

Web Content Management Systems (WCMS) Standards V2.0

Status of this Memo

This memo specifies a standard for the National Institutes of Health (NIH). Distribution of this memo is limited to NIH until approved. After approval distribution of the memo is unlimited.

The standards specified in this memo supersede earlier versions of this standard and NIHRFC0044, Web Content Management Brick.

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1 Introduction

Web Content Management Systems (WCMS) consist of applications used to create, manage, store and deploy content on the Web, including text, graphics, video or audio, and application code. The purpose of these standards is to provide implementation guidance to NIH project teams who are undertaking new WCMS projects or investments or are undertaking major upgrades / migrations to existing WCMS implementations.

The standards include a revised Web Content Management Service Pattern and a revised Web Content Management Systems Brick.

2 Web Content Management Service Pattern

Web Content Management Systems (WCMS) consist of applications used to create, manage, store and deploy content on the Web, including text, graphics, video or audio, and application code. Web Content Management Systems are often a component of Enterprise Content Management (ECM) solutions, and some of these features are represented in the **Other ECM Services Layer**. However, this pattern is focused specifically on basic web content management services.

This pattern can be viewed in the following layers:

- Interface Layer
- Integration Layer
- Other ECM Services
- The Content Management Layer
- Storage Layer

Interface Layer

The pattern below depicts different levels of users, from passively browsing users and active contributors in a Web 2.0 framework, to the authors, content managers/administrators, and system administrators in a traditional Web publishing model. While some WCMS solutions include Web 2.0 tools that allow users to actively contribute to the site, all WCMS solutions will have content authors, managers, and administrators contributing content either through a Web interface or desktop application linked to the site. Access is typically granted to the user interface layer through the authentication layer in order to enforce the appropriate security policies. At NIH, due to the importance of collaboration with external stakeholders, support for Federated Identity and Authentication should be provided throughout the WCM solution.

Integration Layer

The Integration layer provides other applications the means to exchange data with the Web content management application document management software. It typically consists of Web Services, Application Programming Interfaces (API), or other Integration Services.

Other ECM Services

In a robust ECM implementation, some of these ECM services might be coupled with the WCMS application to form a large, often costly, ECM suite. Some of the other components of an ECM suite include Enterprise Search, Workflow or Business Process Management tools, Document Management, Digital Asset Management, and Collaboration Tools.

