

# MPEG-21 Introduction

Intellectual Property Management and Protection

**Halldór Matthías Sigurðsson**  
Ph.D. student at CTI – [halldor@cti.dtu.dk](mailto:halldor@cti.dtu.dk)  
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**MPEG**

## The MPEG standards

- MPEG-1
- MPEG-2
- MPEG-4

Video coding standards

Static

Objects

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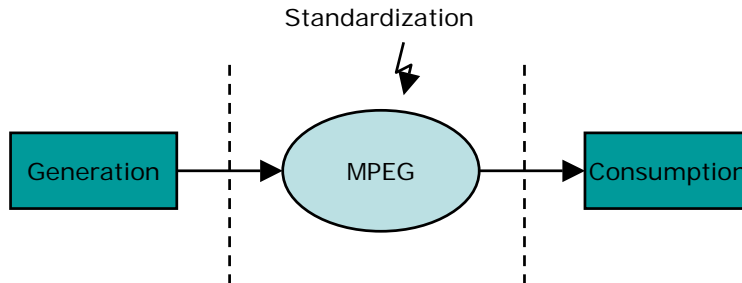
- MPEG-7
- MPEG-21

Content Management

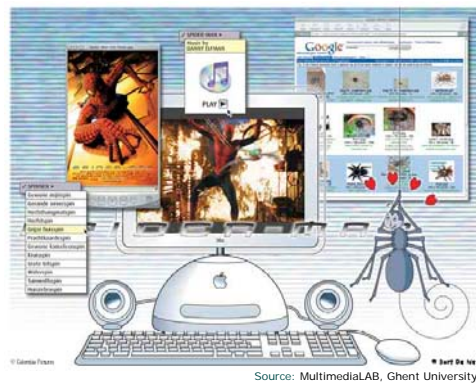
Description

Lifecycle

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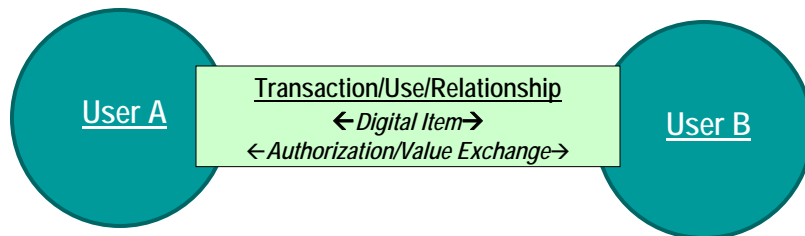
- The MPEG standards are “open” on two sides
- Methods for generation and consumption are not defined by the standards



### MPEG-21 the Multimedia Framework

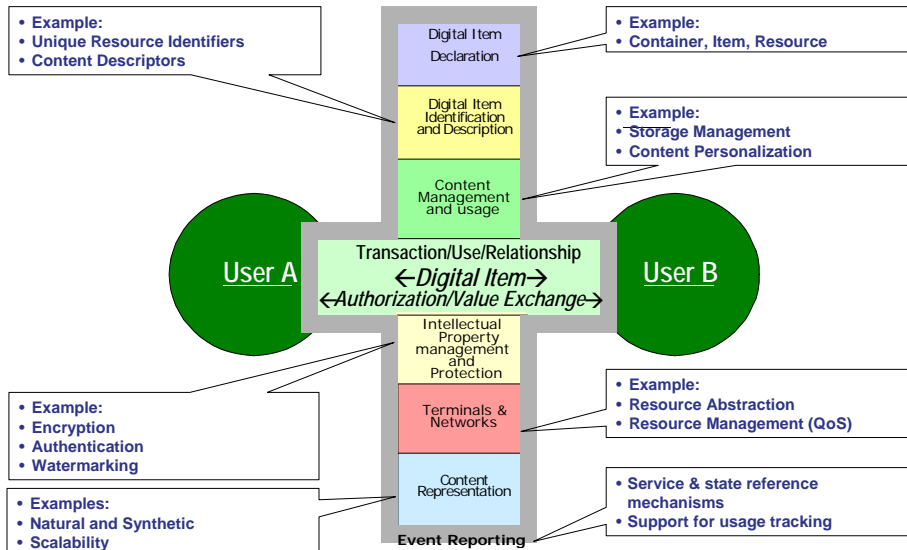
- Universal management of content, representing content based on user preferences and device capabilities, protection of rights, protection from unauthorized access / modification, protection of privacy of providers and consumers ...

- **What**
  - A Digital Item is a structured digital object with a standard representation, identification and metadata within the MPEG-21 framework.
- **Who**
  - A User is any entity that interacts in the MPEG-21 environment or makes use of a Digital Item.



