BelAir NETWORKS

Case Study

Davidson College Graduates to World-Class Wi-Fi with BelAir Networks

Commitment to Excellence Reflected in Campus-Wide Wi-Fi Network

What does Davidson College have in common with the world's leading performing arts and financial centers? A world-class Wi-Fi network.

Twenty miles north of Charlotte, North Carolina, Davidson College is one of the strongest and most selective liberal arts colleges in the country. The college has graduated 23 Rhodes Scholars and offers a student-to-faculty ratio of 10:1 with an average class size of just 15 students. Ninety-five percent of first-year students return for their sophomore year. Giving them another reason to return is the college's high-performance Wi-Fi network covering the buildings and grounds of this historic 450-acre campus.

The Challenge

The college is already home to state-of-the-art facilities for academics, arts, athletics, student life, and campus offices and services. With more than 90 percent of its 1700 students living on campus, and more than 600 faculty and staff, Davidson College needed a Wi-Fi network that could provide more than just web-browsing and email services. They wanted to support campus-wide mobility and high-quality broadband services.

With the growth of social networking, video sharing, and music streaming, true broadband Wi-Fi access is becoming a necessity to support the new generation of Wi-Fi enabled devices and applications. Some schools and colleges have settled for a traditional enterprise Wi-Fi architecture. These Wi-Fi networks are good enough for e-mail and web-browsing but, with the increased multimedia and data traffic driven by new internet applications and devices (including dual-mode smartphones, such as the hugely popular iPhone™, featuring both cellular and Wi-Fi access) higher capacity Wi-Fi networking is required. In fact, when the iPhone™ was first introduced in 2007, a series of network outages at Duke University created a flurry of negative publicity culminating in the revelation that it was the Wi-Fi network and not the devices that were to blame for the disruptions. In contrast to Duke's negative experience, Jeff Bowman, Wireless LAN Manager for Information Technology Services (ITS) at Davidson College explains: "Our iPhone users are very happy."

Also, educational institutions, struggling with limited budgets, are increasingly challenged to "do more with less". This challenge translates into a requirement for Wi-Fi networks that not only provide high quality Wi-Fi access for but also support secure WLAN applications as an extension of the school's enterprise local area network (LAN).

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Jeff Bowman, Wireless LAN Manager for Information Technology Services (ITS) at Davidson College

Interestingly, the huge popularity of smartphones (notable among the student population) has created another role for campus Wi-Fi networks. High bandwidth data and multimedia applications, enabled by the devices, tax 2G and 3G cellular network capacity to the limit, which can degrade the user experience. When users opt to use these applications via Wi-Fi rather than cellular, they not only enjoy a better user experience, but they also free up bandwidth in the cellular network, resulting in better performance for cellular users. A real, but often overlooked, win-win scenario, that transpires when schools choose a high-performance Wi-Fi network solution.

The Solution

Davidson College's Wi-Fi network features wireless technology from the market share leader, BelAir Networks (see Figure 1), enabling users to enjoy true broadband access at speeds of 4 Mbps or more and reflecting Davidson's commitment to excellence.

