CLOUD COMPUTING IN BANKING

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Abstract: This paper deals with theoretical overview of cloud computing in banking. Cloud computing is a new technology in the business. Many banks are adopting this technology for the growth. I have discussed origin and evolution of cloud computing, various models for cloud computing, benefits and drawbacks of cloud banking.

Index Terms- Cloud Computing, Bank, Cloud Model, Traditional Banking.

I. INTRODUCTION

In last decade, Banks have observed transformation of banking experience end customers led by Information Technology (IT) enabled solution and services such as core banking, internet banking, mobile banking, Virtual banking and Digital money etc. Both banks and their customers are benefited by the evolution of IT in banking sector.

A big slice of bank's annual budget is now being allocated to their IT department. To meet the demand of regulatory and customer satisfaction banks need to spend more on procuring and maintaining IT solutions, IT hardware, system hardware and networking. Banks with lesser financial back ground find difficulties to meet the desire level of IT implementation due to higher capital expenditure.

Cloud computing can help banks to lower the capital investments in IT infrastructure. Cloud computing converts big capital expenses into smaller operational expenses. Cloud computing has fastest growing technology during the last few years and it is expected to keep developing more and more.

Cloud services will be profitable in business application like Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM).Banks is an important segment of business area. Hence cloud computing is targeting in the next few years. Cloud technology enables banks to quickly scale processing capacity up or down in order to react to changes in customer demand.

1.1 ORIGIN OF CLOUD COMPUTING:

The term "cloud" was actually derived from telephony. The telecommunication companies offered Virtual Private Network with good quality at affordable prices. The symbol of the cloud represented the demarcation point which was the sole responsibility of the provider. Cloud computing manages the servers and network infrastructure management.

The evolution of cloud computing:

1.1.1. The Idea Phase- This phase incepted in the early 1960s with the emergence of utility and grid computing and lasted till pre internet bubble era.

1.1.2. The Pre-cloud Phase- The pre-cloud phase originated in the 1999 and extended to 2006. In this phase internet as the mechanism to provide Application as Service.

1.1.3. The Cloud Phase- The much talked about real cloud phase started in the year 2007 when The classification of IaaS, PaaS and SaaS got formalized. The history of cloud computing has witnessed some very interesting breakthroughs launched by some of the leading computer/web organizations of the world.

Amazon.com played a key role in the development of cloud computing web upgrading their data centers after the dot-com bubble and providing access to their systems by the way of Amazon web services in 2002 on a utility computing basis.

2007 observed increased activity, including Google , IBM and a number of universities starting large scale cloud computing research project around the time the term started gaining popularity in the mainstream press. It was a hot topic by mid 2008 and numerous cloud computing events had been scheduled.

In August 2008 Gartner observed that "Organizations are switching from – owned hardware and software assets to per – use service based models" and the "Project shift to cloud computing.

1.2 MEANING OF CLOUD COMPUTING:

In simple, data stored on an external server, accessed via internet.

1.3 DEFINITION OF CLOUD COMPUTING:

No universally accepted definition exists for cloud computing. But this is how Wikipedia defines it: "Cloud computing is internet based computing, whereby shared resources, software and information are provided to computers and other devices on demand, like the electricity grid".

II VARIOUS MODELS FOR CLOUD COMPUTING:

Cloud computing is a new economic computing model. It has three models for cloud computing services, operations and deployment.

2.1 Cloud Services Model:

From the service point of view, cloud computing includes 3 archetypal models.

(A). Software- as – a – Service (SaaS)

A cloud service provider houses the business software and related data, and users access the software and data via their web browser. Types of software that can be delivered this way include: Accounting, Customer Relationship Management, Enterprise Resource Planning, Invoicing, Human Resource Management, Content Management and Service Desk Management. Of In the past, each customer would purchase and load their own copy of the application to each of their own services, but with the SaaS the customer can access the application without installing the software locally. SaaS typically involves a month or annual fee.

Example : Google app, Amazon web service , Zendesk , Webmail , Messaging , Accounting, Dropbox, Salesforce, Cisco web Ex , concur, GoToMeeting.

(b). Platform – as –a – Service (PaaS)

The development tools (example: Operation System) are hosted in the cloud and accessed through a browser. With PaaS, developers can build web applications without installing any tools on their computer and then deploy those applications without any specialized administrative skills. A cloud service provider offers a complete platform for application, interface and database development, storage and testing. This allows business to streamline the development, maintenance and support of customer applications, lowering IT costs and minimizing the need for hardware, software and hosting environments.

Example: Google App Engine, Apache Stratos, Openshift, Heroku , Force.com , Widows Azure etc.

(c) .Infrastructure – as – a – Service (IaaS)

The cloud user outsources the equipment used to support operations, including storage, hardware, and services and networking components. The providers own the equipment and are responsible for housing, running and maintaining it. The user typically pay on a per- use basis.

Example: digital Ocean, Linode, Rack space, Amazon Web Service (AWS), Cisco Metapod, Microsoft Azure, Google Compute Engine (GCE).

2.2 Cloud Deployment Models:

There are three ways service providers most commonly deploy clouds:

(a) Private Clouds:

The cloud infrastructure is operated solely for a specific company. It may be managed by the company or a third party and many exist on or off the premises. This is the most secure of all cloud options.

(b) Public clouds:

The cloud infrastructure is made available to the general public or a large industry group and is owned by an organization that sells cloud services.

