POWERING HYBRID WORKSPACES WITH GPU-ACCELERATED VDI

The modern office is becoming more and more flexible. By 2024, 60% of the total US workforce will be mobile with 87% of US companies expecting their employees to work from home at least three days a week. To support flexible work, 70% of US executives will be investing in IT infrastructure with worldwide IT spending to grow 6.2% in 2021. Organizations with hybrid workforces need great user experience as employees move seamlessly between the office and home. They will also benefit from greater elasticity of scale, data security, and simplified manageability with GPU-accelerated VDI.

In order to support the hybrid workspace, organizations are turning to end user computing solutions. GPU-accelerated VDI with NVIDIA Virtual GPU (vGPU) technology enables users to access enterprise applications data from anywhere on any device.   NVIDIA virtual GPU solutions – NVIDIA RTX Virtual Workstation (vWS) and NVIDIA Virtual PC (vPC), and Virtual Applications (vApps) - address the deficiencies of VDI by bringing graphics and compute acceleration to the data center, enabling IT to extend the reach of virtualization to every user, from knowledge workers to designers and engineers, delivering unparalleled NVIDIA graphics performance and a great user experience that rivals physical PC's.

NVIDIA virtual GPU (vGPU) solutions extend the power of the NVIDIA GPU to improve virtual desktops and applications with a consistently great user experience for everyone, from remote office workers to mobile professionals to designers and engineers that need to work from anywhere. NVIDIA virtual GPUs also extend the benefits of hypervisor-based server virtualization for GPU-enabled servers, so data center admins can run any compute-intensive workload that requires GPUs in a virtual machine (VM). NVIDIA vGPU products bring the graphics-accelerated experience found in billions of today's computing devices to the virtualized data center, enabling IT to centralize applications and extend the reach of virtual desktop infrastructure (VDI) to the entire workforce.

Raise the Bar on Productivity and User Experience for Remote Employees

With the majority of US companies expecting their workforce to work remotely part time, organizations are turning to the hybrid workspace model to allow seamless transition between the office and home. NVIDIA vGPU products transform workflows to liberate your users and data from the confines of PCs, workstations, offices, and distance. Now, your teams can seamlessly collaborate in real time, from any location, using any device they choose to be productive.

> Meet the increasing graphics demands of the modern digital workplace and video colloboration tools.
> Rapidly provision virtual workstations in a fraction of the time and cost of a physical workstation.
> Access applications and data from anywhere, on any device, with a great user experience that rivals physical PCs.
> Eliminate constrained workflows that inhibit user productivity and limit business agility.
> Enable geographically dispersed teams to collaborate in real time without borders or limits.

Highest Performance with Enterprise-Grade Manageability

Today IT organizations must support a broad and diverse workforce that includes flexible, hybrid offices, as well as mobile users. NVIDIA vGPU products allow IT to centralize data and applications in the data center and extend the reach of VDI to the entire workforce, delivering virtual workspaces with improved IT manageability, security, and performance that increases user satisfaction and reduces support costs.

> Reduce help desk support costs with a consistently great experience that delights VDI and app virtualization users.
> Achieve cost-effective performance with a true enterprise-grade GPU solution.
> Experience enterprise-grade manageability for reduced lifecycle costs, from design to ongoing operations.

Knowledge Worker VDI

Recommended VDI Solutions for Knowledge Workers

COST-OPTIMIZED BUNDLE	FLEXIBILITY-OPTIMIZED BUNDLE
> 2-socket, 2U rack server > 2–4 vCPUs > 6–8 GB memory, per user > Up to 3x NVIDIA M10 GPUs (1B user profile) > Up to 96x **concurrent user (CCU) licenses** of NVIDIA Virtual PC (vPC) software	> 2-socket, 2U rack server > 2–4 vCPUs > 6–8 GB memory, per user > Up to 6x NVIDIA T4 Tensor Core GPUs (1B user profile) > Up to 96x CCU licenses of NVIDIA vPC software

Solution Details

NVIDIA VIRTUAL PC (vPC) software accelerates office productivity applications, WebGL, and streaming video and supports high-resolution and multiple monitors for knowledge worker VDI workloads.

High-Performance Virtual Workstations

Recommended Virtual Workstation Solutions

LIGHT TO MEDIUM USERS	HEAVY USERS
> 2-socket, 2U rack server > 8 vCPUs > 16–32 GB memory, per user > Up to 6x NVIDIA T4 GPUs (4Q user profile) or Up to 2x Quadro RTX™ 6000 or RTX 8000 (4Q or 6Q user profile) > Up to 16–24 CCU licenses of NVIDIA RTX Virtual Workstation (vWS) software	> 2-socket, 2U rack server > 12+ vCPUs > > 96 GB memory, per user > Up to 2x RTX 6000 or RTX 8000 GPUs (8Q or 12Q user profile) > Up to 8–12 CCU licenses of NVIDIA RTX vWS software

Solution Details

NVIDIA RTX Virtual Workstation (vWS) software accelerates professional visualization applications, including Autodesk Revit and Maya, Dassault CATIA, Solidworks, Esri ArcGIS Pro, and Siemens NX.

