Intellectual Property Rights

CSCE 390: Professional Issues in Computer Science and Engineering
Professor Matt Thatcher
Last Time

• Freedom of Expression on the Internet
  – What is the First Amendment?
  – What types of speech are not protected?
    » Obscene speech, defamation, incitement of crime (threats), incitement of panic, incitement of rebellion against government
  – Offensive speech and censorship in cyberspace
    » Pornography
    » Hate speech
    » Student off-campus websites
    » Cyber-bullying and virtual threats
    » Nuisance speech (SPAM)
  – U.S. laws vs. technology solutions
    » Is a top-down approach or a bottom-up approach more effective?
Today’s Agenda

- Intellectual Property in Cyberspace
  - What is Intellectual Property (IP)?
  - Why should we protect IP?
  - How has technology affected issues related to IP?
  - What are the different types of legal IP protections?
    » Copyrights, patents, trade secrets, and trademark
  - How can we compare/contrast these types of IP protection?
  - What are the sets of copyright laws related to digital content?
  - How have the courts interpreted these laws with respect to computer software and digital music, movies, and videos?
  - What are some technology solutions to the IP problem?
    » Encryption, Digital Rights Management systems (DRMs)
What is Intellectual Property (IP)?

- Works of the mind that are created by a single person or a group
  - Art
  - Books
    - e.g., novels, poems
  - Films
  - Formulas
    - Colonel Sanders’ Original Recipe (secret blend of 11 herbs and spices)
    - Coca-Cola company’s secret formula for Coca-Cola
  - Inventions
  - Music
  - Processes
    - Amazon.com’s “One-Click Technology”
    - Priceline.com’s “Name Your Own Price” online auction mechanism
Why Should We Protect IP?

• **Utilitarian (teleological) perspective**
  - Argues that IP protection is necessary to incent creativity and innovation that benefits society
  - Authors of creative works must be able to cover their “costs of expression” – that is, the time and effort involved in:
    » Writing a novel
    » Producing a music album
    » Writing source code of a software product
  - Unauthorized copying and distribution of their works hurts the authors’ abilities to recoup these costs and reduces incentives to create, develop, and distribute these socially desirable, creative works
    » Microsoft (MS) spent about $1 billion developing MS Windows XP Operating System, but the marginal cost of production and distribution of it is close to zero
    » Without IP protections a competitor could copy the source code and resell it for a profit at a nominal fee
    » MS would not be able to charge a premium and would be unable to recoup its $1 billion investment
    » What is the likelihood that MS will invest another $1 billion for the next generation OS?
Challenges of New Technology for IP

• Computer and communications technologies now make high quality copying and high quantity distribution cheap and easy
  − Perfect, high quality digital copies
    » Software products, text documents, photographs, and digital music, movies, and videos
  − High-volume, cheap digital storage media
    » Hard disks, CDs, DVDs, memory sticks (or flash drives)
  − Scanners
    » Convert print text, photos, and art to high quality digitized form
  − File compression formats (e.g., MP3)
    » Make music and movie files small enough (20x smaller than files on standard CD) to download, copy, and store cheaply and easily
Challenges of New Technology for IP

- Computer and communications technology now make high quality copying and high quantity distribution cheap and easy
  - World Wide Web
    » Makes it easy to find, download, and post content
  - Broadband (high-speed) Internet connections
    » Make transfer of large files very quick
  - Peer-to-Peer (P2P) networks
    » Allows easy transfer of digital files over the Internet by large numbers of strangers without a centralized system or service
  - Software tools for manipulating content (e.g., video, sound)
    » Enable and encourage amateurs to create new works using the works of others (e.g., music/video parodies)
So What is the Problem?

- Advance in IT/IS make unauthorized copying and sharing of IP easy and cheap
  - Core of the problem
    » Ability to reduce all forms of information into a digital format (i.e., binary code) that allows people to make limitless, perfect, zero marginal-cost copies of books, movies, videos, and software and to distribute these products quickly and cheaply
    » MP3 format is unprotected
    » This leads to piracy (i.e., high-volume, unauthorized copying of an IP) which costs the software, movie, and music companies billions of dollars
  - The result
    » As they lose control over their creative works, IP owners now fear the loss of revenues, which may cover the significant fixed costs associated with developing their expressions or innovations
How Can We Protect IP in the Digital Age?

• Laws
  – Copyright law
    » Protects authored works (including software programs)
  – Patent law
    » Protects inventions, processes, and machines (including software and IT-supported business processes, functions, behaviors)
  – Trade secrets law
    » Protects proprietary corporate information
  – Trademark law
    » Protects brand names and product symbols

• Technologies to detect and prevent copying
  – Encryption and Digital Rights Management systems (DRMs)

• Social Norms
  – Education programs on the ethics of piracy and IP violations
  – Taxation policies
Comparing IP Protection Laws
(Copyright, Patents, Trade Secret, Trademarks)

• What is protected?
• For how long?
• Penalties for infringement?
• Is there protection from independent discovery?
• Application process?
• Is the innovation placed in the public domain?
The Constitution
(Copyrights and Patents)

• Congress shall have the power to:
  – “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Rights to their respective Writings and Discoveries” [U.S. Constitution, Article 1, Section 8, Clause 8]

• Copyright grants the creator of:
  – “original works of authorship in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or other wise communicated, either directly or with the aid of a machine or device, the exclusive right to distribute, display, perform, or reproduce the work in copies or to prepare derivative works based on the work”. [U.S. Code, Title 17, Section 102(a)]
What is a Copyright?

- **Copyright (CR) laws**
  - Protect the literary expression of an idea (or authored work) fixed in a tangible medium
    » CR does protect architecture, art, audiovisual works, choreography, drama, graphics, literature, movies, music, pictures, sculptures, and sound recordings
    » CR does protect software programs (i.e., the code is viewed as a creative literary work) including software applications, video games, web pages, etc. and databases that exhibit creativity or originality
    » CR does not protect ideas, processes, formulas, functions, algorithms, facts, or common information (e.g., standard calendars, height and weight charts, rulers, etc.)
  - Does not protect an idea, but the literary expression of an idea
    » You cannot CR a dance such as the Tango, but you can CR a visual recording of Tango choreography (i.e., a visual recording is a creative expression of an idea)
    » You cannot CR the game of football, but the NFL can CR a specific televised recording of an NFL football game
  - Protects the expression, selection, and arrangement of ideas
    » e.g., the structure, sequence, and organization of a software program
    » e.g., the structure, sequence, and organization of a recipe book
What is a Copyright?

