

ECMS White Paper	Version: 1.0
MSI Systems Integrators	Date: 12/07/04

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Enterprise Content Management System White Paper

Version <1.2>



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ECMS White Paper

Introduction

This document provides an overview of current Enterprise Content Management System (ECMS) features, and market-leading products and vendors.

ECMS Definition

Content is generally defined as:

“Corporate knowledge stored in any form (paper, data, reports, correspondence, email, multi-media, etc.)”

Forrester defines Enterprise Content Management (ECM) as:

“An integrated approach to managing documents, Web content and digital assets.”

Doculabs defines ECM as a category that:

“Combines the capabilities of enterprise document management systems (EDMS) and content management systems, with the ability to manage the full content life cycle across a growing array of content types.”

Enterprise Content Management Systems (ECMS) generally include most or all of the following modules:

- Security (restricted user access to functionality and content)
- Document Imaging and management (scanning, indexing, storage, retrieval, archiving)
- Report Management (capture, index, access, storage, retrieval, distribution, archival) – a.k.a. Computer Output to Laser Disk (COLD), or Enterprise Report Management (ERM)
- Workflow (automated routing of documents and work based on business rules)
- Federated Search (search/display across multiple repositories and data types)
- Forms Processing (application of form templates to print stream data to create form-based reports such as invoices and orders)
- Electronic Signature (capture and manage secure electronic authorizations)
- Advanced Character Recognition (detect/translate characters, read/print bar codes)
- Thin Client (browser-based user interface instead of or in addition to client server user interface)
- Web Content Management (tools for managing the authoring, publishing, versioning of web page content for Internet, Intranet, and Extranet web sites)
- Records Management (an extension of EDMS that incorporates regulations, policies, and rules into the archival, audit, and disposition of content – addresses compliance to regulations such as HIPAA)
- Portal (framework for combining on single desktop content and functions from various applications or repositories – like My Yahoo).
- Digital Asset Management (tools for capturing, transforming, analyzing or generally managing video, audio and complex image files).

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ECMS Business Value

Out-of-the-box ECMS solutions range in cost from \$60,000 to \$1,000,000 or more. So where is the business case for justifying this level of expenditure?

Together with corporate application databases, ECMS help manage and deliver the total knowledge base available to the enterprise. By integrating all content and process-oriented functions with a single technology (ECMS), the corporation:

- provides a common infrastructure that minimizes the need to deploy, maintain, and administer multiple technologies for different business functions
- provides a single point of entry to access information, with fewer interfaces to learn and reduced training requirements
- provides a single user interface for searching across all content
- minimizes the need to integrate EDMS and content management systems from multiple vendors to fully manage corporate knowledge
- eliminates the need for users to know or care where content actually resides
- provides for a single integration point for complex workflow processes
- optimizes and leverages IT investments to a broader range of applications (e.g. corporate accounting or customer relationship management) across the enterprise
- reduces IT training requirements, leverages developer skills and simplifies administration and maintenance
- simplifies operations and technical support by minimizing problems with software upgrades and support when using products from multiple vendors.

ECMS addresses the need to collect all corporate content (knowledge) into a common infrastructure to facilitate information sharing, customer service, decision making, and efficient workflow. An organization's "collective knowledge" resides as information in the form of data, paper documents and other types of "unstructured information". Typically, only 10-20% of this knowledge is stored as data and available from the computer. The remaining 80% or more of the information is stored on paper or other media (e.g. microforms) and physically available from storage cabinets dispersed throughout the organization.

ECMS addresses this situation by:

- capturing and storing documents and other media in electronic formats;
- indexing or cataloging electronic documents according to standard lookup schemes;
- allowing document/reports to be searched and retrieved to the desktop;
- dispersing electronic documents by eFax, eMail, and printers;

resulting in:

- reduced physical storage space;
- reduced physical handling for filing and retrieval;
- reduced hunting for misfiled or lost documents;
- retrievable electronic information for effective decision making.

Generally, ECMS technologies provide significant payback through

- labor and physical storage cost reductions
- greater organizational productivity and efficiency (through electronic information access and workflow)
- improved customer relationships and retention (because of faster access to information)
- increased sales effectiveness (cross marketing and CRM integration)
- greater employee satisfaction.

