

Virtual GPUs enable pilot training while helping consolidate the data center by 83%.

Customer Profile

- > Organization: Aerospace Systems Integrator
- > Industry: Public Sector
- > Users: 1,500 concurrent
- > Applications: Prepar3D, streaming video, Microsoft Office

Solution

SOFTWARE

- > Hypervisor: VMware vSphere 6.5
- > Graphics Acceleration: NVIDIA® Quadro® Virtual Data Center Workstation (Quadro vDWS), NVIDIA GRID® Virtual PC (GRID vPC)

HARDWARE

- > Server: HPE DL380 Gen10
- > GPU: NVIDIA P40

INNOVATING DESKTOP FLIGHT SIMULATION DELIVERY WITH NVIDIA QUADRO vDWS

Overview

One of world's largest defense contractors runs an aerospace systems integration business segment that develops pilot training systems. Its IT team specializes in customizing hardware and software to match a wide array of aircraft for the defense industry. These flight simulators are used by 20,000 pilots at 40+ global training centers annually. To reduce the total hardware required for simulations and simplify the hardware and software management, the IT team deployed NVIDIA GPU-accelerated virtual workstations.

Challenges

Working for the U.S. government, it's essential to be highly agile and cost-conscious. However, building, configuring, and shipping computer-based flight training systems can require a major investment in both time and hardware.

In order to run software like Prepar3D with sufficient computing power, the IT team needed to install the app on a rack-mounted PC—with one required for every pilot. To reduce hardware costs and streamline production, the team wanted to switch to virtual desktop infrastructure (VDI). However, achieving a great user experience and avoiding latency for graphics-intensive flight simulation apps was a big concern.

The IT team's goal was to reduce flight simulator hardware by deploying high performance virtual workstations. The new VDI needed to be able to support 1,500 users without latency.

Solution

NVIDIA proved the power of its virtual GPU (vGPU) solution with a proof of concept (POC). Test pilots were administered the same training simulation on a physical workstation and on an NVIDIA vGPU-accelerated virtual workstation. The NVIDIA-powered virtual workstation delivered performance that was the same or better than the physical workstation.

One 2U node can now accommodate the equivalent of 12U in the company's old infrastructure. Data center hardware is reduced by 83 percent.



Following the POC, the contractor purchased HPE ProLiant DL380 Gen10 servers installed with three NVIDIA P40 GPUs per server. The customer leveraged the same GPU-accelerated infrastructure for virtual workstations with NVIDIA Quadro vDWS software and virtual desktops, with NVIDIA GRID vPC software, to meet the needs of two user types:

- Training pilots were assigned a 6GB profile on NVIDIA Quadro vDWS to meet the requirements of graphics-intensive flight simulation apps.
 This setup could accommodate 12 pilots per server with four per P40 GPU.
- Knowledge workers were assigned a 1B profile for general-purpose VDI running Windows 10 and office productivity apps on multiple monitors. The solution accommodates more than 3,000 GRID vPC users across 40 locations.

Key NVIDIA Benefits

- Lower costs, higher server density. One 2U node can now accommodate the equivalent of 12U in the company's old infrastructure. Data center hardware is reduced by 83 percent.
- Low latency. NVIDIA vGPUs ensure pilots don't experience issues with latency during simulations.
- Simplified management. The IT team can pre-configure and test
 each server before it ships to the worldwide locations. When a server
 arrives at the destination, the receiving IT team simply plugs it into the
 network, configures the network, and it's ready to go. Leveraging the
 same hardware infrastructure across their users enables simplified
 management and maintenance of the environment.

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