- Together, the Copyright Act, 1976 and the Sonny Bono Copyright Term Extension Act, 1998
  - Give CR owner the rights, for 70 years after death (or for 95 years after creation for *corporate* CR owners), to:
    » Make copies of the work
    » Produce derivative products (book to movie, translation to other languages, movie or book sequels)
    » Distribute copies
    » Perform work in public (music, plays)
    » Display work in public (movies, artwork, choreographic works, computer games)
  - Do not protect from independent discovery (i.e., does not give monopoly power to creator)
    » No infringement if a person can demonstrate that she created the work without copying.
  - Penalize for CR infringement
    » If a CR owner takes a CR infringer to civil court and can show a “striking resemblance/similarity” between the works that can be explained only by copying
    » $200 – $150,000 for each work infringed
What is a Copyright?

- Copyright Law
  - After the CR expires the work goes into the **public domain**
    - Public domain refers to works that belong to the public
    - A work in the public domain is free for everyone to use without asking for permission or paying royalties
    - A work may be reproduced and distributed and derivative works can be created without CR holder’s authorization
      - You can go to Google Book Search and download full copies of out-of-copyright books (or books that publishers has asked Google to make fully viewable)
      - Select the “Full View” radio button in the Advanced Book Search - the Full View allows you to view any page from the book, and if the book is in the public domain you may download, save, and print a PDF version of the book
Copyright Example
(Software Protection)

• Consider the following:
  – You purchase a software application, use it, figure out its functionality, and then go off independently to create a new software application (with new code) that performs the exact same functions
  – Is this a CR infringement?
    » No! It is a new expression of an idea!
    » Remember that there is a CR infringement only if you can show that there is a “striking resemblance/similarity” between the software code (i.e., the literary expression of the idea or functions of the application) that can be explained only by copying

• Applying CR to software
  – Software program is a literary work but unlike literature it provides a useful function
  – Behavior of software is valuable, but that is not protected under CR
    » However, behavior/functionality may be covered under patent law
How Do You Copyright a Work?

- It is not necessary to register a CR work
  - If a work satisfies the requirements for CR, it has legal protection when it is created
    » You may put a CR notice on your work (without permission of the U.S. Copyright Office), although it is not required
    » Use of the notice informs the public that the work is protected by CR, identifies the CR owner, and shows the year of first publication
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- If you want to formally register your CR
  - Contact the U.S. Copyright Office
    » Request an application form, submit the completed form to the U.S. Copyright Office along with a $35 nonrefundable filing fee and a nonreturnable copy of the work to be registered
  - The U.S. Copyright Office will then send you a certificate of registration in 6-8 months
  - Establishes a public record of CR protection
Copyright Laws
(Proving Infringement)

• Proving CR infringement
  – CR owner must file a civil lawsuit
  – CR owner must show a striking resemblance/similarity that can be explained only by copying (sometimes difficult to do)
    » Apple v. Franklin (US Supreme Court, 1984)
  – No infringement from independent discovery
Proving CR Infringement

- **Apple v. Franklin (US Supreme Court, 1984)**
  - Apple said that Franklin copied its Operating System (OS)
  - They showed that Franklin’s code had line after line of identical code and even documentation in Franklin’s code with Apple’s name in it
  - This was the first case to demonstrate that software was protected under CR

  - Whelan Associates produced and owned a software application to support functions in a dental office
  - Jaslow, another dentist, studied the dental application and copied the structure, sequence, and organization of the program into another programming language
  - Courts found that Jaslow violated Whelan’s CR
  - **Comprehensive, non-literal similarity**
    » Striking similarity that can be explained only by copying
    » Similar interpretation as translating a book from English to Japanese
Copyright Laws
(What Can You CR? Information vs. Creative Expression)

• Feist Publications v. Rural Telephone Service (1991)
  - Rural
    » Telephone provider under statutory obligation to compile phone directory for all customers free of charge
  - Feist
    » Specialized in compiling directories
    » Copied 4,000 entries from Rural’s directory
  - Rural sued for CR infringement of its collections of information
  - Court decision
    » Ruled in favor of Feist because Rural’s directory had no creative expression and therefore could not be copyrighted

• Think about the recipes example
Copyright Laws
(What Can You CR? GUIs Are Not Covered by CR)

• Graphical User Interfaces (look and feel)
  - Apple v. Microsoft (1994)
    » Apple sued to prevent Microsoft and Hewlett-Packard from using visual GUI elements that were similar to Apple’s MacIntosh OS
    » Apple lost all claims in the lawsuit
    » Quattro Pro released a spreadsheet that had a mode that imitated the Lotus 1-2-3 menu structure (but not the code)
    » Lotus sued saying the look and feel is copyrightable
    » Courts disagreed saying the menu system is a “method of operation” or a process, not a literary expression of an idea
    » Courts sided with Borland – GUI is not CR’able
  - Patent law may provide some IP protection for GUI elements, but CR law does not
Copyright Laws
(Exceptions)

• CR laws do not prohibit all unauthorized copying and distribution
  – First sale doctrine
    » CR holder only has right to first sale of a copy
    » i.e., you have the right to sell your textbooks to other students or back to the bookstore without the CR holder’s permission
  – Make a backup copy of a software program
  – Fair use doctrine
    » Allows the use of CR materials that contribute to the creation of a new work (e.g., such as quoting part of a work in a review) and that are not likely to deprive authors or publishers of income from their work
    » Fair use does not require permission of the CR holder
Copyright Laws
(Fair Use Doctrine)

• The purpose of the use
  – Commercial use vs. non-profit use
  – Education, research, news, critiques
  – Parody (form of criticism)
    » When one imitates a serious piece of work, such as literature, music or artwork, for a humorous or satirical effect
    » Weird Al Yankovic’s parodies of Michael Jackson (“Eat It”, “I’m Fat”), Madonna (“Like a Surgeon”), Chamillionaire (“White and Nerdy”)
      • He actually gets permission but does not need to do so

• The nature of the copyrighted work
  – Creative works (novels) get more protection than informational works (databases of information)

• The portion of the copyrighted work used

• The effect of use upon the value of the copyrighted work
Copyright Law
(Fair Use Doctrine: An Example)

• Analyze the following situation by applying the fair use doctrine
  - The use of quotes and short passages from a novel in a negative book review in a newspaper
Copyright Law
(Fair Use Doctrine: Another Example)

• Consider the following case:
  – A political group organized a forum on its website to encourage people to post and comment on individual newspaper articles relevant to political issues of concern to the group. Other participants added their comments, and debate and discussion of the articles continued. Two newspapers sued, arguing that posting the articles violated their copyrights. Analyze the case. How do the fair-use guidelines apply? Who should win – that is, is this fair use?

