

REMOTE WORK SOLUTIONS FOR ENERGY



REMOTE WORK CHALLENGES WITH OIL AND GAS EXPLORATION

Professionals in the energy industry are facing some of their greatest business challenges as companies pivot to enable employees to work remotely or from home. They're saving capital on real estate costs and increasing productivity by eliminating commute times, but a significant number of their technical employees still need access to huge datasets and powerful geoscience and engineering software. As a result, companies are looking for novel ways to provide end users with the performance they require, especially considering the limitations of home internet bandwidth when loading large datasets.



NVIDIA SOLUTIONS: PERFORMANCE FROM ANYWHERE

Geophysicists and engineers can now work untethered from their physical workstations, using thin clients—or any device of their choice—to access the applications and data they need, regardless of their location.

NVIDIA's remote work solutions, including **NVIDIA® virtual GPU** (vGPU) technology, deliver superior graphics performance and acceleration for geoscience and engineering software when working remotely and provide the same responsive experience as a physical workstation—enabling power users to work from anywhere. With NVIDIA vGPU, engineers and geoscientists can use any device to access fully 3D-capable virtual workstations. Companies can onboard new contractors in minutes versus days, while ensuring the security of their intellectual property. Energy companies can implement virtual desktop infrastructure (VDI) with a high-quality user experience, especially for graphics-intensive applications, such as Schlumberger Petrel, Halliburton Landmark, Emerson Paradigm, IHS Markit Kingdom Suite, and Esri ArcGIS.



Image courtesy of Altair.

REMOTE WORK WITH NVIDIA: SOLUTIONS OVERVIEW

NVIDIA remote work solutions are optimized for geoscientists, engineers, and CAD designers. From laptops and desktops to workstations, servers, and the cloud, GPUs provide users with enhanced mobility, flexibility, and performance for graphics and visualizations, along with improved security and IT management.

NVIDIA Quadro Laptops

With NVIDIA Quadro GPU-powered laptops and mobile workstations, geoscientists can accelerate workflows for all phases of exploration and production. Users can boost productivity, speed up time to insight, and lower the cost of projects without being tethered to their desks.

NVIDIA GRID[®] Virtual PC (GRID vPC) and GRID Virtual Apps (GRID vApps)

Knowledge workers and staff in departments like finance, human resources, and marketing can leverage NVIDIA GRID® Virtual PCs and GRID Virtual Apps for general-purpose VDI running Windows 10 and modern productivity applications.

NVIDIA Quadro Virtual Data Center Workstation (Quadro vDWS)

NVIDIA Quadro vDWS software delivers the most powerful virtual workstation imaginable from on prem data centers. Geologists, geophysicists, and reservoir engineers get the same graphics and compute performance in a virtualized environment as they would from physical workstations. Energy companies also benefit from improved productivity, collaboration, increased security of intellectual property, and work-fromanywhere access for their teams.





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REMOTE WORK WITH NVIDIA: SOLUTIONS OVERVIEW

NVIDIA Quadro Virtual Workstations (Quadro vWS) in the Cloud

With instances of NVIDIA Quadro® Virtual Workstations (Quadro vWS) available in the public cloud, users can leverage the simplicity and flexibility of Amazon Web Services (AWS), Google Cloud Platform (GCP), Microsoft Azure, and Oracle Cloud Infrastructure (OCI. Desktop-as-aservice (DaaS) solutions like Windows Virtual Desktop and Horizon Cloud ease manageability. This allows new users to be supported quickly and instances to be deprovisioned just as quickly, so energy companies only pay for what they need. With support for the latest NVIDIA GPUs by global cloud service providers, users can run graphics-intensive applications, such as exploration, production, and engineering workflows in the cloud.

NVIDIA RTX Server for Virtual Workstations

NVIDIA RTX[™] Server is a highly flexible reference design for servers running high-end Quadro RTX[™] 6000 and RTX 8000 GPUs with Quadro vDWS software. It delivers the performance that scientists and engineers need by allowing them to take advantage of high-performance GPUs to increase interactivity and visual quality, while centralizing GPU resources. NVIDIA RTX-accelerated virtual workstations cater to production specific requirements. So, leveraging Quadro vDWS software to reallocate GPUs to different users is easy, given their use case profile and compute needs.





