



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

www.axmedis.org



IST-2-511299

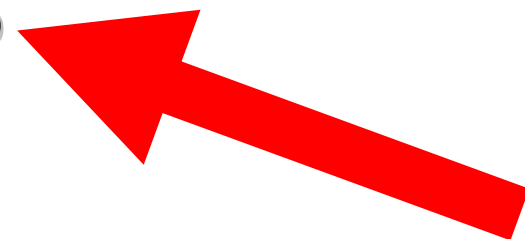
AXMEDIS & SIAE Trial

Paolo Nesi

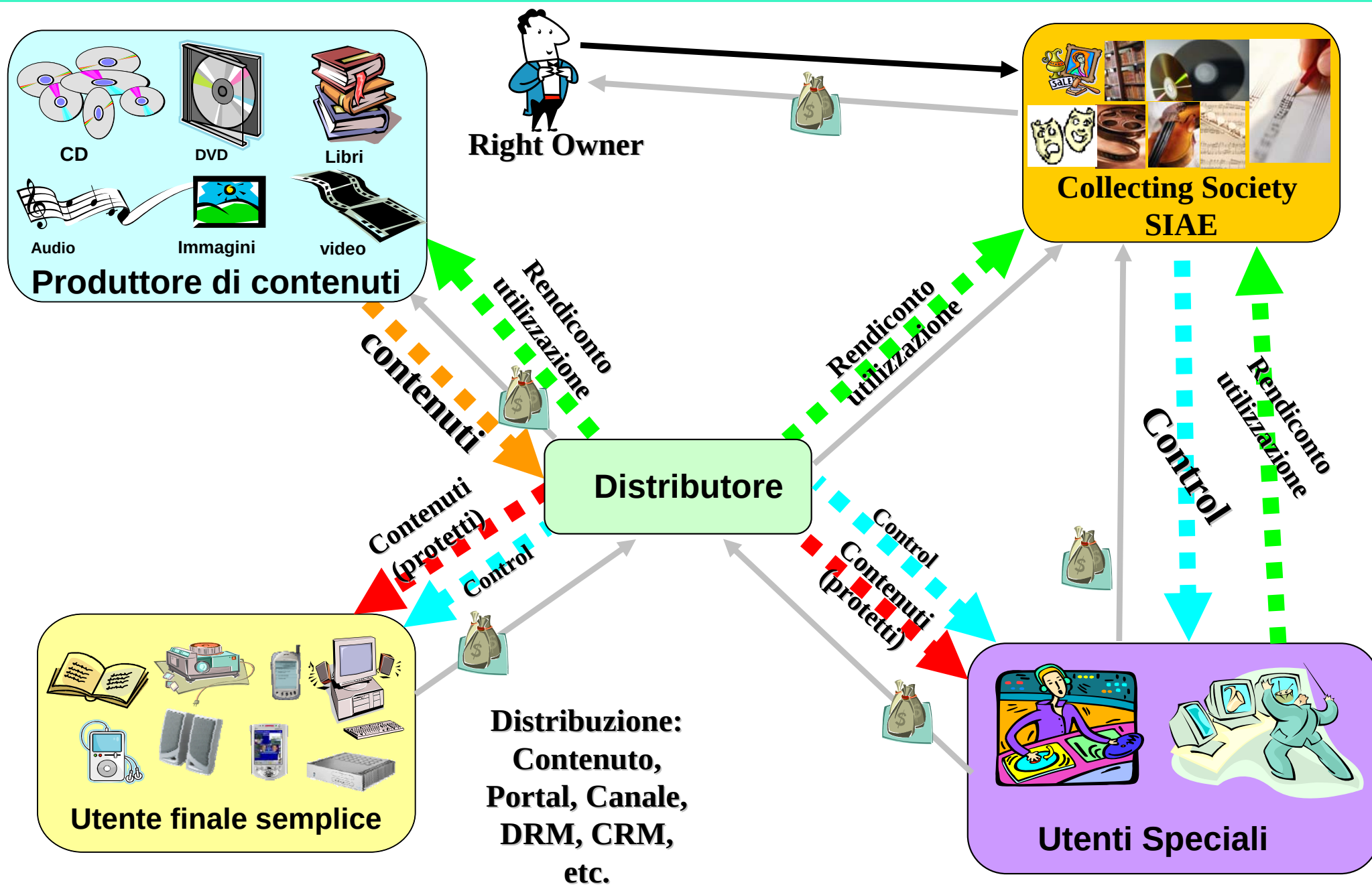
*DISIT-DSI, Distributed Systems and Internet Technology Lab
Department of Systems and Informatics, University of Florence
nesi@dsi.unifi.it, <http://www.disit.dsi.unifi.it>*

Overview della presentazione

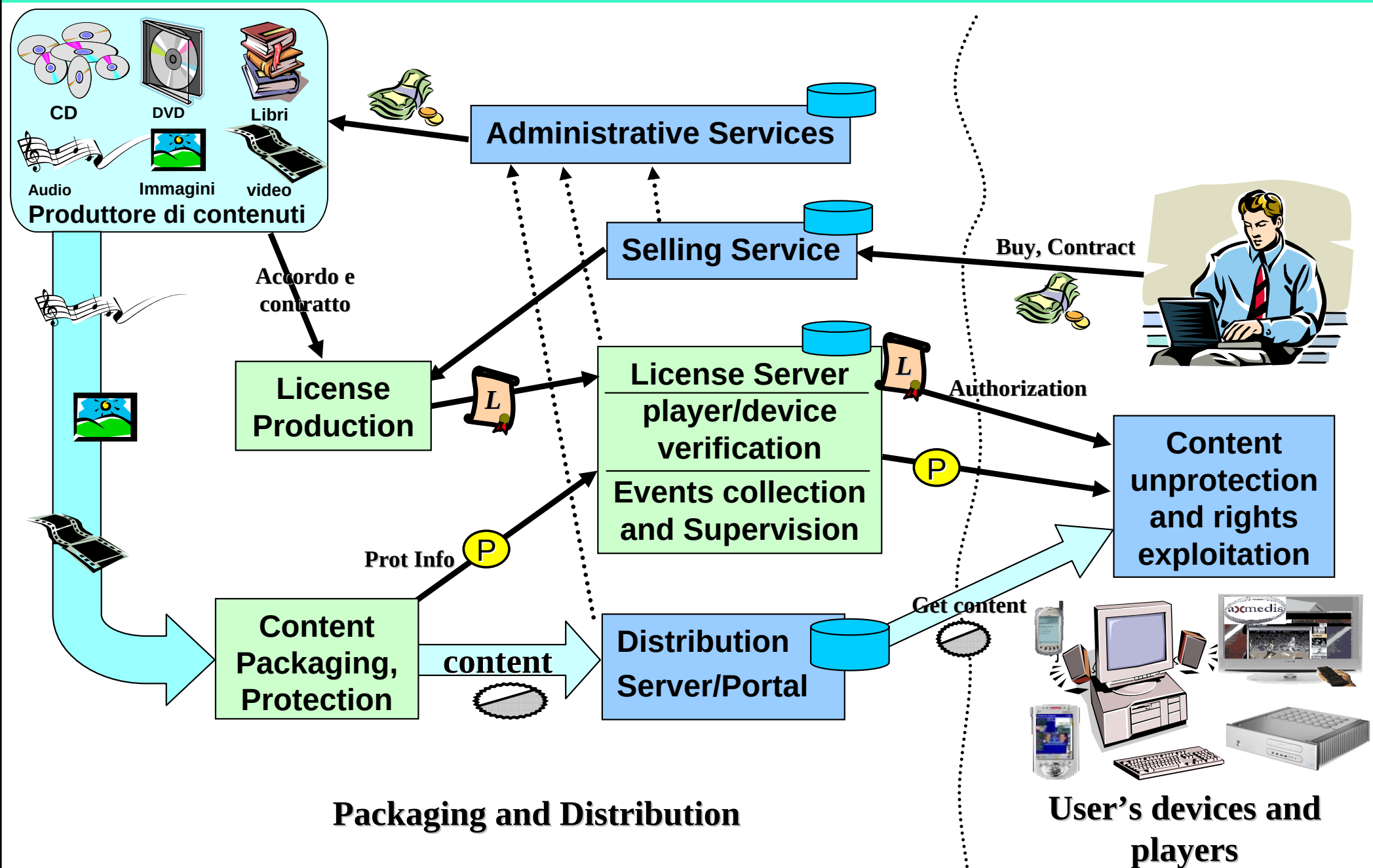
- **L'idea generale di un CMS integrato**
 - ◆ Architettura
 - ◆ Necessita' primarie
- **Cosa e' AXMEDIS**
 - ◆ Obiettivi di AXMEDIS
 - ◆ Funzionalità principali
 - ◆ AXMEDIS Framework
- **SIAE Trial**
 - ◆ Struttura e dimostrazione
- **Andamento del mercato e prospettive**
 - ◆ Digitale online rispetto al Fisico (DVD, CD, etc.)
 - ◆ P2P rispetto al Client/Server
- **Azioni presenti in AXMEDIS:**
 - ◆ Dimostrativi e progetti



Visione Generale Semplificata Attuale



Distribuzione: modello classico presente, DRM



- **DRM, Digital Rights Management**

- ♣ Gestione digitale dei diritti

- **DRM Proprietario**

- ♣ basato su formati proprietario per contenuti digitali, licenze, informazioni di protezione, controllo, report, etc.

- **DRM Interoperabile (e.g., MPEG-21, DMP o OMA)**

- ♣ basato su di un UNICO formato Standard per contenuti digitali, licenze, informazioni di protezione, controllo, report, etc.

- ➡ non accetta estensioni se non decise dallo Standard

- **DRM Interoperabile a la AXMEDIS**

- ♣ basato su SVARIATI *formati standard (MPEG-21 e OMA)* e/o *proprietary* per contenuti digitali, licenze, informazioni di protezione, controllo, report, etc.

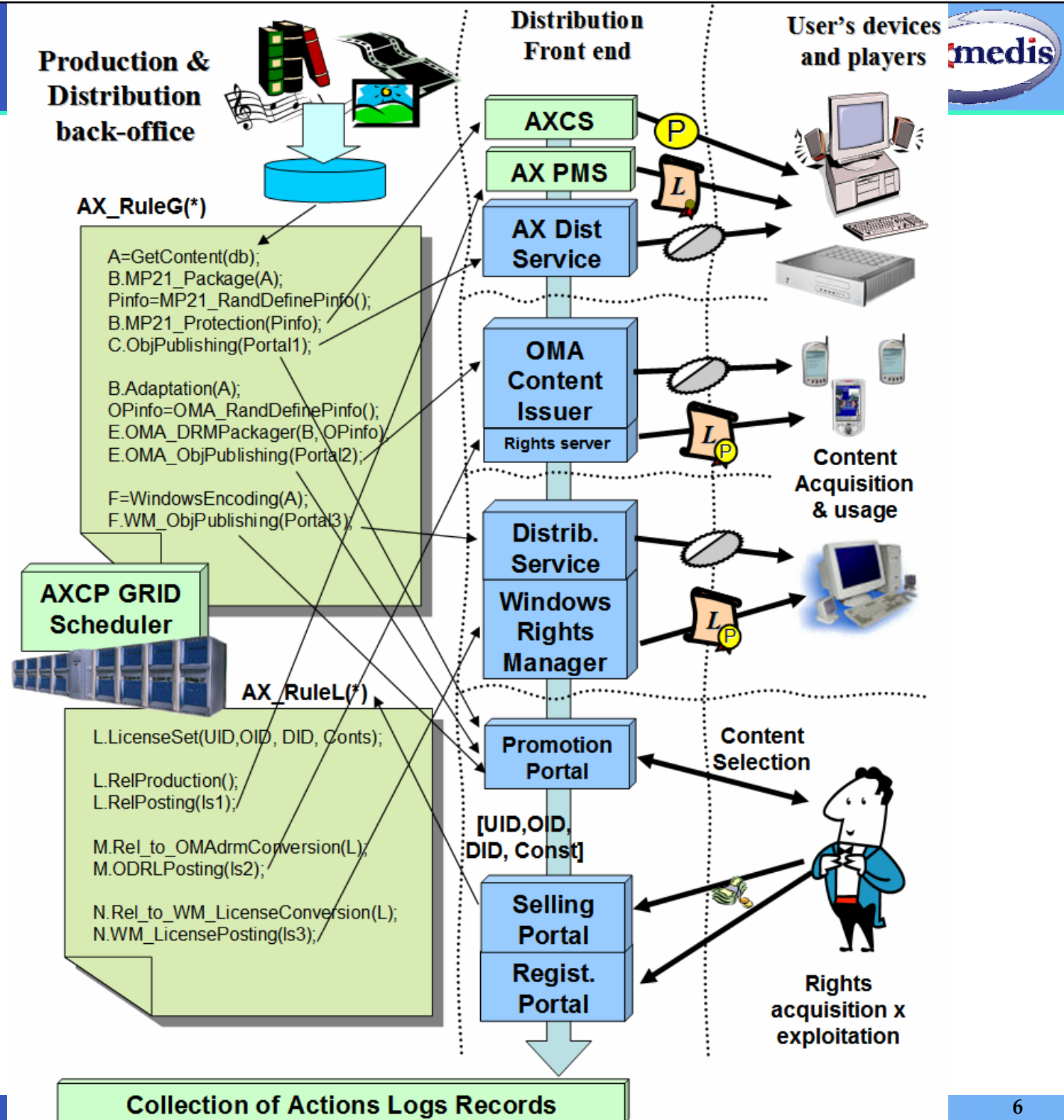
- ➡ puo' essere esteso per accettare altri formati qualora questi divengano utili per esempio Windows Media o che altro

Multichannel

- Distributors managing different channels

- Different DRMs

- ♣ AXMEDIS
- ♣ OMA
- ♣ Windows Media

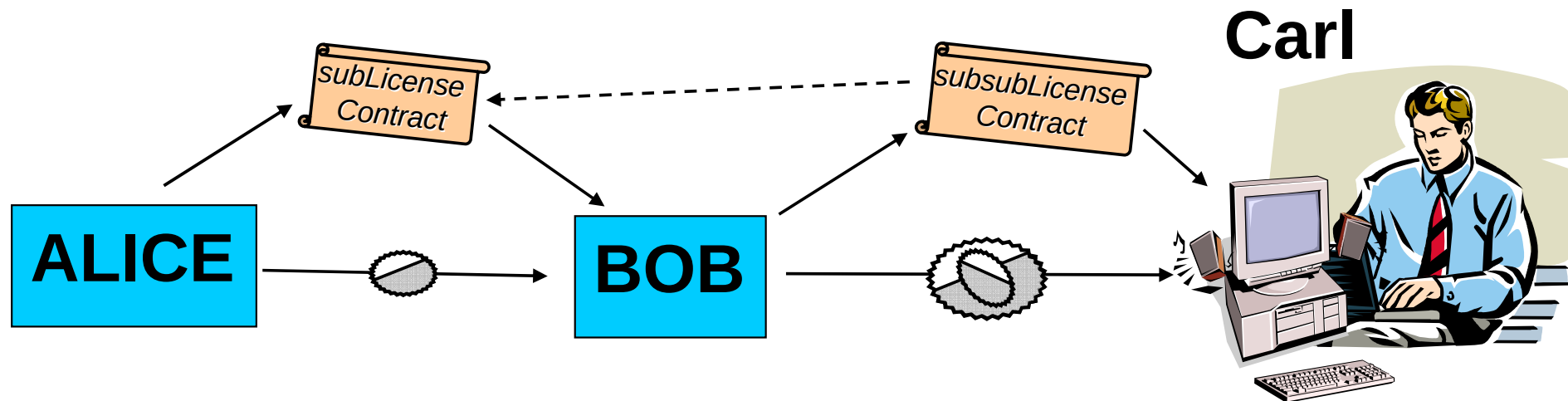


● DRM Classico

- ♣ DRM utilizzato a livello B2C
- ♣ Contenuti protetti dal Distributore (Windows Media DRM, iTunes, DMP, etc.)
- ♣ Contenuti che **non** possono essere integrati per produrre contenuti piu' complessi
- ♣ Le Licenze sono emesse **solo** verso l'utente finale

● DRM Evoluto (possibile secondo lo standard MPEG-21)

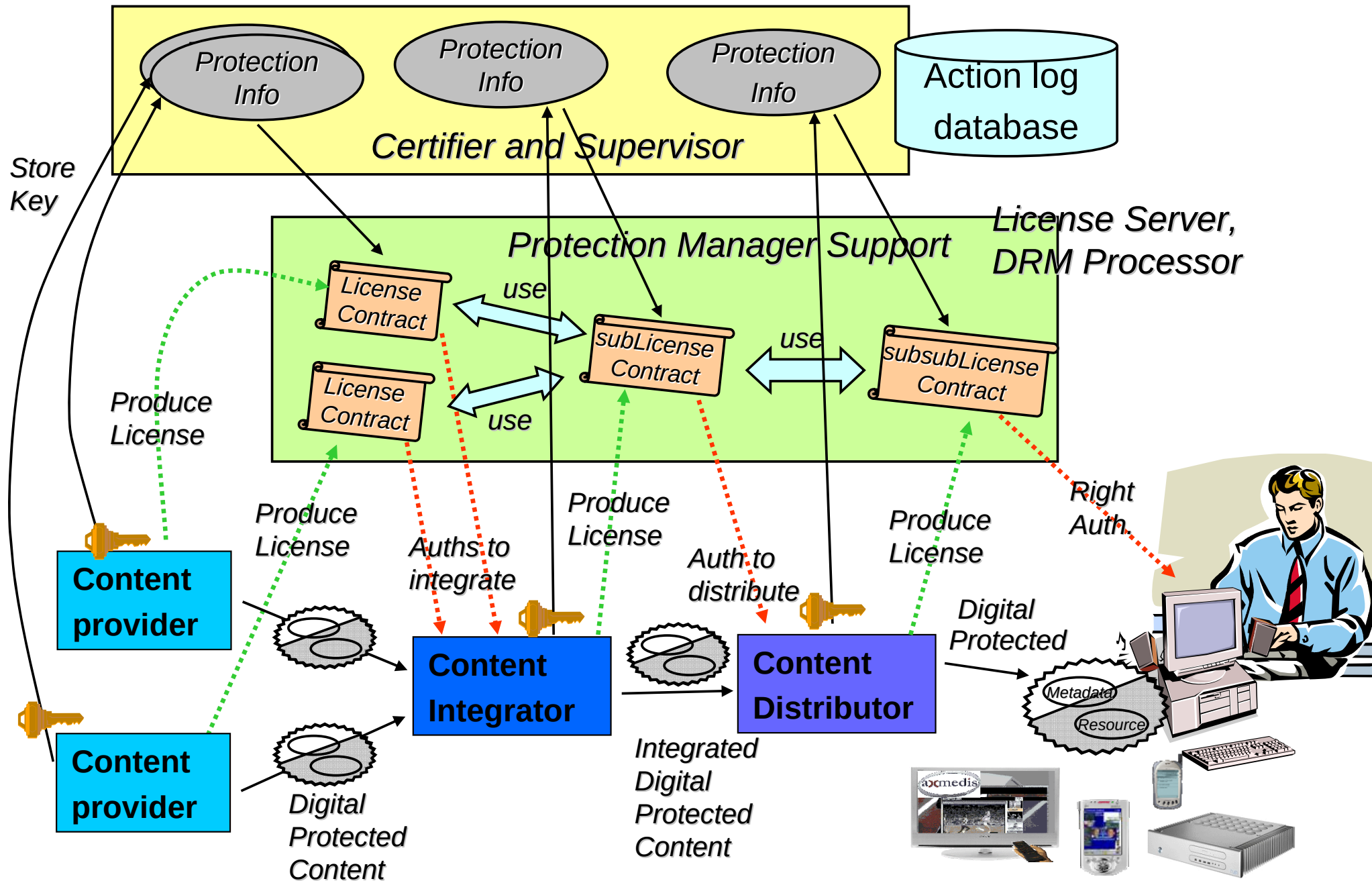
- ♣ DRM utilizzato a livello B2B e B2C
- ♣ Contenuti protetti dal produttore oppure dal distributore o dalla collecting society (solo AXMEDIS)
- ♣ Contenuti che **possono** essere integrati per produrre contenuti piu' complessi
- ♣ Le Licenze sono emesse verso ***l'utente semplice e business***,
 - ➔ Le licenze madri rilasciano diritti per la produzione di licenze verso l'utente finale, controllando in questo modo il distributore, l'integratore, etc..



