Lotus® software

Understanding IBM Lotus Web Content Management software.

What is it? Why do I need it? And how does it work?

Michael Fromin, former director of education and training, practice lead — Web content management, Ascendant Technology

Contents

What is Web content management?

A Web content management system (WCMS) is a computer software system that serves two primary functions:

- *Facilitate collaboration among those responsible for maintaining content. A WCMS supports the process of creating, updating and approving content. Some Web content management systems use a Web application to manage content, whereas others require proprietary client software for content management.*
- *Organize content. Web content management systems typically present organized content as Web sites, but they may deliver it in other forms, such as Really Simple Syndication (RSS) news feeds.*

IBM Lotus® Web Content Management software, formerly known as IBM Workplace™ Web Content Management™ software, is IBM's Web content management system offering. Lotus Web Content Management software provides tools to apply business rules and processes to content, helping to ensure that specific information assets from across the enterprise are delivered intelligently via Web sites and portals to achieve business objectives. Lotus Web Content Management software allows content to be:

- *Authored, acquired (referenced in external systems) or both.*
- *Managed through library services (versioning, workflow and so on).*
- *Secured programmatically to help ensure proper access.*
- *Deployed to various applications (stand-alone Web sites and portals).*
- *Deployed to various environments (for example, development, staging and production).*
- *Presented (rendered) appropriately to each user via multiple presentation templates and personalization.*

Lotus Web Content Management software also provides advanced capabilities for self-management. User management (permissions and so on) is provided via built-in integration with IBM WebSphere® Portal software and its underlying WebSphere member manager feature. The WebSphere member manager is easily configured to integrate with most Lightweight Directory Access Protocol (LDAP) servers, as well as with IBM Tivoli® Access Manager and Netegrity SiteMinder software.

Why do I need Lotus Web Content Management software?

Companies across the globe have implemented millions of Web sites. Not all of these sites are built using Web content management systems. What reasons do companies cite for implementing a Web content management system — and Lotus Web Content Management software in particular?

The golden rule: separation of content from presentation

Web content management systems improve Web site development by separating content from presentation. That is, a WCMS like Lotus Web Content Management software allows Web site developers to create page layouts for a Web site, inserting placeholders to accommodate various types of content (such as the title, body and summary), while content creators provide the individual pieces of content. This separation of content from presentation provides several benefits:

- *Role-based efficiency. Knowledge owners handle content, and Web site developers handle the look and feel of the site.*
- *Simplified content reuse. Content may be repurposed on different pages in a single site or across multiple sites. A single piece of content may look dramatically different depending on where it is used, as its look and feel are always adapted to the context in which it is accessed.*

- *Simplified delivery of content to different devices. Because the layout for content is easily changed, it is straightforward to repurpose content for different devices, such as personal digital assistants (PDAs), RSS news feeds and standard Web browsers.*
- *Simplified site redesigns. Web site developers need to update only the presentation of the site, and all content will reflect the new look and feel.*
- *Simplified reuse of parts of content to create lists. Web site developers can reuse aspects of content to create many different types of dynamic lists, including basic site navigation, site maps, lists of content that reflect user interests, links to content related to the current page, lists of the most recently updated pages and more.*

Consistency, consistency, consistency

Lotus Web Content Management software makes it easy to implement standards and consistency across your Web sites. Site developers can create reusable components and leverage them repeatedly to help ensure consistency and potentially reduce developer effort. Content creators use templates to add content to the system. These templates (along with workflow) help ensure that all content is added in a consistent and repeatable fashion.

Maintaining intellectual capital

Corporate downsizing, employee turnover and retirement result in loss of intellectual capital, as well as audit scrutiny. Lotus Web Content Management software provides a central repository for safeguarding content as well as services to apply business rules and auditing. Utilizing these features helps insulate your business from issues related to loss of intellectual capital and content auditing.

Managing content growth

A valuable Web site provides information — not just data. There is a continued explosion in both content volume (numbers of items) and content types (documents, images, streaming media, instant messages, e-mail and so on). Lotus Web Content Management software helps you structure your ever-growing data.

More with less

Lotus Web Content Management software can allow you to manage your Web assets with fewer staff members. The separation of content creation and presentation helps knowledge workers to be effective content contributors and helps reduce IT bottlenecks. In today's environment, businesses need to be responsive and provide results in a timely fashion.

Latest and greatest information

Business moves quickly: Promotions come and go, prices change, product features are added, and new opportunities arise. Lotus Web Content Management software helps ensure that the best and most relevant information is shared with key stakeholders in two important ways:

• *Content creation and maintenance belong to subject matter experts, thereby reducing or eliminating any IT-related process bottlenecks.*
• *Content is rendered dynamically. Once content is created, edited or approved, the most up-to-date information is immediately available to site visitors.*

Security

Lotus Web Content Management software leverages the security-rich models in WebSphere Portal and IBM WebSphere Application Server software. The security features in Lotus Web Content Management software help ensure that authorized site visitors have access only to published content meant for their consumption. Security is also a core component of the content creation and management processes. The authoring environment may also be tailored to allow only specific parts of the content repository to be exposed according to access rights.

Integration with enterprise content management

Although a WCMS can address your Web content management issues, it does not address all of your content issues. IBM provides other industry-leading solutions for enterprise content management and document management. Lotus Web Content Management software provides integration with these other applications, providing an end-to-end content management infrastructure.

Help meet compliance standards

Web content management systems support knowledge owners and Web site developers in working together to meet compliance standards. Knowledge owners (typically together with a corporate audit team) determine what compliance standards need to be met. Web site developers then configure the WCMS to support those governance standards. Lotus Web Content Management software supports developers in meeting compliance standards in several ways:

- ***Workflow to support approval processing.*** *Workflow may be configured to support one or more layers of approval (or rejection). For example, workflow could be configured to require approval of draft content by Marketing and then Legal. Further, it could be configured to allow different approvers different types of access, for example, allowing Marketing to edit, approve or reject a draft while allowing Legal to approve or reject only Marketing-approved content (in order to prevent Legal from updating the content in a way that would not meet Marketing's approval). Workflow processing commonly supports e-mail notification.*
- ***Immediate or scheduled publishing.*** *Editors may indicate whether content should be published immediately or whether it should be held in an approved state and published at a specified date and time.*

- *Scheduled content expiration. Editors may indicate whether content should be available indefinitely or whether it should be removed from the Web site at a specified date and time.*
- *Security and personalization requirements. On secured sites, dynamic navigation reflects security that has been applied to content. In addition, dynamic navigation may be configured using personalization so that, for example, links are targeted to the Web site visitor based on his or her role within an organization.*

Roles in a WCMS environment

A Web content management system typically recognizes three classes of users:

- *Knowledge owners. These are people who manage the content. Knowledge owners include people fulfilling two distinct roles: content creators and content approvers.*
- *Technical resources. These are people who manage the structure or layout of the content or who manage the underlying infrastructure. Technical resources include developers and administrators.*
- *Web site visitors. These are people who access the content.*

Some people serve in multiple roles. For example, content authors and approvers are typically also Web site visitors. In addition, roles are often more finely tuned. For example, content approvers are often allowed to approve only particular categories of content, such as content in a single section of a Web site.

Knowledge owners

Knowledge owners are responsible for maintaining content in Lotus Web Content Management environments. There are two types of knowledge owners:

- *Content creators. These people create drafts of content and submit drafts for review. Content creators cannot publish content. Content creators typically have the rights to delete draft content but not published content.*
- *Content approvers. These people review draft content and approve content for publication. Content approvers may also be able to create, edit and delete content. In addition, content approvers can reject content under their review, returning it to the content creator for revision.*

Lotus Web Content Management software supports knowledge owners by providing an environment that allows them to create, edit and publish Web content without knowing any Web-specific technologies such as FTP software, Sun Microsystems JavaScript or HTML. Because knowledge owners have less dependence on technical resources, they can publish content in a more timely and efficient way by using Lotus Web Content Management software.

Technical resources

Technical resources are responsible for developing and maintaining the underlying structure of the Lotus Web Content Management site. There are two types of technical resources:

- *Site developers. These people create the look and feel of the Web site. They also manage the workflow processes that support publishing content to the Web site. Site developers do not generally create or approve content for publication.*
- *System administrators. These people manage the Web servers and Lotus Web Content Management software. Administrators ensure that Web servers are optimally sized and configured for the target audience. They also regularly monitor the Lotus Web Content Management site and adapt the Web site's infrastructure as needed. Web site administrators do not affect the appearance of Web sites in any way, although they are critical for Web site performance and availability.*

Web site visitors

Web site visitors are interested in finding and using the content that is posted to the Web site. Web content management systems typically support presenting user-specific content in a few different ways.

