

Fuelling Enterprise Content Management Systems

AN XMetaL® WHITE PAPER

Productivity and efficiency benefits vault XML-enabled organizations ahead of competitors by eliminating repetitive time consuming tasks to dramatically reduce overhead and optimize content assets.

A recent ZapThink research report, titled *Creating, Managing, and Publishing Content with XML*¹ details the many benefits of Enterprise Content Management (ECM), including decreased costs, reduced production times, and improved quality assurance for a wide range of business communications.

Enterprise Content Management is a revolutionary approach to extending the value of unstructured content locked inside disparate desktop applications by facilitating its reuse and interoperability. The technology powering this approach is the extensible mark-up language (XML), a language that encodes a machine-readable structure into what would previously be considered unstructured, non-machine-readable content.

Without XML-encoded content, organizations cannot gain the full benefit of a content management system. In order to generate XML-encoded content, a therefore a completely new set of composition solutions have come to market. Because the end-uses for XML-enabled content are diverse, there is a diversity of solutions, including word processor plug-ins, legacy format conversion, custom forms, and XML content solutions platforms designed specifically for XML. On balance, XML content solutions combine great ease of application development with low total cost of maintenance and high end-use flexibility—making them the preferred long-term solution.

XMetal[®] is a highly flexible enterprise-class XML content solutions platform that merges desktop productivity tools with the power of enterprise computing. XMetal has great flexibility, low overall costs, and high user acceptance, providing a superior end-to-end XML content solution that results in real returns on investment.

The Content Revolution

The way organizations create, process, and consume unstructured, semi-structured, and structured content is undergoing rapid reconception, and the XML standard is powering the shift.

The term “content” refers to information that consists of words, phrases, sentences, paragraphs, titles, pictures, diagrams, illustrations, photos, animations, videos, and much more. Examples of content include training manuals, letters, procedures documents, marketing materials, legal documents, transcripts, meeting minutes, corporate videos, animations, Web sites, and many other forms of unmanaged, but critical, business information. Content can be completely unstructured or highly structured. Most content today is stored haphazardly on networks as innumerable text documents, graphics, sound files, or hundreds of other formats.

Enterprise Content Management systems—powered by XML-based content— represent the future of organizational efficiency and productivity gains based on structuring and manipulating formerly unstructured content. XML overcomes the complexities of getting information in and out of incompatible databases, passing it between applications, sharing it among departments and enterprises, and presenting it in different media formats. It achieves the business goals of information reuse, interchangeability, and universal access by imposing a standardized, modular discipline on today’s chaotic patterns of content composition and storage.

Senior Executives Plan for XML-Powered Enterprise Content Management

- 34% plan to buy content management software
- 54% currently use homegrown systems
- 34% leverage XML now

Forrester Research, Inc. 2002²

¹ © 2003 ZapThink, LLC.
Creating, Managing, and Publishing Content with XML

² “Enterprise Content Management Delusions” Forrester Research, June 2002
“Companies Plan for Content Management in 2002: Forrester Research, March 2002

Soon, all authoring tools will have to include some XML capability. With widespread use of the XML format, users can more readily create content once and publish it in many formats and on many platforms, commonly known as multi-channel publishing.

Approaches To XML Content Creation

The opportunity to vastly improve content reuse, portability, and access presents an unprecedented need for partnership between users or content creators, and information technology professionals. There are a number of technology solutions with which a company can achieve the goals of XML-based content creation. The prime directive for all approaches is to remove the burden of coding from everyday business users and content creators, while at the same time affording the maximum long-term benefits derived from structuring content and creating valid XML output. Each method has applicability for a specific range of XML content composition tasks. These are explored in the following sections.

Word Processor Plug-ins

Some software companies have created plug-in XML composition tools that work in conjunction with popular word processors, especially Microsoft® Word. These products allow central document administrators to provide end-users with a set of valid XML templates. Content creators, using the templates, simply fill in the blanks with a standard word processor, and the template creates the code.

The appeal of this approach is undeniable: word processors are universally used and are familiar to every content expert. Plug-ins and support for XML within word processing applications can form one part of a company's strategy to move toward XML-based content management. These products can be used for certain types of content, but must be restricted to carefully selected tasks to be successful.

Once the content ranges beyond the simplest kind, sophisticated macros must be used to ensure the integrity of the XML produced. Since word processors were not designed for this type of use, the familiar look and feel of the word processor is quickly eroded and ease of use suffers.

