Data Management Software Solutions
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DB2 Data Management Software

Generating return on information with an IBM enterprise content management infrastructure

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Complement a strong IT infrastructure with access to content

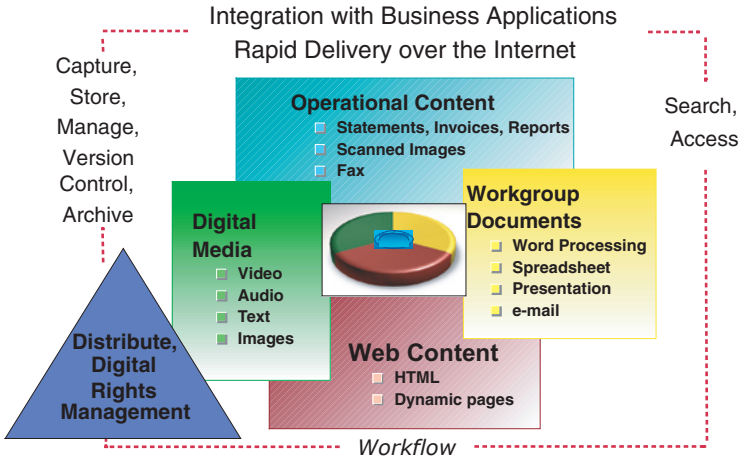
Rich information sources abound.

Leveraging enterprisewide content in your e-business

In virtually a blink of an eye, e-business has evolved from futuristic vision to revolutionary frenzy to an everyday reality for businesses worldwide. One lesson learned from the early days of e-business is that measurable success demands a solid IT infrastructure. That is, such success depends on a durable foundation for current and emerging business models—as well as the applications that will support them—throughout the enterprise and across the entire value chain.

What fuels e-business is information, both "structured" data—which fits into the columns and rows of traditional databases—and "unstructured" data—which includes *content* contained in alternative repositories. Today, the content that drives e-business consists of more than static Web pages. It also includes:

- Dynamic Web content—business data in relational databases and personalized information delivered to each Web user
- Business documents—from contracts and invoices to forms and e-mail—that facilitate internal back-office processes and enable direct external communication with customers, partners, and suppliers
- Rich media—such as digital audio and video—that is rapidly transforming not only the entertainment industry but also the areas of training, education, marketing and customer relationship management in every industry.



Highlights

Advantages of a unified framework for managing and distributing all content types

IBM enterprise content management framework brings it all together.

The promise of the Web is to make all of these diverse content sources immediately available, while hiding differences in their underlying formats. Visitors simply click on a link, and the content displays (or "plays") in a browser, whether it's an HTML page, a word processing document, a scanned image, a mainframe report or a video clip. However, to effectively share and distribute information, e-business demands a unified framework for managing, Web-enabling and personalizing delivery of *all* forms of content. And this framework must encompass more than simply text-based Web content management, as doing so typically ignores both documents and rich digital media.

IBM offers a framework for leveraging diverse content formats called *enterprise content management* (ECM). ECM embraces three historically separate technologies: Web content management, document management and digital media asset management. While outwardly dissimilar, all of these forms of enterprise content share similar needs. To be truly useful, a content management solution must address requirements for mass storage, search and access, personalization, integration with business applications, access and version control and rapid delivery over the Internet. This commonality suggests that rather than comprise separate point solutions for each type of enterprise content, an ECM framework can—and should—be implemented on top of a set of unified ECM components, a natural extension of the e-business infrastructure. Then, applications across the enterprise can leverage common platforms and peripherals, lowering the total cost of ownership—not only in hardware and software, but also in system administration, training and custom development.

Highlights

With an ECM framework new e-business initiatives can cost-effectively take advantage of the full range of enterprise content. Legacy content can be easily published to Web sites and to portals designed to provide secure, personalized delivery to customers, partners and employees across and beyond the enterprise. The ECM infrastructure also allows emerging technologies such as digital rights management and XML-based Web services to be implemented consistently and cost-effectively across all forms of enterprise content.

IBM supports an open ECM infrastructure

IBM is uniquely positioned to deliver such an ECM infrastructure today with a complete set of content repositories and e-business enablers unified by a common information integration layer. A complete infrastructure from a single supplier further increases economies of scale and streamlines business relationships. However, businesses don't want to be "locked in" to a single vendor. In fact, they demand an *open* infrastructure—capable of integrating packaged applications, content repositories and infrastructure components from competing vendors. IBM's ECM infrastructure offering meets this criterion as well.

