FOSTERING COLLABORATION AND DATA SECURITY

Adding NVIDIA GRID™ K2 reduces clutter while delivering high performance, collaboration, and security at NORDAM.

NVIDIA.

NVIDIA GRID freed engineers and designers from multiple workstations per user while empowering real-time collaboration and enhancing security at NORDAM.

AT A GLANCE

CUSTOMER PROFILE

Company: NORDAM

Industry: Aerospace and aviation

Regions: USA, Mexico, Singapore, United Kingdom

Size: 200 employees who need to access 3D data

SUMMARY

> Global aerospace leader with offices on three continents

> Migrated 30 users from multiple workstations per user to centralized servers running NVIDIA GRID K2

> Greatly improved performance, flexibility, collaboration, and security

> Expanding VDI to the full pool of 200 users

SOFTWARE

Hypervisor: Citrix XenServer

Desktop and Application Remoting: NICE EnginFrame and DCV

Key Applications: Dassault Systèmes CATIA

HARDWARE

NVIDIA GRID Boards: K2

Servers: Dell PowerEdge R720

Clients: Entry-level PCs. Looking to roll out thin clients and mobile devices.

Founded in 1969, NORDAM has grown into a recognized global leader offering an expanding array of products and services to the major and commuter airlines, general aviation, OEM, and military segments of the aerospace and aviation industries. NORDAM's innovative Radome to Tailcone Solutions® provide manufacturing, repair, and overhaul of aircraft bonded-honeycomb and all composite components, fan/thrust reversers, nacelles, engine components, interiors, and aircraft transparencies. The thousands-strong workforce is headquartered in Tulsa, Oklahoma, with additional offices in Mexico, Singapore, and the United Kingdom. NORDAM operates the world's largest privately held FAA-approved repair station for composite aircraft structures.

CHALLENGE

NORDAM has three distinct pools of users who require access to graphics application. The first pool consists of two growing daily shifts of engineers and designers working in Dassault Systèmes CATIA. Since each aircraft OEM is on different versions of the CAD software, each of these users may require up to 3 workstations with dual 19″ monitors in order to meet growing OEM demands and access all of the different datasets they have to work with. The second pool contains users working with much smaller 3D files to view surfaces only in manufacturing and other departments, and the third pool consists of salespeople and others who need to view and query data without modifying that data.

"Keeping all workstations updated with all of the latest patches and service releases while ensuring that users at all levels had the proper access levels to applications and data was a constant struggle," explained Tim Jackson, Vice President of Information Technologies at NORDAM. "Security for our intellectual property was another major concern because external parties sometimes need access to our data and our own employees sometimes need remote access. Our normal practice was to issue laptops with temporary licenses installed, but that meant that our data was leaving our facilities. Another challenge was that traditional workstations tend not to last too long on our

6 REASONS FOR GRID

1 Replaced multiple workstations per user with a single client.

2 Operating systems, applications, and data load and run faster on VDI than on workstations.

3 Engineers, designers, and other users can access the applications and data they need from anywhere within the network.

4 IT maintenance and management is greatly simplified.

5 Users can move around and collaborate with unprecedented flexibility.

6 Solid-state thin clients cost less and last longer than expensive workstations.

manufacturing floors because the conditions there aren't exactly easy on delicate moving parts."

SOLUTION

NORDAM decided to address these mounting challenges by implementing a virtual desktop infrastructure (VDI). For assistance, they reached out to NICE Software, creators of the EnginFrame HPC application portal that allows users to access high-performance computing environments by logging in via a web portal. NICE also offers Desktop Cloud Visualization (DCV) technology that shares available GPUs among multiple users running graphics-intensive applications, including common 3D packages. Multiple simultaneous users can even collaborate by sharing the same desktop. DCV is fully integrated with the NVIDIA GRID API and supports the latest Kepler GPUs.

