



# DRM applied to Digital TV area: DVB-H, MHP and IPTV

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## Agenda

### Introduction

- Digital Rights Management (DRM)
- DRM technologies
- Digital TV advances
- DRM on Digital TV environment
- Conclusions



# Introduction

- Digital media files have become easy to copy an unlimited number of times without any degradation in the quality of subsequent copies
- Availability of multiple perfect copies of copyrighted materials
- Perceived by the media industry as a threat to its viability and profitability, particularly within the music and movie industries



# Introduction

“Intellectual Property” environment

The biggest range of  
business models  
and distribution  
channels



Content  
security kept

- Internet, current mobile networks (GPRS, EDGE, UMTS) or future ones (4G) offer good opportunities
- Important advances related to Digital TV: very interesting services for the mass market.



# About Digital TV

DVB-H

TV contents for mobile devices

MHP

Interactive TV

IPTV

Delivery of TV channels over an IP network

The application of DRM to these innovations is basic to guarantee the content protection



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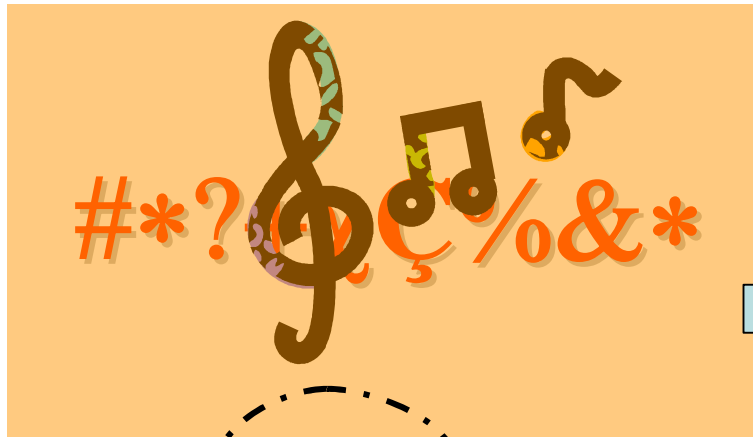
# Digital Rights Management (DRM)

- DRM technology to distribute, promote and sale, **in a secure way, digital contents** (music, movies, TV programs, graphic images and even software) over the Internet, portable media or mobile networks
- Contents must be protected from illegal copies and/or distribution
- Flexibility for the content provider and the end-user to sell or to buy contents





# DRM Conceptual scheme

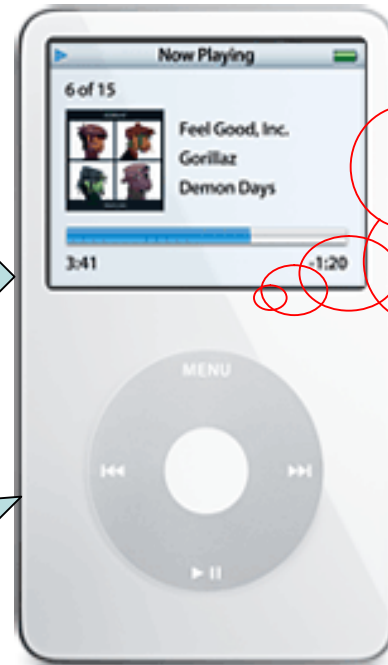
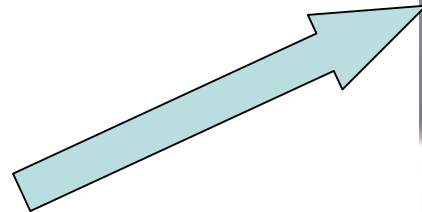


Content encrypted



Rights

"You can play it once"

