WHITE PAPER

From Voice over IP to Unified Communications: Simplify System Management

Architecture Matters

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1. Compare the Various Approaches to Communications Management

Despite the steady commoditization of computer equipment over the past few decades, the total cost of ownership (TCO) for the average PC continues to increase. System complexity and management demands are huge contributors to these costs, resulting in an industry shift toward simplification and manageability. Increasingly, organizations are realizing that to reduce the TCO of a technology platform, they must address the requirements for human resources to operate, manage, maintain, and support it. Manageability is paramount.

In this paper, we examine the impact that different starting points on modern communications system management, consider the possible advantages of delivering voice over IP (VoIP) and unified communications (UC), and examine what can be achieved through the level of holistic management available only from a communications solution that is IP-based by design.

2. The Voice Silo Conundrum

Voice communication is something we take for granted in the workplace. All phones have the same basic interface, and for the most part, we can walk into a new office, pick up the phone and use it. However, this apparent ease of use at the desktop likely was achieved by putting all the complexity in an equipment room or data center, tucked away in a proprietary "black box" that is probably very difficult to manage.

With IP telephony, the objective is to stop maintaining two parallel networks for voice and data, and instead have a single, converged infrastructure that leverages existing investments, exploits economies of scale, and streamlines administration and management. An IP telephony solution that is truly easy to implement and manage can pay for itself very quickly—almost from day one, in some cases.

However, manageability depends to a great extent on the underlying architecture of the voice system. Some platforms are extensions of legacy voice switches, and others are built on top of legacy data technologies. Yet, very few were designed from the ground up specifically for converged voice and data, an important foundation to support today's UC applications.

3. Outsourced Solutions: Limited Control

For midsize companies with multiple locations this problem is compounded because each site typically has a separate voice system, supported by a separate service contract from a local third party system integrator. Some sites have outsourced everything to a hosted service, which can be very expensive. Further, dependence on outside service companies often limits the ability of multisite organizations to manage communications as a single system.

Some organizations may end up with as many service and support contracts as sites to manage, which is highly inefficient. This patchwork of independent voice silos tends to be more complex for organizations that have grown by acquisition. The acquired sites came with established, and often obsolete voice platforms, and organizations often struggle to find a local technician with the skill set and experience required to maintain and upgrade these aging systems.

Migrating these disjointed voice silos to a single, IP-based UC system that runs over the existing data infrastructure can save a fortune in local service contracts—as long as it doesn't add to system complexity and require heroic management efforts.

4. Patchwork UC Platform: Design by Acquisition

Theoretically, running voice as packet traffic on an IP network means conveying some of the benefits of IP to the voice world. These include easier administration and open systems. However, not all IP telephony is created equal, and fundamental architectural differences have big implications on the inherent manageability, and ultimately TCO, of particular IP-enabled platforms.

Today's UC solutions from the major voice and data vendors are typically retrofits—adaptations of legacy platforms originally designed to handle one type of traffic. New features and functionality are often added by acquiring existing products and technologies and integrating them together.

This hodgepodge of applications can have serious implications for system management, because each component of the consolidated voice system—such as voicemail, network call routing, and client applications—is managed by different tools. Some have a Web-based interface, some are graphical but not Web-based, some are controlled by specialized applications, and some require command-line entries and scripting. None of these tools offer truly unified management.

Some of these systems attempt to provide the appearance of unified management by spray-painting a single Web-based interface or dashboard over everything. But in practice, all the complexity and cryptic or confusing nomenclature has just been moved from one interface to another.

