

Case Study



Delos Internet Provides Hosted High Speed Internet and Scalable Private WAN Solution for Houston Medical Imaging Using QoS

The Challenge:

Extend HMI's Local Area Network from their main office building on to their 2nd building across the street, as well as their new 3rd location, a satellite office three miles away which would eventually host their server farm. The WAN needed to incorporate QOS (Quality of Service) to support their VoIP phone system, as well as provide adequate bandwidth to quickly transfer studies from one office to the other.

Doctors in each office must be able to quickly download and read medical studies which are quite large, containing image files such as CAT scans, MRI's and Ultrasounds. Additionally, provide high bandwidth Internet to all three buildings for VPN tunnels from outside practices, centers and hospitals so that Doctors at those facilities can read them locally. In addition, since the amount of studies being read each day continues to grow, bandwidth must be upgradable to support future growth.

The Solution:

Delos Internet engineers sat down with HMI and their IT staff to determine their exact requirements and design a network that could support their large data transfers, but ensure that phone calls across the VoIP network would have adequate bandwidth to prevent drops. The network needed to allow all of their offices to have access to data networks at each of the other offices, as well as provide adequate Internet bandwidth for their VPN tunnels.

Delos Internet concluded that a hybrid centralized hub and spoke design would provide the best solution, producing a multibuilding WAN in which an employee in one building could access data on servers in another building at 30Mbps or better.

Delos Internet moved HMI's firewall and hosted it from a downtown POP (Point of Presence). From there, Delos Internet provided 30Mbps of bandwidth to the Internet to mostly support their incoming VPN tunnels. Wireless links were installed, the first using Motorola Orthogaon to HMI's main office providing 40Mbps of total bandwidth, upgradable to 100Mbps on demand.

A second link was installed to HMI's 3rd office using Dragonwave with a total of 100Mbps upgradable to 400Mbps, which would support the possibility that this location could soon become a data center.

