



The Connected Future of Healthcare

How Enterprise Intelligence empowers organizations to innovate

As patient expectations for healthcare services evolve, hospitals and health systems are adapting to meet the moment. In the past several years, they have embraced greater telehealth utilization, expanded remote monitoring, continued care decentralization and wielded the power of data in clinical decision-making.

“In 2020, care moved away from just being in hospitals to being everywhere else, including homes,” said Prashant Kelker, chief strategy officer and lead of digital advisory services for ISG, a global technology research and advisory firm. “That has caused a massive change where healthcare is slowly turning away from singular hospital-based sick care, into distributed, diagnostics-based predictive healthcare.”

It is important that healthcare leaders recognize what this tectonic shift means for the future of the industry: healthcare is due for an infrastructure upgrade.

Projections show that connected devices are [expected](#) to exceed 20 billion by 2026, according to 6G World, and this alone makes it clear that the fragmented technological frameworks used by organizations in the past will be insufficient in the not-so-distant future.

To support the realities of the emerging healthcare landscape, entities will need strong, enterprise-wide high-speed connectivity with no delays. Therefore, technology and innovation leaders with an eye toward building the “Hospital of the Future” should be asking, what could this infrastructure enable my organization to overcome and achieve?

Whether it’s empowering healthcare institutions to improve outcomes through real-time device diagnostics or enabling efficiencies that alleviate razor-thin margins, connectivity is the foundation that will enable critical, sustainable advancements. It lays the groundwork for true Enterprise Intelligence, which refers to an organization’s

ability to extract value from all relevant data available to it and apply the insights across distributed assets.

“If we’re looking at how to transform care models in an environment that is going virtual, going remote, and going into the home, what a golden opportunity for... connected care,” Kelker said. “New insights come only when you connect areas which have not been connected before.”

What connectivity really means

The push toward personalized patient interactions across all sectors of healthcare will require technology infrastructure capable of distilling large amounts of information into immediate, meaningful insights. Providers must be able to use the insights to make near real-time decisions and predictions. This is where network connectivity comes into play.

“ “ If we’re looking at how to transform care models in an environment that is going virtual, going remote, and going into the home, what a golden opportunity for... connected care.”

■ Prashant Kelker, ISG

But with competing priorities that demand their time and attention, healthcare organizations aren’t always up to speed on the opportunity that connectivity presents.

As healthcare leaders examine how to best adapt through digitization, Daniel Johnson, director of product marketing for Verizon’s 5G connectivity portfolio, said that it’s common for them to ask him, “What can cellular do that Wi-Fi couldn’t?”

For what might seem like a complicated, technical subject, the answer is surprisingly straightforward. When relying on Wi-Fi, the transition between different Wi-Fi zones typically involves some hiccup in connection because the individual device is responsible for reconnecting to the wireless access points. Placing burden on the end device to reconstitute connection is what causes service interruption.

And while Wi-Fi is regarded as the most critical form of communication to providing patient care, medical IT practitioners responding to the [HIMSS Market Insights survey](#) indicated it also presents more challenges and concerns when it comes to security, latency and bandwidth.

With cellular, however, the network prevents interruptions and has the ability to dispel more power than a wireless access point, which is limited by space. That is not to say that an organization should have one instead of the other. LTE or 5G and Wi-Fi can and should complement each other within the broader ecosystem, but there are circumstances that the cellular network better serves. It can be especially powerful for healthcare settings when deployed in a private modality, meaning it is purpose-built for a campus or specific enterprise.

In fact, medical IT practitioner leaders surveyed by [HIMSS Market Insights](#) in June 2021 identified three main drivers of migration to 5G: keeping up to date with technology, increasing speed and supporting medical devices.

“If what you need is very consistent service by your rolling cart, your laptop and your devices within a healthcare facility, that’s where cellular technology shines,” Johnson said. “If you have a surgical center, you need all those devices operating in harmony in a very secure manner, and you have very little budget for any lag or service interruption, so cellular is the way to go.”

Real-world applications for connectivity

With the performance necessary to deliver high-fidelity imagery with no lag, a 5G or LTE network would support sophisticated strategies and tools for enhancing care quality. The applications range from robotic surgeries and artificial intelligence to remote monitoring and pharmaceutical distribution, according to Johnson.

“It takes about a hundred milliseconds for us to blink an eye,” he said. “To do sophisticated tracking, like using imagery to find polyps within a human colon that normally the human eye would not be able to detect, you need Enterprise Intelligence infrastructure to support sub-100 millisecond, sub-50 millisecond or

Drivers of migration to 5G, according to medical IT practitioner leaders:

- 1 Keeping up to date with technology
- 2 Increasing speed
- 3 Supporting medical devices

■ HIMSS Market Insights survey, June 2021

even sub-20 millisecond latency requirements, to pick up on that kind of fidelity. You won't get that through today's traditional means of networking."

