

Open-Source for Public Libraries

Library Automation Software. Case Study: IBLA Soft

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Resume

Under the framework of the IOSSPL Project (www.iosspl.org), the *open-source software for library automation – IBLA Soft* – has been developed based on the merging of advanced emerging technologies for enterprise applications: OSS, JSR 168, GRID, J2SEE, JSF, ORM, IOC, Hibernate, Spring Framework, FRBR and OPAC. We produced a high quality, low total cost of ownership (TCO) solution that can meet the needs of most *small and medium-size public libraries*. By examining the *open-source software (OSS) community* we have concluded that the best approach was to use a portal framework. The JSR 168 standard was implemented, standard supported by many large software companies like Sun, IBM, BEA and the OSS community. A *portal framework* (based on standard J2EE enterprise technology) was deployed on the server machine, and independent components (in themselves J2EE-compliant applications) were published in the framework – the library, community, and administration *portlets*.

The *IOSSPL Project* is an R&D project developed in collaboration by Romania and Italy. The open-source product has been implemented in several pilot libraries (with hierarchical interconnections) in Romania, and is further offered free of charge to all the public libraries in Romania that express their interest to use the system. The solicitations came from a large number of libraries of different types – public, educational, ONG and community libraries, and R&D activities are under way for meeting their specific needs.

1. Introduction

The *IOSSPL Project* (www.iosspl.org) is an R&D project developed in collaboration by Romania and Italy for the development of an *Integrated Open Source System for Public Libraries*. The open-source product, as result of the project – IBLA Soft – has been implemented in five pilot libraries (with hierarchical vertical and horizontal interconnections) in Romania, and it is further offered free of charge to all the public libraries in Romania that will express their interest to use the system. The solicitations came so far from a large number of counties and different types of libraries – public libraries, educational libraries, ONG libraries, community libraries.

In order to maintain the system as an open-source software³ product and 100% free of charge for the users, IBLA Soft will be further involved in other R&D projects for continual development in innovative directions. In the same time, an *open-source community* will be developed around the system so that the contributions from external development teams can be added to the basic product and help the growth of a library software environment that can be used by any public library in Romania.

2. IBLA Soft

Under the framework of the IOSSPL Project, the *open-source software for library automation – IBLA Soft* – has been developed based on the merging of advanced emerging technologies for enterprise applications: OSS, JSR 168, GRID, J2SEE, JSF, ORM, IOC, Hibernate, Spring Framework, FRBR and OPAC.

We produced a high quality, low total cost of ownership (TCO) solution that can meet the needs of most *small and medium-size public libraries*. During the initial user requirements analysis phase we concluded that specifications clearly indicated towards a *web-based solution* able to scale both horizontally (to accommodate more user requests) and vertically (to integrate more organizations in a cooperative environment).

By examining the *open-source software (OSS) community* we have concluded that the best approach was to use a portal framework. The JSR 168 standard was implemented, standard supported by many large software companies like Sun, IBM, BEA and the OSS community. A portal framework (a software application based on standard J2EE enterprise technology) was deployed on the server machine, and independent components also known as portlets (that are themselves J2EE-compliant applications) are published. The main advantage of this approach is that portlets can be developed independently and deployed in a highly configurable fashion on the portal. Each of the portlets employs an emergent technology from J2SEE community that allows rapid deployment of rich graphical user interfaces with built-in multilingual support.

An extensive toolset has been developed to allow the Administration from within the portal of any aspect pertaining to its functionality. A complex organization model allows for fine-grained security settings. This capability is mastered by the portal administrators from within the portal. All the operations to be performed by the librarians require Authentication, as well as the on-line/off-line operations allowed to be performed by the subscribers.

3. The Portal Structure

The IBLA Soft system is designed to cover the main functions of an integrated library system. Moreover, it automatically integrates all the branches of the central library headquarter under the same portal, allowing to manage the catalogues, the loans, reservations, and assets of each branch separately, but from an unique point of access - the library portal - under the administration and monitoring of the central library headquarter.

The analysis of the *User functional requirements* has led to the implementation of the following portlets:

- Catalogue Search portlet
- Catalogue Management portlet
- Assets Management portlet
- Loans and Reservations portlet
- Community Forum portlet
- Community Wiki portlet
- Community Messages portlet
- Generic Content portlet
- News portlet
- Portal Administration portlet

The operation of the library system revolves around its *Catalogue*, and the first use case is the *Catalogue Search operation* facilitated by the *Catalogue Search portlet*. We have developed a powerful *Search Engine* that is able to respond to queries of arbitrary complexion, while

providing a very simple and intuitive user-interface that any user (who has ever accessed the internet) feels very comfortable using. Although this interface is suitable for “Average Joe” type of queries (and it is more than enough for someone who knows the syntax of the query string), a more complicated interface is provided for more specific searches. Once an entity has been identified by the query, the entity can be displayed to the user, or can be modified by a librarian. The second use case is the *Catalogue Management operation*, which is facilitated by the *Catalogue Management portlet* and it is authorised only to the Librarians that hold this specific function in the library organization (to enter, modify and manage the catalogue items). Our catalogue does not store just the attributes of an item, but also the relationship between items and 3 more level of abstraction above it. This approach is guided by the specification of a library standard named FRBR, which stands for the “Functional Requirements for Bibliographic Records”. Further more, to aid the librarian in its work, a wizard-like interface has been developed for simplifying the task to such a degree that makes it impossible to enter invalid data, and impossible to forget to enter any required data.

The *Asset Management* portlet facilitates operations such as keeping the library inventory during the entire chain of operations – from the acquisition, the item’s entry into the library inventory, the item’s allocation to different library sections or branches, to the final outflow of the item from the library inventory. All the operations are subject to Authentication.

The *Loans portlet* facilitates the management of the Loan and Reservation operations, both for the Users and for the Librarians, in a specific, customised way, and subject to Authentication.

4. Next Steps

From the business-case point of view, the usage of the library software is extended to the Educational Libraries environment (we are currently conducting the requirements analysis for meeting the educational needs). Moreover, we are addressing the automation of the village libraries included in the national programme Knowledge Economy Programme, providing the open-source software on a free of charge basis.

From the technical point of view, we envision the further development of the open-source system to provide for mobile services and mobile payments for library services and digital content, as well as for advanced facilities for visually impaired persons to access the library portal (adaptable multimodal interfaces integration). Another direction of development is the integration of an advanced Workflow Management system – Triana software (open-source) – for facilitating the automatic remote updates and technical support on a large scale.

5. Acknowledgements

The IOSSPL project was partially sustained by Italian funding, approved by the Decree of the Ministry of Productive Activities on 29/12/2004, based on an international projects contest under the Law 212/92 D.M. n. 171 from 19/04/2001.