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Web 2.0 for Practitioners

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Web 2.0 has been a buzzword ever since software engineers started connecting different applications and data on the Internet. What are the most promising technologies for applying Web 2.0 in your IT? What tools go beyond gimmicks to help professional developers? Authors Nicolás Serrano and José Manuel Torres introduce the major open technologies and show how to integrate them in a professional application. Needless to say, we can't dive into all the interesting details, such as security or performance engineering. We'll have to leave those for later columns.

I look forward to hearing from both readers and prospective authors about this column and the technologies you want to know more about. —Christof Ebert

Ever since 2004, when O'Reilly Media organized the first conference devoted to Web 2.0, the term has been applied to any new Web-related activity.[1] But Web 2.0 isn't so much a new technology as a new way of using Web technologies. Specifically, it's a way of letting users easily produce Web content. Web technologies let users work in the Internet cloud in

the same way they work on their own desktops, but with the advantage of a collaborative culture. The key point is that the Web is the workplace, and users create the value.

In this article, we describe Web 2.0 tools for IT practitioners. We include examples of their uses in a project for Openbravo's main product, an open source enterprise resource planning (ERP) tool to support daily business operations and strategic decisions in a Web environment.

Web 2.0 Services

Web 2.0 technologies, tools, and applications offer many services. Software engineers have used many of these services for a long time, but their value multiplies as part of the Web 2.0 ecosystem. Table 1 lists the services we describe here. The table includes links to their general use at Openbravo and their specific use in the company's localization project. Because the project is open source, you can test the services online.

Like any other software, ERP tools must be translated to new environments. However, ERP needs much more localization effort than other applications because it must work with each locale's specific regulations, including accounting and other business procedures. ERP localization in a foreign country is further complicated when the software company isn't familiar with the country's language and laws. If dozens of countries are involved, the best solution is clearly to get help from the local communities and take advantage of Web 2.0 features in the process.

In our example project, Openbravo defined and published a localization process for each country. The users or partners in that country then build the specific files and programs. Openbravo tests the compatibility of the developed localizations and provides a site for sharing them with the community.

Forums

Although forums have existed almost from the beginning of the Web, their purpose has changed in Web 2.0. In the traditional Web (Web 1.0), they

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Table 1

Web 2.0 services and their applications

Service	Applications	Purpose	Use	Openbravo URL	Localization project example
Forums	http://sourceforge.net www.phpbb.com	Discussion	Very high	http://forge.openbravo.com/plugins/espforum/?group_id=100	http://forge.openbravo.com/plugins/espforum/browse.php?group_id=100&forumid=597808
Wiki	www.mediawiki.org www.wikia.org	Collaboration	High	http://wiki.openbravo.com	http://wiki.openbravo.com/wiki/Localization_Projects
Blogs	http://wordpress.com www.blogger.com	Publishing	Very high	http://planet.openbravo.com	http://planet.openbravo.com/?m=200905
Podcasts and video podcasts	www.apple.com/itunes www.youtube.com	Publishing	Very high	http://worldconference.openbravo.com/2009/video http://wiki.openbravo.com/wiki/ERP/2.50/Extion_Module_Demonstrations_Videos	Not used
Social networks	www.myspace.com www.facebook.com www.linkedin.com	Relation	Very high	www.linkedin.com/companies/openbravo	www.linkedin.com/groups?gid=1239727&trk=hb_side_g
RSS	www.google.com/reader www.bloglines.com	Subscription	Medium	http://forge.openbravo.com/siterss	http://forge.openbravo.com/rss/www/most-recent-comments
Public code repositories	http://sourceforge.net http://mercurial.selenic.com	Code	High	https://code.openbravo.com	https://code.openbravo.com/erp/mods
Platforms	www.sugarforge.org https://addons.mozilla.org www.facebook.com/apps www.linkedin.com/static?key=application_directory	Code and collaboration	Medium	http://forge.openbravo.com/categories/openbravoerp/extensionmodule	http://forge.openbravo.com/categories/openbravoerp/localizationmodules
Issues trackers	www.bugzilla.org www.mantisbt.org/	Code	Medium	http://issues.openbravo.com	http://issues.openbravo.com (under "Localizers Support" project)
Forges	http://sourceforge.net/ http://essentia-corp.com/	Code	Medium	http://forge.openbravo.com	http://forge.openbravo.com/categories/openbravoerp/localizationpack
Search	www.google.com/cse	Multiple access	Low	www.google.com/cse/home?cx=000205499209034589502:tuhkmvnnhy0	Not used
Voting services	http://uservoice.com	Collaboration	medium	http://openbravo.uservoice.com	Not used
Google docs	http://docs.google.com	Collaboration	High	http://wiki.openbravo.com/wiki/Scrum/Spreadsheet#Spreadsheets_of_the_teams_currently_in_action	http://spreadsheets.google.com/pub?key=pPWZAST9Jg5FYtYUY9Y0AKw&output=html

were only a way to comment on a Web site, usually in a short message with more value for the commenter than a broad audience.

