



CMS Selection Requirements, Fit Criteria, and Rationales

Availability

Requirement: The product shall handle at least 20 concurrent contributor connections.

Rationale: The product needs to support a fair number of concurrent connections to allow for distributed and synchronous work efforts.

Fit Criteria: The product allows at least 20 concurrent contributor connections.

- Number of concurrent connections allowed?

Requirement: The product shall allow high-traffic content to be served without dependence on CMS throughput.

Rationale: High traffic pages must be highly available and need to mirror current web central performance.

Fit Criteria: The product shall support the pushing of published static content.

Fit Criteria: The product shall support high-availability caching

- Describe the page pushing/publishing process?
- What is the typical performance of pushing (time, pages, etc)?
- List performance metrics on high availability caching
- Describe any metrics around this CMS's throughput

Requirement: The product shall run on Web Central or push content to Web Central

Rationale: Web Central is our systems supported infrastructure for www.utexas.edu and our content must be served from there. The product must be able to push content to Web Central either by running there and having file/folder level access or through SFTP or shared key.

Fit Criteria: The product shall run on *NIX-based systems

Fit Criteria: Publishing/Pushing mechanism shall access Web Central publishing directories through currently existing authentication and authorization strategies.

- What Operating Systems are supported?
- Which Operating System version has the highest level of installs?
- What authorization and authentication methods are supported for the pushing/publishing process?



CMS Selection Requirements, Fit Criteria, and Rationales

Requirement: The product shall mirror the availability of the Web Central environment. (web central web server environment)

Rationale: Must duplicate the availability of publishing processes that we currently support.

Fit Criteria: The product shall have high availability features (99.95% uptime)

- What is a typical level of downtime for support on this product?
- What high availability features or configurations are supported?

Requirement: The product shall mirror the availability of the Web Central publishing environment. (Administrative or publishing function)

Rationale: Must provide reasonably high availability of administrative interfaces (99.5%).

Fit Criteria: The product shall have high availability features (99.5% uptime)

- What is a typical level of downtime for support on this product?
- What high availability features or configurations are supported?

Versioning

Requirement: The product shall support content versioning

Rationale: Versioning of content can preserve authoring trails and allow for multi-level undo and content archaeology. Retaining versions of content will allow administrators and business owners to protect their content investment.

Fit Criteria: The product shall version CMS content.

Fit Criteria: The product shall support CMS content versioning with meta-data including author and editing date.

Data Exportability

Requirement: The product shall publish content data to syndicated formats.

Rationale: Increasing our data portability is one of the goals of the refresh project. Being able to leverage publishing new and existing content to standards-based syndication formats will help accomplish that goal.

CMS Selection Requirements, Fit Criteria, and Rationales

Fit Criteria: The product shall support publishing content to syndicated formats.

- List some URLs of this feature in use
- What syndication features are available for this CMS?
- What different syndication formats are available for this product?
- Are there any limitations or caveats for syndication use and this CMS?

Requirement: The product shall publish content data to PDF.

Rationale: Increasing our data portability is one of the goals of the refresh project. Being able to leverage publishing new and existing content to widely available reading formats will help accomplish that goal.

Fit Criteria: The product shall support publishing content to PDF

- List some URLs of this feature in use
- How is PDF publishing supported (is it out of the box, an add-on)?
- What PDF features are available for this CMS?
- Are PDF forms supported?
- Are encrypted or secure PDFs supported?
- Are there any limitations or caveats for PDFs use and this CMS?

Requirement: The product shall export CMS data via XML for CMS migration support.

Rationale: As technologies and support levels change we need to be able to migrate our content easily from product to product. Standards based exporting can assist migration efforts and reduce overall level of effort.

Fit Criteria: The product shall support XML export of all CMS content

- What other export/migration options are supported?
- Describe any issues around product upgrades and content migration?
- Describe any issues around migrating content to and from this CMS?
- Links to discussions and comments around migrations

Requirement: The product shall support the integration of device-specific CSS for CMS content. (i.e. printer, mobile).

