



## Renowned Hearing Institute Bolsters Collaboration and Care with Secure, Converged Enterprise Solution

*The Challenge: Few enterprises understand the importance of communications like House Ear Institute (HEI), an internationally recognized non-profit research organization based in Los Angeles. Known for its contributions to auditory science, HEI's 180 employees require a fast, reliable communications infrastructure to collaborate on their exploration of hearing loss, ear disease, and the complex relationship between the ear and brain. They also need effective communications technologies to care for thousands of patients per year that receive treatment at HEI's five affiliated House Ear Clinics throughout Southern California and a children's clinic at its Los Angeles site.*

However, until recently HEI relied on a 10/100 Ethernet headquarters network that lacked the speed researchers needed to transfer files between offices and other research centers, resulting in bottle necks that hampered staff's productivity. "It took too long to send files of up to 1 gigabyte generated by our Siemens electron microscope, presentations and audio files between our departments," said Alex Hammerschmidt, House Ear Institute's IT coordinator. "Often, our staff would be forced to wait in front of their PCs rather than working on important research."

In addition, the voicemail system integrated with the institute's legacy Nortel Meridian PBX system could not support increasing call volumes at the institute and clinics. As a result, patients attempting to reach their doctors often had no way to leave messages regarding appointments, treatments and test results. Moreover, the phone system could not support HEI's 2006

headquarters expansion into a new wing, which required it to add 125 phones.

At first, HEI considered upgrading its existing PBX system, but the option was cost-prohibitive, said Hammerschmidt. A more practical and cost-effective approach involved adding a next-generation VoIP telephone system. However, the institute's legacy routers and switches from Cisco Systems could not support converged voice and data services. Instead, HEI decided to implement an entirely new enterprise network solution that would enable it to rapidly transfer large medical files, support government regulations like the Health Information Portability and Accountability (HIPAA) act requiring secure transmission of electronic files and applications, and provide the basis for advanced IP-based and wireless communications. The new network also would permit HEI to increase productivity, accelerate research efforts and improve service for patients.

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**Martin Maren**  
CFO  
House Ear Institute

### **Why\_Solutions\_from\_3Com\_and\_TippingPoint,\_a\_division\_of\_3Com**

HEI evaluated product offerings—including the expertise to manage its entire implementation, from deployment to training—from numerous vendors, narrowing the field to 3Com, Cisco and Nortel. “We compared cost and performance on a system-by-system basis,” recalled Martin Maren, House Ear Institute’s chief financial officer. “3Com not only offered us a superior secure, converged enterprise solution at the most affordable price, their Global Services organization gave us a methodical approach that freed us to focus on our business, ensured a smooth transition to the new network, and, ultimately, distinguished them from their competitors.

“3Com also provided another crucial advantage,” added Maren. “Their management and sales staff were genuinely interested in our mission. Several high-level 3Com sales staff and executives, including 3Com president and CEO Bruce Claflin, met with us at our site. In that respect, 3Com was far above all the other vendors.”

In November 2005, 3Com Global Services advisors began a five-phased implementation process that included configuration, testing and training on all equipment deployed at HEI’s headquarters and remote sites. Global Services’ careful management, which included parallel network testing, enabled HEI to cut-over to the new infrastructure in a single weekend with no disruption to most users. 3Com also managed relationships with the institute’s contractors and suppliers, including the phone company.

At the core of HEI’s new enterprise infrastructure is a modular 10-Gigabit-ready 3Com Switch 8807 solution, which extends Gigabit links to 40 3Com Switch 5500G-EI 48-Port platforms in wiring closets throughout the headquarters and remote sites and also connects to HEI’s 20-device server farm. With newly run Cat 5e cabling to all offices, HEI is now poised to have full gigabit speed all the way to the desktop. In addition to high performance Gigabit connectivity, the Switch 8807 provides advanced Quality of Service (QoS)

and traffic management capabilities which enable HEI to handle its demanding data applications and to deliver latency-free VoIP communications to its staff. The core switch also delivers advanced security features, including 802.1X Network Login and Access Control Lists (ACLs), ensuring that only authorized users access LAN resources. The stackable, Layer 2, 3, and 4 Switch 5500G-EIs extend enterprise-class performance to the network edge and HEI’s clinics. Like the Switch 8807 solution, they prioritize traffic for IP telephony and other time-sensitive applications and are 10-Gigabit connectivity.

