



Towards Socially Intelligent Media Computing

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version 2.7e

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Overview




- **AXMEDIS aims and complexity** ←
- **AXMEDIS model and tools**
- **AXMEDIS DRM**
- **Automated back office tools**
- **Distribution Scenarios**
- **Exploitation Activities**




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Project Goals



- **Costs Reduction for content production and distribution for multichannel**
- **Better integration along the value chain**
- **Interoperability among channels/devices taking into account DRM and formats**
- **Large range of different scenarios:**
 - ◆ From VOD to DVB
 - ◆ From mobile to TV
 - ◆ From B2B to B2C
 - ◆ trials, take ups actions, ..
- **Along the social network growing, UGC, UGE**


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Partners

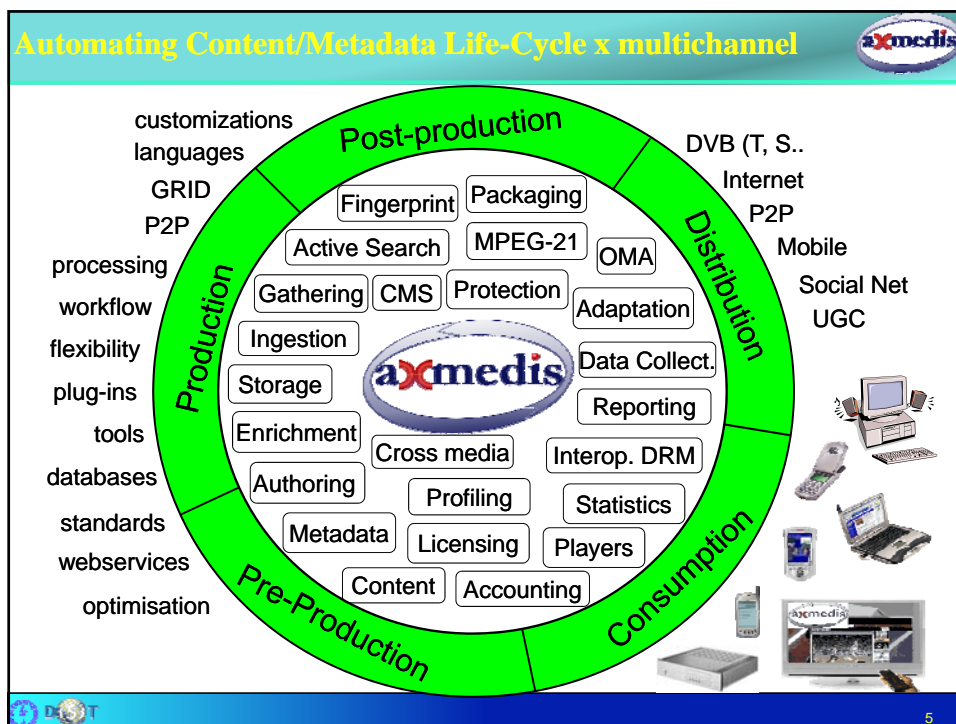




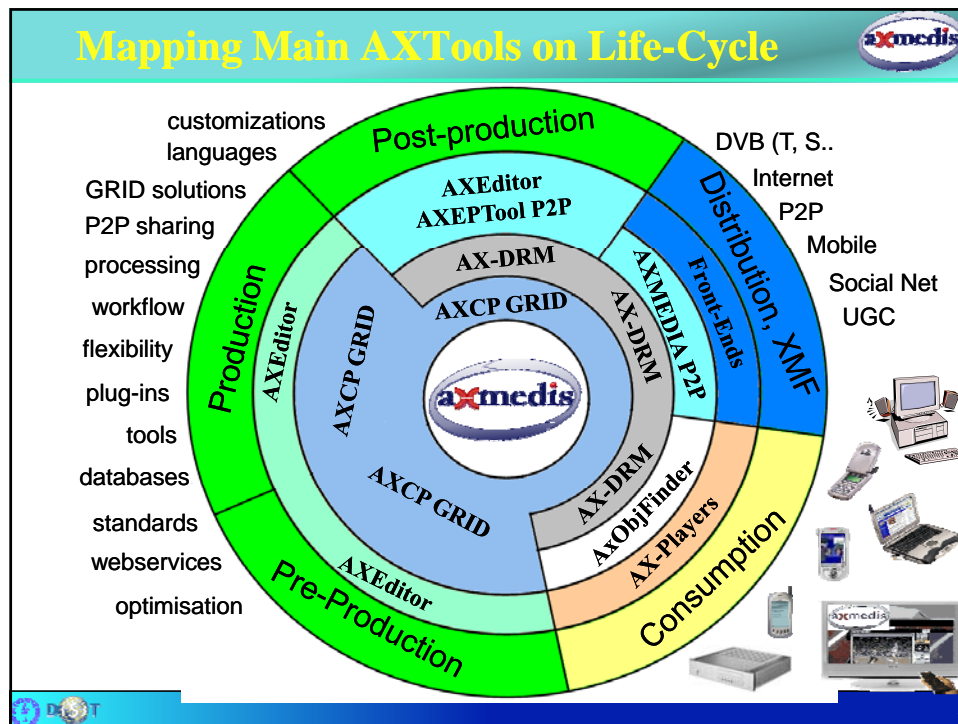
The partners slide features a grid of logos for various organizations. The logos include:

- UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC)
- Fraunhofer Institut Graphische Datenverarbeitung
- UNIVERSITY OF LEEDS
- University of Reading
- EPFL (ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE)
- LABLITA (Laboratorio Linguistico)
- ETRI
- hp invent
- EXITECH
- mbi
- GRUPO GESFOR
- [rigel][engineering]
- Hexaglobe
- maat
- telsey
- GIUNTI labs
- EUREKA (Eureka-madison Projector)
- BORDAS
- Nathan
- DO (DigiChannel.net)
- xim
- VRS GRUPÈ
- F (FUNDACION ALBENIZ)
- STRATEGICA
- BBC
- tiscali
- eutelsat
- Elion
- Rai
- TELECOM ITALIA
- teo

