

# Intellectual Property

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# Disclaimer

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# My SW Engineering roles



UW Researcher - Software eng and systems research

Cray Software Engineer – libraries and debugger

Project lead/Software engineer - libraries and tools

Manager - Programming Environments (PE)

Senior Manager - OS and PE components

Technical Manager for the VP of Engineering

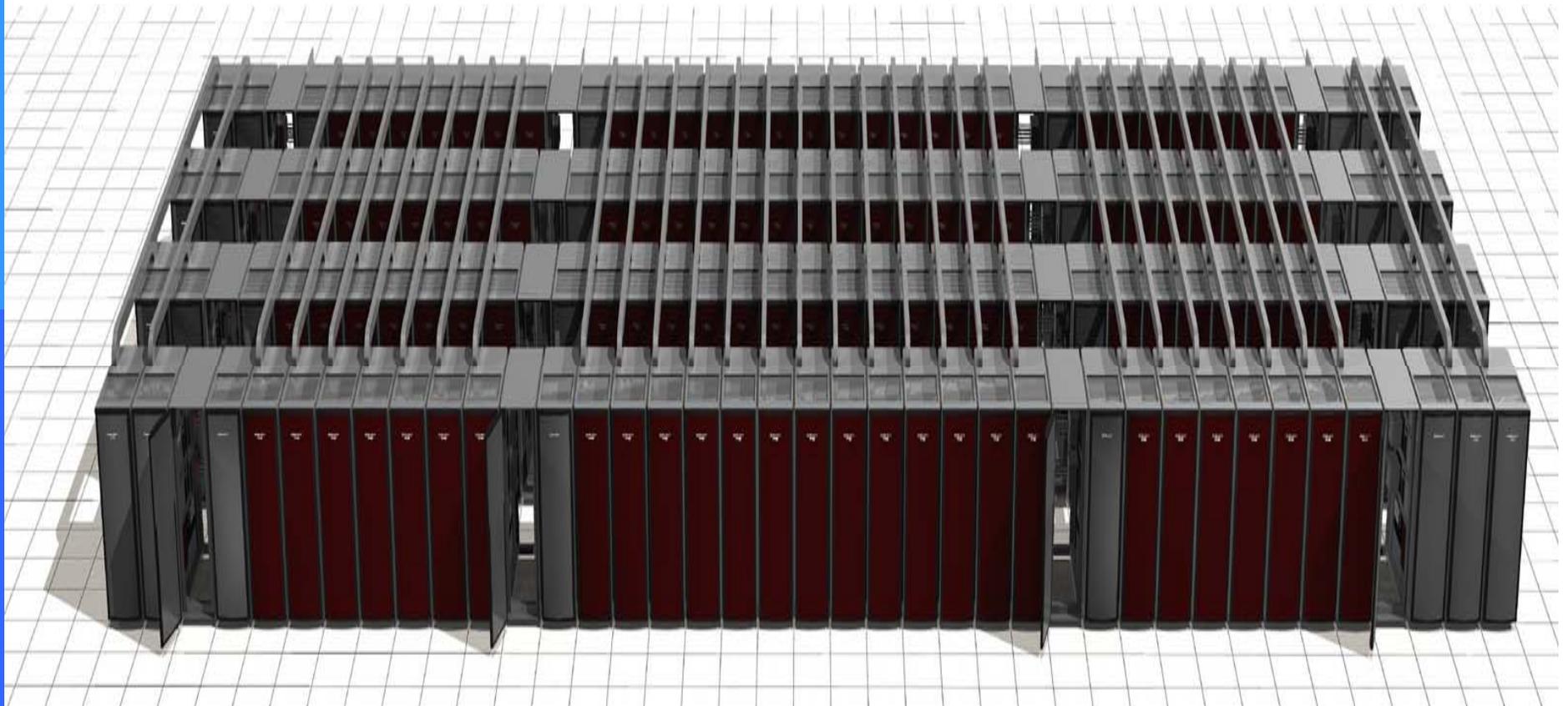
TIME



# My last project: XT3 system

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Massively parallel processing supercomputer system used for analysis and stewardship of nuclear weapons - initially for Sandia National Lab \$93M – ultimately a commercial product, the Cray XT3



# From XT3 to XT4 and beyond

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- Red Storm was made into a product, Cray XT3
- Full delivery was 3 ½+ years, but got something to the customer in 3 - it was a sprint the whole way, and the team felt it
- Software effort was much more complex than expected
- Rearchitected at least two major SW components after getting experience with them



XT3 product was successful and evolved into a product line, the XT series

# From investorwords.com

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## Intellectual Property

Any intangible asset that consists of human knowledge and ideas.