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Document management components of ECMS create electronic content from paper content (e.g. scanned documents, electronic reports, etc.). Web content management components of ECMS provide tools to publish and manage this and other content on web sites. Web sites have accelerated in size and complexity since the mid-90's. Today's web sites require continual feeding with up-to-the-minute content and capabilities. Internet, Intranet, and Extranet sites all have different audiences with different needs and present different business issues. Web sites today must be treated as other core enterprise applications with appropriate technologies to maintain, publish, monitor, and control web site content and usage. These requirements gave rise to web content management systems. According to Giga (May 2001):

"Implementing a web content management system for content creation, review, approval, publishing and delivery will result in:

1. reducing maintenance costs by one third
2. reducing labor costs for content authoring and design by one half
3. reducing web publishing IT operations costs by one half
4. reducing the business risk associated with publishing erroneous or out-of-date content
5. increasing revenues and profits through increased sales (for e-commerce sites)."

The first three value propositions relate to the people time and expenses associated with web content and web site management. Web content management systems shift the authoring, editing, and approval of web content to the business owners responsible for that content (although the systems do provide flexibility in designing workflow and publishing authorities). This eliminates much of the back-and-forth communication required between the person (businessperson) who knows what the web page should "say and do", and the person (web page developer) trying to make the page "do and say". Templates, version controls, authoring tools, and other features also speed the development, deployment, and management of page content. Thus, significant savings in people time and cost can be realized through web content management systems.

ECMS solutions have different payback points and return-on-investment levels. By assessing organizational skill and capabilities against web site objectives and audiences, a business case can be constructed for deploying ECMS components across the enterprise. It is important to understand the financial and logistical aspects of an ECMS deployment in order to build a reasonable business case and plan for ECMS. The financial details should include costs as well as savings and other measures of business value (e.g. increased revenues, profits, and efficiencies). MSI provides assessment services to help our clients determine whether and how ECMS can be used to create new business value.

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ECMS Providers

Enterprise content management systems (ECMS) actually are a convergence of three separate product sets:

- document and report management
- Web content management
- digital asset (e.g. rich media) management.

Prior to 2000, the industry leaders in these fields were (in alphabetical order):

Document Management	Web Content Management	Digital Asset Management
Allaire Documentum FileNET Hummingbird Hyland IBM Identitech Magellan OTG	Broadvision Interwoven Gauss Open Market Vignette	Artesia Bulldog Chuckwalla Virage

In 2000, these systems were technically separated but began to be marketed and sold as a single solution, thus creating ECMS. According to Forrester, “vendors like Documentum and Gauss have taken the first step toward enterprise content management by combining (into one system) document and Web content management”. By late 2001, two vendors, Gauss and Documentum, had succeeded in fully integrating document and web content management into a single system. The ECMS market leadership now looks like this (in alphabetical order):

Enterprise Content Management	Digital Asset Management
Documentum Gauss (purchased and integrated Magellan) FileNET + Vignette or Interwoven IBM + WebSphere, Vignette or Interwoven	Artesia Bulldog Chuckwalla IBM

Note that web content management systems continue to be offered separately by all of these vendors.

In February 2000, Doculabs released results from their study of enterprise document management solutions (EDMS) within the ECMS marketplace. Most credible vendor products were evaluated. Notably, Documentum was not part of the study though Doculabs did credit Documentum as being a leading ECMS provider:

“Documentum has clearly succeeded in expanding beyond its traditional EDMS roots. In fact, we no longer consider Documentum to be an ECMS solution vendor”.

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The results of the Doculabs study are summarized in the following table:

Vendor	Product	Quick Take
FileNet	Panagon, Content Services, Web Services and Web publisher	Full life-cycle management on traditional EDMS objects, with good web publishing capabilities, lacks strong digital asset management and email management; offers records management through partnership
Gauss	VIP 5e, DocManager	Good content management vision (best out of the box), strong ERM and EDMS capabilities, good integration capabilities with legacy systems, system is fairly complex
Hummingbird	DocsFusion	Full EDMS suite (including object management, knowledge management, portal, collaboration, workflow, imaging, and records management modules) with good scalability; strong in key verticals.; Docs suite not tightly integrated with BI products
Hyland Software	OnBase	Good integrated EDMS (including workflow, imaging, document management, ERM, electronic forms); lacks strong web content management, records management, and collaborative workflow
IBM	Content Manager	Strong COLD and workflow components, and good imaging and document management components. Components are not tightly integrated into unified administration. Integrates well with Domino and offers email management and records management through partnership with Tarian.
Identitech	FYI	Good integrated EDMS (including workflow, imaging, document management, ERM, electronic forms, web content management); lacks strong collaborative workflow and records management
iManage	WorkSite	Good library functions and collaboration capabilities, primarily for office documents; lacks strong imaging, ERM and web content management
Microsoft	SharePoint Portal Server	Basic portal and document management capabilities that are seamless part of the operating system and the MS Office environment; lacks production-class imaging and ERM; new and unproven
Optical Image Technology	Total Solution	Good integrated EDMS (including workflow, imaging, document management, ERM, electronic forms); lacks strong web content management, records management and collaborative workflow
Open Text	LiveLink	Collaborative platform for all content with strong EDMS features and records management capabilities; lacks production class workflow and imaging
Optika	Acorde	Primarily manages images and ERM; lacks strong content management, email management, records management, and collaboration workflow
OTG	XtenderSolutions	Good life cycle management on EDMS objects, email and digital assets; lacks production class workflow, content management and collaboration
Tower	IDM	Solid integrated EDMS system with good object management, web capture, web forms processing; lacks true web content management
Xerox	DocuStore	Easy-to-implement system that provides a community-maintained document repository with good library functions and collaboration features; lacks strong imaging and ERM

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The following chart further illustrates the degree of integration of content management services across the various vendors (from Gauss study in 2000).

Competitive Factors	Gauss	Vignette	Inter-woven	Docu-mentum	Broad-vision	Open Market	Allaire	Filenet	Hyper-wave	Pironet	InfoOffice
Java-based	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes
XML enabled	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Personalization functionality	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Portal Management	Yes	No	No	No	Yes	Yes	No	Yes	Yes	No	No
Commerce Management	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No
Document Management	Yes	No	No	Yes	No	No	No	Yes	Yes	No	No
Wireless-WAP-Support	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No
Separate Content and Layout	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Templating	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes
Process Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Versioning	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Link management (in & external)	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes

Note that IBM was omitted from the Gauss survey but does receive strong endorsements from most independent market analysts and research organizations. The IBM product would show up “green” in all comparative areas if joined with Vignette (a partner that handles the last 5 factors associated with web content management) or Interwoven (another IBM partner). The IBM product can handle some of these factors through their WebSphere product and continues to enhance web content management capabilities. IBM’s document and report management products are considered among the leaders.

Another major consideration in the evaluation of potential ECM providers is current relationships with those vendors. ECM providers like IBM, BroadVision, Microsoft, and Xerox have product and service offerings outside of ECM. This provides advantage if the client already has a proven, trust relationship with the vendor established outside the ECM environment. IBM and Microsoft hold significant advantage due to their significant footprint on the desktop or in the computer room. In a vertical market (e.g. health care, financial, manufacturing) there may be a software provider that also offers some or all ECM capabilities. It is tempting to purchase ECM from a single source provider of software for my industry. However, the business case for ECM often is quite independent of the vertical software and unless the vertical software contains robust and cost effective ECM capabilities, the business case will not be realized with a single source solution.

Finally, ECM installations typically require a significant amount of initial implementation services. The quality of service provided by the vendor should be considered as important as the range of capabilities or ease of use of the product.

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MSI believes IBM is the closest vendor to offering a truly comprehensive ECM solution, because:

- they are a leader in the traditional core technologies
 - ✓ document management,
 - ✓ COLD – report management,
 - ✓ digital asset management
- they offer leading solutions in the most tangential components
 - ✓ collaboration (Lotus)
 - ✓ portal
 - ✓ e-commerce
 - ✓ personalization
 - ✓ pervasive
- they tightly integrate with market leaders in the remaining components
 - ✓ web content management (e.g. Interwoven, Vignette)
 - ✓ records management (Tarian)
- their solutions are scalable across a broad range of platforms, performance levels, and industries
- they are a leading provider of enterprise application integration solutions
- they have an excellent service track record with customer satisfaction marks
- they are large and multi-dimensional, therefore are a stable long-term player.

Every client situation is unique. ECMS can cover a broad range of client needs. The right solution is one that fits exactly with the client's unique needs.

