

# AUTODESK INCREASES EFFICIENCY WITH NVIDIA QUADRO vDWS

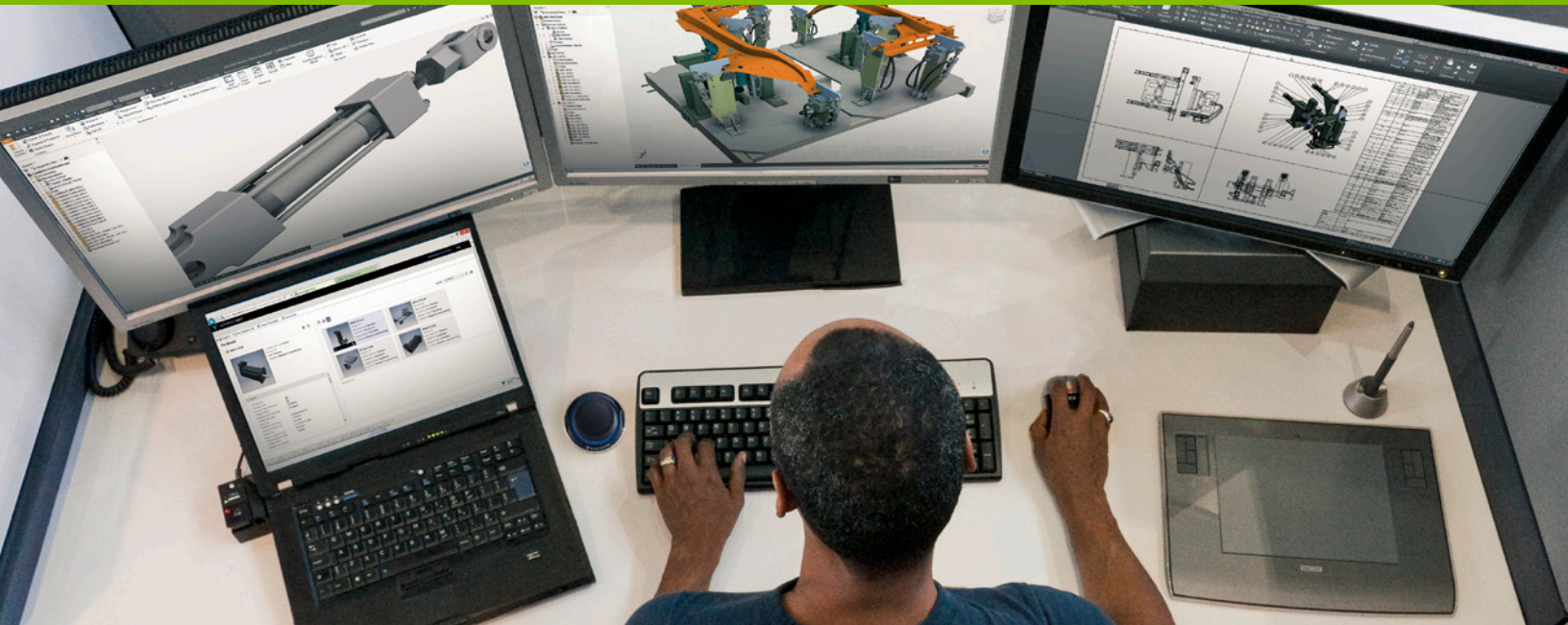


Image courtesy of Autodesk



# GRAPHICS-ACCELERATED VDI ENVIRONMENT BOOSTS PRODUCTIVITY FOR DEVELOPERS AND TECHNICAL SALES TEAMS.



Image courtesy of Autodesk

## FIVE REASONS FOR NVIDIA VIRTUAL GPU

- > Improve efficient use of resources for graphics-intensive workflows
- > Provide workstation-like performance on virtual desktops
- > Deliver secure, mobile access to support collaboration and remote work
- > Ensure best possible graphics experience for demonstrations
- > Expand VDI across the company, leveraging cloud technology

## INTRODUCTION:

With 8,900 employees located across the globe, Autodesk makes software for people who make things. Its more than 200 million customers—including design professionals, engineers and architects, digital artists, students, and hobbyists—use Autodesk’s software to design and make the world around us. If you’ve ever driven a high-performance car, admired a towering skyscraper, used a smartphone, or watched a great film, chances are you’ve experienced what millions of Autodesk customers are doing with the company’s software.

## CHALLENGE STATEMENT:

As a premier developer of many of the world’s most powerful applications, Autodesk has a unique challenge. It must ensure that its internal workforce of engineers and developers are well equipped to test that applications are fully functional and customer-ready; at the same time, it needs to enable its technical sales team to demonstrate the products at peak performance.