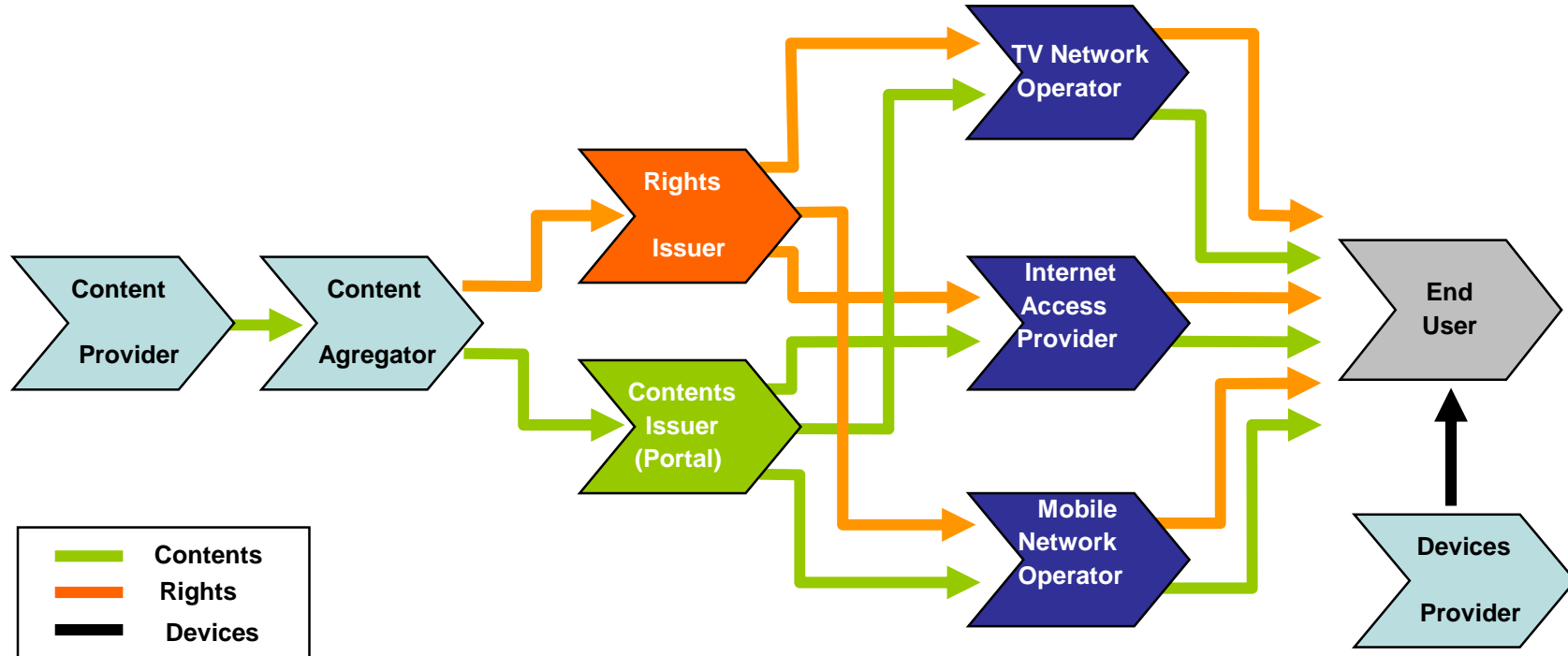


Users pay for the right to use the content, not the content itself





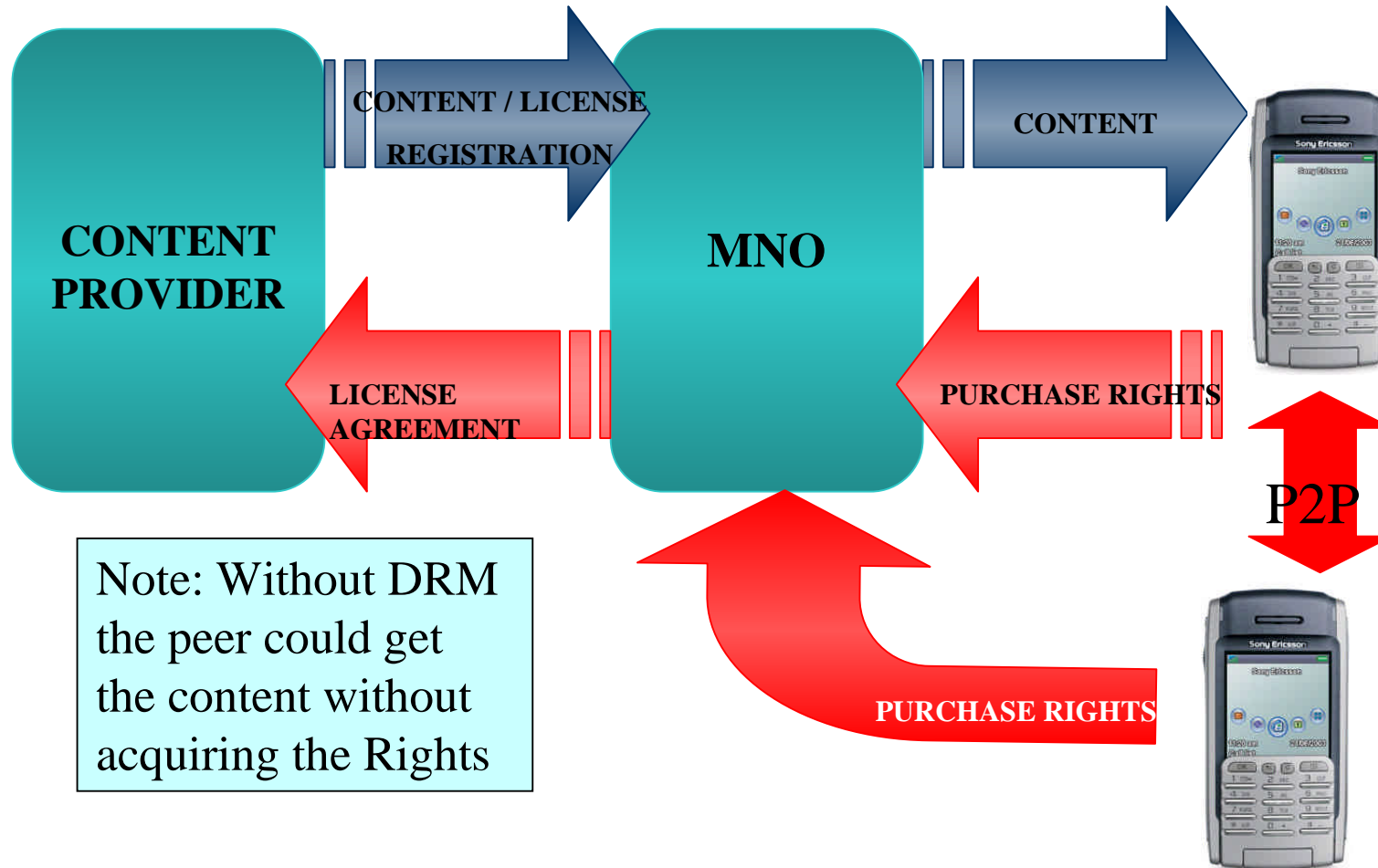
# DRM Value Chain



- Actors involved in the Digital Rights Management (DRM) environment:
- Provider / Agregator of Contents : generate or prepare contents to be distributed
  - Rights and Content issuer: manage use licenses and content distribution
  - Operators/Access Providers : manage access networks (TV, Internet, Mobile) towards the End User