- *Anonymous Web sites. These sites are designed for the anonymous user. They require no login, and they display every page identically, regardless of which user is accessing the site.*
- *Secured Web sites. These sites present all content that the user is allowed to see. They may contain content that is available to anonymous users, content that is available to everyone who has logged in and content that is available to only specific people (by group or role).*
- *Secured and personalized Web sites. These sites present all content that the user is allowed to see, with a special emphasis on the content the user is most likely to be interested in accessing. These sites have the same options as secured Web sites. In addition, they have personalized content—content that is displayed based on specific attributes of an individual site visitor. Security and personalization differ in that security determines who is allowed to see content, whereas personalization determines who is most likely to be interested in seeing content. Security and personalization are often used together to create a richer site visitor experience.*

Managing your content with Lotus Web Content Management software

One of the most important aspects of any WCMS is its ease of use for content creators and content approvers. Lotus Web Content Management software provides a variety of features and capabilities to enhance the content management experience for these groups. In this section, we will look at some of the core features designed to improve the process for managing content.

Authoring environment

Lotus Web Content Management software provides an improved, easier-to-use Web-based environment for creating and managing content that is called the authoring portlet. This Web-based application provides a clean and simple interface for performing all activities related to creating and approving content.
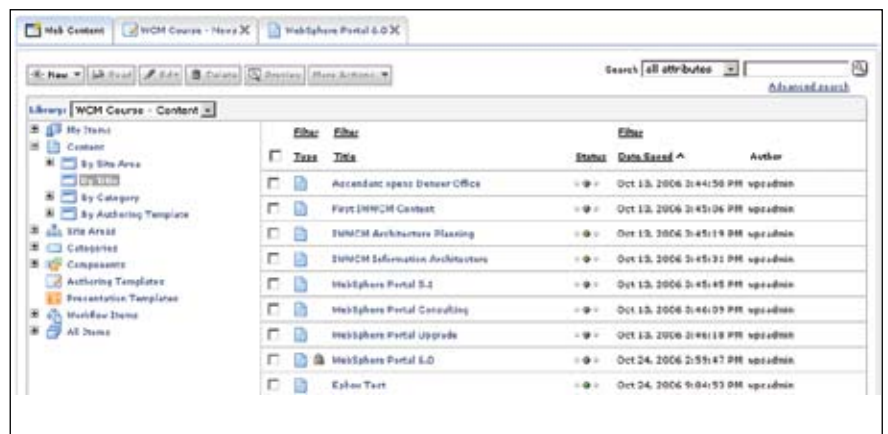

Figure 1. The authoring portlet*

Lotus Web Content Management software administrators grant people varying levels of access to the authoring portlet based on the tasks they will perform. This allows the administrator to show content creators and administrators only those functions they need to perform their tasks.

To further simplify the process, site developers secure the technical assets they create to help ensure that content creators and approvers see only those assets they need for their tasks. For example, there may be authoring templates (see next section) for creating news, job postings and press releases. If people in Marketing create only press releases, the other authoring templates

should be secured so that the Marketing people cannot see the other templates. The authoring portlet also provides many features and functions to simplify and streamline the content management process.

Multiple content views

The authoring portlet provides several different views of the content to make it easier to locate a specific content item. These include Content by Title, Content by Workflow and Content by Authoring Template.

The My Items view shows items that are relevant to you, making it easier to find the items you work with most often. The My Items views include Recent, Draft, Pending Approval and Published. These new views will help make it much faster for content creators and content approvers to do their jobs.
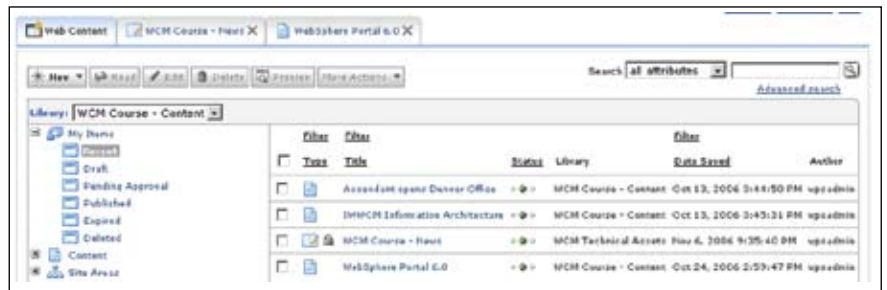

Figure 2. The My Items – Recent view in the authoring portlet*

Sorting

All content views allow for sorting by multiple attributes such as creator, date saved and title.

As the screen shot demonstrates, most column headers are links. Clicking the Type, Title, Status or Date Saved link sorts the content based on that column.
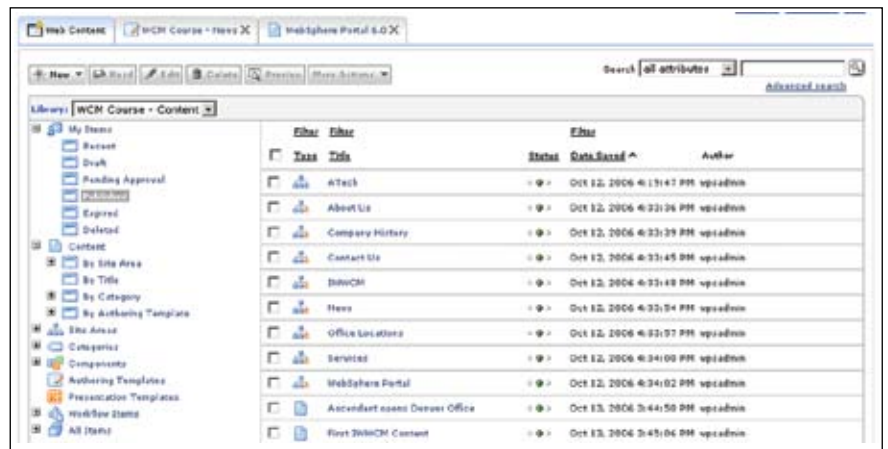

Figure 3. Sorting: Most column headers are links.*

Filtering

Filtering allows people to further limit the content displayed in a content view by providing one or more criteria. You can filter against multiple attributes, including title, type and date saved. For example, you could use a "Starts with IBM" filter on the title. This would limit the content shown in the content view to only content that matches this filter. In Figure 4, the content creator is filtering content based on the name (Title) by showing only content that starts with the text "WebSphere."
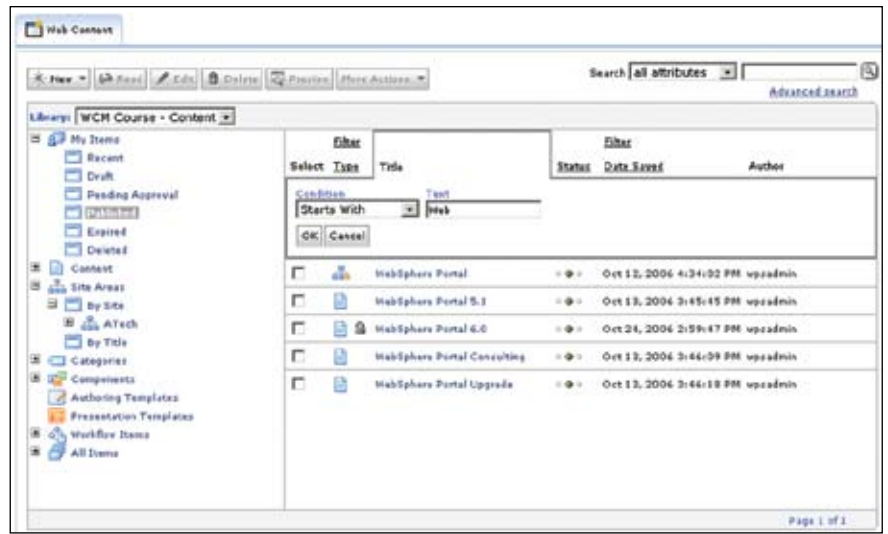
Figure 4. Filtering example: filtering on content name*

Searching

In addition to filtering, the authoring portlet provides the ability to search for items. The authoring portlet provides a small search section on its main screen.
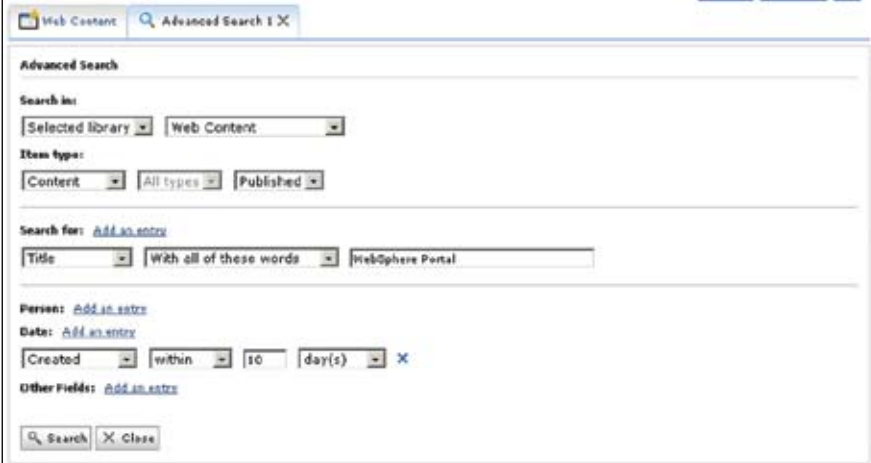

Figure 5. Standard search: authoring portlet*

This basic search is confined to the current library but will find items of all types, including content and technical assets (for example, presentation templates and site areas).

