Hundreds of health system locations operate seamlessly as one

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Novant Health improves the patient experience and supports rapid growth with a high-bandwidth network delivering nearly perfect uptime

Novant Health is an integrated network of physician clinics, outpatient facilities and hospitals that delivers a seamless and convenient healthcare experience to communities in Virginia, North and South Carolina, and Georgia. Named in 2017 by *Becker's Hospital Review* as one of the nation's 150 best places to work in healthcare, Novant Health network consists of more than 1,500 physicians and over 28,000 employees that provide care at over 580 locations, including 15 medical centers and hundreds of outpatient facilities and physician clinics. In 2017, the health system provided more than $794 million in community benefit, including financial assistance and services.

Novant Health regularly adds new clinical locations each week. To bring these locations onto the network quickly, Robert Hale,

manager, infrastructure, needs technology providers that deliver within tight timelines, at fair prices and with infrastructure that anticipates evolving demands. That's why Spectrum Enterprise has been one of Novant Health's leading partners for more than a decade.

Challenges
Mitigate network outages and latency
Novant Health's IT network must maintain 24/7/365 reliability across hundreds of locations in four states. The network supports its phone system, medical and business applications, security and other mission-critical functions. Supported applications include an electronic medical record (EMR) system, which houses vital patient health information (PHI) that must be accessible by numerous locations in real time.

Hale says, "Access to Novant Health's centralized EMR system can't go down, and it can't slow down. Uploading a huge MRI or CT scan file at an imaging facility can't impact the ability of a health clinic to quickly access a patient's chart."

The Presbyterian Medical Center, part of Novant Health

Client profile

Company
Novant Health

Industry
Healthcare

Services
Ethernet Private LAN
Wavelength Services
Fiber Internet Access
Enterprise TV for Healthcare

> *"We never close, and the availability of services is an absolute must for us. The ability to deliver reliability is paramount to how we do business."*
>
> —Robert Hale

Ready access to information enables better experiences for patients and caregivers.

Any network interruption would disrupt every aspect of healthcare. In the event of an outage, Novant Health would have to bring in additional personnel to monitor patients and manage discharge, admissions and billing functions.

Furthermore, Novant Health's infant abduction prevention solution uses connectivity to monitor infant locations in real time. If the network were to go down, infant security would be compromised, and the health system would need to bear the expense of bringing in additional staff to ensure the safety of its youngest patients.

"With the … platforms we have in place today, we're able to deliver a five-nines reliability score to all of our acute care facilities."

—Robert Hale

Rapidly integrate new locations into the network

To support Novant Health's ongoing growth, Hale needed a partner that could bring new locations onto the network quickly and manage the different solutions needed for each type of facility. Network flexibility was a must for providing exceptional patient care and ensuring operational efficiency at every location. "Express care clinics," Hale explains, "might only need connectivity for EMR access. With imaging centers, however, it takes more bandwidth to handle applications and meet latency requirements."

Maintain HIPAA compatibility and security requirements with vast amounts of data moving across the network

Every month, 41 petabytes of stored data, including PHI and credit card information, move across Novant Health's network. To maintain HIPAA privacy and security rules that govern the protection of PHI, the health system needed a network compatible with HIPAA requirements. Novant Health also required a network that would help uphold payment card industry (PCI) security standards for the substantial number of credit card transactions it processes each month.

Solution

Novant Health partnered with Spectrum Enterprise to design a redundant, scalable network solution that supports aggressive growth and helps the health system deliver on its promise to provide remarkable healthcare.

Rapid, reliable access to information with high-speed data transfer and a redundant, high-bandwidth network

Wavelength Services, a high-bandwidth Spectrum Enterprise solution, provides multiple 40 Gbps and 10 Gbps dedicated Layer 1 point-to-point wave circuits that connect Novant Health's main data center and off-site data center. In addition, a network of 10 Gbps wave circuits connects the main data center to the main hospital campuses. These circuits reduce latency while providing file replication and backup.

