

## National Centre for Nuclear Research

### Highlights

#### Challenge

Fast, flexible and cost-effective networking on University of Winchester campus.

#### Solutions

- Arista 7000 Family Switches
- Arista EOS®

#### Results

Easier management, room for growth, better resiliency and lower cost of ownership. Increased speed & connectivity and open operating system.

The University of Winchester turns to Arista for fast, flexible and cost effective campus networking.



The University of Winchester is undertaking a significant campus-wide project to implement Arista high performance switches to cater for the increase in network traffic projected over the next five years, whilst addressing a variety of technical limitations of its current equipment to save money, simplify management and deliver future flexibility.

The university initially looked to Arista Networks to meet its data centre connectivity needs, but rapidly realised that its technology could also satisfy its demands in both the network core and distribution layers. Three Arista 7050T and eight 7050S Series 10 Gigabit Ethernet switches boost network speed and allow the whole network architecture to be rationalized and reconfigured.

### Project Background

Sean Ashford, The University of Winchester's Network and Systems Manager, explains, "Our existing network can't scale to cope with the amount of data expected as our current equipment only offers data streams of effectively 1 gigabit per second. We predict five times this in as many years so upgrading is required now otherwise bottlenecks will start in the next year or so."

With its roots dating back to 1840, The University of Winchester is a vibrant centre of higher education in the south east of England with over 6,300 students, almost 700 full time staff and an annual budget of £48.4 million<sup>1</sup>. Located on two campuses in the city centre – the main King Alfred site and a second at West Downs - the university is organised into four faculties: arts; business, law and sport; education, health and social care; and humanities and social sciences.

In the latest National Student Survey carried out in 2013, the University of Winchester was ranked among the top five universities in the South East of England and the top 25 in England by full-time students for overall satisfaction.

The need for speed is being driven by a variety of reasons. First, the university has always had an open BYOD<sup>2</sup> policy for staff and students. It installed (wired) copper cabling in its halls of residences and has had a rapid wireless access point implementation programme over the past two years which has seen a 500% increase in hotspots. The amount of data and traffic generated by students and staff is subsequently huge and will continue to grow exponentially.

Second, next generation 802.11 AC wireless access points will be installed soon – offering 1 gigabit per second performance – so the back end network correspondingly needs to scale to cope with this increased throughput.

Third, over 240 different applications are supported throughout the university including Moodle (an online virtual learning environment) Microsoft Office 365, video editing and statistical software. For those students who have a TV licence, terrestrial TV channels are digitized and streamed across the network to their bedrooms. In addition, the university is starting to film and digitally capture lectures and transmit them across the network. The demand for fast and reliable connectivity is crucial as the network plays such an integral role in underpinning the day-to-day functioning of the university from a teaching, research and recreational perspective, and any down time would therefore have a major impact in terms of lost teaching time and creating a poor student experience.

Furthermore, it was recognized that the network had to be dynamic and move with the university's requirements. Ashford explains, "Academics often change from one campus to the other as new courses launch. Our network has to be flexible enough to take this whether it is light one year, but then heavily used the next when lots of people login. As we're a small university, we want to be quick to respond to staff and student needs."

After thoroughly reviewing the market and testing equipment from competitive vendors, Arista Networks was chosen. Ashford says, "There were a variety of reasons. Port density was key as is throughput and, of course, cost per port. But it was more than that. The Arista 7050 Series switches have low power consumption and are really compact compared to competitive devices so they fit easily into our cabinets. They also use a familiar command line interface which simplifies day-to-day network

<sup>1</sup> 2011-2012 data

<sup>2</sup> Bring Your Own Devices

### New Switches, New Opportunity to Re-Architect the Network

Located on each campus site, The University of Westminster operates two data centres - one main facility, the other for disaster recovery purposes. It uses a ring architecture comprising core, distribution and edge switches which are cross-connected for redundancy. From a technical perspective, the upgrade is also allowing the university to consolidate the network into a better Layer 3 topology and reduce the number of switches in the core and distribution layers<sup>3</sup> capitalizing on the Arista 7050 Series switch port density. This will save money and make management easier whilst addressing the limitations of port channeling which had become a major issue.

In addition, the university is now capitalizing on Arista switches' support of MLAG and virtual ARP4 to avoid having to have redundant network links as this wastes investment in network infrastructure.

Ashford says, "Essentially this allows the main and back up links to be active at the same time and routing to go down both. It means we can sweat our network assets far, far better."

In terms of speed, the University will realize a ten-fold speed increase between its core, distribution and edge switches, with connectivity enhanced three times within its data centre environment.

All the Arista switches have now been deployed. Ashford concludes, "So far, I'm very pleased. Anytime we've encountered issues or problems, the response received through our Arista support contract has been first class as calls are managed by competent level 3 engineers without the need to go through a help desk. The Arista switches will allow us to work smarter not harder, and staff and students will certainly notice and benefit from the performance hike delivered by the upgrade."

Mark Foss, Global VP Operations, says, "While the project has only just rolled out, the benefits are clear: headroom for growth, better resiliency and lower cost of ownership. And as all Arista switches have a standard open operating system (the Arista EOS) university staff will be able to write their own applications or use third party diagnostic tools to be able to create a self healing network because of the intelligence inherent in our switches."

<sup>3</sup> The consolidation will mean the number of distribution switches will reduce from nine to six and three to two in the core.

<sup>4</sup> Multi Link chassis aggregation and virtual ARP. <http://www.aristanetworks.com/en/products/7050series/7050t>

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