Chapter 1

Introducing Exchange Server 2007

A hint of understanding passed over the butler's stoic face when he found the bloodstained candelabra, but loyalty to the master would prevent him from saying...oh, sorry, wrong book. Let's try this again. One of the most common misconceptions that even experienced Exchange administrators are making when approaching Microsoft Exchange Server 2007 is to assume it is a ''point'' release. It is too bad that Microsoft has moved away from a system that more objectively identifies the significance of the release, such as v4.0, v5.0, v5.5, and so on. Now the products are named without actually including major or minor versions.

Someone simply examining the product names Exchange Server 2003 and Exchange Server 2007 might not think there have been significant changes. Although moving from Exchange 2000 or Exchange 2003 to Exchange 2007 is not quite as significant as moving from Exchange 5.5 to Exchange 2000, Exchange Server 2007 does introduce enough new features and a major shift in the administration model that it must be considered a major release.

During the year coming up to the initial release of Exchange 2007, experienced Exchange administrators have often made comments similar to this: ''Exchange 2003 already has most of the features and functions that we need. How could it significantly be improved?'' Clearly, Exchange 2007 offers a significant enough number of improvements that all Exchange administrators will see some of the advantages in upgrading. Many sessions have been attended at TechEd, seminars have been held, and literally hundreds of articles and blog entries have been written about Exchange 2007. Arguably, Exchange 2007 is the most anticipated release of Exchange Server ever. Certainly it is the most widely hyped. The improvements (along with the misconceptions about Exchange 2007) have been widely discussed.

We'll discuss these improvements in this chapter, but in short Exchange 2007 introduces simplified administration as well as improvements in e-mail life cycle management, scalability, the availability of services, security, and internal SharePoint portals.

Summarizing even a few of the new features in this brief introduction is difficult, but early adopters of Exchange 2007 have reported the following features to be some of the most popular and useful:

- Powerful message transport rules applied and enforced at the server
- Continuously replicated Exchange databases for both clustered servers and nonclustered servers
- Vastly improved anti-spam features
- Customizable ''over quota'' and nondelivery messages
- Exchange Management Shell command line and scripting interface
- Transportable databases (databases that can be restored to a different server)

- Improved calendaring support via calendar concierge, the Availability service, and resource mailboxes
- Simplified permissions model and message routing
- Unified messaging technology that is now an integrated part of Exchange Server 2007

This list could go on for the entire chapter, but this gives you a taste of a few of the features that Exchange administrators as well as administrators from other messaging systems are getting excited about when they talk about Exchange 2007.

In this chapter, we will cover the changes to Exchange 2007 not only to give experienced Exchange administrators the proper perspective on Exchange 2007 but also to educate newly minted Exchange administrators on just how powerful Exchange has become and some of the new features.

Topics in this chapter include the following:

- The evolution of e-mail
- The new features of Exchange 2007
- Features and functions being deemphasized or phased out
- Some common points of confusion

Do You Believe in Evolution?

If you're currently responsible for electronic messaging in your organization, no one has to tell you about the steadily expanding use of e-messaging. You know it's happening every time you check the storage space on your disk drives or need an additional tape to complete the backup of your mail server. In this section, we will discuss some of the aspects of electronic mail and the ever-changing nature of e-mail. Even experienced Exchange server administrators may want to review this section to better understand how your users and requirements are evolving.

Over the past 10 years, the number of e-mail addresses has grown significantly. The technology research company International Data Corporation (IDC) estimated that in 2002, the number of e-mailboxes worldwide was more than 500 million. As of 2006, the Radicati Group estimates that there are now more than 1.5 billion e-mail accounts worldwide, accounting for over 135 billion e-mail messages per day.

Certainly e-mail systems have come a long, long way since the first mainframe and mini-computer systems from more than 30 years ago. Even the primitive text-based systems like cc:Mail, Microsoft Mail, WordPerfect Office, and Da Vinci eMail that first appeared on local area networks in the late 1980s are almost unrecognizable ancestors when compared with a modern system based on Exchange Server 2007 and Outlook 2007.

The similarities between these systems stop at just a few basic functions, including the ability to send text messages from one individual to another individual or group. The sender and message recipients were usually always within the organization. Early e-mail systems were looked at by organizations as a luxury or an option rather than an important part of an organization's daily work processes.

Electronic messaging is now far more than e-mail. It involves the use of an underlying messaging infrastructure (addressing, routing, store-and-forward technologies, and so on) to build applications that are based on cooperative tasking, whether by humans or computers. Working in tandem with real-time interactive technologies, electronic messaging systems have already

produced a set of wildly imaginative business, entertainment, and educational applications with high payoff potential. All of this action, of course, accelerates the demand for electronic messaging capabilities and services.

Microsoft's Exchange Server products have played and will continue to play a key role in electronic messaging. Exchange Server 2007 is one of the most powerful, extensible, scalable, easy-to-use, and manageable electronic messaging back ends currently on the market. Combined with Microsoft's excellent Outlook clients, Internet-based clients from Microsoft and other vendors, mobile devices that use ActiveSync, and third-party or home-grown applications, Exchange Server 2007 can help your organization move smoothly and productively into the electronic messaging future.

E-mail Is Only the Beginning

Together, Exchange Server 2007 and its clients perform a variety of messaging-based functions. These include e-mail, message routing, scheduling, and support for several types of custom applications. Certainly, e-mail is a key feature of any messaging system, and the Outlook Calendar is far better than previous versions of Microsoft's appointment and meeting-scheduling software. Outlook 2007 together with Exchange 2007 introduces even more improvements. Figures 1.1 and 1.2 show the Outlook 2007 client Inbox and Calendar in action.

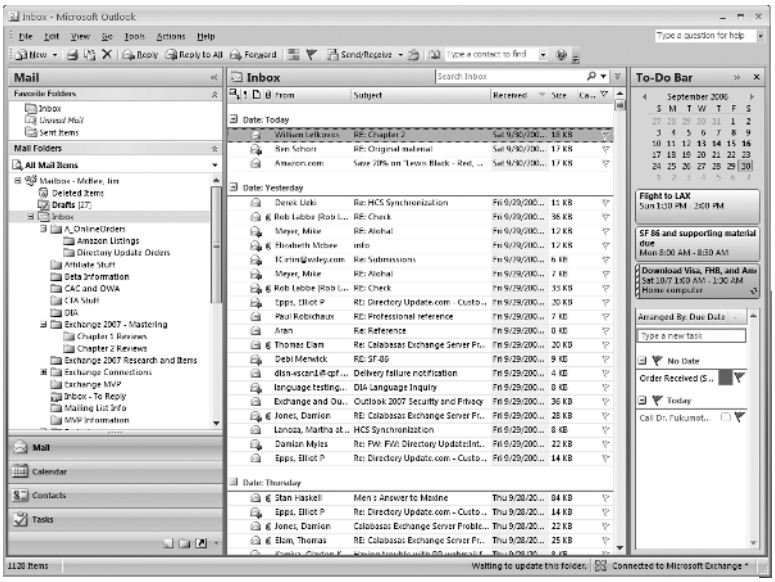


FIGURE 1.1
The Outlook 2007 client Inbox

Figure 1.3 shows the new Outlook Web Access 2007 web browser client that you can use with Exchange Server 2007.

E-mail clients are exciting and sexy, but to get the most out of Exchange Server 2007, you need to throw away any preconceptions you have that messaging systems are only for e-mail and scheduling. The really exciting applications are not those that use simple e-mail or scheduling, but those that are based on the routing capabilities of messaging systems. These applications bring people and computers together for improved collaboration.

