CASE STUDY

ARUBA ENABLES SEAMLESS MOBILE HEALTHCARE SERVICES AT ONE OF THE LARGEST HOSPITALS IN SOUTH WEST ENGLAND.

Plymouth Hospitals NHS Trust is a provider of healthcare services in South West England. It serves a local community of 450,000 and up to two million regionally, employing 6,500 staff.

Like others in the UK healthcare sector, Plymouth is being challenged to deliver more services whilst maintaining the need to strike the right balance between safety, performance and financial control. It sees mobility as a key enabler, allowing clinicians to access electronic patient files from any device, from anywhere on its campus.

MOBILITY AS A HEALTHCARE ENABLER

“We have 40 wards and 200 different departments,” says Rob Harder, Head of IT infrastructure and Support Services, Plymouth Hospitals NHS Trust. “We want clinicians to be able to access the information they need, simply and seamlessly, as they go about their day.”

Plymouth, has 80+ clinical IT systems in place. By becoming more mobile, the Trust hopes to move towards a paperless (or at least ‘paper-lite’) environment.

“As we replace paper with electronic records, it is essential that the records are available anywhere and at any time," says Harder. “Mobility is vital to achieving this, but to do so presents several challenges.”

The Hospital needs a comprehensive wired and wireless network across the campus; the Trust needs staff, patients and visitors to be able to use their own devices on the network; and the security and control to manage these connections.

“Laptops, bedside computers, specialist medical devices, tablets, smartphones, whether Trust-owned or personal devices, we need to support them all,” he says. “And we need different access, with different rights, for different people in different places.”

IEEE 802.11 is inherently inherently overlapping. Different APs are co-located, in an overlapping coverage area. The network needs to be able to intelligently direct the traffic to the most appropriate AP to keep wireless traffic moving.

Standards-based network

“Our current strategy provides best-of-breed solutions for our medical systems. From an infrastructure perspective, this means we need a network that is standards-based.”

BENEFITS

• Improved patient care and satisfaction ratings
• A reliable foundation that has enabled many medical applications to go mobile
• Robust, context-based security, unifying policies for both wired and wireless
• Reliable WiFi coverage, even in a building full of pipework and medical electronics
• Support team empowered for rapid identification and resolution of user issues
• Unified network architecture for all medical, non-medical and guest/visitor services

That nobody mentions our Aruba network is a good sign – it means it is there, it’s reliable, it’s secure and it performs well. WiFi is like electricity, it’s now part of the infrastructure.

ROB HARDER
HEAD OF IT INFRASTRUCTURE AND SUPPORT SERVICES, PLYMOUTH HOSPITALS NHS TRUST

The Aruba solution includes 530 access points and two Aruba mobility controllers for scalability and high availability.

A particular test for Aruba and the Trust’s local IT partner, Pervasive Networks, was the nature of the site. The Trust operates predominantly out of a single large building – Plymouth’s Derriford Hospital – which ought to make it easy to deploy a wireless infrastructure. However, it is a very complex building to deploy in – most of its 12 occupied floors are uniquely shaped and it has massive amounts of pipework and electrical equipment, both medical and architectural. As Harder says, “It is almost a hostile environment for wireless – and that’s one of the reasons Aruba’s AirWave management software is so important to us.

“We didn’t want to be constantly supporting the infrastructure, that’s where Aruba’s Adaptive Radio Network technology has proved beneficial – it supports and adjusts itself. But because you know there are always issues with anything you install, its control, monitoring and diagnostic capability was also key – that’s why we installed Aruba’s AirWave management software.

“When something doesn’t work, people blame the network – it’s natural. AirWave lets you dispel those myths of ‘the network is down’, it gives you confidence in its reliability. We can see your device was connected to the network, and probably you’ll find that the server wasn’t available, or your PC was busy running its virus scan.”
Scale, security and control

Plymouth Hospitals NHS Trust now has a network for today, and one for the future. “We have the scale we need to cope with future demands,” says Harder. “Five years ago, we had approximately 500 laptops on the network; today, it’s close to 2,500 mobile devices connecting every day, from staff, patients and visitors.

