California School District Unveils Paperless Learning Environment

Merced Union High School District deploys Cisco wireless technology to support alternative learning experience.

Executive Summary

Merced Union High School District

- **Industry:** Education, K-12
- **Location:** Merced, California
- **Number of Students:** 10,000

CHALLENGE

- Design new technological infrastructure for Merced Union High School District within limited budget
- Help students from lower-income households engage in education with new, accessible, and relevant technologies

SOLUTION

- Deploy integrated switches and routers in school to increase collaboration
- Enhance wireless network infrastructure to support new learning atmosphere

RESULTS

- Increased student attendance rate and engagement with projects that capitalize on collaboration technology
- Reduced costs associated with print materials, including textbooks by US$3000 every month

Challenge

Located in Central California, the Merced Union High School District consists of seven comprehensive high schools and three alternative education schools, all of which are rich in diversity with students from a variety of different cultural, racial, and socio-economic backgrounds. The larger community, however, has been fraught by high unemployment and teen pregnancy rates. To combat these trends, the district school board embarked on an initiative to build a new school, El Capitan High School, and create an alternative-learning environment facilitated by collaboration technology.

Anthony Thomas, assistant information service manager and the administration of Merced Union High School District with the school board envisioned the new school to be different, taking an alternative approach to learning through the use of technology. “We wanted to offer the students a college-like environment where they can collaborate with each other seamlessly on team and individual school projects,” he says. “By ushering a new wave of technological capabilities we were able to increase the level of student engagement and the quality of instruction.”

The district’s existing broadband technology did not support a one-to-web learning environment, primarily due to the aging equipment. Additionally, the district had been using Netbook and Chromebook carts for students to use. As a result, the district’s wireless carts were not efficient, and much of the instructional time in the classroom was spent on set-up or waiting for the new technology to operate properly.

Merced’s IT team hoped to design an infrastructure for the new high school and the district that would offer reliant broadband connectivity, support a large density of network traffic, and provide security. The first hurdle in realizing this dream was to organize substantial funding for the school. To that end, the school board secured funds from Bond Measure M, a general obligation bond that provides funding for classroom and facility improvements in schools. The next step was to identify a vendor that would work alongside the district as a partner to deliver superior technology solutions within their limited budget. This search led Merced to Cisco.

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Anthony Thomas, Assistant Information Service Manager, Merced Union High School District

Solution

The district had to address three major considerations when building the high school: designing the network infrastructure, offering professional development for teachers, and providing devices for students. These goals came from the district IT department spending a substantial amount of time to understand what the staff, teachers, and students really needed to be successful. For example, teachers told Thomas and his team that students will immediately flood social media platforms once given access to new laptops and Wi-Fi. This insight, among others, pointed Thomas to Cisco technology because of its ability to handle the anticipated volume of network traffic that would likely arise from students surfing the web for school assignments across multiple classrooms at one time. Furthermore, he trusted Cisco network security, which would be increasingly important as students started to bring their own devices to the school.

Working with Cisco, the Merced IT team designed a network as well as installed new equipment to support all the educational programs at the school. The IT team deployed core network switches and filled out appropriate funding requests to install all access switches. These access switches support network and application requirements by increasing network intelligence, simplifying operations, and improving security for users. The IT department then went on to install wireless access points to enable students and teachers to access their projects, lesson plans, and other materials, and increase 21st century learning capabilities. The high-speed access opened possibilities for students to work in groups from different locations without the need for textbooks and notepads. For instance, students could store all of their work on the web and Google drive, enabling more collaborative workspaces and projects. Tools such as Microsoft Office Suite were available at any time and at any place for student use. Students who did not own laptops or computers with these applications at home did not have to wait for the next school day to finish their projects. Also, students who missed a few days of school no longer fell behind in class work. Thanks to the network, they were able to access assignments from home.