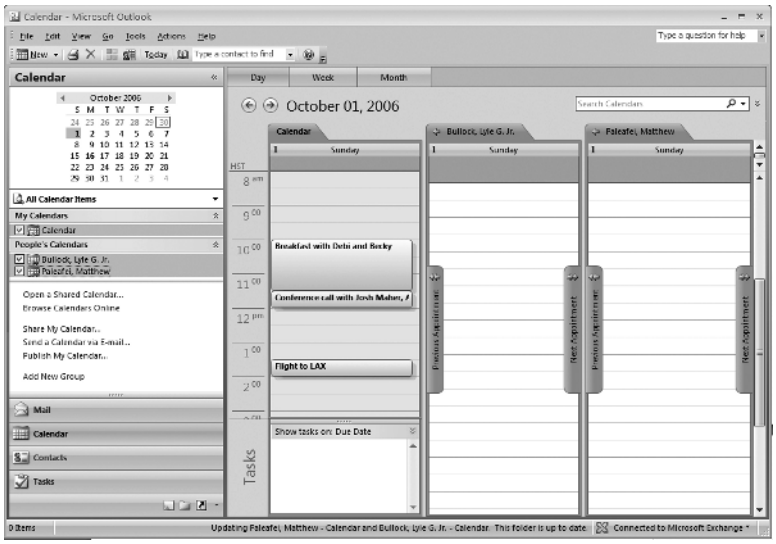


FIGURE 1.2
The Outlook 2007 client Calendar

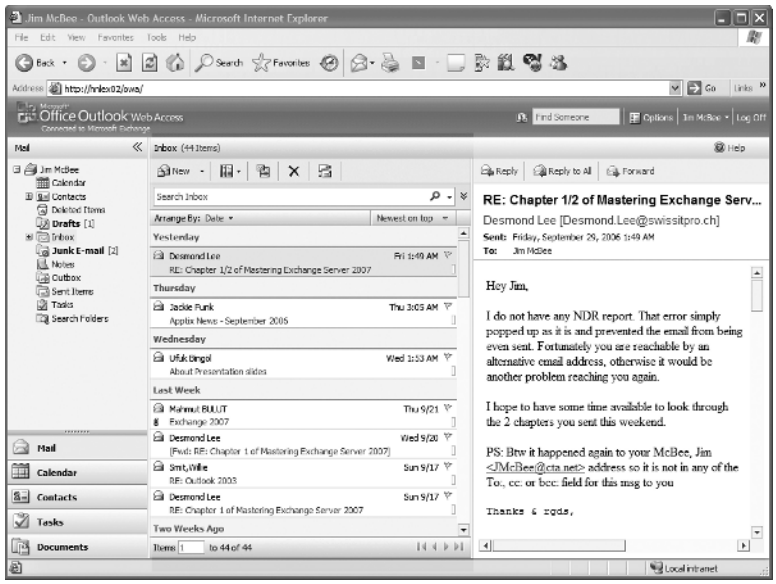


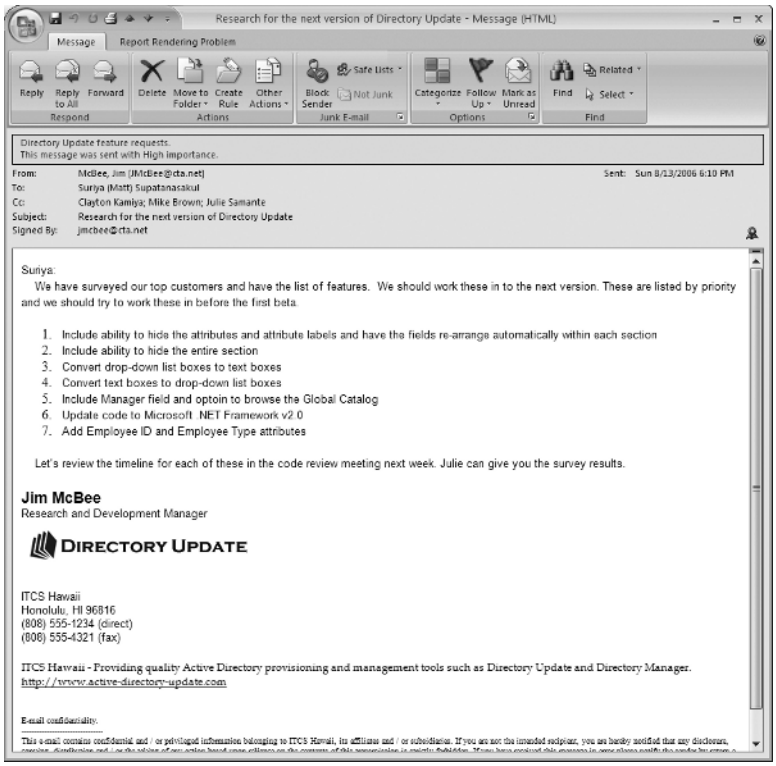
FIGURE 1.3
Outlook Web Access web browser accesses mail stored on an Exchange Server 2007.

Message Complexity

E-mail clients such as Outlook and Outlook Web Access allow for the creation of much more complex e-mail messages than in the past. What does ''more complex'' mean? Well, take as an example the message shown in Figure 1.4. This Outlook 2007 message is formatted with fonts, a numbered list, a substantial message signature/disclaimer, and a corporate logo in the signature; all of this is formatted using HTML or rich text so that the message is viewable by any

web-based mail system or HTML-compatible clients. Finally, the message is digitally signed and authenticated with a digital signature.

FIGURE 1.4
A typical e-mail message



The whole point of this discussion is to illustrate the changing nature of e-mail. Organizations depend far more on e-mail today than they did even five years ago, and their users send even more mail than in the past. And as you saw, messages are formatted with rich text or HTML formatting and can contain disclaimers and often digital signatures. All of these things help us to communicate more effectively.

In addition to regular e-mail messages, users are sending scheduling requests, contact items, forms-enabled e-mail messages, and more. Each of these increases the complexity of the messaging system and also an organization's dependency on it.

The message shown in Figure 1.4 has only a few hundred bytes of actual message content, including the recipient information, but it is 30KB in size. This is just to convey a few hundred bytes of information!

Integrating Voicemail, Faxing, and E-mail

E-mail systems are converging with their voicemail and faxing cousins. The concept of unified messaging is nothing new to e-mail users. For at least the past 10 years, third-party vendors have included e-mail integration tools for voicemail and network faxing solutions. However, for most organizations, integrated voicemail and faxing solutions remain the exception rather than the rule. Exchange 2007 introduces integrated voice and fax solutions as part of the base product.

Organizations with IP-based telephone systems or telephone systems with an IP gateway can now easily integrate a user's voicemail and inbound faxing with the Exchange user's mailbox. The Exchange 2007 Unified Messaging server handles the interaction between an organization's telephone system and Exchange mailboxes. Inbound voicemail is transferred in to the user's mailbox as a WMA file attachment; this message includes an Outlook form that allows the user to play the message. A short voicemail message may be anywhere from 40KB to 75KB in size, while longer voicemail messages may be 200KB to 500KB in size. One estimate that is frequently used to estimate the size of a voicemail message is around 5KB per second of message.

Inbound faxes are transferred to the user's mailbox as a message containing an Outlook form with a Group IV TIFF attachment; a single-page fax can be as small as 25KB, while multipage faxes can easily be 200KB or larger. Incorporating third-party scanning and outbound faxing products (outbound faxing is not supported out of the box with Exchange 2007) can further increase the size of a mailbox.

With Outlook Voice Access, a user can now dial in to the Exchange 2007 Unified Messaging server and access their mailbox, have e-mail read to them, have appointments read to them, and move or cancel appointments. If an appointment is changed, Outlook Voice Access will automatically notify attendees of scheduling changes; this is very useful if you are sitting in traffic on the freeway with nothing but your cell phone (using your headset of course)!

Inbound voicemail and inbound faxes will increase the demands on your Exchange server from the perspective of required disk space and possibly additional server hardware, though. This needs to be considered. Outlook Voice Access will increase the potential number of connections and usage of your Exchange mailbox servers and Unified Messaging servers.

Multiple Points of Access

For years, the only point of access for one's e-mail system was to use a Windows, Macintosh, or Unix-based client and access the e-mail system directly. In the case of Outlook and Exchange, this access was originally in the form of a MAPI client directly against the Exchange server. As Exchange has evolved, POP3 and IMAP4 access has been included in the product, then Web-based e-mail access, and finally mobile device access. Exchange Server 2007 supports additional technologies such as Web Services that can provide additional mechanisms for accessing data in mailboxes.

Outlook Web Access has evolved quickly and in Exchange 2007 bears almost no resemblance to the original version found in Exchange 5.0 in terms of features, functions, and the look of the interface.

Mobile device access was first provided to Exchange 2000 using Microsoft Mobile Information Server and then later included as part of Exchange 2003. Mobile device functionality has been further improved in Exchange 2007. User demand for integrating mobile devices with e-mail are becoming more common. The Radicati Group estimated that in 2006 there were 14 million wireless e-mail users but by 2010 that number will grow to 228 million. You can bet that your users will want to be included!

Unified Messaging and Outlook Voice Access now allow a user with nothing but a telephone to access their e-mail and calendar and even make changes via the telephone.

With all of these mechanisms for retrieving and sending e-mail, it is not unusual for users to be accessing their mailbox using more than one. In some cases, we have seen users accessing their mailbox from their desktop computer, their notebook computer (using RPC over HTTP), and their Windows Mobile device.

In medium and large organizations, the fact that users are now accessing their mailbox from more than one device and/or mechanism will affect not only hardware sizing but potentially your licensing costs.

Just a Step beyond Mail

Most e-mail administrators are familiar with *attachments* — those word-processing, spreadsheet and other files that you can attach to messages. Using attachments is a simple way to move files to the people who need to see them. They also tend to gobble up disk space extremely fast!

Sure, you could send your files on disk or tell people where on the network they can find and download them. But e-mail attachments let you make the files available to others with a click of their mouse buttons. Recipients just double-click on an icon and the attachment opens in the original application that produced it. This is true, of course, only if your correspondent has access to the application or to software that was used to create the attachment.

Using attachments offers the added advantage of putting the files and accompanying messages right in the faces of those who need to see them. This leaves less room for excuses such as ''I couldn't find/open that network folder'' or ''The dog ate the disk.''

As great as attachments can be, they have one real weakness: The minute an attachment leaves your Outbox, it's out-of-date. If you do further work on the original file, the work is not reflected in the copy that you sent to others. If someone then edits a copy of the attached file, it's totally out of sync with the original and all other copies. Getting everything synchronized again can involve tedious hours or days of manually comparing different versions and cutting and pasting them to create one master document.

Office 2003 and Office 2007 offer two neat ways to avoid this problem. First, they let you insert a link to a file. When you open the file, you're opening the file the link point to. If the file is changed, you see the changed file. Second, Office lets you attach a file to a message and set a shared folder where an updateable version of the file is stored. When the copy attached to the user's e-mail is updated, these updates can be incorporated into the shared copy of the file. This option allows broader access to the file than a link.

The use of portals such as Microsoft Office SharePoint Server is becoming increasingly commonplace in organizations as they look for better ways to store, find, and manage the data that their users are producing. Both Outlook and Outlook Web Access can better integrate with SharePoint and provide an alternate location for the storage of attachments.

Mailbox Size Limits

As users have become more savvy and competent at using Outlook and the features of Exchange and e-mail messages themselves have become more complex, the need for e-mail storage has grown. Back in the days of Exchange 4.0, an organization that gave their users a 25MB mailbox was considered generous. With Exchange 2003, a typical user's mailbox now may have a storage limit of 300 to 500MB, with power users and VIPs requiring even more.

At TechEd 2006, Exchange gurus were tossing about the idea that in the future a default mailbox limit would be closer to 2GB as users start incorporating Unified Messaging features. We all see users with mailbox sizes in the gigabyte range, but is your organization prepared for a typical user with a 2GB message size limit? What sort of concerns will you face when your average user has 1 to 2GB of content (not just e-mail!) in their mailbox?

Certainly the need for more disk storage will be the first factor that organizations need to consider. However, disk storage is reasonably cheap, and many larger organizations that are supporting thousands of mailbox users on a single mailbox server usually already have more disk space than they can practically use. This is due to the fact that they require more disk spindles to accommodate the number of simultaneous I/Os per second (IOPS) that are required by a large number of users.

For more administrators with large amounts of mail storage, the primary concern they face is the ability to quickly and efficiently restore data in the event of a failure. These administrators are

often faced with service-level agreements that bind them to maximum restoration times. In even the most optimal circumstances, a 300GB mailbox database will take some time to restore from backup media!

Microsoft recommends that you do not allow an Exchange mailbox database to grow larger than 100GB unless you are implementing local continuous replication. If you use local continuous replication or clustered continuous replication to keep a copy of the database ready to use in case of database corruption, do not let the mailbox database grow to larger than 200GB. If you require more than 100GB (or 200GB) of mailbox database storage, Exchange 2007 Standard Edition allows you to have up to 5 mailbox databases while Exchange 2007 Enterprise Edition allows you to have up to 50.

The solution in the past was to restrain the user community by preventing them from keeping all of the necessary mail data that they might require on the mail server. This was done by imposing low mailbox limits, implementing message archival requirements, keeping deleted items for only a few days, and keeping deleted mailboxes for only a few days.

However, as Unified Messaging data now starts to arrive in a user's mailbox and users have increasing mechanisms for accessing the data stored in their mailbox, keeping mail data around longer and longer is not only going to be a requirement of your user community, it will be one of their demands.

