Messaging Solutions

IT Solutions White Paper #1 on enterprise messaging

First in a series on enterprise messaging and building corporate information services.

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Electronic Mail and Messaging Systems

The IT Solutions "Messaging Solutions" suite is intended to provide a framework of applications for enabling organizations to build and deploy systems which promote electronic connectivity throughout the enterprise.

This set of electronic mail and mail enabled applications seeks to provide for customers of the NEXTSTEP operating system a toolkit for evolving their current communication systems into a powerful method of distributing information and organizing work.

This new field of automation, called Enterprise Communication, leverages the power of desktop workstations with the interconnectivity of wide area networks and the coordinating capacity of distributed file servers and calculation servers.

By combining these three common elements of the modern computing environment and providing easy to use network applications which run on top of this infrastructure, desktop computing achieves a new level of information availability throughout the enterprise..

Access to information along with the tools to use that information will be the defining characteristics of the successful worker -- and the successful company in the next decade.

Enterprise Communication

Enterprise Communication systems are the next logical evolution in the integration of information and technology. This integration is fundamentally changing the way in which individuals work with colleagues and companies prevail against competitors.

In order to succeed today people and organizations must learn to:

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(1) Strategically Disseminate Information: Distribute information faster and more accurately.

(2) (eForms) -- Move information via Electronic Forms: Create systems in which information drives work, instead of work driving information. Move more and more of the work electronically by moving the information electronically.

(3) Save our Corporate Memory: Capture valuable corporate information and save it in a usable and accessible form.

To build this next layer of functionality beyond simple electronic mail, a new sophistication in companies' messaging infrastructure is needed.

Evolution of Messaging

Peer-to-peer messaging systems have dominated the past 10 years of corporate computing. From Unix-based mail to simple Local Area Networks, the local client machine has been a crucial link in processing and delivering of mail messages.

In this next evolutionary step, electronic mail is integrated into network services, provided by a distributed network of linked data and computation servers.

The goal toward which this change is driving is a ubiquitous computing and communication environment in which the network is the provider of information and the individual has a cornucopia of methods for retrieving, sorting, and filtering that information.

From alphanumeric pagers to hand-held "Portable Digital Assistants" to wireless messaging via palmtop or laptop, to the wired connection -- over dial-up lines or through the wide-area network... we will stay connected through Enterprise Communication Software.

The questions that companies must ask today to achieve this new level of information accessibility are: how will users be connected? What does our info-structure look like? How will we provide information to our users? What tools will we give them to manage this information?

Information must be:

(1) Accessible yet secure -so that the right people have access to information but the information is protected from those who shouldn't have access.

(2) Locally available but globally distributed -- information has to be located close to the user to be read fast enough though it will have to be accessed from a variety of far flung locations.

(3) Readable from an ASCII terminal but stored with multi-media -- information must be accessible from the lowest common denominator in electronic hardware -- ASCII characters. But this shouldn't limit the presentation of information for users who have full multi-media capabilities. Information should be accompanied by images, sounds, and stored using rich text (font style and size changes).

(4) Distinct information items but integrated into a daily flow of information -- with email, general news, corporate discussions, company policies, historical information, and more, all accessible through one common interface...

What could be capable of providing all of this at once?

Server Based Messaging

A new generation of messaging applications are now being deployed throughout the world. Lotus Notes provides one of the earliest and most successful (to date) examples of this technology though it is fast reaching the end of its capabilities within the largest organizations.

In fact many of the earliest attempts at providing these messaging info-structures have failed to provide scalable solutions for large companies.

In order to allow companies to more efficiently distribute, more effectively use, and more precisely comprehend the complex and growing stream of data in the modern workplace, this data must be provided via a robust info-structure which allows companies to link heterogeneous computing environments and disparate geographic regions.

Now companies such as Hewlett Packard, Lotus Corporation, and Microsoft are leading the way into a new expansion of the messaging into a three-tiered marketplace:

1. Applications
2. Servers
3. Backbone Infrastructure

Applications

Applications are the workhorses of the new information infrastructure. Whether as user applications with an easy to use graphical user interface or as processing engines, running in the background on some server on the network, the applications actually do something with the information.

