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Next Generation Connectivity for the NHS

WHY SUPPLIERS AND THE NHS MUST RISE TO THE CHALLENGE

NHS

A VISION OF THE CHALLENGES AND OPPORTUNITIES FOR CONNECTIVITY

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Foreword

A clear strategic vision

The strategic vision for the future of the NHS has been set out clearly by the Department of Health in the Five Year Forward View and the National Information Board's Personalised Health and Care 2020.

It is a vision which has at its heart a commitment to patient-centric care and quality of care – the provision of services which meet the specific needs of each individual, and which allow citizens to manage their own healthcare decisions with ease and clarity.

Key to this vision is the notion of integrated care. Bringing NHS and social care organisations together to work more closely and be better aligned is critical to achieving the Five Year Forward View's aims.

The NHS of the very near future must be one which is flexible, personal, and dynamic. It will be designed around the individual and committed to better engagement with patients, carers and citizens in order to promote wellbeing and prevent ill-health.

At the same time, transformation of services must help the NHS meet unprecedented budgetary constraints, help drive efficiency and reduce waste.

There are myriad technological advances and trends which will need to be harnessed if the NHS is to successfully rise to this challenge.

This paper will explore one key area which is about to undergo a significant transformation: NHS network connectivity.

More effective use of IT infrastructure, with secure data management and sharing plus robust and flexible network connectivity, will be fundamental to achieving this goal and is vital if health and social care are to be truly integrated.

With the termination of the N3 (NHS National Network) contract in March 2017, it is time to consider the urgent need for change, how the new world of NHS network connectivity will impact health and social care services and the preparations NHS bodies need to make now in order to build the NHS of tomorrow.

The shift from N3 to next generation

N3, the single-supplier network which allows NHS providers to access national applications and information, was designed more than 10 years ago. It is a national private network, managed centrally and delivered by a single supplier on a long-term contract arrangement.

A flawed, inflexible network

Lacking in agility and flexibility, N3 is no longer fit for purpose to meet the needs of an evolving healthcare service. One of the limitations of the N3 is the N3SP portal, where customers have to pay a premium for extra bandwidth to meet their particular needs. This proved unpopular with end users and an expense they would like to avoid.

A further issue arising from this lack of flexibility is that the network standards could make it difficult for organisations to deploy and manage their own applications, especially IP telephony. When compared with existing PSN networks, which are inherently QoS enabled and allow organisations to run their own applications and solutions, this is a significant disadvantage.

All N3 connections that the NHS purchases are funded by the N3 contract, however most GP practices purchase their own insecure internet connectivity, to minimise N3 costs and improve performance. At a time when internet security is paramount, this is no longer a sustainable solution.

The Health and Social Care Information Centre (HSCIC), which manages N3, has recognised that the requirements for information sharing and network access have transformed dramatically since its advent and is seeking to address this head-on with the new Health and Social Care Network (HSCN).
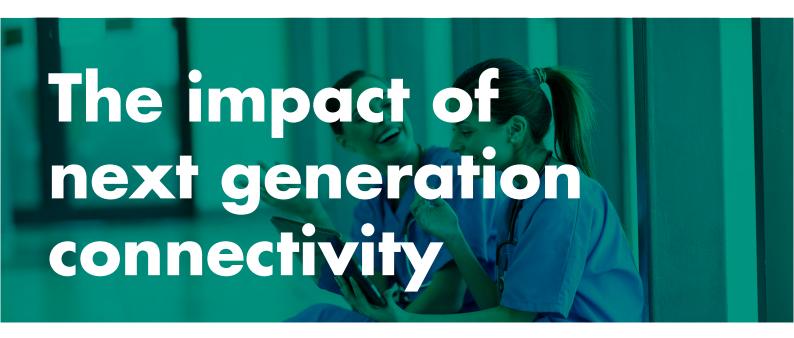
It is a colossus

- N3 is one of the largest Virtual Private Networks (VPN) in Europe

- More than **58,000** connections

- **63** points of presence

- Employing more than **12,000** km of fibre optic cable

- N3 provides the NHS Internet Gateway, serving **1.3** million employees

The contract for the provision of the N3 network is looming, and with no option to extend, there is a clear opportunity now to transform the way network connectivity is supplied to the NHS through the HSCN.

