How Virtualization Complements ShoreTel’s Highly Reliable Distributed Architecture
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1. Executive summary

Enterprises of all sizes adopt virtualization as a way to improve the efficiency of IT infrastructure and decrease total cost of ownership. Customers who adopted virtualization reported better server utilization, increased application uptime, and greater IT agility and responsiveness by enabling private cloud computing.

Traditionally, Unified Communication (UC) applications had to be deployed on different physical servers. Virtualized Unified Communication applications allow an IT organization to minimize the required number of servers and increase availability of UC applications. While these are important benefits, UC system administrators still face the challenge of having to deal with too many management interfaces, which results in management complexity.

ShoreTel’s architecture ensures high availability of UC applications, while providing a single management interface to administer UC applications such as basic telephony, voicemail, collaboration and unified messaging. The inherent brilliant simplicity of the ShoreTel solution can be further enhanced when virtualizing the server components.

2. Why virtualize

Companies adopt virtualization for a variety of reasons. Below are the top three reasons virtualization became pervasive within enterprises of all sizes:

1. Better server utilization
   Better server utilization is often listed as the number one reason to virtualize hardware infrastructure. This benefits companies in many ways: less hardware to buy and maintain, smaller real estate footprint, and increased energy efficiency, to name a few. According to VMware, each server virtualization results in as much as a 50 percent reduction in hardware and operating costs and up to an 80 percent reduction in energy costs for a savings of more than $3,000 per year.

2. Business continuity and application availability
   Downtime of important applications can be costly or even fatal to enterprises. IT organizations are increasingly under pressure to provide business continuity and ensure data protection while facing limited budgets. Virtualization provides simple and cost-effective tools to meet business continuity objectives:
   - Data recovery in case of disaster
   - Centralized backup and restore instead of manual application-specific approach
   - Application availability during planned (e.g. for regular maintenance or upgrade) and unplanned downtime
3. Private cloud enablement

After virtualizing several applications, many companies progress to deliver applications via private clouds. A private cloud enables agile and efficient delivery of IT as a Service, a model known to dramatically lower complexity, reduce costs, and enable much greater IT responsiveness to business needs. Existing virtualization solutions offer evolutionary paths to this new model while ensuring security and preserving the value of existing technology investments. Although a private cloud approach to IT applications requires greater organizational change and additional IT training cycles, the benefits are significant. According to VMware, customers that take this approach—early adopters of cloud architecture—report lowering their costs and boosting agility six times faster than enterprises that wait.

3. UC system architecture and virtualization

Unified Communications systems consist of a number of services or applications. The most common application of any UC system is basic telephony. Layered atop the classic dial tone can be capabilities like intelligent call routing, unified messaging, presence and IM, conferencing and collaboration, mobility and system management.

Historically, most UC deployments required services and applications to run on separate physical servers. Nowadays, virtualizing these servers allows customers to realize the many benefits mentioned earlier—such as better server utilization, business continuity and higher application availability.

Yet, despite all the above-mentioned virtualization benefits, UC customers still face a challenge that cannot be solved by virtualization alone: the number of management interfaces required to manage multiple Unified Communications applications has not been reduced.

For example, even when virtualized, Unified Communications applications, such as basic telephony, voicemail, collaboration, or unified messaging, often need to be accessed and managed separately since they typically reside on different logical partitions of a virtual server (virtual machines). To make things more complex, the administrator is often required to use different management interfaces for different UC applications—even if these applications are sourced from the same vendor.

4. ShoreTel's unique architecture complements virtualization

The ShoreTel UC solution is unique in that it is built on a highly reliable distributed architecture that performs exceptionally well around possible outages in a customer network, thus ensuring high level of applications availability.

The solution consists of highly reliable appliances (voice switches) for call control as well as server based applications that deliver the ShoreTel UC experience to end-users and administrators.
Voice switches provide dial tone and automatic PSTN failover in case of WAN outages. N+1 redundancy can be added anywhere in the network as a very cost effective option to ensure business continuity across entire network.

For the applications residing on servers (such as voicemail or Contact Center), customers have an option to leverage a variety of business continuity features offered by virtualization infrastructure vendors to further strengthen robustness of their UC deployment. For example, the High Availability feature offered by VMware provides the ability for a backup virtual server to automatically take over from a failed primary server. Live Virtual Machine migration (another VMware feature) allows administrators to migrate an actively running virtual machine to another physical server for the purposes of maintenance, without users of the UC system missing a single word when on a phone call or listening to a voice message.

As an additional benefit, deploying the ShoreTel application on virtual machines ensures a smooth upgrade process. Administrators can create snapshots of their system prior to an upgrade and easily revert to a previous configuration should they encounter any issues.
Over 1,000 customers in 26 countries have deployed their ShoreTel software in a virtual environment. These customers benefited not only from the high availability of their UC applications, but also from using a single web-based interface to manage the entire system. Voicemail, conferencing or basic telephony applications are managed in the same consistent manner. So when these applications are deployed in a virtualized manner, customers see the ultimate set of benefits: server consolidation, high degree of applications availability and brilliant simplicity of managing the UC solution through a single user interface.

5. Conclusion

Virtualized ShoreTel applications are a perfect complement to the robust appliance-based platform of voice switches delivering a uniquely robust and easy to manage UC solution. The inherent brilliant simplicity of the ShoreTel solution can be further enhanced when virtualizing the server components.

About ShoreTel

ShoreTel is a provider of business communication solutions whose brilliantly simple unified communications platforms, applications and mobile UC solutions promise a new rhythm of workforce engagement and collaboration. With costly complexity eliminated by design from its award winning, all-in-one IP phone system, UC and contact center solution, and its industry leading hosted business phone system, workers enjoy a freedom and self-reliance that other providers can’t match. Users have full control to engage and collaborate, no matter the time, place or device, for the lowest cost and demand on IT resources in the industry. ShoreTel is headquartered in Sunnyvale, California, and has regional offices and partners worldwide. For more information, visit shoretel.com or shoretelsky.com

Figure 3: Centralized deployment of ShoreTel’s UC system