Conversion Tools

Regardless of which method for original XML content creation a company chooses, it may still need to deal with hundreds, if not thousands, of legacy documents that are not stored as XML. There are three approaches to conversion:

One-Off Conversions

When legacy content is highly inconsistent and an organization needs to make a clean break with the past, a manual one-off conversion project may be necessary. This approach typically requires a great deal of manual labor, which companies outsource to firms that specialize in this kind of work.

As-Needed Conversions

When legacy content is more consistent, and there is little need to make it available immediately as XML, conversion toolkits can configure and execute conversion tasks in-house. A fair amount of manual labor may be involved to ensure the validity of final XML content; however, conversion toolkits reduce the re-keying. If the conversion project spreads over time, this can be an effective methodology.

Ongoing Conversions

When an organization wants to use XML but is unable to abandon some existing non-XML content creation tools or processes, ongoing conversion may be possible- but if, and only if, content creation structure standards are rigidly enforced. In this case, conversion tools attempt to map XML onto existing formatting styles that suggest a schema-like structure.

The more consistently structured the legacy content, the more effective an XML conversion project will bear. Unfortunately, in most legacy documents, attention to rigorous use of styles is sadly lacking. Experience with ongoing conversion products has shown that they work for only a portion of content.³ While the bulk of documents may be processed after the fact, at least 20 percent of content must be turned over to human eyes and hands to make judgments, rework the structure of the content, and convert it to valid XML. While by no means a perfect solution for original content creation, conversion may be required as a complement to more robust original XML content creation methods.

Real Efficiency Gains

“Our projections show that by using XMetaL for content creation in conjunction with our content management system, we will save on average 75% of the time it would usually take to create version variants for our over 200 product manuals.”

Publishing team manager at a large equipment manufacturer

Custom Solutions

In the absence of robust off-the-shelf technologies, early adopters chose to build custom XML content solution based, for the most part, on conversion strategies or HTML forms. There are also some companies that offer custom conversion and programming services. In general, custom solutions result in inflexible systems which, over the longer term, run the risk of becoming out of date. They become more difficult to support in the future as new platforms and technologies supersede those leveraged for the original development effort. Without the expertise of the people who created the original solutions, it may be difficult to extend the technology to other applications. Unless kept up to date through a formal revision process, such as products from a reputable software vendor, proprietary systems rapidly become difficult and thus more costly to maintain.

XML Content Solution Platforms

XML content solutions platforms provide flexible, rich interactive environments specifically designed for the creation of XML-encoded content. These purpose-built XML content solutions separate content creation tools from development tools. This allows information technology professionals to provide content creators with an inherently simple to use, but sophisticated word-processor-like interfaces for managing content development while at the same time producing valid XML code.

Purpose-built systems allow non-technical content authors to access the full power of XML encoding features, using a standard, word-processor-like interface, designed to eliminate programming, formatting, and data import tasks, but to provide users with a familiar and robust content creation solutions.

They also provide long-term application management features, such as customization management in the form of version control, and facilitate the collaborative development of applications for end-user authors. Organizations seeking a long-term, adaptive, and fully-featured XML content solution will need to adopt a purpose-built XML content composition platform.

“It cannot be stated enough that companies who seek to gain benefits from content reuse, single-source/multi-channel publishing, content syndication and robust content protection may not be able to reach any of their goals if the funnel at the beginning of the content lifecycle pipeline is not filled with intelligently constructed, XML-based content.”

The XMetaL XML Content Solutions Platform

XMetaL is a highly flexible enterprise-class XML content solutions platform, part of the third wave of information technology-based productivity and efficiency solutions that merge desktop productivity tools with the power of structured enterprise computing.

XMetaL content solutions-provided through XMetaL's professional services group, or by one of JustSystems' many solutions partners-combine content creation process insight, technical prowess, and extensive content architecture expertise with a robust technology platform. JustSystems' proven XML content solutions platform empowers organizations to reduce costs, improve content quality, reduce risk due to error, create new revenue streams, and dramatically improve productivity and efficiency.

Professional Services

XMetaL professionals have an intimate knowledge of content architecture issues and have the expertise to perform comprehensive process assessments and to formulate complete solutions. Their knowledge and super-user status with the XMetaL software suite allows XMetaL professionals to engineer cost-effective solutions that achieve rapid return on investment.

