

VoIP: Creating a Strategy That Enables Future Voice Applications

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Gartner Research Summary

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Executive Summary

Enterprises are migrating to VoIP to save costs and to enable the roll-out of advanced communications applications. Because legacy voicemail systems do not work with the new VoIP switches, enterprises must plan to replace their old voicemail systems as they plan their IPBX deployments. As such, VoIP project teams are evaluating unified messaging as one of their first IP telephony applications, and are making some critical observations:

- Phone answering continues to be a mission-critical application and must live up to the performance expectations for a voice application.
- Since the unified messaging system represents the point of integration into the enterprise email system, and since there can be only one point of integration into the enterprise email system, there can be only one unified messaging system.
- As the single point of integration between the IPBX and the Microsoft messaging environment, these systems represent the leverage point for the roll-out of future advanced communication applications.

Given these conclusions, the choice of unified messaging system has now become a critical component of the VoIP strategy.

Enterprises are discovering that the most critical component to evaluate is the underlying architecture of the unified messaging system. The architecture determines system performance, IT overhead, and future application readiness. Unfortunately, the architecture used by many unified messaging systems limits future applications and drives high costs.

This paper outlines the architectural components needed to create a foundation for future advanced communications applications. This architecture consolidates two separate messaging infrastructures into one while delivering “four 9s” voice quality and performance and increasing overall IT efficiencies.

Unified Messaging Origins: Separate Infrastructure

In the mid-90's, unified messaging made its first appearance. The original unified messaging solutions were cumbersome, required significant maintenance, and relied on synchronizing standalone voicemail systems with the backend email environment. They also relied heavily on client applications to provide the necessary user interface on the desktop. Some unified messaging systems continue to use the same telephony-centric standalone architecture. As such, from an infrastructure standpoint, they are far from unified. They maintain a disparate infrastructure for data storage and management. They carry not only the major overhead of legacy voicemail but also burden the organization with additional overhead, as outlined below.

Server Proliferation & Server Overhead

Some unified messaging solutions require a dedicated, IT-maintained, voicemail server in each corporate office. These unified messaging servers store the user records, profiles, greetings, and preferences. They also capture the voicemail messages from both internal and external callers. The voicemail messages are then forwarded to the user's email inbox, and in some cases are also stored on the voicemail server. Those systems that store the messages locally require a separate server for message storage.

Since these unified messaging servers are based on PC server operating systems and standard off-the-shelf components, the administrative overhead is actually much greater than that required by the controlled software environment of a legacy voicemail server. When a unified messaging system has standalone servers, the administrator may have to install and maintain a plethora of independent pieces including voice cards, drivers, speech recognition software, operating system service packs, and the like. And since these PC's only support a minimum number of peripheral cards, capacity needs create server proliferation. Finally, since users are bound to a "home" server, server failure cuts off service for those users.

Resiliency Requires Twice the Servers (n*2)

In order to deliver high availability in many unified messaging environments, enterprises must deploy a second, failover server at each office location or use expensive, fault tolerant, high availability platforms.

New Client Overhead

Many unified messaging solutions require client administration and maintenance as well. These requirements can include setting up an account for the unified messaging application on each user desktop, and installing a client application or plug-in for Outlook on the desktop. The new desktop applications and plug-ins then need to be maintained as updates and new versions are released. This overhead component alone can easily require full-time IT resources.

Following is a diagram of a standalone unified messaging architecture.

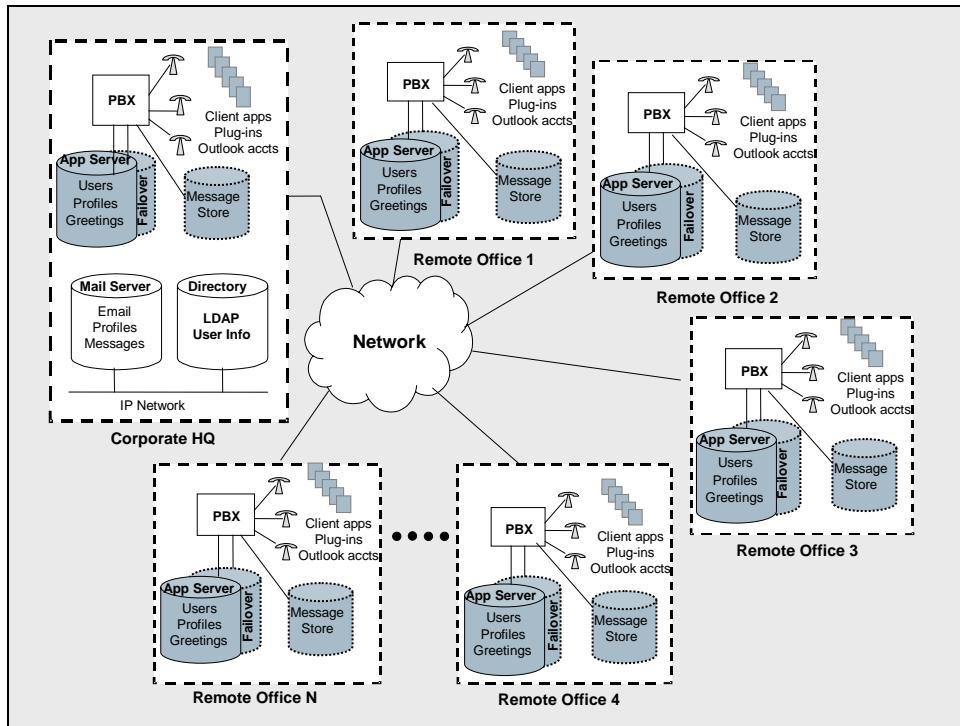


Figure 1. Unified messaging solution that uses a standalone architecture. Some systems require a 2nd application server for resiliency; some require a separate messaging server for storage of voice messages.

