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USING WEB 2.0 CONCEPT IN INTRANET AND INTERNET WEB PORTALS

VYUŽITÍ KONCEPTU WEB 2.0 V INTRANETOVÝCH A INTERNETOVÝCH PORTÁLECH

Abstract

The original concept of the web was a democratic, personal, and do-it-yourself medium of communication and it often consisted of static HTML pages which a new Internet user could learn fairly easily. The growing success of web depended on a more dynamic Web, where content management systems served dynamic HTML web pages created on the fly from a content database that could more easily be changed. New approach called Web 2.0 believes that Web usage is increasingly oriented toward interaction and rudimentary social networks, which can serve content that exploits network effects with or without creating a visual, interactive web page. Websites become so advanced that users cannot create them, they are only users of web services, done by professional experts. This contribution describes implementation of advanced technologies in the Internet web portal e-Automatizace and faculty intranet web ISO Portál.

Abstrakt

Původní koncept webu stanovil, že se jedná o demokratické, osobní, snadno zhotovitelné komunikační médium a web se často skládal pouze ze statických HTML web stránek, které byly pro uživatele lehce pochopitelné. Rostoucí úspěch webu přenesl rozvoj dynamického webu, kdy obsah je generován z databází, které jsou aktualizovány pomocí webových redakčních systémů. Nový koncept nazvaný Web 2.0 posouvá vnímání webu jako nástroj pro interakci mezi uživateli a budování virtuálních sociálních sítí, které samy generují obsah s využitím (ale i bez) vizuální, interaktivní webové stránky. Ty se však pro běžné uživatele staly natolik složitými, že využívají webových služeb vytvořených profesionály. Tento příspěvek popisuje implementaci nových technologií ve webové portálu e-Automatizace a fakulním intranetovém ISO Portálu.

1 INTRODUCTION: WEB DEVELOPMENT

At the beginning the web often consisted of static HTML pages that were updated rarely. They depended solely on HTML, which a new Internet user could learn fairly easily. The growing success of web depended on a more dynamic Web, where content management systems served dynamic HTML web pages created on the fly from a content database that could more easily be changed. In both senses, so-called eyeballing was considered intrinsic to the Web experience, thus making page hits and visual aesthetics important factors.

¹To indicate an improved form of the World Wide Web a term Web 2.0 is recently used. Web 2.0 is a term popularized by O'Reilly Media and MediaLive International [O'REILLY, 2005] as the name for a series of web development conferences that started in October 2004.

Web 2.0 Design Patterns

- o **Importance of data** - Applications are increasingly data-driven. Therefore, to reach competitive

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advantage, data should be unique, hard-to-recreate source of data.

- **Users Add Value** – Increasing web development with allowing users add their own data to that which are provided by owner of the website.
- **Network Effects by Default** - Only a small percentage of users will go to the trouble of adding value to web application. Therefore: Setting inclusive defaults for aggregating user data as a side-effect of their use of the application.
- **Some Rights Reserved.** - Intellectual property protection limits re-use and prevents experimentation. Therefore: When benefits come from collective adoption, not private restriction, make sure that barriers to adoption are low. Follow existing standards, and use licenses with as few restrictions as possible.
- **Cooperation** - Web 2.0 applications are built of a network of cooperating data services. Therefore: Offer web services interfaces and content syndication, and re-use the data services of others. Support of lightweight programming models that allow for loosely-coupled systems.
- **Software Above the Level of a Single Device** - The PC is no longer the only access device for internet applications, and applications that are limited to a single device are less valuable than those that are connected. Therefore: Designing application from the get-go to integrate services across handheld devices, PCs, and internet servers.

2 APPLICATION OF PATTERNS

- **Tags** - They are pieces of information separate from, but related to, an object. In the practice of collaborative categorization using freely chosen keywords, tags are descriptors that individuals assign to objects.
- **RSS** - The abbreviation stands for Really Simple Syndication and is a family of web feed formats, specified in XML and used for Web syndication.
- **Social networks** - enables people to rendezvous, connect or collaborate through computer-mediated communication and to form online communities.
- **Blogs, Wikipedia** - Blogs, short for web logs, are like online journals for a particular person. The owner will post a message periodically allowing others to comment. A wikipedia is a webpage that is easily editable using relatively easy to use wiki syntax. This means that everyone can edit, change or delete text.
- **Web Services** - Provide interoperability between various software applications running on disparate platforms. Web services use open standards and protocols. Protocols and data formats are text-based where possible, making it easy for developers to comprehend.
- **AJAX** - A scripting technique for silently loading new data from the server.

2.1 AJAX model

AJAX is acronym for **A**synchronous **J**avaScript **A**nd **X**ML and brief definition describes it as development technique for creating interactive web applications.

