AXMEDIS Overview and Applications

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

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What is AXMEDIS?

- A project of the European Commission, proposed by a set of companies to solve problems in the area of e-commerce of digital content
  - approved by the EC for reaching a fixed set of objectives
  - partially funded by the EC and partially from the Companies involved

- The major aim is
  - to create the AXMEDIS Platform/Framework on the basis of new technologies and
  - to make accessible this platform for SME, research centers, and any other partner interested in

- The affiliation allows to access at the knowledge and tools (source code) produced

- Started the 1st September 2004
- Value of about 14 Meuro
- About 120 people are working on AXMEDIS every day
AXMEDIS purpose

Content:
- Producers
- Providers
- Aggregators
- Packager
- Integrators
- Promoters
- Distributors

Supporting both B2B and B2C distribution
- Reducing costs for Content Production, processing, etc
- Enabling Multichannel Distribution
- Enabling Interoperable Distribution of content
- Enabling e-commerce of secure digital content

Create a unified European platform for content packaging, protection and distribution in terms of DRM and interoperability (convergence)
Main Objectives

- reducing distribution and aggregation costs for content production and management by
  - Convergence of the media, interoperability of content
  - Flexibility in the business and transaction models
  - DRM applications and interoperability among distribution channels
  - Integration of cultural heritage, educational content with business content
  - Harmonization of B2B and B2C areas for DRM
  - Massive processing in content production and distribution, and in license processing and event tracking

- Increase accessibility to the European audio visual content for its exploitation for entertainment, valorisation, etc.

- Create a unified European platform for content distribution in terms of DRM and interoperability

AXMEDIS B2B Distribution and Sharing

Content Providers

Content Integrators

Collecting Societies

AXMEDIS Portal
Main technical objectives

- Developing and providing new methods and tools for innovative and flexible content production, protection, and distribution
  - Exploiting MPEG-21 and overcoming its limitations, Digital Rights Management (DRM)
  - Allowing file sharing via secure/legal P2P for both B2B and B2C in the respect of IPR
  - Supporting different business and transaction models
  - Allowing tracking and monitoring of content usage
  - Enabling Interoperability of MPEG-21 REL and ODRL of OMA
  - Exploiting GRID technology for massive processing
  - Integrating present CMSs and solution with AXMEDIS framework and tools

AXMEDIS Architecture

AXMEDIS Factory
- AXMEDIS Editors
- AXMEDIS Content Processing Engines and Scheduler GRIDs
- AXMEDIS database Area
- AXMEDIS database
- AXMEDIS Accounting area
- Crawlers
- CMSs

Workflow Management tools
Programme and Publication

Protection and Supervising tools
AXMEDIS Portal
AXMEDIS Certifier and Supervisor
Protection Manager and Support

AXMEDIS Players

AXMEDIS Network
- AXMEDIS Factory
- AXMEDIS Editors
- AXMEDIS Content Processing Engines and Scheduler GRIDs
- AXMEDIS database Area
- AXMEDIS database
- AXMEDIS Accounting area
- Crawlers
- CMSs

Workflow Management tools
Programme and Publication

Protection and Supervising tools
AXMEDIS Portal
AXMEDIS Certifier and Supervisor
Protection Manager and Support

AXMEDIS Players
AXMEDIS Training slides,  http://www.axmedis.org

AXMEDIS Training slides,  http://www.axmedis.org

AXMEDIS Framework

AXMEDIS database & administrative Tools

AXMEDIS Content Processing Tools

AXMEDIS Editing and Viewing Tools

P2P AXEPTool and Programme Publication tools

AXMEDIS Certifier & Supervisor, Protection Manager Supports

Database and query support

Documentation and support

Composition and Formatting algorithms

Query support model and tools

Secure comminic. protocol

Test Cases

Content for validation

Transcoding and Adaptation algorithms

Query search algorithms

DRM and protection algorithms

Crawling integration

AXMEDIS database

Content Providers

Content Integrators

AXMEDIS Portal

AXMEDIS P2P TOOL (AXEPTool)

PC- Distributors

PDA- Distributors

Mobile-Distributors

Packaging

Kiosks

PDAs

PCs

Mobiles

i-TVs

OpenSky Data Broadcast

Satellite Data Broadcast

Channel Distributors

AXMEDIS Multichannel Content Distribution

Content Integrators

Content Providers
**AXMEDIS Framework**

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

**Project Partners**
- Content Providers, integrator
- IT Companies
- Content Distributors
- Etc.

**Demonstrators, Take up Actions**

**Any AXMEDIS Based solution**

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**TISCALI Distribution with AXMEDIS Technology**

- B2C distribution
- AXMEDIS objects with
  - Video and Audio Files
- 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 PC and Media Centres
- License allows
  - Content sharing on AXMEDIA
  - Content play
  - Content Adaptation...
  - Content Migration on other P2P channels...
  - Content Migration on any other AXMEDIS terminal
### 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

### AXMEDIS Architecture

![AXMEDIS Architecture Diagram]