Today, forums provide a meeting point for collaboration. Instead of linking to another piece of information, they're the starting point of a discussion or communal task. Forums are the easiest way to start working actively in Web 2.0 because you only need to click a reply button and express your thought. Forum tools let you edit through a graphical interface, see how discussions evolve, and monitor a specific thread through an email alert.

The example project uses a forum to let people find support and discuss topics about the localization process. To organize the forum, the localization project's administrator creates a topic for each localization project (usually associated with a country) and posts some general topics, such as instructions for exporting a translation.

Wikis

When Wikis first emerged, many users asked why a different tool was required when Web sites already offered graphical interfaces and content management systems. Wikis have since become the main and best Web 2.0 collaboration tool for

creating and editing content online. Wikipedia is the standard example of a Web 2.0 application. The term *wikinomics* was coined to describe a new economy based on the ability to create value in a shared, distributed process.[2]

The wiki has its own syntax. Some people complain about learning a Web language different from HTML, but the wiki syntax is a current standard, and it's simpler than HTML for nonprogrammers to learn. Wiki users can begin editing almost immediately.

New wiki application versions have introduced a graphical interface that lets users edit without paying attention to this syntax. Wiki applications also let users see each document's history, compare its different versions, and undo specific changes.

Figure 1 lists the localization projects for the Openbravo ERP localizations.

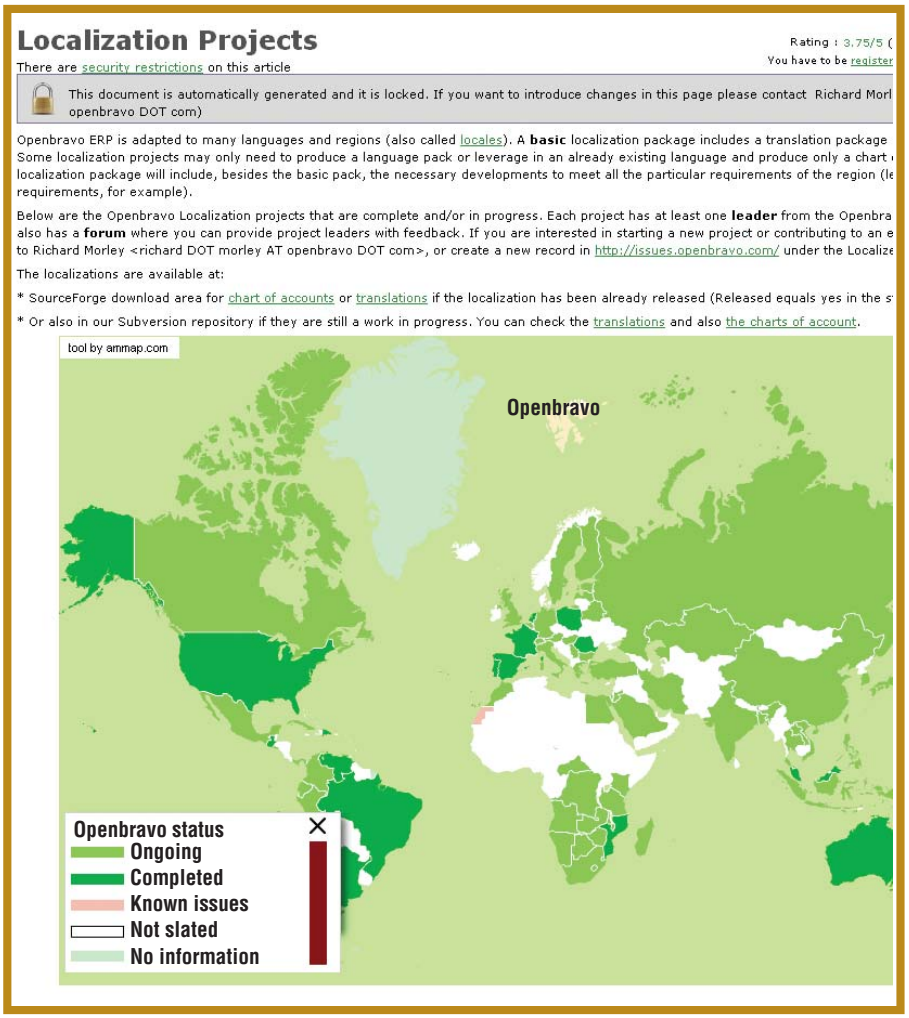

Figure 1. Openbravo ERP localization project map showing the localization projects that are complete or in progress. On the Web, clicking a country leads you to specific information about that project.

