COX BUSINESS NETWORKING SERVICES

Reliable, Secure Connectivity for the Healthcare Industry

Today's healthcare industry is undergoing a radical transformation due to the digitization of medical information, changing regulatory requirements and advancements in technology. For example, the vast majority of today's acute-care hospitals are now using electronic health records (EHRs),[1] enabling a seamless flow of information between a patient's healthcare providers.

This upsurge in the volume of electronic healthcare data, combined with the Centers for Medicare and Medicaid Services (CMS) incentives for meaningful use, means that carrier-grade network connectivity is essential for healthcare providers. Healthcare organizations need reliable, secure networks to convey critical patient care information both internally and externally.

Reliable and secure network connectivity is no longer optional. It supports critical priorities for healthcare providers, including enhancing patient care outcomes, improving operational efficiency and boosting financial returns. If a healthcare provider's network infrastructure is not resilient, reliable and secure, the provider will not be able to reap the benefits of its healthcare IT investments.

[1] Charles, D., Gabriel, M., Searcy, T. (April 2015) Adoption of Electronic Health Record Systems Among U.S. Non-Federal Acute Care Hospitals: 2008-2014. *ONC Data Brief, no.23.* Office of the National Coordinator for Health Information Technology: Washington, D.C. Retrieved from https://www.healthit.gov/sites/default/files/data-brief/2014HospitalAdoptionDataBrief.pdf

Why healthcare providers need reliable, secure networks

There are many reasons providers need dependable networks to operate effectively in today's healthcare environment. These reasons include:

- *Reliable, secure connectivity supports quality of care.* Providing clinicians with complete and current patient data results in more informed decision-making, improving patient outcomes. Reliable networks that connect different points of care – for example, the in-hospital pharmacy and the attending physician's office, or the radiologist's office and the primary care physician – facilitate effective, coordinated patient care.
- *Clinicians are increasingly using electronic networks to interact with patients and other clinicians.* The practice of medicine is no longer limited to face-to-face office visits. Clinicians now connect directly to specialists and patients using technology-mediated services, including video (telemedicine).
- *The ability to demonstrate meaningful use has become more critical.* The CMS Medicare and Medicaid EHR Incentive program is transitioning from using incentives for participation to imposing penalties for providers who cannot meet the requirements. Several of the core requirements, including the requirement to protect electronic health information, are dependent upon the provider's ability to provide reliable and secure networking services.
- *Reliable, secure connectivity reduces operational and business costs.* Out-tasking network management services can be more cost-effective than purchasing equipment, software, and hiring specialized IT experts to manage in-house networks.
- *Secure and resilient networks are critical for supporting private and public cloud strategies.* High-speed, robust network connections between data centers and disaster recovery sites are essential for preventing life-threatening service disruptions from occurring during a data center failure or natural disaster.

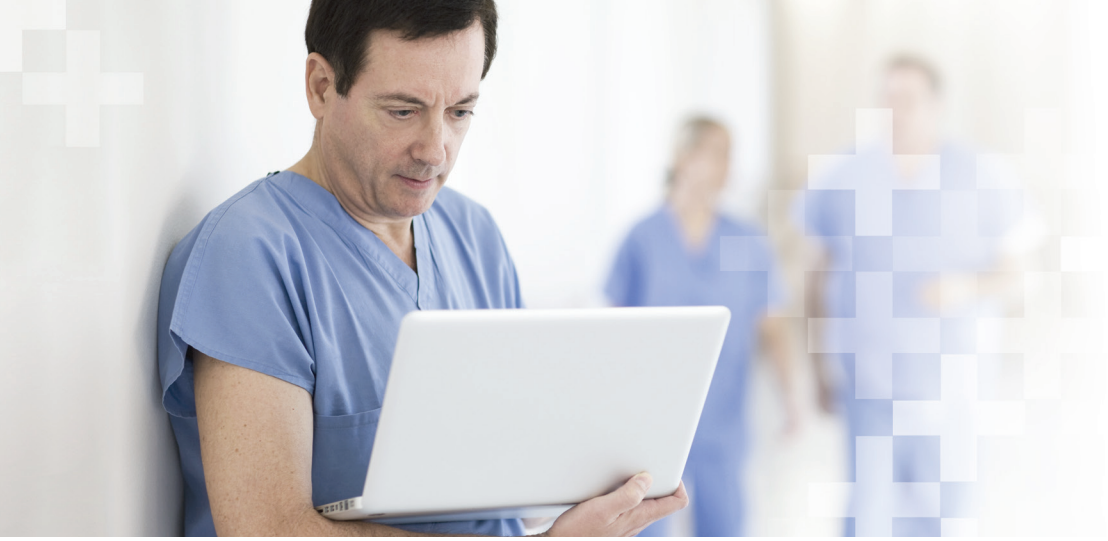
Private networks: networking services meeting healthcare providers' needs

