Banking on the Cloud

You’ve probably heard every possible metaphor from analysts and industry pundits extolling the virtues of cloud computing and its potential for disruptive change in the banking and financial services industry. We find ‘Banking on the Cloud’ rapidly progressing from an architectural concept to a mainstream imperative as financial institutions seek to eliminate costs and streamline their IT operations. The cost benefit and its ability to drive innovation and differentiation just cannot be ignored.

The banking industry is making significant progress in its march towards adopting cloud for mainstream operations. In this inaugural issue of Spectrum dedicated to Cloud in Banking and Financial Services, we present a compendium of articles highlighting Wipro’s point of view on major cloud adoption trends in the financial services industry. Our experience indicates that banks are progressing from the initial days of suspicion to the new paradigm, where cloud adoption was restricted to Software as a Service (SaaS) for shared functions, to where banks are actively evaluating public SaaS or their own private clouds for mainstream core functions. Through a Wipro lens, we present a set of ‘On Cloud’ articles highlighting how mainstream banking functions are now available in public or hybrid cloud services model. The commentary on Wipro’s core banking on Cloud Loan Origination Software for Mortgage serves to emphasize that traditional banking functions held sacrosanct and within the bank’s firewalls are giving way to non-traditional cloud based models. In a similar vein, we present Wipro’s collaborative Business Process Management (BPM) on cloud offering to underscore the same point. Our research on ‘Cloud Enablement’ explores how large financial institutions are setting up private cloud infrastructure for their development and testing environments. Redesigning Infrastructure as a Service (IaaS) to run on a bank’s private cloud continues to be the low hanging fruit that most large banks, if not already, will adopt in 2012. We also posited the emergence of Platform as a Service (PaaS) as a new model for banks to develop and deploy cloud based applications in a public or private cloud model. With the current industry focus on capital conservation and Operating Efficiency Ratio improvement, cloud has emerged as the top priority for financial services CIOs. A recent survey found that 39 percent of financial services CIOs surveyed expect that more than half of all their transactions will be supported via cloud infrastructure and Software as a Service (SaaS) by 2015. As an efficiency lever, cloud offers CIOs an option to achieve step reduction and variabilize their operating costs. IaaS implementation has been proven to realize a 35-40% reduction in the cost of hardware and hosting facilities. Private Cloud PaaS holds the potential for another 30-40% reduction in IT development and support services costs. Does all this signify a permanent change in the way banking IT is delivered and consumed? Read on.

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Tight global market conditions, stringent regulatory norms in different markets and rising competitive pressures have impelled banking and financial institutions to sharpen the focus on cost efficiency. Cloud-based Business Process as a Service (BPaaS) is enabling these organizations to tackle the new business challenges more effectively. As a result, an increasing number of financial institutions are looking to access BPaaS platforms.

BPaaS constitutes business processes delivered as a service over the Internet, accessible by one or more web-enabled interfaces. The BPaaS platform brings together technology, people, processes and smart analytics, packaged as a ‘pay-as-you-go’ offering that helps organizations to reduce their upfront costs.

Banking and financial institutions are also increasingly accessing Business Process Management (BPM) solutions to undertake standardization of their enterprise processes and to be able to respond quickly to the changing business and regulatory needs.

A BPM initiative usually involves a strategic consulting firm that drives the process standardization mandate while the financial institution standardizes the processes on the BPM vendor stack. BPM initiatives range from enterprise-wide process standardization to complete process orchestration through integration with back office systems in a service oriented framework. Conventional BPM efforts are however constrained by high costs and nebulous return of investments. Addressing this, cloud-based BPM solutions are proving to be more cost-effective and accelerate time to market.

BPaaS from Cloud: It's Raining Solutions

Wipro partners with XTRAC Solutions to tap the rising demand for BPaaS in BFSI space.
Cloud Computing: Shifting Winds of Change

On a larger plane, cloud computing has brought about transformational change in the way services are delivered. Today, customers are able to access an array of IT services like computing, software, data access and storage from cloud platforms. These cloud services are hosted on the Internet unlike the typical IT infrastructure where data centers are either handled by a vendor or the client itself, and the applications are installed on the client and server machines.

a. **Rapidly growing acceptance of SaaS**: SaaS applications provide an unprecedented level of user affordability and accessibility leading to new mass-market opportunities for software providers.

b. **Emergence of utility computing**: Virtualization technologies allow secure, high-performance, shared data-center resources to be provided by hosting companies on a pay-by-use basis.

c. **Advent of BPaaS**: BPaaS are evolving into ‘cloud-enabled BPOs’ that allow subscribers to create or buy targeted, custom applications specifically suited to their business processes and policies.

The cloud computing architecture enables diverse service providers, including financial services companies, to provide faster, better and cheaper services. Analysts predict an exponential adoption of cloud services by financial institutions over the next 3-5 years.

**XTRAC: Leveraging BPaaS and BPM Growth**

The global economic slowdown propelled the BPM for optimizing and adapting their business processes facing falling revenues and margins. The global BPM through the use of software tools, market is projected to exceed $5.0 billion by 2017.