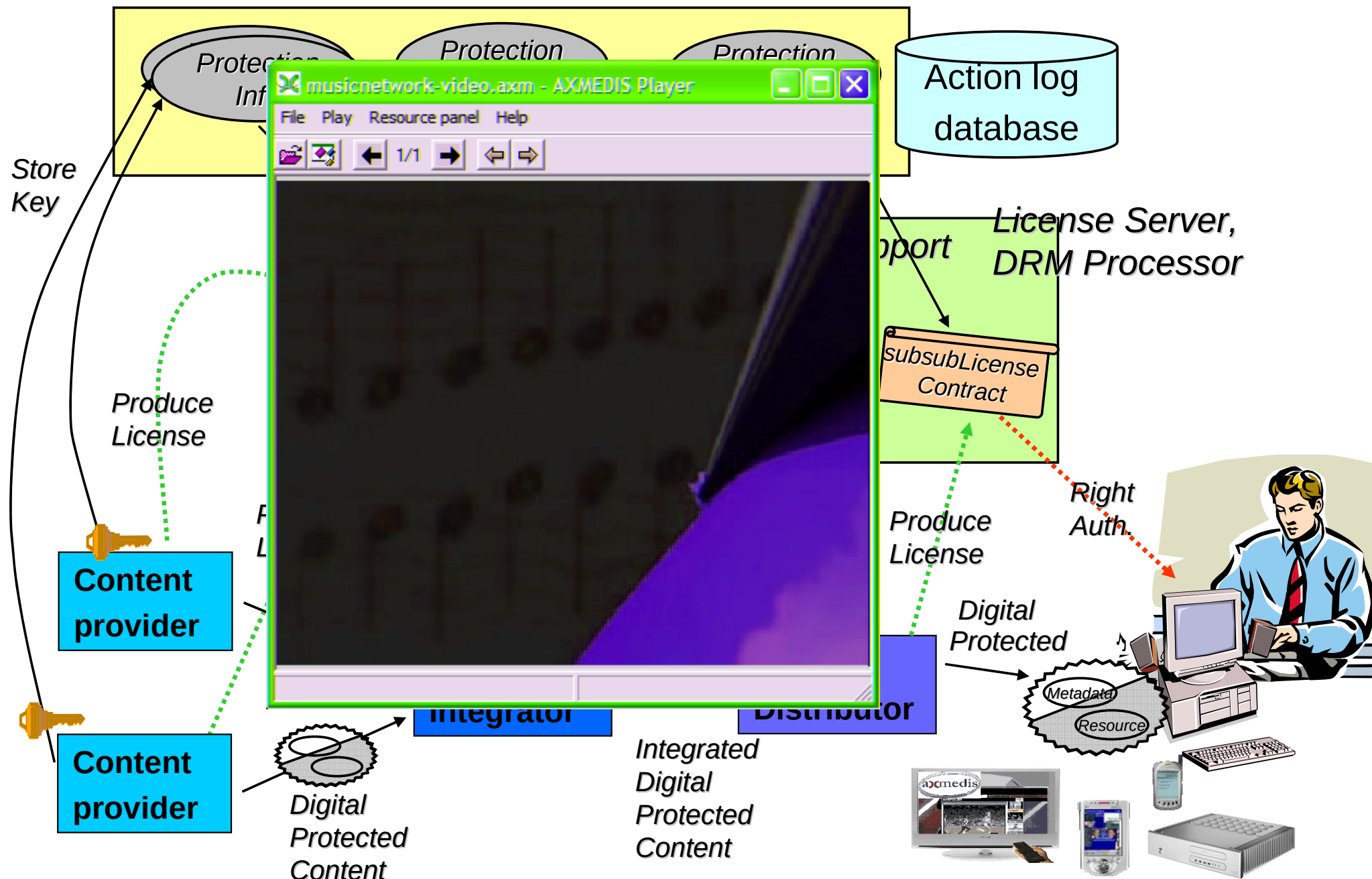
- **Alice states,** *"Bob has the right to issue a license to anyone to print the book in Italy"*
- **Bob states,** *"Carl has the right to print the book in Italy"*
- To solve the SubSubLicense for Carl all the connected Licenses are needed
- Licenses have to be accessible on Processing Engine



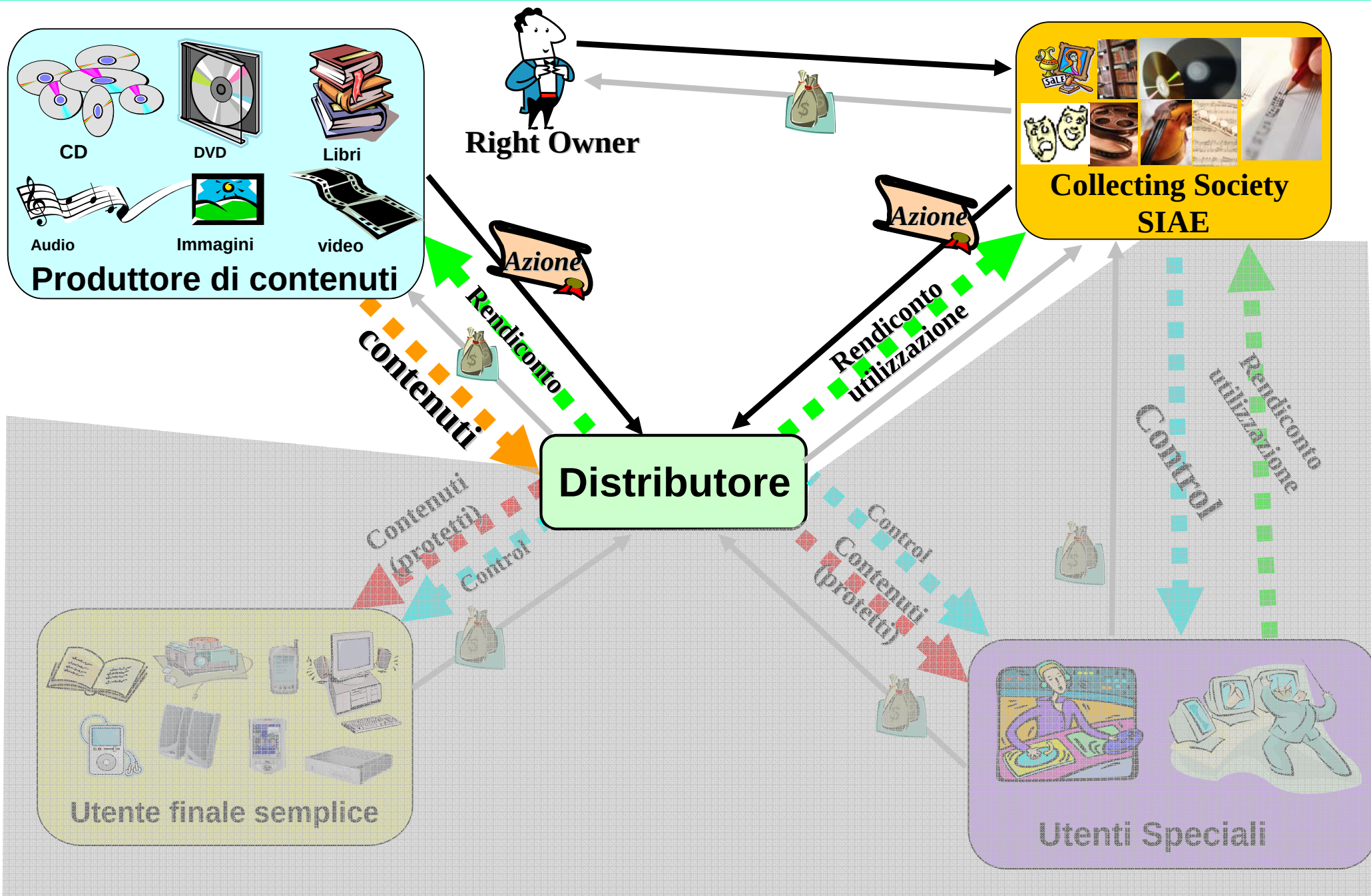
Managing License Chain and Protection Information

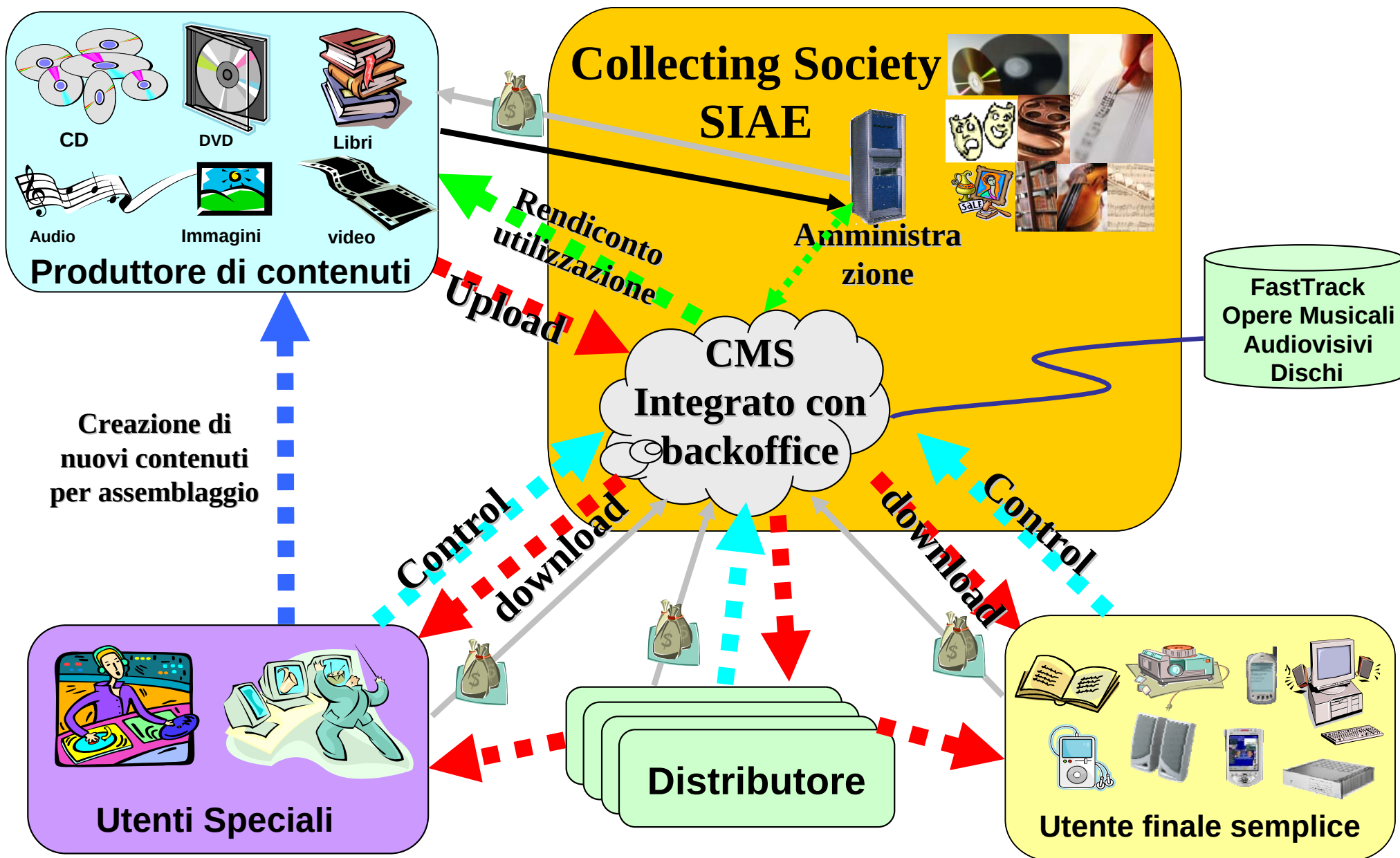


Managing License Chain and Protection Information



Conferimento della licenza di azione





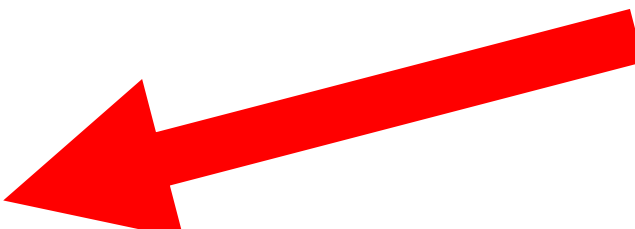
● CMS:

- ♣ database, connessione con altri DB (interoperabile), ricerche, ...
- ♣ gestione metadati diversi, lavoro con ID diversi: ISWC, ISRC, etc.
- ♣ gestione contenuti digitali di diverso tipo (interoperabile),...

● Backoffice deve permettere:

- ♣ L'automatizzazione della gestione delle richieste multiple di posting/upload e download, content processing e distribuzione in modo scalabile, flessibile e configurabile in modo semplice
- ♣ Il processing dei contenuti: conversione di formato, adattamento,...
- ♣ L'invio e ricezione da e verso altri DB o server, ...
- ♣ la protezione secondo modelli DRM diversi (interoperabile), etc.
- ♣ l'acquisizione delle informazioni di controllo da canali diversi
- ♣ la produzione di report in formati diversi configurabili verso Collecting Society, produttori, distributori, etc.
- ♣ L'integrazione semplice con sistemi di Workflow della produzione

Overview della presentazione

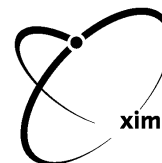
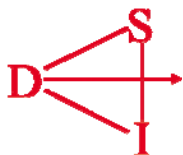
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What is AXMEDIS ?

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)**

AXMEDIS Partners



eutelsat

tiscali.



University of Reading



Fraunhofer Institut Graphische Datenverarbeitung



ACCADEMIA NAZIONALE DI SANTA CECILIA Fondazione



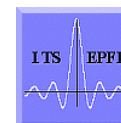
EXITECH



LABLITA Laboratorio Linguistico



ETRI



EPFL ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE



BBC



VRS GRUPÉ



UNIVERSITY OF LEEDS



Società Italiana degli Autori ed Editori



sDae SOCIEDAD DIGITAL DE AUTORES Y EDITORES



(Hexaglobe

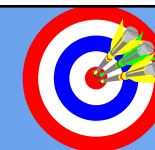


focusseek

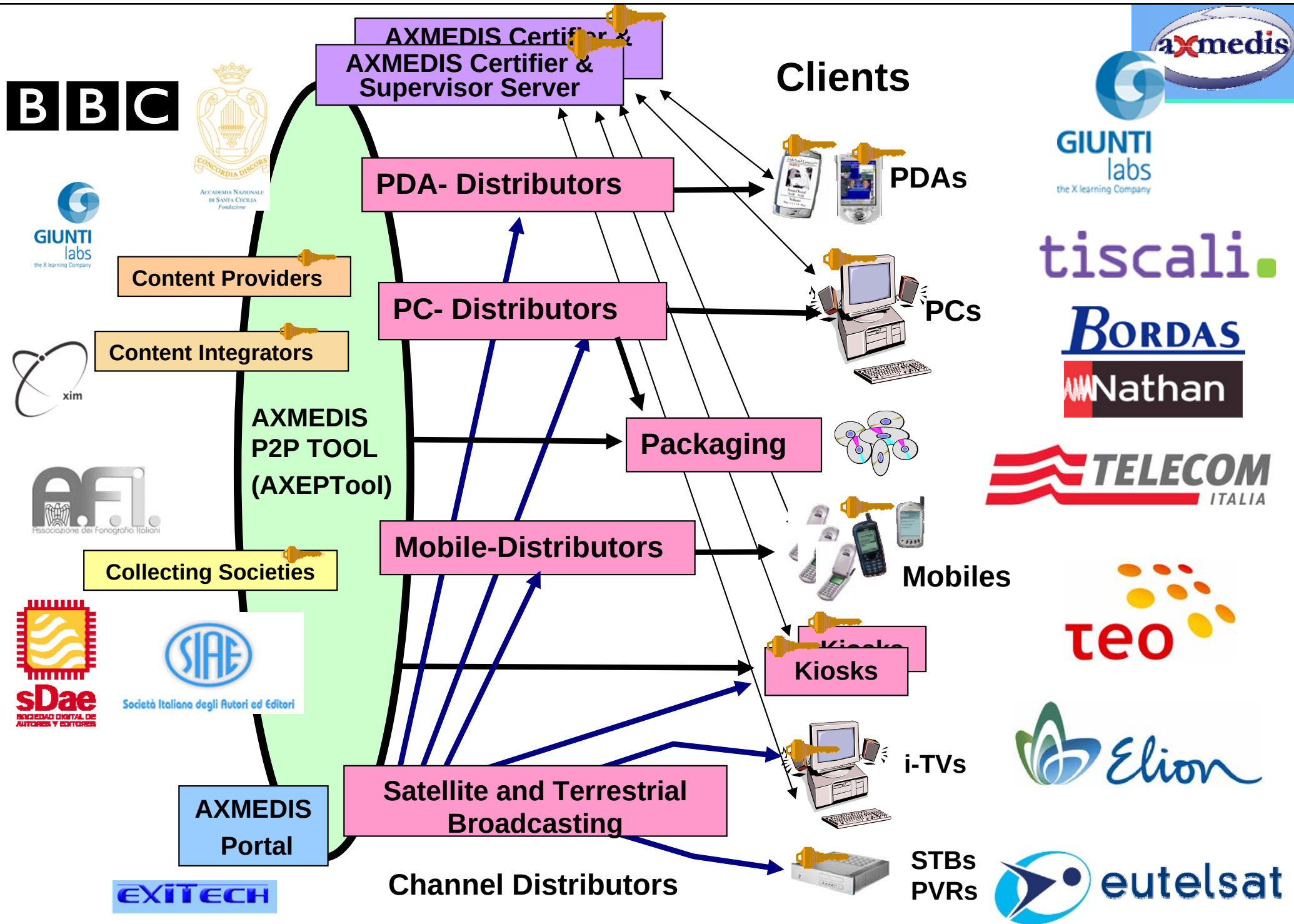


KAUNO TECHNOLOGIJOS UNIVERSITETAS

[rigel][engineering]