Characteristics of an ECM infrastructure

What turns a set of ECM components into the basis for an ECM *infrastructure*? Customers report that they are seeking three principal characteristics in an ECM infrastructure solution:

Common needs in an ECM infrastructure solution.

- *Information integration*. The most important criterion is the ability of any business application to access, through a common software interface, all forms of enterprise content. It shouldn't matter whether this content consists of business documents, rich media or dynamic Web content, nor should its repository be a hindrance. In fact, customers want to be able to perform *federated searches*, in which a single query can retrieve content from a heterogeneous set of repositories distributed on the network. Moreover, customers want to use federated indexing data to personalize that content for portals and e-commerce applications.

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Scaling up and adapting to any application

- *Repository scalability and robustness*. Content repositories must be able to scale cost-effectively from small departmental solutions to enterprisewide applications used by thousands of employees, and to customer-facing e-business Web sites drawing millions of daily hits. Scalability also means the ability to manage huge content volumes—particularly important for repositories housing documents and rich media, which may occupy hundreds of gigabytes but must still support rapid response to queries. And it means the ability to cache and distribute content to the "edge of the network" to optimize delivery speed, yet maintain tight central management control.
- *Openness*. An ideal ECM infrastructure must not only be based on open standards, but must also have the flexibility to adapt to *any* application—including those of competing vendors—through a set of published application program interfaces (APIs). In addition, the ECM infrastructure should support leading infrastructure components from other vendors, including server platforms, database management systems, content repositories and packaged applications from competitors. Not surprisingly, this is the most difficult part for most ECM technology suppliers; however, it is central to IBM's ECM philosophy.

Access to a range of content repositories.

An integrated ECM infrastructure does *not* require one content repository or management toolset for all types of content. Various classes of content have some unique management requirements and are often better served by specialized repositories, tools and application-enabling components. Some content, by its very nature, is normally kept in local file systems, while other content, is better stored in relational databases, mail systems or external Web sites. These should not have to be copied to a single repository for use by the infrastructure. An integrated infrastructure provides unified access, searching and personalization across its entire range of supported repositories.

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IBM partners with leading vendors of packaged software applications

What makes any infrastructure offering worthwhile is its adoption by large enterprises and independent software vendors (ISVs) which layer their software on top of it or certify its use as an extension of their own packaged offerings. IBM's ECM infrastructure meets that test through its relationships with leading vendors of packaged applications such as SAP® and Siebel, as well as with Web content management tool providers including Interwoven, Presence Online and divine.

ECM infrastructure delivers e-business results

Driven by well-defined business needs, the implementation of an ECM infrastructure can deliver significant benefits including:

Enhancing customer service and employee productivity.

- The ability to search for information stored in different formats across different repositories, such as document archives, relational databases, mail systems and Web sites. Corporate portals and e-commerce applications need to personalize that content based on rules that span content types and storage locations.
- Faster, better quality responses and communication to external audiences, such as customers and trading partners. Because of the rapidly shifting requirements of the e-business environment, speed of information access and delivery keeps customers engaged and trading partners informed.
- Productivity—saving employees countless hours of searching for documents, eliminating re-creation of photographic and rich media content that simply cannot be found, and allowing existing content to be repurposed on the Web for e-business. For example, a distance learning application that leverages rich digital content represents a huge cost savings in travel and employee downtime. And linking enterprise content with Web content management tools dramatically streamlines the maintenance of company Web sites and portals, while eliminating the Webmaster bottleneck.

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Safeguarding sensitive information

- Security—access control and rights management, safeguarding the privacy of customer information as well as the manageability of content through the business process, with consistent, centrally managed policies and business rules. As digital content increasingly becomes the "product"—not just the means—of e-business, an ECM infrastructure allows rights management technology to protect and enhance intellectual property value across disparate content types.
- Lower total cost of ownership—the result of sharing storage peripherals and ECM software across multiple applications, as well as reduced system integration costs, simplified administration and maintenance, and standardization for users throughout the company. But this requires an ECM infrastructure that is scalable across the enterprise, integrated across heterogeneous systems and content types, and is functionally complete and open to components from competing suppliers.

The ECM infrastructure decision: why IBM?

Integrated ECM infrastructure is emerging technology.

