INFRAM: *What it is, why it matters, and how you can leverage it*

As healthcare organizations consider targeted infrastructure investments to support new technologies, the use of the INFRAM framework can help them build more stable, manageable, and extensible networks.

In response to changing regulatory, reimbursement, and consumer demands, the healthcare industry is making stalwart strides toward digital transformation. Yet, as noted in a recent Porter Research poll conducted on behalf of SAP, nearly half of the C-suite executives surveyed stated that their organizations continue to face significant challenges in maintaining and upgrading their current information technology (IT) infrastructure. Because of those challenges, they often lack the network services and support that can reliably facilitate the use of the new applications and devices they'd like to stand up.[1]

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DAVID RAFTERY | CHIEF CUSTOMER OFFICER
INTEGRATION PARTNERS

"Too many healthcare organizations have taken a legacy approach when it comes to their infrastructures – and that includes wired Internet, wireless, phones, and everything," said David Raftery, Chief Customer Officer at Integration Partners. "They are still trying to tackle the issues and needs of today using the same infrastructure approach they used 20 years ago. With changes in revenue cycle and what's expected from both providers and patients, doing things the same way they always did is adding layers of complexity to the network that really gets in the way of innovation. This approach is holding organizations back from achieving the innovation critical to their transformation journey."

Given that a hospital's network infrastructure is critical to the adoption of innovative technologies that can better support clinical and business goals, ranging from modern telephony to comprehensive supply chain apps, an increasing number of provider organizations are making strategic investments in more modern IT "plumbing" to support such initiatives. Yet, said Bob Zemke, Director of Healthcare Solutions at Extreme Networks, many organizations lack the ability to critically assess what their aging infrastructures can and can't do.

"Many organizations cannot say with certainty what kind of applications their network infrastructure is ready to support," he said. "Unfortunately, that is critical to success. Without that baseline understanding, you will see, as you try to implement new technologies, failures in your projects and a lot of cost overruns. It's important to be able to benchmark before starting any big IT project and see what your infrastructure really is capable of supporting."

Old networks, new initiatives

While healthcare organization infrastructure capabilities vary widely across the industry, Collin Summers, Director Network Services, OSF HealthCare/POINTcore, said that most hospitals, particularly the smaller to mid-size facilities, typically have older, wired infrastructures that are getting on in years.

"These places tend to have a lot of connectivity issues, without ideal resiliency, reliability, and redundancy between the closets," he said. "You are more likely to have network outages because of the way things were wired as the hospital grew. What wireless there is can also be quite spotty, especially as you travel between buildings, or in different tunnels or overpasses. It's becoming a wireless world very quickly — everything from housekeeping to supply chain now has an app — so you need to be able have enough wireless coverage that you can support it all without a drop in connectivity."

Many healthcare organizations are spending hundreds of millions of dollars on new electronic medical record (EMR) platforms but can't fully utilize their capabilities because of network issues, according to Zemke. "When you look at the root causes of these problems, you see that the new EMR has an expectation for mobile scanners or some other wireless capability," he said. "Yet somehow, in the midst of all that planning, no one bothered to validate that there was wireless coverage in all the rooms and it can handle the influx of a bunch of new devices."

With such complex — and often unreliable — legacy networks, it can be difficult for healthcare organizations to know how to best update their infrastructure to support existing IT platforms, let alone new technologies they'd like to bring online.

"Hospitals are always struggling to gain capital and operating dollars," said Summers. "Getting the okay for infrastructure improvements can be a really hard sell. So, having a way to benchmark where you are and where you need to be is important so you can justify upgrades or other investments that will help support clinical and other goals."

Promoting a proactive approach

To develop a sustainable digital transformation strategy that can justify targeted infrastructure improvements, Zemke recommends that healthcare organizations look to the HIMSS Infrastructure Adoption Model (INFRAM), a unique assessment tool that helps healthcare stakeholders map their infrastructure capabilities using industry benchmarks and standards. This eight-stage model is designed to assist provider organizations to identify and define the capabilities of each domain of network infrastructure – and then gather the evidence required to make the case for targeted investments that support the organization's clinical and business goals — both today, and in the future.

"INFRAM provides the industry benchmarks so you can understand how to better position your infrastructure to take on the challenges of the new healthcare paradigm — digital transformation," said Raftery. "It's a great framework for helping healthcare organizations figure out where they are and, more importantly, what needs to happen so they can get to where they eventually want to be."

Once the INFRAM benchmarking process is completed, Summers added, healthcare organizations can take a much more proactive approach in both prioritizing future IT projects and understanding what is required to make them successful. The point, he said, is not to try to score a 7 in all network pillars — but rather to have an unobstructed view into your infrastructure capabilities.

"INFRAM gives you the ability to have an honest conversation about what your infrastructure can and can't do," he explained. "Let's say you want to deploy an app that requires clinicians to have an iPad with them at all times as they wander the hospital. With INFRAM, you know what parts of your infrastructure need to be improved upon to support that need. You can see which network pillars you touch by deploying that app — and then you can really focus on needles you have to move in order to be ready for it."

