Virtualization in Financial Services — Concept or Reality?

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SITUATION OVERVIEW

The entire concept of virtualization has different meanings for different businesses. But it is clear that financial organizations that do not commit to virtual transformation risk becoming costly, cumbersome, and uncompetitive.

Renowned investor and businessman Warren Buffett once said, "In the business world the rear-view mirror is always clearer than the windshield." At the risk of ignoring the great man's advice, we are going to resolutely focus our sights straight ahead. We will try to see what lies ahead for the role of technology in the financial services of the future, and where virtualization in particular will be, or at least should be, a critical component in a successful business strategy.

It is no secret that customers, regulators, and shareholders are all pressing financial services organizations in general, and banks in particular, to adopt more advanced business models to achieve higher performance, offer better services, and reduce industry-systemic risk. Put simply, these stakeholders are all looking for greater return on investment, and efficiency is key to this. There are many ways this can be achieved, but merger and acquisition activity has certainly been one catalyst that has focused minds on these opportunities.

Recent examples show mergers and acquisitions often result in increasing virtualization of the organization, with more business leaders realizing that agility, flexibility, and responsiveness are the keys for success. Banking takeovers and consequent technology transformations bear testimony to this development. Even if an actual merger or acquisition is not the instigator, in the wake of such activity, financial organizations are motivated to accelerate plans to use technology to improve efficiency.

However, this is not the only impetus to delivering more business-led, customer-focused technology solutions. It is clear that many more financial services organizations are now testing the water with IT transformation and optimization programs. These changes are driven through a combination of industrialization of the business, the introduction of Dynamic IT, significant improvements in connectivity, and selected use of business process outsourcing. Together, these factors are driving the evolution of banking towards virtualization.

But what is virtualization? Some commentators liken it to the "holy grail" of current business technology ambitions — everyone is searching for it even though many are not sure what it is, or even if it really exists. Others see it as some sort of nirvana, equating to a state of liberation, free of all attachment. The truth is likely to be somewhat more prosaic, but the exploration being undertaken by both suppliers and users of technology solutions is moving at a breathtaking pace.

Virtualization allows customers, employees, and partners to access the organization's resources wherever they are, via whatever device. Virtualization can dramatically change the way corporate business is done and affect a company's ability to achieve improved performance, scalability, reliability, and availability.

Virtual Walls

Virtualization puts an accent on the existing components of market structure, business organization, and IT systems, and on the opportunities financial institutions have to better exploit every single building block to add value to the overall organization.

By thinking of the business environment as a set of independent components, banks can go ahead with breaking up the value chain. This enables them to define new business models that add value, simply by rethinking the way the different blocks composing the financial services sector are organized. For instance, financial institutions can leverage more on selective sourcing to access best-of-breed services in the areas of payments, back-office processing, human resource management, or even distribution, with new technologies ensuring that no backlog will impact the overall service.

At the same time, the financial company itself can reengineer its internal processes and break its many walls and silos. Typically, banks and insurance companies are established organizations that have worked for a long time in a highly regulated and protected environment that has grown dramatically in the last two decades. Many processes and organizational models are a legacy of this history and now need restructuring in order to achieve higher optimization, greater integration, and enhanced flexibility. In fact, optimization, collaboration, and flexibility are key concepts when dealing with virtualization.

Moves towards virtualization allow the optimization of every single process — but do not necessarily require the standardization of an entire system, just greater consistency. In this context the optimization of every piece of the puzzle (as shown in Figure 1) does not affect the overall efficiency or, more importantly, flexibility of the system.