Off-the-Shelf Messaging-Enabled Applications

Microsoft Office enables messaging in many word-processing and spreadsheet applications. For example, when you install the Outlook client on your computer, Microsoft's Office products such as Word and Excel are enabled for electronic messaging. You can select the Routing Recipient option from the application's File ➢ Send To menu. An electronic routing slip pops up. You then add addresses to the slip from your Exchange address books or from your Outlook contacts, select the routing method you want to use, and set other attributes for the route. Finally, you add the routing slip to the document with a click of the Add Slip button and ship it off to others using options on the File ➢ Send To menu.

As you can see in Figure 1.5, a file can be routed either sequentially or all at once to each address you selected. Routing sequentially helps eliminate problems associated with multiple users editing the same file at the same time. With applications such as Microsoft Word that keep track of each person's comments and changes, once the document has been routed, the original author can read the comments and incorporate or not incorporate them as they see fit.

Although it's simple, application-based messaging can significantly improve user productivity and speed up a range of business processes.

Objects

Object insertion and linking further enhance the functionality of the Exchange messaging system. Take a close look at Figure 1.6. Yes, the message includes an Excel spreadsheet and chart. The person who sent the message simply selected Object from the Insert menu that appears on every Exchange message. Then they specified a file with an existing spreadsheet as the source of the object to be inserted into the message. The Outlook client then inserted the file into the message as an object.

The recipient can see the spreadsheet as a graphic image in the message, as shown in the figure. When they double-click the graphic image, Excel is launched inside the message, and Excel's menus and toolbars replace those of the message (see Figure 1.7). In essence, the message becomes Excel.

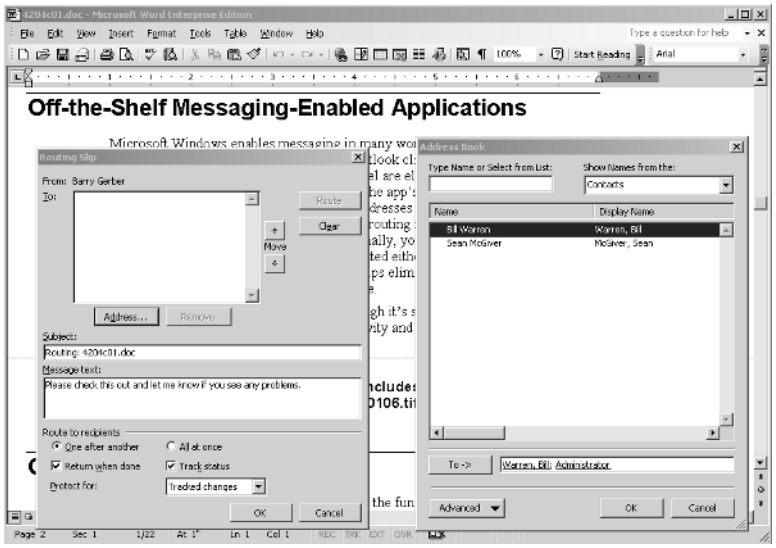


FIGURE 1.5
Microsoft Word 2003 includes messaging-enabled functions for sending and routing.

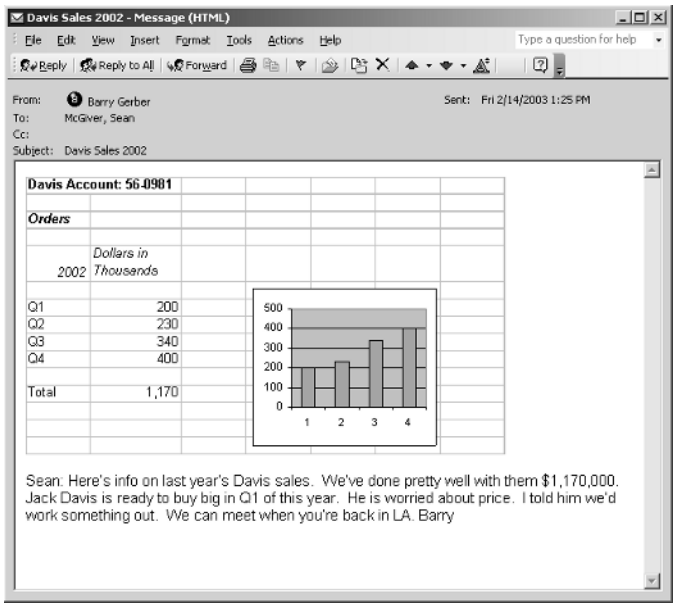


FIGURE 1.6
Object insertion makes it easy to create sophisticated messaging-enabled applications.

The Excel spreadsheet is fully editable. Excel must be available to a recipient for them to be able to edit the spreadsheet. Without Excel, they can only look at the spreadsheet in graphic image form, although the graphic image changes when the spreadsheet is edited in Excel.

You can also insert in a message an object that is a link to an application file. As with other kinds of object insertion, your recipient sees a graphic picture of the contents of the file and can edit the file by double-clicking the graphic picture. Links are a bit more flexible, because they allow users

to work with files stored on a shared disk. With inserted objects, users work with a file embedded in the message itself.

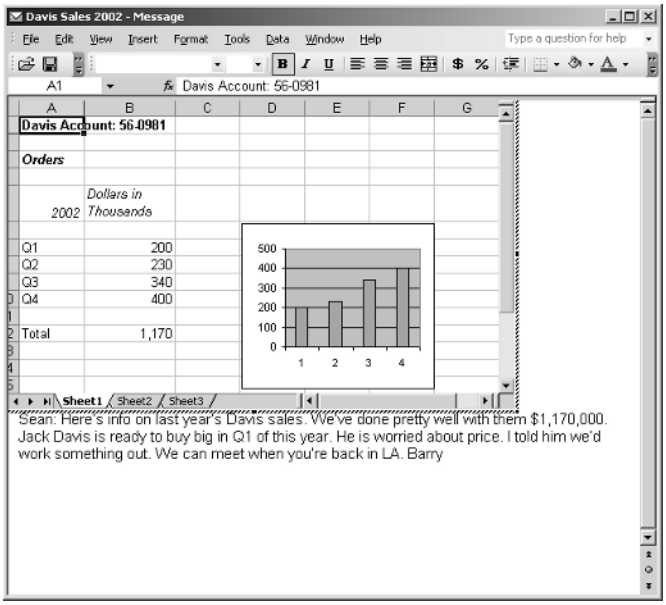


FIGURE 1.7
Double-clicking an Excel spreadsheet object in a message enables Excel menus and toolbars.

Applications Using Exchange Public Folders

Public folders are for common access to messages and files. Files can be dragged from file-access interfaces, such as Windows Explorer, and dropped into public folders. The whole concept of public folders has many organizations in a quandary as they try to figure out the best place for these collaborative applications. Increasingly, applications that were once ''best suited'' for a public folder are now better suited for web pages or portals such as SharePoint workspaces. Although the whole concept of public folders is being deemphasized in Exchange 2007, this release continues to support public folders and many organizations will continue to find useful applications for public folders for the foreseeable future.

You can set up sorting rules for a public folder so that items in the folder are organized by a range of attributes, such as the name of the sender or creator of the item or the date that the item was placed in the folder. Items in a public folder can be sorted by conversation threads. You can also put applications built on existing products such as Word or Excel or built with Exchange or Outlook Forms Designer, client or server scripting, or the Exchange API set into public folders. You can use public folders to replace many of the maddening paper-based processes that abound in every organization.

For easy access to items in a public folder, you can use a *folder link*. You can send a link to a folder in a message. When someone navigates to the folder and double-clicks a file, the file opens. Everyone who receives the message works with the same linked attachment, so everyone reads and can modify the same file. As with document routing, applications such as Microsoft Word can keep track of each person's changes to and comments on file contents. Of course, your users will have to learn to live with the fact that only one person can edit an application file at a time. Most modern end-user applications warn the user that someone else is using the file and allow the user to open a read-only copy of the file, which of course can't be edited.

Electronic Forms

Exchange Server 2007 continues to supports forms created with the Outlook Forms Designer (OFD). You can use OFD to build information-gathering forms containing a number of the bells and whistles that you're accustomed to in Windows applications. These include drop-down list boxes, check boxes, fill-in text forms, tab dialog controls, and radio buttons (see Figure 1.8).

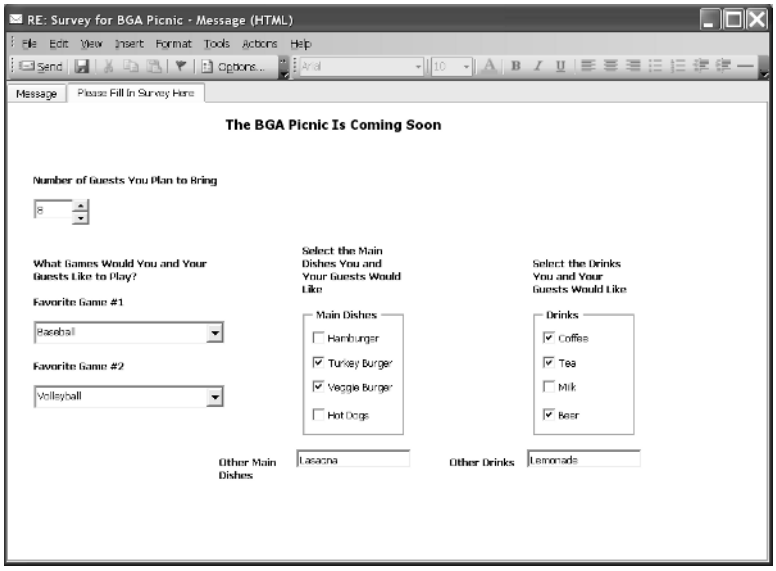


FIGURE 1.8
Electronic forms turn messages into structured information-gathering tools.

OFD, which is easy enough for nontechnical types to use, includes a variety of messaging-oriented fields and actions. For example, you can choose to include a preaddressed To field in a form so that users of the form can easily mail it off to the appropriate recipient. (The preaddressed To field for the form shown in Figure 1.8 is on the page with the tab marked Message, which is not visible in this figure.) When you've designed a form, you can make it available to all users or select users; users can access the completed form simply by selecting it while in an Outlook client.

Features! Features! Get Your New Features Here!

Reviewing the impressive list of new features and enhancements to Exchange 2007, everyone can agree that there are at least a few features that anyone can use. Customers have been asking for some of these improvements for many years, and others are new features that most customers had not even realized that they needed.

In the following sections, we will review the new features and provide a summary of what each provides. We'll discuss most of these features in more detail later in the book.

64-bit Architecture

For a long time, perhaps the most discussed (and perhaps the most controversial) enhancement to Exchange 2007 is that now Exchange 2007 server uses 64-bit extensions. Now your production servers will have to have x64 architecture–based Intel Xeon and Pentium processes or AMD64 architecture–based AMD Opteron and Athlon processors.

