NVIDIA

SOLUTION SHOWCASE

NVIDIA virtual GPUs simplify sharing and editing of 3D topographical digital imagery on any device.

Customer Profile

> **Organization:** Land Management

> **Industry:** Public Sector

> **Users:** 640

> **Applications:** Esri ArcGIS Pro, Adobe Creative Suite, Microsoft Suite Office, Skype

Solution

SOFTWARE

> **Hypervisor:** Citrix Virtual Desktops on Nutanix AHV

> **Graphics Acceleration:** NVIDIA® Quadro® Virtual Data Center Workstation (Quadro vDWS), NVIDIA GRID® Virtual PC (GRID vPC)

HARDWARE

> **Server:** Dell PowerEdge R740

> **GPU:** NVIDIA P40

FACILITATING TEAM COLLABORATION ON GEOSPATIAL TECHNOLOGIES

Overview

Responsible for the welfare of millions of acres of U.S. land, this organization helps people enjoy the environment while also conserving and protecting natural resources. To achieve its mission, it relies on a combination of specialists on the ground, digital imagery, and Geospatial Information Systems (GIS). NVIDIA virtual GPU-accelerated infrastructure was deployed to reduce the organization's data center footprint and improve IT performance at remote locations.

Challenges

Monitoring huge swathes of land requires teamwork and collaboration. At this organization, staff work around the clock viewing satellite imagery to monitor developing situations and ward off emergencies. To ensure teams are making the best assessments, it's imperative they have access to a single, authoritative source of truth.

However, aging infrastructure didn't provide teams with enough computing power to work directly on images located in the data center using software like Esri ArcGIS Pro. Instead, staff downloaded 2D and 3D data, modified it on their desktops, and then uploaded it back to the servers—a process that undermined version control. At the same time, staff in the field struggled with limited network capacity. Frequently working on a slow 10MB connection meant that downloading large image files could take hours.

The IT team wanted to upgrade its infrastructure and reduce its data center footprint while also supporting high performance compute (HPC) workloads and virtual workstations.

Solution

The IT team chose NVIDIA virtual GPU (vGPU) accelerated VDI to support a combination of HPC and virtual workstations. They purchased

NVIDIA vGPUs have increased server density compared to the old infrastructure. As a result, the organization's eight data centers have been consolidated into two. Looking forward, upgrading to the next generation NVIDIA GPUs will result in improved performance and increased user density.
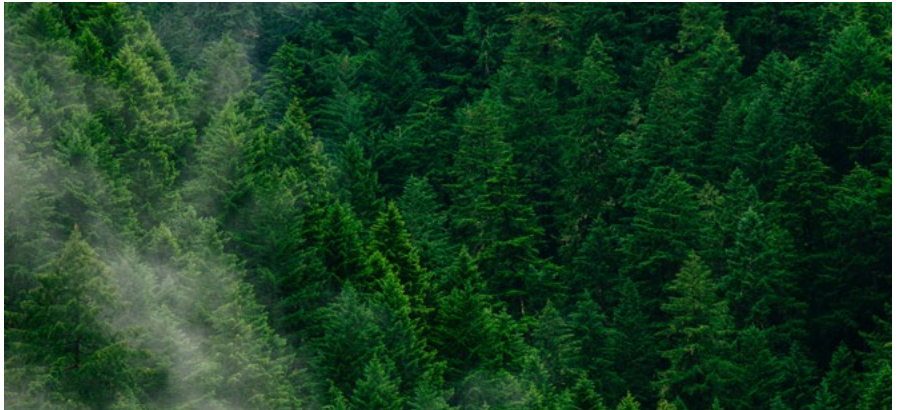
approximately 32 Dell EMC PowerEdge R740 servers and installed two NVIDIA P40 GPUs per server to support approximately 640 concurrently running virtual machines. NVIDIA Quadro vDWS software was installed at the virtualization layer and configured to meet the needs of two user groups:

- **Knowledge workers** using 2D graphics applications on multiple monitors (two and three 1080p displays) were allocated a 2GB profile on GRID vPC software. This profile size can fit 12 knowledge workers on each P40.

- **Data analysts** working on 3D applications were assigned a 4GB profile on NVIDIA Quadro vDWS software. This profile meets the high-performance requirements of graphics intensive GIS apps with multi-monitor support. The Quadro vDWS solution can support up to two 8K monitors or up to four 5K monitors. With this profile size, 6 data analysts can share a P40 GPU.

Key NVIDIA Benefits

- **Efficient collaboration.** Staff can modify large 3D images in the data center using any device, and they don't experience high latency or poor performance, and can access data in minutes versus waiting hours for files to download.

- **Productivity from anywhere.** NVIDIA vGPUs ensure that staff at remote locations can use ArcGIS Pro as well as other graphics intensive applications, while preserving version control.

- **Reduced data center footprint.** NVIDIA vGPUs have increased server density compared to the old infrastructure. As a result, the organization's eight data centers have been consolidated into two. Looking forward, upgrading to the next generation NVIDIA GPUs will result in improved performance and increased user density.

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