

Bournemouth University

EXECUTIVE SUMMARY

Like most major educational institutions, Bournemouth University began each school year with an enormous task: inspecting the computers of incoming students for malware and patches as well as ensuring that each one met school security policies. This lengthy process often delayed students from fully accessing network resources for a month or longer. These delays presented an unacceptable handicap for students who were expected to get right to work.

To solve this problem, Bournemouth University deployed Bradford Networks' Campus Manager Network Access Control (NAC) solution. Bradford Networks was the sole vendor that met the technical requirements outlined by the university tender. These included a clientless, scan-based approach to authentication as well as remote diagnosis and resolution. As a result, the university eliminated all manual check-in of student machines. This provided three major benefits: First, it enabled incoming students to register and authenticate their machines from home prior to arriving on campus. Second, it increased the IT Service Desk's visibility into the condition of those machines that could not access the network. Finally, it supported the university's core value of delivering the richest student experience possible, in a collegial setting, in all of the UK.

THE CHALLENGE

Bournemouth University includes a passionate commitment to student-centered academic excellence among its core values. This ethos is particularly meaningful for Mark Flexman, Head of IT Infrastructure, and Jason Bunce, Network Manager, who are charged with ensuring both network accessibility and reliable performance for the undergraduate community.

"A priority for the university is to ensure the student experience is the best it can be. Students must be able to access the network and the resources they need securely and seamlessly as soon as they complete initial registration," said Flexman. "A parallel driver is that, even as we enhance the student experience, we reduce the cost of meeting that standard."

The IT directorate within Bournemouth University is neatly partitioned into three IT-centric groups. Flexman and his 14-member team are tasked with designing and installing core services, servers, database systems, telephony and networking solutions. A second group is responsible for servers, email, website, and operational support and maintenance of hardware. The third team handles service design, business analysis and customer relationship management. Bunce and his team oversee the details of network infrastructure design, including access solutions, cabling, security, and firewalling, including both traditional and IP-based telephony.

While enriching the student experience has been inculcated into Bournemouth's academic staff and university employees, it is a relatively recent paradigm for the IT team, who had been driven by how students were authenticated.

"Formerly," Flexman explained, "students were authenticated directly by our Active Directory, and the only real security was nearly an all-or-nothing proposition: either full restriction on all websites or access only to certain websites on certain ports. We relied on our cache and firewalling infrastructure to provide the necessary security."

BRADFORD NETWORKS SOLUTIONS

Campus Manager

INDUSTRY

Higher Education

LOCATION

Bournemouth, Poole, United Kingdom

CUSTOMER PROFILE

The university enjoys a reputation for its commitment to wide-ranging opportunities through education, research and enterprise. With a population of more than 16,000 undergraduate and postgraduate students, the university consistently has one of the highest graduate employment rates in the UK and is currently the Number One New University in the UK in the Guardian University Guide 2009. Bournemouth was ranked first among all of the institutions that became universities in 1992.

"Prior to deploying Bradford Campus Manager we had to perform a manual security and virus check of every student machine arriving on campus, a process that prohibited students from accessing the network for days, even weeks at a time. With Campus Manager in place, manual checks have been eliminated entirely and virtually all students can now access network resources on day one."

Mark Flexman
Head of IT Infrastructure
Bournemouth University



THE CHALLENGE (Cont'd)

As Bunce points out, however, the process of manually authenticating users and verifying virus protection was often tedious, problematic and inefficient.

"Students arriving at the University on day one literally had to queue to have their laptops checked manually by a staff member or a temporary team member. Ultimately, however, this check applied only to day one. After that, a student could choose to remove his computer's virus protection with nothing to stop him from doing so," explained Bunce.

Once the manual process was completed, the IT team enabled the network access port in the student's bedroom but turning on that port often took days—or weeks.

"In some instances, students waited four to six weeks before their port was enabled," said Bunce. "There were even students who could not access the network after two months. As you can imagine, the delay between initial registration and availability of network resources fell utterly short of our student experience standards. It was the primary reason why we sought a solution that would automate the process."

