

*Automating Production of Cross Media Content
for Multi-channel Distribution*

www.axmedis.org IST-2-511299

General Overview

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<http://www.axmedis.org/>
version 1.3
July 2007

www.AXMEDIS.org, July 2007




9 July 2007, Agenda, Room 120


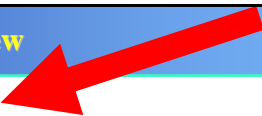
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- **13:00 – Lunch at DSI**
- **14:30 – Opening Section and registration**
- **14:45 – UG Experts Introduction** Experts are invited to do a short introduction – 2-3 minutes per person
- **15:00 – AXMEDIS General Overview**
- **16:00 – UG Discussion** Experts are invited to share their views, comments and feedbacks and engage in discussions with the AXMEDIS partners
- **16:30 – Coffee Break**
- **17:00 – Some Video and demos**
- **18:30 – UG Discussion** Experts are invited to share their views, comments and feedbacks and engage in discussions with the AXMEDIS partners

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Technical Presentation Overview

- **Preface and Motivations**
- **AXMEDIS Overview**
 - ◆ What is AXMEDIS
 - ◆ Cross Media Content, AXMEDIS Editor
 - ◆ AXMEDIS Major Tools, Players
- **AXMEDIS Automated Content production**
 - ◆ AXMEDIS CP GRID
 - ◆ AXMEDIS P2P Distribution
 - ◆ Content Posting Portal
- **Digital Rights Management and Protection**
- **Applications and Demonstrators**
 - ◆ TISCALI, EUTELSAT, ILABS,
 - ◆ P2P Content Sharing
 - ◆ VARIAZIONI Project
 - ◆ Production on Demand
 - ◆ DRM and Interoperability
 - ◆ SIAE Trial, video
- **AXMEDIS Framework how to...**

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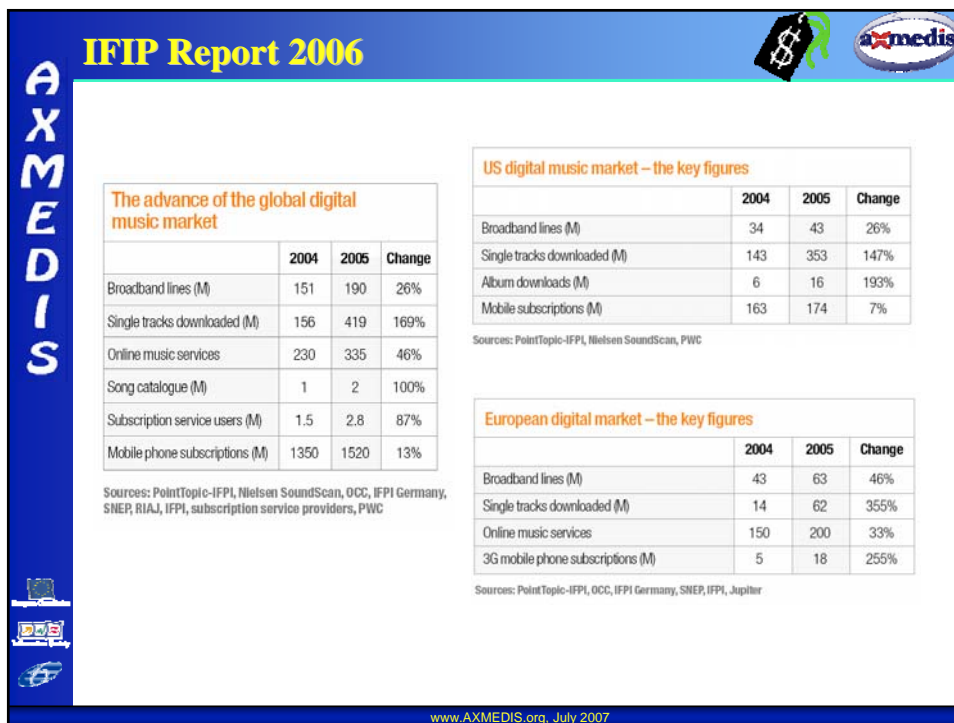
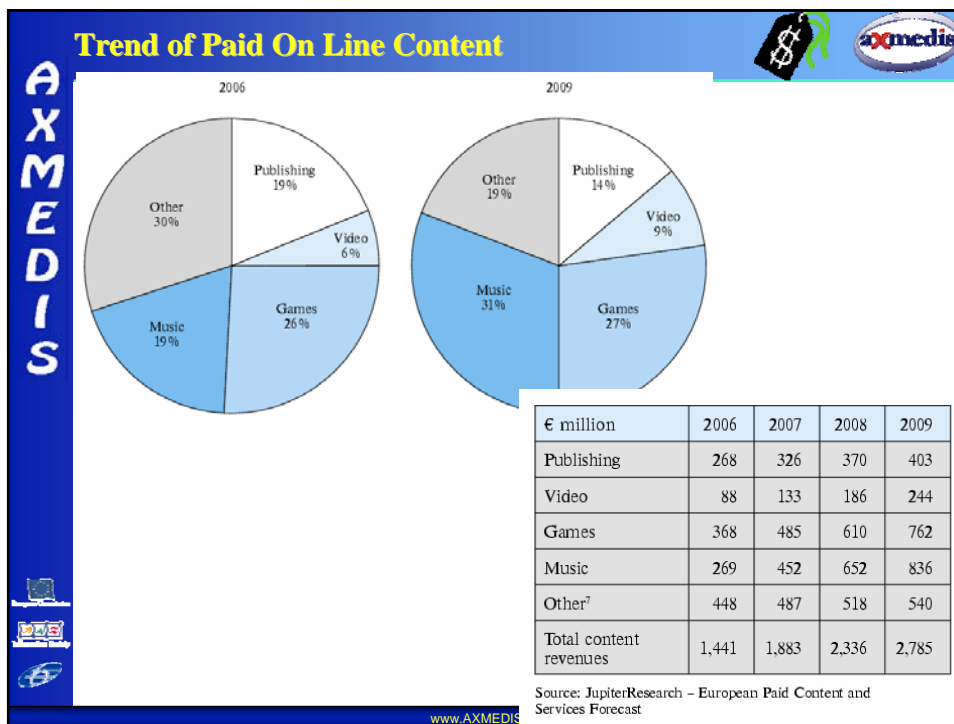
Preface

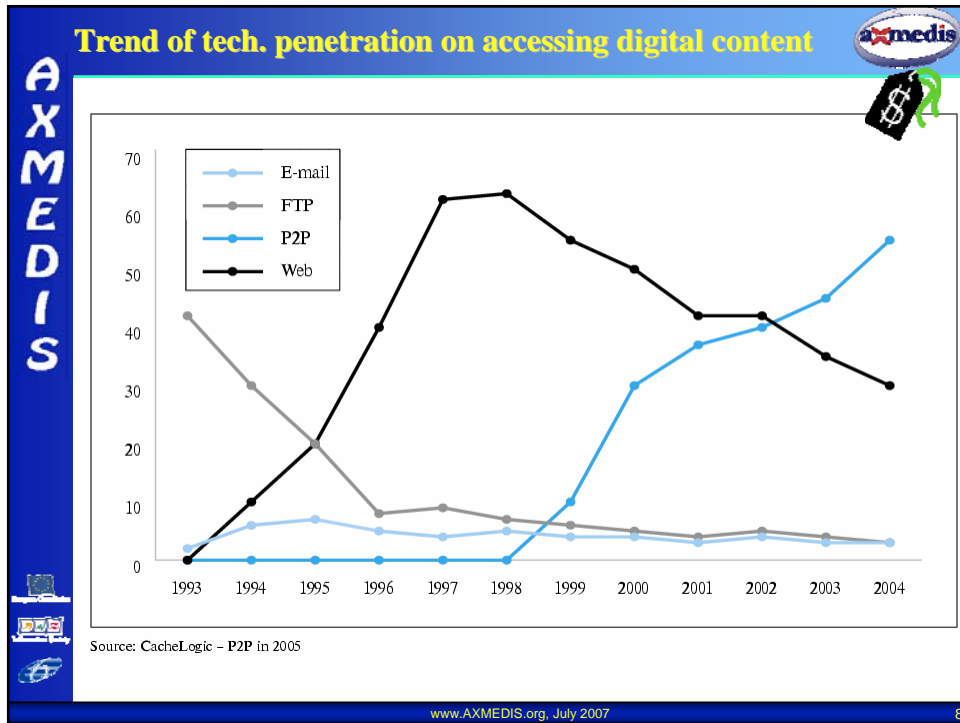
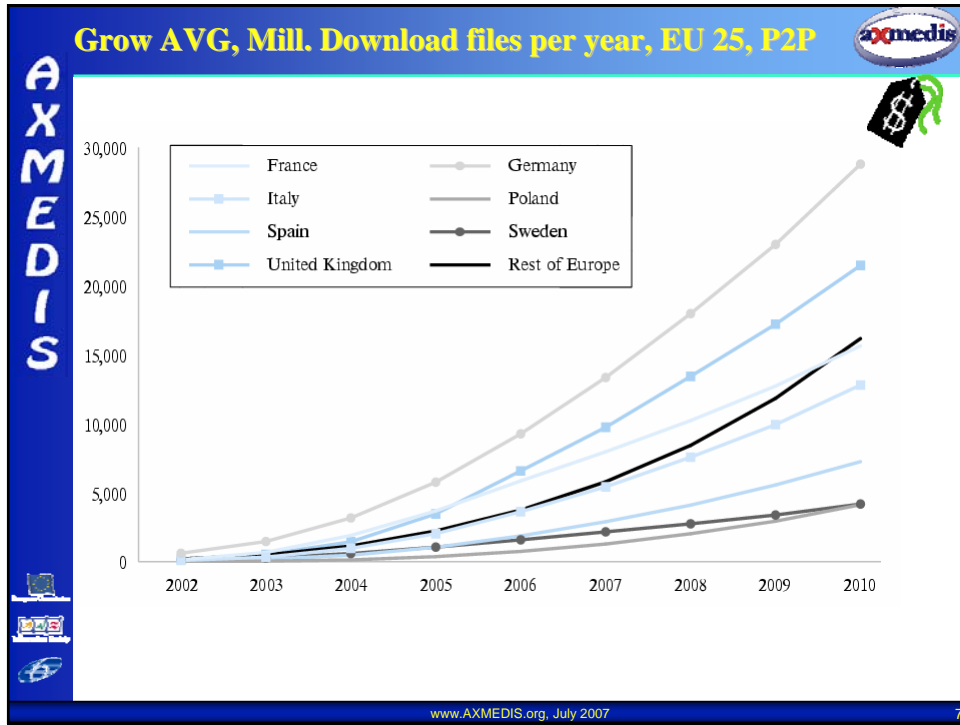


