

NOKIA

7 early warning signs that your network isn't ready for real-time healthcare

Action Plan for Network Specialists



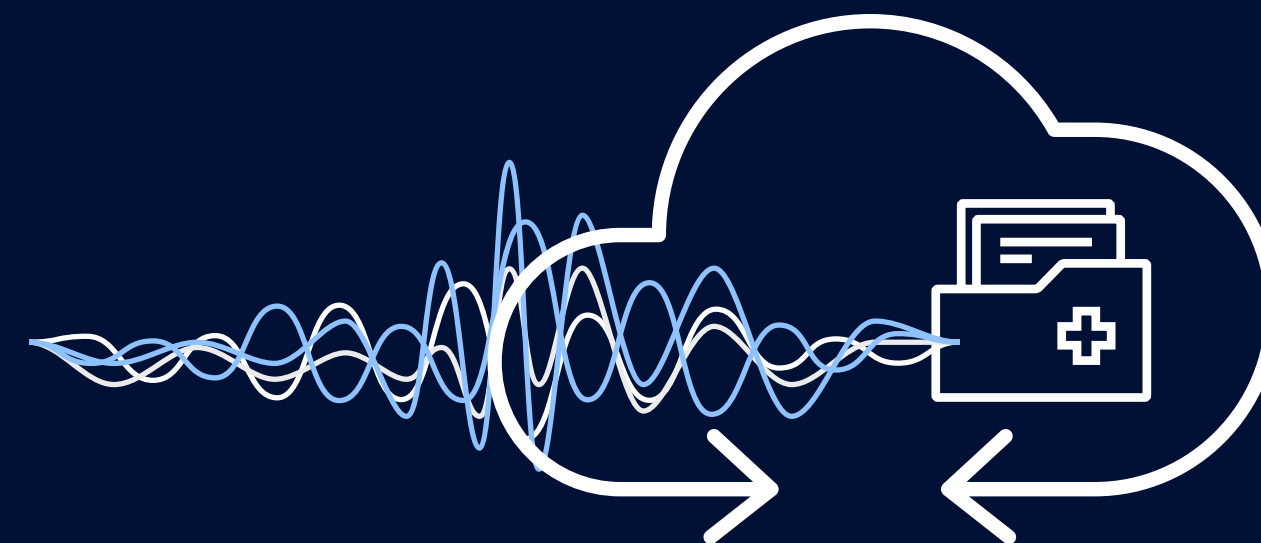
Early warning signs are your cue to act



Digitalization is disrupting every corner of the healthcare sector. As a network expert, you understand the pressures this places on your infrastructure better than anyone.

You are being confronted with major technology changes, from electronic health records (EHRs) and digital clinical communications to data analytics, content management, Internet of Medical Things (IoMT), Artificial Intelligence (AI), digital twins and the cloud.

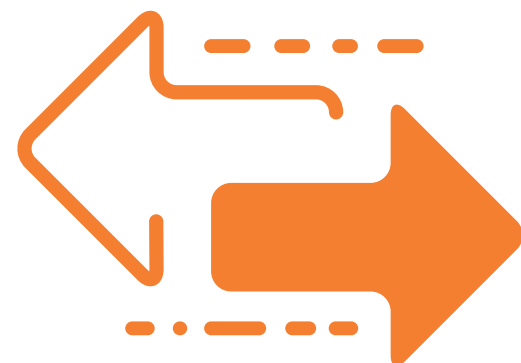
The sheer quantity of sensitive data now stored in silos across the average healthcare infrastructure is breathtaking - and the growth of facilities as health systems expand and make acquisitions is adding to your challenges.





The chances are that you're being actively tasked with moving and securing more data than ever before and helping to realize the benefits of digitalization to deliver more of what the business needs.

A new set of capabilities in your IT infrastructure will be needed as your organization moves toward a real-time business model:



Mobility is critical between clinicians, equipment and devices and contributes to better coordinated and optimized workflows and real-time access to patient information.

