

SUCCESS STORY | CITY OF DAVENPORT, IOWA

THE CITY OF DAVENPORT SAFEGUARDS ADOPTION WITH NVIDIA GRID



Image courtesy of City of Davenport



VDI WITH NVIDIA GRID DELIVERS “BETTER THAN PC” PERFORMANCE



Image courtesy of City of Davenport

FIVE REASONS FOR NVIDIA GRID

- > Lower latency on streaming videos for conferencing, training, and daily work.
- > Improve VDI adoption by speeding up performance of modern business applications.
- > Increase server density by 2X, enabling VDI use cases to be extended to knowledge workers and power users, such as city planning engineers.
- > Deliver secure, mobile access, supporting bring your own device (BYOD) and remote work.
- > Achieve 75 percent leaner IT with simplified management, compared to a city with the same population.

Located along the banks of the Mississippi River, Davenport, Iowa, has been described as “The Most Livable Small City in America.” At the halfway point between Chicago and Des Moines, this progressive city boasts a thriving downtown and business-friendly environment. Its population of over 100,000 is served by municipal staff at the City of Davenport, who ensure that development and revitalization projects, and public services and support, are consistently delivered.

CHALLENGE STATEMENT:

The City of Davenport is proud of its longstanding, forward-thinking approach to delivering innovative end-user computing. Its current IT infrastructure is an extensively upgraded variation of a system that was set up more than eight years ago to serve the city’s public safety officers. During a cost-saving initiative, the IT team spent two weeks rolling out 100 virtual desktops to its police and fire employees. This approach was less time-consuming and more cost-effective than purchasing and managing 100 PCs.

Initially, the virtual desktops addressed some of the performance problems that officers had been having with the previous system’s terminal services. However, IT soon began fielding complaints about user experience. For example, at the end of their shifts, officers needed to access police car camera footage to write reports, but high video latency meant that they couldn’t watch playback smoothly or tag videos without significant difficulty. This made it impossible to complete reports efficiently. The IT team knew that playback issues were caused by a poor refresh rate.

CUSTOMER PROFILE



City of Davenport

Company or Organization name

City of Davenport

Industry

Government

Location

Davenport, IA

Size

1,000 employees

Website

cityofdavenportiowa.com



PRODUCTS

NVIDIA virtual GPU: NVIDIA GRID® vPC software and NVIDIA® Tesla® M10 upgrade from GRID K1 and K2 (first generation)

Hypervisor: VMware vSphere on VMware Horizon View

Server: HP DL380p Gen8 and Gen9

SUMMARY

- > The City of Davenport is a municipality in Iowa with 1,000 employees at 34 facilities.
- > A desire to have all users on a unified platform in order to control costs and simplify management led the IT team to virtualization.
- > Poor performance of streaming videos and productivity applications prevented widespread system rollout.
- > The City of Davenport deployed NVIDIA GRID to lower CPU utilization, enhance VDI performance, and encourage user adoption at every facility.
- > An early adopter of the first generation of NVIDIA virtual GPU technology (NVIDIA GRID K1 and K2), Davenport has begun an upgrade project to NVIDIA GRID Virtual PC (GRID vPC) and NVIDIA Tesla M10.

They also experienced slow virtual desktop infrastructure (VDI) performance for staff working in the city's other departments. Cory Smith, the CIO and CTO for the City of Davenport concluded, "Our initial experience with VDI was without any GPUs. We just used the software rendering native to VMware. This use cycles for CPU functions. Needless to say it does not work very well. This happens to be where most of the people that I speak with about VDI have the most issues and becomes the main stumbling block for a successful deployment."

Looking ahead, Smith and the IT team's goal was to not only lower video latency but also deliver VDI to all employees, including city planning engineers working on Autodesk AutoCAD and ESRI ArcGIS, communications staff using Adobe® Creative Cloud®, and executives working in Microsoft Office.

SOLUTION STATEMENT:

As soon as VMware announced compatibility of Horizon with NVIDIA GRID, the City of Davenport installed the GPU virtualization solution. "When we saw what NVIDIA GRID technology could do for video, we were excited about the possibilities for deploying VDI for everyone. Boosted performance meant that knowledge workers, managers, and directors would easily be able to do online trainings, Skype, Google Earth, and so much more. That was a major turning point in our VDI project," said Smith.

In the early days of the City of Davenport's VDI project, adoption was painfully slow across the city's 34 facilities. "User adoption is key. If users struggle with their virtual desktops to get their jobs done, then they're not going to use them. In that case, your VDI resources are wasted, and you have to invest in something else," said Smith. However, when the IT team saw it could meet

“With VDI, the two primary concerns are storage and GPU. They’re the two project-killing issues. Unless you have NVIDIA GRID for GPU virtualization, your VDI project is not going to be successful.”