The IT department was very attuned to the needs of the instructors throughout the entire process. "To seamlessly implement a one-to-web school, we focused on professional development for teachers and staff," Thomas says. One-to-web programs provide students with personal devices to enhance opportunities for learning and engage the digital generation by nurturing individual learning experiences. As part of the professional development, teachers learned effective strategies to employ chromebooks within their lesson plans and discover ways to monitor levels of student engagement. For example, teachers could quickly grade and evaluate online classroom exercises and identify students who struggled with the concepts. With devices and mechanisms to monitor comprehension and engagement, teachers were able to effectively tailor and update their lesson plans to student needs.

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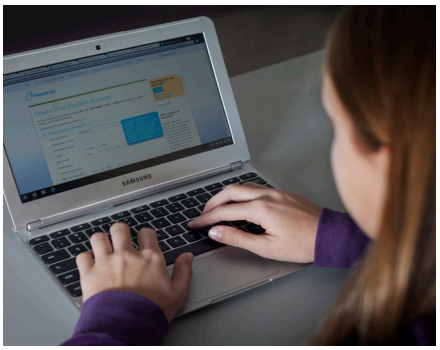
Product List

Video

- Cisco 6513E Catalyst Switches
- Cisco 4500X Catalyst Switches
- Cisco 3850 Catalyst Switches
- Cisco Prime
- Wism 2
- 3602e and i



In terms of devices, the school provided Google Chromebooks for all students. Students are now able to collaborate at anytime from anywhere, including home. New applications hosted on these laptops promote a learning environment based on critical thinking and real-world situations. This learning environment laid the groundwork for the upcoming Common Core requirements in California. The Common Core standards provide framework of what students are expected to learn, so teachers and parents know what they need to do to help them. With an enhanced, engaged learning experience facilitated by online lesson plans and assignments, teachers were able to motivate students to think creatively about subjects rather than simply memorize textbook passages for an exam.

Results

El Capitan High School is in its first year of operation, and it is anticipated that the Cisco technology deployed throughout the school will bring significant returns on investment. From the start, the school cut US$3000 per month on paper by not relying on printed material. This increased cost savings allowed the school to invest even more in paperless technology and professional development for teachers.

The increase in technology access resulted in a positive change in the demeanor and engagement of the students. Teachers saw higher level of interest and attendance rates as well as fewer disciplinary cases than before. According to Thomas, “we brought technology to the educational space because we recognized that children are more wired now than ever before; the digital environment is their natural habitat.” Being immersed in the digital environment at school has enabled students to work together on team projects without the need share physical space. Furthermore, as a result of the Cisco wireless network, teachers were able to share documents, notes, and assignments with students who miss school. Cohesive digital interaction facilitated by Cisco solutions has allowed students and teachers to collaborate more effectively, contributing to greater student interest in schoolwork.

Since the county has a high incidence of teenage pregnancy and an overwhelming number of students who come from low-income families, this greater engagement in the school programs has begun to shift the culture of the community. During parent-teacher conferences, the school received feedback that children who were previously inattentive or disinterested were now actively participating in classroom activities, and their grades reflected a positive upswing.

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The basic premise of deploying wireless and network solutions involved changing the atmosphere and culture of the way we think of education. Teachers are no longer expected to be encyclopedias; instead, they are facilitators of information and guides in the students' search for the right pieces of the puzzle. By encouraging curiosity and engagement, teachers can impart the quest for knowledge within their students without needing to be the sources of all information. With technology at their fingertips, students at Merced are now empowered, engaged, and eager to learn and ready to compete in a global economy.

Next Steps

Building a new high school with a solid network foundation was a good place to start since it was on a smaller scale. In order to expand these efforts, Thomas has received funds from E-Rate, a program that provides discounts to assist schools and libraries in the United States to obtain affordable telecommunications and Internet access. Along with the school board, Thomas will continue to apply for public and private grants to identify and secure necessary funds for a one-to-web learning environment in all district schools. He is also looking to Cisco Academy for more programs to create a technology roadmap that Thomas hopes will bring a similar educational structure and experience to all of the schools.

For More Information

To find out more about the Cisco Wireless, go to: http://www.cisco.com/go/cs-wireless.