

## OVERVIEW

Orewa College is a government-funded co-educational high school located near Auckland, New Zealand. Catering for approximately 2,000 students in years 7–13, the school grounds cover a massive 87,500 square metres and house 120 classrooms. A champion of innovation in teaching and learning, Orewa College has undertaken multiple cutting edge projects in the past, culminating in the roll-out of a successful Bring Your Own Device (BYOD) program for students in 2012.

## REQUIREMENTS

- Campus-wide Wi-Fi coverage capable of supporting a variety of 2,000 student owned devices
- Lower cost of ownership with maximum functionality
- Superior RF interference mitigation features
- Rapid deployment capabilities
- Centralised management and ease of administration
- Separate networks for students, staff and guests

## SOLUTION

- 150 x ZoneFlex 7363 Smart Wi-Fi 802.11a,b,g,n Access Points
- 1 x ZoneDirector 3100 WLAN Controller

## BENEFITS

- High user density per AP provides simultaneous access for every student in any classroom
- Smart antenna array provides interference free signal by automatically routing signals to best performing path
- Directional, high-gain antennas minimised number of APs required keeping CAPEX requirements low
- Ease of administration keeps resourcing requirements low, reducing OPEX
- Separate networks for students, staff and guests which is tiered and secure
- Rapid deployment of APs whenever required through Ruckus Smart Mesh Networking feature



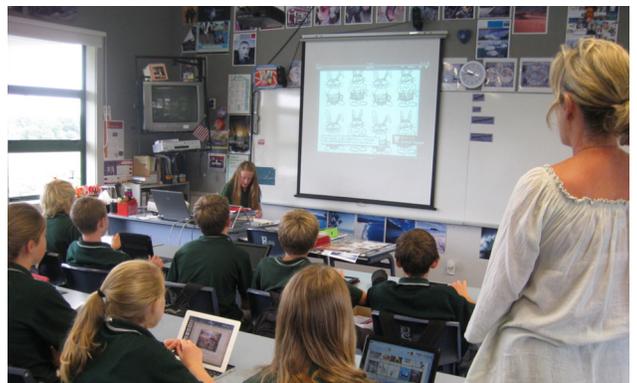
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## OREWA COLLEGE POWERS SUCCESSFUL 'BRING YOUR OWN DEVICE' (BYOD) PROGRAM WITH RUCKUS SMART WI-FI

For many government-funded schools, the IT budget can't stretch to provide each student with their own laptop or handheld computer. However, through a resourceful program in 2012, personally owned student devices became integrated and supported within the curriculum and IT network at Orewa College, a secondary school located near Auckland, New Zealand. With the support of the parent community in providing their child with a handheld device, students at Orewa College are now enjoying the benefits of mobile e-learning and computing, all within a secure and dedicated student wireless network.

Prior to 2012, Orewa College deemed a 1:1 ratio of mobile computers to students as ideal yet financially out of reach for the school. Mark Quigley, Orewa College's Deputy Principal and Director of Teaching and Learning comments on why this was so significant to the school, "Exposing students to mobile computing within the school environment is important as it expands learning opportunities and promotes responsible internet citizenship. Because we didn't have the budget to supply the mobile devices ourselves, we made the decision to seek alternative means of making this happen."

It was with these objectives in mind that the school first considered the idea of students bringing their own device (BYOD) into the classroom and grounds. Parents were very supportive of the idea even though for many it was an extra financial burden. The viability of the BYOD program rested on the cost and resource hours needed to purchase, deploy and manage a high-density wireless network; one that was capable of supporting the extreme throughput demands of more than two-thousand students and staff.



A diverse range of student owned mobile computers connect seamlessly to the learning network with Wi-Fi from Ruckus.

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Furthermore, with a land size of 87,500 square metres dotted with numerous steel and concrete buildings that house 120 classrooms, the W-LAN needed to be capable of supplying a strong and interference free signal to every corner of the substantial campus.

