

# CLOUD ADOPTION IN INDIAN BANKS

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**Abstract :** Banking sector is a highly vibrant region with demanding aggressive pressures like changes in customer necessities, stringent regulations and the need to adopt new business models. Banking sectors and financial institutions are in necessity to move their transactions with the help of various technologies. "Cloud banking" is one of the moderate technology which will use by the banking sectors in future period. In India was also adopting their banking transactions with the help of Cloud Computing Technology. While using Cloud computing our banking sectors highly achieved their profit without tough competition. Till now less banks only using this technology. But in future all banks will use this technology without fail.

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## I. INTRODUCTION

This robotic digital world, the banking sector had a rapid growth. When compared to olden days, current days of banking transactions are very compact to all level of peoples. The development of information technology helps to all industries especially the banking sectors has to adopt the modern electronic changes and provide the many facilities to their customers and successfully moving their business. Time to time number of inventions and innovations are adopted by the banking sectors. Like Online banking, Mobile banking, Digital banking, ATM facility, RTGS are all recent developments of banking sectors. In these line Cloud banking are also joined to that and provide a vast services to the customers and banking sectors. Here I am going explain the Cloud adoption in Indian Banks"

## II CLOUD COMPUTING

National Institute of Standards and Technology (NIST) has defined cloud computing as:

'Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.'

As per NIST definition, cloud computing needs to satisfy five essential characteristics, use one of the three service models and deploy using one of the four models as depicted in the following diagram:

Cloud computing is one of the future technology which will use by the banking sectors. It refers the group of networked elements providing services need not be individually addressed or managed by users. Instead of the entire provider, managed suite of hardware and software can be thought of as shapeless cloud. Banks having the ability to access data anytime and derive information are likely to be more competitive in responding to customer needs quickly. With latest trends and user friendly technologies in IT, the banking sector is poised to increase their operational efficiency and profits by responding quickly in the competition. Cloud providers typically use a "pay-as-you-go" model, which can lead to unexpected operating expenses if administrators are not familiarized with cloud-pricing models.

## III OBJECTIVES OF CLOUD COMPUTING

- The main enabling technology for cloud computing is virtualization.
- All users used banking technologies without the need of technical expertise persons.
- The cloud aims to cut costs, and helps the users focus on their core business instead of being impeded by IT obstacles.
- Autonomic computing automates the process through which the user can provision resources when they need.
- By minimizing user involvement, automation speeds up the process, reduces labour costs and reduces the possibility of human errors.

## IV REASONS FOR CLOUD COMPUTING

Innovative customer engagement - Data is fuelling innovation in banks - Security systems to minimize fraud - Mobile banking - Data is fuelling innovation in banks - Security systems to minimize fraud - Mobile banking - Core-Banking on SaaS

### 4.1 THE PERSONS WHO ARE INVOLVED IN VARIOUS ASPECTS OF CLOUD DEPLOYMENT

- Cloud consumer: This could be a bank or any other consumer that would avail of services on the cloud.
- Cloud provider: This would be a system integrator who would integrate offerings from multiple parties to provide a solution and sign contracts with cloud consumers. These parties would be (a) Data center and hardware provider (b) Infrastructure (software) providers (c) Virtualization (software) providers (d) Application providers and optionally (e) Network provider.

- Cloud carrier: This would be the provider of network infrastructure to connect various bank branches to the data center.
- Cloud auditor: This could be a reputed audit firm who can conduct an independent security, data privacy and performance audit of operational processes and deployment infrastructure. The scope of the audit could include banking aspects depending on the charter, which could be specified. It could also provide for inspection by the RBI.
- Cloud broker: These parties would provide value added services using aggregation or arbitration on the top of business services provided by cloud providers. This is yet to evolve.

## V SERVICE MODELS

### 5.1 Cloud Software as a Service (SaaS):

The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through a thin client interface such as a Web browser (e.g., Web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings. Basically consumers are organizations and application providers for end users.

### 5.2 Cloud Platform as a Service (PaaS):

The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or -acquired applications created using programming languages and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly application hosting environment configurations. Here consumers are application developers, application testers, application deployers, application administrators, and application end users (SaaS)

### 5.3 Cloud Infrastructure as a Service (IaaS):

The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, deployed applications; and possibly limited control of select networking components (e.g., host firewalls). The consumer here is system administrators.

## VI ADOPTION OF CLOUD BANKING IN INDIA

The Reserve Bank has taken many initiatives in this sector for consolidation as well as for strengthening the banks as a regulatory requirement. However, the cooperative credit structure has evolved as a means to meet the financing requirements of all level of people. They serve an important purpose of financial inclusion. The banker must to know that the ability of repayment of their customers. The UCB sector is also act in dual control as state governments have control over the governance structure through Registrar of Cooperative societies and RBI having say over the banking services provided by these banks. RBI and our government want to that our banks The technology solution to be proposed is expected to help these banks to improve efficiency of their transaction processing capabilities, housekeeping and customer service with the help of new innovation and IT technologies. So that IT industries are in position to give a best solution to bankers at the earlier and effective.