Cory Smith,
CIO and CTO,
City of Davenport

users’ needs, it decided to use NVIDIA GRID in six of its HP DL380p Gen8 and Gen9 servers to expand usage beyond its initial 100 virtual desktops. “With NVIDIA GRID, we saw that we could deliver an unparalleled user experience that rivaled the physical desktop,” said Smith.

RESULT STATEMENT:

Being early adopters of technology means that the city’s IT department is consistently ahead of the curve. A VDI environment that performs smoothly, thanks to NVIDIA GRID, provides substantial overhead cost savings. And the city’s IT team of nine is able to deftly handle the entire VDI deployment of 400 users. Comparatively, a local city almost identical to Davenport—in terms of user count and facilities—needs an IT team of 34. “We’re not stressed out every day. We have little to no downtime. And our budget is probably a third of what theirs is,” said Smith. He added, “Our NVIDIA GRID–powered VDI environment works so well that we rarely have IT help-desk tickets to deal with. And we can upgrade our virtual desktop pools at the touch of a button. And we no longer worry about people losing data on local hard drives. Now data resides safely in the data center.”

Another way that NVIDIA GRID provides cost savings is by lessening the impact on servers. “When we started with NVIDIA, we found that they improved performance so much that we were able to get more years out of some of our aging servers. We also see great server density. We can support twice the number of users per server with NVIDIA vGPU offloading,” said Smith.

Users benefit too. With flexible access to applications, officers can be more productive. With the new NVIDIA GRID–powered VDI solution, officers can start a virtual session and use Google Earth or start writing reports from anywhere. When they’re back in the office, they can log in to that same session and continue working.

By reducing the CPU load with NVIDIA’s GPU virtualization, high-definition videos run smoothly for municipal employees, whether they’re reviewing camera footage inside their cars, remote-conferencing with colleagues on Skype, or watching training videos on YouTube. The city’s fire department, for example, does all their training via YouTube. They often move between stations, starting the night in one station and ending up in a different one. Now they can pause in the midst of a training video and easily log in to any terminal later and resume right where they left off. This is all possible



Image courtesy of City of Davenport

because of NVIDIA GRID. “VDI is very hardware- and performance-heavy, partially because it’s so video intensive. When you’re trying to do accelerated graphics or video streaming on a CPU, it’ll grind that CPU to a halt. With NVIDIA GRID, we’re able to offload processing to the GPU, delivering a better user experience to more users,” said Smith.

In addition, user mobility and productivity have dramatically improved. Today, the city’s VDI platform can easily handle the uptick in employee demand for remote system access. Knowledge workers across every department can work from home or on the road, regardless of which applications they wish to use. Communications staff can use Adobe Creative Cloud to design marketing materials. Public works, city planning workers, and engineers can access Google Earth, GIS maps, and AutoCAD, even on low-cost Chromebooks, which is particularly helpful if they have to fly out to a different state or be onsite. And executives and managers have full use of graphics-intensive Microsoft Office applications like PowerPoint, anytime, anywhere.

Adoption is no longer an issue. “When an employee on a physical PC comes to IT asking for an upgrade, I offer them a virtual desktop on a Chromebook. If they resist, I demo a Blu-ray movie. As soon as they see what it can do, they’re sold. To get user buy-in, you have to cater to their expectations. If users see poor performance, they assume it’s subpar equipment and they’re not going to adopt. VDI doesn’t naturally perform this well. It needs backend IT work to make it happen. Unless you have NVIDIA GRID for GPU virtualization, your VDI project isn’t going to be successful,” said Smith.

Looking ahead, the City of Davenport is excited about the next round of system upgrades. Soon, it plans on replacing all of its first-generation NVIDIA GRID K1 and K2 cards with NVIDIA GRID vPC software and Tesla M10 GPUs. Migrating will give Smith’s team access to upgrades of new software releases, as well as new management and migration features. They’ll be able to suspend running NVIDIA vGPU-powered vSphere virtual desktops and resume them later on compatible infrastructure without end-user disruption—while preserving desktop and application states. With this new functionality, they’ll be able to migrate virtual machines more efficiently, tightening the maintenance window and freeing up time to focus on more strategic projects.

“We’ve used NVIDIA’s product over time. Today, it’s so good that it enables us to provide staff with a virtualized environment that performs just as well as a physical desktop.”

Cory Smith,
CIO and CTO,
City of Davenport

The NVIDIA GRID–powered VDI environment will also ensure that, when they replace their Microsoft Windows 7 environment, everything will run smoothly. “NVIDIA GRID will definitely help when we upgrade to Windows 10. It is much more hardware intensive, especially for graphics,” said Smith.

To learn more about NVIDIA virtual GPU solutions visit:
www.nvidia.com/virtualgpu

www.nvidia.com



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