



NVIDIA VIRTUAL GPU AND CITRIX A STATE-OF-THE-ART GRAPHICS EXPERIENCE FOR ALL YOUR USERS

The enterprise is transforming. As workflows evolve and become more complex, businesses need to tackle larger datasets and power the most demanding applications. Even modern productivity applications and the Windows 10 operating system require much higher computer graphics than ever before. IT departments are faced with the challenge of addressing the growing compute and graphics requirements of an enterprise-wide virtual workspace, while satisfying the need for greater workplace mobility, improved security, and lower TCO.

Desktop virtualization untethers users, enabling amazing mobility and productivity. Graphics Processing Units (GPUs) enhance the VDI experience by offloading tasks from the CPU to provide better performance and user experiences. Without a GPU, some accelerated graphics and compute workloads simply won't run in a virtualized environment or, at best, will run with a reduced feature set. GPUs also broaden the applicability of your VDI technology to support use cases that weren't previously viable, and enable a cost-effective, scalable infrastructure that lets you expand virtualization to more users.

Citrix XenServer is the first hypervisor to offer virtual GPU support. Together, NVIDIA and Citrix are continuing to improve the technology and deliver an immersive graphical experience on any application, on any device. End users are empowered with tools to become more productive, and IT is able to cost-effectively scale virtualization to more users and more use cases.

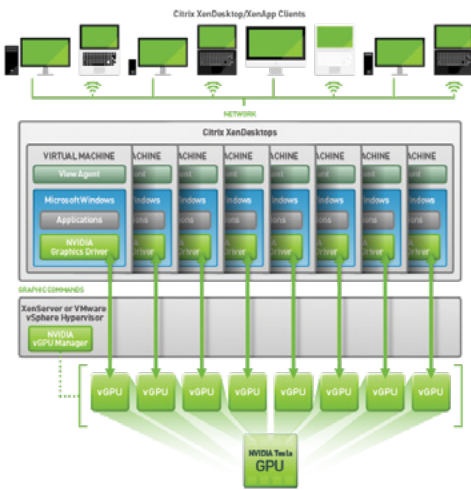
In collaboration with Citrix



CITRIX with NVIDIA Virtual GPU Solutions

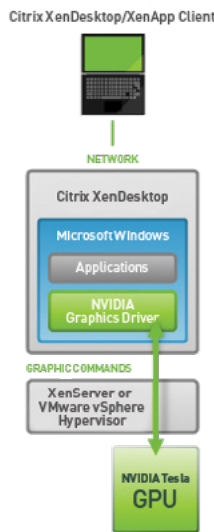
NVIDIA Virtual GPU for XenServer

NVIDIA virtual GPU software runs on NVIDIA® Tesla® GPUs and is installed in the XenServer host. This software divides the GPU into multiple vGPU instances that each have direct access to the native NVIDIA driver installed in the guest O/S. The graphics commands of each virtual machine are passed directly to the GPU, without translation by the hypervisor. This allows the GPU hardware to be allocated for each user to deliver the ultimate in shared virtualized graphics performance. NVIDIA virtual GPU lets you deploy VMs across a wide range of users and graphics applications—from users who need to view PowerPoint slides and YouTube videos to your most demanding engineer using intensive 3D CAD software.



GPU Pass-Through

NVIDIA virtual GPU solutions let you assign a physical GPU in the XenServer host to a Windows or HVM Linux Virtual Machine (VM) running on the same host. Each hosted VM gets its own dedicated GPU, eliminating the software abstraction and the performance penalty that goes with it. This GPU pass-through feature is ideal for designers, engineers, and architects who need high-performance graphics capabilities.



Key Benefits of the NVIDIA Virtual GPU and Citrix Solution

Immersive User Experience

An accelerated virtual desktop experience optimized for Windows 10 and office productivity applications with NVIDIA GRID™

Proven benefits and performance of NVIDIA® Quadro®, extended to virtual workstations with the NVIDIA Quadro Virtual Data Center Workstation (Quadro vDWS)

Optimized application performance with NVIDIA virtual GPU products and Citrix HDX 3D Pro

Improved VDI user experience with NVIDIA vGPU products and XenDesktop support for H.265

Full Digital Transformation Capability

The ability to broaden the applicability of your VDI technology to support more knowledge worker use cases with NVIDIA GRID

Quadro vDWS for support of accelerated graphics and compute workflows (NVIDIA CUDA® and OpenCL) to streamline design and computer-aided engineering simulation

Greater Security for Mission-Critical Data

The ability to secure even the largest, mission-critical datasets in the data center and access them remotely with professional apps running on XenDesktop or XenApp powered by Quadro vDWS

Single Platform, Lower Costs

Citrix end-to-end platform for reduced OpEx and NVIDIA GRID licenses tailored to the EUC requirements and budget




NVIDIA virtual GPU insights integrated into XenServer and Citrix Director to support both Quadro vDWS and NVIDIA GRID use cases

Breadth of Partner Ecosystem

A growing portfolio of Quadro certifications with the industry's leading 3D application ISVs and Quadro vDWS

NVIDIA virtual GPU solutions supporting a full range of Citrix Ready ecosystem partners for server, storage, and management—ensuring that customers' current and future investments are protected

The NVIDIA virtual GPU solution is comprised of Tesla data center GPUs and software licensing components. Choose from three software editions: NVIDIA GRID™ Virtual Applications (GRID vApps) and Virtual PC (GRID vPC) for knowledge workers, and NVIDIA Quadro® Virtual Data Center Workstation (Quadro vDWS) for professional graphics users. The Quadro vDWS includes a certified Quadro driver to ensure that users get the same features expected of a physical workstation, including anti-aliasing, realistic models, enhanced application performance, and application certification.

| Virtual Applications | Virtual Desktops | |
|---|---|--|
|  NVIDIA GRID Virtual Applications |  NVIDIA GRID Virtual PC |  NVIDIA Quadro Virtual Data Center Workstation |
| Use with Citrix XenApp or other RDSH solutions like VMware Horizon Hosted Apps | For virtual desktop delivering standard PC applications, browser, and multimedia. | For professional graphics applications; includes an NVIDIA® Quadro® driver |

OEM Systems Partners



Also available from Asus, Fujitsu, Hitachi, Huawei, Inspur, Nutanix, Sugon, Tyan, and Quanta. For a complete list of certified hardware, visit www.nvidia.com/buygrid.



Citrix and NVIDIA collaborate closely during product development to assure stability and reliability of the platform. As part of a joint Certification Program, NVIDIA virtual GPU solutions are thoroughly tested to ensure that customers get the performance they expect.

For more information, visit www.nvidia.com/virtualgpu or citrix.com/global-partners/nvidia

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