

CLOUD ADOPTION BY INDIAN BANKS

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Abstract :Banking system is an energetic sector of economy. The nature of banking sector shifted from Big Bang to Bank and financial market. The traditional banking services are delivered to the customers through the most traditional bank channel, i.e. branch office by the bank staff. Due to the instantaneous living of customer, new IT created E-Banking which helps to free from strategies used by the bank to attract customers despite regulatory pressures, the current volatility in the market forces banks and other Financial Institutions (FIs) to look at means to reduce operational costs. For this moment, Cloud computing is an obvious option for banks in order to have efficient and cost-effective IT strategy. This study is an attempt to focus on usage, challenges and some important aspects of cloud banking adoption by Indian banking.

Index Terms-cloud computing, Indian bank, Information Technology (IT)

I. INTRODUCTION

In this modern year have shown us that cloud is an important emerging tool for almost every aspect of our personal and business lives. Every day more and more people use cloud-based e-mail services, document storage, calendars and notes, maybe not even knowing that their data is saved in the cloud. Businesses have started to appreciate cloud solutions upon realizing lower costs of building and especially maintaining applications used throughout their everyday tasks. But banks have always been reserved to this type of computing. Hence, there are multiple cloud variations and implementations, can the banking sector migrate some or all of their IT to the cloud. Here, the researcher gives brief overview about cloud computing for banking sector.

1.1 CLOUD COMPUTING

Cloud computing [CC] is an on demand delivery of compute, storage, application and other IT infrastructure with metered payment based on usage. Cloud is a type of computing which allows multiple computers to connect to a server and run applications and services using server's resources. It provides access to the larger ecosystem of consulting and technology partners and business solution that promote its performance. It also helps to reinvent and optimize relationship with technology for quickening go to market, automating and strengthening security, increasing stakeholder value and customer experience while reducing cost.

1.2 LEVEL OF CLOUD

LEVEL	DESCRIPTION
BPaaS (Business Process-as-a-Service)	It offers support for some traditional business processes like billing, payroll calculation or Human Resource Management (HRM).
SaaS (Software-as-a-Service)	It offers e-mail, communication and gaming services and is often free-to-use or charged on a pay-per-use basis.
PaaS (Platform-as-a-Service)	It includes an operating system of some sort and a number of other services (mostly for developers), like database, web server or programming language environment. user cannot change the structure but control this application.
IaaS (Infrastructure-as-a-service)	It offers physical or virtual machines, storage capacity and networks to its user and leaves the user to put his own software on the provided machines. The user has a full control over only the operating systems, data storage and other resources.

1.3 BENEFITS OF CLOUD COMPUTING

- Banks pay only for the resources consumed it helps to reduce the capital/variable expenses of bank.
- Cloud Service Providers (CSPs) assist to reducing datacenter hardware costs, improving operational efficiency, lowering power consumption to passing the savings back to consumers.
- It allows customers to access industry-shaping technology quickly at an affordable cost.
- The banks can spend less time on undifferentiated task.
- It helps to enabling a bank's development teams to quickly and easily create virtual environments.
- It enforces active security and endpoint management to ensure corporate governance and banking IT policies are maintained
- Using cloud, banks can hide some of the intricacies of their operations from end users, which can help attract a broader range of consumers.

1.4 ESSENTIAL CHARACTERISTICS OF CLOUD COMPUTING

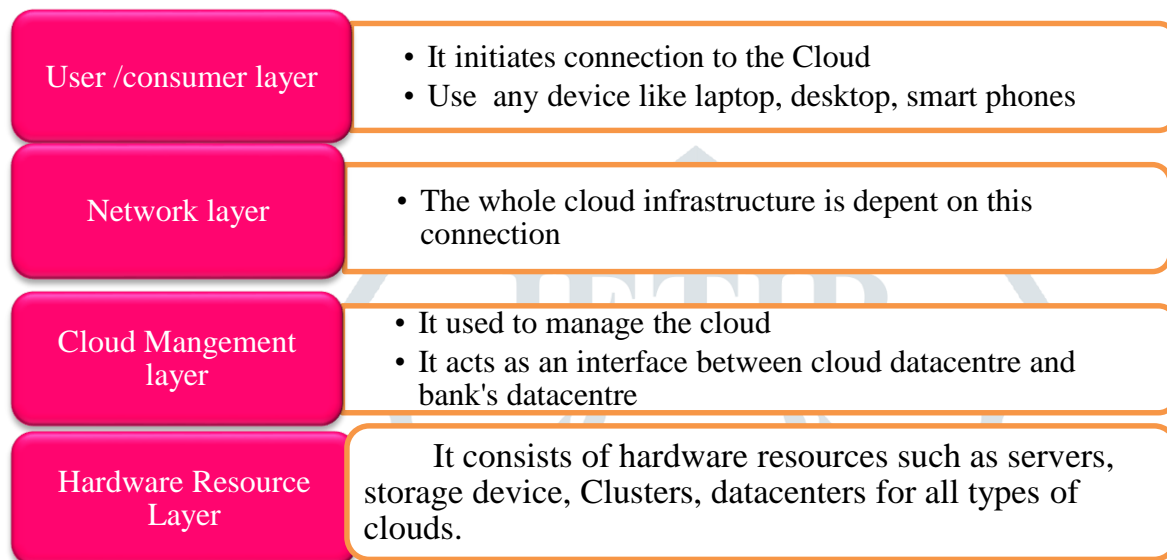
- ❖ On-demand self – service
- ❖ Resource pooling