Although many people are thrilled with this change in the architecture, there are, no doubt, folks screaming, ''What!!!?? I have to buy new hardware just to upgrade?!'' A good response to this concern is that on most any messaging system upgrade, the hardware is replaced anyway. Certainly this is true for hardware that has been in production for more than three or four years. And the good news is that most server-class hardware that has been purchased since the end of 2005 or later probably already includes the x64 extensions. If you have existing hardware you want to use with Exchange 2007, confirm with your vendor that it will run Windows Server 2003 x64.

NOTE

There is a 32-bit version of Exchange 2007, but it is not supported in production environments. Only 64-bit Exchange is supported in production.

Is the decision to move to 64 bits a bold move? Is the Exchange team forging the way to more robust applications? Well, to a certain degree, yes, but the move to the 64-bit architecture is more out of need than forging a bold, modern path. Anyone who has supported an older version of Exchange Server with a large number of mailboxes knows that Exchange is constrained by the amount of RAM that it can access and that Exchange significantly taxes the disk I/O system.

In order to provide additional features that organizations are now requiring, such as larger mailboxes, messaging records management features, improved message content security, transport rules, unified messaging integration, and improved journaling, Exchange Server clearly needs to be able to access more physical memory. With more RAM available, Exchange caching is more efficient and thus reduces the I/O requirements that are placed on the disk subsystem.

If you are not sure if your existing hardware supports the x64 extensions, there are a number of ways that you can check this, including confirming it with the hardware vendor. If the computer is already running Windows, you can get a handy little program called CPU-Z from `www.cpuid.com`. Figure 1.9 shows the CPU-Z program.

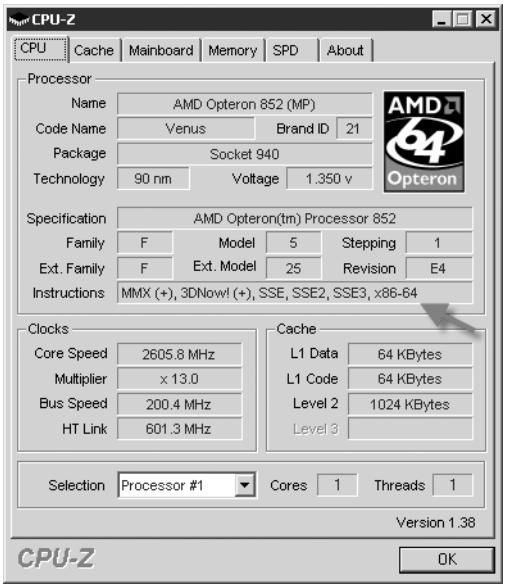


FIGURE 1.9
Using CPU-Z to identify the CPU type

Notice in the Instructions line of CPU-Z that this particular chip supports x86-64. This means this chip will support the x64 instruction sets. Intel chips will report that they support the EM64T instruction set.

Exchange Management

Exchange Server management with Exchange 2007 becomes more and more complex as administrators try to make Exchange work within their organizations particularly in larger organizations. Exchange 2000/2003 management of mail recipients was performed through the Active Directory Users and Computers console, while management of Exchange server related tasks and global recipient tasks is performed through the Exchange System Manager console. In Exchange 2007, all Exchange recipient administration tasks are now performed through the Exchange Management Console or the Exchange Management Shell.

Medium and large organizations usually develop specific needs to perform bulk changes to Exchange data, manage Exchange servers from the command line or scripts, and access or manipulate data stored in Exchange databases. Although making bulk changes or manipulating Exchange servers might seem like a simple task (after all, Windows, Active Directory, and Exchange Server are all from the same company), the truth of the matter is that it's not.

Performing bulk recipient tasks such as creating multiple mailboxes, changing many e-mail addresses, and configuring bulk properties must be performed through an application programming interface (API) or scripting interface such as Active Directory Services Interface (ADSI). Management of Exchange server properties may also need to be performed through ADSI.

Manipulation of Exchange server operations such as mounting and dismounting of databases, queue management, diagnostics logging, and tracking log management has to be handled through a number of Exchange-related APIs such as Extended Messaging Application Programming Interface (MAPI), Lightweight Directory Access Protocol (LDAP), Web Distributed Authoring and Versioning (WebDAV), CDO for Exchange Management (CDOExM), Windows Management Instrumentation (WMI), Distributed Component Object Model (DCOM), Remote Procedure Calls (RPCs), and the Internet Information Server management interface.

Finally, actually accessing or manipulating data stored in an Exchange database is also more complex than it might seem. A popular tool for Exchange 2003 administrators is the Exchange Merge (ExMerge) tool that allows data to be exported out of an Exchange mailbox and into a personal store (PST) file. Actual manipulation of data in the mailbox databases could be accomplished through MAPI, Collaborative Data Objects (CDO), Exchange Object Linking and Embedding Database (ExOLEDB) functions, or Web Distributed Authoring and Versioning (WebDAV) functions. None of these methods is either simple or trivial for nonprogrammers. Anyone that has ever tried to dismount or mount a mailbox database from a script can attest to the programming complexity involved in such a simple task.

Clearly, for any organization that is interested in customized management of Exchange (small, medium, or large organizations), Exchange 2003 and earlier versions left a lot to be desired, and required tasks could often not even be performed due to their difficulty. In the minds of many experienced Exchange administrators, this is a gaping hole in the Exchange management architecture.

With Exchange 2007, the management interface has been completely rewritten from the ground up. All management operations related to Exchange management — whether they are performed against an Exchange server, Active Directory, the Registry, or the Internet Information Server (IIS) metabase — have been broken up in to unique tasks. All Exchange tasks can be performed from the Exchange Management Shell (command-line interface); a subset of these tasks can be performed from the Exchange Management Console graphical user interface. Anything that

can be performed from the Exchange Management Console can be performed via the Exchange Management Shell; there are advanced administrative tasks that can be performed only from the Exchange Management Shell.

The Exchange Management Console (shown in Figure 1.10) has been completely redesigned to make it easier to use, to better organize Exchange management tasks, to reduce the complexity, and to make administrative tasks more discoverable.

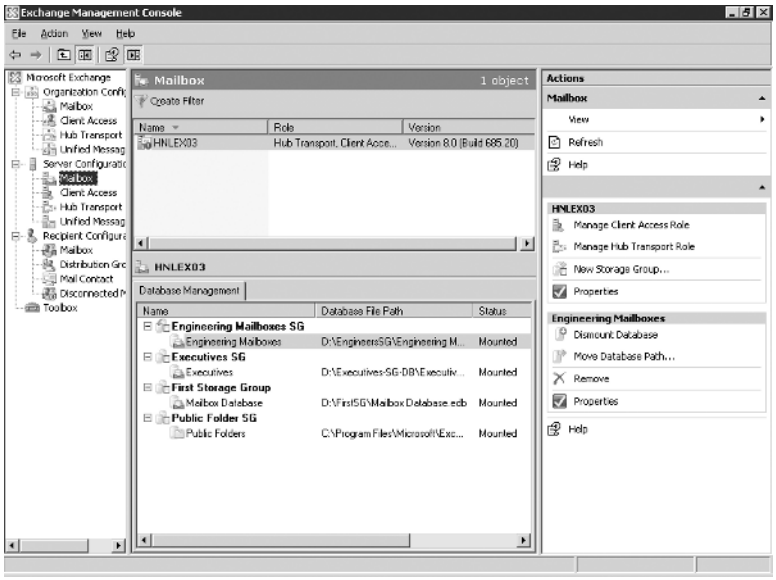


FIGURE 1.10
The new and improved Exchange Management Console

The new console is built on top of an entirely new scripting technology called PowerShell and a set of Exchange-specific extensions called the Exchange Management Shell. We will go into more details on the new management interface in Chapter 7, ''Administering Exchange 2007.''

Server Roles

In earlier versions of Exchange, once the Windows server was prepared to support Exchange, you simply installed an Exchange server. Then you would go about the process of customizing the Exchange configuration, configuring Internet Information Server, disabling unnecessary services, and preparing the server to assume the role you wanted it to assume, such as a mailbox server, a bridgehead server, Outlook Web Access front-end server, and so on.

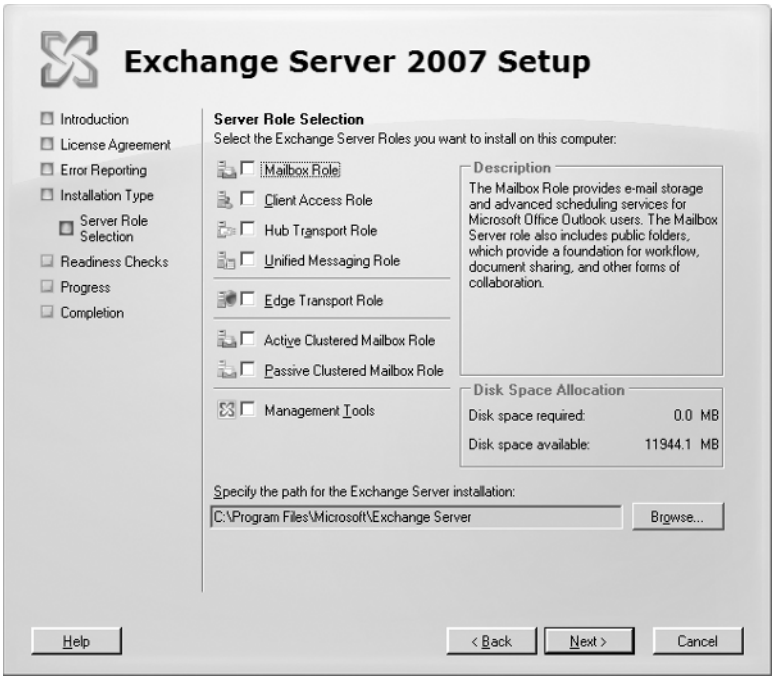
Exchange 2007 officially introduces the concept of server roles at the point of setup. During the installation process, the setup program (Figure 1.11) asks the installer which roles the server will be performing.

When running setup, if you choose a custom installation, during setup you can specify the server roles by choosing from among the following options:

Mailbox Role	Supports mailboxes and public folders.
Client Access Role	Supports functions such as Outlook Web Access, Outlook Anywhere (RPC over HTTP), Windows Mobile ActiveSync, POP3, and IMAP4, and supports web services such as Autodiscover, the Availability service, and calendar sharing.

