

Cultural Content Management at a New Level: Publishing Theater and Opera Details by Means of Open Technologies from the Web 2.0

Markus W. Schranz^{1,2}

¹Distributed Systems Group, Institute of Information Systems, Vienna University of Technology
Argentinierstrasse 8/184-1, A 1040 Vienna, Austria

e-mail: schranz@infosys.tuwien.ac.at

²Research Development, Culturall Handelsges.m.b.H.
Graf-Starhemberg-Gasse 37/4, A-1040 Vienna, Austria
e-mail: markus.schranz@culturall.com

Abstract

Creating Internet services for a specific auditorium involves technical, organizational and sociological challenges to developers, processes and used technologies. Authoring and distributing recent cultural news, opera schedules, notes to theater visitors or even cultural service maintenance can be handled by modern electronic publishing systems, ideally finding user-friendly solutions to the above-mentioned challenges. Although the Web has greatly improved its level of interactivity within the first ten years of existence, a significant gain in usability and value has been reached by introducing concepts summarized in the term Web 2.0. In this paper we provide an example of on-the-edge technology in managing and publishing cultural contents for Internet services, focusing on content management and workflow management features from within the entire software framework concept. We demonstrate, that modern Web 2.0 technologies are well suited to increase the quality of electronic publishing for both the consumers as well as the producers of the content and the service itself by providing rich user experience enhancements at different levels of the content and service management process.

Keywords: content management; cultural content; Web 2.0; technical framework

1 Introduction

Most up-to-date software technologies and new applications in the Internet have initiated a change in the perception of what was generally understood as the „Internet“. The first decade of the World Wide Web was dominated by a strict role distribution between few content providers and experts that used complex technical mechanisms and powerful tools to publish „centralized“ data to the mass of content consumers, far away from open content interchange. As stated in [1] the shift to a new class of Internet applications has brought innovation in both technical and practical use of software applications for the Internet. Without being able to fasten it down to a single event or technology we sense a significant change in how applications provide information management, distribution and communication control to end users.

Increasingly, local proprietary solutions have been exchanged by open network services, desktop software is extending to integrated network solutions, programs and applications are serviced and updated in an open and self-contained way, single services are becoming ready for exchange and interoperability and even technical laymen are ready to use modern services to share information and facilities in an easy way. Despite the criticism in terms of the technological step contributed [2], Web 2.0 has become a synonym for openness, innovative technologies and user-friendly applications to integrate the abilities of all web users. Consequently and as described in the following sections also for dedicated services and technologies for specific user communities, media and content, the innovative character of the Web 2.0 can be identified in the area of electronic publishing.

Following thorough research basics and experiences from Web application engineering methodologies [3], the logically consecutive step is to construct user-oriented modern applications for specific application domains. Public contents in the area of science, education, news [4] or culture have been utilizing modern technologies to be distributed in a wide-spread manner. Resulting services are exemplary for innovation in the creation and consumption of Internet technologies for the discussed areas, e.g. online current contents for the Vienna Opera House [5]. Modern concepts like agile programming [6] and the utilization of dynamic languages, which were

smiled at by software engineers a few years ago, have been the recent choice of innovators to create open services and access to digital publishing and content distribution.

In the following sections we focus on the innovative way to electronically publish and distribute cultural contents by facilitating modern technologies, integrating strong support of the collective intelligence as a basis of the Web 2.0. Since data and information are treated as the most central good, we describe the management, contribution and provision (publishing and distribution) of cultural contents such as theater programs and schedules, the ticket management and innovative clearing and control services for several theaters and opera houses in Europe, as well as the workflow coordination of the software engineers, working on the electronic publishing services that are based on modern standards and open content exchange technology. The paper outlines Web 2.0 technologies for the discussed application domain in section 2, specific content and service management approaches in section 3 and gives a brief summary of our results in the conclusion.

2 Modern Web 2.0 Technologies for Cultural Content Presentation

The term Web 2.0 is describing rather vaguely an updated perception and utilization of the World Wide Web. Renowned experts in the area of software development and Internet technologies criticize the Web 2.0 to offer little innovation in terms of technical development. For the use in the specific application domain cultural content management and publication we focus on the organizational view of Web 2.0: users create and manage contents in an increasing amount on their own. User-oriented Web interfaces facilitate simple theater and opera detail publishing and modern technologies support the content management, asset handling and schedule interchange based on open methodologies and standards such as RSS.