• Fair-Use Guidelines
  – The purpose of the use (commercial vs. non-profit use)
    » education, research, news, critiques
  – The nature of the copyrighted work
    » creative works vs. informational works
  – The portion of the copyrighted work used
  – The effect of use upon the value of the copyrighted work
Copyright Laws
(Fair Use Doctrine: Time-Shifting)

• Sony v. Universal City Studios (1984) – The Betamax Case
  – Background
    » Sony developed Betamax, a video cassette recording machine that allowed customers who purchased Betamax to record TV shows
  – Claim
    » Two (2) movie studios sued Sony for contributory CR infringement because some purchasers of Betamax used it to record CR’ed movies shown on TV
    » The studios claimed that manufacturers of technologies that enable CR infringements should be held liable for any infringements committed by its purchasers
  – Two critical issues
    1. Is recording a movie for personal use a CR infringement or fair use?
    2. Can manufacturers of technologies that enable CR infringements be liable for contributory CR infringement (or infringements committed by its purchasers)?
Copyright Laws
(Fair Use Doctrine: Time-Shifting)

• Sony v. Universal City Studios (1984) – The Betamax Case
  - Defense (Issue 1)
    » Sony claimed that there are many non-infringing fair uses of Betamax and VCRs such as time-shifting (taping a TV show/movie to view it at a later time)

Fair Use?
» The purpose of the use (usually for private, non-profit, time-shifting use) → (For)
» The nature of the copyrighted work (movies are very creative) → (Against)
» The portion of the copyrighted work used (whole movies were copied) → (Against)
» The effect of use upon the value of the copyrighted work → (For)
  * Time-shifting simply allows the user to watch the movie at a later time
  * Most customers normally reused the tapes (i.e., taped over the content) after viewing (referred to as an “ephemeral” copy)
  * Movie studios could not prove that they suffered any damages or harm
    - In fact, what ended up happening after the widespread use of VCRs?
  - Defense (Issue 2)
    » Sony claimed that the Betamax machines had many non-infringing uses and that it could not control how purchasers used the machines after purchase
Copyright Laws
(Fair Use Doctrine: Time-Shifting)

• Sony v. Universal City Studios (1984) – The Betamax Case
  – Supreme Court Ruling (5-4)
    » Issue 1: Betamax has substantial non-infringing uses (fair use). For example, recording a movie for viewing at a later time (time-shifting) is fair use (especially since they are copying free, public programming)
    » Issue 2: Manufacturers of home video recording devices with substantial legal uses cannot be held liable for contributory CR infringement (or copyright infringement of purchasers). A key element to this decision was that Sony’s relationship with the purchaser ended with the sale of the machine
  – The Betamax case is often sited in web-based entertainment cases and cases about production and distribution of new types of digital recording devices
Copyright Law
(Fair Use Doctrine: Reverse Engineering)

• Sega v. Accolade (1992)
  – Background
    » Developers of new software (e.g., gaming software) often must copy some or all of another company’s software (e.g., gaming console) as part of the process of developing a new product (e.g., a new compatible game)
    » Sega had a computerized lock so that only Sega game cartridges would work on its Sega gaming system (effort to create a monopoly by raising barriers to entry)
    » Accolade reverse engineered the lock so that it could produce and sell game cartridges that could run on the Sega gaming system
      * Copied Sega’s program and decompiled it (i.e., translated it from machine code to human-readable format)
  – Claim
    » Sega sued Accolade for CR infringement (unauthorized copying of the program)
Copyright Law
(Fair Use Doctrine: Reverse Engineering)

- **Sega v. Accolade (1992)**
  - **Defense**
    » Accolade said that copying the program was fair use
    » Reverse engineering enabled Accolade to produce *new products* and ensure interoperability of their games with Sega’s gaming system
  
  **Fair Use?**
  » The purpose of the use (for research purposes, commercial use, new product creation, prevent monopoly behavior) → (~For)
  » The nature of the copyrighted work (software is creative) → (Against)
  » The portion of the copyrighted work used (entire program was copied) → (Against)
  » The effect of use upon the value of the copyrighted work → (For)
    * Accolade did *not* produce a competing gaming system
    * Accolade was producing only *new games*, *not* copies of Sega games
    * It may be that the gaming system will be more popular with new, compatible games

- **Court ruling**
  » It is fair use to disassemble protected, copyrighted work:
    * For *research purposes* and to allow *interoperability* to avoid monopoly
    * To encourage the production of *new, creative products*
Copyright Law
(Fair Use Doctrine: Reverse Engineering)

• Reverse engineering
  – A critical process for creating new products that must interact with another company’s hardware and software
• Several court cases have ruled that copying and reverse engineering an entire computer program for commercial use was fair use, largely because the purpose was to create a new product
  – Atari Games v. Nintendo (1992)
    » Courts ruled that making copies of a program for reverse engineering (to learn how it works so that a company can make a compatible product) is fair research use
    » Connectix copied Sony’s PlayStation program and reverse engineered it to develop a Virtual Game Station (VGS) that emulated the PlayStation console and allowed PlayStation games to be played on a desktop
    » Courts rule this was fair use
    » Sony bought VGS out and discontinued it
Copyright Law
( DMCA )

• Digital Millennium Copyright Act (1998)
  – Criminalizes the use of technologies that circumvent technical protection systems (e.g., encryption or digital rights management)
  – Two (2) critical anti-circumvention rules
    » Outlaws the act of circumventing a technical protection (such as encryption or digital rights management) to access a CR’ed work
      • Technical protection is “a technical measure that effectively controls access to a copyrighted work”
      • So if a CR owner uses a digital rights management system or encryption code to protect a digital book from unauthorized copying, then it is illegal for anyone to break the encryption code and access the book without the CR holder’s permission
      • Exception: You may circumvent to make fair use of a work that you acquired legally (reverse engineering for interoperability, computer security research)
    » Outlaws the manufacturing or distributing of technology that enables others to circumvent copyrighted work
      • Primarily designed for the purpose of circumvention of a technology protection
Copyright Law (DMCA)

Digital Millennium Copyright Act (1998)

- Intermediary liability (and safe harbors)
  » What is the impact of rule 2 on ISPs/websites? They provide network technologies that enable customers to infringe CR by sharing and downloading MP3 files
  » ISPs qualify for immunity (or safe harbor) from contributory infringement (i.e., CR infringement committed by their users)
  » To qualify, ISPs must be willing to terminate service to repeat CR infringers and remove material from their sites once they are put on notice that the material infringes a CR

