The Present and Future of Digital Rights Management

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December 15, 2006

1. The law on anti-circumvention is a mess
2. The law on interoperability is a mess
3. Value-centered technology design
4. Emerging problems
5. Conclusion
• Anti-circumvention provisions concerning "technological measures" outlawing
  - Actual circumvention
  - Manufacturing & distribution of devices
  - International level: WCT, WPPT (1996)
1. Anti-circumvention
2. Interoperability
3. Value-centered Design
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- Anti-circumvention provisions concerning "rights management information" outlawing
  - Alteration & deletion of correct metadata
  - Rarely: provision of false metadata
  - Never: manufacturing & distribution of devices
- International level: WCT, WPPT
- U.S.: § 1202 DMCA, AHRA
- Europe: Art. 7 Copyright Directive (2001)
Regulatory options to reconcile DRM with © limitations:

- Direct influence on the technological design
  - Advantage: direct regulation
  - Disadvantage: Fred von Lohmann’s “judge on a chip”

• Regulatory options to reconcile DRM with © limitations:
  − Direct influence on the technological design
  − Indirect regulation / “right to hack”
    ▪ Advantage: proximity to copyright limitations
    ▪ Disadvantage: some preparatory activities have to be allowed, dual use problem

− Indirect regulation / “key escrow system”
  ▪ Advantage: preparatory activities can remain forbidden
  ▪ Disadvantage: centralization, chilling effects
• Regulatory options to reconcile DRM with © limitations:
  − Direct influence on the technological design
  − Indirect regulation / “right to hack”
  − Indirect regulation / “key escrow system”
  − Removing market failures
    ▪ Advantage: curing the underlying problem
    ▪ Disadvantage: does it work?
    ▪ Examples: § 95d German Copyright Act, Art. 166b Slovenian Copyright Act
### Feature No Action Influencing technology ADR Administration Court Right to hack (delay)

<table>
<thead>
<tr>
<th>Country</th>
<th>Feature</th>
<th>No Action</th>
<th>Influencing technology</th>
<th>ADR</th>
<th>Administration</th>
<th>Court</th>
<th>Right to hack (delay)</th>
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<tbody>
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<td>United Kingdom</td>
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<td>G = interest group</td>
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1. Anti-circumvention  
2. Interoperability  
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- Proprietary versus open DRM systems  
- U.S.:  
  - Apple iTunes v. RealNetworks  
  - Microsoft consent decree  
  - Microsoft Zune  
  - Davidson & Associates (bnetd) v. Internet Gateways (8th Cir. 2005)
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- Proprietary versus open DRM systems
- U.S.
- Europe:
  - Art. 6 Software Directive
    - What is a computer program?
    - What about code obfuscation?
    - Microsoft proceedings
  - France: Copyright Act as of August 2006:
    - Regulatory authority
      - Will mediate interoperability requests
      - Has power to impose fines up to 5% of the global turnover
    - But: DRM providers can escape interoperability requests if
      - All copyright holders have agreed to the proprietary format
      - Security risks exist
Goals of value-centered technology design

1. Identify real policy problems.
2. Don’t expect the law to solve all problems convincingly that technology creates!
3. At least: think about technological solutions.

Examples

- Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
  - If copyright limitations and other legitimate interests of information users cannot be expressed in an REL/RMP, such interests simply do not exist within the system.
• Examples
  − Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
  − Authorized domain architectures
    ▪ Access any content from anywhere by any device

• Examples
  − Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
  − Authorized domain architectures
  − Privacy-preserving DRM
    ▪ Integrate privacy-enhancing technologies (PETs) into DRM systems
Examples

- Symmetric rights expression languages (RELs) and rights messaging protocols (RMPs)
- Authorized domain architectures
- Privacy-preserving DRM
- DRM interoperability
  - Example: DReAM and OpenMediaCommons by Sun Microsystems

DRM and the GPLv3

- No protection of GPL’d software by DRM systems
  - "No permission is given for modes of conveying that deny users that run covered works the full exercise of the legal rights granted by this License."
- Duty to disclose keys
  - "[The duty to convey the source code of GPL'd software] also includes any encryption or authorization keys necessary to install and/or execute modified versions from source code [...] [t]he fact that a key is generated based on the object code of the work or is present in hardware that limits its use does not alter the requirement to include it in the Corresponding Source."
  - What about legitimate security concerns (e.g. making sure that only a particular version of a software program can be executed on a particular hardware?)

→ Hard to distinguish between copyright, security, and competition
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• DRM and the GPLv3  
• DRM and standardization  
  − Problem: “The nice thing about standards is that there are so many to choose from.” (Andrew Tanenbaum)  
  − Solution: Patent pool, e.g. MPEG LA for OMA (2005)?

• DRM and the GPLv3  
• DRM and standardization  
• DRM and levies  
  − Created by governments: EU discussions  
    ▪ Initiative postponed or failed?  
  − Created by industries: Microsoft Zune & Universal
• DRM and the GPLv3
• DRM and standardization
• DRM and levies
• Mandatory use of DRM systems
  – “No-mandate” clauses both in the DMCA and the European Copyright Directive, but
  – U.S.:  
    ▪ DAT: 17 U.S.C. § 1002 (a)  
    ▪ Analog consumer video equipment: 17 U.S.C. § 1201 (k)  
    ▪ Broadcast flag failed  
  – Europe:  
    ▪ Pay TV: common scrambling algorithm (Universal Service Directive), but for competition policy reasons  
    ▪ DVB?

• The law surrounding DRM is a mess
• Value-centered technology design: comparing technological and legal approaches
• Future DRM debates will not focus on copyright-related, but on competition-related problems
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