



# Your Cloud in Finance

INDUSTRY BRIEF WHITE PAPER

The CIO Global Cloud Computing Adoption Study, a recent survey by IDG Research, finds that CIOs are beginning to recognize the strategic implications of the cloud. The majority of IT decision makers among the more than 600 surveyed at enterprise organizations in the United States, Europe, the Middle East, Africa and the Asia-Pacific regions see “business agility” as the top driver for cloud computing.

## Executive Summary

The finance sector’s retail banking, capital markets and insurance segments are transitioning to cloud computing with the goals of growing revenues, reducing costs and increasing responsiveness to risk. This industry brief outlines the common cloud computing use cases for financial organizations and presents real-world examples of how leading firms are using cloud computing to achieve business agility.

These are difficult times in the financial sector. Against a backdrop of uncertain economic growth, consumer distrust and increasing regulation, financial organizations are working to maintain a healthy bottom line and boost consumer confidence in their offerings. Today’s wary consumers are also technology-savvy and are demanding a higher level of interaction—such as instant online access to information, products and services through their desktops and mobile devices.

Financial services IT leaders have been responding to these market and technology pressures by modernizing legacy applications and upgrading infrastructure, but they continue to strain. Forward-thinking financial organizations are deploying cloud computing as a strategy that will eventually transform how the entire organization—not just IT—operates. They are choosing among different cloud-deployment models to meet the unique challenges they face today and to increase their business agility.

## What is Business Agility?

According to McKinsey & Co., the leading global management-consulting firm, business agility is the ability of an organization to adapt rapidly and cost-effectively to changes in its environment. Indicators of agility for the financial sector include increased revenue growth, greater cost reduction, and more effective management of risks and reputational threats (see Figure 1).

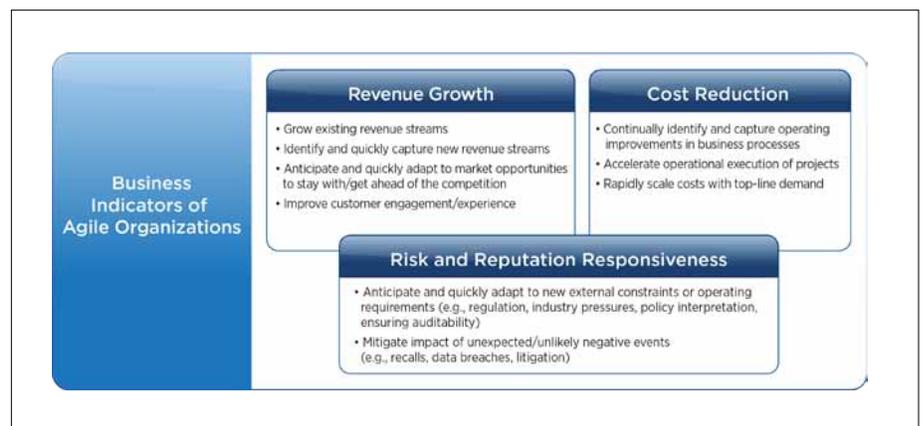


Figure 1. Indicators of Agile Organizations, Based on McKinsey & Co.’s Business Agility Framework

“The path to the hybrid cloud opens as the financial industry moves from virtualization to private and community clouds. The hybrid cloud will create a game-changing shift in how IT resources are consumed and services delivered in financial organizations.”

— Scott Key  
 Director of Financial Services Vertical  
 VMware

## Challenge to Grow Revenue

Globally, financial organizations are facing revenue-growth challenges from increasing financial regulations, a slow and uneven economic recovery, and a highly competitive market. In the United States, for example, the Dodd-Frank Wall Street Reform and Consumer Protection Act has created a significant impact. This act and other impending regulations are squeezing retail banking's fee-based revenues, pressing banks to quickly find new revenue-generating products and services. Capital markets companies—facing slim trade margins and new restrictions on proprietary trading desks—are challenged to provide new services to augment their diminishing revenue. Heavy competition in the insurance segment is pushing insurers to differentiate their core products with new insurance packages, pricing and services in new channels such as smartphones and telematics. Nearly every financial organization worldwide is looking to provide existing and new services to its client base through a broad array of channels, especially mobile applications and devices.

Agile financial organizations are able to identify relevant products and services in a dynamic environment. They can quickly deliver quality financial products and services, open new channels, improve customer engagement, enhance existing revenue and rapidly adapt to new regulations.

