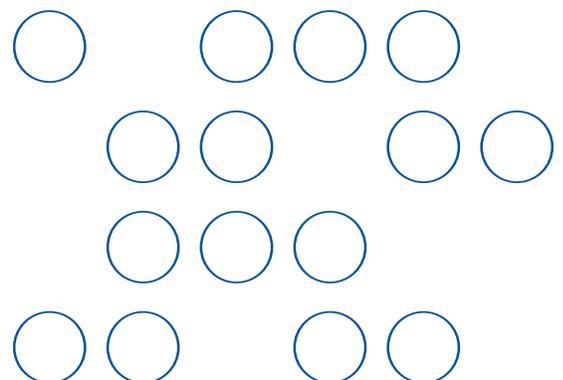# The Electronic Vault Advantage

Keep Your Document Storage Approach Aligned with Enterprise Needs

Way of the Fiche

Most companies generate thousands upon thousands of documents. Every day, data-driven print streams are turned into statements, invoices, policies, notifications, and hundreds of other business-critical documents. Most of these documents are delivered in paper form, and for decades companies have searched for more effective ways to store them.

> *Those who cannot learn from history are doomed to repeat it.*
> *– George Santayana, philosopher*

Twenty years ago, microfiche served as the industry standard. Compact, with far smaller storage costs than paper documents, companies could convert 98 document pages into one fiche, reducing storage to 0.25% of the original material.

While microfiche served as a quick, efficient way to store documents back then, it could not stand the test of time. New technologies that soon came to market made microfiche obsolete. And while everyone in business (and especially IT) recognizes that progress is inevitable, converting outdated microfiche to today's preferred formats proved problematic for many companies. The poor quality, inflexibility, and processing limitations of microfiche rendered many documents unusable given today's standards.

Unfortunately, many companies are walking down a similar path – relying on PDF for long-term document storage. Fact is, while PDF may have become the de-facto standard for electronic documents in the consumer world, companies that rely on this technology to manage regulatory compliance, business continuity, and customer satisfaction are facing a distinct disadvantage.

Today, a growing number of companies are choosing to store their documents using electronic vaults – high-speed repositories that maintain print streams in their native format. This Pitney Bowes Group 1 Software white paper examines the differences between these two options, and the six advantages inherent to electronic vaults.

Factors to Consider When Choosing a Method of Document Storage

Companies are facing exponential growth in the amount and types of documents that require storage. What was once an IT issue has now grown into a challenge for entire organizations.

Compliance with regulations such as Sarbanes-Oxley and the Health Insurance Portability and Accountability Act (HIPAA) has added to the exposures associated with legal proceedings. Those who fail to maintain and control records may be subject to criminal penalties, financial loss, and negative publicity. And on a more day-to-day basis, inadequate document retrieval increases the cost of customer care – and can lead to customer dissatisfaction.

As such, decisions related to choosing a method of document storage must consider factors such as expense management, customer service, and compliance risk across multiple variables, including:

> Document accuracy

> Document quality

> Flexibility

> Speed

> Accessibility

> Long-term viability

In each case, you will see that electronic vaults offer significant advantages over PDF.

1. Document Accuracy

With a PDF, what you see is not always what you get. PDF files may be different from the original document, particularly when it comes to applied colors and fonts.

This problem is compounded when you take into consideration the effects of language translation. While you can, for example, translate a Spanish document into English, even subtle variations can change the meaning. And each level of translation or transformation introduces more errors that can never be undone.

> *The quick brown fox jumps over the lazy dog.*
>
> Translated into Spanish by Babelfish:
> *El zorro marrón rápido salta sobre el perro perezoso.*
>
> Translated back into English:
> *The fast brown fox jumps on the sluggish dog.*

Electronic vaults, on the other hand, store documents in their original format. The technology offers native support for all major APA streams and output formats as well as common data formats like XML. In essence, you will be storing the same print streams used to generate the original document – with no alterations or chance for errors. This is important, as many documents archived for regulatory compliance must remain unchanged.

2. Document Quality

Although the cost of disk storage has been declining continually, the demand for storage is ever increasing. And with inefficiencies in storage management creeping into many data centers[1], the tradeoffs between file size and document quality associated with PDFs are even more critical.

Adobe Acrobat includes 14 base fonts that are built into every PDF. It is unlikely, however, that these fonts will match the fonts used in your document production files. You can embed your

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[1] "Storage Management Disciplines are Declining," Computer Economics (June 2006).

AT A GLANCE

PDF stands for Portable Document Format. A proprietary format of Adobe Systems Incorporated, PDF was created in the early 1990s as a new platform-independent file format to facilitate the exchange and view electronic documents.[2] Adobe's strategy to offer PDF readers at no cost has enabled this to expand quickly in the market.

