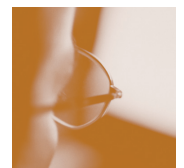


ASG-Cypress™: Managing and Delivering Knowledge from Disparate Applications and Platforms

A White Paper



Managing and Delivering Knowledge from Disparate Applications and Platforms

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We manage the technology that lets you manage your business.

Introduction

Knowledge is collected in the form of a wide variety of documents, and these are perhaps the most valuable assets of most businesses. However, the challenges of managing and delivering documents across an enterprise are becoming increasingly more difficult. Documents and the knowledge they contain are typically bound to the software application, computing platform, or IT environment in which they were created. To complicate matters, as businesses implement new, dissimilar technologies, the problems of inconsistency increase, resulting in isolation. Thus, businesses and employees cannot easily find, deliver, assemble, or use knowledge to support business processes across the enterprise.

Ideally, the knowledge generated by all employees, customers, and partners across an enterprise should be automatically archived and indexed, regardless of the application or platform that created the document. Businesses also require the capabilities of searching the entire corporate knowledge base with a single command and retrieving only the page or pages of interest.

A variety of knowledge management products are currently available, but they fail to resolve the urgent issue of technological disparity. These conventional solutions provide short-term fixes that work only within the limitations of the certain technologies, leaving many problems unaddressed. To solve problems associated with isolation, vendors must take a new approach to managing and delivering knowledge across all enterprise systems and applications.

This white paper outlines why conventional approaches to managing and delivering knowledge have become inadequate. It also details how ASG's new approach eliminates the problems and limitations imposed by technological disparity, enabling businesses to easily find, deliver, assemble, and use knowledge to support business processes across the enterprise.

Knowledge and Knowledge Management

First, it is important to understand how the terms “knowledge” and “knowledge management” are used in this white paper. These terms mean different things to different people, and IT vendors define these terms in relation to their products' features and capabilities, including data mining, document management, and others.

To avoid confusion, the term “knowledge,” as used within this white paper, refers to relevant information contained within a document that is required for decision-making or to support business processes. “Knowledge management,” therefore, refers to the ability to store, extract, and deliver knowledge so that it can be retrieved and used to help make decisions or to support business processes. Broader definitions may appropriately include a variety of communication vehicles beyond documents. However, this white paper assumes that documents, whether electronic or hardcopy, have and will continue to be a primary vehicle for communicating and delivering knowledge across the enterprise.

Conventional Approaches to Making Knowledge Available

The two IT environments found in most businesses today are desktop and application/legacy environments. Through the years, each of these environments has generally evolved independently of the other. The result is that each environment employs very different information technologies, including computing platforms, operating systems, applications, printing devices, and so on. Therefore, the methods for creating, storing, and delivering knowledge are quite different for each environment. This section discusses current approaches for managing and delivering knowledge for each environment, along with their associated challenges and shortcomings.

Managing and Delivering Knowledge in the Desktop Environment

As businesses grow, so do their desktop environments: for instance, business add more PCs, more software applications, and more desktop and workgroup laser printers. This translates into more documents and the greater need to manage the knowledge they contain.

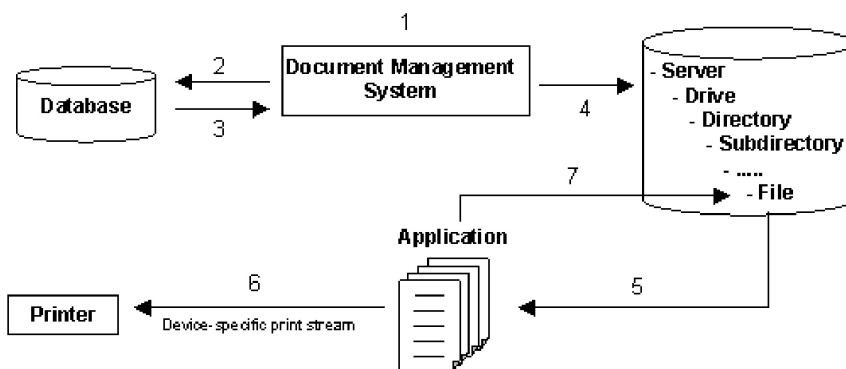
Traditionally, the task of managing knowledge within the desktop environment has been limited to storing documents on servers, local drives, and removable media. Searching and retrieving information of interest requires users to sift through these media folder-by-folder and file-by-file. Compounding the problem are non-descriptive naming conventions that do little to convey the contents of the file.

