

Cloud Computing in Banking

What banks need to know when considering a
move to the cloud



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1 Overview

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).

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:

- Cost savings
- Usage-based billing
- Business continuity
- Business agility
- 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.

2 Why Cloud Computing for Banks?

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

2.1. 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.

2.2. 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.

2.3. 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.

2.4. 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.

3 Choosing the Right Model

Cloud services adoption by financial services institutions is expected to increase with an IT spending of US\$21.9 billion in 2012.

Source: *Global Spending on Cloud Computing: An Evolutionary Road Map for Financial Services*, TowerGroup, May 2010

Cloud service models offer financial institutions the option to move from a capital-intensive approach to a more flexible business model that lowers operational costs. The key to success lies in selecting the right cloud services model to match business needs. In this section we review various models for cloud computing services, operations and deployment.

3.1. 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.

3.2. Cloud Deployment Models

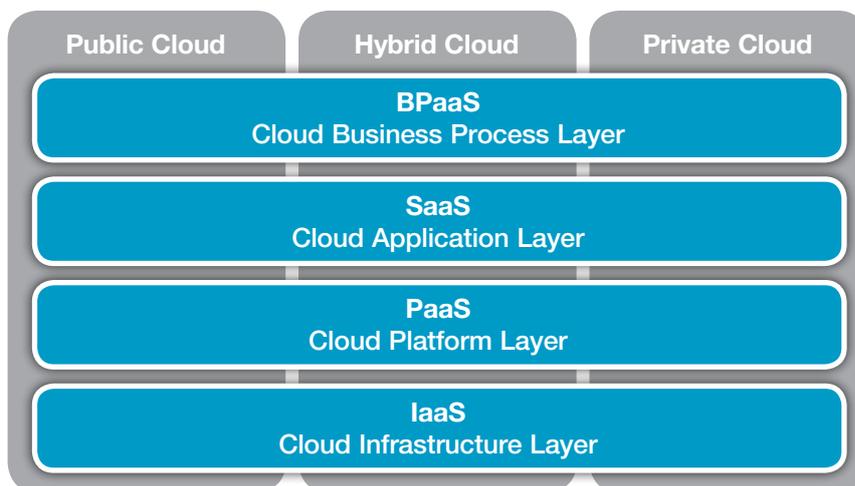
There are three ways service providers most commonly deploy clouds:

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.

Exhibit 1: Cloud Service and Deployment Models



Source: Capgemini Analysis 2011

3.3. Cloud Operating Models

The third aspect of choosing the right cloud services delivery model is determining the appropriate operating model for the required mix of resources and assets. We have identified three operating models for cloud services:

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.

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 a complete outsourcing approach.

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.

Partnering for Cloud Success: Capgemini and Microsoft

In July 2011, Capgemini and Microsoft announced a joint plan to offer accelerated cloud services in 22 countries based on Microsoft's cloud solution, Windows Azure. The plan will first focus on the UK, the Netherlands, the United States, Canada, France, Belgium, and Brazil. Capgemini brings solutions specifically for financial services using the Windows Azure platform which delivers highly cost-effective development and deployment options on a flexible platform.

Together, Capgemini and Microsoft have agreed to produce a future global study into the issues of data quality, security, and sovereignty in the cloud. Capgemini has also committed to:

- Train 1,500 architects and developers globally on the Windows Azure platform
- Develop a dedicated offshore center of expertise through building up the Windows Azure Center of Excellence in Mumbai, India
- Migrate selected solutions to the Windows Azure platform
- Actively drive ecosystems of third-party suppliers of Windows Azure-based solutions in targeted sectors