Methodology

The content solutions team is led by practice leaders with broad knowledge of content architecture, content management, publishing, and vertical industries. XMetaL consulting professionals and solutions partners identify areas of concern, implement new content creation workflow paths, reengineer the creation process, and create new content architectures or schema, which in turn help developers to structure a content application.

From analysis and a management review of findings, XMetaL consultants will recommend and implement a complete content solution to meet the needs of particular content processes within a specific organization.

Technology Platform

The XMetaL platform comprises four technologically advanced software components expressly designed to simplify and control the development, deployment, implementation, and maintenance of robust XML content solutions for tackling diverse content-related challenges.

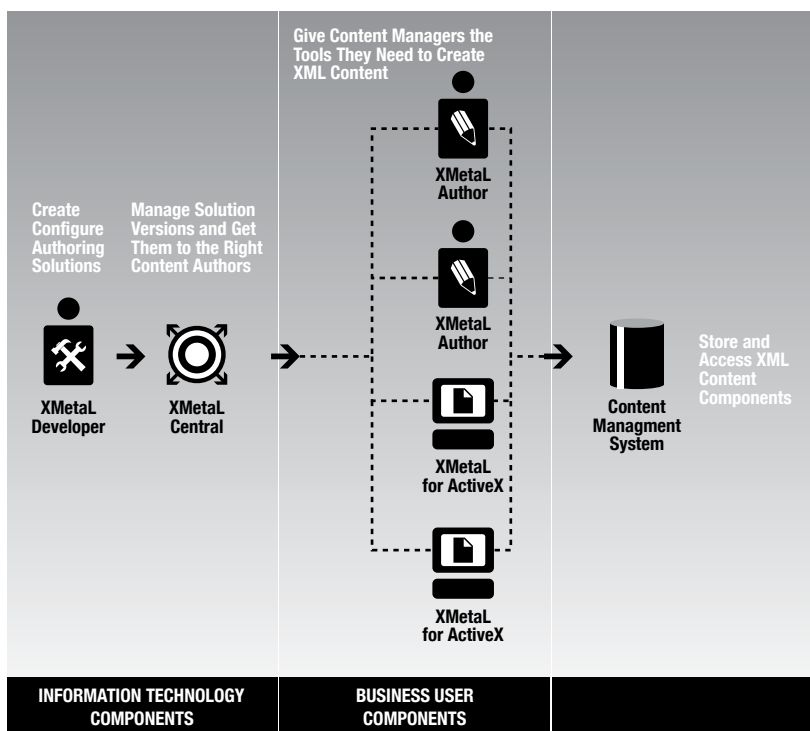


Figure 1: The XMetaL XML Content Solutions Platform

XML-based content creation provides a unified way for authoring, collecting, managing and collaborating on technical content.

XMetaL for Information Technology Professionals

XMetaL technical tools provide a standards-based computing platform that accelerates information technology professionals' ability to create custom content solutions to meet the needs of non-technical people. A development platform built to take advantage of the Microsoft Visual Studio .NET framework, XMetaL® Developer lets customization specialists create XMetaL applications that define flexible content creation interfaces to be deployed to end-user content creators.

XMetaL Developer takes advantage of industry-standard integration, scripting, Internet, communications, and other protocols. Developer allows customization specialists to create unique content applications that reflect the needs of content creators and embeds the programming for workflow processes as necessary.

Complete flexibility to create specifications allows content creators to work unimpeded by the rigid structure that a forms-based system imposes. Authors can add new content sections, paragraphs, graphics etc, and are able to transparently encode new components with valid XML.

XMetaL® Central is a server-based XML environment manager that simplifies the deployment and maintenance of customized XML applications across a distributed organization. Powered by Web services, XMetaL Central saves information technology managers enormous amounts of time and ensures that users are accessing the most up-to-date tools.

XMetaL for Business Professionals

Business people, particularly those who develop content for an organization, have line-of-business issues to contend with and almost certainly do not want to learn to program using XML. The content solutions created by XMetaL Developer, and distributed and maintained by XMetaL Central, empower business professionals to focus exclusively on creating superior content, leaving behind entirely the minutiae of formatting, data integration, and maintaining complex behavioral relationships between components. As they create new content, they can access and leverage existing content components and work collaboratively with colleagues.

XMetaL® Author facilitates transparent XML content creation for business people with subject matter and content knowledge. People with a high degree of accountability for creating content install the XMetaL Author client software on their desktop. When a new XMetaL content solution becomes available, XMetaL Author delivers powerful editing, spellchecker and thesaurus features to content authors in a familiar word-processor-like environment.

