

SPECIAL REPORT

END EMAIL CHAOS

**An Introduction to
Email Data Management**



LEGATO®

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A QUICK GUIDE TO...

Quantifying the Impact of Email Chaos

Email data management is an urgent, high-stakes challenge for all kinds of organizations. The sheer volume of email data is overwhelming — with the worldwide number of emails growing from 9.7 billion daily in 2000 to 35 billion daily in 2005 ^A, the average message size increasing 192% (to 286KB ^B), and enterprise mailbox volume increasing 40% annually through 2004. ^C

Most organizations recognize that their ability to manage this surging tide of emails will have important implications for their bottom line but measurable results have been hard to find... until now. Below are selected findings from independent authorities that suggest the breadth and magnitude of the challenge.

Business Impact	Measurable Findings
Rising Costs	<p>The average email server is saturated in just 18 days ^D</p> <p>IT administrators spend 8-12 hours per week on email backup/archiving. ^E</p> <p>IT administrators spend 5-6 hours every week recovering archived messages or attachments for end users. ^F</p> <p>IT administrators spend 25% more time managing email data each time the number of email users doubles. ^G</p>
Lost Productivity	<p>Enterprise users now spend an average of 90 minutes daily managing their mailbox. By 2002, users will spend an average of 2.5 hours per day. ^H</p> <p>60% of business-critical information is stored in messaging system ...BUT 81% of business email end-users cannot access their own archived messages and attachments. ^I</p> <p>At 66% of organizations, users must work around maximum file-size restrictions (average 8-10MB) on email messages. ^J</p> <p>IT administrators are spending 13-18 hours each week on email data management instead of higher-value work. ^K</p>
Growing Risks	<p>34.5% of organizations say they would not or could not recover emails if required for legal or regulatory discovery within the next 12 months. ^L</p> <p>83% of lawyers say their corporate clients are NOT prepared to retrieve and turn over electronic files. ^M</p> <p>49% of organizations have established policies regarding email retention ...BUT 41% of users ignore the policy. ^N</p> <p>87% of viruses enter via email. ^O Recovery from “Love Bug” virus cost the US Dept. of Labor over 1600 employee hours and 1200 contractor hours. ^P</p>

A IDC, 2000
 B EMC Corporation
 C Gartner Group, 2000
 D Creative Networks Inc. (CNI), 2000
 E CNI, 2001
 F CNI, 2001
 G CNI, 2001
 H Gartner Group, 2000

I CNI, 2001
 J Ferris Research, 2000
 K CNI, 2001
 L CNI, 2001
 M Arthur Anderson, 2000
 N CNI, 2001
 O 2000 Virus Prevalence Survey, ISCA
 P Reuters, 2000

Email as Business-Critical Data

Email is now the information lifeblood of business. It is so reliable, fast, inexpensive, and widely accessible that it has displaced traditional corporate communication systems — including postal services, couriers, faxes, and to a lesser extent, telephones — and become an integral part of daily business operations. In fact, it has become a treasure trove of information critical to the ongoing success of the enterprise — now holding an estimated 60% of the average company's most vital business data (up from 33% in 1999).¹

Unfortunately, business email is quickly becoming a victim of its own success. While email volume continues to grow at exponential rates, its value as a business tool and data center is being seriously compromised by a lack of centralized administration and record management inherent to traditional communications systems. When a letter is sent, a copy is stored in a filing system. Similarly, faxes are retained and filed as originals. When needed for later use or review, these items are easily retrieved. Not so with email messages. Additionally, because attachments can be included with messages, email is vulnerable to virus attacks that can result in costly downtime and/or lost data.

With no central control or administrative support for classifying, indexing, filing, storing, and retrieving the 3.5 billion email messages² that U.S. businesses are transmitting daily, it's no surprise that everyone is experiencing some sort of fallout.

A Recipe for Email Chaos

The tidal wave of email is affecting everybody, from users and IT administrators, to management and record keeping professionals. Typical users find themselves swamped with an average of 70 email messages per day. They can barely find time to respond, never mind devise a method for managing their personal email archives.