Most such assets cannot be recognized on a balance sheet when internally generated, since *it is very difficult to objectively value intellectual property assets*. They can, however, be included in a balance sheet if acquired, which allows a more accurate valuation for the asset (that is, the acquisition cost).

# Common forms of IP

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- o Patents
- o Copyrights
- o Trade secrets
- o Trademarks
- o Contracts

# Cray XT Software IP includes...

- Internal Cray IP
  - Hardware management patents
  - Proprietary cluster management software
  - Apprentice2™ performance tool



- External IP, *with fees*
  - Catamount OS, Sandia National Lab
  - C, Fortran compiler, PGI
  - Totalview parallel debugger, Etnus
  - PBS Pro batch management tool, Veritas



- External IP, *without fees*
  - Linux
  - PAPI
  - gcc, gdb



# 403 Project IP includes ...

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# Who owns the IP of University projects?

- In the US, inventors traditionally own their inventions, although universities most often share the monetary returns from commercialization.

## THE CHRONICLE OF HIGHER EDUCATION

- CSE commercialization committee  
<http://www.cs.washington.edu/commercialization/>  
UW office of technology transfer  
<http://depts.washington.edu/techtran/>
- Key question is, “*who is funding the work?*”

# Patents

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- Protect: innovations (processes, machines, products, phrases, algorithms...)
- Protect against: others making, using, selling innovation, *even if they independently came up with it*
- Requirements: novel, useful, non-obvious
- Term: 20 years from filing – typically must file within a year of being publicly disclosed
- Cost: relatively high, in time and cost
- How could you limit the risk of infringement?



# Patent ruling a win for eBay

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- Patent on “Buy it Now” sales feature held by MercExchange and used by eBay
- MercExchange sued for patent infringement
- Supreme Court pushing back to lower court, but until decision, allows eBay to continue using the phrase
- Concern by court of large corporations held hostage to minor innovations (patent trolls)

# Microsoft MP3 patent row looms over Apple

- Court ruled that Microsoft infringed on 15 patents owned by Alcatel-Lucent relating the MP3 music format (MP3 playback) in Windows Media Player
- Alcatel-Lucent had argued it co-developed the technology with Germany's Fraunhofer Institute (FI). MS licensed through FI (for \$16M) but not also Alcatel-Lucent.
- Damages were **\$1.52 BILLION** Microsoft will appeal
- Bad news for Apple? itunes to ipod - dependency on MP3 technology

**Microsoft**



Alcatel-Lucent

# Lucent accused of violating patents

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- Lucent sued Dell/Gateway for patent infringement on innovations including controlling a computer with a stylist
- MS pledged to cover Dell/Gateway customer costs, filed to invalidate the patents or resolve that not infringed
- Lucent sued MS for infringement on video decoding technology
- MS countered with claim that Lucent infringed 10 of its patents

Lucent Technologies  
Bell Labs Innovations



The Seattle Times

May 16, 2006

# War chests

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Companies like to build a war chest of patents for just this reason (use aggressively or defensively)



# CSR settles Bluetooth dispute with WRF

- **UW** has 4 patents on technology (by an ugrad!) that appears to be used by cellphone manufacturers under the “Bluetooth” technology name
- Bluetooth technology is used in wireless activities – exchange info without wires – there are a number of patents surrounding the technology





- Washington Research Foundation (WRF) working on behalf of UW reached a licensing agreement with Broadcom, who uses the Bluetooth technology
- CSR (another cellphone manufacturer) did not want to license the technology. WRF filed a suite against CSR for patent infringement
- April 2007, CSR settled with WRF for **\$15M** but remains to believe the suite was without merit

# Copyrights

A dark blue rectangular box with the word "Copyright" in white, serif font. To the right of the text is a vertical white line.

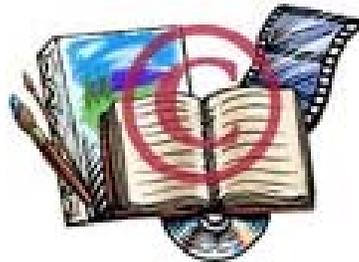
- Protect: expression of ideas on a tangible medium, *not* the ideas
- Protected against: reproduction, copy distribution, derivative work creation (NOT *independent* creation of the same or similar work)
- Requirements: original work, fixed in tangible form
- Term: author's life + 70 years
- Cost: simple, no registration
- How could you limit the risk of infringement?

The fact that internally developed SW looks or performs like SW that is owned by others but accessed by internal developers may raise a question of copyright infringement.

# More facts on copyright

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- Almost all things are copyrighted the moment they are written; No notice is required.
- Copyright software – contracts/licenses can provide permission to use copyright material



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# Trade Secrets

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- Protect: concept, idea, info, or innovation
- Protected against: misappropriation (*NOT* independent creation of same work)
- Requirements:
  - info not generally known or available
  - company derives some value from secrecy
  - must spend reasonable effort to maintain secrecy
- Term: no predefined limit
- Cost: no registration or examination
- How could you limit the risk of misappropriation?