**The BPM Opportunity**

A BPM tool allows financial institutions to maintain their competitive edge by radically improving BPaaS and BPM solutions. Their response to changing market scenarios is one of the biggest challenges faced by the organizations in the industry. This challenge is being compounded by the increasing dispersion of their investments for providing high-performance and large scale workforce as more and more employees work, document centric cloud-based BPaaS and BPM remotely. As a solution to these issues, organizations today provide subscription-based, cloud solutions that would do well to adopt BPM solutions that support professional services to streamline end-to-end workers who need to access the services from customer processes. It also means that to meet the needs of financial services and so that these BPM solutions should be easy to implement, companies should modify according to business situations. The XTRAC solutions is one such solution that enables companies to squeeze by today’s tough economic climate which requires most out of their core business processes.

As cloud-based service delivery models become mainstream, and banking and financial institutions start to embrace cloud for areas that extend beyond peripheral and support processes, a viable case can now be made for cloud-based BPaaS and BPM.
XTRAC solutions facilitate:
• Fast implementation
• Fast modification
• Lower cost of entry
• Process monitoring and optimization
• Reporting
• Reusable process modules

The solutions may be aligned with Business Activity Monitoring (BAM) and Business Intelligence (BI) tools.
XTRAC has leading-edge BPM capabilities that support:

- Complex workflows with extreme configurability and flexibility, cross-organizational routing, and back-office processing.
- Real-time visibility with BAM and standardized process status tracking.
- Risk mitigation through robust rules, events and procedures enforcement; multiple levels of oversight; and flexible Quality Assurance (QA) review capabilities.
- Paper-based and e-forms processes through integrated document, form and image viewing.
- SEC compliance including SEC Rule 17a-4 for access and auditability.

As a case in point, National Financial, an arm of Fidelity Investments, built its BPM offerings using XTRAC Solutions thus greatly benefiting the company’s core customers, viz., broker dealers and end-investors. It also allowed National Financial to direct future development dollars toward industry-specific value-adds while giving its broker-dealer customers the benefit of innovation for increased profitability and end-investor satisfaction. National Financial needed core BPM technology to base its solution and chose XTRAC for workflow automation. XTRAC met these requirements and in addition to offering a comprehensive BPM platform, it facilitated integration with the proprietary workstation desktop deployed by National Financial. The company is able to offer workflow services as a seamless experience through the same desktop interface that broker-dealer home offices, brokers and advisors use.

Wipro-XTRAC Solutions Partnership
The partnership with XTRAC Solutions strengthens Wipro’s capabilities to meet the rising BPaaS and BPM needs of financial institutions. Major services offered include:

- Inbound document processing and data capture
- Secure digital document management
- Hosted automated workflow solutions
- Outbound document processing and electronic communications

Making the Difference
XTRAC Solutions focuses exclusively on providing high-performance, cloud-based BPaaS and BPM solutions to BFSI, communications, and other high-transaction industries. XTRAC helps in managing complex, mission-critical processes that support up to 20,000 users and 40 million transactions per year. XTRAC has an unparalleled track record of delivering excellence in business results and customer satisfaction to its global clients. Some of the use cases for the BPM offerings from XTRAC solutions include:

- Front-Office Customer Service - When a customer calls with a question, response time is critical. With XTRAC processing the request, the customer often gets an answer in real-time.
- Back-Office Processing - Any investment or account maintenance request requires a series of complex transactions with back-office systems working to meet specific deadlines. XTRAC facilitates this process and completes the transactions efficiently, feeding the right work to the right person in the right order, thereby providing information that can help the company achieve deadlines.
- Finance Operations - Invoice and Purchase Order (PO) agreements can be time-consuming to process, but XTRAC can do a majority of the work to allow employees to focus on other value-added activities.

Conclusion
XTRAC, with 40 existing customers, is particularly making an impression on small and medium financial services organizations. Large firms are also showing greater willingness to put their non-core processes on XTRAC, and are likely to migrate their core processes to XTRAC in due course. XTRAC’s key value propositions are: a short implementation cycle and a pre-integrated system, with pre-defined business processes made available upon subscription.
Neeraj Jaitley

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Cloud: The Bank’s New Saving Account

The banking industry has always been the pioneer in rolling out revolutionary technologies. The advent of cloud computing has offered banks a consumption-based business model which is highly elastic and agile. Despite well-publicized concerns regarding security, compliance and data integration issues, banks have initiated moving towards the cloud. Seemingly, CRM and HR have seen more affinity for cloud adoption. Development and testing on-site, and Software as a Service (SaaS) are frequently being deployed in peripheral, non-core solutions.

A systematic approach to cloud will enable banks realize the true potential of cloud computing; making haste slowly.

This article captures the nuances of cloud computing, an overview on how to adopt cloud efficiently and at the end touching upon the key challenges influencing the future of cloud computing in the banking industry.

