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- Etc.
Overview of this Tutorial

- Preface
  - Purpose & Schema
- Part I: Main Integration Scenarios
  - AXMEDIS Database (EXITECH)
  - Query Support (EXITECH)
  - Certifier and Supervisor (DSI)
  - Accounting and Reporting (EXITECH)
- Part II: Content Distribution and Supporting Tools
  - AXEPTool (CRS4)
  - Integrating B2B with the AXMEDIS Factory (CRS4, EXITECH)
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- Part III: Distribution examples
  - Distribution to PC (TISCALI, SEJER)
  - Distribution via Kiosks (ILABS)
  - Distribution via Satellite Data Broadcast (EUTELSAT)
- References, Further information and contact

Preface: A very brief background of AXMEDIS

- Currently, the digital-content market is growing very fast and it needs solutions of production, protection and distribution of massive content collections for accessing new markets and defining/trying new business solutions.
- Major limitations:
  - Convergence of the media, interoperability of content
  - DRM applications and introduction in several distribution channel
  - Massive processing of content processing and distribution
  - Itc.
- These are a real challenge for many industries that are discovering the complexity of managing large digital content factories and distribution chains.
- Content producers, providers, aggregators and distributors constantly need to adopt innovative means.

Purpose of this Tutorial

- This Tutorial is the last section of the first series
  - Distributions
  - Links between content processing and distribution
- It provides details on
  - What is “AXMEDIS database”?
  - Which is “Certifier and Supervisor”?
  - What is “Accounting and Reporting”?
  - What is “AXEPTool”?
  - How to integrate B2B with the AXMEDIS Factory?
  - What is AXMEDIS “Programme and Publication”?
  - What and how to use “On-Demand”?
  - All the main purposes, functionalities and how to use them...
  - ...
- Please feel free to be “interactive” and please do not hesitate to raise any questions

Schema of the Tutorial and Purpose

- Duration: ~3 hours
- Who should attend this Tutorial:
  - Everyone interested to know more about AXMEDIS solution and tools – particularly on the DISTRIBUTION aspects
  - Business Managers interested in assessing if AXMEDIS may be suitable for the specific businesses, to learn the advantages of the AXMEDIS Framework, …
  - Technical Managers interested to know more about AXMEDIS technology on Content Distribution, Programme and Publication, etc...
  - Research Managers interested assessing or adapting AXMEDIS framework for
    - testing and developing new solutions, adding new algorithms, functionalities, etc.,
    - Promoting and disseminating new solutions using the framework...

AXMEDIS Tutorial on Distribution (Part I)

Version 1.1
Last updated 29 November 2005
URL: http://www.axmedis.org

Fabrizio Fioravanti (EXITECH), Tommaso Martini (DSI), Sauro Chellini (DSI)
**AXMEDIS Facts**
- AXMEDIS manages data that are strategically important for your business
- General and standard metadata set (as Dublin Core) are addressed
- You choose the metadata that are relevant for your business that are automatically indexed for each object you store
- Allows the management of multilingual translation for each metadata you use simplifying and improving object irretrievability

**AXMEDIS Architecture**

**AXMEDIS Saving**
- Link to the root object for query and retrieval

**AXMEDIS Loading**
- Query Results

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**Query Support Facts**
- Management of very complex technical query on:
  - Metadata (author, creators, titles, bit-rate, etc)
  - Rights (Can I use it in Italy?, Can I burn on DVD?, etc)
- Support for different data sources:
  - Query on AXMEDIS Factory Database
  - Query on your Content Management System
  - Query on a P2P network at B2B level
  - Query on another Query Support (i.e. for Kiosk)
- Unified language for querying independent by the platform
- Unified language for results
AXMEDIS Tutorial on Distribution, ver 1.2

**AXMEDIS Query User Interface**

- **Heading:** contains a multiple choice checkbox to address the AXMEDIS query on different locations.
- **Form:** contains:
  - Dublin core Metadata, in addition with other general metadata and Available Rights with a sub-set of the MPEG 21 Metadata.
- **Actions:** contains the buttons thought with is possible to reset all the values filled in the form, or to submit the query.