HEI installed 3Com Router 5642s at its headquarters and remote sites for highperformance wide area network (WAN) routing, QoS, and enterprise-wide perimeter security. The router extends IP voice services and corporate applications to HEI’s five remote sites, providing each House Ear Clinic with Internet access via 24-port 3Com Switch 5500G-EI 24-Port platforms at each site. Advanced security and control features, including a built-in stateful firewall and VPN (L2TP, GRE, IPSec) capability, help protect sensitive client and company data.

To obtain pervasive network security, the institute implemented the TippingPoint Intrusion Prevention System (IPS). The solution proactively protects the converged network and applications from internal and external cyber attacks, and prevents nonmission critical applications from degrading resources and important business applications. In addition to protecting against traditional data threats, the TippingPoint IPS also offers protection against VoIP-specific vulnerabilities and Denial of Service attacks that are extremely detrimental to VoIP networks. The TippingPoint Digital Vaccine® service ensures the system is constantly updated to guard against the latest threats, often protecting HEI’s network in advance of attacks. The TippingPoint Security Management System (SMS) provides enterprise-class administration, configuration, monitoring, and reporting for multiple TippingPoint IPS devices.

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noticeable reduction in phishing emails. For example, before, I typically received 15 phishing emails per day. Now I get only one or two. Extend that across our company, and you can see the high value the TippingPoint IPS provides.”

To provide secure, converged networking, HEI installed the 3Com VCX IP Telephony Solution. Based on the Session Initiation Protocol (SIP) standard, the scalable software solution supports up to 50,000 users and powers the modular 3Com Convergence Applications Suite. Presently, the institute is using the IP Messaging, Presence, and Convergence Client Modules of the Convergence Applications Suite, giving its researchers and clinicians advanced control over telephony and messaging services. Integrated unified messaging enables staff members to retrieve and send email, voice mail, and faxes from a single inbox from their offices or remotely—a particularly valuable benefit for traveling researchers. HEI also deployed the 3Com VCX V7122 and 7111 media gateways, and 500 3Com IP phones, including 3Com 3101 Basic Phones and Speaker Phones and 3102 Business Phones. The gateways enable seamless voice calling between traditional and IP networks and allow companies to reduce phone costs using least-cost routing to minimize long distance charges and route calls via the most cost-effective gateway.

Ideal for medium to large enterprises, the gateways facilitate deployment of 3Com Convergence Applications Suite modules, including enhanced applications such as IP conferencing and unified messaging. They support up to 480 simultaneous voice calls, one to 16 T1 or E1 spans, and a variety of protocols, including SIP and various PRI and Channel Associated Signaling standards.

To further enhance its communications services, HEI extended wireless connectivity throughout the headquarters facility by installing two 3Com

Wireless LAN Controller WX4400s, as well as 64 3Com Wireless LAN Managed Access Point 2750s in various meeting and conference rooms. The wireless solution provides researchers and doctors with fast access to data applications via “thin” client-enabled laptops from virtually anywhere in the institute.

For flexible network management, HEI IT staff use the 3Com Enterprise Management Suite (EMS), a Network Change and Configuration (NCC) platform that provides extensive capabilities for managing large, heterogeneous networks consisting of LANs, WANs, wireless LANs (WLANs), and converged voice/data/video infrastructures. EMS enables IT staff to graphically map, configure, and troubleshoot devices quickly and easily via an easy-to-use Web-based interface.

### Benefits\_Summary

With its 3Com secure converged network, House Ear Institute is accelerating its research collaborations and responsiveness to patients. Added security eases compliance with HIPAA and other government privacy mandates. “The network is much faster and secure, and our voice quality and feature set have greatly improved our communications,” said Hammerschmidt.

Moreover, Web-based management tools reduce administration complexities. “Before you literally had to go down into the basement and make changes from a DOS prompt, which was difficult and time consuming. Now all moves, adds, and changes can be made quickly and easily from the Web. It literally takes 10 seconds,” said Hammerschmidt.

Most importantly, said Maren, “the 3Com solution gives us the advanced tools we need in our continuing mission to discover medical breakthroughs and improve the quality of life for the hearing impaired.”

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