FORTUNE

Williamson County School District and Dell TrueMobile™ Wireless
Excitement in the Classroom

WE HOPE YOU ARE ENJOYING YOUR COMPLIMENTARY SUBSCRIPTION TO FORTUNE® MAGAZINE AND ARE FINDING IT HELPFUL IN LEARNING BEST PRACTICES FROM THE CORPORATE WORLD. THIS MONTH, WE SHARE THE WIRELESS NETWORKING EXPERIENCE OF WILLIAMSON COUNTY SCHOOL DISTRICT IN FRANKLIN, TENNESSEE. WILLIAMSON HAS SUCCESSFULLY IMPLEMENTED DELL TRUE*MOBILE*™[1] WIRELESS SOLUTIONS IN THEIR DISTRICT TO ENHANCE THEIR STUDENTS' LEARNING EXPERIENCE. THE STORY OF HOW THEY USE WIRELESS TECHNOLOGY BEGINS BELOW AND CONTINUES ON THE INSIDE AND OUTSIDE BACK COVERS.

About Williamson County Schools

Williamson County School District is located in Franklin, Tennessee about 20 miles south of Nashville. The school district encompasses 31 schools including 17 elementary schools, six middle schools, one K-8 School and six high schools with an enrollment of about 20,000 students. Tim McNeese is Information System Director for the District and manages technology programs for all the schools.

The district is not new to technology. They have long had traditional computer labs and their own technical support staff. Over a year ago, they implemented a wireless solution test using Apple technology. According to McNeese, as Williamson further researched wireless technology, they found that they preferred Dell True*Mobile*™ Wireless for their final solution. They prefer the Dell solutions to Apple because they believe they are more flexible, and since 90% of the computers in the district are windows-based, it makes sense to standardize on PC.

McNeese thought the cost of wireless was out of reach until he learned about Dell's affordable wireless solutions for education. Within the past 12 months, the district has put six Dell True*Mobile*™ Wireless labs into five schools in addition to their six Dell dedicated PC labs.

"Go into any classroom in any school, and you will probably see students just sitting there. In a wireless classroom, there is excitement. Wireless technology has helped students increase their enthusiasm for education, their passion for learning. It's 100% different."

Tim McNeese, Information System Director
Williamson County School District
Franklin, Tennessee

Why Wireless for Williamson County Schools?

Best practices

McNeese thoroughly researched wireless before recommending it for the district. "It's easy to get wrapped up in wireless as a new technology, but it is important to consider each situation for best practices. Some people in the district felt we should completely replace traditional wired desktop computing. The stand we took was that wireless would enhance our traditional infrastructure, not replace it. In some situations where the computers would never be moved, for example in the case of permanent dedicated labs, we chose Dell OptiPlex™ desktop computers over Dell wireless notebooks."

Integrated learning

McNeese and the district saw that the addition of wireless would give the district the flexibility to support integrated learning. Instructional classes traditionally taught in the computer labs included courses like keyboarding, repair, multimedia and computer graphics. With wireless, they can take the lab to the students, introducing computers into science, math and history. The notebooks are used about half of the time for research via the Internet.

Classroom space

The other issue McNeese felt wireless would help with was space. Like other growing districts, Williamson faces constant classroom shortages. While building permanent space, the district brings in portable buildings. The wireless mobile labs allow the district to bring technology to the portable classrooms without investment in permanent infrastructure. In addition, the district is able to free up classroom space by changing the dedicated computer labs to instructional classrooms and using the wireless mobile labs as a "computer lab on wheels" solution. Electricity is also an issue since regular classrooms rarely have enough to support multiple computers. The wireless mobile labs are a viable solution to the electrical constraints of the school buildings.

For McNeese and the district, the wireless decision was about using what works in each school to seamlessly integrate technology into the classroom. The mobile ingredient was key. The notebooks could be used just about anywhere[1]; just pull the wireless mobile lab into a classroom and distribute the computers.

1 Connect at rate of up to 11 Mbps up to 160m from connected access point. For optimal performance we recommend 30 to 50 users per access point at a range of 300 to 400 feet. Range and speed may vary due to number of users, interference, and transmission barriers such as walls and building material.