**Result of the Query**

- **Objects:**
  - Object IDs
  - How to recover objects (from P2P network, and so on)
- **Possibility to gather information related to rights:**
  - What Can I do with the object
  - Where can I use the object
  - Who can distribute the object
- **Metadata related to the objects in order to perform a better selection**
  - Length
  - Creators
  - Bit rate

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**AXMEDIS Certifier and Supervisor facts**

- **AXMEDIS certifier and supervisor provides:**
  - A single point for user registration and certification both at Consumer and Business level
  - A single certified point for collecting event reporting logs both for accounting and marketing purposes
- **AXMEDIS certifier and supervisor added value:**
  - Security by certifying users
  - Control on content usage by registering transaction
  - Accessing statistical information useful for marketing and planning of activities

**AXMEDIS Certifier and Supervisor, AXCS**

- **Registration Web Service**
  - AXCS DB Manager
  - AXCS DB
  - AXCS Registration
  - AXCS Registration Web Service
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Accounting and Reporting Facts

- ANONYMOUS LOGS
  - Extract logs for statistical/marketing purposes (all the log are in anonymous format, that is ID are not present) for:
    - Creating statistics of usage per country/metadata: how many times this song has been played in Italy?
    - Create publication programs or catalog focused on certain statistics
- NAMED LOGS
  - Extract log for administrative purposes (only the log that are related to objects for which some right is owned) for:
    - Billing customer: how many time user XYZ has played this song?
    - Distributing/collecting money for rights: how many times this song has been played in Italy and who has to pay?

Accounting and Reporting Architecture

- Administrative database
- Channel A
- A Distributor
- A Producer
- A Collecting Society
- AXMEDIS Certifier and Supervisor

Architectural details

- Factory side
- AXCS side
- Each Factory has a single user on AXCS
- Many factory users with different privileges

Accounting and Reporting interchange format

- AXCS provided data
  - Report Date
  - Timestamps
  - AXOID
  - Other ... IDs …
  - Device type
  - Operation performed
  - Location (for collecting societies)
- Business Related data
  - Credit card transaction
  - Economic value
- Factory data
  - ISRC
  - Object Type (according to DCMI)
Distributing is good, Sharing is even better!

- reduce costs: When CPU of clients are IDLE.
  - Share this resource. It is almost free for you.
- When your disk space is unused.
  - Share this resource. It is almost free for you.
- When your bandwidth is unused.
  - Share this resource. It is almost free for you.
- When your content is ready to be published.
  - Share this resource and be PAID for that. That’s your business.

AXMEDIS General Architecture

AXMEDIS for B2B Cooperative Content Production

What is the AXEPTool?

- The AXEPTool is a core library and a daemon that can be used to accept connections, share, search and load content over a network using P2P protocols.
  - Discover other participant using a Web cache
  - Accept incoming connections from other peers to form a network topology
  - Publish objects
  - Propagate AXMEDIS queries in the network and collect AXMEDIS query results
  - Download objects with resume/suspend mechanism
  - Produce a RSS (Rich Site Summary (RSS 0.91); RDF Site Summary (RSS 0.9 and 1.0); Really Simple Syndication (RSS 2.0)) feed for each object published
  - As an XML approach to notify/advertise new objects
- AXEPTool uses AXMEDIS protection model to distribute/share AXMEDIS objects in a safe manner
Check point: AXEPTool ... (CRS4)

- **P2P**
  - Understand the rationales behind a P2P tool for discovering, searching, sharing delivering and updating objects

- **AXEPTool**
  - Both a client and a server
  - Software implementing P2P protocols

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Integrating B2B with the AXMEDIS Factory

