

A Dynamic System for Web CMS

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Abstract- Content Management Systems (CMS) lacks the ability of managing semantic information that is part of the content stored in a CMS. On the other hand, a lot of research has been done in the field of Information Extraction (IE) and Information Retrieval (IR), respectively. Additionally, the vision of the Semantic Web yields to new software components that make semantic technology usable for application developers. In this paper, we combine IE/IR concepts with the technologies of the Semantic Web and propose a new family of CMS, called Web content management tool allows you to better manage and display data on your website. Changes are made using an on line website rather than a separate web editing application. The use of a Web CMS, in order to develop an online community. Taking into consideration the multitude of the existing Web CMSs on the market and their diverse functionalities, we conducted a prospective study that tests the development trends in the field, with the view of finding out which are the most important Web CMSs in practice, and which are the most important functionalities they have to possess, in order to develop a collaborative online community.

I. INTRODUCTION

A content management system (CMS) is a system used to manage the content of Web site. Typically, a CMS consists of two elements: the content management application (CMA) and the content delivery application (CDA). CMA is the front-end user interface that allows a user, even with limited expertise, to add, modify and remove content from a Web site without the intervention of a Web master. CDA compiles information and updates the Web site.

A content management system is a computer software or a collection of tools which is used to manage information on a web Known as CMS, it can be programmed using computer language and then it can be executed on any system. With the help of a good CMS, one can input data as well as store the data in database . At times, it can be edited by some authorized users and finally made available to the public. A professionally crafted content management system can handle formatting, cataloguing, storing and retrieving the data. In the process, there is no need for the users to have extensive knowledge of technical aspects. CMS, nowadays are used by libraries, newspapers, on line stores, academic journals and others.

A. *Web Content Management System*

A content management system (Web CMS) is a bundled or stand-alone application to create, deploy, manage and store content on Web pages. Web content includes text and embedded graphics, photos, video, audio, and code (e.g., for applications) that displays content or interacts with the user. A Web CMS may catalogue and index content, select or assemble content at run time, or deliver content to specific visitors in a requested way, such as other languages. Web CMS usually allow client control over HTML-based content, files, documents, and Web hosting plans based on the system depth and the niche it serves.

II. OVERVIEW OF CMS

Over the years major changes has been seen in content management systems. At the initial stages, documents were manually converted to HTML. Then a number of complex programs were used to make content and Photo shop to edit the images. RTF to HTML was generally used to convert word documents to HTML language. Dream weaver was used in many cases in order to edit the HTML pages. Any corrections need to be made in the HTML document manually and then the new document needs to be uploaded. All the links that need to be updated had to be searched for and then they had to be changed one by one manually.

A. *Troubles faced by the website developers*

- *Lots of time and money are spent managing static content:*

Especially with sites that have hundreds or even thousands of pages Sites are growing and increasingly have lots of content. Successful sites rapidly accumulate large amounts of content.

- *Keeping the Content Consistent:*

The design of pages and the 'style' of the site are inextricably linked with the content itself to updating content you must use people with HTML experience or risk errors and style problems

- *Maintaining the Content:*

Significant IT time and financial resources are being used on managing content. Separating the originators of the content from the authors: this costs time, money and accuracy.

III. LITERATURE SURVEY

A. Traditional CMS Architecture

CMS architectures are built upon the concept of a 3-tier architecture with client, CMS server, and database backend. Figure shows the internal server architecture of a CMS. The main difference of CMSs compared to other information systems is to focus on flexible content modelling and storage. Content data models as the representation of content and their persistence need to be highly adaptable to any domain or customer scenario. A CMS User Interface at the top layer in Figure presents the content and offers editorial features to create, modify, and manage content within its life-cycle. Access to the content itself is provided by a Content Access layer. This layer is used by the User Interface to get access to the content and the content management features of the CMS. Additionally, the Content Access layer can be used by third party software that may want to integrate the CMS into other applications. The core management features are implemented in the Content Management layer. This layer provides functionalities for the definition of the domain or application specific Content Data Model. Access control and content life cycle definitions are further typical management features implemented in this layer. The Content Data Model layer is conceptually placed below the Content Management layer that has the necessary features to manipulate the model. The Content Data Model is the application specific model based on the underlying Content Repository. The Content Repository defines the fundamental concepts and persistence mechanisms for any Content Data Model that is defined on top. The Content Management features are tightly related to the Content Administration layer to administer the CMS stack.

