

White Paper

Document Delivery: It's Your Business

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Introduction

Efficient information delivery is a critical concern in organizations of all sizes. The late twentieth century has seen extraordinary developments in telecommunications technology, in both the public and private sectors.

Interstar Technologies is devoted to setting the standard for superior, powerful, cost-effective computer-based fax (CBF) messaging solutions. Interstar's fax server software has been implemented in countless organizations worldwide and is recognized as the fax solution of choice for successful enterprises.

This white paper summarizes the challenges facing manual fax technologies and describes the inherent advantages of computer-based faxing. It describes LightningFAX, Interstar's cross-platform network fax server, and presents an overview of LightningFAX components, configurations, and add-on modules. LightningFAX integrates with a broad range of office productivity suites and existing e-mail delivery systems to provide an efficient, cost-effective, document delivery solution.

Document Delivery: It's Your Business

The paperless office, confidently predicted 20 years ago, has not materialized. A more recent prediction, that e-mail software would first reduce then eliminate the need for fax technologies, has proven equally premature. Industry reports indicate that fax transmissions, the preferred standard of business communication (second in volume only to the telephone call), are actually increasing. The International Data Corporation (IDC) noted in a 1997 report that the volume of faxed pages is growing at an annual rate of 22 per cent. IDC's short-term forecast: an impressive one trillion pages faxed in the year 2001.

The impetus behind these increases is easy to visualize. Knowledge work defines the post-industrial society. From the executive assistant to the CIO, work often means working with faxes. The Gallup Institute and the Institute for the Future estimate that knowledge workers currently write, read, send, and receive 178 documents a week. Twenty-three per cent of these are faxed. Invoices, purchase orders, bills of lading, loan documents, reports, personnel records, queries, confirmations, and acknowledgments: these are the work-a-day documents that make up business transactions. Documents that mean business.

All reports indicate that companies can expect greater fax traffic in the years to come. Corporate fax costs will rise accordingly.

Corporations Communicate

The increase in the volume and cost of fax traffic is taking place in an environment that combines traditional technologies with newer, rapidly evolving ones. The corporate network—whether a local area network (LAN) or wide area network (WAN)—gives employees an indispensable means of direct communication, typically in the form of e-mail. As well, the Internet has established itself as the "network of networks," a medium that is global in scope and offers unprecedented communication and business opportunities.

Computer-based fax solutions work with e-mail and the Internet to provide the most complete messaging solutions available. The future of the fax machine must therefore be evaluated against the background of evolving information technology.

The Fax Machine: Benefits and Shortcomings

Some 55 million fax machines were in use in 1997, with estimated sales of as many as 20 million units in 1999. However, the fax machine remains an IT resource that often escapes close scrutiny, both in terms of its cost and its lack of integration with the corporate network and the Internet.

The Cost of Faxing

The Kauffman Group, a New Jersey-based fax-technology consulting firm, says that fax costs frequently amount to hidden costs in corporate telephone bills. Fax costs make up one third to one fourth the annual corporate long-distance telephone bill—as much as \$15 million a year for the average Fortune 500 corporation, according to a 1998 Gallup/Pitney Bowes survey. This means that fax machines often amount to an expensive oversight.

Integrating Fax Services

In light of increasing e-mail and Internet use, the stand-alone fax machine often seems the "odd man out." The Gallup/Pitney Bowes study found that approximately 80 per cent of fax senders use manual fax machines despite the fact that most faxed documents are computer-generated. Another study argues that as many as 50 per cent of the faxes sent by mid-size and large corporations are internal documents sent between branch offices from one fax machine to another.

Despite the ready availability of e-mail, there is a definite confidence in and preference for printed documentation. More than e-mail, more than voice-mail, printed documents such as faxes are perceived as "real" documents.

However, the stand-alone fax machine has serious limitations that inhibit cost-effective document delivery:

- Manual operation of the fax machine, although simple, is time-consuming and cannot support volume or broadcast faxing.
- A single document intended for two or more recipients must be sent repeatedly or photocopied by the receiver, which degrades the graphic quality.
- Confidential faxes can be examined by whoever walks by the fax machine.
- Once received, faxes can be mislaid or lost, with little hope of recovery beyond asking the sender to refax the document.
- Physical distribution to recipients throughout the office takes up still more time.
- Long-distance telephone charges, although declining, remain substantial for corporate customers.
- Corporations are not in a position to take advantage of evening and weekend long-distance rates.

Corporations are increasingly looking to fax servers to address these limitations and reduce the cost of fax delivery.

The LightningFAX Advantage

LightningFAX is an award-winning, enterprise-level fax server that supports multiple platforms and integrates with existing network environments. It is a feature-rich, configurable solution to the challenges of rising fax costs and the need for universally compatible, legally binding documents.