- **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



AXMEDIS Multichannel Content Distribution

- **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

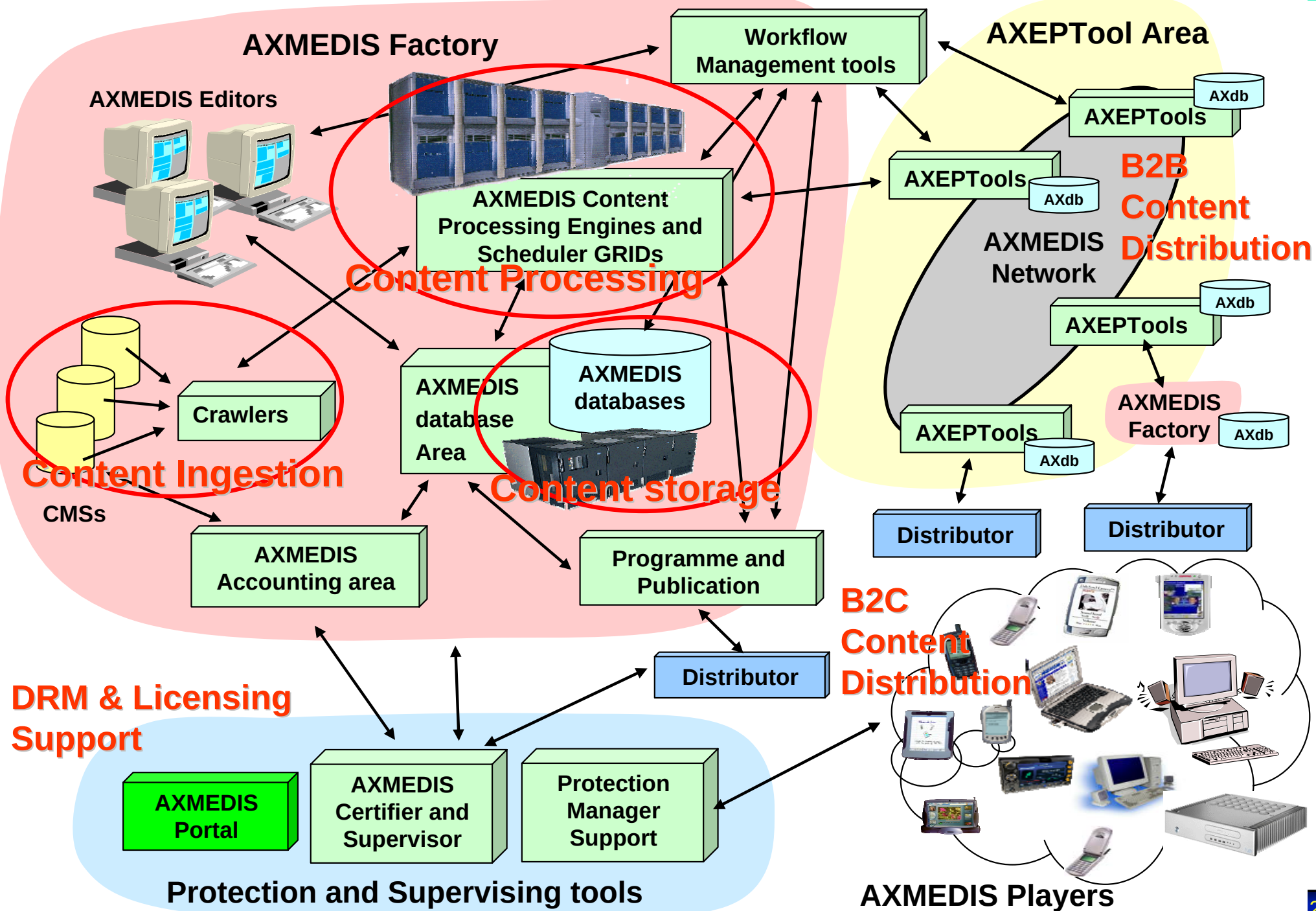
- **Technical Applications of AXMEDIS**

- ◆ 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.

- **AXMEDIS Framework for all**

- ◆ Set up and maintenance of an European Platform for improving the knowledge and tools on e-Commerce of digital goods.
- ◆ Making the AXMEDIS Framework accessible for all

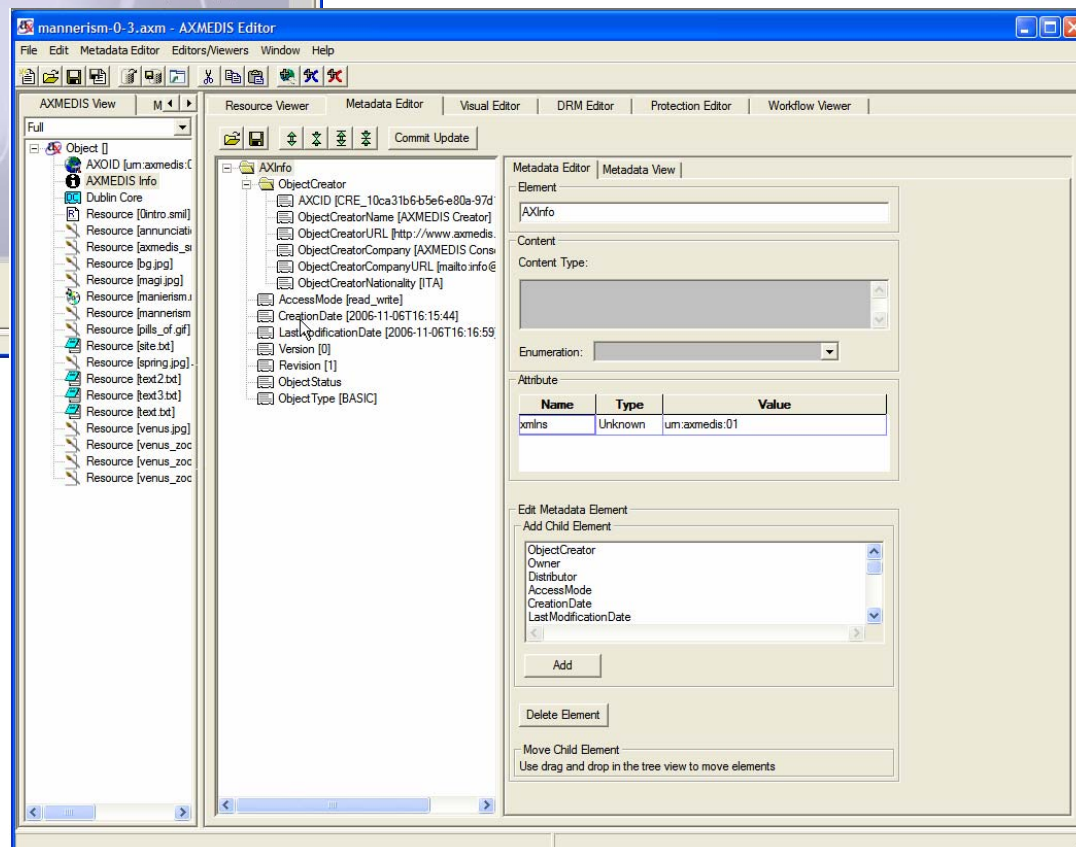
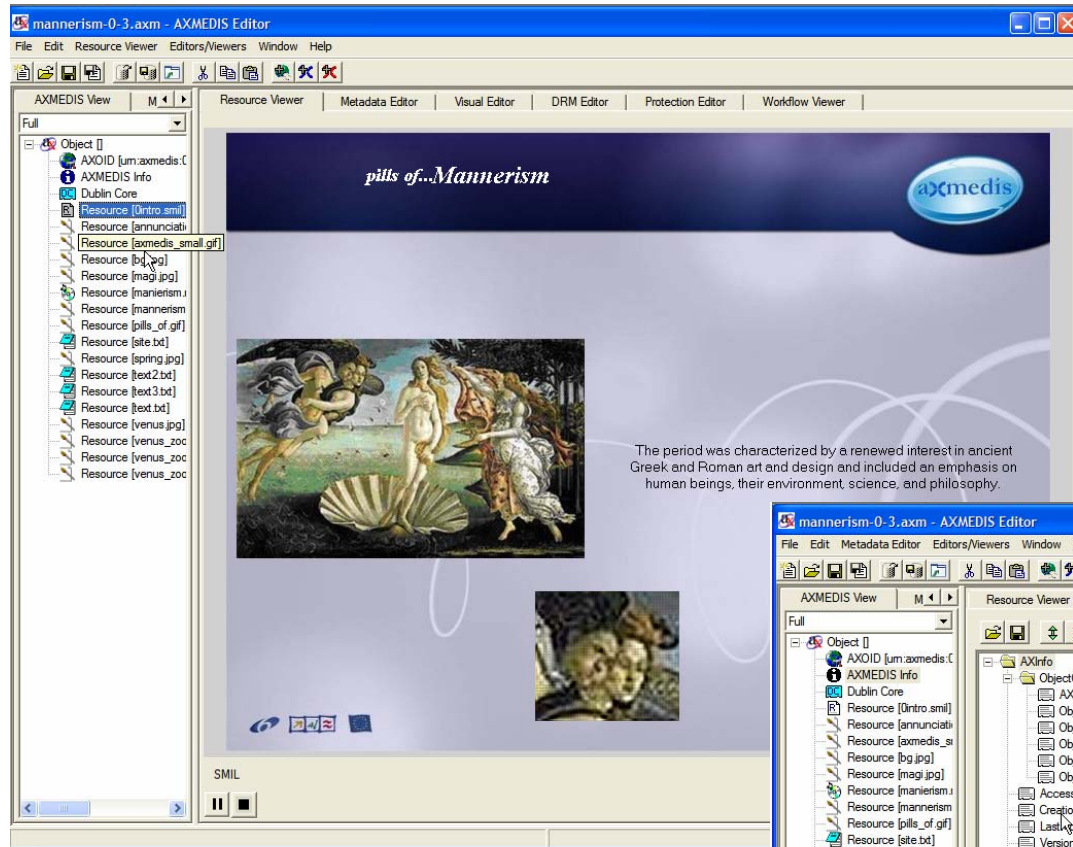
AXMEDIS Architecture



- **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 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 a la AXMEDIS: MPEG-21 and OMA
 - ◆ DRM Chain of licenses: B2B and B2C integration;
 - ◆ Integration of semantics and behavior into the content.
- **Supporting legal P2P for B2B and B2C**

AXMEDIS Editor

AXMEDIS



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:

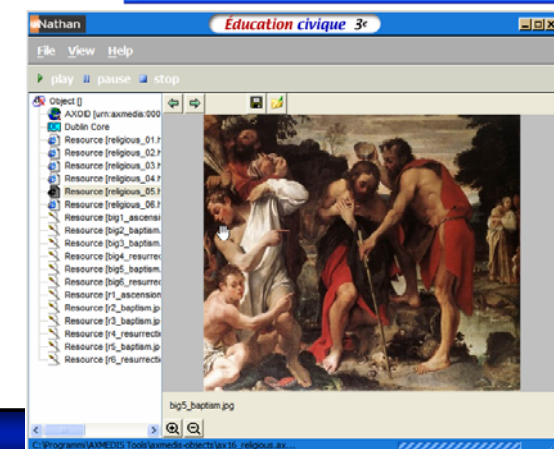
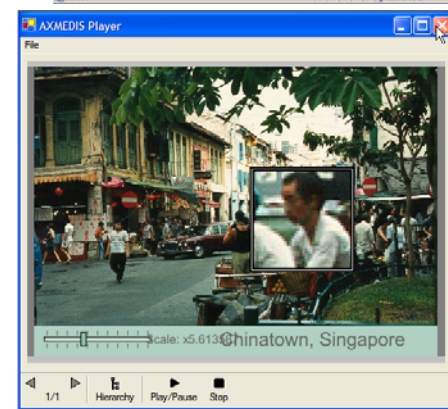
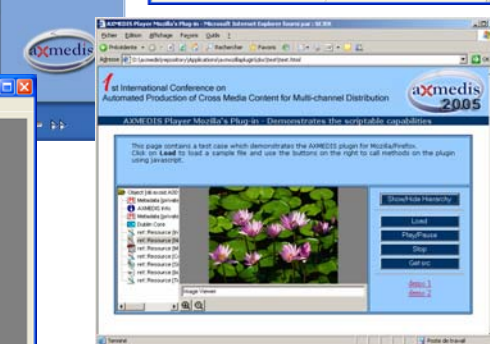
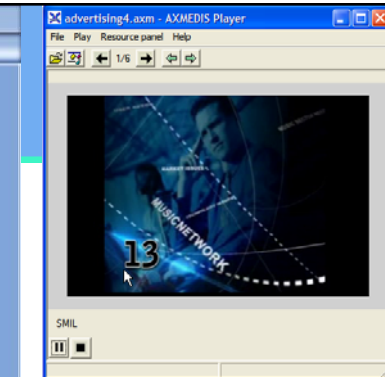
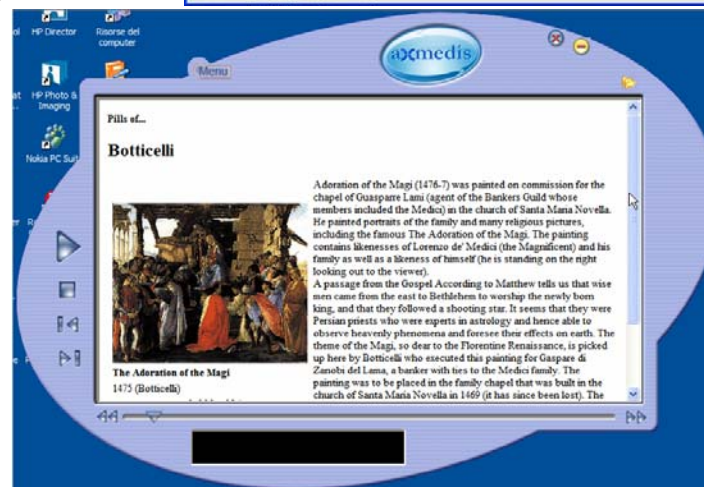
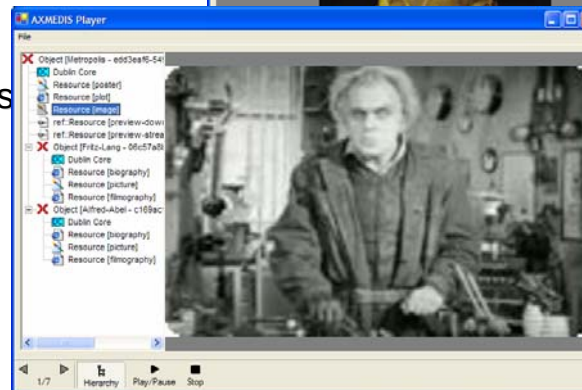
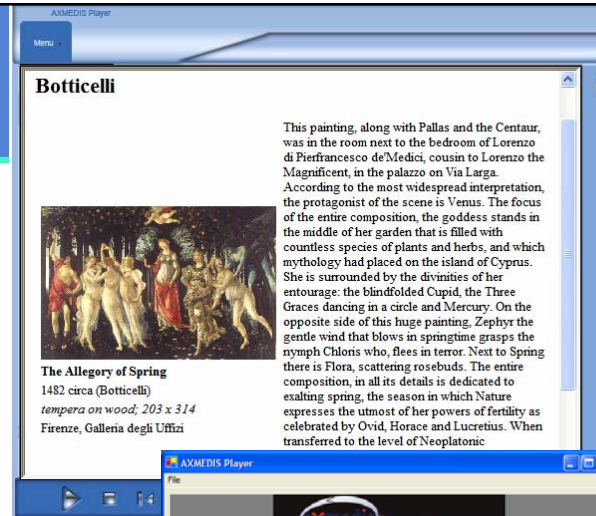
- ◆ MPEG-4 player, later SMIL

