

Caring for digital health



Campus and Data Network Infrastructure Upgrade

SUMMARY

A major network refresh was required at Northern Care Alliance. Populo were asked to produce a business case considering all the options and make a recommendation to the Trust board.

BACKGROUND

Northern Care Alliance is an NHS Group bringing together two Trusts; Salford Royal NHS FT and The Pennine Acute Hospitals NHS Trust. The group including Salford Royal, The Royal Oldham Hospital, Fairfield General in Bury, Rochdale Infirmary and North Manchester General Hospital provide a full range of acute and community services.

By the end of 2019 over 70% of the key network components across NCA would be at the end of their operational lives. Significant investment was required to install the latest generation Cisco network technology based on software designed networking (SDN) architecture. A Cisco partner would also be required to commission, install and provide long-term support for the new infrastructure.



REQUIREMENT

A new network was essential to deliver the 3 strategic objectives, Integrated Care Organisation, Supported Quality and Efficiency and Digital Leadership. All 3 objectives were reliant on a modern, robust and reliable infrastructure.

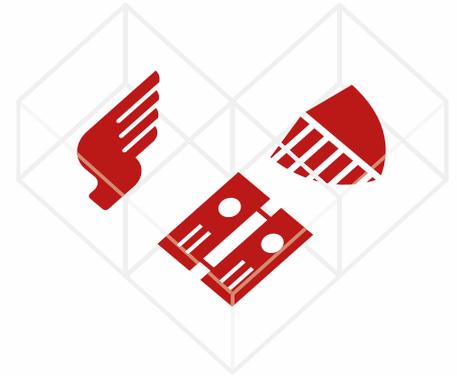
Objective	Action
Integrated Care Organisation	Introducing digital initiatives such as telehealth, wearable data and sensor technology integrating systems from different organisations. This requires a secure network and infrastructure to manage the movement of data and ensure effective disaster recovery and business continuity are in place
Supported Quality and Efficiency	Digital initiatives offering improvements to data quality and service efficiency across the whole group. Will introduce citizen-facing digital access enabling patients to interact with the Trust during their treatment through wearable and tracking devices
Digital Leadership	NCA will continue to provide digital leadership to partners across Greater Manchester and beyond. Shared services may be expanded to neighbouring NHS Trusts and CCGs potentially adding more data traffic to the network

As the infrastructure aged there was an increased risk of network component failure. If it failed network outages would directly impact the ability to deliver clinical services and communicate through the telephony and email systems. As well as business as usual an unstable network would impede the ability of the NCA group to deliver their future digital ambitions. The business case produced by Populo recommended replacing the 250 switches in 50 locations providing users with access to over 12,000 network points. In addition there were a further 700 access points installed for medical devices and tablets to access wirelessly.

A Cisco UK Gold Partner selected from a procurement framework competition was required to manage the implementation and provide ongoing support and maintenance for 5 years. The project would begin as soon as the supplier contract had been awarded to install and replace the legacy network on a location-by-location basis to minimise disruption to operational services.

DIGITAL
AGILITY

INFRASTRUCTURE
& SECURITY



DATA & INFORMATION
MANAGEMENT



REQUIREMENT

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In order to ensure all possibilities were considered the business case considered 4 options:

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Option	Considerations
1) Do Nothing	<ul style="list-style-type: none"> • No new investment in hardware or software. • Support migrates to “best endeavours” basis as hardware moves to end-of-support life. • Component failures require second-hand replacements. • Software cannot be patched for security updates. • Limitations on additional devices being added to wireless network.
2) Utilise Available Funds	<ul style="list-style-type: none"> • Use allocated funds to commence network refresh process. • Replace hardware with budget available • Upgrading hardware and software will be spread over several years.
3) Traditional Network Upgrade	<ul style="list-style-type: none"> • No change in solution design from existing legacy infrastructure. • Replace hardware with latest generation Cisco products. • Upgrade software where possible.
4) Software Defined Network	<ul style="list-style-type: none"> • New solution design is policy-based rather than the legacy device-based design. • Introduces a new layer of threat-based security. • Replace hardware with latest generation Cisco products. • Implement Cisco SD-Access, ACI and DNA Centre software



REQUIREMENT

Having considered the risks and benefits for all; Option 4: Software Defined Network was recommended. It had more benefits and fewer risks. A policy based SDN would be easier to configure and manage when associated with a user or device instead of a manual, static configuration on a switch or port. With the anticipated growth in network connections for medical devices SDN would enable the group to leverage new and emerging technologies in a swift and secure manner. It would also support

multi-site fabric enabling Salford and Pennine networks to integrate seamlessly so applications such as the EPR could be shared. Based on the age of the equipment there was a significant risk of a catastrophic network outage and it was therefore not realistic to replace only part of the system without leaving significant risks unmitigated.

