

# New England Law Boston Deploys Xirrus Wi-Fi Network to Support Mobile Learning



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DEREK LOFSTROM,  
SENIOR NETWORK ENGINEER,  
NEW ENGLAND LAW | BOSTON

## Overview

**LOCATED IN THE THEATRE DISTRICT** of Boston, Massachusetts, New England Law | Boston (previously the New England School of Law through 2008) is a private law school providing world-class learning in the heart of one of the country’s most vibrant cities. The university was founded in 1908 to provide legal education to women at a time when they were often excluded from advanced professional study. At New England Law | Boston, this legacy of encouraging diversity has expanded over the years to include other groups that historically have faced obstacles as they strive to reach their professional goals. Accredited by the American Bar Association (ABA) and a member of the Association of American Law Schools, New England Law | Boston uses Xirrus Wi-Fi to support online applications and mobile learning.

At New England Law | Boston, well-defined pathways of coursework, clinics, internships, externships and clerkships lead students to many distinct areas of legal practice and enable them to find a place in the legal community. The program integrates exceptional academics and support programs to create a welcoming environment for individuals from a multitude of backgrounds. Support also comes in the form of technology enablement, especially mobile device connectivity.

“We’ve had a wireless network for several years, but it wasn’t until recently that we realized a high-density solution was more appropriate for our environment,” says Derek Lofstrom, Senior Network Engineer at New England Law | Boston. “On campus, a rapid proliferation of mobile devices amongst students, as well as a recent adoption of various online services by faculty, had quickly exposed the limitations of our existing wireless solution’s ability to keep up with these changing trends in a logical and affordable way.”

New England Law | Boston decided to reconsider its wireless-network design, which was facing significant issues concerning connectivity and throughput. The techniques for troubleshooting these issues made it difficult to ascertain where the problems lay, and the tools that did provide adequate information often came at a premium.

University administrators chose to rethink their wireless strategy used across each of its four campuses, including the main academic building – a five-story, 65,000 square foot facility located in Boston’s Back Bay – comprised of classrooms, study areas, faculty offices and the library. “We strongly felt if we were going to proceed with this exercise, not only should the solution address our immediate concerns, but it should protect our long-term investment as well,” said Lofstrom.



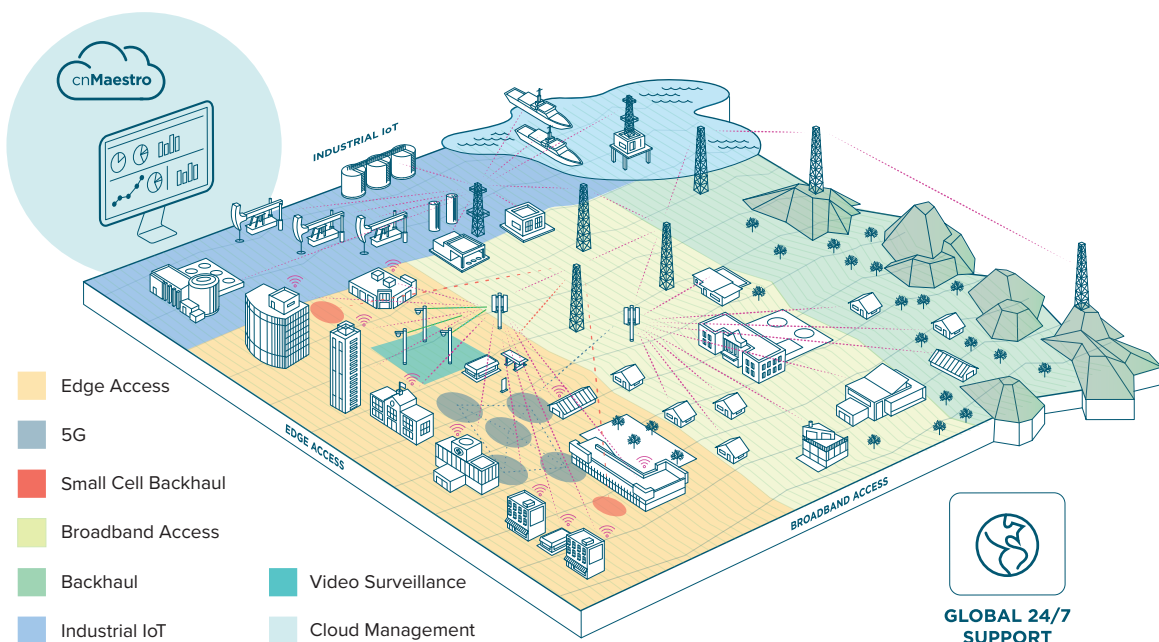
# Xirrus Wi-Fi Network Overcomes Physical Obstructions and Nearby Network Interference

**CHALLENGED BY LIMITED BANDWIDTH** and connectivity issues that were becoming prohibitive to educational initiatives, administrators approached the team and asked how to proceed.

Lofstrom explained: “Our initial impressions were to add more access points (AP), though in our experiences, this often made things worse. Wireless is an extremely complex technology, and with our staff being required to understand and manage a growing number of systems and applications, the learning curve for us was quite significant. This led to a number of questions: ‘Is a complete redesign appropriate? How do we know the problems won’t continue? How do we know the problems aren’t vendor-agnostic?’ Networking is a significant and long-term investment, and we needed to be sure that our next move was going to actually solve the problem.”

Site administrators were sold on the idea that the team could reduce the number of access points, while increasing the density. They found it to be an ideal solution for the university, where at any given time, a number of classrooms would have a significantly higher saturation of devices than other areas. Account managers performed a site survey and educated the school’s IT staff about the network landscape. Together, the team and New England Law | Boston engineers discovered interference from a nearby hotel and adjacent office buildings, which present unique challenges when residing in a dense metropolitan area. And, in the school’s library, filled book cases were causing obstruction.