Rationale: Publishing material with either device specific CSS or device specific styling will ease our content portability efforts.

CMS Selection Requirements, Fit Criteria, and Rationales

Fit Criteria: The product shall allow multiple style sheets to be applied to published content

- Does CMS allow content to be published in multiple styles?
- Is there any mobile platform publishing feature? If so, describe.
- Is there any printer-friendly publishing feature? If so, describe.

Authentication Integration

Requirement: The product shall allow the integration of UT EID-based sign-on.

Rationale: Leveraging EID sign on will mirror the standard log-in mechanism for most of campus' secure service offerings.

Fit Criteria: The product shall integrate with the EID through LDAP or LDAP module or mod_auth_eid headers.

- What is the likely method of integration? (i.e. use mod_auth_eid headers like trac?)
- Is CMS authentication system is pluggable and modular?
- Provide links to issues/discussion surrounding integrating existing authentication systems and this CMS.
- List most common authentication integration issues.
- Is LDAP integration for authentication supported?
- Describe any issues in the latest version around LDAP authentication integration.
- Detail LDAP support

Atomicity of Roles and Authorizations

Requirement: The product shall allow granular permission settings on discrete content types.

Rationale: Atomic permissions on contributor content will increase delegation and task distribution. It will also increase oversight and improve security.

Fit Criteria: The product shall have authorizations for individual content types. What limitations exist around atomic permission assignments?

Requirement: The product shall support role-based task permission inheritance.

CMS Selection Requirements, Fit Criteria, and Rationales

Rationale: Groups of permissions make user management tasks and support much easier.

Fit Criteria: A privileged user shall be able to assign an individual to a role/group, thereby entitling the assigned individual to the permissions given to that role/group. (groups of permissions assignable by role/group)

- What limitations exist around role-based permission inheritance?
- Are role permissions customizable?
- Are additional roles able to be created?
- What roles are available if new roles cannot be added?
- Do the roles map to contributor/moderator/administrator?
- What level of atomicity is assignable by role?

Requirement: The product shall allow individual users to be assigned roles/groups or a combination of the two.

Rationale: Assigning individuals to roles with sets of permissions makes user management tasks and support much easier.

Fit Criteria: An administrator shall be able to assign and de-assign an individual to a role or group.

- Are there any limits on number of users?
- Are there any limits on number of users assigned a role?
- Are groups and roles both offered (permission groups and organizational groups)?
- How are the concepts of groups and roles handled in this CMS product?

Requirement: The product shall have content object-level permissions (potentially sub-page) by role.

Rationale: Mapping content object-level permissions to roles eases user administration tasks and increases delegation and distribution of task effort, which keeps content up-to-date and supports workflows.

Fit Criteria: A privileged user shall be able to grant/restrict a role/group to a sub page content item.

- What is the smallest level of permissions available on content items (page, content type, chunk, etc) to a role?
- Are there limits to the number of role permissions at this level?

Requirement: Nice to have: The product shall have content object-level permissions (potentially sub-page) by user.

CMS Selection Requirements, Fit Criteria, and Rationales

Rationale: Increasing the granularity of content permissions will increase the delegation and distribution of task effort, which may keep content more up-to-date and support complex work flows.

Fit Criteria: A privileged user shall be able to grant/restrict permission for an individual to a sub page content item.

- What is the smallest level of permissions available on content items (page, content type, chunk, etc) to a user?
- Are there limits to the number of user permissions at this level?

Requirement: Nice to have: The product shall support dynamic role associations based on external data (external group) about users.

Rationale: Leveraging existing group memberships or affiliations to automatically create role-based permissions could ease support efforts and allow for some automation to the same end.

Fit Criteria: An authorized user shall be able to utilize existing user group memberships from an external source to assign role/group permissions in the product.

- What mechanisms exist to automate user creation?
- What mechanisms exist to automate group assignments?

Workflow

Requirement: The product shall allow multi-step workflows.

Rationale: Workflow processes allow for pre-publication review of content and separation of concerns between content authoring/editing and approval.