Cultural content as discussed in this paper include opera and theater programs, event and performance details in text and multimedia presentation, event schedules, ticket management and presentation, event access management and reservation services for single theatres, multi-client cultural organizations or several independent theatres and opera houses in Europe. As demonstrators we explain case studies of the modern implementations for the Hamburgische Staatsoper, Vienna State Opera and Symphonic Orchestra of Bern. These and a dozen more cultural providers are managed by Culturall, a technology innovator strongly supporting the research on Web 2.0 application technology for cultural content management and publishing.

Most stimulative to the introduction of Web 2.0 technology in the cultural content management domain has been the important principle of supporting a Rich User Experience in the dedicated applications. The goal of software following the RUE principle is the creation of graphical interfaces that allow a handling that is comparable to that of local/desktop software implementations. Specific details of cultural content assets have to be exchanged frequently between user client and the providing server, thus interrupting the flow of the users visit by well-known brakes in between single Web pages. Based on the herein introduced approach we have developed a prototype that handles theater event descriptions, date scheduling, seat reservation and personalized ticket management has been integrated in a smooth and user-friendly way, following the basic principles of Web 2.0. Since all details of the concepts and a full description of the prototype is out of scope of this paper, we demonstrate the task management feature exemplarily to proof the usability and beneficial effects of Web 2.0 technologies in the application domain electronic publishing.

Besides the technological advantages, the rich utilization of Web 2.0 technologies supports the researchers in extending the sense of community within the multiple users of the theater content management services. Since the information and the data/assets itself denote the highest value of the cultural services, content provision, management and publishing has to be simplified to a maximum extent. With the participation of all users, including the administrators, the theater experts, the content visitors, and the ticket bookers, the information is shared in a technologically well supported open way. Modern user-friendly content management interfaces as well as standardized open content exchange interfaces, such as RSS feeds for event schedules and ticket reservation assets for third party providers underline the open approach of the theater content management service in use.

3 Content Management and Digital Asset Management in Commercial Services

Based on the innovative application development methodologies outlined in the principles of Web 2.0 the content management and publishing services researched and developed for the cultural application domain includes mainly web-based services and database integration. Web software has been developed using dynamic

development languages, which are well accepted in the Web 2.0 Lightweight Programming Models and the Agile Programming paradigms [7]. Based on open interfaces like AJAX [8] the web services have been developed and are currently under research investigations in terms of user-acceptance and scalability checks in current field studies. Particularly, the user interaction at the workflow management component of the cultural content publishing services is shown in Figure 1. Herein, a content developer can move a particular task (bug 15392) via Web 2.0 technology by simply dragging and dropping the item on the canvas. The service will not reload the page but instead send the alternated order via a ajax call to the server, where the new order is stored persistently in the database. With similar features, the visitors can pick theater and opera house seating, comment on published texts, etc.

The software implemented with ajax technology, object-oriented web application servers like Mason [9] provide access via user interfaces beyond device borders, so cross-platform and cross-device applications allow an open access to cultural contents via desktop computers, notebooks, handhelds and mobile phones. Furthermore the utilization of dynamic development languages like perl and java underline the principle of overcoming the software lifecycle in Web 2.0 applications. Instead of delivering version after version of a desktop application the cultural content management application is provided as a service that is under permanent development. Following this principles allow easier software maintenance and wide-spread service availability for a great mass of users. Providing services for a wide user group and offering open interfaces such AJAX/XML links and RSS feeds enables a distributed service enrichment similar to open source development. Specific features contributed by domain experts are demonstrated on the publicly available services [5].

