

RISK MANAGEMENT IN CLOUD BANKING

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Abstract : Cloud computing is the modern means of collecting, storing and recovering the data. It is the advanced level of retrieving information relating to the specific concern. Because of the efficient service of cloud, users benefits by time and effort. It also has vast number of disadvantages. Although cloud computing possess an advanced software of accessing data, it has to overcome certain issues and risk like privacy, technical issue, sharing information, data location, outsourcing risk, migrating complexity, downtime, long term viability, speed and latency, mitigation etc. Banks distinguished manner of selecting software plays an essential role in cloud banking. When banks switch over to cloud, they must be ready to tackle the critical hurdles in the process in an effective manner with the steps involved to overcome risk which is mentioned in this article. Aim of our study is to make a clear view on cloud banking and to provide simple ways to conquer the risk entailed in the cloud banking sector.

IndexTerms- Cloud banking, Electronic Software, Cloud backup, Service Providers

I. INTRODUCTION

The word 'Cloud' indicates internet. The word cloud has been used as a metaphor for the word internet. Cloud computing is used to store data on an external server, accessed via through Internet. Cloud computing is a software model and a computing infrastructure which enables to access the computer networks, servers, storage, applications and services from wherever they are with least management effort via internet instead of your computer hardware. It is usually on pay-for-use-basis. The companies which provide cloud computing service are known as cloud provider and users are being paid based on their usage. Cloud computing makes the user to concentrate on their core business rather than spending more money and effort on infrastructure and maintenance of IT.

According to Wikipedia "Cloud computing is a computing term or metaphor that evolved in the late 2000's, based on utility and consumption of computing resources. Cloud computing involves deploying groups of remote servers and software networks that allow centralized data storage and online access to computer services or resources".

II CLOUD DEPLOYMENT MODELS:

There are four types of clouds. They are,

- Public cloud
- Private cloud
- Community cloud
- Hybrid cloud

2.1 Public Cloud:

In the model, cloud services are provided through the network which is accessible by the public, cloud provider offers infrastructure and services to maximum number of users.

2.2 Private Cloud:

It is an internal cloud. These services are built according to the principles of cloud computing. Only by a private network, it can be accessed.

2.3 Community Cloud:

In this cloud service model, only limited and specific parties can access the service. Only those specific parties can utilize this community cloud.

2.4 Hybrid Cloud:

It is an integrated cloud. An interconnected server is used here (i.e.), two or more servers.

III TYPES OF CLOUD SERVICE:

Cloud services can be classified into three types such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). (Tanmoy Ray 2018).

3.1 Software as a Service (SaaS)

SaaS is used to receive and send e-mail without using servers and operating systems. Enterprise resource planning (ERP), Human Resource Management (HRM), Customer Relationship Management (CRM), Service Desk Management (SRM) and Content Management Software (CMS) can be implemented by this model.

3.2 Platform as a Service (PaaS)

Through this service, application can be created, developed and supported by the providers. Customers use the providers application which is accessible over the internet.

3.3 Infrastructure as a Service (IaaS)

IaaS offers IT infrastructure software and virtual machines (VMs), networks, storage, operating systems through IP-based connectivity program for rental purpose to the customers.

Among the three layers of cloud service, PaaS is considered the most complex. PaaS shares some similarities with SaaS. The significant difference between PaaS and SaaS is to provide more space for the creation of software to the user through Internet than to provide mere application of software by them.

IV TRADITIONAL BANKING:

Traditional banking is a type of commercial bank in which a customer can open any type of bank account and save their money by depositing it in the bank. They can withdraw their money through Demand Draft, counter payment and by cheque. This bank can borrow money and also can issue loans to their customers. Traditional banks are chartered at National, State or Local levels.

