DELL Technologies

NVIDIA.

Accelerated Virtualization Solutions from Dell Technologies and NVIDIA

Dell EMC infrastructure with NVIDIA virtual GPU (vGPU) technology supercharges your workloads.

Virtual Desktops

Deploy multimedia-rich virtual desktop infrastructure (VDI) for knowledge workers who use office productivity applications, stream videos and multitask across several high-resolution monitors.

User Benefits: The Dell Technologies' VDI solution, accelerated by NVIDIA GPUs with NVIDIA Virtual PC (vPC) or Virtual Applications (vApps) software, delivers a superior user experience versus CPU-only VDI.

IT Benefits: IT can centrally manage users, including authentication, security and application updates, while also maximizing user density per server to reduce total cost of ownership (TCO).

Virtual Workstations

Enable creative and technical professionals with the power and performance to work more efficiently, collaborate across geographies and bring creations to market faster than ever with NVIDIA RTX Virtual Workstations (vWS) software, which delivers virtual workstations that are accessible from anywhere.

User Benefits: Designers and engineers working with increasingly complex models and larger data sets no longer need to be tethered to physical desktops.

IT Benefits: IT can centrally manage users, authentication, security and application updates with the ability to spin up a new virtual workstation in just minutes.

Virtual Compute

Allocate GPU resources to accelerate a variety of data center workloads such as artificial intelligence (AI), deep learning (DL), data science and high performance computing (HPC) with NVIDIA AI Enterprise software.

User Benefits: Researchers and analysts can access virtual GPUs to accelerate compute-intensive server workloads, including AI, DL, data science and HPC, with performance that is on par with bare metal servers.

IT Benefits: IT can deploy server resources across workloads more flexibly while taking advantage of centralized management and monitoring, GPU sharing and GPU aggregation.
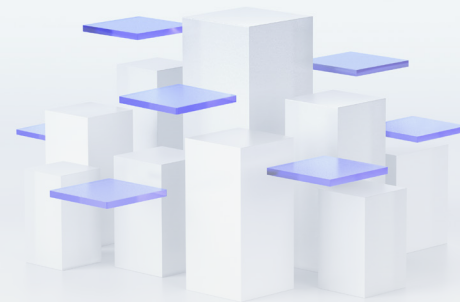
VIRTUAL DESKTOPS

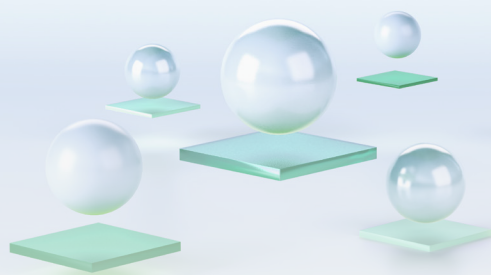Dell EMC PowerEdge servers with NVIDIA data center GPUs and NVIDIA vPC software greatly enhance user experience and productivity compared to CPU-only VDI. This solution can provide up to 40% lower end-user latency and up to 33% higher frame rate.

This can vastly improve user experience for applications such as Microsoft Office and Teams as well as other productivity applications such as browsers like Google Chrome and Firefox.

Higher CPU core counts are achieved with the latest Dell EMC PowerEdge servers combined with the latest generation of NVIDIA GPUs, which provide higher user density per server. NVIDIA A16 GPUs have a unique quad-GPU board design that provides great user density and the best user experience for multimedia-rich virtual desktops that are accessible from anywhere. In addition, they enable simultaneous user profiles on a single board.

Recommended Dell EMC server: PowerEdge R750, R7525, R740xd, VxRail

Recommended NVIDIA GPUs: NVIDIA A16 for multimedia-rich virtual desktop environments with the best TCO.

VIRTUAL WORKSTATIONS

Leverage Dell EMC PowerEdge servers with NVIDIA RTX vWS software to access professional independent software vendor (ISV) applications for computer-aided design (CAD), animation and visual effects, architecture and design, geographic information systems (GIS) and more — from anywhere and on any connected device, with an experience that is nearly indistinguishable from a physical workstation.