- **Building on top of the AXEPTool**
  - Integration of AXEPTool P2P services in the factory has many folds:
    - Via Web Services
    - Via JavaScript and XML rules
    - Embedding the Java classes in a third-party application
    - Writing a new implementation of the protocol in a different language (for instance C++ or python)

Rules and Scripts

- **Publication rule**
  - Publish all since last 7 days except Artist “foo” Schedule now. Repeat weekly

- **AXMEDIS P&P programmes**
  - create, edit, test, activate

- **Operations and applications of the P&P area**
  - multi-channel distributions

Overview: P&P Area within the AXMEDIS architecture

- Tools and functionalities
  - P&P Editor
  - Create and edit a P&P programme
  - “Test”, “Activate” or “Stop” a P&P programme

- AXMEDIS P&P Engine
  - “On-Demand” requests

Introduction to Programme and Publication (P&P)

- **Aim:**
  - Operations and applications of the P&P area
  - AXMEDIS P&P programmes: create, edit, test, activate
  - multi-channel distributions

- **Overview:**
  - P&P Area within the AXMEDIS architecture
  - Tools and functionalities
  - P&P Editor
  - Create and edit a P&P programme
  - “Test”, “Activate” or “Stop” a P&P programme
  - AXMEDIS P&P Engine
  - “On-Demand” requests
**Part III: Distribution examples**

- Distribution to PC (TISCALI, SEJER)
- Distribution via Satellite Data Broadcast (EUTELSAT)
- Distribution via Kiosks (ILABS)
- Query On-Demand (FHGI4G)
- Programme and Publication (UNIVLEEDS)
- Integrating B2B with the AXMEDIS Factory (CRS4, EXITECH)
- Accounting and Reporting (EXITECH)
- Certifier and Supervisor (DSI)
- Query Support (EXITECH)

**Query On Demand - Motivation**

- User wants to get specific content according to his wishes, e.g. based on
  - Artist
  - Title
  - Year of publication
- User needs simple search mechanism
- User wants to select and download content that fits to her/his needs
- Content should be adapted on demand to fit with the user’s device (client profile)
**Query On Demand – Procedure**

- User can enter a query using a simple Web interface
- Simple queries are enriched using information about the client device and the distribution channel
- A list of matching content is presented to the user
- User can select a specific content or refine the query
- Content is produced on demand based on client and distribution profile (if not yet available)
- Content is downloaded and played on the client device

**Demo: AXMEDIS Distribution Tutorial, Part 2**

- **Programme and Publication (P&P)**
  - **P&P Editor**
    - Create and edit a P&P programme
  - **P&P Engine**
    - test and activate a P&P Programme
  - **GUI Monitor**
  - **On Demand**
    - Web interface
    - Make a query
    - Select a specific result

**Check point: P&P Area**

- **P&P Editor**
  - Create and edit a P&P Programme
  - Test a programme (Quick or Full) trial and understand the difference
- **Activate or terminate a selected P&P programme to deliver objects**
- **Understand the processes behind the scene**
- **On Demand**

**References, Further information and contact**

David Fuschi (ILABS), Domenico Dato, Giovanni Nateri (TISCALI), Roberta Campo (EUTELSAT)
Content Distribution via Internet

MediaClub Manager interacts with AXMEDIS in several ways.

- AXEPTool: Configures and executes the queries to AXMEDIS
- MediaClub App: Chooses the AXMEDIS Objects to import in MediaClub System and extract the related metadata;
- Xaura2 (feed import engine): uploads AXMEDIS Objects and metadata in the distributor CMS;
- CAMART: Makes the reporting and statistical queries on CAMART system and extracts the Objects and metadata in the distributor CMS;
- Search content in the AXMEDIS P2P Network (business network)
- Import acquired contents in the distributor catalogue
- Publish content in the Distributor catalogue
- Play bought contents
- Charge its portfolio
- Manage its account details and preferences
- Manage its portfolio
- Buy directly a media content
- AXMEDIS Player
- AXMEDIS Certification & Licensing

