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Electronic mail in the next millennium: *Meeting the challenges with the Internet Exchange product line-up from IMA*

Electronic mail or email has enjoyed considerable growth over the past few years not only in the Americas and Europe but also in Asia. Last year alone, it is estimated that Internet users sent out more than six billion messages. But a study conducted by the Electronic Messaging Association (EMA) shows that this is just the beginning – email will continue to lead other electronic messaging technologies in terms of growth ahead into the next millennium. According to the survey, North America's spending on electronic mail alone amounted to \$13.5 billion in 1994. This figure accounted for 49.5% of North America's total investments in electronic messaging infrastructure for that year. However, the industry is facing some serious obstacles that may imperil the growth of electronic mail in the 21st century. Among these are the proliferation of junk or spam mail, the spread of computer viruses, and the lack of adequate security measures to protect the privacy of email users. Recently, Hotmail, a free Internet email service provided by Microsoft Corp., was the subject of a successful hacking that exposed thousands of Hotmail users to a serious security flaw. Before this incident, a significant number of organizations and companies have already experienced serious problems caused by spam mail and computer viruses. Another challenge facing email administrators is the task of migrating users

from legacy LAN-based messaging systems to email platforms based on proven Internet standards.

To assist individuals and organizations in meeting the challenges of the next millennium, International Messaging Associates Ltd. (IMA) offers an impressive lineup of messaging products for a wide range of email environments. For cc:Mail and Lotus Notes users, the company offers Internet Exchange Gateway. For organizations using several disparate email systems, such as Microsoft Outlook and Eudora, there is the Internet Exchange Messaging Server.

Internet Exchange Gateways

Internet Exchange gateway products allow either cc:Mail or Lotus Notes environments to send and receive messages across the Internet. They act as bridges between a cc:Mail Post Office or Lotus Notes Server and the Internet, or any TCP/IP-based local area networks (LANs) (see Figures 1 and 2). Internet Exchange receives messages from the cc:Mail and Notes environments and converts these messages and user addresses into formats understood on the Internet. In the other direction, Internet Exchange takes messages and addresses based on Internet format and converts them into messages and addresses that are understood by the cc:Mail and Notes environments. The conversion process is carried out in the

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background, making it transparent to end users on both sides of the gateway. This allows cc:Mail and Notes users to appear as Internet users on the Internet side of the gateway, and Internet users to appear as either cc:Mail or Notes users in the cc:Mail or Notes environments, respectively.

Internet Exchange Gateways offer a number of user-friendly features designed to simplify the configura-

tion and administration of gateway operations. These include the following:

- *Dial-up Scheduler with Active ETRN Support*
The Dial-up Scheduler is very useful for sites that do not have permanent connection to the Internet. It provides the gateway administrator with a graphical user interface (GUI) for configuring dial-up schedules and other Remote Access Serv-