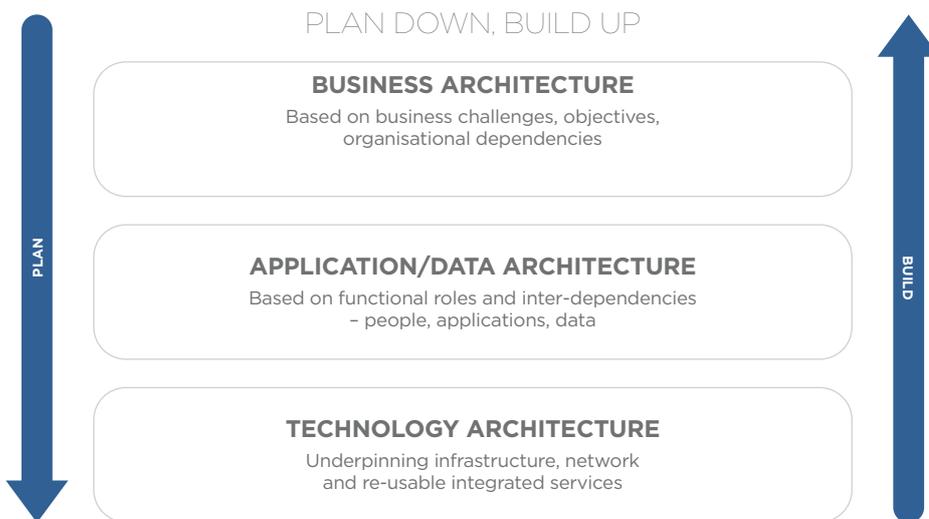
The recommendation was to proceed with a full network refresh utilising Software Defined Networking technology.

WHY CISCO?

Cisco Systems had provided NCA with its network infrastructure since 2008. Cisco has the capability to support the wired, wireless and remote connectivity needed as well as an extensive and industry leading unified communications and collaboration solution set. Their unique offering Digital Network Architecture (DNA) allows for consistent policy enforcement, automation and analytics in the network infrastructure. In simple terms this will reduce administrative burden, improve response times and offer greater security and functionality. Given that IM&T has a significant skills base around Cisco technology any move towards a mixed vendor environment would likely mean retraining the existing team or recruiting new skills.

In providing a truly digital service the group would become heavily reliant on the infrastructure platform; it is critical that any manufacturer therefore had the highest standards of post-sales service capability. Cisco provides a global Technical Assistance Centre (TAC) with 24x7 support employing 2,600 specialist agents.

PROPOSED APPROACH



During the planning stage current and foreseeable business requirements will be considered. These determine the solutions and applications that provide northbound capability and, in turn, the infrastructure layer provides a resilient and feature-rich platform.

Deployment would be in exactly the opposite direction - building a platform that would reliably support all solutions and applications and return value back to the business.

This concept was the principal justification. It clearly demonstrated the dependency of business and clinical outcomes on the very foundation of the IT environment.

BENEFITS AND OUTCOMES

As organisations leverage digital technologies to enable service transformation and innovation a new approach to the delivery of underpinning ICT services is required. The benefits of the network refresh at NCA were anticipated to be as follows:

Option	Considerations
Improve clinical governance	<ul style="list-style-type: none"> • Better Cyber security threat protection • Increased network availability supporting improved productivity and staff confidence • Support for medical device tracking and blood sample tracing through barcodes and RFID technology
Improve operational effectiveness	<ul style="list-style-type: none"> • Reduction in time due to travel with face-to-face meetings replaced by tele/video conferencing • Integration with primary care to improve efficiency in patient referral and bed-status monitoring
Improve patient experience	<ul style="list-style-type: none"> • Reduce patients attending hospital by introducing remote monitoring and off-site access to images, test results and scans by clinicians • Better wireless coverage for patients and visitors
Improve working environment	<ul style="list-style-type: none"> • Robust and reliable technology on-site and in the community; Cloud-based solutions accessible from anywhere • Remote access and home working • Tele/video conferencing
Become a Centre of Excellence for Healthcare	<ul style="list-style-type: none"> • Early adoption of new technology offering a competitive advantage • Supports the attraction and retention of high-calibre staff • Supports cost-effective healthcare • Increases the organisation's profile as a leader in Healthcare

John Llewellyn, xxx director “the new network solution will support the Trust’s Digital Navigator priorities by improving clinical governance, operational effectiveness and patient experience. We also anticipate it will improve working environments for our staff and support us in becoming a centre of excellence for healthcare”.

“The business case Populo wrote provides all the necessary detail so our board was able to make an informed decision”.

The steps following on from the business case were to select a partner through a mini-competition to supply, install and support the new solution for 5 years. The implementation is likely to run for 12 months.

