KOLABORATIVNO UPRAVLJANJE SADRŽAJEM KORPORACIJSKIH PORTALA

COLLABORATIVE CONTENT MANAGEMENT FOR CORPORATE PORTALS – GRANULAR APPROACH

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Sadržaj – *U ovom radu je predstavljen jedan pristup u rešavanju problema razuđenosti informacija i njihovih izvora u korporacijskom intranetu.Klasična struktura informacija na portalu je obogaćena još jednim nivoom detaljnosti i to struktuiranjem članaka korišćenjem zrna informacija.*

Primenom opisane arhitekture, moguće je ekstrahovati, organizovati, i objaviti informacije iz svih relevantnih biznis procesa kao što su SCM i CRM u kolaborativnom okruženju. Opisana arhitektura je primenjena u razvijenom prototipu portala.

Abstract - *This paper presents an approach to solving enterprise knowledge content chaos, by structurizing it into granular units, distributed over peer-to-peer network.*

Described architecture is capable of extracting organized content from all relevant business processes like SCM and CRM through collaborative, role-based publishing process. Architecture design is supported by prototype portal, which covers most of the described features.

1. INTRODUCTION

The foundation of any e-business is dynamic, constantly changing content produced by web-based interactions, with participation of all relevant actors (customers, clients, partners,..).

It is necessary to design the system which would serve as basis for publishing content from all corporate processes (internal communication, SCM, CRM,..). By that way, system would help organizations not only to know what they know, but also to gather knowledge from partners, suppliers and customers.

Main difficulty in currently applied content management solutions is low efficiency of aquiring and reusing knowledge or, in general, information from corporate processes.

The idea, followed by developed portal and this paper is to enable publishers from collaborative, role-based publishing environment, to manage content by assembling articles from content granules – pieces of information from any of corporate processes. All content granules can be aquired from various sources and reused easily.

2. CORPORATE PORTAL CONTENT STRUCTURE

Whatever the nature of published information is, it is structured into articles and stored in database. In order to enable browsing through portal, two levels of information abstraction have been applied.

First level of grouping related information together is vortal. Vortal (vertical portal) gathers information of general interest for one group of people.

Inside vortal, articles are grouped within vortal topic hierarchical tree (see Figure 1).

2.1 Article structure – granular approach

Primary goal of described infrastructure is to enable fast and easy information aquire-and-reuse process within collaborative effort.

In order to achieve this goal, it is necessary to enable publishers to create articles by using various data from variety of sources.

Figure 1 - An example of content structure

For this reason, article is created by assembling article granules – objects into final layout. At this stage of content management system design phase, publishers can create 6 types of article granules: text granule, table granule, graphic granule, datamart granule, webmart granule and foreign granule. Four of them are fully implemented in functional portal prototype.

After activation of published structured article, all of it's granules are available for inserting in all other articles in current vortal, unless article author has explicitly forbid it's usage, by declaring it as private.

Private granules can be inserted into other articles also, but only after authorization of a granule owner.

Short description of each article granule type has been given below.

1. *Text granule* – created by using HTML editor Java applet. Contains textual information, with hyperlinks to internal or external resources.

2. *Table granule* – created manually by using Table designer application or by importing CSV files. Table granule may contain also a granule within itself.

3. *Graphic granule* – Raster image or flash presentation. Can be hyperlinked to internal or external resources.

4. *Datamart granule* – Datamart granule is created from knowledge pools - prepared queries for extracting specific data from any of enterprise database systems. Datamart granule can be inserted as an individual data granule or can be inserted into existing granules.

    Process of inserting datamarts from prepared knowledge pools is described on Figure 2.
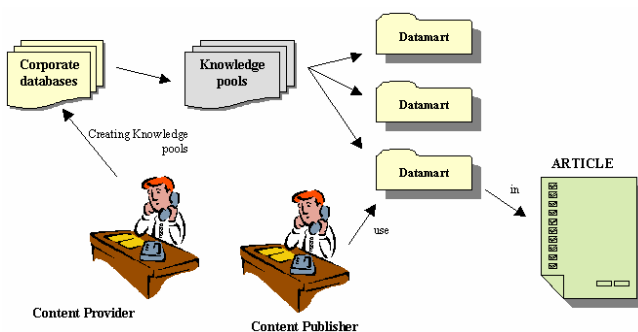

Figure 2 - Process of inserting datamarts in articles

5. *Webmart granule* – After subscribing to services of various news, stock, weather, etc. providers, additional data could be available to authoring staff for using as dynamic content components in their articles.

