



U.K. hospital uses transformative networking to improve patient safety, access to information, and cost efficiency

EXECUTIVE SUMMARY

Customer Name: Princess Alexandra Hospital NHS Trust

Industry: Healthcare

Location: United Kingdom

Number of Employees: 3500

Challenge

- Develop cohesive IT strategy to improve patient safety and the delivery of front-line healthcare services

Solution

- Transformative networking services from Cisco Services
- Cisco® Borderless Network foundation
- Cisco Unified Computing System™ for data center virtualization
- Cisco Unified Communications solutions

Results

- Network stability: Better than 99.999 percent availability, with no downtime for two years
- Safer environment: Anytime, anywhere access to people, information, and resources
- Future-proof: Able to accelerate Building for Excellence vision and transition to digital healthcare

Challenge

Located in Harlow in Essex, the Princess Alexandra Hospital NHS Trust is a 489-bed District General Hospital providing a comprehensive range of safe and reliable acute and specialist services to a local population of 258,000 people. Aligned with its Building for Excellence vision, the hospital has significantly changed the way it operates to strengthen the role of senior doctors, nurses, and other clinicians in the running of the Trust.

The end goal is to be recognized as one of the best local hospitals in the United Kingdom, where quality of care and patient safety are paramount. To achieve this goal, the hospital has outlined four guiding principles of change:

- Service quality and patient safety remain an overriding priority
- Patients deserve the best
- Doctors and nurses will be involved in decision making
- Savings efforts are focused away from front-line services

Before Princess Alexandra Hospital could deliver its Building for Excellence vision, however, it first needed to address some serious IT challenges. “Downtime was a frequent problem, and it could take several hours to get the network back up and running,” says Imran Khan, IT and Business Continuity Consultant. “Loss of service severely impacted all departments, especially accident and emergency, and there was no option but to revert back to paper-based processes. Staff had to input information onto the system once service was restored. Apart from doubling up on effort, this created opportunities for mistakes to occur.”

Solution

Working with a local partner and Cisco Services, Princess Alexandra Hospital launched a transformative networking project. The starting point was a network assessment to improve visibility of the installed base and identify potential vulnerabilities—for example, from products approaching end-of-life or end-of-service. The audit was followed by a six-month program of in-depth interviews with the hospital’s technical staff and clinicians to scope and agree on requirements.



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These new insights were used to develop an ultra-resilient, high-performance campus network. Based on Cisco® Borderless Network Architecture, the new IT infrastructure is specially designed to meet Cisco Medical-Grade Network standards within a healthcare setting, where every second counts. “Drawing on expertise from Cisco Services and the partner, we replaced the previous n+1 design and upgraded to a 2n topology to ensure no single point of failure,” says Khan. “And we did all of that around hospital operations that have to run uninterrupted 24/7. That network today connects 3500 staff, 2000 PCs, and 1000 printers.”

Cisco Catalyst 6500®, 3750, and 2960 Series Switches link two data centers and deliver speeds of 10 Gbps in the core and 1Gbps to the desktop, while working seamlessly alongside a Cisco wireless LAN that is managed through Cisco 5508 Wireless Controllers. Cisco ASA 5540 Series Adaptive Security Appliances, another key part of the hospital’s disaster recovery strategy, enable remote access to clinical data and applications, with two-stage authentication using CRYPTOCARD token-based technology.

To complete the first phase of its transformative networking plans, Princess Alexandra Hospital became the first U.K. healthcare client to deploy the Cisco Unified Computing System™ (Cisco UCS®) servers, which integrates with VMware virtualization, and EMC storage.

Having established a stable network and data center foundation, the hospital focused next on advancing its plans for improving collaboration. The implementation of Cisco Unified Communications Manager, initially to support Cisco Unified Contact Center and the creation of a 20-agent IT helpdesk facility, will enable the gradual migration of over 4000 analog phones to feature-rich IP telephony. These Cisco Unified Communications applications have been virtualized on Cisco UCS B-Series Blade Servers to boost resilience and simplify management further still.

Results

Transformative networking has paved the way for Princess Alexandra Hospital to accelerate its Building for Excellence vision. “It costs about £10,000 an hour to run this hospital,” says Khan. “With the old network, there used to be an outage every two weeks for anything up to four hours on average. Since implementing our Cisco network, we’ve enjoyed better than 99.999 percent availability, with no downtime for two years. That’s a significant financial saving that can be reinvested into front-line services.”

Many of the hospital’s medical and administrative processes have already been digitized. These critical applications include patient registration, lab results and diagnostics, and a central picture archiving and communications system, with electronic patient records to be introduced shortly.

The wireless network is a great time-saver for clinicians and nurses, who no longer have to make repeat visits between patient rooms and workstations. Using their smartphones and tablet PCs, they can get everything they need (observation notes, medication records, allergy details, and X-ray results) anytime and anywhere. “Doctors and medical teams have secure and instant access to information anywhere on campus or remotely,” says Khan. “All they need is an Internet or wireless connection.”

In addition to helping to alleviate the administrative burden for medical staff, the new IT infrastructure plays an important role in delivering information to the point of need, whether that’s at the bedside, in the operating theatre, or remotely. This connected healthcare environment ultimately enables effective collaboration between multi-disciplinary teams of specialists and improves patient safety—for example, through faster and more accurate diagnosis and decision making.



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In many ways, however, the best is yet to come. A virtual desktop infrastructure (VDI) pilot is being run using the Vblock platform with about 20 users in a remote clinic where the desktops were approaching end of life. The hospital also plans to consolidate around 100 standalone servers onto Cisco UCS blades, reducing costs by about 75 percent in the process. In addition, Khan estimates that the move to Cisco Unified Communications will provide rapid payback, with a £750,000 annual saving on calls and centralized management.

“Before IT was perceived to be a risk,” says Khan. “Now it’s seen a huge opportunity.”

For More Information

To learn more about how Cisco is helping to transform healthcare organizations worldwide, please visit: www.cisco.com/go/healthcare

For Cisco Transformative Networking, please visit:
www.cisco.com/cisco/web/UK/solutions/borderless/iblm/index.html

For more information on the Cisco architectures, solutions and services featured in this case study, please visit:

www.cisco.com/go/borderless
www.cisco.com/go/collaboration
www.cisco.com/go/vblock
www.cisco.com/go/services

Product List

Data Center Solution

- Cisco Unified Computing System (UCS)
 - Cisco UCS B250 M1 Blade Servers

Routing and Switching

- Cisco Catalyst 2960, 3750, and 6500 Series Switches

Security and VPN

- Cisco ASA 5540 Series Adaptive Security Appliances

Unified Communications

- Cisco Unified Communications Manager
- Cisco Unified Contact Center

Wireless

- Cisco Aironet® 1142 Access Points
- Cisco 5508 Wireless Controllers

Services

- Transformative Networking services from Cisco Services



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