- **AXMEDIS Factory**
- **AXMEDIS Editors**
- **Crawlers**
- **CMSs**
- **AXMEDIS Account Area**
- **AXMEDIS database Area**
- **Workflow Management tools**
- **AXMEDIS Content Processing Engines and Scheduler GRIDS**
- **AXMEDIS Content database Area**
- **AXMEDIS databases**
- **Protection and Supervising tools**
- **AXMEDIS Players**
- **AXMEDIS Portal**
- **AXMEDIS Certifier and Supervisor**
- **Protection Manager Support**
- **AXMEDIS Portal**
- **AXMEDIS Factory**
- **Local Kiosk Distributor**
- **Local Kiosk Distributor**
- **Local Kiosk Distributor**
- **AXMEDIS Network**
- **AXEPTool Area**
- **AXMEDIS Distributor**
- **Local Kiosk Distributor**
**ILABS Distribution with AXMEDIS technology**

- Down-link
- Kiosk Factory
- AXEPTool
- Kiosk Manager
- Down-link
- Up-link
- Protection Manager
- AXMEDIS Protection Manager
- AXMEDIS Certifier and Supervisor
- Wireless LAN
- Protection Filter
- AXMEDIS

**EUTELSAT Distribution with AXMEDIS technology**

- **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
EUTELSAT Distribution with AXMEDIS Technology

AXMEDIS Certification and Supervision

New Protected Object: Post ProtInfo (WS)

AXMEDIS Protection Manager

EUTELSAT

Broadcast Server

Sale Manager

AXMEDIS Architecture

AXMEDIS Factory

Workflow Management tools

AXMEDIS Content Processing Engines and Scheduler GRIDs

AXMEDIS Editors

Crawlers

CMSs

AXMEDIS Accounting area

AXMEDIS database Area

AXMEDIS databases

Programme and Publication

AXMEDIS Certifier and Supervisor

Protection Manager Support

AXMEDIS Portal

AXMEDIS Players
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
- Metadata
- DRM
- Protection
- Presentation
- Workflow
- Annotation
- …
Capabilities

- Content Ingestion and Gathering
- Content Retrieval
- Content Storage
- Content Processing
- Content Composition
- Content Formatting
- Content Protection
- Content Licensing
- Content Publication and Distribution

AXMEDIS Content Processing GRID

AXMEDIS Rule Editor

Workflow manager

AXMEDIS Scheduler
AXMEDIS Content Processing capabilities

- Scripts will be produced by Example (recording commands) on the AXMEDIS Authoring Tools
- In AXCP Scripts you can manipulate, produce, adapt and process:
  - AXMEDIS/MPEG-21 Objects and features
  - Digital resources in any format
  - Descriptors, fingerprint, etc.
  - Metadata, metadata mapping
  - Licenses and PAR
  - Protection Information
  - Device Capabilities
  - User Profile and preferences
  - Etc.

- And you can automate:
  - Load and Save of AXMEDIS objects
    - From/by the AXEPTool, P2P B2B tools
    - From/by the AXMEDIS database
    - From/by other legacy CMS via Crawler and other means
    - From/by the file system and Local Area Network
  - Publication of results on distribution channels

AXCP processing capabilities

- Any type of resource in any format
  - Also MPEG21, IMS, SCORM, etc.
- Processing functionalities:
  - Production of new objects: composition, etc.
  - Formatting: SMIL, XSLT, etc.
  - Synchronization of media, etc.
  - Adaptation, transcoding, ………
  - Reasoning on device capabilities and user preferences
  - Production of licenses
  - Verification of Licenses against them and PAR
  - Extraction of descriptors and fingerprints

- Open to any other module with plug-in technology:
  - Burning
  - Etc.
Fast and Continuous Crawling of Content

- AXMEDIS Scheduler
- AXMEDIS Rule Editor
- Workflow manager
- AXMEDIS Database
- Distribution Channels and servers
- Your CMSs
- AXCP GRID
- Your AXCP Rules
- Any Plug-in for content processing

AXMEDIS Content Processing

- AXMEDIS Editors
- AXMEDIS Database Manager
- Programme and Publication
- Distribution Servers
- AXMEDIS databases
- Focuseek Crawler
- AXMEDIS AXCP GRID
- AXMEDIS AXCP GRID
- AXMEDIS AXCP GRID
- AXMEDIS AXCP GRID
The AXMEDIS Multichannel architecture

Per channel and/or area

Internet, IP Distributors
Mobile Distributors
Broadcasters DVB-H
Broadcasters DVB-T
Broadcasters DVB-S
Media Distributors
Kiosks Distributors
...

Supervising PMSs/AXCSs
Located per channel or area

Collecting Societies
Content Providers
Content Integrators
PMS/AXCS
PMS/AXCS
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Content Integrators
Collecting Societies
Content Providers
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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:

**Prof. Paolo Nesi, Ph.D.**

DISIT-DSI  
Department of Systems and Informatics  
Distributed Systems and Internet Technology Lab  
University of Florence  
Via S. Marta 3, 50139 Firenze, Italy  
Email: nesi@dsi.unifi.it  
Web: http://www.AXMEDIS.org