Not everyone in an organization has primary responsibility for content creation and therefore, would not require the full feature set of XMetaL Author. However, others besides content experts are often required to participate in some way as a contributor, reviewer, or subject matter expert. To facilitate collaboration and contribution from others, JustSystems engineered a uniquely cost-effective solution leveraging widespread support for ActiveX. XMetaL® for ActiveX® gives XML-encoded content creation capabilities to content contributors through any Web browser or Windows-based application.

Real Savings

“To provide this service without XML would have meant using three times as many people. ICP Europe has been running for over two years, thus far we have saved over £500,000.”

Doug Winter, Chief Technology Officer
IPC Europe Publishing

The Advantages Of XMetaL

The complete XMetaL XML content solutions platform provides significant advantages over other offerings. In contrast with other purpose-built XML content solutions, XMetaL provides unparalleled flexibility for developers, leading to robust solutions for end-users.

Field-Tested Success

The original developers of XMetaL are among the members of the World Wide Web Consortium (W3C) defining the specifications for XML. With hundreds of installations and experience creating XML content solutions that spans the entire lifetime

of XML, the XMetaL solution provides a time and field-tested solution that has resulted in dramatic returns on investment for many leading companies across diverse industries.

End-to-end Solution

The five components of a fully-featured, field-tested XML content platform provide organizations with a complete, comprehensive end-to-end solution for XML content creation, including integration modules for popular content management systems:

Documentum, Lightspeed, and Interwoven, and for Oracle, SQL and Software AG databases. In addition to covering every conceivable aspect of XML content solutions, XMetaL deals with legacy documents and eases their rapid conversion to XMetaL format for final clean-up by content specialists.

Low Total Cost Of Ownership

Unlike custom or retrofit solutions, which require continual consulting input to stay running, XMetaL provides a high value solution for low initial implementation costs and much lower ongoing costs of ownership.

Reduced Training Costs / High Adoption Rates

One danger when implementing a new content platform is that users (both on the development and on the end-user side) will not comply. The way to mitigate this is to ensure that user interfaces are familiar and do not require a high degree of behavioral change or product training. XMetaL provides familiar development and end-user environments that require almost no training if users are familiar with programming and word processing environments respectively.

Developers

On the development side, customization specialists familiar with the techniques used to create Web pages (for example) will instantly feel at home within the XMetaL Developer interface. Amazing flexibility for integration using COM and Java allows developers to take advantage of over 300 interfaces to XMetaL output files, making it the single most flexible and interoperable purpose-built XML content solution available. Starter programming templates, thorough debugging, and support for drag-and-drop forms design speeds development. Apart from some of the higher level integration functions, low-cost customization specialists can create the vast majority of applications necessary.

Business users

Business users need not learn anything about XML programming in order to use XMetaL Author, which mimics Windows key and mouse behaviors, supports drag-and-drop functionality, and provides an interface familiar to anyone who has ever used Microsoft Word or Corel®WordPerfect®.

A robust content processor itself, XMetaL Author supports 32 languages and includes revision tracking, spelling checks, and a comprehensive thesaurus. The ability to choose between multiple views provides flexibility, and an editable, collapsible structure view makes it easy to navigate documents. This speeds content development and allows composers to efficiently use their time to provide outstanding material.

Flexibility Improves Usability

“We used XMetaL’s rich API and easy-to-customize tag insertion methods to produce valid XML while keeping the individual authors’ workload to a minimum. And we effectively integrated XMetaL with Documentum to make it easy for users to retrieve documents and other content for editing, and save them back to the content repository.”

Paul Vanderveen, Senior
Consultant Creative Concepts

Remote Environment Control

The development environment controls enabled through XMetaL Central are accessible remotely via Web services through SOAP, making remote management possible, thus reducing the requirement for highly paid information technology professionals on-site.

Cost Effective Deployment Options

The applications customization specialists create can be exported as XMetaL Author files, or they may be expressed as an ActiveX control to be embedded in any application that supports ActiveX. The pricing model for the self-installing XMetaL for ActiveX client is based on concurrent users, making XML content creation available to a more widespread user-base for less than the price of installing the XMetaL Author tool on every desktop. This affords companies greater flexibility in deployments and broadens the reach of XML to include business users who do not have primary responsibility for content creation, but who nevertheless do generate content that would benefit from universal access, reuse, and repurposing.

