

# Digital Rights Management: From Mobile to Internet

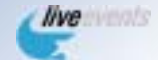


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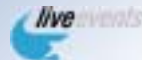
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## Overview



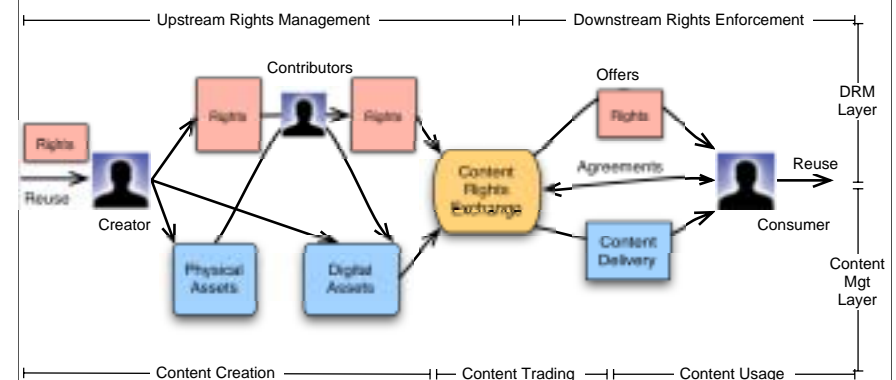
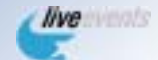
- Principles of DRM
  - Architecture and Information Model
- Trading Rights
- Standards
- Mobile DRM
- Interoperability
  - Commercial DRM Systems
- DRM Threats
- Summary

## DRM Principles

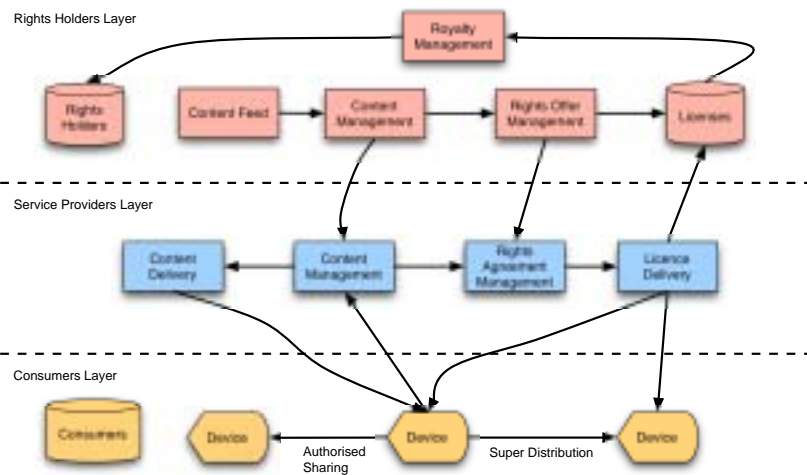
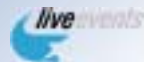


- DRM Issues are a balance between
  - Business, Social, Legal, and Technical issues
- DRM Definition
  - Rights Management
    - Rights Holders, Royalties, License Mgt...
  - Rights Enforcement
    - Security, Encryption, Trust...
- DRM is an end-to-end solution
  - Needs to work with the content creation,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

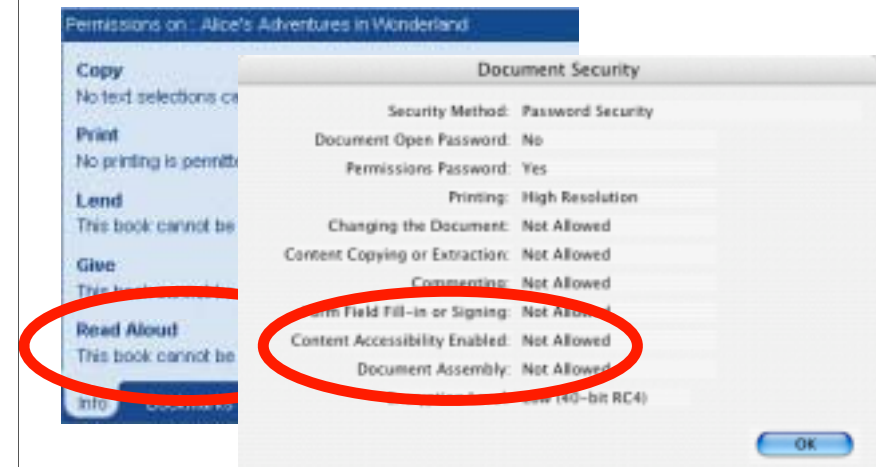
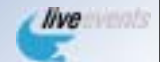
## Rights + Content Mgt



## DRM Layered Architecture



## Social DRM



## Trading Rights – The New Way...



## Manage the Rights Holders



## Rights Offers

live events

Moxie - OMA DRM Rights

Rights Offer Name:

Usage Options

Usage: ☒ Play ☐ Count: Unlimited ☐ Time Period: Unlimited ☐ Date Range: From 1 Jan 2004 To 1 Jan 2004 ☐ Accumulated Time: Unlimited ☐ Repeat...

