

Technical Note  
n. 6201  
February 2008

**Technical description**  
B2C distribution of contents via Satellite channel towards Kiosks and terminals

**Description of content**

The overall scenario covers two levels, one called the content factory dealing with content production and catalogue preparation, and one related to kiosk POPs, this one comprising management (catalogue selection & loading, user management...) and content fruition.

**Business model**

The adopted business model is based on the availability of free content for user attraction and retention, while premium content is aimed at a service and quality offer to users. The Kiosk will mainly use pre-paid card or a monthly payment via billing procedures related to a user subscription, while for mobile it will be traffic based supported by the adoption of pre-paid coupons to be used for acquisition of some premium content. For the mobile, a monthly payment on subscription bill would be possible only upon specific signature of some agreement with a carrier.

**Kiosk Distribution towards PDA**

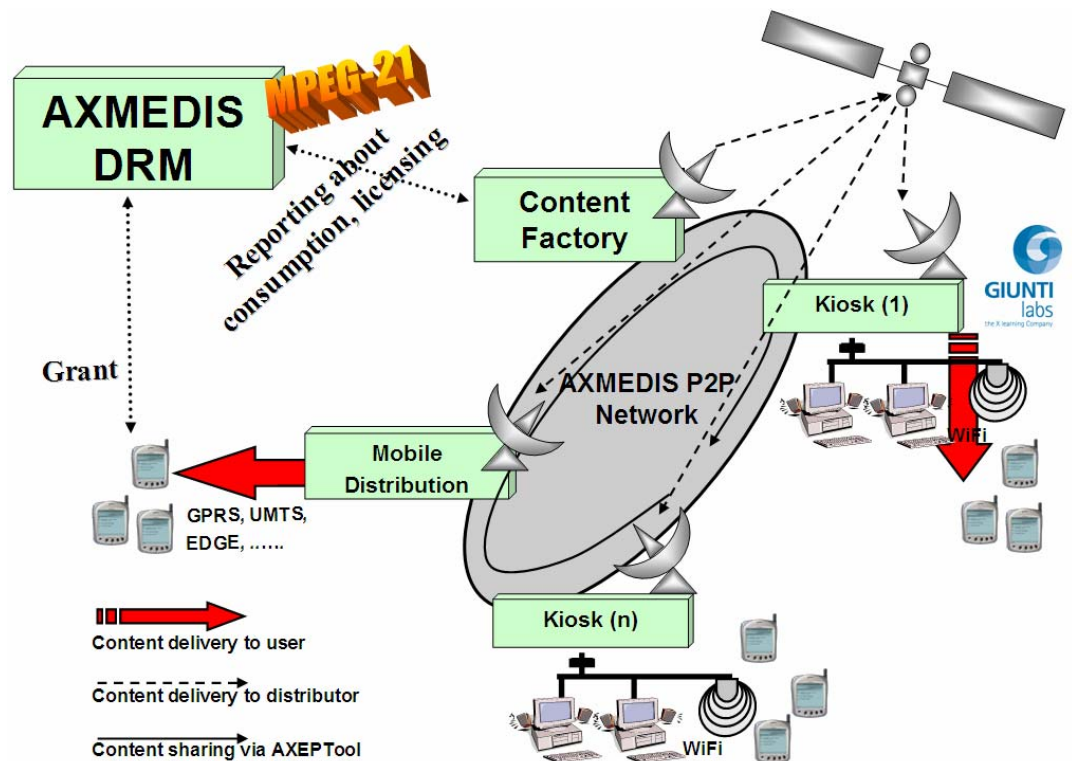
Within AXMEDIS the kiosk show case of Giunti Labs aims at showing the benefits coming from the combination of several technologies in a totally new environment. Usually when referring to kiosks (in tourism or museums) people are focused on points of services with the typical aspect of what is called a "totem".

In AXMEDIS a kiosk is much more; it is a basic subset of the overall framework, designed and tailored to provide a fully-fledged set of services to a set of users in parallel exploiting all available tools as a real and new distribution channel.

The kiosk architecture within the AXMEDIS context is divided in two components: the "content factory" where contents are produced and the "kiosk" itself where users have access to services and contents. Distribution from the content factory to kiosks is handled via satellite in order to optimize bandwidth and data transfer rate when updating (in broadcast) units that may be geographically dispersed on the territory. On site, content access, selection, acquisition and fruition at the kiosk is achieved by exploiting either local terminals (kiosks as true points of service) or a WiFi based access via PDA and/or mobiles.

**AXMEDIS Kiosk Architecture**

The distribution infrastructure includes a Content Factory server (where AXMEDIS Tools are installed along with the other back office components needed), a few distribution kiosks acting as POPs (Point Of Presence, basically PCs) and a few PDAs or mobiles acting as mobile terminals.



