Content Protection

The Three Ps:
Piracy, Peer-to-Peer, and Profits

Business, Consumer, and Regulatory Issues Surrounding Digital Rights Management

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Critical Industry Issues

- Security of digital workflow within the virtual studio and among outsourced partners

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- Convergence of digital broadcast infrastructure and IT infrastructure risks

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Critical Industry Issues

- Security of digital workflow within the virtual studio and among outsourced partners

- Convergence of digital broadcast infrastructure and IT infrastructure risks

- Piracy is a serious problem
  - At least 1.58 billion files/yr downloaded and/or swapped without payment (Source: Pew Research)

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Agreement that a Problem Exists

- ## Film & Video
  - 500,000+ digital movies are exchanged on the web
    - (Source: Microsoft)
  - AT&T
    - 77% "insiders" 5% consumers
  - MPAA disagrees
    - Less than 13% from industry
    - $3B physical piracy

Agreement that a Problem Exists

- **Music**
  - RIAA - $4B physical piracy + huge online problem
  - 99% of music files exchanged on the web are pirated
    - (Source: WIPO)
  - 200+ million KaZaa users
  - Harvard-UNC - P2P negligible sales impact

Throw Technology At It?

- **Digital Rights Management (DRM)**
  - Content <u>protection</u> (encryption, key management)
  - Content <u>licensing</u> rules, including complex new business models
  - <u>Enforcement</u> of those rights and rules
  - Automated <u>tracking</u> of distribution, usage patterns, license payments, royalties
  - <u>Integration</u> with Financial, ERP, Asset Management, License Management systems

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Throw Technology At It?

DRM Vendors

- Microsoft Windows Rights Manager 9
- Sony/Phillips (InterTrust Rights|System)
- IBM EMMS v2
- RealNetworks Helix DRM
- Macrovision MacroSafe
- Sealed Media License Server
- Adobe PDF Merchant
- Bertelsmann's DWS ADo2RA
- Apple's Fairplay

Throw Technology At It?

DRM Stakeholder Arguments: For and Against

Pro

Property Rights

Aggregative Effect on Industry

Slowing Down Progress

Protect Now, So We Can Enable the Future

DRM Standards Mandates

Stronger Legal Protection is Needed

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Property Rights

Fair Use

Abuse of Privacy

Free Speech

Constrains Open Public Debate

Chilling Effect on Cryptographic Research

Throw Technology At It?

DRM -- The Facts

- **Most consumers are not thieves, but cannot be inconvenienced to take a legal step when the illegal step is cheap and easy**
  - They want value for payment, impulse purchase, non-commercial rights to copy, and non-intrusive technology.

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DRM -- The Facts

- **Most consumers are not thieves, but cannot be inconvenienced to take a legal step when the illegal step is cheap and easy**
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- **DRM Technologies Can Prevent Much, But Not All Piracy**
  - Cryptography will ultimately be broken, if the pirate is dedicated, has time and resources.
  - DRM can keep honest people honest
  - DRM gives content owners a "comfort level" rather than a guarantee

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Throw Technology At It?

DRM -- The Facts

- **DRM Has Limitations as an Implementation of Social Policy**

  - "Policies that are subject to many exemptions or based on conditions that may be indeterminant or external are difficult or impossible to automate with DRM."

    - (J. Erickson, HP Labs)

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DRM -- The Facts

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- **DRM Can Enable Intentional and Unintentional Privacy Abuses**

  - Tracking purchases and preferences
  - But, protections can be built in. Ex: Macrovision

Segment the Problem Space

- **Enterprise (B2B)**
  - Within the Studio Workflow
  - Among Business Partners, Sub-contractors, and Service Providers

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- **Media Commerce (B2C)**
  - Enable Customers who are Willing to Pay
  - Protect Against "Information Anarchists" who Refuse to Pay
  - Legal Remedies Against Commercial Pirates for Profit

Use the Proper Tool

- **Enterprise (B2B)**
  - Within the Studio Workflow
  - Among Business Partners, Sub-contractors, and Service Providers

- **Layered Security**
  - Identity Management
  - Rules-Based Rights Management
  - Chain-of-Custody Audit Trail
  - Legal Actions Against Employees and Partners

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Use the Proper Tool

- ## Media Commerce (B2C)
  - ### – Enable Customers who are Willing to Pay
    - • The Apple iTunes example

Image Courtesy Apple Computer

Use the Proper Tool

- **Media Commerce (B2C)**
  - **Enable Customers who are Willing to Pay**
    - The Apple iTunes example
      - Invisible 'Fairplay' DRM
      - Painless, purchase process
      - Impulse purchase without subscription
      - Reasonable copies for personal use
      - Integration with portable devices
      - License player to other vendors (HP)
      - Third-party sales programs, promotions, site licenses
      - Low price -- $0.99 singles
      - Sold over 1M units in first week; 125M units to date

Image Courtesy Apple Computer

Use the Proper Tool

- **Media Commerce (B2C)**
  - Enable Customers who are Willing to Pay
  - **Protect Against Information "Anarchists" who Refuse to Pay**
    - Dynamic packaging with watermarking
    - Digital Rights Management (DRM)
    - Countermeasures against uploading

Use the Proper Tool

- **Media Commerce (B2C)**
  - Enable Customers who are Willing to Pay
  - Protect Against Information "Anarchists" who Refuse to Pay
  - **Legal Remedies Against Commercial Pirates**
    - Forensic watermarking
    - DRM

Define Problem Scope and Parameters

- What is an acceptable <u>piracy rate</u>?

- What is the size and timing of the <u>payback</u>?

- How can we build invisible DRM systems that improve <u>customer willingness</u> to opt-in to marketing programs?

- How can content owners make such compelling content offerings that we improve the <u>'uptake' rate</u>?

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How Can the Industry Win?

- **Maximize the distribution of benefits**
    - Give consumers more and better choices
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- **Context-sensitive framework for rights management**
  - Physical world analogies of ownership rights and copyright exclusions cannot be unbounded in the digital world
  - Content should be explicitly licensed based on explicit terms of use
  - Achieve 'Fair Use' by applying previews, sub-sections, lower-resolution, samples, and time limits
  - Cryptographic research enabled, but constrained by penalties for NDA and IP violations

How Can the Industry Win?

- ## Build the ethics into the product design process

  - Use civil law, rather than criminal law, to enable explicit permissions
  - Build invisible security to accommodate to 90%+ legal users

  - Default Opt-Out for non-explicit consumer information sharing
  - Prevent collection of personally identifiable information
  - Informed consent (proper labelling in simple opt-in/opt-out, yes/no terms)

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- **Use forensics and legal remedies for the commercial pirates**

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Balance Business Enablement and Content Protection

Our goal is … "protecting content against theft and illegal redistribution, while protecting the thrilling advances and digital abilities to which we are accustomed."

Peter Chernin

President & COO, News Corporation and Chairman & CEO of Fox Group

Keynote address at 2003 COMDEX

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