

CASE STUDY



CHICHESTER HIGH SCHOOL



CHALLENGE

Create a superior wireless learning experience for students while eliminating worries about network performance, reliability, and longevity.

SOLUTION

- Ruckus ICX Switches
- Ruckus Wireless Access Points

RESULTS

- Ensured reliable network lifecycle and support
- Improved student login times and learning productivity dramatically
- Minimized management tasks for the lean IT staff

Combining a boys' school and girls' school into one coeducational institution was difficult enough. Having to simultaneously upgrade and merge separate technology infrastructures in order to deliver an outstanding educational experience to all 1,500 students simply added to the challenge.

Located in Chichester, West Sussex, England, Chichester High School for Boys and Chichester High School for Girls are secondary schools for students ages 11 to 16. The schools' alumni, such as Tim Peake, a current European Space Agency astronaut, have enjoyed success in their careers thanks to the high-quality learning experience that the schools provide. However, time had taken a toll on the schools' networks.

Much of the curriculum relies on wireless connectivity. Teachers' laptops are the foundation for delivering lessons and online content. In addition, students can bring their phones and tablets to school and use its free, open wireless environment. However, with the rapid growth of wireless usage, the slow, obsolete wired network could not keep pace. Because of the large number of students logging in at once, it could take up to 20 minutes for students to log in, which wasted valuable teaching and learning time. Inevitably, connections were dropped and network performance slowed to a crawl.

"A responsive network is vital to ensuring a productive and high quality learning experience," said Jim Turner, Network Manager at Chichester High School. "Clearly we needed to replace networks in both schools, and I wanted a network solution and vendor that could offer a resilient, future-proof network within our budget."

Turner and his lean IT staff knew exactly what they wanted. The school needed a 10 GbE network to support modern teaching and learning—and preferably, one that can scale as needed. The new network had to efficiently power a new wireless network, regardless of vendor. The new wireless network would replace an underpowered wireless LAN and enable seamless roaming between the boys' and girls' school sites.

Chichester High School wanted enterprise-class wired and wireless infrastructures that could support the school's needs for the next 10 years. Finally, the new network had to be easily managed in-house without requiring costly ongoing support and maintenance contracts. Chichester High School narrowed its choices to three wired networking vendors, as well as several wireless vendors, one of which was Ruckus. The school chose the Ruckus® solution based on its technical capabilities and rapport with the Ruckus team.

"It should be simple, but only Ruckus got the approach right," aid Turner. "The sales team didn't try to sell me according to their interests. Our Ruckus account executive asked me exactly what I needed and that's what I got. He knew our budget and he tailored the network to our technical and fiscal requirements." Turner chose Ruckus for its great features and ability to deliver exactly what he wanted.

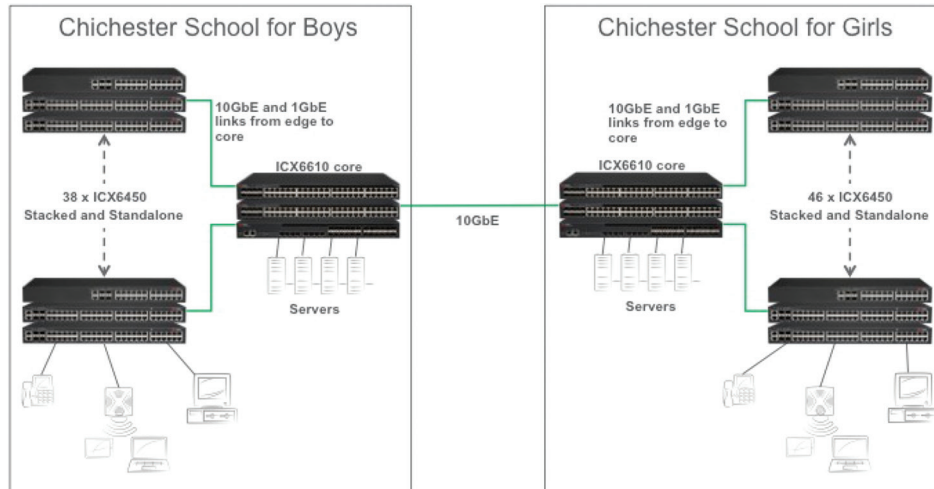


Figure 1: Chichester High School Combined Network.

BUILDING A ROBUST PLATFORM FOR AN EXCELLENT EDUCATIONAL EXPERIENCE

Chichester High Schools' new networks are based on ICX® 6610 and ICX 6450 Switches. ICX 6610 Switches form the network core, providing fast, ultra-reliable switching in a highly economical design. The stackable form factor delivers the enterprise-class capabilities of a chassis with the flexibility and cost-effectiveness of a stackable switch. The ICX 6450 Switches offer a highly manageable networking switch in a flexible, stacking architecture with Layer 3 routing capabilities.

