OPEN SOURCE DOCUMENT MANAGEMENT SYSTEM IN PREPARATION OF EU GRANTS APPLICATIONS

Miroslav Mazurek[*], Tomislav Galeta and Vjekoslav Galzina

Mechanical Engineering Faculty in Slavonski Brod, J. J. Strossmayer University of Osijek, Croatia
Corresponding author e-mail: mmazurek@sfsb.hr

Abstract
In this paper we present our experience with selected open source document management system DocMGR in preparation of EU grants application. Complete lifecycle of the document management system is discussed: selection, installation, implementation and future replacement.

Keywords:
Document management, electronic documents, EU grants

1. Introduction

 "Pari passu" – moving simultaneously, saying that well emphasizes how preparing applications for EU grants is synchronized and document oriented teamwork. One application for EU grant is usually prepared in a workgroup. The workgroup is always assembled from representatives of applicant; often it includes representatives from one or more partners and sometime representatives of associates. Although coming from different organizations, all members of the workgroup have to work in tight cooperation; therefore members must have access to the latest version of application's documents and must instantly receive notification about document changes.

Since EU government allowed access to EU grants for Croatian institutions, Mechanical Engineering Faculty in Slavonski Brod applied many times on grants' call for proposals. Faculty has always included partners and associates in application but it also contentedly accepted to be partner and associate in others applications.

Well established networked office organization model, which incorporated use of e-mail for communication and shared file system for storage, in previous cases resulted with data loss, unsynchronized documents and poor workgroup members awareness of changes in application documents. Therefore, new application workgroup model had to be established.

2. Requirements for more efficient workgroup organization model

Analysis of glitches in previous organization model yielded list of requirements for the new one. Some of them were dictated by limited budget. Fulfilment of requirements and higher workgroup efficiency would be achieved via implementation of appropriate software and new organization model. List of requirements:

- Improved communication and collaboration in workgroup;
- Access to documentation from geographically diverse locations;
- Relatively low volume of documents, therefore, no requirement for extensive search and consequently, lowered need for metadata management;
- Implemented software should have steep learning curve i.e. has to be easy to master;
- Fine grained user roles and permissions;
- Check-in and check-out of documents;
- Reliable document altering signalization and alerting;
- Desirable document versioning and commenting;
- OS and Office software integration is welcome (WebDAV and Outlook integration);
- Low implementation cost;
- Simple maintenance and backup.

3. New organization model based on DocMGR

As limited budget purchase of expensive commercial software, along with commercial proprietary software, we considered use of open source software.
Some authors stated that Free and Open Source Software (FOSS) has its own economics [1] and many studies explain difficulties and provide reasons pro [2] et contra [3] of its use. However, although FOSS is covered by license and in its lifecycle some costs are certainly produced, it is free to use and initial investment in software is very low.
A number of groupware, document management and Enterprise Content Management (ECM) software solutions were taken into account.
Groupware or collaborative software by definition is software that enables workgroup collaboration and is part of Computer Supported Cooperative Work [4], [5]. Such software should be fine adjusted to nature and requirements of workgroup, but considered open source groupware e.g. phpGroupWare, SimpleGroupware, eGroupware, are all designed as general practice groupware and all are lacking document management features i.e. document meta-data, versioning,

check-in and check-out or pure user permission implementation.

Although some ECM systems are present on market for years, scientists didn't yet reach consensus on definition of this term [6]. Nevertheless, most authors do agree that ECM systems are dealing with organization's documents, and other content that is tightly related to organization's processes. Often, whole content lifecycle is processed.

Proven ECM systems like: Oracle ECM Suite, MOSS (Microsoft Office SharePoint Server), IBM ContentManager, Nuxeo, Alfresco, DSpace and others, being released as proprietary software or as SaaS (Software as a Service) and simultaneously satisfying almost all listed requirements, all have few demoralizing properties like:

- complex implementation planning,
- time-consuming implementation,
- relatively high hardware footprint,
- complex meta-data requirement,
- substantial expenses,
- necessity of well-trained users,
- complex maintenance,
- huge excess of features not always needed.

