

CASE STUDY | CITY OF ROUND ROCK

# ENHANCING TRAINING AND BOOSTING PRODUCTIVITY

Adding NVIDIA GRID™ to their VDI deployment is allowing the City of Round Rock to better train its firefighters while simplifying remote access for most employees.



# From streamlining training to allowing remote access while enhancing data security, NVIDIA GRID is empowering Round Rock, Texas to improve public services while cutting costs.

## AT A GLANCE

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### CUSTOMER PROFILE

**Company:** City of Round Rock

**Industry:** Municipal government

**Location:** Round Rock, Texas

**Size:** 850 employees

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### SUMMARY

- > Municipal government with 850 employees serving a geographically diverse area.
  - > Implemented VDI to simplify IT management, centralize data storage, and deliver training videos.
  - > Unacceptable graphics performance led to deploying a second VDI powered by NVIDIA GRID K1 technology.
  - > Significantly faster performance, happy users, and simplified management.
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### SOFTWARE

**Hypervisor:** VMware vSphere

**Desktop and Application Remoting:** VMware Horizon

**Key Applications:** Streaming video, general office applications.

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### HARDWARE

**NVIDIA GRID Boards:** K1

**Servers:** Dell PowerEdge R720

**Clients:** Various desktop, laptop, and mobile devices

The City of Round Rock, Texas, is located in the Central Texas hill country 15 miles north of Austin. This city of about 100,000 people is one of the fastest-growing and best-managed cities in the nation, and is the headquarters for both Dell and TECO-Westinghouse. Round Rock boasts an award-winning park system and school district, and is one of the safest cities of its size in the United States. Some of the chief industry clusters include clean energy, advanced manufacturing, life sciences and computer/software development.

## CHALLENGE

“Round Rock covers a wide area,” explained Brooks Bennett, Assistant City Manager. “Whenever a PC went down, someone went out to crawl around unplugging cables and haul the computer back to the office for repair. That person then drove back out to deliver and reconnect that computer. We also had to manage patches, updates, and the images themselves. Throw in the inherent risks of local data storage and inconsistent backups, and the benefits of VDI become self-evident.”

Most city employees use standard office and web-based applications. The fire department also needs to stream training videos, because the nature of their shifts makes it difficult to assemble everyone for training sessions. Before VDI, each fire station had two or three PCs that were shared by all of the firefighters.

“The many-to-one setup where multiple firefighters shared each PC lent itself to a VDI deployment,” added Heath Douglas, IT Director. “Also, we updated our city network in 2010 to a fiber-optic system delivering 1GB of bandwidth to each workstation with a 10GB back-end, giving us plenty of bandwidth to deliver virtual desktops from our datacenter. We decided to roll out VDI using VMware View because we are very familiar with it.”

The initial VDI deployment went live in 2011 for the fire department and other users. Calls quickly started coming in about problems with video playback that included jerky motion, degraded video quality, and sound cutting in and out. Part of the effort to streamline performance included disabling the Windows 7 Aero interface and other features, resulting in



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Brooks Bennett  
Assistant City Manager  
City of Round Rock, Texas

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#### 5 REASONS FOR GRID

- 1 Enhanced training delivery.
- 2 Employees can file reports and do other work directly from home or in the field.
- 3 Remote access is no longer tied to a VPN client.
- 4 Cost savings through time savings and increased productivity.
- 5 Secure and redundant data storage.

an antiquated user experience. The remote access, BYOD readiness, ease of management, standardized images, and data security offered by VDI were powerful benefits; however, the video playback and interface problems spurred the city to explore ways to optimize the graphics.

#### SOLUTION

The move to NVIDIA GRID technology began when someone spotted a demonstration YouTube video posted by Dell, which is headquartered in Round Rock. The IT Department reached out to the Dell Solutions Center, which provided a pre-release model for testing purposes.

“We popped the card in and saw improved video performance almost immediately,” continued Douglas. “We did all kinds of side by side performance testing with varying numbers of CPUs and vGPUs. These tests focused on the subjective experience, because end user perception is what matters. The feedback was unequivocal: We had to invest in NVIDIA GRID technology ASAP.”

Round Rock obtained NVIDIA GRID K1 cards as soon as they were available for purchase. The IT department quickly rolled out the new GRID-enabled VDI using internal resources aided by the Dell Solutions Center. The new VDI comprises five Dell PowerEdge R720 servers with a single NVIDIA GRID K1 card per server running a total of approximately 300 virtual machines. Each video card shares video resources among up to 25-30 concurrent and 60 total users. VMware vSphere provides the hypervisor, and VMware Horizon supplies the virtual desktops. VMware Horizon supports remote access.