Thus, it becomes increasingly difficult to locate information when it's needed, and users spend countless hours searching for or reproducing data that is often inaccessible or lost. Over 80% of end-users cannot retrieve archived emails without the help of an IT administrator. Even with IT assistance, 26% of companies still cannot retrieve emails from backup.³

As a result, the burden on IT administrators continues to grow. The average IT administrator spends 5-6 hours each week recovering old messages for end-users.⁴ (For messages that are a year old, it can take an email administrator more than 11 hours to recover a year-old message from an archive.⁵) Limited processing and storage capacity of workstations further hinders the ability of users to accomplish their business objectives. Research shows that a typical 3,000-user email system handles more than one terabyte of message traffic annually.⁶

In addition, IT administrators spend another 8-12 hours each week backing up and archiving emails so that burgeoning message stores do not bog down the email servers. Because end users don't want to discard messages, there is a constant struggle to provide adequate storage space without compromising system reliability. Not only are IT managers responsible for ensuring continuous availability of the server, but they must

¹ Creative Networks Inc. (CNI), 2001.

² CNI, 2001.

³ CNI, 2001.

⁴ CNI, 2001.

⁵ *Email Archive and Retrieval: A Hidden Enigma, A Hidden Cost*, CNI, 1999

⁶ *Email Archive and Retrieval: A Hidden Enigma, A Hidden Cost*, CNI, 1999

protect email communications during and following virus attacks.

Meanwhile, management needs to protect confidential information contained in email from loss, theft, or inappropriate disclosure. Just as important is an email policy that prevents the waste of employee time and computer resources due to junk mail, spam, chain mail, and other frivolous or non-productive mail. One multi-national company placed the cost of junk mail at one dollar per employee per day.⁷

Forrester Research Asserts...

...that e-marketplaces are evolving from a transaction/commerce focus to include collaboration via email, which will not only increase the volume of email messages but will make them more mission critical. Forrester predicts that over 50% of online trade will flow through e-marketplaces by 2004, reinforcing the need for collaborative software and better email management.

Finally, despite the fact that email is an integral part of business communication, the lack of administrative control over email jeopardizes record management procedures and the ability to comply with regulatory and legal requirements. Without a formal filing and retention policy, past emails become a maze of unrelated communications that make responding to legal discovery and FOIA requests time consuming and costly. It is so time consuming and costly, in fact, that many organizations opt to risk non-compliance or settle disputes rather than incur the expense of retrieving archived email.

Current Practices in Email Data Management

In an average office, each user is currently responsible for managing and archiving the estimated 300MB of email received on his desktop annually.⁸ Even when desktop archive utilities and training are provided, the results vary according to individual user needs and work habits, especially given the lack of formal policies on message categorization or retention. The lack of formal retention policies also contributes to swollen message stores, as users dislike discarding messages, which can lead to service shutdown. Therefore, an unmanaged collection of personal archives and over-full mailboxes is not in the best interests of the organization.

With responsibility for email system performance and availability, the IT department is concerned with preventing over-full message stores — a serious and routine threat⁹ to email server performance. Because one email server houses the mailboxes of multiple users in an organization, the server can easily fill up, resulting in a system shutdown, and consequently cutting off email service to those users. To safeguard against over-full message stores and ensure removal of old messages, current IT practices include sending “delete your messages” notices to all users, or blind purging of the message stores. In the case of Microsoft Exchange, which accounts for approximately 50%¹⁰ of the email market, the send and receive services are shut down when the message store exceeds its limit (after administrative notices have been sent). In addition to reducing the volume of messages on the server, such practices also encourage IT organizations to implement guidelines¹¹ that treat old email messages as potential liabilities and recommend actively removing them from server message stores.

⁷ *e-policy*, Michael Overly, AMACOM 1999.

⁸ Conservatively estimated from multiple sources, including market reports from Ferris Research (1999), and *Email Archive and Retrieval: A Hidden Enigma, A Hidden Cost*, Creative Networks, Inc (CNI), 1999.

⁹ “The typical Exchange message store, assuming that messages are not deleted, fills up in less than 27 days.” As found in *Email Archive and Retrieval: A Hidden Enigma, A Hidden Cost*, CNI, 1999

¹⁰ Various sources, including *Corporate Email Systems Within Fortune 50 Corporations*, July 1998, The Radicati Group, Inc. Corroborating data was received from Steve Lecompte, 1999, Federal Computer Week.

¹¹ *Market Research Reports*, Ferris Research, Inc, 1999.

Current IT practices to minimize message storage also include encouraging personal desktop archives, routinely making backup tapes of all email servers, and restricting the size of messages or attachments. Since personal archives will be spotty in that not every employee will properly archive email, and in that they might be discarded should the employee leave the organization, backup tapes become the only centrally controlled and available archive of message stores. When it is necessary to recover messages — either for enterprise users in need of information or for discovery requests — IT administrators can do so only by accessing the data on backup tapes, which is an expensive and time consuming task. For example, recovering all archived messages that concern a specific subject requires initiating a server with the appropriate email program, loading an archive tape, and searching the tape for relevant email messages—over and over, until all the tapes have been loaded and searched. With the cost of searching an individual tape running as high as thousands of dollars, this method is extremely costly.

