

WHITE PAPER

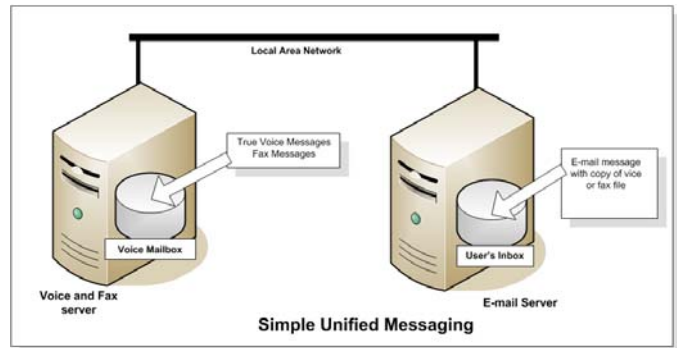
Know Your Options

Understanding Your Unified
Messaging Choices



Simple Unified Messaging

With simple unified messaging, copies of the voice and fax messages are sent to the user at a specified e-mail address as e-mail messages with attachments. The true messages remain on the voice and fax servers. The two copies of the messages (the one on the voice server and the one in the user's e-mail inbox) are not synchronized in any way. The user will have to delete each message separately.



In addition, individual users can be configured as to which message types they would like to have presented at each interface, the telephone and the desktop e-mail client. The following configurations are available on a per user basis:

- Voice mail user – E-mail messages only from the desktop e-mail client, voice messages only from the telephone interface.
- Full unified messaging user – Voice, fax and e-mail messages from the telephone interface, voice, fax and e-mail messages from the e-mail client.
- Desktop unified messaging user – E-mail, voice and fax messages from the desktop e-mail client, only voice messages from the telephone interface.
- Telephone unified messaging user – E-mail messages only from the desktop e-mail client, e-mail, voice and fax messages from the telephone interface.

THE ADVANTAGES OF SERVER-BASED UNIFIED MESSAGING

There are three different methods of achieving unified messaging capabilities, Server-based Unified Messaging, Client-based Unified Messaging and Simple Unified Messaging. Each method offers a different feature set and can be best used by different groups of users. Server-based Unified Messaging offers the following advantages:

Easiest to use at the desktop

Since Server-based Unified Messaging places the voice and fax messages into the users' e-mail Inboxes, where they are indeed just additional e-mail messages, processing their unified messaging messages is almost identical to processing their normal e-mail messages. Messages can be moved to other folders, forwarded to other recipients (internal or external), deleted, etc., all using the same commands as are used to process normal e-mail messages. When voice or fax messages are opened, special forms or templates are opened to help the user play a voice message, view a fax, etc.

Easiest to use remotely with a laptop computer

For users who travel with their laptop computers, it is as easy for them to access their voice and fax messages when they are offline as it is to access their regular e-mail messages. Offline users can listen to their voice messages, record a reply, access their fax messages, forward them to other users, etc. all while they are offline. When they next go online (in the hotel, in the airport using a wireless connection, etc.) their changes will be sent as their new messages are downloaded.

Fully leverages e-mail system features

Server-based Unified Messaging users can fully leverage their knowledge of and the capabilities of their e-mail system. They can create folders to hold their voice, fax and e-mail messages. They can create e-mail rules to process their incoming voice and fax messages as they desire. If their e-mail system is subject to nightly backups, their voice and fax messages will automatically be backed up as well.

Supports a wider range of interfaces and devices

Since the voice and fax messages for Sever-based Unified Messaging users are in their e-mail Inbox, any client or application that accesses their Inbox can be used to access their voice and fax messages as well. This means users can use their web e-mail clients such as Microsoft Outlook Web Access (OWA) and Lotus Notes iNotes to access their voice and fax messages as well as their e-mail messages. PDA users who synchronize their PDAs with their e-mail Inbox will now receive their voice and fax messages to the device as well as their normal e-mail messages. Microsoft Exchange users can set up their wireless PDAs to receive their voice and fax messages in real-time using Microsoft Server Active Sync. Blackberry users will now receive their fax and voice messages real time along with their e-mail messages (although their ability to access these messages may be limited depending on their device type).

Ideal for mobile users

For users who travel, Server-based Unified Messaging will be the easiest version to use. They can take their messages with them without having to run any special software. They can process their messages offline. They can access their messages from any available internet connection. They can use their wireless phones and PDAs to monitor and track their messages.