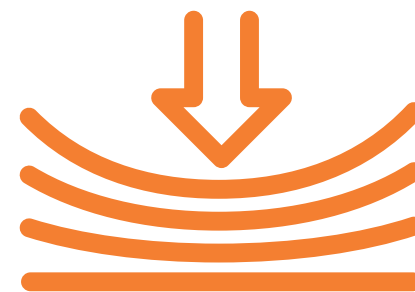
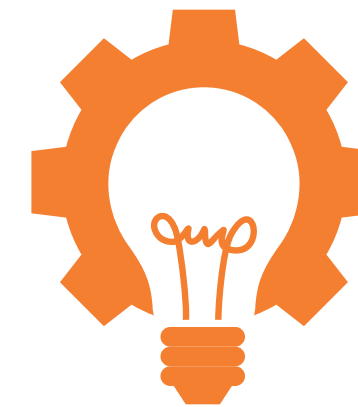
Awareness to provide visibility into important patient-related activities and event data to access the most recent and informed patient context to satisfy revenue, cost, quality and patient experience expectations.





Collaboration enabled across in-patient, out-patient and home care settings to share information in real time to improve outcomes and lower the cost of care.

Automation and intelligence capitalizing on situational awareness and effective prioritization of resources and actions.



Adaptive and agile to deploy resources and capabilities for the most impactful use.

But what about your network?

Is it really ready to deal with the demands of real-time healthcare or is it struggling?



We believe there are 7 clear “early warning” signs which alert you that the time has come to shift to an intelligent, agile, cloud-enabled architecture across compute, storage and software.



Healthcare generates **30%** of the world’s data and is forecast to grow at **36%** by 2025, faster than any other industry.

Source: The Convergence of Healthcare and Technology

Read on to see which symptoms – if any – your network is exhibiting and what you can do to address each challenge you face.