Limits on message or attachment size can impact an organization's effectiveness. For example, if a sales person is unable to receive a large RFP as an attachment to email, the organization cannot respond, and loses the opportunity. Similarly, if an employee is unable to send a large file in response to a customer request for information, it reflects poorly on the organization.

Conflicting with the need to maintain system availability are two factors: (1) the onus on the IT department to ensure disaster recovery, and (2) the need to retain email for the necessary length of time to enable the organization to satisfy external requests for information — such as SEC audits, due diligence requests, FOIA requests, and legal discovery requests.

Information contained in old email messages may also be required for any number of internal business purposes. For example, the sales department may need to access a draft of a contract; customer service may need to review communications that promise certain rewards to customers; human resources may have a question about an employment offer. And because each individual user decides which email messages to retain or delete, much of this information is hidden from the rest of the organization. Thus, when an employee

Current Email Client Technologies and Storage/Retrieval Practices

Adopted technologies and practices determine where message stores reside within the email organization, including the user workstation, the email server, or on backup tape archives. Uncontrolled and widely dispersed message stores bear greatly on the escalated costs of message recovery, retention practices, and risk management. The choice of email client protocol impacts where a user's messages are kept. POP (Post Office Protocol) is the most widely deployed messaging protocol for email clients. User messages are downloaded from the email server and kept on the user workstation. Following download, no message copies remain on the server. In addition, the message stores on the workstation are uncontrolled and hard to manage, and so represent a significant risk from a record management perspective.

IMAP (Internet Message Access Protocol) provides much greater flexibility regarding the transmission and permanent storage of messages. The premise of IMAP is that the server provides a better permanent message store than does the workstation. IMAP offers a command set that enables a client to work with messages remotely. Message headers can be downloaded separate from the body or attachments, for example, and reviewed at the desktop. When using IMAP, messages remain on the server until the user 'deletes' them. In actuality, this just sets a delete flag, which allows a server-side 'EXPUNGE' function to later remove them from the server. With the increasing deployment of Microsoft Exchange, many user workstations are configured to use MS-Outlook running the MAPI (Messaging Application Programming Interface) protocol. The default MAPI profile does not download messages to the workstation. However, MAPI supports a remote-user mode, where messages are downloaded to the client workstation, so they are available when the workstation is disconnected from the Exchange server. Note that, in either case, message copies remain on the Exchange server in the Private Information Store.

In the cases of IMAP and MAPI, the server's message store is archived to backup tape for disaster recovery purposes. Since most organizations retain these backup tapes for years, they are often targeted in discovery requests during litigation, audit, or other investigations.

leaves, or is suddenly unavailable or even on vacation, the wealth of mission-critical information in his archived email could be lost.

Meanwhile, discovery requests may arise as a result of FOIA requests in state or federal organizations or as a routine part of enterprise litigation. Regardless, responding to these requests places a significant burden on IT resources. Backup tapes must be restored to a replica of the production email server. A search may span several email servers and, in some cases, the personal archives on hundreds of desktop computers. The search may also need to cover a series of backup tapes made through a target calendar period. Thus, the estimated costs for fulfilling a single discovery request run from tens to hundreds of thousands of dollars. For example, the cost of recovering 246,000 emails from approximately 4,900 backup tapes will cost the White House an estimated \$10 million.¹² No wonder many companies choose to settle cases, even when they are not at fault, so as to avoid the high cost of discovery.

Guidelines for Effective Email Data Management

Government and industry organizations have worked for several years to develop record management guidelines for electronic documents, communications, and email. Several publications can serve as references for various types of organizations.