THE ADVANTAGES OF CLIENT-BASED UNIFIED MESSAGING

Client-based Unified Messaging offers a different feature set and satisfies the needs of a different set of users. Client-Based Unified Messaging offers the following advantages:

Less of a traffic load on the network

Since voice messages remain on the voice mail server and aren't moved over to the e-mail server for storage, Client-based Unified Messaging puts less of a load on the customer's local area network. While as attachments go, voice mail message attachments aren't very large (generally from 20k bytes to 250k bytes), leaving the messages on the voice mail server means both less traffic when a new message is received (since it doesn't have to be moved across the network to the e-mail server) and less round trips on the LAN when users call in to play their messages over the telephone.

Less storage load and activity on the e-mail server

With Server-based Unified Messaging, voice messages are stored on the e-mail server in the user's inbox. With Client-based Unified Messaging, those messages remain on the voice mail system. While voice mail attachments aren't very large, it still removes any additional storage. With messages stored on the voice mail server, this also means that when users access their messages over the telephone, there is no impact whatsoever on the e-mail system.

Faster Message Waiting Indicator response

For Server-based Unified Messaging users, the voice mail system must access the e-mail system to find out when the status has changed in a user's mailbox that may require a change in the status of their MWI indicator. For those users with a large number of messages in their inbox (in the thousands), this may cause a delay in how fast their MWI indicators get updated. Since for Client-based Unified Messaging users, their voice messages are all stored locally on the voice mail server, this possible delay is eliminated.

Non-Windows Operating system support for clients

For most products, support for Client-based Unified Messaging is accomplished by having the voice mail system accept connections from industry-standard e-mail systems using the IMAP connection protocol. Since this connectivity is accomplished across the Local Area Network and is based on a standard, the voice mail system can support users with e-mail clients running on any platform. If users are running on an Apple Macintosh, a Linux system or any other operating system, as long as they have a standards-compliant IMAP e-mail client, Client-based Unified Messaging will function properly.

E-mail server independence

As well as client operating system independence, since the voice mail only communicates with the user's e-mail client, not their actual e-mail system server, Client-based Unified Messaging functions regardless of the type of e-mail system being used by the customer. The customer can use any type of e-mail system running on any type of operating system and Client-based Unified Messaging will still function. As long as the user's e-mail client is capable of connecting to the voice mail system using IMAP, the solution will work. Indeed, most Client-based Unified Messaging systems can be used to give users access to their voice messages even if they don't have an e-mail system.

Ideal for local desktop users

Client-based Unified Messaging offers virtually all of the same functionality to a desktop user as does Server-based Unified Messaging, with the exception of the new voice and fax messages being in a separate folder from new e-mail messages. Since Client-based Unified Messaging has a lower impact on the enterprise LAN and e-mail system, configuring local desktop users for Client-based Unified Messaging seems to make the most sense.

THE ADVANTAGES OF SIMPLE UNIFIED MESSAGING

Simple Unified Messaging offers the smallest feature set of the three methods but still offers the following advantages for some users:

Supports any e-mail system

Since the voice and fax messages are sent to the user via SMTP (normal e-mail), Simple Unified Messaging works for any user regardless of e-mail type. A user can have a Hot Mail account, a Yahoo e-mail account, a Microsoft Exchange account, an account on an IMAP e-mail server, or any other type of e-mail account. As long as the account is capable of receiving e-mail from an external source, Simple Unified Messaging can send them their voice and fax messages. Most computers will already have the necessary tools to play their voice messages (such as Microsoft Media Player) and view their faxes (such as Microsoft Image Viewer).

Requires virtually no maintenance

Once the user has been configured (generally requiring only an e-mail address to be entered on their voice mail system), this type of unified messaging requires virtually no ongoing maintenance. The protocols used are already enabled at most sites (SMTP).

May be unlicensed

Some manufacturers of voice messaging systems include the capability as a no-change feature. This allows users to try Simple Unified Messaging first to see if they find the functionality useful. These users can later upgrade to one of the more powerful versions of unified messaging.

Ideal for casual unified messaging and SOHO users

Because of the wide range of e-mail systems supported and the low maintenance efforts required to deploy and maintain this version, Simple Unified Messaging may be ideal for some small businesses. While it lacks the full functionality of the other methods used to deploy unified messaging, it is easy to deploy and relatively inexpensive. It is also a great way for corporate users to try out unified messaging before they commit the money for a full installation.

