Increase Mobility and Performance with Virtual GPU Solutions
Meeting today’s technology challenges within financial services

All sectors within the financial services (FS) industry, from investment banking and trading to retail banking and insurance, face challenges in improving scalability and mobility while meeting stringent security and regulatory compliance requirements. FS professionals need more flexibility in how they access applications, and better technology performance.

Upgrading systems is often put off because of downtime risk. Virtual solutions can help FS organizations with improved performance, agility, and mobility—even for graphics-heavy applications and multiple monitor support.

Current technology challenges for financial services

To stay current and competitive in the marketplace, FS workers need their technology tools to deliver high performance, with the ability to access their workspace from any device, anywhere, anytime. Today’s operating systems and productivity apps affect every sector in FS. For example, financial analysts and advisors routinely scroll through screens upon screens of data. Without graphics acceleration, functionality in common business applications, such as scrolling through a 300-page PDF, can be plagued with significant lag time and result in reduced productivity.

Trading floors have unique challenges that are generating the need for virtualized solutions. Traders need mobility and are often moved around, along with their systems, to work closely with different groups like equity, commodities, or risk income. They need to be constantly up and running, and have physically small desk areas. Multi-monitor support is desired, as some may have as many as 15 applications open simultaneously. Data must be preserved and protected from information breaches and natural or man-made disasters, to ensure that the trading floor can be up and running in no time.

Retail banks and insurance agencies are turning to virtual solutions to provide intelligent, enhanced services, simplify IT management at local branch offices, and better equip staff, yet they still need high performance to access video and graphics-heavy applications.

Because every second of downtime translates into lost revenue, this industry requires stable systems. Some organizations are still on Windows XP because they cannot afford the downtime required to upgrade their systems.

- Brokerage firms and stock exchanges stand to lose millions of dollars if transactions or trading were interrupted for just minutes during normal business hours\(^1\)
- The financial services sector was the most attacked in 2016, with 65 percent more attacks than other sectors, resulting in 200 million records being breached in one year\(^2\)
- The financial services sector, including banking and insurance, is the largest contributor to the desktop virtualization revenue forecast through 2020—security being one of the major driving factors\(^3\)

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2 Olenick, Doug (2017, April 28). Financial services sector most attacked in 2016: IBM.
Virtualization technology delivers results

Cisco and NVIDIA present a virtual GPU (vGPU) solution that is optimized for the FS industry, providing both general-purpose and high-performance virtual desktop infrastructure (VDI). This solution works across all sectors and departments, enabling them to increase mobility, improve performance, and boost security. Adding the Cisco and NVIDIA virtual GPU solution to an organization’s infrastructure can centralize apps and data, delivering cost-effective VDI performance that scales. Providing virtual workspaces for knowledge workers, power users, and mobile professionals offers significant advantages:

- **Enhance productivity and user experience.** FS professionals can access their workspace from anywhere, on any device with a native PC-like experience. VDI provides increased flexibility to access programs across different platforms, with the same performance as the original system. With graphics acceleration, FS organizations can take full advantage of today’s graphics-rich operating systems and modern business apps – including key apps such as Bloomberg and homegrown, customized apps – with significantly lower latency. Retail bankers, financial advisors, and insurance agents can provide more interactive digital tools while streamlining operations requirements locally. This solution satisfies unique productivity needs, such as multi-monitor support and larger frame buffers for better data visualization and pattern recognition.

- **Increase manageability and scalability.** In all sectors, FS organizations often have hundreds and thousands of users to support, from rolling out systems to quickly resolving issues. Now, FS organizations can centralize data and applications in the data center, delivering virtual workspaces with improved manageability, security, and performance while reducing downtime and support costs, simplifying IT management at local offices. IT can easily manage large-scale virtualization deployments with end-to-end visibility of the organization’s infrastructure and proactive monitoring.

