

KEEPING REMOTE TEAMS CONNECTED AND PRODUCTIVE

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AT A GLANCE

CUSTOMER PROFILE

Company: STV

Industry: AEC

Regions: North America, Abu Dhabi

Size: 1,700 Employees

SUMMARY

- > Award-winning AEC company with a geographically diverse workforce
 - > Dozens of offices and temporary on-site deployments make collaboration difficult
 - > Previous VDI implementation failed for lack of graphics-processing capabilities
 - > NVIDIA GRID K1 delivered workstation performance to users regardless of location or client device
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SOFTWARE

Key Applications: Autodesk AutoCAD and Revit, Bentley Microstation

Desktop & Application Remoting: VMWare Horizon View with vSGA

Hypervisor: VMWare ESX

HARDWARE

GRID boards: K1

Servers: Dell PowerEdge R720

Clients: Various desktop and mobile devices

STV is one of North America's top architecture, engineering, and construction management (AEC) firms. They provide a full range of services from design to program management for public- and private-sector clients in the transportation, commercial, industrial, defense, and other industries. Since 1912, STV has helped shape critical projects, including—among many others—1 World Trade Center and its transportation hub, the Hoboken Ferry Terminal rehabilitation, the AirTrain terminal at John F. Kennedy International Airport, the East Side Access project at New York's Penn Station, and the new high-tech Seagirt Marine Terminal in the Port of Baltimore.

Being a 100% employee-owned company gives each of the 1,700 STV employees a stake in the business. This deep personal commitment to creating exceptional value for clients consistently places STV among the top 25 firms in education, corrections, highways, bridges, rail, and mass transit projects. Maintaining this leadership position while supporting dozens of concurrent projects in the USA, Canada, and Abu Dhabi requires 35 office locations plus numerous temporary on-site deployments.

CHALLENGE

Adequately and efficiently supporting a geographically diverse workforce in dozens of offices and project sites spread across two continents presented a crucial challenge for STV. The multifaceted nature of the work itself poses additional challenges, because engineers and architects form teams that touch all parts of a project cycle from design to construction. Collaboration and mobility are therefore essential; however, the hardware needed to run high-end design and AEC applications, such as Autodesk's AutoCAD and Revit, and Bentley's MicroStation, makes mobility difficult. The need to duplicate and manage/merge different versions of the same project file makes collaboration all but impossible—especially when a typical AutoCAD file can reach over 100MB in size at STV.



Coordinating across locations and servers to make sure everyone had the latest version of a design was a slow and arduous process with lots of room for confusion, but we thought that VDI could help by placing everything on one central location; however, once we adopted VDI, the problem became performance of the applications themselves, making it difficult to work with 3D models and requiring us to simplify models as a result, which is not ideal.

Matthew Dierolf
Network Systems Manager
STV

5 REASONS FOR GRID

- 1 Teams across the USA, Canada, and Abu Dhabi can collaborate in real time.
- 2 Each NVIDIA GRID K1 board supports up to 40 simultaneous users and 90 total users with vSGA.
- 3 Eliminating data duplication minimizes confusion and delay while improving project quality.
- 4 Centralizing hardware and software is more cost-effective than a traditional workstation deployment.
- 5 Users are enthusiastically embracing the benefits offered by the NVIDIA GRID K1 VDI implementation.

Powerful and expensive workstations may be the typical solution of choice for interactively running resource-intensive applications that process large amounts of data, but STV teams typically work out of temporary trailers on project sites rather than at an office facility. This inherently limits both the hardware they can access and the amount of collaboration they can achieve. Previous attempts to implement a virtualized desktop infrastructure (VDI) at STV failed for lack of graphics support. User adoption was low because of the significant lag that prevented them from interacting with the 3D models as needed.

“Our teams are often spread out across various project sites, which proves incredibly challenging for collaboration,” said Matthew Dierolf, Network Systems Manager at STV. “Coordinating across locations and servers to make sure everyone had the latest version of a design was a slow and arduous process with lots of room for confusion, but we thought that VDI could help by placing everything on one central location; however, once we adopted VDI, the problem became performance of the applications themselves, making it difficult to work with 3D models and requiring us to simplify models as a result, which is not ideal.”

SOLUTION

STV decided to embark on what they considered VDI 2.0. This time, they added NVIDIA GRID K1 technology to provide the hardware-based GPU virtualization needed to deliver rich graphics to remote users accessing the VDI. Four Dell R720 servers running the VMware ESX hypervisor were each equipped with a single NVIDIA GRID K1 board containing four Kepler-based GPUs. Remote desktops were provided by VMware Horizon View 5.2 with Virtual Shared Graphics Acceleration (vSGA). vSGA allows multiple virtual machines to access the physical NVIDIA GRID K1 GPUs to leverage 3D graphics power, thereby increasing user density.

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Users immediately experienced improved performance that gave them the flexibility they needed to stay collaborative and productive in the field.

NVIDIA GRID K1 delivers the graphics performance of a high-end workstation to STV team members using laptop computers in the field, allowing designers, engineers, and architects to work interactively. Centralized data storage gives multiple users the ability to simultaneously access and edit the same file with no confusion; each user sees updates in real time without ever having to wonder whether they are working with the most recent version of the project file.

RESULTS

NVIDIA GRID K1 delivered a truly collaborative and mobile workflow for the STV project workforce regardless of location. Combining NVIDIA GRID K1 technology with vSGA allows each NVIDIA GRID K1 card to support up to 40 simultaneous and 90 total users. High-end graphics performance in the field is just the beginning: Centralizing applications and GPUs in the datacenter also streamlines hardware and software management compared to the previous model of supporting individual workstations and applications, while also yielding significant cost savings.

"NVIDIA GRID has had a tremendous impact on STV's workflow, improving our ability to work efficiently—and work together—regardless of location," concluded Dierolf. "The first time we tried VDI, adoption was difficult, but with GRID everyone was clamoring to get set up. GRID gives us true value between the increased productivity, reduced hardware costs, and more efficient IT management. It's a huge boon for our company."

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