According to Zemke, knowing those pillars gives IT project managers a 360-degree view of what's really required to securely and reliably support a new app or system deployment, and in doing so, helps to dramatically reduce risk before any IT dollars are actually spent.

"By referencing INFRAM, you can see what infrastructure upgrades or enhancements are needed to implement a particular project," he said. "Then you can ask yourself: Is that in budget? Do we have the staff resources to provide those upgrades? Or do we need to delay the project 6 to 12 months because we need more bandwidth and must run additional cabling? Ultimately, what INFRAM does is help organizations validate how well they are doing in accomplishing their digital transformation goals, justifying investment in areas where it really is needed, and validating that your network is capable of supporting your top goal, providing the highest quality patient care."

Starting a much-needed conversation

Zemke recommends that healthcare organizations work closely with certified vendor partners with expertise in the INFRAM framework to help them understand the state of their current infrastructure. These partners can help them assess and map their network capabilities match infrastructure requirements with information technology goals. Extreme Networks delivers cloud-based networking solutions that keep pace with emerging technology needs and create a pathway for infrastructure development tied to business and clinical outcomes.

"As an industry, the current network infrastructure is a great area of risk — and one that has been underinvested in," he said. "Doing an INFRAM assessment is the first step in having an independent evaluation of your network siloes and how they compare to industry standards regarding security, collaboration, resiliency, and reliability. It allows healthcare organizations to start a conversation with their stakeholders about where they are and where they need to be as they make decisions about capital funding projects and next generation initiatives."

Raftery agreed — but added that INFRAM provides the basis for a continued conversation about network capabilities. This is not some box to check, he pointed out, but an ongoing process as IT needs of an organization continue to evolve. That's why it's so important that stakeholders from across the enterprise get involved in a true collaboration from day one, according to Raftery.

"If you can embrace this maturity model and use it to benchmark your network, it can help you with your strategy planning — and will make sure you are covering important things like cybersecurity and other controls," he said. "We can't keep doing things the same ways we have been for the past 20 years. We need to stop spending more money on IT and instead take the time upfront to figure out how we can do more with less. And the only way to get there is if healthcare leaders are willing to take a vastly different and proactive approach."

Learn how a strong cloud-based networking solution can provide the intelligent, adaptive, and secure foundation your organization needs to excel. Visit Extreme Networks.

Reference

[1] Porter Research (2019). *Rising to Meet Healthcare Industry Challenges Health System Executives Seek New Ways to Reduce Costs and Tackle the Patient Experience.* SAP White Paper. http://porterresearch.com/wordpress/wp-content/uploads/2019/03/Rising-to-Meet-Healthcare-Challenges-White-Paper_SAP-FINAL-2019.pdf

Extreme Networks delivers clinical-grade solutions for each stage of the INFRAM framework.

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Observations:	**Observations:**	**Observations:**	**Observations:**	**Observations:**	**Observations:**	**Observations:**
• Static virtual segmentation • Manually configured port policy	• Network is fully redundant but retains system delays • Location grade specified for certain areas only	• Network integration not fully mature • End-to-End QoS is a challenge • Cloud strategy is not fully developed	• WLAN performance • Video QoS and multicast management • Dedicated circuits to VPN for teleworkers	• WLAN performance for devices and video • Firewall issues • Location-based messaging	• Network-based analytics to support IoT • Automation requirements	• Advanced patient entertainment/education • Network control automation needs
Extreme Value:	**Extreme Value:**	**Extreme Value:**	**Extreme Value:**	**Extreme Value:**	**Extreme Value:**	**Extreme Value:**
• Assessment • Network design consulting	• Stage 1+ • Policy design and infrastructure planning	• Stage 2+ • Extreme Management Center for infrastructure management • Extreme Analytics for performance and capacity planning	• Stage 3+ • Extreme Fabric Connect for easy deployment and support of voice and video applications • ExtremeAccess Platform for simplified branch and clinic connectivity • Application level segmentation through Extreme Defender for IoT • ExtremeCloud IQ wireless for teleworker and telehealth	• Stage 4+ • Extreme Management Center connectors provides integrations for best of breed firewall/security integration • Extreme Fabric Connect for resilient, reliable and secure communications	• Stage 5+ • Extreme Management Center workflows provide network automation capabilities • Extreme Defender for IoT can provide analytics for connected devices and inventory lists of equipment	• Stage 6+ • Network control provided via ExtremeControl for all things connected to the network • Extreme Fabric Connect provides robust, reliable and secure connectivity for patient entertainment/education • Extreme Governance conducts nightly runs to ensure no configurations have jeopardized the security of the infrastructure

"Deploying new Extreme Networks switches and Extreme Management Center while utilizing fabric enables the positive movement of the transport, security, and data center INFRAM domains."

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