- Penalties
  » 5 years in prison / $500,000 for each offense

- Major Complaints
  » DMCA makes access to CR works for fair use purposes difficult
  » DMCA allows for circumvention for fair use (see rule 1)
  » But, it is not clear whether fair use circumventors have the right to make and distribute the technologies necessary to accomplish fair use circumventions
  » Rule 2 makes reverse engineering of software for fair use much more difficult
Copyright Law
(First Test of the DMCA)

• Universal v. Reimerdes (2000)
  - Background
    » Content Scrambling System (CSS) is a technological protection that protects digital content (e.g., movies) on a DVD by encrypting the contents
    » All movies distributed in DVDs are protected by CSS
    » These movies can only be viewed on a DVD player or a specially configured PC (have licensed copy of CSS which contains the keys for decryption)
    » In 1999, CSS supported only MAC or Windows OS; that is, computer users that used other OS (such as Linux) could not view DVDs on their computers
    » Jan Johnansen (15 year old in Norway) cracked the CSS encryption code and created DeCSS, a software program that allows Linux users to circumvent the CSS protection on DVDs so that they could download and view DVDs on their computers (just like MAC or Windows OS users)
    » Jan then posted the DeCSS program to the Web \(\rightarrow\) widespread distribution
    » Many others began to post DeCSS to their websites
Copyright Law
(First Test of the DMCA)

• Universal v. Reimerdes (2000)
  - Claim
    » Eight (8) sued movie studios sued 3 New York men who made DeCSS (a reverse engineering tool for overriding DVD protections) available on their websites
    » Claimed that DeCSS is a piracy tool that circumvents CSS protection and will be used to make and distribute unauthorized copies of movies
    » Claimed this was a violation of DMCA (rule 2 makes it illegal for anyone to make or distribute a technology (DeCSS) that is intended to circumvent a technological protection (CSS) of a CR work)
  - Defense
    » DeCSS has a substantial fair use – it preserves fair use by allowing DVDs to work with computer systems not running MAC or Windows OS (interoperability)
    » People have a right to use legally purchased DVDs on Linux - they need DeCSS to do it
    » Allows DVD owners to view their DVDs anywhere in the world
    » Intent of DeCSS was not to facilitate copying/distribution of disks on the Internet
  - Court Ruling
    » DeCSS violated the DMCA (but DeCSS is still widely available)
    » Prohibited websites from posting DeCSS
Copyright Law
(First Test of the DMCA)

• Universal v. Reimerdes (2000)
  - Concerns about the ruling
    » How can fair use be preserved if CR material is encrypted (or protected by another technology protection) and programs like DeCSS are outlawed
    » DMCA seems to say that you may circumvent technology protections for fair use but you cannot make or distribute technologies that enable you to perform fair use circumventions
    » Many companies avoid circumvention due to fear of lawsuit → prevents new products from coming to market
  - Note the difference between DMCA and Sony v. Universal (1984)
    » DMCA deals with circumvention of technology protections
    » Sony v. Universal (1984) did not involve circumvention of technology protections
    » Betamax did not deal with digital data
    » The financial impact of the CR holders is different
Copyright Law
(Testing the DMCA – Music Sharing)

• The Napster case
  – Background
    » 1999 – Shawn Fanning opened Napster, an online service that allowed users to copy MP3 files (e.g., unprotected digital music) from one user’s hard drive to another user’s hard drive
      • > 50 million users by 2000, ~ 100 million MP3 files available
    » Napster had its members download peer-to-peer (P2P) / file-sharing software that allowed users to transfer songs from each other’s hard drives
      • Napster did not store any MP3 music files on its own server
      • It provided a central directory – a list of available songs and a list of Napster users logged in to the service (like a digital music GPS)
  – Claim
    » Recording Industry Association of America (RIAA) claimed that 90% of files copied via Napster violated record label CR and sued Napster for $100,000 per copied song (claimed contributory CR infringement because Napster facilitated the illegal copying)
  – Two critical issues
    1. Was the copying and distribution of music via Napster legal under the fair use guidelines?
    2. If not, was Napster responsible (and therefore liable) for the CR infringements committed by its users?
Copyright Law
(Testing the DMCA – Music Sharing)

• The Napster case
  – Defense (Issue 1)
    » Napster claimed that there are many non-infringing uses of Napster
      ◦ Some works were not CR’ed
      ◦ Some artists (e.g., new, independent artists) gave Napster authorization to use their works
        (permissive distribution)

  Fair Use?
    » The purpose of the use (non-profit use) \(\rightarrow\) (\(^{\sim}\)For)
      ◦ Napster did not charge for its services
      ◦ Napster argued that people made copies for personal, not commercial use
        – Space-shifting (like time-shifting in Betamax Case); that is, people download copies of
          songs that they already own on CD to have in multiple places (home, car, work, etc.)
        – Sampling; that is, people sample songs and then buy the CDs
    » The nature of the copyrighted work (songs are very creative) \(\rightarrow\) (Against)
    » The portion of the copyrighted work used (whole songs were copied) \(\rightarrow\) (Against)
    » The effect of use upon the value of the copyrighted work \(\rightarrow\) (Against)
      ◦ Napster claimed that sampling actually would help record labels
      ◦ However, most sales data and surveys of college students suggested otherwise!
The Napster case

- Defense (Issue 2)
  - Napster claimed safe harbor status (as a search engine) under the DMCA
    - DMCA provides safe harbor protection against contributory infringement – that is, liability committed by customers of intermediaries (ISPs) or “information location tools” (e.g., search engines)
    - Napster did not keep copies of CR material on its server
    - It only provided a central directory – a list of available songs and a list of Napster users logged in to the service
    - It was acting like a search engine, which is protected under the DMCA
Copyright Law  
(Testing the DMCA – Music Sharing)

• The Napster case
  – Court ruling
    » Rejected Napster’s arguments
    » Ruling on Issue 1: Not Fair Use (CR infringements were rampant)
      • Ruled that Napster had an adverse impact on the market for CDs, especially among college students
        – Webonize survey of 4,000 college students → 75% used Napster at least once/month
    » Ruling on Issue 2: Not protected under Safe Harbor provision of DMCA
      • Lots of reasons
        – RIAA was not trying to stop the manufacturing of P2P networks, but stop Napster’s use of it to make CR material available for unauthorized access
        – Napster did not take actions to help stop CR infringement (a requirement of DMCA Safe Harbor) once they were put on notice of CR infringements
        – That is, Napster had the right and ability to supervise the system, including copyright infringing activities, but did not do so
        – Noted that Napster “knowingly encourages and assists in the infringement of copyrights” (intent is important)
    » Napster must
      • Remove listings of CR songs identified by music companies
      • Pay creators and CR owners a $26 million settlement for past, unauthorized uses of music, and an advance against future licensing royalties of $10 million
Copyright Law
(Testing the DMCA – Music Sharing)