Scalability

LightningFAX offers unprecedented scalability, ensuring that future fax requirements are easily met. LightningFAX 6.5 handles up to 960 fax channels per server and thousands of channels in a multiple server environment. This makes LightningFAX the perfect candidate to manage enterprise fax requirements while ensuring modest central processing unit (CPU) overhead.

Modular Design - Distributed Architecture

Each LightningFAX component can be installed on a separate computer, allowing a truly distributed, client/server fax network.

LightningFAX Component Configurations		
Client Faxing Interfaces		Server-Side Components
LightningFAX SendFAX Windows Client		LightningFAX Server & Driver
LightningFAX SendFAX Java Client		LightningFAX Server & Driver
LightningFAX Forms for Microsoft® Outlook™		LightningFAX Server, Driver, Rasterization Server, & E-Mail Gateway for Microsoft® Exchange
Alternative Interfaces	Client-Side Components	
E-Mail Client	Nil	LightningFAX Server, Driver, Rasterization Server, E-Mail Gateway, & E-Mail Server
Customer Applications (Windows)	LightningFAX ActiveX Control	LightningFAX Server, Driver, & Rasterization Server
Custom Applications (Unix & Windows)	Nil	LightningFAX Server, Driver, & API ToolKit
Third-Party Windows Applications	LightningFAX SendFAX	LightningFAX Server & Driver
Third Party Applications through E-Mail Client	LightningFAX Print to Fax	LightningFAX Server, Driver, Rasterization Server, E-Mail Gateway, & E-Mail Server
Microsoft® Word 97™	LightningFAX SendFAX, LightningFAX Mail Merge for MS Word	LightningFAX Server & Driver

Additional modules and components, such as the LightningFAX E-mail Gateways, LightningFAX Call Center, LightningFAX On Demand, LightningFAX ActiveX Control Toolkit, LightningFAX API and Feedback API Toolkit, and support for the Hewlett-Packard® 9100C Digital Sender, provide the flexibility that corporations need to meet their fax delivery needs.

LightningFAX architecture is structured on a resource paradigm, enabling segmented use of fax board channels. One or more fax board channels can be associated with one of LightningFAX's 15 "resources." Each resource can in turn be associated with an individual user or a group of users. Each resource can be configured to either send or receive faxes, or both.

LightningFAX supports the following server operating systems: Windows® NT, Sun Solaris, IBM AIX, and Red Hat Linux. LightningFAX also provides seamless integration with productivity suites such as Microsoft® Office, Corel® WordPerfect Suite, Lotus® SmartSuite, and SAP R/3®.

LightningFAX: Computer-Based Faxing That Works

LightningFAX offers three major configurations: a full-feature "thick" client installation, a "thin" client installation, and a "zero" client installation that offers low Total Cost of Ownership (TCO).

Thick Client: LightningFAX SendFAX and Manager

The typical LightningFAX network combines a server installation of the LightningFAX Driver and Server with client installations of the LightningFAX Manager and LightningFAX SendFAX. Employees use LightningFAX SendFAX to compose and address their faxes; they use the LightningFAX Manager to manage incoming, outgoing, and archived faxes.

The LightningFAX SendFAX interface makes faxing simple. To send a document composed with a third-party application, the user can insert the document into their fax message via menu selection or the unique LightningFAX drag-and-drop feature. The LightningFAX printer driver then locally rasterizes the document to TIFF format.

The resulting faxes can be addressed manually to one or several recipients. Users can also select recipients from personal and global MAPI address books, as well as from private LightningFAX Phone Books.

LightningFAX administrators can make a system-wide phone book available to all LightningFAX users. Both administrators and end users can import or link any ODBC database to any LightningFAX Phone Book.

