Intellectual Property

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Acknowledgement

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Warning

- Dr. German and I are not a lawyers.
- These are my interpretations, and therefore are not legal advice.
- Most terms and discussion applies to the United States, unless specifically stated
- Law changes rapidly, some of this info might be outdated

What is IP?

- Software is considered intellectual property (IP):
- IP: "the commercial application of imaginative thought to solving a technical or artistic challenge" [WIPO 2005]

4 types of IP

- Trade secret. The protection exists as long as the IP is kept secret.
- Copyright. It protects the expression of an idea for a limited period.
- Patent. It protects an invention, monopolistic exploitation of the invention for a period of time.
- Trademark. It protects a name, sound, image, etc. as associated with a particular type of business.

Trade Secret

- "A trade secret is a formula, practice, process, design, instrument, pattern, or compilation of information used by a business to obtain an advantage over competitors or customers" [USPTO]
- Any IP can be protected as a trade secret
- Historically software has been protected as a trade secret
  - Source code is secret
  - Executable/obfuscated version is public
- Usually developed/inspected under Non Disclosure Agreements (NDAs)
- An NDA you sign can affect that you can do/publish in the future

Trade Secret Risks

- Trade secret legislation protects from illegal usurpation of the trade secret
  - Uniform Trade Secrets Act, adopted by approximately 40 WIPO member states
  - Economic Espionage Act (1996, USA)
- But, if you don't take the necessary precautions to protect it, it is lost
- In principle they can be protected forever

Reverse Eng. Trade Secrets

- The only lawful way to acquire a trade secret is proper reverse engineering
- Otherwise, if somebody receives a secret via an illegal method, then such person can be potentially liable (tainted).

Trademark

- Trademark: any word, name, symbol, or device, or any combination, used, or intended to be used, in commerce to identify and distinguish the goods of one manufacturer or seller from goods manufactured or sold by others, and to indicate the source of the goods.” [CIPO 07]

Trademarks

- Different companies can hold the same trademark as long as they are in different "wares" and there is no potential consumer confusion.
  - Apple Computer vs Apple Corp
- Some trademarks become so famous that they gain general protection (Kodak, Coca-cola)

Trademarks

- A trademark can stop a product:
  - Apple iPhone vs Cisco iPhone (USA), Comwave Telecom (Canada)
- Many open source products had to be renamed due to trademark problems

Trademark

- It is recommended to register a trademark, but not required
- Trademarks have national jurisdiction
- Company or individual applies for trademark (USPTO in USA, CIPO in Canada, UKIPO in UK)
- Cheap and easy:
  - Search if trademark in use
  - File application and pay (e.g. £200 UK)
  - Process takes 2 months in the UK

Certification Marks

- Certification marks: they are used to certify "regional origin, material, mode of manufacture, quality, ..., of someone goods and services" [USPTO 07]
- Examples: "Open Source Initiative", "Microsoft Certified Professional", "Microsoft .NET Certification", "Made for iPad", etc.

Trademark Risks

- The name of a product might be somebody else's trademark
- Yet, under certain circumstances, one can use somebody else's trademark
  - an apple vs Apple Computer
- But that does not mean one cannot be sued:
  - Creating a software product "compatible" or "competitor" to another
  - Trademark owner might ask for licensing fees to trademark use
  - Eg. "Made for iPod" trademark, which gives 10% royalty to Apple

Generic Trademark

- If your trademark becomes synonymous with a general class of product or service
  - "Google it"
- Defend your trademark
  - "Xerox it"
- Lost trademarks
  - Aspirin

Patent

- A patent protects an invention
- Requirements for a patent (USA):
  - Non-obviousness
  - Novel

Patents

- A patent applicant discloses the invention to the public
- In exchange the owner gains a monopoly over such invention for the duration of the patent (usually 20 years)
- Patents have national jurisdiction.
- Some countries, primarily the USA, issue software patents.

