Automate the business process and manage your contents in a more convenient way

Integrate P2P in Multichannel production and distribution: broadcasting, IP/Internet, WEB sites, P2P, mobile, IPTV, interactive TV and channels, etc.

Exploit Video on Demand (VOD), IPTV, and production on demand solutions

Control P2P content sharing and distribution, involving your customers in distribution (superdistribution)

Involve your customers and final users in content production and social networking

Integrate interoperable DRM into your business

Exploit different business models and/or transactions on the same distribution channels: pay per play, monthly rate, preview, renting, advertising, etc.

Exploit interactivity with cross media models

Adopt advertising (customized and/or real time personalized advertising)

How to exploit AXMEDIS DRM solution in your portal

Before reading this technical note we suggest to read the technical note n.4501 on general aspects of AXMEDIS DRM (Digital Rights Management)
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3616
It also suggested to make a tour on the AXMEDIS for dummies user manual:
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3993

AXMEDIS DRM can manage single as well as multichannel solutions. In this technical note a direct solution to integrate AXMEDIS DRM on a single generic distribution channel is presented. In particular, this technical note describes how to integrate AXMEDIS DRM in order to enforce DRM capabilities for e-commerce of digital content in a Distribution Portal, it can be web, playout, or any other. Before, to present the AXMEDIS solution, a short overview of the main AXMEDIS components is given; then the requirements of the Distribution Portal with the DRM integrated are presented.

AXMEDIS solutions reduce costs and increase efficiency for content management. AXMEDIS supports the whole value chain and provides tools to simplify the convergence of media, the media transcoding, and the interoperability of content enabling multi-channel distribution. AXMEDIS provides a flexible and interoperable DRM, for both B2B and B2C across traditional and P2P distribution platforms. AXMEDIS Multichannel DRM is an open interoperable solution for protecting and managing rights for a wide range of content, from single files to complex cross-media and multimedia, distributed on different channels towards different type of players and devices. AXMEDIS can be used to setup and manage DRM solutions for:

o Internet, client server and P2P distribution;
o broadcasting, satellite and terrestrial distribution;
o production and video on demand distribution;
o mobile and PDA distribution;
o interactive TV and educational content distribution;
o PC, STB/PVR, HDR, PDA, Mobiles, etc.;
o physical media: CD, DVD, USB, etc.;
o business to business (B2B) distribution;
o integrated business to business to consumers (B2B2C) distribution models.

AXMEDIS DRM Architecture and Solution

AXMEDIS DRM architecture has been designed to be easily integrated into any distribution channel, allowing maintaining the your front end distribution solution and customer relationship management tools. In the following figure, the grey parts are your servers and orange are your customers/markets; cyan and light blue parts are those that can be provided by AXMEDIS or in which AXMEDIS parts can make the difference with enhancing tools.
AXMEDIS DRM exploits and extends the MPEG-21 standard allowing to:
o **protect any content formats and types:**
  • video, audio, images, documents, games, etc.;
  • cross media and multimedia content: HTML, SMIL, MPEG-4, etc.;
  • collections and combinations of the above mentioned content formats;
o **control the exploitation of rights** of the above content formats:
  • formalization of rights and conditions with formal content licenses. The license is a digital version of a contract that contains the list of rights (with related conditions) that can be exploited on that content by a given user. In AXMEDIS, licenses are formalized in MPEG-21 REL Standard;
o **collect and report information about consumption** of rights for
  • accounting, billing and/or statistical analysis;
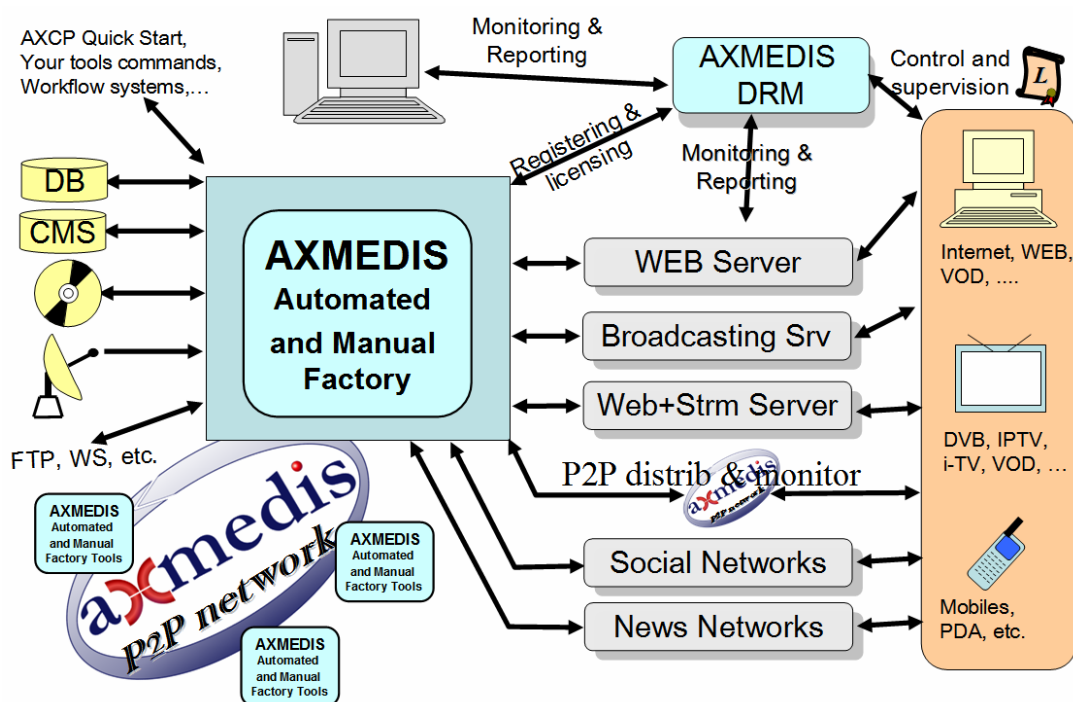
As depicted in the figure the integration with the distribution portal is very simple and kept at the minimum.