Electronic Vaults, which do not involve proprietary formats, are high-speed data repositories that store documents in their native format. Industry-leading solutions provide users with high-speed search, retrieval, and display functionality through virtually any interface or application (including PDF).

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[2] "PDF Primer," PDF Tools AG (October 2005).

production fonts into the document, increasing the size of every file substantially. Or, you can substitute the base fonts, which diminishes document quality. Neither choice is optimal.

Images take up even more space, which may tempt you to reduce the image resolution of your PDFs in order to reduce file size. But once the quality is lost, you can never regain the crisp high-resolution presentation of the original document. As many companies saw with microfiche conversion, compromises on accuracy or quality that seem acceptable in the present are not always acceptable in the future.

When print streams are ingested into an electronic vault they are compressed – reducing the required storage space substantially. The difference, however, is that you can subsequently decompress these files – restoring documents to their original high-resolution quality.

3. Flexibility

There are many tools that allow you to manipulate PDFs, but anyone who has tried to convert a PDF is well aware of the limitations. PDF does not recognize paragraphs, formats, headers, footers, indentations, broken words, or line breaks – making it nearly impossible to transform back to the original AFP.

Comparing PDF files is also challenging due to the text being stored in fragments on a page, and not sequentially or as part of a sentence or paragraph.[3]

Electronic vaults, on the other hand, support multiple print and file formats. Shared repositories provide access to both documents and data sources to support any type of analysis, web presentment, customer care, or self-service application you may wish to deploy.

In essence, electronic vaults offer you the same flexibility to enhance, modify, combine, and engineer print streams that you enjoy even before the original document is produced. You can even integrate a vault with business systems, including accounting, billing, customer care, or web applications.

4. Speed

Many applications exist that make it easy to convert print streams into a PDF for each customer document. The problem is that transformation is slow – and needs to take place during data ingestion. While your system is transforming your documents into PDF, the CPU will be heavily utilized making it less responsive for users. Interestingly enough, for many companies the vast majority of documents that are converted will never need to be viewed.

On the other hand, documents can be loaded into an electronic vault quickly with no disruption to operations, so CSRs and customers can access documents sooner, often within hours of a production run. The technology supports multiple presentment formats and local printing options including HTML, GIF, XML/XSLT, and PDF – with documents converted in real-time, on an as-needed basis.

5. Access

Your ability to archive and access documents quickly and efficiently is critical.

Small businesses can easily set up a relational database management system to index their PDF files. For mid- and large-sized companies, however, archiving a separate file for each customer document can quickly add up to millions of files on your server's file system. Performance will degrade over time for both

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[3] "PDF Primer," PDF Tools AG (October 2005).

ingestion and searching as the index grows – not to mention the difficulty backing up these records.

When larger customer documents are involved, this approach often leaves you with no way to access individual pages. Users may need to download an entire PDF before viewing, slowing response even more.

Electronic vaults experience no performance degradation as the repository grows. The more efficient ingestion process creates a much more scalable solution.

1. Compress Print Stream File
   > Linear read from the input file, linear read to the output file
   > Benefit: **high-speed compression**

2. Compress Document Information
   > Identifies the exact location of any page required in a document
   > Benefit: **high-speed page access**

3. Build the Document Index
   > Inserts pointers to each document within the index
   > Benefit: **high-speed document access**

4. Update the Customer Index
   > Only creates an update if the customer profile is new
   > Benefit: **high-speed customer access**

The end result: users can retrieve the exact page they want quicker – no matter how old, no matter how many pages in that print stream, no matter how many pages in the customer document.

6. Long-Term Viability

When it comes to storing your mission-critical documents, the approach you select must be able to maintain documents for long time periods. Many document retention requirements are stated in decades, so the archive must be able to repurpose the archived document from one type of media to another. And ideally it should do this automatically as the media reaches the end of its useful life.[4]

PDF may seem like a popular, easy-to-manage solution for document storage. But like the microfiche – which was the industry standard just twenty years ago – the inflexibility, accuracy, and quality issues associated with any PDF conversion could expose a company to regulatory penalties and legal action.

Updates to Adobe Acrobat are coming out more rapidly, and new versions may be incompatible with older versions. And as mentioned earlier, PDF is still the intellectual property of Adobe, so only Adobe writes the specifications and decides when new releases and new functions are going to be added.[5]

Fact is, no one knows what applications will be used 20 years from now to access this information, which means saving documents in their native format may be the only way companies can guarantee future access.

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[4] "Database Archiving for Long-Term Data Retention," IT Compliance Magazine (2006).

[5] "PDF Primer," PDF Tools AG (October 2005).

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e2™ Vault in Action

Across America and around the world, companies are realizing the many advantages of e2 Vault.

Grameenphone, a telecommunications firm serving over 10 million customers in Bangladesh, now enjoys fast access to 2 years of exact replica documents using e2 Vault. The time it takes for CSRs to fetch line item details has been reduced from 20 seconds to under 3 seconds.

