

White Paper – Electronic Document Exchange



Introduction

The challenge for business today is not any different than it was 100 years ago. These challenges are how we conduct business, better, faster, and cheaper than our competitors. A century ago the new frontier was voice communications. Telegraph ruled the business landscape for more than 50 years and with the invention of the telephone, communications was redefined. Today we find ourselves at another crossroad that will redefine the way we communicate, the Internet.

Even with the electronic revolution raging around the globe, one business staple that hasn't evolved for 2000 years is the paper document transaction. Paper based communications remains the most used form of information exchange (95%) around the world. In some respects, this medium for conducting business has advanced but there still remains no clear replacement.

This white paper does not focus on "how to replace paper as a business exchange medium", but "how to introduce paper into the business process as an electronic document". Processing electronic documents that start as paper documents, delivers significant cost savings and process time compression while preserving business accepted practices, is the end goal.

Merging Industries

The Imaging / Integrated Document Management (IDM) industry has grown into a viable mainstream business solution. Many organizations both small and large are reaping its benefits. Effective document management, automated document processing, efficient retrieval, document backup and document disaster recovery are just a few of the gains. Customer satisfaction, corporate knowledge management, employee morale and the bottom-line have all increased.

The World Wide Web has introduced common services (i.e., Email, portals, secure transactions) to exchange information on a global scale. These new services have crossed and connected organizations of all sizes and promises to become the communications medium for the next century. E-Commerce in its infancy promises to streamline the business process and provide for complete electronic transactions in the near future.

The challenge then is how to merge a 2000-year-old business practice with a 2000-day-old communications technology. A notable quote from Anthony Pizzi, 1st Vice President Merrill Lynch "You can move and control electrons much better than atoms". Therefore, *removing paper from the business exchange process at any stage will yield benefits for the entire process.*

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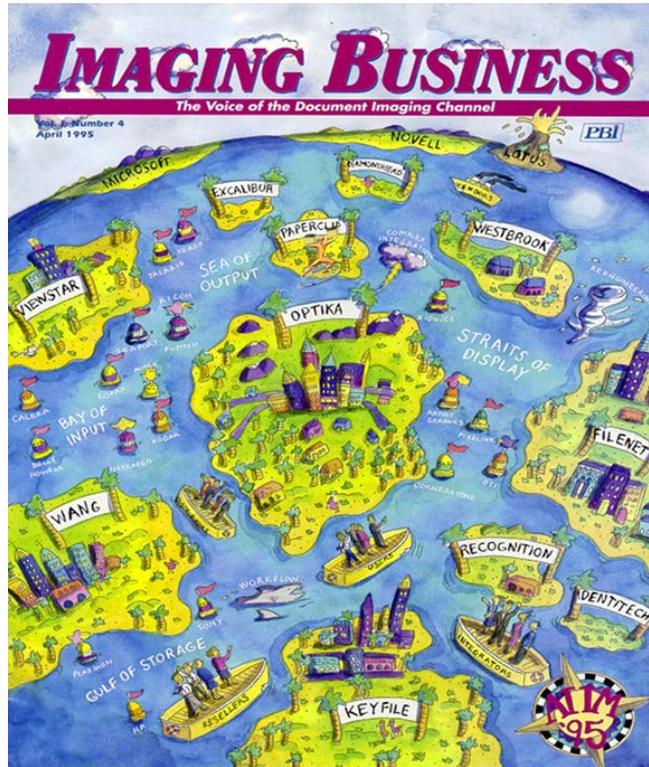
Today these Companies who made the investment years ago in Imaging / IDM have found themselves in a dilemma. Many Company needs are too diverse for “one size fits all” approach marketed by some vendors. They are faced with the challenge of leveraging these investments with their business partners. These people now view their investment and growth limited by their internal infrastructures. What these systems have produced are “Islands of Information”.

Islands of electronic and digitized information are growing in both size and number of users. Their electronic content has evolved as an acceptable means to document business and or transactions. The users of these systems want to expand their horizons. They now want to exchange electronic documents as they exchange paper documents. Many vendors are using the Internet to extend via the Web Browser access to their IDM systems but the documents remain at the host site. In the trading partner model it becomes necessary to exchange (replicate) documents independent of their internal systems.