1

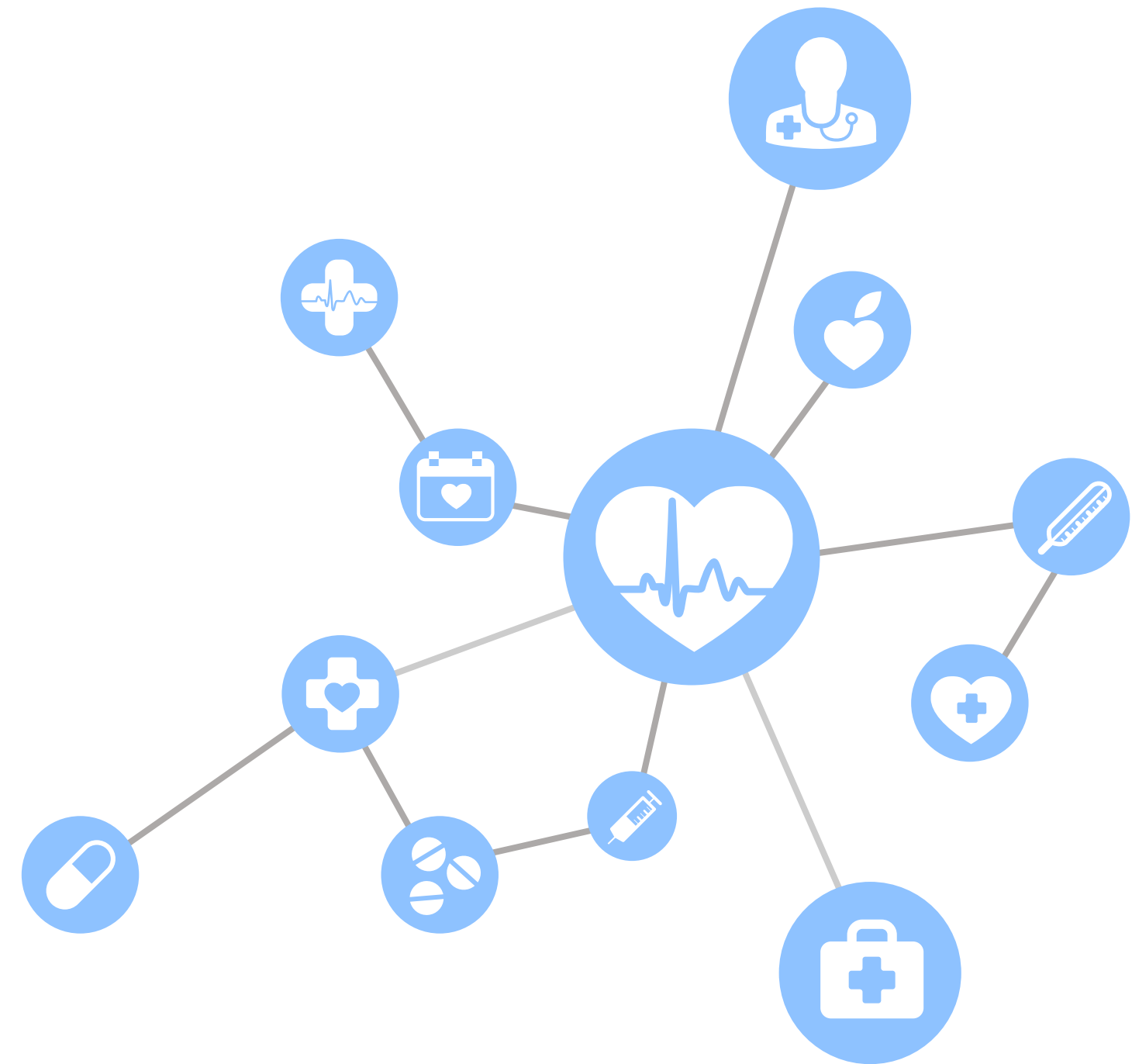
Innovation lags

Do you have long lead times to
deploy new apps and services
in the data center?



The challenge. Your CIO is focused on growing the business by deploying new value-based services that will drive up revenue and profit. But can you deliver against this vision, cutting across data silos, harnessing smart data insights and embracing the potential of cloud, mobility, AI and robotics to inspire a new generation of cutting-edge healthcare applications? Or in reality, is app dev, testing and rollout a slow and bumpy process?

The cure. You need a network that delivers effortless scale and agility as standard, alongside smart extras such as multi-dimensional analytics to support and ensure uptime for critical apps. Nokia can help you communicate what's needed – and why – to a non-technical business audience:





Ruthlessly align. Achieve the clear communication, collaborative approach and aligned strategic thinking that's critical to securing vital network investment.

Accelerate launch. Roll out a state-of-the-art network able to support real-time care delivery, including the ability to launch new apps and services at speed, and even start industrializing innovation.



Embrace the cutting edge. Be supported to deliver innovations such as remote and robot-assisted surgery using distributed edge clouds that offer essential ultra-low latencies.

2

Inflexibility

Does your network struggle to support both legacy and current workloads and embrace upcoming workload formats?



The challenge. Your network needs to keep pace with technology change, giving you the tools to easily roll out evolved new standards, practices and processes which are sensitive to the different ways that future applications will use the network, depending on the type of service, data and user interface. At the same time, you need to constantly identify and pre-empt potential performance and security issues across both your legacy kit and your diverse new solution portfolio.



The cure. Merging multiple departments and objectives into a single, future-proofed infrastructure roadmap will support continuous integration and ongoing digital transformation, and help you achieve the clarity and credibility you need to future-proof funding. Nokia experts can work closely with you to achieve all this:



Get aware. Roll out application-aware networking that lets your network adjust automatically to new application types with no compromise on scale or performance.

Adjust on the fly. Analyze network, service and application performance in real time, automatically scaling to meet changing patient and clinician demands and cloud usage patterns.



Focus on what matters. Identify and prioritize availability for mission-critical apps across an increasingly complex application stack.