Content Distribution via Internet

Managing License Chain in AXMEDIS

Protection Manager Support

Distributor

Content Integrator

Content provider

P-Info.a

P-Info.b

Certifier and Supervisor

Certifier and Supervisor

Part III: Distribution examples

- Distribution via Kiosks (ILABS)
- Distribution via Satellite Data Broadcast (EUTELSAT)

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- Query On-Demand (FHGIOD)
- Programme and Publication (UNIVLEEDS)

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Part III: Distribution examples

- Distribution via PC (TISCALI, SEJER)
- Distribution via Satellite Data Broadcast (EUTELSAT)
Introduction to AXMEDIS Kiosk Distribution

- **Aim:**
  - Introduce the kiosk demonstrator
  - In relation to AXMEDIS framework
  - As a distribution channel

- **Overview:**
  - The Kiosk within AXMEDIS Architecture
  - Content distribution and access to kiosk
  - Content selection, acquisition and fruition

---

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  - Query On-Demand (FHGIGD)

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  - Distribution via Kiosks (LABBS)
  - Distribution via Satellite Data Broadcast (EUTELSAT)

- **References, Further information and contact**

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Introduction to AXMEDIS Satellite Distribution

- **Aim:**
  - Introduce the Satellite Data Broadcast (SDB) Demonstrator
  - In relation to AXMEDIS framework
  - As a distribution channel

- **Overview:**
  - The SDB within AXMEDIS Architecture
  - SDB overall use-case
  - Content production and distribution in the SDB system
    - Server side
    - Client side
The Satellite Data Broadcast within AXMEDIS Architecture

Channel Distributors

AXMEDIS Certifier & Supervisor Server

Channels

PDAs

AXMEDIS Kiosks

Mobile-Distributors

Phones

OpenSky Data Broadcast

i-TVs

PC-Distributors

PCs

AXMEDIS Portal

AXMEDIS P2P TOOL (AXEPTool)

Content Integrators

Content Providers

Satellite Data Broadcast Overview

Scenario 1: Sending Content through SDB
- Content uploaded and packaged according to the transmission channel rules
- Content scheduled as a program, then activated/paused/stopped

Scenario 2: Receiving Content via SDB
- User selects content presented in the program guide
- Content is automatically pushed to receiving station

Scenario 3: Filtering Content and Cache Strategies
- The content carousel is optimised according to content filtering on the client side and cache management
- Personalised content composition

Satellite Data Broadcast with AXMEDIS Technology

AXMEDIS Programme and Publication

EUTELSAT

Broadcast Server

Sale Manager

New Protected Object: Post Profile

AXMEDIS Protection Manager

Overlay Manager

New Protected Object: Post Profile

Sale Manager

Axmedis Programme and Publication

Broadcast Server

Overlay Manager

Overlay Manager

Satellite Data Distribution Scenarios

- Scenario 1: Sending Content through SDB
  - Content uploaded and packaged according to the transmission channel rules
  - Content scheduled as a program, then activated/paused/stopped

- Scenario 2: Receiving Content via SDB
  - User selects content presented in the program guide
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- Scenario 3: Filtering Content and Cache Strategies
  - The content carousel is optimised according to content filtering on the client side and cache management
  - Personalised content composition

Sending content through Satellite Data Broadcast

Content Packaging

Welcome to Open-Sky Manager

Updater Packages

Upload Files

Open-Sky Manager
Sending content through Satellite Data Broadcast

- Content Scheduling

Kiosk
- The Kiosk within AXMEDIS Architecture
- Catalogue production at the kiosk factory
- Content distribution and access to kiosk
- Content selection, acquisition and fruition
- Kiosk administration

Receiving content via Satellite Data Broadcast

- Client application

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- References, Further information and Contact