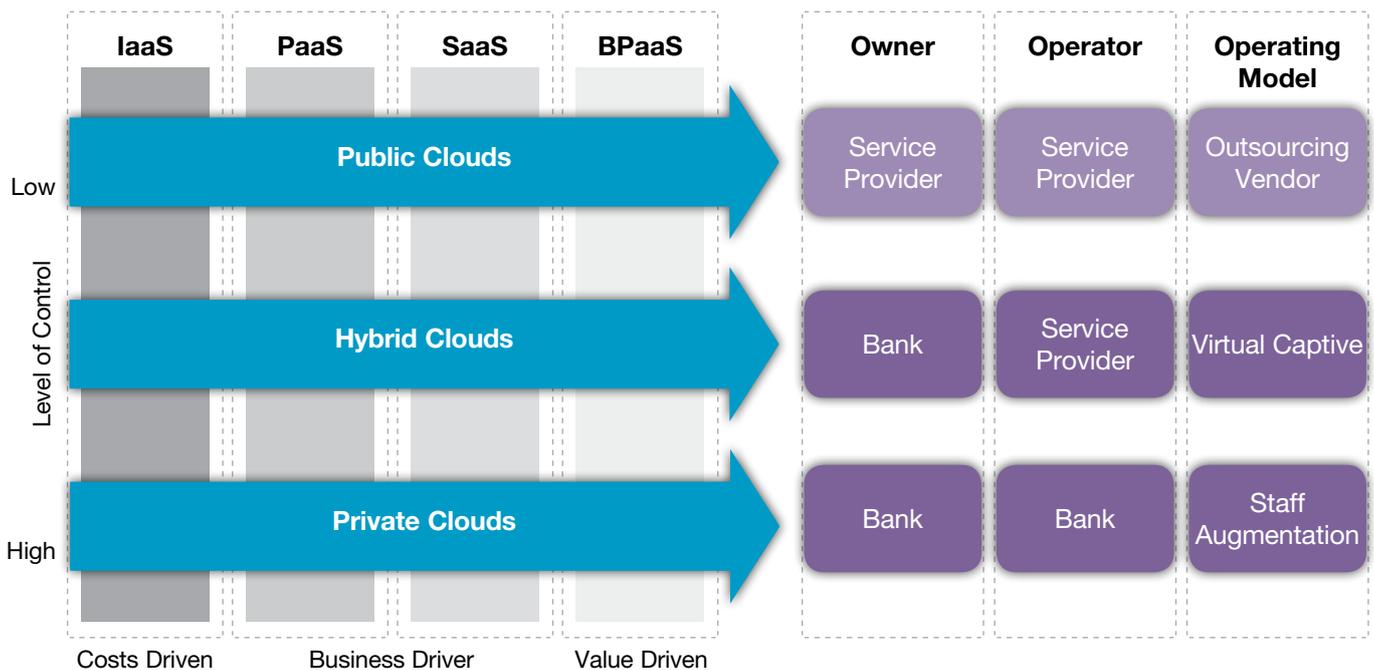
4 Moving to the Cloud: The Challenges

When a bank moves into cloud computing, there are two primary challenges that must be addressed:

- **Security.** The confidentiality and security of financial and personal data and mission-critical applications is paramount. Banks cannot afford the risk of a security breach.
- **Regulatory and compliance.** Many banking regulators require that financial data for banking customers stay in their home country. Certain compliance regulations require that data not be intermixed with other data, such as on shared servers or databases. As a result, banks must have a clear understanding of where their data resides in the cloud.

Financial institutions must select the right service, deployment, and operating models to address security and compliance concerns. In the initial phases of cloud computing adoption, it is expected that banks will own and operate the cloud themselves with service providers taking increasing ownership and control of the cloud infrastructure as cloud computing matures and more rigorous controls become available.

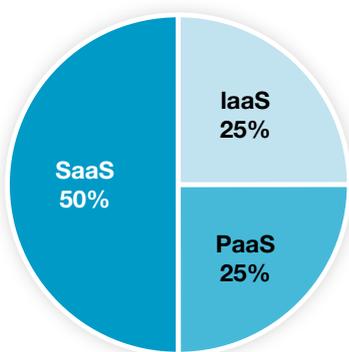
Exhibit 2: Cloud Service Delivery Models: How Much Control?



Source: Capgemini Analysis 2011

5 Moving to the Cloud: Where to Start?

Exhibit 3: Worldwide IT Cloud Services Spending by Area, 2012F



Source: *Global Spending on Cloud Computing: An Evolutionary Road Map for Financial Services*, TowerGroup, May 2010

A bank may have many reasons for moving to the cloud, but the primary reason will likely be applications. A key stumbling block for major investments in new technologies has always been the capital expenditure needed for new infrastructure. With cloud computing, financial institutions only have to budget for operational expenses and pay for the services they use. This makes it easier and more cost effective to test new applications on the cloud versus current traditional infrastructures.