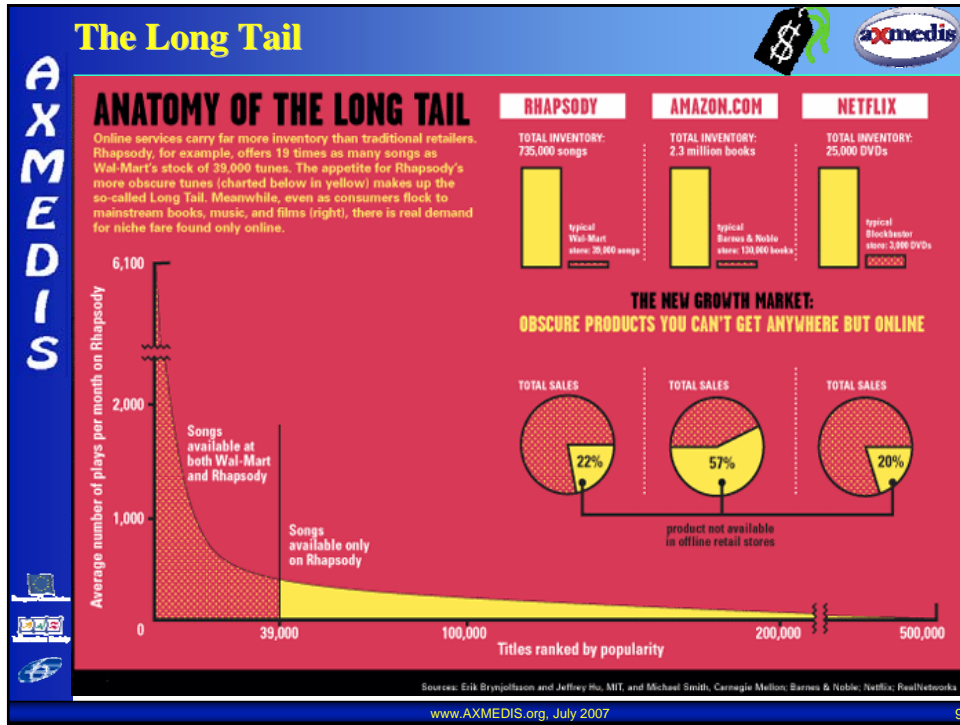
- **Currently, market of digital-content is growing very fast and it needs solutions for accessing new markets and defining/trial new business solutions**
- **Major needs:**
 - ◆ Convergence of the media, interoperability of content
 - ◆ Flexibility in the business and transaction models
 - ◆ DRM (Digital Rights Management) applications and introduction in several distribution channels, DRM interoperability
 - ◆ Harmonization of B2B and B2C areas for DRM
 - ◆ Massive processing in content production and distribution, and in license processing and event tracking
 - ◆ Open and unified architecture and solution for e-commerce of digital content
 - ◆ Etc.
- **These are a real challenge for many industries that are discovering the complexity of managing large digital content factories and distribution chains.**

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- AXMEDIS
- ## Technical Presentation Overview
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- www.AXMEDIS.org, July 2007

AXMEDIS



What is AXMEDIS ?

- **AXMEDIS is a consortium/project of the European Commission proposed by companies and institutions to solve a set of problems in the area of e-commerce of digital content**
 - ◆ approved by the EC for reaching specific objectives, among them the creation of an Open Platform for the digital content production, protection and distribution.
 - ◆ partially funded by the EC and partially from the Companies and Institutions involved
- **AXMEDIS is open to ALL via the Affiliation**
 - ◆ It is possible to join AXMEDIS, allowing you to access at the knowledge and tools/source code produced for your business

- **Start: 1st September 2004**
- **Cost: about 14 Meuro**
- **About 200 people are working on AXMEDIS every day**
- **More than 35 partners (contractors and affiliated)**

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AXMEDIS

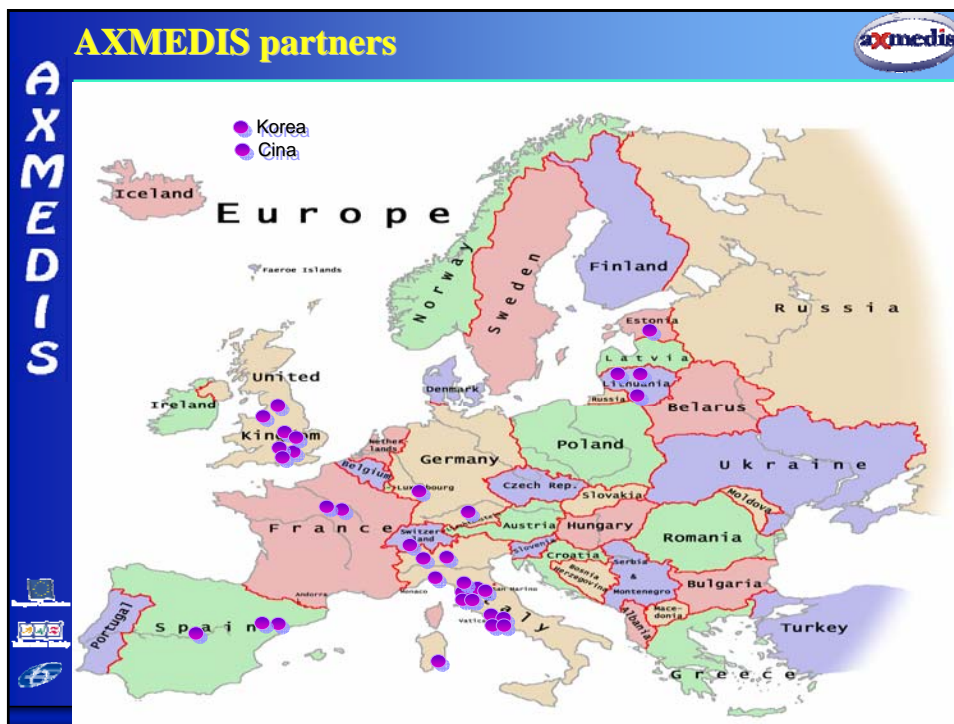


AXMEDIS Partners



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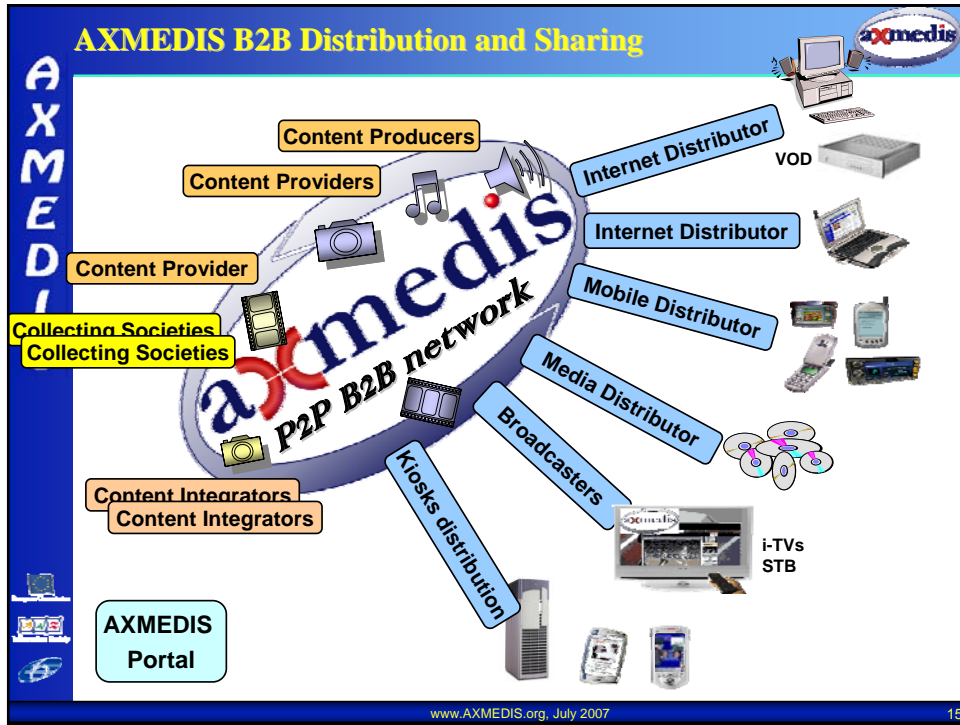
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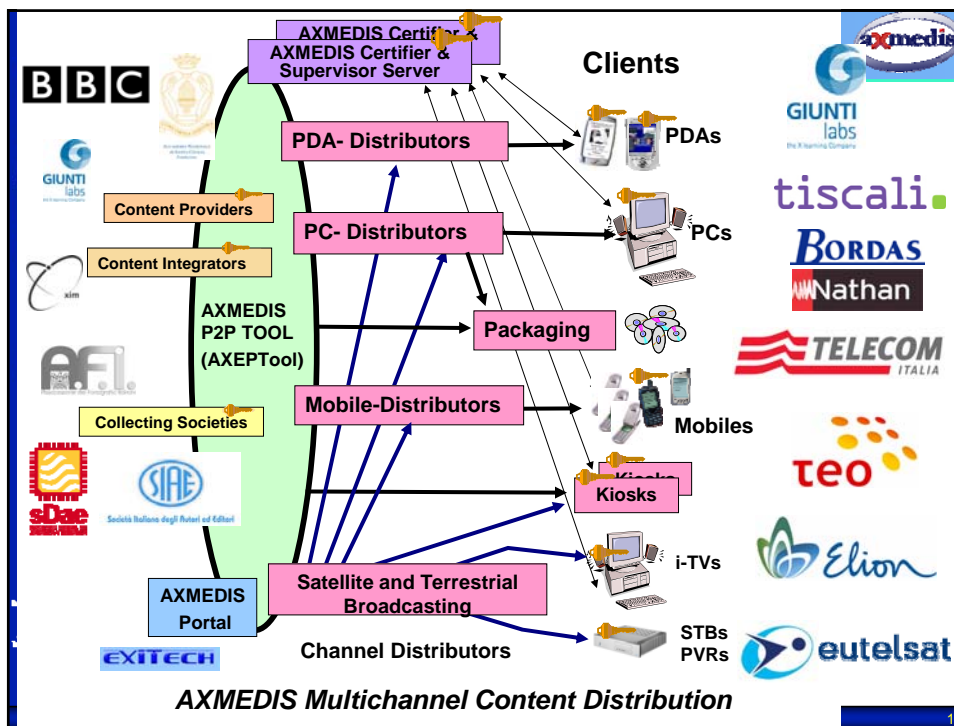
AXMEDIS Objectives

- **Perform research on enabling technologies to allow**
 - ◆ reduction of distribution and aggregation costs for content production, protection and management
 - ◆ using and exploiting new models, methods and tools for content production, protection and distribution
- **Create a unified European platform for content production and distribution:**
 - ◆ Supporting interoperability among different
 - content formats, cross media and simple resources
 - distribution channels (TV, PDA, mobile, kiosks, broadcasting,..)
 - DRMs (digital rights management) models (e.g., MPEG-21, OMA, Windows DRM, etc.)
 - ◆ Supporting massive processing for content production and distribution (on demand), license processing, event tracking, protection, tracking and DRM, exploitation of legacy CMSs
 - ◆ Enforcing flexibility in business and transaction models
 - ◆ Integration and Harmonization of DRM in B2B and B2C areas
 - ◆ Modeling secure/legal P2P content sharing for both B2B and B2C
 - ◆ Expanding and exploiting MPEG-21 standard