Companies who have made major investments in IDM could realize more savings and productivity gains if they could expand the users and trading partner base. Many companies find their needs are diverse and to satisfy their structure, they need the flexibility of several solutions. The solution then focuses on how to connect IDM users, allowing the exchange of documents in a secure manner, therefore, expanding and leveraging their investment.

When Corporate America turned to the Web for electronic document exchange solutions, the Web returned e-mail. E-mail today at best has replaced voice communications (telegrams) but has not satisfied the exchange of traditional business binding documentation. E-mail attachments providing a means for electronic document exchange still misses the need for process efficiencies. E-mail attachments still require management, are singular in nature and lack a common security scheme for originality and content confidence.

Merging IDM and the Internet offers the greatest return for electronic document exchange. To date, no one has successfully merged EDI and Images together, until now. Thornton May, President of Cambridge Partners said “EDI and imaging are the two technologies most misunderstood, mispositioned and mismarketed.” The missing piece has been an effective standard addressing legacy system content with the flexibility to merge other XML initiatives. A new standard called **Electronic Document eXchange (EDX V3.1)** has emerged and has proven effective in streamlining the business exchange process. This new standard has leveraged the IDM investment and exploited the communication efficiencies of the Internet. In effect, EDX has combined EDI techniques to unstructured data (images). This



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combination has provided end to end software application processing known as “***Straight Through Processing***” (STP). The ability to deliver document images instead of paper and process like EDI bypassing the mailroom, file room, data entry and the copy center will only streamline any process.

The economics of “Straight through Processing” are compelling. Today, overnight service providers move many documents within 24 hours at an estimated cost of \$10 for letter size containers. If this was a five-page document scanned and compressed, its file size would be around 250K-bytes. Transmitted over a standard broad band connection time would be about 5 seconds for a cost of about 20 cents across the U.S. This is a cost reduction by a “*factor of 10*” in document exchange. Including the savings from not having to copy, scan, file and data enter indexing information provides even more efficiencies which can be measured on the bottom line.

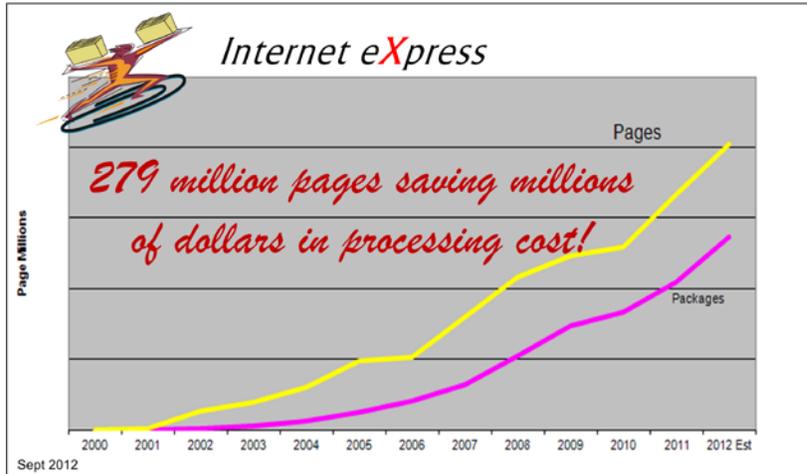
EDX V3.1 offers the means as a standard to expand the electronic document and further the use of the Internet in a real business application not to mention the value added by collapsing the time of the business process.

Customer surveys show if you process paper, it cost about ***\$1.30 per page.*** Same document processed electronically will cost about ***\$0.25 per page.***

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13 Years later and the winner is ... *Internet eXpress*

The introduction above was written thirteen years ago. Internet eXpress entered the market June of 1999 with five organizations. Internet eXpress adoption of more than 450 subscribers today is testimony that the market has embraced electronic document exchange. Internet eXpress has exchanged over 279 million document pages since 2000 and currently exchanges over 3.6 million document pages monthly today.



