

Impact of Digital Health Care and Patient Data on Bandwidth Requirements



Today's increasingly digital health care environment requires hospitals, clinics and medical offices to have access to a strong network backbone and sufficient network capacity.

Introduction/Overview

Health care organizations require more bandwidth than ever to support telehealth, digital health, mobile devices and digital patient data. The right telecommunications and data solutions are critical to keep up with patient demands, improve patient outcomes and lower health care costs.



This white paper will explore key health care technology trends and the IT solutions needed to support them. Most importantly, we will discuss the need for more bandwidth to accommodate the rapid growth of network-intensive applications in areas such as:

- Digital health care, including telehealth, which is generating massive amounts of sensitive data that must be securely stored and shared with an increasing number of stakeholders
- Advanced patient care data that requires more bandwidth for transmission and storage, as well as advanced and increasingly complex security measures

As health care systems strive to improve the quality of care, cut costs and deploy digital technologies, communications technology and data solutions play vital roles. By upgrading network systems and streamlining health IT operations, health care providers can address the growing need for high availability and increased bandwidth.

The increase in digital health technology is resulting in more data-heavy activity, such as medical imaging and electronic medical/health records. Most importantly, it's also leading to better patient care and improved patient outcomes.



Digital Health Shifts Focus and Telehealth Expands Reach

Increased Focus on Digital Solutions for Outpatient and Preventative Care

Digital health is a contemporary term that covers a range of digital and genomic technologies that impact health, health care, living and society today. From wearable fitness devices to breathing monitors to remote monitoring of patient conditions, the digital health industry is facilitating better patient-physician communication as well as better data analysis.

Digital health solutions could save the U.S. health system \$10 billion annually, according to a new report released by Accenture at the *U.S. News & World Report's* Hospital of Tomorrow Forum.¹ These solutions are automating tasks, streamlining clinician work and shifting some of the responsibility to patients.

Key trends include:

- Patient self-management
- Virtual health approaches that reduce time considering treatment options before exams
- Virtual exchanges between physicians and patients via secure messaging



Annual patient visits are also changing with the expanding reach of virtual health technology. Applying digital health solutions—such as biometric devices, analytic diagnostic engines and virtual medical assistants—can simplify in-person exams. They enable health care providers to gather patient information and consider clinical options prior to the patient visit.

The digital health industry isn't just transforming doctor-patient relationships, however. It is improving the way information is analyzed and producing more actionable data.

Telehealth Expands Its Reach and Locations of Patient Care

Telehealth technology delivers medical, health and education services digitally, expanding the reach of health care services to those with less access to in-person services. It facilitates diagnosis, consultation, treatment, care management and patient self-management both synchronously and asynchronously.

Using computers and mobile devices, telehealth enables health care practitioners to manage patient health and well-being remotely. It also enables the following:

- Online support groups
- Online health information
- Electronic health records
- Online communication with health care providers
- Remote monitoring of patient conditions
- eVisits (virtual/online doctor visits)

Telemedicine and telehealth are quickly becoming mainstream forms of health care. In fact, a recent survey from REACH Health found that 60 percent of respondents note telemedicine as a high priority in 2015.² Around 90 percent of health care providers are expanding their telehealth services.³ Even physicians in smaller practices are increasingly using telemedicine to keep up with the demand for patient care.

Telehealth technology is an exciting topic these days, ripe for expansion into more patient-centered tools, improved access to health and wellness programs, and even social networking to help people maintain healthier lifestyles.

¹<https://www.accenture.com/us-en/insight-virtual-health.aspx>

²<http://www.fiercehealthit.com/story/telemedicine-high-2015-priority-health-care-execs/2015-04-20>

³<http://evisit.com/top-healthcare-trends-2015/>

Digital Patient Data Requires an Advanced Network

Paper charts kept by individual providers are quickly becoming a thing of the past. Health IT has delivered secure, interoperable electronic systems that enable data to be accessed, shared and used by providers and patients.

This exchange of data isn't relegated to the doctor's office or hospital anymore. Mobile health technologies are helping patients track their health and well-being, and communicate with clinicians.