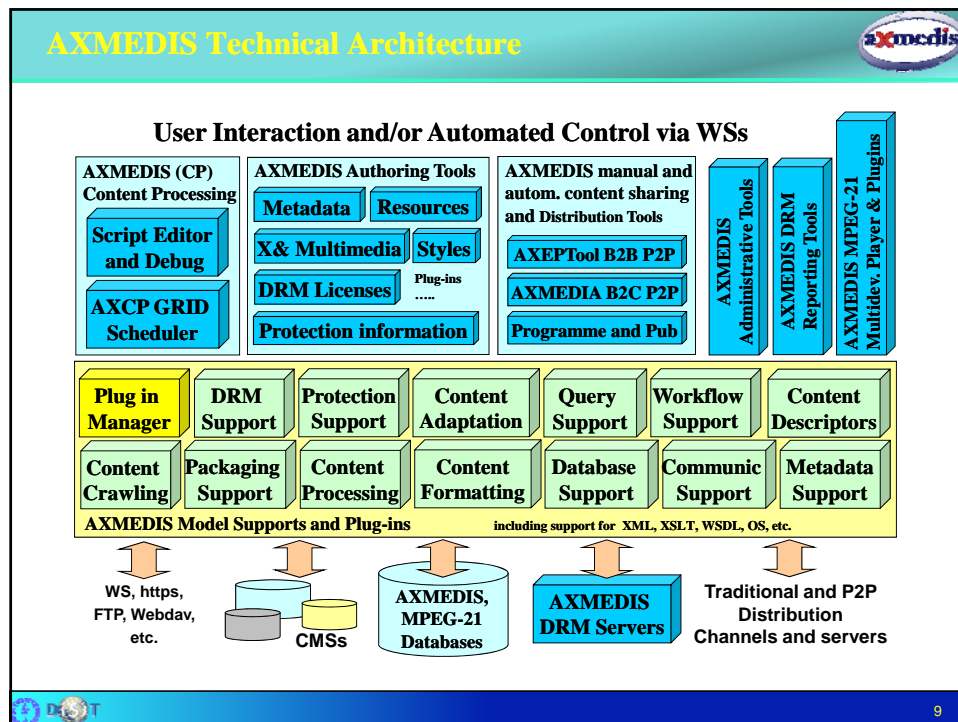

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- ### Major points of complexity
- **Modeling a flexible framework with**
 - ◆ Different content formats/models
 - ◆ Different distribution formats/models
 - ◆ Different devices, platforms, players,..
 - ◆ Different distribution protocols: streaming, download, progressive download, multipath streaming DIS, P2P, progressive P2P, ...
 - ◆ Different business and transactions models
 - ◆ Different standards along the several aspects
 - ◆ Different life cycles and best practices for back office
 - ◆ Etc.



- ### Points of Complexity
- **Content formats vs players**
 - ◆ high production costs for authoring tools and players
 - ◆ Lack of intelligence on players
 - ◆ Custom vs standard, limited vs interoperable
 - ◆ Large variety of platforms, mobile foot print
 - **Protection, DRM along the value chain, B2B2C**
 - ◆ Number of licenses processed for objects: O(MN)
 - ◆ Millions of users are licensed for millions of objects !!
 - ◆ Managing life cycle rights and business models/transactions
 - **Automated content production**
 - ◆ Production on demand, real time processing on user needs
 - ◆ Dynamic and static profiling
 - ◆ Dynamic content adaptation and formatting (layouting)
 - ◆ Processing profiles and descriptors in real time
 - ◆ Management of UGC and professional content
 - **Multichannel production vs distribution**
 - ◆ Flexibility in refactoring/scaling up the back office
 - ◆ Processing in real time, managing multichannel back office
 - ◆ Huge costs of integration, business models, trans. Models...



- ### Overview
- **AXMEDIS aims and complexity**
 - **AXMEDIS model and tools**
 - ◆ Lack of intelligence on players
 - ◆ Custom vs standard, limited vs interoperable
 - ◆ Large variety of platforms, mobile foot print
 - ◆ High complexity of authoring tools and player
 - ◆ High production costs
 - **AXMEDIS DRM**
 - **Automated back office tools**
 - **Distribution Scenarios**
 - **Exploitation Activities**

Interactive and intelligent

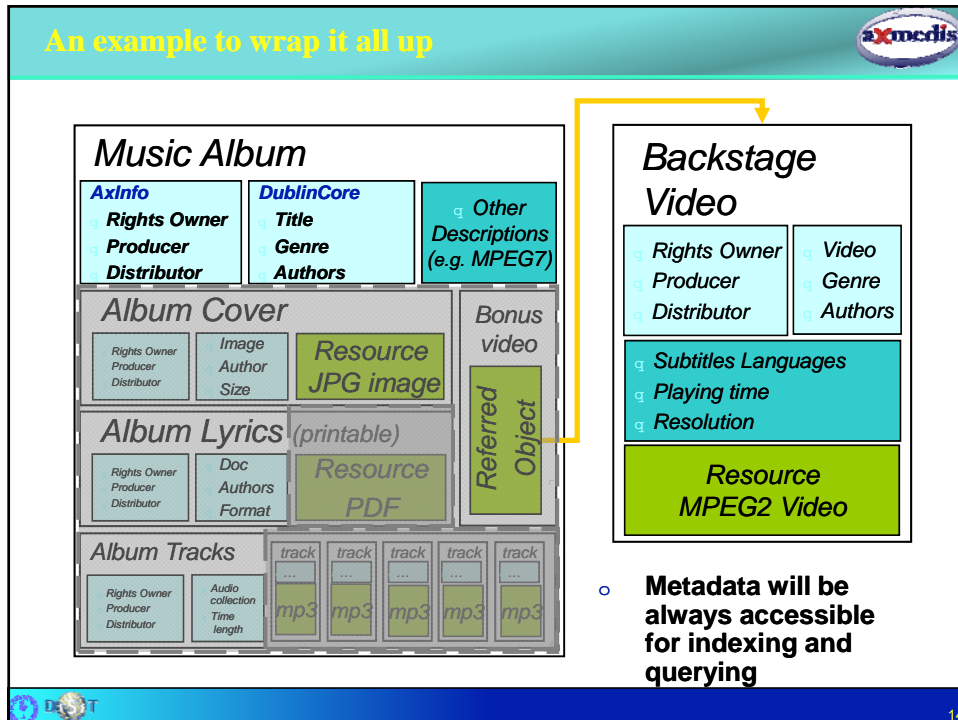
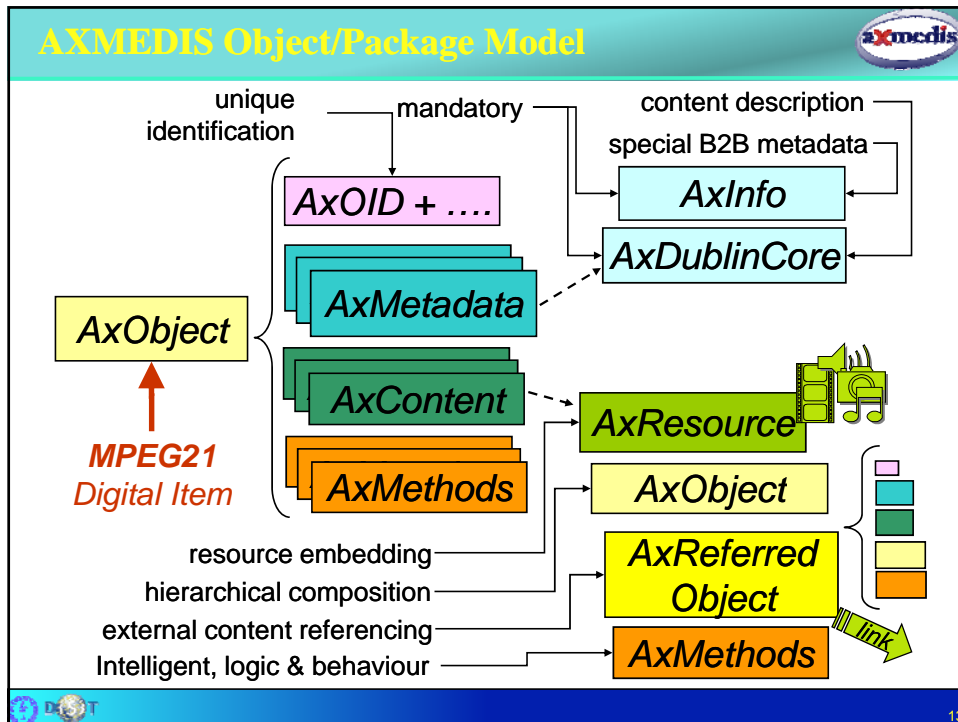
- o integrated media info
- o proactive with the users
- o attractive experience
- o personalized
- o multichannel
- o interoperable
- o device interoperable

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Examples: Intelligent Content