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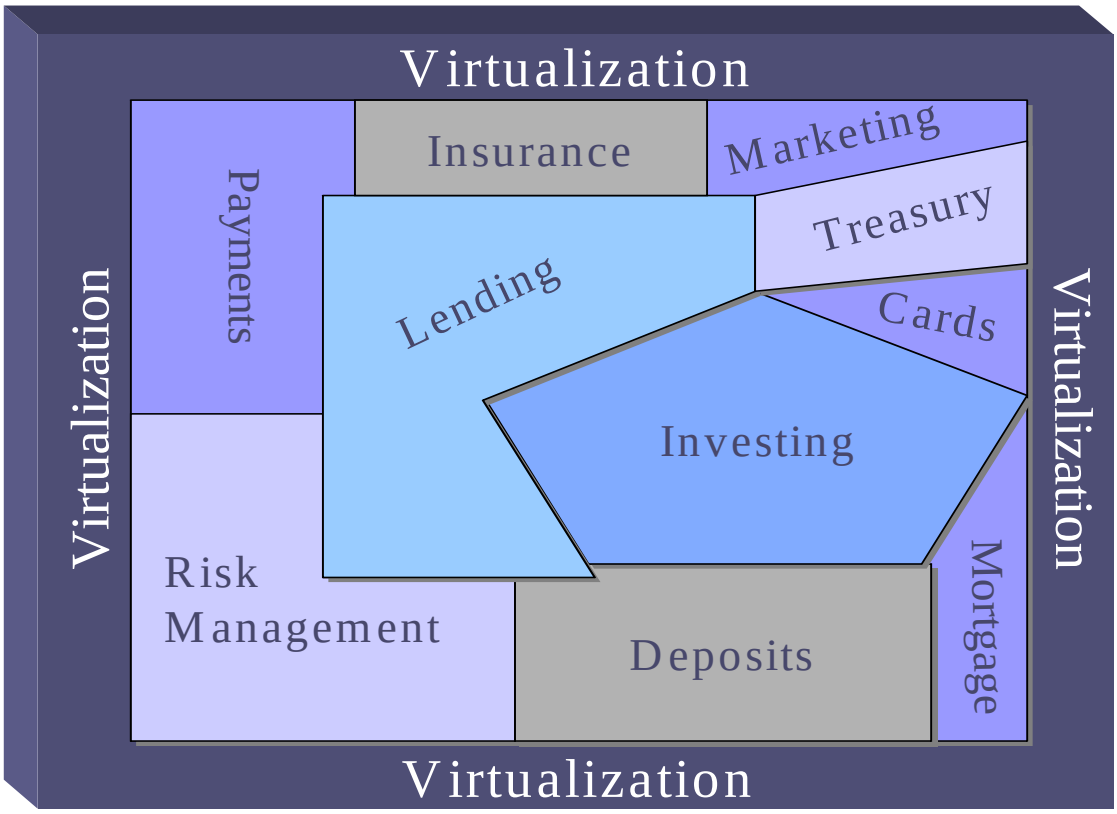
As Figure 1 shows, financial organizations that do not tackle the process of virtualization in a holistic way risk recreating the disconnected structures and architectures of the past that they are seemingly going to great lengths to dismantle.

FIGURE 1

The Virtualization Opportunity



Source: Financial Insights, 2006

In all these cases, virtualization offers the promise that any organization — but banks in particular because of their legacy architecture issues — can operate differently by adopting new business strategies that can create further value for both customers and stakeholders.

Virtual Competition

When compared to other businesses, a financial institution can in many ways already be considered close to being a virtual entity, but adopting a virtualization strategy alone is no guarantee of success. The opposite is actually closer to reality: as the concept of a virtual business becomes more accessible, so the entry of new competition becomes easier.

It is difficult to tie a bank or an insurance company to a specific location, because they have multiple premises or channels to market, some of which — for example, Web sites — are already virtual channels. Customers do not buy hard goods (cash aside), but products and services that are delivered in many ways. Customers do not even need to use their own bank or insurer to access many of the services on offer.

For instance, a modern large bank can operate globally, with tens of thousands of employees in multiple branches. It can offer hundreds of different products and services, spanning simple money transfers to more complex investment management, as well as leveraging a network of many separately owned legal entities that provide services for the group. Often, many of these entities will also have changed names and/or created new acronyms to remove or disguise heritage and/or specific geographic locations.

Similarly, smaller institutions, despite acting on a different scale, usually have several branches, products, and links with external companies necessary to provide services to customers. And though their geographical vicinity to the customer base is still a key competitive element for these players, many of the services and products on offer are produced and managed by larger entities and white-labeled for marketing purposes. U.K. supermarket group Tesco, with its range of insurance services, loans, and ATM facilities provided by other well-known financial institutions, is a case in point. The reality is that you no longer need to have been a financial services business to become a virtual provider of financial services.

This would lead to the conclusion that virtualization fits well in the financial services sector. However, this does not mean that banks and others in the industry have completely bought into the opportunities that it offers, both to their business and their customers.