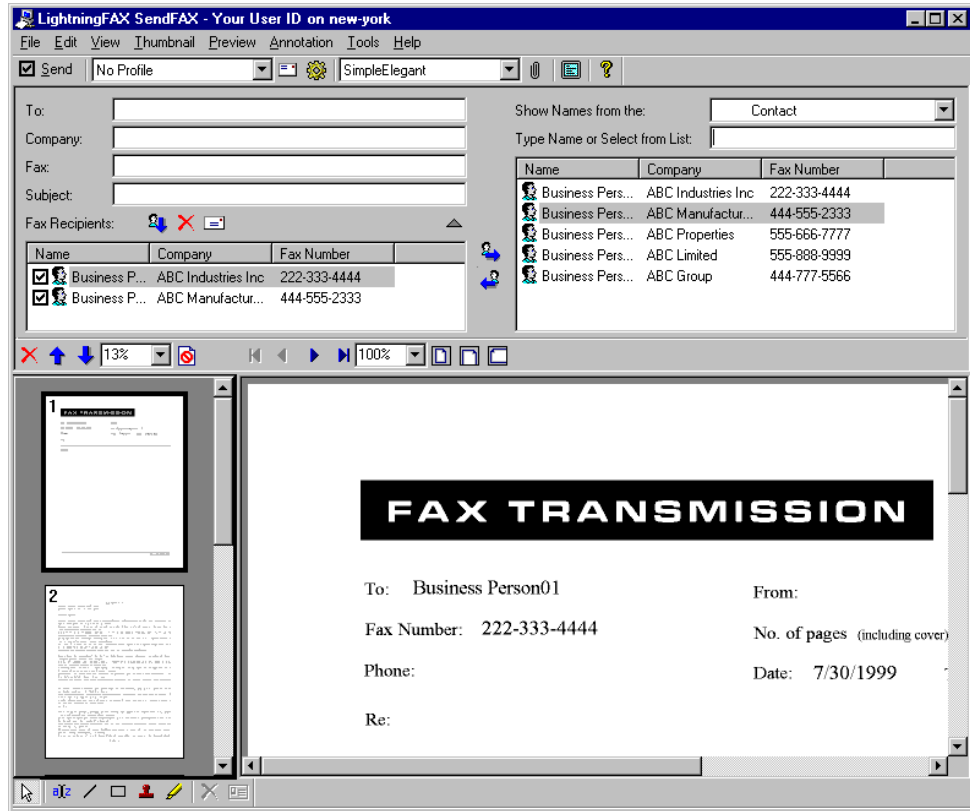


Figure 1 The LightningFAX SendFAX Window

Fax senders can select a profile and a cover sheet. Pre-configured cover sheets are available, while the Cover Sheet Editor allows users to compose originals or modify existing ones.

Outbound faxes are displayed in thumbnail and preview format, and pages can be rearranged with ease. Users can add annotations, watermarks and stamps in the form of bitmap (.bmp) files. Because the interface is easily configured, LightningFAX SendFAX users can display as much or as little detail as necessary. Users view inbound faxes with the LightningFAX Viewer.

Fax transmission settings let users specify a fax header, calling options, transmission priority, and the number of retries. In addition, LightningFAX SendFAX users can schedule fax transmission for a later date and time, thereby taking advantage of off-hour reductions in long-distance charges. Faxes sent as email attachments can be sent anytime, at no cost.

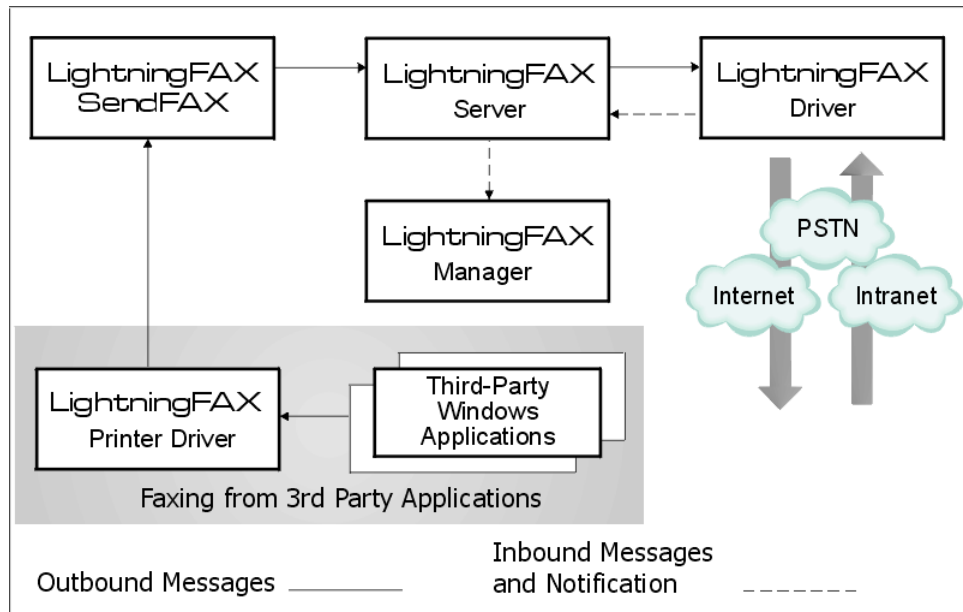


Figure 2 LightningFAX SendFAX Components

The LightningFAX Manager provides users with a familiar Microsoft® Windows Explorer-like tree format to check inbound, outbound and archived faxes. Menu commands let users view, edit, copy, forward, print, and delete faxes. Detailed fax information, such as the recipient’s name, fax status, and completed time, etc., are available at the click of a mouse.

