Chapter 5: Intellectual Property

Intellectual Property

intellectual property: creative, intangible work, such as books, movies, music, inventions, or software. Often protected by copyright, patents, or trademarks.

Intellectual Property

- Intangible ideas, not necessarily the physical objects that the ideas are recorded on or implemented on.
- Value of work comes from creativity, ideas, research, skills, labor, non-material efforts and attributes the creator provides.

Intellectual Property

copyright: a form of protection for original works, including literary, dramatic, musical, graphic, and audiovisual creations.

patent: exclusive rights granted to an inventor for a limited time in exchange for detailed public disclosure of an invention.

trademark: a symbol, word, or words legally registered or established by use as representing a company or product.

U.S. Copyright Law

Copyright law in the U.S. grants the creator exclusive rights to...

- Make copies of the work.
- Produce derivative works, such as translations or movies based on books.
- Distribute the work.
- To perform the work in public (e.g. music, plays)
- To display the work in public (e.g. movies, computer games, host on a Web site)

Difficulties for Copyright in the Internet Age

- Broadband connections make transferring files easier and enable streaming video.
- New compression technologies make copying large files possible.
- Search engines make finding material easier.
- Peer-to-peer technology makes transferring and sharing files easier.

Difficulties for Copyright in the Internet Age

- Cameras and other equipment enable audience members to record and transmit events.
- New tools allow us to modify graphics, video and audio files to make derivative works.

Copyright History

Copyright Act of 1790

- Specifically aimed to protect rights of creators of maps, charts, and books.
- Modeled on the Statute of Anne (1710) from England.
- Lasted 14 years after creation of the work, could be extended another 14.

Copyright History

Revision of Copyright Act in 1909

- Broadened categories of works protected under copyright (music, pictures, etc.)
- Lasted for 28 years, could be extended another 28 years.

Copyright History

Revisions of Copyright Act in 1976

- Added protection for digital content (such as databases and software.)
- Protection for life of the author plus 50 years. 75 years if the owner was an organization/company.
- Established “fair use” policies.

Fair Use

- Copyright owner's rights are not absolute, but are flexible for some uses.
- Four factors decide if an action is “fair use”:
  - Purpose and nature of use (commercial, educational, etc.)
  - Nature of the copyrighted work.
  - Amount and significance of portion used.
  - Effect of use on potential market or value of the copyright work.

Fair Use

- No single factor alone determines whether the use falls under fair use.
- Not all factors are given equal weight, but some are often given more consideration by courts.

Copyright History

Copyright Term Extension Act of 1998

- Protection for life of the author plus 70 years.
- Protection of corporate copyrights for 120 years after creation or 95 years after publication, whichever is shorter.

Criminalization of Copyright Infringement

- 1982 high-volume copying became a felony.
- 1992 making multiple copies for commercial advantage and private gain became a felony.
- 1997 No Electronic Theft Act made it a felony to willfully infringe copyright by reproducing or distributing copies of copyrighted work with a total value of more than $1,000 within a six-month period

Criminalization of Copyright Infringement

- 1998 Digital Millennium Copyright Act (DMCA)
  - Prohibits making, distributing or using tools to circumvent technological copyright protection systems (like DRM).
  - “Safe haven” rules for ISPs, search engines, & hosts.
- 2005 Family Entertainment and Copyright Act makes it a felony to record a movie in a movie theater.

DMCA vs. Fair Use

- Anti-circumvention tool ban:
  - U.S. courts have banned decoding technologies such as DeCSS even though it has legitimate uses.
  - Protesters published the code as part of creative works (in haiku, songs, short movies, a computer game and art.)
  - Courts eventually allowed publishing of DeCSS, but prohibited makers of DVD players from including it in products.

DMCA vs. Fair Use

- “Safe haven” rules:
  - Industry issues "take down" notices claiming rights to copyrighted content.
  - As long as sites like YouTube and MySpace comply with take down notices they are not legally liable.
  - Take down notices may violate fair use by over-zealous companies issuing notices for content they did not own or uses that are actually legal.

Significant Cases

Sony v. Universal City Studios (1984)

- Sony devices being used to record shows and movies from TV.
- Fair use arguments:
  - Copies for private, noncommercial use.
  - Movie studios could not demonstrate harm.
  - Studios had received a fee for broadcasting movies on TV.

