Taking Flash Boys Beyond the Capital Markets: A Model for Improving Enterprise Application Performance in the Cloud

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While Michael Lewis’ book *Flash Boys* remains one of the most controversial books ever written on the financial industry, there is no dispute that the technology behind the capital markets can transform more than just the global financial marketplace. The high-performance, low latency and ultra-secure frontier pioneered in the capital markets now serves as a model for globally distributed enterprises seeking better application performance.

In the book, Lewis shed light on the technology and physical infrastructure underpinning high-frequency trading and the U.S. equities market. He explained how trading applications, equipment, colocation and connections were strategically architected and refined so that financial data and trading signals can be sent across stock exchanges and liquidity venues at blazing speeds.

The “black box” puzzle that eluded even the largest and most sophisticated Wall Street investors back in 2007 completely transformed physical trading floors into the high-speed electronic marketplaces of today. This same transformation is taking place in the enterprise space as companies move beyond traditional enterprise wide-area network models to improve application performance in the cloud.

TheFragmentationChallenge

Global enterprises are facing a big challenge: Ensuring secure, reliable high-speed application delivery in a highly fragmented IT environment. This same challenge was faced by the global capital markets beginning ten years ago.

As the U.S. financial markets were deregulated, liquidity became distributed - changing the market structure of securities trading and resulting in the creation of a complex and highly fragmented global electronic marketplace. Wall Street had to do something to solve the “black box” puzzle – and they did.

Today, infrastructure is distributed across hundreds of liquidity pools, located in different places and connected via high-speed fiber or microwave networks. Despite the fragmentation, large volumes of data and execution orders move across networks in very specific and consistent ways, with latencies that can be measured in milliseconds or even nanoseconds. Capital markets solved the fragmentation challenge.

TheDisruptionIsReal:EnterpriseAppsAreMovingtotheCloud

Enterprises are moving key applications to the cloud in record numbers to take advantage of agile software-as-a-service (SaaS) deployments. With this shift, many are faced with application performance that is lagging – and fragmentation is a key reason.

As more enterprise apps move to the cloud, the software stack – applications, data and their physical locations – are becoming increasingly fragmented. Instead of applications running in one place, some are on-premise, some are in the public cloud, and some are hybrid solutions that span in-house and cloud provider environments.

Adding to this complexity, enterprises face performance and delivery challenges caused by device proliferation and BYOD. With employees no longer tethered to the PBX and enterprise LAN, enterprise apps are accessed remotely, over public and wireless networks, and from devices that are not part of the enterprise IT ecosystem.

Instead of enjoying agility gains from the cloud, this complex and
fragmented application and data ecosystem is slowing down performance.

From Wall Street to Main Street: Fragmentation Problem Solved

Just as capital markets participants transformed their network, infrastructure and application delivery models for high performance and agility, enterprises are beginning to do the same. This shift involves moving to next-generation architectures that integrate network and cloud hubs into enterprise data centers and the WAN.

In a recent article, “Edge-based Data Centers May Address Latency Worries,” industry experts suggest that the need for low latency communications extends beyond high frequency trading and is becoming increasingly important as companies look for faster access to public cloud and outsourced mission-critical apps. CIOs are now looking at far different architectures than were traditionally built out - with a more distributed mix of edge data centers so that applications and content can be structured to maximize application performance and serve users in different regions.

For this system to work, it must built on a high-performance core anchored on commercial data centers. The traditional hub-and-spoke architecture of carrier MPLS networks, which connected users in branch locations back to a centralized enterprise data centers, is long gone.

Because today's application ecosystem is distributed among numerous locations, geographically distributed hubs are the best way to build an optimized, high-performance global mesh network that connects legacy enterprise apps with distributed SaaS applications, data and users. With this architecture in place, users can enter and exit the enterprise WAN depending on their mode of access and proximity to the applications they're using.

Once commercial data centers are integrated as hubs into the enterprise WAN, enterprises can extend their core network and thus deliver higher levels of performance, reliability and predictability. At the same time, they will reduce network latency, increase bandwidth and improve application performance.
Another big advantage of using commercial data centers is their proximity to the core of the Internet and a broad range of network, cloud and IT service providers. The closer you are to the Internet core, the better. Enterprises enjoy more simplified, reliable and direct access to public SaaS, IaaS and other cloud services, and employees enjoy a better user experience.

This network and application delivery model uses the same high-performance distributed, global infrastructure and data center ecosystem that revolutionized the global capital markets and solved their fragmentation and performance challenges. It’s time for global enterprises to do the same.

To read more about how leading global enterprises are applying this model to deliver the performance and agility of the cloud, download a recently released CFN white paper, *The Fragmentation Challenge: Improving Enterprise Application Performance in a SaaS World*. 