Transfer Options

Usage: ☒ Export ☐ Count: 1 ☐ System: Apple Fairplay ☐ Date Range: From 1 Jan 2004 To 1 Jan 2004 ☐ Real Hefie ☐ Repeat...

☒ Share with Friends  
☐ Track for Loyalty Points

Cancel OK

## Manage the Distribution

live events

Moxie - Distributor Agreement

Content	Rights Option Sets	Royalty Sets	Wholesale Price	Number Licences
<input checked="" type="checkbox"/> Georgy Girl	Buy - All	Standard - 1975	\$ 0.99	2,000
	Try for 2 days		\$ 0.00	
	Repeat...			
<input checked="" type="checkbox"/> Carnival is Over	Buy - PC	Standard - 1975	\$ 0.50	50,000
	Buy - Mobile	Split - 2004	\$ 0.80	50,000
	Try for 2 days		\$ 0.00	
	Repeat...			
<input type="checkbox"/> World of our			\$ 0.00	
	Repeat...			

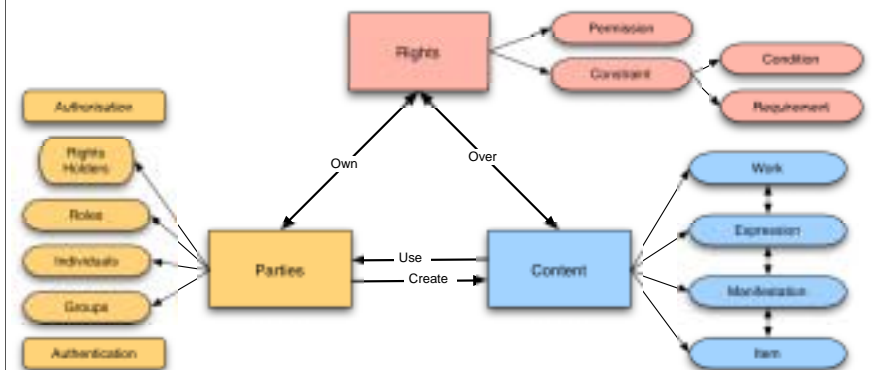
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## DRM - Standards

