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Microsoft has developed a family of messaging products designed to help people communicate and work together. Part of the messaging system is traditional e-mail – sending a text message between users. But Microsoft's new products go far beyond just e-mail. They have added groupware features that let groups share information, files, and schedule information. And with Outlook, there is a new personal information manager to store and organize contacts, and a calendar to organize personal and group schedules.

Microsoft has made it possible to add custom components to every part of their messaging system. Long before it was a released product, Microsoft and Active Voice worked together to integrate voice mail with the rest of the messaging system. The result is ViewMail for Microsoft Messaging – the first complete integration of voice and fax messages with Microsoft's messaging system.

This document begins with an introduction to Microsoft's messaging products. It continues with an overview of how ViewMail for Microsoft Messaging integrates voice mail into this system. The final sections cover system details and the future.

Introduction to Microsoft Messaging

Microsoft's messaging system consists of three different components. The first two are actual products, the third is the underlying system software that makes it all work together.

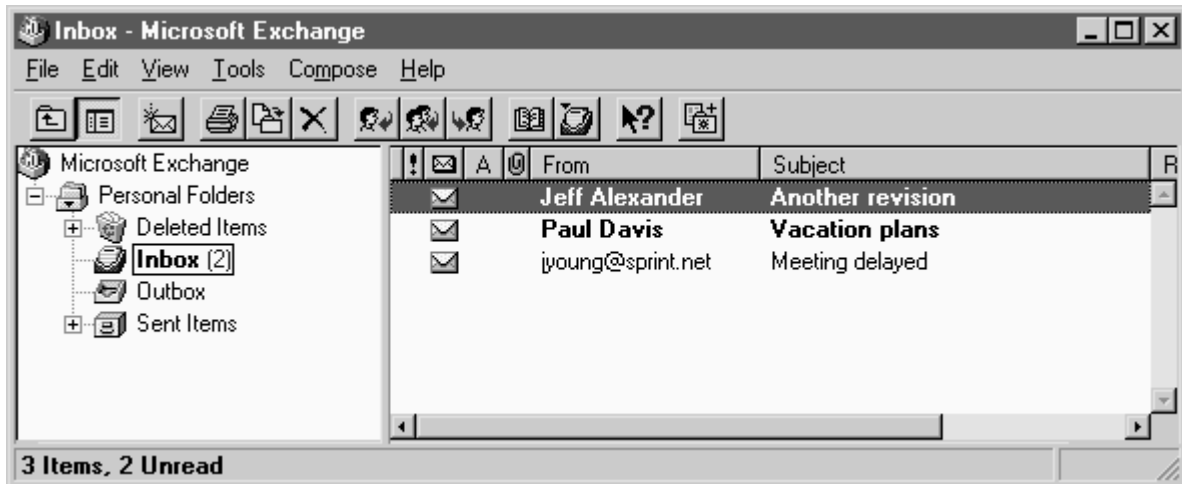
Microsoft Messaging Clients

The messaging client is what the user thinks of as the messaging application. It runs on the user's computer and provides the user-interface to the messaging system.

There are several variations of the Microsoft messaging client application. The *Windows Inbox* is included as a free part of Windows95. In later releases, Microsoft changed the name of the *Windows Inbox* to the *Windows Messaging System*. A new client is shipped with the messaging server, and both the client and the server are called *Exchange*. An advanced client called *Outlook* is shipped as a part of Microsoft Office 97. For simplicity, many references, including this document refer to these generally as the *Exchange client*.

The Microsoft Exchange client has all the features you would expect of a good e-mail system. It ships with components to connect to an Internet e-mail provider like the Microsoft Network or America Online, and it can use a fax modem in the PC to send and receive faxes. It can also use, but does not require, a company messaging server such as the Exchange Server or a Microsoft Mail post-office.

The real power of the Exchange client is the ability to connect to an extensive variety of messaging systems, including Lotus cc:Mail, Lotus Notes, and Novell GroupWise. Plus, the user-interface can be customized to work with voice mail, fax mail and other types of message.



