CPSC156a: The Internet
Co-Evolution of Technology and Society

Lecture 12: October 21, 2003

Copyright Law, continued: the DMCA
Digital Video Disks (DVDs)

- Developed by movie studios and consumer electronics companies in 1995.
- Compatible with CDs. Same size and thickness as CDs. Up to 25 times the storage capacity as CDs.
- TPS for DVDs includes
  - CSS encryption ("content scrambling system")
  - R/W'able copy-control marks (e.g., "copy freely," "one copy," "no copies")
  - Macrovision analog copy protection
  - Other ingredients
Studios’ Overall IP-Management Strategy

• Use TPS to “keep honest people honest.”

• Assume (temporarily) that lack of bandwidth will prevent large-scale Internet distribution of movies.

Use courts aggressively to punish (alleged) violators of existing copyright laws and lobby heavily for new laws that favor rights holders.
Digital Millennium Copyright Act (1998)

- Illegal, except under narrowly defined special circumstances, to circumvent effective technological protection measures.
- Illegal to distribute circumvention tools.
- Gives content owners a property right in TPS as well as the content that the TPS protects. In SAT terms, circumvention is to infringement as breaking and entering is to burglary.
Examples of Allowed Circumventions

- Nonprofits may circumvent to “shop.”
- Law enforcement and intelligence agencies.
- Reverse engineering to achieve interoperability.
- “Encryption research.” The “researcher” has to “make a good faith effort to obtain authorization.”
- Protection of “personally identifying information.”
Techies’ Objection to DMCA

- What is an “effective technological protection measure?”
  - If a skilled hacker can break it, is it “effective”?
  - If an average computer-literate person can break it, but few do, is it “effective”?

- Weakens incentives for content owners to pay for good IP-management technology.

- Shifts costs from content owners to society at large, by shifting responsibility from TPSs to courts and police.

- Exceptions for R&D are vague.
DMCA vs. Copyright Violations

Questions:

• What does the DMCA actually do to existing copyright law?
• What happens to fair use?
• Are there differences between violations of copyright law and violations of the DMCA?
DeCSS Violates DMCA

- DeCSS is software that reads CSS-scrambled video from a DVD and writes unscrambled MPEG-2 video. (Copying?)
- DeCSS provides Linux users with access to DVD content.
- In effect, DeCSS circumvents the TPS for DVDs.

  - **Question:** Is CSS an effective copy-protection mechanism?
DeCSS Violates DMCA (continued)

• Magazine that published the DeCSS algorithm got sued.
  - **Question:** Is this different from “a reputable journal” publishing research?

• **Question:** Is DeCSS different from a regular DVD player?

• **Questions:** Does DeCSS fit under any of the DMCA exceptions? Where is the copyright violation?
Adobe eBook Processor Violates DMCA

• Adobe established one format for electronic books: the eBook.

• To use eBooks, purchase and download them, and view them using a special reader (Adobe eBook software).

• The eBook format contains provisions for publisher controls on:
  - Text-to-speech processing
  - Copying to another device or making a backup
  - Translating between formats
Adobe eBook Processor Violates DMCA (continued)

• ElcomSoft, a Russian company, created AEBPR, the eBook Processor.
  - AEBPR translates eBooks to Adobe PDF.
  - Software available for purchase on ElcomSoft’s website and through a U.S. firm, RegNow (used for handling payments).

• Dimitri Sklyarov, one of the designers, presented his methods at DEF CON, a conference in the U.S.
Here is a partial list of products for which ElcomSoft has developed “password recovery” software:

- Compression archives: ZIP, RAR, etc.
- Microsoft software, including Word, Excel, Access, PowerPoint, Project, Visio, Money, etc.
- Corel WordPerfect Office
- Lotus SmartSuite
- E-mail clients, including Netscape, Eudora, Pegasus, Microsoft Mail
- Instant Messaging clients, including ICQ, Yahoo!, AOL, MSN, etc.
- Intuit Quicken, Quicken Lawyer
- Adobe Acrobat

For more information, visit http://www.elcomsoft.com/prs.html
Adobe eBook Processor Violates DMCA (continued)

- Sklyarov was arrested for violating the DMCA by circumventing Adobe’s protection built into the eBook format.

- **Question:** Does it matter that Sklyarov was working for a company?

- **Question:** Does it matter that the company is Russian, and that its software is legal in Russia?
Adobe eBook Processor Violates DMCA (continued)

• **Question:** Does the software simply allow “fair use” that was prevented by Adobe’s format? (Does that even matter?)
  - People can **make backups** of eBooks they bought and don’t want to lose.
  - People can **transfer copies** to their laptop or handheld.
  - People with visual impairments can have the computer read the eBook.

• **Other Questions:** Is AEBPR a product of research? Is the eBook an **effective** TPS?