The global banking business has undergone cataclysmic changes in recent years, triggered by the aftermath of financial crises, increasing compliance burden in the wake of stringent regulatory norms across global markets, the rise of new growth opportunities in emerging economies, new demand for highly differentiated products, and rapid expansion of the customer base. Growth and efficiency are the two planks on which banks will drive their business in the foreseeable future. The outcome will be largely influenced by the adoption of appropriate business technologies by banks. In the effort to align business imperatives with new technology options, banks are warming up to business technology solutions like cloud computing. Banks have come to realize that cloud-based solutions not only facilitate cost savings in terms of IT infrastructure and operating expenditure, but also bring in greater agility and the ability to scale up or down according to the needs of business and its affordability. Cloud-based services also provide banks a strong radar on customer choices through social networking interfaces, thus bolstering customer relationships. The concept of shared IT infrastructure, evangelized by cloud service providers, is influencing banks to reduce the dependence on proprietary IT hardware or software, and to opt-out of pay-up-front for any IT infrastructure. Banks moving to the cloud can also gain from pay-as-you-go data centers, allowing for optimum buys based on individual computing capacity, storage and network bandwidth, providing flexi-options that are always available for higher capacity future plans. Cloud services help banks to provide services to its business lines faster as well as create new products and services quickly, and grow the top line. Cloud computing is a wide enabler for quicker go-to-market capabilities at a variable cost.

Banks are increasingly adopting cloud computing to test new frontiers of growth, current challenges notwithstanding.
Making Haste, Slowly

Compelling factors notwithstanding, banks are cautiously treading the cloud computing space. While some banks are willing to assign a large part of their systems to the cloud, some others tend to be conservative in their choice of cloud computing to the extent of not considering it at all. General concerns over certain issues that underpin cloud computing, such as, data integration, security and compliance challenges, have shackled the pace of adoption of cloud services. Yet, cloud computing could indeed create significant opportunities for banks to create new business models that are more customer-centric and nimble. Cloud computing supports a bank’s business transformation in the following ways:

**Automation:** Smart IT infrastructure can be programmed to intelligently provide for physical and virtual server resources to meet business demand variations anytime, anywhere. Moreover, disaster recovery procedures can quickly close gaps in times of unanticipated demand surges or service interruptions by intelligently managing capacities and allocations. Automation can be used for internal IT applications and infrastructure. The benefits that accrue are real-time infrastructure, reduced IT costs, business risks, greater service agility and improved service quality.

**Virtualization:** Banks can gain from a controlled employee desktop environment, monitored centrally-akin to a Windows environment-improving standardization and reducing IT support and maintenance expenses. Clouds enable tighter computing resource management by intelligently routing workloads across low-load servers. At the data center level, virtualization brings in speedier and smarter disaster recovery, resource provisioning and overall enterprise efficiency.

**Scalability:** Cloud computing is about sharing resources, improving scalability and agility, and reducing costs while improving uptime. Put the three together and the data center starts to work for itself.

Moving to the Cloud Environment

A bank’s migration to the cloud environment will be guided by three key expectations: (i) decoupling of business capabilities from the hardware and infrastructure; (ii) pay-per-use; and (iii) infinite scalability. Cloud computing will help banks to:

- Adopt common standards for easier data sharing and movement
- Set ‘fit for purpose’ service levels
- Standardize different security and data privacy restriction levels
- Create flexibility around procurements to avoid being locked into specific-supplier arrangements

The switch to cloud services will be guided by the following:

**Cloud Ecosystem:** The most compelling use case for banks is the creation of innovative services. The cloud gives banks the opportunity to disaggregate their own value chain, be it back-office operations or credit approvals. Banks can turn to dynamic sourcing from multiple service providers in real-time, thus reconfiguring their business in real-time.

**Consumer Computing:** Banks will be able to provide a more engaging customer experience by offering easier access to their products and services, which will greatly strengthen customer acquisition and retention levels. Other salient advantages include bringing in multiple voices on board for collaboratively using technology to build the business through partners, customers and experts across geographically diverse bank locations.

**On-demand Applications:** Platform-as-a-Service encourages use of visually compelling and data-driven applications. A considerable portion of a bank’s applications are suited for migration to one or more clouds. Although legacy processes in core banking will see long retention due to legal or regulatory compliance necessities, newer, parallel corporate and customer-facing applications will fast catch on with a technologically savvy customer base that stand to fully utilize new programming languages and the efficiency of the cloud’s bandwidth growth potential. Applications in the cloud will support productivity growth with the use of cloud data storage and web frameworks.
Analytics: Cloud, without doubt, built as data hubs can ably and swiftly meet tall analytics requirements with the ability to store humungous amounts of data while also identifying under-utilized data. Many banks have found the cloud to be a cost-effective platform for analytics models that drive reports and business intelligence. It can enable a bank to work with historical as well as real-time or transaction information from a variety of sources. It enables banks to churn vast amounts of data and decipher patterns and anomalies as well as project into the future, much more efficiently and cost effectively. Cloud computing doesn’t just provide infinite data storage, it also points to a future where banks can design their own web interfaces, customer analytics programs and data mining algorithms that ultimately seek to maximize ROI speedily and flexibly. Given the nature of business, banks are likely to adopt different types of clouds depending on the business needs. No single cloud deployment model will suit all applications and organizations. Instead, they will use both public and private cloud services as dictated by the workload and SLAs. There is a strong case for a hybrid of public cloud, private cloud and legacy systems.