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

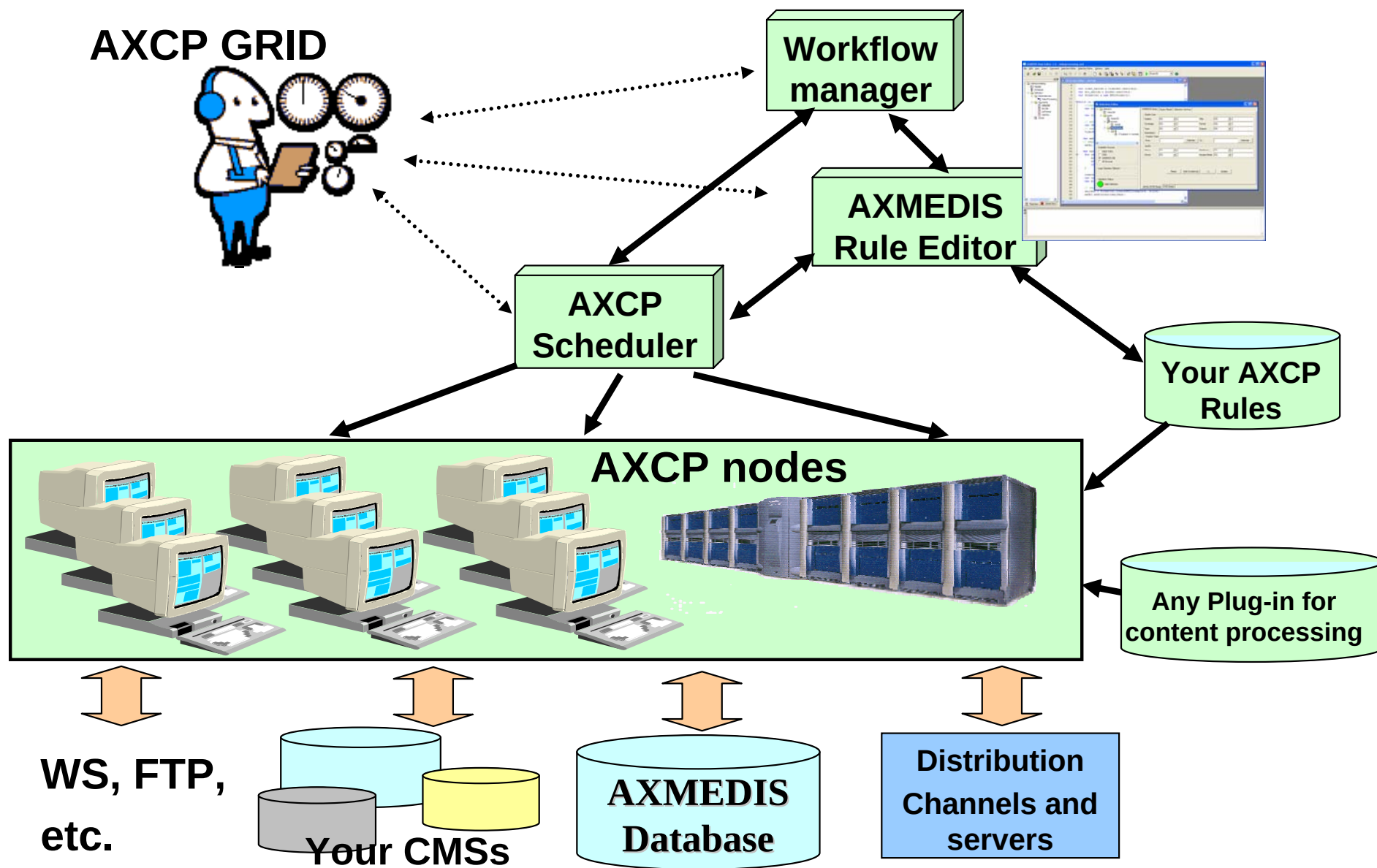


AXMEDIS Content Processing Capabilities

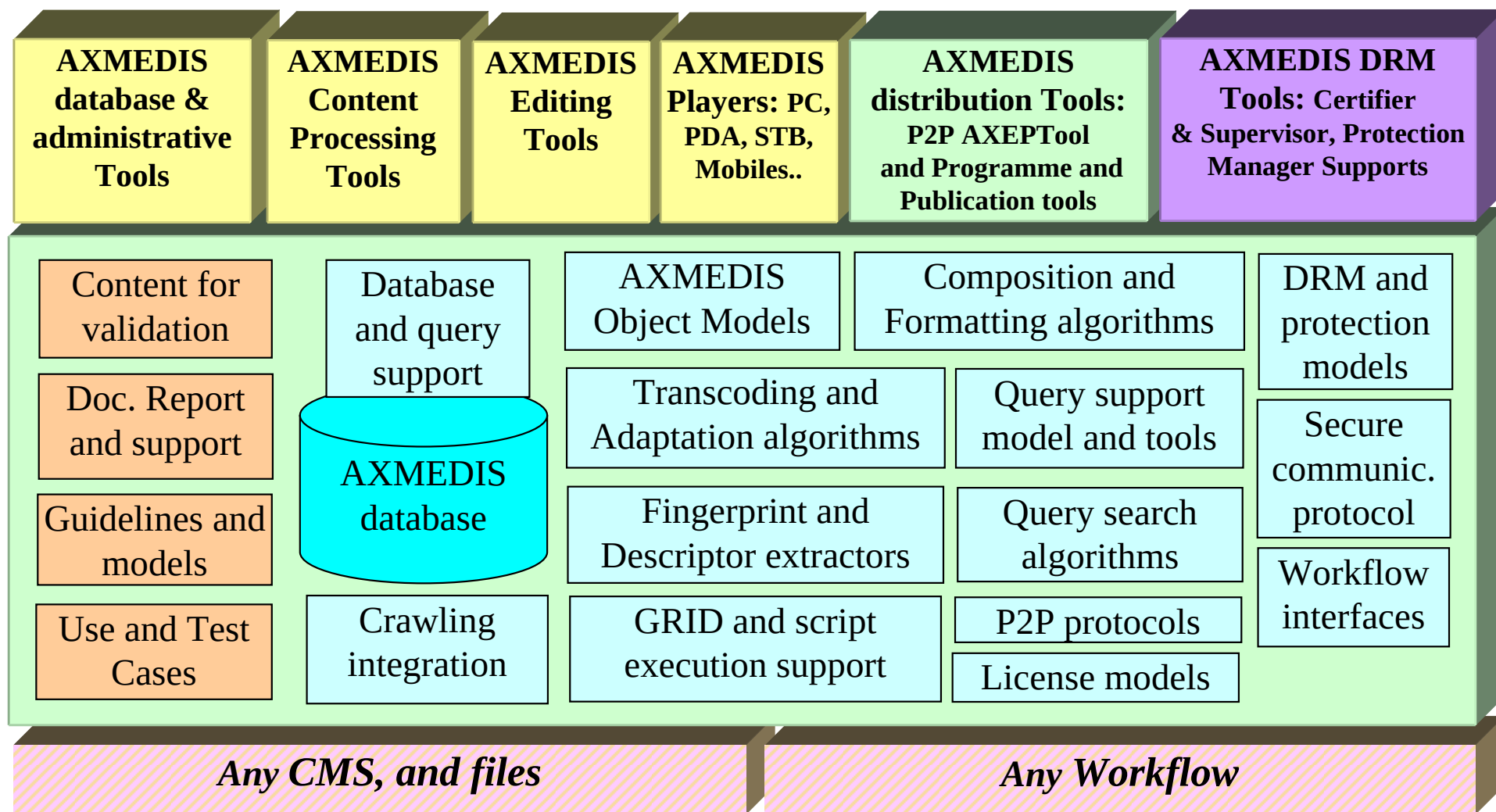
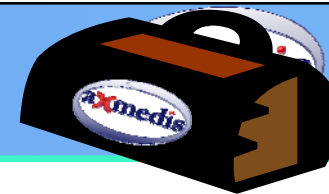
AXMEDIS

- 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 Profile management and processing
- Automated Content Publication/Download (P2P)
- Automated Content Distribution
- Automated Production of Content on Demand

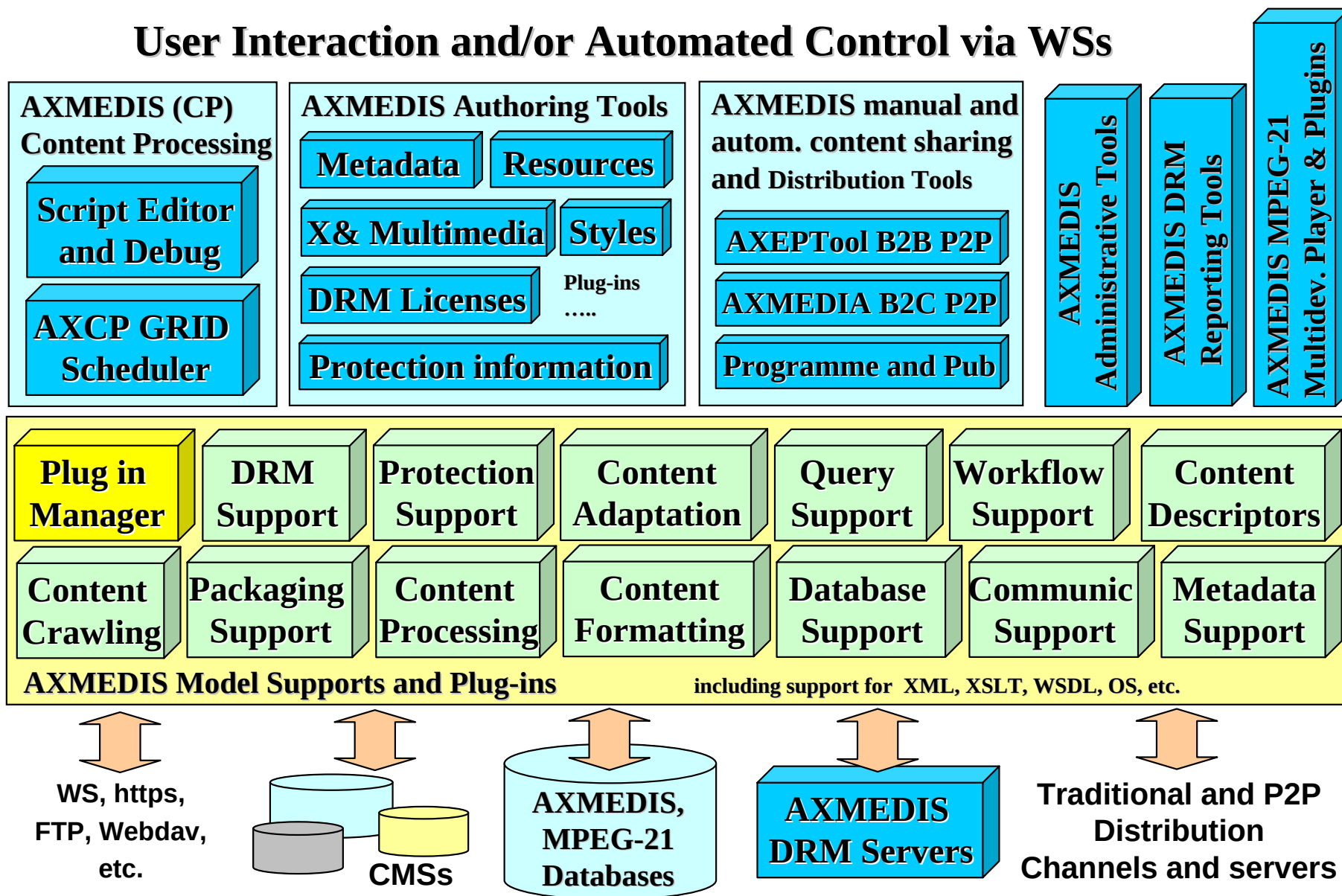
AXMEDIS Content Processing GRID



AXMEDIS Framework



User Interaction and/or Automated Control via WSs



Limited number of BMs	Larger number of BMs
Non allowed B2B DRM	Allowed B2B DRM
Proprietary DRM: Microsoft	Standard DRM: MPEG-21
Non interoperable DRM	Allowed Interoperable DRM: MPEG-21, OMA, etc.
Fixed Protection Model, limited to Key	Any Protection Model, key, algorithms, etc.
Separation among Content and license	Separation among Content and license
Signed Content Header	Signed Content AXINFO, any Metadata
Single channel	Multichannel with the same license
Players and Devices: PC MS-win, PDA, Zope	Players and Devices: PC MS-Windows, PDA Windows Mobile, STB, Linux OS, Mobiles
License Proprietary: Limited dictionary, Limited number of rights No OMA compatibility/interoperability	Licenses MPEG-21 REL: Expandable dictionary, Any type of rights Licenses OMA
Authentication of Player (device plus user)	Authentication of device, user, domain, etc.
Revocation per Player	Revocation per device, user, etc,
Revocation per license	Revocation per license
Only digital resources that can be included into Widows Media	Any digital format, of any type
Single Media content	Single and Cross media: SMIL, HTML, MPEG-4
Customizable Tools: servers	Customizable Tools: servers and player clients

Limited number of BMs	Larger number of BMs
Non allowed B2B DRM	Allowed B2B DRM
Standard DRM: MPEG-21	Standard DRM: MPEG-21
Non interoperable DRM	Allowed Interoperable DRM: MPEG-21, OMA, etc.
MPEG-4 IPMPX 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
Single channel	Multichannel with the same license
Players and Devices: Mobile, PC, players not available only libraries	Players and Devices: PC MS-Windows, PDA Windows Mobile, STB, Linux OS, Mobiles
Licenses MPEG-21 REL: Expandable dictionary, Any type of rights	Licenses MPEG-21 REL: Expandable dictionary, Any type of rights Licenses OMA
Authentication of Player (device plus user)	Authentication of device, user, domain, etc.
Revocation per Player	Revocation per device, user, etc,
Revocation per license	Revocation per license
Only audiovisual mainly audio and video	Any digital format, of any type
Single Media content	Single and Cross media: SMIL, HTML, MPEG-4
Customizable Tools: no tools, only libs	Customizable Tools: servers and player clients



European Commission

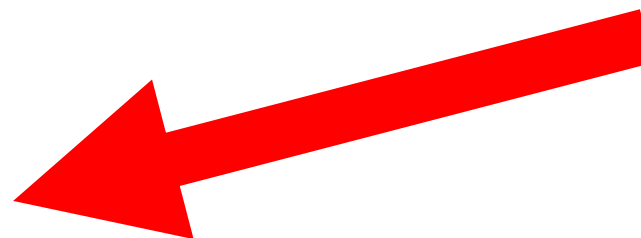


Information Society

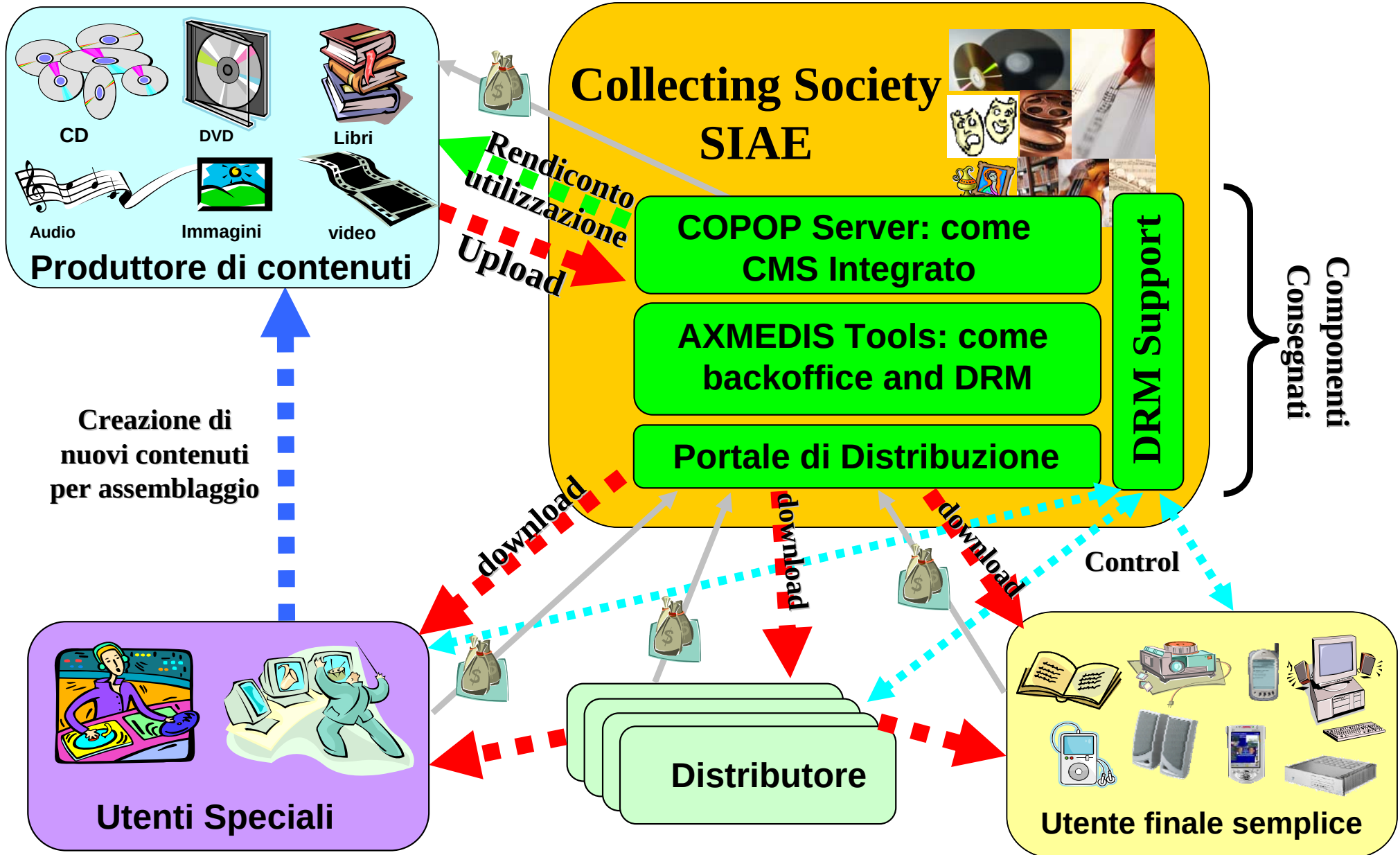


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SIAE Trial il dimostrativo



- **Un'applicazione dell'AXMEDIS Framework che sfrutta:**
 - ◆ Soluzioni di registrazione e autenticazione utente, certificazione di programmi
 - ◆ Strumenti di produzione automatica di contenuti
 - ➔ Adattamento, cambio formati, etc
 - ◆ Strumenti di protezione automatica
 - ◆ Strumenti di controllo, monitoraggio diritti, contabilizzazione/accounting, reporting, DRM
 - ◆ Strumenti di esecuzione sicuri (Player)
 - ◆ Database contenuti MPEG-21, risorse, dati, etc.
 - ◆ Modello AXMEDIS, MPEG-21



European Commission



Information Society



● COPOP: Portale per l'immissione di contenuti di Autori ed Editori

COPOP Server: come CMS Integrato

- ◆ **COPOP Client** (Content Posting Portal):
 - ➔ applicazione Java per inserire metadata e inviare contenuti digitali al COPOP Server
- ◆ **COPOP Server**
 - ➔ Definizione delle regole di uso: free, pay per play, a scadenza, etc.
 - ➔ Controllo dello sfruttamento dei diritti
 - ➔ Produzione degli oggetti AXMEDIS ed invio di questi al **Web Distribution Portal**

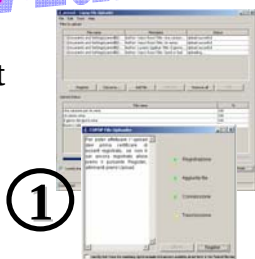
● Web Distribution Portal

Portale di Distribuzione

- ◆ Pubblicazione automatica degli oggetti prodotti
- ◆ Ricerche dei contenuti, browsing, etc.
- ◆ Vendita e produzione di Licenze di Uso
- ◆ Carta prepagata per accounting dell'utente

Autore/Editore SIAE back office DRM support

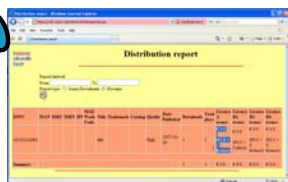
Posting Content with COPOP Client



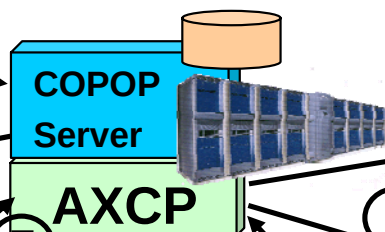
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Reporting

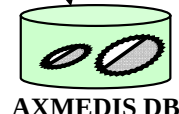


② ③



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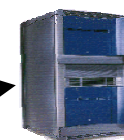
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⑤

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Other Third party DRM and Accounting Server

⑤

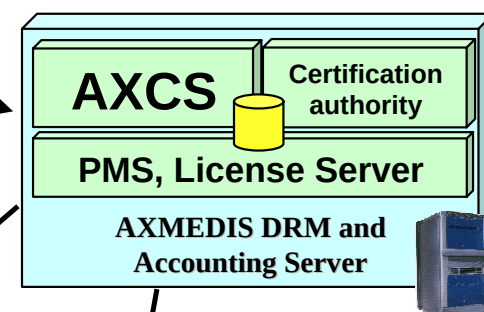
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Accounting

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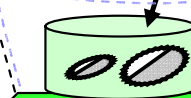
CAMART

⑤

⑥

⑥ ⑦

Search, buy, download



WEB Distribution Portal

⑦

Distribution

⑥

Authentication, grant authorisation, protection information

Utente Semplice
o Speciale



Fasi del SIAE trial AXMEDIS

- 1. File upload con COPOP Client**
- 2. Accesso al COPOP server, visione e metadata**
- 3. Accesso al COPOP server, definizione DRM**
- 4. Amministrazione del COPOP server**
- 5. Backoffice, produzione e distribuzione B2B**
- 6. L'utente finale sul Portale di distribuzione**
- 7. Reporting**
 1. Reporting sul Portale di Distribuzione (Utente)
 2. Reporting sul COPOP Server SIAE (Amministratore)
 3. Reporting per l'Editore/Autore



European Commission



Information Society



Caratteristiche della soluzione AXMEDIS

AXMEDIS

- **In grado di automatizzare la gestione del backoffice**
 - ◆ Acquisizione di contenuti digitali e metadata da sorgenti qualsiasi
 - ➔ Oggetti singoli, ma anche complessi, composti da molti sottoggetti (collezioni liste, cross mediali, etc.).
 - ◆ Gestione di contenuti digitali con database
 - ◆ Produzione di contenuti digitali in qualsiasi formato, decine algoritmi diversi per la loro conversione di formato, risoluzione, dimensioni, scalatura, prod. ringtones, etc.
 - ◆ Distribuzione di contenuti verso database e canali diversi
 - ◆ DRM e protezione: MPEG-21, OMA, etc.
 - ◆ Interoperabile anche con modelli diversi
- **Scalabile**
 - ◆ Tecnologia GRID
 - ◆ AXMEDIS Content Processing Language
- **Customizzabile**
 - ◆ La tecnologia rimane invisibile all'utente
 - ◆ Player o altri SW Tools che possono avere il vostro marchio