Significant Cases

Sony v. Universal City Studios (1984)

- Arguments against fair use
  - Entire work was copied.
  - Nature of media was for entertainment.
- Supreme Court decided makers of a device with legitimate uses not responsible for some users infringing on copyright.
- Copying shows/movies for later viewing was fair use.

Significant Cases

A&M Records, Inc. v. Napster, Inc. (2000)

- Napster's arguments for fair use:
  - Sony decision allowed for non-commercial entertainment use to be considered fair use.
  - Did not hurt industry sales because users sampled the music on Napster and bought the CD if they liked it.

Significant Cases

A&M Records, Inc. v. Napster, Inc. (2000)

- RIAA's (Recording Industry Association of America) arguments against fair use:
  - "Personal" meant very limited use, not trading with thousands of strangers.
  - Songs and music are creative works and users were copying whole songs.
  - Claimed Napster severely hurt sales.

Significant Cases

A&M Records, Inc. v. Napster, Inc. (2000)

- Court findings:
  - Sharing music via copied MP3 violates copyright.
  - Napster liable because they had the knowledge of and ability to prevent copyright infringing activities or ban offending users.
- Napster shut down in 2001.

Online File Sharing

peer-to-peer file sharing: networks for transferring files between computers connected to some network, as opposed to downloading files from central servers.

Online File Sharing

- BBS's often allowed sharing of games and other programs.
- Usenet groups such as alt.binaries allowed users to send and receive files similar to email attachments.
- FTP server networks such as Topsites allowed trusted users to connect and transfer files.

Peer-to-Peer File Sharing

- First generation (Napster, eDonkey):
  - Users connected to central server only to provide list of files.
  - Transfer of files was directly from user to user once a download request was made.

Peer-to-Peer File Sharing

- Second generation (Kazaa, Gnutella):
  - No central servers, just each user serving as a node.
  - Connect to any one node, request list of nodes it knows, request list of nodes they know, etc.
  - Files transferred directly from user to user.

Peer-to-Peer File Sharing

- Bittorrent:
  - Torrent files usually found on web sites, specify the “tracker” (similar to listing server.)
  - Trackers tell users which peers have file being requested.
  - File is transferred in pieces from as many peers as possible, speeding up transfer.

Free Culture & Open Source Software

open source software: computer software with its source code made available under a license in which users are given rights to use, study, change, and distribute the software.

free cultural works: creative works which give the public the right to use, perform, study, apply, modify, and distribute the work or derivatives.

Open Source Licenses

- GNU General Public License (GPL) is most common.
  - Users can run the software on any machine they choose.
  - Users can read, compile, and modify the source code.
  - Users can re-distribute the original code or modified versions so long as they give credit and use the GPL.

Open Source Software

- Many developers shared code in early Internet days, especially hobbyists.
- GNU Project founded in 1983, creating open source licenses (such as GPL.)
- Linux first released in 1991.
- Netscape released source in 1998.
- OpenOffice released in 2002.
- Android released in 2008.

Open Source Business Models

- Not-for-profit/donations: Wikipedia, Python, Apache.
- Selling support or customization: RedHat.
- Ad supported.
- Hybrid: Google, Microsoft.
- Hosting: Reddit, Drupal/Acquia.
- Crowdsourcing.

Creative Commons

- Licenses much like GPL, but for non-code creative works.
- All CC licenses give public the right to:
  - Read/view/use the work.
  - Re-distribute the work (with attribution of original creator.)

Creative Commons

- Content creators can choose other features for licenses:
  - Can users create & distribute derivative works? (NoDerivatives)
  - Can users re-distribute for commercial purposes? (NonCommercial)
  - Do users have to use CC license on derivative works? (ShareAlike)

Criticisms of Open Source/CC

- Hard for content creators to make profit.
- Creator loses control over how work is used.
- Hard to match professional quality.
- Sometimes harder to find or higher amount of knowledge needed to use.
- Licenses are confusing and not applied by default like traditional copyright.

Benefits of Open Source/CC

- Encourage new programs/creative works.
- Many eyes on a program/work to improve upon it.
- More financially accessible.
- Software can be customized to fit unique needs.
- If the creator loses interest in work, it can be maintained by the community.