Hub Transport Role	Supports message transport functions such as delivering mail locally (to other Exchange servers in the organization) or externally (to an SMTP smart host such as an Exchange Edge Transport server).
Unified Messaging Role	Supports delivery of inbound voicemail, inbound faxing, and Outlook Voice Access features.
Edge Transport Role	Supports separate anti-spam and antivirus functions for inbound and outbound messaging. The Edge Transport server is installed on a stand-alone machine usually in a perimeter network.
Active Clustered Mailbox Role	Configures a server to support clustering as an active node. Only the Mailbox server role can be clustered. Clustered servers can be configured as part of a single copy cluster (SCC) or a clustered continuous replication (CCR) cluster.
Passive Clustered Mailbox Role	Configures a server to support clustering as a passive node. Only the Mailbox server role can be clustered.

FIGURE 1.11
Specifying server roles



Once a roles is selected, only the components necessary for that role are installed. This reduces the overhead on machines that are dedicated to a particular task (such as a Hub Transport server); ensures that no unnecessary executables, DLLs, or services are installed; and makes creating dedicated server roles much easier. In a small organization with only one Exchange server, the same server may be assigned the Mailbox, Hub Transport, and Client Access server roles.

Improved Message and Content Control

All messaging system administrators can relate to challenges such as adequately managing the content that is stored on their mail servers, keeping business-essential information available when it is required, removing content that is no longer necessary, controlling the flow of messaging information, and preventing disclosure of information. If one or more of these challenges has been a problem for you, then Exchange 2007 has solutions.

Messaging Records Management

Messaging records management (early on referred to as e-mail life cycle management) introduces to Exchange 2007 a whole new concept in the control of messaging content. Messaging records management allows administrators to more closely control the life of message content (e-mail, faxes, voicemail, calendar entries, and so on) from the moment the information is created on the Exchange server until the point at which that information no longer has business or legal value. This helps the organization to maintain important records as long as necessary but discard unnecessary information in a timely fashion. These are configured at the organization level so they will affect all Mailbox server roles.

To a certain extent, some of the features of messaging records management are distantly related to the Exchange 2000/2003 Mailbox Manager. There are a number of components to messaging records management:

Component	Function
Managed default folders	Default folders are found when an Outlook 2007 MAPI client uses its mailbox, including Calendar, Contacts, Deleted Items, Inbox, Junk E-mail, Sent Items, RSS Feeds, and so on.
Managed custom folders	Managed custom folders are folders that are created by the Exchange server administrator for users who are included in a managed folder mailbox policy. Storage limits and managed content settings can be applied to these folders.
Managed folder mailbox policies	Managed folder policies define which folders are included in a particular policy. Managed folder mailbox policies are then assigned to mailboxes.
Managed content settings	Managed content settings define retention settings and message journaling features for content such as messages, faxes, and voicemail.

Note

You can now configure message journaling based on a specific type of content or folder.

Once a user has been assigned to a managed folder mailbox policy, any additional custom folders that must be created in that user's mailbox will show up in the Managed Folders folder in the root of the user's mailbox, such as those shown in Figure 1.12.

Normally, content in these folders will be managed by the end user. Moving relevant content into these folders is their responsibility. In certain situations, managed content settings can accurately identify content types such as faxes or voicemail and can move those into the

appropriate custom managed folders. A user can also build client-side rules that move content into their managed folders.

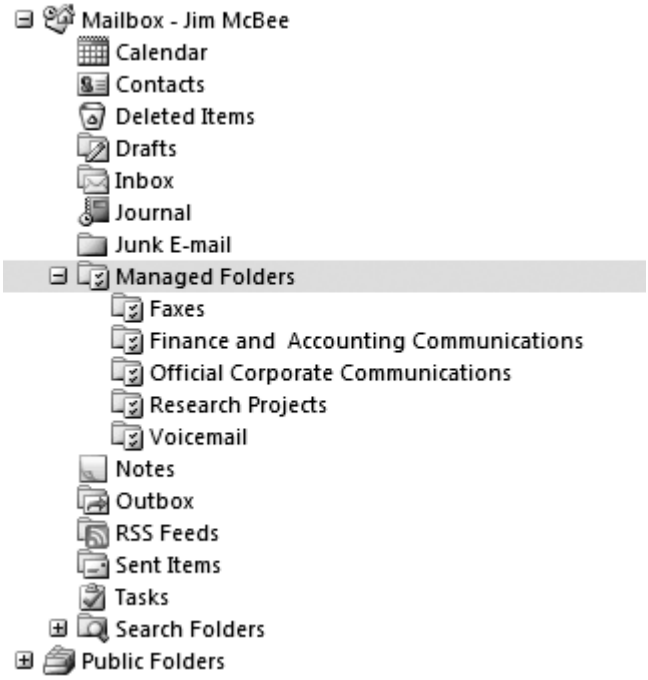


FIGURE 1.12 Managed folders assigned by the managed folder mailbox policy

MESSAGE TRANSPORT RULES

Message transport rules are quite similar to Outlook rules and are even created using a wizard similar to one used to create Outlook rules. However, these rules are quite a bit more powerful and are executed on the Hub Transport servers. Since all messages are processed by a Hub Transport server whether they are inbound, outbound, or for locally delivery, you can build powerful policies to control the messages and data that flows within your organization. Transport rules can also be defined at your organization's perimeter by using an Edge Transport server.

Every transport rule has three components: conditions, actions, and exceptions.

Although we will cover a lot more about transport rules in Chapter 13, ''Managing Messages in Transit,'' just to give you a taste of what you can do with transport rules, it is useful to highlight some of the cool things you can do with them:

- Append disclaimers to outgoing messages
- Implement message journaling based on recipients, distribution lists, message classification, or message importance
- Prevent users or departments from sending e-mail to another by creating an ethical wall (aka a Chinese wall)
- Intercept messages based on content or text patterns using regular expressions (REGEX) found in the message subject or message body

- Apply message classifications to messages based on sender or message content
- Take action on a message with a certain attachment or attachment type or an attachment size that exceeds a specified limit
- Examine and set message headers or remove data from the message header
- Redirect, drop, or bounce messages based on certain criteria

Journaling

Journaling messages is the process of keeping messages from one or more senders based on long-term storage, legal, regulatory, or human resources requirements. Exchange 2000/2003 essentially had one option for message journaling. Create an additional mailbox store and move any mailboxes that must be kept to that mailbox store. Exchange 2007 has introduced a lot of new options with respect to retaining messages:

- Messages can be retained based on folder or content type using managed content settings.
- Messages can be retained using transport rules by examining sender, recipient, message priority, message classification, or message content.
- Messages can also be retained using transport rules by keeping only internal or only external messages.
- Messages can still be retained based on the journal settings on the mailbox database.
- Messages can be retained using a new hub transport feature called a journaling rule (see Figure 1.13) that allows messages to be retained based on a single sender or distribution group membership.
- Messages can be sent to an SMTP address that is external to the Exchange organization, such as a Microsoft Office SharePoint Server 2007 server or a third-party service provider.

Message Classifications

Organizations that send confidential, proprietary, or classified information via e-mail often implement message classification templates. However, these client-side templates display the message classification only for the sender and the recipients; in previous versions of Exchange there was nothing within the message transport that could take action on or evaluate a classified message.

Exchange 2007 allows a message to enforce rules based on the classification of a message, such as Do Not Forward, Partner Mail, Attachment Removed, Company Confidential, Company Internal, Attorney/Client Privilege, and customized classification levels. The sender can assign the classification using Outlook 2007, Outlook Web Access 2007, or message transport rules can assign a classification based on sender, recipient, message content, importance, and so on. Figure 1.14 shows an example of a message that is being composed in Outlook Web Access and has had the built-in Attorney/Client Privilege classification assigned to it; the classification text is shown just about the address list. The server administrator can create additional classifications and customize the text strings.

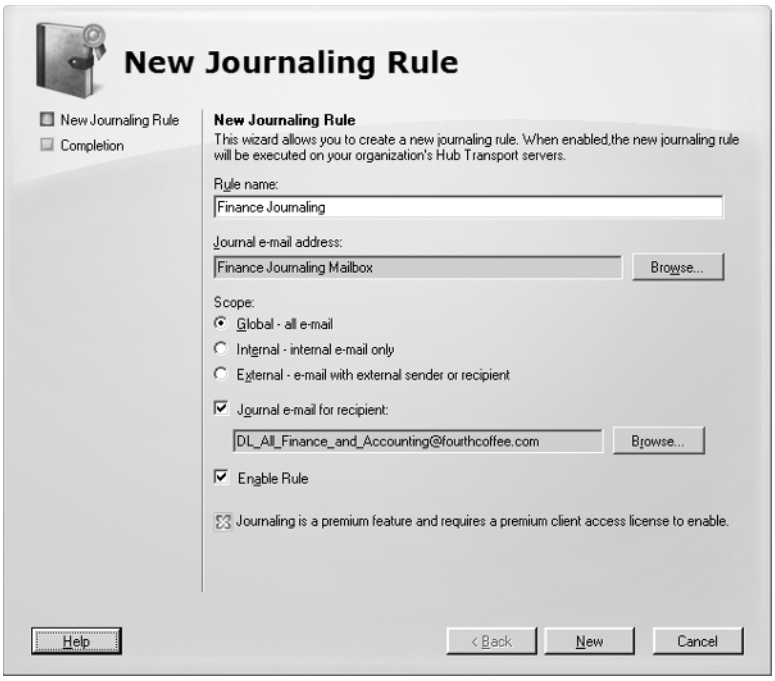


FIGURE 1.13
Creating a journaling rule

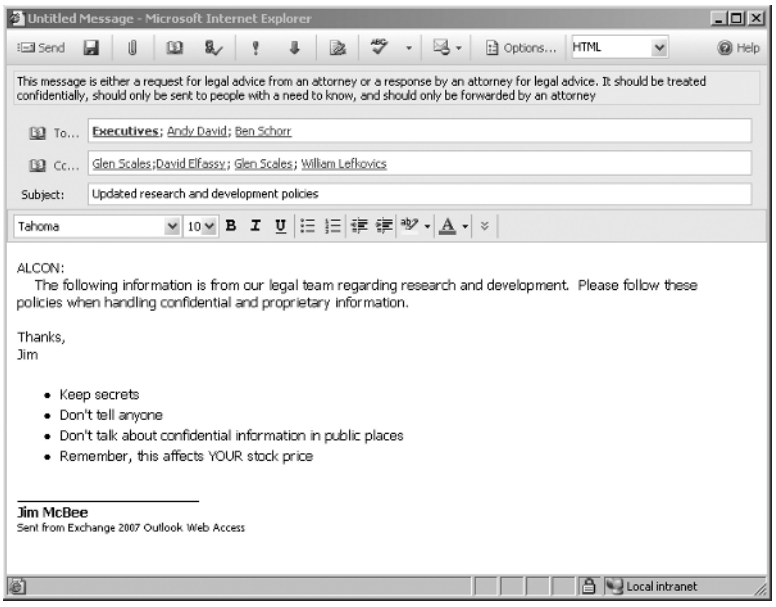


FIGURE 1.14
Classifying a message using Outlook Web Access

Content Storage Improvements

As we mentioned earlier, e-mail systems have evolved not only in their complexity, but in the complexity (and size!) of the messages and mailbox content being sent and stored. Users demands for improved searching and indexing of their mailboxes have stretched the limits of most server hardware. The following list includes some of the improvements with respect to data storage and recoverability:

- Support for recovering moved or deleted mailboxes using a recovery storage group
- Volume Shadow Copy restoration to recovery storage groups on alternate servers
- Lost log resilience that allows a database to be recovered even if the last few log files are missing

Mailbox Databases

Even in a small or medium-sized organization, often mailbox size constraints are based solely on the ability to restore a certain amount of data given a specified maximum amount of time. To scale to larger mailboxes, the administrator must create more mailbox stores and storage groups. However, even Exchange Server 2003 Enterprise Edition allowed a maximum of only 4 storage groups and 20 mailbox stores.

