DELL Technologies

NVIDIA

White paper

Top 5 Reasons to Use GPU-Accelerated VDI

Boost application performance for remote users.

Virtual desktop infrastructure (VDI) for compute- and graphics-intensive workloads is ready for prime time. GPU-accelerated VDI makes it possible to enable all types of remote users with ready-for-anything digital workplaces that increase efficiency and productivity without compromising on security.

Optimize on-demand workplaces with GPU-accelerated VDI.

Today's workforce needs to be productive from everywhere they choose to work. That means users of all kinds need to be empowered with digital workplace solutions that help them contribute and collaborate from anywhere.

Using GPUs to accelerate VDI workloads boosts performance for the most compute- and graphics-intensive applications, enabling professionals to collaborate on projects from remote and dispersed locations.

NVIDIA® virtual GPU (vGPU) software unlocks powerful GPU performance by creating vGPUs that can be shared across multiple virtual machines (VMs) and accessed by any device, anywhere. With NVIDIA vGPUs, enterprises can achieve:

- **Performance** virtually indistinguishable from a physical workstation
- **Access** to common data center management tools such as live migration
- **Flexibility** to provision GPU resources with fractional or multi-GPU VM instances
- **Business continuity** to quickly respond to changing requirements and remote teams

Education

Level the playing field by providing access to virtual labs and enabling any student access to the applications, compute and artificial intelligence (AI) technology they need to succeed.

Architecture

Empower architects to collaborate in real time on designs and visualize them with clients from anywhere.

Financial services

Fuel compute- and graphics-intensive applications, as well as office productivity tools, on up to four 5K monitors, with security, redundancy and continuity.

Healthcare

Enable quick access to patient records from any location and remote access to high-performance image processing for radiology, cardiology and digital pathology.

Manufacturing

Compress design cycles and accelerate time to market, while protecting intellectual property, by enabling virtual access to photorealistic 3D models.

Media and entertainment

Remotely edit video, on up to two 8K monitors, and bring on new contractors in minutes while keeping files securely in the data center.

Oil and gas

Boost throughput for visualization and heavy computation so remote workers can derive insights from massive amounts of sensor, geolocation, weather, drilling and seismic data.

Why GPUs for VDI

In recent years, the graphics requirements of operating systems and even everyday business applications have increased so that users are consuming more compute resources. Using NVIDIA GPU-accelerated Dell EMC infrastructure to offload graphics processing from the CPU to vGPUs enables a desktop-like experience for remote users with better performance for graphics-intensive workloads.

Learn more about NVIDIA accelerators for Dell EMC PowerEdge servers.

Reason #1

Deliver extreme performance.

Dell Technologies works closely with NVIDIA to develop solutions that deliver extreme graphics with superior performance for today's accelerator-optimized workloads. Dell EMC PowerEdge servers with NVIDIA vGPU technology make it simple for IT to deliver the performance required by today's modern workforce, including geographically diverse teams with both internal and external members.

"We have solved most of our remote performance problems with the Dell Technologies and NVIDIA VDI solution."

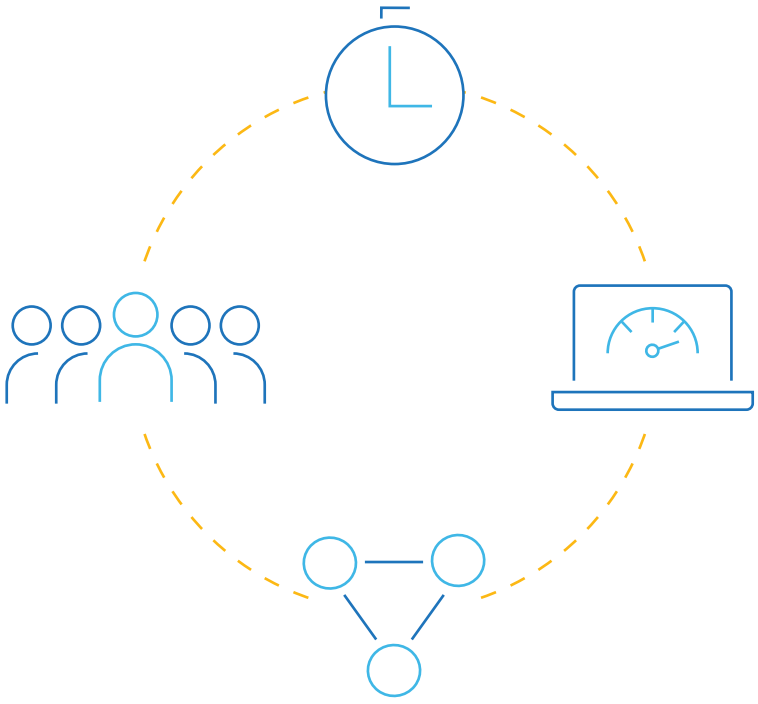
— Matt Wilson, IT Manager, Gould Evans

Read the full case study.