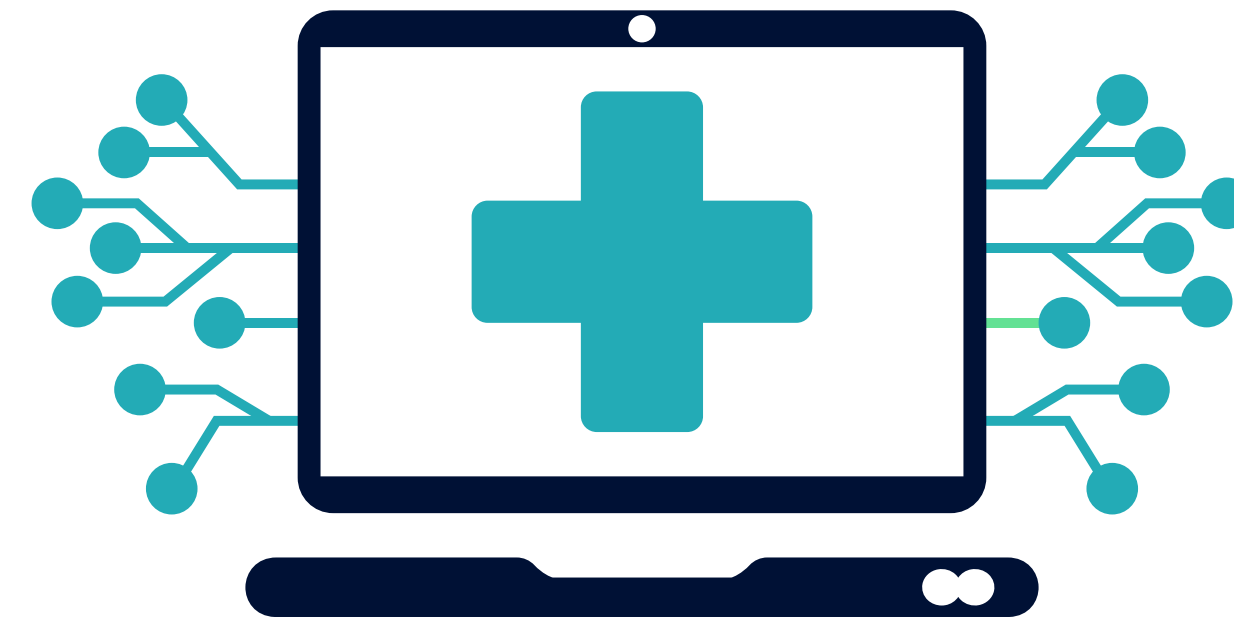
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Constant bandwidth boosts

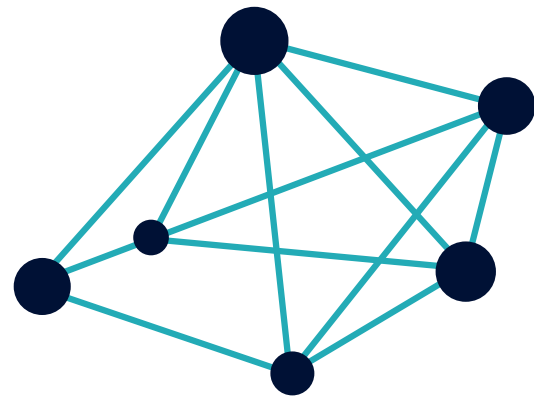
Do you regularly receive new requests and requirements for bandwidth upgrades that you're unable to rapidly meet?



The challenge. As processes digitalize, medical imaging file sizes increase and the IoT brings thousands of new medical devices and sensors, healthcare enterprises are generating, handling and storing larger volumes of data than ever – stretching the capabilities of your existing IT infrastructure. These pressures are heightened by growing patient demands for digital connectivity and the launch of services like remote healthcare monitoring, which introduce new scalability and capacity challenges.



The cure. You need to make scaling on demand simple – effortlessly supporting business and clinical teams with easy network flex and crafting the intelligent, connected healthcare processes your patients expect. There are lots of ways that Nokia readies your network for real-time excellence and data growth:



Unify once and for all. Data center automation supports you to change network-based services on demand using simple unified configuration management tools, making your infrastructure highly adaptable and responsive to business intent.

Think dynamic. Cloud data center interconnection gives you a scalable, reliable and secure way to connect data centers in private/hybrid clouds and provision resources dynamically across boundaries.