THE REQUIREMENTS

As Flexman and Bunce weighed their Network Access Control (NAC) options, they targeted the requirements that vendors would have to meet. "The main requirement was to ensure that student machines were kept off the network until they underwent a thorough virus check and complied with the security standards and policies we had in place. Secondly, for the benefit of our IT Service Desk—which identifies and resolves users' problems—we needed to quickly establish why a student wasn't connected to the network by viewing a problem machine remotely. Enabling them to resolve issues at the first point of contact or pass it to the second-line support team for a detailed assessment, was paramount," said Flexman.

He added, "Finally, we wanted to enforce a policy that said no software could be installed on a student's PC without us knowing about it. We carefully considered a 'clientless,' NAC-based scanning approach that is transparent to users but highly informative to our IT staff."



Bournemouth University's network is effectively split along two distinct domains: the residence or student network, and the main campus network. An all-Cisco Systems™ shop that uses Catalyst 6500 Series switches at its core and Catalyst 3750 Series switches at the edge, the main campus network features 10,500 ports with approximately 1800 students on the residence network site. On the main campus network, Bunce has deployed five-port 10 gb switches at the core with 1gb to the edge switches and 100mb to the desktop. For the residence network, the university employs a pair of Catalyst 6500 switches directly with 1gb to the edge switches and 100mb for each room.

The vendor selection process moved quickly, with Flexman and Bunce evaluating products—both software alone as well as appliance-based approaches. Each offered pros and cons.

"Regardless of the application or technology, we determined that some solutions had back-end support requirements that were too technical for our needs. For example, we wanted to make sure that the service desk could view a machined performance of an identify why it was failing to access the network. Ease of set up was also important. We had already decided that a clientless approach was key and that aspect was missing in several of the solutions we evaluated," said Flexman.

In addition to functionality, the solution also had to meet the expectations for an optimum student experience set by the university.

"By introducing a NAC-based system, we can ensure that every student gets straight onto the network as soon as he or she arrives. Students can do so securely and seamlessly, and our staff can support them remotely, at the drop of a hat," said Flexman.

THE SOLUTION

Khipu Networks, the exclusive reseller for Bradford Networks solutions in the UK, approached Flexman and Bunce with the company's Campus Manager solution. Khipu recommended Campus Manager as a trusted Network Access Control (NAC) solution that was being used by more than eighty independent, mid-sized, and large UK universities. When evaluating Bradford Campus Manager, the Bournemouth IT team was immediately impressed by its ability to meet each of the standards for intuitive design, technical expectations and interoperability.

"At the outset I was concerned about deploying a solution that differed from our incumbent infrastructure provider and whether Bradford Campus Manager would fully integrate with the network. It soon became clear, however, that Campus Manager was a well-thought-out solution that integrated perfectly with our network and boasted a robust support and services structure," said Flexman.

He added, "We had a very positive, committed response from Khipu locally and from Bradford remotely. Together with our incumbent vendor, this partnership has resulted in a formidable network that satisfies our technical requirements and also adheres to the university's standards for student expectations and experience."

As an example of how easily Bradford assimilated with the existing infrastructure, Bunce cites a recent upgrade of the University's residence network and the deadlines associated with it.

"As we began implementing Campus Manager, we were also installing a brand-new network for the student residences and Bradford Networks' product was used to complement that process," said Bunce. "We had a very tight target of going live at the beginning of August prior to the students' arrival. I'm happy to report that we actually completed the installation a week early, giving us an additional week to test it. Bradford's and Khipu's support in meeting that target was helpful and appreciated."

RETURN ON INVESTMENT

Flexman and Bunce explained that bolstering the student experience they must meet each day are metrics that positively reinforce the University's Return on Investment (ROI) in deploying Bradford Campus Manager.

"For example, prior to deploying Bradford Campus Manager we employed a half dozen third-party agency staff for a month or more to manually check student machines. We no longer need to employ any agency staff and, in terms of efficiency, virtually all students now get online day one," said Flexman.

Bunce cited advance registration as a further example of the efficiencies Bournemouth has realized since deploying Campus Manager. Student registrations normally exceeded a thousand in the first week of students arriving on campus, with half occurring in the first few days. This surge of activity increased bandwidth requirements. Students now register their machines from home, complete with virus and security scans, prior to stepping on campus.

"Instead of going through the registration process, including the machine check, they can avoid the queue completely and plug in when they arrive on campus. When they use that switch port for the first time, their machines are authenticated, patched and checked for viruses. This speeds up the initial registration process even more," said Bunce.