- One such reference is the DoD 5015.2 specification, titled “*Design Criteria Standard For Electronic Records Management Software Applications*,” which is designed to meet federal (NARA) guidelines and existing regulations.
- For corporations, ARMA International released the draft version of the “Guideline for Managing Email” in April of 1999.¹³ ARMA’s International Standards Advisory and Development Committee and the members of its Email Guideline Task Force received input from a wide range of state, federal, educational, and commercial representatives to develop the guidelines.
- For financial institutions regulated by the SEC, requirements for managing electronic communications including email were published as amendments to SEC Rule 17 in February of 1998.¹⁴

While these various guidelines apply to a diverse range of organizations, it’s clear that any effective solution for managing email must include the following capabilities:

1. Archival of email documents and attachments—and associated address and routing information—in original electronic form;
2. Creation of an email policy that addresses message retention and filing requirements;
3. Automatic and content-based classification of email to folders/categories within the system;
4. Creation and execution of disposition instructions for each email folder/category;
5. Protection of the archive against unauthorized access;
6. Inviolable auditing of administrator access to archived documents (i.e., administrators cannot tamper with audit records);
7. Powerful search and retrieval tools for end users and administrators, based on a full-text index and user-defined metadata; and
8. Use of random-access, low-cost, and non-volatile media for long-term storage.

¹² *Washington Times*, May 4, 2000.

¹³ The draft document “*Guideline for Managing E-Mail*” is available through the ARMA web site.

¹⁴ 17 CFR 240.17-a. SEC Rule 17a establishes record retention and retrieval policies for exchange members, brokers and dealers.

Goals of Enterprise Email Data Management

Ideally, a message store management solution should both address the basic requirements stemming from published guidelines and add value by bringing the power of data management to email systems — in essence, channeling the daily stream of email messages and attachments into a tool that provides competitive advantage.

Any such solution should address the requirements of users, IT administrators, management, and record keeping professionals by providing the following benefits:

- **Reduced IT Costs Through More Efficient Email Server Management.** A product that combines automated capture, integrated support for low-cost mass storage, and content-based classification rules can transform an organization's temporary cache of messages on the server into a tool for enterprise document management. Email servers are freed of message overload, improving performance and availability. Additionally, without the requirement to restrict message size, larger and more complex documents can be transmitted. As a result, email can serve as the basis for strategic planning and business development efforts, without impacting IT
- **Reduced Costs for Routine Data Retrieval.** Research shows a typical user will need to recover messages or documents from an email archive about 15 times a year. Subsequent analysis shows that large companies spend an average of \$193 per user, per year to retrieve messages from their email archives¹⁵ using current methods. Reducing the per-user, per-year costs of retrieval should be an inherent factor in any message store management solution.
- **Quicker, Lower-Cost Discovery Actions.** A product with full-text indexing and cataloging features enables email discovery actions to be completed in hours instead of weeks, greatly reducing expenses. A 'freeze' feature that may be used at the onset of any investigation to protect message categories from automatic destruction is also desirable.
- **Increased Productivity Through Faster, Easier Access** to the historical body of email messages and attachments. Full-text indexing combined with a powerful search engine would allow end users to access their own messages, while only authorized managers or administrators could search across multiple mailboxes to meet audit/regulatory requirements, discovery requests, or other business needs.
- **Record Management.** An effective solution ensures adherence to formal email policies with enterprise-level data management tools that categorize and manage email through a useful life cycle. By using a tool that integrates record management functionality into email systems, organizations can easily comply with SEC, federal, and state/local requirements
- **Virus Recovery and Data Protection.** A message store management solution that ensures that email records are tamper-proof throughout their life cycle and guards against abuse by monitoring compliance with corporate policy is critical. Additionally, it should facilitate clean up of message stores following virus attacks, enabling recovery within hours rather than days and guarding against loss of information.

¹⁵ *Email Archive and Retrieval: A Hidden Enigma, A Hidden Cost*, CNI 1999.

Conclusion

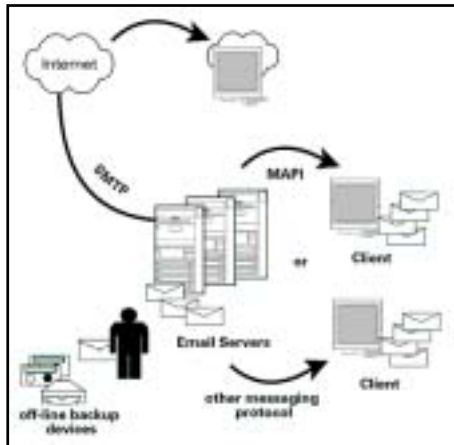
Businesses need a better way to manage email data. By 2002, it is expected that 60% of enterprises will augment their messaging application with a system for managing long-term email retention.¹⁶

One organization that has spent a significant amount of time working to address email message store management is Legato Systems, Inc. As a top provider of online data storage and access technology, Legato is uniquely qualified to help transform email from a growing management burden into a dynamic data center.