  - Devices Provider: make suitable equipments to perform transactions to obtain use rights and enforce them and then decode contents



# An example...



Note: Without DRM the peer could get the content without acquiring the Rights



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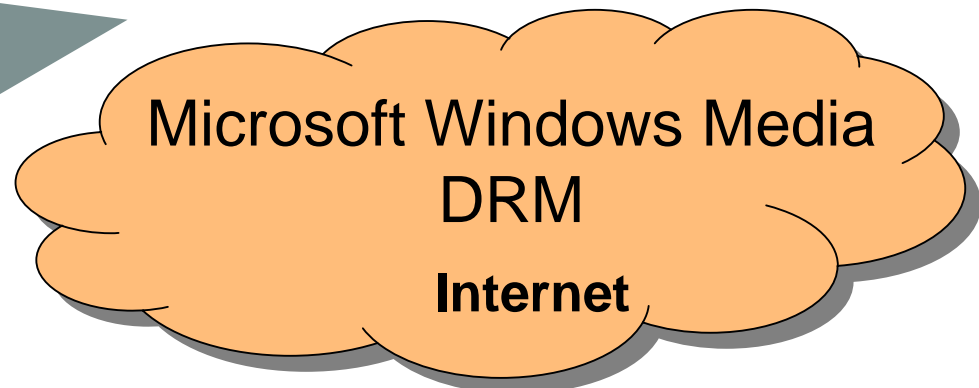
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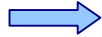
# DRM technologies



