



Carlsbad Municipal School District goes to the top of the class thanks to VDI powered by Lenovo



Overview

To make it quicker and easier for students to access educational resources, Carlsbad Municipal School District wanted to virtualize the desktops in its school computer labs. By replacing its aging IT infrastructure with a flexible and powerful Lenovo Flex System solution, the district gained the performance and scalability needed to support a virtual desktop infrastructure (VDI) – improving access to learning materials.

Carlsbad Municipal School District operates 14 public schools – from pre-school to early college high school – across the city of Carlsbad, New Mexico, serving over 7,000 students from kindergarten up to the age of 18. The district’s mission is clear: to create a school environment that meets the individual educational needs of all children, regardless of ability, ethnicity, creed, gender or social standing.

Testing times

Students of all ages increasingly rely on educational resources and applications via school computer terminals to support their learning goals. As a result, the shift was putting pressure on Carlsbad Municipal School District’s aging IT infrastructure.

In the past, the district relied on a shared server environment to run everything from back-office processing to student PCs. As a result, performance was sluggish – so slow, in fact, that the system threatened to jeopardize the district’s state government-mandated testing benchmarks.

Wayne Steffan, System Administrator at Carlsbad Municipal School District, explains: “Because an increasing number of academic tests must be completed via applications or online, there are strict technical requirements that the environment

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must meet. Our existing network infrastructure simply couldn't cope with 300-plus kids logging on simultaneously – performance was so slow that the environment wasn't operable.

“What's more, it would take weeks to manually set up the testing applications on PC terminals, only for the examination board to change the requirements at the last minute. The existing setup was becoming increasingly difficult to manage – it was clear that we needed to make a change.”

Keen to take advantage of virtual desktop infrastructure (VDI) technology to improve student IT services, Carlsbad Municipal School District recognized the need for a complete infrastructure refresh.

Investing in the best

After evaluating offerings from a number of vendors, Carlsbad Municipal School District decided to replace more than 140 physical servers with a handful of powerful Lenovo Flex System solutions.

Wayne Steffan comments: “We were able to visit the Lenovo briefing center, and development and cloud labs in Raleigh, North Carolina, to get a closer look at the Flex System infrastructure. Meeting with the solution architects, product experts and developers, and discussing our specific technology needs with them was enormously helpful and convinced us that Lenovo Flex System was the right solution for us.”

Working closely with trusted partner QCM Technologies, the district implemented five Lenovo Flex System Enterprise Chassis equipped with Lenovo Flex System x240 M5 compute nodes. Powered by the Intel® Xeon® E5 processor family, the Lenovo solution delivers the high levels of performance required to support the district's virtual server environment, based on VMware vSphere, and the new VMware Horizon 7 VDI. Using Flex System's integrated switching for both Ethernet and Fibre Channel SAN, the district enabled high-speed communications between the compute nodes and with the storage network to deliver data faster to teachers and students.

Solution components

Hardware

Lenovo Flex System Enterprise
Chassis

Lenovo Flex System x240 M5
compute nodes with Intel® Xeon®
E5 processor family

Lenovo Flex System Fabric EN4093R
10Gb Scalable Switch

Lenovo Flex System FC5022 24-port
16Gb SAN Scalable Switch

Lenovo Flex System FC5172 2-port
16Gb FC Adapter

Lenovo Flex System CN4022 2-port
10Gb Converged Adapter

Software

VMware Horizon 7

VMware vSphere



Wayne Steffan recalls: “What initially attracted us to Lenovo solution was the impressive scalability of Flex System. We can add capacity as and when needed to ensure that performance always stays high, even during exam periods. Investing in Lenovo Flex System means that we don’t have to worry about our core infrastructure – it will support us for many years to come.”

Today, Carlsbad School uses one Lenovo Flex System chassis to support critical back office systems, including its Microsoft Exchange environment, file and print servers, and financial applications. The remaining four chassis host the VDI system, with space to add additional server nodes for future growth.

“So far, we’ve rolled out VDI for all elementary, junior high and high schools,” says Wayne Steffan. “The Lenovo solution supports VMware Horizon 7, which enables us to create and push out a desktop image to all 2,100 clients.”

The virtual desktops have everything that kids need for their studies – from Microsoft Office and online educational tools, such as Lexia Learning and Renaissance Learning, to the state-mandatory testing applications.

Delivering A+ academic services

By replacing its existing infrastructure with Lenovo Flex System, Carlsbad Municipal School District has transformed IT operations – dramatically improving student learning and testing processes.

Wayne Steffan remarks: “The Lenovo solution enables us to offer easy, reliable access to virtual desktops equipped with everything kids need for their studies. Feedback from teachers has been very positive – the virtual desktops are very easy to use and run smoothly, so we have far fewer support tickets to deal with.

“Critically, from an IT administration perspective, everything is much easier to manage. Rolling out image updates used to be nightmare – it could take weeks for our team to get the entire fleet updated. Now, I can roll out a new desktop image to 2,100 clients in just seven minutes, and can even schedule it to take place during lunch time so that there’s no disruption to services.”

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He adds: “As well as powering our VDI, the Lenovo solution has given a tremendous boost in performance and availability to our back-office systems. Our administrative applications run faster and smoother, enabling staff to work more productively. As an added bonus, I can relax knowing that I won’t get support requests coming in at 10pm!”

With the state-of-the-art Lenovo infrastructure in place, Carlsbad Municipal School District sets a shining example for how VDI can be used to great benefit in schools.

Wayne Steffan concludes: “Giving students fast, reliable access to classroom materials via virtual desktops means that they can benefit from the latest and greatest learning applications and tools – and get the most out of their education.”

For more information

To learn more about Lenovo Data Center Systems solutions, contact your Lenovo Sales Representative or Lenovo Business Partner, or visit: lenovo.com/systems

For more information about Carlsbad Municipal School District, visit: www.carlsbadnmschools.com or connect with @CarlsbadMSD

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