- **Bolster security and regulatory compliance.** As part of a heavily regulated industry, FS organizations must safeguard data against information breaches and insider trading, or face serious consequences. By securely hosting sensitive financial information within the data center, organizations can improve their overall security while simultaneously protecting data in the event of disaster. Not only does virtualization allow more users to securely access more applications, it also enables secure work-from-anywhere workstyles.

Cisco and NVIDIA virtual GPU solution benefits

- Greater mobility, flexibility, and productivity for FS professionals
- Improved application performance, with a native PC experience on any device, even across operating systems and platforms
- Support for increasing graphical requirements of today’s operating systems and modern productivity applications
- Scale VDI across an organization with this cost-effective solution
- Improved security by storing data and applications in the data center
- Increased IT agility, as updates can be distributed in a fraction of the time
- Manage business continuity and disaster recovery centrally
- Support for up to four HD or two 4K resolution monitors for enhanced multi-tasking
- Lower IT management costs and zero downtime, even during maintenance with live migration
- Streamlined, unified management for storage, network, and compute with Cisco UCS® Manager, Cisco HyperFlex™ Connect and Cisco Intersight™
How NVIDIA virtual GPU works

In a VDI environment powered by NVIDIA virtual GPUs, the NVIDIA vGPU software is installed at the virtualization layer along with the hypervisor, as depicted in Figure 1. This software creates virtual GPUs that enable every virtual machine (VM) to share the physical GPU installed on the server. The NVIDIA virtualization software includes a graphics driver for every VM. Quadro Virtual Data Center Workstation (Quadro vDWS) includes the powerful Quadro driver. Work that was typically done by the CPU is offloaded to the GPU, so the user experiences improved performance. Applications are now supported in a virtualized and cloud environment.

Cisco UCS and Cisco HyperFlex support improved performance

Cisco UCS further enhances NVIDIA’s graphics performance and the user experience. This powerful platform makes files and other data rapidly available to any location, while maintaining security, delivering the following benefits:

- Reduce CapEx and OpEx by virtualizing graphics solutions, offering better IT services
- Accelerate graphical and general-purpose application performance with NVIDIA GPUs and increase security by reducing data movement
- Take advantage of increased memory capacity with servers that offer up to 3 TB of memory
- Consolidate workloads with the improved CPU performance, increased GPU support, and greater memory capacity of the Cisco UCS M5 portfolio

Cisco HyperFlex can meet a broad range of FS-focused IT needs in a hyperconverged environment:

- Increase speed and efficiency by combining compute, storage, and networking in a single system
- Achieve agility in distributed environments with centralized data management and ease of use
- Protect critical intellectual property and sensitive data, with role-based data security
- Scale to meet graphical and other application needs with NVIDIA GPUs and increased Cisco compute-only nodes, logical availability zones, and high-capacity large-form-factor disk drives

Cisco UCS and Cisco HyperFlex are positioned in the technology stack as shown in Figure 2.

Figure 1  The NVIDIA virtual GPU in the virtualization layer

Figure 2  Cisco UCS and Cisco HyperFlex in the technology stack
Virtual GPUs provide a powerful solution

A virtual GPU solution brings a consistent, exceptional user experience to any device, from any location. NVIDIA offers the industry’s highest user-density solution, with support for up to 32 virtual desktops per physical GPU. Cisco provides accelerated application performance, reduced costs, and increased management agility options.

FS organizations can experience improved application performance, increased flexibility for workers to access apps from any location or device, better security for regulatory compliance, and significantly lower IT costs, with exceptional quality of service and broad ecosystem support.

For more information

To learn more about how you can deploy the power of Cisco’s computing infrastructure and NVIDIA’s virtual GPUs to reduce hardware costs, secure sensitive information, increase productivity and improve overall technology performance, please contact Todd Gambill at Cisco. For more information about the Cisco–NVIDIA virtual GPU solution for financial services, visit Cisco desktop virtualization or NVIDIA sites.