



Nationwide medical imaging provider improves access and quality of experience for radiologists performing life-critical diagnoses

SimonMed speeds 3D image file transfers with business-driven SD-WAN built on Unity EdgeConnect, accelerated with Unity Boost WAN optimization

Prompt diagnosis and treatment of disease is critically dependent on accurate screenings and rapid interpretation of results. That's something SimonMed Imaging has done since its founding in 2003, providing comprehensive outpatient diagnostic and interventional radiology services to millions of patients across the country.

SimonMed uses sophisticated imaging systems that capture crystal clear 2D and 3D digital images—

some more than 2 gigabytes in size—which radiologists rely on to precisely identify anomalies that could threaten patient health. Performing more than 2,000,000 such studies per year, SimonMed generates huge amounts of data. For Duleep Wikramanayake, the company's chief information officer, moving these large images across a nationwide network is an enormous challenge.

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“We ingest about 650 gigabytes of image data per day—over 200 terabytes in a year,” Wikramanayake notes. “We have to make sure these images get to the radiologist reading stations in a quick fashion. If the radiologist is waiting for a study because the network is too slow, we can’t meet our commitment to delivering timely care to patients.”



We immediately saw the difference Boost makes. Radiologists aren’t waiting around to read images, and they can scroll through images very smoothly without the pause one gets if latency is bad. Now they can determine their diagnoses more quickly and precisely, so patients get their results faster and can begin the proper course of treatment as soon as possible.”

— Duleep Wikramanayake, Chief Information Officer, SimonMed Imaging

Accelerating image access and quality of experience

The problem was SimonMed’s legacy WAN was too slow. Acquisitions and expansion left the company with two MPLS meshes and 300-plus site-to-site VPNs, creating network complexity and a lot of latency for radiologists trying to access image files. In fact, it could take up to 10 minutes to retrieve a large image, and radiologists were complaining. What’s more, the MPLS circuits were expensive, costing the company approximately \$4M USD per year.

Based on his prior experience with Silver Peak, Wikramanayake was confident the [Unity EdgeConnect™](#) SD-WAN edge platform could improve WAN efficiency and reduce costs. The key would be building a hybrid SD-WAN, unifying the two MPLS meshes, while transitioning to all broadband.

To assist with this highly complex project, Wikramanayake brought in consulting firm, [Global Paradigm](#). “Global Paradigm really understands routing, and they know Silver Peak inside and out,” Wikramanayake remarks. “They helped us get the most out of every feature available in the EdgeConnect platform to make our deployment successful.”

With 80 site deployments completed to date, Global Paradigm is rapidly rolling out EdgeConnect to SimonMed’s 125-plus locations, with certain locations such as call centers deployed in high-availability configurations. Using the routing interoperability and stateful firewall within EdgeConnect, SimonMed was able to simplify and consolidate its WAN edge infrastructure.



Moreover, with SD-WAN overlays across both MPLS meshes, as well as dedicated internet access (DIA) circuits being provisioned at each location, the network can now handle the more than two million annual studies, as well as voice and other data flows in a year. To guarantee the appropriate network resources for each type of application, Wikramanayake and his team used the [Unity Orchestrator™](#) management interface to build business intent overlays, classifying voice and video as “Real Time” and imaging studies as “Optimized,” with all other traffic falling into the “Default” overlay.

For radiologists, this network efficiency means faster access to studies. Instead of taking 7-10 minutes to download an image, the file transfer now takes only 5 – 30 seconds depending on file size. For the business, the SD-WAN solution has already delivered a return on investment of \$2.5M USD in savings the first year due to reduced dependence on MPLS, with additional savings expected from further edge consolidation and full adoption of broadband only.

Dramatic latency reduction with WAN optimization

With a hybrid SD-WAN built on the EdgeConnect platform, SimonMed can now upload daily scans from its imaging facilities to the central data center as much as 50 percent faster than it previously took. Key to this is reduced latency achieved by the optional [Unity Boost™](#) WAN optimization software.

Wikramanayake says, “Latency is a big deal when you’re moving huge files like we do. Just having a lot of bandwidth won’t solve it—you need to also reduce latency, and Boost does that very well. One of the things that really stands out about Silver Peak is they provide SD-WAN, routing, security, and WAN optimization on a single unified platform.”

To illustrate the impact of Boost, Wikramanayake tells of an early trial involving a remote facility at his previous engagement with one 30/10-Mb circuit. It was taking over 13 hours to transmit image files to this facility each night. Adding a second identical circuit and deploying the EdgeConnect appliance with Boost reduced the time to transfer the same volume of images to just four hours.

“We immediately saw the difference Boost makes,” Wikramanayake comments. “Radiologists aren’t waiting around to read images, and they can scroll through images very smoothly without the pause one gets if latency is bad. Now they can determine their diagnoses more quickly and precisely, so patients get their results faster and can begin the proper course of treatment as soon as possible.”