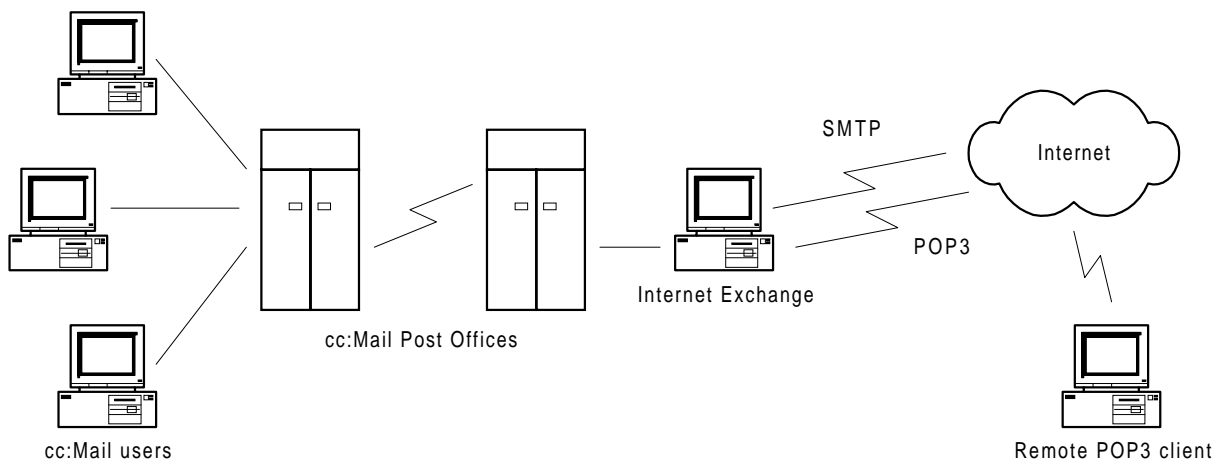


Figure 1. Internet Exchange for cc:Mail

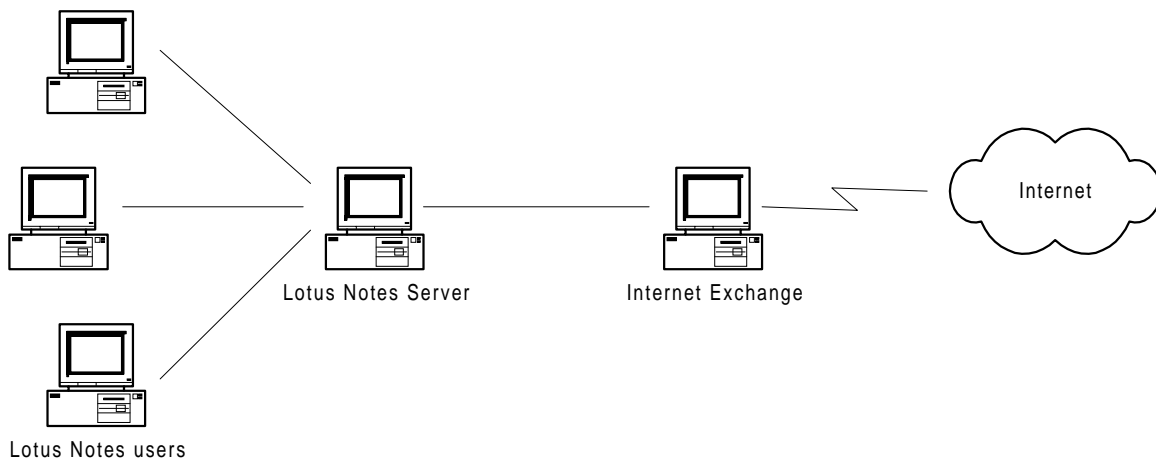


Figure 2. Internet Exchange for Lotus Notes

ice (RAS)-related profiles. With Active ETRN Support, gateway administrators are able to specify multiple remote mail servers that may be holding messages for a site. This significantly improves Internet Exchange's capability to receive mail from multiple servers.

- **Anti-spam Controls**
The anti-spam controls enable the gateway administrator to determine which sites or machines can use the system for mail relay. The anti-spam controls also allow the administrator to make a list of welcome or unwelcome IP addresses/address ranges.
- **Real-Time Log Analyzer**
The Real-Time Log Analyzer provides the gateway administrator with a tool for analyzing gateway-related information such as log message, general gateway statistics, and security and permission statistics. Thus, the gateway administrators can easily monitor gateway activities and anticipate any messaging problems.
- **ESMTP Support**
Internet Exchange Gateways offer support for ESMTP (SMTP Service Extensions), including the ETRN extension for remote queue start-up and the message size extension. The latter permits communicating ESMTP sessions to determine prior to a message transmission whether the remote site will accept a message based upon size or not. This helps save precious bandwidth resources.
- **Gateway/MTA Migration Support**
An innovative migration strategy allows messages to be sent and transferred among cc:Mail, Lotus Notes, Microsoft Exchange and other environments; the mail then appears to be of a format native to its destination.
- **Remote Web-based Administration**
With a browser-based remote control, the gateway administrator can access Internet Exchange securely via the World Wide Web to monitor its operation, modify the gateway configuration, view logfiles and system resources, shutdown or start-up the system and its individual components, and schedule shutdowns and startups.
- **POP3 Server Support**
The Internet Exchange Gateway supports remote access via POP3 into the cc:Mail post office. This option is configured via the *MTA Control* interface.