The LightningFAX Manager also lets end users define phone books, edit cover sheets, view faxes, and create user profiles.

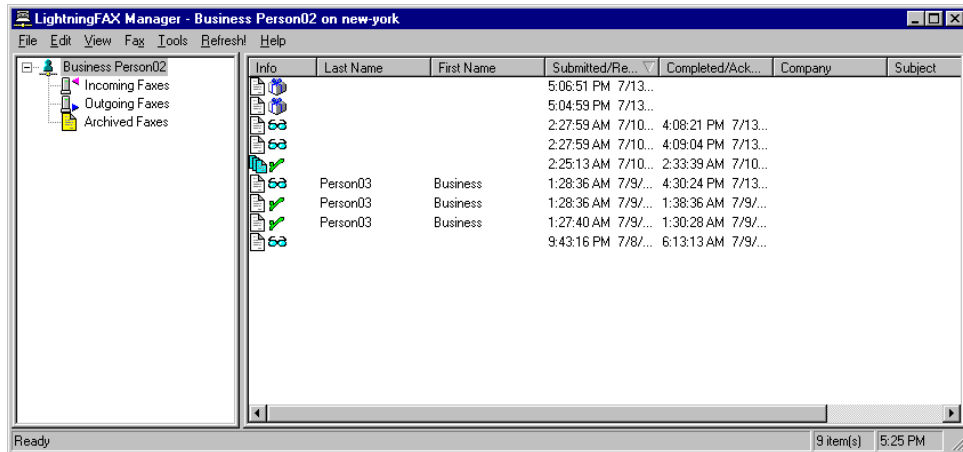


Figure 3 LightningFAX Manager Window

The LightningFAX Manager lets the administrator define users and user groups, assign user and group properties, and establish default operating parameters. The administrator uses the LightningFAX Manager to establish security, resource and

user properties, and user notification. The LightningFAX Manager provides the means to configure Least Cost Routing (LCR), Load Balancing and inbound fax routing to the user's desktop.

Available inbound routing methods:

- Direct Inward Dial (DID)
- Dialed Number Identification Service (DNIS)
- Dual Tone Multi-Frequency (DTMF)
- Caller Subscriber Identification (CSID)
- Automatic Number Identification (ANI)

Inbound routing can be configured by fax board channel or by manual intervention.

Additional features include: call restriction, support for Windows NT clusters and roaming profiles, as well as support for Citrix MetaFrame and Windows NT Terminal Servers.

Thin Client: LightningFAX Forms for Microsoft® Outlook

LightningFAX Forms for Outlook integrate into Microsoft® Outlook to provide a "lighter" faxing environment.

After the user installs and configures the LightningFAX Forms for Outlook, a new selection appears in the Outlook Actions menu. This selection, **New LightningFAX Message**, launches the LightningFAX Forms for Outlook. The user can then send individual or broadcast fax messages, set options such as the number of retries and fax resolution, and preview the document to be faxed. The administrator specifies cover sheets in a profile generated through the LightningFAX Manager. The user can send attachments via fax as easily as via email.

Fax recipients can be specified in the Outlook Personal Address Book. Adding recipients to a Personal Distribution List lets users send faxes to several recipients simultaneously. Inbound faxes are received in Outlook.

