



UNIVERSITY OF LEEDS



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*Dave Neild
Network Development Service Leader
Information Systems Services for Univ. of Leeds*

The University of Leeds Stops Millions of Attacks and Countless Illegal Downloads with TippingPoint

CASE STUDY

The Challenge

University networks are notoriously difficult to safeguard because they are open environments in which students and faculty freely pursue their academic interests. As a result, they are vulnerable to compromises in productivity and privacy from malicious software and peer-to-peer file sharing that includes downloads of copyrighted songs and movies that can raise legal issues and clog networks. Although these problems vex universities worldwide, increasing numbers of higher education institutions, such as The University of Leeds, are confronting them head-on. With roots dating back to 1831, Leeds is one of the largest universities in the United Kingdom.

Of its 32,000 students, 7,000 live in 18 network connected halls of residence on and off campus. The halls link via 100 megabit leased lines to Leeds’ main campus network, which is based on Cisco Gigabit systems. The halls, wireless and campus networks are managed by Information Systems Services (ISS), the central information technology provider for the University.

To safeguard this infrastructure, Leeds previously relied exclusively on firewalls and anti-virus programs that were distributed to students. At times, however, students did not install the software, enabling worms and viruses to sneak into the network. ISS technicians would manually cleanse the systems and update their anti-virus software, a laborious and expensive process.

In regards to bandwidth consumption, some students were downloading films and music illegally via file-sharing applications, prompting film companies, for example, to forward legal notices to the university that its students were breaking the law. This downloading of multimedia files also congested the network, undermining Web access for other halls users. ISS tried to rate limit student traffic using its Cisco systems, but the number of large downloads still congested links.

“We were caught between the need to provide an open academic environment and the threats and abuses that it created,” said Dave Neild, network development service

leader, information systems services, The University of Leeds. “We had to defend our residence halls against online threats and prohibit illegal downloads. Yet, at the same time, we had to preserve academic freedom.”

Leeds established three basic criteria for any prospective security solution: it had to keep malicious traffic out of the students’ network as well as enable administrators to identify infected computers. It had to block or limit peer-to-peer file sharing services; and it had to perform reliably and rapidly, even during peak network usage, to avoid compromising students’ legitimate Web access.

Why Solutions from TippingPoint

Leeds’ administrators initially considered alternatives to TippingPoint, however, these systems were unable to offer the security Leeds required.

Leeds then examined solutions from Cisco and other vendors. In the process, administrators learned that the Gartner Group, the world-leading provider of IT research and analysis, in its Magic Quadrant report recognized TippingPoint in the leader’s quadrant for Intrusion Prevention Systems (IPS’s). They were also impressed that only the TippingPoint IPS received the NSS Gold Award from the world’s foremost independent security testing facility, The NSS Group. To learn more, they subsequently saw a demonstration of the IPS in action.

"We were struck by how effectively TippingPoint defended against unwanted traffic, as well as its higher throughput and lower latency than Cisco solutions," said Neild. "We liked the platform's advanced design and technology, which feature components like custom ASICs that deliver superior performance over competing devices from other vendors. TippingPoint systems also control traffic by blocking or throttling unwanted file sharing. Moreover, the product was simple to install and easy to manage."

The TippingPoint IPS blocks malicious packets at line-rate gigabit speeds, allowing legitimate traffic into the network while deterring spyware, worms, viruses, phishing, Trojans and DoS attacks. It protects routers, switches, VoIP systems and other infrastructure components from targeted attacks. In September 2005, the University of Leeds installed a TippingPoint IPS with four Gigabit fiber segments between its main campus network and the network linking its student residence halls. The IPS required less than an hour to deploy and demanded no network reconfiguration. "We worried about straying from Cisco, but the TippingPoint IPS is a proven, well-engineered solution that was remarkably easy to implement."

Leeds also installed the TippingPoint Security Management System (SMS), an enterprise-class management platform that provides administration, configuration, monitoring and reporting for multiple TippingPoint platforms. The SMS enhances protection by providing comprehensive real-time reports and graphs on traffic, blocked attacks and network hosts and services.

In its first six weeks, the TippingPoint IPS blocked malicious or unwanted traffic 40.5 million times. Of these, 53,000 were attacks like viruses and worms. Another 600,000 were spyware that was denied entrance to the network. The majority, 28.5 million, were attempts at music and video downloads.

"We were amazed by our TippingPoint IPS," said Neild. "It stopped the attacks and all but eliminated the file downloads without affecting network performance. We can even monitor students who try to use VPNs for their downloads. We're able to quickly identify any infected computers in our residence halls and dispatch our IT people to clean them up. Moreover, the SMS greatly simplifies management. We easily track network activity and the traffic being blocked."

To gain proactive protection against the most current risks, Leeds depends on the TippingPoint Digital Vaccine® real-time inoculation service. Weekly, and more often if required, the service updates the TippingPoint IPS with new security filters. The filters remedy emerging network vulnerabilities and protect the university against the latest threats.

"In addition to preventing traditional attacks, our TippingPoint solution also safeguards against zero-day attacks," said Neild. "What's more, this level of safety imposes no IT burden because the new Digital Vaccine filters are installed automatically."

Benefits Summary

Using its TippingPoint IPS, the University of Leeds solved a problem that persistently

bedevils academic institutions. The solution protects the main campus and its network from any suspicious software emanating from students' online activities.

The TippingPoint IPS also eliminated Leeds' concerns about student downloads. By blocking peer-to-peer file sharing, the university stopped notices it receives from copyright holders, abating its legal exposure. Administrators no longer have to bother with shutting down students' network ports to prevent improper downloads or contain viruses and worms to the residence halls, resulting in a substantial savings in IT resources.

Moreover, by blocking illegal student downloads, the TippingPoint solution reduced bandwidth usage, in effect, doubling the amount of bandwidth available to students for legitimate academic pursuits.

"The benefits of our TippingPoint IPS ripples through the entire university," said Neild. "Our students have faster Web access, our main network gains a vital measure of security and we no longer fret that a student will infect either our campus network or other users on the Internet.. Moreover, we don't have to spend substantial money and time in policing students' online activities. TippingPoint gave us a complete, easy-to-own solution to what were once exasperating problems that compromised our university's mission. The bottom line is TippingPoint is enhancing our entire community's productivity and well-being."