CASE STUDY

ARUBA A HEWLETT PACKARD ENTERPRISE COMPANY'S WIRELESS IS A VIDEO STAR FOR GRAPHICS STUDENTS

GRAFISCH LYCEUM ROTTERDAM

> We are using AirWave, we deploy access points based on that – we get a very good image of what we need and where we need it

Sander Stolk, network engineer, Grafisch Lyceum Rotterdam

BENEFITS

- High-bandwidth Aruba wireless allows heavy use of streamed video
- Broad client support covers all Apple devices including Apple TVs, as well as Androids and others
- Aruba AirWave adds strong capabilities for network maintenance and coverage expansion
- Mixed-mode wireless plus band steering allows the same network to support both the latest 11ac wireless and legacy 11abg devices
- Aruba ClearPass enables guest lecturers and other visitors to readily access the Wi-Fi.

At the Grafisch Lyceum Rotterdam in the Netherlands, students, staff and guests need to wirelessly stream professional-grade audio and video. Add a requirement for high client density and comprehensive device support, including Apple and Android, and there really was only one choice for a new wireless LAN: high-speed Wi-Fi from Aruba.

So says Sander Stolk, network engineer for the Grafisch Lyceum Rotterdam (GLR), a high school or college with around 4,500 students aged 16 to 20. This is no ordinary college though – it is dedicated to the creative industries and educates its students in the worlds of media, design and technology. So when even regular high schools use significant amounts of technology and bandwidth, GLR needs more – lots more!

"We are a specialist graphics school so we have a lot of Apple technology, including Apple TVs. The students are more on Android though, as this tends to be a more affordable option. On average we have 2.6 devices per user," Sander Stolk explains. "Graphics means we are especially heavy on bandwidth. We have users moving large files around, perhaps 200MB to 300MB per file, in combination with a high density network.

"We have a 20Gbit/sec core and edge network, and are upscaling to a 40Gbit core – we have fibre everywhere. We have a 1Gbit/sec Internet connection but will upgrade it to 10Gbit, or maybe 100, within a year."

The final complication when GLR installed its Wi-Fi was that requirement to support the full range of Apple technology, and in particular Apple TV and Apple Airplay, both of which it uses heavily. "Aruba was chosen for its Apple TV support, we also supply iPads for staff use," Stolk says. "Our requirement was for Wi-Fi that supported Airplay, and Aruba was the only realistic option."

The other factor that won it for Aruba was its strategy of working through local technology partners who understand their target markers really well, and in GLR's case this meant Pinewood. "Our Aruba project was entirely handled by Pinewood's people," says Stolk. "The support we get from them is really great – they have trained people on hand to deal with questions, and whenever I need support they're there." He adds, "They're a very good partner with a lot of specialities and knowledge. They are security specialists originally, but then security and wireless go hand in hand these days."

Since the original Aruba installation, Stolk has gone on to upgrade the WLAN in one of GLR's two main buildings to the latest 802.11ac specifications, and is now looking to take it further, with a plan to upgrade to the even more capable 11ac Wave 2 standard once that is available. He is also making extensive use of Aruba's software tools, most notably AirWave for management and reporting, and ClearPass for guest registration.

"I do advise other schools to use Aruba and AirWave – AirWave is how I keep my network running smoothly, and address any coverage issues," he explains. "It's always there and always with timely logging. Guests are mostly

announced to me in advance, so I have time to create a guest account. Alternatively they can use ClearPass to on-board themselves once they are here. ClearPass is very handy for guest accounts."

"I've got coverage everywhere, the Wi-Fi is for students, staff, even for guests," he adds. "We have 11ac in one building – that building was under renovation so we removed the old access points and rebuilt the network with 11ac. We're very pleased with it, it works and it's stable. Quite a few devices support 11ac now – all iPhones from the iPhone 5 onwards, for example. If they don't support it, we run in mixed mode so they can connect to 11abg. The band steering technology within 11ac allows you to do that and keep the access point safe."

The key thing, he says, is to plan for the future when you get the wired infrastructure ready for your Wi-Fi installation. For instance, every room in the main GLR building is fitted with two RJ45 Ethernet sockets in the ceiling, because he wanted to ensure it would be ready for 11ac Wave 2 – a revision of 11ac that adds more bandwidth and uses three dimensional beam-forming technology to focus each Wi-Fi transmission onto the relevant client device.

"When we started renovating the building two years ago I wanted it to be capable of supporting 11ac Wave 2, and that needs double Ethernet connections everywhere," he explains. "Wave 2 will need new hardware too, we haven't got that yet but we probably will have it within two years. I believe Wave 2 will make a big impression when it's needed. Our network will grow faster and faster – we are already talking about a 100Gigabit core."

All this speed is needed because, as Stolk says, GLR's students "are data-consuming users and we believe in network neutrality – we don't block anything except Netflix. We had 800Mbits of Netflix alone – 800Mbits was not a problem over the wireless, but it was over our 1Gbit Internet connection!" He adds that a major reason for upgrading the Internet connection is so he can re-enable Netflix, which the school's governing board sees as an important creative input for the students.

"We are very satisfied with Aruba, especially for high density environments such as our lower school, where we have 510 students in classes of 30, all with MacBooks on Aruba wireless, and all on a fairly small site," he says. "Once everything was upgraded to the latest firmware, we have faced very few challenges during the project – we've had just one dead access point in three years.

"We now have two 7210 wireless controllers running in active-passive mode, and over 310 access points. We have 65 older access points for the high-density MacBook environment, most of those are AP-135s. The rest are 11ac access points, and when the lower school building is renovated that will get 11ac too." He concludes, "Sure, there are other suppliers who can provide 11ac access points more cheaply, but that would be without the services I need!"

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