    Similar to knowledge pools, web pools can be created by editors. By choosing a webmart from available web pool, article author can include valuable up-to-date information from third party, specialized sources.

6. *Foreign granule* – Any of created granules within one vortal can be reused and inserted into article by the original or another author (see Figure 3).

Figure 3 - Inserting foreign object into articles

After creating the article structure, author can choose to format it's appearance. Article granules can be organized into HTML table by using Article layout editor. Process of assembling article from granules and defining an article layout has been documented at Figure 4.

It is obvious that article author has been given a valuable and powerfull infrastructure for collaborative publishing process. Described content model can be use for creating corporate portals but also serve as a basis for design and development of various e-communities, e-government portals and any other web presence powered by complex content, in general.

In order to achieve optimum of each publishing process performance, it is assumed that it must reside within collaborative environment. For this reason, all content management processes has been put into role-based workflow, described in the rest of the paper.

ARTICLE STRUCTURE

1. Article title and synopsis with defined styles
2. Elements of article structure
3. Text object
4. Graphic object
5. Table object
6. Vortal object
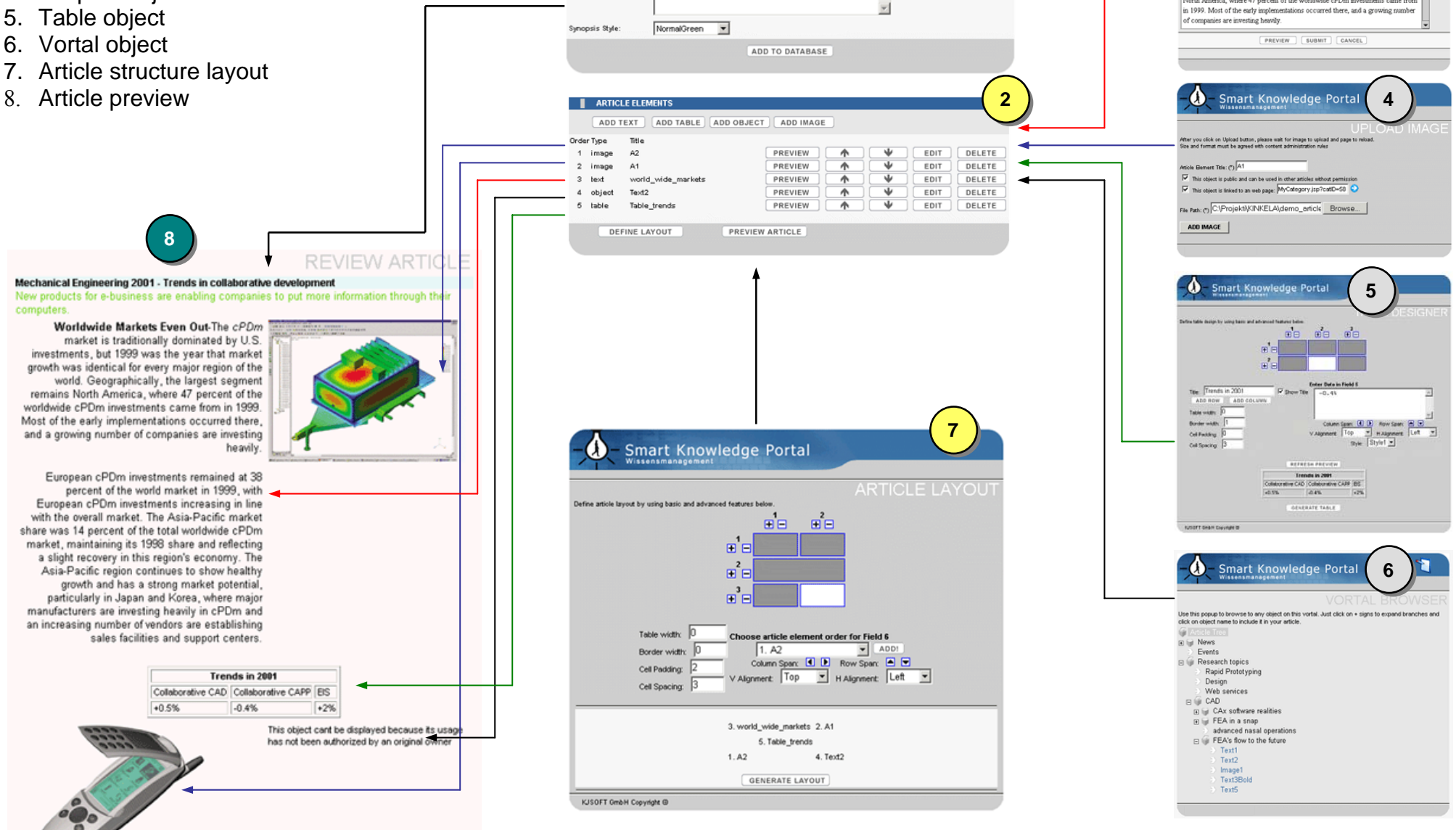7. Article structure layout
8. Article preview