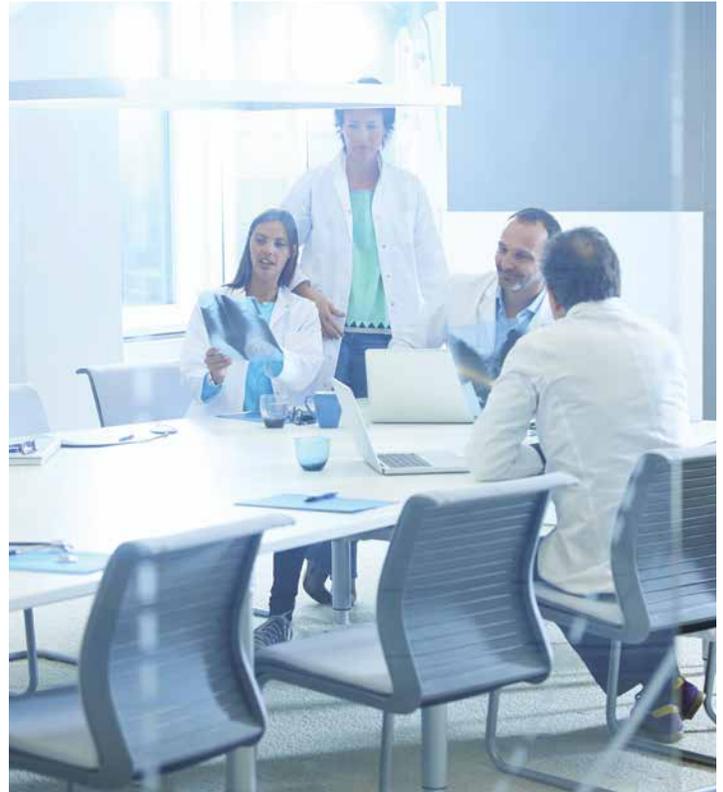
As health-related data requirements grow, the health care industry needs better technology and more bandwidth to handle it. This includes, maybe most importantly, a secure infrastructure for collecting and accessing data.

A Premier report including results from a C-suite survey found:

- Spending on clinical health care IT is predicted to reach \$26.1 billion a year by 2017.
- This spending will encompass between 25 to 35 percent of a hospital's capital budget.
- Nearly half of all survey respondents reported that health IT would be one of their largest capital investments over the next year—this includes electronic health records (EHRs), advanced data analytics and telecommunications.⁴

These findings support the need for increased network bandwidth, increased digital storage capacity, more robust cloud-based applications and the infrastructure to support the transmission of large quantities of data across the health care continuum. Other key technology trends that are coming into play in the health care ecosystem include mobile device support and patient health data portals.

New data-heavy applications are bandwidth intensive, making network and application performance management particularly critical to health care organizations. As the industry is transitioning to EHRs en masse, the stress on network-dependent applications can be challenging. Without truly understanding network health and available capacity, important applications and services stall or fail completely—leaving health care organizations scrambling for solutions.



Increasingly, sophisticated medical equipment is also running on wireless networks. This means the strength and resiliency of the wireless network within a health care environment is imperative.

The capabilities of hospital and clinic networks to support these applications is dependent not just on meeting technical requirements, but also understanding and managing the operational aspects of these systems. Health IT administrators must consider things like the number of users, the extent of real-time interactions and the number of concurrent sessions.

Let's not forget visitors in this equation. Many health care facilities are maintaining a "guest network" for patients and visitors to access Wi-Fi on their personal devices without bogging down the medical IT system. These guest networks are a courtesy, of course, but mishandled they can still put a strain on the network.