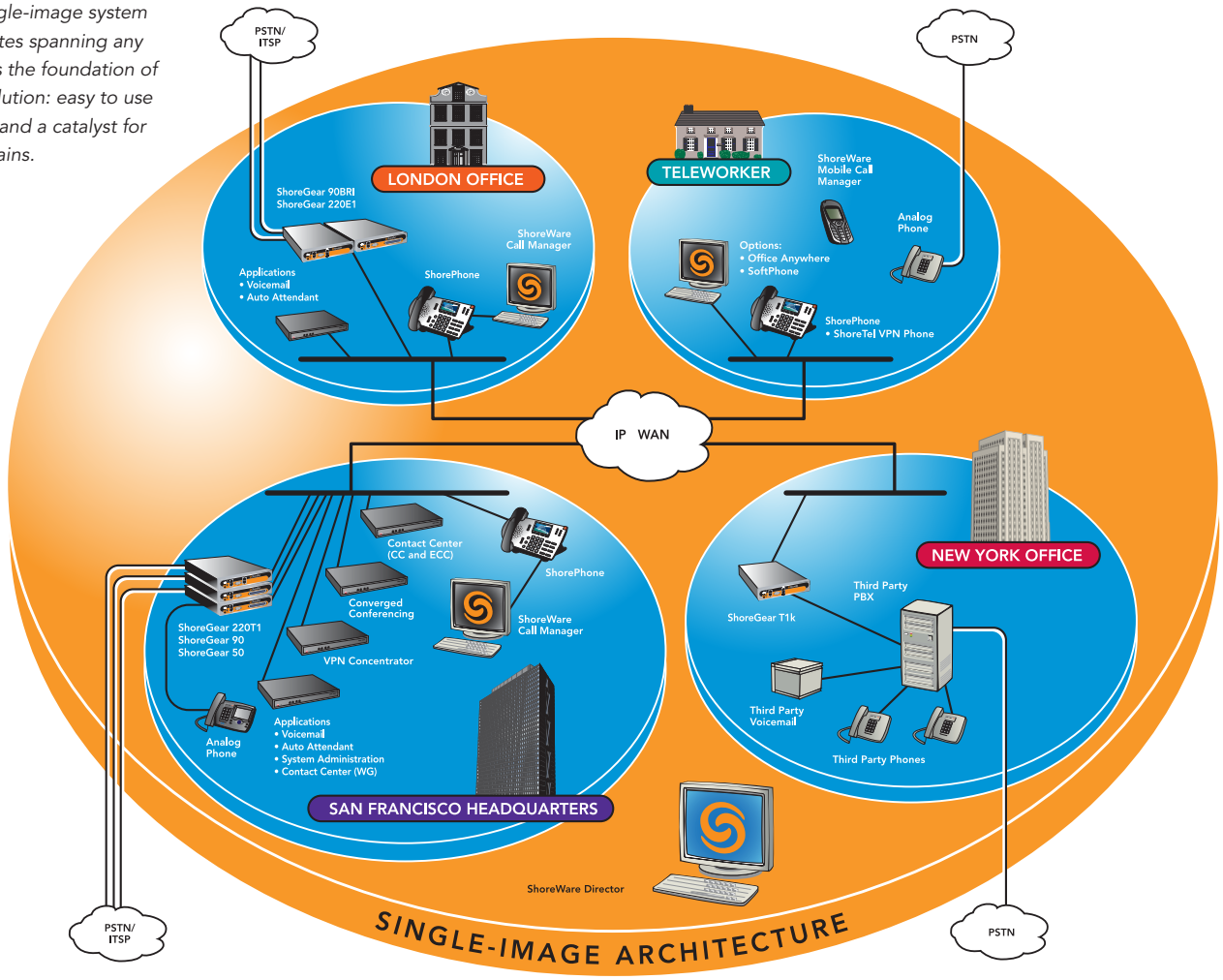
This type of spray painting does little to reduce the level of expertise or amount of training administrators must have to run the communications system. Yet the underlying principle for convergence is simplicity. Organizations should be able to take in-house IT staff with just a general knowledge of voice systems and data switches, provide minimal training, and have them manage the phone network as part of their daily tasks—all without the need for additional staffing or complex programming.

5. ShoreTel: An IP-Enabled Platform by Design

The ShoreTel UC system was designed from the ground up as an IP-enabled platform, providing a single-system image of the entire network, via a single, holistic management interface. With a well-designed architecture, everything from the simplest administrative tasks to high-level network management and configuration is performed through the same Web-based interface. This greatly reduces training requirements and the skill levels required by network professionals.

Compared with hosted services and patchwork solutions, the ShoreTel UC system simplifies management and control by providing network managers and administrators with complete visibility into all of the physical equipment through the same intuitive interface that is used for adding new users or administering voicemail. And because the interface is Web-based, administrators can manage any part of the multisite network from a browser anywhere. Web-based forms with default values already entered further simplify administrative tasks.

ShoreTel's distributed architecture provides a single-image system for business sites spanning any geography. It's the foundation of our Pure IP *solution: easy to use and maintain, and a catalyst for productivity gains.*



6. Centralized Management: Save Time and Resources

The same factors that make an IP-enabled platform easy to manage should also make it easy to implement. This is very important if your company is going to pursue a policy of growth by acquisition, or if you want to migrate existing sites gradually. When UC solutions are based on legacy voice or data platforms, rolling out a new site can require an entire team of specialists from the vendor and local reseller—a dependency that will last a lifetime.

However, the ShoreTel platform was created specifically for IP networks with a management interface that consolidates all the functions needed to add a new user or switch into a single Web-based form, making it much easier to scale. This interface is so simple and intuitive that a basic network administrator with no voice background can be brought up-to-speed with very minimal training. Such an individual then has all the skills necessary to roll the system out to new sites without assistance from outside experts.

A rapidly growing regional bank with branches on both coasts provides a real-world example of just how powerful this type of management interface can be. After deploying a ShoreTel UC system, the bank's CTO was able to promote a systems administrator to the position of voice network manager after sending the administrator on just one day of training.

This one person now manages 12 sites using the ShoreTel UC system, which replaced a hosted service and a whole series of local service contracts. With system management this simple and straightforward, cutovers for newly acquired branches are quick and straightforward, and can be performed without assistance.

To add a new user, the administrator simply types the user's name into one user-edit form, and then either accepts the default values in the other fields or changes them. New users are automatically given extension and direct-dial numbers, assigned an analog port or designated an IP phone user, and set up with a voicemail box. Access privileges are defined by selecting the level of client software the new addition requires, and placing the individual into various user groups.