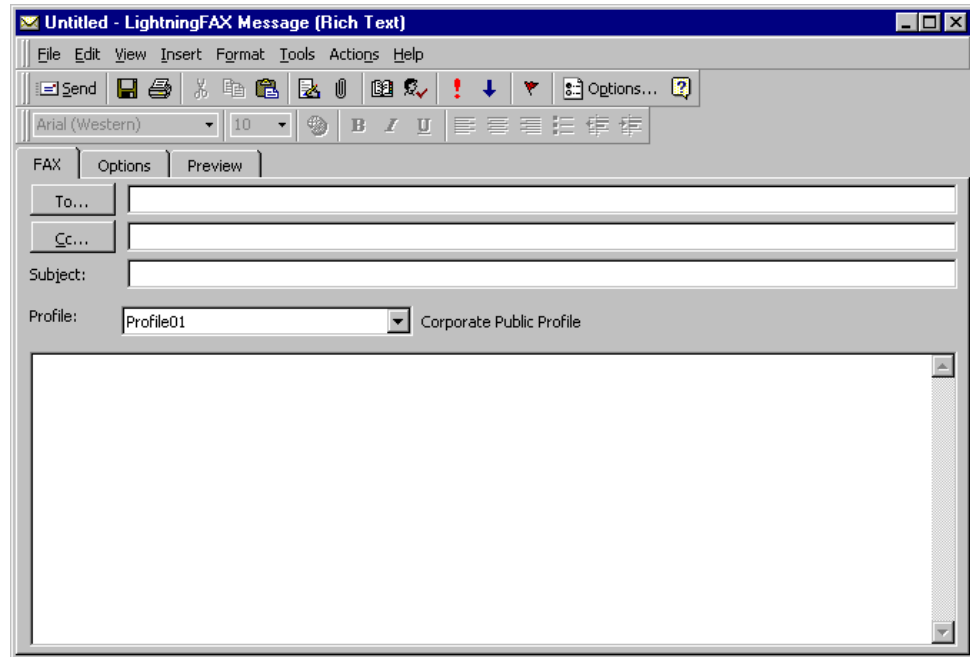


Figure 4 LightningFAX Forms for Microsoft® Outlook

There are several advantages to the thin client option. LightningFAX Forms for Outlook is a simple, light installation (1MB) compared to the thick client option (30MB). In a large enterprise, the LightningFAX Forms for Outlook can be deployed as an e-mail attachment to users who have access to both the LightningFAX and the Microsoft® Exchange servers. The users themselves then install and configure LightningFAX Forms for Outlook on their workstations, freeing the system administrator to perform other duties. The user simply adds a new folder to the Outlook Mailbox, then copies to the new folder an Outlook Form previously published by the LightningFAX administrator.

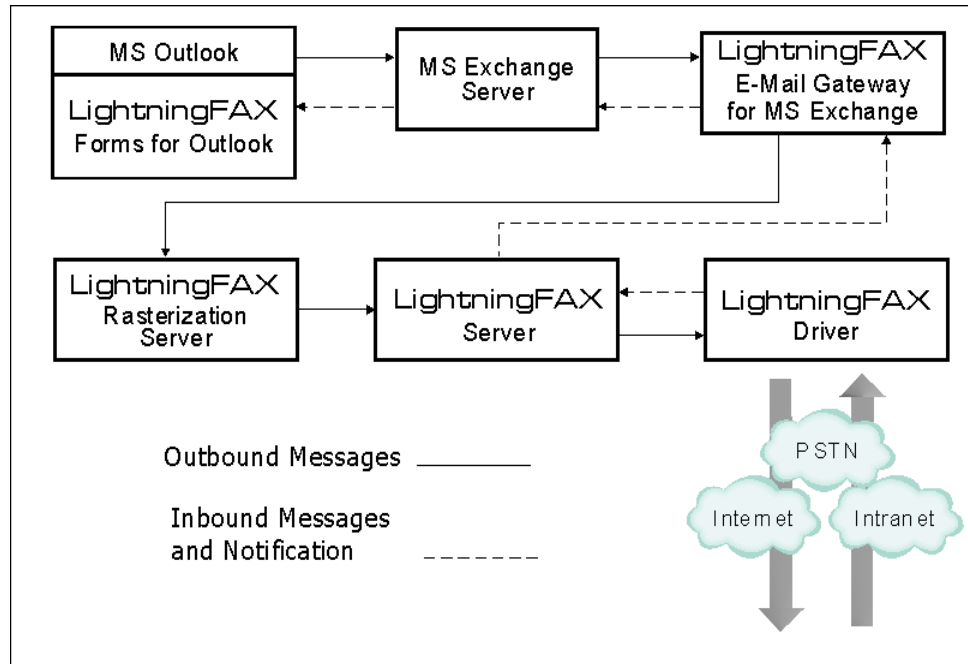


Figure 5 LightningFAX Forms for Outlook Components

Zero Client: LightningFAX E-Mail Gateways

The LightningFAX E-Mail Gateways module gives e-mail users the ability to send and receive all their faxes directly through their e-mail application. In addition to providing a familiar messaging environment, travelling employees can receive faxed documents simply by accessing their e-mailbox.

The E-mail Gateways module eliminates the need for client-side installation, thereby greatly reducing the Total Cost of Ownership of a LightningFAX installation.

The LightningFAX E-Mail Gateways module takes advantage of popular e-mail programs including:

- Microsoft® Exchange/Outlook
- Lotus® Domino/Notes
- Novell® GroupWise™
- SAP™ R/3®
- almost any SMTP/POP3 mail client

In each case, users can send faxes by entering recipients' names and fax numbers or by retrieving recipient information from the e-mail software's Personal Address Book (PAB). If the contact is recorded in the PAB as an e-mail recipient, they receive the fax transmission as an e-mail. Contacts recorded as fax recipients get the fax transmission as a fax document. Cover sheets can be generated in Microsoft Word or Corel WordPerfect™.