- 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



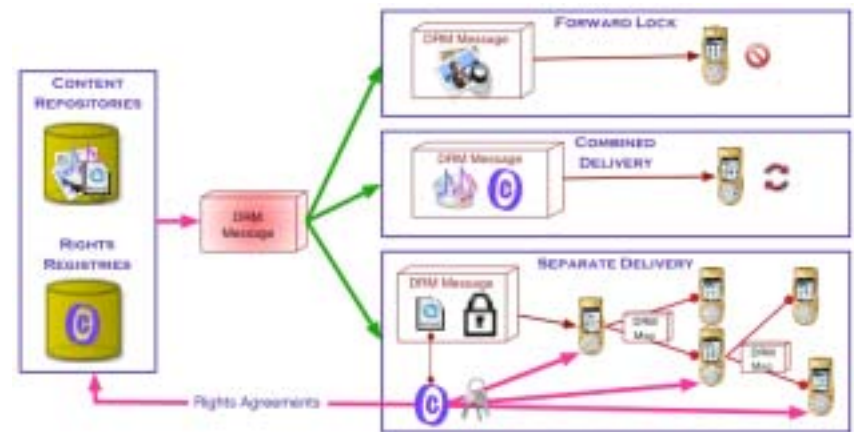
## ODRL Model



## 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

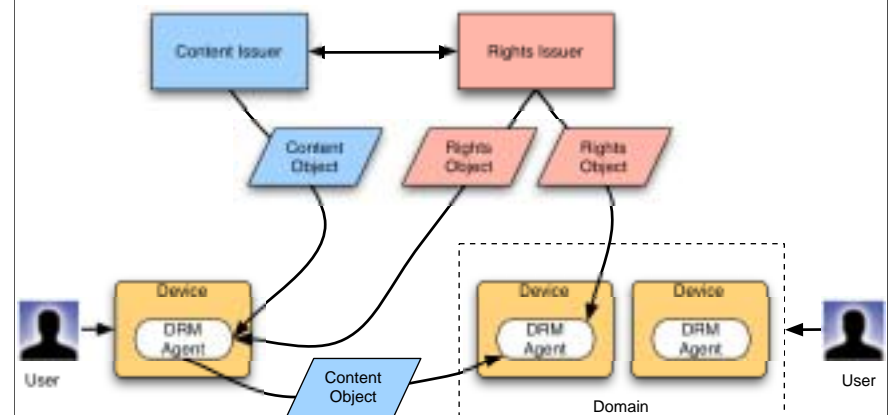
## OMA DRM 1 – Architecture



## 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 Architecture



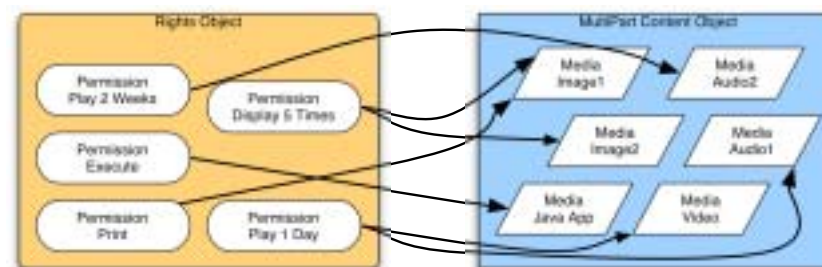


## OMA DRM 2 Features



- 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



PRODUCT/MANUFACTURER				
Nokia 7650	X	X	X	
Nokia 7610	X			
Nokia 7700 Media Device	X			
Nokia 9500 Communicator	X			
Motola V300				
Motola V900				
N-Gage game deck				
N-Gage QD game deck				
Nokia 2600				
Nokia 2650				
Nokia 3100				
Nokia 3105				
Nokia 3108				
Nokia 3120				
Nokia 3125				
Nokia 5200				
Nokia 5205				
Nokia 5220				
Nokia 5505				
Nokia 6000				
Nokia 6020				
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Nokia 6100				
Nokia 6140				
Nokia 6010				
Nokia 6108				
Nokia 6170				
Nokia 6200				
Nokia 6220				
Nokia 6225				
Nokia 6230				
Nokia 6255				
Nokia 6260				
Nokia 6265				
Nokia 6600				
Panasonic X60	X			
Panasonic X70	X			
Panasonic X700	X			
Siemens C62	X			
Siemens SX1	X			
Siemens S55	X			
Siemens M55	X			
Siemens C60	X			
Siemens MC60	X			
Siemens ST95	X			
Siemens ST95	X			
Sony Ericsson K700	X	X	X	
Sony Ericsson P900	X			
Sony Ericsson S700	X	X	X	
Sony Ericsson T228	X			
Sony Ericsson T230	X			
Sony Ericsson T238	X			
Sony Ericsson T300	X			
Sony Ericsson T308	X			
Sony Ericsson T310	X			
Sony Ericsson T312	X			
Sony Ericsson T316	X			
Sony Ericsson T610	X			
Sony Ericsson T618	X			
Sony Ericsson T619	X			
Sony Ericsson T630	X			
Sony Ericsson Z1010	X	X	X	
Sony Ericsson Z500	X	X	X	
Sony Ericsson Z600	X			

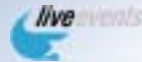
## DRM Interoperability



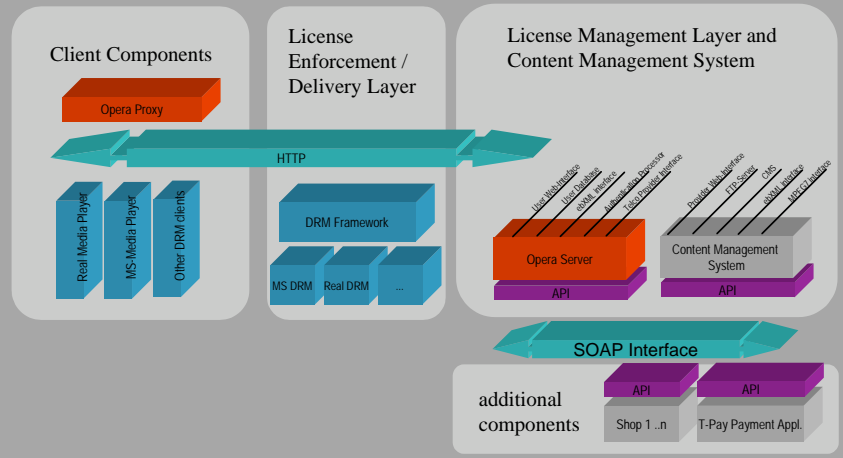
- “A prerequisite to ensure Community-wide accessibility to DRM systems and services by rightsholders as well as users and, in particular, consumers, is that DRM systems and services are interoperable” **EU Copyright Report 16/4/2004**
- DRM Systems **should be compatible**
  - Commercial Systems- No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



# DRM Interoperability



## Opera System Architecture



# Apple iTunes



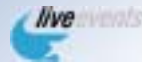
## Key Points

As the authorized rightholder of music you buy from the iTunes Music Store:

- You don't need an Internet connection to listen to your purchased music.
- You can include your purchased music in custom playlists and burn it to a CD.
- You can listen to your purchased music on an unlimited number of iPod devices.
- You can share your music on four other computers.
- Your purchased music is yours forever; you don't need to subscribe to any service.
- You can use your purchased music in applications other than iTunes. For example, you can use it in a movie you make or in a presentation you create.

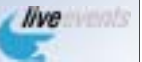


# Threats – Business/Legal



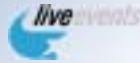
- The DRM “Patent War”...
  - “The solution...is patenting as much as we can...A future start-up with no patents of its own will be forced to pay whatever price the giants choose to impose. That price might be high. Established companies have an interest in excluding future competitors.”
    - William 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?**