AXMEDIS DRM solution provides you:

- **Automated and Manual Factory: AXCP GRID tools for content post production, packaging and protection** (they range from simple manual tools to automated tools based on GRID technology, AXMEDIS Content Processing, AXCP solution), and are capable to make automatic: registration of users, content adaptation, transcoding, fingerprinting, management, repurposing, licensing, delivering, etc., see a summary in the following technical note
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3624
- **DRM servers** for (i) controlling the exploitation of rights of protected content, (ii) collecting information about the exploitation of rights; for example counting the times a given content object has been played, by a given user, on given device, etc. (iii) optionally interacting with an intellectual property ontology to facilitate the production and verification of licenses.
- **AXMEDIS players for protected and non protected cross media content** on PC (MS Windows), PDA (Windows Mobile 5 and 6), STB/PVR (Linux and Kreatel based), and AXMEDIS Java based Mobile. AXMEDIS players can be customized in several different manners and can be hosted in WEB pages (AXMEDIS player in the form of Active X).
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3845
- **DRM tools** for
  - o manual and automated production of licenses
  - o accelerating the transformation of contracts to licenses directly from the contract text, and vice versa for legal validation of licenses.
  - o producing licenses, via licensing wizard produced as AXMEDIS object, see the LicenseMaker AXMEDIS object.
- **AXMEDIS Cross Media Finder: an integrated portal for demonstrating AXMEDIS content and distribution: http://variazioni.axmedis.org:8080/CrossMediaFinder/**

Front end content distribution servers, commerce servers, customer relationship servers can produce licenses for your final customers. These licenses are required to be produced posted onto the AXMEDIS DRM Servers via a Web Service call. In alternative, the same servers can use the AXCP GRID to perform the same activity, particularly when there are a high number of licenses produced. For example, in the case of a business model based on subscription; each new subscription produces a set of licenses to enable the new user to access all the content distributed.

As illustrated in the above figure, it is possible to exploit the P2P technology for content distribution by using

AXMEDIS P2P Network solution which is fully integrated with the AXCP GRID and AXMEDIS DRM. See technical note on P2P http://www.axmedis.org/documenti/view_documenti.php?doc_id=3612

Digital Contents E-Commerce and AXMEDIS DRM

The main requirements of a distribution Portal for protected digital contents supported by a DRM can be summarized as it follows: The Portal:

o is interested in distributing digital content such as video, audio, documents, multimedia, cross-media objects, collections, courses and interactive collections, etc.,
o manages a certain amount of users and objects to produce and distribute content according to the business models formalized with licenses and DRM solution; No limitations about the number of users and content elements;
o allows final users to execute query, search, browse, download of protected/DRMed objects;
o is interested in making e-commerce by using different DRMs rules and models on the same content with its user: pay per play, PPV/PPP, VOD/COD, video/content on demand, integrated subscription model, renting, etc., and manages the economical transactions, delegating the payments to a certain lending institutions or via other means;
o when requested, has to produce protected objects and formal licenses on demand or for subscriptions;
o has to access to the consumption details for the production of bills or statistics;

This following description shows that the main activities to be undertaken for the distribution of content with DRM from a commercial Portal are:

- **Production of protected contents**, or anyhow of simple/composed contents starting from single or multiple component (as it happens for cross-media models);
- **User registration**: the licenses can be produced only for registered users, so that users have to be registered in advance, the registration can be performed from the Portal;
- **Production of licenses** for final users on the basis of one or more business models;
- **Fruition** of contents by users on one or more AXMEDIS players;
- **Gathering of consumption data** about rights and/or eventual statistic data;

These aspects are reported in details afterward.