As a optimal solution, we established new organization model based on DocMGR - open source document management system backed up with use of free communication and scheduling tools e.g. Skype, social networks, on-line scheduling – Foodle (http://foodl.org).

Document management, or here EDMS (Electronic Document Management System) as subset of ECM, is dealing with document's lifecycle – from creation, usage, modification to, finally, archiving. It is expected that such systems include following basic features:

- Check in/Check out,
- Version management,
- Search management and
- Organizing documents.

4. DocMGR – open source document management system

DocMGR is web-based open source Document Management System [7] based on Linux, Apache, PostgreSQL and PHP (LAPP) or Windows, Apache, PostgreSQL and PHP (WAPP) platform (Figure 1).

Difference between LAPP and more common Linux, Apache, MySQL and PHP (LAMP) platform is in used Database Management System (DBMS). Instead of MySQL, DocMGR PostgreSQL. These abbreviations describe common web software stack: Linux (or Windows) server operating system. Apache web server software, MySQL or PostgreSQL DBMS and PHP web scripting language. Whole LAPP software stack consists of Free and Open Source Software (FOSS) software, so there was no initial investment in software.
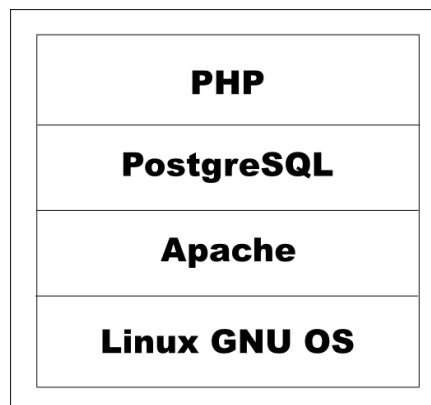

Figure 1. LAPP platform – Linux, Apache, PostgrSQL and PHP

Beside common document management features: Check in / Check Out, support for basic version management, search engine based on tsearch2 full-text indexing engine; it provides two convenient ways for document and folder (here called collections) organization: per user hierarchy and per project or topic hierarchy. Document security and user privacy and confidence are assured with user groups and user roles and fine-grained permissions system. Collection or documents (folder) as unit of document hierarchy or individual document, may be open for all users or may be assigned to particular user or user group and thus secured from abuse or unauthorized manipulation. Furthermore, for authorization and authentication external LDAP server can be applied.

Besides, DocMGR provides some extra document conversion, editing and compression features. On-line editing of various file formats is provided, mostly for plain text, Word, PDF as well for other popular file formats. On-the-fly conversion from popular formats as MS Power Point .ppt(x) to PDF, DocMGR format or ODF formats is also possible. Especially useful is, also, on-the-fly download and compression of collections, which saves time and bandwidth.

There are also some features usually present in groupware: Address book with possibility of sharing contacts, convenient e-mail application, simple task scheduling and workflow management. In addition, users can subscribe to alerts from collection: creating, modifying and deletion of object within collection. Finally, users can attach notes, comments and warnings to document or document version.

