



## SD-WAN ELIMINATES NETWORK OUTAGES TO HELP HEALTHCARE PROVIDERS ADHERE TO HIPAA REGULATIONS



### INDUSTRY HEALTHCARE

### HEADQUARTERS SOUTHLAKE, TEXAS

### CHALLENGES

- Network outages prevent healthcare providers from administering patient care
- Inability to measure application awareness or line quality
- Failover function unreliable and inflexible

### RESULTS

- Ensures ability to treat patients at all times
- Fast and seamless solution deployment
- Continuous visibility and visualization of network performance
- Support for new voice platform with stellar QoS
- Future-proofing the network for long-term projects

### Problem Situation

As a healthcare provider, Low T Center is highly regulated and must adhere to federal guidelines. Violation of the guidelines and HIPAA requirements is expensive and could potentially cause the shutdown of Low T Center. Those guidelines stipulate that in order for Low T Center to be able to treat any given patient, it must have uninterrupted access to that patient's records. If access to the records are not accessible, then the patient cannot be seen or assessed.

While these guidelines and compliance requirements have been in place for over 20 years, the changing network environment, especially as it pertains to healthcare, has increased the complexity of ensuring that access is never restricted to patient records. Just five years ago, patient records and billing systems were maintained as hard or soft copies and stored locally at the medical facility that was frequented by the patient. Any person in the facility with clearance could view the billing information or patient records and provide the care to the patient based on those records. With local storage, network outages did not impact the treatment of customers as records were always accessible.

Today, the story is different as many healthcare providers, Low T Center included, have shifted the storage of billing systems and patient records to the cloud to enable a patient to be treated in any location and to allow doctors to evaluate and diagnose patients regardless of where they are stationed. While this accessibility is an advantage to both the doctor and patient, it introduces new challenges to the network infrastructure as network downtime can inhibit the treatment of patients and impact their lives.

Low T Center was using broadband links to connect its 57 ranch locations and had installed small Sonic firewalls at each location as the devices were able to accept multiple broadband links. However, the devices lack the intelligence to measure application awareness or line quality, which was important to Low T Center in maintaining constant network uptime. In the event of a hard fail by the primary connection, the firewall was to failover to the second connection. However, what Low T Center discovered was that the network linkages were regularly causing brownout scenarios where the primary line was not working well (either due to latency or jitter) and it would impact all the applications accessed by users, diminishing the overall experience. The firewalls were not intelligent enough to assess the quality of primary link and failover to a secondary connection, even if that secondary connection was cleaner than the primary. A full blackout was the only trigger for the failover.

“With SD-WAN, we have much better visibility than we ever had before, which allows us to pinpoint issues and address them before they become big issues for the business.”

FERNY ESPINOZA  
CIO, LOW T CENTER

With a complete shift of its patients records to a SaaS application, with applications such as voice running out of AWS, the inability to ensure a non-disrupted connection to cloud services was putting Low T Center at risk of violating federal guidelines and impacting the assessment and treatment of its patients. To eliminate the risk, Low T Center researched alternatives to its existing network infrastructure and made the decision to move to SD-WAN.

### Solution Selection and Implementation: VMware NSX SD-WAN by VeloCloud

Low T Center evaluated several SD-WAN vendors and ultimately chose VMware NSX® SD-WAN by VeloCloud™. A proof of concept (POC) was initiated and Low T Center was quick to realize that NSX SD-WAN was able to independently manage the failover process if the primary link was compromised for any reason and that any connection issues were mitigated by the solution's built-in intelligence.

The full deployment included spinning up a NSX SD-WAN Orchestrator, which centrally manages and monitors all network behavior as well as allows all configuration changes to be performed and executed from a single point. In addition, NSX SD-WAN Edges were installed at each location on the network, enabling the connection of that location to all nodes on the network, the NSX SD-WAN Orchestrator and cloud applications. Two broadband links were installed at each site to support failover requirements.