The depicted solution is based on AXMEDIS DRM and it is based on tools, servers, and licenses formalized in MPEG-21/REL/AXMEDIS (to any further information please have a look at the references at the end of the document).
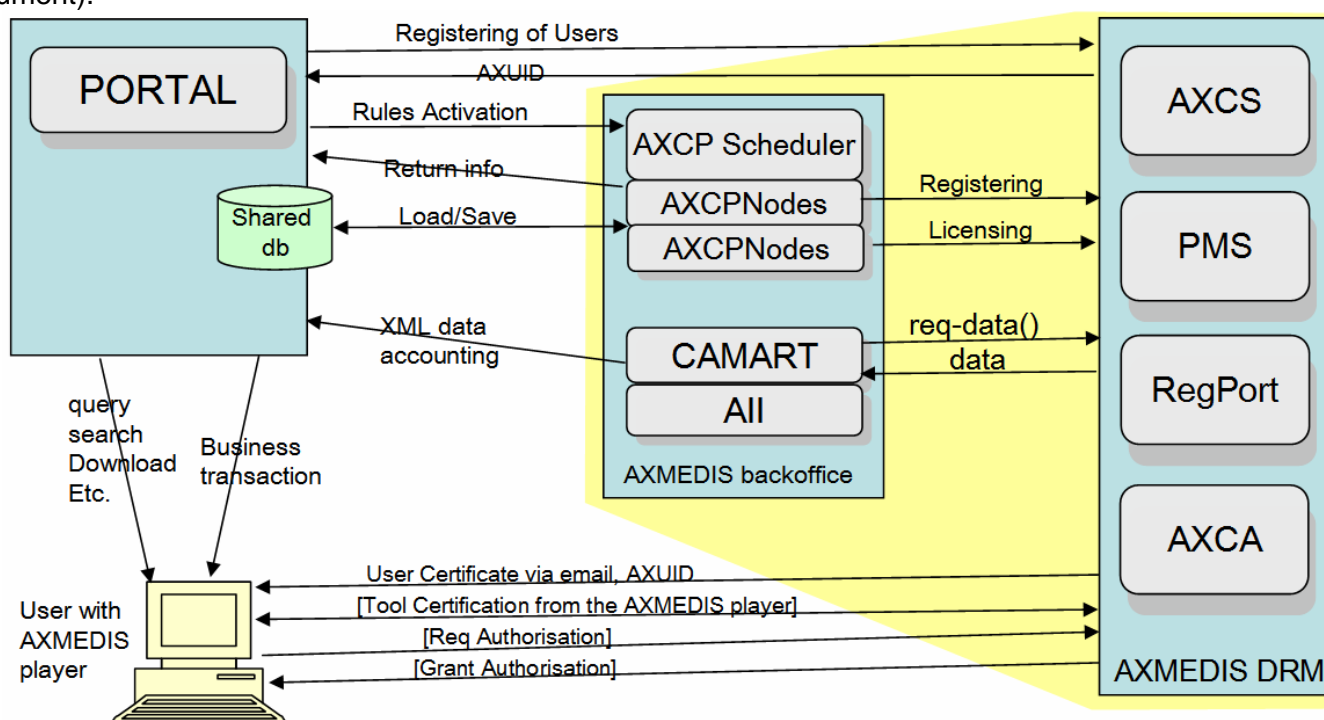
The above figure describes all the interactions between the main parts of AXMEDIS DRM solution: the portal,

the AXMEDIS BackOffice and the AXMEDIS DRM Server. All the components of the Yellow area in the above figure can be regarded as a single AXMEDIS DRM which can be provided also as a service.

The **AXMEDIS BackOffice** is based on the AXMEDIS AXCP technology and on instruments to report data collecting as CAMART and AII.

o The AXCP (it is composed by the tools **AXCP Scheduler** and AXCP Node, and represents a scalable solution). It is able to execute large amounts of tasks in an automated manner; among them the most important related to DRM are: producing protected objects, acquiring non-protected objects form the Portal, registering objects on the DRM server, registering users, production of protected content, etc. The AXCP has also the duty of producing licenses on-demand. At the end of the production, the protected object is sent to the portal. For any further detail please refer to the AXCP Technical Note http://www.axmedis.org/documenti/view_documenti.php?doc_id=3624. A simplification can be obtained by delegating the user registration to the AXCP. In that case, the integration with Portal is simpler, since it interacts only with the AXCP;
o **AXCP tools** (Schedulers and nodes can be hosted on the Portal or on the AXMEDIS DRM services);
o **CAMART** acquires reports about the exploitation of rights for all the managed objects periodically from the AXMEDIS DRM server;
o **All tool** is capable to convert these reports in a manner pursuant to each administration server;
o **CAMART and AII** can be hosted on the Portal servers.