- o **Single Files:**
 - ◆ audio, video, documenti, immagini, etc..
- o **Interactive Content:**
 - ◆ HTML or SMIL as technology of User interaction
 - ◆ Guidi, games, etc.
 - ◆ Valoriz. of Cultural Heritage content
 - ◆ Educational Content
- o **Proactive Wizard:**
 - ◆ Video messg. Recording, UGC
 - ◆ Assisted upload
 - ◆ Production of licenses
 - ◆ User profile processing
 - ◆ Taking decision
 - ◆ Local indexing/searching
 - ◆ Local assistant
 - ◆

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AXMEDIS Cross Media Content

- **Any content inside a package:**
 - ◆ Mix of: HTML, SMIL, MPEG-4, video, audio, text, Documents, images, actions, games, animations, etc.
 - ◆ Additional content and interactivity for the end users
 - ◆ compliant and extending MPEG-21
- **AXMEDIS Intelligent content allow user/producers to**
 - ◆ create content for other devices: ringtones, mobiles, ...
 - ◆ support social activity
 - ➔ annotations
 - ➔ user generated content
 - ➔ personal collections
 - ◆ internal query
 - ◆ customized for culture and language



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Interoperable Players



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- **AXMEDIS aims and complexity**
- **AXMEDIS model and tools**
- **AXMEDIS DRM**
 - ◆ Standards de facto, lack of acceptance, ...
 - ◆ Millions of users are licensed for millions of objects !!
 - ◆ Number of licenses processed for objects: O(MN)
 - ◆ Managing life cycle rights and business models/transactions
 - ◆ Lack of agreements about the meaning of rights and ontology
- **Automated back office tools**
- **Distribution Scenarios**
- **Exploitation Activities**

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market solutions
viz
AXMEDIS

Business Models	Larger number of Business Models
B2C DRM	B2B, B2C, B2B2C DRM solution
Proprietary / Standard DRM and model	Standard DRM: MPEG-21, OMA, etc.
Non interoperable DRM	Allowed Interoperable DRM: MPEG-21, OMA, etc.
Fixed/Flexible Protection Model	Any Protection Model, key, algorithms, etc.
Separation among Content and license	Separation among Content and license
Signed Content Header	Signed Content AXINFO, any Metadata
Channel distribution	Multichannel with the same license
Players and Devices	Players and Devices: PC MS-Windows, PDA Windows Mobile, STB, Linux OS, Apple MAC (in progress), Java Mobiles
License Proprietary: number of rights, domainss	Licenses MPEG-21 REL: Expandable dictionary, any type of rights, licenses OMA, domains
Authentication of Player	Authentication of device, user, domain, etc.
Revocation per Player	Revocation per device, user, etc,
Revocation per license	Revocation per license
Source code non accessible	Source Code Accessible
Limited Metadata	Any metadata, custom metadata, any ID, any Descriptor
Media content, simple content, not intelligent	Any digital format, of any type: audio, video, image, games, doc, and Cross media: SMIL, HTML, MPEG-4,... INTELLIGENT content
Customizable Tools	Customizable Tools: servers and player clients

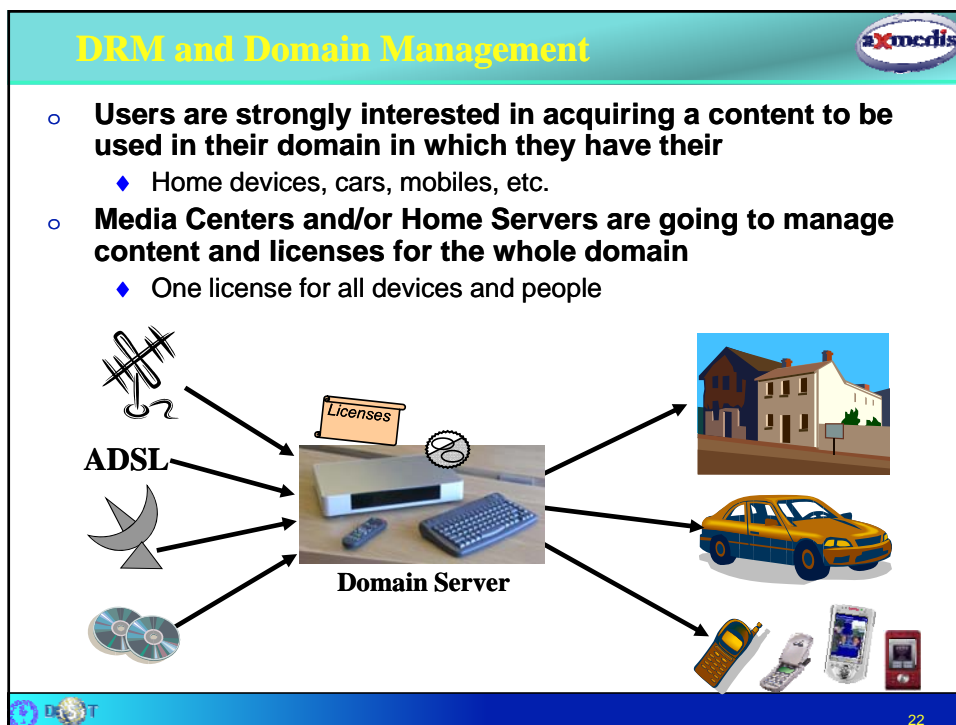
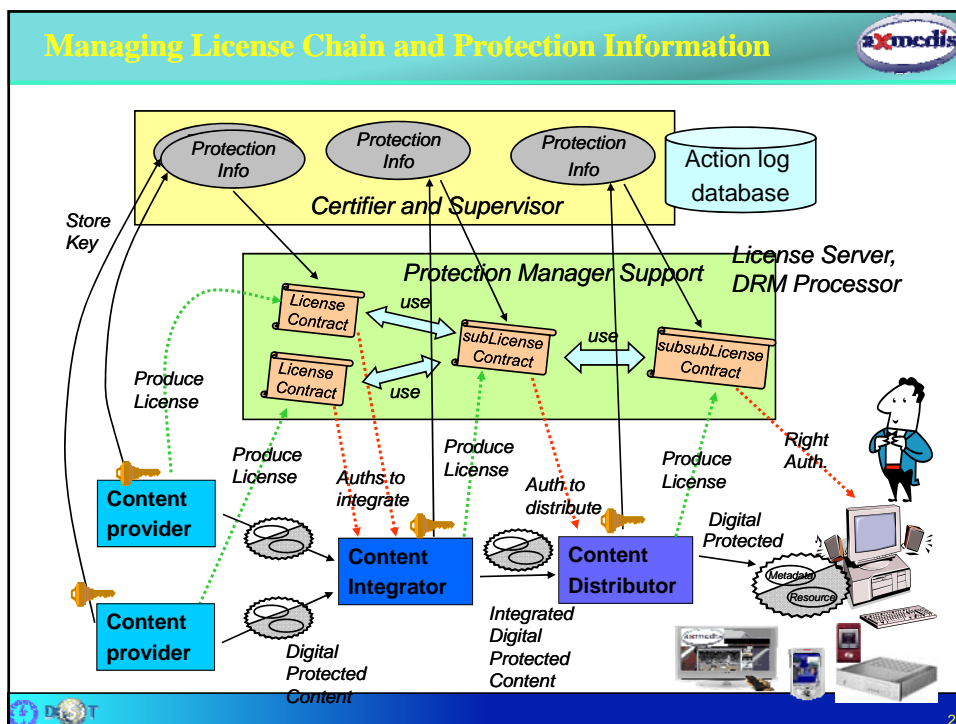
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Managing License Chain, B2B and B2C