## Risk and Reputation Responsiveness

The recent financial crisis ignited broad consumer ill will and mistrust, stirring governments to engage in detailed reviews of the industry. These efforts placed increasing regulatory requirements on institutions that will be enforced over the coming years. Well-publicized reports of a variety of data breaches have further concerned consumers about their exposure and the need to monitor their accounts. All financial organizations must be able to adapt quickly to address new regulations and standards. Global financial regulations such as Basel II & III increase recording and reporting requirements that not only necessitate accurate, timely responses but also can impact capital requirements. Retail banking organizations must also maintain data security while providing increased mobility and financial-data visibility to the consumer. Insurance organizations face changes to regulations and accounting standards that will require them to record, process and report a greater volume of data at an increased level of complexity.

Agile organizations have a high degree of risk-and-reputation responsiveness. They can anticipate and adapt quickly to new regulations or operating requirements such as policy and budgets, which can happen as a matter of course. They can also effectively respond to the impact of unexpected or unlikely negative events such as a data breach or a sudden high-volume market shock.

## Cost Reduction

While reduced revenues in financial services are forcing smaller budgets, cost-management pressures are mounting as a result of regulations and aging technology systems. For many organizations around the globe, the new financial regulations not only impact revenues but also introduce the need for additional resources to maintain regulatory compliance. The retail banking segment is facing a loss of some fee-based revenue sources and must now manage costs more effectively. Although the financial markets and the revenues of capital markets firms often churn together, costs tend to be less flexible. For example, operations costs that increase with high-intensity expansions are not easily shed in a downturn. Insurers must also focus on cost management as continuing low interest rates impact earnings. At the same time, aging systems prevalent throughout the industry impact costs because firms look to upgrade or replace them.

Agile organizations have an inherent ability to reduce costs. They continually monitor, identify and capture operating improvements in organizational processes, accelerate operational execution of projects and keep costs in line as infrastructure and new services grow. Agile organizations do much more with less—an imperative for the financial sector in the current environment.

### Financial Sector and Hybrid Cloud Computing

Organizations throughout the financial sector are looking to cloud computing as a way to increase business agility. Cloud computing provides a dynamic, secure and compliant solution that dramatically reduces IT services-delivery time. Organizations can start with the cloud deployment model(s)—public, private or hybrid—that helps them best meet their specific requirements. Although many financial services organizations will see immediate benefits in discrete private and community clouds, the ability to move workloads between clouds will make a hybrid cloud model attractive as companies’ cloud visions mature. Table 1 shows some of the common hybrid cloud use cases for retail banking organizations.

| RETAIL BANKING CHALLENGE  | BUSINESS AGILITY IMPACT  |
|---|--|
| <p><b>Maintaining Dynamic Front-End Customer Web Sites</b></p> <p>Customers demand a more dynamic banking Web site with real-time transaction processing and rich functionality. In addition, spiking consumer demand loads on banking Web sites can cause service to be slow or unavailable.</p>                   | <p>Infrastructure as a service/platform as a service (IaaS/PaaS) enables retail banks to reduce the investments required in building and maintaining infrastructure to support their Web sites while ensuring high availability at any demand level. The focus can then shift to providing innovative services. The cloud solution enables cost reduction through capital expenditure (CapEx) control while improving the customer experience.</p> |
| <p><b>Large and Increasing Transaction-Data Storage Needs</b></p> <p>Providing comprehensive customer transaction history requires significant development and infrastructure investment.</p>   | <p>Cloud computing’s multisourced services solution reduces development and infrastructure investment costs of individual banks and allows them to cost-effectively store large amounts of historical transaction data.</p>  |
| <p><b>Increasing High-Performance Computing (HPC) Capacity Needs</b></p> <p>Risk analysis involves running complex algorithms and a high number of computations. More frequent need for risk analysis adds to the loads on in-house systems, forcing increased capacity and increased capital investment costs.</p> | <p>A multisourced infrastructure allows faster provisioning. Provisioning resources on the cloud is significantly faster than building in-house HPC infrastructure—and provides flexibility to schedule necessary simulations when business requires it, not just when internal resources are available. The agility of a cloud solution enables efficient cost management.</p>  |

**Table 1.** Hybrid Cloud Use Case Examples for Retail Banking

Capital markets organizations also benefit from the business agility that cloud computing delivers. Table 2 shows examples of the most common hybrid cloud use cases in this segment.