Blogs

Blogs were once the most visible part of Web 2.0. Counting only the blogs registered in Technorati (www.technorati.com), a search and index site about blogs, there are more than 100 millions blogs, and starting a new one takes only a few seconds.

Companies can use the blogosphere to broadcast their messages without intermediaries. Blogs, wikis, and forums are the main Web 2.0 collaboration tools for projects, except in the coding phase. Podcasts and video podcasts have swamped the Web with media content and now drive the evolution of blogs.

The Openbravo project uses a set of blogs to communicate relevant news and best practices within the community. Many contributors have their own blogs, and Openbravo maintains a portal application that integrates them all.

Social Networks

Social networks have almost eclipsed blogs as the most visible Web 2.0 application. Applications such as MySpace, Facebook, and Twitter at first addressed mainly private users, although they're now popular as professional networks, following the success of more business-oriented networks such as LinkedIn. Many companies use these tools for marketing purposes.

Most Openbravo employees are registered with LinkedIn, which offers one way to contact the staff. The company also has its own LinkedIn Web page, which it uses to announce public events.

RSS

Really Simple Syndication (RSS) helps users manage the superabundance of information. Customers, employees, and partners can subscribe to RSS feeds to receive current company information automatically. RSS plays an important role in keeping companies up to date on what's happening in the market with customers and competitors.

Openbravo's localization project defines different RSS feeds to make sure that users receive the latest project and forum news.

Public Code Repositories

Code repositories aren't new to Web 2.0. They're inherent to software engineering, but they acquire a new aspect in the open collaboration of Web 2.0 development. The code is no longer an asset you must protect with secrecy; it's the element that lets other people collaborate with you.

Public code repositories open the entire software development process, giving participants feedback almost immediately. A company can start by publishing its roadmaps, letting users add ideas and vote for their preferences. Likewise, a company can publish project requirements and engage users and external collaborators in refining them. This gives coding-process tools functionalities similar to those of wikis. Current integrated development environment (IDE) tools can connect with the public code repositories, making the source code available to other developers in other IDEs.

The Openbravo project uses Mercurial, a distributed source code management

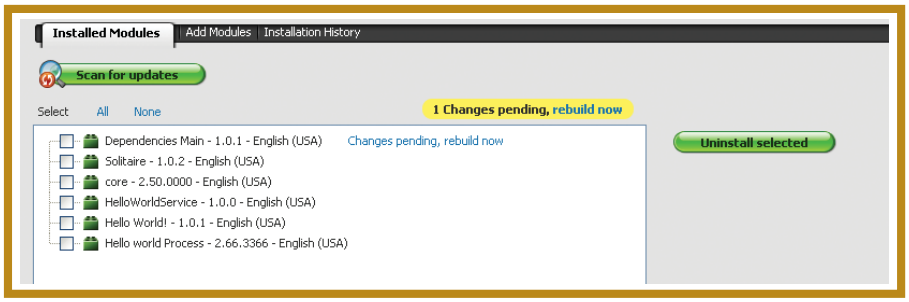

Figure 2. Openbravo ERP configuration form for module installation. Administrators can see which modules they've installed and can perform operations such as updating, uninstalling, or adding new modules.

tool, to make the localization modules accessible through a source code repository.

Platforms

External developers often create their own components or projects for integration with an overall project. The company that owns the application or platform publishes its APIs for integrating the add-in components or projects. This way, external developers can take advantage of existing platforms and extend platform capabilities with no effort required from the platform owner. The external developers are responsible for the whole process of creating the add-ins. Firefox and Eclipse have used this type of add-in.

Companies that use external developers need platform architectures that enable the integration of add-in projects. Likewise, new versions of the platform must support easy updates of the add-in projects. The number of add-ins is a measure of an application or service ecosystem's power. Unfortunately, developing an architecture to support add-ins is also a complex task when the applications haven't been designed to support them.