In terms of productivity, this time-consuming, trial-and-error approach to knowledge retrieval is quite inadequate. Not only must users know the name of the file that contains the desired information, they must also know its directory path. Given the number of servers and hard drives in a business, it is unreasonable to expect users to immediately know where desired information is located, let alone the name of the file in which it is located.

To alleviate the limitations inherent in desktop operating systems, a variety of products have surfaced during the past several years, mostly in the realm of document management. However, these products generally provide document-tracking capabilities for “live documents” (source application files such as .doc, .xls, etc.) and work within the constraints of conventional file systems. The graphic below depicts the process for retrieving, opening, and printing a file using a conventional document management system. As outlined earlier, document management is not “knowledge management.”

Retrieving, Opening, and Printing a File with Conventional Document Management Systems

This graphic illustrates a solution that is based on tracking documents using pointers. For simplicity, imaging, workflow, and other related solutions are not depicted.



1. The user requests information.
2. The document management system accesses the database to retrieve the pointer to the file.
3. The appropriate pointer information is delivered to the document management system.
4. The file is retrieved.
5. The source application (for example, Word, Excel, ERP, etc.) is activated for viewing, editing, or printing.
6. A device-specific print file is sent to the printer for printing.
7. The file is returned to disk for storage.

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While the graphic above shows that data and files may be tracked and stored by using a conventional document management solution, it demonstrates that little has been done to improve knowledge management and delivery. To better illustrate the point, the following are examples of everyday problems that still occur after a conventional document or knowledge management product has been installed in the desktop environment.

- **Document Content Search** – Search and retrieval systems in the desktop environment are inadequate for searching the content of a document for relevance. To extract knowledge from a document, users must know the server, directory, subdirectory, and file name to locate a document that may have relevant information. This is a very limited and time-consuming search.
- **Corporate-Wide Document Management** – Many document management solutions in the desktop environment do not encompass documents created outside that environment (for example, UNIX® systems, and mainframes). Even within the desktop environment, some accounting and statistical packages create only ASCII reports or print files, which are not stored or tracked by the document management solution. The ability to retrieve any associated document regardless of platform or environment is a requirement for many businesses.
- **Finding Relevant Information** – When users retrieve information using conventional systems, they are presented with an entire document, not specific pages within the document. Unfortunately, users typically need only one or two specific pages. If the retrieved “document” is actually a batch print file, it may take the user several minutes to sift through hundreds of unnecessary pages in hope of locating pages of interest. If relevant information is found, it may be altered from its original form and be represented as a “greenbar” report.
- **Application-Dependent Files** – Many document management products can retrieve a document, but they are dependent upon the original authoring program to enable viewing, printing, or manipulation. If the original authoring program is not installed on the PC, the document is useless. If the authoring program is not installed anywhere, the document is essentially lost.
- **Document Modification** – With conventional desktop file systems, there is no guarantee that a document has not been modified. As long as an authoring package is required to print or view a document, someone can modify the document.
- **Printing Irregularities** – The appearance of a printed or viewed document may differ dramatically from its original design simply due to device drivers and PDL differences.
- **Difficulty in Delivering Information** – The ability to deliver knowledge quickly and easily across an enterprise is often unaddressed by conventional solutions. If knowledge is difficult for a user to disperse, it is likely that the user will not disperse it. A related challenge is locating and configuring printer devices for each recipient so they can receive the information they require.

A true knowledge management and delivery solution for the desktop environment would not only enable end-users to search and retrieve documents based on the content of the document, but it would also return only relevant pages of information. Delivery and distribution of knowledge should be facilitated across destinations corporate-wide, enabling users to send knowledge as needed.