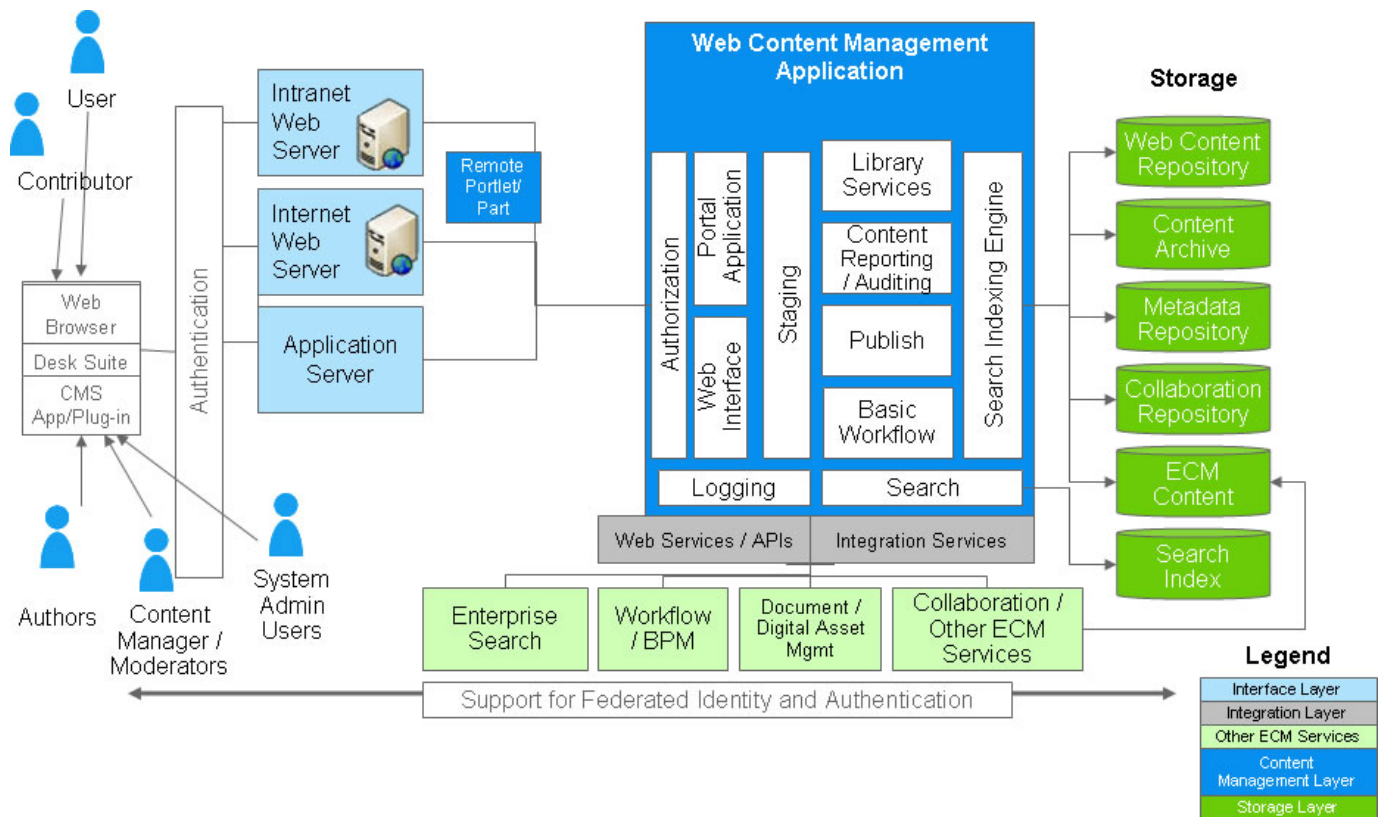
Content Management Layer

The Content Management layer contains the core components for the Web Content Management Application. The authorization component grants the appropriate privileges to users, based on their respective roles. Library Services provide the core content management functionality (check-in/out, version control), along with Publish, Staging, Logging, and Content Reporting/Auditing. Basic Workflow, embedded in most WCM solutions, provides for basic routing of content jobs. The Web Interface and Portal Application present the content to the various user segments, based on their authorization. Remote portlets (e.g. webparts, gadgets, widgets) can be used to embed content management functionality or sourced content in portals provided by other vendors. The search indexing engine can create searchable indexes from websites supported by WCMS solutions. Websites may also be independently indexed by NIH enterprise search engines.

Storage Layer

The storage layer provides a repository for these assets: Web Content, Content Archive, Metadata, Collaboration data, ECM content, and the Search Index.

Diagram



Benefits

- This pattern illustrates levels of functionality, any or all of which may be necessary for a project.
- This pattern standardizes conversation between mission and technical teams regarding components and complexity.
- This pattern can be applied to many business scenarios depending on scale and functional requirements.

Limitations

- This pattern does not illustrate true complexity of security integration in NIH's federated environment.
- This pattern does not alleviate the need for requirements and policy analysis (e.g. migration challenges, content strategy, taxonomies, usability, metadata, security and appropriate usage guidelines).
- This pattern does not address the specific workflow, task profiles, or content creation that are necessary for any website project.

3 Web Content Management System Brick

Web Content Management Systems (WCMS) consist of applications used to create, manage, store and deploy content on the Web, including text, graphics, video or audio, an application code. Web Content Management Systems are often a component of Enterprise Content Management (ECM) Solutions. However, this standard is focused specifically on technologies that may provide basic web content management services.

The NIH enterprise has multiple WCMS applications within its baseline today. However, there are internal and market drivers that will drive organizations within NIH to reassess their WCMS strategy and portfolios. Given that organizations across the enterprise will require both large-scale and small-scale WCMS implementations; this standard includes a portfolio of large- and small-scale WCMS solutions. As with all electronic and information technology used by the Federal Government, it is required that these products be verified for 508 compliance.