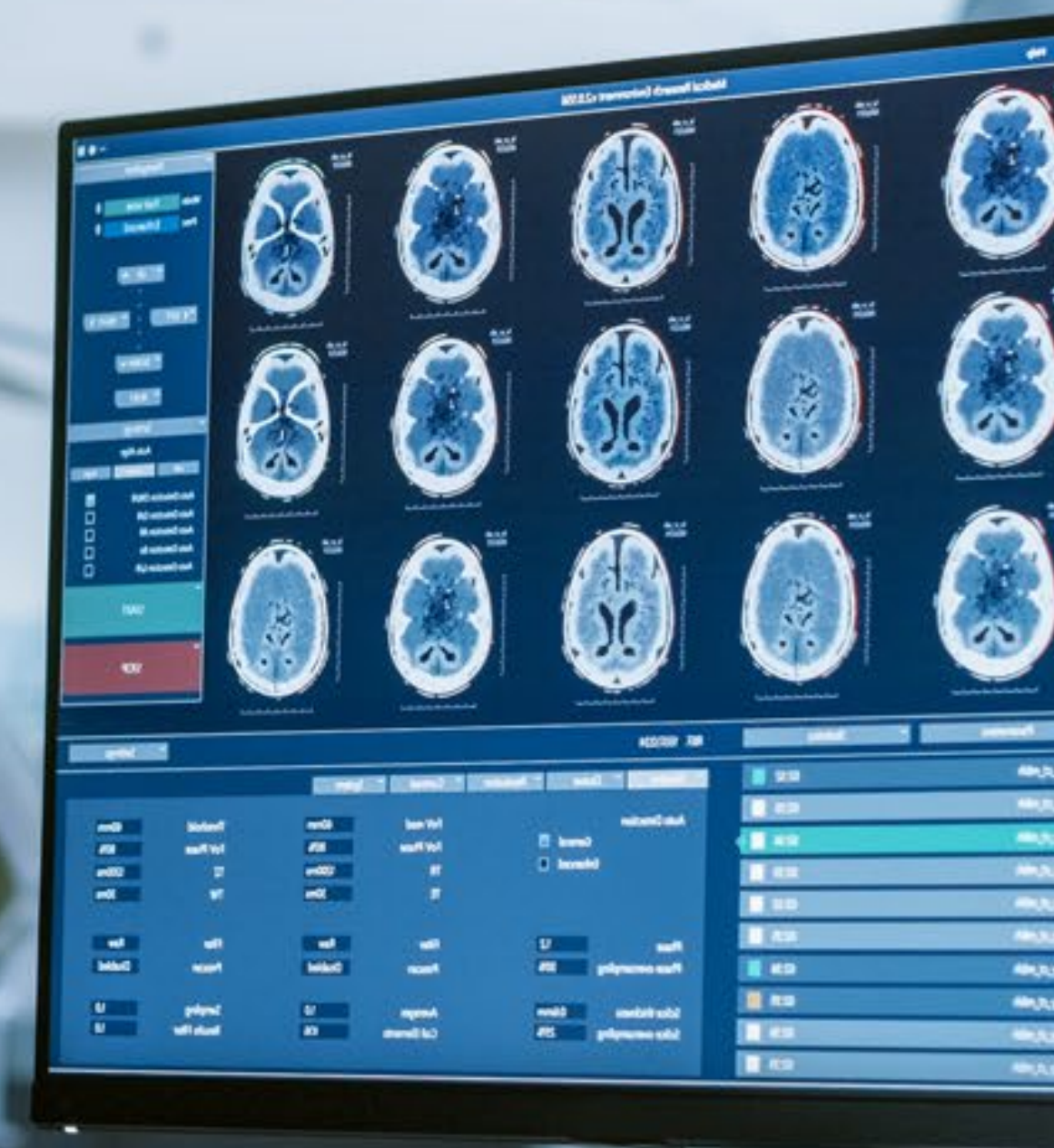


Do IoT smarter. Intelligently integrate device management, data collection and subscription management to offer a simple IoT management approach that lets you rapidly connect up new devices for a lower cost.

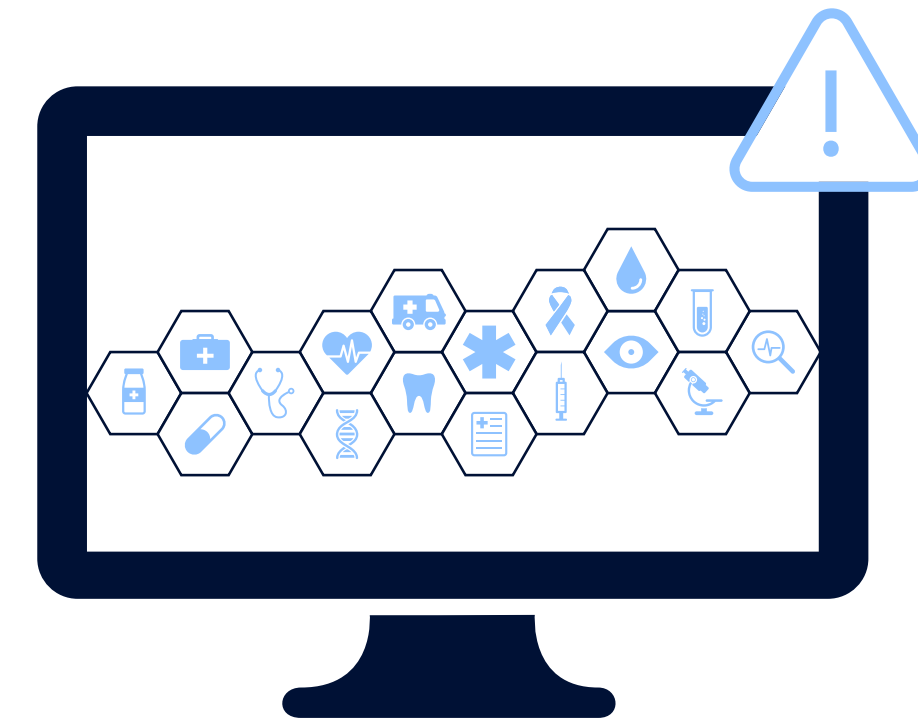
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Network security