At the network core, ICX 6610 Switches deliver wire-speed, non-blocking performance across all ports to support latency-sensitive applications such as real-time voice and video streaming. Ruckus stacking technology provides unmatched availability with four redundant 40 Gbps stacking ports per switch, hitless stacking failover, hot switch replacement, and dual hot-swappable power supplies and fans. Layer 3 features perform 10 Gbps Open Shortest Path First (OSPF) routing between the two sites with high performance.

The core connects to ICX 6450 Switches in multiple buildings. ICX 6450 Switches function as a single-cable solution and are deployed as standalone switches and also stacked where required. The ICX 6450 Switches deliver both Power over Ethernet (PoE) power and data across network connections, as well as 10 GbE dual-purpose uplink or stacking ports for maximum flexibility.

Today, the Chichester High School for Boys' and Chichester High School for Girls' networks are joined with a 40 Gbps link. As the school consolidation is completed in 2016, the Chichester Girls' School will become the primary data center and the Chichester High School for Boys' infrastructure will handle load balancing and failover.

BEST-IN-CLASS CAPABILITIES

By choosing Ruckus for its WLAN, Chichester High School achieved best-in-class wireless and wired capabilities. Ruckus delivers integrated, open, scalable, high-performance enterprise network solutions. The open network underlay infrastructure provides the performance and scalability essential to supporting wireless growth without having to rip and replace equipment. Ruckus Smart Wi-Fi and patented BeamFlex+ technology deliver high-quality wireless connectivity, while ICX Switches with link aggregation provide the ideal backhaul for Ruckus 802.11AC Wave 2 access points for high availability and performance.

SEPARATE AND SECURE

Chichester High School uses the ICX 6610 Switches to route wired and wireless traffic, as well as to manage access control and security for both types of traffic. Three separate Service Set Identifiers (SSIDs) separate wireless traffic between the free-use wireless network, Internet-bound traffic, and internal, school-owned devices. The separate SSID for internal devices also allows access to servers.

"The Ruckus engineers recommended this approach, and it has been bombproof," said Turner with a grin, "in spite of 1,500 teenaged kids trying to hack our system daily."

RAPID, EASY DEPLOYMENT

It took only two weeks—performed over a school holiday—to remove all of the old networks in the Chichester High School for Girls and install and test the new equipment. When everybody returned after the holiday, nobody realized what had happened.

“Ruckus has excellent partners,” said Turner. “They know the products really well and we knew exactly what was going to happen from day one. Everything was deployed on time. It’s nice when nobody realizes that you basically pulled the floor from under them and replaced it.”

BORING WIRELESS INTEGRATION

When asked to describe the wired-wireless integration, Turner laughed. “It was very unexciting,” he said. “All we did was plug the wireless access point into the switch with PoE turned on and off it went. There was nothing glamorous to talk about.”

THE BEST LEARNING SUPPORT HAS NO SURPRISES

Watching network service levels during the course of a day has proved to be similarly unexciting. In spite of the fact that every hour students log off the network and then log back in a few minutes later for their next class, these massive usage peaks



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JIM TURNER

Chichester High School, Network Manager

no longer affect network services or performance. Whereas it could take 20 minutes to log into the old network, Turner and his staff no longer see an impact. Even when deploying 400 iPads, Chichester High School used the ICX 6610 Switches to route iPad traffic using access control lists to prevent broadcasting across the network and the solution has worked beautifully.

TIME SAVINGS FROM HIGH RELIABILITY AND PERFORMANCE

Both networks are now connected with a 40 Gbps link and the operations in place to bring the two schools together. Turner and his team replaced the Chichester High School for Girls network first and then turned their attention to the network in the Chichester High School for Boys. The network’s high reliability and high performance have caused teachers and staff to remark on how fast they can get to the Internet and retrieve files.

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Learning to manage the new infrastructure was easier than expected. “My prior skills were easily transferable to the Ruckus switches,” said Paul Masters, Assistant Network Manager at Chichester High School. “We also found it much easier to implement things like the open wireless environment for a single room and to support the BYOD initiative.”

OUTSTANDING IN EVERY WAY

Although Chichester High School is not a corporate business, Turner knows that a top-tier network is simply essential to its mission.

“As a tech person, we like shiny new switches and it’s more fun to come to work,” he laughed. “But the great thing about the Ruckus network is that the school is just a better place for our teachers, staff, and students to work in too. We like knowing that we can give our school the best value for education.”

For more information, visit www.ruckuswireless.com.

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