

UK University Builds a Secure New Network Platform for the Next Decade

Summary

Company:

University of Hertfordshire

Industry:

Education

Business Challenge:

- Replace 10-year-old network infrastructure to increase capacity
- Enable the secure use of BYOD for students and staff, underpinning the “online anywhere, anytime” culture without risking the core network or users’ data integrity
- Improve network management capabilities

Technology Solution:

- SRX Series Services Gateways
- EX Series Ethernet Switches
- Junos Space Network Management Platform

Business Results:

- An increase of capacity from 1GbE to 10GbE, overcoming existing limitations and improving multicast performance
- Seamless migration without affecting users
- Transfer of knowledge and skills, enabling a self-sufficient IT team
- A platform for future-proof enhanced security and mobility services

The University of Hertfordshire is one of the top 100 universities in the world under 50 years old (as listed in *The Times* Higher Education rankings, 2015.) It has an impressive pedigree in science, technology, engineering, and healthcare education, alongside more creative subjects such as music and film. It also has a strong heritage of partnering with top businesses.

The university is based across two campuses in Hatfield, in the UK. It is one of the region’s largest employers, with over 2,700 staff and an annual turnover of more than £250 million. At any time it supports a community of over 25,300 students, including more than 2,800 international students from 100 countries, and a global network of over 195,000 alumni.

Its scientific research covers areas as diverse as developing volcanic dust sensors to improve air traffic safety, to the investigation of new planets—with 10 percent of all planets known to humanity having been discovered by the university’s research programme. The university also educates many of the region’s healthcare professionals and is proud that most of the births in Hertfordshire are overseen by a University of Hertfordshire educated midwife.

Business Challenge

University of Hertfordshire had last refreshed its network infrastructure over ten years ago, and the old architecture was struggling to support the university’s changing requirements. Equipment was reaching the end of its life and the network was unable to cope with the volume of data and the new ways people have started to use technology. All of the university’s services are now offered online, making the reliability of the network critical. The consumption and creation of data has grown exponentially over the last few years, straining its capacity and scalability. And more recently, the number of users’ own devices has proliferated, along with the expectation that they can all access the network at any time, creating the need for more mobility and security.

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As David Ford, CIO at the University of Hertfordshire, explains: "IT plays an important part in university life both for the staff and the students, and the network is the key element that underpins everything else we do. Students and staff are accessing resources from two or three wireless devices of their own, alongside our own fixed PCs. We need to ensure they can always get access to the network, whilst at the same time their data and devices are safe and secure—which are naturally conflicting challenges."

The university set out to replace its entire network infrastructure with one that would support its requirements for the next ten years. It needed to ensure mobility and flexibility of access, enabling its users to get online wherever they were, whenever they wanted, and from any device. It needed to increase the network's performance, which had been constrained to 1GbE, and improve its management capabilities to give more control.

As all key services are available online, business continuity during the migration, as well as for subsequent years, was very important. It wasn't an option to take down parts of the network during the transition to the new network, and going forward there could be no single points of failure.

Technology Solution

As a public sector organisation, the university needed to follow a rigorous procurement process. It chose to procure the network through the established Janet (Joint Academic Network) framework, which saved it time and ensured a competitive price for purchases, thanks to agreements in place between Janet and suppliers, which have been created in accordance with EU procurement legislation. Janet also operates a core network that provides transit services between universities in the UK.

The university was looking for a solution with the following attributes:

- A proven solution that was already available and could be shown to work.
- Adherence to open standards as the network would need to interoperate seamlessly with adjacent technologies such as voice and Wi-Fi, and to facilitate inter-university collaboration.
- A single vendor with the capability to provide the entire network was preferred, as it would simplify support, assure a single point of responsibility, and guarantee interoperability between the networking, security, VPN, monitoring, and management systems.

Additionally, it was looking to work with a partner in which it had confidence. It wanted to work with an organisation that understood its business, understood the technology, and could advise university staff and transfer its expertise to them.

The University of Hertfordshire selected Juniper Networks as its networking supplier. It used Juniper Networks® SRX Series Services Gateways to provide security, and a range of Juniper Networks EX Series Ethernet Switches to extend the network across its campus, including the EX3300, EX4300, EX4550, and EX9208 platforms. The network provides a number of VPNs, and takes advantage of Juniper's Virtual Chassis technology to operate multiple physical switches as a single entity.

The university also plans to deploy Junos® Space Network Management Platform, which will provide comprehensive management of Juniper devices with fault, configuration, accounting, performance, and security management (FCAPS) capability. This will give the university control over its entire network from a single point, as well as enabling rapid application security and intrusion prevention system (IPS) updates. "Centralising management and control will save us a lot of time as we do maintenance and configuration, and is particularly valuable when we are working with equipment located in areas that have limited access, such as research laboratories," David Ford says.

The University of Hertfordshire, along with Alternative Networks, an Elite partner of Juniper Networks, has also created a community development initiative to provide IT services beyond the university and into the local community.

Business Results

The network deployed to date is only the first phase of a broader planned implementation, and is focused on the replacement and migration of the existing network. While further functionality is still due to be added, the network has already expanded capacity to 10GbE, overcoming existing limitations.

Perhaps most importantly, users have been completely unaffected through the migration. "When the network affects users adversely, we hear about it pretty quickly," David Ford says. "So far, we've replaced over half of the network without any users being affected at all."

The university's IT team put the success of the migration down to thorough planning and a high level of support from Juniper Networks and Alternative Networks. As David Ford explains, "We had a lot of support early on at the planning and design phase. Juniper provided a trial kit so we could evaluate the product and have confidence that the migration and implementation would work the way they said it would."

The university is also pleased with the knowledge and expertise transferred through the implementation process. "It was important that our own team could support everything going forward," David Ford says. "Juniper and Alternative Networks showed us best practices, and transferred knowledge and skills so now we are completely self-sufficient."

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Next Steps

The University of Hertfordshire now plans to extend the network to a second smaller campus network and deploy Juniper Networks switching equipment throughout its data centre.

In addition, it will deploy Juniper Networks Secure Analytics platforms, using the JSA3800 and JSA5500 appliances. These will provide security information and event management (SIEM), consolidating large volumes of event data from all of the Juniper devices, endpoints, and applications in near real time. Juniper’s partner will also provide additional monitoring tools as a service, which is enabled by the open architecture of the Juniper platforms, ensuring interoperability across multiple technologies.

As Juniper’s technology becomes a critical part of the infrastructure, the university is also exploring the Juniper Networks Academic Alliance Program (JNAA). Juniper has a strategic objective to provide first class education and training support. Its global Academic Alliance program is an integral part of this strategy with a multitiered, modular approach to bringing Juniper technology and innovation to the classroom and research lab. The main purpose of the Academic Alliance Program is to establish an ongoing relationship between Juniper Networks and leading universities, colleges, and other academic institutions that are known to specialize in studies of engineering, mathematics, algorithm research, software development, microelectronics, and telecommunications.

For More Information

To find out more about Juniper Networks products and solutions, please visit www.juniper.net.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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