Managing and Delivering Knowledge in the Legacy/Application Environment

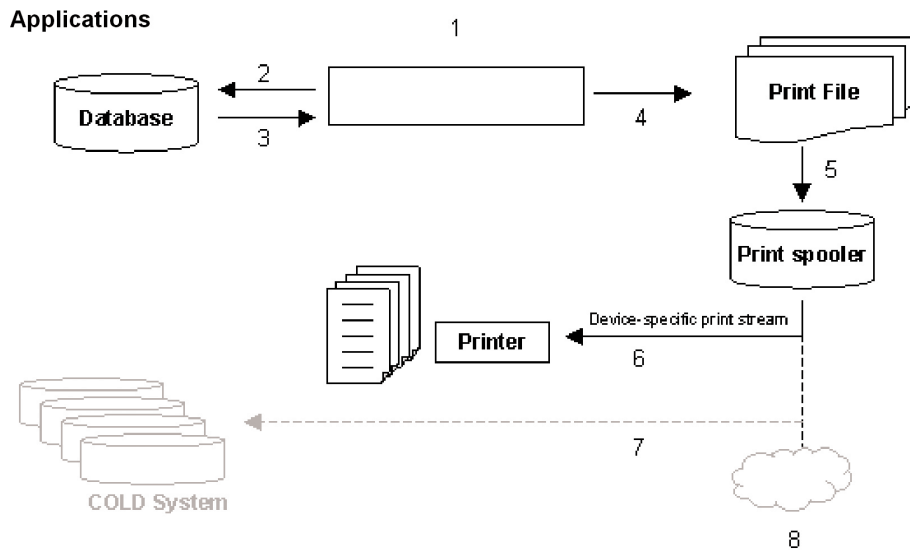
Most businesses rely on a variety of software applications to support critical business processes. These applications tend to be specialized for individual business processes and usually run on Windows® servers, UNIX-based systems, and mainframes. For the purpose of this white paper, this environment is referred to as the application/legacy environment.

Applications by SAP®, PeopleSoft®, J.D. Edwards®, and others generate the knowledge used to run critical business processes. However, the documents in which this knowledge is contained are far different than

those created by desktop applications. Desktop documents tend to be authored by individuals; contain formatting instructions, fonts, and graphics; and are routinely saved to disk or some other media. Documents in the legacy/application environment are generally dynamically created and are composed of records extracted from a database. Legacy/application environment documents are either formatted using blank spaces to align text as columns and rows, or they utilize actual printer description language (PDL) commands such as HP PCL®.

Creating and Storing Documents in the Legacy/Application Environment

To better illustrate how documents are created and stored in the legacy/application environment, please refer to the graphic below:



1. The user runs a report application or requests printing of a report.
2. The application requests data from the database.
3. The database collects the information and sends it back to the application.
4. The application generates a print (or output) file. The print file may be composed of minimally formatted data (aligned by row/column), or it may contain PDL commands to enhance formatting.
5. The print file is sent to the spooling system (e.g., JES).
6. The reports are printed.
7. Optionally, the print file may be delivered to a COLD (computer output to laser disk) system for archiving, or it may be left on the system for a period of time.
8. If no archiving system is in place, the print file and all its documents may be lost. To reproduce those documents, it may be necessary to rerun the print application (presuming the original data file has been saved).

There are a variety of concerns related to knowledge management in this environment. For example, files generally have even less interoperability than in the desktop environment, and they often require separate, isolated storage solutions for each platform. Also, dynamically generated documents are only “saved” if the print file is written to media. In order to reprint or access the knowledge stored in a specific document, the business must take special steps to ensure that they maintain some form of the document, whether it is an

application data backup tape, print file tape, COLD, etc. Even with systems such as COLD storage, there are still many issues that hinder knowledge management and delivery. For example, the following problems still exist after implementing a conventional document or knowledge management product in the application/legacy environment:

- **Multiple Knowledge Repositories** – Knowledge generated in the application/legacy environment is typically stored in a completely different format than that found in desktop systems. Not only are documents stored in different systems, but they are also stored in different languages. What happens when a user needs documents from both environments in order to resolve a problem or make a business decision? How many systems will they need to access?
- **“Saved” Documents** – If users want to reprint a report, and the print file was not written to an archiving system, users may have to rerun the report application (assuming that the data is still available). If the data is not available, the knowledge contained within that print run may be lost forever.
- **COLD Storage** – Although COLD systems enable business to store documents and print files, the method by which they are stored and retrieved may be insufficient for a company’s requirements. Users must generally decide between storing unformatted data (losing all document formatting, fonts, graphics, etc.), storing an image of the data, such as a TIFF file (which is not practical due to large file sizes), or storing both an image with ASCII data (which has many flaws). For example, COLD systems generally store either the text within the document or an image of the document (for example, a TIFF file). Storing “text-only” files results in the loss of forms, fonts, and other formatting elements. While some formatting requirements may be defined at the time of regeneration, most users will not know the original formatting elements used to generate the document. Thus, the regenerated document will not likely resemble the original, and it may even appear similar to an old-style “greenbar” report. Additionally, COLD systems are specific to this environment and are not designed to encompass documents and reports created in the desktop environment.
- **Knowledge Bound by Specific Destination Devices** – In many cases, an application will generate a device-specific print file. In the case of production applications, print files are often specific to unique devices, such as Xerox printers (LCDS/metacode data streams) or AFP printers (IPDS data streams). Once a device-specific file is created, the knowledge within the file may be extremely difficult or impossible to distribute as needed.
- **Retrieving and Reprinting Documents** – In the application/legacy environment, reprinting or retrieving documents is often the responsibility of the IS department. Reprinting previously printed documents can be extremely time-consuming, because it usually takes time to associate the user’s request with a specific application, refine the request to a specific date that the application was run, and then print only the portion of the application the user requires. This approach results in excessive delays in retrieving information, without the certainty that the information retrieved is what the user really wants.

An ideal knowledge management and delivery solution for the application/legacy environment would enable print files from any platform to be automatically archived and indexed so that any document could be retrieved by an end-user, without the need to submit requests to the IS department. Further, documents would appear with 100% fidelity.

A Knowledge Management and Delivery System for All Environments

To develop a product that eliminates the problems outlined in this white paper, vendors must step back from conventional approaches and architect a new solution that can work for all environments. Otherwise, businesses will never be able to resolve the environment- and platform-specific issues that prevent them from managing and delivering knowledge as desired.

To provide business with an ideal solution, it was necessary to identify a common denominator for all systems and applications that generate knowledge in an enterprise – a common thread that could bring all the disparate technology together. That common thread was printing. The ability to print (or generate and deliver an output file) is common to virtually every platform, operating system, and application in use today. By focusing on the output, it is possible to offer a single solution that can capture all corporate knowledge from any platform or application, and yet do so without changing or modifying the way knowledge is created.

ASG-Cypress™ is a modular, integrated document assembly and delivery system that “captures” documents and prints files from any enterprise source, regardless of platform or application. Instead of capturing the source file (for example, a .doc or .xls file), or only ASCII text or an image of the print file (similar to COLD), ASG-Cypress captures commands needed to reproduce the document with 100% fidelity. This is the most efficient and effective approach from the standpoints of storage, performance, and fidelity.

Captured documents are automatically archived as individual pages in a common, generic format. As documents are archived, they are automatically indexed, page-by-page. The result is a repository that contains all knowledge generated by a business, stored as individual pages that are not specific to any platform, application, device, or destination. This page-independence is the key to eliminating technological disparity – documents and individual pages can be searched, retrieved, assembled, and delivered however desired.

These capabilities provide numerous benefits, including the following:

- Documents and reports can be sent to the archive for either long- or short-term storage. They are then available so users can retrieve them as necessary.
- Output from report applications can be sent to the archive. Yet, only specific, relevant pages can be assembled and delivered to a recipient's preferred output destination (for example, viewing or printing).
- Documents can be printed from any platform or application to any device in the enterprise with the assurance that they will be reproduced with 100% fidelity.