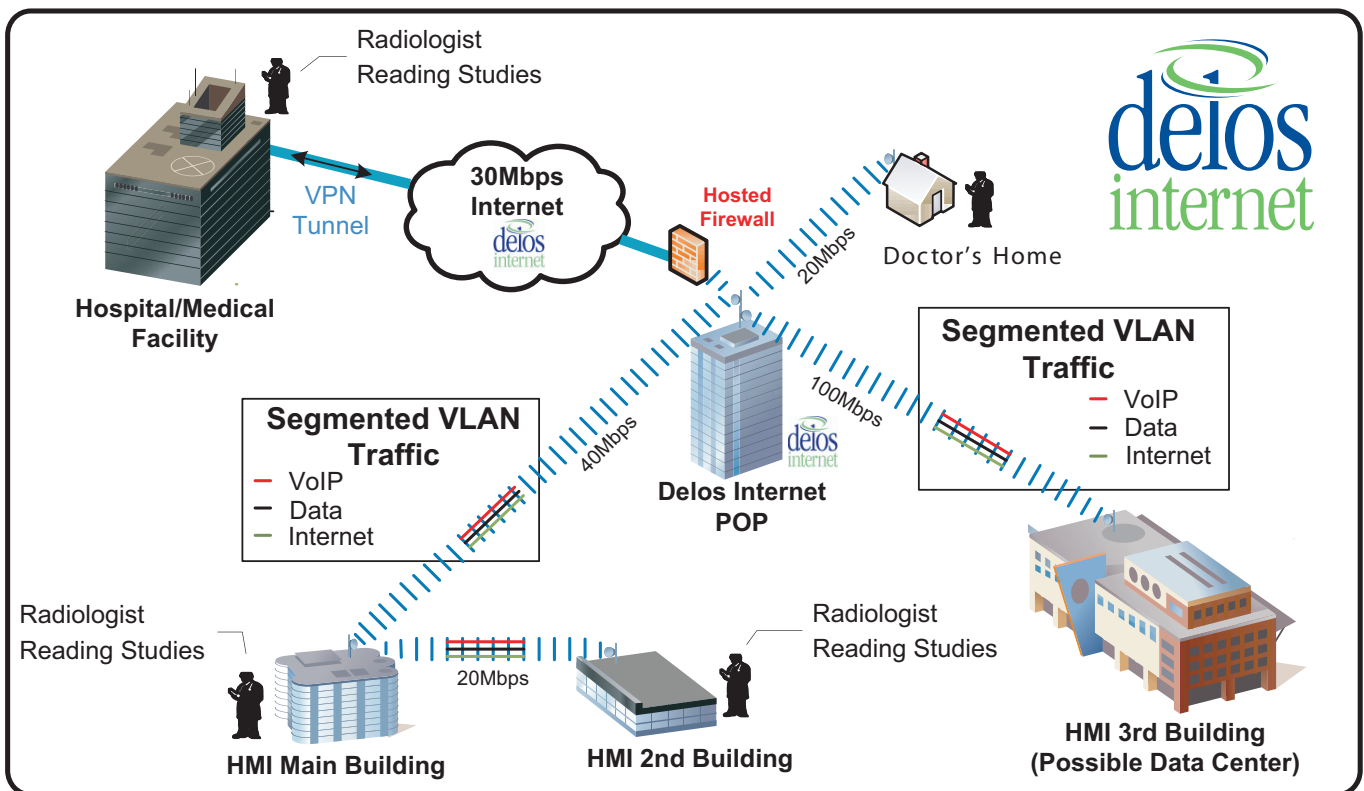


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The third link, providing 20Mbps of bandwidth, was installed between the main office and HMI's 2nd building across the street. New switches were installed at each location, and VLAN's were created to segment the VoIP traffic from the data traffic and to provide QoS. Each VLAN was trunked across the WAN so that each office could communicate as if in the same building.

By centralizing the firewall, the incoming VPN tunnels terminate at the POP, and the firewall policy determines the destination of each packet across the links. In addition, a 20Mbps link was installed to the home of the CEO allowing him to read from home if need be, which is invaluable in the event of an emergency.



- Network Consists of Dragonwave & Motorola Orthagon Links
- 99.999% Up-Time for Maximum Reliability
- Entire LAN Extended to Each Building Using Secure Layer 2
- Firewall Hosted from POP Creates Single Point of Entry for VPN Tunnels & Internet Traffic
- QoS Ensures VoIP Has Sufficient Bandwidth for Phone Calls
- Bandwidth To Each Building Can Scale Up On Demand
- Links are Monitored 24x7
- Bandwidth Utilization Charts & Statistics Are Provided

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About Houston Medical Imaging

Houston Medical Imaging (HMI) is a radiologist owned and operated diagnostic imaging clinic offering a full array of diagnostic and therapeutic imaging services to the greater Houston



community since its inception in 1998. HMI's services include General Radiology and Fluoroscopy, Open MRI, Closed MRI, Multislice CT, CT/PET, Nuclear Medicine, DEXA Bone Densitometry, Pain Management, Ultrasound, Echocardiography and Digital Mammography.

The physician staff comprise Board Certified Radiologists, many with subspecialty (CAQ) qualifications. By combining the best imaging equipment with a superb team of physicians and the latest in digital imaging and storage, Houston Medical Imaging provides a level of quality that is recognized by over 500 referring physicians.

About Delos Internet

Delos Internet is a wireless Internet service provider founded in 2005, offering extremely fast Internet and private networking connections to businesses throughout the Houston metropolitan area. Delos Internet is considered a last mile fiber provider – in a sense, extending the reach of typical fiber speeds and reliability beyond the traditional high rise offices and data centers where it is usually more readily available.

Since the company does not bury or lease cable, it can compete with traditional copper solutions by offering drastically lower prices with much higher speeds and higher reliability. By building its own licensed frequency microwave network, Deolos Internet is completely independant of the local telephone and cable companies which makes it extremely attractive for businesses seeking redundancy or alternatives to fiber and switched copper.