“It used to be that 80% of our traffic was on the wired network; very soon, that ratio will flip. Over the next five years the vast majority of our traffic will be wireless. We now have the scale, security and control to manage this growth.”

“Simpler management”, he adds, “is more cost-effective when it comes to operations. The solution also enables BYOD, another potential cost saver for us in general, delivering security and flexibility at the same time.”

“Clearly there are cost benefits in allowing staff to use their own preferred devices,” he explains, “but the issue is bigger than that. Having users work on a device they’re familiar with makes for a better experience. For clinicians, the more comfortable they are and the more transparent the technology is, the better able they are to treat patients.”

From the user’s perspective, the key benefit is the consistent experience. Access to the network, whether a visitor or member of staff, is seamless.

MEETING STRICT DATA SECURITY REGULATIONS

Data security is a critical consideration for the NHS. The Trust has to meet strict data security regulations; it has to do so while balancing the freedom of device choice for staff.

The Trust takes its information security very seriously, says Harder: “If we’re going to allow users to bring their devices in we have to do this in a secure way. Users have to agree to our security policy and install mobile device management software on their device. It means that if the device is lost or stolen we can wipe it remotely.

“Also, the information we make available is secure. It’s not stored on the device, it’s done through session connections. Aruba ClearPass enables us to onboard devices and give them specific roles and privileges on our wireless network. It makes us more confident and allows us to create a feature-rich experience.”

A platform for continued innovation

Devices running on the network range from infection control laptops, staff PCs and Wi-Fi phones, through to radio tags to track patient trolleys in the Emergency Department. There are also iPads used by senior managers and for the purpose of ward surveys. More applications are being implemented, including electronic patient case notes, wireless temperature monitoring tags for blood fridges, and access for 2000 clinical staff to a virtual desktop service.

The network also provides a platform on which to develop further innovation. Harder says an upcoming project is to create wayfinding tools for mobile devices, helping visitors and staff navigate, in his words, “the maze-like building”.

The main hospital building has nine entrances and 12 floors. In the near future, the hope is that visitors will be able to log in, state a destination and be guided there by their device, turn by turn.

The beauty of the Aruba solution, Harder continues, is the ability to connect any type of device to the network. “We have IP telephony, but in the future we could also use real-time tracking of equipment – making sure staff know the location of the nearest trolley or wheelchair or CT scan machine. It’s the IoT (Internet of Things) opportunity.”

This is more than just ‘nice-to-have’, Plymouth takes seriously its ‘Friends & Family Test’, an ongoing survey of patient experience asking “How likely are you to recommend our hospital to friends and family if they needed similar care or treatment?” The aim is to create a mechanism to identify poor performances and encourage staff to make improvements where services do not live up to the expectations. To date, Plymouth has consistently scored above 90% with Inpatient and Emergency admissions.

Connectivity into the community

Also in the pipeline is a solution for community health workers. The IM&T service plans to equip 300 district nurses and health visitors with tablets: “We plan to use Aruba VIA to give them seamless roaming from Wi-Fi onto 3G/4G.”

With solid Aruba infrastructures in place at both the main trust and the community health organisation, Plymouth are exploring potential extensions, including a pilot of Windows® 10 tablets and a review of the Android and Apple iOS ecosystems with a view to broaden support for BYOD.

“Many new IT systems will require mobility, such as the Theatre Information Management, Electronic Prescriptions and Medicine Administration or our Digital Care Records solution, a locally developed Patient Care Manager for the management of patient flow in real-time. There are also plans for a Nursing Observations system,” he says.

“Wireless is a given now, both at home and at work,” he concludes. “That nobody mentions our Aruba network is a good sign – it means it is there, it’s reliable, it’s secure and it performs well. WiFi is like electricity, it’s part of the infrastructure.”

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