NOTE

In Exchange 2000/2003, we refer to mailbox databases as *mailbox stores*. In Exchange 2007, we simply call these *mailbox databases*.

In order to allow a server to scale to support larger mailbox sizes or more mailboxes, Exchange Server 2007 Enterprise Edition allows up to 50 storage groups and 50 mailbox databases. The maximum number of mailbox databases is 50; these can be configured in 50 separate storage groups or consolidated into as few as 10 storage groups of 5 databases each. Exchange Server 2007 Standard Edition supports a maximum of 5 storage groups and 5 databases. The recommendation from Microsoft is to scale outward on storage groups so that each database has its own transaction logs.

Smaller Transaction Logs

Experienced Exchange 2000/2003 administrators will immediately recognize an Exchange transaction log because they are always 5,120KB in size. Exchange 2007 transaction logs, however, are a bit smaller. In fact, the transaction log files are quite a bit smaller; 1,024KB to be exact.

The transaction log files are smaller because Exchange 2007 has two new high-availability features called local continuous replication and clustered continuous replication that allow log files to be copied to another location and replayed into a backup copy of their corresponding database. Reducing the log file sizes ensures that data is copied more quickly to the standby location.

Improved Search Features

Content Indexing has been completely rewritten in Exchange 2007 so that it is far more efficient than in previous versions and is more closely integrated with the information store service. Improvements have been made so that the indexing process is throttled back during peak loads and does not affect client use of the Exchange server. By default, each mailbox database

automatically has a full-text index associated with it. Messages are indexed upon arrival rather than on a fixed schedule; the index is up-to-date and immediately available to clients.

Full-text search capabilities are available from both Outlook clients as well as Outlook Web Access. Searches can be by word, phrase, or sentence, and in addition to the message bodies, attachments such as Word documents, Excel spreadsheets, text files, and HTML files can be searched.

Improved High Availability Features

One of the biggest enemies of high availability is slow restoration times. As mailbox databases get larger and larger, restore times get longer and longer. Often this is used as a rationale for limiting user's mailbox sizes to less than what they really need to do their jobs effectively.

As mentioned earlier, Exchange 2007 includes two new high-availability features called local continuous replication and clustered continuous replication. These features use a feature similar to the SQL Server log shipping technology. When a transaction log is completely filled, it is shipped (copied) to an alternate location and committed to a backup or standby copy of the database. By ensuring that there is always an update-to-date copy of the mailbox database online that is nearly complete and ready to be put in to production, downtime due to a corrupted database can be greatly reduced.

Local Continuous Replication

Local continuous replication (LCR) is one of the most interesting new features of Exchange 2007. It helps to ensure that an alternate copy of a mailbox database is maintained on the local server. This feature was at one time called continuous backup. The concept of LCR is illustrated in Figure 1.15. A backup copy of the production mailbox database is maintained on the local server. As the production database's transaction logs are completely filled, the transaction logs are copied to the backup location (step 1) and committed to the backup copy of the database (step 2).

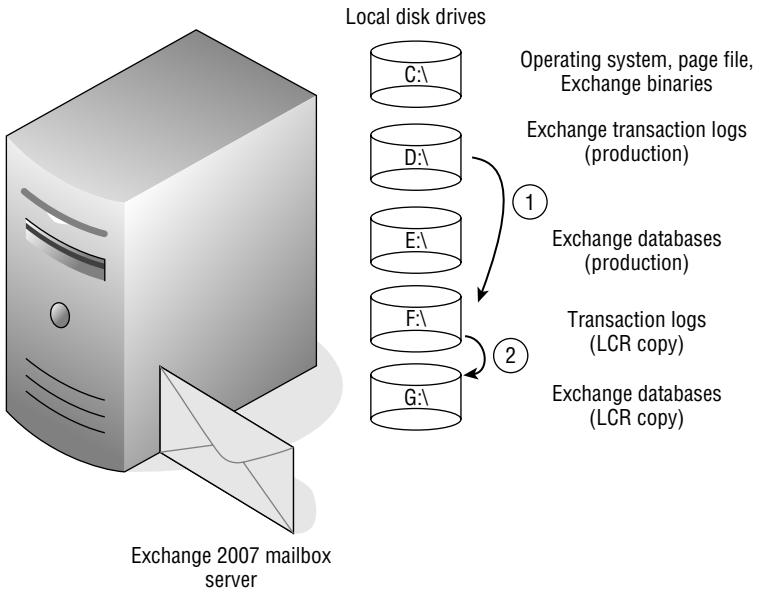


Figure 1.15 Local continuous replication

In the event that the production database becomes corrupted, the administrator can switch from the production database to the backup copy of the database.

Clustered Continuous Replication

Clustered continuous replication (CCR) is another interesting new high-availability feature of Exchange 2007. CCR introduces a whole new level of high availability and clustering to Exchange 2007. Unlike traditional single-copy clustering (SCC), in which there is only a single copy of the database, CCR not only has redundant hardware but a backup copy of the database. This backup copy of the database is kept current using replication technology similar to LCR. As transactions are committed to the production copy of a database, the log file is copied to the backup location and committed to the backup copy of the database.

CCR is implemented in the form of two-node, active-passive clustering. Quorum is maintained using a majority node set cluster; a third server acts as a ''witness'' by providing a file share on which the shared quorum database is located. The active node has one or more mailbox databases; the concept of CCR is illustrated in Figure 1.16. As transactions are committed to the active node's databases and transaction logs, the transaction logs are shipped (copied) to the passive node (shown in step 1).

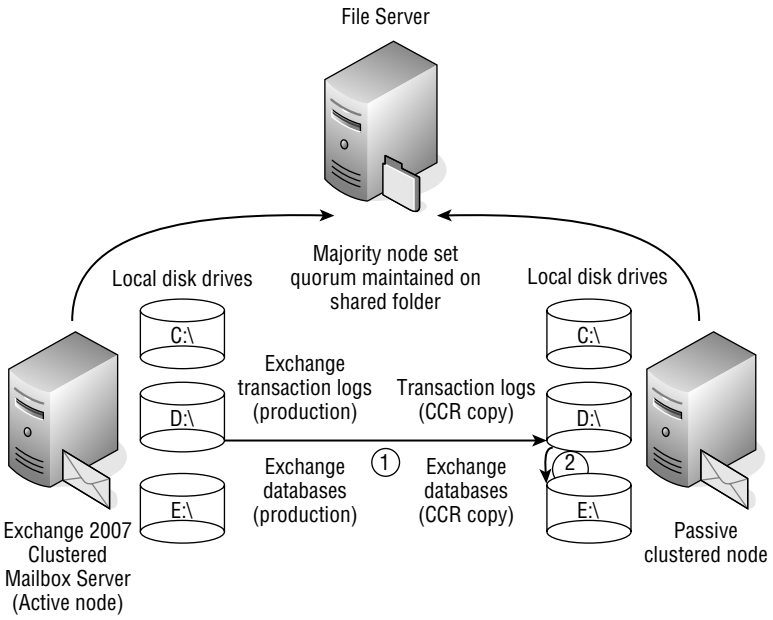


Figure 1.16
Clustered continuous replication

Once the transaction log has been successfully copied to the passive node, the transactions in that log are committed to the corresponding database on the passive node (step 2). In the event of any type of failure on the active node, the passive node will automatically failover and assume responsibility for the clustered mailbox server (formerly called an Exchange virtual server).

When you're running Windows 2003, the active and passive nodes must be on the same IP subnet, but this is expected to change when the next version of Windows Server (currently code-named Longhorn Server) is released. If an organization has VLAN capability, it can conceivably place the two nodes of a CCR cluster in separate locations.

Clustered continuous replication will help to reduce the ''cost of entry'' for organizations wishing to move to Exchange clustering since it eliminates the need for costly shared storage such as storage area networks (SANs). Data storage for CCR clusters can be located on direct attached storage (DAS).

Improved Calendaring and Resource Management

Calendaring, resources, and out-of-office features were not as complete as most of today's sophisticated e-mail users require. Exchange 2007 and Outlook 2007 have improved each of these with new features and functions. For many of the calendaring and resource management features to work properly, Outlook 2007 is required and the Exchange 2007 Availability service must be configured on the Exchange Client Access servers.

Resource Management

One of the biggest hurdles that messaging system managers have had to overcome with Exchange is how to manage resource calendars. In earlier versions of Exchange, a resource calendar was nothing more than a mailbox whose calendar was shared to other users or a mailbox that had scripts or event sinks that allowed for automatic acceptance and processing of meeting requests for a particular resource. Exchange 2007 introduces the concept of resource mailboxes. At mailbox creation time (see Figure 1.17), the administrator designates the type of resource that is being created (room or equipment).

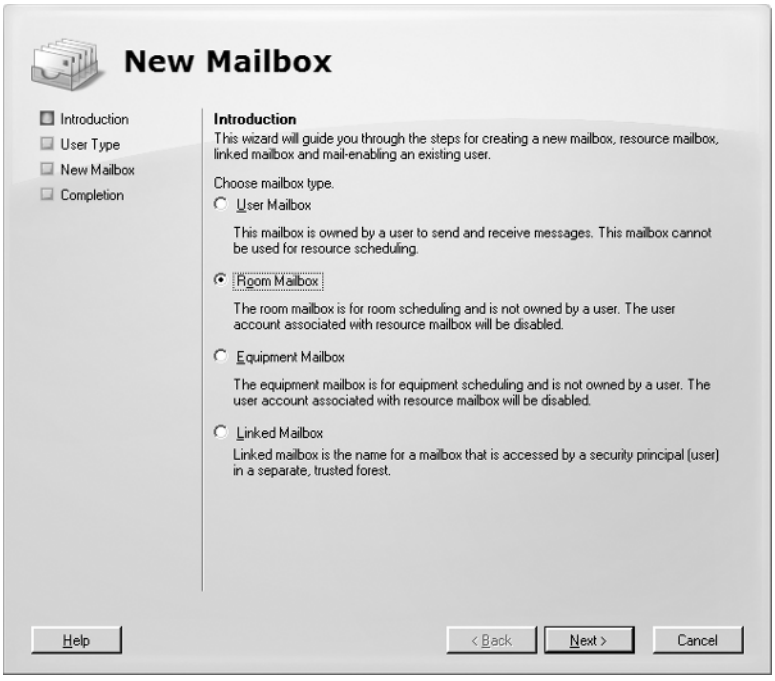


Figure 1.17
Resource type is designated when the mailbox is created.