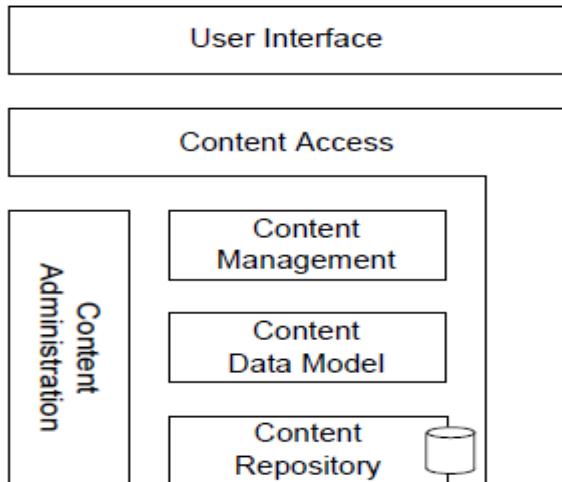


Fig1. Architecture Of Traditional CMS

B. Advantages of Content Management System

- *Content Accessibility:*

A CMS can re-purpose content into multiple formats, and helps ensure disability compliance is met. Content re-purposing takes a single source of information and applies the necessary changes to automatically generate various outputs including standard HTML, lite HTML, printer friendly HTML, hand-held WML, PDF, and XML. In addition, the content is checked for compliance to make sure certain conditions are met for persons with disabilities such as blindness or epilepsy.

- *Content Creation:*

Content creation is less costly as business users can directly contribute information online without going through an intermediary. An IT specialist is no longer required to reconfigure content from one program to a suitable online format. Removing steps in the process frees up expensive technical persons for more specialized tasks.

- *Content Management:*

Managing information is less costly as content is maintained by business users and standard processes are automated. Common tasks like checking for dead links and archiving old pages are done transparently by the CMS. Other tedious tasks like generating navigational menus and enforcing information architectures do not require technical labour when using a CMS.

- *Content Publishing:*

Content publishing is less costly as information is scheduled in advance to be published at a specific date and time. Associated images and files for content are published by the CMS, reducing the technical burden of finding the necessary assets. The CMS is also capable of expiring content at a predefined time.

IV. PROPOSED SOLUTION FOR WEB CONTENT MANAGEMENT SYSTEM

Automate the maintenance of the content using eContent. Provides web-based access to the CMS, a simple front-end that allows editors and content authors to easily add, edit, and delete content.

According to [2], a Web CMS is a system that collects, stores, and publishes content, offering various functionalities to the different categories of users. The collection system is used in gathering information from different sources and processing them, resulting in format content that can be stored in the system. The management system is used to store and administer the formats. The publishing system extracts the desired components of the content from the management system, and converts them into publications, either online or offline.

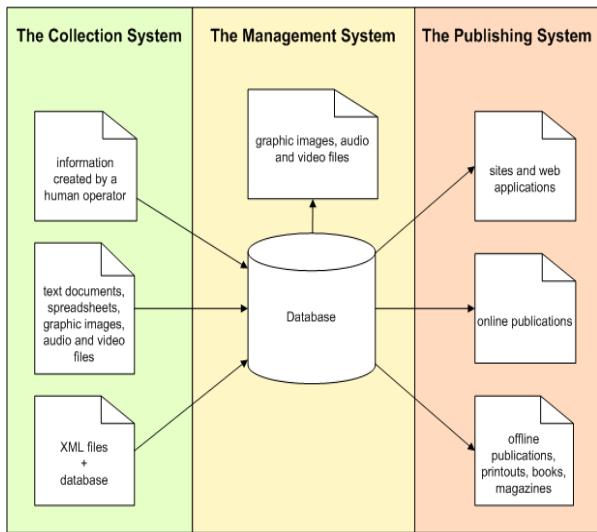


Fig2. The structure of a Web CMS. Schematic representation adapted from [2]

The collection system comprises that part of a Web CMS that is responsible for collecting the information from different sources in order to be stored in the system. The collection system must be expanded, in order to be able to receive data in various different formats, covering a large range of needs. In general, the collection system facilitates the importing of data in different formats and sources, such as XML files, external databases and Excel or text files. In the internal database of the system, only a reference to these files will be stocked, via which they can be accessed. To gain entry to the system, the content must pass through the collection system. The literature [2] divides the collection system into many processes, as follows: the process of authoring, acquisition, conversion and aggregation.

The process of authoring or the creation of the content by human operators. This kind of content is usually created by special operators with the task of creating content, according to a well-defined objective. The collection system provides these operators with a series of tools and interfaces, both to support their creation process and to introduce the content into the system in the simplest way possible, in accordance with the general standards accepted by Web CMS. This process usually consists of several steps and contains a number of content versions, as well as several drafts until the final version is reached.