Servers

Storing, delivering, and replicating information around the network is handled by the messaging servers. One roadblock which Lotus and Microsoft have experienced is in providing solutions that can scale beyond a few hundred users. Hewlett Packard's OpenMail server is the first of a new breed of software which solves this scalability problem.

Backbone

Consisting of one or more gateways between either inter-company or intra-company servers, the backbone infrastructure for messaging provides guaranteed message delivery, synchronization of mail addresses, and connectivity between disparate messaging systems. X.400 and X.500 are emerging standards which provide a common method for providing these infrastructure connections.

IT Solutions "Messaging Solutions Suite"

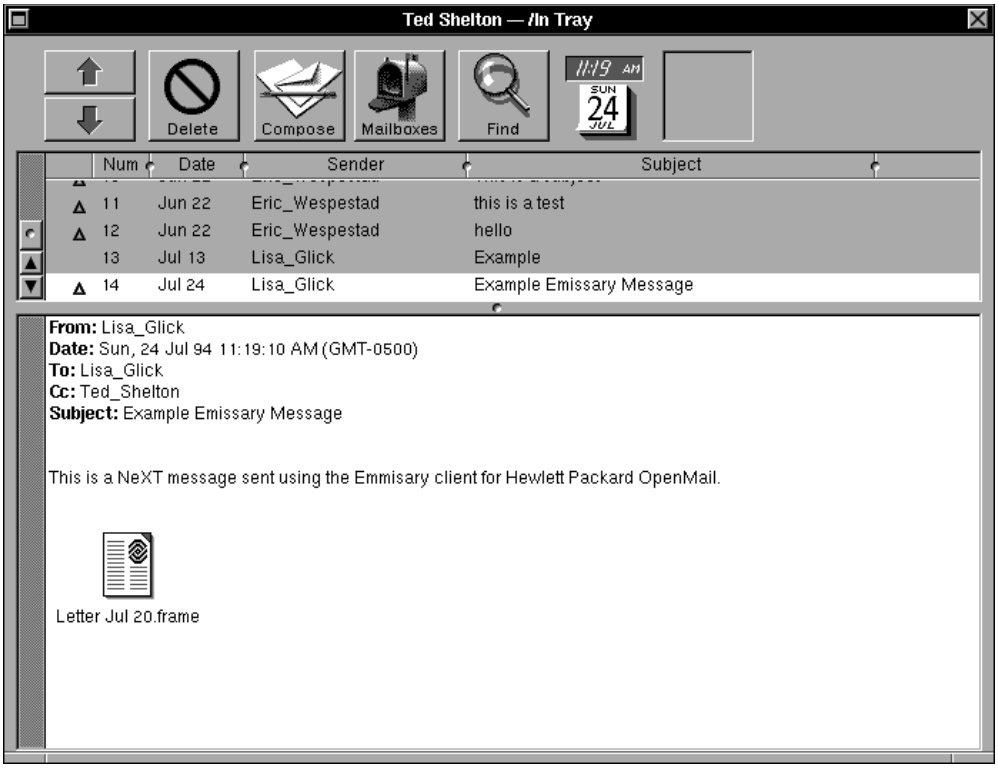
The IT Solutions "Messaging Solutions Suite" provides applications which connect to the popular Server and Backbone Infrastructure of OpenMail, provided by Hewlett Packard, Inc. These solutions include:

1. Electronic mail
2. Discussion groups
3. Document management
4. Automatic forms routing
5. User configurable mail filters

Together, this collection of applications enables the entire enterprise to make a radical shift in the way work is performed in the corporation -- moving from paper-based transaction toward a world driven by electronic information.

Electronic Mail

Companies have implemented electronic mail, or "email" systems as a first step toward providing greater connectivity between geographically disparate and organizationally disparate work groups. In many companies, email has become the primary means of communication, even more frequently used than the telephone.



The main message browser from **Emissary**, the IT Solutions user interface for HP OpenMail

But moving from a world where companies provide ad-hoc connections between work groups to one in which the entire enterprise is well connected can be a huge challenge for corporations. And taking the next step -- connecting to customers and to the worldwide network known as the "Internet" can prove to be an unachievable goal for many organizations.