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- ### AXMEDIS Applications
- **Applicative areas of automated content production and protection**
 - ◆ Entertainment, edutainment, infotainment, educational, etc.
 - ➔ Real-time and non-real-time content distribution and sharing
 - ➔ Internet, P2P, broadcast, IPTV, mobiles, DVB-T, DVB-S, DVB-H, etc.
 - ◆ Other relevant applicative areas are:
 - ➔ banking, governmental, military and healthcare
 - **Technical Applications of AXMEDIS**
 - ◆ Massive and scalable production of content on demand
 - ◆ Content distribution: single and multi-channel
 - ◆ Content protection and DRM
 - ◆ Content recognition and monitoring
 - ◆ Content management and archive management
 - ◆ Content sharing among producers and distributors
 - ◆ Content integration and metadata enrichment
 - ◆ Content enrichment
 - ◆ Etc.
- www.AXMEDIS.org, July 2007 16

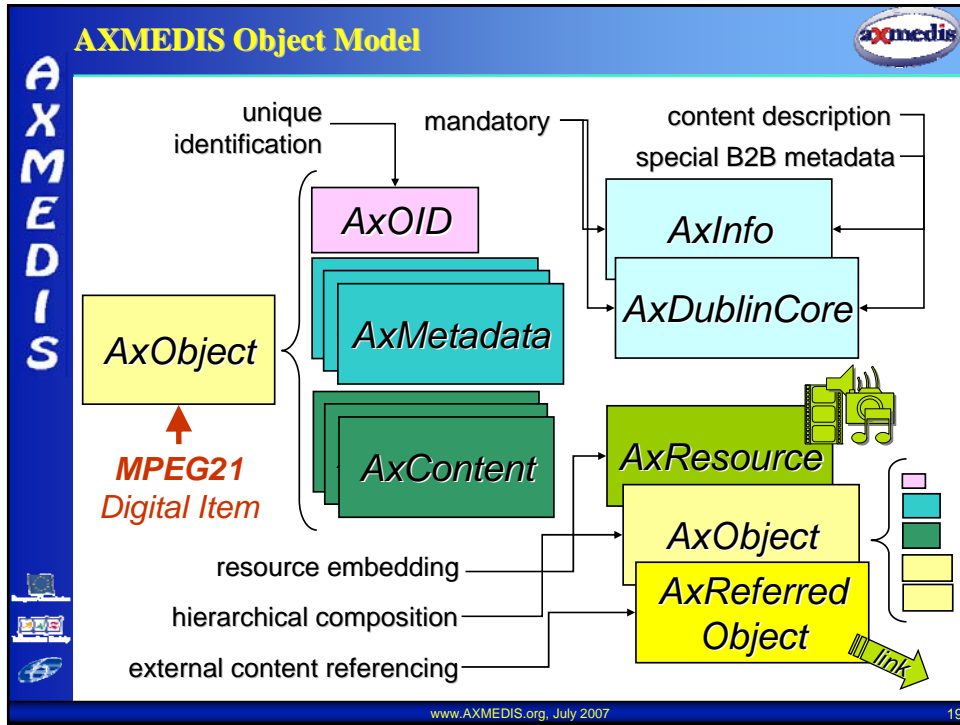


AXMEDIS Cross Media Content Model

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- **Model supporting B2B-B2C content production and transactions,**
 - ◆ for protected and non protected objects
- **Based on MPEG21 Digital Items**
- **Overcoming limitations in content modeling and DRM of Windows Media, I-Tune, Adobe, Google, etc.:**
 - ◆ Any kind of metadata and Any kind IDs
 - ◆ Cross media: any kind of digital resource
 - images, documents, video, audio, games, HTML, SMIL, MPEG-4, etc.;
 - ◆ Content components: composition and reuse;
 - ◆ DRM interoperability: MPEG-21 and OMA
 - ◆ DRM Chain of licenses: B2B and B2C integration;
 - ◆ Integration of semantics and behavior into the content.
- **Supporting legal/secure P2P for B2B and B2C/C2C**

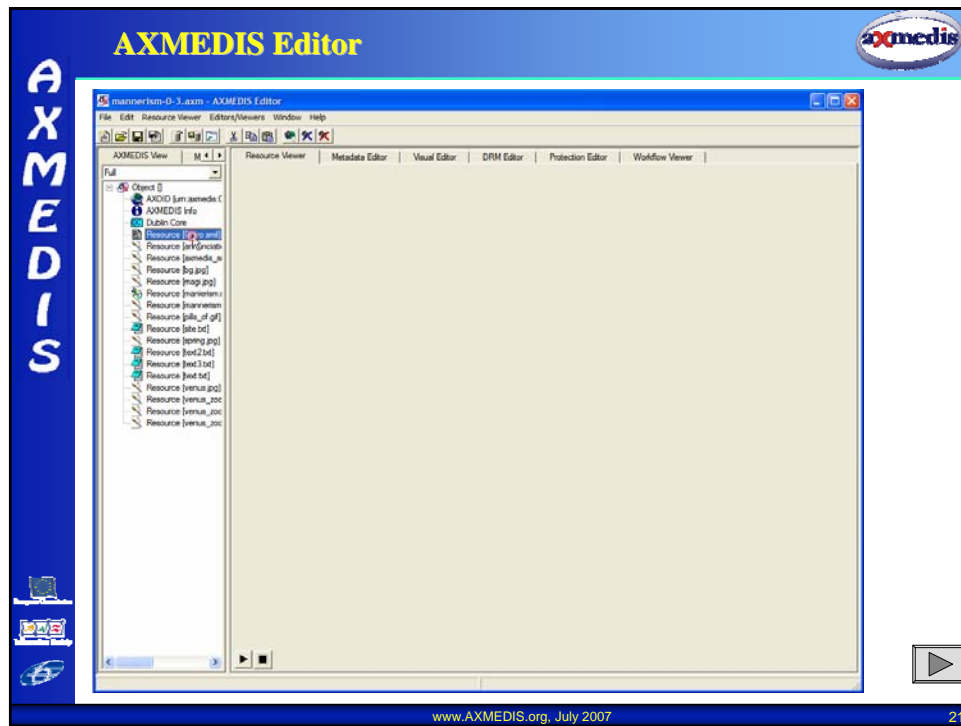
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AXMEDIS Authoring Editor

- **The AXMEDIS Editor is an application allowing**
 - ◆ manual production of AXMEDIS objects
 - ◆ inspection of automatically produced objects
 - ◆ finishing AXMEDIS objects pre-produced automatically
- **It integrates many Editors & Viewers to handle all the aspects of the AXMEDIS Objects production**
 - ◆ Resource
 - ◆ OBJ Composition
 - ◆ Metadata
 - ◆ DRM/Licenses
 - ◆ Protection
 - ◆ Presentation
 - ◆ Behavior
 - ◆ Etc....

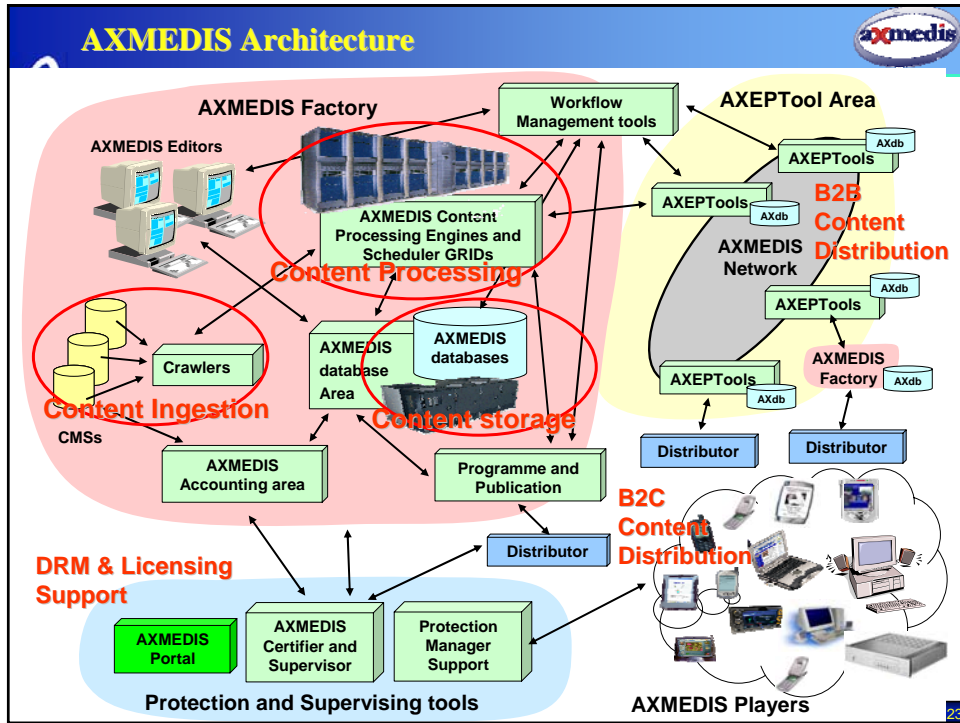
The screenshot shows the AXMEDIS Authoring Editor interface. The title bar reads 'AXMEDIS editor'. The menu bar includes 'File', 'Edit', 'Editors/Viewers', 'Players', 'Window', and 'Help'. The main window has a toolbar with icons for 'New', 'Open', 'Save', 'Print', 'Zoom In', 'Zoom Out', 'Home', 'End', 'Previous', and 'Next'. The main area displays a portrait of a man. On the right side, there is a context menu with options: 'Load', 'Fit', 'Zoom In', 'Zoom Out', 'Fullscreen', 'Show button', 'Show editor', 'Show button page', 'Show button zoom', 'Show audio', 'Play Audio', 'Show image', 'Show document', and 'Empty'. The bottom of the window shows the 'Image Viewer' status bar. The AXMEDIS logo is in the top right corner. At the bottom, the URL 'www.AXMEDIS.org, July 2007' and the number '20' are displayed.



Major AXMEDIS Tools

- **Players for cross media content:**
 - ◆ PC, PDA, STB, mobiles, etc.
- **DRM and protection support**
- **Content Production tools**
 - ◆ Authoring tools for cross media content: AXMEDIS Editor
 - for content, protection and licenses
 - ◆ Automated production tools for content, protection packages and licenses: AXCP, Workflow
 - ◆ CMS: search and retrieval, automated connection with your own and/or third parties CMSs
- **Content Distribution**
 - ◆ P2P tools for B2B and C2C in a controlled and safe/legal manner: AXEPTool, AXMEDIA
 - ◆ User and tool Registration portals
 - ◆ Certification authority, AXCA
 - ◆ License Server and Certifier and Verificator, PMS/AXCS
 - ◆ Scheduling: Program and publication, Workflow, etc.
 - ◆ Distribution Portal

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AXMEDIS players

- PC players with full functionalities**
 - Stand Alone Player for Windows
 - Version with Replaceable skins
 - Active X Player for Windows, for:
 - Integrating player in Html pages
 - Microsoft Internet Explorer Browser
 - Macromedia tools Authorware
 - Realising customised AXMEDIS Players based on .NET
 - Plug in for Mozilla Internet Browser
 - Integrating player in Html pages
 - Two different skins
- PDA player:**
 - MPEG-4 player, later SMIL
- STB player:**
 - it will be ready for April 2007
 - MPEG-2, MPEG-4
- Mobile player:**
 - A pure Java player will be ready for April 2007
 - SMIL or SVG support
 - with Audio Visual, MMAPi of Java

The slide includes a collage of screenshots showing various media player skins and interfaces, such as 'BattleCell', 'The Allegory of Spring', and 'Education Player'.