Figure 4 - Assembling articles from granules and defining article layout

3. COLLABORATIVE CONTENT MANAGEMENT – ROLE BASED WORKFLOW

In order to establish truly collaborative environment for content management workflow, all publishing tasks are dedicated to following roles – Root administrator role, Content Provider role, Content Publisher role and Content Translator role.

Root administrator starts publishing process by creating vortals and assigning them to Content Providers, prepares article design layout formats and standards (administration of CSS library, image library), prepares external sources of information that can be used in articles (datamarts, webmarts) and keep track of portal activity by using Portal Spy – special module for tracking all portal events.

Content provider is managing role, responsible for creation of vortal topic hierarchy, assigning topic to Content Publisher and Content Translator roles, reviewing their publishing efforts and deliver assembled content to portal users.

Creation of actual content is task assigned to *Content Publisher*. By becoming one of the owners of specific topic, assigned to him by Content Provider, he is granted rights to work on articles in this topic.

Finally, once the article has been activated, it is exposed to assigned Content Translators. Based on defined internationalization parameters, Content Translator is responsible for translation an existing, activated article on specific language.

4. COLLABORATIVE CONTENT MANAGEMENT PROCESSES

In order to achieve great information value and responsiveness on corporate employees need, corporate portal content management must be a joint effort.

In the following sections, the most important processes have been listed with responsibility assigned to four content management roles. All portal processes related to content management has been divided into publishing processes and publishing support processes group.

4.1. Publishing processes

Publishing processes are processes directly related to content creation. Since this is the most important activity in content management, it is necessary to ensure reliable triggering of individual processes in publishing workflow.

For this reason, every process completion trigger a message forwarded to an actor, responsible for next process in workflow. Message is forwarded by using Java messaging system and independent push server.

All publishing processes are listed in the following table.

Process	Root	CPr	Cpu	CTr
Create Vortal	X			
Modify Vortal		X		
Create Topic Tree		X		
Assign CPub roles		X		
Assign CTran roles		X		
Create article			X	
Define article keywords			X	
Define article languages			X	
Publish article			X	
Protect article			X	
Review article		X		
Activate article		X		
Archive article		X		
Reject article		X		
Modify article			X	
Translate article				X
Create article revision			X	

Table 1 - Publishing processes

4.2. Publishing support processes

Publishing support processes are indirectly related to content creation. They represent preparation tasks, necessary for establishing a rich data and design environment for Content Publishers.

All publishing support processes are listed in the following table.

Process	Root	CPr	Cpu	CTr
General support processes				
Create styles	X			
Create image gallery	X			
Vortal support processes				
Create vortal questionnaire		X		
Create vortal opinion poll		X		
Create vortal datamart		X		
Create vortal webmart		X		

Table 2 – Publishing support processes

5. TECHNOLOGY ISSUES

Inevitable choice for enterprise level applications within todays technology range is Java. Current edition of J2EE development architecture supports all requirements for all

modules of developed enterprise content management system. Although with .NET expansion in mind, idea about using Java has survived because of a need for robust, multi-platform environment and practice-proven design patterns.

Content Management application has been designed by using authentic UML framework [1] for web applications and developed with MVC design pattern [2].

Although this application has been developed as portable and independent of applied RDBMS and application server solution, it is necessary to say that it has been thoroughly tested only by using Microsoft SQL Server 7.0 and Allaire JRun 3.1 application server.

6. CONCLUSION

Development of described enterprise content management solution was led by strategic ideas inspired by terms of integration and collaboration among business processes and people.

Ensuring the availability of right knowledge content to the right people at the right time will led to proper, dynamical response to specific business situations. Creating and leveraging shared knowledge pools among all of an organization's constituencies will improve corporate memory and responsiveness. Shared granules, datamarts and webmarts add great value to conventional content management solutions by making reusing of corporate knowledge extremely easy task.

7. REFERENCE

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