- **Alice states** "Bob has the right to issue a license to anyone to print the book in Italy"
- **Bob states** "Carl has the right to print the book in Italy"
- To solve the SubSubLicense for Carl all the connected Licenses are needed
- Licenses have to be accessible on Processing Engine
- Alice can revoke the license to Bob

Cross media content and composition

- **AXMEDIS objects can be used as components for creating other added values AXMEDIS objects**
 - ◆ Allowing the production added value object for composition or integration of protected content
 - Who is composing can add its own prot. and licensing
 - ◆ Allowing the Rights Management of Composition, in the digital world similarly at what is performed in the physical world
 - ◆ The shares along the value chain are de facto formalized



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 - ◆ Flexibility and scalability of back office,
 - thousands of features, complex media processing language, programming grid
 - ◆ Processing profiles and descriptors in real time
 - ◆ Production on demand, real time processing on user needs
 - ◆ Management of UGC and professional content
 - ◆ Dynamic and static profiling
 - ◆ Dynamic content adaptation and formatting (layouting)

- **Distribution Scenarios**
- **Exploitation Activities**

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Enabling massive content production and processing

Author

Producer / Aggregator / Distributor / Facilitator

User

Production

Distribution

Usage

AX Editors

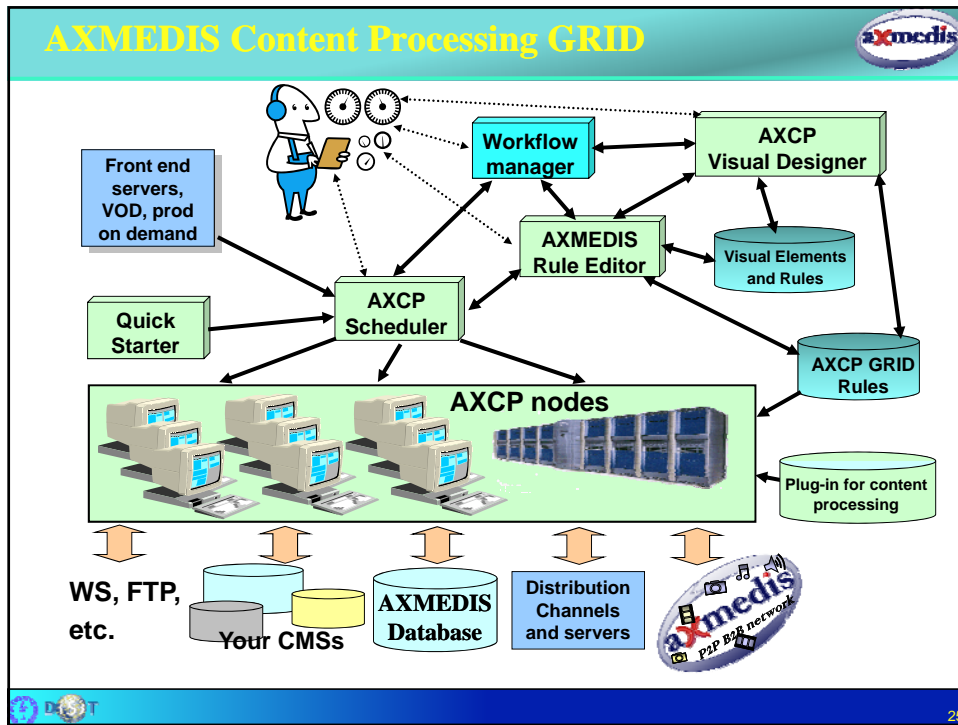
AXCP Tools

AX P2P

AX Players

- **AXMEDIS GRID language and tools for**
 - ◆ Automated Content Ingestion and Gathering
 - ◆ Automated Content Query and Retrieval
 - ◆ Automated Content Load and Storage: databases and files
 - ◆ Automated Content and Metadata Processing, enrichment
 - ◆ Automated Content and Data processing
 - ◆ Automated Content Filtering and Repurposing
 - ◆ Automated Content Composition, Formatting
 - ◆ Automated Content Protection and Licensing
 - ◆ Automated Content Publication/Download on/from any channel
 - ◆ Automated Content Distribution via Multichannel
 - ◆ Automated Profiles management and processing
 - ◆ Automated Production of Content on Demand
 - ◆ **Automated semantic processing, recc, taking decisions, etc..**

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Some Snapshots from the examples shown

```
1 // imgProcessing_100
2 var tca = false;
3 if (global.PDA) // get the PDA=
4 {
5   tca = false;
6   comosresourcesFilesDir = os
7
8 // see the arguments for the CGI
9 instrumentToProcess = imageFile
10 // this may be obtained in previous
11 mailFileOutputRoot = null;
12 // create DRIL instance
13 responseFilesDir mailFileOutput
14
15 DRIL objects will use
16 the instrumentToProcess
17 the object on the AD
18 }
```