- Take advantage of Dell Technologies ISV application certifications for virtual workstations, including Esri ArcGIS Pro, Dassault Systèmes CATIA and Autodesk AutoCAD.

- NVIDIA RTX technology provides advanced features, such as real-time ray tracing, AI, rasterization and simulation as well as RTX-accelerated applications.

- Achieve up to 2x the throughput over the previous generation GPU architecture and the ability to concurrently run ray tracing with either shading or denoising capabilities. Second-generation RT Cores deliver massive speedups for workloads like photorealistic renderings of movie content, architectural design evaluations and virtual prototyping of product designs.

- Double-speed processing for single-precision floating point (FP32) operations and improved power efficiency provide significant performance improvements for graphics and simulation workflows, such as complex 3D CAD and computer-aided engineering (CAE).

Recommended Dell EMC server: PowerEdge R750, R740xd, R7525, VxRail

Recommended NVIDIA GPUs: NVIDIA A40 for best performance and support for the largest models.
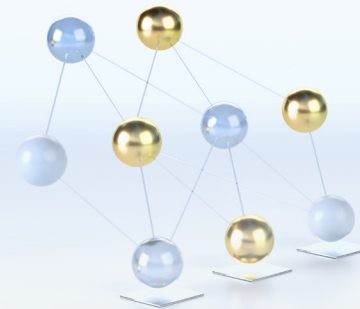
VIRTUAL COMPUTE

One big advantage of a virtualized data center is the flexibility to host a variety of workloads, scaling resources as needed. The versatility of Dell EMC dual-socket/2U PowerEdge servers provides an ideal platform to run the most demanding emerging applications with outstanding performance via NVIDIA GPU acceleration. NVIDIA provides the flexibility to virtualize the GPU for compute workloads using the NVIDIA AI Enterprise software. This enables a GPU to be shared across multiple virtual machines (VMs) or for multiple GPUs to be aggregated and dedicated to a single VM, with performance that is nearly equal to bare metal servers. This means that the same Dell EMC PowerEdge servers that provide the best user density and performance for VDI are also well-suited to run data center compute workloads, such as AI, deep learning training and inferencing.

Data Center AI Training

Recommended Dell server: PowerEdge R750 or R750xa, PowerEdge R7525, PowerEdge R740xd, VxRail

Recommended NVIDIA GPU: NVIDIA A100

Data Center Inference

Recommended Dell server: PowerEdge R750 or R750xa, PowerEdge R7525, PowerEdge R740xd, VxRail