| CAPITAL MARKETS CHALLENGE   | BUSINESS AGILITY IMPACT  |
|---|--|
| <p><b>Demand Spikes at Market Open and Close</b></p> <p>Financial services sell-side firms experience high daily demand spikes around market open and close times.</p>  | <p>Cloud computing's on-demand scaling solution can enable superior customer experience and capacity. Reduce required capacity of internal datacenters by sourcing capacity during peak load times from private or public cloud. A superior customer experience differentiates the firm and increases customer loyalty while managing operational costs.</p> |
| <p><b>Algorithm Testing Increasing Complexity and Cost</b></p> <p>Algorithm testing requires historical tick data, which involves establishing data feeds and maintenance of large amounts of data on-hand.</p> | <p>Multisourced services can reduce data-management costs by placing data on the cloud to be easily accessible by clients. The data provider avoids cost of purchasing database solutions by allowing clients to access data directly from the cloud.</p>  |
| <p><b>Resource Requirements to Manage Reference Data</b></p> <p>Reference data—such as counterparty data and trade symbols—requires significant resources to collect, standardize and manage.</p>               | <p>Multisourced services allow capital markets firms to reduce costs of managing and refreshing reference data. The agile solution also enables the firm to enhance the customer experience and increase loyalty while improving operational efficiency.</p>   |
| <p><b>Cost of Maintaining Low-Latency Trading</b></p> <p>Sell-side firms co-locate their trading infrastructure with exchange providers to conduct low-latency trading.</p>                                     | <p>A multisourced infrastructure allows sell-side firms to dramatically reduce the costs of the trading infrastructure when low-latency trading is offered as a cloud.</p>   |

**Table 2.** Hybrid Cloud Use Case Examples for Capital Markets

## Real World Customer Example

### NYSE Euronext Delivers World's First Financial Community Cloud: Stimulating Growth with Groundbreaking Offerings

In a fast changing and highly regulated industry, NYSE Euronext—owning and managing the systems for over 19 markets worldwide—is looking to maintain its leadership position and strong growth. Increasing competition from other stock exchanges and broker-owned dark pools is driving down trade volumes and associated revenues and NYSE Euronext is looking to other investment areas for the future.

To maintain its leadership position NYSE Euronext looks to:

- Grow revenue by offering new compute on demand services
- Reduce time-to-market for access to valuable data services for customers
- Improve the customer experience with these and other rapidly-delivered, capital markets services
- Better manage costs by streamlining business processes
- Meet today's and tomorrow's heightened governmental reporting requirements

Cloud computing enabled NYSE Euronext to deliver the world's first capital markets community cloud. This groundbreaking financial services community cloud helps NYSE Technologies, a division of NYSE Euronext, achieve its business goals while also helping its customer base, including both trading firms and third party application and service providers, to trade and analyze data on the exchange, to better compete globally. NYSE Technologies CEO Stanley Young explains: "We've done a tremendous amount of research over the last two years. We understand our clients pain points; we understand what their business needs are. We think this cloud is going to take their business to the next level."

### More diverse and more rapidly delivered financial services support growth of the Exchange

By providing a cloud environment for the financial services community, NYSE Euronext can extend its technology services to a broader audience. Previously, the Exchange would allow firms to co-locate their own servers in the NYSE Technologies data center to get faster access to the market, but only the medium to large sized firms could afford to make this investment to capitalize on the low latency provided by this geographic advantage. Now, with the Capital Markets Community Platform, Infrastructure-as-a-Service provides the ability for customers of all sizes to have hosted capital market applications and to enjoy a level playing field. Customers can focus on developing a proprietary advantage through their applications instead of worrying about the underlying infrastructure. These market-related applications can be up and running quickly with the help of cloud computing's rapid provisioning of stand-up environments. Firms can also rapidly and easily scale resources when the service applications demand it, using cloud's highly elastic and automated infrastructure.

Pico Quantitative Trading CEO Jarrod Yuster comments "Scalability on demand is so important. It's difficult to predict where business is going to be in three, six, nine months down the road. The ability to get these services at a reasonable price and the ability to expand business as revenue grows is paramount."

While providing a groundbreaking and valuable offering, NYSE Technologies also has a new competitive differentiator and growth enabler. Cloud computing allowed the exchange to vastly improve the delivery of its data services. NYSE Technologies provides data – such as who sold what, when, and for how much – to financial researchers for market analysis. Prior to cloud computing, when companies wanted to use historical market data to run risk models they would have to download historical data around midnight to their respective data centers then run the analysis in an overnight “batch” process and return the results the next morning. This 12-hour delay meant that the analysis was no longer fresh. With cloud, NYSE Technologies was easily able to give the firms the ability to run their analysis against the historical data within the community cloud and get results within minutes any time throughout the day. Cloud delivers an integrated environment that allows for rapid access of information. Virtual machines in the community cloud allow for timely access of the exchange’s historical market data improving both financial analysis and services execution.