Fit Criteria: A privileged user shall be able to create a workflow process of more than one step for a piece of content.

- Describe workflow process support.
- How many workflow steps are allowed?

Requirement: The product shall allow notifications at each step of the workflow.

Rationale: Moderation notifications assist the moderation process and help content stay fresh by keeping moderators and contributors in the loop about the status of their content.

CMS Selection Requirements, Fit Criteria, and Rationales

Fit Criteria: An indicated user shall be able to be notified via email or other channel as part of the workflow process. What types of notifications are supported?

- Are supporting technologies required to facilitate messaging?
- Describe the complexity of enabling notifications for workflows for this product.

Requirement: The product shall allow custom workflows.

Rationale: Customizable workflow processes allow for flexibility in the separation of concerns between content authoring/editing and approval in a large, distributed environment.

Fit Criteria: A privileged user shall be able to create multiple workflows for the product and the creation of one will not invalidate or destroy the other.

- Describe customizable workflow process support.
- How many steps are allowed per customizable workflow?

Requirement: The product shall allow customizable workflows based on content type.

Rationale: Different kinds of content can require different types of workflows involving different business units and owners.

Fit Criteria: A privileged user shall be able to create multiple workflows that are assigned and enacted on a piece of content based on its type.

- Are there any limits to the number of workflows which can be created?
- Are there any limits to assigning workflows to types of content?
- Are there any functions of the product which cannot be given workflows? Which functions?

Product Maturity

Requirement: The product shall be mature.

Rationale: Mature software has well-established support and development cycles.

Fit Criteria: The product shall have been in production with active support and development cycles for at least the past 3 years.

Fit Criteria: The product shall have demonstrated development cycles including feature elicitation, development, testing, release and support.

- Links to FAQs on development philosophy
- How many releases has the product had?
- How long has the product been on the market?



CMS Selection Requirements, Fit Criteria, and Rationales

- List any significant changes to the CMS in terms of product direction, project ownership, conversion from private to open-source.
- How long is a typical development cycle for a major version for this CMS?

Requirement: Nice to have: The product shall have market penetration in the higher education or education industry.

Rationale: The higher education industry is unique in its decentralized distribution which lacks a corporate mirror. Proven implementations at other large universities would be helpful in demonstrating a product's applicability to our industry.

Fit Criteria: The product shall be in use by other higher education institutions.

Fit Criteria: The product shall be in use by other education-based organizations.

- List links to white papers or examinations by other higher education institutions.
- Any public lessons learned on implementing this product at a higher education institution available (provide links).
- List some uWebD comments and questions on this product.

Active User Community

Requirement: The product shall have a large and active user community.

Rationale: Active and diverse user communities signify a product's health and interest in the product. They also guarantee dispersed expertise in a variety of industries and a variety of environments.

Fit Criteria: Official forums shall have memberships in the thousands

Fit Criteria: Unofficial and official forums shall have total posts numbering in the thousands

Fit Criteria: There shall have been more than 200 posts in the past 10 days

Fit Criteria: The product shall be represented by its own "tag" or topic on support/discussion sites such as stackoverflow.com.

- How many members belong to the official forums
- How many posts have been made in the past 10 days on the official forums?
- Do most posts on the official forums receive at least one response?
- Are there at least 2 or 3 independent forums or support sites dedicated to this product?

CMS Selection Requirements, Fit Criteria, and Rationales

Requirement: The product's last major application patch shall have been released within the last 12 months.

Rationale: Frequency of application patching can indicate a product's life cycle health.

Fit Criteria: The product's last major application patch shall have been released within the last 12 months.

- When was the date of the last major application patch?
- When was the date of the last major application patch before this one?

Requirement: The product shall have active bug and issue resolution hot-fixes and patches.

Rationale: Active bug patching and issue resolution hot-fixes indicate a product which responds to community and internally discovered errors, bugs, and issues.

Fit Criteria: Major releases shall be followed with issue resolution or bug-patching fixes.

