AppEx Networks Accelerates the Leading U.S. Telemedicine Company and Radiology Practice to Improve Patient Care

Introduction

vRad (Virtual Radiologic), a global telemedicine company and the nation's leading radiology practice, partners with AppEx Networks to enhance the efficiency and performance of its patented global network platform, which is used 24/7/365.

The vRad platform automatically transmits diagnostic images (e.g., X-rays or CT scans from hospital emergency rooms) ordered by doctors at client sites nationwide. The images are routed to one of vRad's 350+ radiologists who provide diagnostic interpretations used to care for and treat patients. vRad's radiologists read more than 14,000 studies daily (5 million+ annually); more than 1.2 billion images move annually through the platform.

The Challenge: Defeating Network Latency to Offer High-Performance Services

As vRad continues to build its scale and scope of cloud-based radiology services, they must constantly demand network efficiency so that radiology images are moving as quickly as possible through its patented network —

essentially the largest global picture archiving and communication system (PACS) in the world. Depending on the type of study ordered (e.g., digital x-rays, CT scan, mammograms and MRIs), there can be a single image or thousands of images, which is often the case with complex/emergent CT studies. The amount of data can be upwards of 300MB or more, depending on the scan.

With hundreds of remote radiologists downloading images from its Minnesota data center, speeds can vary depending on their proximity to the data center. "The further away radiologists are from the hub, the slower the download speeds will be. It is just the nature of the Internet," said Patrick Williamson, Senior IT Manager. "Network latency is an issue we always contend with. We are always searching for methods and tools to reduce latency and improve data-transmission efficiency among different locations."

The faster images can move from hospital sites to the appropriate remote radiologist (who reviews the images and sends a diagnostic report back to a hospital's referring physicians), the better the clinical and diagnostic services that vRad provides to clients – and the faster and more immediate the care is delivered to the patients they collectively serve. "Due to the large amounts of data exchanged, we cannot allow slow transfer speeds and caching problems – especially when referring physicians are waiting for emergent case interpretations, such as stroke and trauma cases. This issue of speed is also important for our global healthcare partners in places such as China, Russia and the United Arab Emirates," Williamson notes.

The Solution: Acceleration Software that Provides LAN Speeds over Long Distances

vRad implemented AppEx's transport-acceleration LotServer software to perform testing that was conducted via a regular internet connection in China to vRad's Minnesota-based data center. "The test scenarios revealed a significant increase in traffic speeds from 2.5 Mbps (without AppEx's software) to 60 Mbps with AppEx's LotServer software," said Williamson. In another test, vRad implemented AppEx's LotWan appliance in their Minnesota-based data center. Testing produced impressive results. "The improvement was quite clear: transfer time of a 250MB file (the average size of a CT scan) from Minnesota to California went from 34 minutes without the LotWan appliance to 27 seconds, once installed."

AppEx reduces network latency and improves data-transmission efficiency in a unique manner, desirable to vRad. It streams data by sitting inline of the data transfer path, with no noticeable changes to the network. "The net effect with AppEx is that we have local LAN speeds over long distances," said Williamson. "AppEx's data acceleration works with no data compression, which is a vital requirement for global telemedicine. None of that data can be lost or degraded because it is all vital and necessary in order for remote radiologists to make the best diagnosis possible."

The Benefit: Easy Implementation and Immediate Results

vRad installed AppEx in one day with no downtime to its network, which is in used 24/7/365 by over 2,100 hospital, health system and radiology group facilities. "Since AppEx sent us everything pre-configured, it was easy to implement, and required very little training. We also didn't have to make any changes to our network. The hardware appliance is located in our data center and the implementation was transparent to our users and seamless with existing applications," Williamson said.

Since implementing AppEx, vRad has seen data-transfer times drop dramatically. "We have increased file transfer speeds 24 times when caching images to our radiologists," said Williamson. "With these kinds of speeds, we are confident in our ability to deliver high-performance teleradiology services worldwide. In addition, we can be nimble when dealing with client requests. Our network performance allows us to concentrate on innovating and expanding our telemedicine services, rather than worrying about network performance and capacity. Rather than asking the question, 'Can our platform handle what we want to do?' we can focus more on the question of, 'What more can be done with our platform to better serve our clients?'"

About vRad

vRad (Virtual Radiologic) is a global telemedicine company and the nation's leading radiology practice with over 350 U.S. board-certified physicians, 75% of whom are subspecialty trained.   We interpret over 5 million patient studies annually—and process over 1 billion images on the world's largest PACS implementation—for our 2,100+ client hospital, health system and radiology group facilities.   A winner of Frost & Sullivan's Visionary Innovation Award for Medical Imaging Analytics (North America) and a leader in imaging analytics, vRad provides access to the only radiology patient care benchmarking platform (vRad RPCSM Index) with 30 million+ patient studies, growing at 400,000 studies per month. vRad's clinical expertise and evidence-based insight help clients make better decisions for the health of their patients and their imaging services. For more information, please visit www.vrad.com. Follow us on Twitter, Facebook and LinkedIn.