⁴<https://www.premierinc.com/about-premier/publications/economic-outlook/>

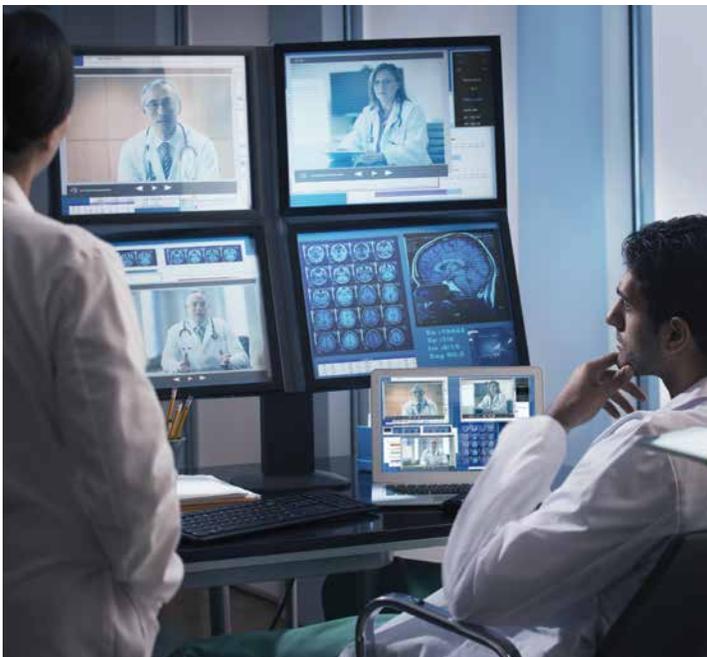
Protection of Digital Patient Data and Administrative Files

As data transmission becomes an integral part of more health care processes, inevitably the issue of data security arises. Unfortunately, it is a rather large issue, as the health care industry is about 10 years behind the financial services industry when it comes to data security.⁵

Data security strategies must adapt quickly to the changing health care environment. Key focuses in health IT data security today include:

- Protecting patient privacy
- Maintaining accurate patient records
- Securing health information stored in EHR systems
- Keeping up with strict regulatory requirements including HIPAA
- Protection of confidential administrative files

The security of personal information isn't just a matter of protecting systems from hackers. It's a matter of increasing patient trust as well. When patients trust the health care system with their information, doctors have a more complete picture of their health, which results in smarter decision-making on both sides of the exam table.



It is the responsibility of hospitals and clinics to secure this sensitive data. Consider the following when it comes to your health IT solutions:

1. HIPAA compliance

The Health Insurance Portability and Accountability Act covers patient privacy, security and breach notification, and should be your first priority when considering health IT solutions.

2. Secure data protection for file backups

Make sure backups can be password protected and include 256-bit encryption to prevent tampering and unauthorized data access.

3. Secure entire system protection for disaster recovery

Local and offsite disaster recovery backups protect against hardware failures, virus attacks and natural disasters. Ensure your solution includes 256-bit encryption and the ability to restore to dissimilar hardware.

4. Robust and flexible data storage

Data storage requirements are going to keep growing as more and more health care information and practice becomes digital. HIPAA requires six years of data retention —so plan ahead. Get a solution that can grow with your data needs.

5. Real-time reporting and alerts

It's important to know the status of your system at all times. Your solution should enable your IT team to configure alerts and notifications.

Health care leadership has its own concerns about digital health trends. In a 2015 health care report from CIT, the most common challenges cited by health care executives when it comes to the latest care trends were privacy in the retail medicine space (51 percent) and cybersecurity in the telemedicine space (45 percent).⁶

⁵<http://www.prnewswire.com/news-releases/the-digital-health-summer-summit-highlights-of-the-transformation-of-healthcare-300112187.html>

⁶<http://www.cit.com/wcmprod/groups/content/@wcm/@cit/documents/images/2015-healthcare-outlook-report.pdf>

Increased Use of Mobile Devices to View Patient Information

Hospital- and clinic-wide wireless broadband access is now a necessity and the need for bandwidth is not slowing down.

Health care facilities must think of the future when considering their network requirements today. Upgrading networks to accommodate the rapid growth in bandwidth-intensive applications might not be enough. As more health care activity becomes digitized, networks must also be able to accommodate the increase in complexity as well. Patient data security and lowering the overall cost of health care also come into play when considering technology solutions and network requirements.



Mobile Device Usage on the Rise

Mobile devices have transformed how health care professionals practice. The rapid growth of mobile devices in the exam room has resulted in new medical software applications, improved health record management, better communication and more opportunity for education and training.