Microsoft Exchange Client

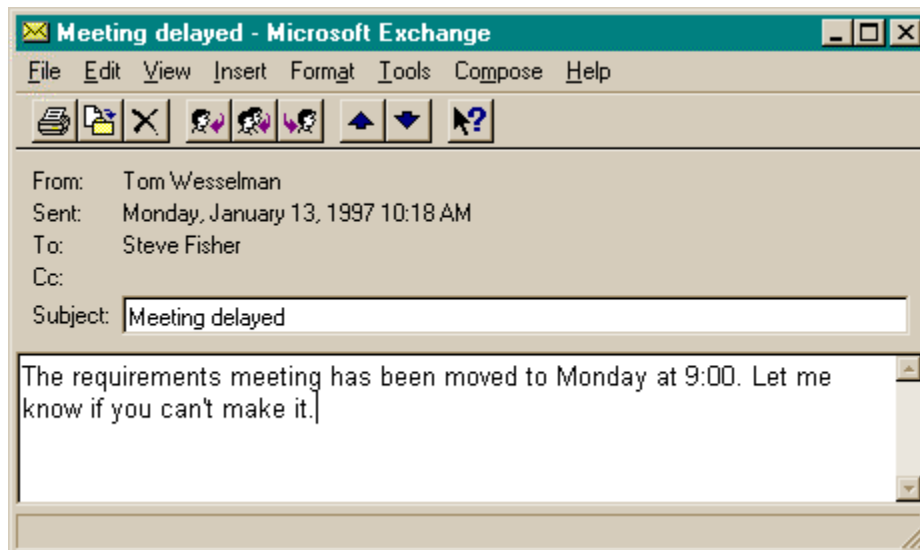
The left side of the application displays the message folders. There are four standard folders:

- The *Inbox* is where all new messages are delivered.
- The *Outbox* is where outgoing messages are stored until they are delivered.
- The *Sent Items* folder can store a copy of all sent messages
- The *Deleted Items* folder stores deleted messages until it is emptied

Custom folders can be created to organize and archive messages. To move a message, just drag it to the destination folder. Note: the option to view folders is off by default. To turn it on, select the *Folders* option from the *View* menu.

The right side of the application displays the contents of the selected folder. In this case there are two new e-mail messages, and one old one. The columns can be changed to show other message information, and messages can be sorted in any order.

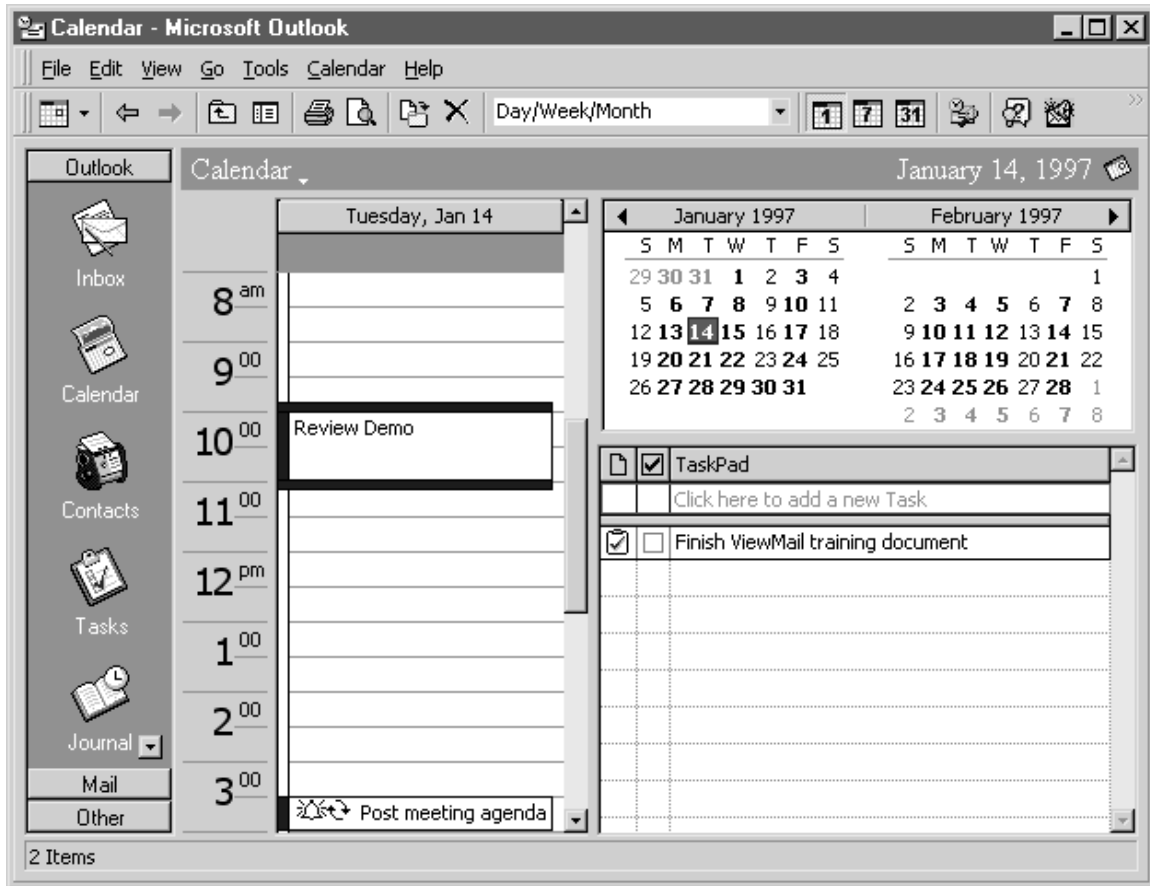
To read a message just double-click on it.