Next Steps

McNeese and his staff looked at what they wanted to accomplish, and began to make plans to get it done. While there were some challenges, most proved to be much less troublesome than initially expected. McNeese and his team focused on three specific action areas:

1 *Support*

Because the introduction of desktops took a fair amount of support, McNeese feared that adding mobile computers to the mix would substantially add to it. McNeese was concerned about how much more support multiple users in various places would require versus the more stationary nature of a wired system. As the wireless systems were implemented, however, he found that little additional support was needed.

2 Set-up and Installation

Since Williamson School District has its own technical staff, they chose in-house set-up and installation of the mobile wireless labs and access points. While they read all available materials for installation, they realized that wireless installation is not a perfect science. McNeese and his staff had to play with the configuration of the access points to get it right. The thickness of the walls, the location of the access points in the buildings and the distance of the access points from the hub were all elements that needed to be taken into consideration. For an easier installation process, McNeese highly recommends a site survey by someone who knows the technology. Dell offers site survey as an element in a complete service solution. Dell consultants come to the site and evaluate the many factors that impact a wireless installation. They consider many issues, including the number of users and their activities, security issues, building material and access point location for best performance at the lowest cost.

3 Portable Buildings

Williamson can't build classrooms quickly enough to accommodate the growth in the area, so portable buildings take up the slack. Since the portable buildings would eventually be moved, it didn't make sense to invest in permanent cabling. McNeese knew that wireless would be perfect for these buildings. As Williamson's wireless plans were implemented, all portable buildings were fully configured for wireless operation including access points and antennas outside the buildings. Desktop lab computers in the portable buildings were also configured for wireless operation with wireless cards installed inside. If notebooks are needed, the wireless labs are simply brought to the classroom. Wireless desktops and wireless labs operate off the same Dell True*Mobile*™ infrastructure.

Williamson's Mobile Labs

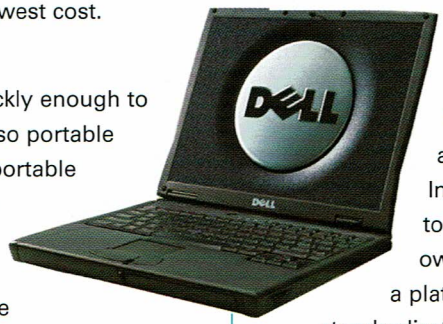
Williamson County Schools chose a wireless mobile lab configuration which includes carts carrying 16, 24, 30 or 36 notebooks. All notebooks contain a Dell True*Mobile*™ wireless card. Each cart contains an inexpensive mini-hub that connects the mobile access point to the network and also enables the connections for other peripherals attached to the wireless cart such as the printer. In high schools and middle schools, Williamson uses mostly Hewlett Packard laser 4100N printers. In the elementary schools, color is more important, and they use the Hewlett Packard 2100, a high-end ink-jet printer. This provides Williamson with self-contained, mobile computer labs.

Access Points

The wireless network connects with the hub via access points instead of the wires used in a traditional network. Williamson uses Dell True*Mobile*™ 1100 series and, more recently, Dell True*Mobile*™ 1150 series access points. Less expensive access points are available, but Williamson chose a higher-end product because for them, a strong infrastructure and expansion capabilities create a durable foundation for implementation of the technology.

Notebooks

Initially, Williamson chose Dell Inspiron™ 4000 notebooks. At the time, they were the best value for their needs. Today, the Latitude™ notebooks are priced comparably to the Inspirons™, and Williamson may move to the Latitudes™ for the total cost of ownership benefit they realize by utilizing a platform designed for stability and standardization.



Software

Each of the notebooks is configured with software that supports integrated learning. Williamson has included software for science and math instruction, collaborative writing, Internet research, spreadsheet functions, word processing and presentation.