The Openbravo ERP has a modular architecture that acts as a platform to support the development of new projects. Developers can package components or projects as an easy-to-install architectural module. Openbravo uses wiki pages to provide the environment and documentation for building new modules (http://wiki.openbravo.com/wiki/ERP/2.50/Developers_Guide/Concepts/Modularity). The wiki includes videos (http://wiki.openbravo.com/wiki/ERP/2.50/ModularityVideos), technical documentation (http://wiki.openbravo.com/wiki/Projects/Modularity), and blog entries relevant to the process. Openbravo ERP users simply select a module from the module list (see Figure 2), wait for the application to download, and install it.

Issue Trackers

In Web 2.0, application debugging becomes a public process. Anyone interested or involved in the development can access the tools to report a bug or request a feature. This transparency encourages users to report issues because they can see how the issues are addressed and why their resolution might be delayed.

Issue trackers expose all the information about the bug or new feature, the steps to reproduce it, and the full history of related activities until its resolution.

The Mantis bug tracking system lets users filter issues. The localization project uses Mantis, although it previously used the Sourceforge tracker.

Integration with Forges

All the services we've described so far can be used independently, but they address such common needs that users have developed integrated tools for them, called forges. The best known of these tools is Sourceforge. Open source projects can register with Sourceforge and start using its different functionalities: project forums, mailing lists, trackers, code control systems, wikis, statistics, and downloads. Other forges—both open source and proprietary—have similar objectives.

Openbravo began the ERP localization project entirely with functions supported by Sourceforge. However, it selected a new forge as it started to grow. It currently uses the EssentiaESP platform to support the repository and other functions such as news, forums, and RSS.

Mashups

Mashups combine data or programs from different sources to create a new service. The best-known example is using Google maps to represent information. Openbravo's modularity architecture supports integration of ERP functionalities with other services. For example, the Openbravo ERP application lets employees fill out their expense reports, then use a mashup with Process Maker to start the manager-approval process and, finally, to create the financial records in the Openbravo finance module.

Custom Searches

With all these service options, searching for specific information about a subject can be time consuming because the user needs to search in each service. Google Custom Search offers a unified way to search different sites. The Openbravo ERP localization project uses it to define a customized search across all related Openbravo systems.

Other Tools

Tools such as Internet Relay Chat (IRC) can be considered part of Web 2.0. IRC supports online text messaging and lets users log the chats. Mumble, a voice-over-IP platform developed for Internet video game users, can also be used to manage project conferences.

Other collaboration tools include voting services, such as UserVoice, which lets users suggest and vote for new features. Openbravo also used Google Docs, one of several online publishing tools, as a way to report the status of development teams.

New Technologies

Some new technologies are expanding Web 2.0's uses of existing services. For example, Ajax supports richer user interfaces,[3] and cloud technologies such as Amazon EC2 and Google App Engine offer a way to easily deploy new services without dealing with hardware problems. Google Wave is also a tool to watch. It's designed to integrate most of the technologies we've discussed. With an application working in a Web browser, it lets users merge the features of mail, chat, document sharing, and publishing.

The use of Web 2.0 technology is leading companies toward a new networked

structure, sometimes called Enterprise 2.0. For example, Cisco CEO John Chambers used Web 2.0 tools to introduce a matrix enterprise structure.[4]

In an open source company like Openbravo, many projects use Web 2.0 services. In private companies, such projects usually don't become public, but the services support many distributed operations.

Getting Started with Web 2.0

Web 2.0 tools don't require complex installation and configuration procedures. In fact, you can start simply by using the tools in Table 1. For example, you can initiate a new product design by defining the project's purpose in a blog and creating a wiki space that lets your team and any external contributors collaborate. With WordPress.com, you can create a blog in seconds with only a username, a password, and an email address. You can create a wiki in www.wikispaces.com with the same minimum requirements and later give the wiki a name, permissions (free, protected, or private), and type (education, business, personal, and so on).

Additionally, you can obtain information about contributors' locations and show them in a custom or Google map. You can host a forum at www.phpbbweb.com and create a LinkedIn group to inform your contact list about the project. You can also create RSS feeds so interested people can subscribe and obtain project news.

An interesting alternative is to create a project in a service such as http://grou.ps, which integrates most of the Web 2.0 services in a single application.

In our experience, technological complexity is never the cause of any difficulties in using Web 2.0 services. The toughest job is the discipline of regularly feeding the services information and interesting insights. The tools we've described are ready for converting current development projects to Web 2.0. The technology exists. What's necessary is to use it daily.[5] Whether your project is software or something else, the key to Web 2.0 is involving users to add value. For some businesses, the Web 2.0 is an opportunity, but for software engineering, it's more and more a need.

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