

Multilingual

COMPUTING & TECHNOLOGY

Multilingual Computing, Inc. • 319 North First Avenue • Sandpoint, Idaho 83864 USA • 208-263-8178 • Fax 208-263-6310

CASE STUDY: LOCALIZATION OF AN E-LEARNING SOLUTION

*How Docent partnered with Rubric
to localize a multilingual LMS*

ELIZABETH PETRO & KATRINA NABAVI

Training a globally dispersed workforce is a logistical and financial challenge for any company. E-learning, with its potential global reach, enables companies to share knowledge and train employees, suppliers, partners and customers more quickly, more consistently and at less cost than ever before. Leveraging the Internet can greatly improve collaboration on a global scale. For example, in the pharmaceutical industry, companies are forming alliances with research and development companies and labs around the world and creating training environments that combine a global employee and customer base with international business partners and regulatory bodies.

John Chambers, CEO of Cisco Systems, has stated, "The next big killer application for the Internet is going to be education. Education over the Internet is going to be so big it is going to make e-mail look like a rounding error." The North American corporate e-learning market is projected to grow from \$2.3 billion to \$15 billion by 2004, according to industry analysts at IDC, while the global e-learning market will grow at a compound annual growth rate (CAGR) of 69%. According to *European Echo, Training* (January 2001), e-learning expenditures in Europe will hit more than \$3.9 billion by 2004, representing a

CAGR of 96%. The need for localized versions of e-learning applications is on the rise.

MULTILINGUAL LMS

Docent is a provider of e-learning software and services for Global 2000 companies. Docent LMS, included in the Docent Enterprise e-learning suite, is a learning management platform enabling learning management and learning content development and delivery across the global enterprise. The platform includes registration and records management, competency management, electronic commerce support and reporting. Docent LMS supports self-paced Web, live interactive Web and traditional instructor-led learning delivery environments. A multilingual product, it can support any language and currently includes fourteen language packs.

PREPARING FOR LOCALIZATION

In localizing Docent LMS, Docent partnered with Rubric, a localization services provider with expertise in the localization of Web applications. They faced an array of challenges, from internationalization of the core product to multitiered collaboration among globally dispersed project managers, linguists, engineers, testers and in-country partners.



In internationalizing the e-learning product, developers used Unicode for all string processing and database storage. Localizable components were extracted

to easily translatable XML resources. The user's browser would then display content using the legacy encoding specified in the localized resource file. Local requirements were fed back to Docent engineering on an ongoing basis. Support for multilingual courses was designed from the start; one database could support different language-versions of the same course or different courses in different languages.

As a preparatory step, Rubric wrote a JavaScript file for each locale in which locale-specific information is stored and fed into the application. For example, one can take a course anywhere in the world, and all times are stored as Coordinated Universal Time (UTC) but are displayed as local times. This means that a person taking the course in Japan will be presented with Japan Standard Time date and time information, whereas another person in Boston will view information in Eastern Standard Time format, even

though the course server may be located in the Pacific Standard Time zone.

Docent's development team enhanced the product's localization-readiness by creating an easily localizable product from a linguistic perspective. They defined and implemented consistency into the core US English interface by using code standards, terminology lists and style guides. Consistent terminology use reduced the amount of ambiguity experienced by the translators. The elimination of concatenation and hard-coded HTML and the overall consistency of style and terminology allowed for efficient leveraging of previously translated text.

PREVENTATIVE TESTING

Up-front testing was also central to the process. Pseudo-translation testing was conducted to verify localization readiness in potential problem areas such as installation on the target operating systems, hard-coded text and encoding, text tagging for the resource file, text and screen concatenation and wrapping as a result of text expansion. These test results went to Docent's internal QA and development team; individual bugs were fixed; and glossaries and code standard documents were updated accordingly.

The pseudo-translation assisted the teams in identifying where rework of the code might be required. It also provided information to the test script development team, thereby enhancing the quality of the test scripts and the testing process. In general, such action is key to distinguishing internationalization-related problems from localization-generated issues.