Deliver superior performance for dispersed onsite and remote teams.

Gould Evans deploys flexible, powerful VDI resources for designers.

- Eliminate latency across geographically dispersed teams.
- Hundreds of designers supported
- 20 people can work on the same 1GB file concurrently.
- "Significant boost" to productivity



Reason #2

Untether power users.

With GPU-accelerated VDI, applications that once required high-powered desktops can now be delivered to users located virtually anywhere, using any device. Using NVIDIA vGPUs to accelerate VDI, even designers and engineers are no longer tied to a specific device or location. Compute- and graphics-intensive applications can be made available from any desktop, laptop or mobile device — including personal devices—from virtually any location.

"The Dell and NVIDIA technology… allows access of imaging data just like streaming, with no delays."

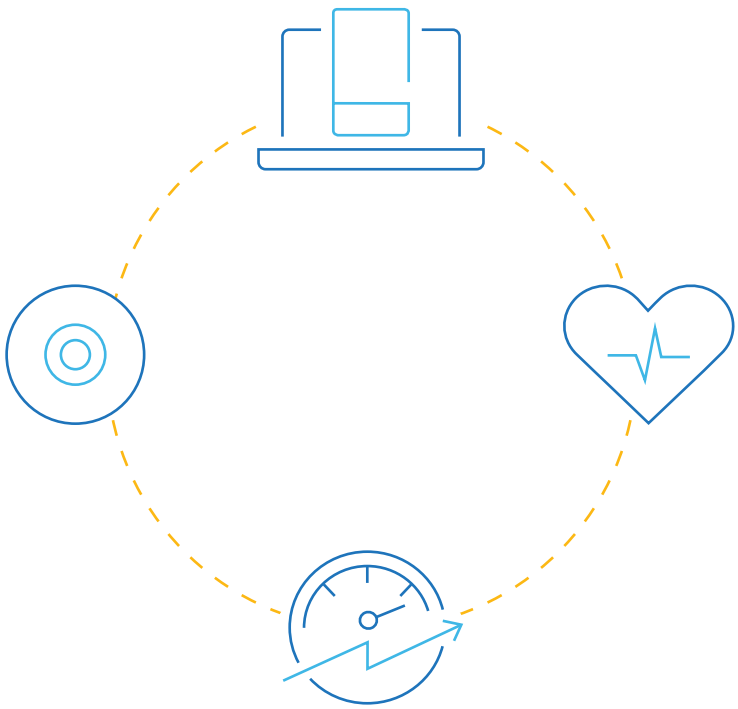
— Dr. Andrew Gogbashian, Lead Radiologist for CT, Consultant Oncological Radiologist, PSSC

Read the full case study.

Connect professionals anytime, anywhere.

Paul Strickland Scanner Centre uses VDI to save lives.

- Real-time scan rendering
- No interruptions to patient diagnoses or treatments
- "Collaborative and flexible" work environment for radiologists and other medical experts
- Any device, including at-home personal devices



Reason #3

Enhance cyber resiliency.

Accelerated VDI enhances security because data and VMs are consolidated in the data center and it transfers only the screen images you want to work with, thereby reducing the network load. This also reduces the risk of unauthorized access, loss or theft of information that may be stored on laptops and other devices. Security updates are also easier to deploy. In addition, Dell EMC PowerEdge servers are designed with a cyber-resilient architecture, integrating security deeply into every phase in the lifecycle, from design to retirement.

"Our IT staff can manage all settings and security parameters. It was easy to distribute a master image with the appropriate applications and restrictions to all devices."

