axmedis

Technical description
Automated content production, protection and multichannel distribution for cultural heritage content. PDA Based interactive multimedia guide for museums. Content creation is committed to the AXCP which through some rules create objects in an automated manner.

Description of Content
ANSC Objects are interactive multimedia presentations based on SMIL. Most of the audio clips are taken from the Accademia's digital archives. The content is produced for PC, PDA and mobiles.

Business Model
Revenue from content distribution to consumers based on two basic models: loan, pay per play, subscription to general services.

AXMEDIS for Cultural Heritage Content modelling and multichannel distribution

The Accademia Nazionale di Santa Cecilia (http://www.santacecilia.it) has always been interested in the opportunities presented by new technologies for the valorisation of musical and cultural heritage content in general. The Accademia has a large archive of content related to music with audio, images and videos. In addition, with the opening of the Musical Instruments Museum, the MUSA (http://museo.santacecilia.it), the Accademia Nazionale di Santa Cecilia is now able to offer users a highly innovative and immersive experience based on the sound of instruments and thanks to AXMEDIS technologies for

- the automatic creation and presentation of interactive content
- visiting the museum, the visitors my perform a tour in the museum assisted by a PDA with AXMEDIS content;
- visiting the museum, the visitors my access to special kiosks in the museum on which they can have interactive experiences on AXMEDIS content;
- distributing the produced content towards PC, PDA and Mobiles on demand or in advance to their visitors.

Audio Tour concept and the role of AXMEDIS

The AXMEDIS content model and solution has been used to develop a PDA-based Audio Tour of the museum, for Windows Mobile 5 or 6 PDAs. The initiative sprung from the idea, since the beginning, of giving the possibility to visitors of *listening* to the sound of instruments, not only look at them. Willing to go beyond traditional museum audio-guides the choice quite quickly fell on the AXMEDIS content. Additionally most of the audio clips are actually taken from the Accademia's digital archives (both ethnomusicological and classical), thus creating a link for visitors to the heritage held in the multimedia library, where if they want they can find the complete recordings.

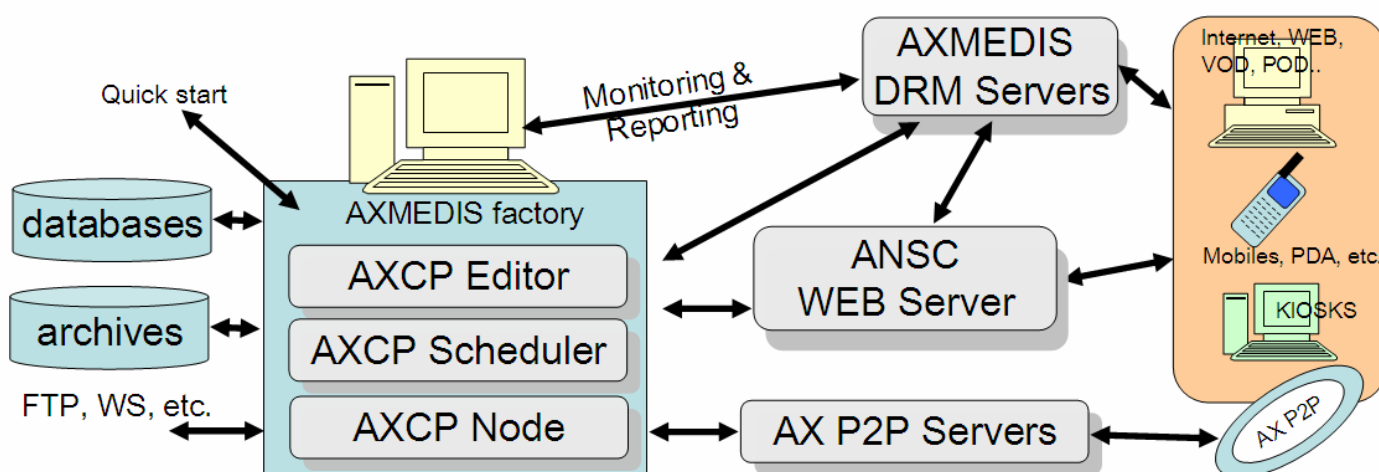*Screenshot of the MUSA PDA Audio Tour*

Through to the use of the AXMEDIS technology, MUSA visitors are now able to expand their experience with an AXMEDIS-enabled PDA, that enhances the visit with a multimodal experience and the possibility of hearing real instrument sounds and

viewing images while accompanying visitors throughout the whole exhibition gallery.

How the application works

Visitors are provided with an individual PDA with a standard Windows Mobile installation and the AXMEDIS PDA Player, plus headphones, or in alternative they can use their own PDA or java based mobile phones. The AXMEDIS object -- automatically launched at start-up -- presents users with an interactive menu and navigation system which they can use to explore sound examples of the instruments seen on display. In this way users can select the desired instruments or simply chose to follow the "path", which is coherent with the display order.