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● INIZIO DEMO



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Infurzeation Society



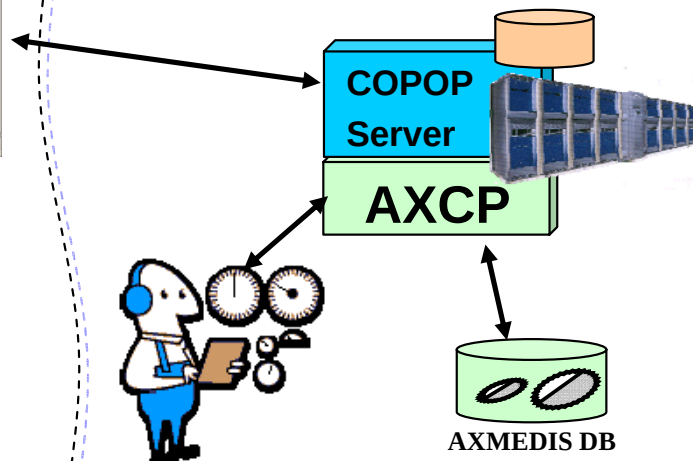
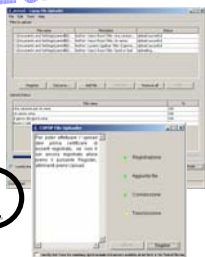
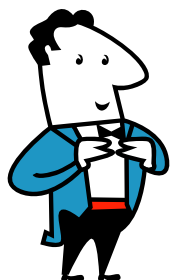
Fase 1: file upload with COPOP Client



Autore/Editore SIAE back office

Posting Content
with
COPOP Client

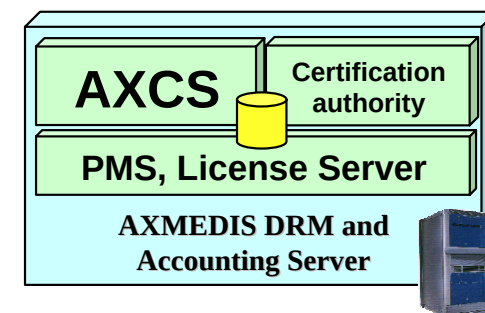
①



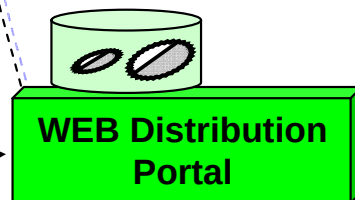
DRM support



Other Third party
DRM and
Accounting Server



Search, buy, download



Distribution

Utente Semplice
o Speciale

Fase 1: file upload with COPOP Client

- **Il creatore (Autore/Editore) fa l'upload di un oggetto**
 - ◆ utilizza il tool software detto COPOP-Client
 - ➔ connesso con il COPOP Server
 - ➔ tramite una comunicazione sicura, protetta ed efficiente
 - ◆ Identifica il o i file da inviare alla SIAE
 - ➔ Definisce i metadati
 - ➔ Fa partire l'upload
 - ◆ L'utente puo' farlo
 - ➔ utilizzare un COPOP wizard oppure un'interfaccia professionale, oppure anche
 - ➔ in automatico producendo dei file XML
 - ◆ A fronte di questa operazione
 - ➔ Vengono immagazzinate nel COPOP Server le informazioni in un database: metadati e file digitali
 - ➔ Queste sono svolte in un processo sul GRID, scalabile, configurabile, aperto ed estendibile per le vostre esigenze
 - ◆ Chi ha fatto l'upload del file riceve una email di conferma

Fase 1: file upload with COPOP client

AXMEDIS

COPOP File Uploader - Project2

File Project Tools

Selected files

Register

Upload status

☐ I certify that

Not connecte

Classification data

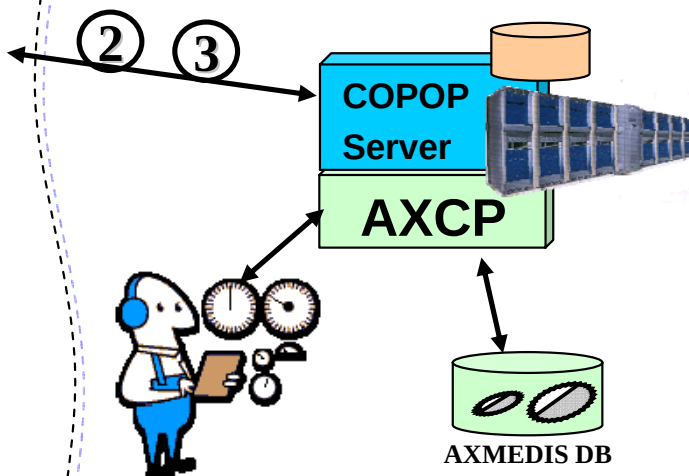
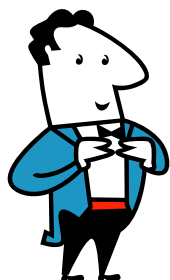
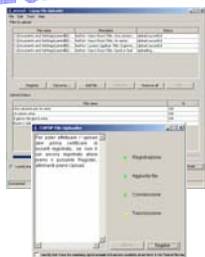
Title (*)	Language	Title		Add
	eng	video		
Subject	Language	Subject		Add
Description	Language	Description		Add
Creator (*)	Creator			Add
	creator			
Publisher	Publisher			Add
Contributor	Categ...	Role	Name	Add
Language	Language			Add
Type	Video	Genre	Advertising/promotional	
(*) denotes mandatory fields				
OK				
Advertising/promotional Advertising/promotional Documentary Horror Views Animation Drama Fiction Instrumental Religious				

Autore/Editore

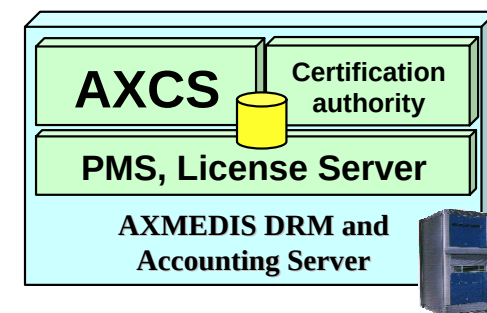
SIAE back office

DRM support

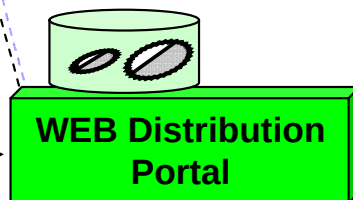
Posting Content
with
COPOP Client



Other Third party
DRM and
Accounting Server



Search, buy, download



Distribution

Utente Semplice o Speciale

- L'autore/editore puo' andare sul portale COPOP Server della SIAE a vedere lo stato dei suoi file digitali (lavori):
 - ◆ Per quelli che ha inviato di recente puo'
 - ➔ **Modificare le informazioni: metadati**
 - ➔ Definire le regole di distribuzione e i prezzi, il DRM
 - ◆ Per gli altri puo' vedere lo stato del loro consumo come sara' mostrato in seguito



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Fase 2: Accesso al COPOP server, visione e metadata

COPOP Personal page - Windows Internet Explorer

https://192.168.0.108:8443/COPOP/personalhome.jsp Certificate Error Live Search

File Edit View Favorites Tools Help

COPOP Personal page

test.mp3	brio (eng)	view	18/01/2007	view	Distribution	☐
04.Gloria gloria in excelsis Deo.mp3	Gloria gloria in excelsis Deo. (eng)	view	18/01/2007	view	Distribution	☐
04.Gloria gloria in excelsis Deo.mp3	Gloria gloria in excelsis Deo. (eng)	view	18/01/2007	view	Distribution	☐
Track 02.mp3	non lo so (eng)	view	18/01/2007	view	Distribution	☐
Track 02.mp3	non lo so (eng)	view	18/01/2007	view	Distribution	☐
tiromancino - Il tiranno.wma	Tiromancino (eng)	view	18/01/2007	view	Distribution	☐
tiromancino - Il tiranno.wma	Tiromancino (eng)	view	18/01/2007	view	Distribution	☐
01_SIAE_DEMO_VIDEO2.wmv	video (eng)	edit	29/01/2007	edit	Uploaded	☐
01. Symphony no. 3 in Eb op. 55 ? Eroica? - Allegro con brio.mp3	Beethoven 3rd - 01 (eng)	-	-	-	Failed temporary object creation	☐

View reporting data for selected Delete selected Revoke selected

https://192.168.0.108:8443/COPOP/editdrmpage.jsp?AXOID=urn:axmedis:00000:OBJ:f7b4b4be-f4a4-4e1c-8edc Internet 100%

Fase 3: Accesso al COPOP server, definizione DRM

- **L'autore/editore puo' andare sul portale COPOP Server della SIAE a vedere lo stato dei suoi file digitali (lavori):**
 - ◆ Per quelli che ha inviato di recente deve puo'
 - ➔ Modificare le informazioni: metadati
 - ➔ **Definire le regole di distribuzione e i prezzi, il DRM**
 - ◆ Per gli altri puo' vedere lo stato del loro consumo come sara' mostrato in seguito
- **Una volta definite le regole di distribuzione**
 - ◆ Il file digitale viene prodotto nelle sue versioni finali (per esempio per PC, per mobile, etc.; diversi formati, diverse risoluzioni, etc.)
 - ➔ Ogni versione puo' essere
 - protetta in secondo vari DRM
 - inviata in modo automatico ad un certo numero di Server, database, etc.
 - In questo caso al Web Distribution Server SIAE.
 - ◆ Viene inoltre prodotta una Licenza Madre per ogni diritto e modello concesso in formato MPEG-21 e inviata al License Server (AXMEDIS PMS)

DRM Model - Windows Internet Explorer

https://192.168.0.108:8443/COPOP/editdrmpage.jsp?AXOID=urn:axmedis:00000:0E Certificate Error Live Search

File Edit View Favorites Tools Help

DRM Model

[homepage](#)
[edit profile](#)
[logout](#)

DRM model editing

Filename: 01_SIAE_DEMO_VIDEO2.wmv
Title: video (eng)
Description: NONE

☐ Free play
☒ Non free play
☐ Unlimited play

☐ Time-based play (months, days or hours)

☒ One-time-based play (pay-per-play)

☐ Price to play at low quality
☒ Price to play at high quality 1 €

Submit Cancel

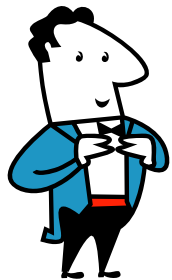
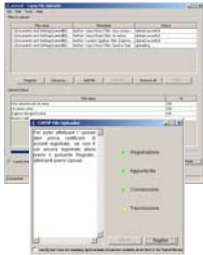
savedrmpage.jsp Internet 100%

Fase 4: Amministrazione del COPOP server



Autore/Editore

Posting Content
with
COPOP Client

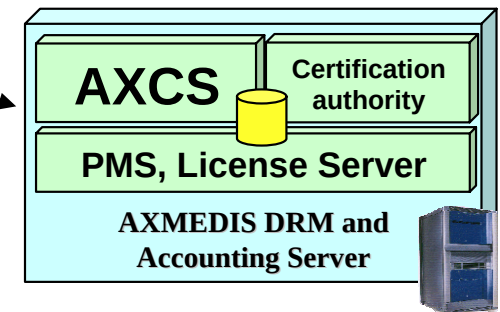
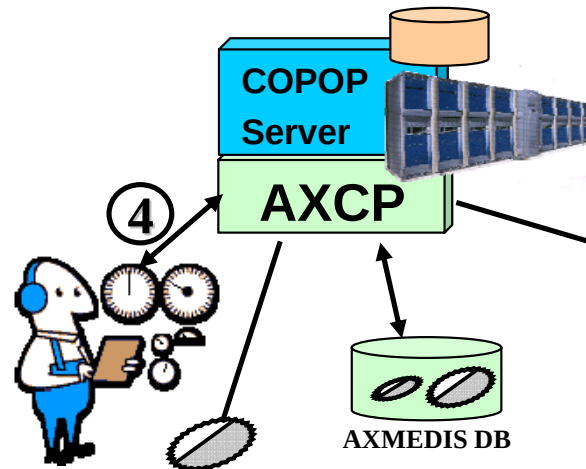


SIAE back office

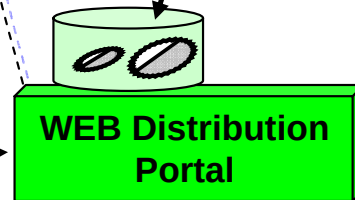
DRM support



Other Third party
DRM and
Accounting Server



Search, buy, download



Distribution

Utente Semplice o Speciale

Fase 4: Amministrazione del COPOP server

- **l'Amministratore del COPOP Server e del backoffice in generale puo'**
 - ◆ Verificare i contenuti uploadati
 - ◆ Controllare e mandare avanti in produzione e distribuzione i nuovi upload per i quali sono state definite regole di DRM
 - ◆ Verificare il traffico in entrata
 - ◆ Modificare i meccanismi di backoffice in modo semplice e flessibile

- **Ogni Oggetto e/o versione**
 - ◆ puo' essere inviata in modo automatico ad un certo numero di Server di distribuzione, database o che altro.
 - ➔ In questo caso al **Web Distribution Server SIAE**.
 - ◆ E per ognuno di questi, viene prodotta una Licenza Madre digitale per ogni diritto e modello concesso e inviata al License Server (AXMEDIS PMS)
 - ➔ Licenza digitale in formato MPEG-21

Fase 4: Amministrazione del COPOP server

COPOP Administrator page - Mozilla Firefox

File Modifica Visualizza Cronologia Segnalibri Strumenti ?

https://192.168.0.108:8443/COPOP/personalhome.jsp

Come iniziare Ultime notizie

COPOP Administrator page Welcome

[homepage](#)
[edit profile](#)
[logout](#)

testadmin - null

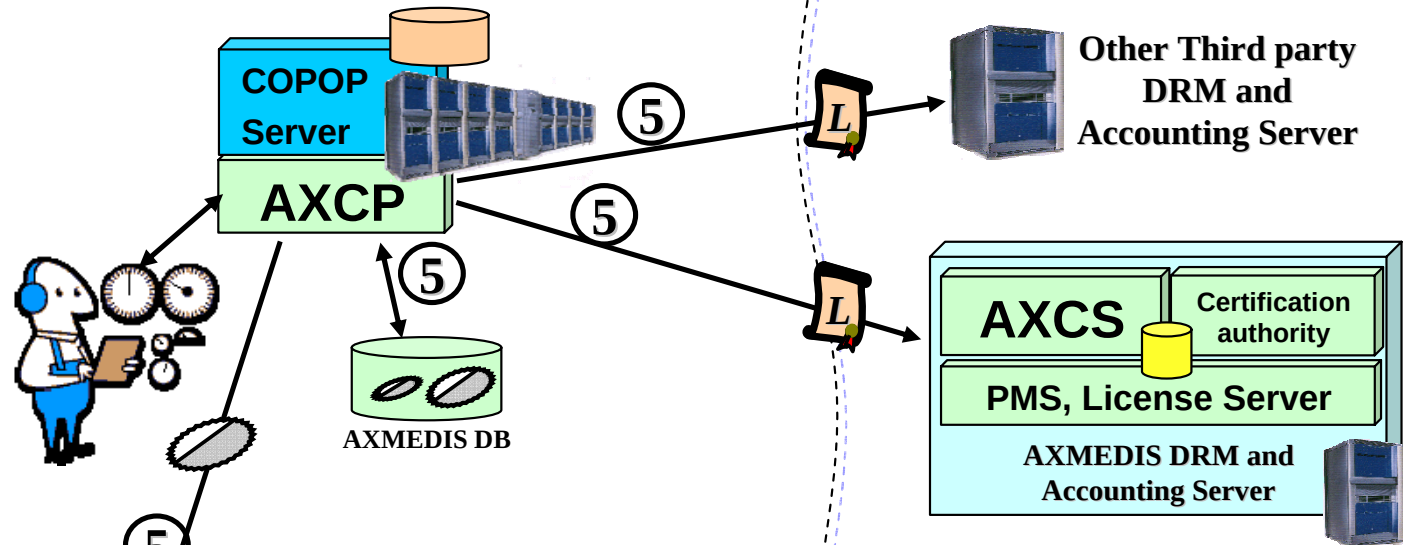
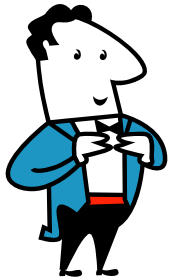
Filter by with value

User name	Filename	Title	Metadata	Upload Date	DRM Info	Status	Approved	Select all Deselect all
Tommaso Martini	Sinfonia n. 9 di Beethoven (Scherzo).wma	Sinfonia9-test-20070116 (eng)	view	16/01/2007	view	Distribution	Approved	☐
Tommaso Martini	Sinfonia n. 9 di Beethoven (Scherzo).wma	Sinfonia9-test-20070116 (eng)	view	16/01/2007	view	Distribution	Approved	☐
Tommaso Martini	Sinfonia n. 9 di Beethoven (Scherzo).wma	Sinfonia9-test1-20070116 (eng)	view	16/01/2007	view	Distribution	Approved	☐
Tommaso Martini	Sinfonia n. 9 di Beethoven (Scherzo).wma	Sinfonia9-test1-20070116 (eng)	view	16/01/2007	view	Distribution	Approved	☐
Tommaso	desktop.ini	desktop-email-test-20070126	-	-	-	Failed temporary	-	☐

Trasferimento dati da 192.168.0.108...

192.168.0.108:8443

DRM support

[illegible]

Search, buy, download

WEB Distribution Portal

Distribution

Utente Semplice o Speciale

Fase 5: backoffice, produzione e distribuzione B2B

- **Backoffice produzione e distribuzione**
 - ◆ Il file digitale e' arrivato e le regole di DRM sono state definite
 - ◆ Impiego del GRID AXMEDIS di Content Processing (AXCP), aperto configurabile, flessibile, etc. come visto in precedenza
- **Il file digitale viene gestito in modo AUTOMATICO per generare svariate versioni**
 - ◆ diversi formati, diverse risoluzioni, etc., per PC, per mobile, per PDA,etc.....
 - ◆ se necessario applicare diversi e vari DRM: MPEG-21 e OMA, etc.
- **Ogni versione puo' essere inviata in modo AUTOMATICO**
 - ◆ ad un certo numero di Server remoti e/o Database.
 - ◆ In questo caso al Web Distribution Server SIAE.
- **Per ogni versione possono essere prodotte Licenze**
 - ◆ Madre per ogni diritto e modello concesso in formato MPEG-21 e inviate al License Server (AXMEDIS PMS)
 - ◆ Oppure altre licenze per altri DRM



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Fase 5: backoffice, produzione e distribuzione B2B



00:00:10

Close

c:\ Collegamento a PMSD.exe

Socket connection successful: master

c:\ Collegamento a axcpgridnode.exe

```

*****
* Welcome on AXMEDIS AXCP GRID NETWORK *
*****

Initializing AXCP GRID NODE
-> Starting GRID peer functions...
-> GRID peer functions started
-> GRID Cpu Monitor started
AXCP GRID NODE Ready
Connected to AXCP Scheduler (192.168.0.108)
Profile request by 192.168.0.108
Profile sent to 192.168.0.108
File dimension = 2330
Assigned Executor ID = 1
job received
31396
31396
File request: File transfer success
submitting rule to JS engine...
starting rule execution...
* About to connect() to 127.0.0.1 port 8080
* Trying 127.0.0.1... * connected
* Connected to 127.0.0.1 (127.0.0.1) port 8080
> GET /axcpdir/TMP-urn_axmedis_000000_0BJ_f7b4b4be-f4a4-4e1c-8edd-2bee6d3b14fa-MD
.xml HTTP/1.1

```

AXMEDIS - Rule Scheduler

Program Settings View Commands ?

Rule Name	AXRID	Rule Version	Rule Status	Job ID	Executor ID	Start Time	Start Date	Periodicity	Number of ...	Installation ...	Expiration ...
CopopRuleS...	axcprule:0...	1.0	running	0	1	13:02:18	29/01/2007	0 Minute(s)	0	2007-01-29...	2007-01-30...