Canadian Patents

- "No patent shall be granted for any mere scientific principle or abstract theorem."
- Many software inventions are excluded, but
- Amazon “one-click” checkout is of 2013 patented in Canada!
  - Europe rejected the patent

Licensing a Patent

- A user pays a licensing fee to the owner of the patent
- It is usually difficult to assess the value of a license fee
- A patent owner might not provide a license to a competitor

Damages for Patents

- A competitor might own a patent that can stop a product, or even a business.
  Example: Vonage.
- Vontage vs Verizon: $58 million + 5.5% royalties on future sales ($120 M)
- Settled dispute with Sprint Nextel for $80 million and 39 million with AT&T

Patent trolls

- Patent holding companies whose only business is to make money from such patents
- Usually wait until their patents are infringed
- Example: NTP Inc:
  - Owns approximately 40 patents
  - RIM payed $612.5 to NTP Inc. to settle a long patent lawsuit (2006)
  - Then sued AT&T, Sprint Nextel, T-Mobile and Verizon Wireless.

Patent Litigation

- It is impossible to know if you are infringing a patent
  - Patents are trade secrets from their application to the moment they are granted, but they are effective from application date.
  - Many patents are very ambiguous, and overreaching
- Plaintiff has to show that at least one claim of the patent covers the infringing product or process.

Patent Litigation

- The defendant can defend against a lawsuit using two methods:
- Demonstrate the patent is invalid, by either:
  - Show there exists previous work (prior-work)
  - Show that the invention is not worth the patent (obviousness)
- Demonstrate that you do not violate the patent
  - Harder to do, particularly in these days that patents are so ambiguously described (patent lawyers want to be inclusive, rather than exclusive)

Patent Litigation

- Plaintiff can ask for:
- Lost patent royalty fees (percentage of sales)
  - Punitive damages
    - They can be tripled if plaintiff is discovered to have known about the patent while developing the application (willful infringement)
- Anybody in the supply chain can be held liable! (currently under review by US Supreme Court: LG Electronics)

Patent Litigation

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  - FAT filesystem
  - Why?

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- (Lessing 2001) estimates that it costs $1.5 million to bring patent dispute to trial (for either side)

Patent Litigation

- Kirsch, a patent attorney, characterizes the increasing importance of patents as follows [Isenberg 2002]:
- "Technology companies that just a few year ago wouldn't have ever considered the impact of patent protection—either offensively or defensively—are now devoting many resources to ensuring they are protected, and minimizing the possibility of infringing third-party patent rights. Those companies that don't consider these issues do so at their peril."

Protecting yourself

- In theory one should verify if a new program/product might infringe a patent:
- Doing patent searches
  - Problematic: when patents are filled, they are secret,but they become valid from the day they are filled
  - Often difficult to determine if a patent is used in a product
  - Willful infringement a risk
- In practice it is always a risk

Copyright

- It exists to protect the intellectual standing and economic rights of creators and publishers of all literary, dramatic, artistic, musical, audiovisual and electronic works (UK CDPA)
- It protects the expression of an idea, but it does not protect the idea itself.
- It does not protect: short phrases, facts, ideas.
- Computer programs are considered “literary works” under copyright law (TRIPs)

Copyright

- It gives to the owner of the copyright of a work the **exclusive** right to:
  - 1. reproduce the work in copies;
  - 2. to prepare derivative works based upon the work;
  - 3. to distribute copies of the work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
  - 4. to perform the work publicly;
  - 5. and to display the work publicly.
- Only the owner of the copyright has the right to sue to enforce his/her/its rights

Copyright

- Copyright is automatic from the moment a work is created and embodied in a tangible form.
- It is universal (as long as the country is a member of WIPO/WTO–almost all the world)
- It is no longer necessary to register it.
    - Makes enforcement and litigation easier

Fair use/dealing

- Copyright law offers some exceptions to the exclusive rights of a copyright owner
- Fair use in the USA: allows non-copyright owner to use the work based on the nature of the use (commercial use, effect in market, proportion of original work, nature of work)
- Fair dealing in Canada/UK: allows non-copyright owner to use the work depending on use only (research, personal study, etc).