Custom properties can then be set on this resource such as room capacity or audiovisual capabilities. This information can be viewed within Outlook 2007 when a user is looking for a resource that suits the user's requirements. The Resource Booking attendant provides features

that control who can book a resource, for how long, and during which hours and provides conflict information.

Calendar Concierge

As users have become more sophisticated, their calendaring requirements have increased. The Calendar Concierge is a collection of features that allow for better management of user and resource mailboxes. The Exchange 2007 Calendar Assistant helps to keep out-of-date meeting requests from disturbing the user by ensuring that they are presented with only the most recent meeting request. The Calendar Assistant also reduces the amount of unnecessary messages relating to meeting requests, such as a Tentative response followed soon after by a Decline or Accept response. The user sees only the most recent message.

The Scheduling Assistant makes the process of scheduling a meeting using either Outlook 2007 or Outlook Web Access much simpler and recommends best meeting times based on requested attendees.

Availability Service

Earlier versions of Exchange used a system public folder for publishing a user's free/busy information. Periodically, the Outlook client had to connect to this public folder and update the user's free/busy times. Exchange 2007 introduces a new web service that runs on the Client Access server role and provides an interface to all users' free and busy times. Only Outlook 2007 clients are able to use this new web service, so the Availability service ensures that free and busy times published by older clients are accessible via the web service and free and busy times published by Outlook 2007 are available via the system public folder.

Out-of-Office Assistant

A number of improvements have been made to the simple Out-of-Office Assistant that was used by earlier versions of Outlook and Exchange. One of the most requested features for Out-of-Office is the ability to allow a user to schedule when their Out-of-Office (OOF) message starts being generated and when it stops. Other features include allowing users to select an internal and an external OOF message and to send an OOF message to only recipients that are in their own Contacts.

Additional administrative control is now possible with OOF messages to restrict which domains an OOF message is sent to and disable some users' ability to configure OOF messages.

Autodiscover

One of the most time-consuming things that an Exchange administrator has to do is to help configure Outlook clients to connect to the Exchange server. In the past, profiles had to be created via scripting or profile utilities. Exchange 2007 introduces a feature called Autodiscover that makes configuration of Outlook 2007 profiles much simpler. Once the user provides their name and their e-mail address (see Figure 1.18), Outlook 2007 automatically discovers the correct server and updates the server if the mailbox moves (even if the original server is no longer online).

New and Improved Outlook Web Access

Those of us who gushed when we saw the Outlook Web Access interface in Exchange 2003 thought a web interface could not get much better. For Outlook Web Access in Exchange 2007, the Exchange team started over from scratch to build a much more functional interface than ever before. Here are some of the new features in Outlook Web Access 2007:

- Ability to browse the global address list (GAL)
- Document access on internal file shares and Windows SharePoint services
- The ability to manage and remotely wipe Windows mobile devices
- Improved meeting booking features
- Ability to perform full-text searches on mailbox content
- Selectable message format (HTML or plain text) when composing a message
- Ability to set out-of-office messages, define them as internal or external, and schedule when they start
- Manage voicemail features such as their greeting, reset their voicemail PIN, and turn on missed call notifications

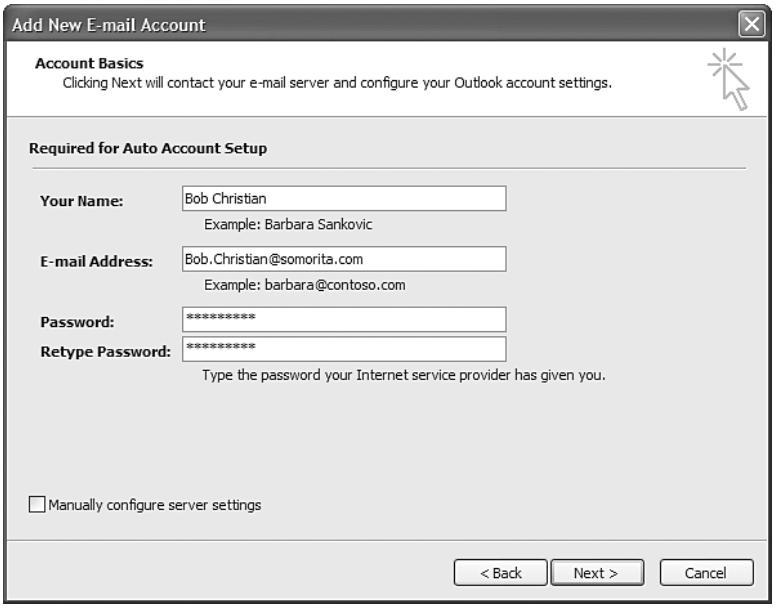


FIGURE 1.18
Configuring Outlook 2007 for Autodiscover

Edge Transport Services

The amount of spam and viruses that some organizations receive is staggering. Even small organizations are receiving tens of thousands of pieces of spam, dozens of viruses, and hundreds of thousands of dictionary spamming attacks each week. Some organizations estimate that as much as 90 percent of all inbound e-mail is spam or other unwanted content. Keeping as much of this unwanted content away from your Exchange servers as possible is important. A common practice for messaging administrators is to employ additional layers of message hygiene and security. The first layer is usually some type of appliance or third-party SMTP software package that is installed in the organization's perimeter network. The problem with these third-party utilities is that the administrator has to become an expert on an additional technology.

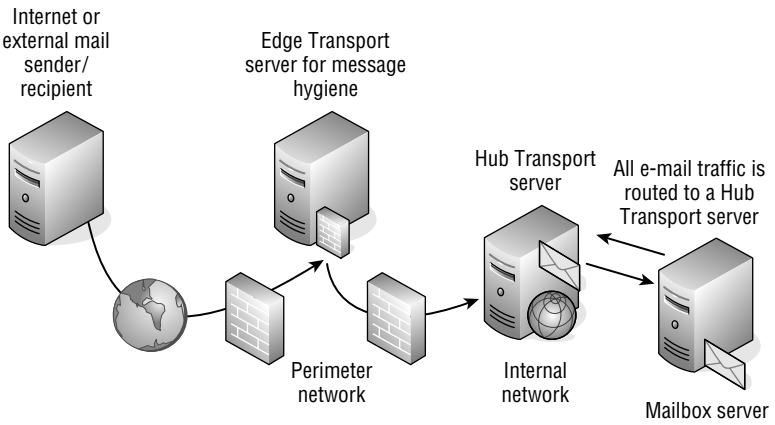
Microsoft's solution to this dilemma is the Edge Transport server. The Edge Transport server is a stand-alone message transport server that is managed using the Exchange Management

Shell (EMS) and the same basic management console that is used to manage Exchange 2007. A server functioning in an Edge Transport should not be a member of the organization's internal Active Directory.

Functions such as transport rules are identical to those that run on an Exchange 2007 Hub Transport server. Content filtering (formerly referred to as the Intelligent Message Filter, or IMF) and Microsoft Forefront Security for Exchange are implemented on the Edge Transport server.

An example of how an organization might deploy an Edge Transport server is shown in Figure 1.19. Inbound e-mail is first delivered to the Edge Transport servers that are located in the organization's perimeter network where it is inspected by the content filter, Forefront Security for Exchange, and any message transport rules. The inbound message is then sent on to the internal Hub Transport servers. Additionally, the Exchange 2007 Hub Transport servers are configured to deliver mail leaving the organization to the Edge Transport servers rather than configuring them to deliver mail directly to the Internet.

FIGURE 1.19
Deploying an Edge Transport server



The Edge Transport server is a fully functional SMTP message hygiene system with many of the same features that are found in expensive message hygiene software packages and appliances. The following features are included:

- Per-user safe-sender and blocked sender lists are replicated from the user's mailbox out to the Edge Transport server.
- Recipient filtering is enabled when valid recipients are synchronized to the Edge Transport server's local Active Directory Application Mode (ADAM) database.
- Integrated Microsoft content filter is included for spam detection. Spam can be rejected, deleted, quarantined, or delivered to the user's Junk E-mail folder.
- Multitier quarantine allows messages that are highly likely to be spam to be quarantined in the perimeter network while maintaining a separate quarantine inside the network for messages that are still tagged as spam but with a lower Spam Confidence Level (SCL).
- Microsoft Forefront Security for Exchange Server (formerly known as Antigen) is available for the Edge Transport server when Enterprise client access licenses are used.
- Daily content filter and virus signature updates are available for organizations using Microsoft Forefront Security for Exchange Server.

- Real-time block lists (RBLs) and IP Reputation Service allow an IP address to be checked to see if it is a known source of spam.
- Sender ID filters allow for the verification of the mail server that sent a message and whether it is allowed to send mail for the message sender.
- Sender reputation filters allow a sender to be temporarily placed on a block list based on characteristics of mail coming from that sender, such as message content, Sender ID verification, and sender behavior.

Unified Messaging

The concept of unified messaging means that information from multiple sources is all accessed in a single location. This concept is by no means a new one; third-party vendors have had fax and voicemail gateways for most major e-mail systems. The Exchange 2007 Unified Messaging server role represents Microsoft's entrance into this market.

The Unified Messaging server role functions as just another Exchange server in your organization, but this role includes components that allow IP-based phone systems and IP/PBX (public branch exchange) gateways to interface directly with Exchange over the network. This is provided the IP phone system or IP/PBX can communicate using Session Initiated Protocol (SIP) over TCP or Real-Time Transport Protocol (RTP) for voice communication or T.38 protocol for real-time facsimile transport.

When the Exchange 2007 Unified Messaging role is integrated with an IP-based phone system or a PBX with an IP/PBX gateway, the following additional functions may be possible:

- Inbound voicemail is delivered directly to the user's mailbox.
- Inbound faxes are delivered directly to the user's mailbox.
- Users can call in to the phone system and have their e-mail read to them, listen to their schedule, or move appointments around on their schedule and notify attendees.
- Users can call in to the phone system and look up users from the global address list.