The software automatically generates an editable user ID by applying the company's naming convention to the user's actual name, and sends the new user an e-mail notification of the new voice system account. All of these functions are carried out from a single Web page.

The process for adding a new ShoreGear® Voice Switch is equally easy, and can be done from a switch-editing page within the same management interface. Once a new switch is plugged in, it is configured from a single switch-editing form. The software immediately recognizes the switch and fills in its IP and Ethernet addresses, along with any default parameters that have been previously defined. Often, all the administrator has to do is name the switch and accept the values automatically populated in the form.

In the event that a switch in service must be swapped out, the administrator uses the same switch-editing page for the old switch, and changes the IP and Ethernet addresses to those for the new switch. All the configuration details for the old switch are then automatically picked up and burned into the flash memory in the new switch. For organizations experiencing rapid growth, this management ease translates to rapid scalability and improved responsiveness.

7. Distributed Architecture: Reliability Through Peers

One of basic concepts of the Internet is a distributed architecture that is inherently resilient. The network's servers are peers, designed to back each other up and help ensure high system availability. When IP-based UC solutions impose a hierarchical management structure on what is fundamentally a peer environment, they fail to exploit one of the Internet's key strengths.

Nevertheless, many UC vendors centralize management at one location on the network, because the legacy platforms they are adapting have such hierarchies. Creating a peer-to-peer architecture requires initial upfront design and engineering effort. However, the resulting architecture provides exceptional reliability that costs far less than a centralized, hierarchical system.

The challenge is to deliver a peer solution that is inherently resilient and yet still easy to manage. The ShoreTel UC system uses a collection of peer voice switches that function as a single system, harnessed under a simple management tool. Such a peer architecture also makes it inherently easier for an IP-enabled platform to support constantly evolving, innovative UC features and functionality, so organizations can adopt new tools to boost productivity without adding significant management overhead.

8. Intelligent Management: Optimized VoIP Cost Reduction

Despite the dramatic drop in long-distance rates in recent years, organizations that have converted to VoIP report that there is still a lot of gold to be found in the toll-bypass hills. However, setting up the network call routing for toll bypass has to be easy, or the management overhead cancels out much of the cost savings.

In IP networks based on legacy voice and data platforms, the automatic peer-to-peer exchange of newly entered routing information doesn't just happen. Routing information has to be entered into routing tables, possibly even in each individual PBX or physical router. Small, localized groupings of such devices may automatically update each other, but the information is not automatically pushed out to every switch in the network.

Given the capabilities of the IP environment, network managers shouldn't have to define specific routing behaviors for each location, and users shouldn't have to remember which area codes qualify for toll bypass. Long-distance calls to outside numbers that fall within the local dialing radius of any particular site should be automatically routed over the IP backbone, in a process that is entirely transparent to the caller.

ShoreTel has designed a single, distributed system, with an intuitive graphical interface that replaces routing tables, and ensures the toll-bypass routing takes place intelligently and automatically. In this way, the ShoreTel UC system maximizes call savings, without requiring system administrators to pore over pages of routing tables, saving additional time and resources.

To help customers understand the total cost of ownership (TCO) of a UC system, ShoreTel has developed the ShoreTel TCO Tool. This proprietary analytical assessment helps customers calculate and compare the TCO of alternative systems over multiple years—an invaluable guide to the decision-making process. ShoreTel partners are fully trained to help customers use the tool, and receive regular updates as the relevant third party information becomes available.

9. Self Service: Reduced Effort, Increased User Satisfaction

In the traditional voice world, most companies barely scratch the surface of their systems' capabilities, because the features are too hard to implement. Taking advantage of them often requires too much management help, and too much user training.

In the new world of IP-based communications, self-service is one of the key metrics for measuring alternative platforms. The ShoreTel UC system has a single, intuitive user interface that enables non-technical users to help themselves to advanced features that include:

- Call handling management
- Both reservationless and scheduled conference calls
- Video calls
- Call forwarding
- Desktop functionality on a Blackberry or other handheld device
- Login from any IP phone

When users can take care of themselves, they make fewer support calls, and there is less burden on network professionals. Users are more productive and responsive, and the IT staff is freed for other functions.

10. Conclusion

The IT industry has long recognized that to lower the cost of a particular technology, that technology must be simple and easy to use and manage. It has to require fewer managers per user, and lower skill sets per manager. When UC solutions are IP-based by design, the result is a seamless system that is distributed, reliable, and easy to deploy and manage. With a ShoreTel UC system, organizations don't have to be on the Fortune 500 list to have an enterprise-class voice system they can afford to maintain and operate internally.

For more information on how ShoreTel can help you improve manageability and lower TCO, contact a local ShoreTel Partner or call 1-877-807-4673 to schedule a demonstration.

World Headquarters:

960 Stewart Dr.
Sunnyvale, CA
94085 USA
+1 (800) 425-9385 Toll Free
+1 (408) 331-3300 Tel
+1 (408) 331-3333 Fax
info@shoretel.com

www.shoretel.com

EMEA:

+1 800 408 33133 Freephone
+44 (1628) 826300 Tel

Asia Pacific:

+61 (0)2 9959 8000 Tel