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Cross Media for PC

The screenshot shows the AXMEDIS Editor application. The left pane displays a hierarchical file tree with folders like 'AXMEDIS View', 'MP3G21 View', 'Resource Viewer', 'Metadata Editor', 'Visual Editor', 'CFM Editor', 'Protection Editor', and 'Workflow Viewer'. The right pane shows a 'Resource Viewer' displaying a document with the title '2921 Rossini Gioacchino, aggregato come maestro compositore onora' and several thumbnail images of handwritten musical manuscripts.

AXMEDIS

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the X-learning Company

tiscali

SEJER
BORDAS

Nathan

EXITECH

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Cross media Player as Active X, for MS IE and .NET applications

The screenshot shows the AXMEDIS Player application. The main content area displays a sports-related image of a man in a light blue shirt, likely a coach or manager, with a 'Club Italia' logo above it. Below the image, there is text: 'Federazione Italiana Giuoco Calcio www.figc.it - All Rights Reserved'. The interface includes a menu bar (File, Play, Resource panel, Help) and a status bar at the bottom.

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Cross media Player for PC (on Mozilla)

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Cross Media Player for PDA with HTML, SMIL, MPEG-4

AXMEDIS

more than 2000 years ago. In a very similar fashion the various angels are offering and launching several kind of flowers, some of them are typical of regions very far from Palestine, some are typical of mountain environment. Others are used just because in western tradition (an in particular in Italian one) had a very special meaning like the Bellis Perennis (daisy), which is used to represent Christ incarnation. Similar Centaurea Cyanus (cornflower) was associated to Christ's death and resurrection. In the ox in the aside painting there are depicted around different kinds of flowers (red lines delimita painting portions holding most of them), each with a specific purpose in the composition and holding a symbolic meaning. Pupils will have to find out how many of the represented flowers





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AXMEDIS Player with Skin: HTML example

the period expedient, artist used create spa illusions, drawing th gaze towa the landsc that is frar by the window. I realism of setting, however, does not preclude t presence of some symbolic elements typical of Annuncia such as th libly, an attribute o the Virgin

Annunciation
1489-1490 (Botticelli)
tempera on wood; 150 x 156
Firenze, Galleria degli Uffizi

The Skin can be customized by replacing some images and XML data.

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Cross media Player for Mobiles with SMIL, etc..

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tiscali.

MIDnet Help

Mandolino

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AXMEDIS Player for STB, PVR, Decoders, etc.

Id	Content
101	Ax MP4 clip
102	Ax MP2-TS clip
103	AX DIVX clip

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AXMEDIS Player .NET ActiveX: some examples

Based on AXOM

.NET usage of the AXMEDIS Active X

Example with MPEG-4 Content

..

AXMEDIS Player

File



- Object []
- AXOM [jrun:axom]
- Disable Core
- Resource [jrun]

1/1

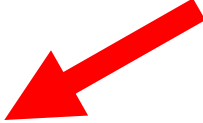
Play/Pause Stop

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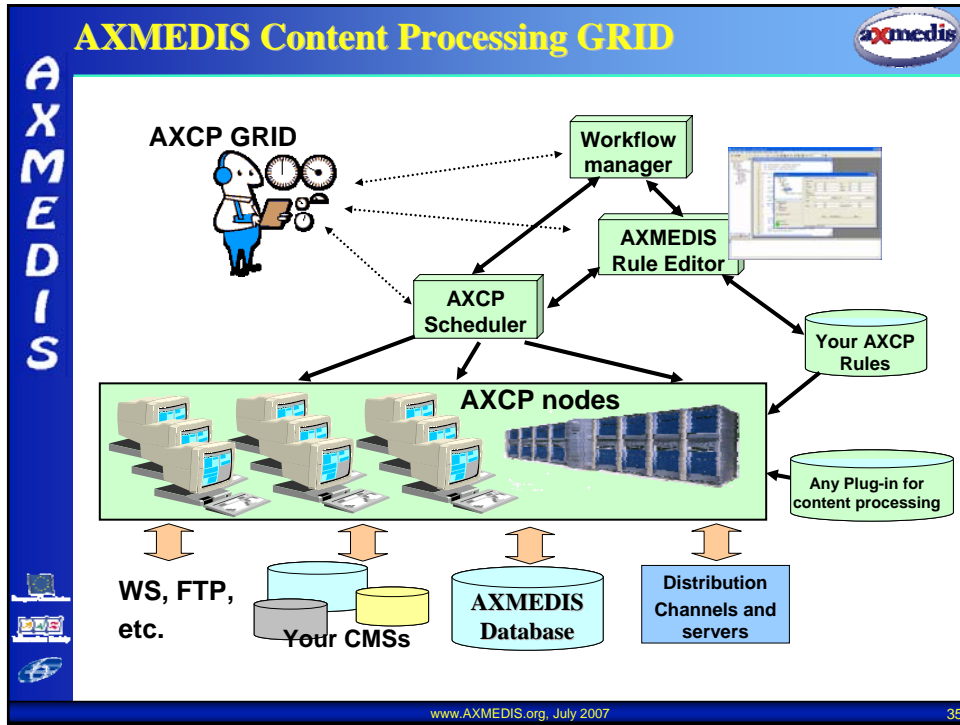
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AXMEDIS Content Processing Capabilities

- **Automated Content Ingestion and Gathering**
- **Automated Content Query and Retrieval**
- **Automated Content Load and Storage: databases and files**
- **Automated Content and Metadata Processing**
- **Automated Data processing**
- **Automated Content Composition**
- **Automated Content Formatting**
- **Automated Content Protection**
- **Automated Content Licensing**
- **Automated Content Publication/Download on/from:**
 - ◆ Any channel including P2P Network
- **Automated Content Distribution**
- **Automated Profile management and processing**
- **Automated Production of Content on Demand**

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AXMEDIS Content Processing Editor, AXCP Editor

```
print("Creating MASTER Copy of AXMEDIS Object");
var masterObj = new AxmedisObject();
print("Embedding resource into MASTER Axmedis Object");
masterObj.addContent(resource);
var label = resTitles["MASTER"];
createC(masterObj, label, resource.mimeType);
if(!fillObjectCreatorCredentials(masterObj))
return false;
var axInfo = masterObj.getAxInfo();
axInfo.distributorAXID=AXID;
creatorID = axInfo.getObjectCreatorAXID();
print("Adding PAID to MASTER (A,B,C type)");
if(!addPar(masterObj))
return false;

print("Uploading non protected MASTER object on DB: "+masterObj.AXOID);
if(!masterObj.uploadToDB(AXDBF_serverEndPoint, AXDBF_user, AXDBF_password, AXDBF_username))
{
var error = "Upload request failure: "+masterObj.AXOID;
print(error);
return false;
}
var filename = masterObj.AXOID.resId+".axm";
masterObj.save(backUpFolder+"/"+filename);
appendToFile(productionFile, "AXMEDIS Rule Editor: "+resTitles["title"]+"\n");
masterObj.dispose();
masterObj = null;
return true;
```

GRID technology
Automate your BackOffice

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AXMEDIS P2P for B2B: AXEPTool

#	Media name	Incremental	Upload rate	Downloaded	Size	Progress	Remaining	Elapsed time	Start date	End date	ACDID	Status
9	FC 4.008 DVD.iso	0	267.42 KB/s [1]	256.12 MB [1]	3.89 GB	54.11%	2.61 GB	2 h 51 m 20 s	14 Feb 07	19 Mar 07		Download...
14	AXMEDIS DVD Tools Docs Examples Tutorials March 2007...	0	1.41 MB/s [1]	4.31 GB	4.31 GB	100.00%	0	0 s	Tue Apr 03	Tue Apr 03		Seeding
52	haxmex.jpg	0	0 bytes/s [0]	103.06 kb	103.06 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
51	Audio Collection2.zip	0	0 bytes/s [0]	18.87 MB	18.87 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
50	AXEPTool User Manual and Installation Guide v1.1.pdf	0	0 bytes/s [0]	902.19 kb	902.19 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
49	AXEPTool User Manual and Installation Guide v1.1.1.pdf	0	0 bytes/s [0]	1.42 MB	1.42 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
48	axmedis_2006_general_tutorial_part1.1.mp3	0	0 bytes/s [0]	363.57 MB	363.57 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
47	AXMEDIS_2006_General_Tutorial_Part2.1.mp3	0	0 bytes/s [0]	445.66 MB	445.66 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
46	AXMEDIS_2006_General_Tutorial_Part3.1.mp3	0	0 bytes/s [0]	536.19 MB	536.19 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
45	axmedis_2006_general_tutorial_part4.1.mp3	0	0 bytes/s [0]	267.77 MB	267.77 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
44	axmedis_2006_general_tutorial_part5.1.mp3	0	0 bytes/s [0]	454.05 MB	454.05 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
43	axmedis_2006_general_tutorial_part6.1.mp3	0	0 bytes/s [0]	459.08 MB	459.08 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
42	AXMEDIS_2006_General_Tutorial_v1.1.pdf	0	0 bytes/s [0]	5.24 MB	5.24 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
41	AXMEDIS_Frameworks_and_Tools.exe	0	0 bytes/s [0]	31.89 MB	31.89 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
40	AXMEDIS_Specifics.exe	0	0 bytes/s [0]	52.05 MB	52.05 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
39	chdMall2.exe	0	0 bytes/s [0]	1.89 MB	1.89 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
38	Flash-example-2-AXMEDIS-WEBSI.exe	0	0 bytes/s [0]	1.87 MB	1.87 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
37	Flash-example1.exe	0	0 bytes/s [0]	26.54 kb	26.54 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
36	haxmex.exe	0	0 bytes/s [0]	26.03 MB	26.03 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
35	haxmex.exe	0	0 bytes/s [0]	30.84 MB	30.84 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
34	haxmex.exe	0	0 bytes/s [0]	2.67 MB	2.67 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
33	haxmex.exe	0	0 bytes/s [0]	42.28 MB	42.28 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
32	haxmex.exe	0	0 bytes/s [0]	74.17 MB	74.17 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
31	haxmex.exe	0	0 bytes/s [0]	13.84 MB	13.84 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
30	AXMEDIS_Editor.exe	0	0 bytes/s [0]	19.57 MB	19.57 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
29	AXMEDIS_Web_Viewer.exe	0	0 bytes/s [0]	7.57 MB	7.57 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
28	axcp_1_utilities.exe	0	0 bytes/s [0]	243.79 kb	243.79 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
27	haxmex.exe	0	0 bytes/s [0]	99.87 kb	99.87 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
26	haxmex.exe	0	0 bytes/s [0]	15.75 kb	15.75 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
25	haxmex.exe	0	0 bytes/s [0]	89.58 kb	89.58 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
24	chdMall2.exe	0	0 bytes/s [0]	1.42 MB	1.42 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
23	haxmex.exe	0	0 bytes/s [0]	2.41 MB	2.41 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
22	haxmex.exe	0	0 bytes/s [0]	212.89 kb	212.89 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
21	haxmex.exe	0	0 bytes/s [0]	2.67 MB	2.67 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
20	haxmex.exe	0	0 bytes/s [0]	3.58 MB	3.58 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
19	Audio Collection.exe	0	0 bytes/s [0]	179.85 kb	179.85 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
18	haxmex.exe	0	0 bytes/s [0]	19.84 kb	19.84 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
17	haxmex.exe	0	0 bytes/s [0]	450.82 kb	450.82 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
16	haxmex.exe	0	0 bytes/s [0]	385.28 MB	385.28 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
15	AXMEDIS_Downloaders.exe	0	0 bytes/s [0]	15.54 MB	15.54 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
14	haxmex.exe	0	0 bytes/s [0]	2.88 MB	2.88 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
13	haxmex.exe	0	0 bytes/s [0]	1.86 MB	1.86 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
12	haxmex.exe	0	0 bytes/s [0]	56.52 MB	56.52 MB	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
11	haxmex.exe	0	0 bytes/s [0]	450.82 kb	450.82 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
10	haxmex.exe	0	0 bytes/s [0]	61.89 kb	61.89 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
9	haxmex.exe	0	0 bytes/s [0]	450.82 kb	450.82 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30	ver1.com.com	Seeding
8	haxmex.exe	0	0 bytes/s [0]	27.05 kb	27.05 kb	100.00%	0	0 s	Fri Mar 30	Fri Mar 30		Seeding
7	haxmex.exe	0	0 bytes/s [0]	15.32 MB	15.32 MB	100.00%	0	0 s	Mon Apr 02	Mon Apr 02		Seeding
6	haxmex.exe	0	0 bytes/s [0]	3.11 MB	3.11 MB	100.00%	0	0 s	Mon Apr 02	Mon Apr 02	ver1.com.com	Seeding
5	AXMEDIS_DES v1.1 AXMEDIS User Manuals v1.1.2 edition...	0	0 bytes/s [0]	97.80	97.80	100.00%	0	0 s	Tue Apr 03	Tue Apr 03		Seeding
4	haxmex.exe	0	0 bytes/s [0]	3.40	3.40	100.00%	0	0 s	Tue Apr 03	Tue Apr 03	ver1.com.com	Seeding
3	haxmex.exe	0	0 bytes/s [0]	532.76	532.76	100.00%	0	0 s	Tue Apr 03	Tue Apr 03		Seeding
2	haxmex.exe	0	0 bytes/s [0]	15.32 MB	15.32 MB	100.00%	0	0 s	Tue Apr 03	Tue Apr 03		Seeding
1	haxmex.exe	0	0 bytes/s [0]	292.81 MB	292.81 MB	100.00%	0	0 s	Wed Apr 04	Wed Apr 04		Seeding

