

Lab Testing Summary Report

January, 2005
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Product Category:

IP-PBX

Large Systems

Vendor Tested:

ShoreTel

Product Tested:

ShoreTel5



Key findings and conclusions:

- Awarded “Easiest-to-Use IP-PBX, Large Systems” in open competition with Cisco, Avaya and others, based on ease of use, ease of deployment, and exceptional management and administration
- “Call Manager” desktop software, well integrated with Windows, simplifies end-user access to telephony functions - placing calls, scanning call logs, call recording, searching Outlook contacts
- Distributed architecture provides high degree of survivability and resiliency; easy-to-deploy call control and gateway modules

ShoreTel's ShoreTel5 was recently evaluated by Miercom as part of an open competitive review of high-end IP-PBXs from leading vendors – supporting 1,000+ IP stations in typical or target deployments. We tested Release 1.2 that shipped in October 2004. The goal of this testing was to evaluate how well IP-PBXs fared in six categories: Architecture, Endpoints, Management and Administration, Features, Security and Performance. As a result of this testing ShoreTel was awarded the title “Easiest to Use IP-PBX, Large Systems.”

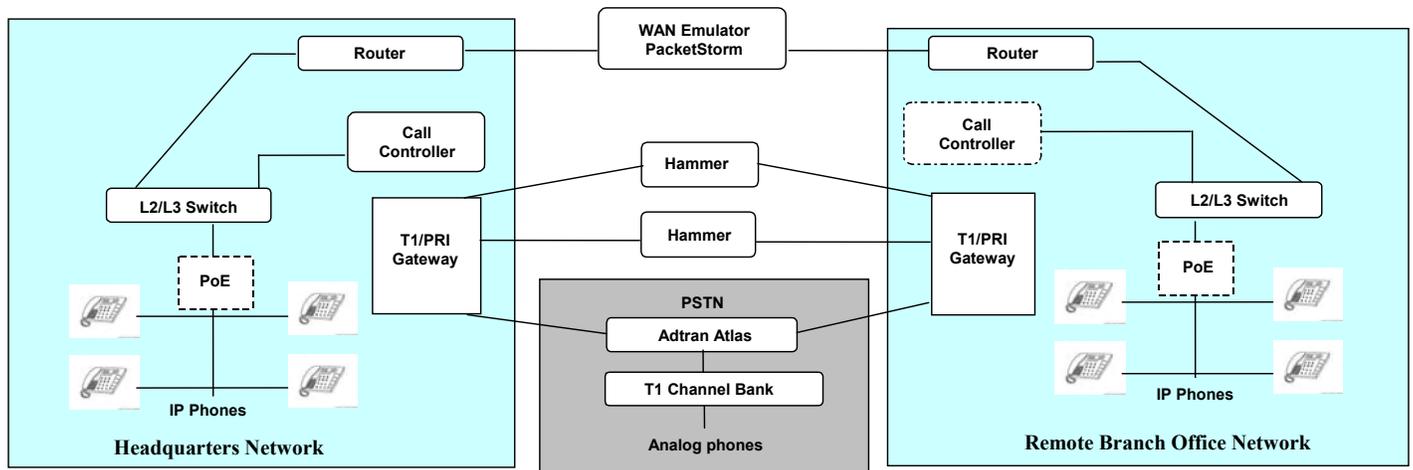
Ease of deployment

With the ShoreTel system there is no complex chassis with a multiplicity of different cards. Rather, there are prepackaged modules, which are easy to set up, placed where needed and support specific

A screenshot of the ShoreTel administrative interface. The left sidebar shows a navigation tree with categories like Administration, Trunks, IP Phones, and Maintenance. The main area is titled 'Users' and 'Edit User'. It contains several tabs: General, Personal Options, Distribution Lists, and Workgroups. The 'General' tab is active, showing fields for First Name (Mike), Last Name (Smith), Number (2550), License Type (Extension and Mailbox), Caller ID, DID (+1408331 2550), PSTN Failover (External Number 9+1 (408) 331-3300), User Group (Sunnyvale + Call Recording), Site (Sunnyvale), Language (English), Home Port (IP Phones 00-04-F2-00-38-2B), and Current Port (00-04-F2-00-38-2B). Buttons for New, Copy, Save, Delete, and Reset are at the top right.