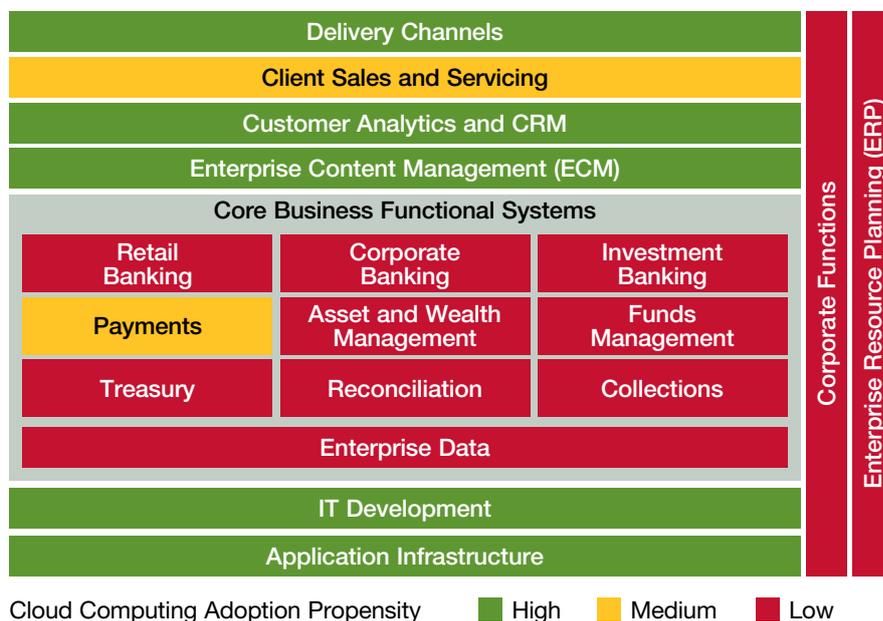
No single cloud computing services model is expected to meet all the technology requirements for every financial institution. Instead, banks should develop and maintain an application portfolio consisting of both cloud and on-premise applications. While investments in legacy systems are expected to continue, cloud-based services are ideal for newer business areas. Cloud-based services are expected to provide the advantage of both lower investments in implementing business strategies and faster turnaround time for product and service offerings, especially those delivered over mobile devices and the Internet.

5.1. Applications to Consider for the Cloud

At first, financial institutions will likely move non-core business applications to the cloud. Many software providers such as Oracle, IBM, and Pegasystems have cloud solutions available for their leading financial services applications. Areas that can profit from cloud computing include:

- Customer analytics and customer relationship management. Vendors with cloud solutions include Salesforce.com and Pegasystems.

Exhibit 4: Which Areas Are Best Suited for the Cloud?



Source: Capgemini Analysis 2010

- Browser-based technologies such as enterprise content management. Vendors with cloud solutions include IBM and EMC.
- IT development and application infrastructure. Since these functions are highly outsourced, banks can achieve cost savings through the cloud.

5.2. Success Factors for Cloud Implementations

When considering cloud solutions for financial services, banks 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

Capgemini has experience advising large financial institutions on cloud computing. We've developed four key success factors that banks should consider when launching cloud initiatives:

- **Clearly define the ROI for cloud-based projects.** Banks 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.** Banks 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, banks need service level agreements (SLAs) that link billing to consistent system performance.
- **Understand data confidentiality and regulatory requirements.** Banks 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. Initiatives such as the Cloud Security Alliance¹ are looking at these concerns. But to best take advantage of cloud computing, banks must have a clear understanding of privacy and regulatory issues to make informed decisions.

¹ <https://cloudsecurityalliance.org/>

6 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. Capgemini believes 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. Lower risk projects may include customer relationship management and enterprise content management. Higher risk projects will involve core business functional systems such as wealth management or core banking.

Longer term, Capgemini expects banks will have an application portfolio mix of on-premise and cloud-based services delivered across a combination of private, hybrid, and public cloud-based deployment models with the share of cloud services gradually increasing in the service mix. Private clouds are expected to increasingly become the deployment model for cloud services among banks, giving financial institutions full control through ownership and operations of their cloud systems.

About the Author

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