The impact of next generation connectivity

HSCN will create an open marketplace of certified service suppliers. It will open up the landscape for more competitive pricing and a diverse supply chain, as well as encouraging innovation.

New market entrants

In the past this market has been dominated by the large Telco's, however new operators have emerged with fresh approaches to sourcing network bandwidth and software defined networking, providing the NHS with much more flexible and cost-effective solutions. Having an independent aggregator that flexibly accesses network infrastructure from Telco's on a utility basis clearly offers both commercial and technical advantages.

In turn, this open marketplace aims to eliminate one of the most unpopular features of N3 – a lack of flexibility. Through N3, healthcare providers were unable to shop around for the model that best fitted their needs, and could often be left frustrated by the package that was supplied.

Through the existing network, NHS bodies could be forgiven for feeling they had no choice on supplier and were effectively told what sort of network and connectivity they needed, with little opportunity to offer input and feedback themselves. HSCN will be designed to give them network services that are fit for their specific purposes. Health and social care providers will be given a wide choice of products, services, service levels, contract terms and price, effectively creating bespoke packages.

Benefits of HSCN

- Help reduce the overall cost base

- Maintain assurance, security and confidence in the network that all NHS organisations use

- Re-use and integrate into the Public Services Network (PSN) which delivers connectivity to the rest of government

- Allow for even greater efficiencies while maintaining the vital NHS networks in trusted and experienced hands

A flexible solution

The HSCN is designed to offer an **interoperable network** between health and social care organisations, both within the NHS and outside. It will result in **greater integration** of health and social care services, flexible and remote working and access to national, regional and locally hosted applications – while **reducing reliance** on central infrastructure and services.

At the heart of this transformation is better patient care and improved patient outcomes. As set out in the National Information Board's Personalised Health and Care 2020: "Better use of data and technology has the power to improve health, transforming the quality and reducing the cost of health and care services. It can give patients and citizens more control over their health and wellbeing, empower carers, reduce the administrative burden for care professionals, and support the development of new medicines and treatments."

A cost-effective solution

Implementing a shared infrastructure makes great financial sense for the NHS, at a time of unprecedented budget constraints. By offering value for money and reducing unnecessary spending, next generation connectivity will make the best possible use of taxpayers' money and help ease pressure on the public purse.

All of these goals would be achieved through the successful implementation of the HSCN. Through HSCN, customers will be able to reach out to patients faster and more effectively, cut cancelled appointments, offer full and simple internet services to patients and improve the quality of data they collect. It will be easier for staff to update records from home or while on the road, and it will offer a secure and robust method of sharing vital patient information between different healthcare providers.

HSCIC's Key Principles for the HSCN[1]

The HSCN will:

- Establish network arrangements that support the integration of health and social care, regional collaboration and flexible work patterns

- Establish a marketplace of assured network services that drives competition amongst suppliers, improves consumer choice, supports innovation and delivers value for money

- Reduce duplication by enabling health and social care organisations to reuse and share existing network infrastructure and services to access the information they need

- Reduce reliance on a centrally managed, national, private network

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1: http://systems.hscic.gov.uk/hscn

The challenge

Successfully shifting from a 10-year-old, highly established, single-supplier marketplace would pose a challenge for any industry.
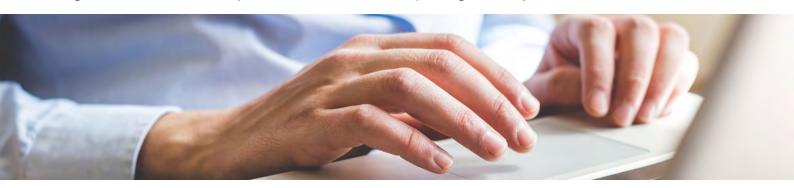
Security

Within the NHS, there are additional factors to consider, not least the fact that providers on the HSCN will be required to manage and share confidential and sensitive data whose accuracy could be a matter of life and death. The new infrastructure needs to be secure and reliable, providing an equivalent level of service and maintaining trust, while understanding the need for delivering cost savings.