Ease Of Integration

The adoption of an open programming architecture makes XMetaL easy to integrate with back-end data systems such as enterprise resources planning systems, manufacturing systems, and customer relationship management systems, facilitating the aggregation of major data assets with major content assets. This can lead to incredibly powerful and flexible capabilities.

For example, a catalogue application created in XMetaL may contain controls (in the form of any scripting language) that pull detailed product description information from a back-end marketing system, and item number, pricing, and availability information from an inventory system, assembling the information elements from each system to create a new catalogue entry.

Built To Last

Each component of the XMetaL suite takes advantage of Internet communications, document, schema, integration, Web and programming language standards. Some XML content solutions do not support the use of accepted and readily available World Wide Web Consortium (W3C) schema standards, nor do they support DOM or WebDAV standards. XMetaL, however, leverages all of these technologies and contains no proprietary components that might limit the extension of XMetaL services into the future.

There is no question now as to whether XML is here to stay to facilitate both data and content interoperability. According to Evans Data Corporation, nearly 60 percent of developers are using XML today.

XML: Here to Stay

Wall Street & Technology and ILOG surveyed close to 200 information technology executives, business executives and consultants in the financial services industry to learn more about the strategic importance of XML. The results reveal that leading financial services institutions consider XML to be absolutely “critical” to their overall business strategy (81%). The survey also reveals that XML adoption is growing at a staggering rate, with 78% already adopting XML or planning to implement an XML strategy during the year 2002.

Rapid Adoption

“When we were choosing an XML content creation solution, we were really impressed with XMetaL’s authoring environment. After about a week or so of using the product, our writers were up to speed.”

Patrick Tourais,
Manager of Systems and
Training, Continental Airlines

How Members In The Content Creation Chain Benefit

Business Users / Technical Writers / Content Authors

XMetaL delivers unprecedented ease of use to authors while shielding them from the complexities of XML. Because the solution takes care of formatting and behavior, content experts are freed from the trivial business of document creation and able to spend more time on higher-value topics of interest that are also of greater value use to the organization.

Presentation Experts

XMetaL reduces the need for presentation experts to alter content to suit the needs of a particular medium on an as-needed basis. For example, rather than spend time on the more mundane task of transforming content from a word-processor document, to suit the needs of a Web-based presentation, now presentation experts can concentrate on taking advantage of all the features of a particular medium, using XML to populate their masterworks.

Development Team

There are very few limitations inside the XMetaL programming environment.

XMetaL allows customization specialists to creatively engineer solutions that support business needs. XMetaL Central manages the entire development process, reducing the workload for development staff, allowing programming professionals to focus on the real work of customization and freeing them from lower-end administrative tasks.

When a content architect makes a request for a change to a particular application, the ramifications of making that change are not epic in terms of version management because XMetaL Central manages both the development and deployment of new versions.

Content Consumers

At the end of the content creation chain, the consumer benefits from XMetaL generated content by receiving accurate, well presented, up-to-date information specifically tailored to meet their needs. Consumers receive final content in one of many available formats, depending on their preference.

Industries that Benefit

XMetaL benefits most those companies and organizations that have a mission-critical need for constant content updates, reconfiguration of content components, multiple versioning, high accessibility and flexible content configurability requirements.

Typical Content Challenges that XMetaL Meets Head On

- A pharmacy wants to create client-specific instructions from an existing knowledge base of drug interaction information.
- A financial services company wants to create personalized newsletters tailored to reflect the asset allocations in individual investment portfolios.
- A help desk wants to improve customer service by sending relevant help information with precision and speed.
- A manufacturer of airplanes must create owner manuals tailored to describe multiple custom configurations.
- A cellular phone manufacturing company must distribute current documentation in multiple languages with its products. From Canada to China to Finland, without documentation, the product can't be sold.

“The financial services sector alone spent over US \$195B in IT in 2001, with \$985M invested in XML technologies in 2002.”

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Equipment Manufacturers

The process of creating and maintaining product documentation (that is, assembly instructions, test instructions, component maintenance manuals, operating procedures, work instructions, shop specifications, and shop standards) is exacting, and every step of every process must be highly traceable. Often documentation must be made available in multiple languages and in multiple versions describing custom products. XML-powered content solutions work to facilitate efficient content sharing, translation, and version control, while improving content quality.

Sometimes, in the manufacturing field, product documentation includes data from back-end systems. Traditionally, content writers must manually transfer data into each publication that cites it. Each edition must be verified for accuracy by comparing it directly with the source. When the database changes, rediscovering where all the copies are and updating them can be expensive, time-consuming, and prone to error. Using an XML content solution eliminates the expense by permitting content authors to incorporate data feeds right in the documentation. When a data element changes in the database, it updates automatically in the documentation.

