

Digitally delivering outstanding dental training

University of Colorado School of Dental Medicine implements VDI with Dell Technologies and NVIDIA solutions to provide excellent instructional user experiences and simplify IT management.



Higher Education

United States

Business needs

The School of Dental Medicine aims for continuous improvement in its use of educational technology and the quality of the user experience. During the pandemic, the school needed to enable remote teaching and learning.

Solutions at a glance

- [Dell EMC PowerEdge R740 rack server](#)
- [Dell Wyse Zero Client](#)
- [NVIDIA® T4 GPU](#)
- [NVIDIA® Quadro® Virtual Data Center Workstation software](#)

Business results

- Allows a seamless transition to remote-class delivery and learning during pandemic.
- Performs software updates in 2 hours versus 160 hours.
- Enables high-quality dental training with an outstanding user experience.
- Supports innovation that attracts more students and faculty.

“Dell Technologies and NVIDIA have long been our strategic partners. Their solutions will meet our needs for the next five years.”

Ernesto Jamison
Infrastructure Engineer,
University of Colorado School of Dental Medicine

The University of Colorado School of Dental Medicine uses technology as much as possible to enable impactful learning and teaching for students and faculty. Some time ago, the school implemented a virtual desktop infrastructure (VDI) on Dell Technologies solutions powered by NVIDIA virtual GPU (vGPU) technology to give students and instructors access to the school's digital resources.

When the school needed to plan a VDI hardware refresh that would also improve user access to software applications and improve system performance, it was an easy decision to continue with the same providers. Ernesto Jamison, infrastructure engineer at University of Colorado School of Dental Medicine, says, "Dell Technologies and NVIDIA have long been our strategic partners. Their solutions will meet our needs for the next five years. Almost as important, we could seamlessly implement them in our data center."

Updating an instructional VDI environment

For the refresh, the School of Dental Medicine acquired Dell EMC PowerEdge R740 servers to replace older PowerEdge hardware in an easy upgrade. For each server, the school deployed three NVIDIA T4 GPUs. These facilitate the sophisticated visualizations needed in dental instruction, which run on applications that cannot be virtualized without GPUs. The school also purchased 650 licenses of NVIDIA® Quadro Virtual Data Center Workstation (Quadro vDWS) software to virtualize the NVIDIA GPUs and share them across multiple virtual machines.

Technology managers set up two resource sites for the virtualized environment, both running on NVIDIA Quadro vDWS software:

- Application site (2GB profile size) for all remote users and clinical chairs at the school requiring access to axiUm, the dental and electronic health record software, the Dolphin orthodontics program and MiPAX radiology software
- Desktop site (3GB profile size) for faculty and administrators using business and instructional applications, with Dell Wyse Zero Clients for part-time faculty

Today, the VDI supports close to 900 users, about 500 of whom are students and the remainder faculty and administrators. IT manages the entire environment—except the axiUm database—on VMware ESXi hypervisor.

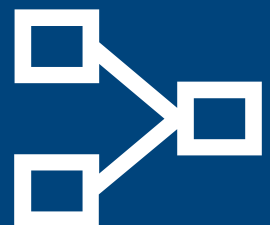
Simplifying and refocusing IT

Deployment by the dental school's IT team was easy and efficient, and so are software updates. "IT no longer has to touch all the computers at clinic chairs and in users' hands to perform software updates, which required eight people working 10 hours a day on both weekend days," Jamison says. "Instead, a team member spends a couple of hours updating servers and spot-checking devices and peripherals." Without that large manual effort, IT can deploy more updates faster to enhance learning and teaching, and spends more time on tasks like infrastructure optimization.

"Once we deployed VDI with NVIDIA vGPUs, the user experience improved significantly. The greatest changes were excellent system performance and responsiveness."

Ernesto Jamison
Infrastructure Engineer,
University of Colorado School
of Dental Medicine

Simplifies IT
infrastructure and
application management.



“Our VDI enabled perfect readiness for completely remote teaching and learning during COVID-19.”

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“With support from Dell Technologies and NVIDIA, we are ahead of many other schools in using virtualization.”

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Dramatic user-experience improvements

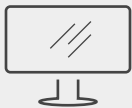
Students and instructors shifted smoothly from physical, nonvirtualized technology and the first-generation VDI into the re-created digital landscape. Jamison explains, “Once we deployed VDI with NVIDIA vGPUs, the user experience improved significantly. The Quadro vDWS–powered virtual workstations also allow us to avoid disruptive reboots when our server is not processing license updates accurately.”

Pandemic-proof educational technology

The VDI did not require any adjustments during the pandemic. IT helped instructors and students adapt to all-virtual teaching and learning instead of the mix of hands-on and some digital dental training they were used to. Jamison comments, “Our VDI enabled readiness for completely remote teaching and learning during COVID-19. We experienced no interruptions at all.”

Powerful support from the technology partners

Assistance from Dell Technologies and NVIDIA is a powerful asset for the School of Dental Medicine. It helps the school augment the remote-learning technology, for instance, by adding intraoral cameras. Such enhancements are critical for attracting gifted students and high-caliber faculty.



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Dell Technologies
VDI solutions



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