The Internet eXpress network has delivered the promise of a “Killer App”. This Killer App has reduced cost by an “order of magnitude”, compressing cycle time from “hours to minutes” and the user community finds its “ease of use” a tremendous business advantage.

Internet eXpress as an electronic document exchange network adds

the value of auditing exchange between trading partners. This auditing access served Internet eXpress and its customers’ well and why it has been no surprise of its success in financial services industries (insurance, banking, securities, etc.). In today’s atmosphere of compliance, electronic document management and exchange solutions provide more controls and security than paper based repositories.

Internet eXpress over 13 years has expanded its services based on customers’ diverse communication needs and enhanced to make it as “Black Box” as you can.

Internet eXpress is a suite of services which satisfies the many ways to exchange documents and add value added processes while keeping a simple workflow. Senders process one way to send (release) electronic documents and the receiving customer’s profile determines how they want to receive. Senders and receivers have the option of Secure eXchange (workflow to workflow), Secure Email, Secure Fax, Secure Hosting, Secure Archiving (Disaster and Business Continuity), AppUpload (EDI and Docs), Image-In (Auto Doctyping), Check 21, VirtualClientFolder.com and eM4 Compliant Email.

Internet eXpress in 2006 was upgraded with the new eX4 Client and Central Office. This deployment guarantees its simplicity and ability to scale, a Black Box. The center of this upgrade is the Electronic Document eXchange (EDX) enhanced standard 3.0. This standard change defined the support of a Data Dictionary which has normalized content exchange eliminating the need to support trading partners’ configurations. The move of administration and tracking to a Central Office web portal gives authorized users answers to tracking and more Package control.

Internet eXpress has delivered its promise and PaperClip is excited with the opportunities in front of it.

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New in 2012 ...

Electronic Document eXchange Standard (EDX V3.1)

Electronic Document Exchange V3.1 (EDX) is an open standard defining an indexing mechanism (vessel) which will allow for remote or local exchange of electronic documents where the end result duplicates (replicates) the electronic document in the target system automatically. The EDX 3.0 Standard (2006) supports the EDX 2.0 Standard (1999) definitions and added a XML Data Dictionary with every created package. This consistent Data Dictionary is common with every subscriber and hosted by PaperClip Incorporated.

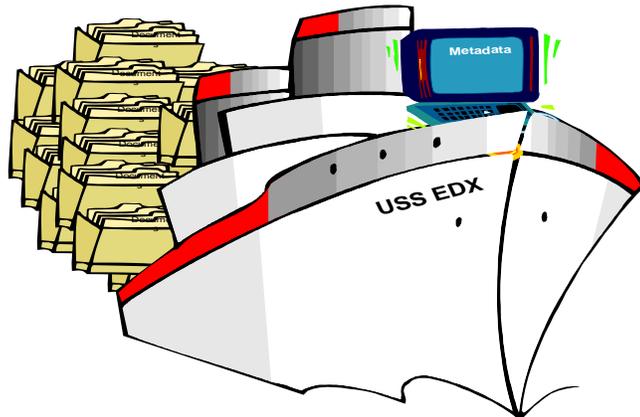
The EDX 3.0 Standard allows for subscribers to map their document management solution to the Data Dictionary once for sending and receiving. The Data Dictionary then serves to normalize the metadata description whereby consumers of the EDX Package use the same Data Dictionary term to process document regardless of their document management system configuration, "Map Once, Move Many".

The **NEW EDX 3.1 Standard** has introduced a unique "Document Identification" alpha-numeric naming convention. This Doc ID travels with the metadata which allows for meaningful status at the documents level. Trading partners can now exchange messages referencing the Doc ID and standardized status or expanded information.

PaperClip Incorporated hosts for its community of subscribers the Data Dictionary for several industries. PaperClip participates with several Industry Standards Committees and follows their guidance on defining and maintaining Terms and Term Values as they adopt. PaperClip supports NAILBA and ACORD in the Insurance industry and MISMO in the Banking / Mortgage industry.