The **AXMEDIS DRM section** is composed by different parts that can be installed on servers strictly placed close to the Portal, or in remote locations, under hosting, or can be taken as service from third parties. Going into details a complete AXMEDIS DRM solution includes:

o AXCS: services for object registration, for players operations certification and supervision. The AXCP collects all the actions related to the rights performed by users in the respects of their privacy;
o PMS: services for licenses storing and the production of players' authorizations. It can manage communities and subscriptions via the PMS Domain model and tools;
o RegPort: registration service for users in the DRM system. It can be accessed via Web Services, AXCP tools and directly from the users;
o AXCA: service for production of certificates for users and devices.

A part (or the whole) of the AXMEDIS DRM services and AXCP Services can be purchased from AXMEDIS or any other AXMEDIS based distributor.

Protected content production

For the production of protected digital contents, the **Portal** may
o decide which AXMEDIS Object has to be produced, with which metadata, resources, etc. For this aim, the Portal sends the request to execute an AXCP Rule (a process formalized in AXMEDIS javascript by using AXCP tools). In this case, the process has been named "Rule A" (the description of whom will follow). With a simple WebService call, or PHP call, or CGI call, or Java call, etc., the Rule is put in execution on the AXPC Scheduler (simply named as AXCP into the following figure). The AXCP puts in execution the rule on one or more AXCP Nodes as needed, and get return values if needed;
o invoke different Rules to produce different objects, to manage different channel, to manage different services. In addition, each single Rule may be invoked with different parameters, for example the user ID, the object ID, the rights to be licensed, the channel to be addressed, the database, the format, the terminal, etc.;
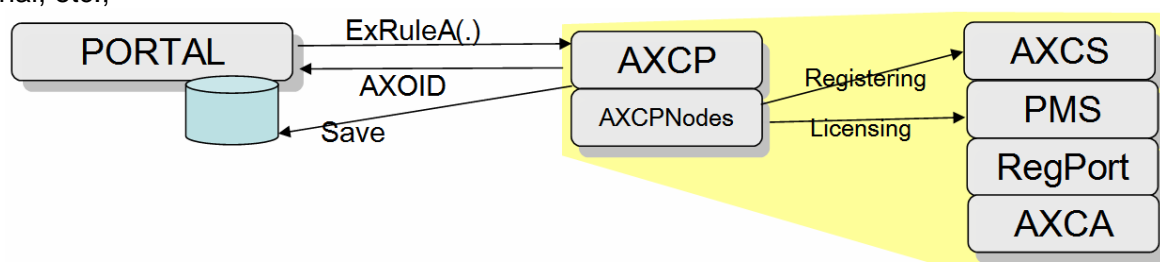
For example, on the basis of Rule A, the AXCP Produces the protected object (registering the object on the AXMEDIS DRM, etc.). It may also send a feedback to the Portal to notify results and the AXOID (AXMEDIS

Object ID) of the produced objects. The AXCP can send and/or post the produced object in the local Database of the Portal and/or one or more remote databases. The AXCP Nodes can be dozens, or more depending on the workload. The Simplest solution may include a single AXCP Node on the same computer of the Scheduler and/or the Portal.

AXCP Rules
o   are identified in a unambiguous manner by a proper AXRID (AXMEDIS Rule ID);
o   are formalized in JavaScript and installed on the reference AXCP Scheduler to be executed, they can be freely changed according to Portal needs;
o   can be produced trough the AXCP Editor that is an integrated development environment with debug and testing facilities;
o   can be produced with a visual designer tool for their production and harmonized according to OpenFlow or Biztalk Workflow management systems if needed.


After the protection of the AXMEDIS Object it can be used only is a proper license is produced. Rule A may also produce default licenses for the producers to permitting self access/test to/of the produced objects. The Portal has to be registered as Distributor user on the reference AXCS, obtaining its AXDID.

Licenses production for final users

The Portal has to identify or select a certain amount of users to whom release the license for the object usage. The Users have to be registered on the AXMEDIS DRM server and can be identified thanks to their unambiguous AXUID (AXMEDIS User ID).

In this example, the Portal engages the execution of a Rule B (the description of whom will follow) for production of one or more licenses for one or more final users (AXUID list) for one or more objects (AXOID list). The activation of Rule B takes place by the AXCP. In substance, the final license may authorized the user (identified by the AXUID) to utilize the object identified by AXOID, according to certain rights and written conditions formalized in MPEG-21 REL/AXMEDIS. The users must be registered and certified.