What follows is a detailed description of the kiosk distribution architecture specified in terms of involved blocks, actors and relations.

At a very high level the system components are summed up as follows.

- **Content Factory:** this is the part of the system that holds a local instance of AXMEDIS Content Processing tools, the so called AXCP tools (see in the following for the references to technical notes) and it is interconnected to the P2P infrastructure. Here the Catalogue is produced and contents are aggregated, produced and distributed.



- **Kiosk** is interconnected to the AXMEDIS P2P infrastructure and has local terminals (including PC, PDA, mobiles). It assures management of satellite downstream and modem upstream (it can also be used in downstream). It provides security features to the local LAN. The kiosk architecture will enable wireless communication with local mobile devices (PDAs).
- **Terminal for the final users:** this can be PC, PDA and mobiles for accessing to services provided by the Kiosk (mainly browsing and previewing of content listed into a catalogue for local fruition). With this device only rental is available. The terminal has to be endowed of an AXMEDIS Player.

It is worth noting that Kiosk's and terminals for the final users have to be separately certified. In the above scenario the following actors are foreseen:

**Content Factory Manager:** interacts with the Content Factory, which is connected to the AXMEDIS P2P infrastructure via AXEPTools, and prepares, publishes & distributes content for the AXMEDIS Kiosk instances. The Content Factory may send the content to the Kiosks via the AXEPTool or via satellite data broadcast. In the kiosk factory, the distributor (or the authors preparing contents for kiosk distribution) takes care of selecting the contents that will be presented into a catalogue, assigning the proper category, rights and costs to each one, preparing and distributing the catalogue.

**User** that can interact with the Kiosk directly (on the PC) or via terminals: PDA or mobiles. The users need to be registered and to certify their own PDA/mobile prior to being granted the possibility of using AXMEDIS DRM protected content. If PDAs are provided locally by the Kiosk Manager they will already be equipped and configured to properly interact with kiosks and therefore the user will be able to use them as if s/he is using the kiosk.

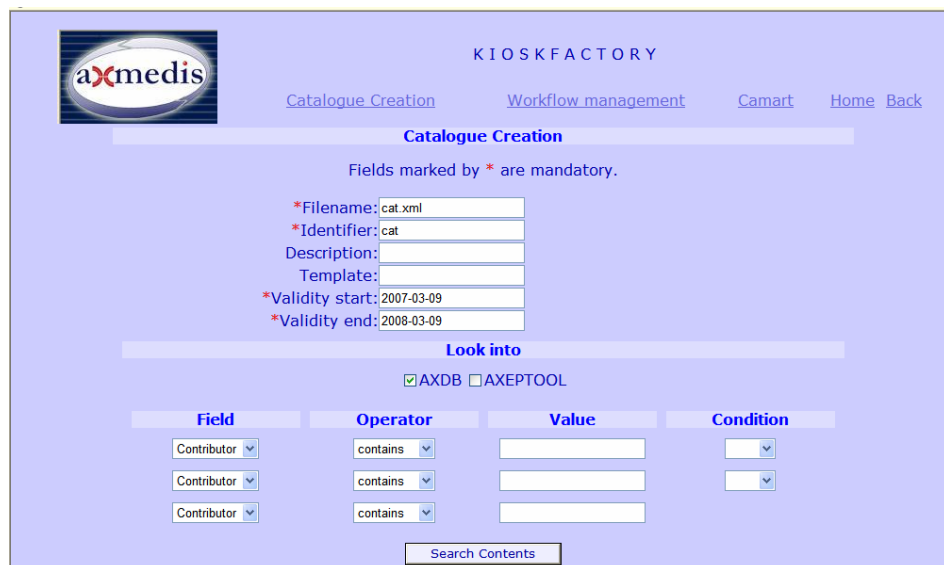
At the POPs side the application has been designed to accommodate terminal content fruition, and a user-friendly web-based interface has been designed and developed. The user should register (and download the AXMEDIS player whenever needed) prior to be granted access to the application. During the registration phase some demographic data and some preferences are collected for subsequent usage (even if only very little data is mandatory). Once registered, the user can access to the core application that will display the kiosk catalogue, where available contents are categorized and can be browsed or searched. The user can select content for preview and once the selection is performed the user can purchase the selected content and, upon process completion, also access to it using the specific player.