EDX defines the primary document image file as Group 4 TIFF compressed and the vessel as an ASCII comma / double quote delimited file, however EDX is object independent. Being object independent allows for the EDX package to carry any file type (i.e., Tiff, PDF, DOC, XML, URL, Jpeg, etc.).

EDX compliant systems can do simple routing to complex workflow processes. EDX compliant systems can exchange information between and among dissimilar Integrated Document Management Systems (IDM), Front End Capture Systems, Computer Output to Laser Disc (COLD) Systems and Electronic Forms.



The EDX 3.1 Standard

The complete standard can be found and downloaded from www.paperclip.com.

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PaperClip Internet eXpress

PaperClip Internet eXpress (IX) is an Internet based “Straight Through Processing” electronic document package delivery service. Utilizing the public standard **Electronic Document eXchange Version 3.1** for packaging electronic documents, any EDX V2.0 or EDX V3.0 compliant system (or use of the optional EDX Translator) can connect to the IX service seamlessly. IX is designed to transport electronic document packages across the IX global network providing security and tracking.

The Internet eXpress Service is a unique *Store & Forward – Connectionless Secure Sockets Layer Network* designed to manage the transport of EDX Packages. Taking the basic features of a “Store & Forward” communications system and integrating it with the Internet affords tremendous capabilities. The “Store & Forward” model provides a central location for customers to place data for automatic delivery to the recipient.



The IX Central Office (IXCO) provides “Store & Forward” features, traffic management, authentication and tracking capabilities. Access to the IXCO is via the eX4 Package Processor which manages the secure exchange of EDX Packages. The eX4 Package Translation System (PTS) bridges the customer’s standard or current format into an EDX Package standard for inbound and outbound traffic. Large volume customers with dedicated Internet connections can receive packages continuously without connecting to the IXCO except for management.

PaperClip through the IXCO manages the automatic Data Dictionary synchronization. This ensures that all subscribers have the latest Terms and Term Values when communicating.

PaperClip’s Central Office serves as the host for all eX4 Client Software secure connection and only eX4 Client Software has access to confidential package contents.

PaperClip’s eX4 Client Software is “Firewall Friendly” and capable of navigating Network Address Translation, this mean compliance with your established Internet Security Policy.

Internet eXpress offers a suite of communications options depending on your needs:

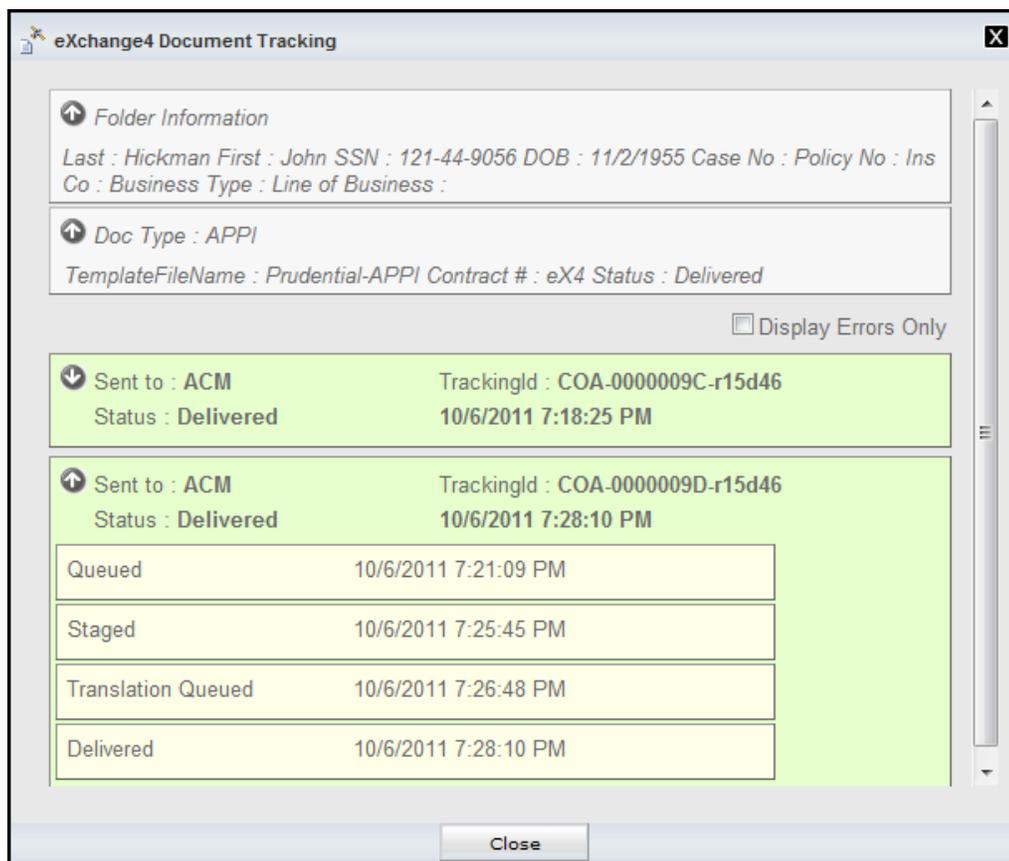
- Secures eXchange** - dissimilar workflows send and receive electronic documents.
- Secure Email** – Email used for command & control delivering EDX Packages of any size viewable with the free EDX Package Viewer.
- Secure Fax** – EDX Packages processed to fax receivers from IXCO.
- Secure Hosting** – EDX Package contents presented for browser access.
- The Capture Place** – browser app designed to create EDX Packages