With a modular, integrated solution such as ASG-Cypress, the problems addressed in this white paper disappear. Users can focus solely on their tasks and objectives and forget about the nuances of individual information technologies.

Summary

For many businesses, managing and delivering the knowledge contained within documents is difficult or impossible due to technological disparity. Conventional approaches to knowledge management work within the constraints of disparate platforms, applications, and output devices, and fail to address technological disparity. Using a new approach, ASG-Cypress is able to eliminate the barriers that prevent businesses from reaching an ideal state of knowledge management and delivery.

ASG-Cypress is the single-solution product that creates a unified document and knowledge resource for an entire enterprise. ASG-Cypress creates a common architecture that allows information to flow among disparate information technologies, just as if they were designed to work together. This unique capability gives users and business processes free and simple access to information as needed, without the limitations imposed by multiple platforms, operating systems, file systems, applications, and devices.

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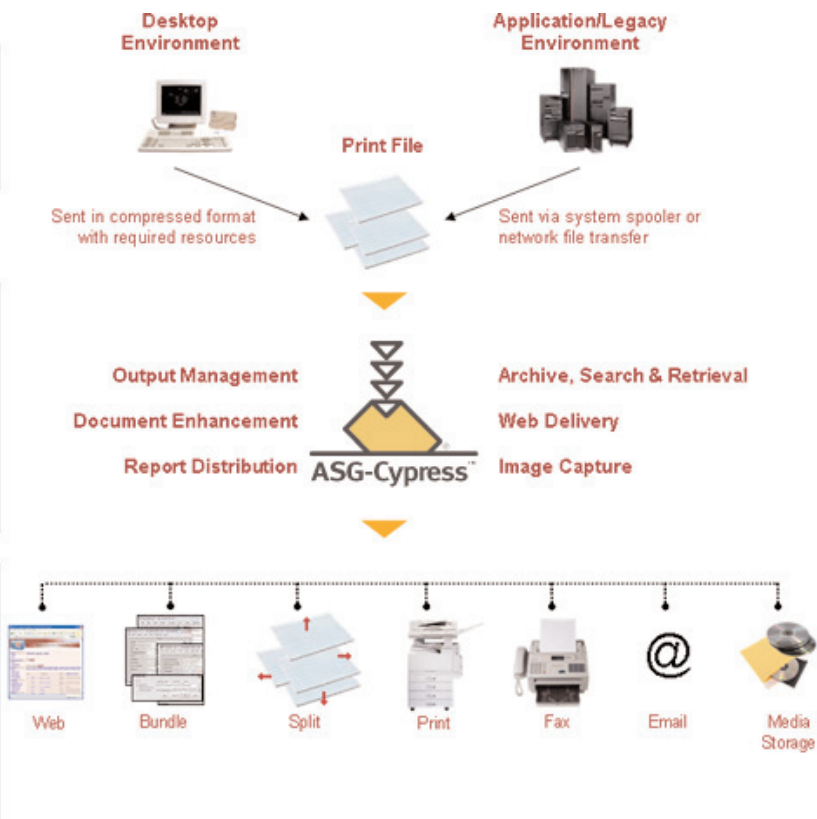
1. ASG-Cypress captures documents from any platform or application into a single enterprise repository.

2. ASG-Cypress repository includes:

- All documents as individual pages
- All fonts (one instance only)
- All document indexes
- All Distribution information
- All security requirements

3. Pages may then be:

- Searched and retrieved by end users via the Web
- Processed into individual or bundled reports
- Automatically delivered to any destination



About ASG

ASG's business is to partner with clients to improve productivity and significantly enhance performance through the intelligent use of technology. Founded in 1986, ASG is a privately held global enterprise software and professional services firm that provides a full range of software solutions in the Metadata Management, Applications Management, Operations Management, Content Management, Performance Management, Security Management, and Infrastructure Management arenas. ASG is headquartered in Naples, Florida, USA, with more than 45 offices serving the Americas, Europe, Middle East, Africa, and Asia/Pacific. *Inc.* magazine recognized ASG as one of the fastest growing companies in the United States, with a three-year growth rate of 394%. Visit ASG on the Web at www.asg.com.

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