To support rigorous testing requirements across a wide variety of operating systems and product versions, many developers had up to three workstations under their desks. Each workstation had a very high-performance graphics card to perform high-end rendering and graphics testing on the latest product features and functionality, as well as on new bug fixes and service pack

## CUSTOMER PROFILE



**Company**  
Autodesk

**Industry**  
Technology

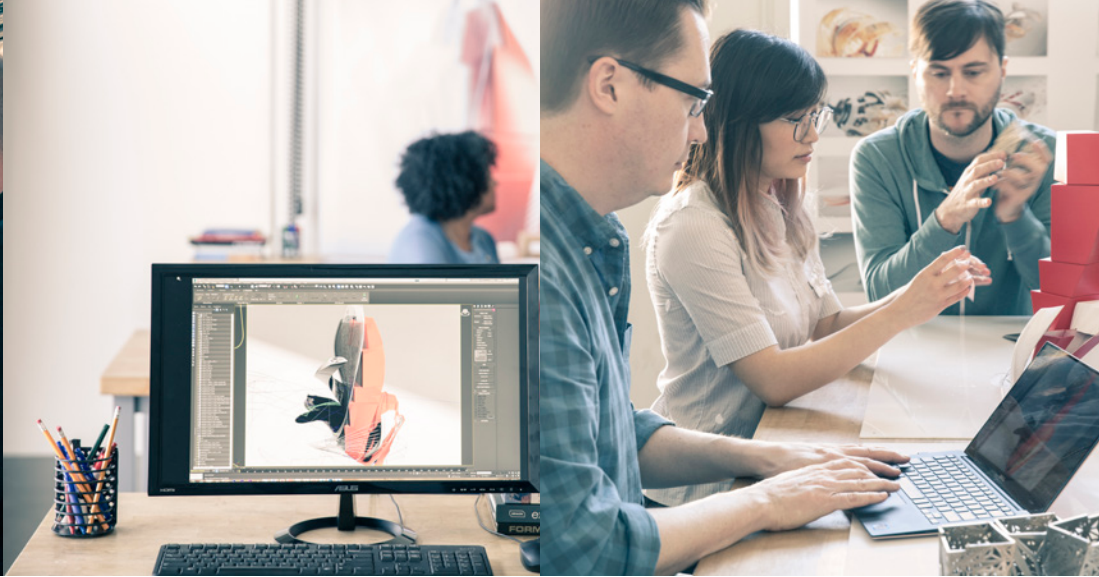
**Location**  
San Rafael, CA

**Size**  
8,900  
employees  
worldwide

**Website**  
autodesk.com



Image courtesy of Autodesk



## PRODUCTS

### **Graphics Acceleration:**

NVIDIA Quadro vDWS software

### **Hypervisor:**

Citrix XenServer and VMware ESXi on Citrix XenDesktop and XenApp

**GPU:** NVIDIA GRID K1 and K2, and NVIDIA® Tesla® M10

**Server:** HPE C700 chassis, HPE BL280 blades, Supermicro

releases. However, depending on where the developer was in a project or testing lifecycle, the workstations could be used anywhere from eight hours a day to sitting idle for weeks at a time. Further investigation revealed that developers only used 50 percent of their graphics resources in their development cycle, which proved to be an inefficient use of resources.

On the technical sales side, sales technicians would carry an expensive, heavy laptop with a high-end, integrated graphics card to demonstrate Autodesk's products. Because of the nature of Autodesk software, they wanted to ensure a rich graphics experience, but the integrated graphics cards didn't support the best experience on a laptop. Technicians would also routinely bring an additional heavy laptop, in case the software wouldn't fully install or run well on the first laptop—making the demonstration experience physically cumbersome and time-consuming.

The IT organization knew that a virtual desktop infrastructure (VDI) solution would address these challenges for the engineering and sales teams. Four years ago, IT implemented a virtualized graphics environment powered by Citrix and NVIDIA virtual GPU technology to use resources more efficiently. Since that time, Rachel O'Gorman, who leads the Desktop Virtualization Services team for Autodesk's CloudPC, has been working with her team to move and automate the on-premises solution into the cloud to realize even greater efficiencies.





Image courtesy of Autodesk

## SUMMARY

- > Autodesk makes powerful software applications that empower its customers to make anything from towering skyscrapers to high-performance cars and visually stunning films.
- > The company's developers needed high-performance graphics cards to test a variety of applications on workstations, but they only used 50 percent of their graphics resources in their development cycle.
- > To demonstrate the company's applications at customer sites, sales technicians used heavy, expensive laptops with integrated graphics cards that didn't provide the best graphics experience.
- > Autodesk rolled out a graphics-accelerated VDI environment, leveraging NVIDIA Quadro® Virtual Data Center Workstation (Quadro vDWS), NVIDIA GRID®, and cloud technology to increase efficient use of resources while providing fast, mobile access to applications for its sales teams.