Executor N...	IP Address	CPU Type	Clock	OS	Transfer Rate	HD Space	Status	Job ID	Executor ID	Cpu Usage	From	To
DISITMOBILE3	192.168.0....	x86 Family ...	2.16 (GHz)	Windows N...	1 (MB/s)	5.13 (GB)	busy	0	1	45.00%	12:00:00	12:59:00

29/01/2007 13:02:19

Recently Published - Mozilla Firefox

File Modifica Visualizza Cronologia Segnalibri Strumenti ?

http://192.168.0.108:8080/SIAEDistributionPortal/recent.jsp

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- [16:46 24/1/2007 - Tramonto-test-20070124 \(Image\)](#)
- [16:46 24/1/2007 - Tramonto-test-20070124 \(Image\)](#)
- [16:45 24/1/2007 - Ninfee-test-20070124 \(Image\)](#)
- [16:45 24/1/2007 - Ninfee-test-20070124 \(Image\)](#)
- [16:22 24/1/2007 - NewStories-test-L4H-20070124 \(Audio\)](#)
- [16:22 24/1/2007 - NewStories-test-L4H-20070124 \(Audio\)](#)
- [11:24 24/1/2007 - Sinfonia9-test-L4H-20070124 \(Audio\)](#)
- [11:24 24/1/2007 - Sinfonia9-test-L4H-20070124 \(Audio\)](#)
- [10:13 24/1/2007 - pdf-test-L4H-200701024 \(Document\)](#)
- [10:13 24/1/2007 - pdf-test-L4H-200701024 \(Document\)](#)
- [18:27 18/1/2007 - non lo so \(Audio\)](#)
- [18:27 18/1/2007 - non lo so \(Audio\)](#)
- [18:13 18/1/2007 - Scala di sol maggiore \(Audio\)](#)
- [18:13 18/1/2007 - Scala di sol maggiore \(Audio\)](#)
- [16:17 18/1/2007 - Stravinskij. \(Audio\)](#)
- [16:16 18/1/2007 - Stravinskij. \(Audio\)](#)
- [15:36 18/1/2007 - Tiromancino \(Audio\)](#)

User :

Password:

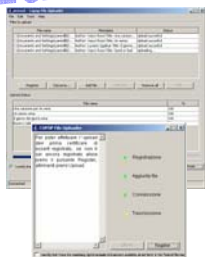
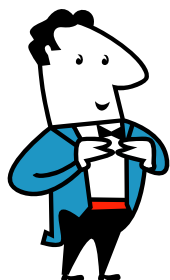
[Create new user](#)

http://192.168.0.108:8080/SIAEDistributionPortal/loadSingle.jsp?id=URN:AXMEDIS:FFFFF:OBJ:0E232382-1228-35C7-A46A-CA9718E22F26&title=video

Fase 6: l'utente sul Portale di distribuzione

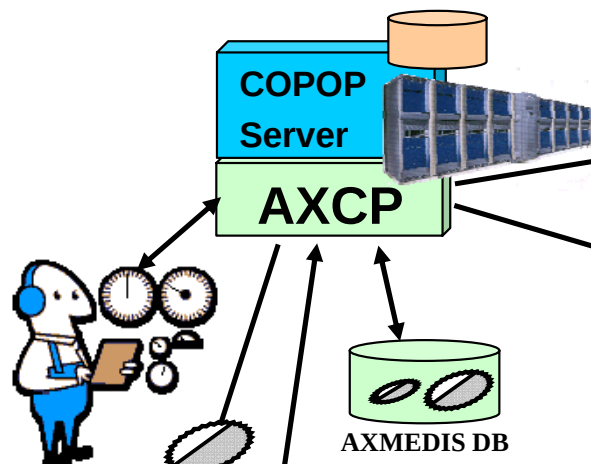
Autore/Editore

Posting Content
with
COPOP Client



SIAE back office

DRM support



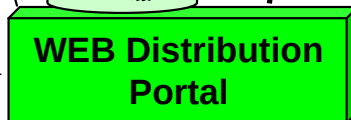
⑥

⑥

⑥

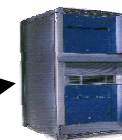
⑥

Search, buy, download

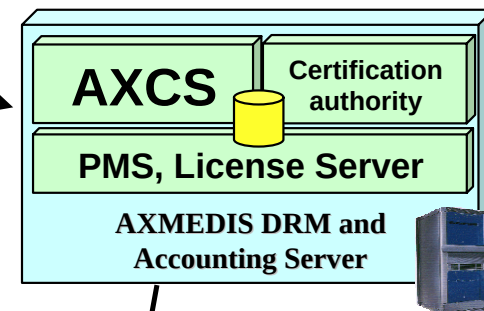


Distribution

⑥



Other Third party
DRM and
Accounting Server



Authentication, grant
authorisation,
protection
information

Utente Semplice o Speciale



Fase 6: l'utente sul Portale di distribuzione

- **L'utente sul portale di distribuzione puo'**
 - ◆ Entrare tramite nome e password
 - ◆ Fare delle ricerche, vedere i file piu' recenti, o i piu' richiesti, etc. etc.
 - ◆ Fare il download di oggetti nei vari formati, anche con preview se necessario
 - ◆ Comprare licenze di vario tipo per gli oggetti in vendita
 - ➔ Al momento dell'acquisto della licenza questa viene prodotta tramite AXMEDIS GRID
 - ◆ Aumentare il suo credito (*reload/ricarica*) con un codice di carta prepagata
 - ◆ Verificare lo stato del suo conto: lista delle spese fatte
- **Evidenze per UTENTE che usa il Contenuto**
 - ◆ non puo' utilizzare oggetti di cui non ha la licenza anche se ne puo' fare il download
 - ◆ Puo' utilizzare il contenuto per il quale ha la licenza, questa viene verificata da AXMEDIS PMS



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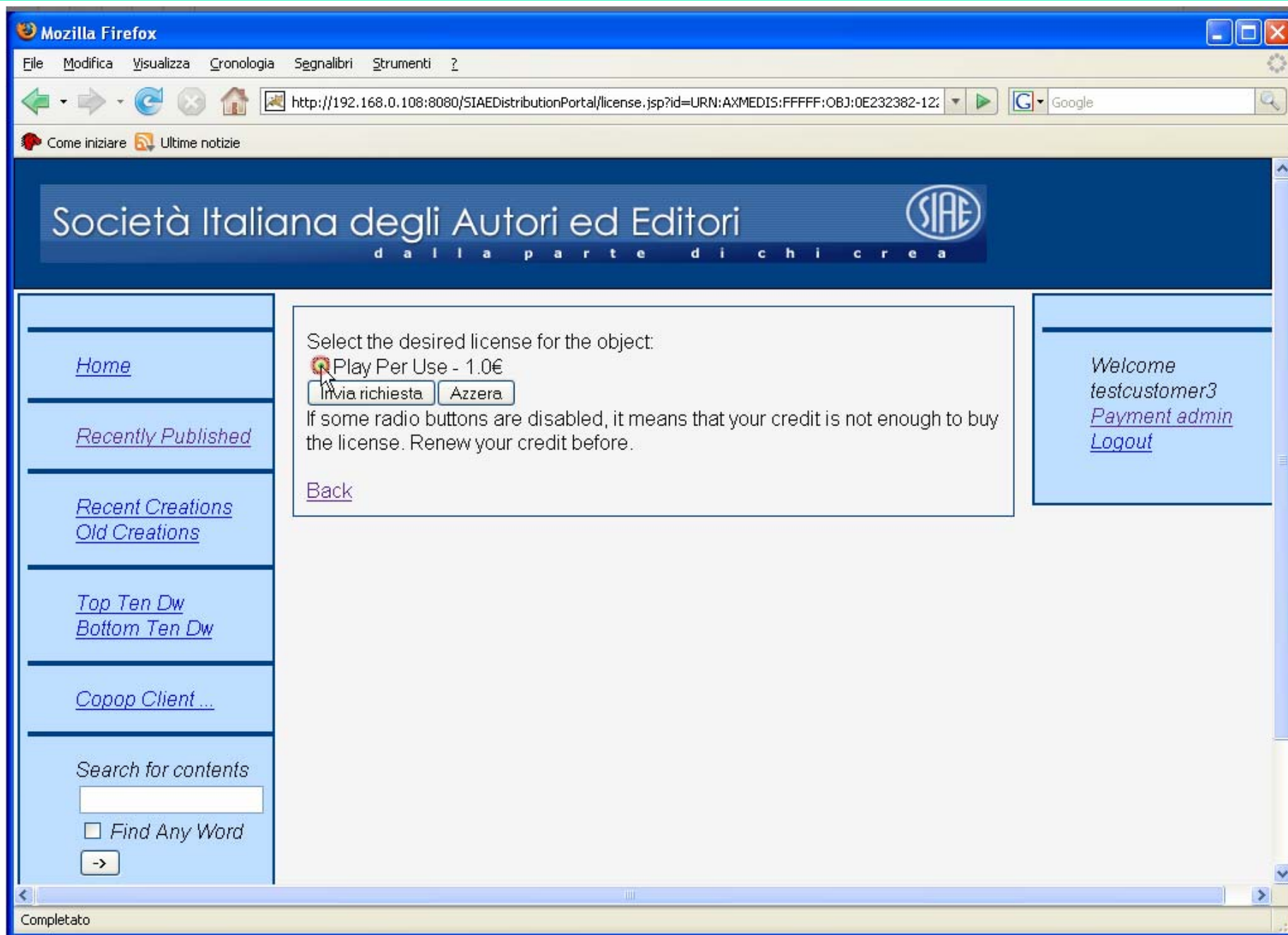


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Fase 6: l'utente sul Portale di distribuzione

AXMEDIS



Mozilla Firefox

File Modifica Visualizza Cronologia Segnalibri Strumenti ?

http://192.168.0.108:8080/SIAEDistributionPortal/license.jsp?id=URN:AXMEDIS:FFFFF:OBJ:0E232382-12: Google

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☐ Find Any Word

Select the desired license for the object:

☒ Play Per Use - 1.0€

If some radio buttons are disabled, it means that your credit is not enough to buy the license. Renew your credit before.

[Back](#)

Welcome
testcustomer3
[Payment admin](#)
[Logout](#)

Completato

Fase 6: Produzione della Licenza e Autorizzazione

AXMEDIS

Collegamento a PMSD.exe

Socket connection successful: master socket

29-01-07 13:22:10: AC from 192.168.0.108 soc

Validated?1

RS

29-01-07 13:22:28: AC from 192.168.0.58 soc

RS

29-01-07 13:22:29: AC from 192.168.0.58 soc

29-01-07 13:22:32: AC from 192.168.0.58 soc

29-01-07 13:22:45: AC from 192.168.0.58 soc

RS

29-01-07 13:22:47: AC from 192.168.0.58 soc

29-01-07 13:22:47: AC from 192.168.0.58 soc

29-01-07 13:22:48: AC from 192.168.0.58 soc

RS

29-01-07 13:22:48: AC from 192.168.0.58 soc

29-01-07 13:22:50: AC from 192.168.0.58 soc

29-01-07 13:23:36: AC from 192.168.0.108 soc

Validated?1

RS

Collegamento a axcpgridnode.exe

sending message: FromDate: null to scheduler..

sending message: ToDate: null to scheduler..

sending message: Price: 1 to scheduler..

sending message: NotificationURI: http://127.0.0.1:8080/AxcpNotificationWS/AxcpN

otification to scheduler..

sending message: RequestId: URN:AXMEDIS:FFFFF:OBJ:0E232382-1228-35C7-A46A-CA9718

E22F26URN:AXMEDIS:00001:USR:E578152D-1028-3E8D-A5F8-ADDB521859C0B1170073407671

to scheduler..

sending message: Posting license for the object URN:AXMEDIS:FFFFF:OBJ:0E232382-1

228-35C7-A46A-CA9718E22F26 to user URN:AXMEDIS:00001:USR:E578152D-1028-3E8D-A5F8

-ADDB521859C0 to scheduler..

sending message: Posting License on PMS to scheduler..

sending message: Licese posted as 200:LID1479 in the PMS Server to scheduler..

sending message: License Saved On Disk in D:\AXCPFiles\licenses\URN_AXMEDIS_FFFF

F_OBJ_0E232382-1228-35C7-A46A-CA9718E22F26\ to scheduler..

sending message: Sending notification to http://127.0.0.1:8080/AxcpNotificationW

S/AxcpNotification to scheduler..

sending message: Sending back: LID1479 to RequestID:URN:AXMEDIS:FFFFF:OBJ:0E2323

82-1228-35C7-A46A-CA9718E22F26URN:AXMEDIS:00001:USR:E578152D-1028-3E8D-A5F8-ADDB

521859C0B1170073407671 to scheduler..

sending message: Response from WS: true to scheduler..

sending message: Return: true

to scheduler..

sending end process signal

AXMEDIS - Rule Scheduler

Program Settings View Commands ?

Rule Name	AXRID	Rule Version	Rule Status	Job ID	Executor ID	Start Time	Start Date	Periodicity	Number of ...	Installation ...	Expiration ...	
CopopRuleS...	axcprule:0...	1.0	Completed	0	-1	13:02:18	29/01/2007	0 Minute(s)	1	2007-01-29...	2007-01-30...	
CopopRuleS...	axcprule:0...	1.0	Completed	1	-1	13:05:00	29/01/2007	0 Minute(s)	1	2007-01-29...	2007-01-30...	
CopopRuleS...	axcprule:cd...	0.1	Completed	4	-1	13:16:43	29/01/2007	0 Day(s)	2	2007-01-29...	2007-01-30...	
ScriptD	axcprule:e...		Completed	5	-1	13:23:33	29/01/2007	0 Day(s)	1	2007-01-29...	2007-01-30...	

Executor N...	IP Address	CPU Type	Clock	OS	Transfer Rate	HD Space	Status	Job ID	Executor ID	Cpu Usage	From	To
DISITMOBILE3	192.168.0....	x86 Family ...	2.16 (GHz)	Windows N...	1 (MB/s)	5.13 (GB)	ready	-1	1	45.00%	12:00:00	12:59:00

29/01/2007

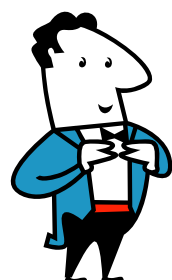
13:23:40

Autore/Editore

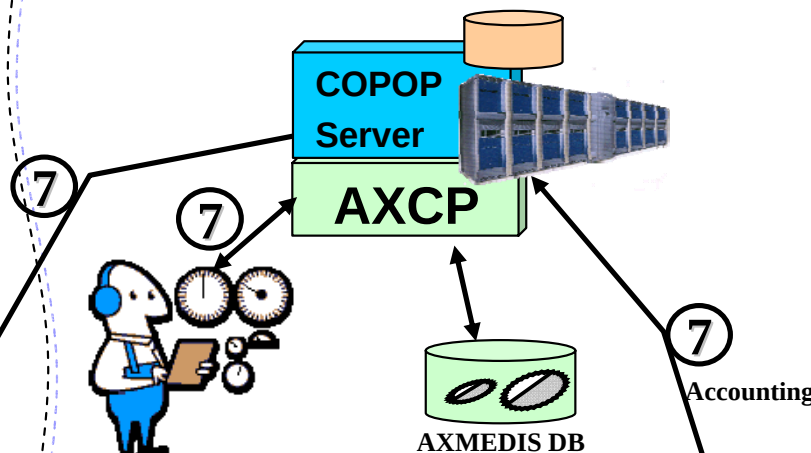
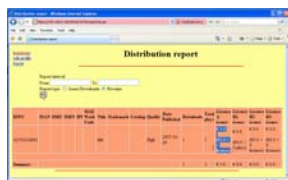
SIAE back office

DRM support

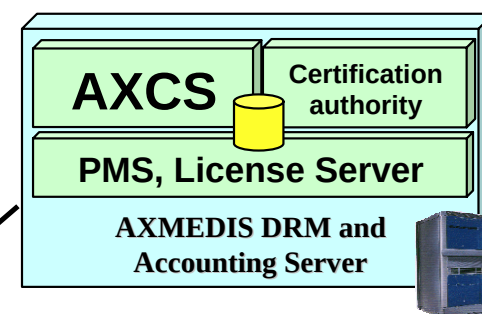
Posting Content
with
COPOP Client



Reporting



Other Third party
DRM and
Accounting Server



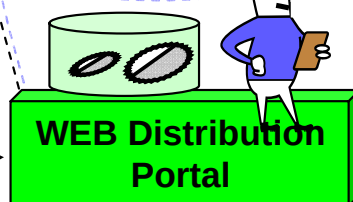
CAMART

Reporting



Search, buy, download

7



Distribution

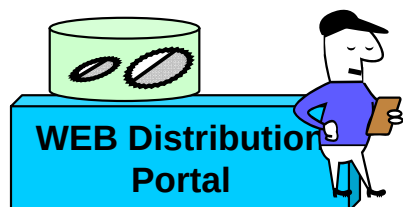
Utente Semplice
o Speciale



Fase 7: Reporting, vari aspetti

- **l'amministratore sul COPOP server puo'**
 - ◆ Visionare/monitorare le transazioni effettuate: licenze vendute, download fatti, diritti sfruttati nelle varie licenze (pay forever, pay per play, etc.,..... su oggetti **protetti e non**), etc.
 - ◆ Visionare/monitorare il computo delle *revenue* in termini di Euro.
 - ◆ Selezionare uno o piu' oggetti sui quali fare queste visualizzazioni, come nel video uno solo
 - ◆ Definire l'intervallo temporale (data inizio fine) del quale far vedere I dati
- **I dati di consumo sono collezionati sul server AXMEDIS AXCS, e possono essere**
 - ◆ Inviati a qualsiasi server con formati programmabili
 - ◆ Ora sono inviati al COPOP Server per l'amministrazione ed e' viene permessa la visione dello stato anche da parte dell'Autore/Editore (dei suoi oggetti)

Fase 7: Amministratore del portale di Distribuzione



Distributore

Payment Admin - Mozilla Firefox

File Modifica Visualizza Cronologia Segnalibri Strumenti ?

http://192.168.0.108:8080/SIAEPaymentPortal/paymentAdmin.jsp

Come iniziare Ultime notizie

http://192.168.0....46A-CA9718E22F26 Payment Admin Camart

SIAE Payment Portal

Log

[Log Out](#)

Admin Interface - Welcome admin

User Selection

Select User to manage:

User Selection

Accounting

- siaecustomer3 (urn:axmedis:00000:fus:c68f89b3-838b-11db-9781-a94a6fce145c)
- siaecustomer1 (urn:axmedis:00000:fus:b4cce061-838b-11db-9781-a94a6fce145c)
- admin (urn:axmedis:00000:fus:36158a05-0263-11da-999d-cd751e197f42)
- testcustomer1 (urn:axmedis:00000:fus:ea6dcd2a-a551-11db-a0e5-4db6ad7594c4)
- testcustomer2 (urn:axmedis:00000:fus:5dedc5d2-a572-11db-a72d-e965abe661c9)
- testcustomer2 (urn:axmedis:00000:fus:1ee59a71-a572-11db-a72d-e965abe661c9)
- testcustomer3 (urn:axmedis:00000:fus:dab852b9-ab8e-11db-b297-b1e1f0d8f8ec)
- siaecustomer2 (urn:axmedis:00000:fus:c1134582-838b-11db-9781-a94a6fce145c)
- siae (urn:axmedis:00000:fus:2383b634-8378-11db-823a-c15a1b931217)
- test (urn:axmedis:00000:fus:764d73da-788d-11da-839b-a959fcc7178d)
- axtest (3598191c-83ae-11db-a618-096d22449038)

Completato



User

Payment Page - Mozilla Firefox

File Modifica Visualizza Cronologia Segnalibri Strumenti ?

http://192.168.0.108:8080/SIAEDistributionPortal/selection.jsp

Come iniziare Ultime notizie

http://192.168.0.108:8080/SIAEDistributionPortal/selection.jsp Payment Page Camart

Società Italiana degli Autori ed Editori dalla parte di chi crea

testcustomer3 - Management Page

Reload:

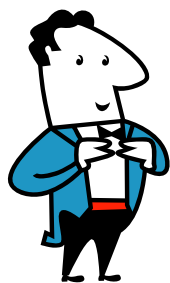
Reload:

Report:

Credits : 73.0

Transaction		
Value	Description	Date
-1.0	License B1 -> URN:AXMEDIS:FFFFF:OBJ:0E232382-1228-35C7-A46A-CA9718E22F26	13:37 29/1/2007
-1.0	License B1 -> URN:AXMEDIS:FFFFF:OBJ:0E232382-1228-35C7-A46A-CA9718E22F26	13:37 29/1/2007

Completato



The screenshot displays a web application titled "Distribution report". It features a form for selecting a report interval and type. The "Report type" section has two radio buttons: "Issues/Downloads" (selected) and "Revenue". Below the form is a table with 16 columns representing different identifiers and metrics. The first data row provides details for a specific work, including its ISWC, title ("video"), quality ("High"), publication date, and associated revenue from different licenses.