New Programming Interfaces

Much of the underlying infrastructure of Exchange 2007 has been completely rewritten. As a result, many of the application programming interfaces (APIs) used to access Exchange data and to manage Exchange components have been replaced with new APIs.

Exchange Management

Management of Exchange-related components and recipient objects is now performed with the new management API. All operations that can be performed have been defined as tasks. The management API provides access to all management functions via the Exchange Management Shell tasks, also known as cmdlets (pronounced ''command-lets''). The Exchange Management Shell is a set of extensions for the Windows PowerShell. Exchange management functionality can be extended and accessed via managed code and custom scripts can integrate with and use .NET objects.

Transport Agents

All messages and message content traveling through the message transport system (on a Hub Transport server or Edge Transport server) can be manipulated using transport agents. Transport agents are written using managed code. They replace Exchange 2000/2003 transport sinks.

Exchange Managed APIs

Exchange Managed APIs extend the Microsoft .NET Framework by providing classes and data structures that allow custom programs to access and manipulate different parts of e-mail message content. Functions include accessing MIME content; filtering e-mail body content; converting message content between plain-text, HTML, and RTF formats; and reading or writing calendar items.

Web Services

One of the most exciting new APIs is the Web Services API. Web Services allows developers to write applications that can remotely access mailboxes, folders, and message content. Many of the new Exchange services — such as the Autodiscover service, Availability service, and Messaging Records Management — use the Web Services API. Services can be developed that can send notifications to client applications and provide synchronization of mailbox folders and items. The Web Services API provides these features:

- Ability to manage folders in a user mailbox, including creating, deleting, copying, changing, searching, viewing, and moving folders
- Ability to manage messages in a user mailbox, including creating, deleting, copying, changing, searching, viewing, moving, and sending messages as well as accessing message content
- Ability to enumerate distribution group memberships

Now, Where Did That Go?

As new and better functions and APIs have been introduced, naturally some functions are no longer emphasized or no longer supported. There has been a lot of confusion surrounding what will continue to be supported in Exchange 2007 and what will no longer work. The phrase ''no longer supported'' itself tends to also generate a lot of confusion because a function may actually continue to work because it has not truly been removed. These functions and APIs fall in to two unique categories: functions that have been deemphasized and functions that are no longer available.

Deemphasized Functions

When Microsoft says that in Exchange 2007 certain functions or APIs are no longer emphasized, this means that it will not continue to enhance these features. They will continue to be supported, and if there are bugs with these features, the bugs will be fixed. However, if something is being deemphasized, then the writing is on the wall; you should consider replacing your use of this technology with something else.

The following is a list of some of the APIs and functions that are being deemphasized:

- Public folders are still supported in Exchange 2007, but their use is being deemphasized as newer collaborative technologies have been introduced, such as SharePoint and other portal technologies.
- Collaborative Data Objects technologies such as CDOSYS, CDO 1.2.1, and CDOExM are being deemphasized. Applications using these APIs will continue to work but they should be rewritten using the Transport Agents API or Exchange Web Services API.

- Functions provided by Exchange WebDAV extensions are now provided by the Web Services API.
- The Exchange Object Linking and Embedding Database (ExOLEDB) API functionality is now provided via the Web Services API.

Features No Longer Included

Some features and APIs have been completely removed from the Exchange 2007 product. If you require any of these features or APIs, you will need to keep an Exchange 2000 or Exchange 2003 server in operation:

- Exchange 5.5 interoperability is no longer available. You cannot install an Exchange 2007 server until your Exchange organization is in native Exchange 2000/2003 mode.
- Mail recipient management using the Active Directory Users and Computers console extensions no longer works. All recipient management must be performed through the Exchange Management Console. There are a few exceptions, of course, but using the Exchange Management Console or the Exchange Management Shell is preferred. This will also keep you from accidentally doing something that is not supported.
- Administrative groups are no longer available. All permissions delegation is handled either on a server-by-server basis or at the organization level.
- Outlook Mobile Access, the lightweight browser-based access for WAP-based mobile phones, is not available. Nor are Exchange ActiveSync Always Up-to-Date notifications.
- Non-MAPI public folder hierarchies are no longer available.
- Public folder access via NNTP, IMAP4, and Outlook Web Access is no longer available.
- Network News Transport Protocol (NNTP) features have been cut from Exchange 2007 completely.
- The Exchange Management Console cannot be used to perform management of public folder properties. This must continue to be performed through the Exchange 2000/2003 Exchange System Manager console. Public folder management using the Exchange Management Console should be included in Exchange Server 2007 Service Pack 1.
- Routing groups and routing group connectors are no longer required. In a native Exchange 2007 organization, the message routing topology is determined using the Active Directory sites in which the Exchange servers are located. Message delivery between Exchange 2007 servers in different Active Directory sites is handled automatically.
- Mailbox databases no longer have a streaming database file (STM file). All mail, regardless of its original source, is stored in the EDB database file.
- The Recipient Update Service functionality has been replaced. E-mail proxy addresses and address list membership is set on a mail recipient object at the time of creation. These can be updated from the Exchange Management Shell.
- X.400 connectors are no longer available.
- ExMerge can no longer be run from the Exchange 2007 server console; it can continue to be run against Exchange 2007 mailboxes, but it must be run from a computer with Outlook installed.

- On two-node clusters, active-active clustering cannot be configured. Exchange 2007 requires active-passive clustering on two-node clusters.
- Transport event sinks no longer work. You must keep Exchange 2000/2003 Server for software that uses this functionality or update the code to use transport agents.
- Functionality for applications built from Workflow Designer and CDO for Workflow is not available. Applications built using these APIs should be replaced with applications built using Windows Workflow Services (WWS).
- Collaborative Data Objects for Exchange Management (CDOExM) is not available. Applications or scripts using CDOExM should be rewritten to use the new Exchange management APIs or Exchange Management Shell cmdlets.
- The Exchange Queue Viewer API has been cut from Exchange 2007. Applications that use this API should be rewritten using the new Exchange management APIs.
- Exchange Windows Management Instrumentation (WMI) classes have been discontinued. Applications that use Exchange WMI should be rewritten using the Exchange management APIs.
- The Exchange Event Service is no longer available. Applications should be rewritten to use the Web Services API instead.
- The Exchange Installable File System (ExIFS) is no longer available; this was commonly also referred to as the M: drive in Exchange 2000. This functionality can be duplicated writing applications using the Web Services API.
- POP3 and IMAP4 configuration is now performed through Exchange Management Shell tasks rather than the graphical user interface.
- The Exchange 2000/2003 Recipient Update Service (RUS) is no longer required to stamp mail-enabled objects with e-mail address and address list information. This information is now associated with mail-enabled objects when the object is created.
- X.400 connectivity is no longer included with Exchange 2007; this functionality is available from a third party.

Clearing Up Some Confusion

We mentioned earlier that Exchange has certainly been hyped a lot during the design and beta testing process. This has generated a lot of buzz in the information technology (IT) industry, but this buzz has also generated a lot of confusion and some misinformation. We want to take this opportunity to clear up some of this confusion by answering some of the more common questions that have generated misconceptions about Exchange 2007.

Do I have to have three or four separate servers to run each of the server roles? A single server can host all four primary server roles (Mailbox, Client Access, Hub Transport, and Unified Messaging) except in the case of clustered mailbox servers. The Client Access, Hub Transport, and Unified Messaging server roles cannot be on the clustered mailbox server. The Edge Transport role must be installed on a separate server. The active clustered mailbox and passive clustered mailbox server roles must be on separate servers.

Is there a 32-bit version of Exchange? Yes, there is an evaluation, testing, and lab version of Exchange 2007 that is a 32-bit version. This version must not be used in production.

Is Microsoft Forefront Security for Exchange included with Exchange 2007? Forefront Security for Exchange (formerly known as Sybari Antigen) is included with Exchange 2007 if you have purchased Exchange Enterprise Client Access Licenses (CALs).

Is the Edge Transport server required? No, Edge Transport servers are not required. You can use any third-party message hygiene system in your perimeter network or you can direct inbound and outbound mail through your hub transport servers or both.

Is Exchange 2007 using a SQL database for mailboxes and public folders? Although there has been debate for years about using SQL Server for the Exchange databases, Exchange 2007 uses the Extensible Storage Engine (ESE), also known as the JET database engine.

Is Exchange Management Shell knowledge required? Do I have to learn scripting? Most common administrative tasks can be performed through the Exchange Management Console graphical interface. Command-line management and scripting for Exchange 2007 has been greatly improved through the use of the Exchange Management Shell. Many tasks are simplified or more powerful through the Exchange Management Shell, but it is not necessary to learn scripting in order to start working with Exchange 2007. We strongly encourage you to get know many of the powerful features of the EMS as you get comfortable with Exchange 2007. A number of advanced administration tasks do not have a graphical user interface option.

What is happening with public folders? The use of public folders with Exchange 2007 is still available and supported, but their use is being deemphasized as newer collaborative technologies such as websites and portals have become commonplace. We urge you to examine your public folder applications with an eye toward migrating them to systems such as Microsoft Office SharePoint Server 2007.

Is there still 32KB a limitation on folder rules? For power users, the 32KB limit on the size of rules for a folder was a serious annoyance. This limit is no longer a constraint for Outlook 2007 users whose mailbox is on an Exchange 2007 mailbox server.

Is local continuous replication (LCR) and clustered continuous replication (CCR) the same as mailbox replication? LCR and CCR do not replicate individual mailboxes but rather an entire mailbox database. The administrator selects an entire storage group (which must contain only a single database); Exchange replicates the data to a backup copy of the mailbox database by copying the transaction logs as they are filled.

Do I need to use every Exchange 2007 server role to have a functional Exchange 2007 system? In order to build a completely functional Exchange 2007 system, you need the Mailbox, Hub Transport, and Client Access server roles. These can all reside on the same physical server.

Can I run 32-bit applications with the 64-bit version of Exchange 2007? Most 32-bit Windows applications will generally run on Windows 2003 x64, but applications that integrate with Exchange (such as message hygiene or backup applications) should be 64-bit.

Summary

For most organizations, no single feature of Exchange 2007 may justify an upgrade. However, once you start looking at a combined list of improvements to Exchange 2007, then the upgrade or replacement of an existing messaging system is compelling. For many organizations, the new high-availability features such as LCR and CCR will be the most important, and for others, improvements in calendaring and Outlook Web Access will be.

All in all, this latest generation of Exchange Server packs a big punch and will be a welcome addition to any organization. The following is a short list of the features that we find the most compelling:

- Improved performance because of more available RAM
- The ability to support users' demands for larger mailboxes
- Improved high-availability functions such as CCR and LCR
- Unified messaging integration
- Improved Outlook Web Access
- Automatic configuration of Outlook 2007 profiles
- Message transport rules and the Hub Transport role