AXMEDIS P2P Tools


- **AXMEDIS P2P tools for content sharing respecting IPR**
 - ◆ Content Distribution and P2P file sharing based on BitTorrent
 - ◆ DRM support, supervision and control
 - ◆ Certified metadata, etc.
- **AXEPTool**
 - ◆ Only for B2B
 - ◆ Technical queries and information:
 - ➔ Features, descriptors, duration, formats, license information, distribution model, etc.
 - ◆ Automated loading and publication via the AXCP tools
 - ◆ Control and certification of metadata
- **AXMEDIA tool:**
 - ◆ Only for C2C and B2C
 - ◆ Simple queries on simple user focussed metadata
 - ◆ Simple management of files on the file system
 - ◆ Control and certification of metadata

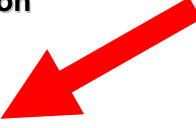
AXMEDIS Considerations




- **AXMEDIS mainly adopt the Open Model, any other model can used for your distribution channel according to your needs and business**
- **AXMEDIS supports your:**
 - ◆ Content Production:
 - New forms of protected content, CROSS MEDIA
 - ◆ Automated content production with GRID processing for
 - production, protection and distribution, for transcoding and on-demand, for licensing, directly your CMSs
 - Accessing/managing data flow with any databases
 - ◆ Content Distribution
 - Multichannel, cross media content
 - reducing your costs for setting up, production and distribution
 - B2B/B2C distribution with P2P and DRM
 - ◆ Content protection and DRM
 - Many many new business models
 - Interoperable MPEG-21 ↔ OMA licenses
 - ◆ Integration with Workflow
 - ◆ Content supervision and control with AXMEDIS DRM tools
 - ◆

AXMEDIS

Technical Presentation Overview





- **Preface and Motivations**
- **AXMEDIS Overview**
 - ◆ What is AXMEDIS
 - ◆ Cross Media Content, AXMEDIS Editor
 - ◆ AXMEDIS Major Tools, Players
- **AXMEDIS Automated Content production**
 - ◆ AXMEDIS CP GRID
 - ◆ AXMEDIS P2P Distribution
 - ◆ Content Posting Portal
- **Digital Rights Management and Protection** 
- **Applications and Demonstrators**
 - ◆ TISCALI, EUTELSAT, ILABS,
 - ◆ P2P Content Sharing
 - ◆ VARIAZIONI Project
 - ◆ Production on Demand
 - ◆ DRM and Interoperability
 - ◆ SIAE Trial, video
- **AXMEDIS Framework how to...**




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AXMEDIS Digital Rights Management

- **To allow accessing at the digital content functionalities in a controlled manner**
 - ◆ To who has been registered the first time and continuously: **authenticated and certified**
 - ◆ To do what is defined in a **license** (to allow exploiting the rights)
 - ◆ By using technologies to **protect content** (e.g., encryption, fingerprint, watermark, etc.)
 - ◆ **Verifying/Control/Supervise** if the above conditions and others are respected

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MPEG-21 REL data model

```

    graph TD
      right[right] -- issued to --> principal[principal]
      right -- associated with --> resource[resource]
      right -- subject to --> condition[condition]
  
```

● REL grant consists of

- ◆ principal to whom grant is issued
- ◆ rights the grant specifies
- ◆ resource to which right in grant applies
- ◆ condition to be met before grant can be exercised

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An example of statement

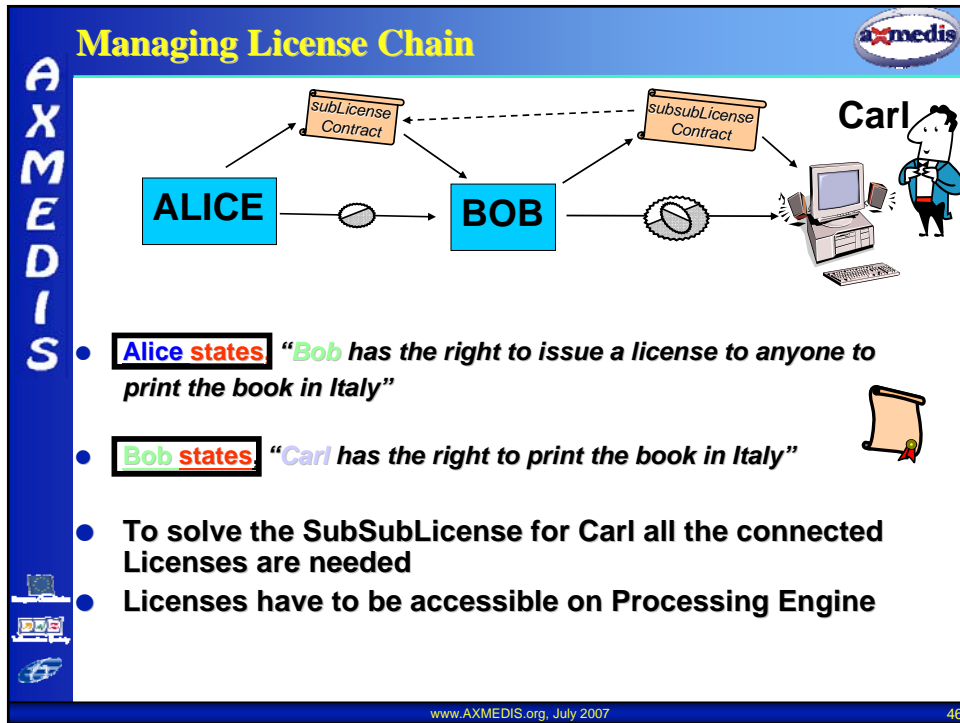
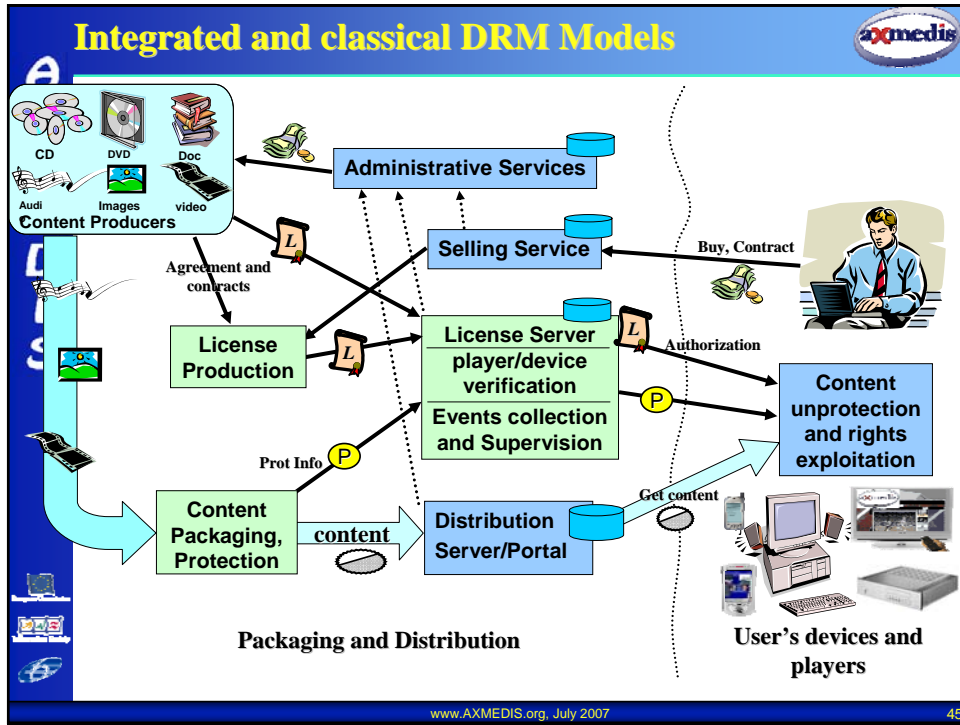
Condition = November 2003

Resource = Ocean Wilds



Right = Play

- Rosy can Play 3 times the Ocean Wilds in November 2003.

