

## CASE STUDY

# ARUBA MODERNISES CAMPUS CORE ARCHITECTURE FOR DUTCH EDUCATION PROVIDER



friesland college

The concept of 'education' is becoming more fluid. Increasingly, there is awareness that education is not something administered to the young, but to be accessed and enjoyed throughout life. This new thinking is perhaps most marked in the approach to vocational training.

Friesland College is a vocational training provider based in the north of the Netherlands. The College offers a range of courses, from full-time, four-year qualifications linked to particular trades, to evening and weekend language classes. As a result, there is no such thing as an average student. Friesland teaches fresh-faced 18-year-olds and grizzled 50-somethings looking to retrain via evening classes.

"Education is changing," says Foeke Hoekstra, Automation Team Leader, Friesland College. "Whatever you're studying for, education has become a lot more mobile, more collaborative, and less tied to a physical location."



### GREATER FLEXIBILITY IN EDUCATION

Learning is changing, and so is the business of education. Friesland operates out of 10 locations, with two main campuses in Leeuwarden and Heerenveen, and serves up to 15,000 students at any given time. However, it has a high turnover of students and a variety of service expectations. Some students commit to four-year programmes, others may dip in and out.

Accordingly, says Hoekstra, the College, has to be more flexible in the way it operates: "As a vocational college we need to be a lot better about integrating with some of the industries and employers we work with. We need a network that allows this – a network that is secure and agile enough to be changed quickly."

In practical terms this means a network that can support modern, cloud-based applications (such as Microsoft® Office 365 or Skype for Business), where students can take classes remotely or work from any device, and that can support custom-built applications.

"A cloud-strategy suits our model," says Hoekstra. "Students should be able to view their timetables, make an appointment or access learning materials through an app. But we need to be able to monitor and control this access. We want to make the student experience a lot more personal."

### REQUIREMENTS

- Provide the College with the freedom to pursue new, digital ways of learning and educating
- Future-proof network requirements for the next decade, with the headroom to accommodate new cloud-based applications, AI and support IoT
- Ensure consistent Mobile First connectivity across 10+ locations, with reliability to reduce strain on in-house IT resources
- Establish single view of network, with simplified management and the means to make proactive interventions

### SOLUTION

- Aruba 8400 Campus Core Switches
- Aruba 5406R and 2930M Access Switches
- Aruba 7210 Mobility Controllers
- 802.11ac Aruba APs
- Aruba ClearPass Policy Manager
- Aruba AirWave Network Management
- Aruba Analytics and Location Engine (ALE)
- Microsoft® Office 365 (Microsoft Teams, Skype for Business)

### BENEFITS

- Greater visibility, automation and agility in the campus network architecture
- Network scale, supporting massive take-up of new devices, applications and IoT
- Simplified means to integrate and manage new applications
- Secure, seamless and consistent network access across multiple locations

“The Aruba 8400 means we can scale to eight times 100GbE, allowing us to incorporate IoT, AI or whatever digital learning throws at us. It really is an investment in the future of our network.”

RONALD KOLLEN  
IT SYSTEMS MANAGER, FRIESLAND COLLEGE

### Innovation, with the means to deliver

The College had a number of requirements. "The network would need to be reliable. We wanted to see evidence of fault tolerance," says Hoekstra.

Like many education providers, Friesland was also conscious of cost. It wanted to simplify network management, both from an analytics and maintenance perspective, and make it easier to integrate new technologies as they came along.

"We wanted a supplier with a proven track record and a clear roadmap," explains Hoekstra. "This is a network we plan to use for 10 years."

Hoekstra looked at options with long-term IT supplier, SecureLink. "We did look at one Chinese supplier, and the price was very good, but price does not necessarily mean value. Aruba was in the highest Gartner

quadrant, and that quality is reassuring. Innovation is important, but so too is the means to deliver. Aruba was the clear choice.”

The Aruba solution, he continues, represented better value because it would be easier to manage and maintain, and changes or additions would be simpler, meaning Friesland can free up staff for other projects. “We don’t have a big team. With Aruba, we’re able to reduce the time needed to administer the network.”

### SECURE, RELIABLE AND SIMPLE TO MANAGE

At the centre of the Aruba solution is the Aruba 8400 Campus Core and Aggregation Switch. The 8400 switch provides Friesland with a flexible and innovative approach to dealing with the new application, security and scalability demands of the mobile-cloud and IoT era. It automates many repetitive network tasks, simplifying management and improving consistency.



