

CASE STUDY

CAMPBELL COUNTY SCHOOL DISTRICT, GILLETTE, WYOMING
WIRELESS LAN (WLAN)



A WYOMING SCHOOL DISTRICT DOES THE MATH ON WIRELESS TESTING



“The Motorola wireless network enables us to give our students the most advanced learning environment possible. It lets us administer our state-mandated tests in a stress-free environment because our students have reliable connectivity to the proficiency exams.”

- Lyla Downey, Assistant Superintendent of Technology, Campbell County School District

SITUATION

Need for Reliable Connectivity to Support Education and Testing

Located in central Wyoming, Campbell County is a 5,000 square mile, mostly rural area with a rapidly growing population of 39,000. It has been listed as one of the top 100 places to live in rural America, and one of the County's biggest attractions is the high quality of its schools.

A few years ago, school officials realized that they needed more connectivity to support interactive educational efforts and to conduct state-mandated testing such as the Proficiency Assessments for Wyoming Students (PAWS) online.

SOLUTION

High-Speed Motorola Wireless WLAN

After trying two different wireless solutions — and being disappointed in the reliability of one system and in the cost of the other — Campbell County School District officials decided to install a Motorola wireless local area network (WLAN).

RESULT

Reliable Wireless Coverage at Half the Cost

Campbell County receives reliable wireless coverage for half the cost of alternative wireless LAN networks. “The Motorola product line is much more cost-effective than the other solution we had,” says Downey. “You can almost equip two schools for the cost of one.”

And the reliability? The IT staff is no longer constantly traveling to the various schools to troubleshoot the network because the number of maintenance calls has dropped significantly.

CUSTOMER PROFILE

Campbell County School District

- K-12
- Schools: 15 elementary, 5 secondary, 1 virtual
- 8,500 students
- Over 600 faculty

Motorola Solution

- Motorola 802.11g WLAN for first phase and 802.11n for second phase
- AP300 and AP650 access points
- RFS4000, RFS6000 and RFS7000 wireless switches/controllers
- Motorola LANPlanner software
- Motorola PTP 600 and PTP 800 wireless Ethernet bridges

Benefits

- Unmatched reliability
- Lower total cost of ownership
- Easy maintenance and installation

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GOING BEYOND WIRES

Campbell County School District relies heavily on technology to teach and evaluate its students. For instance, “as part of the curriculum, students have to create a podcast on a particular topic,” Downey says. “They research a topic, and they write on it. They have to demonstrate that they can bring in hypertext and music and sound. But the project also has to meet the standards for a particular subject area, like science and social studies.”

For many years, the District had supported wired connectivity in many of its schools, and this allowed students to complete many of the required interactive technology projects. But a few years ago, Campbell County School District realized that it needed additional connectivity to support its administration of the standardized tests mandated by the state of Wyoming, called PAWS, or Proficiency Assessments for Wyoming Students.

“These are long assessments, and we didn’t have enough wired computers to support them,” says Downey. Early on, Campbell County School District officials realized that putting more wires into each classroom to support the schools’ educational programs and its testing efforts would be too costly. So Campbell County began looking at implementing wireless connectivity.

WHY OFF-THE-SHELF WAS JUST NOT GOOD ENOUGH

Campbell County School District first tried an off-the-shelf WiFi solution. But they immediately began experiencing problems, and District officials quickly realized that not all wireless LAN solutions are the same.

While the proficiency exams were being administered, the off-the-shelf wireless routers would lock up without warning and students would randomly lose connectivity. School officials knew this could quickly impact the school’s reputation and its operations.

“The PAWS testing is high stakes,” says Downey. “If students don’t do well, they’re classified as failing progress. And if they don’t make progress for three years in a row, the principal can be fired. After five years, teachers can be fired.”

Losing wireless connectivity in the middle of testing was not acceptable, and Campbell County started looking for new wireless equipment. This time, instead of using off-the-shelf equipment, the County went with a more robust technology and installed it in three locations. The solution worked, but it was very expensive.

