

# Cloud Computing use in E-banking

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**Abstract**— In this paper, we examine how cloud computing is rapidly grows in government across the globe, from Europe to Asia to America. The concept of Cloud computing has spread rapidly through the e-banking. Cloud computing helping nations make great gains through addressing major healthcare, education, and other societal issues. Cloud computing is expected to be one of the fastest-growing technologies in the coming years. Business applications will be the largest market for cloud services pending, with a gradual transition from on-premise to cloud-based services especially for general business applications like customer relationship management (CRM) and enterprise resource planning (ERP). Banks are expected to enter the cloud computing arena cautiously, with no single cloud services delivery model being a silver bullet for best meeting their demanding business needs. Cloud computing can offer financial institutions a number of advantages.

**Index Terms**— Cloud Computing, E-banking, Classification, Security, Characteristics.

## 1 INTRODUCTION

Cloud computing has recently emerged as a major new trend in business technology based on its potential to significantly reduce information technology (IT) costs and vastly increase employee productivity for businesses both large and small and it is an emerging commercial infrastructure paradigm that promises to eliminate the need for maintaining expensive computing hardware. Attracted by the potential for such gains, many Asian businesses, financial institutions, and governments are currently exploring how cloud technology can be implemented to improve their daily operations. Thus, clouds promise to enable for their owners the benefits of an economy of scale and, at the same time, reduce the operating costs for many applications. Cloud Computing (CC) gets its name as a metaphor for the internet. Actually, in the network internet diagrams, the internet is represented using a cloud between the connecting networks. Cloud computing, which in the most basic of terms offers unlimited computing resource as a service on a pay-per-use basis, is proven to directly translate to less upfront capital expense and reduced IT overheads, offering a cost-effective, simple alternative to accessing enterprise-level IT without the associated costs. Recognizing the value of cloud computing, many institutions have made significant investments in its core banking platform Banks are expected to enter the cloud computing arena cautiously, with no single cloud services delivery model being a silver bullet for best meeting their demanding business needs. Cloud computing can offer financial institutions a number of advantages, including :

## 2. What is cloud computing?

A & B. Cost Savings and Usage-based Billing With cloud computing, financial institutions can turn a large up-front capital expenditure into a smaller, ongoing operational cost. There is no need for heavy investments in new hardware and software. In addition, the unique nature of cloud computing allows

financial institutions to pick and choose the services required on a pay-as-you-go basis.

C. Business Continuity With cloud computing, the provider is responsible for managing the technology. Financial firms can gain a higher level of data protection, fault tolerance, and disaster recovery. Cloud computing also provides a high level of redundancy and back-up at lower price than traditional managed solutions.

D. Business Agility and Focus The flexibility of cloud-based operating models lets financial institutions experience shorter development cycles for new products. This supports a faster and more efficient response to the needs of banking customers

E. Green IT Organizations can use cloud computing to transfer their services to a virtual environment that reduces the energy consumption and carbon footprint that comes from setting up a physical infrastructure. It also leads to more efficient utilization of computing power and less idle time.

But before moving to the cloud, banks must consider issues around data confidentiality, security, regulatory compliance, interoperability of standards, and quality of services. [1] [3] Cloud computing can help financial institutions improve performance in a number of ways.

## 3. The various “flavors” of cloud computing

### 1. Public Cloud

Computing infrastructure is hosted at the vendor’s premises. The customer has no visibility over the location of the cloud computing infrastructure. The computing infrastructure is shared between organizations.

## 2. Private Clouds

Computing architecture is dedicated to the customer and is not shared with other organizations. They are expensive and are considered more secure than Public Clouds. Private clouds may be externally hosted ones as well as in premise hosted clouds.

## 3. Hybrid Cloud

Organizations host some critical, secure applications in private clouds. The not so critical applications are hosted in the public cloud. The combination is known as Hybrid Cloud. Cloud bursting is the term used to define a system where the organization uses its own infrastructure for normal usage, but cloud is used for peak loads.

## 4. Community Cloud

The cloud infrastructure is shared between the organizations of the same community. For example, all the government agencies in a city can share the same cloud but not the non government agencies.

## ADVANTAGES AND DISADVANTAGES

Following are the advantages of cloud computing:

1. **Reduced Cost:** Cloud technology is paid incrementally, saving organizations money. Highly Automated: No longer do IT personnel need to worry about keeping software up to date.
2. **Increased Storage:** Organizations can store more data than on private computer systems.
3. **Flexibility:** Cloud computing offers much more flexibility than past computing methods.
4. **More Mobility:** Employees can access information wherever they are, rather than having to remain at their desks. Allows IT to Shift Focus: No longer having to worry about constant server updates and other computing issues, government organizations will be free to concentrate on innovation.

Following are the disadvantages of cloud computing:

**Security & Privacy:** The biggest concerns about cloud computing are security and privacy. Users might not be comfortable handing over their data to a third party. This is an even greater concern when it comes to companies that wish to keep their sensitive information on cloud servers.

**Dependency (loss of control):** The users lose control over how their data is stored on a cloud. Thus they end up losing control over the backup of their data, restoration and Disaster recovery.

**Cost:** Higher costs. While in the long run, cloud hosting is a lot cheaper than traditional technologies, the fact that it's currently new and has to be researched and improved actually makes it more expensive. Data centers have to buy or develop the software that'll run the cloud, rewire the machines and fix un-

foreseen problems (which are always there). This makes their initial cloud offers more expensive.