It combines the modern, fully programmable ArubaOS-CX network operating system with mission-critical carrier-grade architecture, leading performance, and incorporates the industry-first Aruba Network Analytics Engine to monitor and troubleshoot network, system, application and security related issues easily.

The Aruba solution offers a significant upgrade in network performance. The Aruba 2930M switches in the access layer have two 10GbE-uplinks to the core, giving 20GbE to the mobility controllers, a big improvement over the current 1GbE. The campus core gets an even bigger boost with the 8400, converting from the old 1GbE approach to four cross-linked 40GbE. The Aruba Smart Rate solution built into the 5406R and 2930M switches, future-proofs the network for higher bandwidths and performance, allowing Friesland College to take advantage of existing cabling infrastructure while delivering up to 10 times more bandwidth capacity.

“We’ve gone from 4GbE to 160GbE. It’s provided massive headroom,” says Ronald Kollen, Friesland’s IT Systems Manager. “We can scale to eight times 100GbE, allowing us to incorporate IoT, AI or whatever digital learning throws at us. It really is an investment in the future of our network.”

In addition, the solution comprises 400 Aruba 200- and 300-Series access points, and two Aruba 7210 Mobility Controllers. Network access control and policy management is carried out through Aruba ClearPass (with 2,500 enterprise licences), while network management (both wired and wireless) is centralised on the Aruba AirWave platform.

“We’ve worked with SecureLink for a number of years and were confident in its ability to design and build the right solution,” says Kollen. “This was a beta programme, and while we were anxious to be part of something early, we understood there were risks. The combined focus and efforts of SecureLink and Aruba resulted in a very smooth migration and transition to production. The learning, the

problem-solving and the partnership aspects have been an excellent experience. In fact, it’s probably given us an appetite to take on even more challenging projects.”

### READY FOR WIRELESS-ONLY

Typical of most behind-the-scenes infrastructure upgrades, success is often judged by the absence of complaints. “The fact that none of the teachers and students noticed that we migrated is a fantastic result,” says Kollen. “Though one member of staff did tell me their Skype calls were now perfect.”

In the first six weeks following the installation of the 8400 switches total internet traffic stood at 90Tb, with 138Tb of Wi-Fi traffic. “There are obstacles to becoming 100% wireless but we hope we can get to 90%,” he says. “Infrastructure-wise, we feel we’re ready.”

### The platform for digital transformation

Hoekstra says the College is only at the start of its network transformation journey: “With the new core and distribution infrastructure, we’re ready for the digital transition in the education space for the next several years.”

There are many advantages of the Aruba 8400 solution, he says, not least the ability to ingest data and generate practical analytics. “The best thing, thanks to the built-in analytics, is that we can now see what is coming towards us. With all the analytics and trending information available from the core, we can make adjustments before a service experiences latency or capacity issues due to growth or the dynamics of Mobile First. What’s more, we can do all this in an automated manner and move away from cumbersome CLI. With our legacy core architecture we always had to deal with this after the fact and with considerable overheads.”

### Network as business enabler

The new network infrastructure, continues Hoekstra, must be viewed as a business enabler: “Every layer of the new infrastructure offers possibilities for integration with the rest of our IT infrastructure. By integrating the network and security (NAC) infrastructure with services like Endpoint Security, Helpdesk System and Educational Systems, we can increase our value to the organisation. At the same time, the automation will free up more time for innovation, which will give us a competitive edge.”

The Aruba 8400 provides programmability for easy integration. Its REST APIs and Python scripting enables fine-grained programmability of the switch functions and its unique Aruba Network Analytics Engine provides the ability to monitor and troubleshoot the network easily. This full set of REST-based APIs allows easy integration to other devices on-premise or in the cloud, ensuring a more seamless and agile approach to delivering more services.

As expected, students have embraced being able to use their own devices. Hoekstra and his team can manage access, set network policies and identify hotspots. As standard, the College is using cloud-applications such as Microsoft Office 365, including Microsoft Teams, Microsoft Classroom or Skype for Business.

“But we will be looking at additional layers of services. How can we make our buildings smarter? How can we securely add new devices to the network? There is a real IoT opportunity. I think we’ll be ahead of most other education providers in the Netherlands, but the exciting part is imagining the benefits to come.”