## SOLUTION STATEMENT:

At the onset of building Autodesk's VDI environment, Rachel and her team spent significant time with the engineers to understand how a virtualized solution would best fit their workflows. Said Rachel, "In the early days when we were focused on replacing the workstations under the desk, it seemed to make sense to move them into a shared environment. But we had to ensure we were providing a solution that, at the least, matched what was under the desk, or the developers wouldn't adopt the solution."

Because Autodesk's developers not only use GPUs but also CPUs and memory for processing, Rachel's team ran multiple testing scenarios on how a virtual system would handle the developers' workflows. They found that the minimum requirements were 16 GB of RAM, 12 virtual central processing units (vCPUs), and 300 GB of disk space—but the graphics requirements varied. For example, if the developer's workflow was QA, they didn't need a full graphics card. That meant that Rachel's team could provision a quarter or half a card and free up resources for more graphics-intensive workflows. With NVIDIA virtual GPU management and monitoring capabilities, Autodesk was able to right-size computing resources based on three types of users with varying compute and graphics requirements. This helped them optimize resource utilization and minimize help-desk calls.

After implementing a successful on-premises virtualized solution, Rachel and her team began exploring moving the solution to cloud service providers. Like many other organizations, scalability was starting to become an issue, in addition to having to wait up to three months for hardware due to purchase/approval, delivery, and configuration cycles. With the increasing capabilities of cloud service providers, Rachel and her team decided to test whether a cloud-deployed virtualized solution could meet the developers' requirements. At the same time, Rachel's team retooled their own capabilities and moved from being a traditional IT team to a DevOPS/engineering team, so they could deploy the solution through infrastructure and configuration as code instead of a traditional management interface.

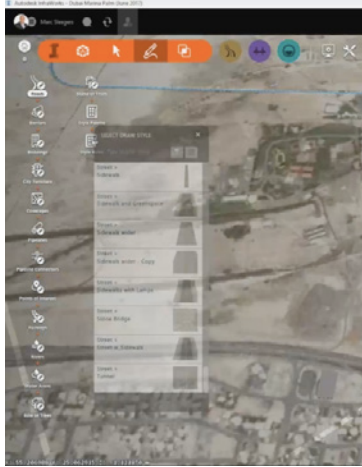


Image courtesy of Autodesk

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**“Developers literally just link across the data center and run their download and testing within the data center. It’s a huge productivity gain.”**

Rachel O’Gorman,  
Service Manager,  
Cloud PC,  
Autodesk

After running a successful pilot, Rachel rolled out the deployment more broadly via what’s known now at Autodesk as CloudPC, with applications automated into the continuous integration and delivery (CICD) pipeline. Explained Rachel, “The developers are getting the same capabilities on their virtual desktops as they did with their physical workstations, but now the applications are installed consistently, and they can access the applications the moment they log into the desktop.” For example, many of Autodesk’s factory designs could contain six or seven products that had to be installed individually. That not only took a significant amount of time, it also led to inconsistencies. Added Rachel, “Consistency is critical in a testing environment, so CloudPC has not only brought fast access to applications, but also consistency across the configuration.”

The virtualized environment on CloudPC worked so well with the developers that other organizations across Autodesk have started adopting it. Now, more than 120 people are using it in the sales organization alone. When sales technicians travel to customer sites to give a demonstration, they can connect remotely with a tablet. With virtual GPUs from NVIDIA, not only are the sales technicians able to showcase Autodesk’s products with a significantly better graphics experience than before, but customers now view Autodesk as a modern cloud company.

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**RESULT STATEMENT:**

Moving to a virtualized environment has resulted in significant benefits for Autodesk. For example, many of Autodesk’s developers who work in Europe or Asia-Pacific are home-based, so they’re working with code that’s housed thousands of miles from their location. Before virtualization, it could take up to 12 hours for code to download before a developer could start working with it. Said Rachel, “After moving to CloudPC, the download happens within minutes. Now, developers download code to their VDI instance from a central code management system located in the same data center. It’s a huge productivity gain.” And Autodesk is able to protect its intellectual property because everything stays in the data center.

Virtualization has also enabled Autodesk to address mobility challenges. For example, support engineers may receive urgent requests while they’re on the road or out of the office. Now, they can connect to CloudPC over an iPad or even an iPhone to solve issues from anywhere.

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Service Manager,  
Cloud PC,  
Autodesk

Said Rachel, “The biggest value NVIDIA brings to Autodesk is the ability to resolve and share access to the right compute resources. There’s no way to scale physical workstations and the infrastructure it requires. The virtualized desktops not only replace and augment the physical workstations; the VDI environment lets us optimize resource consumption, reduce maintenance and management work, and increase productivity for our developers and technical sales teams.”

To learn more about NVIDIA virtual GPU solutions visit:  
[www.nvidia.com/virtualgpu](http://www.nvidia.com/virtualgpu)

[www.nvidia.com](http://www.nvidia.com)



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