In addition to the basic search, the authoring portlet provides an advanced search. The advanced search screen allows you to provide many more search criteria to further refine and target the search. Some of the more beneficial advanced search criteria include the following:

- *Creator and owner*
- *Publish date and last modified date (including date ranges)*
- *Libraries*
- *Item type (for example, content, authoring template and library component)*

Figure 6. Sample advanced search in the Lotus Web Content Management authoring portlet*

Tabbed interface

The authoring portlet uses a tabbed interface that allows you to have multiple items open simultaneously. This allows you to easily compare items or copy and paste items from one content object to another. In the following example, the content creator has opened two content objects—WebSphere Portal Version 5.1 and WebSphere Portal Version 6.0 tabs. Each may be accessed quickly by clicking on the icons at the top of the screen.

Figure 7. Authoring portlet: tabbed interface

Libraries

Libraries are another feature of Lotus Web Content Management software. A library is a logical storage location for a set of Lotus Web Content Management assets (for example, content, technical assets or both). In prior Lotus Web Content Management versions, all items for all sites were stored in a single database or work environment. Libraries allow you to segregate content and technical assets into separate work environments. Once separated, people using the authoring portlet are only given access to those libraries they need. By properly organizing your content and technical assets into libraries, you can simplify the interface for content creators and content approvers, because they will see only the items relevant to their responsibilities.

When using the authoring portlet, there is a drop-down list that allows you to quickly and easily move between the libraries to which you have access.

*Figure 8. Selecting a library in the authoring portlet**

From a security perspective, each library has its own access control. Content creators can be given appropriate permissions to create, modify or delete items in one library, while only being given read access to other libraries. A common setup is to have the content and site structure in one library and the technical assets in another. Content creators and content approvers can be given full access to the content library and read-only access to the technical library.

Link management

Lotus Web Content Management software provides features to help you manage links embedded in your content. The link management features in Lotus Web Content Management software allow content creators to manage two types of references:

• *To which items does the current content object link*
• *To which other items does the current content object link*

Lotus Web Content Management software can improve and streamline the process for managing links.

Figure 9. Link management: showing the elements to which a content object links*

Content preview

Lotus Web Content Management software provides content creators and approvers the ability to preview their content prior to publication. The system allows for preview as a stand-alone Web page or within the WebSphere Portal offering. For WebSphere Portal sites, you can create multiple preview pages to allow content creators to preview content in the appropriate portal, either themes or skins (layout). A strong preview facility significantly reduces the likelihood that malformed content will be promoted to your production site, resulting in a consistent look and feel.

Inline editing

Inline editing allows content creators and content managers to have authoring portlet access to a content item while viewing the item from its finished Web page. Inline editing allows you to simply click a link on a Web page and seamlessly perform many authoring portlet functions, including:

- *Create a new content item.*
- *Edit an existing content item.*
- *Delete an existing content item.*
- *Approve or reject the current content being previewed. (Preview content is only visible to approvers who open a draft content item from a URL sent by an e-mail workflow action used in a workflow stage.)*
- *Create a new site area.*

This new feature is designed to save content creators and content approvers time in locating items with which to work. No longer do you need to open the authoring portlet and manually locate the item in question. Instead, developers can embed an authoring tools element, and people with appropriate access will be provided a link that takes them to the content automatically. Developers have freedom as to how the link is generated. The link could be text, an image or any other valid HTML that can be clicked. The screen shot in Figure 10 shows how inline editing could be implemented using simple text links. The inline editing capabilities allow the user to create new content as well as read, edit and delete the current content object.
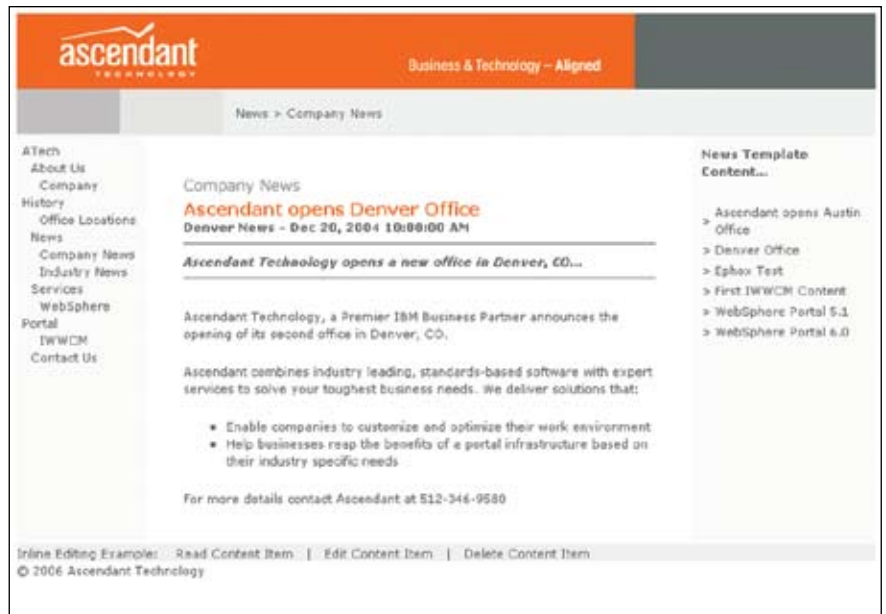
Figure 10. Inline editing exposed as text links within rendered content

In addition to these choices, an authoring tools component can expose workflow-related activities such as approving and rejecting a content object.

Authoring templates

Authoring templates are used for content creation. When creating a new content item, the content creator starts by selecting the appropriate authoring template. An authoring template contains a series of data entry fields that content creators fill in while creating new content.

A well-designed authoring template simplifies the process of content creation for the nontechnical content creator. An authoring template is designed to capture each discrete element of content individually to allow for ease of input. For example, one might have an authoring template for a job posting that contains the following components:

- *Job title*
- *Location*
- *Reports to*
- *Pay grade low*
- *Pay grade high*
- *Job description*
- *Job requirements*

In a well-designed authoring template, the content creator is given a discrete set of information to input via the authoring template. In Lotus Web Content Management software, default values can also be preloaded into any field in an authoring template, further reducing the work required to add content to the system.

The task of creating an authoring template belongs to the site developers. A site developer creates unique authoring templates for each specific type of content to be managed on the Lotus Web Content Management server. Each authoring template is then secured to help ensure that only the appropriate content creators create content with a given authoring template.

Lotus Web Content Management software provides a significant step forward for authoring templates through the following features.

Additional field (or component) types

Components are the fundamental building blocks for authoring templates. Developers assemble one or more components to create an authoring template. In Lotus Web Content Management software, you have components for common data types such as text, HTML, rich text and file attachments. Plus, there are several additional component types, including the following:

- *Date and time*
- *Number*
- *Link*
- *Option selection (single and multiselect)*
- *Custom JSP*
- *Menu*
- *Navigator*
- *Personalization Rule*
- *Style Sheet*
- *Taxonomy*

These new component types allow for a more targeted form for the content creator by more specifically defining the type of data expected.

Required fields (or components) and validation

Lotus Web Content Management software provides the developer with the ability to require fields. The authoring portlet provides a visual element ("*") to denote this fact within the template.
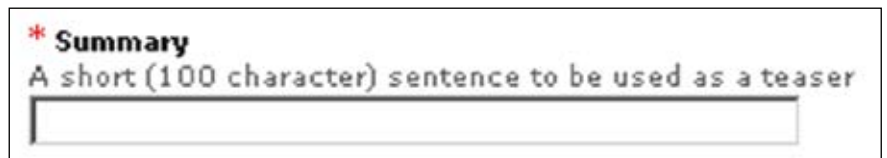

Summary
A short (100 character) sentence to be used as a teaser

Figure 11. Example of a required field, designated by an asterisk*

In addition, most components have validation that can be applied. The validation rules are set up by a developer and are enforced when content creators add content to the system. The following example shows a text field with some validation criteria.