The concept of the integrated ECM infrastructure is relatively new, even though content management technology goes back more than a decade. In the previous generation, a content repository was typically optimized for one specific type of content, as well as application and user population and, often, even a particular hardware and software platform. Documents, Web content and rich media resided in separate, nonintersecting worlds. Even the single content type now called "documents" once required separate repositories effectively separate silos to manage scanned images, revisable office documents and computer output. Still other repositories were needed for Web content, color photography, digital audio and video files.

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No more boundaries between content types

IBM on the forefront of ECM.

The transition from business to e-business has erased the boundaries between content types. In the e-business era, compartmentalization of information in application-specific silos is no longer a viable business option. Ever-increasing computing speeds and bandwidths now enable rapid communications with all types of content to employees throughout the enterprise and to customers and partners across the value chain. And under the pressures of global competition, employees, customers and partners demand content-rich communication. Governments are now giving digital content the same legal status as paper documents. New XML technology is adding structure to what was formerly regarded as "unstructured" information—allowing content to be more effectively searched, transformed and repurposed for new devices, from wireless PDAs to voice streams.

IBM was not only the first company to offer a suite of repositories for all types of content, including rich digital media, but it was also the first to offer federated search across disparate content repositories using a single query and API. Today, IBM continues to unify its ECM offering—IBM Content Manager stores images, rich media and revisable documents—while embracing today's Web-centric Java™ technology-based architectures. IBM also continues to integrate its ECM offering with other infrastructure technologies, including WebSphere®, DB2®, Lotus® and Tivoli® software from IBM.

"Enterprise content management provides companies with the unified framework for managing, Web-enabling and delivering digital content that is critical to their success in e-business," notes Janet Perna, general manager, data management, IBM Software Group. "To deliver real business results as part of an overall e-business infrastructure, that ECM framework must be integrated, robust and open."

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IBM Content Manager portfolio fits the bill.

The IBM Content Manager portfolio meets the definitions of an ideal ECM infrastructure in a way no other supplier can match:

- *Functional completeness*. Content Manager repositories, tools and ISV partner solutions manage *all* forms of content, from documents and images to rich media and Web content.
- *Scalability*. Content Manager servers scale from PCs to mainframes, serving departments to entire enterprises with thousands of concurrent users, millions of pages online and storage distributed over the network.
- *Information integration*. IBM provides a unified integration layer across all content formats and supported repositories—including third-party repositories—so applications don't require the details of the underlying content store, and users can perform federated searches across multiple content sources.
- *Openness*. IBM allows any application, even those of competitors, to access its content management infrastructure. IBM supports content repositories from FileNET, Documentum, Oracle databases and Microsoft mail systems, in addition to IBM's own repository components.
- *Market Acceptance*. IBM's ECM solution is integrated with leading ISV solutions, including: Siebel for customer relationship management, SAP for enterprise resource planning and Ancept for corporate marketing communications. Also supported are Interwoven, Presence Online and divine for Web content management tools.
- *Complementary infrastructure components*. IBM is a world-class infrastructure company, and its ECM infrastructure strongly leverages the capabilities of WebSphere, DB2, Tivoli and Lotus software from IBM.

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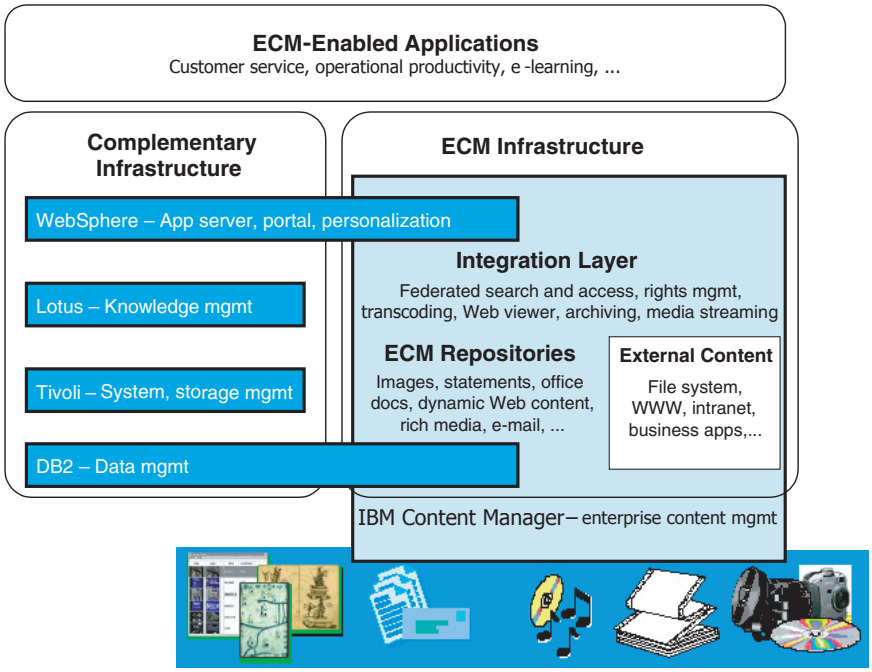
Continuing investments in groundbreaking technology.