Shoreware Director, ShoreTel's administrative interface, provides a single screen to add a new user, define user features and buttons and creates voicemail account.

Large IP-PBX Test-bed Environment



About the testing... The “Large IP-PBX” test bed consisted of two “simulated” sites, a company headquarters and a “remote” or branch office connected by an IP WAN link. At “headquarters” the network infrastructure included Extreme Networks Summit 48 switches and a Cisco 7200 LAN/WAN Router. The same network structure was deployed at the remote site. The two sites were also connected by T1 links through an ADTRAN Atlas 800 central-office switch simulator in order to test failover and re-routing scenarios. Fax support and all other analog connectivity were also tested via a Carrier Access Corporation Access Bank II channel bank. Vendors were required to provide their own PoE (Power over Ethernet) to power their IP hard phones. A PacketStorm Hurricane 1800E Network Emulator was used to simulate a typical IP LAN or “campus” environment as well as a simulated IP WAN link over the internet. For the VOIP connection-quality tests this device applied latency, packet loss and jitter to simulate the various test scenario environments.

All vendors’ IP softphones were run on the same Compaq Presario 2500 laptop, and employing a Plantronics DSP-400 USB headset. Two Empirix Hammer Systems – a Hammer FX and a Hammer LoadBlaster 500 were used to generate the call loads required in the Performance tests. Various monitoring systems were used during the testing to verify network traffic and other VOIP operational characteristics. These included Fluke Networks’ Optiview Protocol Expert; Ethereal; and the BrixMon application with the Brix 100 Verifier from Brix Networks.

configuration capacities. ShoreTel’s T1 module supports a single T1; the IP call controller handles up to 120 IP phones. For traffic engineering that’s all you need to know.

Ease of use

Among ShoreTel’s most notable advanced features are its desktop applications, which exploit the telephony capabilities of the ShoreTel5 IP-telephony system with slick Windows desktop integration.

“Call Manager,” a rich, desktop productivity suite that includes ShoreTel’s unified messaging and Quick-Dialer applications, offers the softphone as an option and features an easy-to-use interface for finding contacts, placing calls and scanning call logs.

A novel feature is the call routing slip at the bottom of the screen that shows real-time call history. “Call Manager” also provides users with simple access to many advanced features including call handling, find me, greetings, forwarding and message notifications. In QuickDialer, users select the party they want to

reach from system director and local outlook contacts, hit the <return> button and the call is automatically established.

“Operator Call Manager” offers attendant-console capabilities permitting real-time presence indication for hundreds of extensions. It also supports drag-and-drop document sharing, allowing a user to quickly show a document to another user during a regular phone call.

All Call Manager versions offer integration with Microsoft Outlook for unified messaging, where voicemail messages are maintained as .wav files on the Shoreware server and synchronized with telephone message waiting indication. The voicemail player is automatically launched when a voicemail item is clicked and may be replayed through the phone or the PC.

ShoreTel provides well-thought-out teleworking solutions with its intuitive SoftPhone application. A hardware VPN is used with a teleworker’s IP phone and a software VPN is available for use with

the softphone. Such remote sites are also supported by the ShoreTel Find Me/Follow me and message-notification capabilities.

The Call Manager suite of products feature an extremely easy-to-use interface for finding contacts, placing calls and scanning call logs. In fact, ShoreTel's Personal Call Manager was recently named the 'Easiest to Use Advanced IP-Telephony Application,' in September 2004 Business Communication Week magazine.