Banks will increasingly find that a hybrid cloud will deliver maximum benefits. A hybrid model facilitates:

Availability of ‘cloud bursting’: In this case, users can access, compute and store requirements for very short periods to supplement on-premises resources. This will prove highly attractive for project use. If cloud bursting is used, a hybrid cloud environment is created and management of the expanded IT environment must be considered.

Cost minimization by price arbitrage: Different workloads have different requirements and priorities. With cloud services being offered at price points which reflect their availability, users will be able choose the most cost-effective service for their requirement.

Key Challenges: Influencing the Future of Business

The compelling advantages notwithstanding, banks are likely to encounter several challenges while opting to move into the cloud environment. The key challenges to be addressed are:

- Lack of transparency and compliance: Independent audits, legal, risk and compliance prerequisites must be accounted for in a cloud environment.

- Data ownership and IP: Data privacy and confidentiality must be clearly defined and secured, being critical to any financial institution.

- Implications of data privacy regulations and laws: Various governments, especially those in the European Union (EU), have privacy regulations that prohibit transmission of some types of personal data outside the EU. Legal jurisdiction of data must be defined by the data hosting country incorporating legal implications in its gambit. The cloud agreement should allow for investigations into suspect illegal activities.

- Limited speed and availability: A bank must assess and specify to a CSP what is acceptable network latency and uptime.

- Risks around business continuity and disaster recovery: The quality of an organization’s connectivity to cloud providers could become the ‘single-point-of-failure’ in cloud computing. The distributed nature of data could also mean that data restoration in a disaster recovery situation will need to be well planned and tested.

- Bandwidth and other service costs: Although bandwidth costs have reduced significantly in recent years, it can still be high for large applications or data-intensive cloud services. Hence, bandwidth and other service costs should be evaluated while moving to, as well as operating in the cloud environment.

- Limited guarantee on service levels: Overall, cloud service levels are influenced by network connection. For cloud services, the service levels and dispute resolution process will need to be clearly defined in both the cloud service agreement and network service agreement.

- Complex licensing/charging models: Current cloud licensing/charging models prescribe single license, multiple users/shared license, pay-per-use, temporary or fixed period use, and subscription plans.
A bank requires a strong understanding of its IT usage profile and implementation of an appropriate licensing/charging model.

- **Limited ability to customize and upgrade:** Standard interfaces with pre-defined functionalities limit the level of customization and can lead to a change in the end-user experience.

- **Vendor lock-in:** Security and control are the most prominent issues to be addressed. This calls for trust and openness. It would help if the security team is taken from the financial institution itself to be part of the cloud service provider’s team.

Banks would progressively opt for an IT technology provider, and would do well to look into the firm’s architecture that combines the merits of the public financial stability, ability to improve functionality and cloud with the security and data-privacy of the service levels and integrate data across different private cloud. Also, while choosing a cloud service technology platforms and cloud services.

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Mortgage Loan Origination: Sky is the Limit

The global mortgage lending industry is looking to adopt a lean and mean approach to adjust to the gyrations in loan demand in the near term, and to build a future-proof loan origination and servicing model. Cloud computing holds the key to this transformation. A cloud-based Loan Origination System (LOS) enhances the mortgage lending firm’s capacity to respond quickly to changing business dynamics, meet new regulatory norms in different markets, and rationalize operating costs.

Some of the key advantages in the adoption of cloud computing are:

- Reduced investment and better tracking of computing assets
- Access to on-demand computing (servers, storage, network, etc.) - reduced costs by paying for peak usage of IT infrastructure only when necessary
- Considerable reduction in total ownership costs through shared economics
- Reduced overall investment through tighter discovery and management techniques
- Streamlined manual processes and reduced error rates
- Simplified service-levels provided in a web-based catalog
- Dynamic capacity expansion without the need to own the infrastructure necessary to support peak loads
- Easy deployment and upgrade of remotely-hosted services
- Accurate and compliant document packages that reduce operational and post audit expenses

The cloud-based dynamic workflow architecture allows for collaborative transaction management, wherein a developer is able to make changes and adjustments to the loan origination workflow remotely with minimal disruption to day-to-day work of originators.

Cloud-based solutions help mortgage lending firms to effectively manage highly variable and unpredictable workflows.
Wipro Gallagher Solutions (WGS): Leading the Change

The myriad advantages that cloud computing offers to mortgage lending firms are somewhat counter-balanced by certain concerns expressed regarding data security. However, the demand for cloud-based solutions is growing across industries. The mortgage lending industry is no exception to this. To address the emerging demand for cloud-based services in the mortgage lending space, Wipro Gallagher Solutions (WGS), a key provider of cost-effective, end-to-end loan origination software and services for financial organizations, offers its NetOxygen cloud-based LOS to financial institutions.