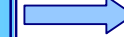
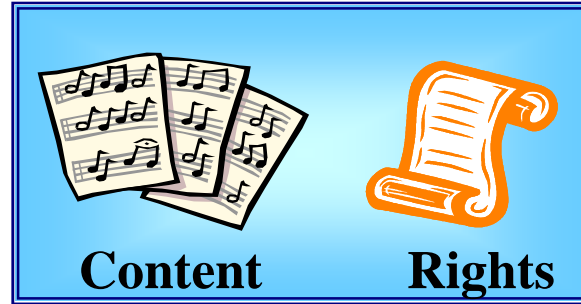


# OMA DRM 1.0

## Basic protection features



Forward Lock



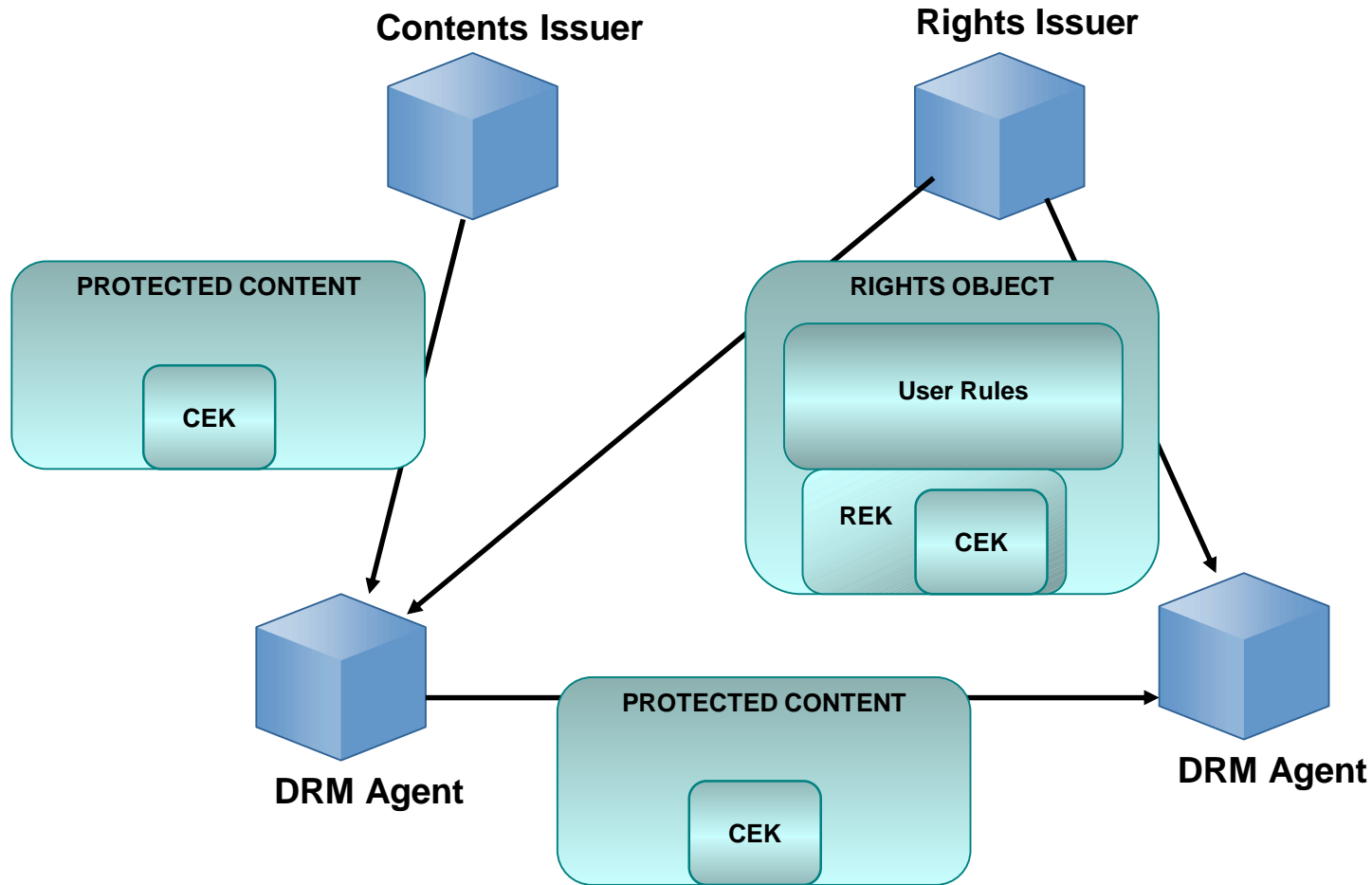
Combined Delivery



Separated Delivery



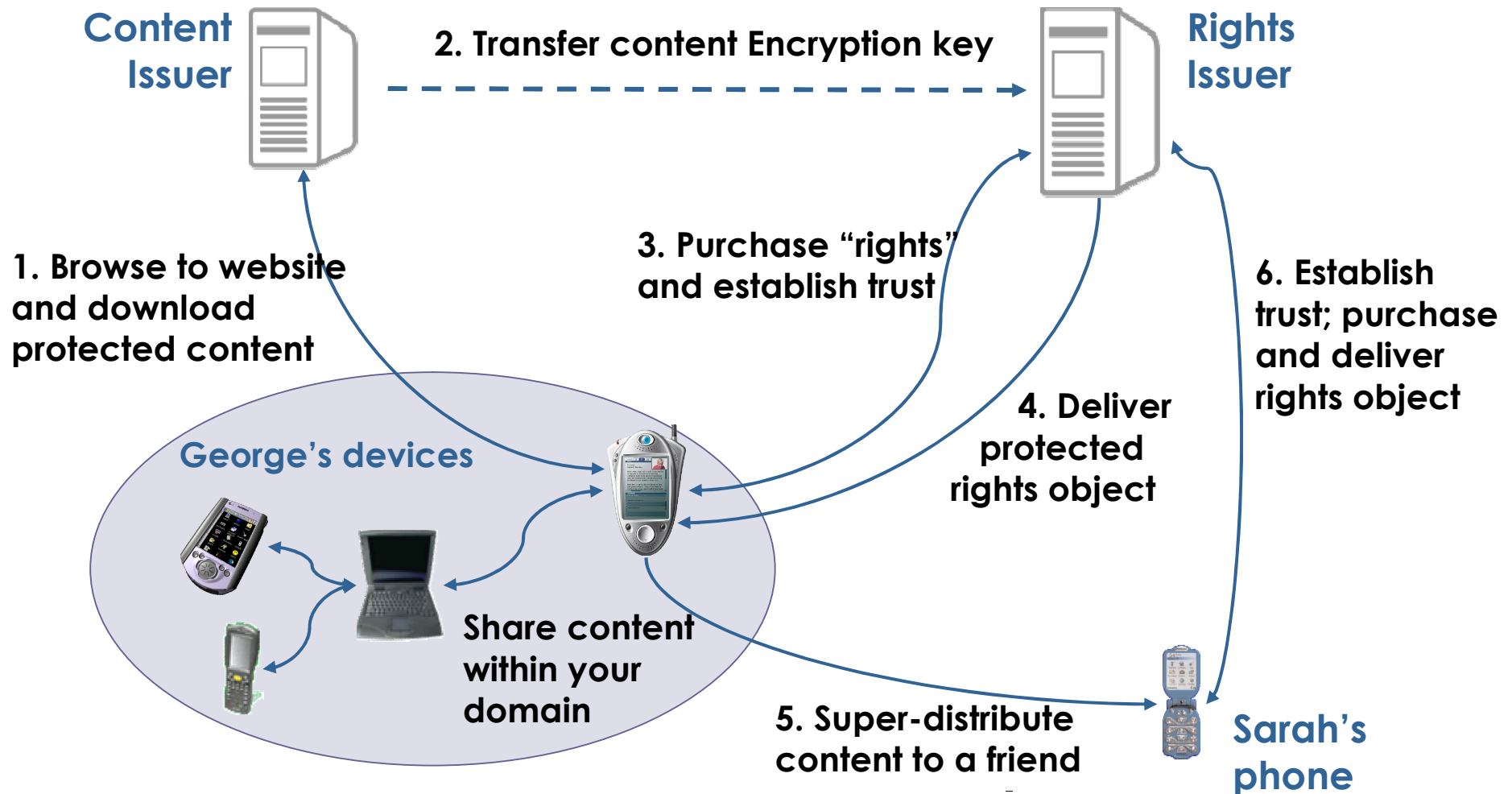
# OMA DRM 2.0 Architecture







# OMA DRM 2.0 Scenario







# Microsoft Windows Media DRM

- Microsoft has a proprietary technology, Windows Media DRM, in two versions:
  - version 9 widely used
  - version 10 that makes it possible to protect, deliver, and play individual, subscription, and promotional digital media content on computers, portable audio devices, Portable Media Center devices, or networked devices that are connected to an Internet protocol (IP) network.
- Almost worldwide extended: DRM client included on every device with Windows: PC, PDA etc,

Internet



# DRM on TV: Proprietary solutions

- Non-standard multimedia content protection systems
- Common elements for most of them

Public Key  
Infrastructure (PKI)

Package of ciphered  
content together with  
user rights

Conditional Access Systems (CAS)  
Control the access to Pay per View  
contents  
Direct programming and publicity to  
concrete audience



# DRM on TV: MPEG

- MPEG-4 IPMP
- 4th part of MPEG-21, interoperable framework for Intellectual Property Management and Protection (IPMP)