The following article provides additional depth, perspective and opinion regarding the ECMS market place.

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ECM System Features and Marketplace Analysis

(The following contains excerpts from the article "*Enterprise Content Management: Is it anything new?*" by Alan Pelz-Sharpe and Chris Harris-Jones in KMWorld Magazine, May 2002 and "*Doculabs Evaluates Document Management for Enterprise Content Management*" by Richard Medina, Stephen Meyers, Jim Bragg and Christine Klima, Transform Magazine, Feb 2002.)

Enterprise content management (ECM) has gained considerable credence in the market since the concept was first announced at the 2001 Association for Information and Image Management (AIIM) meeting. AIIM even refers to itself now as the "Enterprise Content Management Association." Many of today's content management software vendors focus on the idea that everyone in an organization needs access to unstructured (that is, non-database) content, and that all the content in the organization, whatever its source or purpose, should be managed by an ECM system.

ECM software provides a set of tools and processes for managing all types of content, from simple documentation through to interactive real-time video, throughout its life from creation, through updating and distribution, to archiving. However, very few organizations have implemented enterprise-wide document or content management. ECM has usually been confined to the areas that have had an urgent need to place tight control on their content. Examples include full documentation and audit trail information required by health care or pharmaceutical companies, engineering organizations managing international design and build projects, organizations managing large and rapidly changing Web sites and other key areas where managing content effectively is core to running a sound business.

Extending the functionality

A complete ECM solution from one vendor is a great idea, but it currently remains just that—a great idea. Despite the marketing hype, no one product or vendor yet covers them all. All the technology pieces are available from a range of vendors. Some are even close to offering all of the functionality from one source. However, few of those are affordable as an enterprise-wide solution available from everyone's desk.

Once you move outside the enterprise to deliver content to suppliers and customers, the issue of retaining control over your content also arises—you do not want it copied and distributed freely by others. You have incurred significant costs creating the content and, in many cases, will be trying to gain revenues from that content. If it can be copied and redistributed by others, then you will lose financially.

All those elements must be covered in any enterprise content management system. The complete range is covered by the following technology solutions:

- document and report management,
- Web content management,
- process management (workflow and integration),
- e-commerce and portal,
- email and records management,
- digital asset management, and
- digital rights management.

Each of these solution sets will be further explained below. The current market leaders for these products will also be listed and placed in perspective.

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Document and report management

Document management has been saddled with a name that has given a misleading idea about what it does. It has not just been about managing "documents." Many document management products can cater to any type of content (e.g. images, diagrams, CAD/CAM, pictures, audio and video files). However, very few functions are provided for the latter two, apart from storage and retrieval. Rebranding of document management to content management has succeeded in raising the profile of traditional document management. Many of those vendors have also added Web publishing facilities, although some of them amount to little more than making document management facilities available over the Web. A few can actually manage the construction of complete Web sites.

Open Text and iManage provide strong solutions for managing office documents. Tower Technology, FileNet, IBM, Documentum, Gauss (formerly Magellan), and Identitech, are strong in high-volume production image management. Documentum offers a significant range of the technology components required for ECM, but it is prohibitively expensive for enterprise-wide implementation. Hyland and OIT have demonstrated their ability to manage all but the highest volume imaging applications.

Some document management system vendors also provide enterprise report management (ERM) modules (also known as COLD) to manage high volumes of computer-generated output such as reports, statements and bills. IBM, Gauss, Tower, Hyland, OIT and Optika have established solutions in this area. FileNet and Identitech have recently strengthened their ERM offerings to compete with the high-performance capabilities of IBM's OnDemand ERM software.

Web content management

Web content management requires the ability to manage the various content objects that may be involved in Web presentation, including HTML pages and Web graphics. In addition, Web content management requires the ability to build presentation templates that enable dynamic content presentation and personalization based on user preferences, profiles or other conditions. Templates are used to define the components included in a Web page, and business rules and logic are embedded to dictate conditional inserts of different content objects.

Since the mid-1990s, an increasing number of start-up companies have recognized that creating, managing and delivering content to a Web site is not a trivial task. Ensuring that the right pieces of content are delivered on time, that the site is continually refreshed with new content, and that the right content is shown to the right person, are all difficult and time-consuming tasks. Therefore, vendors have developed software to help the beleaguered Webmaster.