The LightningFAX E-mail Gateways module provides unified messaging by combining fax delivery and receipt/notification with standard e-mail functionality.

LightningFAX E-Mail Gateway Availability				
Server OS	Windows NT	IBM AIX	Sun Solaris	Red Hat Linux
Available LightningFAX E-Mail Gateway	Lotus Domino 4.x Microsoft Exchange 4.0 or higher Novell GroupWise 4 or higher SAP™ R/3® SMTP/POP3	Lotus Domino 4.x SMTP/POP3	SMTP/POP3	SMTP/POP3

The LightningFAX E-mail Gateways module communicates with the LightningFAX Rasterization Server, which converts the outgoing message to TIFF fax format. Usually, the LightningFAX Server and the Rasterization Server are installed on separate servers in the network to reduce overhead. Additional "slave" Rasterization Servers can be installed to accommodate increasing volumes of fax traffic. Slave rasterization servers automatically poll the master Rasterization Server for jobs to execute. The master Server submits jobs which the slave returns upon completion.

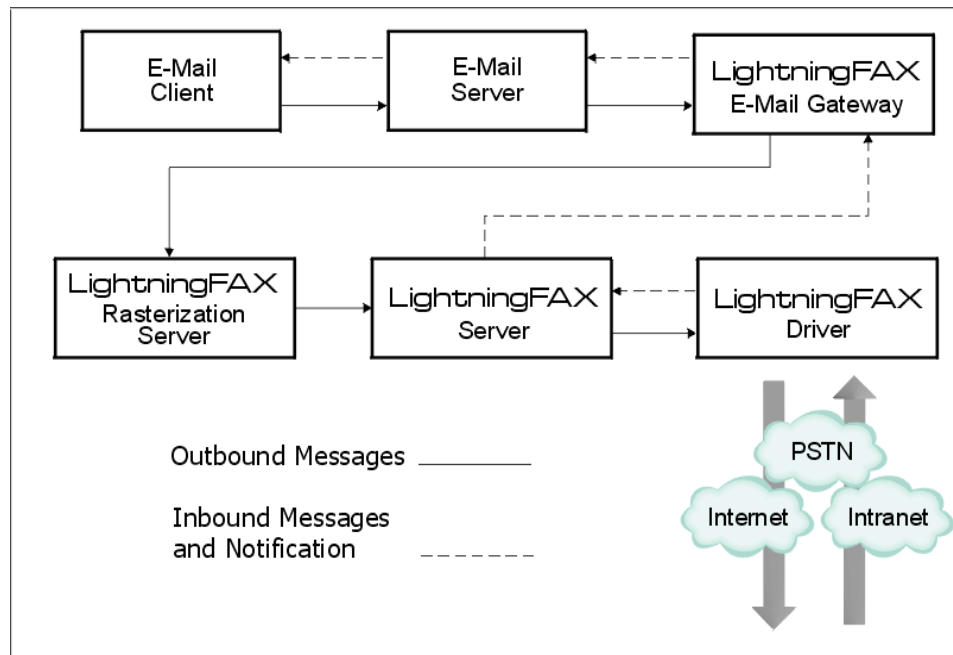


Figure 6 LightningFAX E-Mail Gateway Components

LightningFAX E-Mail Gateways and System Configuration

LightningFAX provides a broad variety of configuration options that let administrators deploy components in the manner best suited to their resources.

The LightningFAX E-mail Gateways module must be installed with the e-mail server on the same machine.