The solution covers every step of the lending process for financial institutions (see diagram 1), including point of sale, processing, marketing, closing, underwriting, funding and post-closing. Its streamlined workflow and interface guides the user through every step of the process with its automated business rules and management features, including support for virtually any lending product originated through any channel.
Key Benefits
The solution offers multiple advantages to users. It provides a seamless exchange of data with core platforms to further automate the lending process for financial institutions based on their current standing and risk profile. The system’s pre-configured vendor ecosystem automatically incorporates all necessary third-party service providers and their offerings, including flood, credit checks, appraisals, valuation, compliance, insurance, automated underwriting, etc. WGS hosts NetOxygen in a SAS 70 certified data center, which means there is no costly hardware to buy or elaborate network architectures to maintain. This enables financial institutions to save money on personnel, hardware, licensing and maintenance overheads. In addition, NetOxygen’s pay-as-you-go transactional cost model enables financial institutions to pay only for what they use, eliminating both the risk of ramping up for loan originations and the risk associated with volume fluctuations. The product’s workflow management feature employs pre-defined business rules to handle complex lending scenarios by anticipating each step of the lending process. NetOxygen’s multi-tenant cloud-based platform is hosted in a secure data center. The hosted solution runs in a single environment, serving multiple customers while keeping proprietary data separate. Transaction-based pricing and cloud-based access offer significant cost savings and allows fast integration with WGS’ packaged mortgage fulfillment services. Coupled with its strong workflow capabilities tailored to fit each lender, the product’s flexibility accommodates cross-collateralization; enabling lenders to split loans into multiple loan types and products to best suit customers’ needs and create the most efficient lending process to support the entire origination life cycle. Operating in a highly regulated environment, NetOxygen fully complies with the regulatory norms in different countries where the product is offered and meets with responsible lending obligations. The product follows standards set by the lending industry XML initiatives like MISMO in USA and LIXI in Australia, which makes the valuation process much faster. NetOxygen offers a short change-to-market capability, which condenses the development cycle and shortens the overall time frame for lenders to deliver new products to their customers.

Way Forward
Cloud computing promotes centralized computing and sharing of fixed costs across many users. Mortgage firms are fast realizing that mortgage technology delivered through traditional departmental computing architectures are expensive, risky to deploy and difficult to manage.

Today lenders are exploring both private and public implementations of cloud networks.

Further, with the mortgage business being economically and operationally volatile, cloud computing helps firms to efficiently manage highly variable and unpredictable workflows.
Shankar Krishnamurthy

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Shankar graduated with Honors in Electronics & Communication Engineering and holds an MBA degree from the Indian Institute of Management, Kolkata.
Cloud Computing: Reaching for the Skies

Competition in global banking and financial services has intensified in recent years, mandating companies across markets to adopt innovative tools, techniques and solutions to deliver new value propositions to customers and stakeholders alike. Adoption of new technologies form a key piece of this competitive strategy to stay ahead of the growth curve. With cloud computing gaining widespread acceptance, banking and financial institutions are progressively migrating to the cloud environment, taking cognizance of the cost benefits and efficiency improvements that it offers.

Cloud computing could potentially make the banking and financial business more nimble and responsive to new and emerging customer needs. It can enable individual players to develop highly differentiated products and services that help them wrest a larger share of the addressable market. Leading global custodian firms like State Street and Bank of New York (BNY) Mellon have unequivocally endorsed the viewpoint that cloud computing will revolutionize the investor services industry.

Global custodians like BNY Mellon are using private cloud to meet rising customer expectations and for significant cost savings.
What's Good About Cloud?
Global custodian firms view the cloud as an important catalyst of transformational change. The specialized financial institutions, responsible for safeguarding individual and firm-owned financial assets, would benefit greatly by accessing cloud computing services which will bring in more flexibility and efficiency in their core functions such as settlement, accounting and evaluation of securities and other assets. The cloud environment will also give these firms prompt access to information on securities and their issuers, which could make a significant business impact. With custodian services stepping up the focus on risk management, compliance, business analytics and data, cloud-enabled applications will prove to be particularly useful in managing large size data and information for meeting the new business and regulatory needs. The cloud could also be the preferred platform for custodians to host reference data that support transactions such as bank identification codes. Increasingly, custodians could move the commoditized services and functions to the cloud and individually focus upon value-added functions. Cloud computing has a key role cut out in the Wealth Management space too where service providers are looking to provide technology-based solutions in place of the personal advisory services to meet the expectations of a rapidly growing customer base. A centralized system facilitated by Cloud computing will be a perfect choice to address this business situation.

Private Cloud
BNY Mellon has taken the initiative in this field by building its own private cloud - where a company pools its computing resources to run any number of systems rather than having separate IT servers and storage for each technology service. BNY Mellon is using its virtualized environment to rapidly develop new IT software and applications to service its clients’ transactional needs. The firm initially employed the private cloud in the “test mode” for its internal systems, using data collected from outside the company, for over a year and in a test environment for R&D for over six months. BNY Mellon has since been hosting its private cloud with access restricted to its own employees and ring-fenced from the public. The firm will gradually host the cloud on the internet. Clearly, the benefits host the cloud on the internet are many.

