

CASE STUDY

STUDENTS AND STAFF BOTH WIN, AS WI-FI ENABLES A BRING-YOUR-OWN EXPERIENCE ON CAMPUS



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South Africa's University of Pretoria (UP) knew it needed to implement free campus-wide Wi-Fi to compete with other universities, but it also proved that there is a lot more you can usefully do with Wi-Fi than simply connect people to the Internet.

Working with Aruba Networks and local installation partner Alpine Communications, the university's team realised that with careful planning, their new wireless network could also improve both students' learning opportunities and their engagement with the university. It also saves money by reducing administrative overheads.

"In South Africa, Internet access is quite expensive, and although we have IT labs where students can use our computers, they are often full and we can't afford to build more of them," says Dr Wimpie Beeken, the knowledge management expert who is programme manager for UP's Wi-Fi project. "We also need to compete with other universities where Wi-Fi is free – these are the little things that can influence parents' choice of a university for their son or daughter.

"The second drive is to pull students onto the campus," Beeken continues. "Previously they had to buy bandwidth, but the billing system cost more to run than it generated in revenue! So we created areas with outdoor coverage by each faculty to encourage students to stay nearby, then the Wi-Fi becomes a tool for the faculty to foster its relationship with the students and build learning opportunities. It is much easier for the students now in libraries too, with tablets, and the library also has initiatives to start using the network more."

BENEFITS

- Boosted student attendance and engagement by providing Aruba Networks Wi-Fi
- Improved the uptake and acceptance of Wi-Fi by empowering the academics to determine deployment, not the IT department
- Combined in-building Wi-Fi with Aruba outdoor APs to provide cross-campus coverage
- Offer free-to-use Aruba wireless supporting BYOD to create a competitive advantage over other universities
- Use of Aruba ClearPass provides better services to guests while saving time and money

"Wireless is the future and UP understands how important this capacity is to ensuring our profile as one of the leading universities in Africa."

Dr. Wimpie Beeken

UP Wi-Fi project programme manager

UP picked Aruba after encountering trouble with Wi-Fi from its existing telecomms supplier, as its access points (APs) did not have the range that UP needed. After a pilot project with 35 Aruba APs and associated Mobility Controllers to prove the technology, the university allocated funds to purchase 1,000 Aruba AP-135s for indoor use and 40 outdoor AP-175s, plus Mobility Controllers for its six campuses.

There is a 3600 Mobility Controller on each of the smaller campuses and a resilient pair of 6000 Mobility Controllers on its main Hatfield campus, where around three-quarters of its 50,000 students and 500 staff are based.

It has also installed Aruba AirWave for monitoring and ClearPass for guest access – like most education institutes it has quite a few visiting scholars. The Aruba network and software also made it relatively simple to implement Eduroam, the international roaming service for users in research and higher education.

Beeken says that on occasion, almost half of the users connecting to the network will be Eduroam visitors. "It's actually a saving for us because it is no longer an overhead for IT to provide them with guest accounts," he adds.



“The academic community is shifting towards applying laptops and tablets much more in the curriculum,” he continues. “The initial focus was communal areas, both internal and external, so that was libraries, cafeterias and open spaces. Next we will add Wi-Fi printing and coverage in the lecture halls.”

A key element of the wireless project was therefore to create a psychological sense of ownership among the academic community, making it a university project rather than simply an IT project. “It is very important for universities and schools to make sure all the stakeholders are involved,” says Beeken. “The mandate was quite clear: deploy 1,000 APs plus associated controllers. We didn’t want to call it an IT project though – we wanted the academics to be part of it too, so we constructed a steering committee, whose role was to decide the allocation of the 1,000 APs.”

Being able to demonstrate and track active usage of the Wi-Fi resource by students was also important to keeping the academic community engaged, he says. “Part of our strategy was to use students’ Google accounts [for authentication], so we can also see their adoption of our services. We see a lot of people coming on every day.”

He adds that the skills and knowledge of the Aruba and Alpine teams contributed significantly when it came to preparing for the wireless network: “Our pre-planning on the project was quite good – that comes back to Alpine

Communications knowing the campuses and networks – though we did need much more new cable than we thought. We also had a few problems with authentication via our Oracle and PeopleSoft systems that took a couple of months to sort out.

“One thing we learnt was how much time is needed for these projects, for the network upgrade as well as AP deployment. You do need to work on your time-lines and costs, and get the costing model right for your installation partner. For example, if you have old buildings, it can take time to find an acceptable cable route, so you might not want to cost it on ‘time and materials.’ Another issue is the schedule of the university. Some work we shift to weekends, and sometimes teams work to 9 or 10 p.m. to avoid disruption.”

Then there is expectation management, especially when working with a steering committee of non-technologists. “Estimating time-lines to the steering committee is not as easy as it looks, and it’s sometimes very difficult for some people to understand the future benefits,” Beeken says.

“We spent close to 18 million Rand on this, and we will only see ROI in two years, in terms of competitive and academic benefits,” he adds. “There’s running costs too, and the cost of updating the network infrastructure, and we couldn’t connect all our APs straight away because there were still network upgrades needed.”

He says that while expectations can initially seem unrealistic, it is vital to understand what they are based upon and to implement the project in a way that addresses that. For example, the university vice-chancellor asked for 100% Wi-Fi coverage across the campuses, but even with 1,000 APs, the grounds are so large that at best only a few percent can be covered.

But 15 sites already have indoor Wi-Fi, and combining the signal that extends outside those buildings with a small number of strategically sited outdoor access points has enabled the creation of Wi-Fi 'corridors', where a user can walk right across the campus and not lose connection.

Coverage maps are important as well, of course. "The questions [from users] are always the same: how do I connect to the network, and where can I find hotspots? So my advice is create campus coverage maps – I mapped the APs on Google Maps as we rolled out," Beeken says.

And of course it is not enough simply to put in Wi-Fi, and the stakeholders must also consider other needs that will flow from having Wi-Fi available. For example, are there enough power points, and will the presence of laptops and tablets make your hotspots targets for theft, necessitating extra physical security?

Beeken suggests that some of these could be used to enhance the academic value of the service. For instance, UP needs recharging facilities at its outdoor hotspots to keep student engaged and sharing ideas. "Maybe we can have tables with solar panels, but they will also need to be shaded for hot days, so it's a complex idea," he says.

The success of the project has emboldened the UP team to plan to extend the network to cover as many as 700 buildings over the next three years. This will involve upgrading to Aruba 7240 Mobility Controllers and adding several thousand AP-115 APs.

Beeken concludes that the big advantage of working with Aruba is that the university can focus not on how to build and maintain a wireless network, but on how it can improve education. "I don't have to think so much about the technology – it's managing expectations and then blending the academic needs with the IT capabilities," he says.

ABOUT ARUBA NETWORKS

Aruba Networks is a leading provider of next-generation network access solutions for the mobile enterprise. The company designs and delivers Mobility-Defined Networks that empower IT departments and #GenMobile, a new generation of tech-savvy users who rely on their mobile devices for every aspect of work and personal communication. To create a mobility experience that #GenMobile and IT can rely upon, Aruba Mobility-Defined Networks™ automate infrastructure-wide performance optimization and trigger security actions that used to require manual IT intervention. The results are dramatically improved productivity and lower operational costs.

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