Text field properties

☑ Identify this as a required field ☐ Hide field

Size (in characters)　Field width: 50　　Field height: 1

Characters　　Minimum: 1　　Maximum: 100

Words　　Minimum: ☐　　Maximum: ☐

Figure 12. Field validation example: a text field with validation criteria*

Field (or component)-level security

Lotus Web Content Management software provides the developer with the ability to define security settings for each component on an individual basis. The developer can give groups no access, read access or full access to each component. This allows multiple people to have responsibility for a single content item, while helping to ensure that people modify only the components for which they are responsible.

In the following example, one group of users has the ability to edit this component and another group only has the ability to see (read) the component.

Figure 13. Field-level security example*

Using this model, a marketing manager could be allowed to add textual content but not be allowed to add graphics, while the creative director could be allowed to add images without having the rights to modify the text.

Hiding fields (or components)
Lotus Web Content Management software provides the developer with the ability to hide any component that content creators or content approvers do not need to access. This complements field-level security by further simplifying the authoring template. If people never need to associate categories to a content object, this section can be hidden completely to shorten and visually simplify the form.

Field (or component)-level help

Lotus Web Content Management software also provides field-level help. Each component (field) on an authoring template has the ability to provide customized help text to guide new content creators and answer common questions. Developers can further aid content creators by setting a default value in each component.
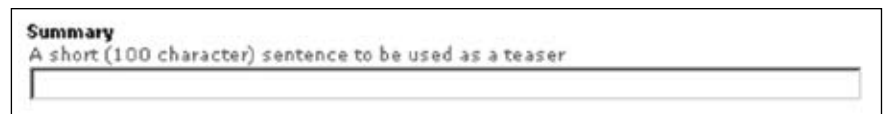
Summary
A short (100 character) sentence to be used as a teaser

Figure 14. Field-level help text*

Custom fields (or components)

For scenarios in which the existing components do not meet your needs, developers can create JavaServer Pages (JSPs) to create custom components. The most obvious benefit of this feature is the capability to build authoring templates that provide a customized user interface. In addition, the use of JSP technology allows you to create authoring templates that can interact with other systems. For example, a custom component could allow a content creator to select an image from an external digital asset management system.

Rich text editor

IBM also provides an easy-to-use rich text editor (RTE) for Lotus Web Content Management software. Business users do not have to have HTML experience in order to create web content within the system. The rich text editor provides

a word processor-like experience which allows users to create tables, insert images, apply formatting, etc. In addition, the editor can help business users insert images and managed links. Managed links can access:

- *Other Lotus Web Content Management content items, pages or both.*
- *Component library images.*
- *Component library files.*
- *External URLs.*

The use of the RTE significantly simplifies the process for a content creator to create these links. The RTE provides a simple wizard-style interface to create the appropriate link, eliminating the need to know any HTML.

Another exciting RTE capability is the support for cascading style sheets directly within the rich text editor. Administrators can apply a style sheet to the RTE, and content creators will see the effects of the style sheet directly within the RTE. Content creators do not need to preview content to see how the style sheet will affect the content in the RTE.

Security
Lotus Web Content Management software contains a structured, fine-grained security model. This model is designed to allow you to secure each individual content object to meet your specific security requirements.

The workflow process (see next section) handles the task of securing content, so content creators are not asked to provide security information each time they create content. This approach simplifies the content creation process and better ensures a consistent and standardized process for applying security to content.

In Lotus Web Content Management software, libraries add an additional level of security by allowing the system to segregate items into multiple libraries and by securing each library as appropriate. This not only improves the security of the system, it also simplifies the user interface for content creators and content managers.

Workflow

Once content is created via an authoring template, Lotus Web Content Management software uses workflow to control the access to and approval of Lotus Web Content Management items. Each workflow comprises one or more workflow stages. Workflow stages are used to define each step through which content must pass prior to its approval. Each workflow stage can contain zero or more workflow actions. Actions are used to perform common tasks such as:

- *Sending an e-mail to notify a content approver of new content awaiting approval.*
- *Changing the status of a content object from draft to published.*

With Lotus Web Content Management software, workflow controls not only the approval process for content, but also the security settings for the content throughout its life cycle. As content moves from stage to stage within a workflow, the appropriate security is applied automatically (based on the settings in each workflow stage). As a content creator, you have to select only the correct workflow. The system will take care of the rest.

Scheduled publication

Although many situations call for the immediate publication of approved content, there are situations in which, after approval, content should not be made available on the live Web site until a later date. Lotus Web Content Management software provides a built-in capability to perform delayed publication.

The key to the delayed publication of content is the use of a publish date in each content object. While creating content, content authors are provided a field in which they can select a specific date and time for content to be published.
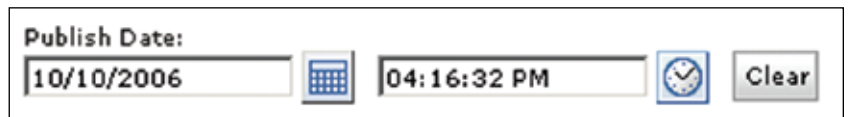
Publish Date:

10/10/2006   04:16:32 PM   Clear

Figure 15. Publish date: controlling when approved content is published*

Scheduled expiration

At some point in time, any given published content item will no longer be relevant and should be removed (expired) from the Web site. The authoring portlet provides a manual process for expiring content, but, in many situations, the expiration date is known in advance. For these scenarios, Lotus Web Content Management software allows the content creator to provide an expiry date during content creation.
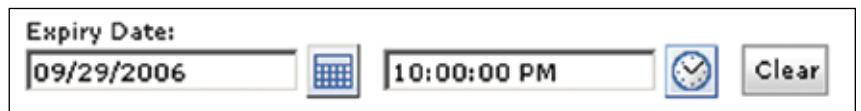
Expiry Date:

09/29/2006   10:00:00 PM   Clear

Figure 16. Expiry date: controlling when approved content is removed from the site*

Scheduled expiration frequently is used as part of an enterprise compliance initiative to demonstrate that compliance has been achieved.

Developing Web sites with Lotus Web Content Management software

Although content creation and management functions are critical to knowledge owners, a second function, that of the site developer, is of equal importance to the proper implementation of a WCMS.

Site developers

Site developers are responsible for creating all of the technical assets that are used in both the content creation and content delivery processes.

Content creation

Content creation is the process of adding additional information to the WCMS. This task is performed by nontechnical content creators. Site developers create a variety of technical assets such as authoring templates and workflows to make this process as simple as possible.

Content delivery

Once content is created and approved, it must be delivered and rendered to site visitors. The rendering of content typically involves various Web development technologies such as HTML, JavaScript and cascading style sheets. These types of technical assets are not typically accessed directly by content creators. Instead, these types of assets are used indirectly via the Web content management system's ability to preview content.

A good WCMS will allow for componentization and reuse of technical assets to facilitate both consistency and ease of maintenance. The Lotus Web Content Management server provides numerous features to make the task of managing technical assets simpler.
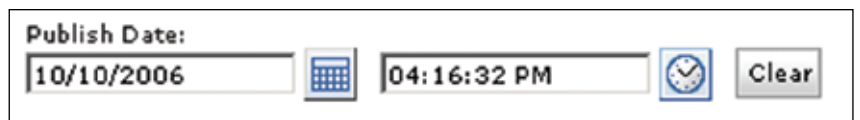
Configuring for content creation

One of the most important tasks for site developers is the preparation of Lotus Web Content Management software to facilitate content creation. Before content creators and approvers can perform their tasks, the site developer needs to prepare several technical assets.

Authoring templates

Authoring templates are the forms used by content creators to add new content to the system. The site developer creates these templates by assembling one or more prebuilt components and securing the template to limit access to the appropriate groups.

In building an authoring template, site developers assemble prebuilt components into a simple, easy-to-use form. Through several new features, Lotus Web Content Management software allows the developer to make these forms even more user-friendly.

Lotus Web Content Management software provides new component types, including date/time, number and option selection (both single and multiselect), to help guide the content creator in entering valid content. Additionally, many components now include the ability to require content, validate content or both.

Figure 17. Field-level help text*

Workflow and security

Before any content can be added to the system, the site developer will create one or more workflows. The workflows provide the governance for how the content will be approved and who will be able to access the content once it is published.