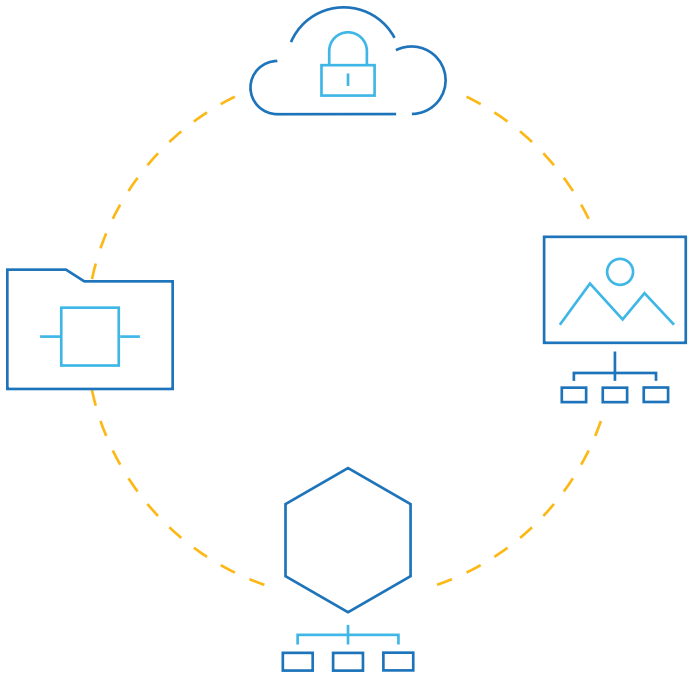
— Alexander Blagodarnov, Deputy CIO, Proektnyi Institut

Read the full case study.

Secure VDI from edge to core to cloud.

Proektnyi Institut gets better security, reliability and performance for VDI.

- Reliability and high performance for 120 engineers using high-end graphics applications
- Centrally managed infrastructure for 3D visualization applications
- Edge-to-core-to-cloud security for VDI workloads
- Zero important project files lost



Reason #4

Save time and money.

Accelerated VDI enables multiple users to share graphics-intensive resources, increasing hardware utilization and reducing the need to purchase and support expensive workstations. This hardware consolidation on higher density infrastructure also reduces IT costs because the data center runs more efficiently, with lower power and cooling costs. In addition, GPU-accelerated VDI can lead to savings on application licensing costs. For example, users who need only occasional access can use a pooled desktop scenario, which reduces license requirements.

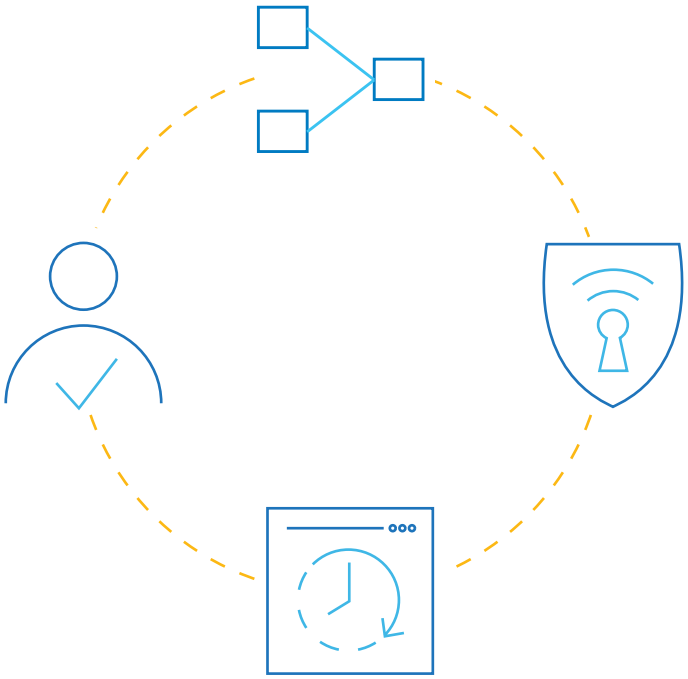
Support more users with less staff.

University of Colorado School of Dental Medicine uses VDI to deliver outstanding dental training.

- 80X reduction in software update times
- One team member instead of eight for software updates
- 900 users easily supported by IT
- Seamless transition to remote class delivery

> "IT no longer has to touch all the computers…to perform software updates, which required eight people working 10 hours a day on both weekend days."
>
> *— Ernesto Jamison, Infrastructure Engineer, University of Colorado School of Dental Medicine*

Read the full case study.



Reason #5

Support emerging workloads.