Fit Criteria: Project issue status and patch information shall be available and prominent on the product web site.

- How many hot-fixes are there for the most recent release?
- How frequently were issue patches released for the previous release?
- For high impact issues, what was the support cycle in terms of days?

Requirement: The product shall have a significant number of community add-ons or a significant amount of community-driven development.

Rationale: Significant community-driven development indicates a level of adoption and support for the product that will result in strong support from the core developers.

Fit Criteria: Product web site shall host a list of community add-ons.

- Is there a centralized issue tracking system for community add-ons?
- Are community developers working to make new versions available in sync with major releases of the core product?

Fit Criteria: Product shall have a well documented API enabling community developers to easily extend core functionality.

CMS Selection Requirements, Fit Criteria, and Rationales

Requirement: The product shall have a significant amount of industry review and commentary on the system.

Rationale: The product shall be well-known enough to have been a focus of critiques and evaluations by trusted technology sites or companies.

Fit Criteria: The product shall be reviewed by a major technology website or organization.

- List links to such critiques or reviews.

Ease of Use

Requirement: The product shall allow a non-technical user to contribute with minimal training.

Rationale: A substantial number of users for this product will not have a technical background, and need to be able to understand and use the product without extensive training or other costs

Fit Criteria: A content creator or editor shall be able to edit and publish without any knowledge of HTML, CSS and other web formats.

Requirement: The product shall be configurable to include a browser-based WYSIWYG editor for rich text content (e.g. TinyMCE).

Rationale: A WYSIWYG rich text editor has become a de-facto standard method for web content editing, and should be implemented either as a core feature, or an easily installable extension/module.

Fit Criteria: The product shall include a browser-based WYSIWYG editor, or an extension/module should exist to easily integrate one of the many open-source WYSIWYG editor projects.

Ease of UI Customization

Requirement: The product shall have straightforward template creation.

CMS Selection Requirements, Fit Criteria, and Rationales

Rationale: Template creation should be possible without needing in-depth knowledge of the software itself, aside from a template language.

Fit Criteria: Templates shall be able to be dropped into a directory or created through the CMS's web interface.

Fit Criteria: Documentation shall be available on creating templates, customizing existing templates, and the template language itself.

Requirement: The product shall enable the customization of spaces with individual templates.

Rationale: Allowing page sections and content types to render from their own templates allows sections and pages of the site to be easily customized.

Fit Criteria: Product shall allow definition of a base template or set of base templates for customizing the site's header, footer, and navigation menus.

Fit Criteria: Product shall allow definition of templates for each content type.

Requirement: The product shall cleanly separate presentation from content for easy updates of style and branding.

Rationale: Users need to be able to edit and publish content without having to understand or modify the presentation of that content. Designers need to be able to change the presentation of such content without having to edit the content.

Fit Criteria: An authorized user shall be able to edit and publish content without having to edit or understand the underlying presentation format (HTML/CSS, etc.).

Fit Criteria: Edits made to design elements shall cascade across the site without having to touch individual content items.

Web Standards and Accessibility

Requirement: The product shall include UTF-8 Support (for foreign language display)

Rationale: UTF-8 Support allows foreign language characters to display properly without creating unrecognizable or unintended display characters.

Fit Criteria: The product shall have support for the UTF-8 character set.

CMS Selection Requirements, Fit Criteria, and Rationales

Requirement: The product shall be capable of producing content that renders in valid XHTML 1.0 according to W3C standards

Rationale: Standards-based XHTML ensures cleaner rendering, faster page loads, and conforms to the web publishing standards of the University of Texas at Austin.

Fit Criteria: The product renders content that shall pass XHTML validation tests.

Requirement: The product shall be capable of producing valid CSS 1.0 according to the W3C standard

Rationale: Standards based CSS 1.0 style markup and style sheets ensures cleaner rendering, broader support, and more uniform presentation of content and conforms with the web publishing standards of the University of Texas at Austin.

Fit Criteria: The product renders style sheets that shall pass CSS 1.0 validation tests.