AXMEDIS Rule Editor Help

Welcome on Axmedis AXCP Rule Editor

Help

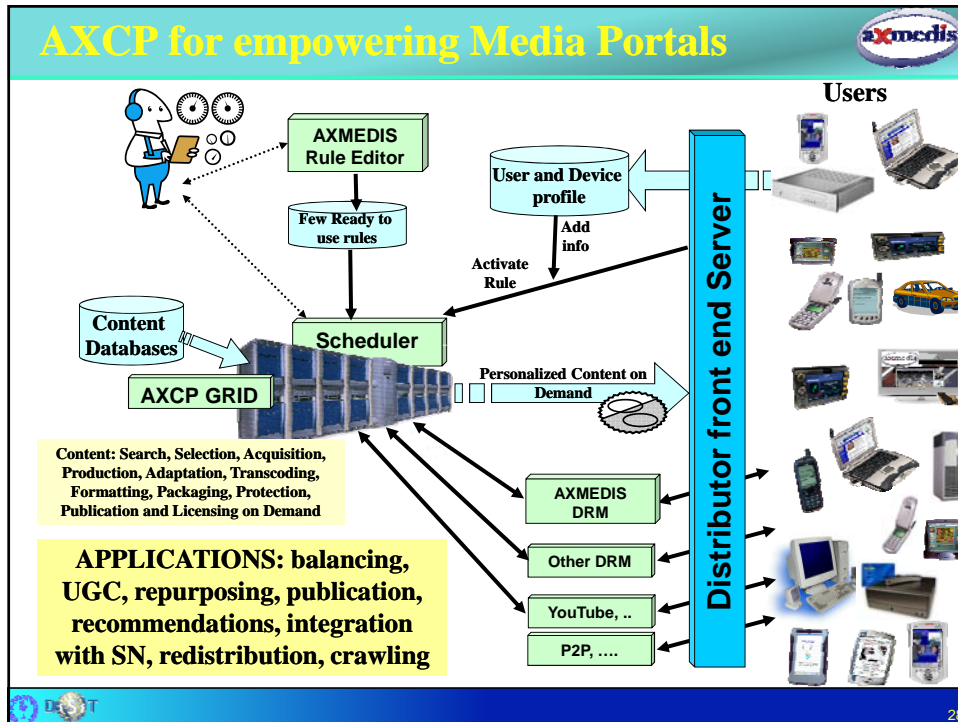
List of Contents

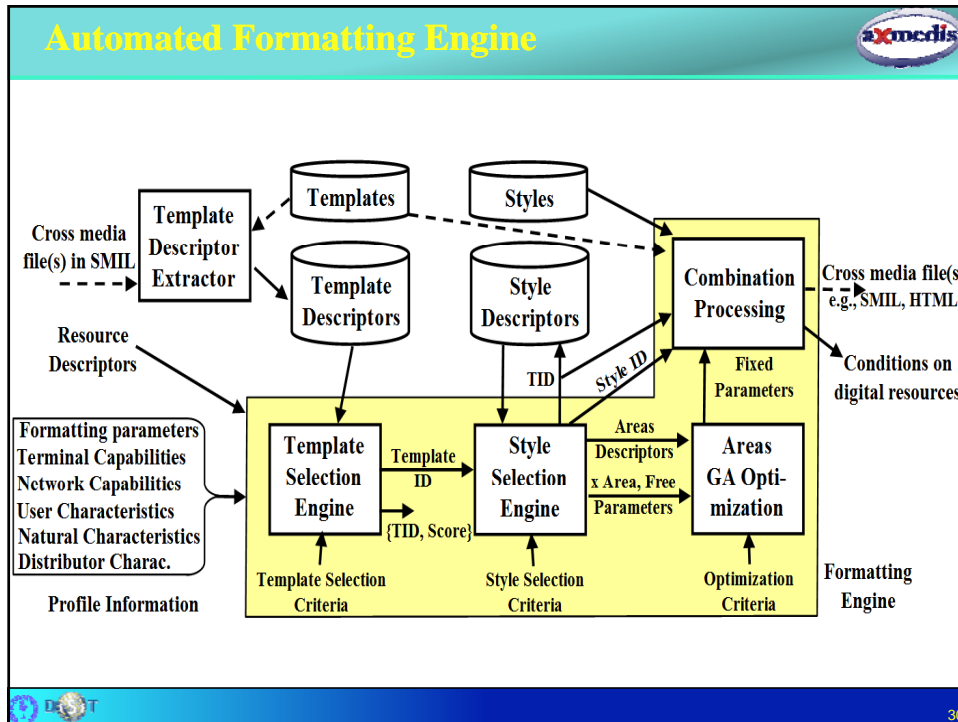
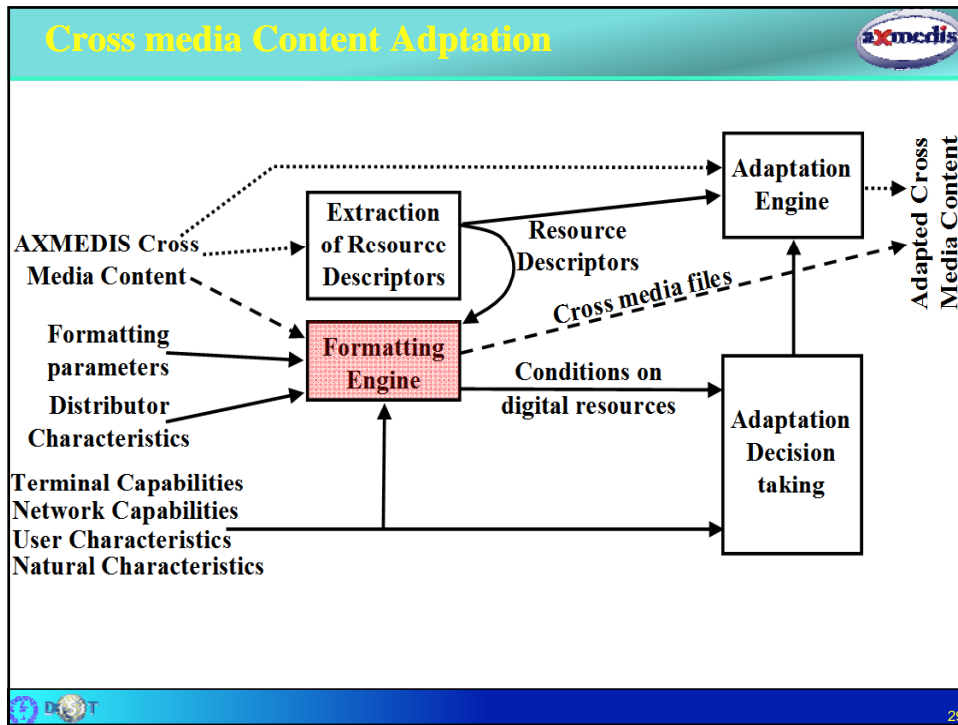
- 1 AXCP Rule Editor User Manual
- 2 AXMEDIS Reference Manual
- 3 AXCP Short Guide for Javascript v.1.6

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AXCP Visual Designer

Name	Type	ID	Date of Production	Last Modification	Affiliation	URL	Author
axcpProva	AXCP Rule Procedure	axcprule:3ae25f2e-1748-	2008-06-13	2008-10-11	dist - dist	url.com	antonio
CreateTxtFile	Java Script Procedure	axcprule:892e2e50-e70e-	2008-06-19	2008-06-19	dist	url di prova	antonio
CreateZWithFile	Java Script Procedure	axcprule:668f4ad2-f3df-4	2008-05-05	2008-05-05	z_affiliation	e_url	c_antonio
dirWithTxtFile	Java Script Procedure	axcprule:680490da-67da-	2008-06-17	2008-06-17	asd	url di prova	anto
provaScoop	Java Script Procedure	axcprule:6d4cb88d-1a5d-	2008-05-22	2008-05-22	z_affiliation	cvb_url	g_antonio
sample2	Java Script Procedure	axcprule:ccfa5f4e-1078-4	2008-06-04	2008-06-04	s_affiliation	url di prova	antonio





Examples of Cross media Adaption


The slide illustrates cross-media adaptation with two examples. The first example shows a website for 'Club Italia' with a wireframe diagram below it. The wireframe labels the 'header' (containing the club logo), 'nav' (navigation menu), 'body' (main content area with a photo of the team), and 'footer'. The second example shows a website for 'Spider-Man' with a wireframe diagram below it. The wireframe labels the 'header' (with the movie title), 'nav' (navigation menu), 'body' (main content area with a Spider-Man image), and 'footer'.

