



FOUNDRY
NETWORKS

CASE STUDY: UNIVERSITY OF BIRMINGHAM

University of Birmingham Delivers Campus-Wide Mobile Connectivity to Students and Staff



THE UNIVERSITY
OF BIRMINGHAM

SUMMARY

The University of Birmingham is one of the largest and most prestigious universities in the United Kingdom with around 30,000 students, 6,000 staff, and an income exceeding £354 million. Founded in 1904, it ranks fifth in the UK for research excellence and is a member of The Russell Group, an association of 20 major research-intensive universities.

Offering its students a world-class educational experience for more than a century, the university knows the importance of keeping up with technological advances. It is committed to maintaining the highest level of excellence, including a high performance network with broad Internet access for its students and staff.

Wireless connectivity is an important part of that commitment. The University of Birmingham is on course to complete one of the largest deployments of Wi-Fi at a UK university. By the end of 2008, the university expects to have 802.11 Wi-Fi coverage at its main 250 hectare Edgbaston campus, the 80 hectare Selly Oak campus, and at the affiliated Shakespeare Institute in Stratford-upon-Avon.

OBJECTIVE

“Our Wi-Fi strategy is to ensure staff, students, and visitors to the university have the best experience of using our network in the whole of UK academia,” says John Turnbull, the University of Birmingham’s head of networks in the IT Services department. “Given our policy is not to allow open network access, this means straightforward registration and authentication, and enough capacity to ensure fast and extensive coverage.”

The university wanted a solution that could be implemented in several locations at once. To provide its students, professors, and guests with the level of service they desired, the wireless solution needed to be scalable and offer options to add more bandwidth on demand. After evaluating the many wireless choices available, the University of Birmingham chose Foundry Networks and contracted with Pervasive Networks to deploy the wireless network.

SOLUTION

Foundry Networks solutions have supported the University of Birmingham for many years. The campus relies on Foundry networking infrastructure for both its wired and wireless networks. In 2005, the university installed Foundry IronPoint® access points in areas where students congregated—main lecture theatres, libraries, coffee areas, some classrooms, and certain open air spaces. More than 300 IronPoint Mobility access points and two Foundry Mobility Controllers were deployed throughout the campus and take full advantage of the virtual cell technology. The various access points in one geographical area use one channel; allowing IT staff to engineer out any frequency issues associated with other Wi-Fi enabled devices such as wireless alarm systems.

The IronPoint Mobility access points deliver traffic to Power over Ethernet-enabled FastIron® Edge switches, which link to a dedicated firewall and the network core.

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INDUSTRY

Education

COMPANY DESCRIPTION

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OBJECTIVE

- Ensure staff, students, and visitors at the university have a superior experience using the wired and wireless networks
- Deliver advanced campus-wide mobile connectivity
- Provide straightforward user registration and authentication to the wireless network, with enough capacity to ensure fast and extensive coverage
- Deploy a scalable solution that can easily support future bandwidth demand

SOLUTION

- 300 IronPoint Mobility access points
- Two Foundry Mobility Controllers
- Ethernet-enabled FastIron Edge switches

RESULTS

- Networking upgrade has saved the university £74k and freed up fiber to run a secure, parallel Wi-Fi network
- High-performance network infrastructure from Foundry Networks meets the university’s bandwidth and QoS needs
- IronPoint Mobility System and virtual cell technology ensure easy Wi-Fi deployment, simplified management, and protection from rogue access points
- Wi-Fi network allows business to continue as usual on campus if wired network traffic is disrupted
- Students, staff, and visitors will have campus-wide access to the wireless network in 2008

RESULTS

Foundry has helped University of Birmingham deliver high-performance, reliable, and secure wired and wireless networks. Upgrading the wired network has led to significant cost savings.

“Originally, we had eight 1 gigabit fiber links trunked together between each of our four core switches, which have now been replaced by just one 10 gigabit link further to an upgrade of blades in our existing FastIron 1500 Layer 3 chassis switches just over a year ago,” says Turnbull. “This has released seven fiber pairs between each core switch and expensive mini-GBICs resulting in a saving of about £74k, which has been a tremendous benefit.”

Students, professors, and administrative staff rely on the university’s wired network for teaching, research, and administration. The University of Birmingham has invested heavily in an online virtual learning environment using WebCT software from Blackboard Inc., which allows students to access multimedia lecture information and content. This online learning environment is becoming integral in terms of lecture delivery, personal study, and revision. Students also enjoy a portal that allows access to individual student email accounts, exam dates and results, news, and university events.

The Foundry network infrastructure more than meets the university’s bandwidth and quality of service needs, and it has the capacity to support the rich multimedia that students now expect. “We’ve provided podcasts of key rugby matches historically, and our intention is to offer multicast video of key games across the network, plus we’re looking at IP-based TV,” Turnbull says.

The wired network is so efficient that it has excess fiber to support a secure, parallel Wi-Fi network. The IronPoint Mobility access points connect to the FastIron Edge switches, which link into a dedicated firewall and the network core. This design maintains security at all times and allows no unauthorized access. Equally, the IronPoint access points act as both transmitting and monitoring devices so rogue access points cannot be installed without being detected.

The virtual cell technology within the IronPoint Mobility System ensures campus-wide connectivity that is free from interference. The technology also guarantees that users have trouble-free access to the network.

Turnbull explains, “Wireless LAN systems are unlicensed and many devices use the 2.4 GHz spectrums so there’s lots of potential for interference, which could limit our Wi-Fi network design. Virtual cell technology means we’ve selected one channel for APs, another for alarms and so on, with all the Foundry APs sharing the available air space using a time slicing approach. Users connect to just one university AP. They don’t have to make any roaming decisions as they move about the campus and want connectivity. The Foundry Mobility Controllers automatically do this for them based on the individual AP with best signal in a specific area.”

Chris Lea, senior network specialist at the university, adds, “The virtual cell approach is brilliant for us in terms of achieving complete campus Wi-Fi coverage. We’ve mitigated the need for time-consuming survey work in terms of where to actually place APs to avoid interference issues, and roaming is easy as there’s zero-delay handoff between them. This is key to support popular applications like Voice over IP and mobile email, as users remain connected all the time.”

The university has realized other benefits from this parallel network approach, too. Turnbull explains how the wireless network ensures business continuity. “While our first goal with Wi-Fi has been to enhance the user experience, it has also added resilience to the network overall. Should a distribution layer switch in our wired infrastructure go down, we still have the parallel Wi-Fi network to provide connectivity.”

With redundancy built into everything from the servers to the Internet connection, the University of Birmingham has a reliable network solution that delivers consistent service quality and high availability. Foundry’s networking solutions are helping the school reach its goal of delivering the best wireless campus experience in the UK.

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– John Turnbull
Head of Networks IT
Services Department
University of Birmingham

FOUNDRY NETWORKS

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