- **Windows NT Service Application**
Internet Exchange Gateways can be configured to operate as a native Windows NT Service Application, enabling it to start in the background automatically without the need to manually log on to the system (this feature supported only in Windows NT mode). With this feature, automatic start-up is enabled, allowing the system administrator to reboot the system remotely without having to worry about starting Internet Exchange again.
- **Fail-safe Implementation**
This feature allows multiple copies of Internet Exchange to be used by the same post office. This offers a very high level of redundancy that guarantees fast and reliable message delivery even when one or more MTA's are not functioning properly.

Internet Exchange Messaging Server

The Internet Exchange Messaging Server is a highly advanced, stand-alone email system that combines Web-based administration with a number of industry standard features like the IMAP4 Optimized Message Store, LDAP-based Directory Server, anti-virus, auto-insertion, and anti-spam engines, Batch SMTP support and message priority handling. It is specifically tailored to cope with the problems that undermines the reliability of Internet-based messaging, such as junk mail, computer viruses, low throughput, and lack of compatibility among email clients. Its support for proven Internet standards and its user-friendly features enable it to meet the diverse messaging requirements of small, medium and large organizations and business enterprises. Among the Internet Exchange Messaging Server's numerous features are:

- **IMAP4 and POP3 Support**
IMAP4 and POP3 support enables users to access their mailboxes via IMAP4- and/or POP3-capable

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Internet Exchange News

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Questions & Answers

Q: We are using Internet Exchange 3.12 and we have been receiving VIM errors. I have added the following parameter in the *Options* field of the *IMA.INI* file:

**[Options]
AttachRTFAsFileAttachment=YES**

However, it did not solve the problem. How do we deal with this?

A: Please upgrade your gateway to Internet Exchange 3.13 to get rid of the VIM errors. You may download a copy of version 3.13 at <http://www.ima.com>. It is freely available to all Internet Exchange sites with current Support Maintenance status.

Q: We have downloaded a copy of Internet Exchange 4.01 and we are in the process of evaluating the software. Everything was going perfectly OK when I suddenly received this message from the LDAP server:

***License not valid
Terminating***

I have already updated all license information with the permanent license key when this happened. Can you help find a solution to this problem?

A: To ensure that all license information is properly updated, please do the following:

1. Put the license certificates in a

folder.

2. Go to Internet Exchange 4.01's main Web administration page and click on the *License Update* button.
3. On the next screen, click on the *License Manager* link.
4. A new screen will appear. Enter the path of the certificates in the field provided and choose LDAP as the module to be licensed. Then click on the *Update* button. A *Next* button will appear. Click on this button to update the license information for the LDAP module.
5. Click on the *Update* button again.
6. The license information for the LDAP server has been updated. Repeat the procedure for the remaining Internet Exchange 4.01 modules to be licensed.

"I worry about my child and the Internet all the time, even though she's too young to have logged on yet. Here's what I worry about. I worry that 10 or 15 years from now, she will come to me and say 'Daddy, where were you when they took freedom of the press away from the Internet?'" – Mike Godwin, Staff Counsel for the Electronic Frontier Foundation.

This Month's Tip

Enhancing the anti-spam capability of the Internet Exchange Messaging Server by activating RBL support

An RBL (Real-time Black-hole List) is a database of Internet IP addresses that have been verified to send junk mails, be friendly to spammers, and/or be totally open to mail relaying. RBLs are updated regularly by their administrators and can be referenced in real-time by messaging systems via the DNS (Domain Name System). A system with active RBL support performs a DNS lookup to check an incoming IP address against several available databases under the corresponding DNS zone.