THE FUTURE

With Campus Manager fully deployed on the residence network, Flexman and Bunce have their sights set on future phases of NAC deployment. "At present [Fall 2008] we have deployed Bradford Campus Manager only to the student network to ensure that the equipment they're plugging into the network is protected and, more importantly, that the network is protected from them. Over time, we will roll Campus Manager onto our campus-wide network, including wireless, and then move onto the main campus backbone," explained Flexman. "Our goal is to complete all three phases in the first or second quarter of 2009."

To ensure that Bradford Campus Manager fully meets its needs in the future, Bournemouth University actively participates in the company's United Kingdom beta customer program. This is designed to elicit feedback from UK universities and colleges where Campus Manager is deployed so Bradford Networks can drive product development in response to customer requirements.

"For Bournemouth University, participating in the Bradford UK beta customer program means that our technical operatives can learn hands-on about Campus Manager and actually voice what they would like to get out of the solution. We benefit from offering constructive, even influential, feedback through Khipu to Bradford on the product and how we use it."

In addition to the ease of management and maintenance, the staff uses Campus Manager to identify network problems before they have an impact. NAC has become strategic in meeting the university's expansion benchmarks, even as its deployment remains transparent.

"Strategically, NAC optimizes University operations without the anticipated technical resources or cost we expected," said Bunce. "However, one of the key benefits we've happily discovered is that, with NAC, you can roll out network-based solutions to the other areas without disrupting or impacting the level of service to users. While

there are operational efficiencies and cost savings in deploying it [NAC], the transparency of the solution is compelling and unconditional."

Ultimately, Flexman and Bunce have met or exceeded their expectations through Bradford Networks' Campus Manager.

"When we first considered NAC, we wanted to make sure that anyone accessing the network did so in a secure manner, whether wired, wireless, in dormitory rooms or on the main campus. We wanted to ensure that our network remains secure and reliable and that our internal customers—students as well as staff—are not aware that we are working behind the scenes to protect them from themselves and to protect our network from them," said Flexman. "Implementing Bradford Campus Manager means that vendors, visitors, and virtually every man and his dog' arriving on campus are authenticated and secured. This provides us with a solution that makes Bournemouth the wellspring of a rich and responsive student learning experience."

ABOUT KHIPU NETWORKS

Khipu Networks are a UK-based advanced systems integrator, focusing on supplying innovative secure compliant infrastructure solutions across the public and private sector. Hampshire-based Khipu Networks Ltd are the security division of the White Clarke Group of companies. Khipu Networks are the exclusive supplier of the Bradford Networks Campus Manager solution into the Education arena.

NAC Centre of Excellence for Education (NCEE)

A designation given selectively to those Bradford Networks Partners who have completed certification training, focus on the network security needs of Educational institutions and have demonstrated exceptional proficiency in the area of network access control. To apply for this level of designation, partners must have sold Bradford Network's Campus Manager product for a minimum of two years and successfully installed the Bradford solution at a minimum of twenty (20) distinct institutions.

As a result of Khipu Networks successful work within the Education space, they were awarded Specialist Reseller of the Year in 2007 by Computer Reseller News (CRN),

"Over the course of Khipu representing Bradford Networks throughout UK schools, colleges, and universities, we have confirmed our core tenet that one size does indeed not fit all, particularly when it comes to network interoperability. We're not just matching Campus Manager to a school; rather, our perspective is that we must first understand the requirements of the school in order to align a solution that meets their long-term needs. A challenge common to many such deployments, including Bournemouth, is helping schools to evaluate a best-of-breed solution, one that works hand-in-hand within a sole source infrastructure environment while providing the transparency required to support the school's plans for infrastructure upgrades. The success of any NAC solution is that it actually provides the flexibility to interoperate within an infrastructure, regardless of vendor type and does so without disrupting or substantially impacting infrastructure enhancements that are either already in place or under consideration. The success of the Bournemouth installation of Bradford's Campus Manager NAC solution confirms this paradigm."

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ABOUT BRADFORD NETWORKS

Bradford Networks develops advanced network access control solutions for wireless, wired and VPN networks. Bradford's award-winning, out-of-band appliances leverage existing network infrastructure to automatically enforce NAC policy at the network edge, making networks more secure and efficient. Privately held, Bradford Networks is headquartered in Concord, NH.