Are you anxious about how to handle the growing number and increasing sophistication of network attacks?



The challenge. Cyber criminals have healthcare organizations in their sights. In particular, there is an urgent need to protect sensitive patient data, mission-critical healthcare processes and the IoT devices that monitor patients and medical equipment from today's highly complex network threats, including DDoS, illegal fiber tapping, data theft and network destruction. Malware and viruses can infect healthcare systems laterally or east to west within the perimeter of the network. That puts extreme pressure on network infrastructure and the people like you who are responsible for managing it.

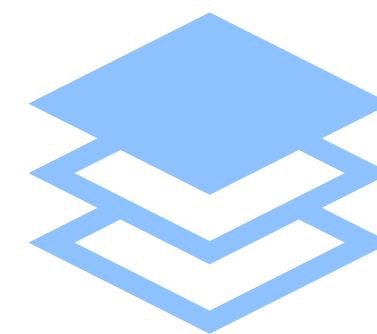


The cure. The most successful real-time healthcare systems are powered by an IP and optical network with smart analytics, optical fiber data encryption, intrusion detection and fault monitoring built in, able to identify applications and services in the moment as they transit the network and hybrid cloud deployments. Automated software-defined security measures can be programmed against each medical application segmenting it from the rest of the network resources. It's time to get your network ready and Nokia can help you put everything you need in place:



See it all. The common policy framework delivered by a software-defined network helps you lock down network-wide security. Dynamic, insight-driven IP analytics from Nokia can help you identify, detect and protect devices, data and users across the network against attacks. Using our security portfolio, you'll be able to see how applications and services are performing against their SLAs in real time.

Layer up insight. Leverage multi-dimensional views to help you quickly spot and shut down DDoS attacks. Utilize quantum-safe optical line encryption and key management to protect against the most sophisticated of data thieves.





Avoid budget waste. Secure the network in a timely way, without the unwelcome extra cost of dedicated security appliances. Software-defined security techniques apply security policies only on the applications that are programmed to release these measures at the end of the applications lifecycle.

5

Compliance complexities

Are you struggling to audit and prove network compliance with legal and industry standards?



The challenge. HIPAA-compliant security and encryption that protects the confidentiality of patient data and EMR systems is a non-negotiable. Yet delivering security at the granular level required – and then proving that with clear audits and reports – can sap all the cost-efficiencies that digital transformation offers.



The cure. Rearchitecting your healthcare network gives you a secure, programmable and automated network in which to innovate and run critical healthcare applications, protecting confidential patient data and helping you meet regulatory and compliance requirements head on:



No more compromise. Remove the limitations of traditional VPNs, enjoying centralized management and policy-based control of network services tailored to the individual requirements of your business, alongside increased network-wide visibility.

Isolate what matters. Deliver smart traffic engineering, controlling bandwidth, separating inter- and intra-site traffic and keeping sensitive patient data apart from general data for regulatory or compliance reasons.



Hammer down cost. Seriously reduce the costs associated with compliance and auditing.

6

Stalled ecosystem growth

Do you have long deployment times for rolling out new medical facilities, like small doctor's offices and new cancer centers?



The challenge. You're tasked with rapidly spinning up what's needed by the business – new offices, new workloads, new home users, new mobile healthcare (mHealth) services – as quickly and cost-effectively as possible. But too often, the time and cost of making the necessary network changes stand in the way of rolling out new services.



