

School District Provides Next-Generation Learning to Students

Park Hill School District uses Virtual Desktop Infrastructure to improve districtwide desktop management and online access.



Business Challenge

EXECUTIVE SUMMARY
<p>PARK HILL SCHOOL DISTRICT</p> <ul style="list-style-type: none"> • K-12 Education • Kansas City, Mo., USA • Approximately 10,100 students • Approximately 1,500 administrators and faculty members
<p>BUSINESS CHALLENGE</p> <ul style="list-style-type: none"> • Aging servers • Desire to easily manage servers • Desktops for students, teachers, and administrators who could not afford them
<p>SOLUTION</p> <ul style="list-style-type: none"> • Implement state-of-the-art Cisco Unified Computing System™ technology optimized for Virtual Desktop • Enable server management from single screen using unified computing system
<p>BUSINESS RESULTS</p> <ul style="list-style-type: none"> • Ability to add approved desktops to servers and deploy specific software applications • Improved desktop management and security • Faster response times to students, teachers, and faculty to help meet educational and administrative needs

Park Hill School District is in the Northland region of the Kansas City Metropolitan Area. It consists of two high schools, three middle schools, nine elementary schools, a day school, and an early childhood facility. “The District consists of over 10,000 students, 20,000 users, and 4,000 network devices scattered across 20 different District locations,” says Brad Sandt, director of technology for Park Hill School District. “These numbers are rapidly increasing as our population and commercial development steadily grows one to two percent annually.”

In 2006, Sandt and his team struggled with a limited data storage platform and outdated phone switches. They looked to Cisco to install Cisco Catalyst® 4500 and 6500 Series Switches over an IP network. Since then, Park Hill has deployed over 1600 IP phones, video surveillance, and access control, allowing users to connect to the network remotely and leverage blended learning techniques in each classroom.

The switching and data center platform was a 21st century approach and gave Park Hill growth potential. “As the new network became successful, we realized the District servers were getting older, and we needed to harness additional technologies in order to maximize the system’s fullest potential. Additionally, we wanted to easily manage and scale the system while also servicing users that can’t afford desktops themselves,” says Sandt. “Basically, overall computing resources were not being used efficiently.”

While Sandt's team tried to maintain the growing number of servers for deployment, monitoring, and maintenance, there were associated resources such as electrical power, cooling, rack space, cabling, and support personnel that needed an efficient management system. Sandt's team recognized the need for long-term stability while repurposing desktops, giving Park Hill students, teachers, and administrators a better computing environment.

"After conducting a vendor comparison between Cisco, Dell, and Hewlett Packard, we decided to work with Cisco on a virtual desktop solution that met our performance configuration needs," says Sandt. "Cisco developed a truly innovative virtualized server solution that allows for greater management."

Solution

Sandt worked with Cisco to deploy virtualized servers and other related Cisco® technologies for networking and data center management. Instead of the traditional design where one application runs on one physical server, Park Hill opted for a single physical server to host multiple virtualized servers (also called virtualized machines) and support multiple applications from a single device.

Since July 2010, Park Hill has used Citrix XenDesktop as the foundation for a Cisco Virtual Desktop Infrastructure in the data center. Citrix XenDesktop supports the creation of virtualized servers, each potentially using multiple physical central processing units (CPUs) and multiple gigabytes of memory. The number of CPUs and memory can be easily modified as applications grow, and District technicians can relocate virtualized servers between physical servers to accommodate an application's changing demands for computing resources. "With a central console that has management components embedded, we no longer have to install different software into

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—Brad Sandt, Director of Technology, Park Hill School District

each computer. The new system also requires significantly fewer technicians to upgrade, thus shortening the testing time and personnel needed considerably," says Sandt.

Citrix XenDesktop provides the software that the District community uses, regardless of which computer a community member decides to use. Each time a user logs into the server, the system builds a "new" virtual machine. Files can be saved on the shared drive, "My Documents," or on a thumb drive, and will be readily available on any District desktop computer when needed.

Server virtualization also allows multiple operating systems to be installed on a single physical server. Each application runs on a standard, dedicated operating system, and only the physical server resources are shared among the operating systems or applications. This design increases overall use of the physical hardware without sacrificing application availability, reliability, or integrity.

Business Results

"Our Cisco Virtual Desktop Infrastructure allows us to accelerate online access for our high school students and create a platform that hosts future applications and collaborative systems for the entire District community," says Sandt. "We have gone from a situation where hardly any students were using their laptops during the school day to approximately 50 percent of them logging in.

Mobile, connected students foster a collaborative, engaging learning environment that enhances curriculum, advances professional development, improves accountability, and sustains leadership.”

Park Hill currently has approximately 300 desktops on the virtualized server and is expecting 900 to be installed before the end of the year. “Our unified computing system allows for great flexibility, which is critical in the ever-changing K-12 learning environment,” says Sandt. “If a teacher needs to add a few more virtual desktop servers in the middle of a hectic testing season, we can easily

PRODUCT LIST
<p>Network Management</p> <ul style="list-style-type: none"> • Cisco Unified Computing System • Cisco Virtual Desktop Infrastructure • Cisco Unified Computing System 5100 Series Blade Server Chassis

accommodate this by virtually repurposing units on-demand.”

He continues, “The virtual desktops are a night-and-day difference to regular desktop models. Not only is the amount of time shorter in order to accomplish online tasks, but the frustration level of users has greatly decreased.” For example, Park

Hill recently had a power outage in a District building where half the staffs were still using traditional desktops and the other half were on virtual ones. Those on the traditional desktops lost all of their work during the outage and were unable to retrieve it. However, the virtual desktop users were able to log back in and retrieve their work with no problem. From a business continuity standpoint, this was incredibly significant.

Sandt recently began the implementation of a “scale-up” program throughout Park Hill’s high schools. Students can bring their computers in, regardless of brand or type, and his team will equip it with a virtual desktop connection. “We are saving the District thousands of dollars by providing an alternative to purchasing a laptop for every student, teacher, and administrator,” says Sandt. “We can upload and manage an extra 100 computers on the system in minutes and without much additional work.”

Access to a secure virtual private network gives the community greater work flexibility and mobility and increases the efficiency of inter-District communications. Today, Park Hill is meeting the needs of its current users while taking advantage of new technologies to maintain scalability.

Additionally, the virtual desktop solution is run off an advanced security system to greatly decrease the potential of viruses and/or hacker infiltration. “We have locked the network down from the edge with restrictions and filtering, so only authorized users can log in,” says Sandt. “Rather than police each device that is brought in by students, which can be labor intensive and costly, our virtual solution allows us to give users a secure connection to our network.”

Next Steps

In upcoming months, Sandt and his team plan to build on the new platform and work closely with teachers and administrators to determine specific system applications for deployment that will continue to enhance the way teachers teach and students learn. Specifically, they will be focusing on video collaboration and delivering the mobile platform into District homes outside of school hours.

“Video provides a common interface for both synchronous and asynchronous communications, which allows students and teachers to easily create, upload, search, and view video content around the world,” says Sandt. “Despite the dominance of formal, structured teaching and learning models in our schools, the most effective learning often occurs in an informal, collaborative setting. We are now empowering Park Hill teachers and students to integrate collaborative solutions into their traditional learning environments.”

For More Information

To find out more about the Cisco Virtual Desktop Infrastructure, go to: www.cisco.com/go/vdi.

To find out more about the Cisco Unified Computing System, go to:
www.cisco.com/go/unifiedcomputing.



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