

Cloud Computing in Banking Services

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Abstract- The banking industry is facing several changes. Control is now in the hands of the customer, rather than the bank. Customers are driving new business models. Technology changes the traditional business transformation. Banks need to react to this new customer-driven environment with innovation in business models, operations and IT. For banks, the value proposition for cloud computing affects the entire business. Cloud technology offers a new model for delivering innovative client experiences, effective collaboration, improved speed to market and increased IT efficiency.

Cloud computing provides a platform for optimizing financial services operations while creating and delivering the kind of innovative services that differentiate and propel your business forward. It is agility that will be the lifeblood of successful financial enterprises going forward, and cloud computing is one way of gaining that agility. Cloud services deliver revolutionary performance that empower the banking industry to automate and manage their processes.

Index Terms- A Banking, Cloud computing, cloud, model optimization

I. INTRODUCTION

With the rise of existing and new, non-traditional competition, banking faces a changing business landscape. Satisfying customer demands has become more complex as customers demand more convenience and control over their banking services. At the same time, regulators are ushering in a new era of government over-sight. Banks currently face challenges in a number of key areas:

Capital inadequacy that depresses profit margins.

Emboldened customers who expect rapidly evolving new services and offerings

Fierce competition for customers has spawned industry consolidation and the entrance of nontraditional firms

Changing business models have shifted from product-centric to customer-centric.

Enhanced regulation increases government oversight and intervention.

Increasing social and government pressure for financial inclusion.

To drive growth and innovation in banking, it is increasingly necessary to dramatically leapfrog the competition using IT and business model transformation.

Cloud computing can offer financial institutions a number of advantages, including:

A. Cost savings

B. Usage-based billing

C. Business continuity

D. Business agility

E. Green IT

But before moving to the cloud, banks must consider issues around data confidentiality, security, regulatory compliance, interoperability of standards, and quality of services.

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

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. 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.

D. 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.

What Is Cloud Computing?

The cloud is a **paradigm** shift in computing, by which infinite computing capabilities and resources (servers, storage, networks, applications and services) are delivered as a service to customers using internet technologies. The Microsoft Windows Azure platform, which serves as the foundation for developing

and running applications in the cloud (and offers all the required development tools, management and services from Microsoft), is built to be flexible and give customers the ability to run the technologies they choose and scale as necessary – paying only for what they consume. For banks, running their applications in Windows Azure means they don't have to deal with the basics of the operating system. They have automatic scalability and automatic failover as well as disaster recovery, without having to actively manage and maintain the technology themselves. For smaller banks in particular, cloud computing is the most cost-effective IT solution available on the market today, as it allows them to benefit from the consumption-based pricing model, as well as the scalability of Windows Azure as they grow.

Cloud computing has the capacity to change completely the financial services landscape. By making enterprise-level banking systems and associated technologies available in the cloud on a pay-per-use basis, now anyone, anywhere can have access to modern core banking systems without the cost and other barriers usually associated with this technology.

Cloud computing is a model, not a specific technology. Today, cloud technology is not just a tool being used in IT, but a paradigm shift to an entirely new business model. Cloud computing, allows companies to access IT-based services via the internet. A cloud-based model provides rapid acquisition, low capital investment, relatively low operating costs and variable pricing tied directly to use. Cloud computing services operate at several levels: infrastructure as a service, software as a service, platform as a service and business process as a service. There are several different “flavors” of cloud, each bringing its own specific implications for banks.

The main variants are:

Public clouds

Public clouds extend the data center's capabilities by enabling the provisioning of IT services from third-party providers over a network. The data and processing may be located anywhere in the world on infrastructure that is shared with the cloud provider's other customers, or “tenants”.

Private clouds

Private clouds are built by applying virtualization within a bank's own data centers. Because private clouds are not exposed to external “tenants,” banks tend to regard them as a more secure environment for customer data.

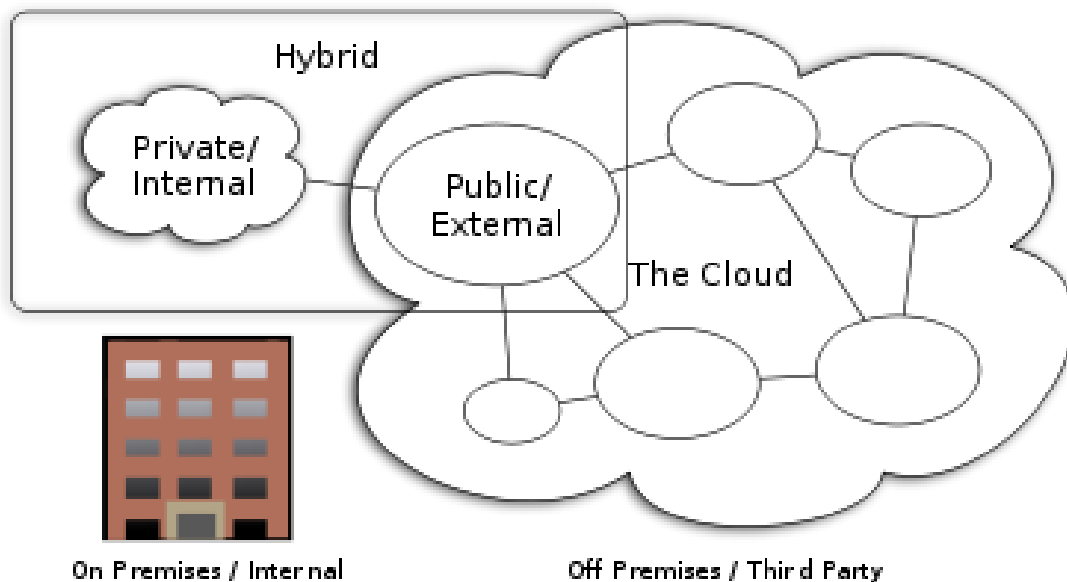
Hybrid clouds

Hybrid clouds blend public and private clouds depending on the sensitivity of the data and applications in each process, and the degree of business criticality and differentiation. Most banks will follow a “hybrid” cloud strategy which can also be a cloud owned by and located within the bank, but operated by a third-party.