The cure. You need the support of a network architecture that can make your infrastructure adaptive and responsive, offering affordable scale, open connectivity and simple configuration with unified configuration management tools:



Open up. The Nokia software-defined networking approach leverages open interfaces to provide an automated, centralized way of provisioning network resources – minimizing the time and cost burden associated with enabling connectivity.

Automate the tough stuff. By automating many of the functions involved in managing network equipment, security policies and compliance, we simplify keeping pace with regulatory and security requirements as your ecosystem expands.



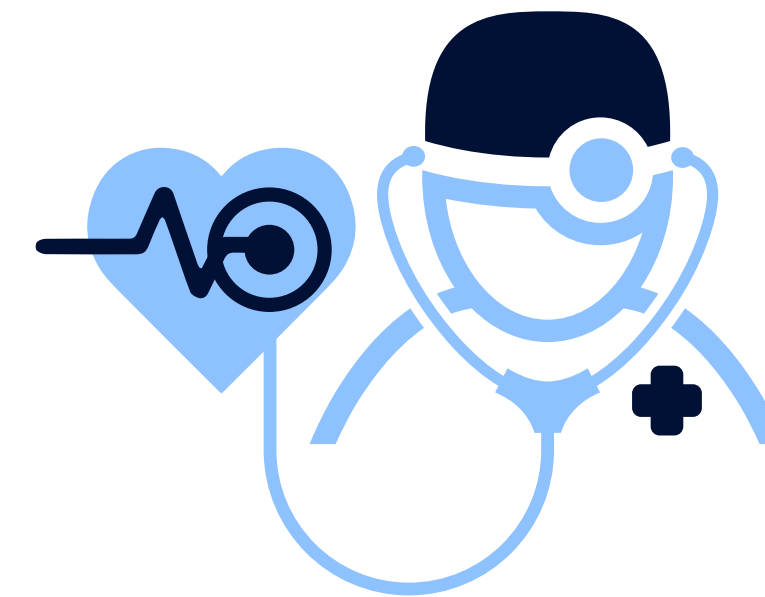


Vendor lock-in

Are you prevented from deploying the best-in-class solutions you want in order to deliver the innovation you need?



The challenge. Some network vendors lock you in, so you don't just have the limitations of enterprise-grade network architectures to worry about. You're also prevented from innovating and building out your service and applications portfolio your way, partnering with best-of-best innovators and healthcare pioneers to help you lead in your market and transform patient experiences.

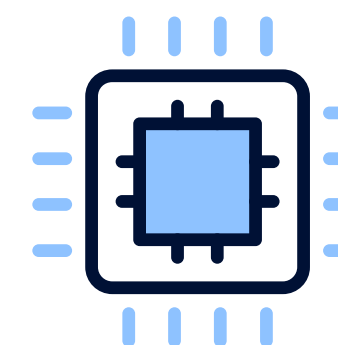


The cure. Say no to solutions and approaches that limit your thinking, your partnerships and your potential for innovation excellence.



Build your future, your way. Nokia networks have open APIs, meaning you're able to interface and build out your application stack however you choose, freeing your organization to share, communicate and collaborate to deliver real-time, value-based care with the partners you choose.

Demand carrier-grade. We also offer an agile, carrier-grade infrastructure that's ready for anything today and able to cost-efficiently evolve to support new service models tomorrow.



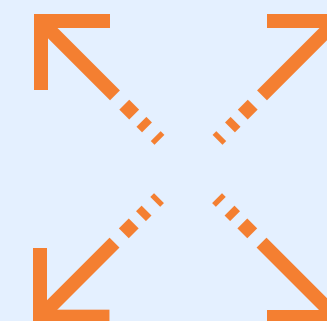
The best cure is talking.

Nokia has a team of healthcare network specialists ready to deploy a portfolio of tried and tested solutions to combat worrying network symptoms and fast-track your network to real-time excellence: adaptive, aware, patient-centric. We have built our reputation designing and deploying networks for the world's biggest telecommunications companies and the most mission-critical industry sectors including railways, power utilities, public safety and defense, delivering ultra-reliable performance with sub-second failovers to safeguard even the most life-critical applications:



Handle massive amounts of data securely and to cost-efficiently scale.

Support the easy expansion and launch of new digital apps and services to grow revenue.