E-mail Read Form

All messages are composed and read using forms. The *compose* and *read* e-mail forms are a part of the Exchange client. Custom forms may be installed for things like project reports, expense reports, and even voice mail.

Microsoft Outlook is a revolutionary new client that is tightly integrated with the rest of Microsoft Office 97. It has a new look, and an advanced but easy-to-use user interface.



Microsoft Outlook Calendar

In addition to all the mail features of the other Microsoft clients, Outlook adds an integrated calendar, contact manager, task list, and journal. All these components work together with the messaging system.

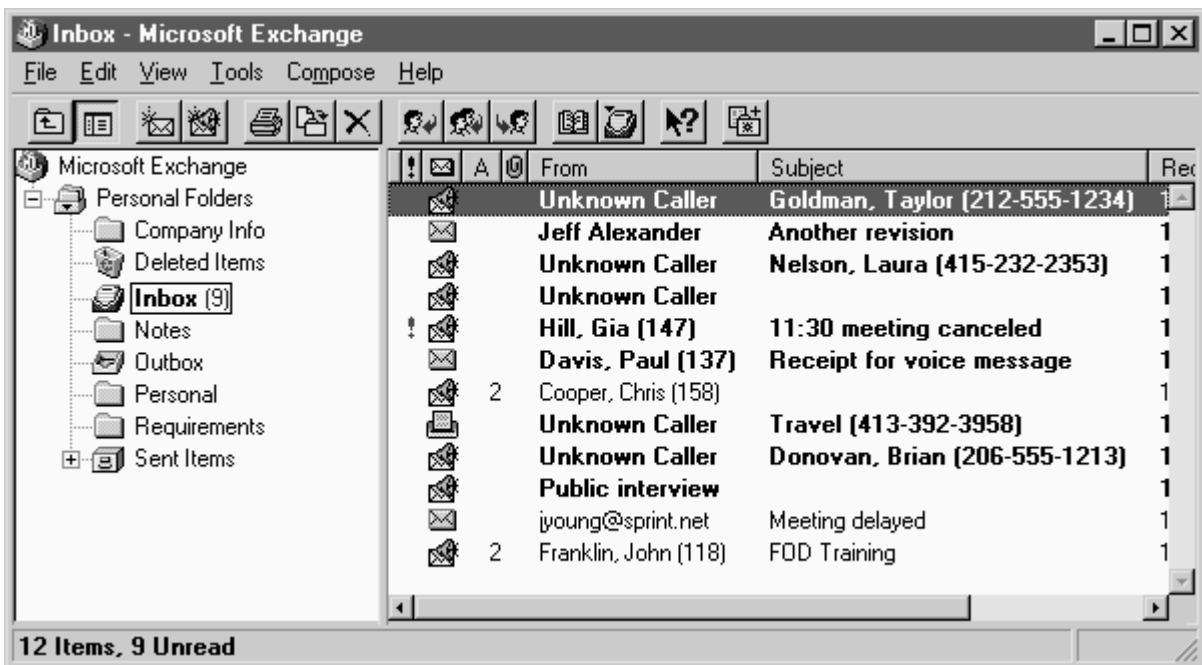
For example, suppose you receive a message asking you to develop a training document. Just drag it to the task list to automatically make an entry in your list of things to do. As you work, update the status of the task, and add any comments, related documents, or other information. To send someone else a copy of your progress, just drag the task to the Inbox to create a new message already filled in with the necessary information. Working with the calendar, contact manager, or journal is just as easy.