The Internet Exchange Messaging Server's Anti-spam Module has the capability to support an arbitrary number of databases, including the MAPS-RBL (Mail Abuse Prevention System's Real-time Black-hole List), IMRSS (Internet Mail Relay Services Survey), ORBS (Open Relay Behavior-modification System), and MAPS-DUL (Mail Abuse Prevention System's Dialup User List). To configure Internet Exchange to support any number of RBLs, please refer to the Internet Exchange 4 Messaging Server Administrator's Guide. You can download a copy of the manual at <http://www.ima.com/doc>.

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user agents, such as Microsoft Outlook and Eudora. The IMAP4 and POP3 servers are integrated in the IMAP4 Optimized Message Store.

- *Optimized Message Handling and SMTP Queue Management*

To speed up mail delivery and save on storage resources, the Internet Exchange Messaging Server uses a shared message queue structure. By using this structure, duplication of messages is avoided and processing overhead is minimized. Internet Exchange 4 also features SMTP Queue Management for providing a mechanism for efficient message priority handling, the efficient processing of server-side ETRN requests, and improved message queuing strategies.

- *Batch SMTP Support*

The Internet Exchange Messaging Server includes a batch-mode implementation of SMTP that supports the Batch SMTP Media Type (RFC 2442). This is a MIME content type used for tunneling ESMTP transactions through any MIME-capable transport. The BSMTP Encoder allows for the tunneling of messages for an entire organization or addresses to pre-defined Internet addresses, while preserving the original envelope or delivery information for each message. When these messages arrive at a single POP3 account, they are picked up by the POP3 BSMTP Decoder module, which decodes the resulting messages and then submits them to the Internet Exchange MTA for further routing, with the original envelope recipients retained.

- *Anti-spam Engine with RBL (Real-time Blackhole List) Support*

Aside from providing the system administrator with options to create a list of unwelcome IP addresses/address ranges or a list of banned IP addresses/address ranges using simple Graphical User Interfaces (GUI's), the Internet Exchange Messaging Server's Anti-spam Module supports Real-time Blackhole Lists (RBLs) for optimum anti-spam protection. Internet Exchange currently supports four RBL-style systems. They are the following:

- MAPS-RBL (Mail Abuse Prevention System's Real-time Blackhole List)

- MAPS-DUL (Mail Abuse Prevention System's Dial-up user List)

- Internet Mail Relay Services Survey (IMRSS)

- MAPS-DUL (Mail Abuse Prevention System's Dial-up user List)

- ORBS (Open Relay Behavior-modification System)

- *Anti-virus Engine*

The Anti-virus Module is a 32-bit multi-threaded stand-alone pre-processing module capable of performing simultaneous virus scanning for MIME and non-MIME message attachments. The Internet Exchange Messaging Server's Anti-virus Module supports the following anti-virus packages:

- McAfee VirusScan - this software engine supports the following platforms: DOS, Windows 95, Windows 98, and Windows NT.

- Sophos Anti-Virus for Windows 95/98 (this application has the capability to automatically eliminate many common viruses and can easily be installed. It can be updated monthly with the latest anti-virus technology via the World Wide Web or via a CD or floppy disk).

- Sophos for Windows NT (this application is specifically designed for the Windows NT platform and has the same features found in Sophos Anti-Virus for Windows 95/98).

- F-PROT Professional Anti-Virus Package (this is specifically designed to support Windows 95/98 and Windows NT 4.0 Server/Workstation).

- *Efficient Mailing List Management via the Distribution List Manager*

The Distribution List Manager allows messages to be sent to all of a list's subscribers simply by sending the said messages to a single address. The Distribution List Manager also enables the list maintainer to create Internet electronic mailing lists that support the following features: mail blocking, adding and removing subscribers, and setting the preferred delivery options.