Reuse legacy architecture while embracing EMR workloads to deliver a high quality of service.

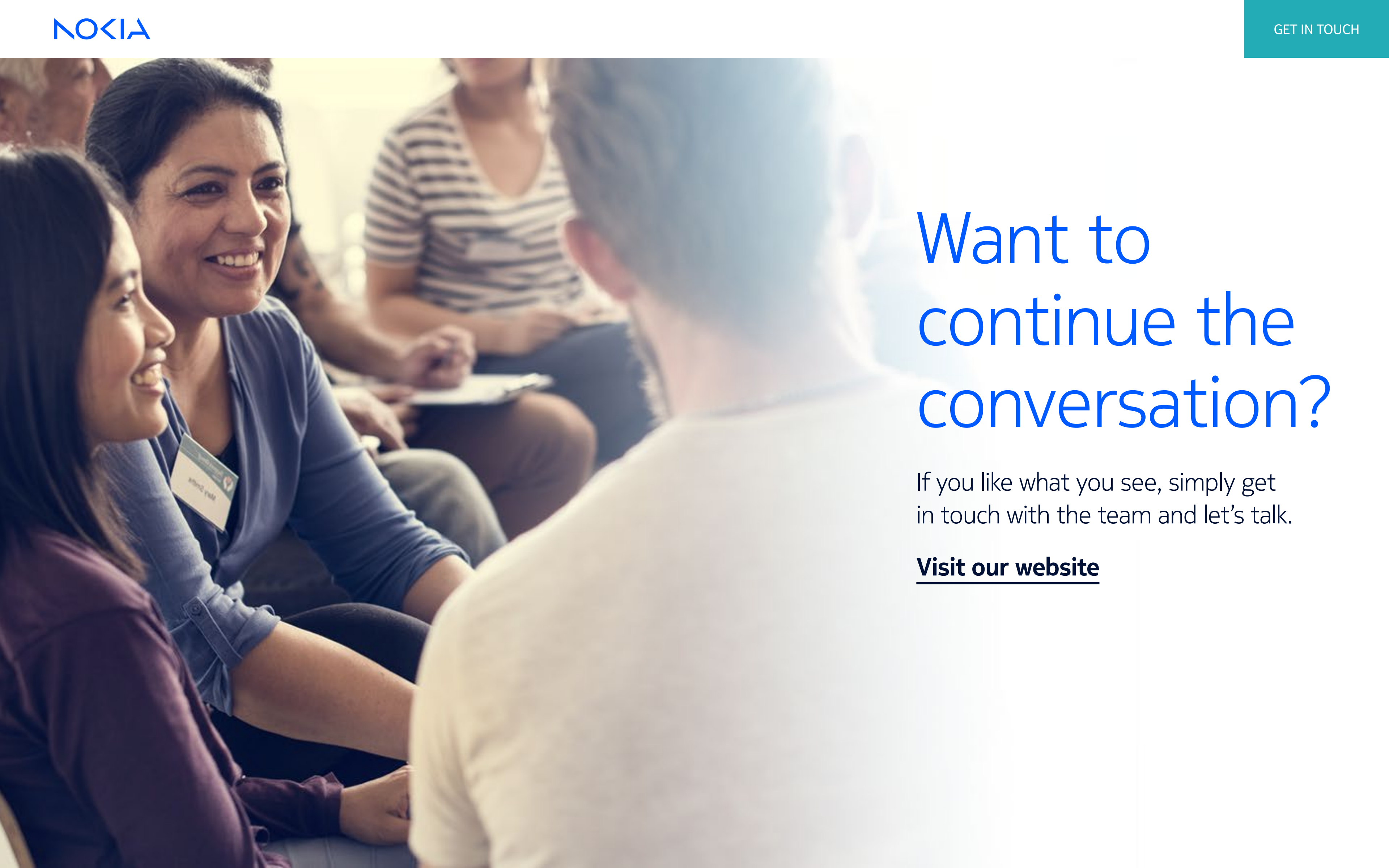
Protect sensitive data with smart “security by design” including encryption key management and intrusion detection.



Automate regulatory compliance across the healthcare ecosystem with granular visibility and control.

Enable collaboration and real-time clinical insight with adaptive and aware network features, easing workloads.





Want to continue the conversation?

If you like what you see, simply get
in touch with the team and let's talk.

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About Nokia

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

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