



HP Services teamed with Cisco Systems to design and deploy a high-speed converged network and IP telephony system at York Health Services NHS Trust, a district hospital serving 330,000 residents in and near York, England. Now expanding to support twofold growth in users and 3,000 IP phones, the 24 x 7 network provides the foundation for advanced applications that improve patient care, lower administrative costs, and streamline collaboration with partner care providers.



Dial York Health for patient-centric service

The United Kingdom is striving to transform its National Health Service (NHS) from a plodding bureaucracy into an agile, consumer-driven organization. The government's goals—to radically improve the quality and efficiency of healthcare—are also driving healthcare providers at the local level.

The York Health Services NHS Trust is the first hospital trust in the U.K. to employ IP telephony on a converged voice/data network. The new technology infrastructure from HP and its partner Cisco Systems is key to the acute care provider's initiatives to deliver better, faster, and more convenient care to the 330,000 residents of York, England, and its neighboring towns.

Requiring a more powerful and agile enterprise IT backbone, York Health upgraded its network three years ago, working with HP, its long-time systems integrator. Together with networking specialists from HP Alliance partner Cisco Systems, HP Services consultants reviewed York Health's network requirements; developed a detailed network architecture and support plan to achieve York Health's goals; and designed a converged network based on the Cisco Architecture for Voice, Video, and Integrated Data (AVVID).

The HP Services team deployed the infrastructure and provides ongoing support as well as an ever-expanding suite of IP telephony solutions.

“We needed a robust, adaptable solution capable of supporting our current and future aspirations to improve delivery of patient care,” says Sue Rushbrook, head of Systems and Network Services at York Health, which runs an 800-bed hospital. “With 1,800 phones online today, the IP telephony solution from HP and Cisco has provided continuous, 24 x 7 phone services since going live more than two years ago. Now, HP is deploying the IP telephony system to improve communications across 86 sites within our local health community.”

Innovation you can depend on

The converged network is the foundation for a stream of innovations that improve healthcare delivery and lower administrative costs.

York Health is replacing cumbersome and costly paper-based processes with fast, mobile access to electronic patient records as well as x-rays and other clinical images.

The network also provided York Health with a cost-effective and flexible alternative to an expensive upgrade of its aging PBX system.

Instead of constructing a costly and large PBX communication room in a hospital that was already at maximum capacity, York Health chose to leverage its compact multipurpose network—which was fully ready to support IP telephony.

But as the first hospital to apply this new technology, York Health demanded an IP solution with rock-solid reliability. After a rigorous three-month pilot confirmed both the resilience and popularity of the IP telephony solution, York Health implemented it throughout the hospital.

Working with their Cisco colleagues and the York Health IT staff, the HP Services team installed a fault-tolerant IP telephony environment based on Cisco Media Convergence Server systems equipped with Cisco CallManager software. Running in three separate locations, the systems are configured for automatic failover. In the event of a system failure, each configuration is capable of handling the hospital’s entire call volume.

Connecting primary and acute services for next-generation healthcare

Now, as York Health builds partnerships with primary care providers, the network streamlines communications and workflows between York Health and its key partners, such as the Selby and York Primary Care Trust. Established in 2001, this NHS unit delivers community-based health services in cooperation with general practitioners and other health and social service providers.

In collaboration with the York Health networking team, HP Services is now upgrading the network with Ethernet LAN extension services and wireless LAN technology to connect the entire local healthcare community with a high-bandwidth WAN. The joint team will soon bring 40 local primary-care practices online.

Once networked, York Health and Selby and York plan to deliver a suite of next-generation services that span primary and acute services and tailor care to the individual needs of patients.

“Bringing this whole health community together with one network will enable us to achieve more with our existing resources,” says Jeremy Clough, director of Finance and Performance at Selby and York. “And it also equips us to build a whole new set of services that enhance the way we deliver healthcare.”

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Sue Rushbrook, Head of Systems and Network Services,
York Health Services NHS Trust

Expanding York Health's IP telephony infrastructure to support 86 sites and about 3,000 phones, the WAN will bring the same high standard of voice and data services to all locations, a critical advantage that would be far too costly with a PBX infrastructure.

By creating an extended virtual private telephone network, the enlarged IP infrastructure will also greatly reduce the healthcare community's reliance on the public switched telephone network.