Data Storage Of Banking Sectors In Earlier Stages:

There are two types of storing data in banking sector in earlier stages. They are

- Manual record keeping
- Electronic record keeping

i) Manual record keeping:

It is less expensive and one can maintain original document throughout the significant year. But when there is a need to go through the record, it takes more time and goes on beyond certain days. And also the backups can't be done in manual record keeping. So, there arises electronic record keeping.

ii) Electronic record keeping:

This system acts as an updated one as compared to manual record keeping. Information can be collected then and there. Records can be backed up usually and it can be protected from theft and fire. It is an efficient way to maintain records and also requires only less storage space.

V RETRIEVAL OF DATA:

The retrieval of data can be done in two ways. They are

- Electronic backup
- Cloud backup

(i) Electronic backup:

- ❖ The contents of accounting software programs which are recorded in electronic record keeping are backed up regularly. This ensures a safety measure.
- ❖ If it is a small banking sector the back ups are made in memory sticks, DVDs, Blu-ray discs and CD-ROM's.
- ❖ If it is a large banking sector the back ups are usually made in external hard drives like SCSI, USB, and FIRE WIRE etc.

(ii) Cloud backup:

- ❖ The cloud backup is an advanced level of storing, backing up data and records online. The cloud data backup can support the banking sectors in protection of their data.
- ❖ The server is accessed by a Managed Service Provider (MSP) who charges certain fee based on the capacity of storage from its customers.

VI CLOUD BANKING

Nowadays, banks provide plenty of services to their customer. So, it's the responsibility of the bank to protect the data of the customers. Adoption of cloud in banking sector plays a vital role in recent years. Cloud banking ensures the movement of applications towards cloud computing software. Cloud banking lifts up both opportunities and challenges for banks, but they will be inevitable to move to cloud in order to maintain cost efficiency in storing data and technological efficiency. Banks can opt private Cloud, as it provides more control and high flexibility. By using private clouds, banks can have easy and quick transaction volumes. Enterprise Resources Planning (ERP) and Customer Relationship (CRM) software helps banks to work effectively. In India, Reserve Bank of India (RBI), State Bank of India (SBI) and Industrial Credit and Investment Corporation of India (ICICI) are using cloud banking. Cloud banking simplifies the accessibility of business standard. Banks acquires a massive storage capability through cloud computing. The following are the significance of cloud banking:

II. It reduces the cost for storing data.

III. Since the process of cloud banking is accessed with internet, there is no need to worry about the physical storage and backup.

IV. It has the feature of automatic updating and applications.

V. It protects banks from any unauthorized access.

VI. In case of any defects in cloud, the old data cannot be lost. In spite, it continues to work.

6.1 SCOPE OF CLOUD BANKING:

Cloud banking helps to maintain a better relation directly with its users at anywhere and at anytime. It decreases the time and effort of the users because all the services of the bank are made easy and deploys due to cloud computing. It focuses on centric model and trading wealth of customers. It focuses not only on storing data but also helps in recovering huge data of the company, data transfer and updating technologies. Through cost effective cloud solution, the turnover of banks increases.

The Right Scale of the Cloud Survey is the largest survey of corporate cloud users, including 1,002 technology professionals at large and small enterprises across a broad cross section of industries. Michael Crandell (2017), CEO of Right scale, has said that multi-cloud and hybrid cloud adoption continues to grow, and even with that growth, challenges are decreasing.

6.2 SECURITY RISKS:

Some of the risks that banks face while computing cloud are as follows:

i) Access control:

User identity is the main index in access control. This is called as Identification Based Access Control (IBAC). The IBAC was found to be feeble due to tremendous growth of network and large no of users. Finally, Attribute Based Access Control (ABAC) supports as a superset among other policies.

ii) Data encryption:

Basically, cloud is a data sharing network. So, the fear of data loss while sharing such information arises automatically. It is not sure that encryption is available at all stages.

iii) Regulatory compliance:

The main problem of regulatory and compliance is that the different data will mix together. So the banks must have a clear view on where the data is available.

iv) In the hands of hackers:

Size and significance of cloud pave way for the hackers in hacking the system software. Make sure that the provider has an access control towards the production of data.

v) Notification and alerts:

Alertness of provider is essential to secure the data and to reduce the data loss to a smaller extent. Where a threat is found by the operator it should be intimated immediately and necessary measures should be taken into account.