The PDAs available for museum visitors are capable of playing AXMEDIS objects. These can include a wide set of multimedia content: from simple files to complex collections, possibly presented in a highly interactive manner. AXMEDIS Objects are suitable for a wide set of applications for the valorisation of cultural heritage content and/or for educational purposes: as support for museum visits, guides, or simply for entertainment (or "edutainment"). They can be loaned to visitors who will soon be able to upload to their PDA or java-enabled mobiles. See also http://www.axmedis.org/documenti/view_documenti.php?doc_id=3992
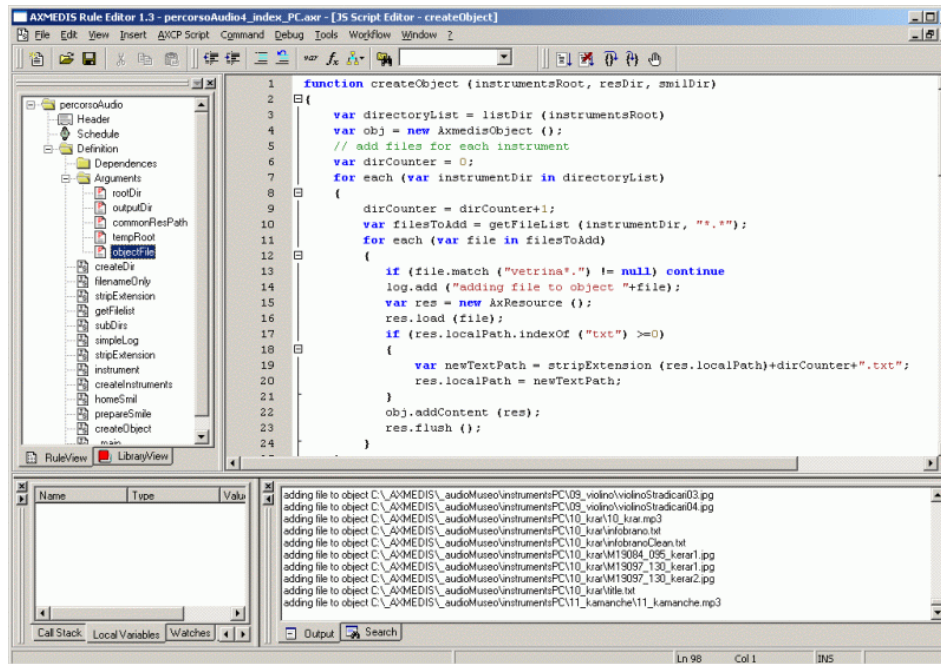

The AXMEDIS factory at ANSC is realized with a single workstation and it is connected to several databases from which it takes content for the automated content production. The AXCP language is capable to define active queries on the database to get updated content at every production. The production process is activated periodically and may be used for feeding different channels at the same time: Web Server towards PC, PDA, and mobiles and kiosks, plus sporadically also the posting on the AXMEDIS P2P network for promotional purpose.

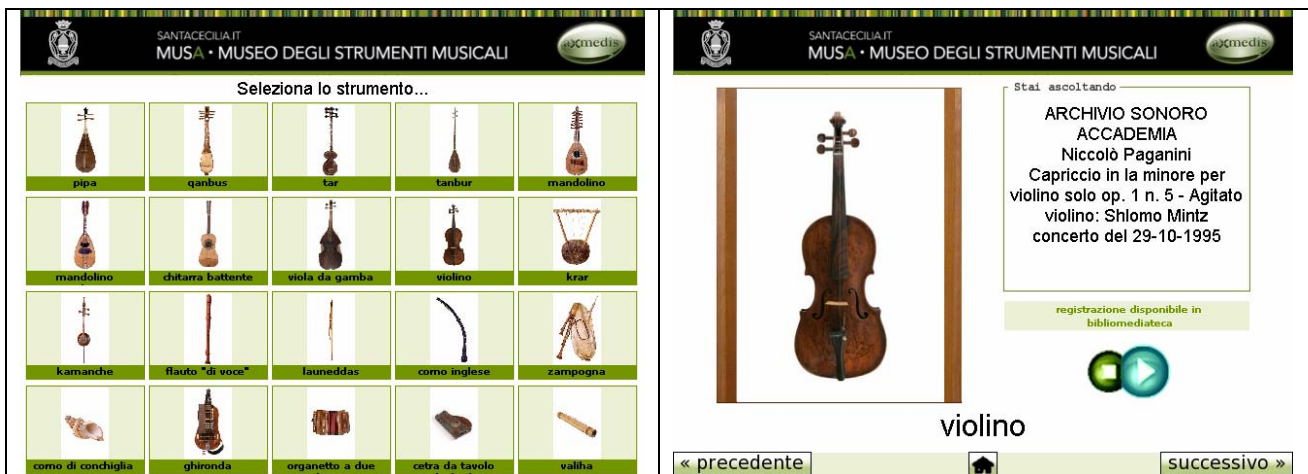## Behind the scenes: automatic content creation

The presentation model and, thus, the user interface for the MUSA Audio Tour has been developed through a SMIL template which was scripted into AXCP and created through AXMEDIS Rules. This allowed to easily 'feed' the scripts and therefore automatically create the object(s) directly from the Archive. This kind of approach (templating) means that the application can easily be updated and improved (for instance by adding new instruments, videos, or simply changing the look and feel). A practical example might be the need to change the audio clip(s) associated with one or more instruments: this simply means changing the mp3 files in the source locations and re-executing the production javascript of the AXCP. Likewise the "look and feel" of the objects can easily be updated by changing the sources once.