"Sites beyond the hospital account for about 75% of our call traffic," says Rushbrook, who now manages both the York Health and Selby and York infrastructures. "This deployment will enable us to achieve a phenomenal reduction in our telecommunications bill. We'll be able to spend more of our budget on delivery of healthcare."

IP telephony: simply one more application in a dynamic network

The HP Adaptive Network Architecture solution from HP Services is based on a simple, sustainable network model that enables York Health to meet dynamic organizational needs.

The core infrastructure comprises a Gigabit Ethernet backbone based on four Cisco Catalyst 6509 switches and numerous departmental switches, small-footprint CallManager servers running on rack-mounted HP ProLiant configurations, and a single fiber-optic wire that replaces a host of maintenance-intensive PBX cables.

The network's modular design employs easily replicable components such as the CallManager servers, which register the Cisco IP phones and support flexible XML features that include a campus-wide phone directory, voice mail, and message-broadcast capabilities.

While shrinking the cost of public telephone usage, the single, converged network also slashes the largest expense of a technology investment: the ongoing cost of ownership. York Health no longer supports separate voice and data networks. With the PBX system now retired, York Health has reduced its maintenance and support costs. Instead of requiring specialized PBX support, York Health can now use the same staff that provides help desk support for e-mail, applications, and PCs to provide telephony support.

Technical experts from the HP Customer Support Center perform remote fault detection, maintenance, and upgrades by dialing into York Health's data network over a secure link. Service engineers are dispatched for problems that can't be solved remotely.

One call for patient-centric care

York Health is already leveraging the network as the foundation for patient-oriented processes that improve healthcare delivery.

"To provide high-quality patient care, we must effectively deploy our resources, including the very valuable time of our doctors and nurses," says Patrick Crowley, York Health's director of performance management. "The converged network and IP telephony help us to streamline health services and improve communication with our affiliated clinics and physicians. At the ward level, our clinicians now access information at the bedside that they previously would have struggled to find."

Voice over IP also provides a flexible foundation for productivity-boosting applications such as intelligent virtual call centers. Working with HP Services, York Health has deployed a 24 x 7 virtual call center designed to end bottlenecks in handling patients' inbound calls. Based on Cisco IP Contact Center software, the solution enables patients to dial one phone number for all queries, from booking appointments and tests to contacting caregivers.

Behind the scenes, the call center enables the York Health staff to pool receptionists' services to provide more responsive call handling without adding staff.

"Healthcare is an ever-evolving business, particularly in the U.K.," says Crowley. "Our HP Services team works closely with us to provide solutions that cost-effectively meet our changing requirements, from design through implementation and ongoing support."

"All along, HP and Cisco have demonstrated a genuine commitment to meeting our needs rather than selling us technology," concludes Crowley. "We're working together to develop an IT infrastructure that truly advances the quality of patient care."

"The HP Services team worked very closely with us from initial design through to implementation. They are making a valuable contribution to the development of services in this organization and quite rightly will share the success this brings."
Patrick Crowley, Director of Performance Management,
York Health Services NHS Trust

Challenges

- Aged, fault-prone PBX with high maintenance costs and limited range
- Escalating demand to increase scope, reach, and quality of services
- Continually evolving organizational mandates and policies
- Strategies requiring in-depth collaboration with local service providers

Solutions

HP Services

- Systems integration and prime contracting
- Joint review of network requirements and development of detailed network architecture with Cisco
- Design and deployment of network, IP telephony solution, and IP phones
- 24 x 7 remote network support

Hardware

- 1,800 Cisco IP phones: models 7960, 7940, and 7910
- HP desktop PCs (2,850) and HP notebook PCs (50)
- HP iPAQ Pocket PCs

Software

- Cisco CallManager and CiscoWorks Web-based network management software
- Three Cisco Media Convergence Server systems, five Cisco Aironet wireless building-to-building links, and 100 Cisco Aironet wireless access points
- Cisco Catalyst switches: 6509 (4), 3524 (30), and 3550 (70)
- Cisco routers: 1760 (30), 1751 (15), 3640 (3), and 3620 (1)

Results

- Cisco AVVID-based network provides foundation for advanced applications that benefit patient care, such as medical imaging and electronic patient records
- IP telephony streamlines collaboration among primary and acute caregivers
- Single voice/data network slashes management and telephony costs
- Network enables York Health to more effectively deploy existing resources and deliver next-generation services
- IP telephony infrastructure has more than doubled—without adding overhead

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