Accelerate Graphics in Virtual Environments

Deliver rich graphics capabilities to more users through virtualized graphics technology from Citrix, Dell, and NVIDIA.

Virtualization of graphics applications is ready for prime time. Technologies from Citrix, Dell, and NVIDIA can deliver outstanding performance for demanding graphics applications through your virtual apps and virtual desktops infrastructure.
Delia is an IT director for the product development unit of an international manufacturing firm. The team’s growth plans for the next fiscal year include a new branch office overseas. Delia and her team will need to support new applications that are more graphically intensive than existing ones. Engineers will need new workstations and will need to share data and files with designers and engineers in other locations—requirements that will push Delia’s budget and infrastructure to its limits. Delia’s challenge is to protect the company’s intellectual property against loss or theft while ensuring a high-performance user experience for the entire staff.

IT directors in organizations that use demanding graphics applications face challenges similar to Delia’s. Applications such as computer-aided design, manufacturing, and engineering (CAD/CAM/CAE) and geographical information system software traditionally run on dedicated, standalone workstations and produce very large files from enormous data sets. This reality can complicate collaboration between coworkers and in doing so can put valuable intellectual property at risk.

**Top challenges associated with demanding graphics software**

High-end professional graphics applications and their associated data are business-critical in industries such as design and engineering, manufacturing, and oil and gas. Primary users of such applications—usually designers and engineers—need to collaborate and manage design lifecycles effectively with each other. But they also need to make the 3D data files available for viewing and editing by secondary users, such as supply chain partners and sales and service personnel using Product Lifecycle Management (PLM) or Product Data Management (PDM) applications.

However, it can be costly, inefficient, and time consuming to share very large files over a wide area network (WAN). Even when these employees collaborate with local colleagues, it can be difficult to access designs on factory floors or in the field to make a simple edit or analyze a change in real time. Additionally, intellectual property (IP) can be at risk when it resides on individual workstations, which can be difficult to secure and manage. IP can also be at risk in transit when shared with partners or suppliers.

These challenges delay time to market and can increase development costs. How can IT professionals deliver graphics-intensive applications and files to the right people at the right time, affordably and securely?

**Virtualized graphics could be the answer**

You can overcome these challenges with a 3D graphics-enabled application and desktop virtualization solution from Citrix, Dell, and NVIDIA. This solution enables more secure, real-time, remote collaboration on design data and delivers stunning visual performance for the most demanding graphics software.
Many enterprises take advantage of application and desktop virtualization technology to secure data, reduce costs, and increase flexibility. This approach to application delivery frees computing capabilities from individual device hardware. As a result, IT professionals can deliver apps and desktops as an on-demand service, which enables easier scalability and management.

Citrix, Dell, and NVIDIA have introduced game-changing technology that brings the benefits of virtualization to professional 3D graphics applications and organizations that rely on them. For example, by centrally hosting demanding graphics software and data in the data center, you can:

- Deliver fast graphics performance, like users would experience through a dedicated workstation
- Better secure intellectual property and sensitive private information against loss or theft
- Manage capital expenditure (CAPEX) and operational expenditure (OPEX) costs by efficiently sharing hardware
- Efficiently scale as business needs change by easily provisioning virtual apps and desktops

**A closer look at the Citrix, Dell, and NVIDIA solution**

The joint 3D graphics virtualization solution is built from the robust performance and capabilities of technologies from Citrix, Dell, and NVIDIA.

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Citrix virtualization software enables designers, engineers, and other consumers of 3D data to share files quickly and more securely. And when Citrix powers your graphics applications on Dell Precision™ and Dell™ PowerEdge™ server hardware with NVIDIA GRID boards, these users can maintain high performance for their graphically demanding applications.