“Our goal is to deliver experiences that are as close to a physical workstation as possible regardless of device,” said Bennett. “We are approaching this goal, and the great video performance is easing users’ transition to the new technology. Omesh Pertob, our full-time

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Our users could not be happier with this setup. For example, one inspector with 32 years on the job said that NVIDIA GRID technology has transformed how he does his job, and that it's the best it's ever been. We're getting similar feedback across the board. Other users love not having to commute back and forth to do a few minutes' worth of work in the evening or on a weekend. They simply log in from home, do their work, and that's that.

Heath Douglas  
IT Operations Officer  
City of Round Rock, Texas

Virtualization Architect, is a huge factor in our ongoing success with this project, as is the ability to reach out to Dell.”

“Our initial GRID-enabled VDI deployment was seamless and straightforward with no major disruptions,” said Douglas. “All our users need to know is that things are working and performing better. VDI lets us do that without having to get under people’s desks to plug and unplug cables. We had a few issues managing user profiles, but installing AppSense solved most of those problems.”

The current VDI deployment delivers full-featured Windows 7 desktops, and Windows 8.1 is also beginning to roll out to users. Most users access pooled desktops; only a few have dedicated resources. BYOD support is informal; users are welcome to install the VMware View client on their own devices to access a virtual desktop. This process is far easier than the old policy of issuing a city laptop with a VPN client to an employee, thus tying remote access to that computer.

## RESULTS

Most city employees now use Wyse P25 thin clients to access the NVIDIA GRID-enabled VDI. The police and park departments use Apple iPads to access virtual desktops for filing reports and filling out forms from the field without having to return to the office to use a PC.

“Our users could not be happier with this setup,” declared Douglas. “For example, one inspector with 32 years on the job said that NVIDIA GRID technology has transformed how he does his job, and that it's the best it's ever been. We're getting similar feedback across the board. Other users love not having to commute back and forth to do a few minutes' worth of work in the evening or on a weekend. They simply log in from home, do their work, and that's that.”

The NVIDIA GRID-enabled VDI deployment is also yielding a significant ROI for the city. Four IT personnel support the 850 city employees. One staffer supports the entire VDI deployment, while the remaining three manage legacy PC workstations. Much of this discrepancy occurs because of the logistics of servicing and maintaining hundreds of workstations spread across the city.

“The initial cost of VDI versus PCs is a wash,” said Bennett. “However, savings add up over time because of the reduced maintenance and management overhead. Beyond that, what is the value of data stored on a local hard drive if that drive fails, given both the cost to obtain that data in the first place and the potential ongoing uses for that data? What is the value of an employee being able to file a report from the field or work from home on a weekend without having to come into the office?”

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We don't like to hear 'This is the way we've always done it.' We are home to Dell and other high-tech industries, and our residents are extremely tech savvy, so our operations must be as modern as possible. Investing in technology allows us to provide quality services to our residents and businesses without costing an arm and a leg. For example, our park rangers can access a wealth of resources using tablets from anywhere in town. This allows them to be out helping people enjoy our parks without being tied to a desk somewhere.

Alan McGraw  
Mayor  
City of Round Rock, Texas

"People don't normally think about backups until it is too late," added Douglas. "Our initial VDI deployment allowed us to migrate data to the datacenter where we back it up regularly. You should hear the relief when people call us thinking they lost everything and we recover it for them on the spot. Adding NVIDIA GRID technology allows true anywhere, anytime, any device capability. Our employees are happier and more productive, and those time savings also add up. We can invest that time to better serve our community."

Approximately 80% of the virtual desktops are currently GRID-enabled, and that percentage is expected to grow over time. Going forward, the VDI deployment is ready to support remote and telecommuting employees.

"The worst thing we could do is be behind the technology curve," concluded Bennett. "Being out in front lets us provide better service to city employees and by extension to the citizens of Round Rock. My advice is simple: If you're thinking of adopting VDI without NVIDIA GRID, don't."

"Our IT Department is constantly identifying new uses and enhancements for our virtual desktops," said Laurie Hadley, City Manager. "We are excited to see how we can continue to provide quality services to our citizens through our VDI deployment."

"We don't like to hear 'This is the way we've always done it,'" concluded Mayor Alan McGraw. "We are home to Dell and other high-tech industries, and our residents are extremely tech savvy, so our operations must be as modern as possible. Investing in technology allows us to provide quality services to our residents and businesses without costing an arm and a leg. For example, our park rangers can access a wealth of resources using tablets from anywhere in town. This allows them to be out helping people enjoy our parks without being tied to a desk somewhere."

To learn more about NVIDIA GRID visit  
[www.nvidia.com/vdi](http://www.nvidia.com/vdi)

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