“We walked around different parts of the campus, and utilizing their expertise, they offered us an insight into why they believed we were having problems,” said Lofstrom. “We learned so much about channel utilization and channel overlap – they validated what we perceived to be the issue - and only after conducting this due diligence, designed the network and provided us with the tools and knowledge to implement and manage a successful solution. Simply put, everything about the design made sense, and [the team] fully addressed our questions and concerns.”



*Cambium Networks' Gigabit wireless solutions enable municipal, enterprise and service provider operators to tailor connectivity to meet exact requirements and grow as needs evolve.*

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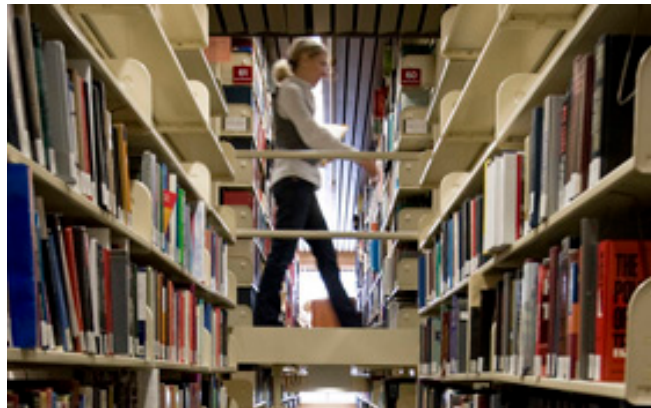
## Xirrus Wi-Fi Deployment Facilitates Access to Legal Documents and Educational Materials

**THE XIRRUS WI-FI NETWORK WOULD** cover the campus's five floors. The basement is dedicated to the library, student computers, a general reading area and six collaboration rooms; the first floor includes the lobby and reference desk for students and visitors, public reference computers, a collaboration room and extends the basement library; the second floor is the final extension of the library, also with a boardroom and five collaboration areas; the third floor classrooms, a seminar room, and student lounge; the fourth floor is dedicated to faculty offices, meeting room and the faculty library; the fifth floor is completed by seven classrooms and mock courtroom. Each level of the building had certain areas that needed to be prioritized by the network.

Network engineers were especially concerned about providing high-density wireless connectivity for classrooms, where they had experienced problems with their previous wireless network.

“Our previous wireless infrastructure placed access points in a central location to send the signal outwards, towards the perimeter of the building,” said Lofstrom. “Based on the extensive site survey, we chose a different design, one which instead placed the Xirrus equipment on the perimeter walls of the building to avoid interference by directing the signal inward where it was needed most: classrooms that often have up to a hundred or more students and even more mobile devices.”

The team installed XR-2200 and XR-4400 Wi-Fi APs. The XR-4400, part of the Xirrus XR-4000 Series, is configurable with 4 or 8 software programmable radios (2.4 GHz and 5GHz) and up to 450Mbps data transfer speeds per radio. This architecture significantly minimizes the number of Wi-Fi APs needing to be deployed, resulting in savings in equipment, cables, switch ports, installation time, maintenance and power consumption.



Benefitting from an intelligent network design, New England Law | Boston today reports reducing equipment and cost by up to 30 percent.

With the Xirrus Wi-Fi network installed, faculty can access and present online media, which includes streaming video, in the classroom. Additionally, more classes adopted online examination, decreasing the number of hours spent administering and grading tests. Students can access course management systems, stream online media and access legal references from their laptops, phones and tablets. Lofstrom explains, “Students are often expected to participate in the classroom where professors cite online information on case studies. The issues we were seeing before inhibited the learning process. As a result of implementing the Xirrus [Wi-Fi network] and eliminating the types of problems we were seeing, student engagement has greatly improved.”

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On average, the network is supporting approximately 400 devices, and in a 24-hour period, more than 1,000 devices. Instead of funneling the resulting traffic through a single controller, the network design uses Xirrus Wi-Fi APs, each with an integrated controller.

“The Xirrus network installed at New England Law | Boston ensures that the learning of students is never jeopardized by technological errors or inherent design flaws,” said Bruce Miller, Vice President of Product Marketing. “Xirrus Wireless [APs] prevent single points of failure that can occur with many simultaneously operating components of a network.”

Network administrators at New England Law | Boston monitor the network through the Xirrus Management System (XMS), a scalable wireless network management platform that provides full monitoring and management of a Xirrus wireless and wired network. Using Xirrus Application Control, network administrators leverage next-generation Layer 7 Deep Packet Inspect (DPI) technology to gain insight into what types of applications are accessing the network.

Before implementing the Xirrus network and XMS software, New England Law | Boston had considered blocking bandwidth-intensive applications based on speculation; now, site administrators know which specific areas, applications and devices are consuming the most bandwidth. Because the Xirrus network has scaled smoothly and efficiently, New England Law | Boston has not had to restrict access to any wireless applications.



## Advantages of Xirrus Wi-Fi

**WITH THE EXPLOSION OF SMARTPHONES AND TABLETS**, mobility has become pervasive. People expect to connect wirelessly. Organizations depend on high-bandwidth to send and receive voice, video and data, from any device to any one. Xirrus Wi-Fi APs draw from cellular tower design principles to provide wired-like reliability, increased user density and capacity plus superior security. They perform under the most demanding conditions and have lower infrastructure requirements. When integrated with business and IT objectives, they help you do more than ever before.

Cambium Networks applies the “best practices” of wired networking to wireless infrastructures by distributing the intelligence to the edge and outfitting Wi-Fi APs with dense multi-state radios in the same manner as a wired switch. Xirrus Wi-Fi APs work as part of a strategic IT infrastructure advantage that fuels organizations.