• MGM Studios v. Grokster (2005)
  - Background
    » Grokster was another online file-sharing service that allowed users to copy MP3 files (e.g., digital music) from one user’s hard drive to another user’s hard drive
    » It was a true peer-to-peer (P2P) system that did not require a central directory like Napster used (computers just make requests to each other along the network)
      • Makes Grokster more difficult to deal with since you cannot shut it down just by eliminating a central directory (each computer is a distribution source)
    » Members of the P2P network place files meant for sharing in a “Shared Files” folder
    » Grokster promoted its software as a replacement for Napster (“The #1 Alternative to Napster”)
  - Claim
    » Movie industry claimed that ~90% of files copied via Grokster violated movie/music company CR and sued Grokster for contributory CR infringement because Grokster purposely facilitated the illegal copying (i.e., their business model depended on CR infringement)
  - Two critical issues
    1. Was the copying and distribution of music via Grokster legal under the fair use guidelines?
    2. If not, was Grokster responsible (and therefore liable) for the CR infringements committed by its users?
Copyright Law
(Testing the DMCA – Music Sharing)

- MGM Studios v. Grokster (2005)
  - Defense
    » Grokster claimed it was just a software company without any direct involvement in file swapping (i.e., no right or ability to control CR infringement by users)
      ✷ Like a web browser that does not control the sites a user browses
      ✷ Like an email application that does not monitor a user’s attachments
    » P2P networks have many productive, legal uses (true)
  - Supreme Court Ruling
    » Unanimously ruled that a CR owner can sue an intermediary for contributory CR infringement if the intermediary encourages CR infringement
      ✷ Vicarious CR infringement (intermediary has the ability to supervise infringing activity and has a direct financial interest in such activities)
    » Ruling led to a controversial new test to determine if software is protected by the Sony v. Universal Betamax ruling
      ✷ It has to be shown that the distributors of the program have advertised and/or otherwise encouraged or induced its use for CR infringement
  - Grokster forced to pay $50 million to music and recording industries
    » Grokster was shut down - do rulings like this threaten the development of new P2P networks?
Copyright Law
(Testing the DMCA – Video Sharing)

• Universal Music Group v. Veoh (2009)
  - Background
    » Veoh.com is a video-sharing service that works a lot like YouTube
    » Users can upload videos, watch videos, and download videos
    » Veoh’s users have been known to upload clips that infringe CR
  - Claim
    » Universal Music Group claimed that there were massive CR violations on Veoh and filed suit against Veoh for contributory CR infringement
  - Defense
    » Veoh claimed that it is not responsible for the content that is uploaded by its users (per the DMCA’s Safe Harbor provision) and that it always responds to “takedown requests” by CR owners
  - Court Ruling
    » Veoh satisfied the DMCA’s criteria for Safe Harbor status since Veoh was not aware of when infringing material was posted and, once becoming aware of infringing material, Veoh acted “expeditiously” to remove it
Copyright Law

(Testing the DMCA – Video Sharing)

Copyright Law
(RIAA’s Evolving Strategy)

• RIAA v. the People
  – Before 2003
    » Music and movie companies avoided pursuing direct CR infringements by customers in fear of a public backlash
    » Instead they chose to sue developers of P2P networks (e.g., Napster, Grokster, StreamCast) for contributory CR infringement
  – 2003
    » RIAA began to sue individual customers that swap large amounts of music on the Web
    » They have sought the help of ISPs to identify such customers (via DMCA)
    » RIAA has sued more than 29,000 people (most have settled out of court for a small fee)
    » All of these lawsuits don’t seem to be slowing down the file sharing trend

• Example
    » Found guilty of willful, illegal sharing of 24 songs (accused of sharing more than 1,700 songs)
    » In Sept 2009 jury awarded damages of $1.92 million ($80,000/infringed work)
Question

• Should Congress repeal the DMCA?
Technology Solutions to Unauthorized Copying and Distribution

• Trusted systems

• Digital Rights Management Systems
  – How do you ensure fair use?
  – How do critics, scholars, and teachers access material?
  – Is there an invasion of privacy as creators track what we read, use, etc. with the trusted systems
Other Solutions to Unauthorized Copying and Distribution

• Taxation
  – Much of the European Union tax digital media and equipment to pay CR holders for losses expected from unauthorized copying and distribution of digital content
  – Taxes on manufacturers of PCs, printers, scanners, and recorders
  – Taxes on iPods, cell phones, and blank DVDs
  – Taxes > 1 billion euros in 2005 (in 2005 → 1 euro ~ $1.35)

• Does this make sense?
  – For: Makers of copying equipment create losses for CR owners so a tax is a reasonable compromise
  – Against: Makes equipment more expensive, penalizes equipment makers unfairly, penalizes honest users unfairly
Technology Solutions
(To Protect IP)

• **Digital Rights Management (DRM) Systems**
  - Technological protections (e.g., CSS for DVDs) that control access to and use of digital works
  - Limits on the life and uses of digital works (e.g., can prevent saving, printing, making more than a specified number of copies, distributing a file, extracting excerpts, or fast forwarding over commercials)
  - Combination of trusted systems (e.g., readers, players, printers, servers) and rights management

• **Concerns with DRM**
  - Buyers can only view/play DRM-protected works on trusted systems (and not MP3 players)
  - DRM may prevent a person from lending and selling a purchased copy (e.g., violation of the first sale doctrine)
  - How do you ensure fair use (especially with the DMCA)?
  - How do critics, scholars, and teachers access material?
  - Is there an invasion of privacy as creators track what we read, use, etc. with the trusted systems?