**Why Citrix XenApp® and Citrix® XenDesktop®**

XenDesktop®: XenApp and XenDesktop with Citrix® HDX™ 3D Pro are the only application and desktop virtualization solutions that can cost effectively support the graphics-intensive needs of designers and engineers—and of secondary viewers and editors—with the same performance, scale, and graphics compatibility.3

“We selected Dell PowerEdge R720 servers to deploy a XenDesktop deployment. The Dell R720 servers came integrated with two NVIDIA GRID K2 cards. So, we were able to drive down the cost and implement the solution very effectively. We did evaluate some other hardware vendors, but we ended up choosing the Dell PowerEdge R720 for the implementation.”

Agile 360, Solutions Integrator
Why Dell: Dell™ Wyse™ Datacenter for Virtual Workstations is an end-to-end solution built for accelerated graphics in virtual environments. The solution combines optimized Dell data center hardware including Dell Precision™ workstations and Dell™ PowerEdge™ servers, Dell™ EqualLogic™ and Dell™ Compellent™ storage arrays, and Dell™ Force10 and Dell™ PowerConnect™ networking, with virus-immune Dell Wyse thin clients and client management software. Dell has validated this solution through more than 100 engineering hours to provide the optimal balance of high performance and low cost per user. The solution also includes Dell’s end-to-end services, which range from blueprint assessment through implementation and one-touch support.

Why NVIDIA: NVIDIA GRID™ technology offloads graphics processing from the CPU to the GPU in virtualized environments. It is the first hardware-based virtual GPU (NVIDIA™ GRID vGPU™) solution that makes it possible for multiple virtual machines to share a single GPU, delivering, graphics-rich experiences.

In the combined solution, Citrix XenApp and XenDesktop take advantage of advanced server-side GPU rendering powered by Dell and NVIDIA to support designers’, engineers’, and secondary users’ best work, without interruption, from anywhere on any device. And because multiple users can share the GPU and other hardware, the joint solution enables virtualization cost savings you can’t get with standalone workstations.

Choose the best approach for your needs

The Citrix, Dell, and NVIDIA joint solution supports various models of graphics virtualization so that you can deliver the best possible performance to users while maximizing the cost savings that virtualization makes possible.
Deliver professional graphics at scale

If your business relies on demanding graphics applications and your business needs to securely share intellectual property between employees and with external parties, it’s time to take another look at graphics virtualization. The joint solution from Citrix, Dell, and NVIDIA allows IT professionals to easily scale to support multiple designers and engineers—in addition to viewers and editors of 3D data—while cost-effectively and securely delivering real-time, remote collaboration.

Citrix, Dell, and NVIDIA are ready to share experiences and best practices to help you deliver advanced graphics capabilities to more users. To learn more, visit:

- [http://www.dell.com/workstationvirtualization](http://www.dell.com/workstationvirtualization)
- [http://www.citrix.com/xendesktop/3d](http://www.citrix.com/xendesktop/3d)
- [http://www.nvidia.com/vdi](http://www.nvidia.com/vdi)

1 This is true as of time of publication. However, future developments and releases may invalidate this claim.

About Dell

Dell Inc. listens to customers and delivers worldwide innovative technology, business solutions and services that give them the power to do more. Dell Services develops and delivers a comprehensive suite of services and solutions in applications, business process, consulting, infrastructure and support to help customers succeed. For more information, visit www.dell.com.

About NVIDIA

NVIDIA (NASDAQ: NVDA) awakened the world to computer graphics when it invented the GPU in 1999. From our roots in visual computing, we’ve expanded into super, mobile and now virtualized computing. The introduction of NVIDIA GRID and GPU virtualization delivers visually demanding applications from either on-premise or cloud based virtualized servers. Learn more at www.nvidia.com.

About Citrix

Citrix (NASDAQ:CTXS) is a leader in virtualization, networking and cloud services to enable new ways for people to work better. Citrix solutions help IT and service providers to build, manage and secure, virtual and mobile workspaces that seamlessly deliver apps, desktops, data and services to anyone, on any device, over any network or cloud. This year Citrix is celebrating 25 years of innovation, making IT simpler and people more productive with mobile workstyles. With annual revenue in 2013 of $2.9 billion, Citrix solutions are in use at more than 330,000 organizations and by over 100 million people globally. Learn more at www.citrix.com.

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