Screenshot of the AXCP Ruleeditor. The javascript generating the MUSA Object for PC.

Templating solution plus scripting allows easily creating content for different platforms: in fact due to popular demand a PC version of the MUSA tour (to be downloaded from the MUSA website) has been developed. This simply meant changing the visual template and the source files and 'feeding' them to the script.

With the same mechanism and automation the AXMEDIS factory at the Accademia addresses the production of the content for the kiosks and personal computers that are located in the archive and in the museum. The users and visitors may access to them to browse the instrument and other content produced automatically.

Screenshots of the same Audio Tour, but optimized for PC

Current status and further work

The MUSA Audio Tour was first presented to the public on 17th February 2008, day of its inauguration and celebrations for the 100 years of the orchestra. Visitors have expressed great interest in the application, which is also being used during guided tours (in a customised version and using the audio-diffusion system of the Museum) to give visitors samples of some of the most interesting instruments.

The application is currently in Italian, but will soon be translated in English. Soon it will be possible for

visitors coming to the museum with their own PDA or java-mobile to upload the application and use it.

AXMEDIS Adoption and Affiliation Programs

AXMEDIS has been adopted and currently trialed by several industrial partners, who have expressed their appreciation (see http://www.axmedis.org/com/). AXMEDIS is open and allows you to access source code, reports, technical support, training days, tutorial material, technical notes and documentation, by means of the affiliation program. AXMEDIS consists of over 38 partners (such as: TISCALI, EUTELSAT, Telecom Italia, TEO, ELION, HP, BBC, Giunti Labs, ACIT, EXITECH, XIM, SIAE, SDAE, etc.). AXMEDIS allows you to exploit innovative results with new tools and solutions for your needs.

AXMEDIS Tools for your download

In the following, the links to download the most important AXMEDIS player are reported. It is also possible from the AXMEDIS portal to download additional AXMEDIS tools and content:
o Available PC players are:
  o AXMEDIS stand alone PC player;
    http://www.axmedis.org/documenti/view_documenti.php?doc_id=3767
  o AXMEDIS Skin based PC player;
    http://www.axmedis.org/documenti/view_documenti.php?doc_id=3716
  o AXMEDIS Active X, for usage into HTML pages and simple VB and/or .NET applications and PC players. .NET Player; http://www.axmedis.org/documenti/view_documenti.php?doc_id=3717
o PDA Windows Mobile 5 and 6 player, supporting: SMIL, HTML, MPEG-4, video, audio, documents, images, etc.; http://www.axmedis.org/documenti/view_documenti.php?doc_id=3842
o Mobile http://www.axmedis.org/com/index.php?option=com_content&task=view&id=172&Itemid=91
o Many other tool from:
    http://www.axmedis.org/com/index.php?option=com_content&task=view&id=83&Itemid=55

AXMEDIS Technical Notes

On the AXMEDIS portal you can find a set of other technical notes on:
o How to integrate the AXMEDIS DRM into a e-Commerce portal for digital content http://www.axmedis.org/documenti/view_documenti.php?doc_id=3736
o The show case of TEO (Telecom Lithuania) in adopting AXMEDIS DRM into their VOD service to STB based on Kreatel/Motorola http://www.axmedis.org/documenti/view_documenti.php?doc_id=3738
o The show case of ELION (Telecom Estonia) in adopting AXMEDIS DRM for content distribution service towards PC http://www.axmedis.org/documenti/view_documenti.php?doc_id=3745
o The show case of EUTELSAT in adopting AXMEDIS for satellite data broadcast of AXMEDIS content towards PC and STB http://www.axmedis.org/documenti/view_documenti.php?doc_id=3820
o The show case of TISCALI in adopting AXMEDIS Model, P2P and DRM for content distribution service towards PC.
o The show case of ILABS in adopting AXMEDIS solution for the automated production of content and distribution towards PDA http://www.axmedis.org/documenti/view_documenti.php?doc_id=3991 and java enabled mobiles http://www.axmedis.org/documenti/view_documenti.php?doc_id=3992
o The show case of BBC in adopting the AXMEDIS tools for distributing content that is created on the user side by recoding free on air DVB-T and integrating additional content and information coming from internet and AXMEDIS P2P. http://www.axmedis.org/documenti/view_documenti.php?doc_id=4005
o The show case of TI, Telecom Italia, about the usage of AXMEDIS as back office management and interoperable platform among AXMEDIS MPEG-21 DRM and OMA
o The show case of SIAE for content collection from the users.
o The show case of VARIAZIONI about the usage of AXMEDIS DRM for content enrichment and distribution, mainly video, images and audio
o Etc.

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