Profiting from Cloud
Moving to the cloud environment gives BNY Mellon key benefits, such as:

Server Provisioning Time: By moving to a private cloud the server provisioning time is reduced significantly. Employees are able to use the cloud service provisioning model via a self-service portal. Peak Load Management: Teams provides fewer servers as they no longer ‘overestimate’ or ‘plan for peak’.

Better Software Management: Software tools used by developers are configured as cloud services (as at cloud.wipro.com) and any developer can rapidly provide the tools and preferred environments using the self-service portal. This provides for effective management of software licenses and enables developers to startup quickly thus increasing their productivity.

Shared Memory Usage: The private cloud solution provides flexibility to access spare capacity and allocate the unused capacity, thereby increasing the number of applications installed.

Cost Effectiveness: The private cloud solutions provides for users and applications based on the actual usage patterns. This has enabled increase in overall utilization levels of the hardware thus bringing down the overall costs, facilitating better management of server power and cooling, and resulting in 30% + savings in electricity costs. The private cloud has transformed the way computing is done. Access to computing resources has been truly democratized.

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Emerging, Evolving or Mutating: Cloud Computing is Here to Stay

Although some business and technology leaders still doubt the reality of cloud computing, they are rapidly falling into the minority. These skeptics will soon become laggards in recognizing that the concept of publically available, on demand, technology-enabled services are here to stay. But the reality of actually implementing a cloud strategy, especially since it entails opening the technology and service stack to a wide variety of vendors on demand, still strikes fear in the hearts of many, including cloud advocates. For this reason, the talk of cloud computing is still much more prevalent than its implementation. Like many new trends, the exact roadmap for cloud computing to become a mainstream technology service approach is not immediately evident, nor is it a straight line. But a few key factors are helping the progression towards broader utilization.
Emerging Trends in Cloud Computing Standards

The speed, breadth and depth at which cloud computing is adopted throughout the financial services industry depends largely on whether standards can be developed. In July 2011, the US National Institute of Standards and Technology (NIST) published the first documented standards roadmap. Besides laying out the path to the future of cloud, the NIST developed a 'standards inventory' to which both existing best practices and newly defined service and technical standards are being added on a continuous basis.

One of the challenges in finalizing standards is the fact that there are also several groups working simultaneously on the same issues - and not all share the same overall goals. Some of the other participants developing standards include:

- **The Cloud Security Alliance**, a voluntary group of experts working to establish best practices in securing cloud-based services and improve the expertise of consumers of cloud services regardless of the industry.

- **The Institute of Electrical and Electronics Engineers (IEEE)** has its own initiative to establish standards for the communication protocols used in cloud computing (and is partnering with the NIST).

- **Cloud Standards Customer Council** was founded by a select group of technology companies and advocates for cloud computing business development and expansion.

- **Distributed Management Taskforce (DMTF)** has recently appointed a workgroup charged with promulgating high interoperability standards to make cloud services more seamless to integrate across different providers.

The fact that disparate groups are working on standards has both benefits and drawbacks. One benefit is that thought leadership is not limited to a single group. Broader thinking by multiple groups reduces the potential for the tunnel vision of one group yielding a poor result. At the same time, too many groups may result in conflicting and mutually exclusive standards. Thus, setting standards that will be broadly adopted and recognized remains a challenge.

The level of established and adopted standards will determine the success at creating a universe of publically available on-demand services. Thus, until and unless that happens, more investment will be made in the private cloud instead of the public cloud. In short, standards will impact both the growth rates and the distribution of growth in each of the four deployment models - public, private, hybrid and community cloud. This will also impact the range of adoption between the three service models SaaS, PaaS, IaaS.