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List of Events/Actions on rights Exploitation



- **Collecting Events and Actions**
 - ◆ Further reporting
 - ◆ Further verification of consistency
 - ◆ provide the evidence about the exploitation of rights to: content owners, producers, collecting societies, distributors, etc.
 - ◆ provide the billing information to the final user
 - ◆ provide the statistical information
- **Counting the usage, exploitation of rights**
 - ◆ how many times a music piece has been played, how many print out have been produced, etc.
 - ◆ Dynamic definition of price for example...
- **MPEG-21 Event Reporting**
 - Specifies how to express ER-Request and Event Report and how they are represented as digital item

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Reporting, accounting manager and tool, examples

- **Reporting to Distributor**
 - ◆ Each exploited right with references to the User-ID for each distributed object (objects that contains its Dist-ID)
- **Reporting to the Integrator/creator**
 - ◆ Who create new object from other objects or from scratch
 - ◆ The number of exploited rights for each object that contains the Creator-ID and the Dist-ID for each of them
- **Reporting for the Collecting societies, CS**
 - ◆ Who is monitoring the exploited rights for third parties, for other creators
 - ◆ The number of exploited rights for each Creator-ID associated with the CS, for each object that contains the Creator-ID and the Dist-ID for each of them, in a certain Geographic Region or State

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AXMEDIS Accounting and reporting

Result: 0
Number of collected Logs: 237

URN	AXMEDIS Version	AXMEDIS AXMEDIS AXMEDIS	Execution Timestamp	Owner Name	Location	Operation Id	Operation Details Id	Protection Stamp	Registration Timestamp
1	URN AXMEDIS 00001	OBJ 9F378B83-1C09-32AF-98E5-360DF2634499							97
2	URN AXMEDIS 00001	OBJ 68D93560-DB0D-3DD8-9E54-39555FCDD19F							15
3	URN AXMEDIS 00001	OBJ 91551FDD-FBEF-3DD8-9E54-39555FCDD19F							15
4	URN AXMEDIS 00001	OBJ B1AFE1BF-4AEC-3A21-84B5-9F3705362D9E							13
5	URN AXMEDIS 00001	OBJ D5F1383D-B731-3EFC-AC07-6329141C420F							12
6	URN AXMEDIS 00001	OBJ 82EF315B-47C9-3774-A82A-3671CF4A89DA							10
7	URN AXMEDIS FFFFF	OBJ 8640C1							
8	URN AXMEDIS 00001	OBJ 0C9347F							
9	URN AXMEDIS 00001	OBJ 76AA47F							
10	URN AXMEDIS 00001	OBJ CBS32B							

AXMEDIS Copyright

AXCS Logs manager

Polar already started!

2006-12-11 15:36:21 - no record inserted, result code from server: 1 (No data from CD)

2006-12-11 15:36:35 - no record inserted, result code from server: 1 (No data from CD)

2006-12-11 15:40:20 - no record inserted, result code from server: 1 (No data from CD)

2006-12-11 15:42:56 - no record inserted, result code from server: 1 (No data from CD)

2006-12-11 15:44:20 - no record inserted, result code from server: 1 (No data from CD)

2006-12-11 15:46:20 - no record inserted, result code from server: 1 (No data from CD)

© Eutelsat 2005-06
Custom

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Monitor the exploitation of YOUR rights


Technical Presentation Overview

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 - ◆ SIAE Trial, video
- AXMEDIS Framework how to...

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AXMEDIS




AXMEDIS Applications/Demonstrators

- **Multichannel Architecture for distribution**
- **Distribution towards:**
 - ◆ PCs via Internet+P2P: TISCALI Media Club, DSI
 - ◆ PCs via Satellite data broadcast: EUTELSAT, MBI
 - ◆ PDA via Kiosks: ILABS + ANSC Kiosks, TISCALI, DSI
 - ◆ STBs:
 - DVB-T, VOD: TEO and ELION (telecom Lithuania and Estonia)
 - STB/PVRs via Satellite data broadcast: EUTELSAT, MBI
 - ◆ Mobiles:
 - MPEG-21 distribution to mobiles: ILABS, TISCALI, DSI
 - OMA based distribution to mobiles: Telecom Italia, DSI
 - ◆ DVB-T + home domains/media center: BBC, SDAE, ETRI, UPC
- **P2P distribution with AXMEDIS**
 - ◆ B2B content distribution
 - ◆ C2C content distribution and sharing
 - ◆ Sharing content among archives and mediateques
- **Content Enrichment:**
 - ◆ VARIAZIONI (other 10 partners): GERMINUS, RIGEL, ALBENIZ, UPC, etc. (www.variazioni.org)


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AXMEDIS



TISCALI Distribution with AXMEDIS Technology



- **B2C distribution**
- **AXMEDIS objects with**
 - ◆ Video and Audio Files, and also MPEG-4
- **Licenses and Protection Information not in the object**
- **The AXMEDIS Objects may be**
 - ◆ shared among consumers with AXMEDIA Tool a P2P tool
 - ◆ Visualized and played on AXMEDIS players free downloaded
- **The users have to perform the registration of**
 - ◆ themselves on an AXMEDIS portal
 - ◆ any AXMEDIS player tool they would use
 - ◆ Mainly on PCs and Media Centers. PVRs
- **License allows**
 - ◆ Content sharing on AXMEDIA
 - ◆ Content play
 - ◆ Content Adaptation...
 - ◆ Content Migration on other P2P channels...
 - ◆ Content Migration on any other AXMEDIS terminal



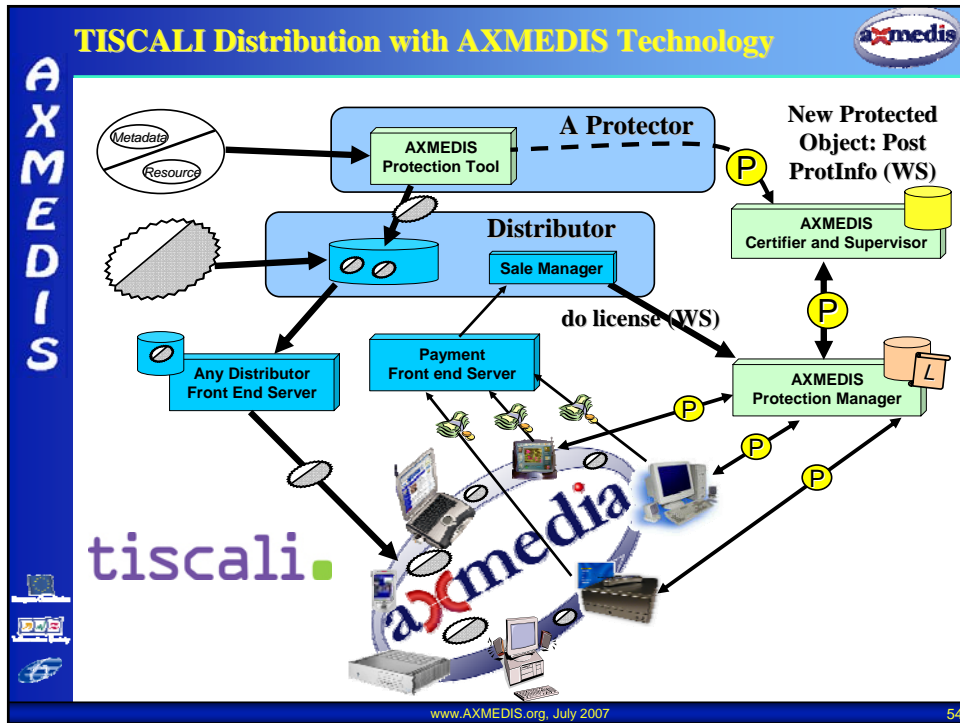
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TISCALI Media Club



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AXMEDIS

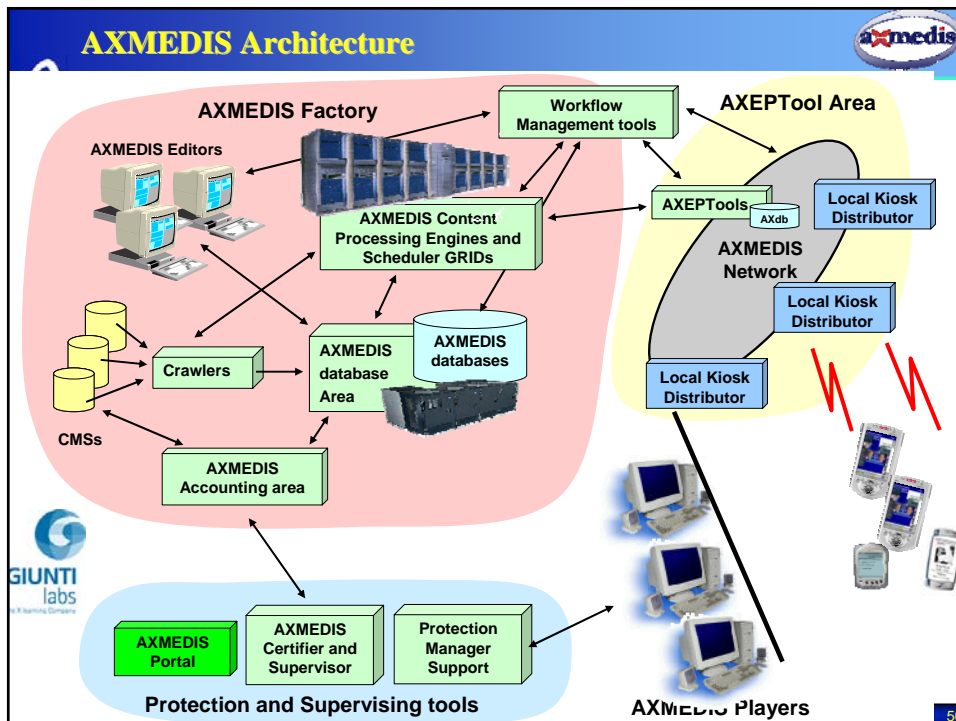



ILABS Distribution with AXMEDIS technology


- **B2B and B2C distribution**
- **AXMEDIS objects with**
 - ◆ Educational and cultural content,...
 - ◆ Video, images, document, audio, animations, etc.
- **Licenses and Protection Information not in the object**
- **The AXMEDIS Objects may be**
 - ◆ Visualized and played on AXMEDIS players free downloaded
- **The users have to perform the registration of**
 - ◆ themselves on an AXMEDIS portal
 - ◆ any AXMEDIS player tool they would use
 - ◆ Mainly on PDA and mobiles
- **License allows**
 - ◆ Content play
 - ◆ Content Adaptation...
 - ◆ Content Migration on any other AXMEDIS terminal, in some cases

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AXMEDIS




EUTELSAT Distribution with AXMEDIS technology

AXMEDIS

- **B2B and B2C distribution**
- **AXMEDIS objects with**
 - ◆ Any kind of content,...
 - ◆ Video, images, document, audio, animations, etc.
- **Licenses and Protection Information not in the object**
- **The AXMEDIS Objects may be**
 - ◆ Visualized and played on AXMEDIS players free downloaded
- **The users have to perform the registration of**
 - ◆ themselves on an AXMEDIS portal
 - ◆ any AXMEDIS player tool they would use
 - ◆ Mainly on PC for TV and/or i-TV
- **License allows**
 - ◆ Content play
 - ◆ Content Adaptation...
 - ◆ Content Migration on any other AXMEDIS terminal, in some cases

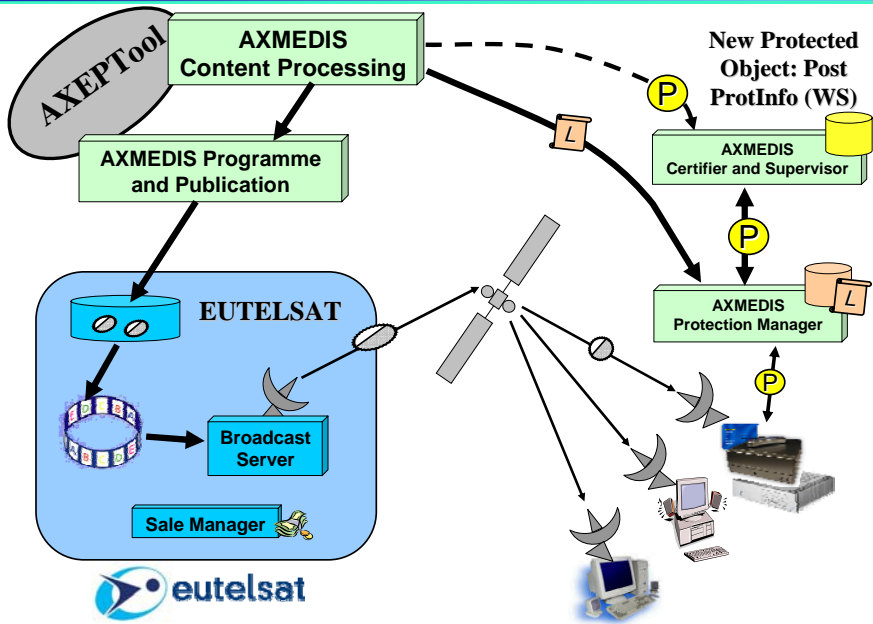


AXMEDIS




EUTELSAT Distribution with AXMEDIS Technology


AXMEDIS



The diagram illustrates the AXMEDIS distribution workflow. It starts with 'AXMEDIS Content Processing' (receiving input from 'AXEPT Tool') leading to 'AXMEDIS Programme and Publication'. This feeds into the 'EUTELSAT' system, which includes a 'Broadcast Server' and a 'Sale Manager'. The content is then distributed via satellite to various terminals. On the right, the 'AXMEDIS Protection Manager' handles 'New Protected Object: Post ProtInfo (WS)', involving an 'AXMEDIS Certifier and Supervisor'. The flow is marked with 'L' (License) and 'P' (Protection) icons.