**Security is a real issue** even though it is true that cloud computing is just as safe as traditional systems when it comes to apparent vulnerabilities and security holes. This is because of the nature of cloud computing, the public cloud, there are a lot more people with proximity access to the data. What I mean is that compared to an in-house system where there is virtually no connection to the outside internet, the whole world will now be potentially be able to just walk up to your door, so to speak, in public cloud systems. Nobody has actually even seen the safe and most people don't know that it even exists so the chance of someone trying to steal it is very low. Now in a public cloud scenario the safe would be placed in a very secure building with many locks and guards, but that building has a sign indicating its valuable contents and is located in a very busy market street where a lot of people can see it. This actually increases the chance that someone will be interested in it and that someone may have the skills to steal it.

## 4. BANKING ON THE CLOUD

However, The cloud offers a host of opportunities for banks to build a more flexible, nimble and customer-centric business model that can drive profitable growth and, as a result, should be something that non-IT decision makers at bank understand and appreciate. So what does the future of cloud computing look like for banks—both in the near and long term? The pundits tend to overestimate the impact of a technology and paradigm shift in the short term and underestimate what happens in the long term. In this paper, we explore some forward-thinking uses of cloud computing in the banking sector and discuss ways we believe innovative banks will be leveraging the cloud for competitive advantage in the next five years.

Cloud computing is one of the hottest technology and business topics today, and the market for cloud services is expected to skyrocket in the next few years.

### Why Cloud Computing for Banks?

Cloud computing can help financial institutions improve performance in a number of ways.

A. **Cost Savings and Usage-based Billing** With cloud computing, financial institutions can turn a large up-front capital expenditure into a smaller, ongoing operational cost. There is no need for heavy investments in new hardware and software. In addition, the unique nature of cloud computing allows financial institutions to pick and choose the services required on a pay-as-you-go basis.

B. **Business Continuity** With cloud computing, the provider is responsible for managing the technology. Financial firms can gain a higher level of data protection, fault tolerance, and disaster recovery. Cloud computing also provides a high level of

redundancy and back-up at lower price than traditional managed solutions.

C. Business Agility and Focus Cloud computing also allows new product development to move forward without capital investment. Cloud computing also allows businesses to move non-critical services to the cloud, including software patches, maintenance, and other computing issues. As a result, firms can focus more on the business of financial services, not IT.

The flexibility of cloud-based operating models lets financial institutions experience shorter development cycles for new products. This supports a faster and more efficient response to the needs of banking customers. Since the cloud is available on-demand, less infrastructure investments are required, saving initial set-up time.

## 5. CHARACTERISTICS OF CLOUD COMPUTING

The following is a list of characteristics of a cloud-computing environment. Not all characteristics may be present in a specific cloud solution.

- **High scalability:** Cloud environments enable servicing of business requirements for larger audiences, through high scalability.
- **High availability and reliability:** Availability of servers is high and more reliable as the chances of infrastructure failure are minimal Journal of Theoretical and Applied Information Technology.
- **Pay-per-use mode:** you pay for cloud services only when you use them, either for the short term (for example, for CPU time) or for a longer duration (for example, for cloud-based storage or vault services).
- **Resiliency:** The resiliency of a cloud service offering can completely isolate the failure of server and storage resources from cloud users. Work is migrated to a different physical resource in the cloud with or without user awareness and intervention.
- **Multi-sharing:** Public cloud services providers often can host the cloud services for multiple users within the same infrastructure. Server and storage isolation may be physical or virtual—depending upon the specific user requirements.
- **On demand self services:** computer services such as email, applications, network or server service can be provided without requiring human interaction with each service provider. Cloud service providers providing on demand self services include Amazon Web Services (AWS), Microsoft, Google, IBM and Salesforce.com.

- **Resource pooling:** The provider's computing resources are pooled together to serve multiple consumers using multiple-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. The resources include among others storage, processing, memory, network bandwidth, virtual machines and email services. The pooling together of the resource builds economies of scale (Gartner).

## 6. APPLICATIONS WHEN WE NEED THEM

There is a compelling simplicity to a platforms-a-service and the velocity to drive innovation. We believe that in the future, a considerable portion of a bank's applications will be candidates for migration to one or more of the cloud models. However, core banking in a legacy sense will likely have a long shelf life due to legal, risk or regulatory compliance considerations. There will emerge a new crop of corporate and customer-facing applications that will take advantage of parallelism, new programming languages and the efficiency of the cloud's bandwidth growth potential.

Social networks are themselves a platform for application development and are a key venue for a bank to reach its customer base in different ways. The applications built for these social platforms can be used to enhance a bank's brand, advertise banking products and services and inform and engage customers. In short, banks will need cloud skills to help them choose among platform providers and determine the "glue" across these loosely coupled systems. At the very least, applications in the cloud will be a boon to productivity through the use of cloud data storage and Web frameworks

## CONCLUSION

In this paper authors tried to point the game changing phase of e-banking that is not only impacting the way providing services are and will be delivered but also the way in which users will use IT. The Cloud promises several benefits in commercial and technical terms. When planning cloud computing initiatives in the near future, financial institutions should choose service and delivery models that best match requirements for operational flexibility, cost savings, and pay-as-you-use models. We believe that banks should adopt a gradual evolutionary approach towards cloud computing services, evaluating each project based on the type of applications and nature of the data. We can get better services than traditional computing with reduced costs with the help of cloud computing.

Another key issue for banks and financial firms is the possibility that their data may be stored in cloud vendor. In this case, both governments and financial firms must determine whether the laws of the country in which the firm operates or the laws of the country in which the data is stored, govern data ownership rights, consumer privacy practices, confidentiality requirements, and other legal consequences This issue was first raised by the large auditing firms.

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