Open E-Book Digital Rights Management Standards

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Overview

- DRM Definition and New Opportunities
- Architectures
  - Technical
  - Information
- Standards
  - EBX, OEBF, ODRL
- Ebook Examples
  - Adobe, IPR Systems
- MPEG-21
- Conclusion
DRM Definition

- DRM has always had a “security/protection” emphasis
- Broader activities
  - “Digital Rights Management (DRM) involves the description, identification, trading, protection, monitoring and tracking of all forms of rights usages over both tangible and intangible assets including management of Rights Holders relationships”
- Need a good simple definition!

DRM Perspectives

- Business
- Social
- Technical
- Legal
New Opportunities

- From “Creation Waterfall”
  - Pay for possession
  - Limited re-use rights available

Create → Trade → Use

New Opportunities

- Towards “Creation Life-Cycle”
  - Blurring creation and use towards re-creation and re-use
  - Pay for usage, not possession
  - Share the rights
  - Share the revenue
  - Require Trusted services to validate rights and trades
  - Transparent Rights

Create ← Use → Trade
DRM Architectures

- Technical Architecture
  - Support in Digital Supply Chain
  - Trading, Tracking, Protection, Ids...
  - And support the...
- Information Architecture
  - Model Assets and Relationships
  - Digital Rights Expression Language

DRM Technical Framework
Rights Trading

Model

Using <indecs> Principles

Primary Entities include:

- Parties
- Content
  - Model with IFLA
  - Rights

DRM Information Architecture
Rights Information Model

- Count
- Time
- Territory
- ...
- ...
- Pay
- Tracking
- Loyalty Points
- Constraints
- Obligations
- Usage Permissions
- Rights Holders
- Print
- Reuse
- Play
- ...

DRM Standards

- (Slowly) emerging via sector/industry groups
- Very little direct support in Content Standards
  - Most use Rights element as a link
  - PRISM <http://prismstandards.org>
  - DIG35 <http://www.digitalimaging.org>
- Ebook Support
  - EBX/OpenEBook Forum
- Rights Languages
  - ODRL and XrML
- MPEG-21
Electronic Book Exchange Working Group

- Started Late 1999/Early 2000
- 25 Members
- Need DRM for eBook Market to succeed
- Stakeholders want compatible solutions
- Developed a specification for “Rights Vouchers”
  - Certified Trusted systems exchange rights (also content)

Current draft (v0.9) is incomplete but usable:
- A standard set of basic rights
- A set of data definitions for rights objects
- A standard protocol for rights exchange and enforcement in a distributed environment

Lacks:
- "Governance" for its authentication system
- Intellectual property review
- Reconciliation with year 2001 requirements
- Merger with OEBF…
OEBF

- OpenEBook Forum
  - <http://www.openebook.org>
- Approx 90 Members
- Activities:
  - Requirements
  - Publication Structure
  - Identifiers
  - Metadata
  - Rights & Rules
  - Systems

Rights and Rules

- Requirements Phase (3 Months)
  - From OEBF (ie WGs) and related external orgs
- Analysis Phase (2 Months)
  - Critique, commentary, relevance and priority
  - Develop Use cases to be addressed
- Development Phase (4-13 Months)
  - Technical harmonisation tasks:
    - Standard for interoperability in implementations
    - Authentication systems and governance
    - Rights language used in the specification
    - Certification specification process by which implementations are evaluated and “rated”
Open Digital Rights Lang

- Semantics of a core DRM Language
- Open or Trusted environments
- Foundation for extensible (ie XML) and sector-specific rights language
- Interoperability across sectors/industries
- Submitted to Ebook and MPEG communities

- http://odrl.net/
ODRL Constraint Model

ODRL - Usage

<od:asset>
  <od:uid idscheme="DOI"> doi://10.9999/MAN-001 </od:uid>
</od:asset>
<od:usage>
  <od:display>
    <od:requirement>
      <od:payment> <od:amount cur="AUD"> 10.00 </od:amount> </od:payment>
    </od:requirement>
  </od:display>
  <od:print>
    <od:constraint> <od:cpu/> </od:constraint>
    <od:requirement>
      <od:payment> <od:amount cur="AUD"> 20.00 </amount> </od:payment>
    </od:requirement>
  </od:print>
</od:usage>
Rights Complexity

- **Need Balance:**
  - Current Technology Offerings
  - Usability

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Ebook Examples

- Adobe
  - Ebook Software
- IPR Systems
  - Digital Rights Exchange (DRX)
  - Example:
MPEG-21 Core Elements

**Transaction/Use/Relationship**

- Digital Item Declaration
- Digital Item Identification and Description
- Content Management and Usage
- Copyright Representation
- Content Management and Protection
- Terminals & Networks

**Examples**
- Natural and Synthetic Scalability
- Resource Abstraction
- Resource Mgt. (QoS)

**Authorization/Value Exchange**

- Authorization/Value Exchange
- Intellectual Property management and Protection
- Terminal & Networks

**Examples**
- Encryption
- Authentication
- Watermarking

**User A**

**User B**

**Examples**
- Container
- Item
- Resource

**Examples**
- Unique Identifiers
- Content Descriptors

**Examples**
- Container
- Item
- Resource

**Examples**
- Container
- Item
- Resource

**Examples**
- Container
- Item
- Resource

**Examples**
- Container
- Item
- Resource

**Examples**
- Container
- Item
- Resource

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**Examples**
- Container
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Additional Activities

- MPEG-21 - Rights Dictionary and Language
  - <http://www.cslt.it/mpeg/cfp/call_for_requirements(rights_language).htm>
- IETF - Internet DRM WG
  - <http://www.idrm.org>
- DOI - Feasibility study for a Rights Data Dictionary
- W3C - DRM Workshop
  - <http://www.w3.org/2000/12/drm-ws/>
- OASIS - Access Control Markup Language
  - <http://www.oasis-open.org/committees/xacml/>

Conclusion

- DRM is emerging as a new tool to enable innovative new business models
- Everyone wants DRM solved
  - but it's not an easy solution to generalise
- DRM technologies are “embryonic”
  - but evolving fast...
- DRM technologies need to meet all the needs of Rights Holders and Consumers
- Will be the catalyst for the ebook market