• **Biggest problem?**
  - DRM may not protect content industries since virtually all copy-protection schemes can be broken (e.g., DeCSS) and posted to a P2P
  - In fact, the big four (4) music labels (EMI, Sony, Universal, and Warner) have all negotiated with digital music pay services (e.g., iTunes, Amazon Music Downloads, Napster) to allow them to sell digital music from their catalogs **without** DRM (i.e., DRM-free)
Market-Based Solutions/New Business Models
(To Protect IP)

- Music Companies have begun to negotiate DRM-free MP3 contracts with legitimate music download companies
  - Major record labels (i.e., Sony BMG, Warner Music, Universal, and EMI) and smaller labels (e.g., “indies”) usually receive a cut of the music download company’s advertising revenue in these deals
  - The Old Music Download Business Model
    » Subscription service with DRM protections
    » Subscribers would get unlimited downloads of digital music, but DRM was attached to the songs which limited the subscribers use and transfer of the songs (and what device it could be played on) and ended use when the user cancelled the subscription
  - The New Music Download Business Model
    » Sell DRM-free MP3 formatted songs on a per song (or album) basis
    » Tiered pricing (e.g., 69 cents, 99 cents, and $1.29 per song)
Market-Based Solutions/New Business Models
(Pay Music Download Sites)

• iTunes Store
  – Until April 2009
    » Digital music in iTunes used to be encrypted with Apple’s FairPlay DRM which allowed protected songs to be played on up to five computers at one time, as well as unlimited Apple devices (iPod, AppleTV, etc)
    » Tunebite was a program designed to circumvent the FairPlay DRM
  – Since April 2009
    » After iTunes negotiated a deal with the four major music studios all songs purchased from iTunes are DRM-free and can be played on any MP3 player and be transferred to any number of iPods, computers, CDs, or other MP3 devices
    » Tiered pricing system ($0.69, $0.99, and $1.29 per song)
    » Extensive, up-to-date music library (>8 million songs)
Napster (the “new” Napster)

- Old Model (for “new” Napster)
  » A subscription-based model

- New Model
  » Sell DRM-free MP3 formatted songs on a per song (or album) basis

- Extensive, up-to-date music library (>7 million songs)
Market-Based Solutions/New Business Models
(Pay Music Download Sites)

• Amazon MP3
  - First music download company to sign a DRM-Free MP3 contract with all four major music labels (~1 year before iTunes)
  - Tiered pricing system ($0.79, $0.89, $0.99 per song and albums $5~$10)
  - Extensive, up-to-date music library (>7 million songs)

• Rhapsody
  - Rhapsody offers subscription and pay-per song options
    - Subscription services
      » Users can download an unlimited number of DRM-protected songs to their computers or MP3 players
      » These songs no longer work if the subscription is canceled
  - MP3 Store
    » Sells individual songs and albums in DRM-free MP3 format
    » Individual songs (~$0.99) and albums (~$9.99)
  - Music library (>6 million songs)
WalMart Music
- Offers > 3 million (includes most popular artists and recent albums) DRM-free MP3 songs
- Tiered Pricing ($0.64, $0.94, and $1.24 per song, most albums ~$9)
- Caveat: explicit songs and albums are edited and there is no option to purchase the unedited versions

Zune Marketplace
- Most songs in the Zune library are available in DRM-protected format (i.e., tracks downloaded from the Zune Marketplace are only compatible with Zune players – that is, trusted players)
- Only about 1 million DRM-free MP3 songs available on Zune (and they are more expensive than the protected songs)
- Music library (~5 million songs – but only 1 million available in MP3)
  » Fewer “independent” songs than iTunes or Amazon MP3
Market-Based Solutions/New Business Models
(Pay Music Download Sites)

• eMusic
  - Subscription-based model ($11.99 a month)
    » Unlike most subscription services, the songs you download are yours even if you cancel your subscription
  - Subscribers can download up to 30 songs/month (which averages about $0.33 per song)
  - Offers >4 million DRM-free MP3 songs
  - eMusic’s library is largely independent (i.e., it is less likely that you will find the most recent works of popular artists)
Market-Based Solutions/New Business Models
(To Protect IP)

- Other market-based solutions implemented by entertainment industry (i.e., content providers) to protect IP
  - Negotiate revenue-sharing contracts that allow files sharing sites (e.g., P2P networks) to post CR’ed digital works in return for a portion of the ad revenues collected by the file sharing sites
    » YouTube.com has negotiated revenue-sharing contracts with all four (4) major music labels and hundreds of independent labels to post music videos
    » The contracts generally allow a content provider to share in the ad revenues and to post its own ads at channels devoted to its artists
    » Hulu.com is a free video-streaming site backed by media companies (NBC, ABC, Fox, Disney, etc.)
  - Negotiate file-filtering contracts in which file sharing sites use filtering software to examine files as users upload them and look for digital “fingerprints” of the entertainment company’s works
    » Depending on the contract the file-sharing site may either block the post or pay royalty fees to the entertainment company to post the material
    » Eliminates the need/cost of the file-sharing site to get permission each time
    » This type of contract requires that the P2P has ad revenues and enough assets and resources to develop an advanced filtering system and to pay the CR royalties
Market-Based Solutions/New Business Models
(To Protect IP)

- Other market-based solutions implemented by entertainment industry (i.e., content providers) to protect IP
  - Some entertainment companies imbed advertising in files that it then posts to the P2P sites, the advertiser gets its message out and the industry gets its fees (from the advertisers)
    » Coca-Cola includes advertising with music files distributed to P2P sites (e.g., a Jay-Z video sponsored by Coca-Cola)
    » Viral marketing
    » P2Ps often consider this SPAM and are generally not happy with this
  - Some entertainment companies try to discourage unauthorized file sharing by flooding questionable P2P file-sharing networks – responsible for many illegal downloads - with decoy files (e.g., low-quality, damaged files) to frustrate users and stop the use of network to violate CR
Social Norms-Based Solutions
(To Protect IP)

• Taxation
  – Much of the European Union tax digital media and equipment to pay CR holders for losses expected from unauthorized copying and distribution of digital content
  – Taxes on manufacturers of PCs, printers, scanners, and recorders
  – Taxes on iPods, cell phones, and blank DVDs
  – Taxes > 1 billion euros in 2005 (in 2005 → 1 euro ~ $1.35)

• Does this make sense?
  – For: Makers of copying equipment create losses for CR owners so a tax is a reasonable compromise
  – Against: Makes equipment more expensive, penalizes equipment makers unfairly, penalizes honest users unfairly
Summary of Solutions
(To Protect IP)

• Law solutions
  – Entertainment industry has:
    » Filed many lawsuits over the last decade against intermediaries, P2P network providers, and manufacturers and distributors of circumvention technologies for contributory CR infringement
    » Filed many lawsuits over the last 5 years against individuals for direct CR infringement
  – All of these lawsuits do not seem to have an impact

• Technology solutions
  – Entertainment industry has used DRM to protect IP
  – However, like most technological protections, DRM can be broken and may prevent fair uses
Summary of Solutions
(To Protect IP)