Requirement: The product shall be capable of producing web pages that are compliant with Section 508 of the Federal Rehabilitation Act

Rationale: Federal law requires web site compliance with section 508. In addition it conforms to the web publishing guidelines of the University of Texas at Austin.

Fit Criteria: Rendered pages shall have the capability to pass section 508 automated testing.

Fit Criteria: Rendered pages shall have the capability to pass section 508 manual testing.

Requirement: The product's interface for content contributors shall comply with Section 508 of the Federal Rehabilitation Act.

Rationale: Federal law requires compliance with Section 508 of the Federal Rehabilitation Act. In addition it conforms to the web publishing guidelines of the University of Texas at Austin.

Fit Criteria: The product's content contributor section shall pass section 508 automated testing.



CMS Selection Requirements, Fit Criteria, and Rationales

Fit Criteria: The product's content contributor section shall pass section 508 manual testing.

Requirement: The product's interface for content contributors shall make it easy for contributors to produce content that meets Section 508 of the Federal Rehabilitation Act.

Rationale: Assisting content contributors in complying with Federal requirements will ensure greater adherence to the law.

Fit Criteria: Product shall be able to flag content for common 508 compliance pitfalls like alt text, .acrobat files and other media links, and captioning for images.

Fit Criteria: Product shall be customizable to require common 508 accessibility fixes, i.e. requiring alt text.

- Are there any other special considerations this product makes for 508 compliance or accessibility?

Requirement: The product's interface for administrators shall comply with Section 508 of the Federal Rehabilitation Act.

Rationale: Federal law requires compliance with Section 508 of the Federal Rehabilitation Act. In addition it conforms to the web publishing guidelines of the University of Texas at Austin.

Fit Criteria: The product's administrative interface shall pass automated section 508 testing.

Fit Criteria: The product's administrative interface shall pass manual section 508 testing.

Rich Media Support

Requirement: The product shall provide efficient, web interface-driven handling of embedded media, including images and Flash video.

Rationale: Content contributors should be able to include/embed rich media assets with a minimum of effort.

CMS Selection Requirements, Fit Criteria, and Rationales

Fit Criteria: An average user of the product shall be able to embed an image into a piece of content via the web interface.

- Does the product support the upload and embedding of images through the web interface?
- Does the product support the embedding of Flash video objects through the web interface?

Technology Alignment

Requirement: The product shall align with campus supported technologies such as: Python, PHP, MySQL, and Oracle.

Rationale: Deployment and maintenance will be quicker, cheaper and easier if the product uses technologies that are already in use at the University.

Fit Criteria: The product shall be implementable in either PHP or Python

Fit Criteria: The product shall have a database backend of MySQL or Oracle.

Modularity/ Ease of Software Customization

Requirement: The product shall have a modular architecture so that functionality can be extended without extensive refactoring.

Rationale: Local modifications and additions are easier and less risky when the product supports modular extension; direct modifications to the main codebase typically introduce upgrade issues.

Fit Criteria: The product shall provide an explicitly-supported, well-documented extension/plugin API that provides enough functionality to support anticipated modifications.

Requirement: The product shall support the definition of block-level, structured, and richly functioned content types.

Rationale: Custom content types allow storage, functional, and display flexibility for content owners without modifications to the CMS itself.

Fit Criteria: Product shall allow for creation of new content types, with custom data storage models, sets of functional methods, and display templates.

CMS Selection Requirements, Fit Criteria, and Rationales

Cost-effectiveness

Requirement: The product shall have a reasonable setup cost.

Rationale: Our resource/staffing availability aligns with a product that does not require extensive developer ramp-up time or extensive hardware/software resources. The product needs to be able to be quickly set up by a skilled developer having little previous experience with the product, using existing or easily acquired hardware and software resources.

Fit Criteria: The product shall be able to be installed in less than one working day by a developer with no previous experience with the product?

Fit Criteria: The product shall be able to run in an existing server environment or one that is easily provisioned (e.g. *NIX-based virtual machine)?

Requirement: The product shall have a reasonable maintenance cost.

