School District Virtualizes Desktops, Transforms Management

Yakima School District uses Desktop Virtualization to provide secure access while increasing control and manageability.

Executive Summary

- **Customer Name:** Yakima Public Schools
- **Industry:** Education
- **Location:** Yakima, Washington, United States
- **Number of Students:** 15,300
- **Number of Employees:** 1700

Challenge

- Deploy 14 computer labs that meet schools' needs today and in the future
- Maintain investment in aging computers while increasing application responsiveness
- Improve control over student learning experience and online safety

Solution

- Cisco Unified Computing System B250 Blade Servers and UCS Manager
- Cisco Nexus 7000 Series Switches and Cisco Catalyst 4500 Series Switches
- Virtualization and zero client solutions

Results

- Greatly simplifies lab management and reduces technical support costs
- Reduces software licensing costs by up to 60 percent
- Provides granular control over access and learning environment

Challenge

The Yakima School District encompasses 14 elementary schools, five middle schools, and four high schools to serve 15,300 students. Technology is an integral part of learning today, and the school board recently renewed its emphasis on implementing technology to prepare for the state's move to online testing and to provide students with the best learning platform possible.

Twenty computer labs had been installed in the district's secondary schools in the past several years, and 14 elementary school computer labs were slated for implementation in early 2011. A significant percentage of the computers are more than five years old, which complicated decision-making about new equipment. It did not seem to make sense to replace older equipment with new desktop or laptop computers when the district anticipated that low-cost clients and handheld devices would soon become more cost-effective alternatives. As the Yakima School District's IT team planned the 14 new labs, it looked for a way to cost-effectively provide computing power to more students while preparing to eventually support a 1:1 computing environment, in which each student will have his or her own device for accessing the network. Therefore, the new labs would have to support both new and old devices equally well.

The technology department also has a lean staff, with a technician-to-computer ratio that is almost one-third the industry average. In addition to the formal IT team, individuals at each school, usually a teacher or faculty member, must manage the lab and continually help ensure that the systems remain free of malware, comply with software licensing, and are updated as necessary. As the number of computers increases, so does the workload.

"As we planned for the 14 new labs and 450 client stations, I wanted to explore the concept of virtualized desktops to make sure that we were not missing any opportunities to simplify our environment," says Sev Byerrum, executive director of technology for Yakima schools.

> "We can control and limit students' access to their desktops and Internet resources through our virtual desktop infrastructure, regardless of where students are using them. Control over desktops and the learning experience is really going to help our schools. As we move to one-to-one computing, VDI is going to be essential to maintaining security while expanding and enhancing the learning environment."
>
> **— Sev Byerrum,**
> Executive Director
> of Technology

Yakima School District had long been a Cisco networking customer, and the district had steadily implemented IP-based keyless entry, video distribution, voice-over-IP telephony, and intercom systems. After considering other virtual desktop infrastructure (VDI) solutions, Yakima School District asked Cisco, VMware, and Ednetics, a Cisco Premier Certified Partner, to propose a VDI solution for the new labs.

"We felt that Cisco's IP experience would enable us to take full advantage of our IP environment," says Byerrum. "Cisco's responsiveness and end-to-end architecture were so much better that we were convinced that it was the direction we wanted to go."

Solution

Ednetics has been a strong partner with Yakima School District and the district worked with Ednetics to procure and implement its new Cisco solution. The solution is based on VMware View desktop virtualization software, deployed on three Cisco® Unified Computing System™ (UCS) 5100 Series Blade Server Chassis with two Cisco UCS B250 Extended Memory Blade Servers in each. Each Cisco Unified Computing System chassis has room for expansion, giving Yakima schools unprecedented scalability with predictable application responsiveness as new virtual desktop clients are added.

Yakima will initially deploy 450 Wyse Zero clients in the elementary school labs and expects to support up to 1000 clients within a year. The district is also planning to install dark fiber, which will enable it to greatly increase bandwidth between its schools from 1 GB to 20 GB by the end of 2012. In preparation for fiber connectivity, Yakima expects to deploy Cisco Nexus® 7000 Series Switches for its wide-area network.