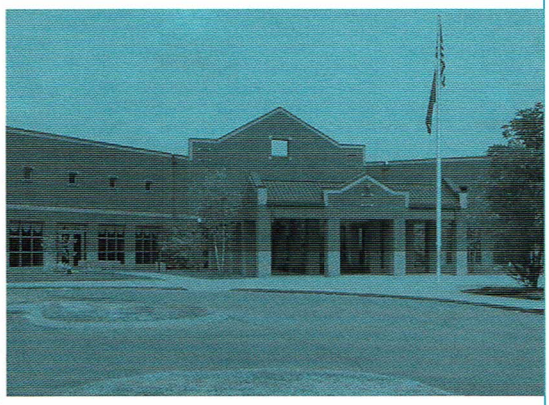
Wireless Makes it Real

The feedback on Williamson's wireless installations has been overwhelmingly positive. The students have spoken the loudest—with their renewed excitement about learning. The schools that have wireless labs want multiples. Visitors who come to observe what Williamson is doing see the excitement of the students and how much work they get done. Comments tend to be along the lines of: "we gotta have one of these quick."

McNeese talks with many of the visitors. "Almost every comment has been very positive. The teachers will step out of the classroom and talk to visitors. They sound like salesmen, the talk is so positive. Just about every school system that has come in to look at our system has bought one."

Williamson is excited about the results of their wireless installation. They are not only progressive in utilizing technology for the classroom, but also about taking it into the everyday world. Each year, Williamson hosts a technical conference and brings in national speakers for the event. The 2001 event was held in one of the district's high schools and drew over 350 teachers and administrators. McNeese and his staff brought in all the wireless labs and extra access points from throughout the district to accommodate the event. Each presenter received a notebook from which they could access the Internet during the presentations and while roaming the event. This innovative use of the technology provided a very practical demonstration of the mobility, flexibility and scalability of Dell True*Mobile*™ Wireless solution.

The Future



Williamson County School District now has six Dell True*Mobile*™ Wireless labs installed in five schools. The district anticipates installing at least six more this year. In the new high school Williamson is building, the whole school will be cabled for desktop computers, but electrical outlets will be located near the ceilings where they anticipate placing access points. The combination of traditional desktop labs and wireless carts that can be wheeled to any classroom gives the school the most flexible solutions for integrating technology into the classroom.

FOR MORE INFORMATION ABOUT WILLIAMSON COUNTY SCHOOLS AND WAYS THAT THEY'VE INTEGRATED TECHNOLOGY INTO THE CLASSROOM, GO TO HTTP://WWW.WCS.EDU/.

IF YOU HAVE MORE QUESTIONS ABOUT WIRELESS TECHNOLOGY, WE INVITE YOU TO CHECK OUT OUR INFORMATIONAL VIDEO AT WWW.DELL.COM/K12/WEBCAST, OR CALL YOUR LOCAL ACCOUNT REPRESENTATIVE TO SCHEDULE A DEMONSTRATION.

Tips from Tim

➤ ***Build the infrastructure first.*** Although the notebooks are the most visible part of a wireless networking solution, Tim suggests starting with the access points, cart and printer, and adding notebooks as funds are available. This creates a strong infrastructure on which to build the wireless solution.

➤ ***Install printers onto the mobile carts.*** When Williamson first installed their wireless system, printers were available in just about every classroom. They configured the notebooks so students could print from whatever printer was closest. Inevitably, a student would forget to choose the printer in the classroom, and the document would print out on the other side of the campus. After this, the district installed a printer on each cart and networked it to the notebooks on that cart. This meant that each cart was completely self-contained and not dependent on anything in the classroom.

➤ ***Fewer notebooks on a cart create a more flexible solution.*** Williamson's first wireless carts contained 24 notebooks. In the future, they will go with two 16-notebook carts for more flexibility. If all the notebooks are needed in one room, both carts can be taken. If fewer notebooks are needed, the two carts can be used in different classrooms.

➤ ***Do a site survey.*** McNeese highly recommends having someone who knows the technology look at the specific situation in which the wireless solution will be operating. This simple step can save the installation team a great deal of time, effort and money.

➤ ***If you think wireless isn't affordable, check again.*** Dell has made wireless solutions more accessible by reducing the price. Wireless was long a "fantasy" technology priced too high for most schools to afford. During the past two or three years, however, prices have come down substantially and many more districts have been installing the technology.

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