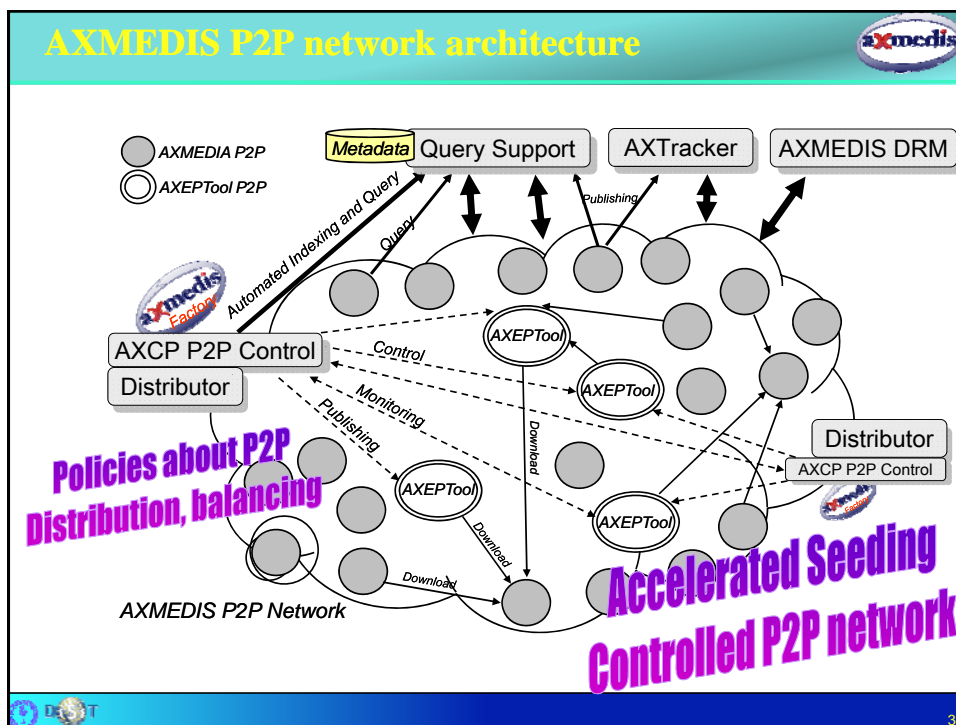
Overview

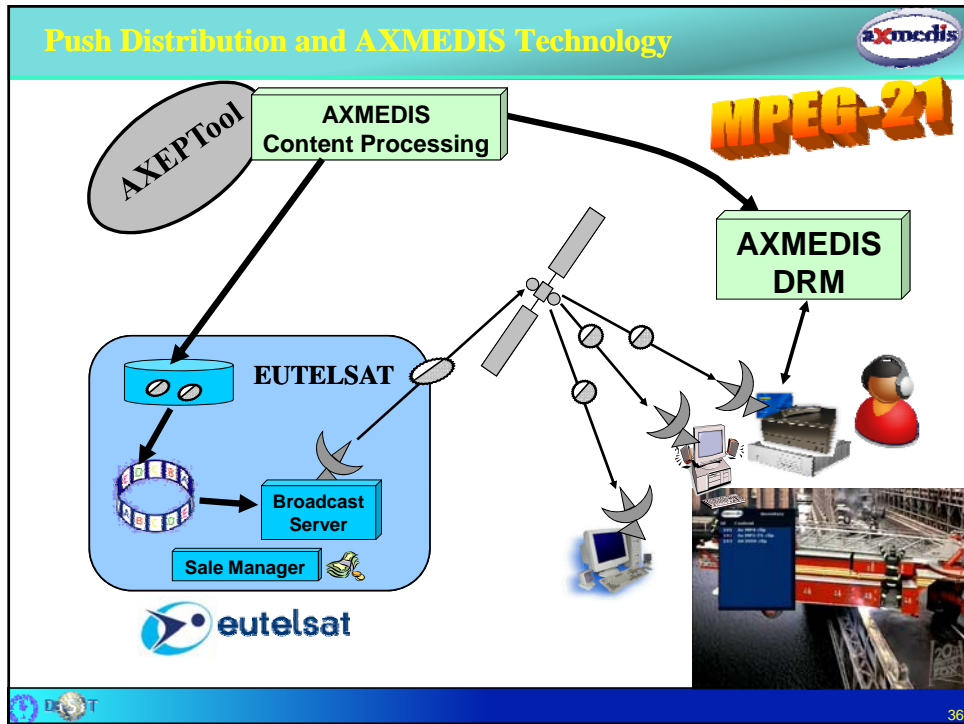
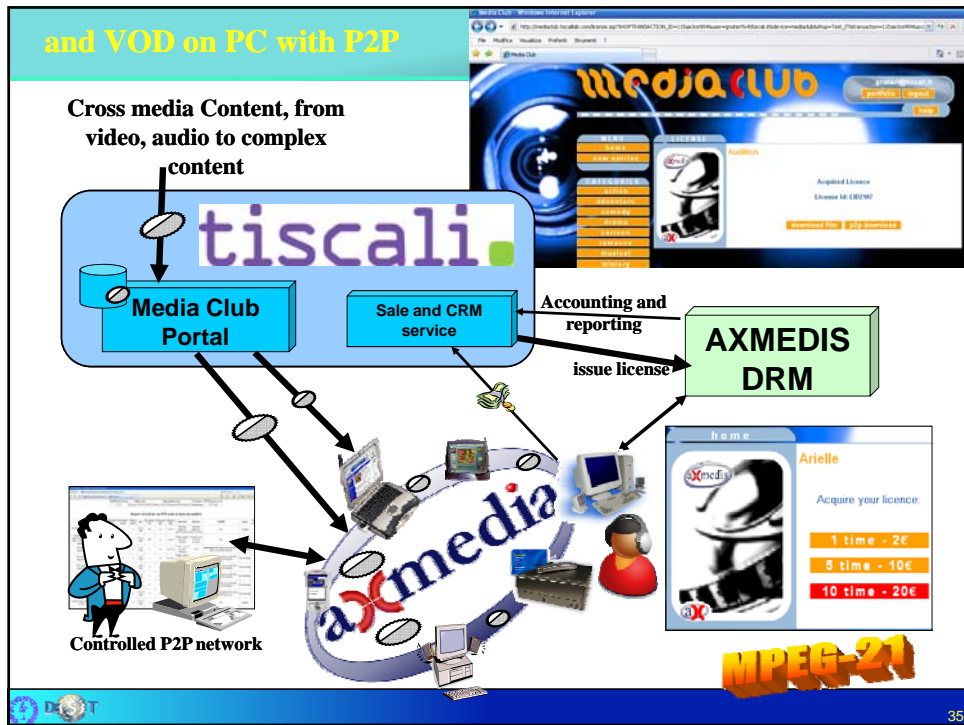
- **AXMEDIS aims and complexity**
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- **Distribution Scenarios**
 - ◆ Large range of possible applications: 3-play, 4-play, Multichannel, CH applications, mobile, etc.
 - ◆ Flexibility in refactoring/scaling up the back office
 - ◆ Processing in real time, managing multichannel back office
 - ◆ Huge costs of integration, business models, transaction Models...
- **Exploitation Activities**