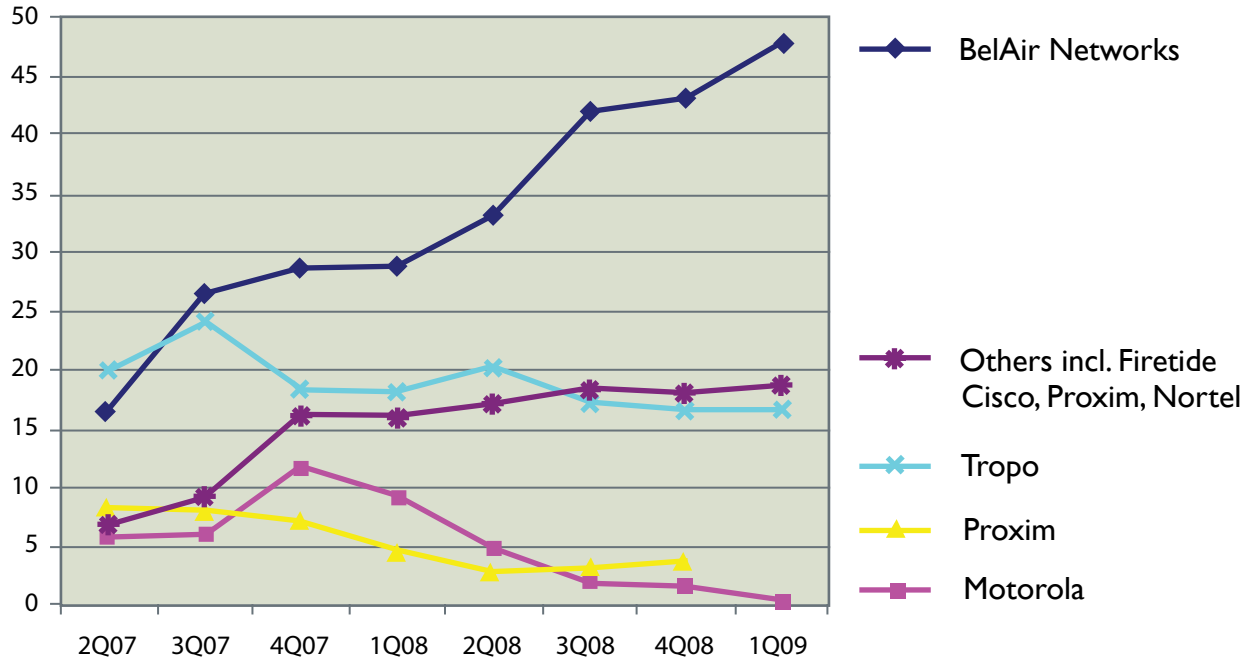

Figure 1. BelAir Networks has earned more than double the market share of its nearest competitor. Source: Dell'Oro Wireless LAN Report 1Q09, Mesh Nodes

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Davidson College now has the same state-of-the-art BelAir Networks broadband wireless technology used by the Lincoln Center in New York City and in citywide networks in Minneapolis, London, Toronto, and Long Island among others.

The Design

To support their requirements for high-quality, high-bandwidth Wi-Fi services both inside and outdoors, Davidson College opted for BelAir Networks patented carrier-grade switched mesh architecture deployed using BelAir's unique 'outside-in' method. Thirty-one compact, robust BelAir Network outdoor Wi-Fi nodes are mounted on poles and buildings throughout the campus (see Figure 2). The nodes blend seamlessly into the heritage architecture of the university's buildings, and, as Rob Smith, Director of Systems and Networks at Davidson College, explained: "When the deployment was finished, I went around and viewed every single access point. Unless you know where to look, you don't see where they are."

Figure 2. BelAir Networks compact, robust outdoor Wi-Fi nodes provide high-performance coverage indoors and outside while blending in to the college environment.

The BelAir Networks nodes combine to form a single seamless and easy to manage network interconnected through integrated mesh backhaul, point to point wireless links and wired connections (where available). BelAir's flexibility in supporting multiple wireless and wired network connection options, made it much easier to design a network to address Davidson College's specific needs and infrastructure requirements. And, fast and easy to deploy, too, as Dan Dugan, Senior Systems Engineer for AFL Network Services, points out: "It took us about 2 weeks to install the entire system. The BelAir radios work really well. They're reliable, they're almost indestructible. You plug them in and they just work." AFL Network Services provided network design, installation and technical support for the project.

The Result

Students and faculty benefit from the ubiquitous 4 Mbps+ coverage, increased capacity and broader range of services enabled on the network. College staff can use it to monitor equipment and control lighting systems; security personnel file reports remotely, improving their productivity and reducing time spent in the office.

Davidson College's decision is both financially and technically sound. They have reduced the capital and operational costs associated with traditional Wi-Fi access point deployments. The entire network required only 31 BelAir Networks nodes, whereas in traditional enterprise Wi-Fi deployments, many more access points would have been required. With less equipment required, associated wiring and labor costs and the ongoing costs of maintenance are all reduced. End-to-end network management also enables the whole system to be managed, monitored and maintained remotely.

It's a future-proof solution that protects their network investment by enabling capacity to be added anywhere in the network and directed to where it's needed without deploying more nodes. BelAir's modular, multi-radio architecture can also support multiple frequencies including Wi-Fi, WiMAX, and 4.9 GHz Public Safety on the same network, providing the college with a plug-and-play migration strategy.

But what do students think? Nick, a first-year student says: "It's pretty sweet. It means I can go anywhere with my computer, do whatever I need, wherever I want to do it. I'm not confined to somewhere with a cable."

A high performance, low cost wireless network that's easy to deploy, operate and manage and delivers Wi-Fi access, secure WLAN services and cellular data offload. Sweet.

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