Evolving Trends in Cloud Computing Deployment

For now, the real growth in financial institutions lies in the private cloud strategy. CIOs are leveraging existing investments in hardware and software by turning them into an on-demand shared service. The private cloud allows existing enterprise security standards to remain in place, which is a comfort to both IT and business leaders because it alleviates concern over the real and critical threats of exposing the business, its operations and data to a broad range of public cloud vendors. As institutions gain experience with their own version of the cloud, trusted business partners offering specific external on-demand services are brought into the mix. Through thoughtful experimentation with private cloud adoption, IT leaders are delivering higher productivity out of their IT investment in the short run. They are also testing the concept of cloud computing with key partners for broader expansion in the future. Although most of the emphasis in cloud computing has been on IaaS, PaaS or SaaS, many CIOs have developed in-house middleware services for on-demand consumption across the enterprise. These include messaging, file transfer services, business and IT service management and measurement, and even application testing. All of these are among the growing number of private cloud services coming from within the traditional IT department. Financial institutions are finding public cloud services helpful in meeting niche needs. Analytics are being deployed through public cloud providers that have traditionally only offered installed
software. Public Cloud Customer Relationship Management (CRM) solutions have been in use for years. In the capital markets space, vendors of reference data and market data services have moved quickly to offer on-demand services—including analytics—to make more informed investment decisions. Another growing offering is Business Process Outsourcing (BPO) as a service, which takes the cloud beyond technology. BPO-as-a-service allows financial institutions access to additional resources on-demand and pay-as-they-use services to fill overflow needs such as finance and accounting processes, reconciliations and back office services. These and other non-core, non-privacy and security sensitive services are moving quickly to public cloud providers. Cloud computing is already evident within social networking. Most institutions have established a presence on social networks with a proprietary site within LinkedIn, Twitter, Facebook, Plaxo and even YouTube. Through these sites, institutions are able to both provide and receive specific, socially based information that can engage customers in online dialog or discussion and communicate at a depth not possible before. Such socially engaged cloud business models continue to grow in both pure play forms such as Zecco and Mint, as well as integrated with more traditional business models. Finally, adoption of cloud computing will significantly decrease operating costs in banking and financial services. Because of more stringent, costly capital, liquidity requirements, the need to invest in better enterprise risk management and compliance capabilities, the industry as a whole will begin to move operational costs from fixed to variable and from in-house to on-demand services.

Mutations in Cloud Computing Services: Back to the Future

Cloud computing is constantly being redefined, revisited and repackaged. ‘Newer’ forms of cloud computing are often more closely related to traditional Application Service Providers (ASPs) and managed services. Several vendors claim to offer a cloud service yet it’s essentially a hardware appliance with installed software that resides in the financial institution, but managed remotely by the vendor.

By any definition, this is a traditional managed service. Some vendors have simply repackaged older products in new ways. For example, one technology vendor that offers on-demand services for mortgage origination has touted its cloud services, but each of its customers is on a separate instance. Once again, this closely resembles the ASP model.

Cloud is Here to Stay

Cloud computing is rapidly entering the financial services industry, mostly by nibbling around the edges of business operations. Growing beyond discrete, non-core services, the private cloud has become a common sense option for financial institutions by leveraging existing assets, gaining better business control and diversifying the supply chain for distinctive offerings. Although some parts of the globe, mostly in developing economies, are embracing ‘at the core’ business models in the cloud, adoption elsewhere is tangential and the future level of success is not assured. Still, TowerGroup estimates that total industry spending on cloud services will increase globally to $27 billion (USD), nearly 6% of total IT spending, by 2015.

Today’s financial institution can no longer ignore cloud computing when considering its sourcing options and strategies. But neither can it run heedlessly into the cloud. After all, with the reduced visibility inherent in this evolving approach to technology comes the potential to hit an unforeseeable and unknown obstacle, one that may do irreparable harm to the institution.

This article is based on research by the Banking practice at TowerGroup, a leading research and advisory services firm focused exclusively on the global financial services industry. Rodney Nelsestuen can be reached at rnelsestuen@towergroup.com. Those interested in learning more about TowerGroup or subscribing to its research services may call +1.617.488.2000 or e-mail service-info@towergroup.com.
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At Wipro, Kees Tuijnman is responsible for the Core Banking ASP initiative in Europe. Before joining Wipro, Kees held senior management positions in Banking and Insurance in the Netherlands and Central Europe, as a program manager, COO and General Manager Insurance. He understands the complexities of multi-national financial institutions as well as the characteristics of small local players and startups. Kees has managed multiple core banking transformation programs, implementing and upgrading among others Fidelity Profile, Fiser v ICBS, Misys Globus. He also transformed ING’s data center in Poland into a regional service center.

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Core Banking Takes Cloud Cover

Banks in Europe are going through difficult times again. Increased credit and counterparty risk, the continued low interest rate environment, devaluation of government bonds and increased capital requirements are all back on the agenda in the boardroom. While banks are addressing these issues, the battle to attract savings money is higher than ever before. Banks are very keen to fund their loan book as much as possible by attracting savings and deposit accounts. But customers have discovered it is worth it to compare offers, forcing banks to become transparent and offer the best interest rates. To complete the picture, new players are entering the market again.

This makes reading an article about core banking transformation and cloud computing almost a distraction. And indeed, if asked, most bankers do not score the topic of core banking transformation high on their priority list. However, we believe that to have or to be able to migrate to a flexible and effective core banking solution these days is more than ever a necessity. And while there are traditional obstacles for core banking transformation during times of crisis, mostly the timing of the investments, we suggest that with a cloud based solution, this might be just the right time to launch such transformation programs.

CEOs, in response to the previous crisis, announced programs to

• Improve risk management
• Simplify products
• Streamline and standardize processes; and most importantly to
• Re-establish a culture of customer focus.

These programs require significant investments in front and back office systems. Many banks are still running their core banking systems on inflexible, end of life cycle solutions that come with prohibitively high costs, which obstruct implementing structural solutions for the mentioned focus areas. Core banking systems consume almost 70% of a maintenance budget and well over 50% of all IT spending – in some cases reaching almost 80% of IT.