They are identified by their AXUID that must be known and stored into the Portal database, otherwise the Portal should not have all data for production of licenses non-demand or for each category. In alternative, the Portal may have its own User Identification and delegate the AXCP to the license production and thus to the matching from Portal User ID to AXMEDIS User ID.
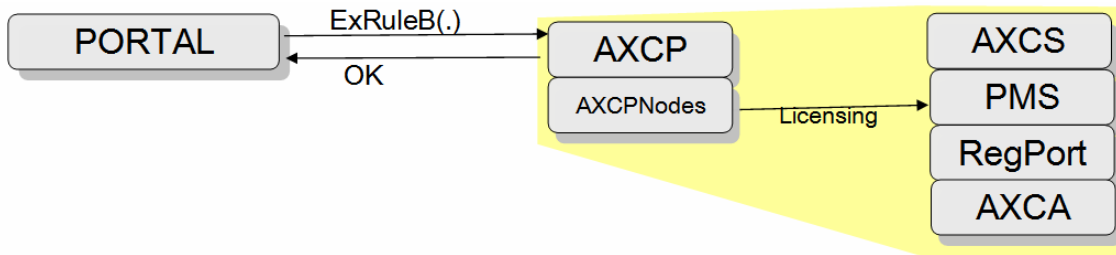
The objects must be protected and identified by their unique AXOID, which has to be known and stored into the Portal database. They are acquired from the feedback of Rule A execution.

The licenses are produced on the base of the distributor ID, AXDID. Rule B uses the AXOID, the AXUID and the information on the business model for the production of Licenses. The Licenses can be produced by using templates simplifying their massive and on demand production.

The protected objects can be used by users:
o   that are registered on AXMEDIS DRM and thus have their AXUID;
o   that have installed and certified an AXMEDIS player (or that have an AXMEDIS powered STB). There is a simple procedure to guide users to make the AXMEDIS tools certification, that can be extracted from
o   for whom the Portal has produced a license. It has to be reminded that a license is simply stored in the PMS, and the player requests the Grant Authorization for the play (exploitation of right), and it has been given to it, only if the player is certified. These operations are completely transparent for the final user and are automated. An AXMEDIS player to play a given object needs to be connected to Internet to take the license the first time, the next times the computer can be not connected to play again the same object. This may depend on the license model chosen.

User registration

The user registration can be performed by the Portal (aware of users' personal data) through and AXMEDIS DRM services. When registered, the user receives emails with unambiguous AXUID, a certificate and the related passwd. This solution is preferred by distributors, and allow them to know the AXUID. In this way, the users have only to do with the content distribution Portal. If the Registration is performed by the AXCP, the Portal could even doe not manage the AXUID.

Another possibility is to permit at the final users to access directly on the AXMEDIS DRM Registration Portal. In this latter case, the User has to communicate the AXUID to the Portal.
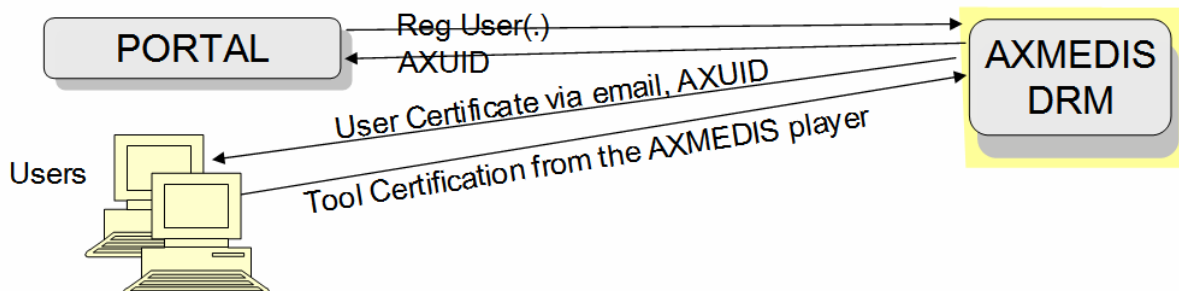

The users receive by email a certificate that they have to put into their AXMEDIS player, and then proceed to the AXMEDIS player certification. The AXMEDIS players are capable to guide the users in performing these operations.

Content fruition

For content fruition we intend the use of an AXMEDIS object by the user. The AXMEDIS content may be obtained by the users, according any transmission channel and modality, therefore that part is not detailed in this document. Furthermore, the user has to establish with the Portal (content distribution service) a business agreement that may imply an economic transaction.