Rights Expression Language (REL) + Rights Data Dictionary (RDD)  
Powerful tool for managing the consumption rights of all forms of content



# DRM on TV: DVB-CPCM

- DVB group, around 300 companies involved in broadcasting, manufacturing, network operation and regulatory matters
- Digital broadcasting for consumer products and in-home networks to provide end-to-end protection for content
- The conceptual model includes modules typically found in other DRM systems: Rights description, Access control, Copy control, Identification
- CPCM must coexist and interoperate with other DRM and copy protection systems

## CPCM: Copy Protection and Content Management



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# TV on Mobile with DVB-H

DVB-H is the mobile version of the standard for digital terrestrial TV on Mobile terminals with low power consumption in the receiving client

Great opportunity for the Information Society:  
convergence of two media,  
TV and mobile communication,  
with huge acceptance and very well known by the users





# Interactive TV based on MHP

## Multimedia Home Platform (MHP)

- Generic interface between interactive digital applications and the terminals on which those applications execute
- To add new services to the current offer of TDT
- It enables digital content providers to address all types of terminals (set top boxes, integrated digital TV sets and multimedia PCs)
- MHP extends the existing, successful DVB open standards for broadcast and interactive services in all transmission networks





# Internet Protocol Television, IPTV

- Delivery of TV channels over an IP network
- IPTV viewing can be time shifted and adopted for individual viewers by networked-based storage delivering a unique video stream to each individual viewer at their own display in the home.
- The interactive capabilities of an IPTV system enables viewers to participate in traditional TV programming with voting, supporting or even acting audience.



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# DRM AND Digital TV

17 million video capable phones in EMEA

PVR: TV contents storage on DVD or hard disks



TIM: Big Brother on the phone  
Vodafone: 11 TV channels on the mobile, 3 live

IPTV: 5 million users

Huge possibilities for new services

## Without DRM????

- .....perfect digital copies of High Definition broadcasts
- .....less value contents
- .....no revenues



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# Conclusions

- Mobility and use of TV services: greatly to the mass market.
- DRM protection necessary
- Several DRM technologies under analysis
- Without unified criteria to use them

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