Multivio: Project description

Miguel Moreira

April 7, 2010

1   Introduction

Multivio is an Internet-based application for browsing and accessing digital documents.

It was originally motivated by the requirements of the digital library RERO DOC. However, it is meant to be open and adjustable in order to smoothly integrate with other document servers. It is also modular and extensible in order to cope with the continuous evolution of digital formats.

The application is built in-house by RERO (the "'Library Network of Western Switzerland"') under an open-source license (to be defined), and integrates existing open-source software components. Its development is co-sponsored in the framework of the project "'E-lib.ch: Swiss Electronic library"' (see below).

2   Context

In general, when users access the contents of digital libraries, they usually dependent on particular software tools installed in their computer system, suitable to each kind of content being accessed. These multiple tools offer a scattered view of the available content since they consider the digital files individually without taking into account logical relations between groups of files belonging to specific titles or collections. This situation implies a fracture between the phase when users search or navigate the object descriptions and the moment when they access the objects themselves.

Indeed, the approach applied by most catalogues or document servers allowing access to digital content is to simply provide a hypertext link allowing the corresponding files to be downloaded. Then, on the user's side, a suitable tool (that must be installed beforehand) allows the file to be viewed after download. This approach is relatively satisfying in certain contexts, particularly in the case of single volume monographs, for example in PDF format, given that the large majority of Internet users possess PDF-viewing software such as Adobe Reader or alike installed in his/her system. The same principle applies for other file types, each relying on a specific and adequate software tool. But it has limitations in the presence of documents of higher complex structure demanding navigation capabilities across several files, such as serials, collections, multivolume monographs and other aggregates. In addition, even in the case of plain, single-file documents the simple download option is not always the most appropriate, especially when the document has been found after a query operated by the user in a search engine, in which case the queried expression should be

pointed out or highlighted inside the displayed full-text, in order to show the user the places where it appears.

The solution proposed by Multivio responds to an increasing necessity following the current boom of repositories of online documentation, stimulated among other things by the Open Access movement, by the OAI-PMH interoperability and by the growing digitization efforts of the libraries. In this way it concerns existing document servers such as RERO DOC and alike, including long-term archiving repositories allowing public access to their contents.

3   Goals

3.1   Generic

Multivio allows the user to access different kinds of media, not only textual but also images, audio, video and others, supporting several file types. Emphasis is put particularly on those adopted by the Convention on Electronic Theses by the Conference of Swiss University Libraries (CBU) (up-to-date version of the document).

The retrieved documents may be simply structured, such as a book, an image or an audio stream, or otherwise contain a complex structure such as a journal, an image collection, a multi-volume work, a dictionary or encyclopedia, etc. which demands the possibility of a hierarchical navigation by chapters, sections, years, months, editions, volumes, articles, headings and other kinds of partitioning depending on the nature of the document.

4   Functional and complete

The user interface is expected to be simple and intuitive yet sufficiently complete in order to allow a nice user experience. It is composed of a set of blocs disposed in the screen each providing a group of functionalities, particularly: main content display area; navigation tree for structured documents (year, month, volume, chapter, section, page...); table of contents; page or image thumbnails; navigation commands (next, previous, first, last, play, stop, forwards, backwards); visualization commands (zoom, pan...).

Whenever the document is retrieved after a query, either in an external search engine (like the document source's catalog) or through Multivio's own search tool, it is important to highlight the queried expression inside the full-text as well as to show the corresponding list of occurrences.

5   Flexible

The holders or trustees of the contents made available through Multivio should have the possibility, if desired, of preventing users from printing or downloading the files locally, allowing these to only be displayed inside Multivio's own interface.

6 Extensible and autonomous

Multivio is an open-source project. It relies on an open and modular architecture based on an appropriate articulation between graphical components (representing the groups of functionalities) and connectors/plug-ins (representing the different kinds of media). This aspect allows the tool to be extensible and adaptable to different contexts, especially by the addition of new features and the possibility of handling new document types and file formats. The open character is reinforced by the use of established standards and open protocols.

Multivio takes the form of an independent and adaptable module capable of working together with different document servers, search engines or catalogues using multiple and varied technologies.

7 Sponsorship

This project has been initiated by RERO in 2007, in partnership with the CDROM - "Conseil des directeurs des grandes bibliothques de Suisse occidentale". In 2008 it received a 3-year funding pack in the framework of the innovation and cooperation project E-lib.ch: Swiss Electronic library, which is itself funded by the Swiss University Conference (SUK/CUS).