Public “sovereign” cloud

Public “sovereign” cloud is an emerging variant, under which a public cloud provider commits to keeping the cloud data and processing within a specific jurisdiction. This facilitates compliance with data protection regulations forbidding personal data from passing beyond national borders.

II. DEPLOYMENT VIEW OF CLOUD BANKING



Cloud Computing Types

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Fig. Deployment Module

The all service layers, regardless of deployment model (private, hybrid, and public), a banking sector must implement a consistent model to govern, provision, and operate activities across all layers. This encompasses provisioning not just the infrastructure, but all components and services required to deploy the bank service, for example, hardware, network services, operating system, database, middleware, application, and third-party service provisioning.

Infrastructure Services—Includes servers, storage, and networking, both inside and outside a banking services for data center. Many banks are currently building an internal cloud IT infrastructure. This layer is often called IaaS.

Platforms Service—A broad technology array, including application hosting environments and tools, middleware technology, development frameworks and tools, and standards applied to specific business services. Even a core banking product includes a development environment such as frameworks, scripts, languages, tools and deployment environment such as deployment scripts, monitoring, and control environment.

Business Services—Core bank services[5] such as corporate and retail banking, wealth management, treasury management, risk management and compliance, trading.

Banks have built these services in-house, the market is replacing these systems with commercial off-the-shelf packages that embrace an SOA. Some business services, such as loan origination and payments, are consumed through an external service provider.

Channel Services—Support diverse channels such as ATM, branch, call center, mail, mobile, online, telephone, video, etc. The services are tailored per channel, built on a channel-specific technology stack with some sharing across channels via bridging technology. As the number of channels, devices, and users explode, banks evolve toward single architecture that supports all channels, delivering a consistent customer experience, services, and information across all channels.

Security (Authentication, Authorization and Access Control)—the critical need for security, privacy, and control in a cloud environment. For applications that need lower levels of security and control, a public cloud may suffice. Where more stringent levels of security and control are called for, a private cloud is the logical choice. For more sensitive banking sector services applications, which call for higher levels of privacy and control, retain them on their existing environment, or consider a utility services solution, or traditional managed hosting services approach.

Scalability—The Cloud service that provide real-time visibility into resource utilization, operation performance, patterns for CPU utilization, disk I/O, and network traffic. Enabling employees across distributed branches to access trading and banking systems through a security-rich cloud infrastructure

Benefits of Cloud Computing in various banking IT service areas:

Analytics: Integrating customer data across banking platforms to enable near real-time insights.

Collaboration: Enabling employees across distributed branches to access trading and banking systems through a security-rich cloud infrastructure

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.

Desktops and devices: Deploying a private cloud to centralize management of desktops allows for greater remote flexibility without sacrificing control, while enabling banking employees to access the applications and data they need

Development and testing: Enabling a bank's development teams to quickly and easily create virtual environments thus increasing the agility of development and testing

Industry applications: Enabling payment providers to standardize and modernize transaction processing

Infrastructure compute: Allowing capacity to be allocated, expanded and reallocated efficiently gives banks flexibility and agility while resolving the issues of complexity and cost increases related to scaling up traditional network models to accommodate future growth

Infrastructure storage: Providing scalable storage solutions to ensure that the real-time demands of today's trading and analytics processes are maintainable

Managed backup: Backing up a bank's critical business data to ensure that in the event of a disaster a bank can bounce back rapidly and easily

Security: Enforcing active security and endpoint management to ensure corporate governance and banking IT policies are maintained

III. CONCLUSION

While banks will benefit in a similar way to other cloud users from this particular offering, especially in terms of lower total cost of ownership, enhance their operations and help them develop new offerings with flexibility and a rapid time to market. Cloud computing may soon prove indispensable as an answer to the daunting new demands for agility, transparency, and efficiency. Shrinking markets and global competition pose numerous challenges for banks – the Cloud offers the speed, flexibility and real-time information needed to meet those challenges on a cost-effective basis.

Global economic situation to more stringent regulatory controls, nimble new competitors, and shifting Customer expectations—bankers and others now face a dramatically different market reality. Banks must collaborate and technology must be part of that collaboration. We successfully integrated on promise and cloud-deployed bank sector for web service. The benefits can include not only lower costs, but increased revenue and optimized customer relationships. Cloud computing represents game-changing shifts in how banking services organizations acquire and leverage IT resources. Cloud computing also provides a high level of redundancy and back-up at lower price than traditional managed solutions. The Cloud vendor provided infrastructure services are used to address

scalability, performance, security, availability, disaster recovery, monitoring requirements of the systems.

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