Overview

- Principles of DRM
- Architecture and Information Model
- Trading Rights
- Standards
- Mobile DRM
- Interoperability
- Commercial DRM Systems
- DRM Threats
- Summary

DRM Principles

- DRM Issues are a balance between
  - Business, Social, Legal, and Technical issues
- DRM Definition
  - Rights Management
    - Rights Holders, Royalties, License Mgt...
  - Rights Enforcement
    - Security, Encryption, Trust...
- DRM is an end-to-end solution
  - Needs to work with the content creation, management, distribution, and usage value chains
DRM Layered Architecture

Social DRM

Manage the Rights Holders

Trading Rights – The New Way...
DRM – Standards

- Key Standards Bodies involved in DRM
  - Open Mobile Alliance (OMA)
  - MPEG-21 - Parts 4,5,6
- Rights Expression Languages
  - Open Digital Rights Language (ODRL)
    - as used in OMA
  - Extensible Rights Markup Language (XRML)
    - as used in MPEG-21(5)
  - Creative Commons

ODRL Model
Mobile DRM – OMA

- Open Mobile Alliance (OMA)
- Huge predictions for content services
- Lack of DRM has inhibited uptake
- Great potential for takeoff (mobile culture)
- OMA DRM Version 1
  - Rapid entry into the market
    - Potential for leakage
    - Low grade media
    - Limited functionality
  - Needs hand set client to be compatible

OMA DRM – Version 2

- Designed for higher value premium content
  - Richer capable devices with removable media
  - Streaming media support (3GPP)
  - Greater security and trust management (PKI)
    - Integrity protected content and rights
    - Device revocation
    - Trust: Content Mgt Licensing Authority (CM-LA)
  - Rights Object Acquisition Protocol (ROAP)
    - Trusted comms between RI and Device
    - ROAP over Bluetooth (OBEX) and HTTP
OMA DRM 2 Features

- Exporting to other non-OMA DRM systems
  - Secure Memory Cards
- Domains - sharing content
  - Unconnected Device Support
- Wider range of business models
  - Metered timed, count, date ranges
  - Subscriptions
  - Super distribution (with tracking)
  - Previews
- Multiple Permissions for MultiPart Content

MultiPart Content

DRM Interoperability

- “A prerequisite to ensure Community-wide accessibility to DRM systems and services by rightsholders as well as users and, in particular, consumers, is that DRM systems and services are interoperable” EU Copyright Report 16/4/2004
- DRM Systems should be compatible
  - Commercial Systems- No
    - Windows, Apple, Real...
  - Standards - No
- Why Not?
Threats – Business/Legal

- The DRM “Patent War”...
  - “The solution...is patenting as much as we can...A future start-up with no patents of its own will be forced to pay whatever price the giants choose to impose. That price might be high. Established companies have an interest in excluding future competitors.”
  - William H. Gates (Internal Microsoft Memo, 1991)
- RIAA
  - “Song Download” fee per student per university

Threats – Social/Technical

- Huge usability impact to end consumer
  - “The main purpose of DRM is not to prevent copyright infringement but to change consumer expectations about what they are entitled to do with digital content”
  - Pamela Samuelson (Uni of California at Berkeley, 2003)
- Technical
  - Interoperability engineering
  - Impact on the full value-chain
Summary

• RELs still need to evolve to capture more of the “transaction space” with
  • Identity, Commerce, Content systems
  • Copyright laws
    • exceptions and statutory licensing
• Mobile is leading the DRM deployment
  • OMA “open standards”
  • But not limited to mobile sector - Internet protocols
• Interoperability will become a big issue
  • Will it be achievable?