Extricom

Case Study

Bridging the Gap: Extending WLAN at Bishop's Stortford College

In the increasingly technology-driven primary/secondary education environment, network connectivity has come to play a major role in the educational mission. Ensuring that users are able to access Information and Communication Technology (ICT) when they need it has become a key benchmark of success. But just being able to connect to a network does not mean the goal has been met. Students and faculty need access wherever they are on campus, and the network has to provide guaranteed standards of performance, be easy to maintain, and meet strict security criteria.

For Bishop's Stortford College, a top independent school in Hertfordshire, England, connecting students to ICT meant bridging the gap… literally. Set on a spacious 130-acre campus, the College wanted to quickly connect pupil boarding houses located across a road at the edge of the campus to the school's main network, giving students the internet access they needed and allowing resident faculty to leverage secure administrative applications. The Extricom Wireless LAN (WLAN) System proved to be the simplest and most cost-effective way to make this a reality.

"What we were looking for was a system that would be easy to manage, and provide a guaranteed communication rate throughout the deployment area. Basically, it was going to be a massive leap to attain the superior performance demanded by today's computer-savvy connected students."

Stephen Bacon
Head of Information Technology
Bishop's Stortford College

WLAN Moves to the Front of the Class

While the role and value of ICT in education is unquestioned, the ability to flexibly and cost-effectively extend its reach is the universal challenge. The more pervasive the access to such resources becomes, the more benefit is provided to students, teaching staff, and administrators alike. But with ever-present budgetary and even physical installation constraints, realizing the potential of ICT is not simply a matter of running cable, installing jacks, and building out the infrastructure. If only for this reason, WLAN has come to the forefront of efforts to extend the reach of such networks.

The advantages of WLAN over cabled systems are many and well documented. Wireless networks promise to create a much more flexible learning environment by bringing IT resources directly to where the students need them, rather than forcing students to go to where the IT infrastructure is. For the faculty, WLAN enables teachers to access needed applications directly from their desk and in real-time, rather than on a best-effort basis once they have finished class. Whoever the user might be, WLAN makes laptops, increasingly the tool of choice in the classroom, more mobile and flexible, and ultimately provides the best value for the money.

The Value Challenge

Unfortunately, however, deploying traditional WLANs has been anything but cost-effective, and the resulting performance typically far from what was promised. This, of course, undermines the value of a WLAN. The primary/secondary school environment presents especially challenging conditions. Co-channel interference and channelization issues, as well as the inability to provide a predictable level of service, have dogged conventional cell-planned wireless solutions from their inception, resulting in a mixed track record for large-scale educational wireless solutions.

Making the Leap

The deployment of wireless remote connectivity in eight widely separated boarding houses at the College made it necessary to find a pervasive WLAN solution that could measure up. Beyond maximum coverage and capacity, ensuring secure communications was an important aspect of the project.

The faculty needed a secure connection to meet stringent information confidentiality criteria as they transferred pupil information to and from the core systems. Additionally, by providing the students with at-hand connectivity, the College

Project Scope

Wirelessly extend the College's campus network to the pupil boarding houses, physically separated by a residential road from the rest of the school's 130-acre campus. The system was to support students and faculty with pervasive and secure connectivity.

Solution

- Extricom WLAN System, consisting of EXSW-800 and EXSW-2400 WLAN switches, connecting a total of 50 dual-radio 802.11a/b/g UltraThin™ Access Points.
- Build-in the capacity and flexibility for future roll-out of Voice-over-WLAN and IP CCTV.

Results

- On-time, on-budget project delivery, completed less than three weeks after initial order.
- Complete coverage with guaranteed bandwidth, with none of the traditional performance trade-offs arising from co-channel interference and inefficient AP-to-AP handoffs.

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Wireless On the Move

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could channel their online access through the school's proxy server, and monitor for any inappropriate activities.

"What we were looking for was a system that would be easy to manage, and provide a guaranteed communication rate throughout the deployment area," said Bacon. "Since we would be more than doubling the user population, from 80 to 220, the system we deployed had to handle user capacity issues seamlessly. In addition, we had very limited or no access to individual students' rooms, so we needed the freedom to be able to place access points (APs) wherever we could. And we needed to do it in two weeks. Basically, it was going to be a massive leap."

Extricom Simplicity

Working with solution provider BT iNet, Bacon chose the Extricom WLAN system coupled with Alvarion point-to-point networking equipment as the most cost-effective option to deliver wireless connectivity everywhere needed in the residences.

Extricom was chosen for its ability to provide blankets of wireless coverage throughout the boarding houses, which ran the gamut from relatively problem-free modern layouts to 19th century buildings with "Harry Potterish" nooks and crannies that made signal propagation a challenge and implementation a potential nightmare. However, the Extricom Wi-Fi "channel blanket," a unique topology that uses each available radio channel, on every AP, to create blankets of coverage controlled by a central switch, made the system radically simple to deploy. There was no need for RF cell or channelization planning, no co-channel interference to chase, and no bandwidth-stealing effects such as hidden nodes, edge users, and "sticky" clients to contend with.

As the BT iNet deployment team leader, Neil Hunt, succinctly observed, "The Extricom solution was refreshingly easy; other wireless solutions ironically focus on the wired network side of things, instead of just focusing on the heart of the matter: achieving reliable and worry-free connectivity through the air. With Extricom, it's pretty simple: you just plug in the AP, roam around with a PDA to check signal, and as long as you've got coverage, away you go."

Present and Future Functionality

Following a problem-free installation, the Extricom WLAN moved into production. Increase in bandwidth was immediately noticeable for system users, and the WLAN has continued to function seamlessly since then, incurring no downtime as it provides students with transparent network connectivity.

This success has shown Bishop's Stortford College that their future plans, including IP CCTV and voice-over-WLAN, are secure. The Extricom system is inherently ready for converged voice, data, and video services, requiring no changes or additional costs to support these demanding applications. The important distinction to the Extricom system is this: its intelligent design effectively future-proofs wireless technology decisions and strategies.

Keeping Costs Down

The technical merits of a WLAN solution are obvious considerations, but the choice of one technology over another can often boil down to a basic issue: total cost of ownership. From this perspective, the Extricom WLAN rates highly, since it is easily manageable by the average IT administrator, requires little RF experience, and does not come with the hidden charges (for upgrades, for example) that can make other seemingly cost-effective WLANs considerably more expensive over the lifetime of the system.

Bacon is the first to acknowledge the completeness of the Extricom solution: "If I could refit the entire campus over again, Extricom would be my box of choice. It simply does everything I want it for."