Legato's EmailXtender™ is a centralized storage and retrieval system that effortlessly manages high-volume email and optimizes email server performance.

- **Reduces Costs** by leveraging IT resources, freeing up overburdened email servers AND administrators.
- **Boosts productivity** of users by providing them with immediate access to their own email archives.
- **Minimizes Risk** of downtime or lost data while assuring ability to comply with legal/regulatory requirements.

EmailXtender captures and indexes all incoming or outgoing messages or attachments. It increases server reliability and uptime, as well as reduces server backup time, by automatically moving data off the email message server and into the storage system. Stored items can be easily retrieved using EmailXtender's embedded full-text search capability and viewed through any Web browser or a Microsoft Outlook plug-in. EmailXtender's enterprise-level security assures you that only authorized users have access to the complete archive. EmailXtender's horizontal design supports Microsoft Exchange, Lotus/Domino Notes, and Unix Sendmail as well as virtually all storage media – RAID, tape, CD, DVD, and optical media.

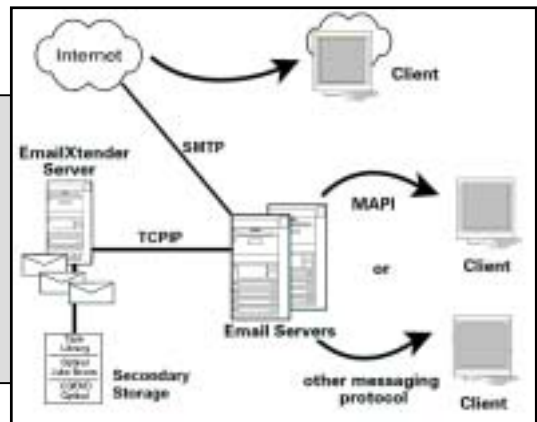


Before: Current Message Store Configuration

- Email storage is uncontrolled, scattered, users keeping personal archives
- Server message stores have unknown, but constantly increasing, quantity
- Server messages must be manually deleted and archived
- Backup tapes must be used to retrieve old messages, making searches slow and costly

After: EmailXtender Message Store Configuration

- EX creates one centralized email archive for better email management
- Email admins have a smaller, more manageable email server
- Old messages automatically purged after being moved to secondary storage
- Record keeping officers have centralized control with immediate access to all email documents



¹⁶ Gartner Group, 2000

CASE STUDY

Legato's EmailXtender Makes the Cut at Seaboard International Forest Products, Inc.

Since 1983, Seaboard International Forest Products, Inc. has grown to be one of the 20 largest forest products wholesalers in the United States. Seaboard trades lumber, panels and building materials. Last year, sales reached \$450 million, the equivalent of more than 21,000 truckloads and 8,600 carloads of product. This high-pressure world of commodities trading includes using email for customer contact, sales, and general business.

The Challenge and the Solution: Managing Growing Email Volume

Chris McNierny, MIS Manager at Seaboard, needed a way to let employees use email the way they wanted to — as an electronic filing cabinet. Some users would keep three or four thousand messages, which was very cumbersome for the server to handle, but when Seaboard installed Legato's EmailXtender, this was no longer a problem. EmailXtender offloads all these messages from the server without the user even knowing the difference.

"After the installation, I found that EmailXtender is a really good tool for the email administrator. It allows you to search beyond simple header and body, and across the entire enterprise," said McNierny.

Handling Virus Attacks with Minimal Downtime

Like any other company, Seaboard has experienced the detriment of an email virus attack. However, EmailXtender pulled them through with up-to-the-minute recovery. "We used it to search for a certain phrase that was part of a virus-infected email. The virus was new, and had gotten past our virus checker. With EmailXtender, we were able to isolate workstations that had received the virus-infected email and corrected the problem with virtually no down time."

Recovering Emails Quickly and Inexpensively

For record retention purposes, McNierny explains that it was a common task to have to find a particular message from the past. "Before EmailXtender, we would first have to find out if the message was still on the server, or found only on backup tapes. Completing such searches was very time-consuming and the search was frequently abandoned. Now, we can do in seconds what would otherwise take hours or days. Not only does EmailXtender save a lot of money, but it saves very valuable time as well."

EmailXtender from Legato is a collection of enterprise level software services that brings the power of data management to email systems. It turns the daily stream of email and attachments into a better business tool, as Seaboard International Forest Products, Inc. was able to experience first hand.