In sum, some unified messaging solutions simply “glue together” the disparate voicemail and email infrastructures so that voicemails appear alongside emails in the user’s email inbox. They maintain the very thing that drives high costs – two separate messaging infrastructures. Rather than relieving overhead, they add a new layer of complexity, increasing the overall IT burden.

The Right Architecture

The right architecture uses a stateless appliance at the edge to ensure system performance without requiring on-site maintenance. The appliance stores no persistent data. It connects both to the (I)PBX and to Microsoft Exchange and Active Directory. It captures messages from both internal and external callers via the (I)PBX, then routes those messages over the IP network to a single connector application that communicates with Microsoft Exchange and Active Directory. The appliance works in “standalone” mode in the event that Exchange becomes unavailable or network response times are impaired. It holds several days of messages in cache, and while running in standalone mode it allows callers to leave messages and users to retrieve messages.

This architecture gives enterprises exactly what they have been seeking: the voice quality they have learned to expect, in a truly integrated environment that lowers IT overhead.

The new architecture can be seen in Figure 2.

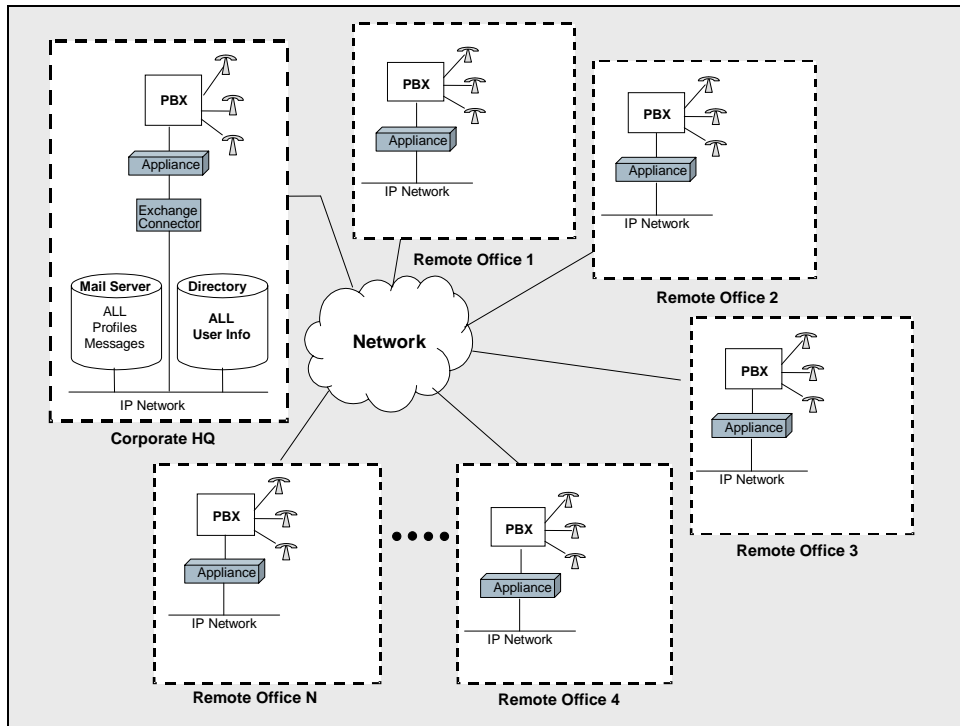


Figure 2. Single messaging infrastructure with no on-site maintenance and full, “always on” voice performance

A Single Messaging Infrastructure

With this new architecture, all data is stored in its rightful place – voice messages and greetings are stored with all other messages, in Microsoft Exchange – while user profiles and preferences are stored with all other user information, in Active Directory. Voicemail is transformed from an (I)PBX application to a data application, with voice messaging seamlessly integrated into Microsoft Exchange.

No Separate Data Store, Network, or Users

The right architecture requires no separate user database or data storage. User profile information and user preferences are all stored in Active Directory, in the user account, where they belong. All voice messages and greetings are stored in Exchange. There is no separate data store to back up, no separate network to manage, and no separate database of users to administer. Proprietary voicemail tools and the need for proprietary skill sets are eliminated.

No Client Overhead

The right architecture requires no changes on the desktop; no client application, no plug-ins, and no special Outlook account.

Use Administration and Management Processes Already in Place

The right architecture allows the email administrator to manage voice messaging via the administrative processes he or she already has underway. When the administrator adds a new user in Active Directory, a default voicemail profile is generated with a single click. When a user is removed from Active Directory, their voicemail profile disappears.

Stateless Appliance at the Edge – No On-site Maintenance

By replacing dedicated voicemail servers with stateless appliances at the edge of the network, voice performance is maintained while the overhead of maintaining unified messaging servers in each location goes away. The appliance has a built-in health monitor and performs its own internal clean-up. It requires no on-site maintenance. A one-click upgrade process flushes and replaces the entire software image when new versions of software become available.

Increase Overall IT Efficiencies

By eliminating a separate infrastructure and using administrative processes already in place in the enterprise, the right unified messaging solution can reduce rather than increase overhead.

Conclusion: The Right Architecture Enables Advanced Communications Applications

The unified messaging system represents the organization's single point of voice messaging integration into Microsoft Exchange. As such, it is the leverage point for future advanced communication applications and a critical component of the VoIP strategy. In order to serve as this leverage point, it must have the right architecture. The right architecture delivers robust voice quality and performance while consolidating two separate messaging infrastructures into one and increasing the overall efficiency of IT.



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