The cloud holds the key to core banking transformation in a competitive business environment.
We would argue that for a bank that is faced with these challenges and is lacking a flexible core banking solution, this might very well be the time to make the investment. Not biting the bullet now means that the bank continues to operate with high run costs for the existing environment and will pay a premium price for necessary modifications at the same time, while these modifications might not be good enough in the eye of the customer and the regulator. Equally important, an aggressive migration scenario would prepare the bank to be ready when markets pick up again.

For small and medium sized banks, the challenge for a core banking migration can be summarized as lack of time and lack of investment budget. Additionally, all banks know that such programs are a high risk and require a lot of dedicated management attention. We signal two trends that will help overcome these barriers. The first is a business trend of ‘commoditization’, the second a technology trend we call ‘hybrid cloud’.

The first trend, commoditization, is triggered by the increased aversion of clients and regulators for non-transparent, overly complex products. In a number of markets we see banks reducing the number and features of savings accounts and payment accounts. At the same time this allows banks to simplify processes to support the projects, hence the popularity of process streamlining projects based on for example, Lean/Six Sigma. The significance of this trend for the core banking software industry is significant. The more these banks are willing to rationalize products, the easier it will be to implement industry best practice core banking software. Data migration complexity will be reduced significantly as well. The-best-in-class products don’t come only with flexible and customer centric functionality for banking products. They also come with a wealth of best practice processes, allowing banks to increase operational efficiency as well. In a commoditized market, nothing prevents the software vendors from pre-configuring the software in a so called ‘model bank’ or ‘bank-in-a-box’.

The commoditization effect reduces the time it takes to implement a new core banking solution, and also significantly reduces the project risk. But we need a second element to make this an affordable scenario for many banks, the reduction of the initial investment and of the Total Cost of Ownership (TCO). The answer can be found in making standard core banking software available using cloud computing technology.

As cloud computing has moved from a hype to reality, banks have started looking at this as a mechanism to facilitate transformation. From a cloud service, a bank would expect the following characteristics:

- Scalable and elastic
- Pay-per-usage
- Delivered as an end-to-end service, not a technology
- Accessible over the web

The choice of cloud is governed by the ability of the bank to address the key concerns. These concerns are mainly associated with data protection and security. Banks must prove to their regulators that they are ‘in control’, which means that they need to know where the data is stored, who has access to the data, when and how backups are arranged and if continuity is guaranteed. For the software, they must have proof that it works correctly, normally achieved by a combination of strict quality assurance and release management.

For most banks and regulators at this stage, public cloud technology solutions will not be acceptable for mission critical banking applications. But the technologies that enable public cloud solutions can be deployed also for banks in what we call a ‘private cloud’ and ‘hybrid cloud’. Large banks, that can afford the investments might still prefer private cloud solutions, where all technology is exclusively dedicated to one bank.

Small, medium banks and start-ups are increasingly turning to ‘hybrid cloud’. The hybrid cloud combines the benefits of Infrastructure as a Service and Software as a Service. From an infrastructure stand-point the solution offers multiple features such as virtualization, scalability, reliability, 24*7*365 support with information and risk security well covered. The software will have many common libraries, yet the run time version will be a
separate application and data instance for each bank, thus enabling the bank to:

a) Keep its competitive edge by leveraging standardized processes yet offering personalized experience by implementing unique features.

b) Alleviate the data privacy concerns by maintaining a separate data instance.

Hybrid cloud appropriately balances the upfront investments on one side with the risks on the other side, and yet provides a mechanism for the banks to offer competitive differentiation in products. The hybrid cloud based ‘banking as a service’ offers state-of-the-art technology that changes the economics of computing by replacing upfront CAPEX with a variable cost model, is scalable on-demand, pay-as-you-go, leverages the latest banking infrastructure and updates regulatory compliances. Providers have started offering a state-of-the-art core banking platform as an Application Service Provider (ASP) solution. The stack offers full banking functionality for retail, corporate or private and wealth management customers with a unique application and data instance for each bank. The services and infrastructure encompass:

• Usage-based core banking software, no need to acquire an upfront license
• Shared technical and operations staff
• Shared data center with disaster recovery enabled
• Managed application maintenance services
• Integrated network management center
• Test services for new developments and upgrades

By transforming upfront license investment into a variable, leading international core banking solutions become available for small banks. By leveraging technology for multiple tenants, best in class, state-of-the-art data centers and infrastructure solutions are made affordable as well. The ASP model is not the final stage of development. As the banking operations evolve, a successful hybrid cloud based ‘banking as a service’ model will evolve into ‘process as a service’ (PaaS), where banks would rely on the service provider to provide software, infrastructure and business process support for truly end-to-end services for banking processes on a utility-based model. For selected processes, we see this happening already today.
Wipro Banking and Financial Services

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We hope you enjoyed reading this Journal as much as we did putting it together. We would like to continue in our pursuit to provide the best of knowledge to all our readers. We would like to hear your comments, suggestions or queries, if any. Please do write to us at meenu.bagla@wipro.com