A private network infrastructure can solve many of the problems that healthcare providers face. Private networks are secure, cost-effective and reliable. Cox Business offers a number of private networking solutions that meet healthcare providers' needs. "We take our responsibility of providing carrier-class networking services to our healthcare customers extremely seriously. In a small way, we are helping to provide patient care," said John Mielko, product manager, Networking Services, Cox Business.

Table 1 Cox Business Networking Services Meet the Needs of Healthcare Providers

IT Priorities for Healthcare Organizations*	Cox Business Networking Services Meet Healthcare Providers' Networking Needs
Protect privacy and security	All Cox Business networking solutions – Wavelength Services, Metro Ethernet and IP-VPN – are private networks. Because of the inherent security and segmentation of customer traffic in place in private networks, they offer a level of security that is unmatched by public networks.
Increase operational efficiency	Cox Business Networking Services provide complete network management for our services to ensure network performance levels and availability. This frees up healthcare organizations' in-house IT resources and enables them to focus on supporting the applications that enhance their core mission: providing quality care for patients.
Lower operating costs	As a specialist in networking services, Cox Business can often provide WAN networking at a lower cost than a healthcare organization managing a network solution in-house.
Reduce system sluggishness/ latency	Cox Business Networking Services provide scalable bandwidth that can grow as new applications or requirements come online, providing a future-proof networking infrastructure.
Trusted provider	Cox Business Networking Services have been providing networking services to businesses for more than 10 years. Cox Business Networking Services rely on Nokia equipment and software to ensure reliable networking services.

*Selected results from: Health Information Management Systems Society (HIMSS). (2015) *26th Annual HIMSS Leadership Survey.* Retrieved from www.himss.org/2015-leadership-survey and JDL HealthTech. (Nov. 16, 2015). *Survey reveals healthcare providers' top pain points.* Retrieved from http://www.prnewswire.com/news-releases/survey-reveals-healthcare-providers-top-pain-points-300178655.html



Cox Business understands that as patient data has become increasingly digital, providers are dependent on networks to provide access to specialized software applications, such as EHRs. These electronic data systems directly affect clinical functions and business operations. Cox Business does not sell healthcare applications; however, we improve the delivery of healthcare applications by providing a reliable, high-speed, dependable and scalable service so providers can access those critical applications when needed.

Network solutions

Cox Business offers several types of networking services, including Optical Wavelength, Metro Ethernet, and IP Virtual Private Networking (IP-VPN). Each service offers secure and reliable private network connectivity. These services range in complexity from simple layer 1 transport (Wavelength Services) to more complex MPLS-based services, providing healthcare organizations with a variety of solutions to meet their specific connectivity needs.

- *Wavelength Services:* Wavelength Services offer a high-speed, low-latency, point-to-point optical connection. Simple, fast and reliable, this optical networking solution is available in both 10-gigabit (10Gb) and 100-gigabit (100Gb) speeds.

  A typical use of Wavelength Services would be a large or regional hospital using the service to connect one or more data centers and/or disaster recovery sites to improve the continuity of healthcare services. Optical Wavelength services are very high speed, with low latency. Applications can synchronize very quickly: for example, in an outage situation, if an application goes offline, the hospital would instantly begin accessing applications from the redundant center and its healthcare workflow would continue as usual. Cox Business understands that in healthcare, life depends upon the capacity to make a seamless transition between the data center and the redundant data center.

- *Metro Ethernet:* Metro Ethernet (Metro-E) is a simple, widely understood technology, offered in speeds up to 5Gbs and beyond. Cox's Metro-E services are based on Cox's MPLS platform, which provides a redundant and self-healing core for maximum resiliency. Ethernet connections make it possible to connect multiple sites together over a secure, private network that can easily expand to meet your growing requirements.