Exchange Server

A corporate messaging system requires more than just personal Internet mail. Microsoft Exchange Server is a central messaging server that handles messages within the company and maintains the company address book. It also leverages Windows NT Server to centralize and simplify installation and administration.

ViewMail for Microsoft Messaging

Since 1994 Active Voice has been working closely with Microsoft to integrate with Microsoft messaging systems. ViewMail for Microsoft Messaging is the first application to bring voice and fax messages into the universal inbox provided by Exchange.



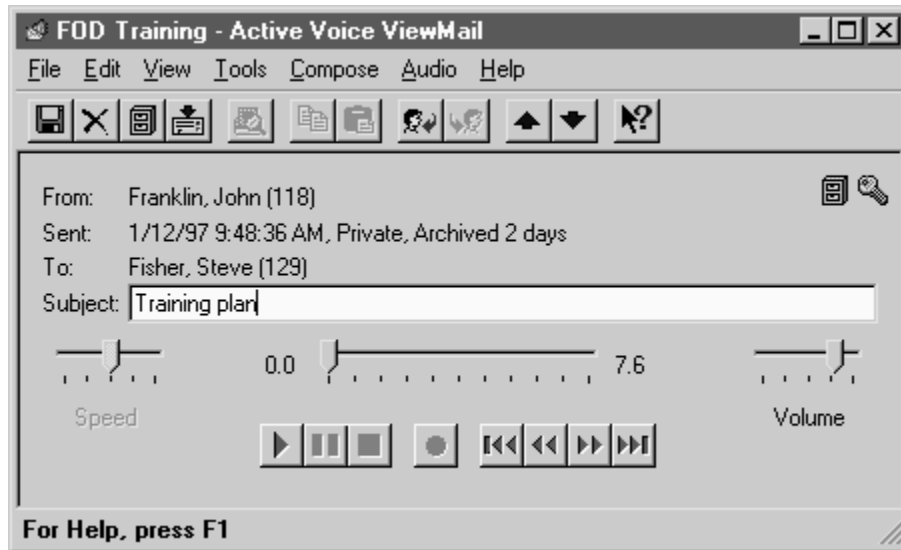
Microsoft Exchange with Voice and Fax Messages!

Voice and fax messages are distinguished with easy-to-recognize icons. With all messages in the same place it's easy to find those that are most important. The urgent message about the meeting being canceled really stands out. Even without listening to the message you can tell what it's about from the voice mail subject line.

Receiving Incoming Messages

When someone leaves you a message you get immediate notification of the message in your Inbox. ViewMail notification options can be set to play a custom message when you get a new voice or fax messages, and even play the caller's recorded name.

As with e-mail messages, just double-click to listen to a voice message. This activates a custom ViewMail form to play the message.



ViewMail Read Message Form

The ViewMail read message form should be familiar to anyone who has used Exchange e-mail; the top half of the form is almost identical to the e-mail form. Menu items and toolbar buttons are standard. The bottom half of the form contains easy-to-use VCR-style buttons for playing the message. A position slider shows where you are in the message, and lets you move immediately to any part of the message.

This message is private and has been archived with two days remaining on the voice server. This is indicated by the text information about the message, as well as the icons in the upper-right part of the form. Since it is private, the contents of the message cannot be forwarded or copied to the clipboard.