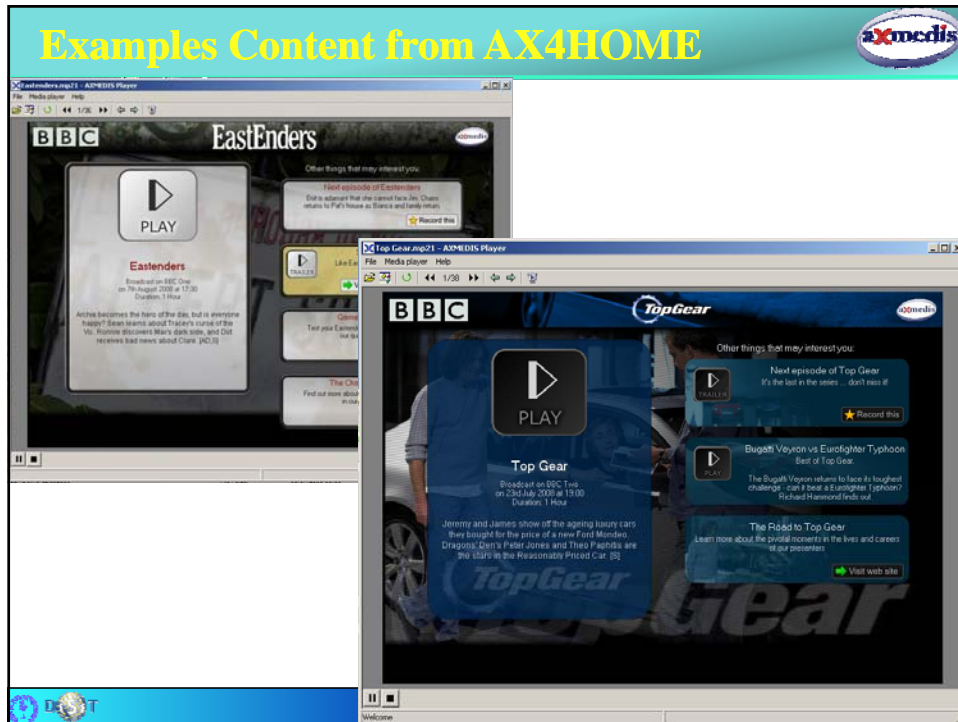
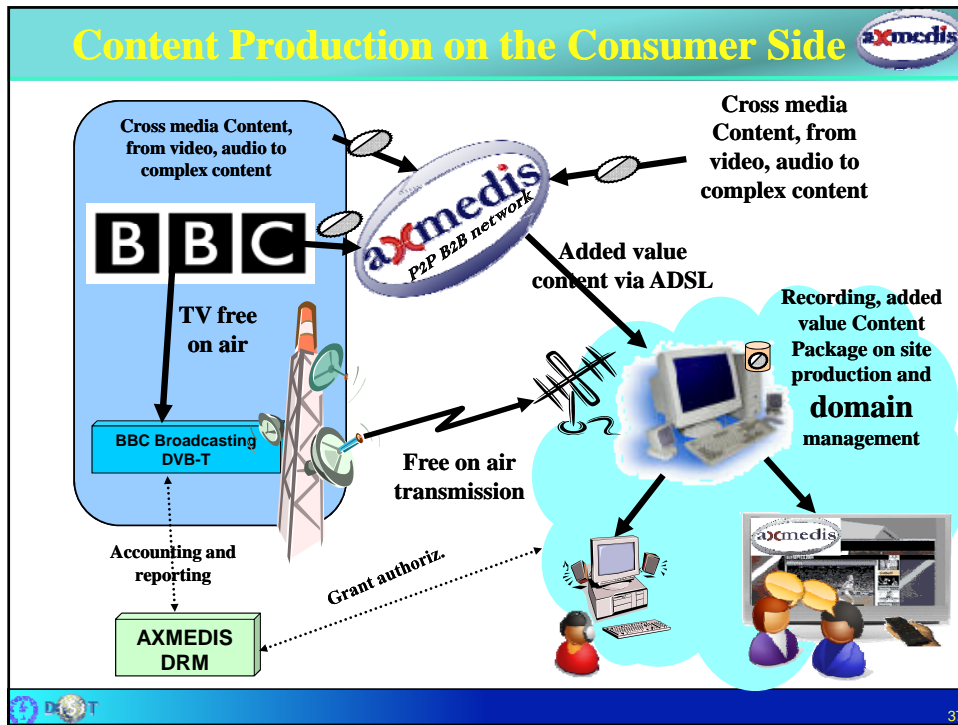
Multichannel Distribution

- **VOD, Video or Content on Demand:**
 - ◆ Internet P2P, PC, mobile, IPTV streaming: STB Motorola
 - ◆ Streaming of AXMEDIS MPEG-21, audio/video
 - ◆ Progressive download of AXMEDIS MPEG-21, audio/video
- **Satellite data broadcast**
 - ◆ Distribution in Push, STB/PVR
- **DVB-T**
 - ◆ EPG + recording + intelligent content
 - ◆ HD protection in stream
- **PDA and Kiosks**
 - ◆ Push on Kiosks, Download on PDA
- **Mobiles**
 - ◆ Interoperable MPEG-21 and OMA DRM production
 - ◆ AXMEDIS/MPEG-21 player for mobiles
 - ◆ Download and progressive download on mobiles, java
- **UGC, user generated or posted content**
 - ◆ Automated production, transcoding, licensing, etc.
 - ◆ Multichannel support for social network
 - ◆ XMF, social network, ..
- **P2P as support for the above channels**
 - ◆ B2B and/or B2C networks









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- ◆ DRM B2C solution for complex content
- ◆ Intelligent proactive content with DRM
- ◆ Cultural heritage content repurposing and distribution
- ◆ Social networking
- ◆ Smart mobile social enabled content, personal recommendations

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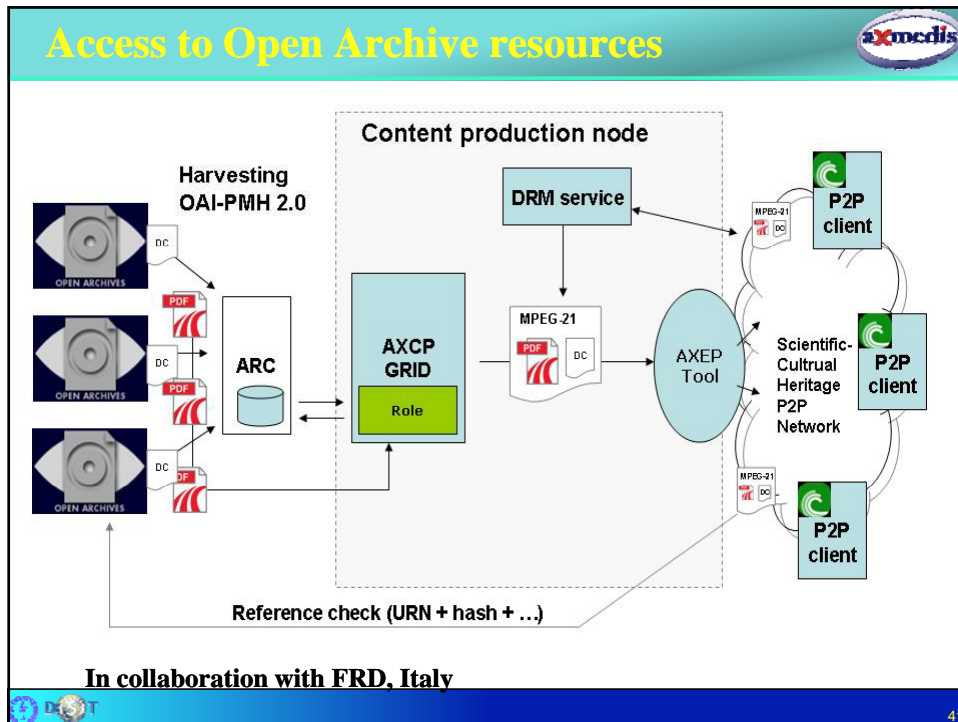
Content Enrichment
VARIAZIONI

- <http://www.variazioniproject.org>
- **Content Enrichment**
 - ◆ produced and reproduced on demand
 - ◆ production with DRM
 - ◆ AXMEDIS web player





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AXMEDIS DRM with learn eXact[®]





Learning Content Management System

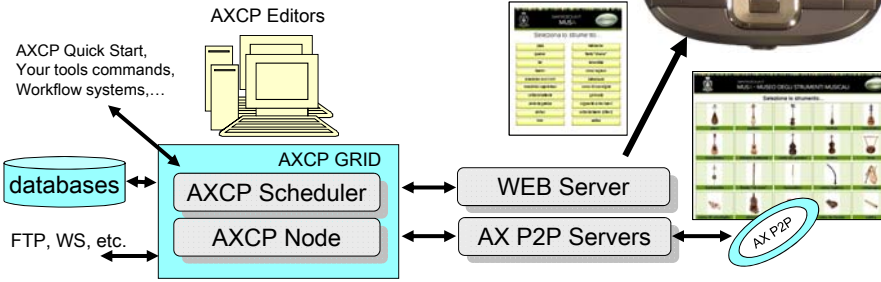
- **AXMEDIS**
 - ◆ Hiding complexity
- **AXMEDIS AXCP**
 - ◆ protection packager
- **AXMEDIS**
 - ◆ Active X Player
- **AXMEDIS DRM**
 - ◆ registration
 - ◆ License servers
 - ◆ AXCS


The screenshot shows the 'eXact glove learning experience' interface in a Windows Internet Explorer browser. The address bar shows a URL from axmedis.gurmitabs.com. The interface includes a 'CONTENTS' sidebar with a tree view (Text, Image, Text5), a 'TOOLS' section, and a main video player area displaying a night view of the Eiffel Tower. Navigation buttons like 'Prev', 'Pause', 'Stop', 'Next', 'Show Hierarchy', and 'Metadata' are visible above the video.

