



Executive Summary

Industry

- Education

Environment

- 46-acre K-12 educational campus
- BYOD policy for the majority of students
- Greater use of technologies and online resources in the classroom

Technology Needs

- Flexible network to connect multiple, hyperconverged data centres
- Extensive Wi-Fi coverage to support thousands of different devices and users
- Greater visibility and control of connections and activity across the network

Extreme Solution Components

- Extreme Management Center
- ExtremeCloud IQ Pilot
- ExtremeSwitching VSP 7400 core
- ExtremeSwitching X465, X440-G2, X435, V300 edge
- Extreme AP305C access points



Radford College's deployment of Extreme fabric networking, network access control and Wi-Fi 6 creating a resilient, secure, flexible and modular infrastructure, ideal for a digitally enabled learning environment.

Radford College is an independent co-educational school based in Canberra with more than 2000 students enrolled from pre-kindergarten to Year 12. The College is dedicated to educating and supporting students to become compassionate, adaptable, global citizens. Technology is available as a tool to support students in class, with the College operating a one-to-one ICT program with all students from Year 4 to Year 12 using their own personal devices.

In 2017, Radford College embarked on a five-year ICT modernisation strategy to completely re-architect and refresh its technology infrastructure to better meet the needs of teachers and students for a constantly evolving digital age. The deployment of an Extreme Networks Fabric local area network and cloud-managed Wi-Fi 6 throughout the campus in 2020 brought to life Radford College's vision for a digitally enabled teaching and

learning environment, as well as strengthening and simplifying overall security and operational management.

Radford College worked with technology partner Qirx to prioritise IT projects as part of the five-year plan.

“Qirx has really taken the time to understand our needs; they really know the challenges we are facing, and our budget and our technical limitations in supporting a solution. That’s driven a lot more simplicity in our infrastructure and helped to reduce the highly specialised skills needed in my team,” said Carl Flanagan, IT Manager, Radford College.

In October 2020, the opportunity came to upgrade the College’s legacy HP switching and Meru (now Fortinet) Wi-Fi networking infrastructure to support the radically different technology environment that was now in operation across a sprawling 46-acre campus comprising classrooms, staff rooms and offices, sports and performing arts centres, lecture theatres and halls, libraries, sports courts and fields, and design and technology facilities.

“With our existing Wi-Fi solution, we couldn’t get the density we needed to support the connectivity demands we had from students,” said Flanagan.

Student connectivity for online testing

A case in point is the College’s ability to manage connectivity for NAPLAN Online testing. In the past, students had to complete their online exams from separate classrooms, so that Wi-Fi access points were not overloaded. Now, Radford College can bring 150-200 students together into the hall to connect simultaneously for NAPLAN Online. That ensures all students have a consistent, standard exam environment and they can be more efficiently supervised while completing their online tests.

The real-time visibility and granularity of reporting through ExtremeCloud IQ allows the College’s IT team to pinpoint and rapidly resolve any specific connectivity issues for specific students and devices during these exams.

“We received a monitoring report from NAPLAN after testing that listed 70 network interruptions for about 500 students who sat the tests. Other than the issues we already knew about during the NAPLAN tests, all the other ones showed a perfect connection, which made us feel very confident that it wasn’t our network that was causing the interruption – that issue was being caused further upstream,” said Flanagan.

A modular, matrix-style approach to technology infrastructure

Radford College’s replacement of its core and edge switching infrastructure with Extreme’s Fabric networking has radically changed the approach to the school’s technology architecture and management of communications and computing resources.

Deploying Extreme Fabric Connect (based on enhanced Shortest Path Bridging/ IEEE 802.1aq) has created a more agile, simple and inherently secure network across the campus environment at Radford College. Enabling faster network changes, increased stability, high performance multicast, and unified wired and wireless networking, Fabric Connect has transformed enterprise networking at the school. That is allowing the College to easily deploy new infrastructure and connect new devices to the network, with security, access rights and configurations automatically updated based on pre-defined policies and profiles.

“With traditional network architecture, it’s really difficult to achieve a level of redundancy and resiliency within our network because of the sprawling nature of our campus. Thanks to Extreme Fabric we now have this flexible

interconnectivity between devices that means we can take a matrix approach to our overall ICT architecture,” said Flanagan.

The first major project with Qirx saw the replacement of the College’s traditional three-tier data centre and server environment with a hyper-converged Nutanix Enterprise Cloud solution, which now takes up just five per cent of the physical space of its predecessor, cutting down on power consumption and IT energy costs.

Qirx also worked with Radford College on the deployment of a Veeam solution for advanced backup and recovery, and the implementation of a next generation FortiGate firewall solution, to protect the school from both internal and external threats – which was essential to support the introduction of its large-scale BYOD program.

“We now have three data centres – three cores – in three distinct locations across the campus, and, if we want to add another core into a new facility being built next year, we can do it easily. If a switch or a computer room goes offline, there is minimal disruption; it might affect three or four classrooms. Most of our network traffic just bypasses the outage and finds the next best path.”

Strengthening security and simplifying operations

Extreme’s fabric networking and network access control (NAC) features have also strengthened security and simplified operations for the College. Network policies ensure that new devices and equipment connecting to the network are automatically configured and assigned appropriate access privileges based on their profiles. The network is also enabling far more granular segmentation, protecting the College’s core assets. In the future, Flanagan plans to implement micro-segmentation and certificate-based device authentication, further strengthening security and access control across the environment.

“From an infrastructure perspective, our Extreme Networks upgrade was the last big piece in our technology modernisation strategy. We are now in a refresh cycle where we can continually develop our solutions to meet the requirements of a Zero-Trust environment,” he concluded.

About Qirx

Qirx has been providing innovative and robust IT solutions built around world-leading technology since 2000. Drawing on proven expertise in the education sector, Qirx empowered Radford College to achieve strategic goals. The result is a networking environment designed to support quality learning and long-term performance.