Recommended NVIDIA GPU: NVIDIA A30

Edge Inference

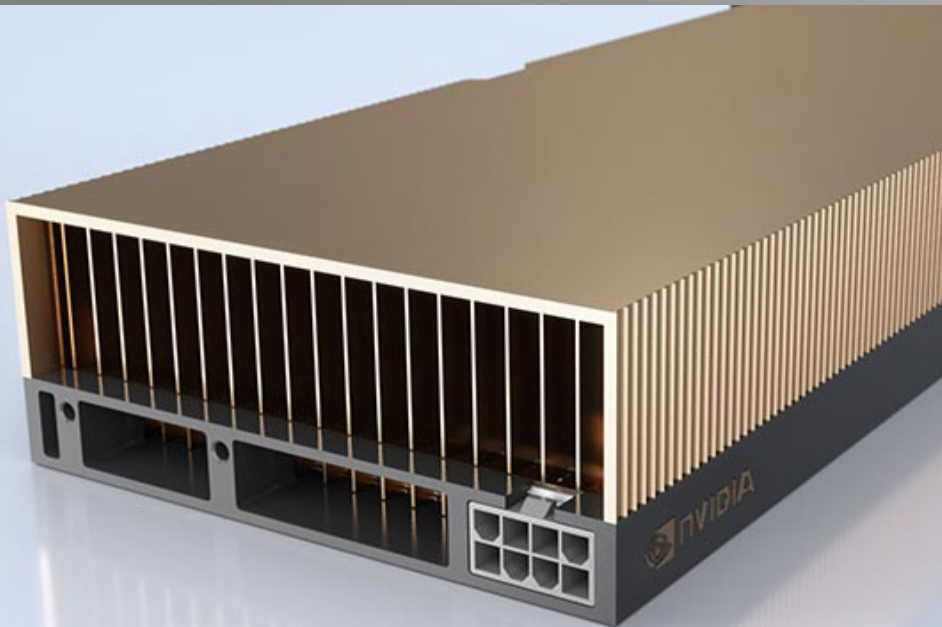**Recommended NVIDIA GPU:** NVIDIA A30

Data Science

Recommended Dell EMC server: PowerEdge R750, PowerEdge R7525, R740(xd), VxRail

Recommended NVIDIA GPU: NVIDIA A40 for data science virtual workstations.

Six Advantages of Accelerated Virtualization Solutions from Dell Technologies and NVIDIA

1 **Exceptional User Experience.**
Ultimate user experience with the ability to support both compute and graphics workloads.

2 **Superior Performance.**
Deliver ultra-fast, bare-metal speeds, whether on premises or in the cloud.

3 **Best User Density.**
Support up to 64 virtual desktops per physical GPU, plus 10+ vGPU profiles, to lower TCO and boost provisioning flexibility.

4 **Continuous Innovation.**
Stay updated with regular vGPU software releases providing the latest features and enhancements.

5 **Optimal Management and Monitoring.**
End-to-end management and monitoring for real-time insight into GPU performance. Plus, broad partner integrations so workers can use familiar tools.

6 **Broadest Ecosystem Support.**
Support for all major hypervisors. Most extensive portfolio of professional application certifications with NVIDIA RTX Enterprise Drivers.

Dell Technologies and NVIDIA Solutions
Recommended for Virtualization

	A100	A30	A40	A16
GPUs/Board (Architecture)	1 Ampere	1 Ampere	1 Ampere	4 Ampere
Workload	AI		VDI	
Virtualization Use Case	Best performance AI, DL training, data analytics, HPC	AI inference, data analytics, HPC	Virtual workstations	Virtual desktops
NVIDIA vGPU Software	AI Enterprise	AI Enterprise	vPC, vApps, vWS, AI Enterprise	vPC, vApps, vWS, AI Enterprise
Dell EMC PowerEdge Infrastructure	R750, R7525, VxRail, R740xd	R750, R7525, VxRail, R740xd	R750, R7525, VxRail, R740xd	R750, R7525, VxRail, R740xd
Max. GPUs/Server	2–4	2–4	2–4	2–4
Memory Size	80GB HBM2	24GB HBM2	48GB GDDR6	64GB GDDR6 (16GB per GPU)
vGPU Profiles (GB)[1]	4, 5, 8, 10, 16, 20, 40, 80	4, 6, 8, 12, 24	1, 2, 3, 4, 6, 8, 12, 16, 24, 48	1, 2, 4, 8, 16
Form Factor	PCIe 4.0 dual slot	PCIe 4.0 dual slot	PCIe 4.0 dual slot	PCIe 4.0 dual slot
Power (W)	400	165	300	250
NVIDIA RTX Technology	-	-	✓	✓
NVLink	✓	✓	✓	-

To learn more about NVIDIA virtual GPU technology, visit www.nvidia.com/virtualgpu.

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Workload	AI		VDI	
Virtualization Use Case	Best performance AI, DL training, data analytics, HPC	AI inference, data analytics, HPC	Virtual workstations	Virtual desktops
NVIDIA vGPU Software	AI Enterprise	AI Enterprise	vPC, vApps, vWS, AI Enterprise	vPC, vApps, vWS, AI Enterprise
Dell EMC PowerEdge Infrastructure	R750, R7525, VxRail, R740xd	R750, R7525, VxRail, R740xd	R750, R7525, VxRail, R740xd	R750, R7525, VxRail, R740xd
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Contact _____

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