Libraries

Libraries provide developers with another tool for properly organizing and securing the Web content environment. Building libraries to segregate the contents of multiple sites will simplify the administrative tasks associated with securing and managing the environment.

In addition to simplified development and administration processes, Lotus Web Content Management software allows for syndication of content between servers at the library level. This granularity makes it easier to control the movement of content, technical assets or both between servers.

Content organization and information architecture

The process of creating and managing content should be intuitive for content creators. At the core of this intuitiveness is the ability for the WCMS to have a visible relationship to the information architecture of the Web site's content.

Information architecture involves the successful design, organization and navigation of information, providing users an easy and logical structure in which to find information. Every successful Lotus Web Content Management software project starts by analyzing and documenting the information architecture. Although the information architecture itself is not an actual technical asset in the system, the information architecture does make its way into Lotus Web Content Management software through the site framework and the taxonomies or categories.

Site framework and site hierarchy

Every Web site provides site visitors with a primary content hierarchy for navigating the site. For example, when visiting a Web site that sells sporting goods, you would expect to see primary navigation that organizes the content into an intuitive hierarchy.
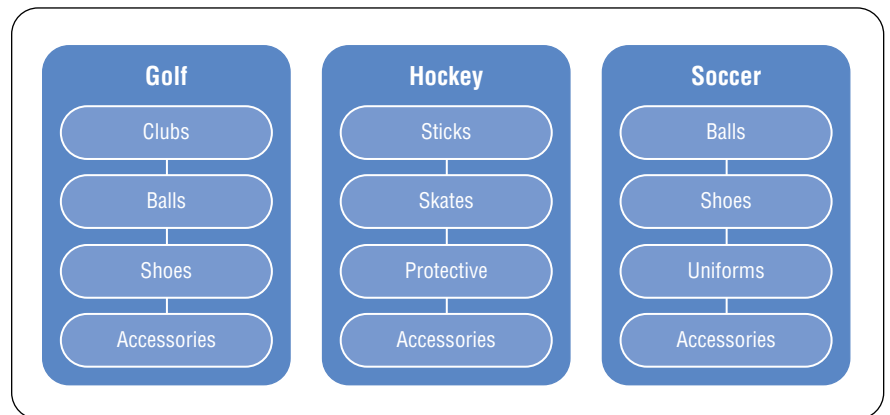

Figure 18. Example of site hierarchy

In Lotus Web Content Management software, this primary navigation hierarchy is implemented through the site framework. The site framework consists of sites and site areas. Sites and site areas are content containers. A site is the logical separation of a single Web site on the Lotus Web Content Management server. Each site typically contains multiple site areas to implement the information architecture's primary navigation. A site area is a container for content, other site areas or both. Lotus Web Content Management software also offers the ability to manage multiple sites (not just site areas) from a single user interface.

Categories and taxonomies

Although the site framework is the implementation of the primary navigation (and content categorization), there are typically secondary and tertiary relationships among content. For example, if you are looking at a new baseball glove on a Web site, the site owner may want to provide you links to other items that a baseball glove owner would want, such as a baseball or glove oil.

These other items, although relevant to someone looking to buy a new baseball glove, would not typically be in the same part of the site framework as the gloves. To create these types of relationships, we use categories and taxonomies.

A category is used to classify content. Content is categorized so it can be grouped into lists of links. Categories are grouped into taxonomies. Taxonomies are nothing more than placeholders used to group relevant categories together. For example, IBM may want to provide categorization for news stories on its public Web site. Such a categorization might look like Figure 19.
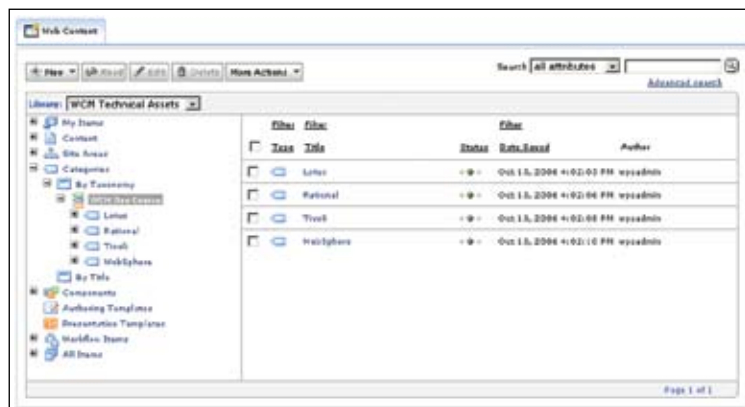

Figure 19. Example of site categorization

Site developers perform the task of creating the site framework and categories with significant input from content creators and content approvers. Site developers must always apply security to the site framework and categories. This will better ensure that only the appropriate content creators and approvers see the appropriate sites or site areas and appropriate categories.

Rendering published content

Although a solid process to create and manage content is critical to a successful WCMS implementation, ultimately, the most important task is to make the site accessible to visitors. The process of rendering published content is the most visible aspect of Lotus Web Content Management software for the site developer.

WebSphere Portal search

The WebSphere Portal search engine has native support for the sites and content stored in the Lotus Web Content Management server. You can easily build search collections using the portal search framework and provide search features in your site via the portal search engine.

As a site developer or administrator, you have the option to make your site searchable. Until you enable this setting, the portal search engine will not be able to search your site and its content. This helps to ensure that the search engine only searches sites you choose to be included.

Presentation templates

Presentation templates are the primary technical asset responsible for determining the delivery of content created via authoring templates. At a conceptual level, you can think of a presentation template as being very similar to the HTML you would create to build a single Web page.

It is not uncommon for a developer to build a mock-up of each presentation template in an HTML editing tool (for example, the Adobe® Dreamweaver application) before creating it. The things that make a presentation template unique are the Lotus Web Content Management software–specific tags that are used to reference content objects and other Lotus Web Content Management software–specific items, such as component library objects.

Instead of creating a specific HTML file for each content object, a site developer creates one or more presentation templates and links these templates to one or more authoring templates. This mapping allows the system to create the presentation of the content at run time dynamically, thus maintaining the separation of content from layout. This separation benefits site developers in two significant ways.

Site maintenance
Because content and presentation are stored separately, maintenance of the site is far more flexible. Content creators can make changes to content without involvement of a site developer. In addition, site developers can make changes to the layout and design of a site without the need to modify the content. Because Lotus Web Content Management software combines content and presentation dynamically, management of your Lotus Web Content Management infrastructure is easier for all parties, including content creators, site developers and system administrators.

Reuse of content and presentation templates
A single content object may be linked to multiple site areas within Lotus Web Content Management software. The content exists one time within the Lotus Web Content Management database but is linked to multiple areas within the site framework. Furthermore, the same content object may be displayed via multiple presentation templates. This allows a single content object to take on

multiple visual representations. A presentation template may be used repeat-
edly across your entire site framework. This allows the layout of many content
objects to be controlled by a single technical asset. Taking advantage of reuse
can further simplify site maintenance and improve the return on investment
for your Lotus Web Content Management implementation.

Dynamic rendering of content

Lotus Web Content Management software fully adheres to the golden rule of
content management—separation of content from presentation. To this end,
approved content is stored in a database table separate from the templates that
control the presentation. There are two primary benefits to dynamic rendering
of content.

Changes to presentation

Because the Lotus Web Content Management server stores content indepen-
dent from its presentation or presentations, changes to a presentation template
do not require any updates to the content itself. After a presentation template
is modified, it will automatically render content in the new format.

Content reuse

Because the Lotus Web Content Management server stores content independent
from its presentation or presentations, a single content object can easily be
reused across many Web sites. Site developers can reuse the same raw content
in multiple Web sites by simply applying different presentation templates. This
allows content to be easily repurposed across the enterprise.

Caching and prerendering (improving rendering performance)

Separating content from its presentation is a key function for any WCMS. To
ensure optimal Web performance though, you must also have a caching or pre-
rendering strategy. A typical Lotus Web Content Management implementation

includes dynamically generated pages that often combine navigation elements with files (such as cascading style sheets and JavaScript, or .js, files), images and site content. Each of these components can have special security settings.

Although this flexibility is one of the many strengths of Lotus Web Content Management software, it is best used with proper tuning of items that should be prerendered and cached. Consequently, it is important to analyze performance carefully and to implement tuning properly in any Lotus Web Content Management implementation. Because Lotus Web Content Management software runs as part of a WebSphere Portal environment, its performance depends on many settings that are outside of the Lotus Web Content Management configuration. For example, Lotus Web Content Management performance depends on hardware, Web server caching, WebSphere Application Server settings and WebSphere Portal Server settings.