Beyond fast and precise detection, an advanced network infrastructure would allow for real-time delivery of insights, enabling care teams to take timely, appropriate action. One example of this application is in at-home care for older adults, Johnson said. Outfitting an environment with cameras and using connected devices such as iPhones or smartwatches would allow care providers to respond and react with potentially life-saving actions.

Network connectivity also has applications in the pharmaceutical supply chain, he added. For instance, when a drug must be transported within a certain temperature range, 5G or LTE complemented by wireless and edge computing architecture (in which computation and data storage is brought closer to the data sources to improve response times and save bandwidth) can serve as the platform for automated, end-to-end tracking from distribution to delivery, helping to ensure zero variability outside of the required temperature range.

With these various compelling use cases crystalizing, healthcare leaders increasingly recognize the potential that connectivity wields. Nearly 60% of respondents to a [HIMSS Market Insights](#) survey said they think 5G will have a positive impact on AI, and almost 80% have seen or expect to see improvements ushered in by 5G, such as better telehealth experience and increased use of wearable health monitors.

Real-world applications for connectivity

With the performance necessary to deliver high-fidelity imagery with no lag, a 5G or LTE network would support sophisticated strategies and tools for enhancing care quality. The applications range from robotic surgeries and artificial intelligence to remote monitoring and pharmaceutical distribution, according to Johnson.

Nearly **60%** of respondents say **5G** will have a **positive impact on AI.**

■ HIMSS Market Insights survey, June 2021

"It takes about a hundred milliseconds for us to blink an eye," he said. "To do sophisticated tracking, like using imagery to find polyps within a human colon that normally the human eye would not be able to detect, you need Enterprise Intelligence infrastructure to support sub-100 millisecond, sub-50 millisecond or even sub-20 millisecond latency requirements, to pick up on that kind of fidelity. You won't get that through today's traditional means of networking."

Strategies to transition effectively

To determine how Enterprise Intelligence can shape your own organization's future, Kelker recommends starting with distinct business objectives and working backward. And rather than simply brainstorming what could be possible from the boardroom, it's essential to keep patients at the center, while seeking feedback from the healthcare workers using connected devices.

Those who are doing the work are best suited to identify which areas should be targeted for improvement and how you can make their day-to-day work more meaningful, Kelker said. Their perspectives should be leveraged in prioritizing use cases for Enterprise Intelligence. This allows leadership to later go back and show these

same individuals that progress has been made, strengthening trust and belonging within the organization.

“We should start from the trenches, and then step by step we can reimagine how patients connect to providers and medical technology,” Kelker said.

After engaging care teams to identify priorities for improvement, healthcare organizations don’t necessarily need to dive straight into 5G implementation to make those improvements happen—although that is an option for those that are ready and have a robust 5G device ecosystem already in place.

Beginning the migration with LTE is a logical launching point, not only because there are more LTE-enabled devices available today, but also because it helps organizations avoid making numerous independent capital and operating investments that add up over time.

“LTE is a fabulous, high-performing technology,” Johnson said. “Where you can, start with LTE to support your existing environment, and leverage that investment to create the roadmap to 5G. It will be less expensive to continue migrating by building on a framework that you establish with existing technologies.”

Positioning for critical transformation

Industry conferences and articles are dominated by talk of what a digital-enabled system will look like five or 10 years from now, but those exciting new heights can’t be reached without the right infrastructure or connectivity solutions. Yet, a significant number of healthcare organizations don’t have a comprehensive connectivity plan in place, Johnson said.

“You’re not going to realize the benefits unless you have a plan,” Johnson said. “Start with an area of production where you can begin to prove this out.”

“Where you can, start with LTE to support your existing environment, and leverage that investment to create the roadmap to 5G. It will be less expensive to continue migrating by building on a framework that you establish with existing technologies.”

■ Daniel Johnson, Verizon

Healthcare decision-makers have endless competing priorities, but migrating to improved connectivity will positively impact the other challenges they are facing. For example, when it comes to staffing shortages plaguing the industry, IT connectivity can help to alleviate the burnout and dissatisfaction driving departures by supporting technology that reduces administrative tasks. In a connected future, healthcare organizations can also realize greater precision and predictive capabilities, directly benefiting patient care.

Connectivity is ultimately critical as healthcare leaders look to the future, as it can support artificial intelligence, automation and other powerful innovations that will position the industry to transform from a reactive, disjointed sick-care model into a preventive and unified healthcare system.

“With digitization accelerated in the past couple years, the rise of connected things and the need for different ways to interact with patients, a connected platform is the only way organizations will get the performance to support these real-time applications,” Johnson said. “So, think big and start small. Once you have a plan, partners and budget allocated, you can bring this from proof of concept to operationalization.”

SPONSORED BY

verizon

PRODUCED BY

CUSTOM MEDIA
Digital Health
Business & Technology