IBM continues to make significant investments in ECM technology and its integration with e-business infrastructures. IBM is also spearheading the development of a new generation of Internet standards—including WebDAV and XML Web services—that will further expand the volume of content accessible to e-business.



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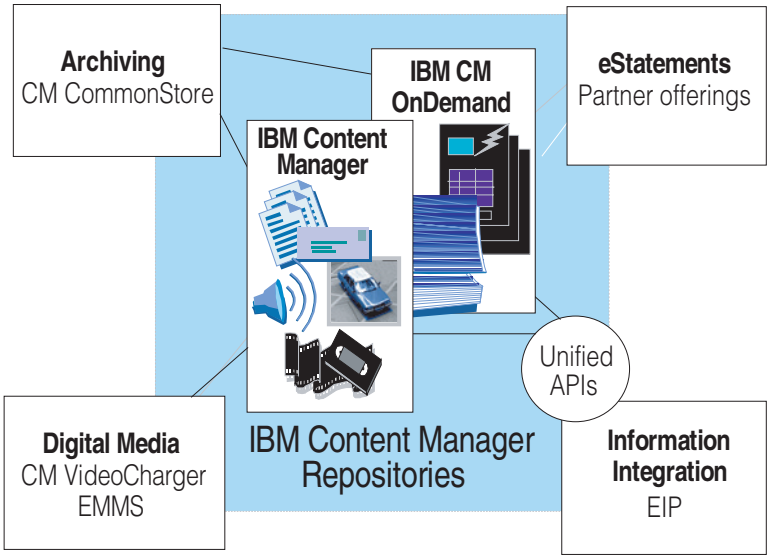
ECM repositories based on robust relational databases.

Introducing the IBM enterprise content management portfolio: ECM repositories

Unlike simple file systems, enterprise content repositories use a powerful relational database to provide indexed search, security and access control at the level of individual content items. Ideally, these repositories also support version control and distributed storage, and can scale up to millions of gigabytes online with exceptional performance and reliability.



Content Manager is an enterprise-scalable repository for virtually any type of digital content, including HTML and XML-based Web content, document images, electronic office documents and rich media such as digital audio and video. A single Content Manager system can support multiple content stores distributed across the enterprise or across the Internet. This allows content to be stored close to its point of use while remaining under central management control, reducing bandwidth requirements and increasing disaster protection.

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Workflow, version control and more

The repository provides check-in/check-out capabilities, version control, object-level access control, a flexible data model that enables compound document management and advanced searching based on user-defined attributes. It also includes workflow functionality, automatically routing and tracking content through a business process according to predefined rules.

Content Manager is Tivoli Ready, meaning it can be monitored and managed through IBM Tivoli Global Enterprise Monitor or IBM Tivoli Enterprise Console®. It also scales from a single PC to an enterprise-networked solution of IBM @server systems, with magnetic and optical storage devices under system managed storage control. It is integrated with IBM WebSphere Personalization, allowing enterprise content to be served up dynamically based on Content Manager attributes.

Content Manager OnDemand serves computer output needs.

IBM Content Manager OnDemand is a high-performance repository optimized for managing computer output and can also store and index two to three million pages per hour, the performance demanded by high-volume billing or statement processing applications. Content Manager OnDemand transforms any type of print output format, such as invoices, customer statements, bills, reports and check images, into searchable, Web-accessible e-content that can be integrated into call centers for "one call" resolution of customer problems. Content Manager OnDemand allows computer print output to be bundled, redirected over the network and automatically distributed based on business rules. Access control is granular down to the page level. When integrated with portals, Content Manager OnDemand can optimize customer relationship management, electronic bill payment and presentment, or other forms of customer self-service on the Web.

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IBM EIP unifies content resources

Improving application performance and manageability.