A HIMSS survey uncovered that 69 percent of health care providers use mobile devices to view patient information.⁷ Other reasons clinicians use mobile devices include:

- Educating and training others on the device
- Getting clinical information
- Management of chronic care diseases
- Analysis of patient data
- Facilitation of remote patient monitoring

Along with this increase in mobile technology uses comes new issues that the health care industry must address. These issues include mobile device usage policies, BYOD (bring your own device) concerns and increased need for a secure, reliable network.

The Internet of Things

Connected devices and wearables (often called the Internet of Things, or IoT) increase efficiency, scale services and improve patient care—and as such, they are becoming a regular part of health care practice. In fact, a Gartner study found that health care is leading the pack when it comes to IoT adoption.⁸

The same Gartner study uncovered that IoT is expected to grow globally to 26 billion units by 2020, a 30-fold increase from 2009. Compare this to the growth expected in smartphones and tablets—7.3 billion units by 2020—and it's clear that IoT is something the health care industry will need to address.

⁷<http://mobihealthnews.com/30328/survey-70-percent-of-clinicians-use-mobile-devices-to-view-patient-information/>

⁸<http://www.gartner.com/newsroom/id/2636073>

Bandwidth Planning Considerations for Health Care Providers

Health care providers need a technology partner who understands their bandwidth requirements—now and into the future. This trusted partner should offer a full suite of solutions to meet all data and communication requirements, and have experience working with hospitals, clinics and medical offices.

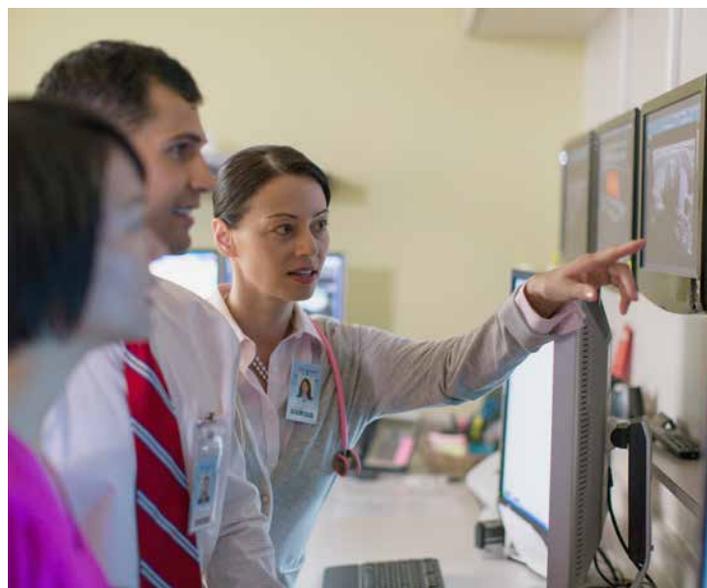
Frontier can be that trusted provider. We know and understand the unique needs of the health care industry, and we offer products and services to meet those needs, including:

- **Frontier Data Networking Solutions:** Frontier's Ethernet Portfolio has been certified compliant to the highest industry-standards by the global standards organization, the Metro Ethernet Forum: Carrier Ethernet 2.0. Our Ethernet options include Ethernet Virtual Private Line (EVPL) and Ethernet Internet Access (EIA). These products support IP VPN, SIP trunking, data backup & recovery, video conferencing and more.
- **Frontier Wi-Fi Solutions:** For facility-wide wireless data access, choose from options including fully-managed turnkey solutions, unmanaged solutions, and cloud- and premise-based Wi-Fi networks for use by doctors, patients, families and staff.
- **Frontier Voice and Equipment Solutions:** Achieve lower costs and more flexibility with our hosted and on-site IP (VoIP) solutions. They include calling plans to fit your facility's needs, and business texting is also available for convenient patient communication.

Frontier Provides End-to-End Solutions for Health Care

When it's time for your health care organization to plan an upgrade of communication and networking systems, partner with Frontier. We'll help you meet your challenges while working within your budget constraints and providing you with a well-rounded solution.

Frontier sales executives are trained on the technology solutions needed by health care providers of all sizes. Set up an appointment to discuss our growing portfolio of solutions and how they can meet your current and future requirements.



To find out what Frontier can do for your health care organization, please visit us at frontier.com/businessedge.

