

**VIRTUAL DESKTOP INFRASTRUCTURE
IN K-12 AND HIGHER EDUCATION**

Delivering
secure, remote
access for
uninterrupted
learning



Ensuring all students have equitable remote access to school resources and technology in today's highly distributed learning environments is a top challenge for schools both in K-12 and higher education. Next-generation virtual desktop infrastructure (VDI) solutions from Dell Technologies and VMware deliver the right mix of flexibility and scalability needed to provide uninterrupted learning. Whether remote, hybrid, or on campus, students gain anywhere, anytime access to vital applications and resources while educators are equipped with the tools needed to deliver new methods of teaching designed to maintain learning continuity and promote student success.



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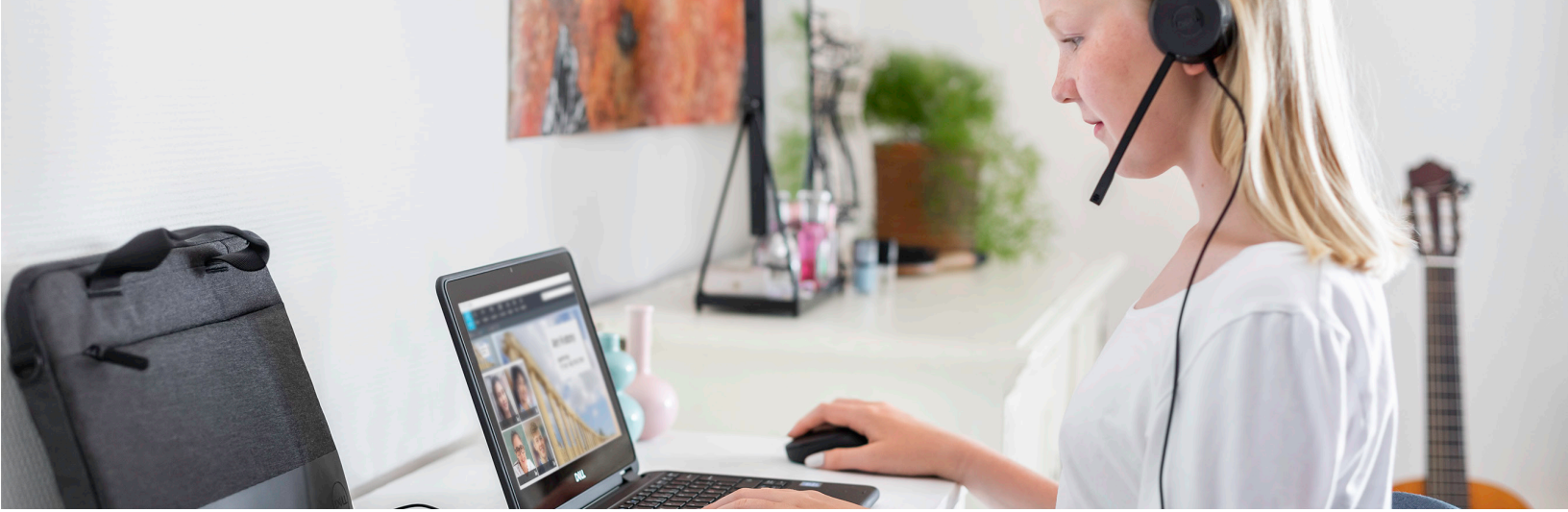
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VIRTUAL DESKTOP INFRASTRUCTURE IN EDUCATION

A foundational technology for blended learning and long-term digital transformation

In early 2020, the shutdown of school campuses across our globe put into motion a dramatic shift in how education is delivered. School IT departments were tasked with a tall order: providing all students with secure, remote access to critical learning resources and technologies on a variety of school-supplied and personal devices. Since that time, remote system access has continued to be a necessity across K-12 and higher education.

Although many have and will continue to return to campus, one fact remains: online learning is not going away. Demand will continue to grow for anytime, anywhere access to secure, course-specific content and resources on devices of the end user's choosing, whether that be mobile devices, tablets, or home computing devices. Students and faculty will expect that services and resources evolve and function as they do on campus. There will be ongoing adoption of blended learning models as instruction continues to shift to more student-centered and personalized approaches.