A typical organization in this space is Interwoven, whose software is aimed at complex site development. However, their product is aimed principally at groups of Web developers rather than enterprise-wide. Crossover companies such as Stellent, whose main focus has been managing documentation, now provides strong Web publishing facilities, as well as delivering a significant slice of ECM at a reasonably affordable price. Gauss offers the most solid Web content management out of the box. FileNet, Tower and Identitech offer some level of Web content management. FileNet offers Web publishing and distribution capabilities, although more advanced Web content management capabilities are provided through a partnership with Vignette. IBM has Web content management partnerships with Interwoven, Vignette, and Open Market, among others. Tower integrates with Stellent for Web content management, but has its own Web forms and session capture capabilities that can help create and support e-business applications that comply with the Electronic Signature Act. Identitech offers Web content management capabilities through a partnership with SilverStream.

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Process management capabilities

No matter what format of content is involved, organizations need ways to automate and control the business processes and collaboration surrounding the creation, management and use of that content. They also need the more general ability to manage business processes that may span multiple locations or systems, and that may require access to the managed content. Finally, integration with desktop environments and line-of-business systems is important to simplifying use and leveraging content within multiple applications.

Process management is the ability to automate and manage business processes and workflow. This category includes the ability to support collaborative or ad-hoc approval workflow as well as higher-volume production workflow.

ECM systems require two major types of process management: life cycle management and workflow capabilities. Life cycle management allows multiple users to work together to create, modify and approve content, with the ability to route content through multistage review, approval and publishing cycles. Workflow refers to the automation of business processes such as loan processing; account enrollment, approval and initiation; customer service; and administrative processes for accounting and human services. Such applications usually involve content routing and often span different departments, geographies and systems.

Most leading EDMS vendors have strong process management capabilities, including graphical tools for defining sophisticated process flows with minimal programming and mature engines for executing those flows. FileNet, IBM, Identitech, Tower, and Gauss all provide proven production-level workflow solutions. These systems can also support distributed workflow that may need to interact with a variety of business systems. Systems from Open Text, OIT and Hyland are better suited for medium-volume workflow applications. Microsoft and Xerox systems are appropriate for lower-volume collaborative or ad hoc workflow.

Generally, the enterprise has a number of key production systems (e.g. corporate accounting, manufacturing, supply chain, ordering) through which content is captured, processed, accessed or referenced. Therefore, integration between these systems, users, and ECM is necessary in order to optimize efficiencies and reduce costs.

Integration capabilities are critical for ECM systems. Line-of-business systems like Lawson, JD Edwards, SAP, and PeopleSoft hold Human Resources, accounting, contract management and other types of information that need to be included in any ECM deployment. ECM systems must also integrate with desktop environments and front-end applications (such as call center and portal interfaces) to make content management a seamless part of users' day-to-day tasks. This integration can be accomplished through a number of approaches, including object-level interfaces (such as enterprise Java beans (EJB)), packaged connectors, APIs, or enterprise application integration (EAI) technology.

To ease integration, ECM systems should provide either packaged integration with leading enterprise resource planning (ERP) systems (such as those from Lawson, SAP, PeopleSoft and Oracle), or they should have technology partnerships with ERP vendors. FileNet and IBM have relationships with and integration capabilities with the major ERP players. Hyland and Identitech both have integration capabilities with SAP. In general, the smaller vendors are beginning to develop ERP partnerships but must still open their systems to facilitate integration.

To integrate with desktop applications, all the products offer at least the basic ability for users to access library services directly from common desktop authoring tools such as Microsoft Word, Excel and PowerPoint. Almost all systems also offer integration with the operating system and Windows Explorer, providing users with a familiar treelike view of the content repository.

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The ability to integrate with front-office applications is less common. Many organizations have standardized on portal servers or customer relationship management (CRM) systems that act as the primary interface for their customer service representatives or field sales personnel. For example, Documentum and IBM offer integration with Siebel's leading CRM suite, but many other EDMS products require more extensive custom integration and programming to tie into such applications.

