Overview

- Introduction
- Intellectual property rights
- Protecting intellectual property
- Fair use
- New restrictions on use
- Peer-to-peer networks
Introduction

• Digital storage + Internet → crisis (?)
  – Creating first copy is costly
  – Duplicates cost almost nothing
• Illegal copying pervasive
• How should we treat intellectual property?

What Is Intellectual Property?

• Intellectual property: any unique product of the human intellect that has commercial value
  – Books, songs, movies
  – Paintings, drawings
  – Inventions, chemical formulas, computer programs

• Intellectual property ≠ physical manifestation
Intellectual Property Protection

• Giving creators rights to their inventions stimulates creativity

• Society benefits most when inventions in public domain

• Congress has struck compromise by giving authors and inventors rights for a limited time

Protecting Intellectual Property

• Trade secrets
• Trademarks and service marks
• Patents
• Copyrights
**Trade Secret**

- Confidential piece of intellectual property that gives company a competitive advantage
- Never expires
- Not appropriate for all intellectual properties
- Reverse engineering allowed
- May be compromised when employees leave firm

**Trademark/Service Mark**

- Trademark: Identifies goods
- Service mark: Identifies services
- Company can establish a “brand name”
- Does not expire
- If brand name becomes common noun, trademark may be lost
- Companies advertise to protect their trademarks
- Companies also protect trademarks by contacting those who misuse them
Patent

• A public document that provides detailed description of invention
• Provides owner with exclusive right to the invention
• Owner can prevent others from making, using, or selling invention for 20 years

Patents (cont)

3 types of patents

– Utility Patents
  “Granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof. “

– Design Patents
  “Granted to anyone who invents a new, original, and ornamental design for an article of manufacture.”

– Plant Patents
  “Granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.”
**Patents (cont)**

- Granted in individual jurisdictions (like trademarks and copyrights)
- Some move to standardize process, but some jurisdictions don’t allow patents for business processes and software
- Patents can be challenged and overturned
  - Previous art
  - Non-obvious clause

**Copyright**

- Provides owner of an original work five rights
  - Reproduction
  - Distribution
  - Public display
  - Public performance
  - Production of derivative works
- Copyright-related industries represent 5% of U.S. gross domestic product (> $500 billion/yr)
- Copyright protection has expanded greatly since 1790
Copyright Creep

• Since 1790, protection for books extended from 28 years to 95 years or more
• Some suggested latest extension done to prevent Disney characters from becoming public domain
• Group of petitioners challenged the Copyright Term Extension Act of 1998, arguing Congress exceeded Constitutional power
• U.S. Supreme Court
  – CTEA does not create perpetual copyrights
  – CTEA is constitutional

Fair Use Concept

• Sometimes legal to reproduce a copyrighted work without permission for commentary, criticism, news reporting, research, teaching or scholarship

• Courts consider four factors in “balancing test”
  – Purpose and character of use
  – Nature of work
  – Amount of work being copied
  – Affect on market for work
**Digital Recording Technology**

- Copying from vinyl records to cassette tapes introduced hiss and distortions

- Introduction of compact disc a boon for music industry
  - Cheaper to produce than vinyl records
  - Higher quality
  - Higher price ⇒ higher profits

- BUT it’s possible to make a perfect copy of a CD

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**Digital Millennium Copyright Act**

- First big revision of copyright law since 1976
- Brought U.S. into compliance with Europe
- Extended length of copyright
- Extended copyright protection to music broadcast over Internet
- Made it illegal for anyone to
  - Circumvent encryption schemes placed on digital media
  - Circumvent copy controls, even for fair use purposes
Digital Rights Management

• Actions owners of intellectual property take to protect their rights
  – Encrypt digital content
  – Digital marking so devices recognize content as protected

Criticisms of Digital Rights Management

• Any technological “fix” is bound to fail
• DRM undermines fair use
• DRM could reduce competition

• Ultimately punishes legitimate users
**Apple/EMI Agreement**

- Apple’s DRM system is called FairPlay
- FairPlay allows consumers to play iTunes songs on iPod and iPhone, but not other MP3 players
- European governments put pressure on Apple to license FairPlay or stop using DRM
- In 2007 EMI announced it would begin selling all of its music without DRM through iTunes Store for a higher price

**Peer-to-Peer Networks**

- Peer-to-peer network
  - Transient network
  - Connects computers running same networking program
  - Computers can access files stored on each other’s hard drives
- How P2P networks facilitate data exchange
  - Give each user access to data stored in many other computers
  - Support simultaneous file transfers among arbitrary pairs of computers
  - Allow users to identify systems with faster file exchange speeds
RIAA Lawsuits

• April 2003: RIAA warned file swappers they could face legal penalties

• RIAA subpoenaed Verizon for identities of people suspected of running supernodes

• September 2003: RIAA sued 261 individuals

• December 2003: U.S. Court of Appeals ruled Verizon did not have to give customer names to RIAA
This charming scene may look harmless, but if the cute little kitten they’re watching on Auntie Val’s video-blog is dancing to copyrighted material, this family is stealing!

That’s why we need the power to ban you from the Internet – because our copyrights are worth more than your human rights!