To establish the feasibility of the BYOD program, Orewa College engaged Isometric Solutions, an ICT consultancy specialising in the education sector. One of the first tasks Isometric Solutions undertook was a review of the school's existing Wi-Fi network to determine its ability to meet the school's future plans. The incumbent W-LAN had been gradually added to over the years, resulting in a patchy network of thirty access-points (APs) from a single vendor that varied greatly across model and specification.

Conrad Stewart, Isometric Solutions' Managing Director comments, "We could see the existing network wouldn't cope with the throughput needed for such a large scale BYOD set-up. We considered upgrading the existing Wi-Fi but when we looked at the expense involved it just wasn't a cost-effective solution."

After further analysis of the proposed BYOD program, Isometric Solutions made the recommendation of a Ruckus ZoneFlex Wi-Fi network to Orewa College. Stewart states it was Ruckus' strong technical features such as the patented adaptive antenna that made him lean towards the vendor.

Each Ruckus ZoneFlex AP integrates a high-gain, directional smart antenna array that extends signal strength and automatically routes the signal to the best performing path. The result is consistent and exceptional wireless performance and range, with the signal automatically steering around interference, making it perfect for the vast grounds and steel structures of Orewa College's campus.

A thorough site survey was then undertaken to confirm Ruckus' ability to provide the high performance and coverage required by the school. The survey established that in order to blanket the 87,500 square metre campus with voice, video and data-ready Wi-Fi, fifty Ruckus APs would need to be deployed.

What was so extraordinary about this was that the cost to equip and maintain the Ruckus W-LAN was significantly less than increasing the incumbent Wi-Fi from thirty APs to achieve the same goal.



Voice, data and video-ready Wi-Fi has broadened the mode of learning at Orewa College.

Another feature making the Ruckus solution a best-fit for Orewa College's needs was the rapid deployment capabilities afforded by Ruckus Smart Mesh Networking. Being able to simply plug the fifty APs into a power supply for automatic configuration and self-optimisation was a major factor in the Wi-Fi network being 100% operational on the BYOD program's launch day.

With media representatives present, the four-hundred Year 9 students participating in the pilot BYOD program arrived on the first day of school armed with a variety of portable computing devices. With separate wireless networks dedicated to students, teachers and guests, the Wi-Fi users were given tiered access with policies configured specifically for their role.

"Connectivity was seamless," advises Conrad Stewart from Isometric Solutions. "Four hundred devices connected to the W-LAN that day and there were no issues at all, even with forty devices hanging off individual APs."

The school has continued to capitalise on the plug and play functionality of the Ruckus ZoneFlex system by repositioning or adding APs when coverage needs differ, for example, during special events held at the school. The activity takes a minimum of effort and time to undertake,



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Mark Quigley, Deputy Principal and Director of Teaching and Learning, Orewa College

as the APs don't need to be manually configured, just simply powered up so they can discover the ZoneDirector W-LAN controller and automatically configure themselves.

Stewart is delighted with ZoneDirector's intuitive design which has made light work of maintaining and monitoring Orewa College's W-LAN. "ZoneDirector's web user interface makes managing the network very low maintenance. Instead of spending time maintaining the school's network we can dedicate more energy to improving the network," Stewart says.

With their Ruckus Wi-Fi system a key ingredient in the success of their pilot BYOD program, Orewa College is now rolling out the initiative to all students. The expansion of the BYOD program will not need any further investment in the W-LAN, as the network is already capable of catering for the two-thousand devices expected within the next twelve months.

It is this level of scalability and flexibility that continues to protect Orewa College's careful investment of what was a limited budget.

Reflecting on the major change that the BYOD program has made to students at Orewa College, Mark Quigley, Deputy Principal comments, "Staff are changing their way of teaching from a 'Stand and Deliver' mode to one that is more tutorial and self-teaching for students. The great thing about that is that the kids enjoy class time more."

Amongst Orewa College's peers, the BYOD program has generated much interest, with the college hosting a one-day conference for other schools considering their own BYOD program. The conference is designed to give these schools some insight into what's required to rollout a successful project by presenting Orewa College's experience with BYOD.

Possibly the most sound advice given to like-minded schools is that from Quigley who states, "When you make a decision that will cost parents money and your staff their time and energy, they are putting their trust in you. In turn you have to put your trust in the product you use."