Localization test scripts are critical. They ensure consistency in testing and the achievement of an agreed-upon level of quality. By including well-defined comments where strings appear in the test scripts, Docent created scripts for the US English product in a manner that easily identified the screens in which each element appears throughout the product. This made it easier for Rubric to customize the localization-specific test scripts for QA/testing of the localized versions.

To ensure maximum coverage, a QA matrix was used along with unique test case numbers, screen captures of every corresponding screen and screen recreation path definitions in the localization test scripts. The matrix included items such as mnemonics, tool-tips, truncated text and tab defaults. Bugs were categorized along a predefined problem severity scale, ranging from graphics issues to broken pages. The localization test scripts were one reason why Docent and Rubric were able to collaborate in implementing a joint QA effort.

ENSURING LINGUISTIC CONSISTENCY

To ensure linguistic consistency, prior translations were fully leveraged, and detailed glossaries and linguistic style guides were created for each target language. The glossaries included definitions and examples of usage for any confusing words. The style guides covered issues ranging from headings to acronyms to procedural syntax to punctuation and were customized for each target language.

EFFECTIVE GLOBAL COLLABORATION

A key element in timely collaboration was the use of Rubric's StreamNET extranet and knowledge portal, which enabled the two teams to access project data, share status reports, and maintain version control of project schedules, glossaries, style guides and other project data.

Complementing the comprehensive weekly status reports, incremental daily status reports included all pending confirmation items. With Rubric's management team working from Japan and Docent's from California, this multitiered approach to status reporting helped to keep all parties informed regardless of location.

Rubric's BugzNET, an on-line bug tracking and reporting system and a major component of StreamNET, gave Docent a 100% transparent and real-time view into the QA process at every stage of the project. Docent could locate the exact information required at any point in the process through the system's filtering, sorting and searching capabilities (both predefined and free-form).

The QA process was enhanced further in that any generic issue raised in one language could be automatically replicated across all languages. This was especially important in averting duplication of bug reporting, given the number of languages involved. BugzNET also allowed full data portability of the database at any time throughout the process. This data could be exported in a standard format for importing into Docent's databases. In turn, this integration enabled more comprehensive internal analysis, project management and reporting more quickly than otherwise would have been possible.

BugzNET was also used to manage discussions surrounding linguistic issues among translators, editors and Docent reviewers, including several large Docent customers. All of the information was centralized with other project data; a history of the discussion regarding each term was recorded and trackable; and the status of each linguistic topic was clearly defined for the entire team. This was

especially important because multiple customers in a given country could be the reviewers for an individual target language.

BENEFITS OF A MULTILINGUAL ARCHITECTURE

As Docent LMS is a multilingual product, most bugs need to be resolved in the base product as opposed to in individual localized versions of the application. The benefit of this architecture is that when a problem is resolved in the source, it is resolved for all languages. Another benefit of this architecture is that queries can be made on a combination of languages.

Docent's product development adhered to standards for Java locales, thus resulting in further architectural benefits. A system administrator can create a variant localization that accepts some of an existing language pack but specifies a few exceptions, resulting in a new locale such as Mexican Spanish that is more appropriate for certain users. Multilingual content can be simultaneously rolled out to each locale a company wishes, and each user can interact with the system and other registered users in the language that is most comfortable. An LMS may have a German administrator managing the site for a French training coordinator who manages a Japanese instructor with a Chinese student. Each of the users will see all correspondence and interactions with the system in his or her own language. This may be an extreme example, but this type of multilingual flexibility is important in a multinational organization.

KEYS TO SUCCESS

For the fast growing corporate e-learning market, delivering truly multilingual e-learning solutions will offer companies a competitive advantage in sharing knowledge and training employees globally. Standards-based development and extensive global collaboration were important in this localization project. Preventative testing and adherence to consistency also assisted in making the process efficient and reliable. E-learning is an important tool in the global knowledge economy, and multilingual e-learning solutions are paving the way for much greater global knowledge exchange and collaboration in the future. 🌐

.....
Elizabeth Petro is localization manager at Docent. She can be reached at epetro@docent.com

Katrina Nabavi is senior product manager at Rubric. She can be reached at katrina.nabavi@rubric.com