Publicly Accessible General AXMEDIS Documents

- DE2.1.1 (two parts, A and B) User Requirements and use cases
  - A) User Requirements
  - B) Use Cases
- DE2.2.1 -- Test Cases and Content Description
- Reports on Content
  - DE3.1.3 -- AXMEDIS Content Aspects Specification
  - DE8.1.1 -- Content for Test Cases and Validation
  - DE8.2.1 -- Content Selection Guidelines
  - DE8.3.1 -- Multilingual guidelines and technical solutions
  - DE8.4.1 -- AXMEDIS Editorial Format Guidelines and Basic Examples

Publicly Accessible AXMEDIS Framework Documents

- DE3.1.3 -- Framework and tools Specification, 10 parts
  - A) AXMEDIS General aspect and Model
  - B) AXMEDIS Viewers and Players
  - C) AXMEDIS content processing area, GRID
  - D) AXMEDIS Fingerprint and Descriptors
  - E) AXMEDIS Database and Content gathering
  - F) AXMEDIS AXPTools P2P
  - G) AXMEDIS Workflow
  - H) AXMEDIS Protection and accounting
  - I) AXMEDIS Draft Distribution and Portal
  - J) AXMEDIS Definitions and Terminology
- DE5.1.1 -- AXMEDIS Framework Infrastructure
- DE5.2.1 -- AXMEDIS Framework Validation and Integration
Publicly Accessible AXMEDIS Framework Documents

- Early Reports on Basic Technologies
- DE4.1.1 - Content Modelling and managing
- DE4.2.1 - Content Indexing, monitoring and querying
- DE4.3.1 - Content Composition and formatting
- DE4.4.1 - Content sharing and production on P2P
- DE4.5.1 - Content Protection and Supervision
- DE4.6.1 - Content Distribution via Internet
- DE4.7.1 - Content Distribution toward mobiles
- DE4.8.1 - Content Distribution via satellite data broadcast, the push optimisation and the on demand problem
- DE4.9.1 - The Usability issues for the AXMEDIS production tools

References

- AXMEDIS: www.axmedis.org
- CRF: Content Reference Forum: http://www.crforum.org/
- DMP: Digital Media Project, www.chiariglione.org
- ODLI: http://odrl.net
- OMA: www.openmobilealliance.org
- MPEG, MPEG-21: www.chiariglione.org
- MUSICNETWORK: www.interactivemusicnetwork.org
- WEDELMUSIC: www.wedelmusic.org

Contact Information

You are invited to contribute to the improvement of AXMEDIS documents and specification by sending the contribution to P. Nesi at nesi@dsi.unifi.it.

You are invited to attend AXMEDIS public meetings, for further information see www.axmedis.org or contact P. Nesi at nesi@dsi.unifi.it.

Affiliation to the AXMEDIS

You can be affiliated with AXMEDIS. The affiliation provides access to a large amount of information, knowledge, and source code, related to the AXMEDIS Framework.

If you are interested in the affiliation, please contact P. Nesi by email (nesi@dsi.unifi.it). The benefits of the affiliation include the possibility of using the AXMEDIS specification and technology for your business.

Other AXMEDIS courses

- Hope you have enjoyed this Tutorial
  - For additional information please refer to AXMEDIS contact person or access to the AXMEDIS web portal and/or CD for further documentations and reports from which this Tutorial has been produced.
  - Updated reports are being produced annually.
  - By affiliating with AXMEDIS and participating the AXMEDIS events and activities, you will be kept up to date with the latest progress and development.

- Additional AXMEDIS courses include:
  - AXMEDIS Detailed Overview, 6 hours, full day course
  - AXMEDIS Content Production area, demonstration and training
  - AXMEDIS Content Distribution area, demonstration and training
  - They are available online at the AXMEDIS web portal

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Thanks to all AXMEDIS partners

We acknowledge the following partners for their support:

- AXMEDIS
- www.axmedis.org
- AXMEDIS Content Distribution area, demonstration and training
- They are available online at the AXMEDIS web portal
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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