

Wireless WAN

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*By Ann McClure
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Problem: The Nash-Rocky Mount (N.C) Public School System's network consisted of T-1s that weren't providing enough bandwidth for the district's needs and 11 MB unlicensed wireless towers that were beginning to fail and did not qualify for E-rate.

Solution: The district installed a licensed digital microwave broadband network from Conterra Ultra Broadband, which gives them 100 MB between schools and back to the central office. Chief Technology Officer Jim Albright explains that in 2004 the district was preparing to release an RFP to coincide with its next E-rate cycle. Since Conterra is a qualified priority one provider, the proposed wireless network qualified for E-rate. "The board was more than impressed with Conterra's proposal," Albright says. The district would have needed 66 T-1 lines to achieve the 100 MB it wanted, so its telecom provider at the time could not have provided the bandwidth the district wanted for a comparable price. Another problem was that no provider would bring fiber optic cable to all the schools; one cable company could do nine locations, while the local telecom said the project was not cost effective.

Saving Money

The district's old T-1 lines were costing \$175 per month. The new wireless system costs around 3.9 cents per school, per month, per megabyte, Albright says. The district rolled its construction costs into the lease, so (after E-rate) the first year cost \$257,320. Starting on July 1, the cost dropped to \$162,660 per year for the next five years, or about \$398 per month/per site. Albright predicts that if he renegotiates the contract in five years costs will decrease because the construction fees will be paid off.

The new network has allowed Albright to centralize "almost all applications servers" in the central office, which decreased management costs because he has to dispatch personnel to the schools less frequently to troubleshoot. Albright says he hasn't quantified the savings, but points out "when you save time, you usually save money."

He says the new network is very stable and security is not an issue because the licensed wireless is a very narrow band that requires both the sending and receiving radio be the same and aligned very tightly to see each other.

Many Uses

The district has around 5,500 computers (not counting laptops) and 80 servers (36 in the central office). Eleven sites are currently using VoIP for phone service, and the district is switching over another eight this summer. Albright says that will place a phone in every classroom in the district, so officials won't switch any more sites to VoIP until the current PBX system fails. He says the VoIP is not a big bandwidth drain. The biggest demand for bandwidth comes from Web access in the classes. The new network has allowed the district to expand video streaming to desktops and unitedstreaming is very popular. "It's great instructional stuff, they really like it," Albright says.

At peak times the district uses 45 percent to 50 percent of the network's bandwidth. "I never expected to see the need for 100 MB of bandwidth in my lifetime, but we'll probably fill it in two years," Albright predicts.

Easy Install

The network went live in November 2005, which is "not as long as we would have liked," Albright jokes. Reviewing the RFP, conducting site surveys, and obtaining town approvals to install the towers took about 10 months, Albright explains.

The actual installation took seven to eight weeks. The district has 29 schools and five administrative sites that needed to be networked. "Principals and teachers immediately started talking about how things improved" as sites went live, Albright says. Even locations that were still on the old T-1 lines saw increased speeds from the reduced traffic.

All in all, Albright is pleased with the district's wireless network. Now he just has to figure out how to get more than an 18 MB connection to the rest of the world.

Ann McClure is associate editor.