Rationale: Our resource/staffing availability aligns with a product that needs minimal staff time to keep running and minimal downtime needed for upgrades and security fixes. The product needs straightforward upgrades and maintenance.

Fit Criteria: The product shall provide automated upgrade functionality

- Does the product require downtime for upgrades, template changes, new content type definitions, etc.?
- Are there any regular clean-up tasks required for efficient operation?

Requirement: The product shall have a reasonable licensing cost.

Rationale: Cost-aware solutions that mirror the models of open source and near-open source software closely align with ITS Applications funding strategies and efficiency seeking measures.

Fit Criteria: The product should be made available for use without extension, including for testing and internal development, for no more than \$1,000 a year.

Ease of Maintenance

Requirement: The product's developers shall have quick responses to security problems

Rationale: The product's developers need to address vulnerabilities quickly to ensure content and data integrity.

CMS Selection Requirements, Fit Criteria, and Rationales

Fit Criteria: Product displays a good track record for responding to public vulnerabilities in the eyes of its developers and CMS community.

Fit Criteria: The product's developers or community responds to high threat vulnerabilities quickly (1 month or less between identification of issue and patch).

- Are new product versions released after security issues have been addressed?
- How long are the product's versions supported for receiving security updates?

Requirement: The product shall have support for backward compatibility.

Rationale: Minor releases should maintain backward compatibility so that upgrades for performance improvements, security issues and bug fixes can be routinely deployed without migration issues or code incompatibilities.

Fit Criteria: The product's producers shall have a specific policy indicating that backwards compatibility for minor releases included in product documentation or website.

Fit Criteria: The product shall have a history of backward compatibility.

Requirement: The product shall notify the administrator of new versions.

Rationale: Version and patch update notifications can ease administration tasks and can assist support processes.

Fit Criteria: The product shall have a new version notification widget in the administrator's interface.

Fit Criteria: The product shall notify administrators of new versions via email.

Fit Criteria: New versions of the software shall be indicated via syndication or other channels.

Requirement: The product shall provide upgrades via the web interface.

Rationale: Product upgrades are more likely to be installed quickly and to minimize downtime if the upgrade can be accomplished from the web interface.

Fit Criteria: Administrators shall be able to install upgrades via the web interface.

CMS Selection Requirements, Fit Criteria, and Rationales

Requirement: The product shall have accessible application source code.

Rationale: The availability of source code assists development efforts, support, and encourages community innovation.

Fit Criteria: There shall be a publically accessible source code repository for the product.

- How many versions of the source code are available?
- What are the restrictions on source code use?
- Is the source code accessible via SVN, ant or other tools?
- What is the location of that source code repository?

Application Security

Requirement: The product shall comply with the minimum security standards for Application Development and Administration,
<http://www.utexas.edu/its/policies/opsmanual/appstd.php>

Rationale: This Standard provides a list of minimum information security practices that help to reduce risk to campus assets. Compliance with this standard is mandatory.

Fit Criteria: The Standards should be consulted to get a complete list of required practices; however chief among them are the following:

- To minimize the risk of client and server side injection flaws the application should provide proper and restrictive input validation (auditing, filtering) and appropriate output encoding (e.g. data binding, HTML entity encoding)
- To minimize exposure of potentially sensitive configuration information, the product shall execute proper error handling.
- In order to minimize the risk of broken authentication or session management, the product shall authenticate users through central authentication system and ensure that authentication tokens and or session tokens are protected in transit and removed once a session has ended or expired.
- In order to facilitate annual authorization audits and deprovisioning procedures, the product should support role or group based authorizations.

Requirement: The product shall pass review of reported vulnerabilities on NIST and Secunia.



CMS Selection Requirements, Fit Criteria, and Rationales

Rationale: Common security vulnerabilities represent the lowest threshold of computer attacks. Guarding against these techniques and the way in which these techniques are addressed relates a product's security methodology and its' resilience to hacking.

Fit Criteria: The product shall pass a review of reported vulnerabilities on NIST and Secunia.