For additional details on the AXMEDIS

- **AXMEDIS Editor and players, tools for MPEG-21 and AXMEDIS authoring** (SMIL, HTML, MPEG-4, and of any kind of digital resource), DRM, licensing, protection, packaging, workflow, playing, etc. AXMEDIS authoring on Windows. AXMEDIS players for: MS Windows, Apple OS X, Linux, Windows Mobile 5, and java mobiles, for PC, STB/PVR/HDR, Media Centers, PDA, and mobiles. They can be customized as GUI and functionalities. Examples of customizations are available.  
[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3634](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3634)
- **AXMEDIS AXCP** to automate your content production, protection and distribution as stated above and in more details into the technical note:  
[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3624](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3624)
- **AXMEDIS DRM** adopts MPEG-21 DRM, including servers and licensing tools and allowing DRM, detection of attacks, black list management, collection of actions logs containing traces about the rights exploitation, tools for administrative management, etc.  
[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3616](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3616)
- **AXMEDIS P2P Controlled Network**, for content distribution via P2P. It utilizes BitTorrent Technology with query support and cataloguing servers, for protected or non protected content. It has capabilities of automating content publication, controlling P2P network, and extracting statistical data and reports. The AXMEDIS P2P solution allows to control the network by means of control nodes that can be geographically distributed: [http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3612](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3612)

## Behind the scene: the Kiosk Factory

The publisher may prepare content that wants to distribute on a particular target kiosk(s), for example museums, theaters, large events, etc. The content selected is then sent with satellite or P2P. The publisher needs to select a list of objects, a catalogue template, an object template and specify when to deliver each object (including the catalogue) and to whom (i.e. the distribution kiosk). By using the AXMEDIS Query support the publisher searches the desired AXMEDIS objects and selects those to be used for building the catalogue.



**KIOSKFACTORY**

[Catalogue Creation](#)   [Workflow management](#)   [Camart](#)   [Home](#)   [Back](#)

**Catalogue Creation**

Fields marked by \* are mandatory.

\*Filename:   
 \*Identifier:   
 Description:   
 Template:   
 \*Validity start:   
 \*Validity end:

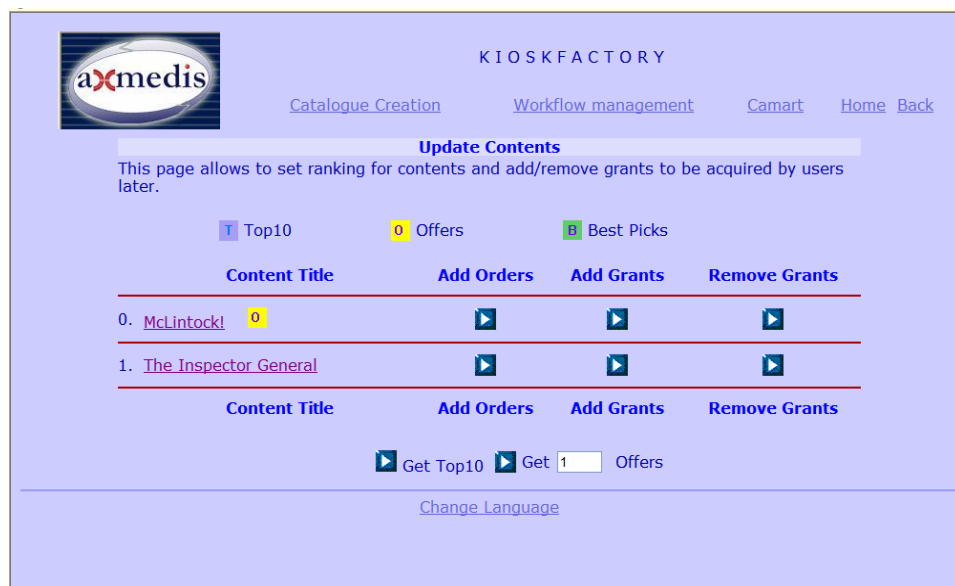
**Look into**

AXDB    AXEPTOOL

Field	Operator	Value	Condition
<input type="text" value="Contributor"/>	<input type="text" value="contains"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="Contributor"/>	<input type="text" value="contains"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="Contributor"/>	<input type="text" value="contains"/>	<input type="text"/>	<input type="text"/>

This is the interface allowing user to insert basic catalogue data (identifier, description, template, validity start date, validity end date) and a query for content retrieval.

The AXMEDIS DRM, via its CAMART tool, allows the publisher to explore the usage statistics for the objects and automatically extract top and bottom ones. By using the P&P Editor, the programme manager can create a routine to specify the time and destination channels for the objects to be distributed. On completion, the publisher activates the programme and, during its life cycle, the objects are distributed until completion or removal from activation of the programme itself



**KIOSKFACTORY**

[Catalogue Creation](#)   [Workflow management](#)   [Camart](#)   [Home](#)   [Back](#)

**Update Contents**

This page allows to set ranking for contents and add/remove grants to be acquired by users later.