AXMEDIS DRM supports different business models concretely formalized in the license production and supported by all AXMEDIS tools.
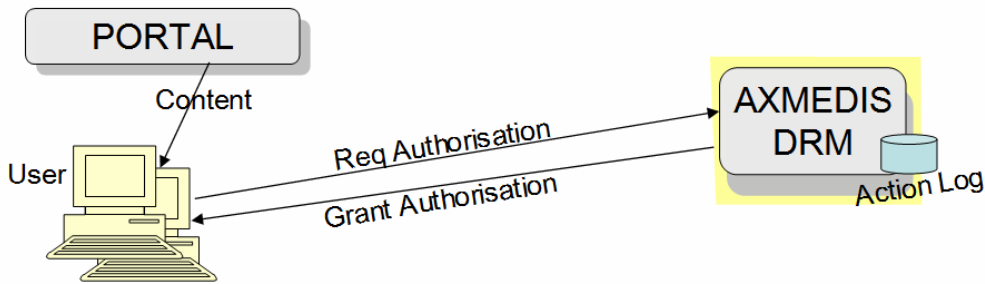
At the moment of the fruition, the AXMEDIS player asks for the Grant Authorization to the AXMEDIS DRM in a transparent manner for the user itself. In the case of authorization, the request performed by the user is logged as an Action Log (in the AXMEDIS DRM server) and the Grant Authorization is released in a transparent manner to the user's player. AXMEDIS players are available for PC, STB/PVR, PDA, mobile, etc. for IPTV, VOD, etc.

For the AXMEDIS content usage, the final user may use one or more AXMEDIS players for PC, PDA, STB, mobiles, etc. The user may have several registered AXMEDIS players on different channels. A limitation may be imposed if needed. AXMEDIS player for general purpose can be freely downloaded from the AXMEDIS Portal.

AXMEDIS players can be customized to make visible the brand/logo of the distributor. The AXMEDIS Player Active X can be used to integrate the AXMEDIS player into HTML page of the Portal so that to make simplex the integration. For details see the technical note:
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3845

Acquisition of Consumption data report

This part is an optional element of the AXMEDIS DRM solution. On the basis of the rights consumption specified into the licenses, all the actions performed by the users (Action Log) are stored on the AXMEDIS DRM server. This information can be obtained in automated manner by the AXMEDIS CAMART tool, that can be installed on a remote server, or on the Portal BackOffice. All the information stored by CAMART can be exported through XML into various formats by using AXMEDIS AII tool. A conversion profile can be defined according to the administrative database needs. The obtained data can be used for producing periodic reports, or for statistical purposes: for instance to understand the data of a certain songs in a given region or period.

The commercialization of pay-per-play licenses can be performed before the execution of Rule B, for a certain object, for a certain User. This implies that the production of the licenses for the pay per play can be performed typically on demand. On the contrary, the collection of the activities stored (right consumed) into the Action Logs can be useful for producing a monthly and or/bill payment. The access to the Action Log is also of interest to know statistical information about the contents exploitation.
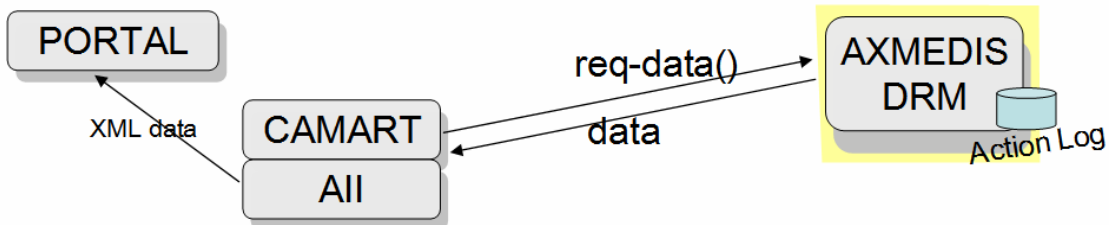
Alternative approach to simplify the integration

As an alternative, the AXCP Scheduler and Nodes can be substituted by a single process executed into an MS Windows Shell to execute a single Rule (e.g., Rule A and/or Rule B). This option is advisable only in case in which the Portal presents a light workload, in other words, in the case it is needed to produce a restricted number of objects and/or licenses per day/hour/minute. In that case, what has been called previously "AXMEDIS Back office" could be installed completely into the Portal server.

Thus, in the presence of limited workloads, the AXCP Scheduler plus Nodes can be substituted by a single process put in execution by the Portal pages. That process/service is named as **AXCP-SN** (**AXCP Standalone Rule Executor**), and it is capable of executing a single rule for each execution simply with a command such as: "c:\> axruleexecutor.exe Rule A-ID".