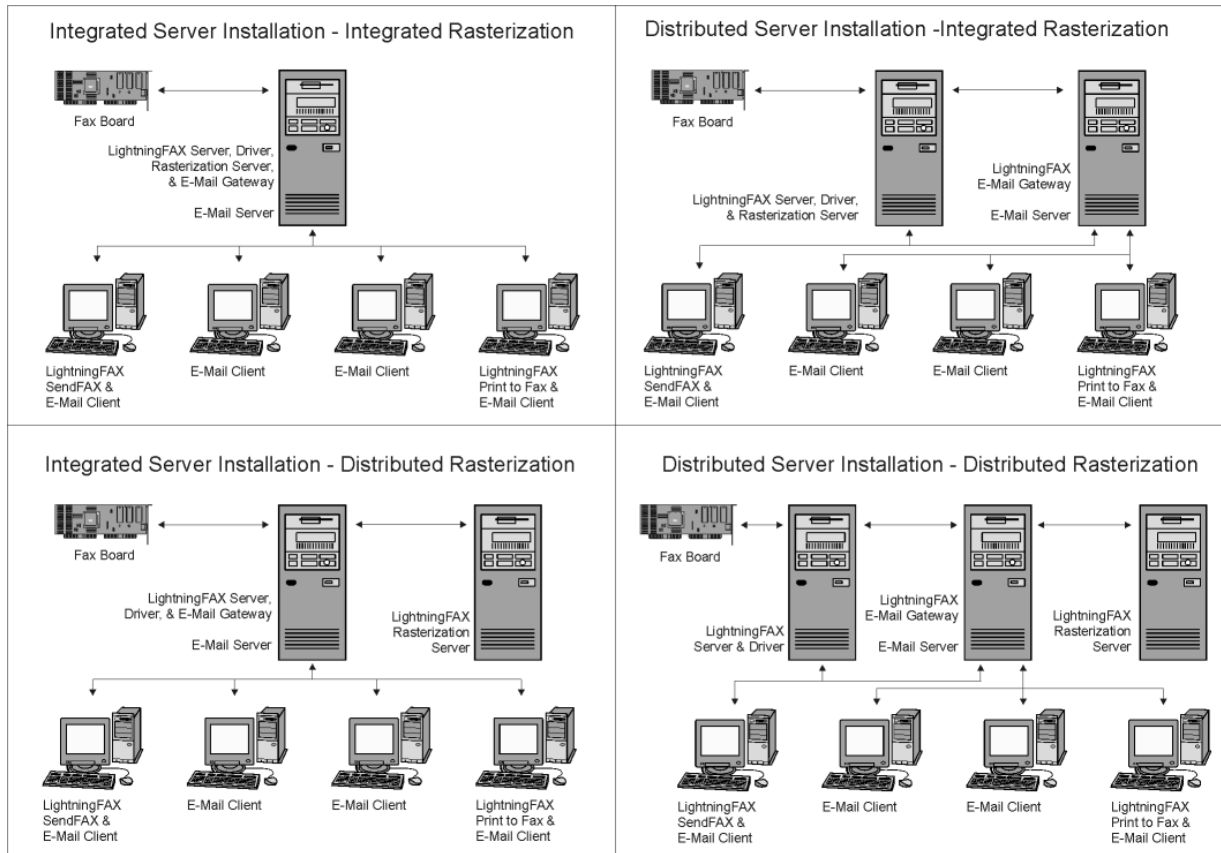


Figure 7 LightningFAX Gateway and Rasterization Distribution

LightningFAX FaxToMail

The LightningFAX FaxToMail printer driver, installed separately, lets end users e-mail a TIFF file without using the Rasterization Server. When end users want to send a document from a third-party application, they simply print the document to their FaxToMail printer. This converts the document to TIFF format. The end user's e-mail client opens automatically, and the TIFF file is sent to the e-mail recipient.

Additional LightningFAX Components

The LightningFAX API ToolKit Module

Included with the LightningFAX server installation, the LightningFAX API ToolKit automates routine volume faxing by means of a command file, and makes it unnecessary to use the LightningFAX SendFAX interface.

The command file is an ASCII file easily written with any editor or generated with other software. Other supported file formats include Unicode and Multi-Byte Character Set. Inside the command file are a series of variables that specify the fax or a file that contains the fax, the method used to convert the file to the TIFF

format, a cover sheet, the fax recipients, etc. Usually generated and managed by LightningFAX administrators, a LightningFAX API ToolKit command file automates fax broadcasting to hundreds of recipients or simply a dozen.

LightningFAX API Feedback can define actions to be performed when fax events occur. For example, LightningFAX API Feedback can be used to notify end users of the volume of unattended LightningFAX API ToolKit fax transmissions. More elaborate actions might include launching a program that lets the end user respond to or record the fax event.

LightningFAX Mail Merge for Microsoft® Word

Installed separately, LightningFAX Mail Merge for Microsoft® Word fax-enables a mailing-list document generated with Word. Typically, Word users maintain a list of names and addresses in a Word Data Source and merge that information with a form letter for mass mailing. LightningFAX Mail Merge for Microsoft Word extends this functionality to faxing. Four LightningFAX merge fields (First Name, Last Name, Company, Fax Number) correspond to the Word merge fields placed in the form letter. Execution of the Merge function launches LightningFAX SendFAX, and the individuals listed in the original Data Source become listed as fax recipients.

The LightningFAX ActiveX Control Module

The LightningFAX ActiveX Control module is intended principally for original equipment manufacturers (OEMs), value-added resellers (VARs), corporate developers, and fax application server providers (ASPs). The LightningFAX ActiveX Control provides access to all faxing and fax management facilities (including Least Cost Routing [LCR] and Load Balancing) through any ActiveX container application, e.g., Visual Basic, Visual Basic for Applications, Visual J++, Visual C++, and the major scripting languages. Scripts can be run in the Windows Script Host or in a web page.