AXMEDIS




EUTELSAT Distribution with AXMEDIS Technology

AXMEDIS




EUTELSAT Distribution with AXMEDIS Technology

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EUTELSAT Distribution with AXMEDIS Technology

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EUTELSAT Distribution with AXMEDIS Technology

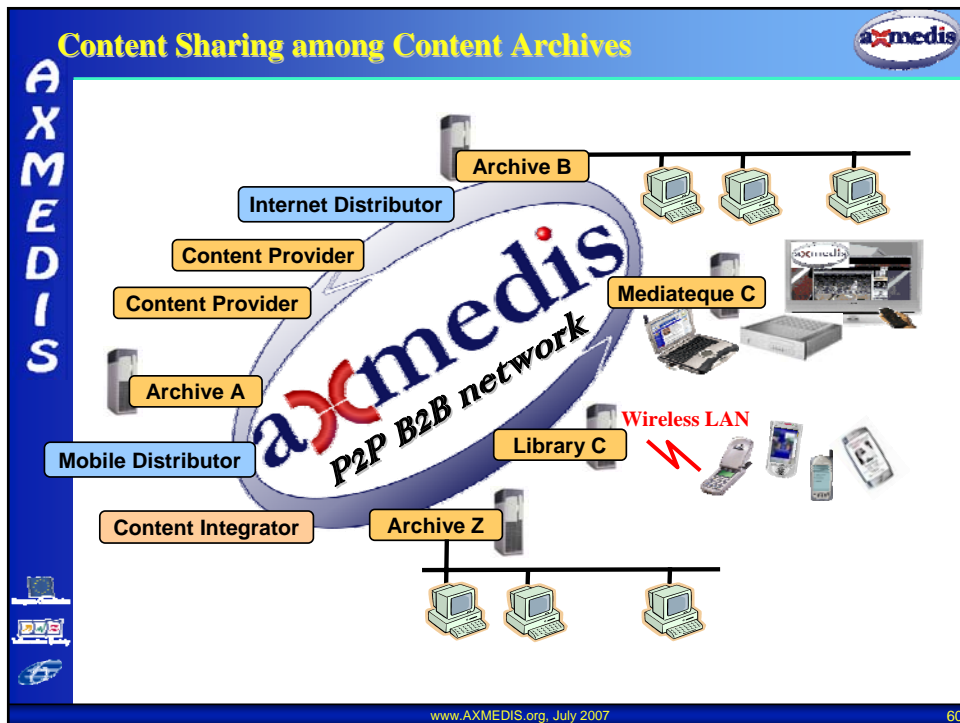
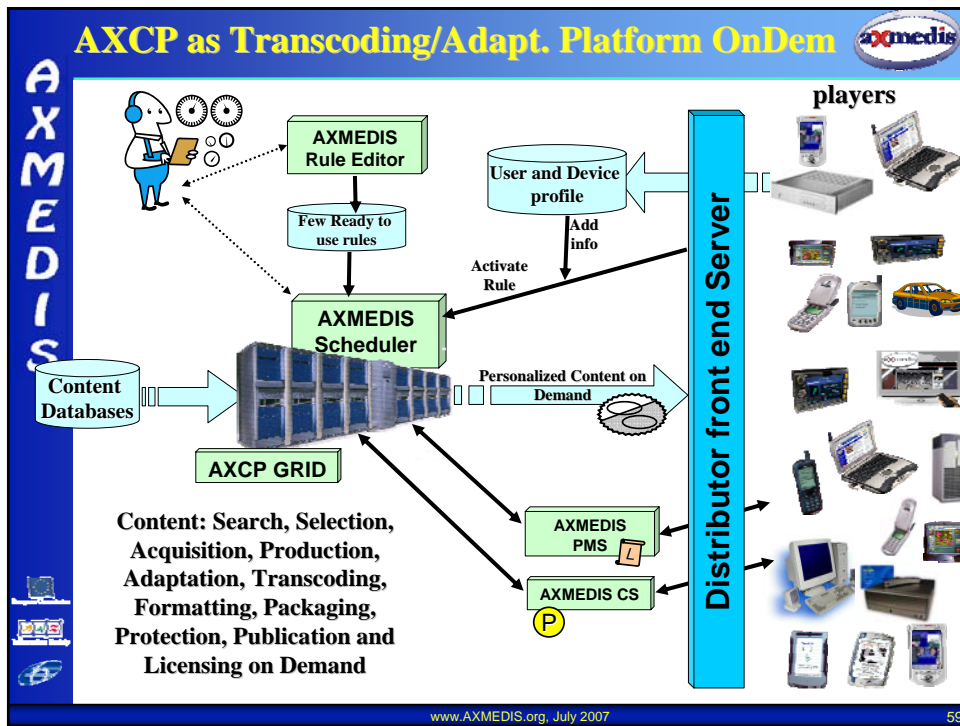
AXMEDIS



EUTELSAT Distribution with AXMEDIS Technology

AXMEDIS





AXMEDIS

For Content Enrichment with **VARIAZIONI**

- **700 hours of audiovisual**
 - ◆ Master classes of famous magisters (Harmos)
 - ◆ Concerts
 - ◆ Conferences
 - ◆ Special Events...
- **1000 hours of audio**
 - ◆ Concerts
 - ◆ Lessons
 - ◆ Rehearsals of concerts
 - ◆ Popular Songs...
- **2000 historic documents**
 - ◆ Programs of concerts
 - ◆ Letters
 - ◆ Scores
 - ◆ Images
 - ◆ Articles
 - ◆ Pedagogical Material






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AXMEDIS

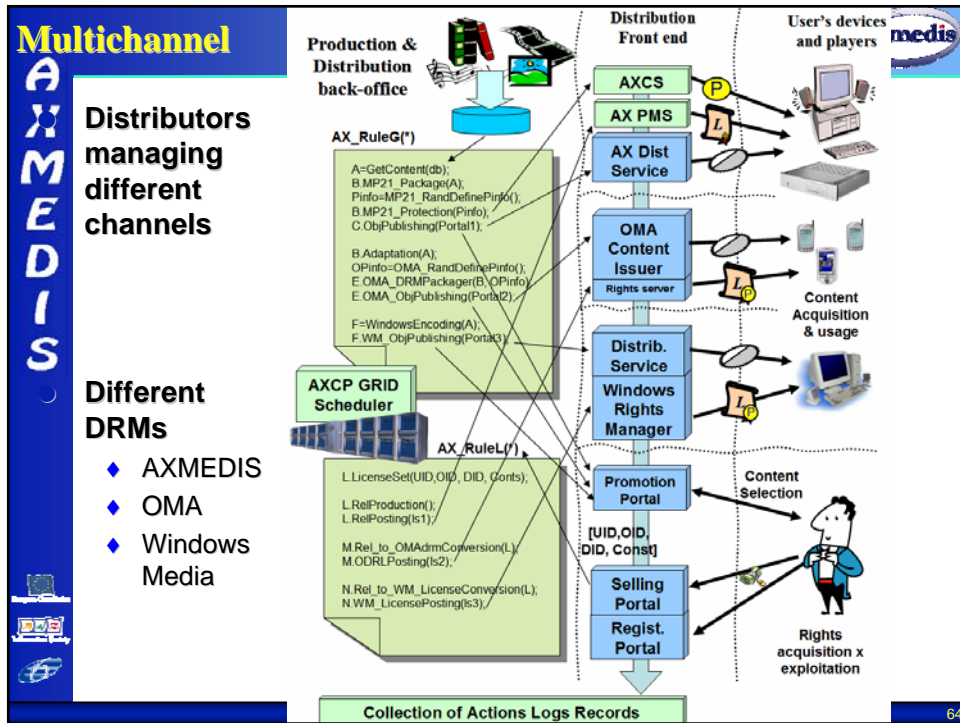
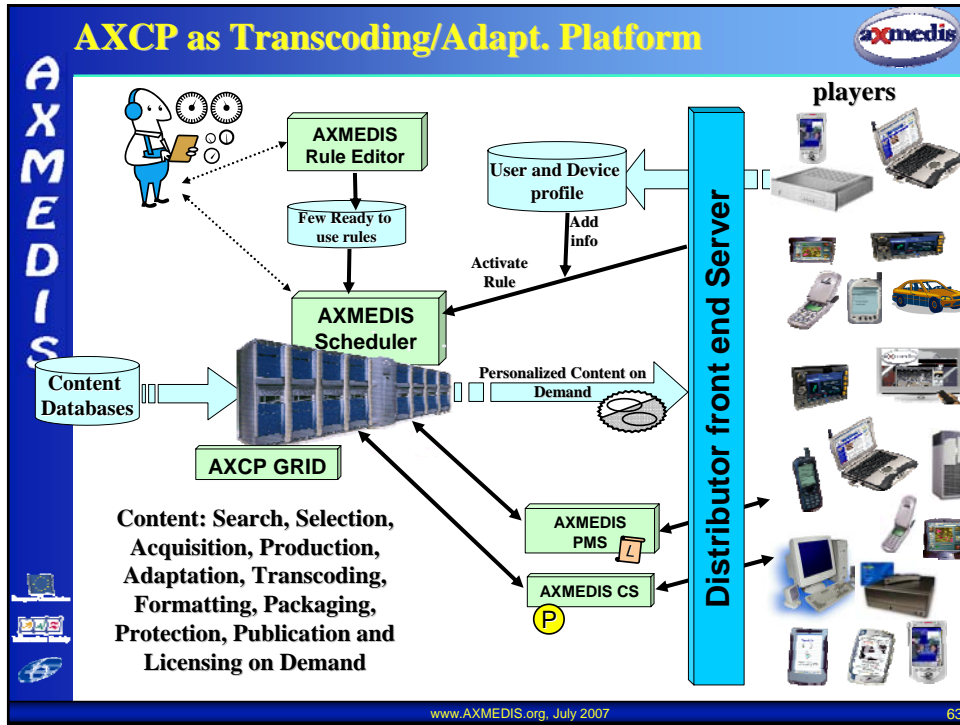
Partners in **VARIAZIONI**