DocMGR user interface is simple and intuitive and allows almost instantaneous user adjustment. Screen real estate is optimally utilized, placing main menu on left side and most commands on top, thus leaving most of space for documents and documents listing (Figure 2)
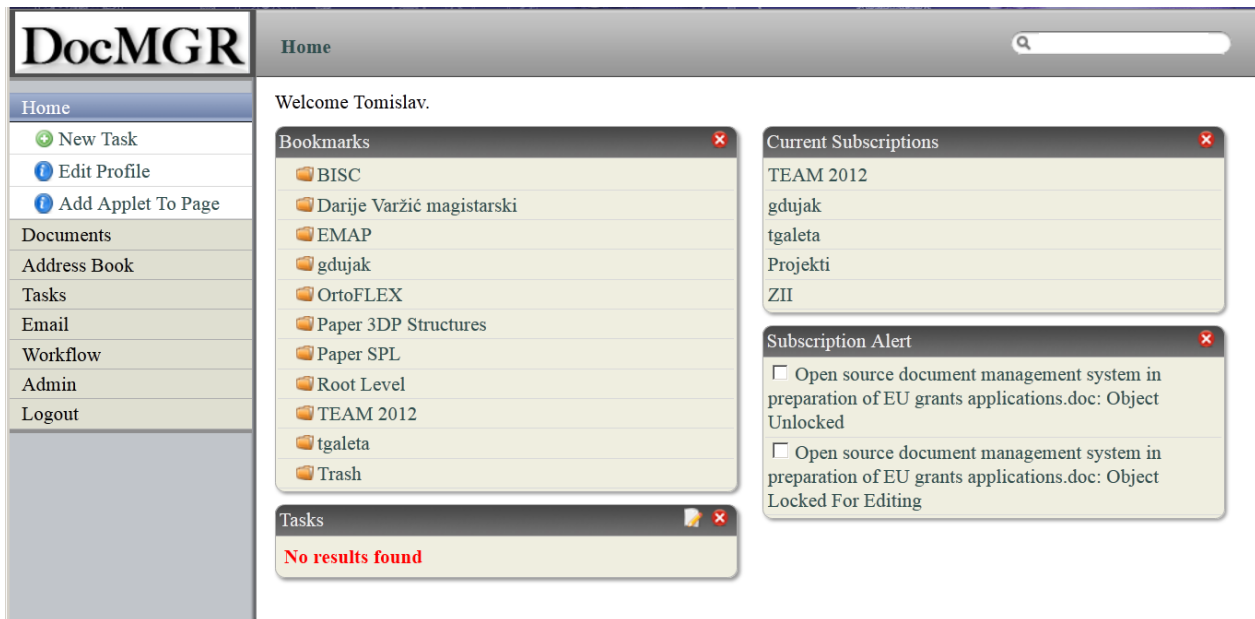
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Figure 2. DocMGR user interface – main window

- 850 documents with 1130 document revisions occupy 4.4 GB of disk space.

After using it more than two years, DocMGR proved to be low cost and low maintenance. LAPP platform can easily be implemented on commodity hardware but it will gain on performance if mid-class server is used. Particularly important is, as always, regularly backing-up database and whole server filesystem. In the specified time, there were no outages caused by software or platform itself. Just couple of outages was registered, mainly because longer power outages that wasn't covered by Uninterruptable Power Supply (UPS) and system resets because of need for implementing new Linux kernel. We had no data loss, file mislays or missing messages so we can confirm that DocMGR is highly reliable.

Contrary to popular belief that usage of Open - source software is risky, mostly because alleged lack of support, we were very pleased with achieved level of support. Several tiny problems that occurred were solved using software documentation and support forum, but additionally, in very beginning of using DocMGR, we contacted authors of software and reached agreement on an on-incident paid support. That kind of support was used just once, when software was going through major version revision and some fine tuning of database was needed. URL of our instance of DocMGR is http://doc.sfsb.hr/.

Statistical facts about DocMGR usage to date:

- 90 users distributed in 15 user groups logged 111000 times or about 150 times a day.

Pros:
- Intuitive, easy to learn and master.
- Highly reliable. We suffered no data loss.
- Amazing level of support via forum and from software author.
- Low costs, small footprint and simple maintenance.

Cons:
- Slow response on large documents and relatively low limit on document size – limits inherited from platform e.g. PHP scripting language.

- Missing some features of ECM: automation of processes, DAM (Digital Assets Management), complicated and time-limited public access to documents, inability of connection with CMS software.

- Lack of comprehensive documentation.

- Croatian symbols glitches (solved via forum)

- Usual IE problems and pitfalls (solved via documentation and forums)

5. Conclusion

Chosen document management solution DocMGR with low cost, high reliability, small footprint and decent level of support, significantly logistically contributed to better workgroup organization, collaboration and efficiency. It overcame most of

deficiencies noted in previous workgroup organization model.

Next step to even better and efficient collaboration should be implementation of full-blown ECM system for institution, in private or public cloud. ECM should lead to better office software integration, administrative process automation, comprehensive archiving, DAM and tighter ties with CMS software.

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