

# BEST PRACTICES FOR SECURITY IN CLOUD ADOPTION BY INDIAN BANKS

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**Abstract :** Banking has traditionally been a conservative industry with regard to adoption of newer technologies due to the sensitivity of the banking business. Cloud computing is an obvious option for banks in order to have efficient and cost effective IT strategy. In the recent past we have seen some traction and adoption of cloud services in the banking and financial markets space in India; however, the degree varies based on the appetite for operational cost reduction and openness towards adoption of newer technologies. This Paper, in addition to discussing the legal environment prevailing in India, discusses security requirements at length and the security remediation measures and security controls. This Paper provides insights so that management of various banking institutions can embrace and adopt cloud computing and exercise appropriate governance and oversight for successful business benefits realization at acceptable risk.

*Index Terms-* Cloud computing in banks, Essential, Reason, Benefits.

## I. INTRODUCTION

Internet has been a driving forward to various technologies which is developed a lot. One of the best is that cloud adoption. For banking and financial in the past we have seen some traction and adoption of cloud services in India. The main advantages of adopting cloud in India banks is that reduce hardware and maintenance cost, accessibility around the globe, flexibility and the highly automated process so that the customer no need to worry about software up-gradation which tends to be daily matter. The cloud adoption in India bank can reduce the capital expenditure. Cloud computing has its own future and also it has its unique security and compliance challenges. It also presents the opportunity to transform security practices and improve defences. This paper gives you insights so that management of various banking companies can embrace and adopt cloud computing in Indian banks and get governance to get rid from risk.

## II ADOPTION OF CLOUD IN INDIAN BANKING INDUSTRY – A SUCCESSFUL STORIES

The main reason behind the adoption of cloud in Indian banking industries is that to optimizing their processes, cost reduction and also to building the capability to scale rapidly. Urban Co-operative Banks and Regional Rural Banks has been adopted cloud computing. Two major software solution providers has providing their Core Banking Solution to Urban Co-operative banks, Regional Rural Banks and also to the district Co-operative Banks with their own data centers. Some of the Urban Co-operatives Banks has also provided IT (information technology) support to other banks i.e to small Urban Co-operatives Banks while leveraging collaborative arrangements among themselves itself for merging and sharing common IT infrastructures it include data centers and ATM (Automated Teller Machine) networks. Cloud services are geography-neutral due to the availability of very good and efficient telecommunication networks in India. In India to improve the efficiencies of data centers financial institution like Reliance general Insurance, Kotak Mahindra Life Insurance and IndiaFirst life insurance have adopted virtualization solutions. To reuse of old storage boxes the Dhanlakshmi Bank has adopted to a virtualized solution and moved all of its non-core banking application to a virtualized solution.

India is home for a large numbers of rural co-operatives and urban co-operatives Bank. These has challenges of facing many aspects and are trying to transform them into business environment which is complex. To improve operational efficiency and also to compete more effectively Indian Banks like Co-operative Bank of Rajkot which is located in Gujarat, ShivajiraoBhosaleSahakari Bank which is in Maharashtra, Goa state co-operative Bank and Tumkurveerashaiva Co-operative Bank which is in Karnataka. As per the company's media release, this solution will enable these bank to set up a cost effective and data center efficient to offer new services to Banks it include ATM, mobile banking to customer.

Indian Banks has adopted cloud banking concept and it provides the Bank flexibility in faster provisioning at a low cost.

### Challenges in implementing cloud computing

1. Data residency requirements
2. Cloud compatibility & availability of services
3. Network latency
4. Data privacy
5. Storage issues
6. Service level agreement efficiency
7. Change management issues
8. Forensic investigations
9. Governance

This are the main challenges in implementing cloud computing. Success cannot be achieved without facing challenges.

### III POTENTIAL AREAS FOR CLOUD ADOPTION

In this section we can find the potential areas or opportunities where cloud services can possibly be leveraged.

#### 3.1 IT Infrastructure:

Today Indian Banks are searching new ways to support bank's operation with optimal investments. The main power of cloud is that virtualization and consolidation. Majority of banks has already invested huge amount in IT infrastructure the tendency is more towards implementing private cloud. The cloud provide a scalable, robust and also highly available IT infrastructure to support the growth of bank operations and expansion plans at a fraction of cost without the bank having to make huge amount of capital investment.

#### 3.2 Core banking:

The changes in banking and requirements of regulatory has been driven Indian banking today to implement a Core Banking Solution. Core banking is one the toughest workload in cloud to migrate onto the cloud. However, within core banking there can be specific workloads which can be migrated which are mostly around the customer servicing area, it including the following:

Fig. 1. Cash management

Fig. 2. Know your customer (KYC) validation

Fig. 3. Credit rating business process

Fig. 4. Anti-money laundering check

Fig. 5. Regulatory & compliance reporting which is generated with core banking

#### 3.3 Customer relationship management (CRM)

Customer relationship management is already a common candidate for the adoption of cloud in Indian banks and major banks already have CRMs deployed on the cloud. The main functions of the CRM are listed below:

[1] Customer management and on-boarding

[2] Analytics of customer

[3] Agent correspondent management

[4] Customer servicing

#### 3.4 Mobile banking

Mobile banking is ideally suited to running in the cloud because it is often infeasible to connect mobile clients easily and directly into the bank internal system. Banks also introduced features like checking balance of your account, ordering new check books and stopping payment orders.

#### 3.5 Corporate functions

Corporate function of a bank includes Human Resources (HR), Procurement, learning management system (LSM), and email services.

### IV MAJOR BENEFITS OF CLOUD COMPUTING

**4.1 Capital expenses:** The fundamental difference between CC and IT is that in the cloud model the bank use to pay only for resources consumed instead of investing huge on data centers and its servers.

**4.2 Scalability:** Combining software with CSP products featuring modern programming methods lets bank design their system to rapidly scale resources up or down based on the demand.

**4.3 Increase speed and agility:** IT reduce the time and dramatic increase in agility for the bank since the cost and the time it takes to experiment and develop is significantly lower.

**4.4 Focus on core competencies:** The ultimate benefits of the cloud adoption in Indian bank is that bank can spend less time on undifferentiated tasks and more time focusing on the main core competencies which will add value to their organisations.

#### 4.5 Securing banking application on the cloud

Laws and regulations currently in place in India restrict Indian banks and other Indian financial organisation from placing certain kinds of applications and customer data in shared computing services it include cloud computing. The RBI working group report on information security, Electronic banking, Technology Risk Management and Cyber frauds, which looked at information security issues in electronic banking for financial services organization in India.

#### 4.6 Security considerations for IaaS and SaaS

In SaaS- based cloud services customer faces the challenges that is the customers typically have less ability to deploy security controls directly into the cloud computing environment which means to satisfy their security requirements, customer planning to use SaaS services need to request security capability which is necessary as a part an request for proposal.

In IaaS cloud services the customer organization will have a greater degree of responsibility for deploying security controls. Possible security controls that may be deployed into the IaaS and SaaS cloud computing infrastructure are shown along with a description of their relevance in of the environment in Appendix B: security controls for IaaS and SaaS cloud services.

This are some of the best practices for security in cloud adoption by Indian Banks.