  Many healthcare providers use Metro Ethernet in conjunction with Wavelength Services, using Wavelength to connect key data centers and disaster recovery locations, and then using Metro Ethernet to connect multiple clinical locations to the centralized information in the data center. Metro Ethernet is a good choice for healthcare organizations that have the human resources and technical expertise to manage networking services in-house. Metro Ethernet provides a very strong networking foundation for your healthcare applications.

- *Internet Protocol, Virtual Private Network (IP-VPN):* Also referred to as Multiprotocol Label Switching (MPLS), IP-VPN is ideal for growing healthcare organizations that are expanding by acquisition, as it can provide connectivity quickly between different disparate networks. IP-VPN offers an efficient means of tying these different network systems together in order to provide a seamless network experience for the end user.

  IP-VPN also provides the ability to connect multiple clinical locations to the centralized information in the data center. It uses a managed services model, making it a good choice for healthcare organizations who want to focus their in-house IT resources on healthcare application management rather than network management. IP-VPN is best for organizations whose in-house IT concentrates on managing healthcare applications rather than managing networking services. In these organizations, IT focuses on tasks such as creating application workflows that support physician productivity – they leave the networking to Cox Business.

Table 2 Cox Business Networking Services: Many Service Types for Varying Customer Needs

Name	Use	Technical Specifications
Wavelength Services	This point-to-point, high-speed, low-latency service is best for connecting hospitals to their data center(s) and/or disaster recovery sites.	• Optical networking solution • 10GbE or 100GbE • Dedicated bandwidth
Metro Ethernet	This solution connects multiple clinical sites to a centralized information center, such as a data center. This solution is best for healthcare organizations with robust in-house IT departments with the capacity to manage networking solutions.	• Ethernet networking solution over a resilient self-healing MPLS core • Up to 5GbE and beyond • Single or multiple class of service (CoS) available
IP-VPN	This solution also connects multiple clinical sites to a centralized information center, such as a data center. This managed services solution is best for healthcare organizations that want to focus their in-house IT resources on application management, rather than on network management.	• IP-based networking solution over a resilient self-healing MPLS core • Up to 5GbE and beyond • Single or multiple class of service (CoS) available

"Some healthcare providers come to us already knowing which solution is best for their organization," said Mielko. "But many of them don't know which solution is right for them, and that's fine, too. Our sales engineers and sales representatives work closely with each customer to determine which services best meet their existing business needs and expectations for growth."

Increase networking services resiliency with Enhanced Protection Options (EPO)

Each type of networking service can be either implemented at a standard level of service resiliency or enhanced with additional layers of redundancy. Enhanced protection options include layers of redundancy in equipment and/or network pathways. Redundancy increases the dependability, availability and resiliency of the network. These EPO options help organizations achieve healthcare-grade networking services.

Redundancy in pathways is important for those situations where, for example, a backhoe working on street repairs accidentally breaks the fiber pathway going into the building. If a provider already has an alternate fiber pathway in place, there will be no disruption in service. Redundancy provides a level of insurance that the network will be up and running.

Nokia networking equipment ensures a reliable network

Cox Business Networking Services uses Nokia core networking equipment and software to ensure cost-effective, secure and reliable networking services. Nokia's support for quality of service (QoS) enables Cox Business to shape and manage traffic flows to ensure that services are delivered to the customer's specifications.

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Cox Business is committed to customer service

Cox Business understands that healthcare providers have many options when it comes to implementing networking solutions. Cox Business Networking Services aim not only to provide a secure, reliable network infrastructure, but also to become a trusted partner, helping customers optimize networking services strategies.

"Customer satisfaction is where we really shine," said Mielko. "We provide consulting expertise on the front end to help healthcare providers identify the networking solutions that are the best fit for their technical, cultural and operational needs. But we are also there on the back end, providing excellent service and resolving issues before our customers become aware of them." Cox Business Networking Services include 24/7 technical support provided by U.S.-based employees. Cox is committed to being a part of the communities we serve, just like our healthcare industry partners.

Cox Business is a subsidiary of Cox Communications, a leading multiple system operator (MSO). For more information about Cox Business networking services for healthcare, please visit https://www.cox.com/business/industry-expertise/healthcare.html.

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