• Social norms solutions
  – Although taxation on digital media and equipment has become popular in Europe, it has not caught on in the US

• Marketplace solutions
  – The general idea: “If you can’t beat ‘em, then join ‘em”
  – Seems to be the recent focus of the entertainment industry to solve the IT-driven IP problems facing them today
Patents

• What is protected?
  - Machines, inventions, and innovative processes
    » Laws of nature and scientific principles are not eligible for patents
  - To attain a patent, the innovation:
    » Must be novel (unknown to others + unused by others before the patent is awarded)
    » Cannot be described by others in a printed publication (e.g., academic conference)
    » Must be non-obvious to anyone “skilled in the art”
  - IT-enabled business processes are patentable

• For how long?
  - Patent gives the patent-holder monopoly use (i.e., exclusive right to exclude others from making, using, offering for sale, or selling the invention) for 20 years (from the date the application was filed)

• Penalties for infringement?
  - No limits on infringement penalties
Patents

• Is there protection from independent discovery?
  - Yes!

• Application process?
  - Long (may takes years) and expensive compared to the application process for CR

• Is the innovation placed in the public domain?
  - Yes!

• The debate
  - Should IT-enabled business methods be patentable?
  - Are they necessary to stimulate innovation in cyberspace?
  - Can patent examiners really decide what is novel, non-obvious, and useful?
Fighters in a Patent War

Apple has been involved in 148 smartphone patent lawsuits — and in six instances, suits with multiple plaintiffs — since 2006. A majority of patent suits within the smartphone industry are filed by so-called trolls, companies that exist solely to sue. But tech giants have also traded lawsuits among themselves.

Mobile phone lawsuits filed since 2006

Each arrow represents a lawsuit involving a mobile patent. In some cases, when multiple firms are plaintiffs or defendants, a single suit is represented with multiple arrows. The circles are sized according to the total for each company.

**KEY**

Suit among the top 10 litigants
Defendant with party not shown
Plaintiff with party not shown

**HTC and APPLE**

Apple filed suit against phone maker HTC in 2010 in a move widely seen as directed at Google, which had partnered with HTC. At the time, Apple's chief executive, Steven P. Jobs, said in a statement: "We can sit by and watch competitors steal our patented inventions, or we can do something about it. We've decided to do something about it."

**SAMSUNG and APPLE**

Apple and Samsung are suing each other around the world. In August, a California jury awarded Apple $1 billion. The same day, in South Korea, a court delivered a mixed verdict that, in part, ruled in Samsung's favor. A week later, in Japan, Samsung was the winner.

**NOKIA and APPLE**

In 2009, Nokia sued Apple for patent infringements and Apple countered. In 2011 the companies settled some cases, with Apple reportedly agreeing to make a one-time payment of $500 million and future royalties to Nokia.

**GOOGLE and APPLE**

Many of Apple's lawsuits are seen as proxy fights in its battle with Google, which created Android, now the dominant smartphone operating system. Apple has not sued Google directly, though it has sued its partners, including HTC and Samsung, and has counter sued Motorola Mobility, now a division of Google.

Most of Technology Patents' operations seem devoted to suing BT companies, including most major telecommunications firms, for violating patents regarding sending information over a digital network.

Notes: When possible, subsidiaries were counted as the parent company. In some instances, suits and countersuits have the same case number and so may be counted as only one case. These are the top 10 Blawgs as of the end of 2011.
Trademarks

• Definition
  - A word, phrase, symbol, graphic, sound that enables a customer to differentiate one company’s product from another’s
  - Law prevents the use of a mark or a confusingly similar mark
    » Exceptions for fair use and parodies

• Examples
  - Graphics: Disney’s Mickey Mouse, NBC’s Peacock, the shape of the Coca-Cola bottle, McDonald’s Golden Arches, Nike’s swoosh, Apple’s logo
  - Slogans: Nike’s “Just Do It!”, McDonald’s “You Deserve a Break Today”
Trademarks

• How is a trademark (TM) acquired?
  - When someone is the first to use the mark publicly (to sell a product/service) or registers it with the US Patent and Trademark Office (USPTO)

• Trademark violations
  - Infringement: TM used by someone else in connection with the sale of its goods or services (e.g., a new shoe company uses a “swoosh”)
    » An infringement occurs if there is a “likelihood of consumer confusion”
  - Dilution: Applies to famous TM known to public (via advertising)
    » Blurring: TM is associated with dissimilar products (e.g., using Mickey Mouse or the Disney name to sell men’s suits)
    » Tarnishment: TM is portrayed in a negative or compromising way or is associated with products/services of questionable value or reputation
Trademarks

• Trademark fair uses
  - In fair use situations the TM name normally assumes its primary (vs. commercial) meaning
    » Describing your cereal as being made of “all bran” does not infringe on Kellogg’s TM brand name of “All Bran” cereal
  - Parodies
    » Parody is OK as long as it is not closely connect to commercial use
    » Making fun of a brand name in a Saturday Night Live skit is OK
    » Parodying a brand to sell a competing product → most likely a TM infringement
Trademarks
(Seminal Court Cases)

  – The Donkey Kong Case

• Hasbro v. Internet Entertainment Group (1996)
  – The Candyland Case
Trademarks
(Ownership of Domain Names)

• Ownership of Domain Names
  – Each Internet site has a unique address or domain name
  – ICANN determines (since 1999) the policies for domain name distribution

• Traditional problems
  – Cybersquatting
    » Registering or using a domain name that is identical or confusingly similar to a TM with the bad faith intent to profit from the goodwill of the TM (often profit by extorting the TM owner)
    » Example: Say that a new company registers www.talbots.biz and sells a line of women’s clothing online with the domain name
      • Consumers may assume that the clothes are affiliated with the well-known Talbot’s brand → confusingly similar → infringement
Trademarks
(Ownership of Domain Names)

• Traditional problems
  - Cybergriping
    » Disputes between the legitimate claims of a TM owners and free speech rights of critics or “gripers” who use a registered TM to protest an organization’s policies or practices
      ▪ TM owners claim that derogatory statements of gripers are dilutive of their TM
      ▪ Gripers claim that “unconfusing”, non-commercial use of TM for criticism and other forms of free speech must be allowed
    » Court cases
      ▪ Scientology-kills.net (OK, fair use)
        - Criticizes the scientology movement and sells T-shirts
        - Does not deceive (it is not confusingly similar) and it expresses an opinion
      ▪ JewsforJesus.org (not OK, dilutive)
        - Tries to intercept visitors to Jews-for-Jesus.org – a movement that seeks to convert Jews to Christianity – and provides a link to a Jewish Outreach site
        - Does deceive (it is confusingly similar), it tries to intercept those thinking of converting, and it does not express an opinion
      ▪ Peta.org (not OK, dilutive) (this case is summarized in a case at the end of the IP chapter in the “CyberEthics” book)
Trademarks
(Linking)