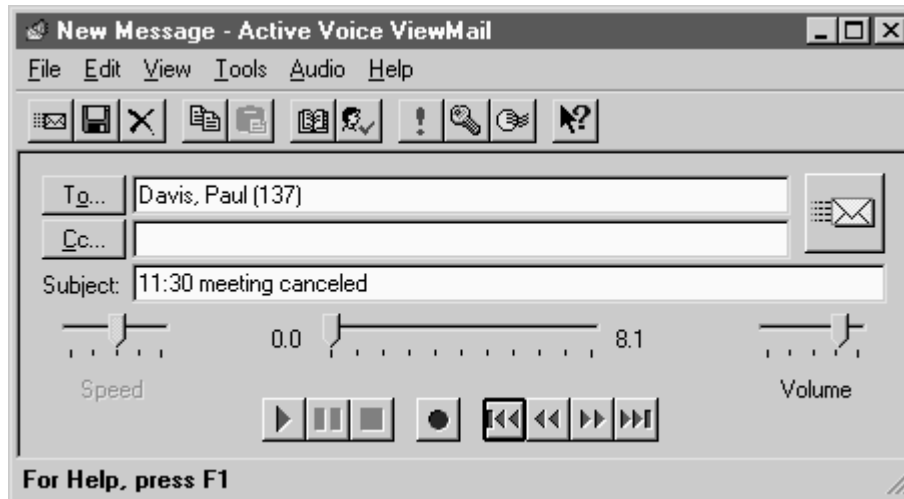
Another great Exchange feature is the ability to move up and down your list of messages with the arrow buttons on the toolbar. The form changes depending on the message type, but since it always stays in the same place, it's almost not noticeable that you are dealing with different message types.

Note that you can edit the *Subject* field. This is mostly useful for messages from outside callers that do not have a subject specified. After listening to the message you can add notes here for easy access in the future. If the message is from an outside caller, you can enter his or her name in the *From* field.

If there are any questions, the help system is always nearby. If you move the mouse over a toolbar button, a small Tool Tip appears to tell you what it does. The optional status bar explains any selected menu item. Clicking on the *help* button turns the mouse into a help cursor. Just point and click to get help on any part of the form. Finally, just hit F1 at any time to get help on what you are working on.

Composing a new message

ViewMail adds a compose new voice message toolbar button and menu item to the main Exchange window. Just click this to launch the ViewMail compose form.



ViewMail Compose New Message Form

As with the play form, the top half of the form is very similar to the compose e-mail form. The bottom has the standard controls for playing and recording the new message. There is no need to go to another voice application or use the Windows Sound Recorder. You can even paste audio from a file.

Addressing the voice message is the same as addressing an e-mail message. Type the recipient's name in the *To* field, or click on the *To* button to launch the Exchange address book. The ViewMail address book appears as a seamless part of the Exchange address book. ViewMail users have their extension added to the end of their name to indicate that they are voice mail users.

A message that has been sent can automatically be stored in the *Sent Items* folder. Because a voice message can be pretty large, we added an option to store only the message header in this folder. This way you maintain a record of the message without having to store all the contents.

Until the recipient hears a message it can be revoked. The *Sent Items* folder contains a special folder called *Unopened* that contains all sent but unopened messages. To cancel a message that you've already seen, just delete it from this folder.

Playback and Record Using the Telephone

If your PC does not have a sound card and a microphone, you can use your telephone to record and play messages. Just enter your workstation extension number to connect and begin recording and listening.

Connecting to Repartee

ViewMail can connect to the voice server using TCP/IP. Just enter the name or IP address of the server.



ViewMail Server Connection Settings

The Identification page lets you enter your personal ID and security code.

ViewMail Options

All ViewMail settings are on a set of property tabs that can be accessed from the ViewMail forms, or the main client window.



ViewMail Notification Options

Managing Messages

ViewMail gives you the power to manage your messages from the telephone or the PC. Operations on messages within the Exchange are the same as over the telephone, and the results are the same.

New messages are stored on the voice server until they are read. Once read, they will be

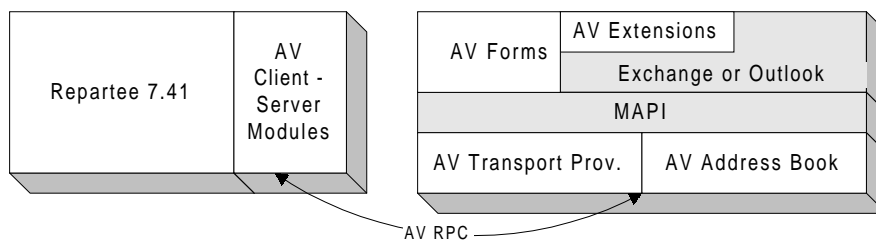
automatically deleted after the hold time specified on the voice mail system. The archive command stores the message on the voice server for the number of days specified by the voice mail system. To keep a message around longer, you can archive it several times.