Major benefits of Internet eXpress are its ability to move large amounts of data efficiently, securely and cost effectively over the Public Internet. Connectivity can range from a single user to the most robust production workflow solution. Companies can now consolidate their electronic documents and electronic data interchange (EDI) into one Internet value added service.

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PaperClip Internet eXpress provides its users with a central office tracking portal whereby they can follow the progress of their EDX Packages sent to receivers. Subscribers are provided a secure login where they can manage, query and report on their IX Traffic. In 2012, PaperClip enhanced the central office portal to support the new EDX 3.1 Standard and deliver EDX Package & Document tracking to the user's desktop. Leveraging the unique Document ID, the IX network reports back to the sender's IDM solution real time status of the document. PaperClip32 v5.10 desktop and VCF v2.1 browser solutions support real time tracking and history. Third party solutions can interface with IX tracking via the Package Translator or the IECO Web Service.

IX Subscribers can also reference the unique Document ID and post Extended Status. The ability to push information back to the sender on the process progress can eliminate inquiries and allow more efficient communications.



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Business Case Study

Life Insurance, an Internet Express success

A segment of the Life Insurance industry wanted to develop a trading partner network designed to eliminate paper. Several Companies had already invested in high volume production imaging / workflow systems and as a result, had created *islands of information*. The obvious solution was to *bridge* their respective systems so they could exchange electronic documents.

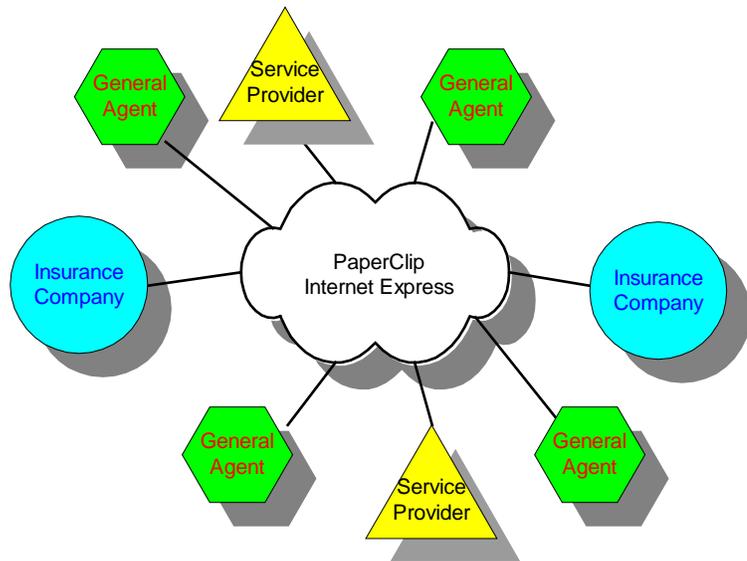
Many vendors of IDM could provide Internet Browser accesses to their systems, but this was not enough. To complete the transaction, the Companies had to exchange documents. Internet Email was ruled out because of its reputation for being unsecured, unreliable and unmanageable. Diversity in need, open growth and an established base ruled out the single vendor option. The only model was one that *selectively replicates* digital objects with an open standard indexing scheme providing STP across the Internet.