Using the ActiveX Control, the administrator can perform tasks such as user administration, accessing the fax message store, and configuring fax server settings. The ActiveX Control can be used at both web server and browser level to create a web site that provides Internet fax services as well as remote fax access to travelling users.

Using the Windows Script Host in conjunction with a database object such as ActiveX Data Objects (ADO) and the LightningFAX ActiveX Control, the administrator can transfer information from an existing user database to the LightningFAX user database.

Using Visual Basic for Applications and the ActiveX Control to automate fax delivery of information residing in a Microsoft Excel worksheet or an Access table is only one possible application of the LightningFAX ActiveX Control.

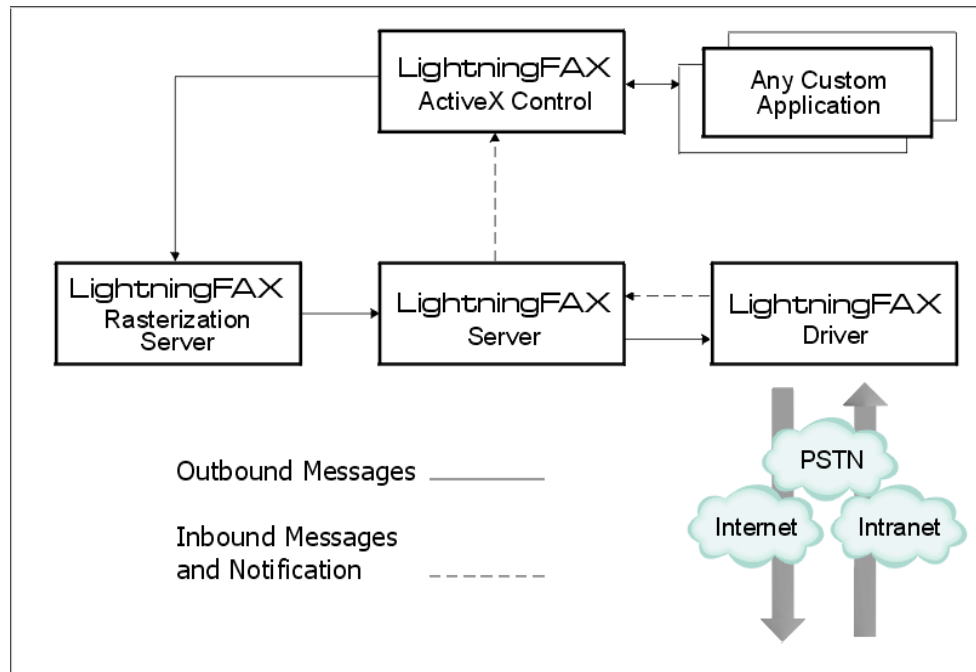


Figure 8 LightningFAX ActiveX Control Components

The LightningFAX ActiveX Control can be:

- integrated with web pages to manage and access faxes in the LightningFAX database from an intranet web site.
- configured to the requirements of clients and customers using programmatic scripts, eliminating on-site configuration.

The LightningFAX ActiveX Control can run on any computer. It connects to LightningFAX components such as the Server, Rasterization Server, or the E-mail Gateways through TCP/IP.

The LightningFAX Call Center Module

The LightningFAX Call Center module integrates fax data collection into an external database for long-term storage and processing. End users tab through the data fields of a fax form displayed in one Call Center pane, making entries to the corresponding database fields in the other pane.

The LightningFAX On Demand Module

The LightningFAX On Demand module enables unattended fax delivery in response to requests submitted by telephone. A series of voice tracks can be configured to a) automatically prompt callers to select the documents they wish, then b) enter the fax number where they wish to receive the documents. LightningFAX On Demand transmits the fax without manual intervention.

The vocal instructions can be recorded by any suitable recording software and saved as WAV or Dialogic VOX files. The documents faxed can be TIFF files or any document supported by LightningFAX SendFAX.

Conclusions

In the short and medium term, fax traffic is accelerating. Fax devices will remain a staple feature of every office for the foreseeable future. Integrated with LANs, WANs, and the Internet, fax is a truly powerful medium that provides fast, cost-effective document delivery to an international audience.

LightningFAX provides fax delivery solutions for every type and size of organization. Whether faxing from third-party applications like Word or WordPerfect, from LightningFAX SendFAX or from one of the LightningFAX E-mail Gateways, LightningFAX boosts efficiency and productivity. Because outbound fax traffic is closely monitored and controlled, companies save money. LightningFAX is a reliable, scalable, cross-platform, multi-language, modular fax delivery solution that grows with your company's messaging needs. Put simply, LightningFAX delivers.