For the moment many have just explored the tip of the iceberg and feel some trepidation about the next step.

Virtual Services

All providers of financial services have had to become better integrated due to the continued automation and standardization of many processes. Banks have started to implement platforms that are intended to simplify communications. As a consequence, many have started to sell their services to other banks as they reach higher efficiency and offer better value to all parties involved.

The payment arena is a good example of how banks have been able to create links, automate processes, and standardize messages to reduce costs and streamline operations. For instance, a bank clerk in a small village can place an order for a cross-border payment in the IT system and forget about it. They can be pretty sure the payment will reach its destination despite the number of clearing systems, payment processors, messaging networks, and correspondent banks involved in the process.

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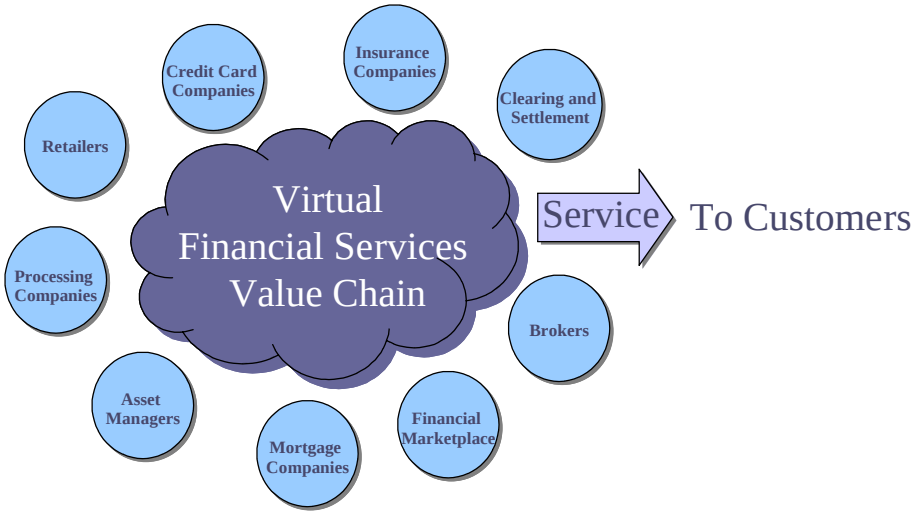
Banks have tried to solve the complexity of such procedures by setting up consortia, developing standards, and linking players in a strongly integrated environment. Technology has helped to automate the entire process, limiting manual intervention. But virtualization can now offer much more than simple integration.

Virtualization has more to do with the creation of a seamless environment where each component is part of the entire system, regardless of the owner. The virtualization concept brings with it the ideas of optimization and flexibility while integration is perceived more as a rigid point-to-point link.

In the financial services sector, it appears we are moving towards what can be best defined as a "federated model." In this model the ability to manage the entire value chain is the most important source of sustainable competitive advantage — both in the production and distribution of financial products. Virtualization is becoming a necessary prerequisite to support this process.

FIGURE 2

The Virtual Value Chain



Source: Financial Insights, 2006

This process is already in motion. But it will only be fully successful if it moves together with a better utilization of solutions provided by the technology enablers to reconnect the enterprise — both internally and externally. However, the management of the virtualization process is critical to avoid customer desertion.

The challenge for businesses selling financial services (both existing providers and new players) is to virtualize the value chain while also virtualizing the organization and IT systems. If they are unable to do this, the implications are manifold. Poorly performing internal IT systems will not only negatively impact the benefits of virtualization, but also leave businesses in an even less competitive position than when they embarked on the modernization process.

Banks therefore need to start by breaking away from the silos and the heritage of the past. One way to see how Dynamic IT yields new, more resilient operations (and can build the foundations for greater flexibility and potential virtualization) is to understand how financial institution infrastructure has evolved into the unyielding complexity in which we work today (so Warren Buffett was right after all!). Ironically, the historic application of technology is both cause and cure.

Today's rigid application infrastructure has resulted from the inward focus, silo mentality, and unchecked growth of departmental systems in the 1980s and 1990s, which was brought about by the zeal to generate new products without mainframe dependencies. The introduction of client-server technology fulfilled the desire, but caused hardwired inflexibility.