Distribution of cultural content, AV guides

- **At MUSA: instrument museum at Accademia Nazionale di Santa Cecilia, Roma**
- **Usable for AV guides, even with RFID**
- **Production of content for continuous formation, in medical area or for other interactive guides**
- **Monitoring of the user activities**







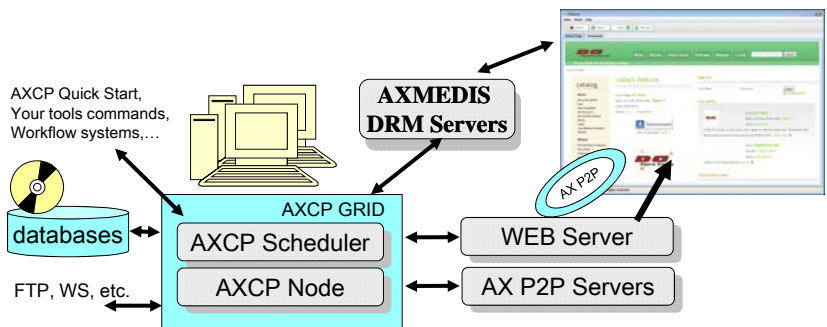




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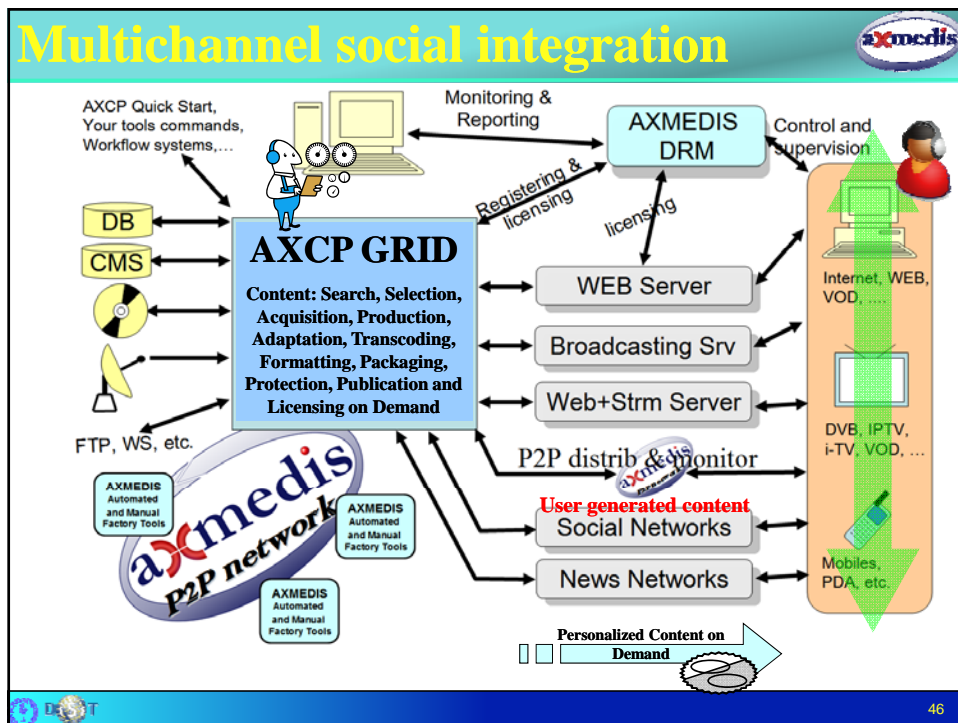
DC Store, DC Channel

- **Distribution of large objects ISO of CD, DVD, etc. as protected intelligent content**
- **Distribution via P2P, protection via AXDRM**
- **The intelligent content played into the AXMEDIS player helps the user to make registration, certification ...**
- **The Intelligent content extract the ISO on the disk**






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Recommendations: UU, OU, OO, ..

Potential friends

- [phistestasla](#)
26
ECUADOR, Orellana
[Add to your friends](#) [Details](#)
- [shastu](#)
29
CHRISTMAS ISLAND
[Add to your friends](#) [Details](#)
- [driphifras](#)
15
FRENCH POLYNESIA
[Add to your friends](#) [Details](#)
- [kuslechi](#)
16
SRI LANKA, Kurunegala
[Add to your friends](#) [Details](#)
- [hetheruno](#)
15
MALDIVES, Raa
[Add to your friends](#) [Details](#)

1 2 next last »

phistestasla proximity details

languages: _____

favorites: _____

location: _____

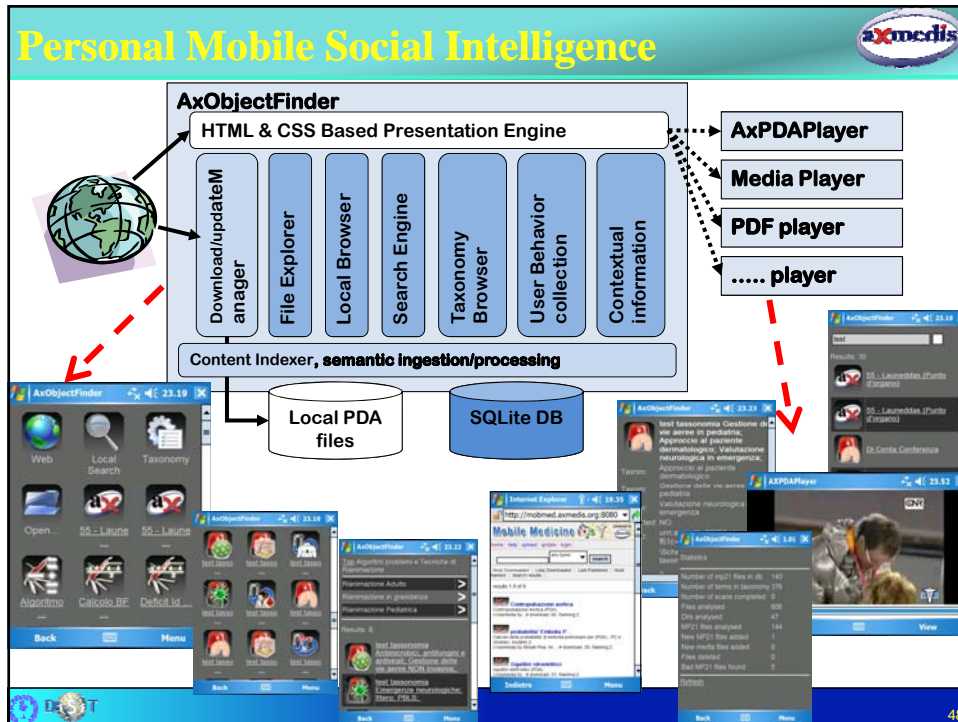
interests: _____

friends: _____

activity: _____

age: _____

school_job: _____





- **Thanks!**
- **Tools can be download from web sites and on shareware sites**
- <http://www.axmedis.org>
 - ◆ Tools, docs, etc.
- <http://mobmed.axmedis.org>
 - ◆ Mobile Medicine Social network
- <http://xmf.axmedis.org>
 - ◆
-



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