All Novant Health locations rapidly access and download information from the data centers via multiple EP-LAN networks. Each EP-LAN is a Layer 2 Ethernet service built in a fully meshed any-to-any environment, which allows different locations to communicate with each other seamlessly on the network. Running these multiple networks enables Novant Health to continue business as usual if one EP-LAN goes down.

Clear communications across all locations

Data center connectivity provides transport for SIP Trunking, which makes VoIP phone service available at all locations. Because the phone system has its own dedicated network bandwidth, even high call volumes don't affect the performance of business applications or the EMR system.

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Results
A better patient experience and lower patient costs

Ultimately, Novant Health's success comes down to providing a positive experience for its patients by delivering affordable, high-quality care, convenient services and homelike amenities.

All Novant Health facilities now share access to the EMR system and business applications via the fiber network, which enables the health system to efficiently deliver a consistently high level of patient care without duplicating resources. The network also provides the bandwidth required to support the 800,000 patients using Novant Health's MyChart portal. MyChart enables these patients to conveniently refill prescriptions, schedule appointments and talk to doctors with built-in telehealth capabilities. Hale states, "They can even have 'e-visits' where they don't come into the office. It's direct communication with the doctors, and it's less costly for our patients."

In addition, patients and visitors alike are entertained by the Enterprise TV service, which provides access to more than 200 high-definition TV channels in patient rooms and waiting areas. This service also lets young patients in the children's ward easily toggle between TV channels and gaming systems, which has the added benefit of eliminating the need for nurses to interrupt their work and perform the switch manually.

"We cannot provide the level of care we need for our patients without reliable platforms."

—**Robert Hale**

Rapid expansion without infrastructure changes

Novant Health adds about two new clinical locations every week. The scalability and reach provided by the network plays a critical part in its ability to rapidly integrate new locations without outgrowing its IT investment. In fact, the platform can easily expand to serve a million users by year end if needed.

Hale recalls 18 new locations he needed to bring under the Novant Health umbrella, fast. "We were notified of service requirements April 1. By June 15, our EMR vendor needed to finish migrating data from the new facilities. That is a very tight window. I turned to Spectrum Enterprise and it was amazing." Connectivity was quickly implemented to support imaging applications, and the EMR data migration was completed by June 15.
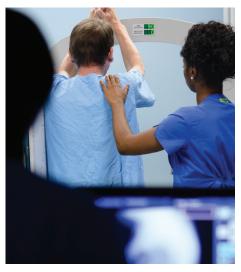
In addition to adding new facilities, Hale is investigating alternate data center locations. "So far," he notes, "we have not found a location that Spectrum Enterprise is not able to service."

Support for HIPAA and PCI standards

The Spectrum Enterprise network is HIPAA- and PCI-compatible, enabling Novant Health to support privacy and security standards. Network redundancy also allows Novant Health to meet HIPAA requirements related to business continuity and disaster recovery.

Almost perfect uptime

Hale shares that all of Novant Health's acute-care medical centers have achieved 99.999% network reliability by combining internal security and redundancy mechanisms.

A reliable, secure high-bandwidth network places critical records in the hands of clinicians anywhere in the Novant Health system.

"We cannot provide the level of care that we need for our patients without reliable platforms," states Hale. "And the infrastructure builds that we've done allow us to provide the level of service that's expected by our patients."

About Spectrum Enterprise

Spectrum Enterprise, a part of Charter Communications, is a national provider of scalable, fiber-based technology solutions serving many of America's largest businesses and communications service providers. The broad Spectrum Enterprise portfolio includes networking and managed services solutions, including Internet access, Ethernet and Managed Network Services, Voice and TV solutions, Managed Application, Cloud Infrastructure and Managed Hosting Services. Our team of experts works closely with clients to achieve greater business success by providing solutions designed to meet their evolving needs. For more information, visit enterprise.spectrum.com.

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