A few months later, as Campbell County got ready to install wireless networks in its other schools, school district officials reached out to their wireless communications provider.

The company was so convinced that Campbell County would be thrilled with both the reliability and the cost-effectiveness of Motorola’s wireless LAN solution that it offered to install a Motorola WLAN network at no cost in one of Campbell County’s older elementary schools.

The result? Campbell County School District purchased the Motorola WiFi equipment long before the demonstration ended. That’s how well they liked it.

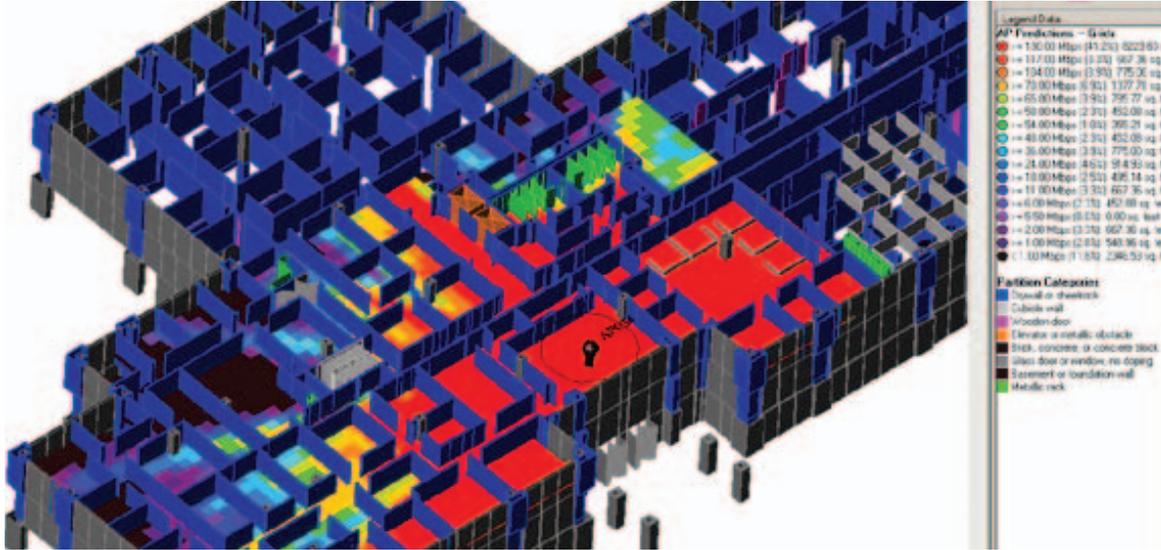


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Larry Ferrell
Network Engineer,
Campbell County School District

Initially, five schools were equipped with Motorola 802.11g wireless LAN. With continued great results, the remaining 15 schools in the district were equipped with the latest 802.11n wireless LAN from Motorola.

Once WLAN was installed at three of the more remote schools it was evident that more bandwidth was needed. Fiber was not an option and the existing T1 lines were not robust enough to handle the schools' increasing bandwidth needs. Motorola's PTP 600 and PTP 800 wireless Ethernet bridges were installed and the schools now have more than enough capacity with high reliability and throughput.

Campbell County plans to install Motorola wireless LAN equipment in each one of its existing schools in the next few years and will pay for these installations through national and state grants. In addition, Campbell County School District plans to build more than six new schools in the next six years and will install Motorola solutions in those schools as they are being constructed.

SYSTEM MAINTENANCE IS A BREEZE

The number of calls that Campbell County School District receives from the schools has decreased to almost nothing.

“I haven't had a single access port go down on me yet,” says Larry Ferrell, network engineer at Campbell County School District. “And I have rarely had to reboot the controller.” The network has worked flawlessly even with hundreds of devices all working at the same time.

Managing the system once it is in place is just as easy. Ferrell can easily view the status of the access ports at all the schools and manage them by logging onto the network in his office. If changes need to be made to the system, Ferrell simply reprograms the wireless switch/controller instead of having to retrofit every access port.