If the requests in terms of performances in producing contents and/or licenses are high, the solution based on AXCP allows is a scalable solution which distributes all the requests on GRID Nodes. This can be performed even by activating a rule from the Standalone Rule Executor requesting the execution of other rules on the AXCP Scheduler (realizing in this manner a decoupled hierarchical scalable solution).
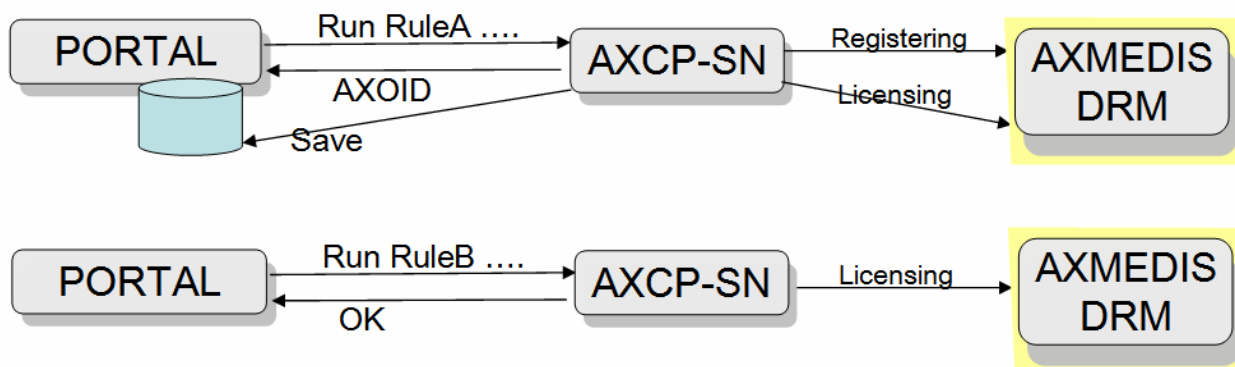
The solution based on the AXCP-SN is simpler and cheaper (in terms of integration development), but at the same time less flexible. It is advisable to start with that minimal and simpler solution, and then to adopt a more complete solution based on a Web Service and an AXCP Scheduler, with one or more Nodes, when the Portal workload grows. The AXCP-SN can even activate other AXCP system, creating some hierarchical connection and content management solutions.

Integration and set up

On the basis of the previous description the introduction is limited to:
o usage of the AXCP as service or Installation of an AXCP,
  o even also on a single server with a single node.
  o or maybe of a single Standalone Rule Executer for the execution of rules form the system command line directly on the Portal;
o usage of the AXMEDIS DRM as service or installation of AXMEDIS DRM: AXCS, PMS, RegPort and CA (they are MS Windows application). For the first phase, it is suggested to use those provided by AXMEDIS;
o optional installation of AXMEDIS CAMART and All on the Portal Server. They are strictly necessary only when the business model is based on consumption, billing;
o set-up of Rule A for object production. For details and examples related to this aspect, please refer to the following draft in the document
o Set-up of Rule B for license production. For details and examples related to this aspect, please refer to the following draft in the document;
o set-up of a Client Web Service on the Portal to call the AXCP Web Service for the invocation of rules according to the WSDL described in axmedis-de3-1-2-3-6-spec-of-ax-content-processing-update-v1-7.pdf. For PHP and Java simple calling kits are provided. In case of the solution AXCP Scheduler and Nodes has been chosen, the AXMEDIS Framework collects some WS Clients
  o As an alternative, it is possible to use the AXCP Standalone Rule Executor for the execution of a rule directly on the portal, or to call the scheduler from a further rule. In this way, it is possible to avoid to set up the Web Service Client.
o Set up of a Web Service Server on the Portal which has to be called by AXCP Rule for the delivery/reception of ACK and other information such as the AXOID, etc. (please refer to rule A). In the language, in which the Rules are written (JavaScript), there are many facilitations to create a WS Client on the basis of WSDL, so that to call any WS. On AXMEDIS.ORG there are many examples that can be chosen as model to start coding.

o   As an alternative, all the information coming from ACK (notification of a concluded process) or everything else coming from the rules, can be transmitted writing some files in common areas or with HTTP/HTTPS commands, avoiding in this case to set up the Web Service Server,

o   Set up of a Web Service Client (on the Portal) calling the AXCS WS Server for user registration according the WSDL described in axmedis-de3-1-2-2-13-spec-of-axcs-and-networks-v1-5.pdf. On the AXMEDIS Framework there are some examples of these WS Clients. This permits at the Portal to maintains and controls the user registration.

o   In alternative, the users can be pushed to make the registration into the AXMEDIS RegPort, avoiding, in this case, to set up the Web Service Client.

o   as an additional alternative, it is possible to delegate a Rule to make the registrations of one or many users on the basis of an object database an User list and business models. In this manner, it is possible to avoid to set up the Web Service Client. This Rule can be executed by the AXCP Scheduler and its nodes or by a Standalone Rule Executor.