FLEXIBILITY IS THE KEY

As a customer, when you are approaching the purchase of a unified messaging system, there are three elements to be considered. First, what is the functionality you are trying to gain? What business problems are you trying to solve by implementing unified messaging? Second, you need to feel comfortable that any solution you acquire will function in your existing environment and in any new environments that may come up with system upgrades, new acquisitions, etc. Lastly, you need to evaluate what the impact will be to your existing enterprise systems as you add these new solutions to your environment.

What customer problems will unified messaging solve for me?

Customers generally look at implementing unified messaging for two reasons. First, it is fairly obvious that there will be gains in productivity for both desktop and mobile users. Customers spend a good part of the buying cycle trying to determine just how much of a productivity gain is realistic to expect. While the exact number may be difficult to quantify, there are some good guideline studies available. See the *Unified Messaging Times Saving Study* on the AVST web site at: www.avst.com

The second value of adding unified messaging involves improving the way employees can service new and existing customers. Unified messaging allows employees easier and more timely access to all their messages, regardless of their location. This allows them to be more responsive to the needs of their customers. With unified messaging, it is possible for an employee to be notified of a new message from a customer, to access and read that message, and even respond to that message, all while in car, at lunch or even in a meeting. The ability to better respond to messages translates to higher customer satisfaction and even better customer retention.

Does it fit in my current and future environments?

As you evaluate the purchase of a unified messaging system, you need to be concerned with how the proposed system will fit into your current environment. For unified messaging systems, this includes how well the system will work with your current e-mail system as well as how the system integrates to your current telephone system. Not every unified messaging system is designed to be truly independent and to work with any and all possible customer enterprise systems. Many unified messaging systems are manufactured by companies that also make telephone systems. These manufacturers focus on how well their systems work with their own phone systems; they are far less concerned with how they work with telephone systems from other manufacturers. Since in many enterprises there are multiple locations, often with dissimilar telephone systems, it may be risky to choose a system designed primarily to work only with systems from a single telephone system manufacturer. Likewise, some unified messaging systems are designed primarily to support a single e-mail system, generally Microsoft Exchange. While most manufacturers of unified messaging systems offer modified versions of their products to support other e-mail systems (such as Lotus Notes, IMAP e-mail systems, etc.), their systems usually offer less functionality when they are used with other e-mail systems. Choosing one of these systems may limit functionality or the ability to move to a different e-mail system in the future.

Every bit as important as evaluating how a specific unified messaging system fits into a customer's current environment, for the sake of standardization and lowered ongoing maintenance costs, is to make sure the same solution will be appropriate for other customer sites, both current and future. Few customers have the luxury of supporting an environment where all of their locations have the same telephone system or, in some cases, the same e-mail system. Choosing a system that is completely independent of telephone or e-mail system type is the safest choice for the future.

How will it impact my current data infrastructure?

The implementation of unified messaging will have an impact on some existing enterprise data systems. The primary area of concern is the impact of unified messaging on the enterprise Local Area Network and the e-mail servers. The amount of impact varies based on the type of unified messaging deployed, as well as the manufacturer of the unified messaging system. The impact felt on the e-mail server is controlled primarily by which types of unified messaging users a system will support. As discussed previously, there are two main architectures used to deploy unified messaging. While client-based unified messaging generally has less of an impact on the e-mail server, it does offer somewhat less in the area of functionality. The functionality available to normal users from their desktops is fairly equal to that offered by server-based unified messaging. For mobile users, however, it's a different story. With client-based unified messaging, mobile users don't have access to messages from the e-mail web client (such as Microsoft Outlook Web Access or Lotus Notes iNotes) or other e-mail interfaces such as their personal PDA devices. In many cases, it also requires additional software to allow mobile users to access their voice and fax messages from an offline laptop computer. In the area of impact on enterprise systems, unfortunately, many server-based unified messaging systems require all users, even those who only need simple telephone-based voice mail, to store all of their messages on the enterprise e-mail server.

The best solution is to use a system that supports all three types of users: voice mail only, server-based unified messaging and client-based unified messaging. This type of system allows all voice messages stay on the voice mail server for voice mail only users, and there is no impact to the e-mail system or Local Area Network. Internal unified messaging users can be configured for client-based unified messaging, giving them the productivity boost from handling their voice and fax messages from the desktop while minimizing the impact on the LAN and e-mail system. Mobile users can be configured for server-based unified messaging, giving them the rich feature set required by mobile unified messaging users. This type of system allows each user to be configured for the maximum amount of functionality while minimizing the impact on the e-mail system and Local Area Network.

