

# Shared P.E.T. Imaging Nuclear Medicine Scans Take to the Road with Firetide

**W**hile many hospitals have computerized tomography (CT) and magnetic resonance imaging (MRI) scanners, only a few large facilities with authorized nuclear medicine programs have powerful Positron Emission Tomography (PET) systems. Shared P.E.T. Imaging, LLC, is making this advanced technology more available, thanks to its mobile PET scanners and a Firetide<sup>™</sup> Instant Mesh Network<sup>™</sup>.

## Advanced Imaging Gets on Board

One of the most advanced diagnostic imaging techniques available today, PET is a non-invasive procedure that delivers detailed information about the body's metabolism, cell function, and exact disease locations. Unlike CT scans or MRI images which show anatomy and specific body structures, PET can "read" body chemistry. This powerful nuclear medicine technique allows physicians to find diseases and disease sources earlier and combat them in their most curable stages.

As a technology that uses nuclear pharmaceuticals, PET facilities are tightly regulated and monitored. Only a handful of large hospitals, cancer facilities, and research facilities can make the sizeable investment in equipment, staff, and facilities. Shared P.E.T. Imaging, however, brings PET diagnostic techniques directly to regional hospitals, specialized clinics, Veterans hospitals, and other facilities through its fleet of coaches. The Shared P.E.T. coach drives onto a pad specially prepared for the coach, performs the scans, and delivers the images directly to the hospital's Picture Archiving and Communication System (PACS) or radiology department via a secure wireless network link.

## Connection at a Cost

"We have been exploring better ways to connect to hospitals' networks for three years," says Marc Simms, director of information technology for Shared PET Imaging. "Traditional network wiring and cabling is not up to the challenges of outdoor use and the distances we must accommodate."

Parking a coach close enough to the medical facility's network drop is difficult. Often, coaches must park at a remote facility with fiber being the only viable means of carrying data over the distance involved.



## Organization

Shared P.E.T. Imaging, LLC  
 Canton, OH  
[www.sharedpet.com](http://www.sharedpet.com)

## Industry

Healthcare

## Challenge

Provide a secure, reliable, broadband wireless link to hospital imaging departments from a mobile coach.

## Solution

Firetide HotPoint<sup>™</sup> Mesh Routers



Cables were routed through the coach's access panel and in cold weather, they broke easily or the Ethernet jacks froze. And from the hospital's perspective, open ports created a significant security risk.

"We evaluated a number of wireless network alternatives," says Simms, "but nothing really could perform in the way we needed." For example, most solutions couldn't provide enough power to carry a signal through the lead walls typical of radiology departments. As a result, the networks often dropped signals and experienced frequency drift and interference. Open-architecture systems, based on straight 802 technology, did not provide the security needed for complying with Health Information Portability Act (HIPAA) requirements in transmitting confidential patient data.

Installing and connecting cables wasn't as simple either. In states that require union labor, ongoing fees and inspections not only drove up costs, they robbed valuable scanning time while cables were installed or connected.

## Securing the Best Connection

“The Firetide solution works best for us,” said Simms. “Not only do we have more flexibility in placing the coach, we can securely connect to the hospital in less than ten minutes without requiring an IT staff member.”

The coach’s onboard Firetide HotPoint™ Mesh Router automatically sets up a mesh with another HotPoint Mesh Router already installed inside the facility. Data from the coach’s PET scanning system travels from the nuclear camera to the physician’s PC inside the facility over the Firetide Instant Mesh Network. HotPoint mesh routers also provide multiple Ethernet ports which enable the facility to extend its networking service anywhere without running cables or adding devices, such as routers or switches.

Unlike typical Wi-Fi networks that rely on open broadcast techniques, HotPoint routers only communicate with other HotPoint units, making the Firetide mesh network extremely secure. The Firetide systems include Wired Equivalent Privacy (WEP), a security protocol for wireless local area networks defined in the 802.11b standard, as well as Advanced Encryption Standard (AES) encryption the standard adopted by the U.S. government for securing multiple network layers simultaneously. As a result, the Firetide network does not interfere with other wireless devices nor will a person with a laptop create a security problem. The wireless setup also eliminates the security risk of leaving an unsupervised open port once the coach leaves for the day.

## Creating High Availability Connections

Setup takes approximately ten minutes. Once the driver parks the coach, he simply takes the Firetide HotPoint mesh router out of its case, plugs it into a power source, connects the PET scanner, and walks away. There is no need to configure access layers, manage Web encryption keys, or manage the units at all.

In the past, a network staff person would have to open a connection when the coach arrived and baby-sit the port and cable until the coach departed. Now the hospital IT staff simply goes about its business while Shared P.E.T. manages the system remotely. While the Firetide solution reduced set-up time for coach drivers by 14 percent, it reduced calls to the hospital’s help desk relating to network connectivity by 100 percent.

“The Firetide Instant Mesh Network is exactly the kind of ease of use we needed,” grins Simms. “And unlike other solutions we evaluated, the Firetide HotPoint Mesh Routers are self-healing. We didn’t have to purchase additional systems to assure redundancy and high availability.”

## Savings, Savings, Savings

The Firetide Instant Mesh Network cut connection costs by more than 50 percent. No special equipment or software is needed to connect workstations or portable devices to the mesh. There is no need to pull cable or install fiber, which would be a capital expense to the hospital. And the issues related to union fees, permits, installations, and inspections simply vanished.

## All Aboard

The Firetide solution has given Shared P.E.T. a sizeable competitive advantage by making the firm easy to work with for its hospital customers. Simms expects to increase the coach fleet size by 50 percent and soon, all coaches will include the Firetide solution.



“My vision is to extend the use of the Firetide solution to set up meshes between medical campus buildings to give physicians access to images from anywhere,” says Simms. Shared P.E.T.’s software division has developed FDA-

approved review and diagnostic workstation software for use with PET scans and multi-modality fusion. The solution won a Computerworld Mobile & Wireless World 2004 “Best Practices in Mobile and Wireless” award. It allows nuclear physicians to access and read PET studies on tablet PCs and transfer studies over a wireless network, and Simms hopes to soon use Firetide solutions in a related pilot project.

“The Firetide Instant Mesh Network has become a compelling tool for our business,” says Simms, “and I expect to see a very high return on our investment.”

[www.firetide.com](http://www.firetide.com)

Toll Free: 877-FIRETIDE (877-347-3843)

Telephone: 408-399-7771

Fax: 408-317-1777

[info@firetide.com](mailto:info@firetide.com)

16795 Lark Avenue, Suite 200  
Los Gatos, CA 95032 USA

© 2003-2004 Firetide, Inc. All rights reserved.  
Firetide, HotPoint, and Wireless Instant Networks  
are trademarks of Firetide, Inc.  
Information is subject to change without notice.

CS-SPETI-071504