# Symantec suit targets Vista

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- Symantec said that Veritas shared Veritas trade secrets and even trained Microsoft engineers as the companies began working together. And Microsoft used those **trade secrets** to start developing products [aspects of Vista] that directly competed with Veritas' offerings, the lawsuit said.
- Microsoft said that in 2004 it bought from Veritas the rights to the technologies in question.



# Trademarks

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- Protect: “any word, name, symbol, or device, or any combination thereof” used to distinguish certain goods from others
- Protected against: others using the mark, likelihood of confusion and dilution
- Excluded: use in other industries / geographic areas
- Requirements: use the mark in commerce or register with intent to use in future, must maintain quality control over goods
- Term: 10 year renewable (no upper limit)
- How could you limit the risk of infringement?



# Are any of your project names TM?

<http://tess2.uspto.gov/>

BusView	75614501: Computer programs for storing and tracing data ...
LiveLecture	Available! "Live Learning Lecture" now dead.
PixelPetz	Available!
ProcGen	Available!
UCanCook	Available! But many "can cooks" taken: "UCan2Cook", "I Can Cook", "Yan Can Cook", "Anyone Can Cook"
SteppIntoAction	Available!
U-Crave	Available! But many "craves" taken: "Crave It", "Crave", "Crave Healthy", "Crave be Gone", "Faves and Craves", "Crave New York", "Crave Appeal"
Web Music Player	Question trademarkability ...

# Apple infringes on Cisco's iPhone TM

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- Cisco owns the iPhone trademark
- Apple started negotiations with Cisco to share the TM. Cisco wanted open approach to allow Apple iPhone to be compatible with other companies' products
- Apple announced its iPhone *before* an agreement was made
- Cisco sued Apple for trademark infringement

*"This lawsuit is about Cisco's obligation to protect its trademark in the face of a willful violation. Our goal was collaboration. The action we have taken today is about not using people's property without permission."*

CSE 403, Winter 2008, Alverson

[http://blogs.cisco.com/news/2007/01/update\\_on\\_ciscos\\_iphone\\_tradem.html](http://blogs.cisco.com/news/2007/01/update_on_ciscos_iphone_tradem.html)

# How did the saga end?

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- Cisco and Apple reached a settlement (2/21/07). The two companies pledged to "explore opportunities for interoperability in the areas of security, and consumer and (business) communications."
- Other terms were confidential

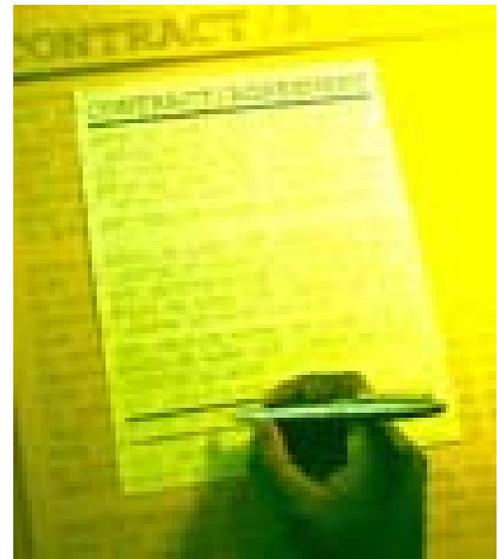
[http://www.usatoday.com/tech/products/2007-02-21-cisco-apple-iphone\\_x.htm?csp=34](http://www.usatoday.com/tech/products/2007-02-21-cisco-apple-iphone_x.htm?csp=34)



# Contracts/Licensing

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- Protections, exclusions, requirements, terms, and costs must all be *explicitly* defined as part of the contract
- You can make anything work if you have agreement by all parties involved
- Examples:
  - License agreements
  - Vendor agreements
  - Non-disclosure agreements
  - Employee contracts



# Popular license: GPL – [www.gnu.org](http://www.gnu.org)

The **Free** Software Foundation (FSF), established in 1985, is dedicated to promoting computer users' rights to use, study, copy, modify, and redistribute computer programs