ISWC	ISAN	ISRC	ISBN	IPI	SIAE Work Code	Title	Trademark	Catalog	Quality	Date Published	Downloads	Total plays	License A issues	License B1 issues	License B2 issues	License B3 issues
12345678901						video			High	2007-01-29	1	2	€ 0.0 (€0.0 × 0 licenses)	€ 2.0 (€1.0 × 2 plays)	€ 0.0 (€0.0 × 0 licenses)	€ 0.0 (€0.0 × 0 licen
Summary											1	2	€ 0.0	€ 2.0	€ 0.0	€ 0.0

- **Automazione dell'acquisizione dei contenuti da Autori ed Editori**
 - ◆ Collezione automatica di contenuti digitali con i relativi metadati (sportello per il deposito online dei contenuti)
 - ◆ Adattamento automatico in vari formati per vari canali
 - ◆ Produzione automatica della vetrina dei contenuti digitali depositati in SIAE,
 - ➔ vendita di tracce per play list di discoteche, locali, etc., per stabilire un controllo diretto sull'eseguito
 - ◆ Etc.
- **Eventuale**
 - ◆ integrazione dell'automazione del calcolo dei fingerprint per successivo uso nel sistema di riconoscimento delle tracce audio o video
 - ◆ sfruttamento di una rete P2P per la distribuzione di contenuti presenti in SIAE



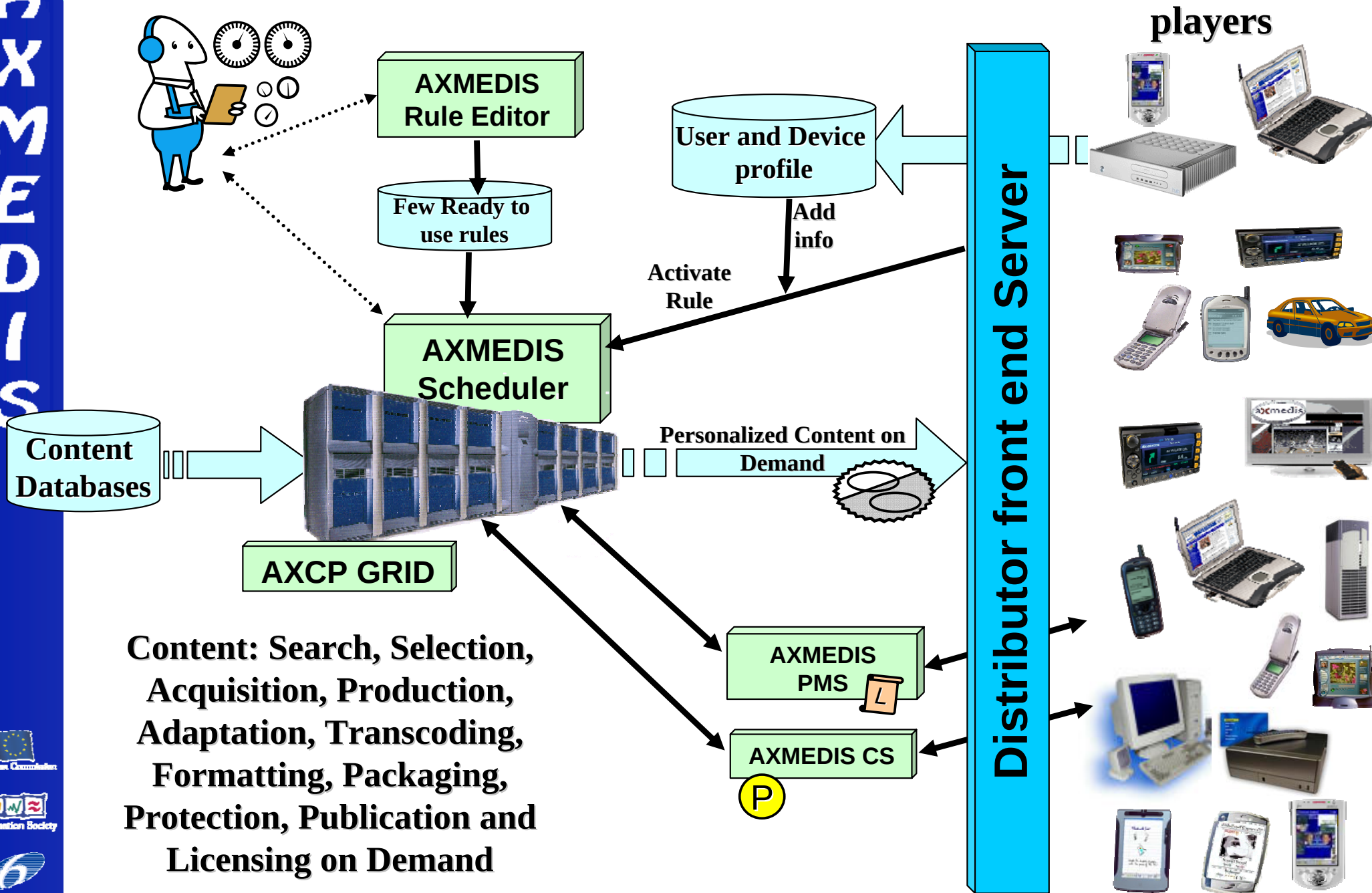
European Commission



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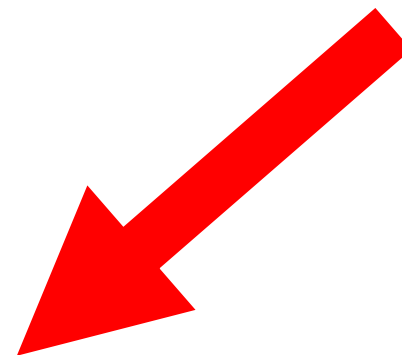


- **Acquisizione di file in vari formati con metadati da produttori, autori e editori**
- **Elaborazione di questi contenuti per**
 - ◆ l'immagazzinamento, distribuzione, verifica, etc.
- **Distribuzione di contenuti digitali con e/o senza DRM verso**
 - ◆ Utenti Speciali (Business):
 - ➔ disco, restaurant, supermercati,
 - ➔ integratori, produttori di secondo livello,
 - ➔ distributori di vario tipo (e.g., TISCALI, GIUNTI, etc.),
 - ➔ etc.
 - ◆ Utenti finali
 - ◆ Secondo canali diversi: internet, ma anche P2P
- **Eventuale Production on demand per Utenti Speciali**
 - ◆ Collection, insertion of advertising, etc...
 - ◆ Better Supervising of special users....



Overview della presentazione

- **L'idea generale di un CMS integrato**
 - ◆ Architettura
 - ◆ Necessita' primarie
- **Cosa e' AXMEDIS**
 - ◆ Obiettivi di AXMEDIS
 - ◆ Funzionalità principali
 - ◆ AXMEDIS Framework
- **SIAE Trial**
 - ◆ Struttura e commenti
 - ◆ dimostrazione dal vivo
- **Andamento del mercato e prospettive**
 - ◆ Digitale online rispetto al Fisico (DVD, CD, etc.)
 - ◆ P2P rispetto al Client/Server
- **Azioni presenti in AXMEDIS:**
 - ◆ Dimostrativi e progetti





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

www.axmedis.org



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European Commission



IST-2-511299

Andamento del mercato e prospettive

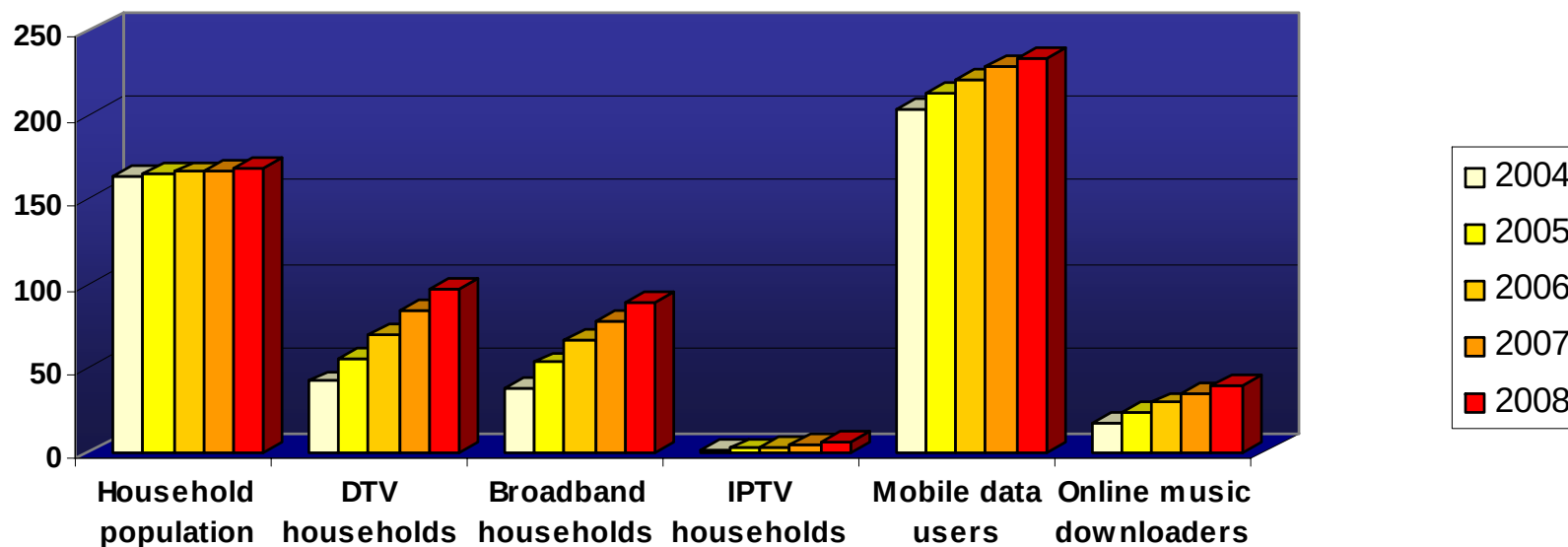
Digitale online rispetto al Fisico (DVD, CD, etc.)
DRM rispetto ad altri modelli, CAS e/o advertising
P2P rispetto al Client/Server

Market scenario in Western Europe



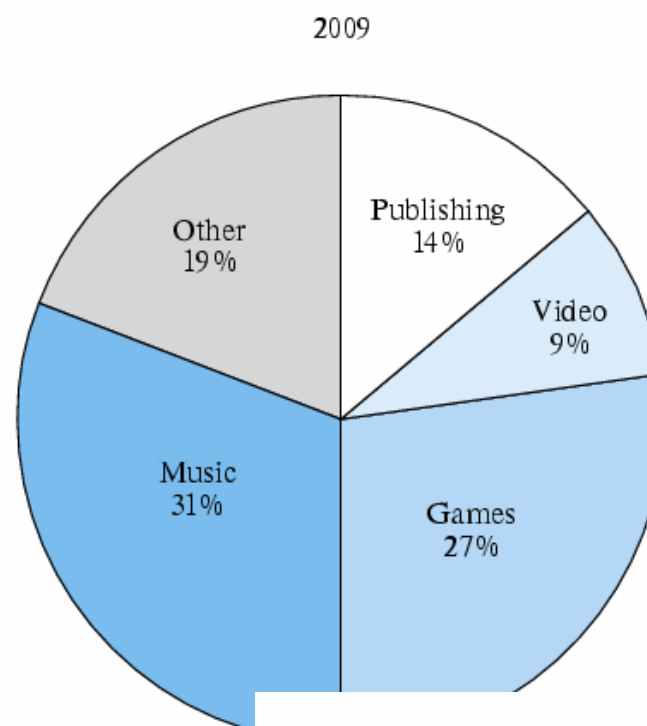
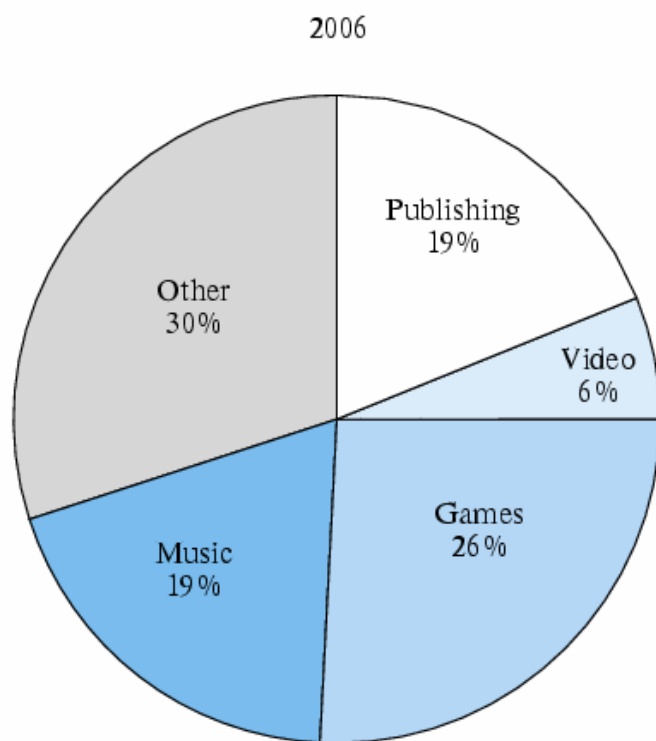
- **Broadband penetration is increasing** (+24% in last year)
- **Digital TV and IPTV are gaining ground in respect to traditional TV** (over 100 millions DTV and IPTV households up to 2008)
- **Strong demand for all kind of mobile services** (over 230 millions up to 2006)
- **Growing interest in on-line music and video services** (+100% online music downloaders in 2004-2007)
- **Growing interest on multichannel distribution and**

Digital content scenario in Western Europe, 2004-2008 (MIs) *



* Source EITO 2005

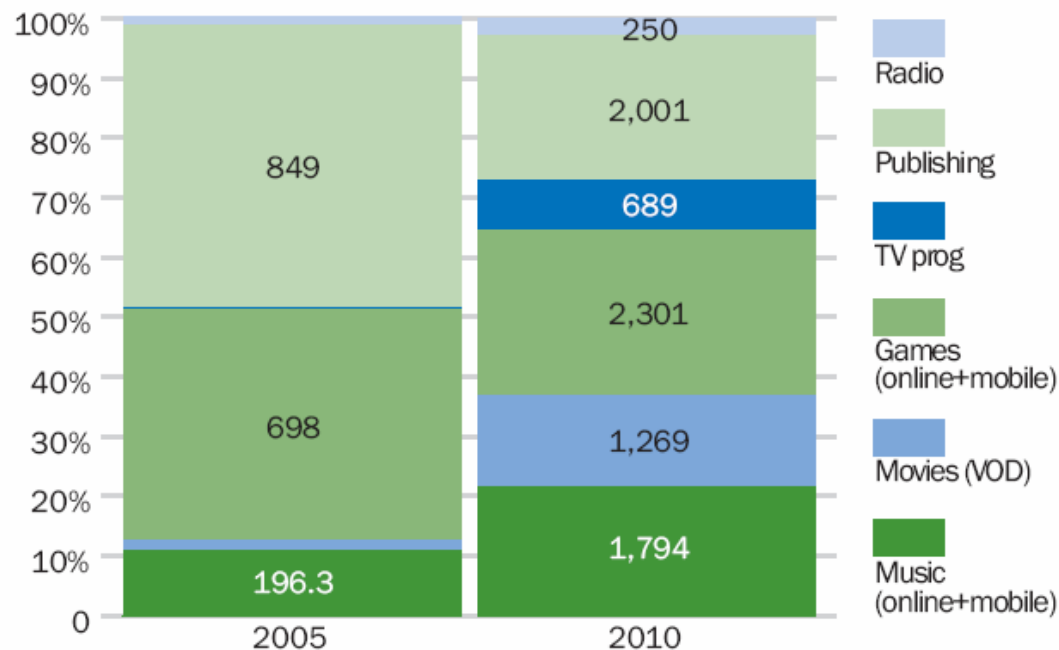
Trend of Paid On Line Content



€ million	2006	2007	2008	2009
Publishing	268	326	370	403
Video	88	133	186	244
Games	368	485	610	762
Music	269	452	652	836
Other ⁷	448	487	518	540
Total content revenues	1,441	1,883	2,336	2,785

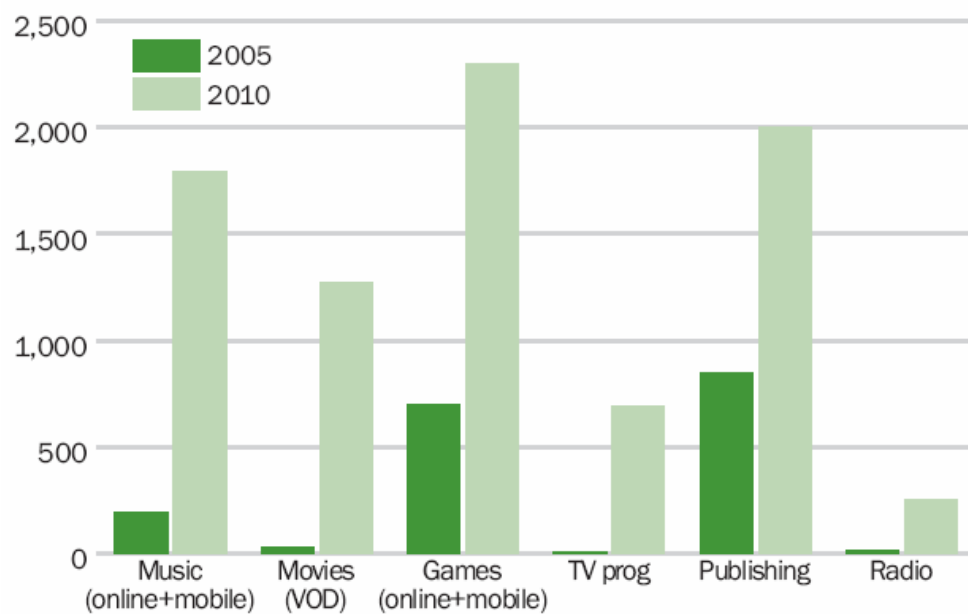
Source: JupiterResearch – European Paid Content and Services Forecast

Digital content market in the EU, market size (2005-2010) (€m)



