

CLOUD IN FINANCIAL SERVICES: BUILDING VALUE ACROSS ENTERPRISE

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ABSTRACT:

After the 2007-2008 global economic crisis, business sponsors and key decision makers over the world are continuously looking to generate radical performance for their business and trying to recover lost profitability. Businesses eye on keeping IT infrastructure costs and operational risk under control. Given this context, cloud services have emerged as a viable business imperative. The cloud enables financial services companies to focus more on core competencies growing assets, servicing customers, gaining faster time to market for key offerings, reducing capital expenses via pay per use models and enabling services quickly to flex with market demands. This paper focuses different livery model of cloud computing and how cloud adoption can deliver significant and unique business benefits capital markets firms based on.

Keywords: Cloud computing, Financial services, Capital Markets

1. INTRODUCTION

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 spending 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). Financial institutions 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: Cost savings, Usage-based billing, Business continuity, Business agility and Green IT. Cloud computing can help financial institutions improve performance in a number of ways.

- **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.

- **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.

- **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.

- **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.

2. CLOUD SERVICE MODELS

- **Business Process-as-a-Service (BPaaS).** The cloud is used for standard business processes such as billing, payroll, or human resources. BPaaS combines all the other service models with process expertise.
- **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.

- **Platform-as-a-Service (PaaS).** A cloud service provider offers a complete platform for application, interface, and database development, storage, and testing. This allows businesses to streamline the development, maintenance and support of custom applications, lowering IT costs and minimizing the need for hardware, software, and hosting environments.
- **Infrastructure-as-a-Service (IaaS).** Rather than purchasing servers, software, data center space or network equipment, this cloud model allows businesses to buy those resources as a fully outsourced service.

3. CLOUD DEPLOYMENT MODELS

There are three ways service providers most commonly deploy clouds:

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

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.

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.

4. CLOUD ADOPTION IN CAPITAL MARKETS

The forever-changing business environment and greater regulatory supervision have helped accelerate the pace of cloud adoption in the financial services industry. In 2012, research estimated that global spending on cloud computing in capital markets would grow to US\$2.8 Billion in 2013. Many financial services firms already use the cloud to power CRM, HR applications, employee benefits and basic non-mission-critical technology functions. Though public cloud computing has been a major talking point for financial institutions, firms prefer to deploy private clouds for core applications within their own data centers — citing security and compliance as chief concerns. As early as 2011, 60% of the world's financial services companies had funded private cloud initiatives. Hybrid clouds have found applications in multiple areas, and sometimes in specific communities, such as the NYSE Capital Markets Community platform. Software as a Service (SaaS)

and infrastructure as a Service (IaaS) are widely used in capital markets, serving as the foundation for various third-party products. Recent trends in the adoption of Private Platform as a Service (PaaS) have shown to significantly improve infrastructure efficiency and reduce infrastructure costs. Cloud-based solutions are used by numerous buy-side firms in the areas of analytics, portfolio management, decision support and investment administration. For sell-side firms, these solutions support corporate action, regulatory compliance and reporting. As the cloud market unfolds, we expect capital market firms to develop a comfort level in leveraging back-end applications on the public

5. FACTORS FAVORING AND CHALLENGING CLOUD ADOPTION

Capital Optimization

Cloud adoption gives the ability to convert Fixed Infrastructure Costs (CAPEX) into Variable Costs (OPEX). Cloud enables transition to pay-per-use model and is profitable when benefit from cloud transition Fixed Infrastructure Costs.

Increased Revenue Potential

Cloud computing frees up organizations from routine IT activities and allows employees to focus on more strategic, innovative and revenue-generating work.

Infrastructure Scalability and Agility

Minimal/no requirement of hardware, software license and implementation service. Small and medium enterprises (SMEs) adopt early, since cloud enables infrastructure scalability when needed.

Resource Utilization

Removes the issue of over-provisioning a network with spare capacity or under-provisioning with demand exceeding availability.

Drives focus on core competency as cloud frees up time, efforts and budget.

Minimum Data Readiness Requirements

Data readiness requirements for cloud transition are very minimal, so less time is needed to adopt cloud services. Any data stored in databases can be moved to the cloud. For the data in the file format, converters are readily available for transition.