vi) Recovery:

The cloud user must be sure that the cloud provider will restore the data completely in a secured way. If the provider secures such data, the user should be guaranteed about the recovery of data.

vii) Investigative support :

It is difficult to investigate the cloud service management because of the logging process and data maintenance for enormous customers which is co-located and spreads across a large area of network.

viii) Malicious insider:

The leakage of data and loss of information caused by malicious who are working inside the cloud service provider is often far great.

ix) Customers security expectation:

The expectation of security levels of customers might get differ from the actual security and availability provided by the cloud provider.

x) Leakage of data:

As the data is not in the hands of customer computer and used for multi-tenant environment, it will lead to the leakage of data problem.

6.3 CHALLENGES OF CLOUD BANKING:

Cloud computing faces certain challenges which are as follows:

❖ Threats of the cloud:

Some of the threats of cloud are reliability, availability of services and data, security, complexity, cost, regulation and legal issues, performance, migration, reversion, the lack of standards, limited customization and issue of privacy.

1. Privacy:

Privacy is not a highly prudential thing in cloud banking. So users fears to store their data in cloud. Due to this risk lots of banks are not ready to transfer their data to the cloud.

2. Technical issues:

At some point of time, the server process may be slow so that resources can't be retained at that time. The data required at time may causes delay due to the technical issue.

3. Sharing information:

Without a proper warrant a cloud provider should not issue the information of the customer to the third parties but in the case of any legal authentication by legal authorities he is in a compulsion to issue the details to them also without any warrant.

4. Data location:

Banks of certain countries have strict regulation that they should not have a cloud provider in other countries. This is happening only in certain countries.

5. Outsourcing risk:

This is one of the main risks faced by a cloud using banks. If the banks once enter into cloud they must provide their operational, procedural, security and privacy systems to the cloud service provider. This process makes the banks to feel highly insecure to enter into cloud service.

6. Migrating complexity:

This is one of the main challenges in usage of cloud. Banks expect that the migration of data from one source to another source can lead to loss of information

7. Downtime:

If there is no actual remote server or the server goes down, there arises problem of accessing data.

8. Long term viability:

The cloud provider has no surety that he may last over time. There arises a question what happens to the data if cloud provider does not last long.

9. Speed and latency:

The speed of accessing data depends upon the sources we use. i.e., the good internet connection

10. Mitigation:

This challenge includes Strong Service Level Agreements (SLAs), Transparency and governance. Transparency refers to reporting and monitoring. Governance refers to certification and audit/assurance to verify.

6.4 STEPS TO OVERCOME RISK MANAGEMENT:

With the services available in the cloud like IaaS, PaaS, SaaS certain risk can be solved.

➤ Have a clear view on the needs:

Here we point out the main issue.

➤ Identify the risk:

Identify which process involves risk and make a checklist to analyze the network problem.

➤ Go through the risk in whole:

Make a clear and deep analysis of the problem.

➤ Define the risk strategy:

Factors of software risk should be identified and categorized to pick out the strategy.

➤ Apply required solutions:

As per the coined strategies, suitable methods of resolutions can be applied.

➤ Resolve:

By applying methods or formulas relating the issues, we can resolve the problems of cloud.

➤ Overall verification:

This process can be done only after resolving the main issue. Through verification we can have a final statement on issues and its solutions.

➤ Monitoring:

Have a proper control over the issue. Documenting changes to the system, environment operations and control effectiveness should be made by the cloud user.

➤ Review source:

With the source computed, have a proper review on the report. This ensures a cloud user to be comfort at the zone of completing risk.

➤ Get the result:

With these steps, the required results can be computed.

VII CONCLUSION:

The study "Risk Management in Cloud Banking" has highlighted the risks in cloud banking named as technical issues, privacy, access control, sharing information etc. The study also focused the steps to be taken to overcome the risks and strategies to be followed. Accordingly, banks take time to migrate from traditional banking to cloud banking. In this digital era, the process of transformation of banks into cloud banking as a whole is not so far.

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