Cloud computing also improves the customer experience with the exchange. Clients have control over a choice of cloud computing services in a trusted, secure, and scalable environment. It is now easier than ever for them to benefit from the capital market community with access to a hosted environment and faster data services. In addition, cloud’s Software-as-a-Service capabilities give clients access to third-party applications, network services, and an array of other growing capital markets’ services all within a secure cloud environment.

#### **Streamlined business processes and improved risk responsiveness among cloud benefits**

NYSE Technologies’ community cloud allows the exchange to deliver services in a more streamlined fashion. By aggregating services in the cloud, NYSE Technologies has a centralized mechanism for providing access to market and historical data, network services, third-party applications, as well as compute on demand. In turn, firms can scale resources with just a click, and enjoy the costs savings from cloud computing’s reduced bandwidth usage and infrastructure needs. Firms can also utilize cloud’s scalable capacity to service testing strategies when needed. Both the Exchange and member firms benefit from streamlining and scalability by reaping clear cost savings.

The Capital Markets Community Platform also allows the Exchange and its customers to be more responsive to risk. NYSE Technologies can quickly adapt to governmental mandates using its secure financial transaction infrastructure network (SFTI – pronounced “Safety”) as needed. In this trusted and secure community cloud environment, information is tightly controlled and completely isolated in a network that all major financial firms pay to access, analyze and use secure financial data. Firms need to process large volumes of market data for regulatory reports and reduce the time and resources required to deliver them. On-demand scalability and high performance computing capability of cloud allows analysis and reporting timelines to be accelerated.

Insurance organizations also benefit from the business agility that cloud computing delivers. Table 3 shows examples of the most common hybrid cloud use cases for the insurance segment.

| INSURANCE CHALLENGE   | BUSINESS AGILITY IMPACT  |
|---|--|
| <p><b>Resilient Front-End Insurance-Quote Web Site</b></p> <p>Web sites serving insurance quotes to customers require a highly resilient and elastic infrastructure.</p>                                    | <p>A multisourced infrastructure augments the in-house infrastructure. Insurers can leverage cloud resources to reduce the investment required in building and maintaining their own infrastructure to support their Web sites. The cloud computing solution realizes efficient operations, shorter time to market and cost reduction.</p> |
| <p><b>Flexible Capacity to Support Disaster Response</b></p> <p>Insurance companies need to ramp up capacity quickly to respond to disaster events and scale capacity back when it is no longer needed.</p> | <p>On-demand scaling enables flexible capacity when needed. Cloud computing can reduce the infrastructure investment costs of individual insurance companies.</p>  |
| <p><b>Platform Capability to Provide Tools and Data</b></p> <p>Insurers need to invest in infrastructure that can support a large number of affiliated agents and intermediaries.</p>                       | <p>Cloud computing's IaaS/PaaS services can enable cost reduction. Insurers can use public IaaS/PaaS services to reduce the investments required in building and maintaining their own infrastructure to support their tools for agents and intermediaries, as well as integrate data from back-end systems and pricing engines.</p>       |

**Table 3.** Hybrid Cloud Use Cases Examples for Insurance

Many other financial-related firms, including credit-reporting agencies, are leveraging the benefits of the cloud to achieve business agility. The following case study looks at one such company's journey to the cloud.

## Why VMware for Your Cloud

VMware® cloud solutions enable financial services IT departments to transform into nimble and efficient entities that can respond faster to changing regulations, new service opportunities and consumer demands while reducing infrastructure and operating costs. If your organization is thinking about building for the cloud, why not build for your cloud? Although true cloud computing is a standardized approach, the way every individual organization approaches cloud computing is not. VMware is here to help you move beyond the limitations of a one-cloud-fits-all approach.

The way you approach cloud computing will depend on your objectives. Do you want to begin with an internal private cloud? Do you want to leverage public cloud services? Do you want a combination?

In other words, it is not about the cloud, it is about your cloud. With its unrivaled experience, large customer base and partner ecosystem, VMware can help you move beyond current IT limitations to your cloud—where you can accelerate IT, which in turn accelerates meaningful results for your organization.

Your Cloud.

Accelerate IT. Accelerate Your Business.

Learn more: <http://www.vmware.com/solutions/>