Accelerates opening new locations

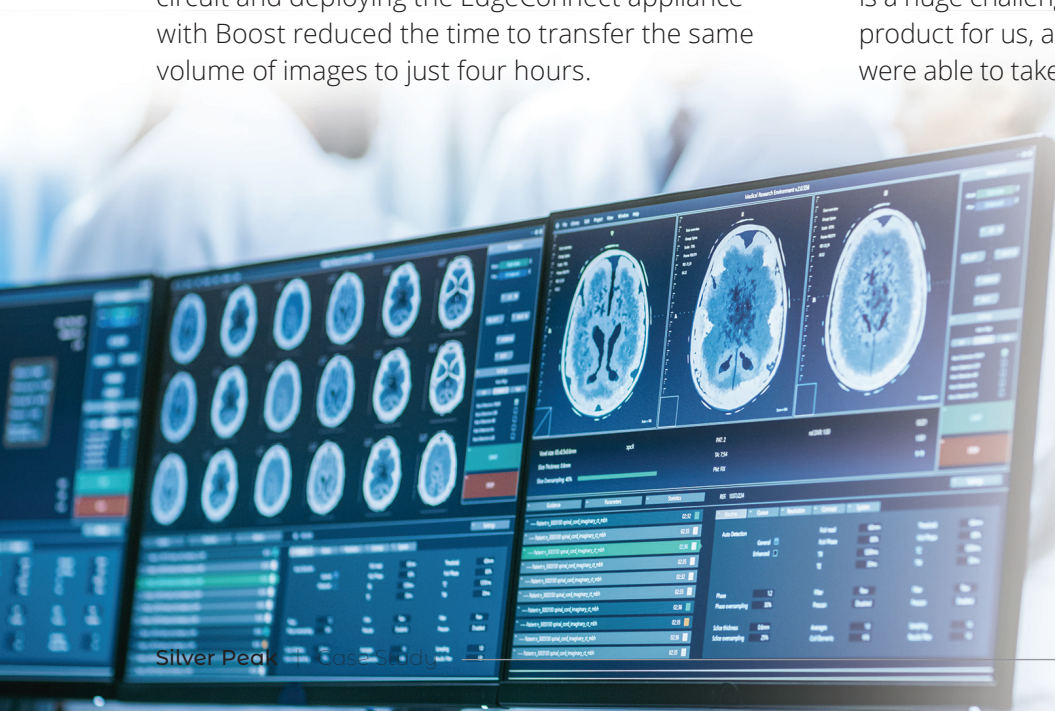
SimonMed continues to expand through organic business growth and acquisitions. Therefore, the speed at which the company can open new locations is critical. When relying solely on MPLS, bringing a facility online could take 90 to 180 days due primarily to the build-out required by the MPLS provider. Now, Wikramanayake says he can have a DIA circuit provisioned and a new site active on the SD-WAN in less than 30 days.

In fact, even in areas where DIA is unavailable, the EdgeConnect platform allows SimonMed to use almost any available form of connectivity. Wikramanayake notes, “We can use 4G LTE, point-to-point wireless, microwave, you name it, and Silver Peak makes it work. That flexibility is another advantage of the EdgeConnect SD-WAN edge platform that allows SimonMed to grow without being held back by network limitations.”

Wikramanayake concludes, “Moving a lot of big data across a complex network infrastructure like ours is a huge challenge. EdgeConnect has been a great product for us, and working with Global Paradigm, we were able to take on this challenge with great success.

I like to say if Silver Peak and Global Paradigm can solve the network problems we had at SimonMed, they can do it for anyone.”

For more information on Silver Peak and our solutions, please visit: silver-peak.com



Customer

SimonMed Imaging is one of the largest outpatient medical imaging providers and largest physician radiology practices in the United States. The practice consists of over 200 highly experienced subspecialty-trained radiologists, operating across 9 states with over 125 accredited facilities that are ACR-RADSITE certified with certified technologists and equipment. SimonMed Imaging specializes in using the newest diagnostic imaging technologies and bringing them to the community in an affordable and accessible way.

Challenge

After years of growth through acquisitions, SimonMed had two MPLS meshes with over 300 site-to-site VPN links, resulting in long transfer times uploading huge 2D and 3D imaging files to its central data center, and high latency for radiologists accessing those images. This caused costly delays and poor quality of experience for radiologists trying to diagnose patients' conditions.

Solution

Working with the consulting firm, Global Paradigm, SimonMed deployed the Unity EdgeConnect SD-WAN edge platform across 80 locations to date,

and is rapidly rolling out the EdgeConnect platform to its more than 125 facilities. The company retired its legacy routers, relying on the routing interoperability in EdgeConnect to build a hybrid SD-WAN across the two existing MPLS meshes and integrate DIA as part of a long-term objective of moving to all broadband. SimonMed also implemented the optional Boost WAN optimization software to reduce latency and accelerate radiologists' access to large imaging files.

Results

- Reduces time to access large image files from 10 minutes to less than 30 seconds
- Accelerates nightly data uploads from over 13 hours to less than 4 hours
- Improves quality of experience for radiologists reading images to diagnose patients
- Assures clear voice calls while simultaneously carrying heavy data traffic
- Provides ROI of \$2.5M USD in first-year savings due to reduced dependence on MPLS
- Speeds bringing new locations online from up to 180 days to less than 30 days
- Increases business agility with support for multiple forms of communications



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