![Juniper Networks logo]

IGX GLOBAL DEVELOPS CUSTOM SECURITY SOLUTION FOR GROUND-BREAKING MEDICAL IMAGING DEVICE

Summary

Company: Bartron Medical Imaging, Inc.

Industry: Healthcare

Challenges: Custom security and monitoring solution needed for a groundbreaking medical imaging system

Solution Provider: IGX Global partnering with Juniper Networks

Technology Solution:
- Juniper Networks SRX3400 Services Gateway
- IGX Global's Foresite ProVision alerting and monitoring services

Business Results: Security solution from IGX Global enables groundbreaking medical technology

Bartron Medical Imaging was founded in 2000 with a mission to bring a new and higher standard of care to the medical industry. The company collaborated with NASA Goddard Space Flight Center (NASA/GSFC) to develop a medical device that incorporates algorithms originally developed by the agency. The NASA/GSFC software analyzes photo pixels and groups them into related segments, and scientists have been using the technology to do things like improve the accuracy of ice and snow maps and find archaeological ruins under dense jungle. Bartron Medical Imaging has committed itself to applying the software to improve the quality and readability of medical scans.

The result is MED-SEG™, an FDA cleared Picture Archiving and Communications System (PACS) medical device that receives medical images and data from various imaging sources, including MRI and CT scans. MED-SEG then processes the data using the NASA radiotherapy image analysis software. This allows physicians and healthcare practitioners to segment a medical image in a way that enables them to see features in the image not previously visible to the naked eye. With this groundbreaking technology, practitioners can gather more information from the same image, resulting in faster and more accurate diagnoses for a wide range of medical issues.

Business Challenge

Bartron was looking for more than a solution provider—it needed a true partner that not only had a strong relationship with a top networking vendor, but also had the ability to custom tailor a security solution for MED-SEG that would meet the strict FDA requirements for cybersecurity clearance. Bartron leaders approached Juniper Networks for advice, and were introduced to Juniper partner IGX Global.

Founded in 1998 with headquarters in central Connecticut, IGX Global works with organizations from technology startups to Fortune 500 companies, helping them leverage technology to achieve business goals. With the goal of gaining FDA approval, including for cybersecurity, Bartron Medical Imaging approached IGX Global with its needs for an encrypted "tunnel" that is firewall-protected on both ends, as well as for round-the-clock monitoring and alerting to ensure that sensitive data is safe at all times.

Bartron Imaging president and CTO Fritz G. Walker, Jr. met with IGX Global and found that it was an excellent fit for his company's needs. IGX Global not only had top-notch firewall expertise, it had a team in place with a proven track record of success for monitoring and security. "IGX Global has a very strong relationship with Juniper Networks, which has excellent firewall technology," Walker says. "Additionally, it had the security and monitoring expertise, and the capabilities to custom tailor a solution for us. We knew we had our answer."

![IGX Global logo]

Technology Solution

The MED-SEG system receives digital images via a secure cloud Internet communication link, and then incorporates parallel-computing algorithms to analyze the image by performing high-speed segmentation and regionalization on a secure High-Performance Computing (HPC) cluster. The analyzed and enhanced image is then returned to the user. This ability for MED-SEG to "talk" to a supercomputer on the back end that performs extractions and segmentations of the images is a new and exciting use of the NASA/GSFC software, and one that could stand as a revolutionary medical advancement. Because the image and computational data attached to it goes back and forth between MED-SEG and the supercomputer back end, Bartron needed special FDA cybersecurity clearance that covers validation for medical device software.

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>
> - Brendan Boyle,
>   Regional Account Manager, IGX Global

"Many companies have equipment that moves medical record files, but medical image files must hold certain integrity or they are no longer useful," Walker says. "It was critical for us to identify a partner that could come up with an iron-clad firewall technology solution to ensure that the medical images transfer with the highest level of integrity and to ensure that all patient information is protected."

To meet these ambitious goals, Barton Medical Imaging decided to partner with IGX Global and Juniper Networks. "Bartron needed a technology solution in place to securely send image files around the world without risk or fear of the image being corrupted or sensitive information being lost or compromised," said Brendan Boyle, regional account manager for IGX Global. "The correlation done to the image on the back end can cause it to be presented differently than the original image, which makes it really groundbreaking technology. We were confident we could custom build a solution and were excited to be a part of it."

IGX Global's strong relationship with Juniper Networks enabled the solution to encrypt traffic from MED-SEG to the reading center clusters. The IGX Global team chose the Juniper Networks®

SRX3400 Services Gateway for its market-leading performance, scalability, and service integration. The SRX3400 can sustain up to 20 Gbps firewall throughput and up to 175,000 new connections per second. Its chassis-based form factor is ideally suited for MED-SEG's needs.

Business Results

The solution includes IGX Global's Foresite ProVision technology, which provides the necessary security monitoring and alerting for MED-SEG, as well as the ability to generate accurate, detailed records needed for a variety of reasons by MED-SEG users. These can include records to meet care providers' malpractice insurance requirements and tracking of log files, image monitoring, and data needed for accurate billing. "The customization and flexibility of IGX Global's managed service offering is a key part of MED-SEG's success and our ability to make it available in the U.S.," Walker says. "The IGX Global team worked tirelessly to provide solutions for hardware needs, security, monitoring, and compliance for a host of regulatory conditions."

After 13 years in development, and earning several awards, including a 2011 R&D 100, initial shipments of MED-SEG have gone to India and Singapore, and orders are in process with Canada, Nigeria, and Dubai. To initiate shipments in the U.S., Bartron Medical Imaging has received ISO 9001 certification as a medical device manufacturer, and is pursuing the necessary FDA cybersecurity clearance with continued support from IGX Global and Juniper Networks.

This partnership spotlights IGX Global's ability to respond to unique challenges by leveraging its strong partnership with Juniper and the company's cutting edge solutions for revolutionary new products.

"MED-SEG is part of the future of healthcare—it can lower healthcare costs, speed diagnosis, and eliminate unnecessary procedures," Boyle says. "IGX Global is really proud of our role in the development and certification of MED-SEG."

Next Steps

To find out more about Juniper Networks products and solutions, please visit www.juniper.net. To learn more about IGX Global, please visit www.igxglobal.com.

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3530017-001-EN Nov 2014   Printed on recycled paper