The Care Qualty Commsion's recent review into data security in the NHS, which set out new best practice guidelines and places data security as a board level concern as opposed to an IT department issue, makes clear that healthcare organisations must adapt their response to risk, as new technologies for accessing data emerge.[2]

The security of N3 was enforced through the Information Governance Statement of Compliance (IG SoC), however this has been retired by HSCIC and new obligations are currently being drawn up. This security vacuum may have created more uncertainty while the replacement obligations are agreed, but the industry already has to meet several compliance standards to service government clients, including Public Sector Network (PSN) compliance, CAS-T accreditation and ISO27001/2.

Therefore, with HSCIC basing its new connectivity services upon the current PSN infrastructure, it would seem likely that those bodies currently accredited should be able to support NHS obligations. Updata, alongside the other main PSN suppliers, has invested heavily in supporting HSCIC's creation of the new obligations to ensure security is maintained without impacting flexibility and innovation.

2: https://www.cqc.org.uk/content/safe-data-safe-care

Continuity

Continuity of the service will be critical to NHS organisations. Whatever option is chosen for future provision of secure network services for the NHS, there is a need to transition easily and efficiently from the existing arrangements to the new arrangements and ensure there's no impact to patients and service. If responsibility for funding the new arrangements is to be devolved to local NHS organisations, as is being proposed, then there will also remain a need to manage national standards and boundaries between local networks.

Installation

The physical challenge of installing a new network must also be considered. In many areas, the opportunity to piggyback on existing PSN networks could offer a sensible and cost effective way of putting the infrastructure in place. But there will be some parts of the country where the new network will require an overhaul of infrastructure which has been in place for several decades, and where fibre will need to be installed in places it hasn't previously existed. It poses a significant civil engineering challenge.

Communication

Taking into account all of the above, and in addition to the ambitious timeframe within which this new marketplace needs to be established, the first and most pressing challenge which needs to be overcome is communication within the healthcare industry.

Given that the terms of the existing N3 contract expire in little more than 12 months and do not allow for any further extension, there is an urgent need to act to deliver transition to the new provisions quickly. And yet there remains a distinct lack of awareness within many NHS organisations of the impending contract end, or where they should go for impartial advice. Many are unaware of the options that will become available to them through the HSCN and the benefits that being able to shop around will offer.

There is a compelling need for NHS organisations to plan what they intend to do to replace their existing infrastructure as soon as possible, and to make sure that replacement connectivity is cost-effective, secure and reliable.

The challenge

Smooth transition

To overcome what could quickly become a vacuum of information, NHS Trusts, Clinical Commissioning Groups (CCGs) and Commissioning Support Units (CSUs) should be seeking out third party suppliers now; to talk through what steps are needed to effect a smooth transition to the HSCN, what the best fit is for their organisation and to ensure patient services are not affected.

Viewpoint: Gloucestershire Hospitals NHS Foundation Trust

Getting ready to make the move

Gloucestershire Hospitals NHS Foundation Trust is one of the largest hospital trusts in the country and provides high quality acute elective and specialist care for a population of more than 612,000 people.

The Trust is working with Capita as it prepares to move away from the N3 network and transition to the new HSCN.

Director of Countywide IT Services for the Trust, Zack Pandor, said that while the future direction of the HSCN and specifically frameworks for funding the network, were unclear, the new network arrangements would bring benefits to the Trust.

"HSCN will undoubtedly bring flexibility which currently does not exist under the N3 network, but what is most important for Gloucestershire is the ability to create truly integrated and connected services.

