

## Digital Rights Management / DMCA Anti-Circumvention

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## Digital Rights Management

- DRM technology tries to enforce limits on when and how digital content may be used.
- Limits may be based on copyright law, but need not be.
- Not just another security mechanism. DRM is different, treating the device's owner as adversary.
- Different DRM strategies raise different policy issues.

## Rationales for DRM

- Enforce compliance with copyright laws.
  - problem: copyright law can't be automated (no "judge on a chip"), so can only hope to enforce a very rough approximation to it
- Enable new business models for publishers.
  - pay-per-use
  - sophisticated pricing / price discrimination

## DRM, Fair Use and Privacy

- Copyright offers exception for fair use.
  - depends on nature of use, and circumstances
- Difficult for DRM to handle: loopholes end up too broad, or too narrow, or (usually) both.
- Even approximating the right result requires gathering information about the user, the circumstances, etc.
  - might need to collate and audit as a sanity check

## Strategy 1: Tag and Track

- Approach:
  - put unique serial number on each copy
  - record each buyer's identity
  - find unauthorized duplicates
  - check serial number on duplicate, blame original buyer
- Can limit copying and dissemination, but not use
- Enforcement raises serious privacy issues
  - Must authenticate each buyer's identity
  - Must keep track of who has each copy
  - Must monitor dissemination of copies
- This strategy is falling out of favor.

## Strategy 2: Containment

- Approach:
  - distribute content in a virtual lockbox
  - only authorized player devices can unlock it
  - authorized player devices enforce limits on use
- Typical implementation:
  - distribute content in encrypted form
  - authorized player knows decryption key
- Can enforce any limits on usage

## Will Content Work?

- Threat model: user will "rip" a copy of the content and put on peer-to-peer system
- "Break once, infringe anywhere"
- Moderately skilled user, with moderate effort, can defeat DRM.
- DRM will not prevent infringement.

## DMCA Overview

- Digital Millennium Copyright Act of 1998
- Many provisions
- Focus here on Section 1201
- Rationale for 1201: DRM technology can be circumvented; so make circumvention, and circumvention tools, illegal

## Ban on Acts

17 U.S.C. 1201 (a) (1) (A): "No person shall circumvent a technological measure that effectively controls access to a [copyrighted work]."

Circumvent: "to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner"

## Ban on Acts

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"[A] technological measure 'effectively controls access to a work' if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work."

## Ban on Tools

17 U.S.C. 1201 (a) (2): "No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that—  
is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title;  
has only limited commercially significant purpose or use other than to circumvent... ; or  
is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing..."

## Ban on Tools

Similar ban on tools that effectively control copying, or other exclusive rights of the copyright holder.

### Scope of DM CA vs. Copyright

- DM CA applies to access controls and to copy controls.
- Copyright law controls copying but not access.
- DM CA applies to acts of circumvention, even when no infringement occurs.

### Prominent DM CA Suits

- Corley (DeCSS software for decrypting DVD s)
- Sklyarov / Elcom soft (criminal case; Adobe e-book reader)
- Felten (digital watermarking research)
- Chamberlain v. Skylink (garage door openers), Lexmark v. Static Control (printer cartridges)

Questions / Discussion