These demands introduce new complexities for IT to deliver anytime, anywhere access to technology. VDI provides a clear, simple path forward: including secure access to up-to-date applications and course resources while maintaining a familiar and productive user experience. It also helps in cases where specialized applications like GPU-intensive software are needed, as is the case in engineering, graphic design, labs, CTE and STEM programs, and more. VDI helps address immediate needs for dynamic allocation of IT resources, holistic security, and technology access for an increasingly remote student population. Because of its inherent design, it also serves as a foundational technology that many schools leverage as part of their long-term digital transformation strategies.

How VDI is advancing education for K-12 and higher education



Maintain learning continuity and digital equity by scaling anywhere, anytime access to technology and resources for all students (remote, hybrid, and on campus).



Attract top talent by hiring remote faculty outside of your school's geographic reach; this can be especially beneficial for rural schools and campuses.



Provide remote access to computer labs and specialized labs such as an engineering lab using a single desktop.



Extend availability of specialized programs such as media and entertainment, STEM, and CTE that require access to high-end graphics or high-power applications and tools.



Enable remote onboarding of new faculty hires to avoid unneeded visits to campus, even for the initial setup.



Streamline data center management using remote desktops. This is ideal for smaller schools where usage is limited to a select number of users.

Simplifying IT, providing secure anywhere access, and strengthening security

Challenges associated with having to extend anywhere access while managing and keeping up with security patches and software and OS updates for each and every device (both remote and on campus) are underscoring the need for quick and easy implementation and ongoing, remote management. With end-to-end VDI from Dell Technologies and VMware, IT can simplify and streamline implementation, access controls, maintenance, and monitoring of resources. From a cybersecurity standpoint, this means being able to remotely back up data, perform data recovery in the event of a breach, increase firewall protection, update malware and antivirus protection, and implement other additional cybersecurity measures when needed.

VDI also helps lower TCO for desktops through a dynamic allocation of IT resources. Although VDI implementations have been thought to require heavy upfront costs and long-term planning, allying with a trusted partner can help avoid these types of roadblocks.

Together, Dell Technologies and VMware help K-12 schools and higher education institutions deliver the right mix of compute, network, and storage needed to support small to large organizational deployments, backed by the expertise to help maximize their investments and decrease time to value.



Options for VDI Implementations

Dell Technologies VDI solutions consist of products and services designed to enable academic institutions of any size to reap the full benefits of desktop virtualization and personal access to the cloud. Selecting the most appropriate VDI configuration begins with understanding your options and aligning those with your educational and financial needs.



BUILD A VDI IMPLEMENTATION

In this case, the academic institution builds or leverages its own virtualized, hyperconverged infrastructure. This option is best suited for schools with a large number of desktop users and onsite support staff. For quick setup of your user endpoints, consider ready-to-order Dell Client Bundles for VDI.



SUBSCRIBE TO A CLOUD PROVIDER

Learning environments with fewer desktop users and limited IT support may want to adopt virtual desktops but lack the resources to procure and maintain the necessary infrastructure. In these cases, a cloud-based desktop as a service (DaaS) such as VMware Horizon with Dell Technologies APEX Cloud Services may be the best option. With DaaS, users can take advantage of public cloud resources and desktop virtualization provided by a third party such as VMware on Azure or



BROKER ACCESS TO EXISTING MACHINES

With remote access solutions from Dell Technologies and VMware, you can opt to broker access to your physical Windows machines while avoiding costs associated with scaling GPUs in the data center. Because of the minimal components required, this solution can be implemented quickly and is particularly effective in lab environments.