- ❖ Broad network access
- ❖ Rapid elasticity
- ❖ Measured service

II TYPES OF CLOUD

Types	Description
Public Cloud	It is owned, maintained and operated by Cloud Service Provider (CSP)
Private Cloud	It may be owned, managed, and operated by an organization or third party
Community Cloud	It is a shared cloud which supports a specific community. It managed by banks or third party.
Hybrid Cloud	It consists of a combination of both private and public cloud features.

2.1 ARCHITECTURE OF CLOUD COMPUTING



2.2 ACTORS AND THEIR ROLE IN CLOUD COMPUTING ARCHITECTURE

Actor	Role
Cloud Consumer	A person or bank who uses services from CSPs
Cloud Service Provider	A person, organization or entity who offering services to consumer/bank
Cloud Auditor	A neutral third party who conducts independent assessment of CSPs
Cloud Broker	An entity who sells smaller units of cloud services to end user
Cloud Carrier	An intermediatorythat provides connectivity and transportation of cloud services from CSPs to Cloud Consumers.

2.3 ADOPTION OF CLOUD IN THE BANKING INDUSTRY – INDIA SUCCESS STORIES

India is home to a large number of urban and rural co-operative banks. These banks are facing challenges in many aspects and are trying to transform themselves in a complex business environment. Stiff competition is also putting banks under pressure to become more efficient and agile. Four co-operative banks in India – The Co-operative Bank of Rajkot (Gujarat), ShivajiraoBhosaleSahakari Bank (Maharashtra), Goa State Co-operative Bank, and TumkurVeerashaiva Co-operative Bank (Karnataka) – have adopted hosted solutions to improve their operational efficiency and compete more effectively.

Pondicherry Co-operative Urban Bank uses a cloud computing solution to offer more customer-centric services and to establish a robust banking operation. It offers state-of-the art financial solutions to its customers including Internet banking, online money transfer, ATM, and mobile banking.

YES Bank has adopted cloud computing to enable payments, online account opening, and remittance services at a low cost.

Nawanagar Co-operative Bank has engaged with a cloud service provider to deploy CBS on a hosted cloud services model.

ShamRaoVithal Bank partnered with a cloud service provider to offer cloud-based solutions to other co-operative banks in its region.

Dhanlakshmi Bank has opted to move all of its non-core banking applications to a virtualized solution allowing reuse of old storage boxes.

III CHALLENGES OF THE BANKING CLOUD

Security and compliance: Banks need to demand stringent safety measures from suppliers and ensure new applications meet the latest and most rigorous security standards. Service Level Agreements (SLAs) are a must.

Reliability: Banks need to have stringent SLAs in place, complete with guarantees, end-game scenarios and remedies if a provider fails to meet service levels.

Cloud management: Large banks will source cloud services from several providers and to use them for both internal – or private – and external, or public, services. This could result in a bank having to handle multiple security systems, and then need to ensure all parts of their business can communicate with each other and where necessary with clients. Increased use of various technology infrastructures and a mix of different cloud environments internally and externally mean banks will need to develop fully-fledged cloud management platforms. They will be a necessity to ensure banks can fully realize the cost savings and flexibility benefits of cloud computing.

Interoperability: banks will need to ensure data and applications can be moved across cloud environments from a number of providers. They should look to develop a single interface and management layer that can work across different platforms internally and externally.

Regulation: the rules governing the cloud vary from country to country. Many countries' data protection laws impose constraints on where data is kept, limiting take-up. This is why the EC's move to regulate the cloud is welcome. Bank should consider that the CSP is accredited with valid certifications like ISO 27001, ISO 27017, ISO 27018, SOC1, SOC 2, SOC 3 etc. it also consider PCI-DSS and PA-DSS certification for workloads handling card information and other PII, etc.

IV CONCLUSION

Trust and security have prevented businesses from fully accepting cloud platforms. To protect clouds, providers must first secure virtualized datacenter resources, uphold user privacy, and preserve data integrity. Financial services organizations are starting to use cloud computing technologies in a number of areas, in particular for mobile applications, innovation testing and micro-banking.

Cloud has not yet been widely accepted as a new IT infrastructure model in banking sector but the situation is slowly changing. Banks will invest much in the cloud in coming years. Some miracle or mitigation happened in cloud system like ensure security and give stringent regulation etc., the banks are fully accepted and come forward to adopting the cloud computing if the bank starts working on a cloud architecture/ computing, which will define its winning strategy.

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