Many of the problems experienced in trying to get organizations "wired" have to do with the technology being used to implement the connections. The Local Area Network (LAN) email systems implemented in the 1980s are proving to present serious problems in fulfilling the enterprise-wide systems requirements of the 1990s. These LAN solutions don't scale to provide robust messaging, network-wide data access, and address book synchronization for organizations with thousands of users.

The IT Solutions Messaging Solutions Suite is built entirely on top of an industrial strength enterprise messaging system to provide a truly scalable architecture. This messaging infrastructure, Hewlett-Packard's OpenMail, represents the first product in a new category of messaging systems -- a mail system that is truly scalable for the largest enterprise.

Using the HP OpenMail Server and messaging infrastructure, an enterprise can provide efficient access to mail messages throughout a corporation and even to remote users working from home or on the road. The IT Solutions **Emissary** client is 100% compatible with every other OpenMail client because we read and write standard OpenMail messages -- including using Hewlett Packard's standard for writing document "attachments" to a mail message.

Unlike other electronic mail applications, we have developed our user application, **Emissary**, to be entirely intuitive to the novice. Experienced userscan access a "Preferences" panel to enable the advanced functionality available in OpenMail.

Discussion Groups

Less common than email, but gaining in popularity in corporations, is the "electronic bulletin board" or "discussion group" which allows members of a particular business area to place electronic messages in a generally accessible place. This technology can allow sales people to discuss new products or sales techniques, allow a PR department to "publish" electronic copies of press releases, or allow a project team to exchange information about a project's status.

This technique for sharing information has been popularized by Lotus Notes, but as with the LAN-based email systems, the Lotus solution was not designed to scale to serve the needs of a large enterprise.

Hewlett Packard's OpenMail provides an efficient, scalable architecture for deploying discussion groups across an entire company. IT Solutions is providing **Ambassador** as a fully integrated piece of our email client **Emissary,** to allow corporations to use OpenMail for their threaded discussion groups. In addition to internal discussion groups, this tool can be used to deliver external information sources as well, such as Reuters, Dow Jones, Internet news groups, etc.

Document Management

Organizations need two kinds of document management and they need both of them on an enterprise level. Again, a messaging infrastructure that scales across the enterprise can provide the underlying technology to support these uses.

First, organizations need to have a "corporate memory," an archive where employees go to find old memos, client records, old policy statements, and other company-specific documents.

Second, project teams need a way of managing in-progress documents, tracking changes, sharing document components, and finding old revisions of documents.

In 1995, IT Solutions will deliver a powerful search engine and document management interface, using HP OpenMail as the infrastructure for storing and controlling access to documents.

Automatic Forms

In addition to providing message templates in the Emissary email client, in 1995 IT Solutions will provide an automatic message processing capability. Called eForms, this email-enabled application allows users to enter and retrieve information from databases through electronic mail.

An application server on the network will automatically process incoming mail and read or write from a SQL database according to the message contents. These functions will be user configurable through a graphical scripting interface. The server process will then send a message back to the originator of the request with a confirmation of the processing or with a formatted report (in the case of a database retrieval request).

The IT Solutions eForms application will be the first step in providing automatic forms routing throughout an enterprise. Combined with custom development and configuration, forms for travel requests, purchase orders, and time sheets (to name a few examples) can be entirely automated.

Mail Filters

A set of user configurable mail filters for sorting, filtering, auto-forwarding, and auto-replying to incoming mail messages will be part of **Emissary 2.0** due out in mid-1995. These filters will allow users to set up sophisticated mail handling routines for automatically processing incoming messages. This can be used either for individual end-users suffering from "information over-load" or for configuring email-enabled applications which require a way of parsing an incoming mail cabinet.

The Future of Messaging

In the future we will see electronic messaging -- the distribution of digital information to people and processes -- as a core tool for every organization, as ubiquitous as the telephone has become as a way of doing business.

Standards like X.400, for reliable guaranteed message delivery, and X.500 for global unique user addresses, will take us a long way down the road toward a truly robust heterogeneous, inter- and intra- company info-structure.

However, many steps are required along that path. IT Solutions **Messaging Solutions Suite** gets your organization there first.

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