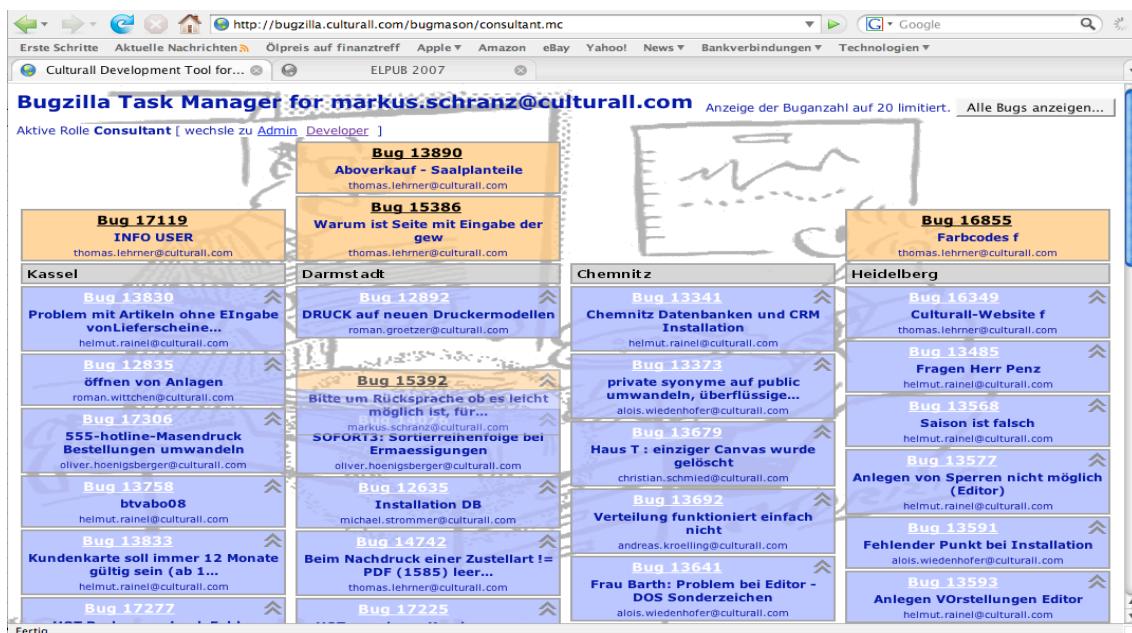


Figure 1: Task Management feature of the Web 2.0 cultural content management service prototype

4 Conclusion

In this paper we describe the research and development of a content management and publishing service for a specific application domain: theater and opera content management based on innovative Web 2.0 concepts and technologies. The shift to a new class of Internet applications has brought innovation in both technical and practical use of software applications for the Internet.

Beyond the thoroughly discussed area of technical innovation contributed by the Web 2.0 we especially extend the organizational principles and sociological aspects of this new direction in software development for the Internet. As a demonstrator application we have researched, conceptualized and implemented a framework for cultural content and asset management, including the publishing and distribution of theater event details, ticket assets and reservation management services, and a highly sophisticated workflow management service for the software development process. Modern principles such as the rich user experience for GUIs, end user integration for content management and open interfaces to exchange domain specific contents are well adaptable for the application domain of cultural content providers. Modern application frameworks can be well applied to other domains which we investigate in future work.

References

- [1] O'REILLY, T., What Is Web 2.0?, O'Reilly Network,
<http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- [2] BERNERS-LEE, T., developerWorks Interview podcast series, <http://www-128.ibm.com/developerworks/podcast/dwi/cm-int082206.txt>, July 28, 2006
- [3] KAPPEL G, Pröll B, Reich S. Web Engineering. The Discipline of Systematic Development of Web Applications, Wiley & Sons, 12 May 2006
- [4] SCHRANZ M., Pushing the quality level in networked news business: semantic-based content retrieval and composition in international news publishing, proceedings of the Electronic Publishing conference, Bansko, Bulgaria, June 2006
- [5] CULTURALL, Opera2007 - Vienna State Opera,
https://www1.culturall.com/mirror_ctn/plsql/ctn_suche.spielplan, 2005
- [6] THOMAS D., Heinemaier-Hansson D, Breedt L, Agile Web Development, Pragmatic Programmers, Dezember 2006
- [7] FOWLER, Martin, The New Methodology,
<http://www.martinfowler.com/articles/newMethodology.html>, 2005
- [8] W3SCHOOLS, AJAX Tutorial, <http://www.w3schools.com/ajax/default.asp>, 2006
- [9] ROLSKY, D. et al., Embedding Perl in HTML with Mason, O'Reilly, Oktober 2002