Information integration resources

IBM Enterprise Information Portal (IBM EIP) and its associated connectors provide integrated access to content stored in Content Manager, Content Manager OnDemand, IBM Lotus Domino™, IBM Lotus Domino.Doc®, IBM DB2 Universal Database™, file systems and the Web. You can also access content in other stores, including FileNET Panagon Image Services, Documentum 4i, SAP R/3®, Oracle databases and Microsoft Exchange. IBM EIP provides a unified API that hides the unique details of each underlying content store, making it easier for applications to integrate content stored anywhere in the enterprise.

IBM EIP also offers advanced integration features such as workflow, full-text and image content search, content categorization and automatic summarization. It includes a browser-based client that supports federated search across IBM and third-party repositories, and Web viewing without plug-ins.

Archiving offerings

IBM Content Manager CommonStore provides content archiving, using business rules to collect old or seldom-used content in SAP R/3, Lotus Domino or Microsoft Exchange, and transfer it to cost-effective storage in Content Manager, Content Manager OnDemand or Tivoli Storage Manager. Content Manager CommonStore leaves links in the original application, so archived content is still easily accessible to users. But the archival process greatly improves application performance and manageability and reduces storage costs.

Media streaming options

IBM Content Manager VideoCharger™ provides streaming delivery of digital audio or video content over the Internet, making rich media assets available for e-learning, marketing communications and customer relationship management. Since the content is streamed, it does not need to be downloaded and stored by the user before playing, but can be "pushed" from the server and played in realtime.

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Leveraging audio and video assets

Content Manager VideoCharger supports a wide range of network connection speeds and formats, from low bit-rate video to high-quality MPEG-1, MPEG-2 and MPEG-4. It also supports IP multicast, allowing a live audio or video stream to be sent to multiple users on the network, reducing bandwidth requirements while recording the event for later rebroadcast. Content Manager VideoCharger integrates with Content Manager to provide a comprehensive digital media management solution, including storage management, search and access, and rights management.

Digital rights management solutions

IBM Electronic Media Management System (EMMS) is a suite of enabling tools for digital distribution of content, including security, rights management, reporting and payment interfacing capabilities. It is combined with Content Manager and IBM WebSphere Commerce in an integrated e-commerce solution for media assets, IBM WebSphere Commerce for Digital Media.

Complete solution from a single vendor.

Complementing IBM infrastructure technologies

IBM's ECM infrastructure can leverage features of complementary IBM infrastructure solutions to create a comprehensive single-supplier framework. These solutions include:

- WebSphere: Content Manager repositories and the Content Manager integration layer are integrated with IBM WebSphere Personalization, enabling e-business applications to serve content dynamically based on business rules. They also connect tightly with IBM WebSphere Portal, providing the new "Web desktop" with a single access point for content across the enterprise.
- DB2: Content Manager repositories leverage DB2 for performance and scalability. DB2 also manages meta data, handling security, backup and recovery, and referential integrity.

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Products integrate for greater functionality

- Tivoli: Content Manager repositories are Tivoli Ready. In addition, Tivoli Storage Manager provides hierarchical storage management for Content Manager and Content Manager OnDemand, supporting a broad range of mass storage devices.
- Lotus: Integrated with IBM EIP and Content Manager, the IBM Lotus Web Content Management Solution combines Lotus Domino, Lotus Domino.Doc, IBM Lotus Workflow™, IBM Lotus QuickPlace™ and IBM Lotus Sametime® with WebSphere, Presence Online's Web content management tools and comprehensive professional services to deliver a complete, enterprise-scalable solution. Also, the IBM Content Manager eClient can search across Content Manager, Content Manager OnDemand and Lotus Domino.Doc. Lotus users can archive IBM Lotus Notes® mail in Content Manager CommonStore, while IBM Lotus LearningSpace® provides a comprehensive solution for distance learning that leverages rich content in Content Manager and Content Manager VideoCharger.

IBM ECM solutions at work

IBM ECM customers are realizing benefits of their solutions across a broad range of applications, including:

LeasePlan cuts costs with B2B vehicle-leasing Web site.

- *Customer service*. For LeasePlan, a leader in fleet auto leasing serving 18,000 businesses in 26 countries, the challenge involved giving customers more control over vehicle-ordering logistics. Previously, when responding to customer inquiries, customer service reps had to find, retrieve and sort through up to 40 pages of paper for each leased vehicle. Then, LeasePlan created ePlan, a B2B site through which customers can now place, change and track orders, manage driver needs and view lease documents directly online. Through increased business and cost savings, the system has generated full payback one year ahead of schedule. ePlan was developed with Content Manager and EIP in conjunction with IBM WebSphere Application Server, DB2 and Lotus Domino. Using the same IBM ECM infrastructure, ePlan automated its credit renewal and vendor invoice approval systems, and cut the credit approval time by two thirds.

