

ENABLING EFFICIENT AND PRODUCTIVE GRAPHICS TRAINING

Replacing outdated desktop PCs with VDI powered by NVIDIA GRID™ technology allowed the Meijin Company to address their client's needs efficiently and cost effectively.



NVIDIA GRID technology delivers unprecedented power and flexibility to students at the Specialist Training Center running a variety of 2D and 3D applications.

AT A GLANCE

CUSTOMER PROFILE

Company: The Meijin Company

Industry: IT manufacturing and sales

Location: Moscow, Russia

SUMMARY

- > Computer manufacturer tasked with updating a computer lab used for training
 - > Budget constraints prevented replacing outmoded desktop PCs with high-end workstations
 - > Implemented VDI with NVIDIA GRID K2 on a custom-built server
 - > Students receiving high-end graphics performance equal to or better than existing workstations
-

SOFTWARE

Hypervisor: Citrix XenServer

Desktop and Application Remoting: Citrix XenDesktop

Key applications: Solidworks, Autodesk 3D Studio Max, Maya, Inventor, and AutoCAD, and Chaos Group V-Ray

HARDWARE

GRID boards: K2

Servers: Meijin custom 2U rack mount with dual Intel Xeon E5-2640v2 CPUs, 128GB of RAM, and 1.5TB of SSD storage

Clients: Various desktop and laptop computers

Meijin has been a leading manufacturer of high-quality personal computers, workstations, and servers since 1995. Their services include pre-sales consultations to help customers select the correct hardware and applications to suit their needs plus robust post-sales service and support. Customers are welcome to either visit their Moscow office for in-person consultations and sales or select and purchase their computers online. Their Education Center offers courses in running applications, including some that require high-end graphics processing.

CHALLENGE

Meijin partnered with the NVIDIA Russia office to equip a portion of a computer laboratory at the Specialist Training Center on the Moscow State Technical University campus (STC) with high-end workstations equipped with NVIDIA® QUADRO® K4000 cards. These workstations deliver robust graphics performance to students running high-end applications that include Solidworks, Autodesk 3D Studio Max, Maya, Inventor, and AutoCAD, and Chaos Group V-Ray for 3D Studio Max, among others. Budget constraints prevented STC from replacing all of the existing desktop PCs in that lab; however, the integrated GPUs in those system could not support the intensive 3D processing required by these applications.

Problems arose because there were not always enough high-end workstations to go around. Some graphics students had to work on the desktop PCs using simplified versions of the models. On the other hand, some of the students who needed standard office and web applications were working on the high-end workstations when there were not enough desktop PCs. One further challenge was that the V-Ray instructor prepares lessons at home on a laptop computer that took a long time to render scenes. The search was on for a solution that would deliver the levels of graphics performance needed by the diverse student groups while also allowing remote access to accelerated 3D applications and data.



REASONS FOR GRID

- 1 Full workstation performance from the lab or remote locations.
 - 2 Flexible GPU profiles maximize user density for more efficient hardware utilization.
 - 3 Cost effective compared to replacing outmoded desktop PCs with high-end workstations.
 - 4 Simplified IT management allows a single administrator to maintain the entire deployment.
 - 5 Scalable to meet future needs.
-

Two factors led us to adopt NVIDIA GRID technology. First, STC uses a variety of graphics applications with widely varying acceleration needs. It isn't cost effective to equip an entire lab with extremely powerful graphics workstations that won't see full utilization. VDI with NVIDIA GRID allows us to dynamically allocate GPU resources to accommodate a user's real-time needs. Second, this model gives teachers full remote access with no loss of performance.

Dmitry Rybenkov
Commercial Director
Meijin

SOLUTION

Meijin has extensive experience using the RDP protocol to establish remote connections and knew that this solution does not include GPU support. They reached out to the NVIDIA office in Moscow for assistance and learned about NVIDIA GRID technology. At that time, Meijin did not have significant experience with virtualization, but they saw the potential benefits and proceeded to design and build a VDI server integrating NVIDIA GRID K2 technology.

The custom-built 2U rack-mount server includes dual Intel Xeon E5-2640v2 CPUs, 128GB of RAM, 1.5TB of SSD storage, and three NVIDIA GRID K2 cards. Citrix XenServer and XenDesktop provide the hypervisor and virtual desktops, respectively. Meijin installed XenDesktop Receiver on the desktop PCs in the lab to allow them to access the GRID-enabled virtual desktops. This system supports up to six concurrent users running K280Q profiles with direct GPU passthrough providing QUADRO K5000-class performance for the most demanding applications. Various NVIDIA GRID™ vGPU™ profiles support a greater number of concurrent users with less demanding graphics needs.

"Two factors led us to adopt NVIDIA GRID technology," said Dmitry Rybenkov, Commercial Director at Meijin. "First, Specialist uses a variety of graphics applications with widely varying acceleration needs. It isn't cost effective to equip an entire lab with extremely powerful graphics workstations that won't see full utilization. VDI with NVIDIA GRID allows us to dynamically allocate GPU resources to accommodate a user's real-time needs. Second, this model gives teachers full remote access with no loss of performance."

The overall project took two months from initial planning to final installation. The main challenges were configuring the system to properly share resources among the virtual machines and addressing problems with transferring large files. Meijin and NVIDIA worked

Our students receive full workstation performance from our GRID server. Virtualizing graphics resources in the lab gives us greater flexibility and mobility on even the most demanding 3D applications. For example, our V-Ray course is much more intensive and productive thanks to reduced processing and rendering times that let our students spend more time working and less time waiting.

Dmitry Epov
Senior Instructor of 3D Visualization and Video Editing
Specialist Training Center

together to resolve these issues, and the deployment concluded successfully. Initial performance testing that compared the existing K4000 workstations to virtual desktops running the K280Q GPU passthrough profile proved that the GRID-enabled VDI is delivering full workstation performance to both local and remote users.

RESULTS

Deploying virtual desktops with NVIDIA GRID graphics acceleration delivered full workstation performance to STC students with no need for additional high-end workstations. Flexible GPU profiles deliver the graphics support each user needs while maximizing hardware utilization and ROI by allowing more concurrent users than the previous setup. Teachers no longer need to waste time waiting for scenes to render on laptop computers, nor do they need to simplify models because of hardware constraints. IT management has also been simplified. A single administrator can easily configure, deploy, and support virtual machines and desktops as needed without having to be in the lab.

“Our students receive full workstation performance from our GRID server,” said Dmitry Epov, Senior Instructor of 3D Visualization and Video Editing at STC. “Virtualizing graphics resources in the lab gives us greater flexibility and mobility on even the most demanding 3D applications. For example, our V-Ray course is much more intensive and productive thanks to reduced processing and rendering times that let our students spend more time working and less time waiting.”

“This was our first experience with NVIDIA GRID technology, but it won’t be our last,” concluded Rybenkov. “We are already planning to expand the VDI deployment at STC to cover all courses offered in that lab. We are also adding NVIDIA GRID technology to the list of solutions that we offer and will be actively encouraging our customers to adopt VDI platforms going forward.”

To learn more about NVIDIA GRID visit
www.nvidia.com/vdi

JOIN US ONLINE



blogs.nvidia.com



[@NVIDIAGRID](https://twitter.com/NVIDIAGRID)



gridforums.nvidia.com



tinyurl.com/gridvideos



linkedin.com/company/nvidia-grid