Low T Center incorporates the use of video to educate and communicate with patients. However, the use of video is not mission critical to the treatment of patients. In the event that a failover to a secondary connection occurred and the primary was not available in any way, using pre-configured settings, the NSX SD-WAN Edges are able to segment the network traffic and minimize the ability for video to be transmitted. In addition, NSX SD-WAN Dynamic Multi-Path Optimization (DMPO) is designed to instantaneously measure and assess the quality of available bandwidth links and manipulate the usage of these links by combining the various streams and improving the overall quality using error correction functionality.

Due to its high bandwidth requirements, video can easily monopolize available bandwidth, thereby restricting the ability for healthcare providers to access to patients records in real-time. The ability to prioritize the transmission of certain application specific data over other less-service impacting applications was transformative for Low T Center.

### Fast and Seamless Solution Roll-out

With most network equipment, the individuals configuring or installing devices must be rigorously trained and certified, dramatically increasing the cost of installation and maintenance. However, with NSX SD-WAN, the rollout was very simple. Using a very small IT team to manage the overall implementation, Low T Center was able to employ facility team members to plug in each NSX SD-WAN Edge rather than send out an expensive IT team member to each location. Anyone on the premises could connect the NSX SD-WAN Edge to a broadband connection and the device would automatically connect back to the NSX SD-WAN Orchestrator for centralized management, monitoring, and control. Specific configurations can then be populated across the entire network, to every branch with a touch of a button.

“Ensuring that our healthcare providers are able to treat patients at any time regardless of network issues, is critical to Low T Center and the happiness of our patients. SD-WAN enables us to do that and adhere to strict HIPAA requirements on a continuous basis.”

ARTHUR YOUNT  
PRESIDENT, LOW T CENTER

### Visibility and Visualization of Network Performance

Low T Center utilizes broadband links to connect each of its 57 branches to each other and to cloud applications. Prior to SD-WAN, the IT team had no visibility into the performance of the links it was using nor the devices on the network such as firewalls and routers.

Following the implementation of SD-WAN, the IT staff had complete visibility through the NSX SD-WAN Orchestrator and could proactively monitor the network, identifying and remediating any issue before it impacted users, as well as capturing historical performance records of network behavior. With a clear ability to pinpoint where problems were originating and where, both the Low T Center IT team and its ISPs had full information on where the responsibility lay to fix those issues.

### Support for New Voice Platform with Stellar QoS

During its network overhaul and migration to cloud applications, Low T Center also upgraded its phone service to a new provider. The new provider had very strict network protocol requirements, which caused significant challenges over the Sonic firewalls already in place, introducing voice quality issues. Following the implementation of SD-WAN, voice quality issues were eliminated. Using the NSX SD-WAN Orchestrator, the Low T Center IT team was able to blend the voice platform requirements into the SD-WAN configuration template and deploy across the entire connected network. Excellent QoS was achieved.

### Future-proofing the Network for Long-term Projects

The delivery of healthcare is constantly evolving and technology must evolve with it. Low T Center plans to implement and roll-out an Electronic Medical Record System (EMR) to help manage the care of its patients. The system is networked and requires point solutions in each location. Now, with SD-WAN, Low T Center is able to leverage the NSX SD-WAN Edges to create a private network to further secure the EMR system, and enable the hosting capabilities in the cloud with connections to each individual site.

This becomes important as new medical devices are deployed at sites and test results that they generate will need to be automatically populated in the EMR system. With SD-WAN, this is now possible with the continuous uptime functionality. For instance, Low T Center Utilizes a piece of equipment that analyzes blood. To connect it to the network, it must be first be connected to a LANtronics device that enables network awareness, which then connects to a PC, that then connects to the external network to transmit results. But if the PC is turned off, all connection is lost. In leveraging SD-WAN, Low T Center will be able to directly connect the blood analyzing equipment and the results it generates directly to the network and push the results to the EMR system in the cloud with no concern of network outage.