Source: Screen Digest

Digital content market in the EU, market size (2005-2010) (€m)



Source: Screen Digest



The advance of the global digital music market

	2004	2005	Change
Broadband lines (M)	151	190	26%
Single tracks downloaded (M)	156	419	169%
Online music services	230	335	46%
Song catalogue (M)	1	2	100%
Subscription service users (M)	1.5	2.8	87%
Mobile phone subscriptions (M)	1350	1520	13%

Sources: PointTopic-IFPI, Nielsen SoundScan, OCC, IFPI Germany, SNEP, RIAJ, IFPI, subscription service providers, PWC

US digital music market – the key figures

	2004	2005	Change
Broadband lines (M)	34	43	26%
Single tracks downloaded (M)	143	353	147%
Album downloads (M)	6	16	193%
Mobile subscriptions (M)	163	174	7%

Sources: PointTopic-IFPI, Nielsen SoundScan, PWC

European digital market – the key figures

	2004	2005	Change
Broadband lines (M)	43	63	46%
Single tracks downloaded (M)	14	62	355%
Online music services	150	200	33%
3G mobile phone subscriptions (M)	5	18	255%

Sources: PointTopic-IFPI, OCC, IFPI Germany, SNEP, IFPI, Jupiter



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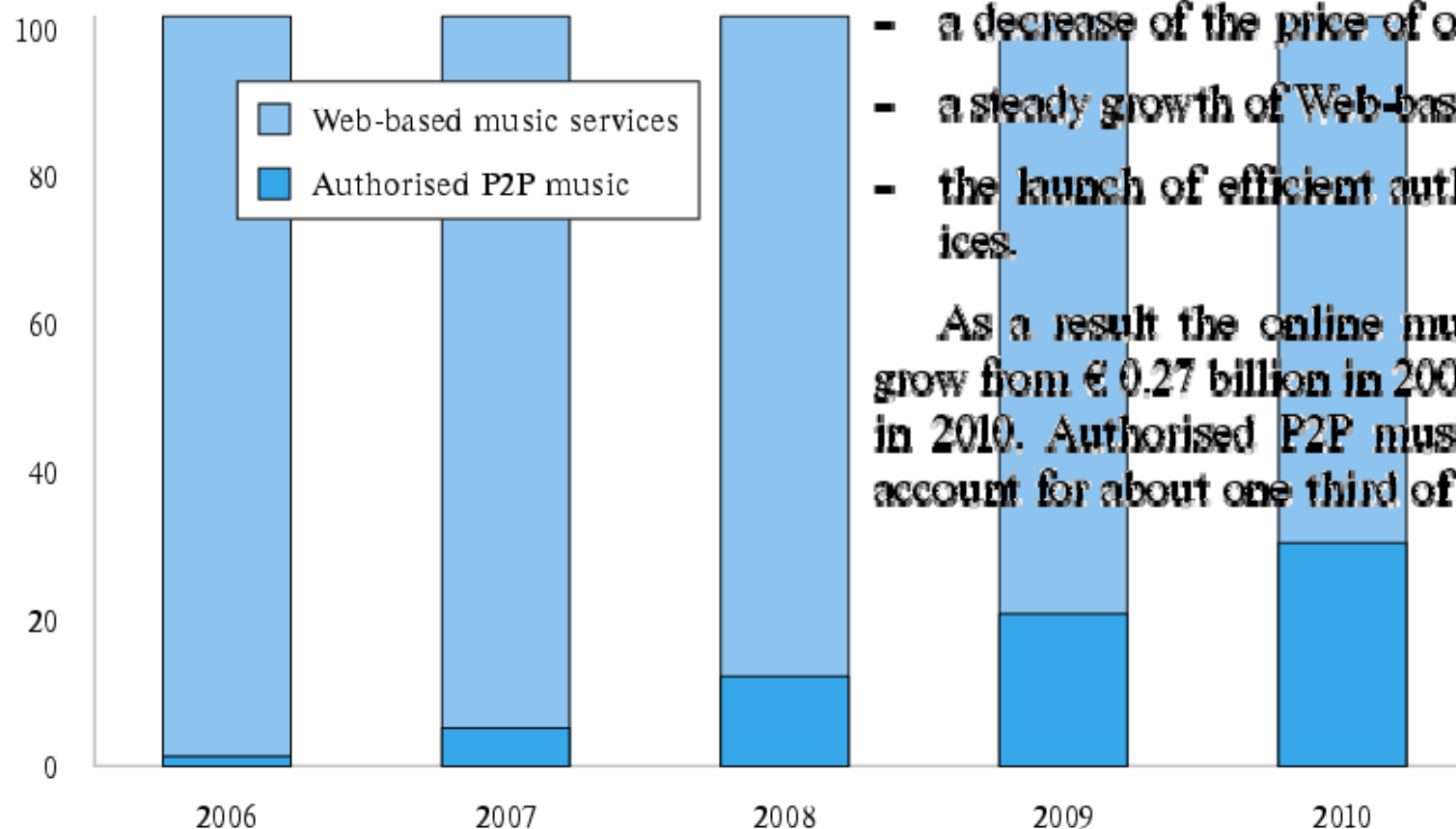


5.4.3. Case study: the digital music market in the EU 25

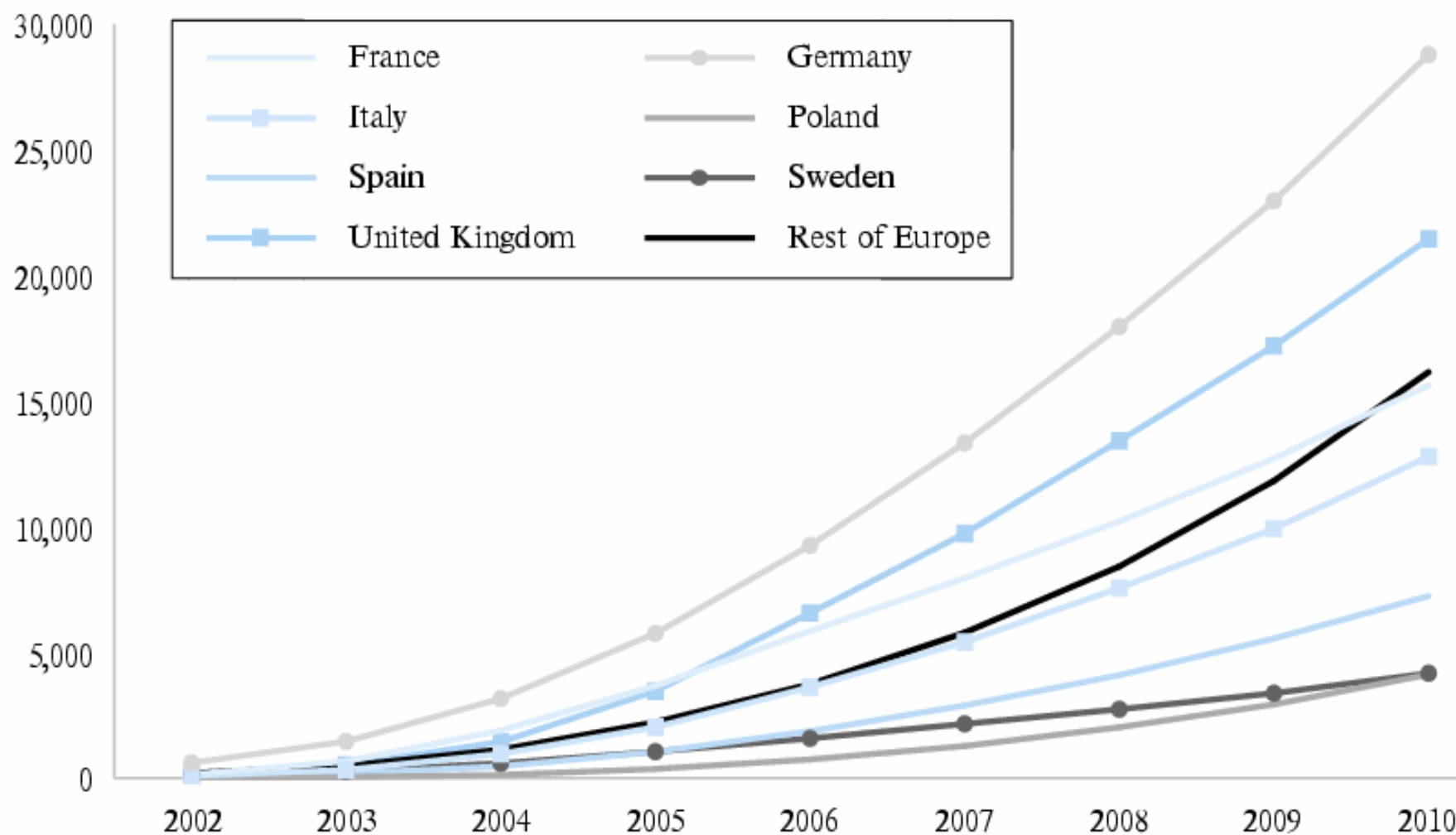
Growth of the digital music market in Europe will be fuelled by the following:

- a migration of offline sales to online sales with a positive impact on the global market,
- a decrease of the price of online music,
- a steady growth of Web-based online offers,
- the launch of efficient authorised P2P services.

As a result the online music market could grow from € 0.27 billion in 2006 to € 1.05 billion in 2010. Authorised P2P music services would account for about one third of this market.



Grow AVG, Mill. Download files per year, EU 25, P2P

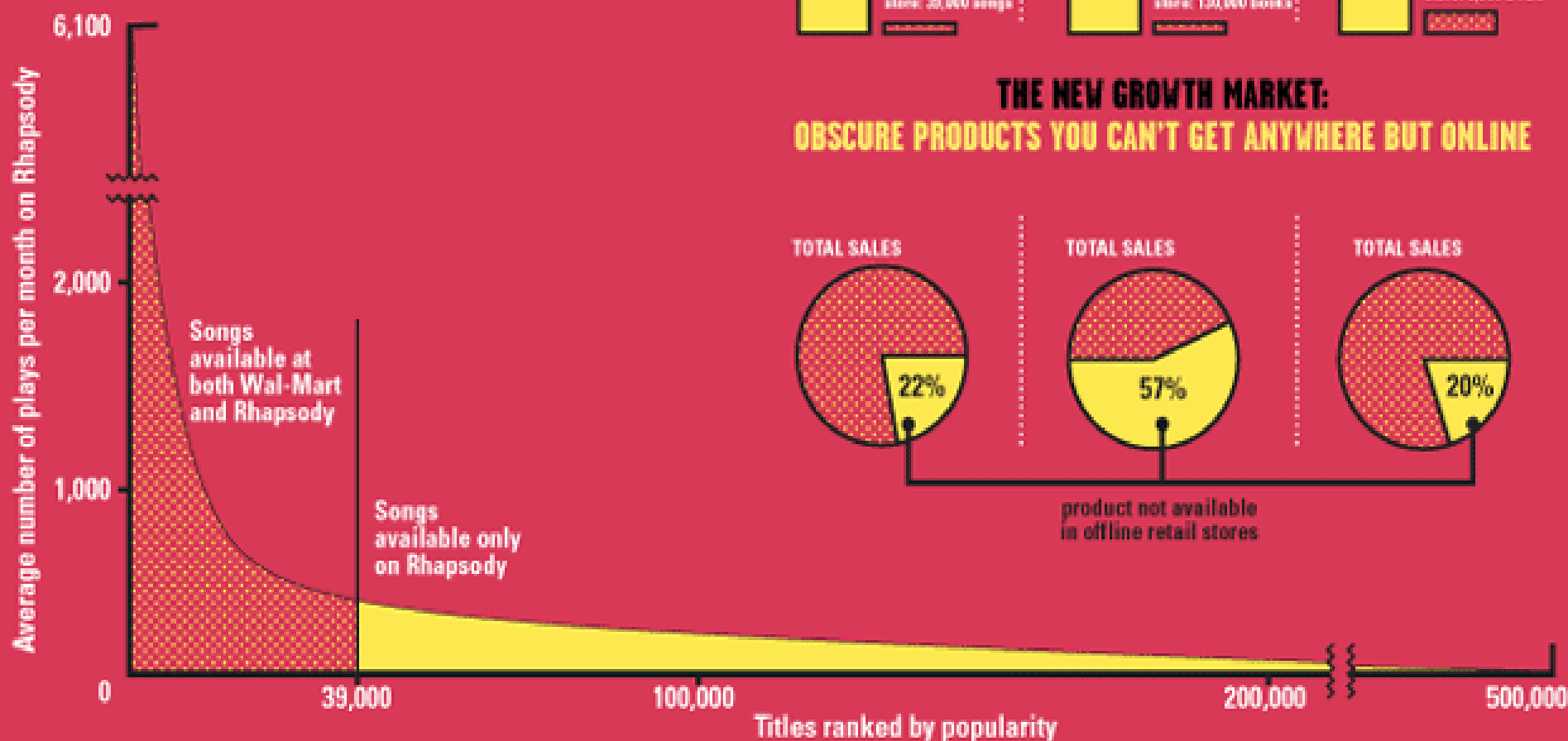


The Long Tail



ANATOMY OF THE LONG TAIL

Online services carry far more inventory than traditional retailers. Rhapsody, for example, offers 19 times as many songs as Wal-Mart's stock of 39,000 tunes. The appetite for Rhapsody's more obscure tunes (charted below in yellow) makes up the so-called Long Tail. Meanwhile, even as consumers flock to mainstream books, music, and films (right), there is real demand for niche fare found only online.



Sources: Erik Brynjolfsson and Jeffrey Hu, MIT, and Michael Smith, Carnegie Mellon; Barnes & Noble; Netflix; RealNetworks



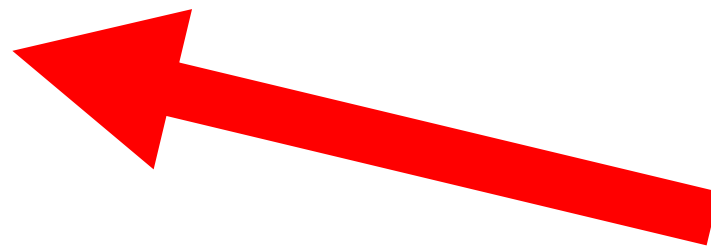
- **The tail is growing, it is getting fatter**
 - ◆ The ration 20%/80% is moving to a 40%/60%

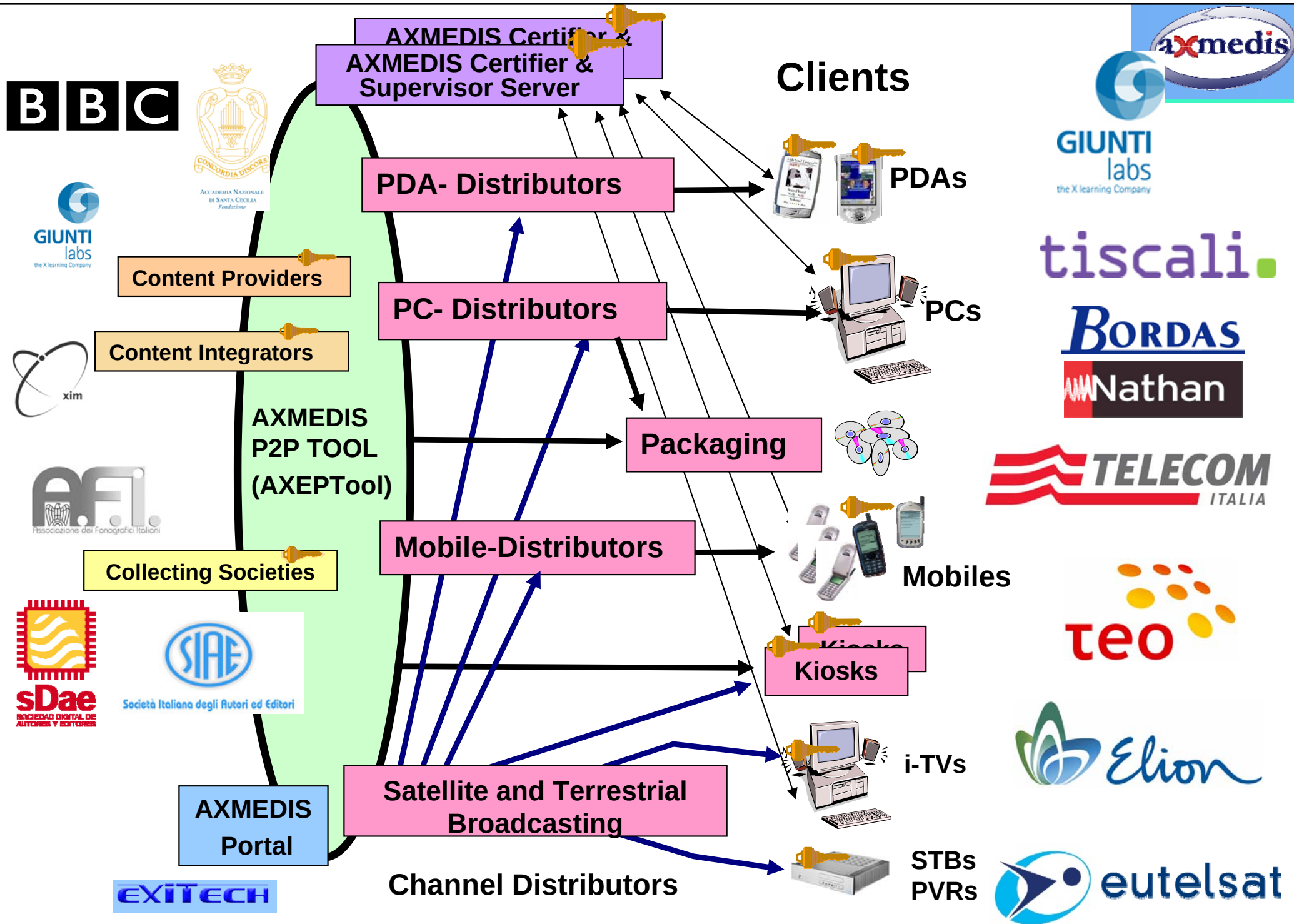
- **The content in the long tail is continuously making more visible to buyers**
 - ◆ Smart metadata would help in suggesting content and thus on going on the tail:
 - ➔ *“who like AAAA also take BBBB!”*
 - ➔ *“if you like AAAA, you will love also BBBB!”*
 - ◆ Characterization and comparison with the rest of the head, the 20% of the famous pieces



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AXMEDIS Multichannel Content Distribution

- **General AXMEDIS Multichannel Architecture**
- **Demonstrators distribution to (see www.axmedis.org):**
 - ◆ PCs via Internet (TISCALI Media Club Demonstrator)
 - ◆ PDA via Kiosks (ILABS Kiosk Demonstrator)
 - ◆ PCs and STB/PVRs via Satellite data broadcast (EUTELSAT, MBI, UNIVLEEDS Demonstrator)
 - ◆ To Mobiles (ILABS Demonstrator for mobiles)
 - ◆ STBs (DVB-T, etc.) (AX:ELTEO, TEO and ELION Demonstrator)
 - ◆ home domains (AX-4HOME, BBC and SDAE Demonstrator)
 - ◆ To mobiles with OMA (AX-4HOME, Telecom Italia Demonstrator)
 - ◆ To STB and Mobiles via streaming (AX-4HOME, ETRI, BBC Demonstrator)
- **P2P distribution with AXMEDIS**
- **Sharing content among archives and mediateques**
- **Content Enrichment:**
 - ◆ VARIAZIONI Projects: GERMINUS, RIGEL, ALBENIZ, UPC, etc. (www.variazioni.org)



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