ECM solutions can simplify integration through their architectural approaches. For example, products that are built on Java or COM object models provide a better solution for integration with systems across a variety of platforms. In addition, ECM products that are J2EE-compliant can be deployed on J2EE application servers such as BEA WebLogic or IBM WebSphere (application servers provide underlying services and simplifies integration with other e-business applications that are deployed in the application server environment). Object approaches also facilitate the use of enterprise application integration (EAI) servers (such as those from Tibco, Vitria and webMethods) that minimize point-to-point integration when tying in to multiple disparate systems. Support for industry standards such as XML can also simplify content sharing and exchange among business systems both within and outside an organization.

IBM provides the strongest set of integration capabilities and is a market leader in EAI. Java-based products such as Gauss also provide excellent integration capabilities. Gauss' most recent version combines web content management and document management in a single Java architecture. FileNet plans to provide a Java-based API in a future release and has an initiative in place to provide more Java-centric support. iManage is moving toward a Java-based, multi-platform offering. Open Text's application architecture includes built-in XML support. OTG provides a COM-based API and is just starting to move toward providing robust XML capabilities. Identitech has a focused initiative for providing future Java API and XML support. OIT's solution is built primarily in C, but it provides XML integration capabilities.

E-commerce and Portal

Many vendors that started in the Web content management world have moved toward e-commerce and have added significant transactional functionality to their content management tools. That adds the ability to manage a Web site with transactional capabilities. Vendors have also added sophisticated personalization facilities, so web sites can be assembled in real time to meet the needs of individual users. Typical vendors in this space include Vignette, BroadVision, ATG, IBM, and Microsoft.

The movement toward portals provides a Web-based delivery mechanism that can truly provide enterprise-wide access to content and functions. A portal demands to be available and used by an entire organization, and therefore provides the ideal delivery mechanism for enterprise content management. According to Gartner, IBM has the leading portal strategy and product in addition to providing a strong Java-based e-commerce capability.

E-mail and Records management

Managing email has emerged as an important requirement for ECM. With the explosion of inbound and outbound email correspondence, organizations need ways to manage email and attachments in the same way they manage other business-critical content. They need automated or batch ingestion of email, powerful audit capabilities and strong archival, search and retrieval capabilities. Many organizations also need record management capabilities to designate certain records as official records and to audit access, retention and disposition of those records — a critical need for risk reduction and regulatory compliance.

Today, most EDMS systems provide limited email and records management capabilities. Open

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Text manages email with its iRIMS record management module, while FileNet offers integration with technology from TruArc. OTG and IBM provide good capabilities for email storage. Other EDMS systems require custom integration with third-party record management solutions from vendors such as Ixos, TruArc and Tarian Software. For example, IBM has integrated with Tarian to achieve for government-compliant record management capabilities.

Digital asset management

Digital asset management (DAM) solutions have arisen in parallel with many of the systems already described. They also are perfectly capable of handling text and a wide array of more conventional media files. What distinguishes the digital asset management solution is its ability to handle video, audio and complex image files. Standard content management software can store and manage the metadata and source-rich media files, but have little or no capacity to transform, analyze or generally manage the distribution of rich media. Vendors active in this area include Artesia and Bulldog (recently acquired by Documentum).

Digital rights management

Digital rights management (DRM) adds important functionality to all forms of content management by securing your rights to your content. You can prevent others from duplicating your content at various levels; for example, by locking the content and publishing via Adobe Acrobat software, you can stop the document from being printed. However, doing that with rich media is more difficult. The biggest player in DRM is IBM, which offers a comprehensive solution. Many other smaller vendors offer specific niche solutions.

Convergence

No single vendor has yet achieved true enterprise content management. Convergence between document and Web content management is essential if coherent ECM solutions are to be created within user organizations.

IBM is the closest vendor to offering a truly comprehensive ECM solution, because:

- It is already firmly in the document management market with its own product,
- It has relationships with Vignette and Interwoven in Web content management and is pushing into e-commerce content management
- It has its own DRM solution
- The IBM Lotus software provides a genuine enterprise-wide solution to some of the ECM technology requirements.

In the web content management market:

- Vignette and FileNet are working together to link Web-focused content and traditional document management
- Documentum is expanding its portfolio of offerings into Web content management
- Vignette, BroadVision, Documentum, IBM, also provide portal software.

Vendors that have made great strides toward content management, such as Documentum, Gauss, and FileNet are more focused on capabilities such as managing templates and dynamic presentation and publishing of content via the Web. The emergence of email, video and other digital assets is expanding the breadth of content types that must be managed within an ECM approach.

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