Distributed Architecture

ShoreTel's distributed architecture provides a high degree of survivability and resiliency. The call control software is distributed to the ShoreGear switches, providing no single point of failure in a multi-site environment. The switches automatically re-route calls in the event of a WAN or telco failure, working with other switches in the network to provide uninterrupted service. Reliability is enhanced since the ShoreGear switches, based on VX Works, contain no spinning media.

Endpoints

ShoreTel provides one of the best sounding, full duplex speakerphones of the IP PBXs Miercom has tested. The phones are attractive and easy to use, and feature a wideband codec, which provides a broad frequency range and a clear and robust audio quality.

Management and Administration

ShoreTel's ShoreWare Director, running on a Windows server, provides the network manager's view of the ShoreTel system via a clean and efficient interface. Adding a new ShoreTel user, for example, is all done on a single screen, even for voicemail. It takes a half-dozen or more screens for most other vendors. ShoreTel's management is among the few that earned full credit for interface ease-of-use and navigability.

ShoreWare Director provides a single interface to all equipment in the network with no need to login to other sites and devices. The clear and automatically updated status charts provide a quick view into the health of the network.

ShoreTel5 Features and Specifications	
Ease of deployment	
Key System Nodes	<ul style="list-style-type: none"> Call controllers and media gateways are 1U appliances. Call controller modules handle up to 120 IP stations and/or 24 analog trunk/ device ports. Gateway modules handle a T1. Configuration is simple and straight-forward by adding rack mount units to increase capacity.
Ease of use	
CTI Suite: Call Manager Extension Monitor Quick Dialer Unified Messaging Softphone In-call document sharing	<ul style="list-style-type: none"> Call Manager includes a Quick Dialer search tool and unified messaging, and also incorporates presence information. Extension Monitor gives real-time state of extensions. Call history is easy to find, sort and initiate calls; includes softphone as an option. Document sharing is drag and drop; document appears on web browser.
IP hard phone IP560	<ul style="list-style-type: none"> Displays are oriented vertically for ease of viewing, horizontally for keypad input. Readily accessible information including IP and MAC addresses, DHCP, Gateway, & VLAN Tag
Online help	<ul style="list-style-type: none"> Subject focused, available on all screens
Ease of Management and Administration	
Interface	<ul style="list-style-type: none"> Shoreware Director (on Win2000 server)
Moves, adds, changes	<ul style="list-style-type: none"> One screen for user creation. Relocate without admin. intervention
Code distribution	<ul style="list-style-type: none"> Automatic updates for all components' software including phones and desktop applications
Events, alarms, traps	<ul style="list-style-type: none"> Sortable and legible
Reports	<ul style="list-style-type: none"> 12 preformatted; detail & summary

Conclusions:

The ShoreTel5 system is truly easy to deploy and easy to use from both end user and system administrator perspectives. It is a resilient and well-architected solution with excellent management and administration features that really simplify the work of the System Administrator. The telephones deliver high quality audio and are the best speakerphones we have tested on the market today.

In the unanimous opinion of the Miercom testing staff the ShoreTel ShoreTel5 system fully meets the expectations and requirements of the target user community for which it was designed and earns this special recognition as the "Easiest-to-Use IP PBX, for Large Systems."



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About Miercom's Product Testing Services...

With hundreds of its product-comparison analyses published over the years in such leading network trade periodicals as *Business Communications Review* and *Network World*, Miercom's reputation as the leading, independent product test center is unquestioned. Founded in 1988, the company has pioneered the comparative assessment of networking hardware and software, having developed methodologies for testing products from SAN switches to VoIP gateways and IP PBX's. Miercom's private test services include competitive product analyses, as well as individual product evaluations. Products submitted for review are typically evaluated under the "NetWORKS As Advertised™" program, in which networking-related products must endure a comprehensive, independent assessment of the products' usability and performance. Products that meet the appropriate criteria and performance levels receive the "NetWORKS As Advertised™" award and Miercom Labs' testimonial endorsement.



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