Duration of Copyright

- Varies from country to country
  - Canada: 50 years after death of author
  - USA, UK and most of EU members: 70 years from death of author
- Term is different if author is a company:
  - US: 95 years from publication
- For all practical purposes we won't see the natural expiration of copyright of "interesting" software

Some oddities regarding duration of copyright

- Peter Pan will not go into the public domain in the UK (to the benefit of the Great Osmond Hospital for Children–301 UK CPDA)
- "Happy Birthday to You" is copyrighted in the USA (currently owned by Time-Warner, its term expires in 2030), ergo you need a license for its public performance
- With the Copyright term extension (1998), no works will fall into the public domain in the USA between 1998 and 2019.

Ownership

- Usually, when working for a company, they own all the copyright on anything you produce
- In Canada the "Crown" owns copyrighted material created by government employees
- In the US the work of federal employees is in the public domain.
- In Canada a photograph's copyright is owned by the owner of the film

Collective works

- A collective work is “a work ... in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole” (17 USC)

Derivative Work

- A derivative work is "a work based upon one or more preexisting works, such as a translation.... or any other form in which work may be recast, transformed or adapted" (17 USC)

Chain of title

- Collective and Derivative works have copyright by different owners,
- “The copyright of a CW or DW extends only to the material contributed by the author of such work...”
- “...The copyright of such work is independent of, and does not affect or enlarge the scope, duration, ownership, or subsistence of any copyright protection in the existing material” (17 USC)

Chain of title in organizations

- By law the copyrightable creations of "for-hire" workers are own by their employer
- Organizations usually force their independent contractors to sign-off their copyright
- Usually a single entity is the only owner of commercial software
    - Sometimes this can be blurry, such as the SCO/ Novell case regarding the copyright of Unix

Chain of title in open source

- Open source is frequently a collective or a derivative work
- The new authors are subject to the licenses of previous
- authors
- Each part might have difference licenses and restrictions
- Depending on the licenses used, it might only be required to have a license from the previous link in the chain

Joint ownership

- "A joint work is a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole" (17 USC)
- Each of the joint authors may separately license the joint work (and all of its parts)
- But each author should be compensated for any royalties

Assigning Ownership

- Copyright can be assigned (or transferred) to another entity
- It has to be done in paper
- One can also relinquish copyright: placing a work into the public domain

Contract

- "A contract is a promise or set of promises for breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty"
  - Restatement (Second) of the Law of Contracts
- A contract requires
  - An offer
  - Consideration
  - Acceptance

License

- A license is the legal document that grants a permission.
- A **software license** is the legal mechanism used by the software's copyright owner to grant certain permissions andrestrictions to the user.
- A **bare license**: A grant by the holder of a copyright or patent to another of any of the rights embodied in the copyright or patent, short of an assignment of all rights [Merriam-Webster's Dictionary of Law, 1996]
- According to [Rosen 04] "it is possible to grant a license to copy, modify, and distribute software without signing a contract between the two parties."

Software License Agreement

- It is a contract between the software producer and the software which grants the user a software license
- When it indicates the terms under which an end-user can utilize the software it is known as “End User License Agreement” (EULA)
- Different methods to get acceptance:
  - Shrink-wrap/Click-wrap
  - Signed

Copyright Litigation

- Can you:
  - make copies of a software?
  - rent software to others?
  - “make available” a copy of a software?
  - create derivative works of a software?
- You might need a license to do any of these.

Conclusion

- Software is protected using 4 methods:
  - Copyright, Patents, Trademarks and Trade secret.
    - Each covers different aspects of the software
    - Copyright and trade secret are automatic
    - Patents and Trademarks should be applied for.
- Software engineers should be aware of these protections.