6. SUCCESSFUL IMPLEMENTATION OF CLOUD COMPUTING

When considering cloud solutions for financial services, institutions should partner to gain cloud expertise. Cloud services providers should have:

- A clearly defined cloud strategy
- Demonstrable return on investment
- Proven cloud service delivery capabilities
- **Clearly define the ROI for cloud-based projects.** Financial Institutions should be cautious about making significant investments in cloud computing until tangible benefits are available. As a first step, cloud providers should explain the costs and implications of migrating existing banking applications and infrastructure to the cloud.
- **Choose service providers with proven expertise in cloud services management.** Financial institutions should use a road map to best manage cloud services delivery programs. Service providers who have invested in pilot projects will have real-world experience and business cases for cloud computing initiatives. Banks can start small with less critical applications such as CRM and then move on to core business applications.
- **Sign outsourcing contracts that use pay-per-use cloud delivery models.** For cloud initiatives, institutions need service level agreements (SLAs) that link billing to consistent system performance.
- **Understand data confidentiality and regulatory requirements.** Institutions may need to keep sensitive data within firewalls to fulfill local regulations and client confidentiality requirements. Therefore, private cloud-based operating models are currently a better first choice than public or hybrid clouds. As public clouds gain trust and confidence among consumers, banks can gradually transition to these models.

7. CURRENT ADOPTION

NYSE Euronext Capital Markets Community Platform: Recently, NYSE Euronext launched a PaaS community cloud service for the financial services industry, aimed at brokers, dealers, hedge funds, and other market makers. The platform has been set up to host customer applications and services, such as electronic trading, market data analysis, algorithmic testing and regulatory reporting. The infrastructure consists mainly of storage and virtualization tools from EMC and VMware, running on Xeon-powered blade servers.

NASDAQ OMX Data on-demand: This SaaS cloud service, built with the support of Xignite, provides easy and flexible access to massive amounts of historical level 1 tick data. It's a web application that allows users to purchase data online and access it using an application programming interface (API) or as plain text files.

CME Clearport OTC Data on-demand: This on-demand SaaS web service is also built on top of the Xignite platform and offers access to end-of-day OTC settlement, volume and open interest data to support markets available through CME Clearport®.

Microsoft Azure DataMarket for the Energy Industry:

Microsoft DataMarket SaaS cloud services enable the discovery, exploration and consumption of data from trusted public domains and commercial data sources, such as demographics, health, locationbased services, real estate, weather, transportation, navigation, etc. It also includes visualizations and analytics to enable insight from that data. All this data can be incorporated into software applications for any device through a common API.

8. SUSTAINABLE COMPETITIVE STRATEGY OF CLOUD COMPUTING

Seven generic approaches of creating value are risk mitigation, efficiency enhancement, differentiation factor, new markets opportunities, reputation improvement, impacts on industry standards, and radical innovation activities. Leveraging cloud computing in financial institutions can assist institutions to practice these approaches and achieve sustainability by the advantages of the technology. Each generic approach is aligned with a set of value propositions of using cloud computing. Moreover, cloud computing makes it possible to acquire both sustainability and cost reduce synchronously. This strategy reference model provides enterprises who intend to achieve sustainability with a theoretical guideline in financial industry. It introduces an approach of aligning sustainability with both shareholder value and stakeholder value by leveraging cloud-based solutions. The model will be beneficial for strategic decision-making when enterprises determine to implement a sustainable competitive strategy. Financial Institutions can pay more attention to their services and customers because software development work and risks have been migrated to cloud providers.

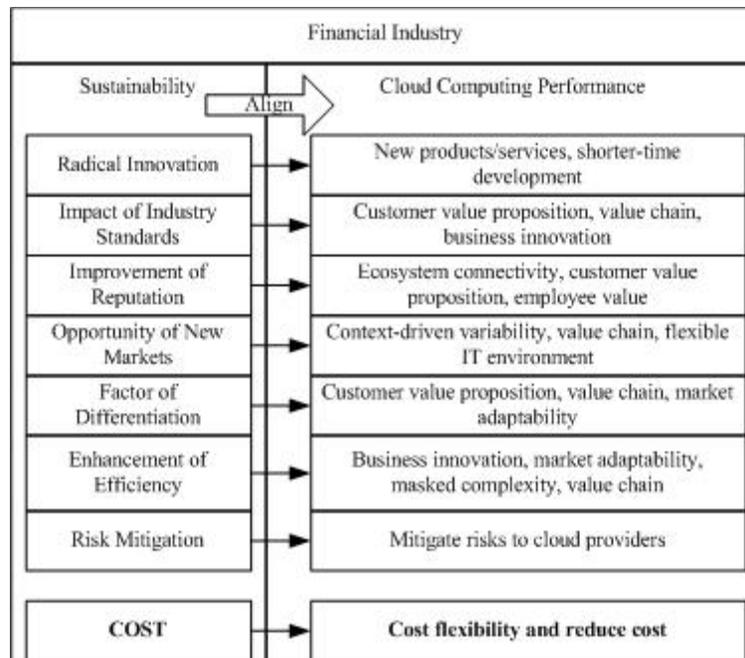


Fig-1 Alignment of Cloud Computing performance with Sustainability

8. CONCLUSION

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. Financial institutions should adopt a gradual evolutionary approach towards cloud computing services, evaluating each project based on the type of applications and nature of the data. Cloud computing is continuing to be deployed in industry despite concerns of dependency, organizational politics, privacy, regulation and reliability and security.

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