The AJAX technique uses a combination of: [GARRETT, 2005]

- XHTML (or HTML), CSS, for marking up and styling information.
- The DOM accessed with a client-side scripting language, especially ECMAScript implementations like JavaScript and JScript, to dynamically display and interact with the information presented.
- The XMLHttpRequest object to exchange data asynchronously with the web server. In some AJAX frameworks and in some situations, an IFrame object is used instead of the XMLHttpRequest object to exchange data with the web server.
- XML is commonly used as the format for transferring data back from the server, although any format will work, including preformatted HTML, plain text, JSON and even EBML.

Original web model as a hypertext medium uses user's trigger actions with HTTP request

back to a web server which does various processing - retrieving data, crunching numbers, talking to various legacy systems - and then returns an HTML page to the client.

An AJAX application eliminates the start-stop-start-stop nature of interaction on the Web by introducing an intermediary - an AJAX engine - between the user and the server.

Instead of loading a webpage, at the start of the session, the browser loads an AJAX engine - written in JavaScript and usually as part of a hidden frame. This engine is responsible for both rendering the interface the user sees and communicating with the server on the user's behalf. The Ajax engine allows the user's interaction with the application to happen asynchronously - independent of communication with the server.

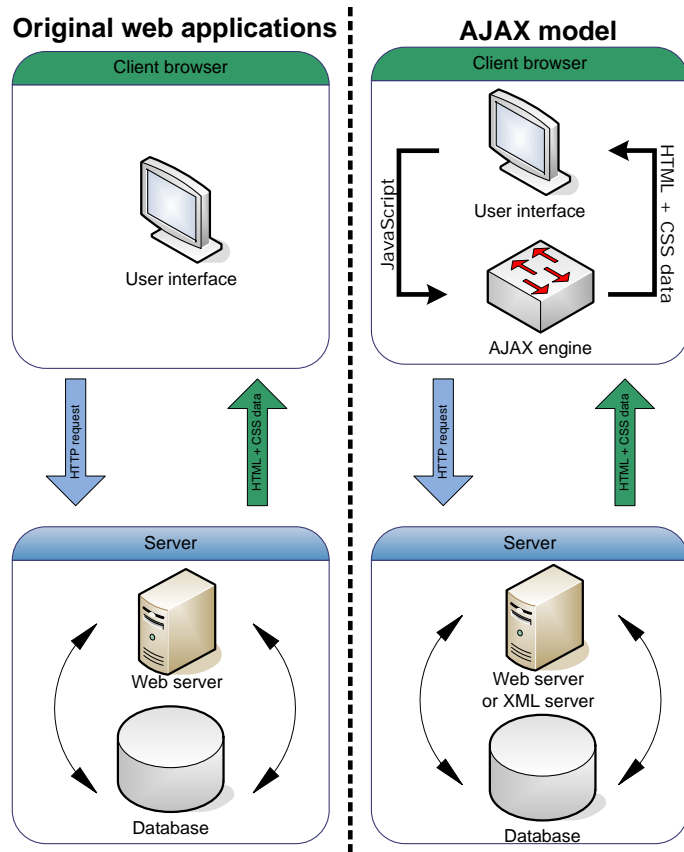


Fig. 1 Comparison of AJAX model and original web applications

3 IMPLEMENTATION IN INTRANET AND INTERNET WEB PORTALS

Internet Web portal **e-Automatizace** (<http://e-automatizace.vsb.cz>) is vertical portal with main goal to create a central and systematize resource point from the automation field for students and academic staff where information will be structured into logical hierarchy.

Intranet Web portal **ISO Portál** is internal information resource for electronic documentation to fulfil ISO standard. Portal is used by Faculty of Mechanical Engineering management and its employees.

Both are small scale web portals with specialised group of users (average daily visits are about 40-80 unique users) therefore not every pattern of Web 2.0 approach are applicable. To achieve maximum of user satisfaction, several of the new web techniques were applied in both web portals.

3.1 Really Simple Syndication (RSS)

RSS is a XML format for mostly syndicating news usually from news service web servers, but it could be used for any content that can be broken down into discrete items and can be syndicated via RSS. Various on-line and off-line RSS-aware programs are used for checking the feed for changes and react to the changes in an appropriate way. The massive exploration of this technology is expected with new version of Microsoft's Internet Explorer 7.