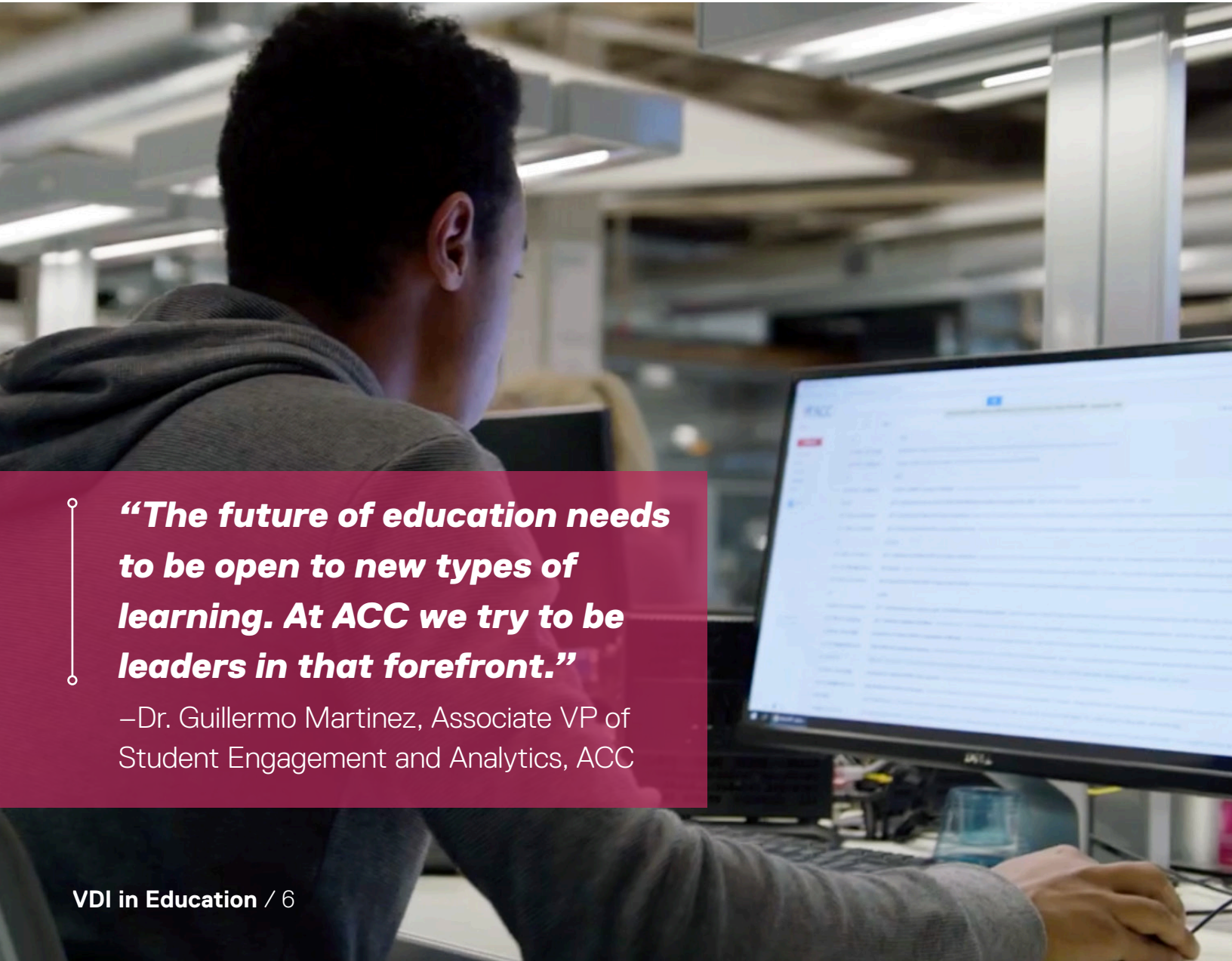
CUSTOMER STORY: AUSTIN COMMUNITY COLLEGE (AUSTIN, TX)

Called a “new way of learning,” the ACCelerator at Austin Community College (ACC) is a state-of-the-art, 32,000 square-foot technology-enhanced VDI learning environment.

This VDI environment allows teachers the freedom to choose what courses they want to offer without requiring involvement from IT in needing to update the server and the software with each new request. According to Dr. Virginia Fraire, VP of Student Services, “Our goal is to create a 21st-century learning environment where customized learning plans are being provided for each student. We are meeting students where they are.”