The new infrastructure will enable Yakima School District to provide middle school and high school students and instructors with their own virtual workspaces that include global access to email and online learning tools. The district uses Gaggle email and collaboration applications, as well as Zoho online productivity tools for word processing, spreadsheets, and presentations. When students log onto their virtualized workspaces, they log onto their Gaggle accounts, which provide the same desktop on zero clients or computers in the classroom, library, or at home.

The virtual desktop environment with Gaggle provides many controls that schools can tailor to meet their privacy and monitoring policy requirements. The district can centrally control and monitor email use, filters, and access parameters, enabling Yakima School District to provide assurances to parents that the students' email and Internet usage is secure and controlled.

Results

The new virtual desktop environment dramatically simplifies lab management by eliminating the need to install and upgrade software on the zero clients. Central management also provides much better and simpler protection against computer viruses and malware across the district. Older computers can be repurposed for use as virtual desktop clients in the labs, needing only a base operating system along with the VMware client software to take advantage of VDI. This capability preserves the district's investment in its existing computers and delays the need to purchase new systems.

Byerrum says that one of the most significant benefits of desktop virtualization for education is the ability to gain granular, centralized control as the district moves toward large numbers of smaller devices used by students.

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The Yakima School District's technology team is relieved to have simplified desktop management. VDI reduces desktop maintenance efforts across the district, which greatly reduces technical support costs. Whether a teacher or aide is a designated lab manager at each school, they can now focus on educating students instead of maintaining the technology.

"VDI enables us to respond quickly to teachers' needs," says Byerrum. "A few months into our implementation, a teacher requested that the Safari browser be added to the client stations because it accelerated one of their favorite learning programs. In 10 minutes, all of those labs had Safari."

Software license management is also an ongoing challenge for the district. The new VDI deployment is a huge boon to Byerrum's team, because it gives them greater control over licensing and enables them to reinforce the importance of copyrights because desktop software images are now centralized. Byerrum also expects to save approximately 60 percent of the district's current software licensing costs, because he can now base licensing on expected simultaneous use of a piece of software, instead of total number of students.

"If usage begins to exceed our licensing, it shows that more people are using the tool, and we can easily purchase more licenses to cover that," he says. "Immediate access to software through VDI allows teachers to try new packages without having to buy hundreds of licenses and enables us to measure actual usage for identifying the most successful packages."

An additional benefit of the Cisco virtual desktop environment is power savings. Yakima School District has many old buildings, and power constraints have always limited the number of computers that could be deployed in a room. With zero clients and widescreen LCD monitors instead of traditional desktop or laptop computers, power requirements drop from 150 to 200 watts per station to 30 to 35 watts. Not only does the VDI environment save electricity in the schools, it allows schools to deploy many more computers and better serve students.

Next Steps

Yakima School District is planning to extend the solution's use, delivering persistent, personalized workspaces to faculty in addition to students. On the road toward 1:1 computing, Yakima expects to add software to the labs. Three new high schools will also require additional computing capabilities, and the technology team is ready.

"Desktop virtualization has really paid off for us," says Byerrum. "We got involved with the VDI to gain experience with the technology. Now that we are into it, we are very, very pleased."

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Product List

Data Center Solutions
· Cisco Unified Computing System (UCS) 5100 Series Blade Server Chassis
· VMware View deployed on Cisco UCS B250 Extended Memory Blade Servers
· Cisco UCS Manager

Routing and Switching
· Cisco Nexus 7000 Series Switches
· Cisco Catalyst 4500 Series Switches

Third-party Solutions
· Wyse Zero Client
· NetApp storage
· VMware View 4.5
· Vmware vSphere 4

For More Information

To learn more about Cisco Desktop Virtualization solutions, visit: www.cisco.com/go/vdi

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

To learn more about Yakima Public Schools, visit www.yakimaschools.org.

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