CUSTOMER USE CASES WITH VIRTUALIZED WORKLOADS



Legacy Reserves LP; Midland, Texas

After rolling out VDI, Legacy found that slow performance and rendering issues on applications like Spatial Energy Petra and ESRI ArcGIS prevented widespread user adoption. In response, Legacy's IT team migrated users to virtual desktops set up on servers equipped with NVIDIA's virtual GPU technology. When users tried the new implementation, they discovered that performance rivaled the firm's high-end workstations. Legacy now experiences high user adoption, enhanced data security, and simplified IT management.



Equinor; Stavanger, Norway

One of the largest oil and gas companies in the world, Equinor (formerly Statoil) deployed virtualized desktops to its exploration staff as part of an initiative to maximize efficiency across its business. NVIDIA graphics acceleration helped the firm migrate from blade servers to a fully virtualized infrastructure and run its most demanding subsurface and engineering applications from central server facilities. Today, exploration teams across 36 countries can collaborate on projects from anywhere, on any device, and the firm has realized a significant reduction in capital expenditures and operational costs.



Ouro Preto Óleo e Gás; Rio de Janeiro, Brazil

With geologists, geophysicists, cartographers, and engineers in multiple locations, Ouro Preto needed to virtualize 2D and 3D applications like Schlumberger Petrel and Halliburton Landmark to increase mobility and lower IT costs. Using NVIDIA virtual GPU technology, the firm was able to deliver graphics-intensive applications from the cloud to professionals in the field on their computers, tablets, and even their cellphones. Ouro Preto teams now enjoy local workstation-like performance in the palm of their hands.

COMMON QUESTIONS, ANSWERED

How can my company get up and running in the cloud if we don't have VDI?

NVIDIA Quadro® Virtual Workstations make it possible for oil and gas companies to access NVIDIA GPU acceleration from the cloud and pay for only what they use, without worrying about setup, upgrade, or management costs. With Quadro vWS available on global cloud service providers, including Amazon Web Services (AWS), Google Cloud Platform (GCP), Microsoft Azure, and Oracle Cloud Infrastructure (OCI), organizations can scale appropriately to handle demand spikes in any region of the world and collaborate at unprecedented levels.

> Why do I need NVIDIA vGPU technology if my company has VDI?

Geoscientists and engineers work with sophisticated modeling and simulation technology that processes massive datasets to generate visualizations and analyses. NVIDIA vGPU technology enables NVIDIA GPUs to accelerate these graphics-intensive workloads in your VDI environment. With access to powerful GPUs and scalable graphics solutions enabled through NVIDIA vGPU technology, professionals in the energy industry can quickly begin working with large datasets remotely—on any device.

> What's the cost benefit?

Virtual desktops and workstations are faster and easier to deploy and maintain than their physical counterparts, drastically simplifying IT management while reducing overall cost. For example, Equinor deployed virtualized desktops to its exploration staff, enabling teams from 36 countries to collaborate on projects from anywhere, resulting in significant savings in capital expenditures and operating costs.

> Which applications can be accessed in a VDI environment accelerated by GPUs?

With GPU virtualization, employees can have a high-quality experience on any device, even when accessing graphics-intensive 3D visualization software, traditionally only available on physical workstations. NVIDIA vGPU enables IT to virtualize any application from the data center with a high quality user experience—including those from Schlumberger, Haliburton, Emerson, and more—resulting in workstation-class performance on any device.



WORK FROM ANYWHERE WITH NVIDIA

NVIDIA vGPU technology helps energy companies realize the performance, speed, and flexibility they need to gain a competitive edge.

NVIDIA Quadro RTX-powered laptops deliver the performance and large GPU memory that product development teams need to work from anywhere.

Learn more about NVIDIA's remote working solutions at: nvidia.com/remote-work



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