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ABN AMRO speeds response time on customer claims

CNN develops vast digital archive of news footage

The Coca-Cola Company catalogs expansive archive of advertising content.

- *Operational productivity*. ABN AMRO is a global bank and financial services provider that spans 76 countries. Headquartered in the Netherlands, its insurance division provides property, life and health insurance products for the domestic Dutch market. The bank identified a need to replace its traditional filing cabinets with a more cost-effective, electronic method of storing and managing vast quantities of incoming documents. Currently, between 20,000 and 30,000 documents are scanned into the system each day. The information is centrally stored in IBM Content Manager and therefore readily accessible, which translates into improved work efficiency and the ability for customers to enjoy faster responses on their claims.
- *Operational productivity/digital asset management*. Cable News Network (CNN) makes its continuous news coverage available through 16 television networks and 12 major Web sites worldwide. Using Content Manager, CNN is creating an immense digital archive including 120,000 hours of video footage and other news content. CNN staff and correspondents will be able to log on to the new digital asset management system and retrieve video directly from a laptop anywhere in the world. Previously, such access required a production assistant to search, log and then ship the video from headquarters. Eventually, CNN plans to allow public access to the system, which will significantly reduce operational costs and generate new revenue streams through video syndication and fee-based Internet access.
- *Corporate marketing*. The Coca-Cola Company and IBM have created an advanced digital asset management solution using Content Manager to preserve and repurpose a century of Coca-Cola marketing history. The digital library makes Coca-Cola's cherished advertising and corporate images available online over a worldwide internal corporate network that employees access through Lotus Notes. This digital library is an example of the next generation of content management technology and is a powerful knowledge management system that allows the company to create, catalog, store, manage, preserve, distribute and repurpose valuable marketing and advertising content.

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University of Essen creates digital library of educational materials

- *E-learning*. From corporate training to university education, the ability to make rich media content available on demand over the Internet eliminates travel and worker downtime costs, and delivers strategic competitive advantage. The University of Essen's Multimedia Teaching and Learning Server, based on Content Manager, Content Manager VideoCharger and DB2, gives students and faculty the ability to search and retrieve content from its library of 12,000 videos in addition to books, dissertations, lectures and other educational materials. The system not only greatly expands access to the university's learning materials, but also helps attract the best students and researchers.

IBM ECM infrastructure: building blocks for e-business

As with a solid Web application architecture, sophisticated data management software and business process management, ECM has also become a key element of the new e-business infrastructure. After all, ready access to dynamic business data, customer statements, rich media and business records is integral to operational efficiency, customer service and a range of other business processes.

Easy, integrated information access.

For IBM, its leadership in ECM is a natural extension of its leadership in e-business infrastructure technology. IBM has the expertise to deliver simple, integrated access to all through a common interface, as well as the ability to search for content across different repositories and from multiple suppliers.

An IBM ECM infrastructure can provide value to a variety of industries:

- Insurance, for claims, policy declarations and correspondence
- Financial services, for customer statements, bills and loan applications
- Education, supporting research, student records and research reports
- Government, covering tax records, court records and inter-agency information sharing
- Hospitals, for x-rays, medical records and billing statements.

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Enhance a variety of applications with ECM

In addition, it can also support an array of applications:

- Customer relationship management, providing customer self-service, e-mail, statements and training
- E-commerce, delivering catalogs, transaction logs, music, movies and advertising
- E-learning, including courseware, video, e-books and manuals
- Enterprise resource planning/human resources, for employee information, benefits, invoices and reports
- Supply chain management, for purchase orders and proof of delivery.

IBM leverages expertise to help customers succeed.

IBM understands infrastructure. Its position is based on extensive real-world experience, backed by a portfolio of products and services that are second to none, all designed for the rapidly evolving world of e-business. The IBM Content Manager portfolio offers unparalleled breadth, scalability and openness—the hallmarks of an optimal e-business infrastructure. IBM believes the success of its customers depend on an infrastructure-oriented approach, not only for ECM but also for all aspects of e-business. And through its ECM solutions, IBM is committed to helping its customers succeed.

For more information

Please contact your IBM marketing representative or an IBM Business Partner, or call 1-800 IBM CALL within the U.S. Also, visit our Web site at:
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