To promote application interoperability, middleware such as IBM MQ and various integration standards initiatives were introduced. But because no single standard evolved, more complexity was the result. Big-bang initiatives such as enterprise application integration (EAI) and enterprise business process reengineering failed because of unrealistic scope and lack of business focus.

By the end of the 1990s, the Internet and open computing standards emerged, which in effect added another layer of complexity. The Web failed to deliver enough value to the desktop to fully replace the prior generation of solutions. The industry has left little behind; lights still blink on DOS and OS2 boxes are still held together with spare parts.

The process of simplification and consolidation needs to be carried out with the objective of creating a more flexible system, and not just a cheaper one.

The rapidly changing business environment renders even the most stringent single solutions definitively out of date. Therefore, the answer does not lie in banks defining stringent processes but in taking a more dynamic approach to exploit underutilized skills that already exist.

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Financial institutions must move to the next generation of application architecture to remain standing by 2010. To stay in the game they must be both low-cost operators and growth-generating innovators. Back and front offices are large and complex, and service-oriented architecture (SOA) is increasingly being deployed to create the flexibility to adapt to challenging economics, unrelenting regulation, and changing business models. Dynamic IT rationales are creating winners as financial institutions and vendors build integrated and connected banking enterprises.

Creating a dynamic enterprise continues to be an overarching priority for most CEOs and CIOs, and the arsenal of IT tools to enable that transformation — SOAs, composite applications, virtualization, online delivery, global IT services sourcing, and more — is expanding daily.

Virtual Networks

New services from the major hardware and software technology vendors imply that networks have the potential to dramatically reduce the need for additional computing capacity within individual organizations, while increasing the use of Web services. This will be as true in banking, if not more so, as in other industries.

Computer systems have become more distributed, increasingly heterogeneous, and harder to manage. IT priorities are therefore increasingly externally focused. In his book *Waves of Power*, IDG's David Moschella, senior vice president of research, Computerworld, wrote, "The network-centric era will reshape business computing even more than the PC era did. Whereas information systems in the past mostly automated internal functions, in the network age IT priorities will shift toward building external links to customers, suppliers, and other key third parties."

Although these ideas are not new, it is clear that many businesses have yet to make the changes necessary to fully embrace such concepts. Moschella further predicted that from 2005 to 2015, the next wave will be a shift to a content-centric era. He believes industry is on the cusp of a customer-driven IT era, arguing that "IT industry progress will be driven not by technology suppliers, but by customers who are using those technologies."

With greater interconnectivity and interoperability and escalating standardization, the cost is increasingly in managing the system, not in the original purchase or creation of the system. Moreover, as organizations head towards building a Dynamic IT system, they will focus their efforts on turning IT from a fixed into a variable cost, thereby removing some inflexibility caused by fixed-cost operating models.

The next step is to decide what skills will be necessary to manage IT in this new environment. This is leading to more business issues occupying the time and attention of CIO and CTO executives across the spectrum of financial services. These include improving CRM capabilities, establishing effective alliances and collaborative relationships among organizations, improving corporate governance, and increasing the leadership talent pool.

Virtual Software

The macro-trend towards virtualization has led to what is being referred to as virtual environment software (VES). This includes six layers of software that collectively support the concept described by various suppliers of hardware, software, and services as adaptive environment, dynamic systems initiative, grid computing, matrix computing, on-demand computing, or utility computing.

Virtualization creates the impression of a single computing resource for the end user, even though the actual computing environment might be made up of distributed systems housed in datacenters all over the globe. VES can break the link between a given function and the underlying systems. This means that functions can survive the loss of their original host systems.

In the event of a failure or slowdown, some forms of VES will either start the function on another system or pass the request to another instance of the appropriate application or function. The newest generation of VES gives organizations increased ability to see a system as a pool of shared resources that appears to be both self-healing and self-managing.

Financial services organizations are now seeking ways to reduce operational and administrative costs while improving the performance, scalability, and reliability of their information systems. To reduce hardware and software acquisition costs without increasing operational and administrative costs, some organizations are purchasing groups of low-cost, industry-standard systems and connecting them together using virtual environment software.

This approach has also addressed organizational requirements for improved levels of performance, scalability, and reliability. This impacts supplier organization strategies — both now and for the longer term. This virtualization macro-trend has driven interest in VES, which is accordingly experiencing rapid revenue growth.