Powered by Dell Technologies VDI solution featuring 604 Dell Wyse clients running on 9 PowerEdge Servers, the college's ACCelerator enables individualized education with large increases in success rates, student persistence, and attendance, including:

- ♦ **30% higher success** exhibited in a geography class with this program versus a traditional environment
- ♦ **11% increase in student persistence**
- ♦ **217% increase in unique student visits** between 2017 to fall of 2019












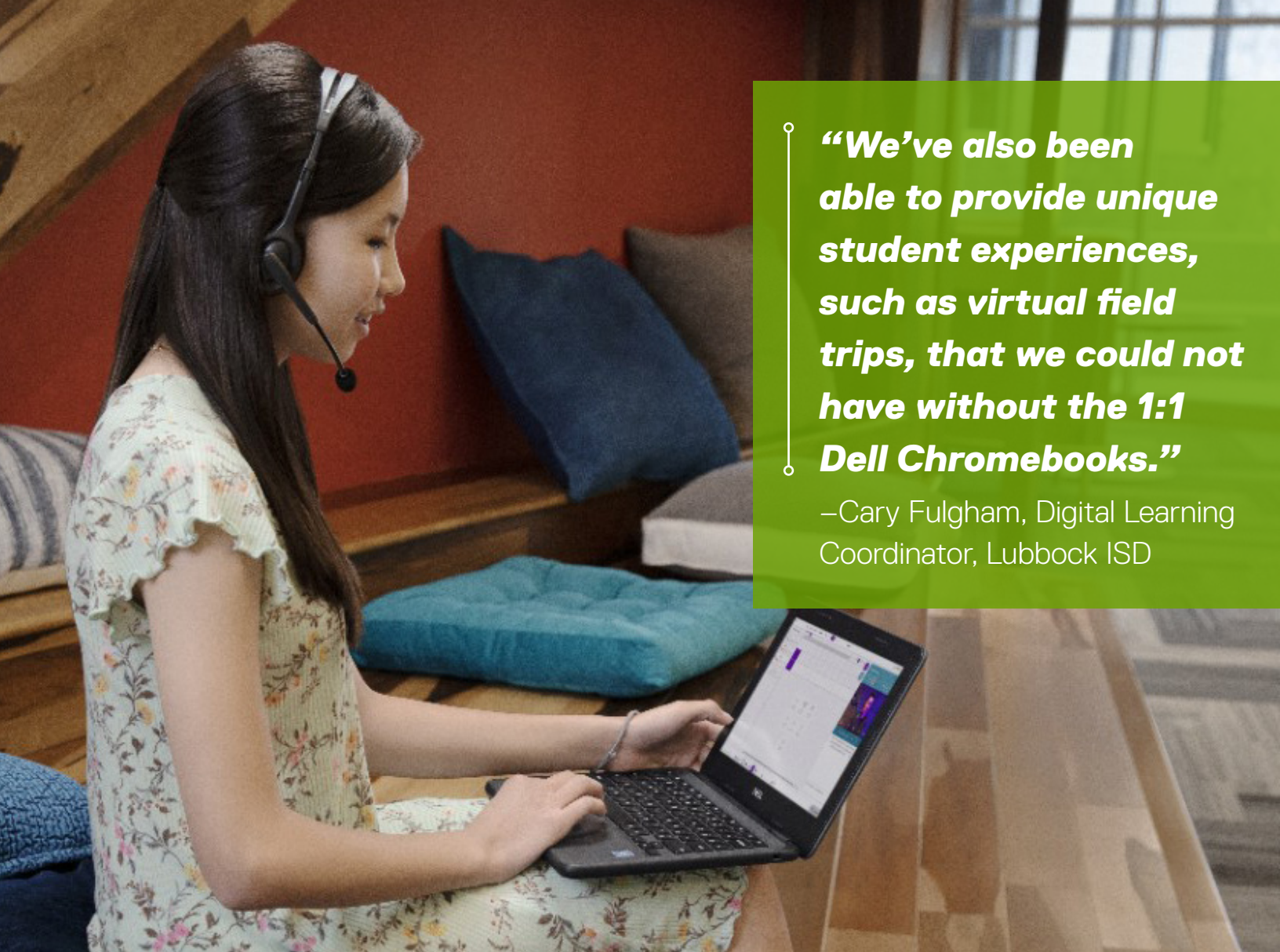
“The future of education needs to be open to new types of learning. At ACC we try to be leaders in that forefront.”

–Dr. Guillermo Martinez, Associate VP of Student Engagement and Analytics, ACC

Benefits of the Dell Technologies and VMware end-to-end VDI solution

With Dell Technologies and VMware working together, you can expect unrivaled performance and a consistent user experience. Empower students to thrive wherever they are, whether on campus or remote, while helping to simplify IT with a common set of tools, centralized management, and uncompromising security.