- *MailSort Utility for Sorting Incoming Messages*

The MailSort utility is used for defining rules so that the local mail delivery agent can direct messages to pre-selected mailboxes/folders other than the INBOX and generate automatic replies to incoming messages based on pre-defined criteria.

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The MailSort engine implements these rules, enabling users to process incoming mail based on attributes, such as the message sender and subject on the Internet Exchange Messaging Server, in the background at message delivery time.

- *Vacation Utility*
A vacation utility integrated in the mail sort module enables individual users to configure their account to automatically reply to incoming messages whenever they are not available.
- *LDAP Support*
The Directory Server is based on the open Internet directory standard, the Lightweight Directory Access Protocol (LDAP). Unlike its predecessor, the DAP or Directory Access Protocol, LDAP does not require the upper layers of the OSI protocol stack and runs directly on TCP/IP or other reliable transport protocol.
- *Flexible RAS (Remote Access Service) Scheduling*
With the Dialup Scheduler, the system administrator can choose which days of the week to run the dialup schedule for the Remote Access Service (RAS) for Windows, which is actively supported on all WIN32 platforms. It is a useful feature not only for dialup issues but also for any Windows supported dialup mechanism.
- *Migration Tools for cc:Mail and Lotus Notes Environments*
The cc:Mail and Notes Connectors come with migration tools for moving cc:Mail and Notes users to the Internet Exchange Messaging Server mailbox system, which is based on a client/server architecture. These migration tools enable the system administrator to export the user directory of cc:Mail and Notes users to the LDAP Directory. They also allow users' mailboxes (and sub-folders) in LAN-based systems to be exported to the Internet Exchange Messaging Server's local message store, where they can be accessed by any POP3 or IMAP4 compliant user agent.
- *Scalability and Multi-platform Support*
The Internet Exchange Messaging Server's architecture is designed to support a distributed message handling environment to ensure that each module will have sufficient computing resources to perform its tasks and to provide for future expansions. In case the messaging needs of the organization outgrow the initial setup, additional Internet Exchange modules, from MTA's to con-

nectors can be seamlessly incorporated, providing unlimited expansion capability to meet the users' growing needs. Thus, with Internet Exchange, the various system components can be run on multiple machines and operating systems concurrently, assuring high scalability and redundancy. Communication between the different modules is via Remote Procedure Calls (RPC) running on TCP/IP transport layer. With RPC's, a multi-platform, distributed environment is possible running on Windows 95, Windows 98, Windows NT, and UNIX.

- *Support for End User Administration*
A Web-based interface enables users to configure three modules: the LDAP-based Directory Server, MailSort, and the Distribution List Manager.
- *Web-based Administration and Management*
With the Web-based interface, the system administrator can manage, configure, and/or monitor the server from anywhere on the Intranet or the Internet regardless of the platform used.

Conclusion

The advent of new Internet and communications technologies that offer faster and more secure data transmission will further strengthen electronic mail's reputation as the one of the widely used messaging technologies well into the next millennium. However, for Internet-based electronic mail to become indispensable, the industry must have a single solution to the problems that plague email users – junk or spam mail, computer viruses, ineffective distribution list management, unreliable message handling and delivery, user migration to email systems based on Internet standards, and others. The Internet Exchange product lineup offers long-term solutions to these problems.

With the Internet Exchange Gateways, cc:Mail and Lotus Notes environments are able to connect to the Internet and maintain that connection with minimum effort from the administrator. With the Internet Exchange Messaging Server, email administrators are provided with a stand-alone messaging system based on proven standards such as IMAP4, POP3, and LDAP. It also features support for innovative tools that enable system administrators to combat junk mail and computer viruses in a highly effective manner. The Internet Exchange product line-up assures the Internet community that electronic mail will continue to thrive in the 21st century.