Very often, by developing a Web CMS, a lot of information, processed and imported from different sources, is required. This information can appear either in a format that is accepted by the system or in a format which has to be processed, so that the information can be stored. One of the most important formats that lies at the base of the information transfers between different applications is the XML. The most important advantage of this format is that the information is structured and has metadata associated with it, in order to facilitate its integration into the system.

The process of conversion constitutes the conversion of the content into a predefined format, in order to eliminate those information and elements that are not really necessary. Frequently, the content is entwined with a series of

information and issues that have to be eliminated for the resulting data to be in accordance with the defined standards of the Web CMS, and to match the specified data structure.

The process of aggregation is the process through which the information from various dispersed sources are put together in order to form an integer. The information must be edited, structured and labeled with adequate metadata, for the computer to stock and manage it.

The core aim of the collection system is to create, import, convert and aggregate the content, so that the resulting data are in accordance with the data formatting and structuring standards, which in turn are defined and imposed by the Web CMS. The collection system prepares the data for processing by the management system.

The management system is responsible for storing and managing the data and the components of the content on a long-term basis and consists of the repository, the workflow and various administration tools. [2]

The repository is used to store and preserve the content and consists of various databases and types of files. [8]

The repository contains two big categories of files. The first category comprises the source files as well as the Web CMS configuration files. It also contains files that carry information about the type of content that can be processed, metadata, users and groups of users, as well as their access data, preferences and profiles. Furthermore, this category covers scripts, tools used in processing the content templates used for collecting and publishing content and also the log files that contain information about the activities that take place in the system.

The second category plays an important role because it contains the databases in which the content and files that will be processed through the management system are stocked. This part of the repository entails databases and tables that are constructed for the recall and processing of the content. Likewise, the media files, the images and the audio and video files that are linked to the table of contents are also to be found here.

The workflow embodies the integral or partial automation of a business process, during which documents, information or tasks are passed from one actor to another for it to act in accordance with a set of procedural rules that are established in advance [10].

As stated by [8], the workflow comprises a series of tasks that develop inside an organization in order to obtain a result well established and defined. A well developed informational system may allow the definition of different workflows for different activities. Thereby, within the framework of a Web CMS a set of tasks can be defined under the form of a scenario that a document has to cover since it was created until the moment it is published. The document can be automatically sent to the author by a publisher for correction and after the publisher carries out its tasks, the document can get to a person who has the right to publish it. At each stage in the workflow, a person or a group of persons is responsible for a specific task. Once the task is completed, the system ensures the fact that those responsible for the next stage are announced and

dispose of all necessary data in order to perform the task for which they are responsible in the process.

The publishing system is responsible for extracting data and various components of the content contained in the repository and their publishing. A publishing system usually contains different tools and templates for the automated publishing of content online or offline. In case that the publishing system is accessible online, for instance by a website, this can result in a dynamic web page generated by the publishing system. If the system is used to publish the content offline, it can generate the whole publication, either in digital or printed format.

The publishing templates are used to build publications from the components of the content that are to be found in the repository. A template is formed from both sides of the static and dynamic parts. The static parts of a template consist of html files, scripts that run on the client and server-side, texts and various media files that constitute the publishing pattern. The static part of a template also contains a series of formatting and customization of models for the data and the content components extracted from the repository. The dynamic parts in a framework of a template may be specific objects that connect to the repository that extract and process certain components of the content in order to publish them. In the dynamic part of a template one can also encounter different procedures to various services on the Internet, in order to extract certain information and functionalities or to communicate with different web services.

V. CONCLUSION

In today's connected society, failing to maximize on the potential of your corporate website is akin to hanging a closed sign on the door of your business. Companies need to be ready to engage with customers via their Websites whenever, wherever, and however those customers decide to interact with them. But providing the dynamic, flexible and scalable sites that can do this without a roomful of programmers working in the background can prove tricky. A good web content management system can provide the solution. Choosing a web CMS, however, is not a task to be undertaken lightly. Since this single tool will likely spell the success or failure of your Internet strategy, which in turn represents a key component of your business plan, its choice should require participation from more than just IT management. Business stakeholders, content owners, and developers should all be involved, and the selection should be evaluated from a number of angles. Choose wisely, and your corporate website will engage your customers and drive your success generating Revenue, improving customer service, raising brand awareness, and promoting customer loyalty. Similarly, we should consider other functionalities such as: the personalization of user interfaces and content, accessibility from mobile phones, addition of the ping and track-back option, automatic optimization, as well as dynamic pages for search engines. Hence, we intend to increase the work sample that would allow the use of econometrics models and the establishment of relations and dependencies.

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