PaperClip Internet eXpress was chosen because it used an open standard called EDX V3.1 and took advantage of the public Internet. The EDX V3.1 standard defines a vessel (ASCII comma - double quote / XML) in which trading partners could agree on content schemes needed for indexing and workflow automation.

The eX4 Package Translation System (PTS) provided a means to reformat metadata (indexing) from the EDX standard to the targeted system's proprietary format. Some users developed EDX compliant interfaces and other selected "off the shelf" EDX compliant PaperClip32 IDM.

Life insurance applications, medical information and servicing documents are now scanned and indexed at the Agency. The Agency then transmits an EDX Package via Internet eXpress to the appropriate Company for processing. Receiving companies' process the EDX Package into their respective IDM and workflow systems bypassing the mailroom, file room, copy room, scanning center and data entry services. The IX process has replaced an average paper based process of 5 days with hours.

The end result is a paperless trading network that leverages IDM investments, enables legacy systems, utilizes current technology, provides for economical deployment and increases productivity. PaperClip Internet eXpress delivered the economy of scale, time compression and met the economics originally desired.



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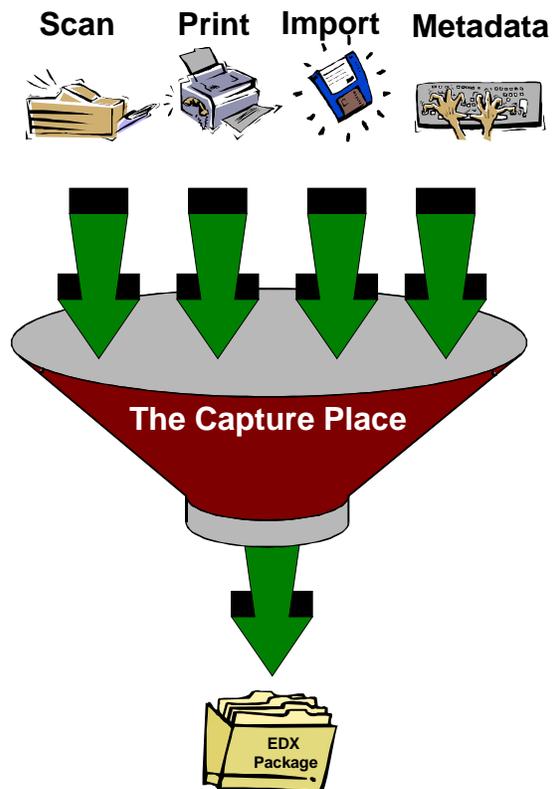
The Capture Place

PaperClip's The Capture Place (TCP) is a browser application design to capture electronic documents, describe them with metadata and release an EDX package to the intended receiver.

TCP provides the tools for collecting scanned images, documents printed to the TCP print driver, file import (Drag & Drop), keyed Metadata. This data can be transformed, packaged and transported to the recipient for further processing as an EDX V3.1 Package. TCP can leverage electronic attributes of documents for a **No Programming** web based capture solution.