Brick

Tactical (0-2 years)	Strategic (2-5 years)
<ul style="list-style-type: none"> • Drupal (open source) • Microsoft SharePoint 2010 • Percussion CM 	<ul style="list-style-type: none"> • Drupal (open source) • Microsoft SharePoint 2010 • Percussion CM
Retirement (To be eliminated)	Containment (No new development)
<ul style="list-style-type: none"> • FarCry (open source) • Microsoft Content Management Server 2002 • Serena Collage 	<ul style="list-style-type: none"> • Adobe Contribute • Autonomy TeamSite • Custom WCMS solutions • Microsoft Office SharePoint Server (MOSS) 2007 • Zope/Plone (open source)
Baseline (Today)	Emerging (To track)
<ul style="list-style-type: none"> • Adobe Contribute • Autonomy TeamSite • Custom WCMS solutions • Drupal (open source) • FarCry (open source) • Microsoft Content Management Server 2002 • Microsoft Office SharePoint Server (MOSS) 2007 • Microsoft SharePoint 2010 • Percussion CM • Serena Collage • Zope/Plone (open source) 	<ul style="list-style-type: none"> • Adobe CQ • Cloud Software as a Service (SaaS) (e.g. Limelight Networks, Ezro, etc.) • OpenText Vignette

Comments

- Tactical and strategic products were selected to leverage NIH's investment in products that are a proven fit for NIH's known future needs. Leveraging baseline products in the future will minimize the operations, maintenance, support and training costs of new products.
- Some baseline products have been designated retirement and containment. These products are either not as widely or successfully deployed at NIH, or they do not provide as much functionality, value, or Total Cost of Ownership as the selected tactical and strategic products.
- ICs must consider cloud solutions and shared services before implementing a web content management system. Several vendors offer cloud software as a service (SaaS) alternatives to their on-premises, commercial off the shelf (COTS) solutions. Many products are also amenable to an Infrastructure as a Service (IaaS) implementation.
- Consult <http://www.apps.gov/> for GSA cloud service offerings and <http://www.nist.gov/> for National Institute of Standards and Technology (NIST) cloud computing standards and special considerations.
- Current shared service alternatives include: Percussion CM and SharePoint 2010 with HHS and CIT, respectively.
- ICs should look deeply into content security, organizational policies, standards compliance, uptime contract clauses, migration, data ownership, privacy, and recall prior to committing to SaaS alternatives. Consult OGC before entering into an agreement.
- It is strongly suggested that in lieu of complete custom development, open-source solutions be considered.
- All costs should be considered with open-source solutions, due to the potentially higher development and maintenance costs.
- Content migration capabilities and costs should be considered when investing in a content management solution.
- Project teams should consider usability testing on the supported website before it is deployed.
- Other web tools, such as blogs, survey tools, wikis, and social media tools are useful web management products for limited use cases. They have limited applicability as an enterprise web CMS solution and are considered out of scope for this standard. ICs may wish to consider these as possible features for their web CMS implementations.
- Likewise, Internet social media channels, such as Facebook, Twitter, YouTube, etc. are useful for public engagement but are also out of scope for this standard.

4 Contact

To contact the NIHRFC Editor, send an email message to EnterpriseArchitecture@mail.nih.gov.

To contact the CMS Brick Working Group, send an email to Christen Geiler at GeilerC@mail.nih.gov.

5 Security Considerations

This NIHRFC raises no security issues.

6 Changes

Version	Date	Change	Authority	Author of Change
0.1	11/21/2007	Original Template	CMS Brick Working Group	Steve Thornton
0.2	2/1/2008	Moved CMS2002 to containment from retirement and updated comments to reflect recommendation that websites not migrated at end of support may be at risk.	ARB	Steve Thornton
1.0	2/12/2008	ARB approved. Change author address.	ARB	Steve Thornton
1.1	11/25/2011	Initial working group draft	CMS Brick Working Group	Steve Thornton
1.2	12/1/2011	Working group official draft	CMS Brick Working Group	CMS Brick Working Group
1.3	12/9/2011	Working group final official draft for NIH-wide comment.	CMS Brick Working Group	CMS Brick Working Group
1.4	12/28/2011	Minor editorial changes.	NIHRFC0001	Zahra Ashraf
2.0	02/21/2012	ITMC-EA Sub Committee has recommended to approve	NIHRFC0001/ITMC-EA	Saloumeh Jazayeri
2.0	02/28/2012	ARB approved.	NIHRFC0001/ARB	Saloumeh Jazayeri

7 Author's Address

Co-Chairs:

Christen Geiler, NIAID
James Seach, OD/OER

Working Group Members:

Nicole Bergstrom, CC
Michele Felton, CIT
Tony Gavino, CIT
Sharon Hite, NIEHS
Faustina Ifedi, NIGMS
Matt Raschka, NHLBI
Jennifer Sun, OD/OHR
Steve Thornton, OD/OCIO
Dan Wendling, NLM