Intranet web portal **ISO Portál** uses RSS feed for publishing list of new documents with name of document, short description and document web link.

```
<?xml version="1.0" encoding="iso-8859-2" ?>
<!DOCTYPE rss [View Source for full doctype...]>
- <rss version="0.91">
- <channel>
  <title>ISO Portál</title>
  <link>http://iso.fs.vsb.cz/</link>
  <description>portál elektronické dokumentace Fakulty strojní</description>
  <language>cs</language>
- <item>
  <title>Protokol z auditu 6/2006</title>
  <link>http://iso.fs.vsb.cz/IAZ/F8_ZAZ_PZA_06_006.pdf</link>
  <description>Protokol z auditu procesu H2.1 Projekty vědy a výzkumu a H2.2 Vzdělávací a rozvojové projekty.</description>
</item>
- <item>
  <title>Seznam záznamů Proces P5 Habilitační řízení</title>
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  <description>Protokol z auditu procesu P6 Přijímání zahraničních samoplátců.</description>
</item>
- <item>
```

Fig. 2 Information about new documents from ISO Portál in the standard XML format for further implementation

List of new links from catalogue are used in RSS feed for Internet web portal **e-Automatizace**. They could be also used by other webmasters to integrate these links to their web pages and customize them to form as they like.

3.2 AJAX example

For better user experience an AJAX technology is used for web forms in the administration section of intranet web **ISO Portál**. Standard HTML web forms or dynamic scripting language as Active Server Pages (ASP) does not support suggest function for helping users to find out quickly actual data in a database by just typing keywords into web form.

LiveSearch utility [BITFLUX, 2004] uses on the client side XMLHttpRequest for sending the request to the server and in the cooperation with an ASP page gives results of a document ID number from **ISO Portál** database in a form of a small HTML file.

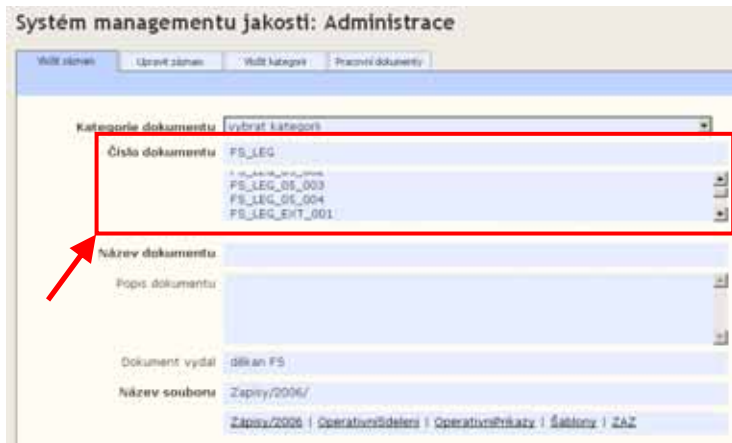


Fig. 3 Suggest function for web form based on AJAX technology is used in the administration section of the intranet web ISO Portál

Same LiveSearch utility is used in internet web portal **e-Automatizace** for searching results from Czech-English on-line vocabulary, which collects special terms from automation field.

3.3 Network community

Users of the portal **e-Automatizace** could use discuss forum (registration is required) to address other users with their special or universal task from automation field.

A wikipedia concept is used for an automation encyclopaedia which is part of the portal. This means that every register users can edit, change or delete text and became active co-author in a building of the website content.

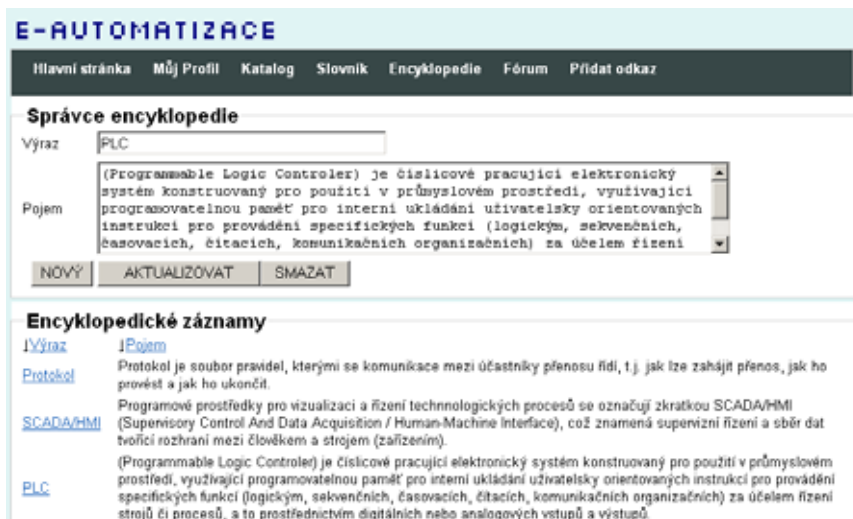


Fig. 4 Registered users have chance to edit items in automation encyclopaedia and became active co-authors in building content of web portal e-Automatizace

4 CONCLUSIONS

This paper presents new ideas and technologies used in recent web projects and their application in the small scale internet and intranet web portals. Author is convinced that even recent websites become so advanced that users cannot create them, they are only users of web services, done by professional experts, some of the ideas could help to ordinary web creators explore better user experience.

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