The Capture Place provides a unique solution for users to automatic electronic document / EDI capture. TCP features include:

- **TCP Print Driver**
Capture any Windows print output to the TCP Print Driver and create Group IV compressed TIFF images automatically. Print images are automatically inserted into TCP Packager.
- **TWAIN Scan support**
Scan images directly into the capture control for Group IV compressed TIFF image.
- **File Import support**
Import Faxes, E-Mail, reports, word processing, spreadsheets, Adobe PDF files, XML Forms and other electronic documents into the TCP Packager.
- **Capture Metadata**
Index documents for IDM / workflow processing remotely. Enter EDI information for application processing.
- **Output EDX V3.1**
Open standards packages. Exchange EDX Packages with any EDX Compliant solution for unattended processing. TCP can seamlessly interface with PaperClip IX or independent transport for STP processing.



PaperClip TCP is a commodity based solution designed for all types of data acquisition resulting in an EDX Package. This package can be transported via any user means. The EDX package can be Emailed, FTP, CD-ROM, and exchanged via PaperClip Internet eXpress solutions and or stored for convenience. Recipients can open the EDX package with the *FREE EDX Package Viewer* downloaded from PaperClip's Web site or others.

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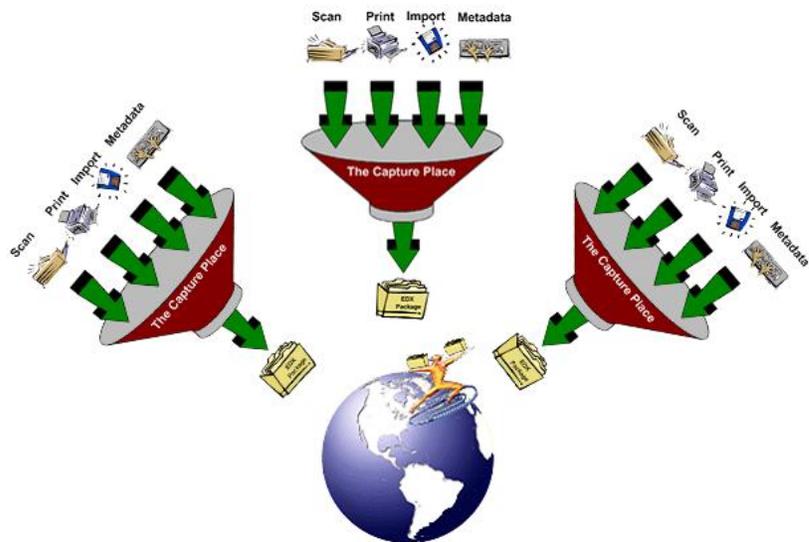
Business Case Study

Mortgage Industry Application

A very large mortgage lender desired to improve their foreclosure department's processing workflow. They currently manage many standalone fax machines as well as a network fax server. This document capture solution supports over 5,000 business partners and customers. Customer service representatives would print the faxes and work with a paper-based workflow. When the file was closed, the documents would be archived in a very large Integrated Document Management solution. The customer desiring to leverage their IDM automated workflow found scanning and manual indexing on the front end costly and ineffective. Ineffective because the paper always found it's way to the desktop. Quality of documents (faxes) was the major reason for CSR's to keep and work with the paper.

The lender wanted a "Straight Through Process" solution capable of collecting native document formats to enhance the quality of their documentation and leverage their automated workflow.

PaperClip TCP provides the solution. The lender provided access to TCP for its business partners and customers to capture documents and process EDX packages over the Internet back to the lender. The user would scan signed documents, print reports, import color photos and enter EDI information. The EDX package is then pushed to the lender via Secure eXchange to the Lender's eX4 Client and processed into their IDM automated workflow solution.



With the TCP solution the lender now receives from 5,000 points EDX Packages which process straight into their IDM solution letting it's automated workflow take control. The users now retrieve electronic documents from their IDM solution in their original format improving quality and time to process.

Conclusion

PaperClip Software's "Straight Through Processing" suite of products can work together in concert or be used as components in E-Commerce solutions. TCP focus on data and object capture combined with PaperClip's Internet eXpress services and products allow for business processes to bypass the mail room, copy room, file room, scanning and indexing center. These STP solutions integrated with PaperClip32, Workflow and PaperClip's WebServer products provide complete BackOffice processing and Web browser retrieval of documents and information.