(c) Hybrid Clouds:

The cloud infrastructure is composed of two or more clouds (private or public) that remain unique entities but are linked in order to provide services.

2.3. Cloud Operating Models:

(a) Staff Augmentation:

Financial firms can gain cloud expertise by hiring people with the right skill sets from service vendors. The additional staff can be housed in the firm's existing offshore captive center. This operating model allows for flexibility and lets firms choose the best resource for each specific requirement.

(b) Virtual Captives:

Virtual captives have a dedicated pool of resources or centers to help with cloud operations and meet demand .This operating model is a good alternative to complete outsourcing approach.

(c) Outsourcing Vendors

This approach uses offshore centers facilities and people from a third party vendor to handle cloud operations. The model combines resources and investments to cater to cloud services for multiple banks.

III BENEFITS OF CLOUD COMPUTING FOR BANKS:

Cloud computing offers several advantages to the financial institutions. These benefits include:

3.1 Cost Saving:

The large up – front capital expenditure can be turned into ongoing, smaller operational cost without any bulk investment in new software and hardware.

3.2 Business Continuity:

In cloud computing, the service provider manages technology, and banking firms can haven 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.

3.3 Usage –Based Billing:

Institution can pick and choose the services based on pay – as – you – gobasis.

3.4 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 reducing, loading to more efficient and faster response to the customers.

3.5 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.

3.6 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.

3.7 Scalability:

Cloud computing helps banks for meeting the customer demands immediately and scalability of computer resources which will save the time of IT specialist and business user from the engineering the system for peak load. Banks can handle the issues associated with security and privacy of data by building a hybrid cloud where important data keeps on private cloud and computing power resides in public cloud.

3.8 Mobility:

While moving, most of the business users want to examine the risks, performance, analytics reports and summary on their smart phones, tablets and emails on systems through internet connections. With the help of cloud computing, banks can help users to access their accounts from any locations, any time. Few banks have taken initiative into this area by developing android based interfaces for phone, iPod for their account management and reporting applications.

3.9 Desktops and Devices:

Banks can be benefited by deploying private cloud in the system. Banks employee can access the data and applications according to their requirement with the centralized management of desktops for greater remote flexibility.

3.10 Development and Testing:

Cloud can help testing and development team of banks to create easy and quick virtual environment, increases the agility if testing and development.

3.11 Infrastructure computes:

Cloud computing is a technology that allows its users to increase and expand the capacity to be allocated. So it gives banks agility and flexibility to improve the traditional network model while resolving the cost and complexity issues.

3.12 Managed backups:

Because of the automatic backup features of cloud, banks can take a relief from backup of critical data cloud ensures the continuity of the system even in the event of disaster.

IV DRAWBACKS OF CLOUD BANKING

4.1 Downtime

As cloud service providers take care of a number of clients each day, they can become overwhelmed and may even come up against technical outages. This can lead to your business processes being temporarily suspended. Additionally, if your internet connection is offline, you will not be able to access any of your applications, server or data from the cloud.

4.2 Security

Although cloud service providers implement the best security standards and industry certifications, storing data and important files on external service providers always opens up risks. Using cloud-powered technologies means you need to provide your service provider with access to important business data. Meanwhile, being a public service opens up cloud service providers to security challenges on a routine basis. The ease in procuring and accessing cloud services can also give nefarious users the ability to scan, identify and exploit loopholes and vulnerabilities within a system. For instance, in a multi-tenant cloud architecture where multiple users are hosted on the same server, a hacker might try to break into the data of other users hosted and stored on the same server. However, such exploits and loopholes are not likely to surface, and the likelihood of a compromise is not great.

4.3 Vendor Lock-In

Although cloud service providers promise that the cloud will be flexible to use and integrate, switching cloud services is something that hasn't yet completely evolved. Organizations may find it difficult to migrate their services from one vendor to another. Hosting and integrating current cloud applications on another platform may throw up interoperability and support issues. For instance, applications developed on Microsoft Development Framework (.Net) might not work properly on the Linux platform.

4.4 Limited Control

Since the cloud infrastructure is entirely owned, managed and monitored by the service provider, it transfers minimal control over to the customer. The customer can only control and manage the applications, data and services operated on top of that, not the backend infrastructure itself. Key administrative tasks such as server shell access, updating and firmware management may not be passed to the customer or end user.

It is easy to see how the advantages of cloud computing easily outweigh the drawbacks. Decreased costs, reduced downtime, and less management effort are benefits that speak for themselves.

According to a paper published by IEEE internet computing in 2008, " Cloud computing is a paradigm in which information is permanently stored in servers on the internet and cached temporarily on clients that include computers , laptops, handhelds, sensors etc.

V CONCLUSION:

Various banks are adopting this progressing evolutionary approach of cloud for the cost efficiency and operational flexibility. In this paper we had discussed the benefits of cloud that is not included the cost factor but also increasing the customer relationships and revenue. We also focused on the application that is best suited for banking sector to achieve their goals.

REFERENCE

[1] https://www.seasiainfotech.com/blog/history-and-evolution-cloud-computing/
[2] https://ww.seasiainfotech.com/blog/history-and-evolution-cloud-computing/

[3] www.idexcel.com/blog/cloud-computing-in-banking-environment
[4] https://cloudacademy.com
[5] https://www.levelcloud.net/why-levelcloud/cloud-education-center/advantages-and-disadvantages-of-cloud-computing/