Top10    Offers    Best Picks

Content Title	Add Orders	Add Grants	Remove Grants
0. <a href="#">McLintock!</a> <input checked="" type="radio"/>	<input type="button" value="▶"/>	<input type="button" value="▶"/>	<input type="button" value="▶"/>
1. <a href="#">The Inspector General</a>	<input type="button" value="▶"/>	<input type="button" value="▶"/>	<input type="button" value="▶"/>

Get Top10    Get  Offers

[Change Language](#)

Once the user has selected some contents, he can insert them into the three catalogue categories: Top10, Offers, Best Picks. He can also retrieve automatically The Top 10 and the Offers contents (last ones are the "bottom" contents) by querying the CAMART service through the buttons at the end of the page.

## For the users: the Kiosk POP

At the Kiosk POP there are two sets of interfaces, one related to kiosk management (encompassing, catalogue user management from an "administrative" point of view) and one related to user content fruition. What follows is a guide to the POP functionalities. When a kiosk is used the user shall register or log onto the kiosk

infrastructure to be recognized and authorized to access to the available services. Then the user can browse the catalogue and select content for delivery and fruition. In this latter phase the user is able to select also the fruition model (acquisition, rental, pay per use...) and experiment what it looks like a DRM empowered system specifically designed to cover the whole value-chain from production to fruition. As a matter of facts, the system shows how only allowed operation can be performed while all others are inhibited.



Once the user is registered (or, if it is not her/his first time at the kiosk, after s/he has logged in) the kiosk catalogue will appear. As already seen for the catalogue creation, there are three main sections: Top10, Best Picks and Offers. There are some more functionalities accessible from the menu on the right: list of all the contents of the catalogue, current chart, contents for which some rights have already been acquired, personal data, access to Query on Demand.



The user can have a preview of the contents...



... take a look at their metadata and then decide to access...





# Automating content production protection and distribution



...then the user can play a content according to the rights s/he as gained. As depicted on the left, the manager may see the content into the WEB page on PC via the AXMEDIS player Active X.



For the PDA, the process is very similar: the user is requested to login...



... then he can see the list of the available categories.

Once s/he selects a category...



... s/he can see the list of the available contents for that category and...



... play the content for which s/he has permissions via the AXMEDIS PDA player.



## Key features of the AXMEDIS KIOSK Solution

The key features of the AXMEDIS Kiosk Solution are:

- on the Content Factory side:
  - content production and/or aggregation and/or protection and/or licensing via the AXMEDIS Content Production Tools
  - content collection via the database services
  - selection and structuring of contents through the catalogue categorization
- on the Kiosk and terminal side:
  - content distribution mainly addressed to a museum or cultural institution via POP/"totem" structures as PC and on terminals such as PDAs and mobiles;
  - delivery of categorized content for enhancing search and retrieval;
  - usage of objects through AXMEDIS Player for PC, PDA and Mobiles;
  - query and delivery on demand.
  - usage of AXMEDIS objects with any kind of content: video, images, document, audio, animation, etc...

[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3634](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3634)



## Unique AXMEDIS benefits

The main AXMEDIS benefits can be summarized as follows:

- on the Factory side:
  - automated production of contents via the AXMEDIS AXCP tools allowing to manage programmatically large collections of data with minimal human intervention;
  - collection and retrieval of statistical data about content usage, on the basis of the AXMEDIS DRM.
- on the Kiosk side exploiting the AXMEDIS players capability of playing a wide variety of resource formats with and without DRM.

## AXMEDIS Tools

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:

- Available PC players are:
  - AXMEDIS stand alone PC player; [http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3767](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3767)
  - AXMEDIS Skin based PC player; [http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3716](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3716)
  - 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](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3717)
- AXMEDIS 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](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3842)
- AXMEDIS mobile player  
[http://www.axmedis.org/com/index.php?option=com\\_content&task=view&id=172&Itemid=91](http://www.axmedis.org/com/index.php?option=com_content&task=view&id=172&Itemid=91)
- Many other tool from:  
[http://www.axmedis.org/com/index.php?option=com\\_content&task=view&id=83&Itemid=55](http://www.axmedis.org/com/index.php?option=com_content&task=view&id=83&Itemid=55)

**GIUNTI Labs Contact** Giancarlo Bo, PhD  
Giunti Labs  
via Portobello  
Abbazia dell'Annunziata  
16039 Sestri Levante, Italy  
Tel: +39018542123  
Fax: +39018543347  
[g.bo@giuntilabs.com](mailto:g.bo@giuntilabs.com)

**AXMEDIS Contact:** Paolo Nesi  
DSI DISIT AXMEDIS  
Vis S. Marta 3  
50139 Firenze, Italy  
Tel: +39-055-4796523  
Fax: +39-055-4796469/363  
[axmedisinfo@axmedis.org](mailto:axmedisinfo@axmedis.org)  
[nesi@dsi.unifi.it](mailto:nesi@dsi.unifi.it)