When the Lotus Web Content Management server is configured to cache or prerender content, it stores partial or complete copies of dynamically generated pages. By leveraging this stored content, the Lotus Web Content Management server can deliver pages more quickly, because it can omit the page assembling process partially or completely.

Caching and page rendering differ in that cached content is added to the cache on an as-needed basis (that is, when it is requested by a user, and when it is not in the cache). Cached content is removed from the cache when it expires or when the cache is full and more recent content needs to be cached. In contrast, page rendering occurs as a batch operation. All of the content for a site is prerendered at roughly the same time. Although Lotus Web Content Management software offers a variety of performance-improving features via caching and prerendering, you can also leverage WebSphere Application Server software's dynamic cache to further improve the performance of your site.

Componentization of presentation elements

In a typical Web site, there are certain objects that are used repeatedly across multiple presentation templates. For example:

- *The company logo may appear in the upper left corner of every page.*
- *A copyright notice may appear at the bottom of all pages.*

For situations like these, Lotus Web Content Management software provides you the ability to create reusable components and store them in a component library.

The component library provides several types of components—each designed to solve a specific need. The use of several types of these components is very common within Lotus Web Content Management software installations. Common uses of the component library include the following:

- *Images (for example, a company logo)*
- *JavaScript files*
- *Cascading style sheets*
- *Personalization "content spots"*

The primary benefits of component library objects lie in maintenance and site consistency. By utilizing a component in multiple presentation templates, you can achieve a consistent look and feel throughout the site. Furthermore, if you need to change any of these common components, a change to a single library component automatically proliferates throughout the site—simplifying site maintenance.

Lotus Web Content Management software adds a component type specifically for cascading style sheets. This component simplifies developer effort by automatically generating the correct HTML to embed the style sheet. In addition, a style sheet component can be referenced in the rich text editor to provide content creators a what-you-see-is-what-you-get perspective of their rich text content without the need to preview the entire content object.

Site navigation

An important aspect to creating any Web site is the ability to provide navigation within the site. Navigation allows site visitors to move between content items quickly and intuitively. In browser-based environments, navigation is typically presented as a list of links. For example, many sites provide their primary navigation as a list of horizontal links across the top of their Web sites. Additional navigation is shown vertically on the left side of the page.

Figure 20. Web site navigation: a typical Web site with navigation on the top and down the left side of the page

Lotus Web Content Management software provides menus and navigators to make the creation of site navigation easy.

Navigators

Navigators are devices for letting users navigate around your site framework. They use the site framework to create links to different areas in your site. Navigators provide a way for you to show relevant parts of the site framework as the user moves around the site without having to create the links manually. As the links are generated from the site framework, changes in the site framework are automatically reflected in your new site structure. Navigators are the primary technical asset used to create site navigation, including site maps and breadcrumbs.

Lotus Web Content Management software, when combined with WebSphere Portal software, delivers the ability to provide selection criteria to your navigator from the rendering portlet, as opposed to being hardcoded in the navigator. This allows you to create fewer navigators by passing parameters at run time. This feature allows sites that make heavy use of navigators to reduce the number of navigators they must build and maintain.

Menus

A menu is a search mechanism. It searches for published content that matches its search criteria. The search criteria are profiles comprising site areas, authoring templates, categories and keywords. Content that has a profile that matches the criteria is listed as a link in the menu. Because menus are rendered as requested, changes in the site's content are automatically reflected in menus. Menus are typically used to create ancillary navigation such as related links or

breaking news. The same Lotus Web Content Management and WebSphere Portal functionality that allows parameters to be passed at run time in order to create customized navigators can also be used to create personalized menus. Similarly, fewer menus need to be built and maintained by your IT staff.

By using menus and navigators, site developers can simplify the process of creating the most common types of site navigation. Most important, as the site framework and content objects change, these elements will automatically update themselves to help ensure that your site always shows current information.

Administering Lotus Web Content Management software
Although content creators, content approvers and site developers perform most of the day-to-day activities in a Lotus Web Content Management software implementation, there is one pivotal group that provides support to make these groups function smoothly — system administrators.

System administrators are responsible for managing the physical infrastructure and for configuring the Lotus Web Content Management implementation to allow other groups to perform their tasks. The tasks performed by system administrators fall into three groups.

In Lotus Web Content Management software, the administration for the Web content system is integrated with the portal administration environment. This change provides a consistent interface for administering all aspects of WebSphere Portal and Lotus Web Content Management software.

System architecture

There are two common architectural designs for implementing the Lotus Web Content Management server. In the integrated architecture, you run Lotus Web Content Management software on the same servers as WebSphere Portal software. In the distributed architecture, Lotus Web Content Management software is run on a separate set of servers.

There are pros and cons to each of these architectures. The decision as to which architecture is best in your environment is multifaceted and includes several important decision criteria, including performance, license costs and delivery targets (portal only, portal and stand-alone site).[1]

System configuration

Once you install Lotus Web Content Management software, there are several configuration tasks to be performed before any other people can access the system. These include configuring the system to use a database, securing the system appropriately and setting up syndication.

Syndication is the process used to move content between two Lotus Web Content Management servers. There are multiple patterns that an administrator can use to move data between servers. The process of configuring and monitoring syndication is the sole domain of the system administrator. Once configured, content creators, content approvers and site developers should never need to worry about syndication.

With the addition of libraries, Lotus Web Content Management software provides a new level of granularity for syndication. Administrators can define syndication activities at the library level. Instead of having to syndicate an entire Lotus Web Content Management environment, an administrator can syndicate any

combination of libraries. This is beneficial for developers because they can easily move technical assets between servers independent of content. In addition, administrators can use a single authoring environment for managing multiple Web sites and can syndicate relevant libraries to separate run-time environments.

Clustering

Lotus Web Content Management software provides increased compatibility and functionality for clustered environments. While prior versions of the Lotus Web Content Management server could exist in a clustered environment, the Lotus Web Content Management application itself still required each instance to maintain its own database tables. Now, all Lotus Web Content Management servers in a cluster share a single set of database tables. This architectural improvement not only simplifies your infrastructure, it also reduces the administrative work required to syndicate data from an authoring server to the production (rendering) servers.

In addition to the run-time (rendering) clustering improvements, the Lotus Web Content Management server has added cluster support for the authoring environment. Lotus Web Content Management software provides support for clustering multiple servers together to provide a scalable, fault-tolerant authoring environment.

Day-to-day maintenance

Once your Lotus Web Content Management environment is architected and configured, the system administrator will be called upon to provide day-to-day maintenance of the system. The system administrator is the "super user" for the entire system and typically provides support to site developers, content creators and content approvers.

A typical deployment of Lotus Web Content Management software within an IBM WebSphere Portal environment

As with most software applications, there are multiple ways to implement Lotus Web Content Management software. In this section, we will review the most common roles fulfilled by Lotus Web Content Management servers as well as how the Lotus Web Content Management server fits within a WebSphere Portal environment.

Lotus Web Content Management server roles

Just as a typical Sun Microsystems Java™ Platform, Enterprise Edition (Java EE, formerly J2EE) infrastructure will have multiple environments for development, staging, production and so on, the same general requirements exist for the Lotus Web Content Management server. Regardless of the size of your implementation, you will have a unique instance of the Lotus Web Content Management server to fulfill a minimum of three roles.

Authoring

A Lotus Web Content Management installation typically includes an authoring environment. All activities associated with content creation, approval and management are handled on the authoring server. For large implementations, you may require more than one authoring server. Common situations that require multiple authoring servers include:

- *A high frequency of content creation, approval or management.*
- *A business requirement for redundancy and failover.*
- *Geographically dispersed content creators and approvers.*

Development

Lotus Web Content Management software installations often have a separate development environment. The development environment is an isolated "sandbox" that allows site developers to create and modify technical assets without affecting the authoring environment. In very small installations, developers may use the authoring environment instead of a separate environment. It is not generally necessary to have more than one development server.

Production

A production server is tasked only with rendering content at run time for site visitors. It is typically not used for authoring, development or both. In real-world scenarios, the production servers are typically built with redundancy and failover (for example, clustered) in an effort to avoid downtime. Content is moved from the authoring server to the production servers via syndication.