*"With EmailXtender, our people can use email the way they want, and the company has much better control over the risks,"
says McNierny.*

Glossary of Terms

Archive — A collection of computer files that have been packaged together for backup, to transport to some other location, for saving away from the computer so that more hard disk storage can be made available, or for some other purpose. An archive can include a simple list of files or files organized under a directory or catalog structure (depending on how a particular program supports archiving). As a noun, archive is the place on an Internet host where messages and attachments are stored. As a verb, archive means to move messages and attachments to storage.

Attached File/Attachment — Also called an enclosure, a file(s) that is added to an email. You can attach files through almost any popular email program such as MS Outlook and Netscape Mail. Usually this is accomplished by simply clicking the attach file button and then browsing through your system to find and select the desired file.

Backup — A copy of computer data that is used to recreate data that has been lost, mislaid, corrupted or erased. The activity of copying files or databases so that they will be preserved in case of equipment failure or other catastrophe. The retrieval of files you backed up is called restoring them.

Classification — The process of dividing a data set into groups such that they may be managed as a single collective body, for example, for retention and disposition management.

Collaborative — Two or more people working together in real-time over a network or phone line using tools such as shared documents, video conferencing or document forwarding.

Data Management — A major function of operating systems that involves organizing, cataloging, locating, storing, retrieving, and maintaining data.

Disposition — Actions that take place regarding messages and attachments once their retention period has expired, such as transfer to long term storage or permanent destruction.

DoD 5015.2 — Department of Defense directive governing the department's records management program and electronic records management software applications.

Electronic Mail — A means of connecting computers in order to send messages and attached files to one or more individuals or groups.

Email Servers — Typically a PC on the LAN that sends and receives emails for all those connected to the LAN.

Enterprise — A complete business consisting of functions, divisions, or other components used to accomplish specific objectives and defined goals. In the computer industry, an enterprise is an organization that uses computers. The term is applied much more often to larger organizations.

Freedom of Information Act (FOIA) — A federal act that entitles citizens of the United States access to "agency records" and to information about themselves contained in government files.

Folders — Named collection of related files that can be retrieved, moved, and otherwise manipulated as one entity.

Indexing — A method by which a series of attributes are used to uniquely define an imaged document so that it may later be identified and retrieved.

Internet Message Access Protocol (IMAP) — A method of accessing email or bulletin board messages that are kept on a mail server. IMAP permits a “client” email program to access remote messages as if they were on the users local machine. Email stored on an IMAP server can be manipulated from a desktop computer at home, a workstation at the office, and a notebook computer while traveling, without the need to transfer messages or files back and forth between these computers, as is usually the case with the POP style mail access protocol.

Mailbox — A single owner system that stores email messages.

MAPI (Messaging Application Programming Interface) — A Microsoft published API that separated the client from the server functionality allowing various clients, such as mail front ends, word processors, spread-sheets, etc., to access the messaging capabilities of back-end mail servers, such as Microsoft Exchange Server.

Mass Storage — Applications, such as imaging, and processing-intensive operating systems, such as Windows, pushed the demand for mass storage options — optical discs, tape drives, arrayed hard drives. Recently, the ante has been upped further with libraries and changers — multiple arrays of already-quite-large devices like tape drives.

Message Retention — Method of storing and retaining incoming and outgoing email messages.

Message Store Management — Method of storing messages temporarily for later transmission to one or more recipients.

Microsoft Exchange — A family of products that offers enterprise computing and information sharing.

Mission-critical Information — Information that is critical to the survival of an organization.

National Archives and Records Administration (NARA) — An independent federal agency that preserves our nation’s history and defines us as a people by overseeing the management of all federal records.

Post Office Protocol (POP) — The protocol used by mail clients to retrieve messages from a mail server. Comes in three flavors POP1, POP2, and POP3 the number denoting the different version number of the protocol. SEE ALSO: IMAP.

Recovery — How a computer system resumes operation after experiencing a problem with the hardware or a program error.

Retention Period — The length of time that messages and attachments must be kept before they are destroyed or otherwise disposed.

Retention Policy — A company’s policy established to maintain customers.

Securities and Exchange Commission (SEC) — United States Commission that protects investors and maintains the integrity of the securities markets.

Server — A host computer on a network that answers requests for information from it. The term server is also used to refer to the software that makes the process of serving information possible.

Simple Mail Transfer Protocol (SMTP) — The standard Internet network management protocol for transferring electronic mail messages. It is a server-to-server protocol.

Spam — An unsolicited email on the Internet.

Storing — Process in which information is recorded and retained for later retrieval.



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