



Free To Learn: Enterprise WLAN at Essa Academy

The business case for wireless LAN (WLAN) is well-established: after an upfront investment in infrastructure, employees can leverage wireless applications to achieve cost-savings and increase productivity. This idea is increasingly being applied to education, where wireless technology creates a more collaborative learning environment and stimulates student creativity, ultimately producing more intellectually prepared, work-ready graduates.

Essa Academy's main driver for adopting wireless was to maximize students' opportunities for learning both in the classroom and outside of it. This meant implementing a WLAN system that had the flexibility to support any wireless client anywhere on campus. To do this, Essa chose Extricom based on its resilient connectivity and high capacity, essential qualities for deploying Wi-Fi in a school environment.

Breaking Free from Infrastructure

For any school, the ultimate goal is for students to take the learning experience beyond the classroom. Instilling the "anytime, anywhere learning" mindset in students helps prepare them for adulthood and entry into the workforce, where ongoing participation in learning and self-development are part and parcel of most careers.

The move from legacy pen-and-paper learning to the electronic classroom has been a critical development in making education more immediate and results-oriented, but until recently, technology infrastructure was limiting. Wired networks are anything but portable, so students needing to access to network resources were desk bound and required to schedule time to use the finite number of workstations that were available. With the advent of wireless networks, however, this picture is changing considerably.

Changing the Currency of Learning

Abdul Chohan, the Assistant Head Teacher at Essa Academy in Bolton, England, thought Wi-Fi could overcome these barriers to extended learning. "Our vision was basically to form a wireless backbone for anytime, any place learning, that doesn't necessarily have to take place in the classroom. Whether that be out in the corridors or in the play area, we strongly feel that pupils can carry on and enhance their learning outside, and in these areas."

For this brand-new academy, creating a wireless campus was more than just techno-fantasy. It meant a whole new environment, one that would make aggressive use of infrastructure to integrate innovative technology into the school's core curriculum. Essa Academy's wireless toolset encompassed tablet PCs, iPhones, 50 wireless projectors, and an iPod Touch for every student to leverage podcasts and vodcasts as part of their day-to-day instruction.

Essa Academy's intent was to change the currency of learning from a traditional curriculum where students were just handed individual assignments to one in which they were encouraged to work collaboratively and create their own content which could be shared with multiple classes. The new system would also maximize resources, allowing teachers to project lesson content not only to the classroom they were in, but to multiple classrooms around them.

When Wireless Isn't Feasible

Translating a vision into working infrastructure is always a challenge, so Chohan thoroughly reviewed a range of wireless solutions, even having a site survey performed. All of the proposed solutions were built on cell-based architecture, however, and Chohan was dubious they could provide enough system capacity for the Academy's 900 students and 120 faculty.

As Chohan remembered, "I was beginning to think that wireless LANs might not be a feasible solution, because co-channel

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Abdul Chohan
Assistant Head Teacher
Essa Academy

Project Scope

Implement comprehensive wireless LAN to support anytime, any place learning everywhere on the campus of Essa Academy, a 900-student, specialist, state-funded independent academy in Bolton, UK. System would be specifically designed to support roll-out of iPod Touches to all the pupils at the school.

Solution

Mix of Extricom EXSW-1600 and EXSW-800G switches and EXRP-30n and EXRP-40En access points.

EXNM-2000 Network Management System deployed for overall administration of WLAN.

Results

System completely rolled out over holidays and during off-hours by Solutions House to avoid class disruption.

iPod Touches enable students to access learning resources anywhere on campus.

School staff can perform variety of traditional tasks such as roll-taking online, and lessons can be conducted outside traditional classroom.

interference can severely reduce basic network performance during high usage periods, and in an educational environment that could have a disproportionate impact on school operations. So when I heard about Extricom WLAN, I thought this is definitely worth looking at.”

The Extricom Answer

The recommendation for Extricom came from Solutions House Ltd, a network infrastructure provider specialising in the Education sector. Given the scope of what Essa Academy wanted to do, the Solutions House team knew that they would need a Wi-Fi system that could support high capacity, with a requirement to allow up to 200 users in a lecture hall to log on simultaneously and deliver enough throughput to each user to support the planned applications.

The technology-based curriculum also called for implementing a range of data, video, and VoIP applications and services, including a management information system that was critical to the school's day-to-day operations. The deployed system therefore had to be flexible enough to support a wide range of network traffic types without performance impact.

A Performance Revelation

What made Essa Academy confident this was the right solution was Extricom's Channel Blanket architecture. The unique Channel Blanket aggregates the wireless signal of multiple access points, creating a coverage blanket over the entire area that provides excellent coverage and is resilient to interference. Access points are layered in any density as determined by coverage and capacity requirements specific to the environment, something that other wireless LANs find very difficult. The Extricom switch coordinates the access points on each channel blanket and eliminates co-channel interference from the system.

In the educational environment, this equates to robust, resilient wireless connectivity anywhere on school grounds – a must-have to make the digital classroom a reality. Maximised capacity means students are no longer challenged by the simple act of logging on and every student

gets the throughput he or she needs to download streaming media from YouTube and BBC iPlayer, view faculty-generated PowerPoints, or take an online exam.

This flexibility was a revelation to Chohan, “Extricom seemed almost too good to be true. I hadn't heard of Channel Blanket technology, and couldn't imagine wireless without dead spots or limitations caused by interference. But we piloted the solution onsite, saw that the performance claims were real, and went forward immediately with it.”

Building a Center for Excellence

Working literally under the cover of darkness, the Solutions House team quickly deployed the WLAN in off-hours to eight building blocks over the 900-square-meter campus. The system was configured with one blanket supporting 802.11n so that users could leverage the performance upgrades of the new standard, a second 802.11b/g blanket to support 900 iPod Touches, and two other blankets reserved for a planned VoIP system and public access.

According to project consultant Steve Lunt, the new system will have a wide-ranging impact: “The benefits aren't limited just to students using it in school hours. This technology will make Essa a Center of Excellence for the whole community.”

The Transformation

Chohan says that the implementation of the Extricom WLAN has gone smoothly and delivered on its promise. “For this kind of project you expect glitches or issues, but there haven't been any so far. Other area schools have installed wireless and it's never worked properly, so when they see our results, there's a certain amount of envy there.”

More importantly, the system is starting to make “anytime learning” a reality rather than a concept. “With the Extricom WLAN in place, a science teacher who's been doing the same classroom lecture on plants for 20 years, suddenly has the ability to go outside, take pictures, record data on the laptop, even stream live video. It's that freedom that's been put in... learning's been transformed.”