



## NYSE Technologies Launches Global Cloud-Based 'Capital Markets Community Platform'

Responding to seismic changes within the global capital markets industry, NYSE Technologies leveraged VMware virtualization technology to create the new Capital Markets Community Platform. By giving clients a secure, robust, cost-effective environment for hosting industry-specific applications, this groundbreaking financial services cloud promises to drive innovation in trading applications, disaster-recovery strategies and related solutions.

NYSE Euronext (NYSE) is a leading global operator of financial markets and provider of innovative trading technologies. The company's exchanges in Europe and the United States trade equities, futures, options, fixed-income and exchange-traded products. NYSE Euronext's equities markets represent approximately one-third of the world's equities trading, the most liquidity of any global exchange group. NYSE Technologies, a unit of NYSE Euronext, provides broadly accessible, comprehensive connectivity and transaction capabilities, data and infrastructure services, and managed solutions for a range of customers requiring next-generation performance and expertise for critical trading services.

### The Challenge

The last decade has been a turbulent one for market traders. First came a period of deregulation, coupled with a quantum leap in computer processing power and capabilities. Firms began leveraging Internet technologies and wide area networks to execute trades. The industry decentralized and traders' operations became more distributed.

But more recently, these trends have been disrupted. Governments, responding first to 9/11 and then to the global financial crisis, are seeking greater regulation. This has forced firms to consider re-centralizing operations. Meanwhile, technology has grown so powerful and sophisticated that latency—lag times in transmitting trade orders over networks—has re-emerged as a factor critical to effective trade execution. As a result, locating computers close to exchanges is once again a competitive advantage.

For NYSE Technologies, these challenges represent an unprecedented opportunity. "Today's markets are both electronically

fragmented and highly volatile," says Stanley Young, CEO, NYSE Technologies. "The stage is set for new, collaborative technologies that will allow our clients to achieve the business results they seek—whether that means capitalizing on current conditions or developing whole new products or markets."

### The Solution

So NYSE Technologies leveraged VMware Cloud Infrastructure platform to create the Capital Markets Community Platform, a groundbreaking infrastructure-as-a-service-based solution designed to give clients a secure, agile, resilient, yet highly cost-effective environment for hosting industry-specific applications.

NYSE Technologies' infrastructure-as-a-service platform—the first of its kind—is possible due to a number of factors. Virtualization is now a mature and trusted technology with proven benefits, something that NYSE Technologies knows firsthand: after implementing VMware vSphere technology, it reduced its test and development server footprint from 2000 to 200 physical machines.

### INDUSTRY

Financial Services, Capital Markets

### LOCATION

New York, NY

### KEY CHALLENGES

- Market traders are facing the convergence of unprecedented industry volatility and fast, powerful technology
- Traders that formerly dispersed their operations need to re-centralize their computing operations
- Ability to innovate quickly requires cost-effective technology platforms

### SOLUTION

NYSE Technologies leveraged VMware Cloud Infrastructure platform to create the Capital Markets Community Platform, an infrastructure-as-a-service that offers a secure, robust, cost-effective environment for hosting industry-specific applications and disaster recovery strategies.

### BUSINESS BENEFITS

- Reduces costs that firms incur to build out server platforms or develop trading applications
- Improves clients' ability to conform to applicable rules and regulations
- Provides firms with low-latency connectivity to trading engines and market databases
- Reduces clients' exposure to security risks

## VMWARE CASE STUDY

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Stanley Young  
CEO,  
NYSE Technologies

### VMWARE FOOTPRINT

- VMware vSphere 4.1
- VMware ESXi 4.1
- VMware vCloud Director 1.5
- VMware vShield 4.1
- VMware Chargeback 1.6

### APPLICATIONS VIRTUALIZED

- Financial Services Applications

### PLATFORM

- EMC VNX Series Unified Storage

The concept of infrastructure-as-a-service is quickly achieving a similar reputation. “Today’s financial firms know they have viable alternatives to owning and operating baseline infrastructures themselves,” says Feargal O’Sullivan, Global Head of Alliances, NYSE Technologies. “We realized that if we could deploy a cloud environment to this community, we could significantly reduce their technology costs.”

Nonetheless, prior to architecting its Capital Markets Community Platform, the company analyzed available solutions to validate its selection of virtualization technology. The VMware cloud infrastructure suite emerged as the clear winner on every criterion NYSE Technologies identified. It is the world’s leading virtualization layer. All of the company’s major clients are comfortable with VMware. And VMware’s vision—to enable highly reliable infrastructure environments for mission-critical applications, along with complete user self-service access—dovetailed with NYSE Technologies’ vision for its new cloud offering.

For its storage platform, NYSE Technologies chose EMC VNX Series Unified Storage. “VMware’s vision and roadmap are an excellent match for what we need to accomplish,” notes O’Sullivan. “And like VMware, EMC is a leader in virtualization, which is a key value proposition for our clients.”

After selecting VMware as its cloud infrastructure platform, NYSE Technologies met with VMware experts to conduct a detailed planning session, including a deep-dive technical analysis to finalize the platform’s requirements. A team of VMware consultants also worked onsite at the NYSE Euronext datacenter near New York to help architect the platform infrastructure. The company subsequently deployed the solution, including VMware vSphere, VMware vCloud Director, and VMware vShield, in its datacenters in New York and London.

### Business Benefits

As an industry vertical community cloud, NYSE Technologies’ Capital Markets Community Platform is a unique technology solution. Clients can host applications on the platform without incurring the capitalization costs associated with building out infrastructure. The platform conforms to

applicable rules and regulations, ensuring a level playing field and fostering across-the-board regulatory compliance.

Because NYSE Euronext’s trading engines and database servers are housed in the same datacenters, clients get low-latency connectivity to those resources. Furthermore, the platform is integrated with NYSE Technologies’ Secure Financial Transaction Infrastructure (SFTI) Wide Area Network, and housed in highly secure facilities, helping firms connect to the broader industry while minimizing exposure to security risks.

Clients can leverage these capabilities in a number of ways. They can use the Capital Markets Community Platform to host trading applications. “It’s a very cost-effective option for firms that want rapid access to the markets, or that offer application services to other trading firms,” says O’Sullivan. The cost-effectiveness, in turn, means clients can better afford to innovate, because launching new applications doesn’t entail long-term commitments or hardware-capitalization costs.

Firms can use the platform for backtesting trading algorithms. “We create close to a terabyte of new market data every day,” O’Sullivan notes. “Our Capital Markets Community Platform enables firms to test new rules on that data without having to download and store it at their own sites.”

Clients can use infrastructure-as-a-service as a cost-effective option for offsite disaster recovery (DR): the Capital Markets Community Platform can reduce the costs associated with building out a DR platform by as much as 50 percent.

The service also provides a cost-effective platform for application development and testing. Applications under development have access to NYSE Euronext’s precise duplicates of live market data to ensure they process quotes and trades correctly.

### Looking Ahead

NYSE Technologies plans to expand the Capital Markets Community Platform to other financial centers worldwide. It is also promoting open standards: it has released its market data Application Programming Interface (API), OpenMAMA, to the Linux Foundation to enable developers to drive further trading innovations including, for example, new middleware messaging technologies.

