MPEG-21 –Current Work Plan

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MPEG-21 — ISO/IEC (18034) 21000

Goal:

Define the technology needed to support Users to exchange, access, consume, trade and otherwise manipulate Digital Items in an efficient, transparent and interoperable way

The parts of MPEG-21

1. Vision, technologies and strategies
2. Digital Item Declaration
3. Digital Item Identification
4. Intellectual Property Management and Protection (IPMP)
5. Rights Expression Language
6. Rights Data Dictionary
7. Digital Item Adaptation
8. Reference Software
9. File Format

MPEG-21Part 1 — Vision

• Define a multimedia framework to enable transparent and augmented use of multimedia resources across a wide range of networks and devices
1. Provide a vision
2. Facilitate integration and harmonization of technologies
3. Provide a strategy for achieving a framework through collaboration

MPEG-21 Part 2 — Digital Item Declaration

• **Index a Digital Item**
• **Purpose: describe a set of abstract terms and concepts to form a useful model for defining Digital Items**
• **Three normative sections:**
– **Model**
• **set of abstract terms and concepts**
– **Representation**
• **normative description of syntax & semantics of DID elements**
– **Schema**
• **normative XML schema comprising the entire grammar of DID**

Digital Item Declaration in detail
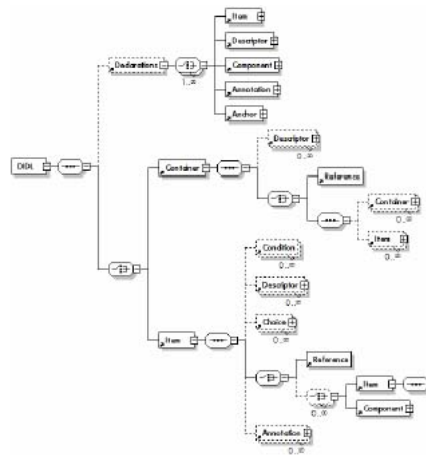
MPEG-21 Part 3 — Digital Item Identification

The scope of the Digital Item Identification (DII)
specification includes:
• How to uniquely identify Digital Items and parts thereof
(including resources)
• How to uniquely identify IP related to the Digital Items
(and parts thereof), for example abstractions
• How to uniquely identify Description Schemes
• How to use identifiers to link Digital Items with related
information such as descriptive metadata
• How to identify different types if Digital Items

DII example: MPEG-21 music album
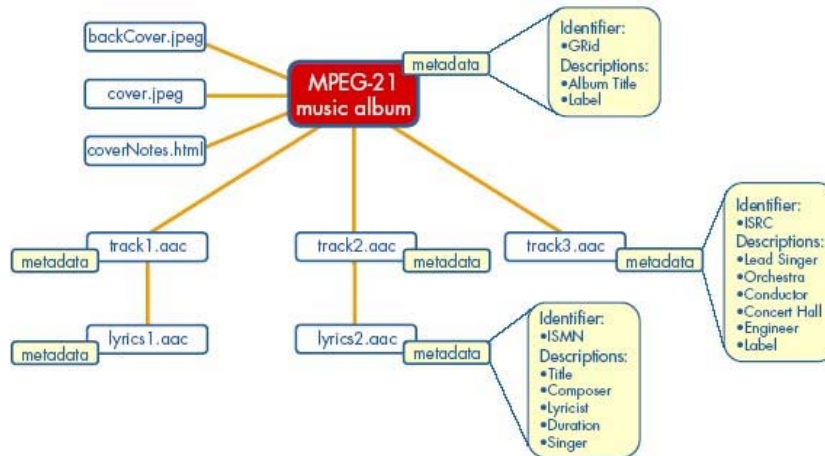
MPEG-21 Part 4 — IPMP

- • Improvements over MPEG-4 IPMP:
- – Internetworking
- – IPMP tool retrieval & authentication
- – Integration of Rights Expressions (RDD & REL)
- • Intellectual Property Management and Protection involves the enforcement of REL permissions
- – IPMP shall consult REL before any actions are taken in the User's system
- • REL: What is protected? What right applies?
IPMP: How is it protected?

MPEG-21 Part 5 — REL

- • The Rights Expression Language consists of licenses and grants that give specific permissions to Users to perform certain actions on certain resources, given that certain conditions are met
- – Grants can also allow Users to delegate authority to others
- • User's system shall parse and validate the RE
- • User's system shall check permissions before any further action is done
- • DID parser is responsible for discovering and identifying where to gather licenses
- • REL licenses are wrapped in Digital Items

REL data model

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

MPEG-21 Part 6 — Rights Data Dictionary

- Set of clear, consistent, structured, integrated and uniquely identified Terms to support REL
- Specification of dictionary structure and methodology to create dictionary
- Dictionary is prescriptive, inclusive, and has audit provisions
- Legal definitions are mapped from other Authorities
- Supports mapping & transformation of metadata from terminology of one namespace (or Authority) into that of another namespace in automated or partiallyautomated way
- Dictionary is based on a logical model, the Context Model, which is the basis of the dictionary ontology