Financial Services

Characterized by multiple branches, a distributed workforce, and multiple products with rapidly changing features, financial services organizations benefit greatly when processes, policies, and procedures are stored as content objects. These content components can be dynamically presented in multiple languages and formats through a Web portal, to aid in training and informing staff about new products and procedures. While the potential for internal training improvement and timely product information dissemination using an XML-powered solution is great, a content management system can also help package information for use by existing or potential customers. Imagine analysts, sales associates, investment bankers, and marketing professionals quickly reassembling content components into custom renditions for a particular customer based on their current asset allocations, or on new promotional efforts. Relevant, timely information can easily be packaged into content bundles and automatically sent out in the medium preferred by the customer.

E-Learning

As the e-learning market matures, a growing number of vendors are embracing XM to streamline the way e-learning software is built and handles information. XML provides a standard way to tag information, such as student data and course material, so that it is easy to read and exchange. Among its many uses, XML helps e-learning vendors develop applications faster, reuse course content more easily, and establish seamless data exchange between the Web-based courseware, or content, and learning management systems. XML-based learning also allows companies to make e-learning systems more useful through tighter integration with other software such as human resources management systems and e-commerce Web sites.

Publishing

Members of the publishing industry have been among early adopters of XML-based content management strategies, standing to gain significantly from the general benefits of universal access, reuse and repurposing. The publishing industry is experiencing dramatic change and is rapidly devising new processes and technologies that take advantage of trends in content sharing and multi-channel publishing.

The type of content produced and managed by publishers varies widely, but may include digital images and photographs, audio files, electronic video, news and magazine articles, advertising copy and artwork, book-length transcripts, marketing materials, legal contracts, and much more. The task of creating and managing these content assets can become overwhelming. A coherent content management strategy, powered by XML, can help.

An organization is most likely to benefit from XML-powered content management if it has one or more of the following characteristics:

- A large, distributed workforce
- Multi-language requirements
- Multi-version requirements
- Distributed content authors and composition functions
- Legal and regulatory requirements
- Multi-channel publishing objectives
- A commitment to e-learning

Real Returns for Customers

The significance of the re-conception of structuring previously unstructured content to information-based organizations is enormous. A growing body of evidence from JustSystems' own experience with customers indicates that companies adopting XML-based content solutions vault ahead of competitors, by reducing overhead, benefiting from streamlined processes and bringing products to market more rapidly than ever before.

HP Corporation

XML Improves Productivity and Centralizes Information Management

HP, the world's leading provider of desktop printers, needed to streamline the creation and management of product documentation. Supporting as many as 34 languages for each product, the documentation team faced the formidable challenge of keeping costs down while providing on-time delivery of high-quality materials. To meet this challenge, documentation specialists create the original text in English using XMetaL. The resulting components populate a content management system that creates variations in multiple languages for a specific product or operating system as required.

Conclusion

The Enterprise Content Management revolution is empowering organizations to optimize content assets in order to gain competitive advantage, reduce overhead, and maximize human and technology resources. XML-based content components power Enterprise Content Management systems to provide the benefits derived from content access, reuse and re-purposing.

The creation of valid XML-encoded content elements is a critical step and fuels the entire process. While there are competing methods and products, XML content solutions offer organizations a complete set of robust programming and content creation tools that make real the promise of flexible, standards-based XML-encoded content.

A vanguard member of the XML content revolution, XMetaL fuels Enterprise Content Management systems. The XMetaL XML content solutions platform provides organizations with the means to efficiently and cost-effectively manage the XML content creation process from end-to-end, facilitating increased content accuracy and overall value for the end consumer, while promoting corporate productivity and efficiency.

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About JustSystems

JustSystems is a leading global software provider with three decades of successful innovation in office productivity, information management, and consumer and enterprise software. With over 2,500 customers worldwide, the company is continuing a global expansion strategy based on its xfy enterprise software, XMetaL content lifecycle solutions, and its pioneering work in enabling XBRL financial reporting technologies. JustSystems is one of the 2008 KMWorld 100 Companies that Matter in Knowledge Management, a 2008 EContent 100 member, and was recognized on the 2008 KMWorld Trend-Setting Product list for XMetaL. Major strategic partnerships include IBM, Oracle and EMC.

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