking firms can have higher levels of fault tolerance, data protection and disaster recover. Cloud computing also offers a high level of back-up and redundancy at lower cost.

#### **Usage-based billing**

Institutions can pick and choose the services based on pay-as-you-go basis.

#### **Business agility**

As the cloud is available on demand, the infrastructure investment is minimized, saving the time for initial set-up. The development cycle for the new products is reduced, leading to more efficient and faster response to the customers.

#### **Business focus**

Financial firms can move non-critical services such as software patches, maintenance etc. to the cloud, and can focus on their core business areas, not IT.

#### **Green IT**

Transferring banking services to the cloud reduces carbon footprint and energy consumption, and there is minimized idle time with more efficient utilization of computing power.

#### **Regulatory and Compliance**

Many regulatory bodies in the banking and finance industry require the financial data of bank customers to be stored in their home country. There are also some compliance guidelines requiring the data to not be intermixed with other data. Hence the use of shared servers or databases is not recommended.

#### **Application of Cloud Technology in Banking**

##### **Hosting**

To ensure secure transactions and smooth customer experience banks need 100% uptime. In-house IT systems need periodic maintenance during which it becomes difficult to provide continued service. Cloud, on the other hand, can guarantee 99.999% uptime by ensuring server availability even during the time of maintenance. Hosting of mobile and web apps also ensures better speed to the users.

##### **Payment gateway**

Major banks already use cloud computing to initiate payments and funds transfer. Cloud ensures security and unified customer experience. Not to forget the maximum uptime that we discussed above also ensures that payments are processed securely from one end to another without any hitches.

##### **ERPs and CRMs**

Enterprise Resource Planning (ERP) and Customer Relationship (CRM) software are the most popular applications rendered through the cloud. Accounting for 50% of total usage, Software as a Service (SaaS) is one of the most popular methods of leveraging cloud computing. It allows the vendor to control the application and provide better support. For users, it allows for remote access and easy installation.

Other than the above mentioned there are other general benefits like,

Fig. 1. It permits relatively unlimited data storage.

Fig. 2. Environments deployment speed.

Fig. 3. Simple to scale all over.

Fig. 4. Information excess.

Looking out these benefits more firms are selecting to move to the cloud but finding the correct platform for hosting can be somewhat of a minefield, there's a lot of applications and web administrations are readily available.

#### **Migrating strategy from legacy to cloud technology**

TABLE I. Choosing the appropriate cloud provider

TABLE II. Start preparing for the migrate

TABLE III. Migrating

TABLE IV. Keep a check that everything goes on smoothly

TABLE V. Have a great team to help you

#### **Points to remember before to migrate to cloud**

Innovative technologies in the financial sector are now revolutionizing the banking system. As a result, the conventional banking scene is set to instantly shift in the coming years.

- Cloud services will organize banking activities
- Artificial Intelligence Will Keep Progressing
- Mobile Banking Will Be More Effortless
- More Blockchain
- Updated ATMs
- Security Will Become Sturdier
- Partnerships
- Bottom Line

#### **Cloud service providing companies**

- Amazon Web Services
- Microsoft Azure
- Google Cloud Platform
- Adobe

- VMware
- IBM Cloud
- Rackspace
- Red Hat
- Salesforce
- Oracle Cloud
- SAP
- Verizon Cloud
- Navisite
- Dropbox
- Egnyte

### Practical Implications

As attractive as cloud environments can be, they also come with new types of risks. Financial Executives are asking whether external providers can protect sensitive data and also ensure compliance with regulations about where certain data can be stored and who can access the data; whether building private clouds creates a single point of vulnerability by aggregating many different types of sensitive data onto a single platform.

Blanket refusals to make use of private- or public-cloud capabilities leave too much value on the table from savings and improved flexibility. Large institutions, which have many types of sensitive information to protect and many cloud solutions to choose from, must balance potential benefits against, for instance, risks of breaches of data confidentiality, identity and access integrity, and system availability.

Refusing to use cloud capabilities is not a viable option for most institutions. The combination of improved agility and a lower IT cost base is spurring large enterprises to launch concerted programs to use cloud environments. At the same time, departments, work groups, and individuals often take advantage of low-cost, easy-to-buy public-cloud services even if it is against to the corporate policies.

Using the cloud creates data-protection challenges in public-cloud services as well as private-cloud environments. However, traditional platforms at most organizations have significant information risks that actually can be mitigated by moving to a more highly scaled and automated environment.

Banks these days offer a plethora of services, and hence they have varied requirements regarding the movement of applications to the cloud. Cloud computing can help banks create more agile and flexible business offerings for the competitive and growing markets, and help them transform their business processes. They can explore and grow into the new markets and sectors, and improve their services to the customers across different geographic locations, and integrate customer information and analytics.

### IV CONCLUSION

The use of highly scaled, shared, and automated IT platforms known as cloud computing is growing rapidly. “In the past, banks and financial institutions showed hesitation in adopting cloud-based offerings, citing potential security concerns and risks associated with migrating from on-premises systems. Today, it’s more common for financial institutions to embrace cloud-based applications, as they realise the benefits they can deliver in terms of cost reduction and efficiency.”

The cloud technology can enable banks to scale their services more rapidly and efficiently than is typically possible in a legacy environment. Given the concerns regarding control and security, banks can opt for incremental approach which involves using cloud computing to the non-core operations initially, and gradually move more and more operations and processes to the cloud depending on the benefits. Banks need to work on cloud reference architecture, and try to achieve business agility for business model transformation.

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