Source: Source: Chiariglione.org/mpeg

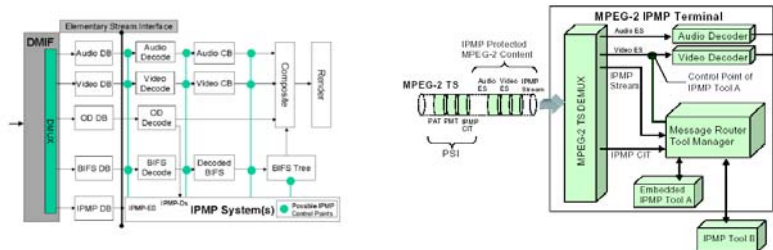
## Multimedia Framework



# Digital Rights Management

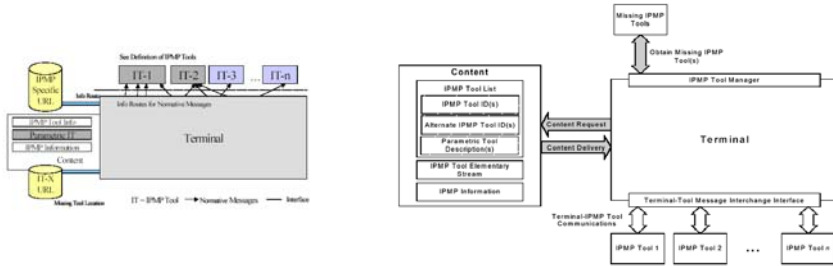
- Is MPEG trying to tame the hackers?
- DRM is a necessity, not only for industry support, but for a global market
- DRM will refer to the general issue of digital rights management, while Intellectual Property Management and Protection (IPMP) will denote MPEG specifics
- MPEG-21 explains the basic concepts of a machine-interpretable language for expressing the rights of users and content
- Does not provide specifications for security in trusted systems, pose specific applications, or describe the details of the accounting systems required.
- It does describe the language's syntax and semantics

## IPMP using 'hooks' approach



- IPMP in MPEG 2 and 4 (version 1) used the 'hooks' approach
- Plug-in a proprietary IPMP system
- Embed information into content streams that informs the terminal which proprietary IPMP system to use
- The reason was cost/benefit trade-off, one size did not fit all (e.g. TV and PDA)
- Downside: Limits interoperability, heavier terminal environment, risk many similar MPEG devices being built without inter-working

## New IPMP approach



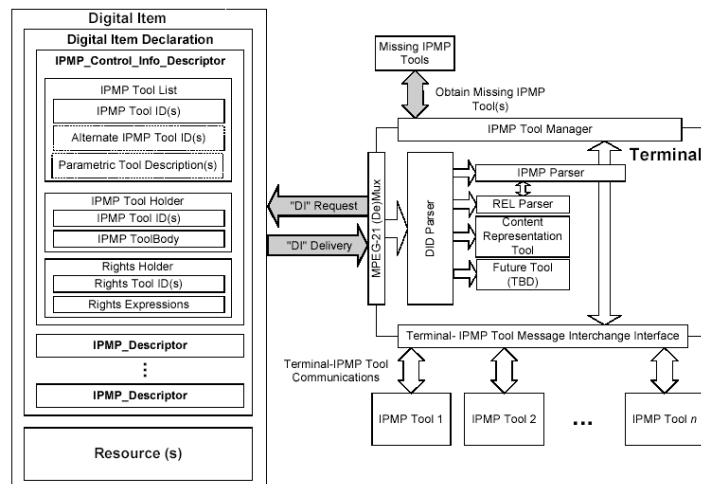
- More generalized architecture
- Provider lists authentication methods, recipient selects one
- Terminal can get IPMP Tools embedded in content or by downloading it
- Still based on hooking but uses Message Routing Service to simplify
- Audit agencies can provide Trust and Security metadata

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## MPEG-21 Digital Rights Management



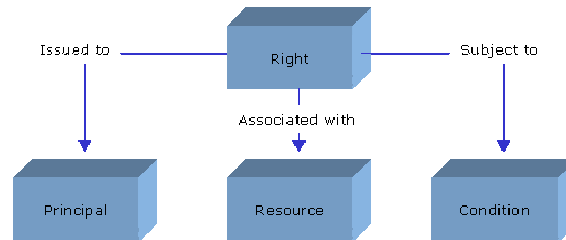
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## Rights Expression Language

- REL is seen as a machine-readable language that can declare rights and permissions using the terms as defined in the Rights Data Directory (RDD)

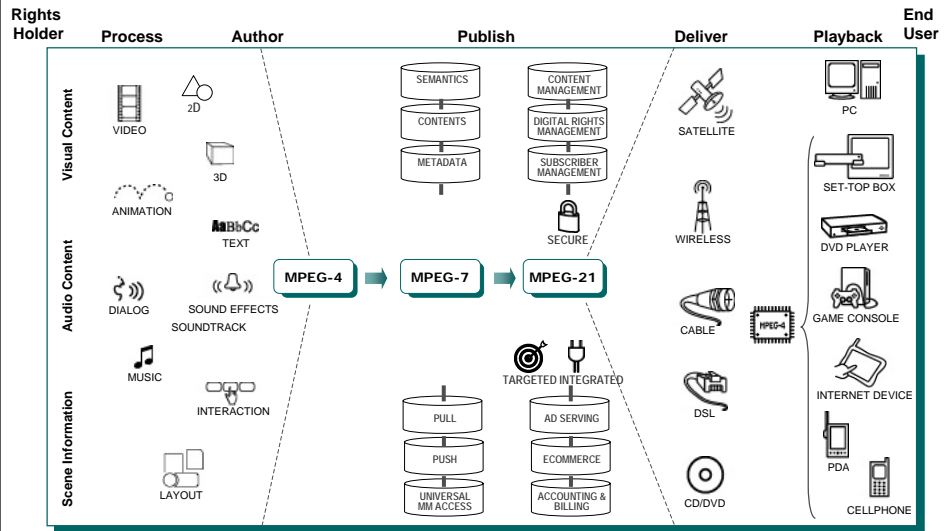


- The principal to whom the grant is issued
- The right that the grant specifies
- The resource to which the right in the grant applies
- The condition that must be met before the right can be exercised
- REL is supported by Rights Data Directory (RDD)

## MPEG-21 Conclusion

- **Open standard-based framework for multimedia delivery and consumption?**
- **Enables the use of multimedia resources across a wide range of networks and devices**
- **Consists of Users that interact with Digital Items**
- **No technical distinction between providers and consumers**
- **Glues all kinds of multimedia content together**
- **Digital Rights Management infrastructure**

# MPEG Conclusion



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