To keep a message permanently, ViewMail for Microsoft Messaging adds the option to download the voice and fax contents of the message. The contents are attached to the message. They will be stored wherever the rest of the message is stored. This is useful for keeping records of important messages. ViewMail works with Exchange folders for even better message storage. Moving a message out of the inbox to another folder automatically downloads the contents to keep a permanent copy.

Exchange has an option to keep all outgoing messages in the Sent items folder. ViewMail works with this so you can have a record of all outgoing messages. Since voice messages can be fairly large, ViewMail has an option to only save the message header. This keeps a record of the sent message without actually keeping the entire contents.

Architecture

ViewMail for Microsoft Messaging integrates the Repartee 7.4 voice server with the Exchange client.



When a message is left with the voice mail system, Repartee notifies ViewMail of the new message. ViewMail moves the message header into the Exchange, but leaves the actual contents of the message on the voice server. The message can still be accessed over the phone.

Changes to the message are synchronized between ViewMail and Repartee. When you read a message over the telephone it gets marked as read in ViewMail. Archiving a message in ViewMail will truly archive it on the voice server.

Voice messages are unlike e-mail messages in that they are automatically deleted by the voice mail system a specified number of days after they are opened. Archiving a message keeps it on the voice server longer, but to keep a message permanently it's best to actually download the message.

From ViewMail, it's easy to download a message and store it locally. Just choose the download button on the form, or the menu item from the main inbox window. The audio and fax contents are downloaded and attached to the message. The message is played the same way, but the contents are stored with the message on the PC instead of the voice server.

Remote Access

The easiest type of remote access is just to call the voice mail system and retrieve your messages via telephone. ViewMail does not change the way that messages are stored on the server; they can be accessed either from the PC or the telephone.

Getting messages to a remote laptop is a little more complicated. There are two general needs of remote users. The first is to read and compose messages while out of the office; the second is to send and receive new messages while out of the office.

Working off line

If you know you're currently connected, but are going to be leaving, download all messages to your laptop PC so that they can travel with you. While off line, you can listen to downloaded messages. Messages can be composed, replied to, and forwarded while off line. Outgoing messages are stored in a special folder called the "Outbox, and are automatically sent once a connection with the voice server is established.

Working remotely

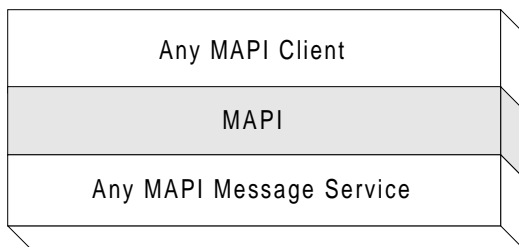
If you are remote but want to get your voice and fax messages, you will need to connect to the network back at the office. There are several different ways to do this, but a common way is to have a PC with a modem that is running remote access software. The PC dials a modem in a computer back at the office. The computer back at the office runs a server version of the remote access software that makes a fully functional, although slow, connection to the office LAN. The TCP/IP connection that connects at the office works the same when remote. Once the connection is made you can run Exchange and new messages headers will be delivered to the inbox. Outgoing messages that were compose while off line will be delivered.

The only difference when working remotely is the speed of the network connection. ViewMail requires 24kb/sec to stream audio real-time. If you have a 28.8kb modem there might be enough bandwidth if the connection is good. An easier way is to download all messages to store them locally. This minimizes the time on the phone and ensures unbroken audio at any connection speed.

MAPI

MAPI (Messaging Application Programming Interface) is the foundation upon which Microsoft messaging systems are built.

A MAPI client program provides the user-interface for the messaging system. A MAPI client is unconcerned with the details of how messages move around. When it wants to send a message, it tells MAPI to send it and MAPI makes sure it gets delivered.



All Microsoft Messaging clients are MAPI clients. Since MAPI is an open, published interface, it can also write client messaging applications. However, since Microsoft is giving away a nice, customizable client, only a few, highly specialized clients have been developed.

A MAPI service provider handles the actual work of sending, delivering, and storing messages, and maintaining address books. The service provider is unconcerned with how messages are

created and displayed. When MAPI gets a message to deliver it passes the message to the service provider that handles that type of message. The message may be delivered using the Intranet, the Internet, or even the voice mail system.