It is also possible to design a unified messaging system to minimize impact on the LAN and e-mail system even when server-based unified messaging is deployed. Raw copies of the message media can be kept on the voice server in a buffer that can be accessed when users call in over the telephone to access their messages. In this case, the messages are played directly from the voice server without the need to access and move them from the user's e-mail server. This type of function can reduce the load on the e-mail server and LAN by up to 40% for users accessing their messages from the telephone. Systems can also be designed to support different types of voice files to be used in different environments. The codecs (wave file coders and decoders) used to create the voice messages can be configurable for highest fidelity or lowest file size, depending on the individual needs of the customer.

Many customers wish to use a single directory management tool to add and maintain users for all of their systems and applications, not just their network and e-mail systems. A tool such as Microsoft Active Directory can be used to provide this functionality. Many unified messaging systems can integrate with Active Directory by extending the Active Directory schema to include all of the additional elements of information needed to configure a voice mail and unified messaging account. For each user, there are hundreds of pieces of information needed to configure the application, and extending the Active Directory database to handle all of this new information can have an adverse effect on Active Directory performance. Some systems support an alternate method that still allows administrators to add and maintain users from Active Directory without extending the schema. These systems add a MMC menu 'snap in' to the Active Directory Administration program that will allow administrators to add new users and maintain existing users without the need to store all of the additional information in the Active Directory database. This approach delivers all of the desired functionality with none of the adverse effect.

The last piece of impact on the existing infrastructure involves how a unified messaging system will perform in the advent of a network (LAN) or e-mail system failure. For both server-based and client-based unified messaging implementations, there will be some loss of functionality during the failure of the network or e-mail server. Both types of users (client-based and server-based) will lose access to e-mail messages from the telephone interface. Server-based unified messaging users will also lose access to existing voice messages until the connection is restored or the failure is repaired. Even more important than this is how the unified messaging system functions while the failure is occurring. Many unified messaging system are very weak at handling calls during such a failure. Some systems answer calls, but can't play the user's personal greetings when callers attempt to leave messages. Some systems take messages but force the user to use a different or less feature-rich interface to access those messages until the failure is repaired. At a minimum, you should expect a unified messaging system to do all of the following, even during a LAN or e-mail server failure:

- Answer all incoming calls
- Execute all call processing applications (menus, audio libraries, etc.)
- Play all user greetings
- Take new messages
- Allow users to login to their mailboxes and access all messages received during the failure
- Support the same user interface and functionality for users during the failure

KNOW YOUR OPTIONS

As you approach implementing a unified messaging system, be aware of your choices in the market. There are many different products made by many manufacturers, and they are not all equal. In order to pick the system that best meets your needs, you should evaluate numerous systems. Compare both the functionality offered and the impact to your organization to deploy the system. The key element in evaluating unified messaging systems is flexibility. Not all of your users need the same set of features. Not all of your sites necessarily have the same types of telephone systems and e-mail systems in place. Not all systems are flexible enough to meet your needs; now, and as they change in the future. Use the Unified Messaging Evaluation Checklist below to help you evaluate the systems you are comparing.

Unified Messaging Evaluation Checklist		
Integration questions	Yes	No
Does the system work on all telephone systems?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system work on all e-mail systems?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support non-Windows clients (Mac, Linux, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>
UM architecture questions		
Does the system support voice mail and UM users on a single system?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support client-based UM users?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support server-based UM users?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support a mix of client and server-based UM users on a single system?	<input type="checkbox"/>	<input type="checkbox"/>
Enterprise impact questions		
Does the system support adding and maintaining users from Active Directory?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system modify the Active Directory Schema?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support different types of codecs based on customer needs?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support a message buffer (cache) to reduce impact on LAN/e-mail?	<input type="checkbox"/>	<input type="checkbox"/>
Functionality during a LAN/e-mail failure questions		
Does the system support all call processing applications during a failure?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system take new messages during a failure?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support user greetings during a failure?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support new message notification during a failure?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system give users access to new messages during a failure?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system support the same user interface during a failure?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system allow users to send new messages during a failure?	<input type="checkbox"/>	<input type="checkbox"/>
Does the system allow users to delete, forward, save and forward new messages during a failure?	<input type="checkbox"/>	<input type="checkbox"/>

FOR MORE INFORMATION

Applied Voice & Speech Technologies, Inc. ("AVST") is a leader in the unified communications ("UC") marketplace, uniquely combining the strengths of its world-class messaging platform, CallXpress®, with its speech-enabled call management module, Seneca®, to create a powerful, next-generation unified communications solution. The Company's products are designed to scale and support organizations of all sizes. For more information please contact us at: www.avstgroup.com or +1.949.699.2300.