AXCP Rule A

Main steps of Rule A:

o   rule parameters reading, for example the identification of the resources to be used in the object to be produced, the metadata ID, etc.;

o   acquisition from the database of metadata and digital resources of the AXMEDIS object to be produced;

o   creation of an AXMEDIS object on the basis of such information:

   o   eventual conversion and adaptation of digital resources and metadata into preferred formats;

   o   eventual storage of a non-protected AXMEDIS object once produced;

o   registration of the AXMEDIS object produced on AXCS and acquisition of the corresponding AXOID.

   o   eventual saving of an non-protected but registered object;

o   protection of an object with one of the available protection algorithms (automatic communication of protection model and information to the AXCS);

o   object saving on disk and/or database, one or more.

   o   eventual sending of the object through various communication/distribution channels, as well as the possible publishing on the AXMEDIS P2P;

o   production of a mother-license (license that authorizes the distributor to produce final user licenses) and sending it to the AXMEDIS PMS.

   o   Eventual production of a final user license and sending it to the AXMEDIS PMS. The child license authorize itself (AXDID) for the exploitation of the content rights;

o   Return of the AXOID as a return parameter to the Portal. Return of the completion of the procedure through the invocation of a WS or via an HTTP call, or by writing of a file or database, etc.

This rule can be simply realized in code by starting from those described and available as examples into the bibliography, and on AXMEDIS Wiki portal:

http://www.axmedis.org/tiki/tiki-index.php?page=AXMEDIS+Content+Processing+Scripts

AXCP Rule B

Rule B main steps:

o   parameters reading as AXOID, AXIUD, etc. (or lists, located for instance in a file or via XML), business model, and/or kind of license;

o   creation of a license according to the business model. For license creation it is possible to start from already prepared templates (it needs just to substitute the user, object IDs and conditions);

o   posting of the license on the AXMEDIS DRM (PMS);

o   return to the Portal about the completion of the procedure by means of the invocation of a WS or HTTP call, writing on a file or database, etc.

This rule could be realized starting from those available on the AXMEDIS portal. The same rule can also create groups of licenses on the basis of AXOID and AXUID of groups, etc.

General Technical Information on AXMEDIS DRM and AXCP

AXMEDIS DRM is developed to work on MSWindows operating system (some of them can also work on Linux). The AXMEDIS servers can provide: portals and registration services, authority certification (all the instruments and AXMEDIS users are certified, standard X.509), AXMEDIS Certifier e Supervisor (AXCS) and AXMEDIS PMS. Customizations can be produced according to users' needs.

The AXCP solution is

o   capable to work on MS Windows operating system. The AXCP Scheduler and Nodes can be executed on high performances multi-CPU, or even on single computers.

o   available as a software solution or as integrated hardware/software solution, ready to be integrated into the Portal.

o   reliable, scalable, fault-tolerant. The Nodes AXCP can run many instances of the same rules on the same contents, allowing the set up fault tolerant solutions and the recovery in case of server/disk error. The AXCP nodes are capable if reconnecting automatically to the server after interrupt of connection. They can be allocated in a local network as remote. The state of the AXCP Scheduler is continuously saved allowing recovery of the latest stable status and to pass to other schedulers in failover.

o   scalable for what concerns the number of the nodes and AXCP schedulers. It may work on a single computer, as well as dozens computers both industrial and desktop. Each note can share the file system and the access to the network and databases.

AXMEDIS Affiliation and Adoption

AXMEDIS has been adopted and currently trialed by several industrial partners, who have expressed their appreciation (see http://www.axmedis.org/ibc2008/). AXMEDIS is open and allows to access source code, reports, technical support, training days, tutorial material, technical notes and documentation, by means of the affiliation program. AXMEDIS consists of more than 40 partners (such as: TISCALI, EUTELSAT, Telecom Italia, TEO, ELION, HP, BBC, Giunti Labs, AFI, ACIT, EXITECH, XIM, SIAE, SDAE, etc.).

References

AXMEDIS portal http://www.axmedis.org on which you can find :

- AXMEDIS tools:
  o   production tools : editor and automated production
  o   players for several platforms
- AXMEDIS objects and examples
  o   audio, video, images, collection, education, cross media, training objects, documents, etc.
  o   Interactive and smart objects
- AXMEDIS P2P network for demonstration
- AXMEDIS Cross Media Finder Portal for demonstration
- AXMEDIS Technical Notes
  o   AXCP, Automated production tools
  o   AXMEDIS Model
  o   AXMEDIS P2P
  o   AXMEDIS DRM
  o   AXMEDIS DRM how to integrate and use
  o   AXMEDIS DRM for dummies
  o   VOD for PC, STB
- AXMEDIS show cases:
  o   examples and technical documentation about AXMEDIS distribution cases for : VOD, IPTV, mobile, PDA, STB, etc.
  o   download and streaming
  o   etc.
- AXMEDIS tutorials:
  o   videos, slides, and documents
  o   example of AXCP rules

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
nesi@dsi.unifi.it