In the end, virtualization allows organizations not only to protect their investments in hardware and software, but also to optimize those investments. A completely virtual environment allows established applications or functions to access features of newer systems and to be more reliable, more powerful, more scalable, or enhanced in a variety of other ways.

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Several banks have already started to move in this direction. For instance, New York-based JPMorgan Chase has just launched a project to move the trading team to a next-generation application to keep up with new business requirements. However, instead of moving the existing system to a new platform, the company has decided to use the virtualization concept to drive every IT decision. Leveraging on virtualization, the company aims to reduce the TCO of the system as well as add new services without investing in a new platform and recoding the existing applications.

Similarly, Frankfurt-based Commerzbank is using virtualization to better exploit its storage systems. Thanks to this new paradigm, different departments within Commerzbank can view the same information at the same time and use systems more effectively.

FUTURE OUTLOOK

Virtual Reality

However, it is one thing to conceptualize the future; the key to success is dealing with it. Most financial organizations are still struggling with the integration of electronic sales and service channels such as Web sites, call centers, ATMs, and mobile telephony. With outsourcing and strategic alliances, organizations are trying to operate in an environment where the bounds of an organization are no longer clear.

In addition, prior project failures have led organizations (or at least many CIOs) to favor bite-sized IT projects with quick returns rather than the long, multiyear investments of the past. It is obvious that competition for capital investment dollars is much more intense than in the past, particularly the discretionary investment needed to deliver competitive solutions.

Nevertheless, these attitudes and very real economic constraints are changing the way that IT is managed, understood, and sold by the vendor community. A recent IT industry survey quoted Irving Wladawsky-Berger, a senior manager from IBM: "The industry has entered its post-technological period, in which it is no longer technology itself that is central, but the value it provides to business and consumers."

In other words, value is moving from the technology itself to how it is applied. Strategic advantage lies not in IT itself, but rather in finding more ways to innovate using IT to enhance an organization's value proposition. Organizations need to consider the implications of these trends for their businesses and the skills they will require to be successful. Determining how these changes affect the roles and responsibilities of IT and business managers, and implementing the necessary changes, will assist organizations in managing and leveraging technology more effectively. Nowhere is that reality starker than in banking, where the cost of entry has plummeted and new challengers are taking on established players that are often hamstrung by their legacy investments in technology.

It is evident that the business demands and technology changes described point to the need for new approaches and skills in the management of IT. The IT/business-savvy professional of the future must be able to chart a course through stormy waters to ensure long-term success.

Conclusion

The key to addressing virtualization, in financial services or any industry, is the ability to look beyond the virtualization of servers and storage, or software and hardware, to the people, processes, and technologies, where real benefits can be identified and delivered.

Developing a comprehensive view of the current state of IT services and business priorities is a critical first step. Building a working model of this structure necessitates knowledge about how customers, operations, business strategies, and a myriad of different technologies coexist within a framework.

No two virtualization strategies will be the same. Assembling the critical information and quickly shaping theoretical options will identify the main business-focused IT priorities. Importantly, this starting point provides IT executives with a clear understanding of the areas that could initially be developed towards what is intended to become the most effective service-based architecture.

Businesses must clearly consider how a shared infrastructure will affect the people and processes dedicated to applications and business functions. Aiming towards simplification and flexibility of the entire infrastructure requires a thorough impact analysis of all the key dependencies. Once these critical infrastructure resources have been virtualized, they can be driven to meet service levels within dynamic and forward-looking infrastructure architectures.

The success of a virtualized environment will ultimately rely on the quality of the technology decision and the timing of the implementation. It is essential to avoid being swayed by vendor-offered solutions and to understand the true costs of implementing a solution — and the expected benefits.

The need for a robust, scaleable, and lasting solution is obvious. Simplification is one key to achieving these objectives, while good product research with a focus on the benefits of creating a virtual environment will ensure the technology does not drive the solution. The benefits of the solution must be paramount.

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Ultimately, businesses must decide why they are taking these steps. Within a financial services organization, the opportunity to embrace this vision with a view to improving services to customers, while developing new channels to market for new products to win new customers, is clear. However, if this can be established within a new virtual environment that is both more flexible to manage and considerably more cost effective than current structures, it is easy to see why so many technologists now view this ambition as a little more tangible than the mythical "holy grail."

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