- **Coordinator and content provider**
 - ◆ Fundacion Albeniz (FIA)- *Spain*
- **Technical providers**
 - ◆ Germinus XXI, Grupo Gesfor (Germinus)- *Spain*
 - ◆ Dipartimento di Sistemi e Informatica, Università degli Studi di Firenze (DSI) -*Italy*
 - ◆ Rigel Engineering SRL (Rigel)- *Italy*
 - ◆ Music Technology Group, Universitat Pompeu Fabra (UPF)- *Spain*
 - ◆ Exitech SRL - *Italy*
- **Content providers**
 - ◆ Lithuanian Academy of Music and Theatre (LMTA)- *Lithuania*
 - ◆ Koninklijk Conservatorium Brussel, Erasmushogeschool Brussel (EHB)- *Belgium*
 - ◆ Escola Superior de Música e Artes do Espectáculo do Porto (ESMAE)- *Portugal*
 - ◆ Sibelius Academy (SIBA)- *Finland*
- **Dissemination**
 - ◆ Association Européenne des Conservatoires, Académies de Musique et Musikhochschulen (AEC) - *Netherlands*




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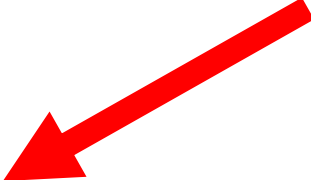
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- **AXMEDIS Framework how to...**






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In the above described Applications


- **We have seen:**
 - ◆ Usage of the AXMEDIS Editors and Players
 - ◆ Massive usage of the AXCP GRID for managing back office issues, defining specific scripts for:
 - ➔ Automated content production and adaptation (MPEG-21, OMA, etc.)
 - ➔ Automated creation of licenses (MPEG-21, OMA, etc.)
 - ➔ Automated regeneration of new versions of the objects
 - ➔ Automated object acquisition and posting on DataBases
 - ◆ Support of the AXMEDIS PMS and AXCS for the DRM aspects
 - ◆ Support of the CAMART and All for collecting reporting data
 - ◆ Front ends for selling and distributing of the Distributors involved so that to maintain their plate and relationships with their customers
- **In some demonstrators there is the usage of:**
 - ◆ The P2P tools, for B2B and B2C2C
 - ◆ Some specific tools for content posting on the databases
 - ◆ Some specific player tools for final users
 - ◆ Some specific tools for Home and Factory Domain Management
 - ◆ Workflow support




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AUTOMATING the BACKOFFICE



- **Lower costs of and enabling**
 - ◆ content gathering, transcoding/monitoring platform, production of content on demand with AXCP
 - ◆ integrate cross media content and automatically managing rights for complex multimedia products
 - ◆ production, B2B distribution, promotion via P2P B2B
- **New forms of content and unexploited content:**
 - ◆ Making business with cross media content, integrating HTML, SMIL, document, video, etc., no possible up to now
 - ◆ Exploiting the content "long tail"
- **Interoperability, convergence of media**
 - ◆ interoperability of content and DRM, Multi-channel distribution
 - ◆ access to the same content on several platforms, devices and locations
 - ◆ greater level of security, control of content usage in all channels B2B2C
- **DRM, creation new business models**
 - ◆ different business models on the same channel may be used
 - ◆ adapting the distribution channel to the users needs and would
 - ◆ Access to detailed reporting on the exploited rights
- **Distribute content with**
 - ◆ Any B2C: Internet, STB, broadcasting, Mobile, kiosks, pda, etc.
 - ◆ P2P to Consumers with the support of DRM






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What AXMEDIS can do for Publishers/Distributor

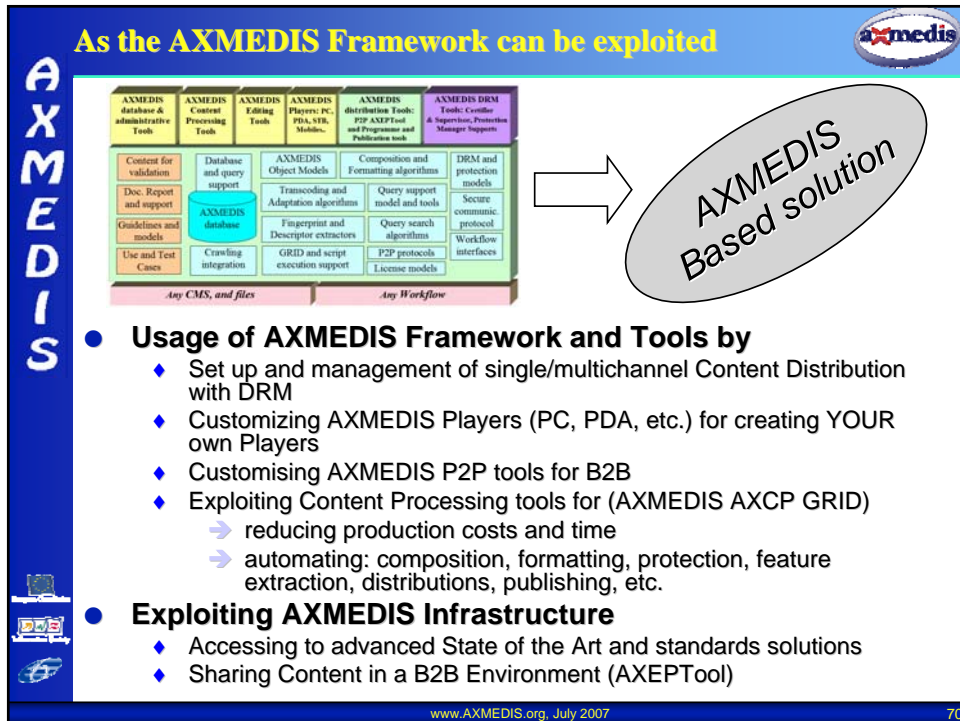
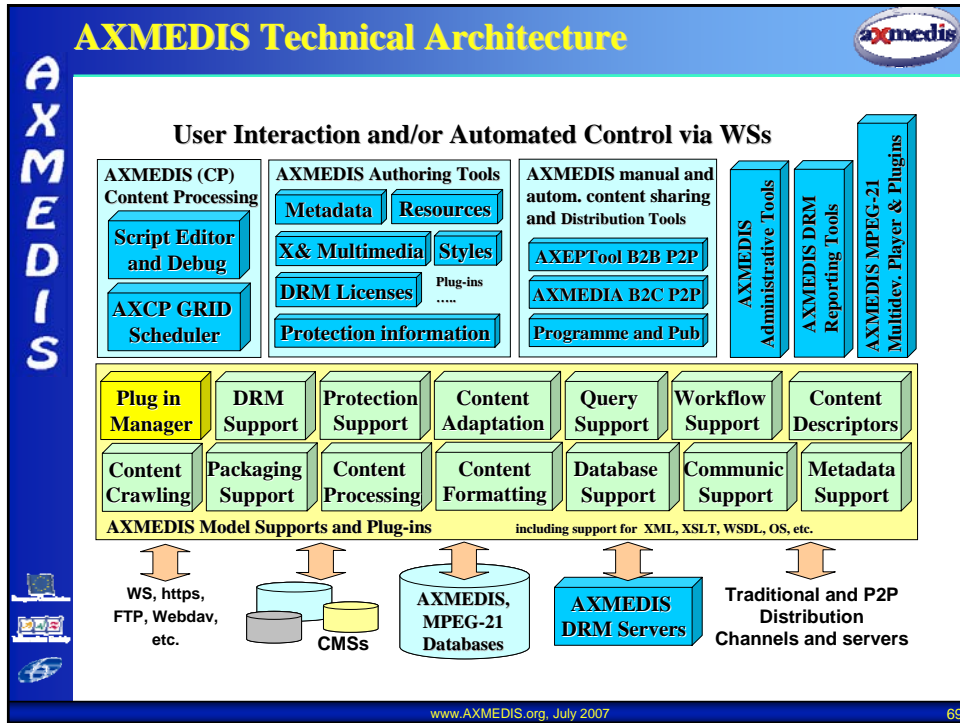


- **New possibilities and lower costs for:**
 - ◆ Access to new technology that supports new forms of content (cross media content) and DRM standard and interoperable
 - ◆ Exploitation of content never used for business before
 - ◆ Manual and/or automated Creation of AXMEDIS Objects, protection of them for multichannel distribution
 - Direct access to legacy CMSs
 - ◆ Automated Posting of produced objects in a P2P network, making them visible to other actors of the value chain, with defined DRM rules
 - ◆ Access to other objects and components via the P2P network for creating more valuable objects and for second localized distribution
 - ◆ For creating your own distribution system
 - ◆ Direct Reporting of the object consumption, without losing the control of the owned objects and rights






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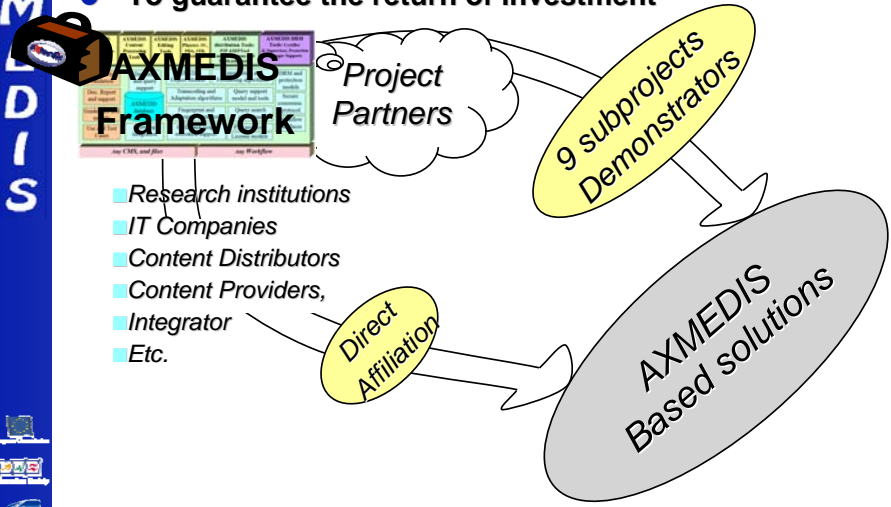
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Use of AXMEDIS Framework



- Exploitation of AXMEDIS research and innovation
- To guarantee the return of investment



AXMEDIS Framework

- Research institutions
- IT Companies
- Content Distributors
- Content Providers,
- Integrator
- Etc.

Project Partners

9 subprojects Demonstrators


Direct Affiliation

AXMEDIS Based solutions

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Affiliation to the AXMEDIS



- ***Interoperability on content and DRM, a common framework for all is an added value to your business!***
- **You can become affiliated with AXMEDIS.** The affiliation provides access to
 - ◆ a large amount of information and knowledge
 - ◆ full source code of the AXMEDIS Framework
- The benefits of the affiliation include the possibility of using the AXMEDIS technology and tools (customize them from source code), for your business without limitations
- The affiliation can be formalized via the affiliation agreement, you can find information on the flyers and on the DVD and on the portal.
- The affiliation has a small annual fee that can be covered in money or by value offering in change contributions to the AXMEDIS Framework for the community.

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Contact Information

- ***If you like to know more about the AXMEDIS framework and other AXMEDIS technologies and functionalities please do not hesitate to contact the project coordinator***
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