Integrating Lotus Web Content Management software with WebSphere Portal software
Although there are many ways to implement the Lotus Web Content Management server within a WebSphere Portal infrastructure, you can broadly classify the architectures into two categories—integrated and distributed.
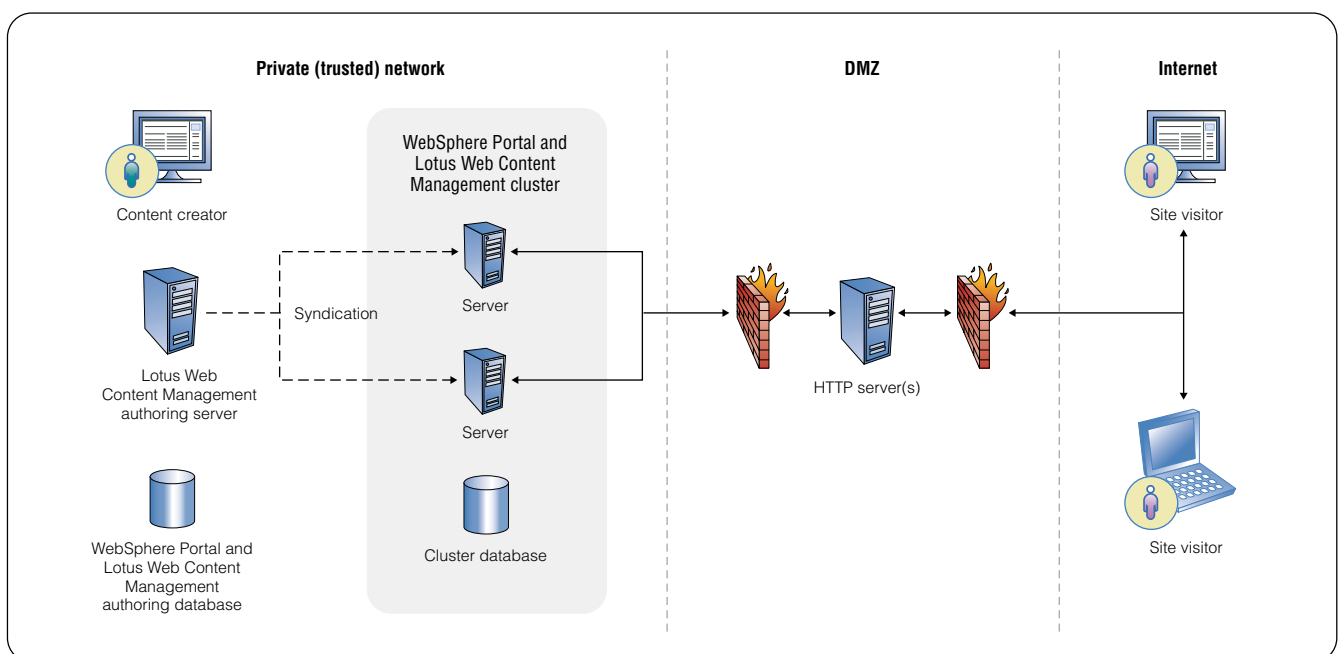

Figure 21. Integrated architecture: IBM WebSphere Portal and Lotus Web Content Management software

Integrated

In an integrated infrastructure, Lotus Web Content Management software is running on all of your production WebSphere Portal servers.

The primary advantages of this approach include:

- **Reduced hardware requirement.** *With Lotus Web Content Management software running on the same servers as WebSphere Portal software, you have no additional servers to implement.*
- **Ability to leverage WebSphere Portal redundancy and failover.** *Your Lotus Web Content Management infrastructure will automatically benefit from clustering and other architectural components that are in place for your WebSphere Portal environment.*
- **Application programming interface (API).** *The Lotus Web Content Management API requires the code to run in the same Java Virtual Machine as Lotus Web Content Management software itself. In this architecture, that is assured.*

The integrated design is best for WebSphere Portal implementations in which:

- *Lotus Web Content Management content is a large percentage of overall portal content.*
- *You plan to use the Lotus Web Content Management API.*
- *Ongoing maintenance costs are a high concern.*

Distributed

In a distributed infrastructure, Lotus Web Content Management software is running on a separate set of servers from your production WebSphere Portal servers.

The primary advantages of this approach include:

- ***Lower software licensing costs.*** *With Lotus Web Content Management software running on separate servers from WebSphere Portal software, you can license the exact number of CPUs required to support your content management needs. In the integrated design, all WebSphere Portal CPUs are also Lotus Web Content Management CPUs.*
- ***Reduced workload for WebSphere Portal servers.*** *With Lotus Web Content Management software running on its own hardware, your WebSphere Portal servers will have more CPU cycles available for processing portal requests.*

The distributed design is best for WebSphere Portal implementations in which:

- *Lotus Web Content Management content is a small percentage of overall portal content.*
- *You do not plan to use the Lotus Web Content Management API.*
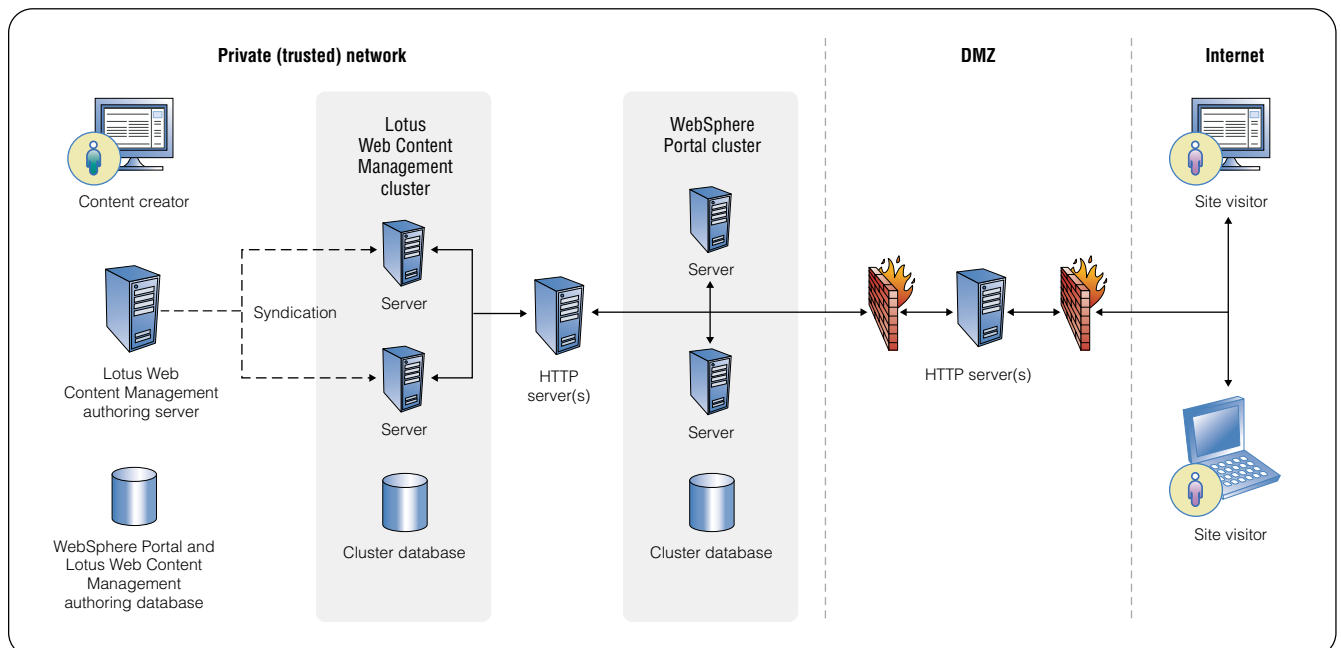- *Initial implementation costs are a high concern.*

Figure 22. Distributed architecture: IBM WebSphere Portal and Lotus Web Content Management software

Distinguishing Lotus Web Content Management software within the Web content management ecosystem

There are many products available today that perform the core tasks of a WCMS. Although each product performs the core capabilities of a WCMS, each one also has some unique strengths within the WCMS category. In this section, we will look at the strengths of Lotus Web Content Management software—especially as they relate to WebSphere Portal software.

Total cost of ownership

IBM combines its industry leadership in enterprise content management, collaboration and portals with standards compliance to help produce the best total cost of ownership (TCO) in the industry. To improve TCO further, the dynamic component model in Lotus Web Content Management software facilitates faster development and reduced maintenance compared with those of other WCMS vendors.

Ready-to-use application

Lotus Web Content Management software is not a toolkit that requires significant effort to install and configure—it is a ready-to-use application. Lotus Web Content Management software is one of the fastest ways for your company to get up and running and producing content—particularly for WebSphere Portal software.

Dynamic content delivery

Lotus Web Content Management software fully adheres to the golden rule of content management—separation of content from presentation. As content is approved, modified and deleted, site visitors will automatically be provided the latest, most up-to-date content. This approach is especially beneficial with WebSphere Portal software–based sites, because the portal's page aggregation

process gathers markup from many sources prior to rendering a single page. Just as a database-driven portlet would be updated "automatically" as the data changes, the Lotus Web Content Management server will provide the latest data automatically.