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-  **Optimized across edge to core to cloud**
Dell EMC VDI Complete Solution powered by VMware Horizon delivers secure, high-performance computing experiences that are quick to deploy and simple to manage with an edge-to-core-to-cloud VDI environment.
 -  **Aligned to user needs**
Our extensive portfolio of products and services are designed to enable schools to reap the full benefits of desktop virtualization and personal access to the cloud for a broad spectrum of use cases. We offer the greatest breadth of choice in how users access cloud-based services that meet today's needs, as well as the full range of possible future requirements.
 -  **Validated, scalable infrastructure**
Our VDI solutions include fully integrated, preconfigured, and pretested Dell EMC VxRail hyperconverged infrastructure appliances that are designed to scale in response to changing environments and user needs.
 -  **Anytime, anywhere access in minutes**
Mobilize your community of learners, educators, and administrators quickly, delivering virtual desktops and applications in minutes. Empower them to work anytime from any location.
 -  **Holistic security**
Dell Technologies and VMware end-to-end VDI solutions enhance your user, data, app, and endpoint security by centrally storing IP, data, and apps in the data center.
 -  **High-performance user experiences**
Our end-to-end solutions deliver extreme graphics in a reliable environment, reducing downtime and enabling access to specialized program materials, labs, and GPU-intensive applications.
 -  **Streamlined IT**
IT can centrally manage images and applications and dynamically allocate resources to respond faster to user operations and student/faculty demands.
 -  **Reduced complexities**
Simplify your virtual desktop and application implementations with a single company for solutions, sales, and support.
 -  **Support for every step of your VDI journey**
Our education strategists and technicians are available to help you plan, deploy, and support your vision to make your ideas a reality.



“We’ve also been able to provide unique student experiences, such as virtual field trips, that we could not have without the 1:1 Dell Chromebooks.”

–Cary Fulgham, Digital Learning Coordinator, Lubbock ISD

CUSTOMER STORY: LUBBOCK INDEPENDENT SCHOOL DISTRICT (LUBBOCK, TX)

After making the transition from Windows devices to Chromebooks, Lubbock Independent School District (ISD) leaned more heavily on their virtual desktop infrastructure to give students and staff access to the learning and work applications and other tools that still require Windows access. To help them power their VDI platform application and avoid bottlenecks in system updates and management, the Texas district implemented Dell EMC VxRail hyperconverged infrastructure (HCI). According to Chief Technology Officer Damon Jackson and Senior Platform Technology Engineer Jason Blackburn, HCI has given them the “easy button” for network management with “remarkably faster performance.”

With the HCI implementation powering their VDI environment, Lubbock ISD has since been able to:

- **Provide equitable access to virtual learning resources, even from home**—including enabling Career & Technical Education (CTE) students to securely access the many Windows programs needed for certification tracks
- **Streamline IT management**—including upgrades completed in a single click versus having to do it all manually
- **Increase computing performance**
- **Improve overall data center performance**



WE'RE HERE TO HELP

We're here to help you every step of the way. Our more than 1,800 VMware-certified Dell Technologies support professionals ensure that you have a single point of contact for hardware and software questions or advice, with virtually all calls handled by Dell Technologies without escalation to VMware. Dell Technologies Consulting and Services experts can also help you get the most from your investments. From white-glove consulting and deployment to the global power of Dell ProSupport and Dell ProDeploy to maintenance and training to managed services—we offer services across the entire life cycle.



Accelerate learning anytime, anywhere

Find out more about how you can empower your students and faculty to work and learn anytime, anywhere with Dell Technologies and VMware end-to-end VDI solutions. Look to Dell Technologies and VMware for consistency across infrastructure, operations, and services to empower our next generation to excel in today's distributed learning environment—whether remote, hybrid, or on campus—without compromising security or high-quality end-user experiences. As a foundational technology, VDI will enable you to lay the groundwork to advance innovation in teaching and learning for years to come.



Learn more
about our K-12
solutions.

Explore our
solutions for higher
education.



Contact one of our
education experts.



Connect
with us.

Photo (page 5) courtesy Ken Theimer, Unsplash.