Charlotte County Utilities now stores native print stream files and converts them to a variety of viewable formats using e2 Vault. In addition to realizing a 20% reduction in costs every time a customer called in with a question about a bill, the time it takes to provide a customer with a copy of a bill has been cut in half.

Endsleigh Insurance loads over 2.5 million pages per hour and handles 1,000 concurrent look-ups and retrievals per minute with e2 Vault. The company can now store 2 million impressions on 1GB, enabling them to archive 7 years of documents on a single server.

e2™ Vault – A Better Approach for Your Document Storage Needs

Group 1 Software customers can search, retrieve, and display customer documents instantly using e2 Vault. This high-speed, high-volume, high-performing repository allows you to provide ubiquitous access to critical communications – through virtually any interface or application.

With this electronic vault solution, CSRs, auditors, administrators, and brokers can view years of stored data, including statements, policies and correspondence, saving significant time and money. Real-time indexing, compression, storage, and direct data-retrieval make it possible for you to integrate the most advanced document archive and retrieval solutions directly into your call center, partner networks, or customer website quickly, usually in a matter of weeks.
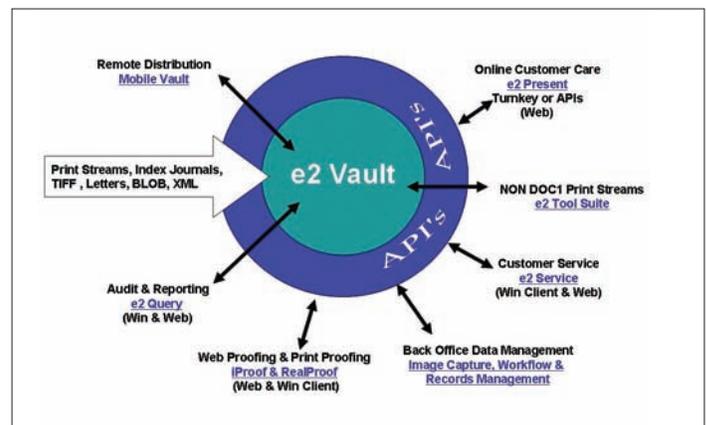
e2 Vault is here to stay with high-speed search, retrieval, and display functionality through virtually any interface or application.

e2™ Vault – A Superior Electronic Vault

While electronic vaults offer many advantages over PDF storage, the Group 1 Software solution offers additional benefits that can improve your performance.

Index Architecture - B-Tree Database Structure
The B-tree structure keeps data sorted and allows insertions and deletions in logarithmic amortized time.

e2 Rendering Engine
This engine provides a fully open integration with the corporate web server for Intranet and/or Internet applications:

> Java, COM DLL, Perl, PHP, modPerl, Apache, etc.

> Full customization and seamless integration into corporate web environment for personalized look and feel

> Custom integration with presentment and payment options

> No software or plug-ins required

Customer-Centric View
Many vaults are document centric. But with one large table listing all documents, you must search different fields, making it difficult to obtain a complete customer view. e2 Vault allows you to first search to find the correct customer, then browse the entire document list for that customer.

e2 Mobile Vault
This tool lets you create a fully indexed and searchable subset of the e2 Vault to suit customer, broker, or agent needs. This subset can then be used to create a CD, DVD, or FTP delivered image, complete with integrated searching and viewing for distribution purposes.

Overall, e2 Vault rates high as a method of document storage when measured on factors including expense management, customer service, and compliance risk – with distinct advantages over PDF on multiple variables including document accuracy, document quality, flexibility, speed, accessibility, and long-term viability.

In addition to e2 Vault, Group 1 Software offers a suite of e2 solutions, a modular platform that facilitates internal customer support and external customer self-service by integrating e-presentment, e-payment, archiving, online account management, and e-service technologies. To learn more, contact Group 1 at 1-888-413-6763 or visit www.g1.com.

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About Group 1 Software

More than 3,500 organizations depend on Group 1 Software to help them make better decisions, revolutionized work processes, and enhance productivity and profits. We've helped organization in banking and financial services, government, insurance, telecommunications, utilities and other industries worldwide to maximize the value of customer data and improve the effectiveness and efficiency of customer communications.

Our solutions consolidate, cleanse and enrich corporate information, locate data to specific geographies, and generate personalized business documents for customer care and efficient delivery, processing and archiving. Group 1 Software is part of Pitney Bowes, provider of the world's most comprehensive suite of Mailstream software, hardware, services and solutions to help companies manage their flow of mail, documents and packages to improve communication.

Information is power. Group 1 helps deliver better information – the key to success in a more competitive world.

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Group 1 Software
4200 Parliament Place • Suite 600
Lanham, MD 20706-1844
1-888-413-6763

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