MPEG-21 Part 7 — Digital Item Adaptation

• **Goal: achieve transparent interoperable access to distributed multimedia content**
• **Enable ad hoc formation of User communities in which contents is shared with agreed or contracted**
  – **Quality**
  – **Reliability**
  – **Flexibility**
  – **Diversity**
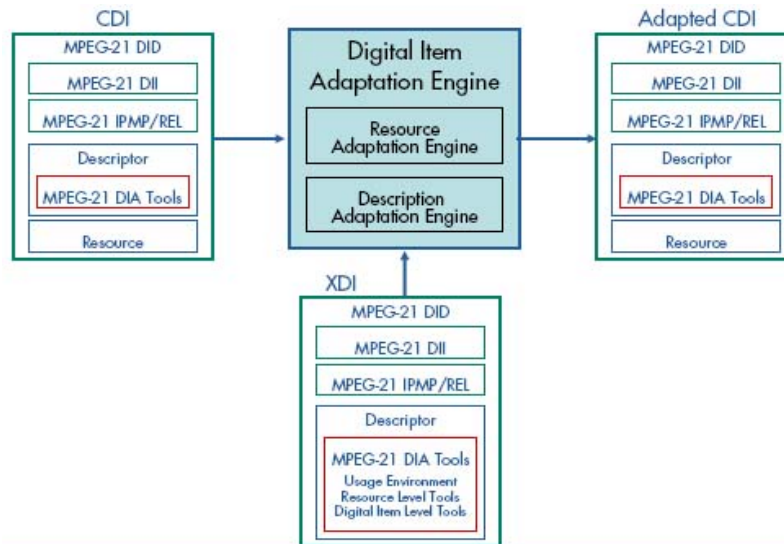• **Guaranteed user experience**
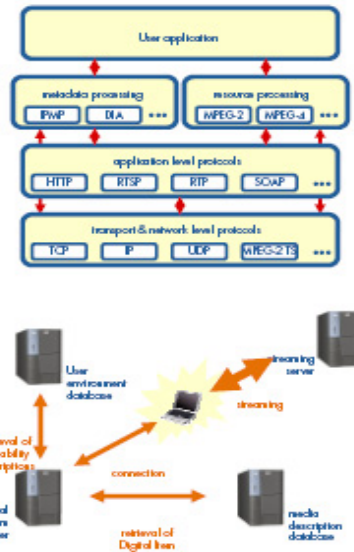
21.04.2004

Concept of Digital Item Adaptation
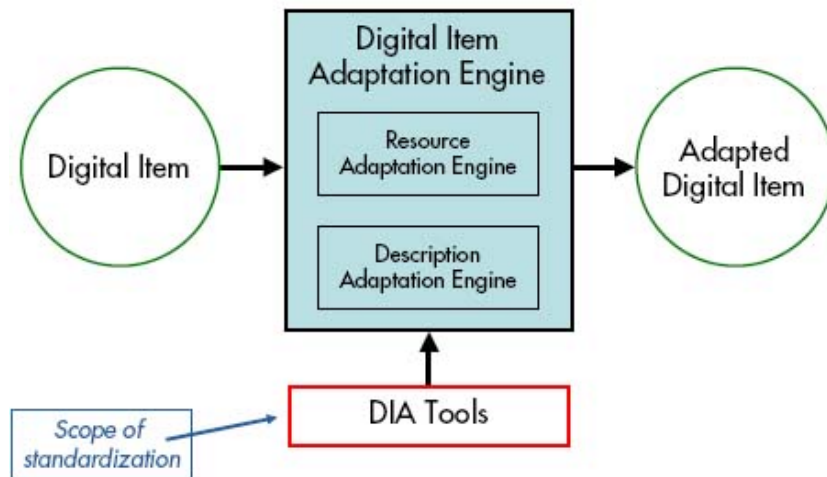
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Relation between DIA and other MPEG-21parts

MPEG-21 Part 8 — Reference Software

• **Success of a standard depends on the availability of reference software**
• **Plan to use the software developed in Core Experiments (CE) as a basis**
• **Platform independence**
• **Future repository (requires membership)**
– **http://mpeg.nist.gov/cvsweb/MPEG-21/**
• **Temporary repository**
– **http://www.titr.uow.edu.au/cgi-bin/mpeg-ref-sw.pl**
• **Current main issue: parsing DID**

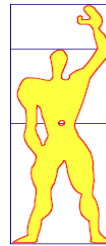21.04.2004   **16**

Digital Item Processing and Terminology

- Digital Items act as a structure for organizing resources and its descriptions
- Need a mechanism for defining a set of operations by which a terminal can process a DI or DID
- Currently considering to specify a set of operations that can be used to process DIs: Digital Item Method
- A DIM defines an intended method for configuring, manipulating and/or validating a DI

- Interoperability of Digital Items means that terminals must handle the DIs in a consistent manner
- Digital Item Methods provide a way to specify a selection of preferred procedures by which the DI should be handled at the DI level
  – a menu of user interaction possibilities
- Digital Item Processing encompasses all aspects of processing a DI from an application perspective
- Applications build DIP environments around a fundamental DIME

- **CDI — Content Digital Item**
- **a DID containing the actual content**
- **DIBO — Digital Item Base Operation**
- **DIM — Digital Item Method**
- **method that can by applied to a DID**
- **– DIME — DIM Engine**
- **part of the terminal responsible for executing the DIM**
- **– DIML — DIM Language**
- **DIP — Digital Item Processing**
- **MI — Method Item**
- **PI — Processing Item**
- **XDI — Context Digital Item**

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Digital Item Processing

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MPEG-21 Part 9 — File Format

• An MPEG-21 file format shal be capable of storing
MPEG-21 Digital Items
– all components of the DI within a single file
• The MPEG-21 file format will inherit several concepts
from MP4, in order to make 'multi-purpose' files
possible

MPEG-21 — Further work

• Persistent association of
information with DIs
• Accessibility
• Personal data
• Content representation
• Event reporting
•…

Why is MPEG-21 relevant to you ?

• All rich media commerce on the Internet will be driven by
MPEG-21
• Only companies that drive the standard will reap substantial
profits
– First to market
– Licensing fees