We will be able to have a network that connects all our sites and offers access across different organisations. It will bring social care together with healthcare, connect us to the local authority, and allow health practitioners to work off site and throughout the NHS estate. This will lead to improved care and better patient outcomes.

For all NHS organisations, creating efficiencies and providing the best possible value for money will be at the heart of the new network."

- Zack Pandor, Director of Countywide IT Services for the Trust

The Trust worked with Capita to identify specific challenges arising from the end of the N3 contract. These included the decommissioning of legacy infrastructure, associated costs, the potential to re-use old IP addresses and migration of IT infrastructure to the new network.

Zack explains that waiting for further clarity around the future funding and shape of HSCN may be holding some organisations back from starting transition arrangements. He said: "This could present obvious risks – supplier demand being an obvious one. If a rush of organisations all want to be connected at the same time, it will present capacity challenges for network suppliers.

"This could also lead to disruption for the workforce in a number of areas and, with the deadline approaching, it's essential that organisations start to gear up as soon as possible."

Case study: Scottish Wide Area Network

SWAN | SCOTLAND NETWORKING TOGETHER

A N3 transition success

The Scottish Wide Area Network (SWAN) is so far the only existing example of a successful transitioning away from an N3 service at scale.

Updata has a framework contract to deliver SWAN, a single public services network for the use of all public service organisations within Scotland and is connecting schools, hospitals, GP surgeries, pharmacists and local council offices. SWAN is providing connectivity to some of the most inhospitable places in the country and connecting the most remote NHS outposts, from the Highlands to the Islands.

SWAN allows all its customers to benefit from economies of scale as well as increasing productivity and collaboration. It acts as the gateway for N3, the Internet, Janet and PSN frameworks and offers technical services such as DNS, NTP, mail relay, web filtering, remote access plus hardware and support.

The SWAN project

Updata is ultimately aiming to reach **5,500** sites across Scotland, Integrating schools, hospitals, GP surgeries, pharmacies and local council offices. So far more than **4,000** sites have connected across every geographical area in Scotland. Key clients of SWAN are central Government departments, including the Scottish Government and the Scottish Environmental Protection Agency as well as 50 per cent of local authorities.

Significant benefits

As well as delivering reduced service costs, cutting the cost of procurement and enabling greater collaboration, SWAN is helping to unify network assurance. By applying a common standard of data assurance, it simplifies public sector interaction and ensures greater security for data transmitted internally and externally.

A call to action

Transforming the NHS

The new HSCN will undoubtedly change NHS connectivity for the better. The open market will kick suppliers into action and drive competition and the end results will mean more efficiency and agility for customers. Network packages will be designed to meet their needs exactly and patients will be better served as a result.

Network connectivity between organisations and patients is what the N3 replacement is for. It supports the wider technology drivers of digitalisation – a paperless NHS – and mobilisation and integration, which are key to the Five Year Forward View.

The HSCN can provide secure mobility at Trust locations such as hospitals, surgeries and third party locations such as care homes, as well as off-premise, which will help secure the personalised, mobile, and integrated healthcare of the future.

However, it is clear that more needs to be done to communicate the benefits this transition could bring, and the timeframe within which it needs to be delivered.

Above all else, NHS providers will want to be reassured that they are putting their network – and patient data – into reliable and experienced safe hands. They have the opportunity now to explore the marketplace and get the best possible deal for their practices and patients, but they need to move quickly if they are to make the most of this opportunity.

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Recommended next steps

NHS organisations must mobilise now in order to be ready for the termination of the N3 network and secure the best solution for the needs of their patients.

The needs of one Trust will not be exactly the same as the needs of another. But a fundamental benefit of next generation connectivity will be the ability to create a bespoke network which is fit for purpose for each organisation.

To make the best of this opportunity, the first place to start is to look at the supplier market. Updata provides secure network connectivity to enable better care quality and improved patient experience for health and social care organisations, delivering sustainability and transformation for the NHS of tomorrow.

To find out more about the network services that Updata can offer, visit **www.updata.net**, email health@updata.net or call 01737 224422.