The VDI solution implemented by NORDAM consists of 13 Dell PowerEdge R720 servers with a single NVIDIA GRID K2 board per server. Citrix XenServer provides the virtualization platform, with EnginFrame and DCV providing portal login and desktop delivery, respectively. This architecture currently supports 8-10 simultaneous engineers/designers or 15-20 simultaneous surface-only users per server. Users log in to virtual machines using EnginFrame. Access management features built into EnginFrame ensure that each user receives a secure connection that grants access to only the applications and datasets needed by that user on a full Microsoft Windows 7 desktop. Multiple users can connect to the same desktop to see and share the same screen and mouse from any location.

NVIDIA GRID K2 delivered high performance while fostering collaboration and increasing the security of intellectual property.

Multiple expensive workstations per user have been replaced with entry-level PCs running a single 27″ monitor instead of the previous dual 19″

> **Our users were sold the moment they tried this. Everything from the operating system to the applications and 3D data load and run faster using GRID than they ever did on individual workstations because we implemented all of this on our NAS system to boost performance by spanning reads and writes across multiple disks.**
>
> Keith Horton
> Engineering Systems
> Architect
> NORDAM

monitors. Going forward, NORDAM is looking to roll out solid-state thin clients to reduce costs even further while also eliminating the moving parts that could become fouled when used on a manufacturing floor.

Management and security have been enhanced and simplified. IT no longer needs to perform maintenance and upgrades on multiple workstations; instead, these activities take place once on a single system image, and users instantly reap the benefits. Centralizing all storage in the datacenter instead of issuing individually provisioned laptops enhances security because the actual data remains under control within NORDAM, eliminating the threat of loss or theft. The client PC only has screen images rather than actual CAD data files. Deploying solid-state thin clients with no USB or other ports will further enhance security.

The initial deployment rolled out to 20-30 users. Performance and user acceptance testing are ongoing, and plans are underway to expand the NVIDIA GRID K2 VDI deployment to the full roster of 200 users who need varying levels of access to 3D data. As part of this expansion, the IT department is closely monitoring usage and performance patterns to determine the optimum mix of additional servers and NVIDIA GRID K2 boards to the growing user pool.

RESULTS

Combining NVIDIA GRID K2 with NICE EnginFrame and DCV delivers full graphics acceleration and workstation-class performance while also enhancing security. Portal-based access has freed employees from their workstations, allowing them to access applications and data from anywhere in the NORDAM network. The ability to have multiple users sharing the same desktop is fostering collaboration and training on a level never before seen at NORDAM.

One productivity benefit is that users can prepare an engineering model for a meeting ahead of time, disconnect from their VDI session, and walk into a conference room. They can then access that same VDI session on the conference room PC and continue right where they left off. This helps ensure that time is more efficiently used during the meeting. Future expansion for Linux desktop applications will bring all of these benefits to that community of users.

Replacing up to two workstations and six monitors per user with a single entry-level PC or thin client and monitor has freed up valuable desk space while significantly reducing hardware and management costs. Going forward, expanding the VDI and NVIDIA GRID K2 implementation will allow third parties and remote employees to access sensitive data without the need to remove that data from NORDAM.

"Our users were sold the moment they tried this. Everything from the operating system to the applications and 3D data load and run faster using GRID than they ever did on individual workstations because we implemented all of this on our NAS system to boost performance by spanning reads and writes across multiple disks," said Keith Horton, Engineering Systems Architect at NORDAM.

"We reduced a lot of clutter by replacing two workstations and a KVM switch with a single workstation and allowing users to choose either a single 27" or dual 20" display," added Horton. "They can also collaborate far more easily than ever before. The single biggest things we had to do were show our users how to log in and how to save all of their work to the network instead of their local machines."

To learn more about NVIDIA GRID visit
www.nvidia.com/vdi

JOIN US ONLINE

blogs.nvidia.com

@NVIDIAGRID

gridforums.nvidia.com

tinyurl.com/gridvideos

linkedin.com/company/nvidia-grid