In addition, the wireless switch dynamically manages the network in real-time. “The switch actually controls all the access ports, and if one access port is too busy, it will hand off to another one,” says Ferrell. “So the bandwidth is shared by the access ports in the building.”

QUICK AND EASY INSTALLATION

Ferrell was also amazed at how easily the Motorola equipment could be installed. Motorola's wireless LAN design software, called LANPlanner, enabled the communications partner and Campbell County to easily map out the ideal location of the network's access ports using a digital computer-aided design (CAD) file of each school building.

“We wanted to maximize the wireless network to support the full 54 megabits per second possible,” says the communications partner. “With Motorola's LANPlanner, there's no guesswork involved. This makes it very efficient for the customer. They don't install any more access ports than they need.”

Based on the work with the LANPlanner, a large number of access ports were installed in the junior high building where the classroom walls were made of brick. In schools where classrooms were drywalled, the LANPlanner showed that fewer access ports were needed.

LANPlanner also enabled the communications partner to view coverage between floors where, for example, an access port on the third floor might support connectivity on the second floor — and adjust the network layout accordingly.

“Being able to plug in the building plan and decide how many access ports you have is a big deal,” says Ferrell. “It saved us time and money.”

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Once it was determined where the access ports would go, installing them was incredibly easy. "They mount in the ceiling tiles. They have a clear clip that lets you put two small holes in the ceiling tile and snap in the access port," says the communications provider. "After it's installed, you see two flashing lights on the ceiling so you can tell the status of the signal just by looking at it."

EDUCATION BECOMES MUCH MORE INTERACTIVE

Perhaps the greatest benefit of having reliable, cost-effective wireless connectivity in the classroom is the educational benefits it provides.

"The Motorola wireless network enables us to give our students the most advanced learning environment possible," says Downey.

The wireless LAN has even allowed Campbell County to incorporate technology even more fully into its teaching to create a more interesting, interactive experience for students.

Campbell County makes extensive use of iPods and iPADS in the classroom for differentiated instruction and enrichment in reading, writing and mathematics. Exciting new applications, which include movies and multimedia, are being downloaded regularly and are enhancing the overall learning experience for students. Already, math scores have begun to show improvement and have increased greatly over levels seen just two years ago.

In its newest school, Campbell County installed the latest smart board technology called "StarBoards," which allow teachers to maximize their interaction with students via

wireless connectivity. These StarBoards can be used to display interactive worksheets, show DVDs or to display information from a computer screen to the whole class.

For instance, teachers can use mapping software to locate where newsworthy events around the globe occurred that day and show that location to students using the StarBoards in just seconds.

In addition, Campbell County created a server where students can collaborate by sharing ideas and folders — and with the more reliable connection, students now have no problem connecting to that server.

"The server makes it easier for students to interact with each other and with teachers — and with parents to interact with teachers," says Ferrell. "It's like Facebook or Twitter but limited to those in our school district. Students can post ideas and safely talk on there."

The bottom line is that thanks to Motorola's wireless LAN solution, Campbell County can now deliver a cutting-edge technological education to students — without breaking the bank.

According to the communications provider, "We've been doing WiFi as a company for five years, and the Motorola wireless LAN product is one of the best products I've ever seen. I've installed other products, and they haven't been as good. We've also seen others put in alternative solutions, and they just experience trouble from day one. When we replace an existing system with any of Motorola's wireless solutions, we tell our customers: 'You will not have any more trouble with your network.' And they don't. The Motorola equipment just works."



MAKING SCHOOLS SAFER WITH BETTER COMMUNICATIONS

Motorola and their local communications provider have been involved with many projects for Wyoming and Campbell County. Recently, Campbell County School District installed Motorola two-way radios on 169 school buses as part of the state's WyoLink communications initiative. WyoLink is a statewide digital trunked VHF P25 compliant public safety communications system designed to coordinate and integrate communications between state, local and federal public safety agencies.

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