- Linking
  - Ticketmaster v. Microsoft (1997)
    » Deep linking may be a TM violation since it may convey to the user that she is still on the original site, therefore blurring “property lines” in the consumer’s mind
  - Can you link to anything any way you want?
  - Linking rules:
    » Avoid linking to sites that prohibit it
    » Link in the way requested by the linked site
    » Have a familiarity with the content of the linked site
    » Avoid impression that a link implies an endorsement in any way of one’s own product or services
  - Not a huge issue these days
Trade Secret Laws

• Uniform Trade Secrets Act (UTSA)
  – Gives right to companies to keep certain information secret (to maintain competitive edge)
  – Covers formulas, patterns, programs, devices, methods, processes

• Must have the following characteristics:
  – Be novel
  – Represent economic benefit to firm
  – Involve some cost and effort to develop
  – Is generally unknown to the public
  – Company must show effort to keep the information secret
Trade Secret Laws

• Problems:
  – Software often must be put into the public realm, making it difficult to keep secret (and generally unknown to the public)
  – Does not protect from independent discovery

• Economic Espionage Act (1996)
  – Penalties: up to $10 million and 15 years prison for theft of trade secrets
  – IP lost in industrial espionage → > $300 bill / year
Trade Secret Laws

- How do you show the courts that you have been keeping information secret?
  - Identify all information to be protected
  - Label it confidential
  - Educate employees of importance of trade secrets
  - Make only accessible to limited # of people on a need-to-know basis
  - Develop non-disclosure agreements
  - Develop non-compete clauses
    - Compuware v. IBM (2005)
  - Technology protections
    - Firewalls, encryption, secure databases, etc.
Trade Secrets
(An Example)

  – Background
    » Sergey Aleynikov was a Goldman Sachs computer programmer ($400,000/year) between May 2007 and June 2009 before moving to start-up automated trading firm Teza Technologies
    » At Goldman, Aleynikov signed a standard confidentiality pact requiring him to handle all non-public information "in strict confidence“ and to return any non-public documents obtained while working at Goldman upon his departure
    » Before he left Goldman he allegedly stole 32 megabytes of proprietary code related to a high-speed trading application that he helped to develop
    » He copied the code from his work computer to a server in Germany
    » Goldman found out about the IP leak when monitoring data uploads from its system
Trade Secrets
(An Example)

- Goldman Sachs case
  - Accusation
    » On July 3 the FBI arrested Aleynikov and charged him with "theft of trade secrets" with "the intent to convert that trade secret to the economic benefit of someone other than the owner." (bail was set at $750,000)
    ✦ Goldman says that
      ✦ If its competitors get hold of the proprietary code its ability to profit from the speed and efficiency of its system would be largely nullified
      ✦ It spent millions developing and guarding the code and related programs
  - Defense
    » Aleynikov claims that he meant to copy only “open source” files, but he accidentally transferred the proprietary code, which he says he did not pass on to a third party
  - Other Notes
    » Aleynikov allegedly tried to delete the Goldman data that was uploaded, but the firm's system made a backup copy
    » One question will be “What types of controls and monitoring did Goldman have in place to protect the data?”
Trade Secrets
(A Related Example)

- Citadel Investment Group
  - A Chicago-based hedge fund that is suing a former executive (Mikhail Malyshev's) and two other employees for violating their non-compete contractual clauses by setting up Teza Technologies - the firm Aleynikov joined on July 2, 2009 (see previous slides)
  - Claiming that their nine-month non-compete clause runs until November 2009 (until then they are paid $30,000/month by Citadel)
  - Teza Technologies calls the civil complaint "frivolous" and an attempt to harass its executives
Open Source Software (OSS)

- Software enjoys multiple protections
  - CR (source code – JAVA or C++ - is considered a literary expression)
  - Patent (software is a functional, useful machine)

- Open Source movement argues that software should not have any legal protections
  - Open Source Initiative (www.opensource.org)
  - All software should be free to use, modify, customize
    » Patents/CR interfere with the evolution of incremental improvements
  - Software is distributed free along with the source (human-readable) code which is accessible for modification
  - Claim is that OSS generates better software code with more features, fewer bugs, and more transparency than proprietary code
    » Since you have thousands of talented programmers contributing
  - Success of OSS depends on willingness of programmers to contribute
Open Source Software (OSS)

• OSS license includes five (5) key provisions
  – Freedom to run the program for any purpose
  – Freedom to access the source code and modify it
  – Freedom to distribute copies of the program
  – Freedom to release modifications to the public
  – Copyleft provision
    » Can redistribute OSS with modifications/enhancements, but only under the same OSS license under which the user received the code (prevents privatization of code)

• Examples of OSS
  – Linux OS, Firefox web browser, Apache web server (distributed and supported by IBM), MySQL database
  – Open Office Suite personal productivity tools (http://www.openoffice.org)
    » Writer, Calc, Impress (presentation software), Draw, Base (database software)
  – Super Tux (video-game inspired by Super Mario Brothers)
Summary

• Revisited and reviewed
  – Betamax Case (seminal fair use case related to contributory infringement)
  – DMCA

• Solutions (other than CR laws) to the IP problem
  – Technology-based solutions (encryption, DRM)
  – Market-based solutions (new business models)
  – Social norms-based solutions (taxation)
  – Other legal IP protections (patents, trademarks, and trade secrets)

• Is a top-down approach or a bottom-up approach more effective?

• Open Source Software
  – Should we forget about all of this? Should all software be free?
Next Class

• Case Report – Security will be due (see course schedule)
  – This case report is optional
    » If you complete it then it will replace your grade from Case Report – Intellectual Property
  – Read: Security (Cases 6.1-6.3) (pdf)
    » BB > Course Documents > Security and Cybercrime
  – Write a case report on one of the case studies
    » Read: Case Report Instructions (Security)
      ✤ BB > Assignments
    » Review: Case Report Examples I and II
      ✤ BB > Course Documents
  – Turn in the case report (hard copy) at the beginning of next class
    » If you will miss class next week or think you may be late to class please submit an electronic copy to me via email before the beginning of class
  – You should work individually to complete this case report