CUSTOMER EXAMPLES

gouldevans	HKS	MITSUBISHI MOTORS	PGS
Gould Evans AEC	**HKS** AEC	**Mitsubishi Motors** Manufacturing	**PGS** Oil and Gas
With increased application performance, Gould Evans designers are more productive inside and outside the office. "We have solved most of our remote performance problems with the Dell EMC and NVIDIA VDI solution," says Wilson. "This kind of performance gain is already giving a significant boost to our overall productivity."	The IT team's goal was to deploy GPU-enabled virtual workstations that delivered a high-end experience for 3D digital Building Information Modeling (BIM) tools and other 3D design applications. Today architects and designers at national and international offices log into HKS's new shared remote design environment whenever they need to work together. "The ability to work on large projects in real-time with people based in geographically disparate locations—such as New Delhi, Singapore, and Shanghai—has been incredibly powerful. Now teams can collaborate on platforms like Revit instead of engaging in an iterative design process."	To meet the needs of these designers and provide an environment where they can use high-end design applications, the company's engineering IT department has always deployed high-performance workstations. Using NVIDIA RTX Virtual Workstations, Mitsubishi "have been able to reduce the operational burden in our department, provide flexible work styles to onsite engineers, and improve the ease of future expansions and relocations."	PGS relies on GPU-accelerated virtual workstations to provide a smooth user experience for high-performance applications and graphics rendering in resolutions at 4K of higher. With NVIDIA T4 GPUs and NVIDIA RTX Virtual Workstations, there was "zero disruption with COVID-19." Team members were able to "work from home without skipping a beat." PSG's solution allowed employees the "flexibility to adapt to unexpected circumstance rapidly and overcome disaster situations that would have been devastating in the past."

CUSTOMER EXAMPLES

ANTONI VAN LEEUWENHOEK NEDERLANDS KANKER INSTITUUT	SQUARE ENIX	School of Dental Medicine UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS	UNMC BREAKTHROUGHS FOR LIFE.
Netherlands Cancer Institute Healthcare	**Square Enix** Media and Entertainment	**University of Colorado School of Dental Medicine** Education & Healthcare	**University of Nebraska Medical Center (UNMC)** Healthcare
Not only are NKI's data center resources efficiently utilized, they're also easily accessible to researchers and clinicians alike. In the hospital, physicians and nurses now have quick access to apps with fast user switching and tap-and-go functionality. Users can initiate a virtual desktop session in one part of the hospital, and then move to another area and get right back into their session with a swipe of their badge and pin code. In the laboratories, researchers enjoy accessing extra compute resources whenever they need them. "With our new infrastructure, images are sent in the evening, and by the next morning, the analyzers are done." This considerable boost in computing performance is possible thanks to the flexibility provided by NVIDIA vGPUs.	Square Enix turned to NVIDIA vGPU solutions to create a location-agnostic development environment for game development. "High-definition graphics was a challenge for 100 percent reproduction in a virtualized environment. However, the team supporting the game development and the associated staff were able to work well in the NVIDIA vGPU-accelerated VDI environment, so we decided to deploy it to the production environment." With NVIDIA RTX Virtual Workstation, Square Enix was able to deliver a flexible environment that enabled employees to do creative work, including development and design, from the home or office.	The University of Colorado School of Dental Medicine uses technology as much as possible to enable impactful learning and teaching for students and faculty. The school implemented a virtual desktop infrastructure (VDI) on Dell Technologies solutions powered by NVIDIA virtual GPU (vGPU) technology to give students and instructors access to the school's digital resources. These powered the sophisticated visualizations needed in dental instruction, which run on applications that cannot be virtualized without GPUs. "Our VDI enabled readiness for completely remote teaching and learning during COVID-19. We experienced no interruptions at all."	In 2015, UNMC deployed VDI for staff at their remote medical clinics, providing them with access to file shares and specialty applications. That project's success motivated the IT team to extend VDI to pharmacists, IT programmers, and staff working from home. "Our goal is to deliver vGPU-enabled desktops to every staff member and physician who travels or works from home. Giving them the option of working at different clinics or across the state will open up new ways for Nebraska Medicine to innovate faster."

To learn more about GPU-accelerated VDI, visit
www.nvidia.com/virtualgpu

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