FSF promotes the freedom to

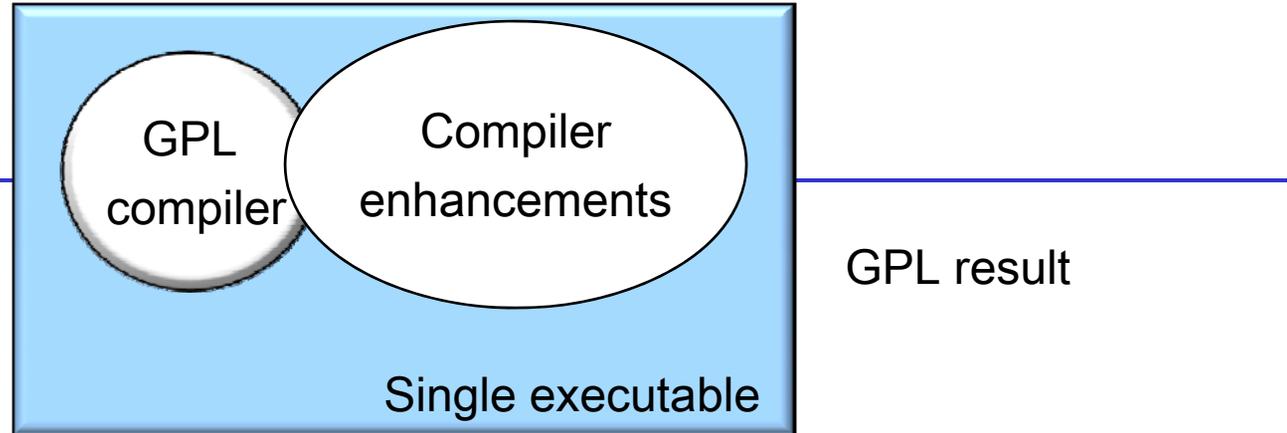
1. run the program, for any purpose
2. study how the program works, and adapt it to your needs
3. redistribute copies so you can help your neighbor
4. improve the program, and release your improvements to the public, so that the whole community benefits

Access to source is a precondition to 2 and 4

gcc, g++, gdb,  
glibc, gcj, violet,  
linux, ...



# GPL



- Software licensed under the GPL is open source that must be made available with the product release
- GPL requires that all code that is “affected” by GPL code must also be distributed under the GPL. “affected” is loosely equated to, part of the same functional unit
- poisoness license, copyleft license

# There are lots of other licenses

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- Mozilla Public License (bugzilla) – type of copyleft
- MIT License (ruby on rails) - permissive FOSS
- LGPL – glibc – lesser (library) GPL
- *MySQL – GPL or MySQL commercial license (\$)*

What's the difference between *Free, Open Source, and Proprietary software?*

# Microsoft takes on the free world

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Microsoft alleges that FOSS infringes on 235 of its patents  
It wants royalties from distributors and users

- the Linux kernel violates 42 Microsoft patents
- the Linux user interface, design elements infringe on 65 patents
- OpenOffice.org infringes on 45
- another 83 are infringed on in other FOSS programs

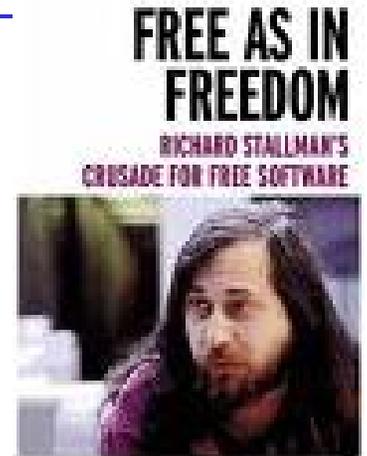
"What's fair is fair," Ballmer told *Fortune*.  
"We live in a world where we honor, and support the honoring of, intellectual property."



# And the FOSS response is?

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- FOSS legal strategist, is “uncowed”
  - The action is in tight qualitative analysis of individual situations
  - Patents can be invalidated on numerous grounds
  - Others can be invented around
  - Supreme Court stated in April that patents have been issued too readily for the past two decades and lots are probably invalid (!)
    - ▣ Peer review of patents (community patent review process) being explored
  - Corporate patrons and allies



# Microsoft scores a deal with **Novell**

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- The GPL covered patent lawsuits: any patent must be licensed for everyone's free use or not licensed at all - "liberty or death" clause
- Microsoft can't sue [Linux] distributors for patent infringement
- Microsoft and Novell reach a controversial agreement "not to sue each others customers" for infringement
  - ▣ Opens the door for more royalty claims by Microsoft
  - ▣ Novell's most eminent Linux developer quit in protest
  - ▣ GNU developed GPL2 to plug loophole

# What's your opinion?

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“Patents and the open-source movement get along awkwardly at best. Patent law gives proprietary, exclusive rights to patent holders, but open-source programming is built on the idea of free sharing.”

Is FOSS (Free and Open Source Software) the best way to foster the advancement of science?

Isn't it reasonable for a company to patent technology to attain/keep competitive advantage?

# “The Devil is in the Details”

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Understand and know the basics but  
consult with a lawyer for the details.