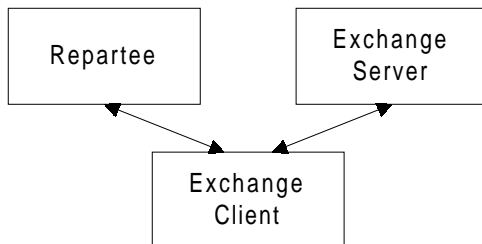
Microsoft Exchange Server and Microsoft Mail have MAPI service providers. This part of MAPI is also an open standard, and many companies have written service providers.

Working With Other Mail Systems

MAPI is designed to work with a wide variety of mail systems. Just as the MAPI client is not concerned with which specific MAPI service providers are installed, each MAPI service provider is ignorant of all the other service providers. The ViewMail service provider sends and receives voice messages, and publishes the voice mail address book. Other service providers handle their own types of messages. By integrating with MAPI, ViewMail integrates with all MAPI service providers. Microsoft provides the unified client for all the messaging systems.

Working with Microsoft Exchange Server

ViewMail for Microsoft Messaging brings voice and fax messages to the Exchange client. Exchange Server brings corporate e-mail to the Exchange client. All messages are delivered to the one inbox folder. Even though the two voice servers do not communicate directly, they do work together.



The Repartee/ViewMail address book is a part of the global MAPI address book. An Exchange Server user would typically have two address books within the global MAPI address book – the one on Exchange Server, and the personal address book. ViewMail users have an additional address book for ViewMail users.

Working With Other Mail Systems

Working with Microsoft Mail and other mail systems is similar to working with Exchange Server. The Exchange client can be configured to use dozens of mail systems. All this is independent of the connection to Repartee.

The Future

Active Voice is already working to bring you the next generation of messaging products.

Web Access to Messages

Microsoft is working on versions of the Exchange and Outlook clients that work in a standard web browser. We are working closely with Microsoft to integrate ViewMail for Microsoft Messaging capabilities with these products.

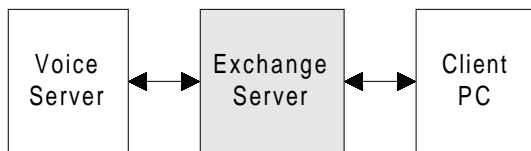
Phone Access to Text Messages (Text-to-Speech)

Active Voice already ships text-to-speech technology as an optional component of Repartee. Currently it works with other groupware applications to read e-mail messages over the phone. In the future we will be integrating our existing text-to-speech technology with additional messaging systems including Exchange Server and Microsoft Mail.

Direct Integration with Exchange Server

The current release of ViewMail for Microsoft Messaging works with or without Exchange server. It integrates the different types of messages by bringing them all to the Exchange client inbox. This works quite well and has the advantage of not requiring a messaging server. However, there are advantages to having the Voice server store messages directly into the Exchange server:

- Requires only a single connection point between the client and server. This is especially important for remote users.
- Uses one, unified address book. ViewMail today has a MAPI address book, but directly using the Exchange server address book simplifies addressing and administration.
- Allows rules and other Exchange server processing to occur on the server, even if the client is not logged on.



Microsoft is committed to making Exchange Server the messaging system of choice for the enterprise. This architecture lets us leverage the powerful features of Exchange server including scalability, clustering, replication, reporting, backup, and robust RAID storage.

For More Information

There are several books that are helpful to understanding all this.

Microsoft Exchange In Business, Russell Borland, Microsoft Press, and ISBN 1-57231-218-1. This is a good book for leveraging the advanced features of Exchange like scheduling, shared folders, and custom forms. It is aimed at business users and MIS managers. It assumes the use of Exchange server.

Field Guide to Microsoft Exchange, Stephen Nelson, Microsoft Press, ISBN 1-57231-305-6. This is a reference-style guide to Exchange. It is based on the end-user perspective of features with or without Exchange server.

Many other books are also available. Several books relating specifically to Outlook are due soon. In addition, the Microsoft Exchange web page has a lot of information and news about new developments.

And, of course, the ViewMail for Microsoft Messaging help system, which is included in the demo version, has complete information about the product.