The adoption of cloud computing has been increasingly alternative technology in the Indian financial markets. At November 2014, Microsoft reported that ICICI Lombard migrated its test and development environment for 17 key applications to Microsoft Azure. And May 2016, Microsoft India claimed that 50 of the top 100 companies listed on Bombay Stock Exchange (BSE) have adopted the Microsoft cloud infrastructure, within the first six months of its launch in India! The list includes well-known names from BFSI industry such as HDFC Bank, ICICI Lombard, IDFC, and Kotak Mahindra Bank.

In the past, the regulatory concerns about storing the sensitive financial data on global data centres outside India has discouraged adoption of public cloud. According to a CII report titled "Boosting Market Dynamics with Digital Technologies" released during the CII national cloud summit in May, 2016, 57% of financial services organizations surveyed have indicated that they have implemented cloud based services in some shape or form.

However, only 14% of survey respondents have adopted the public cloud. Nevertheless, it is worth noting that over the last year global cloud providers like Microsoft and IBM have launched local cloud data centres in India. Amazon is in the process of establishing cloud data centre in India by 2016. Indian BFSI companies can now leverage local cloud services from global cloud leaders to architect highly resilient systems without having to compromise on security, risk and regulatory requirements.

Evolving regulatory landscape, increasing competition, changing customer expectations and rise of Fintech startups is disrupting the global capital markets. Today, Indian BFSI is more integrated with the global markets than ever before. Timely insights from market and customer data is critical to respond to changing global and local market conditions as well as evolving customer expectations. Challenges range from gathering and analysing large volume of data from multiple sources which not only come in variety of formats but is often time sensitive requiring prompt action.

Moreover, data infrastructure needs to continuously evolve as business leaders seek answers to new questions. To remain competitive, BFSI companies need to be agile while reducing capital expenditure as well as operations costs. Cloud computing can well be the secret sauce for the cash starved Indian BFSI to increase their footprint within the country and globally by helping them launch innovative, yet cost effective products and services for the digital economy which can scale with growing customer base.

With the help of cloud computing our banks can full fill large problems like 1.On-demand self-service. Which means cloud allows consumer to unilaterally provision IT infrastructure in the cloud in terms of computing resources, network capacity, storage requirements, etc., on demand basis. This means that cloud provider should be able to provide additional computing capacity without human intervention e.g. addition of new branches or addition of new customers or accounts.2.Broad network access referscloud resources are accessible over the network through plethora of devices through standard mechanisms. Heterogeneous

thin or thick client platforms (e.g., mobile phones, tablets, laptops, and workstations) can be used to access cloud. 3. Resource pooling / Multi-tenancy explains cloud provider provides infrastructure, including data centre, air conditioning, power supply, hardware, infrastructure software, storage, and network which can be shared between different consumers. There can be a logical separation between each consumer's computing resources and network using virtualization and VPNs or other techniques. 4. Rapid elasticity defines capabilities can be rapidly and elastically provisioned, in some cases automatically, to scale rapidly outward and inward commensurate with demand. In the context of bank customers, the capabilities available can be appropriated in any quantity at any time. 5. Measured Service notes on the nature of Cloud service makes it possible to measure the usage of services/resources like storage, processing, bandwidth and active user accounts. Resource usage should be monitored, controlled, and reported; providing transparency for both the provider and consumer of the utilized service. In the context of banks, the Cloud provider should have reporting mechanism while billing.

## VII BENEFIT FROM CLOUD COMPUTING TECHNOLOGIES TO BANKING SECTORS

Financial firms have many opportunities to use benefits of cloud technologies.

- They can migrate many applications to clouds as non sensitive operations like hiring, billing and travel management tasks can be conveniently shifted to the cloud.
- Infrastructure operations like data storage and data center management, disaster recovery systems etc may also be moved after you have evaluated the packages offered by multiple vendors.
- A handful of businesses are now using cloud technologies for core tasks. The primary concern that businesses have about the cloud is of course security.
- The truth is that customer data when stored in remote servers will continue to remain secure. They save their records more secure than storing data in-house.
- Cloud technologies will always encourage innovations, allowing you to establish a far more agile business.

## VIII CONCLUSION

So that banking sector is in pressure to streamlining their operations with efficient and effective for their customers make them friendly. Banking sectors adapt to market changes and new technology landscapes, providing alternative ways to access to core banking technology. Time to time IT industries provide a various innovations and inventions to the people make them easily survive in this world. The new technology of Cloud computing is singing a major role, given that substitute ways to admittance to the all level of customers make their transactions very simple, less cost, less complications. At soon in Indian banks are all should adopt Cloud computing service to all the peoples. Definitely it will give a vibrant break to our banking sectors and it leads to our economic growth.

## REFERENCES

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