Many organizations are looking to leverage GPU-accelerated VDI for emerging use cases, such as AI. Because GPUs excel at parallel processing, they are ideal for training deep learning neural networks for AI applications.

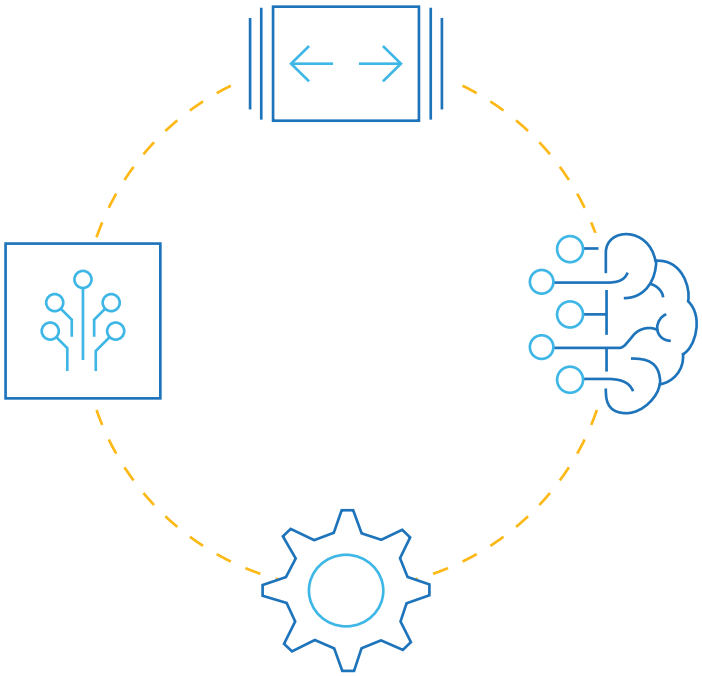
"VMware gives us the possibility to be flexible and to use the infrastructure for a lot of things — enterprise workloads, VDI, remote workstations, support for smart working, scientific computing, HPC — all in the same infrastructure in a very flexible way."

— Maurizio Davini, CTO, University of Pisa

Give remote research teams access to powerful resources.

University of Pisa simplifies AI and HPC with virtualization.

- Extending the power of GPUs to more users beyond VDI
- Multiple uses cases including language processing, image processing, deep learning and deep neural networks
- One infrastructure supports enterprise apps, HPC and AI in parallel.
- Delivery of virtual desktops and apps to end users via a single platform.



Read the full case study.

#1
in servers[1]

#1
in converged and hyperconverged infrastructure (HCI)[2]

#1
in storage[3]

#1
cloud IT infrastructure[4]

Many reasons, one solution

For all these reasons and more, GPU-accelerated VDI delivers workforce transformation by enabling even power users to work from virtually anywhere with the performance, productivity and security that is vital to your organization.

NVIDIA pioneered accelerated computing technology to tackle challenges ordinary computers cannot. NVIDIA powers the da Vincis and Einsteins of our time so that they can see and create the future. NVIDIA vGPU technology enables powerful GPU performance for workloads ranging from graphics-rich virtual desktops and workstations to data science and AI, enabling IT to leverage the management and security benefits of virtualization as well as the performance of NVIDIA accelerated computing required for modern workloads.

Dell Technologies offers a range of options to help you streamline delivery, protection and management of compute-intensive and graphics-rich applications on accelerated infrastructure from edge to core to cloud. Dell Technologies is the only provider to offer VDI solutions from the data center to the endpoint, including servers, storage, networking, workstations, thin clients, PCs, laptops, monitors and peripherals along with specialized experts focusing on VDI.

Together, Dell Technologies and NVIDIA provide the most intelligent and secure GPU-accelerated VDI solutions with the industry's most advanced management capabilities to revolutionize how you deploy, manage, secure and support your users no matter where they work, learn or collaborate.

[1] IDC, WW Quarterly x86 Server Tracker, 2Q2021, Vendor Revenue & Shipments, September 9, 2021.

[2] IDC, WW Quarterly Converged Systems Tracker, 4Q2020, Vendor Revenue, March 18, 2021.

[3] IDC, WW Quarterly Enterprise Storage Systems Tracker, 2Q2021, September 9, 2021.

[4] IDC, WW Quarterly Enterprise Infrastructure Tracker: Buyer and Cloud Deployment, 1Q2021, Vendor Revenue, July 1, 2021.

Learn more about Dell Technologies VDI solutions.

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