Integration with WebSphere Portal software

Lotus Web Content Management software is an integrated component of WebSphere Portal software. The application code for Lotus Web Content Management software is actually included with the WebSphere Portal distribution. Because Lotus Web Content Management software is part of WebSphere Portal software, it can leverage much of the WebSphere Portal core functionality.

Authorization and single sign-on

WebSphere Portal software provides integration with an LDAP through the WebSphere member management service. WebSphere member management provides authorization (login) capabilities as well as single sign-on (SSO) functionality between WebSphere Portal software and Lotus Web Content Management software. Once a site visitor is authenticated to any portion of the WebSphere Portal environment, that visitor will be automatically authenticated within the Lotus Web Content Management server as well.

Rendering portlets for WebSphere Portal software

One of the most complicated parts of integrating any WCMS with WebSphere Portal software is rendering the content within a portlet. IBM greatly simplifies this issue by providing two rendering portlets. These portlets are included with WebSphere Portal software and may be deployed to the WebSphere Portal installation with no programming effort. An administrator simply configures the portlet at deployment time.

Although these rendering portlets seem trivial, rest assured that they may save you a significant amount of time and effort because you'll no longer need to build Java EE assets to render content within WebSphere Portal environments. IBM develops and maintains these rendering portlets as part of the WebSphere Portal functionality, so compatibility and support are not an issue – as they might be when integrating other WCMS solutions.

Presence awareness (online chat)

WebSphere Portal software provides integration with IBM Lotus Sametime® software to provide online chatting capabilities among logged-in WebSphere Portal users. A portlet programmer can embed this capability in any portlet. Embedding chat capabilities directly into the authoring process of Lotus Web Content Management software distinguishes IBM's offering as a collaborative platform. To further simplify the inclusion of presence awareness, the authoring portlet has this capability built in and is easily enabled by a portal administrator.

Integrated administration

In Lotus Web Content Management software, the administration for the Web content system is integrated with the portal administration environment. This change provides a consistent interface for administering all aspects of WebSphere Portal and Lotus Web Content Management software. Administrators who are familiar with the portal administration process can quickly learn Lotus Web Content Management administration.

Integration with WebSphere Portal services

Although WebSphere Portal software itself is a standards-based framework for creating Web-based portal applications, some of the major benefits of the WebSphere Portal offering come in the form of services provided by the portal's framework. Because the standards for portals [Java Specification Request (JSR) 168] are fairly new, there are many advanced features that the standard does not address. IBM fills in many of these gaps with services that extend beyond the JSR 168 functionality.

WebSphere Portal personalization

WebSphere Portal personalization allows a Web site to customize its content automatically for each user. WebSphere Portal personalization can recognize a specific user based on a profile or determine characteristics of a user based on previous purchases, products, pages viewed and so on. WebSphere Portal personalization then selects content that is appropriate for that profile.

For example, if a person has a high salary range, WebSphere Portal personalization can be configured to retrieve information about a commercial Web site's premium products. When a page is requested, the page is assembled with the proper personalized information, and the user sees his or her personalized page. The Lotus Web Content Management server is integrated with WebSphere Portal personalization in two ways.

First, the content stored in Lotus Web Content Management server can be accessed via the personalization engine. This allows site developers to create personalization rules and show different Lotus Web Content Management content to different people based on personalization rules. This makes it very easy to add small amounts of Lotus Web Content Management content to any portlet you develop.

Second, the personalization engine in WebSphere Portal software can access many types of data other than Lotus Web Content Management content, including databases and enterprise resource planning systems. A portlet developer creates a content spot to show personalized data. This content spot can be embedded within any portlet. Lotus Web Content Management software allows a site developer to embed a content spot within a presentation template. This allows the Lotus Web Content Management server to provide a small number of programmatic data within a primarily static content object.

Lotus Web Content Management software also supports WebSphere Portal personalization campaigns. Personalization campaigns are sets of rules that work together to select and present content that contains offers to a selected audience via Web content. Campaigns can be very useful for delivering targeted content through your Web site. For example, you could use campaigns to notify customers about the availability of fixes or upgrades or about the expiration of service entitlements. WebSphere Portal personalization campaigns have start and stop dates. This allows you to run multiple, concurrent campaigns for which you can specify rules to control the number and timing of offers that you deliver to any individual customer.

Content and component reuse

Lotus Web Content Management content and technical assets can be easily reused. For the site developer, componentization allows the quick reuse of complex HTML, JavaScript, cascading style sheets and so on. This not only makes it simpler to build the Web site, it also helps enforce consistency and standards across multiple sites and site developers.

For the content creator, Lotus Web Content Management software provides functionality to make content available across multiple Web sites. Through a simple "Link To" button, content creators can take a single content object and have it exist in multiple Web sites. If a content creator makes changes to this single content object, the changes will appear in all places to which the content is linked. This "create once, use often" capability can be a tremendous time saver for busy content creators.

Lotus Web Content Management software as middleware

Lotus Web Content Management software provides the ability to integrate content from external systems into content, presentation templates or both. The ability to embed additional content can be harnessed in three different ways.

- *Lotus Web Content Management software allows the embedding of a JSP component within content objects and presentation templates. This allows both content creators and site developers to embed programmatic content as appropriate.*
- *The Lotus Web Content Management server is fully integrated with WebSphere Portal personalization. The personalization integration provides site developers with the ability to integrate content from other systems based on rules in the personalization engine.*
- *Lotus Web Content Management software provides its own special capability — connect tags. Connect tags are Lotus Web Content Management software–specific tags that provide a site developer an easy way to integrate content from databases, external Web pages or both. In addition, connect tags provide the ability to set up specific caching parameters for the connect content that are independent from the caching for the surrounding content.*

Built on a Java EE platform

Lotus Web Content Management software is a component of WebSphere Portal software, which itself is a Java EE application running on WebSphere Application Server software. The Java EE heritage of the Lotus Web Content Management server provides some exceptional advantages over other WCMS offerings.

Multiple operating systems and hardware platforms

The Java EE underpinnings of the Lotus Web Content Management server allow it to run on a large variety of operating systems and associated hardware platforms, including IBM AIX®, IBM System i™, IBM z/OS®, Sun Microsystems Solaris, Microsoft® Windows® and Linux® technology. This flexibility is virtually unparalleled within the WCMS arena.

Multilingual authoring portlet

As is true with any other Java EE application, the Lotus Web Content Management server leverages several Java EE multilingual capabilities to allow the authoring portlet to tailor its text based on the region or locale of the user. The current release of Lotus Web Content Management software supports over 20 languages.

Conclusion

There are many vendors in the Web content management system space. Although each one has its own strengths, we believe that none can match the overall package offered by Lotus Web Content Management software.

In the age of portal and Web delivery of information, content is a key currency in many business processes. It is of the utmost importance that content is current and relevant to the person and task at hand. The features described in this white paper—including personalized, dynamic delivery; separation of content and presentation; and distribution of authoring to subject matter experts—distinguish Lotus Web Content Management software in the WCMS marketplace.

Content management is a broad technology area that spans several applications within IBM Software Group. IBM is one of the few vendors that can provide you with integrated end-to-end support across the entire spectrum of content management—including Lotus Web Content Management software.

Today, Lotus Web Content Management software provides you with a state-of-the-art, open-standards-based platform for managing your Web content and integrating this content with WebSphere Portal software, online collaboration (Lotus Sametime software), document management and IBM's enterprise content management platform.

As standards in the content management space move forward, you can rest assured that Lotus Web Content Management software will continue to support compliance with these standards and integration with other applications that adhere to them.

Lotus Web Content Management software provides your enterprise with state-of-the-art WCMS functionality to create and manage content for your portal or Web sites. As a component piece of IBM's portal, collaboration and enterprise content management solutions, your initial investment can grow, on demand, to meet future business needs.

Supported by IBM Software Services for Lotus

Get the most out of your software investment with the help of a worldwide network of highly skilled services professionals with deep product knowledge and field-tested experience. Let IBM Software Services for Lotus and select IBM Business Partners help you evaluate, design and deploy software solutions that meet your organization's unique business and technical requirements. Whether you need help with large-scale projects or short-term assignments, there are a variety of technical consulting, training and premium support services available to help you accelerate your success with IBM technology. For more information, go to: **ibm.com**/software/lotus/services

For more information

To learn more about IBM Lotus Web Content Management software, please visit:

ibm.com/software/lotus/products/webcontentmanagement

IBM®

1 For more details on each architecture pattern and
   its associated pros and cons, please visit http://
   www.redbooks.ibm/abstracts/sq246792.html

* Note: The actual user interface may differ slightly
   from the images shown in this white paper.