Intellectual Property

CSE 403 Software Engineering
Autumn 2023
# CSE 403 Timeline

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We are here on the home stretch!
Today’s Outline

• What is Intellectual Property (IP)
• Types of IP protection
  • Patent
  • Trade Secret
  • Trademark
  • Copyright
  • License

Posted on Calendar - Thamer’s 5 Lessons + Reading List

No class Wednesday – Hack day with your project team

Have a great Thanksgiving and Native American Heritage Day
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**Intellectual property (IP)**

**Intellectual property**: any intangible asset that consists of human knowledge and ideas

- Protected by patents, copyrights, trade secrets, trademarks, contracts with the intent to encourage ingenuity and protect creative ventures

- How would you value an intellectual asset?
  - They are very difficult to objectively value
  - One technique is to estimate the business that the IP enables
  - IP value can also depend on what someone else is willing to pay for it
Patent
Patent

- **Protects**: inventions, e.g., processes, machines, products, phrases, algorithms

- **Protects against**: others making, using, selling the innovation, even if they independently came up with it

- **Requirements**: novel, useful, non-obvious

- **Term**: 20 years from filing; must file within a year of being publicly disclosed

- **Cost**: relatively high, in time and cost
"A patent for an invention is the grant of a property right to the inventor, issued by the US Patent and Trademark Office. ... The right conferred by the patent grant is ... 'the right to exclude others from making, using, offering for sale, or selling' the invention in the US or 'importing' the invention into the US."

"Utility patents may be 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."

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https://patentcenter.uspto.gov
Software example

FIG. 4

United States Patent

Species: 937,117 B2

Date of Patent: Nov. 14, 2006

Dynamically Variable Idle Time Thread Scheduling

Inventor: Michael Ginsberg, Redmond, WA (US)
Assignee: Microsoft Corporation, Redmond, WA (US)

Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 906 days.

Filed: Apr. 25, 2001

Abstract

The subject matter provides dynamically variable idle time thread scheduling in a device with a high system tick rate. A device based on the subject matter includes an operating system, a set of application program modules, and one or more hardware elements. A thread scheduling mechanism in the operating system schedules threads at a periodic rate. Upon determining that there are no threads to execute, at least a subset of components are deactivated for a dynamic variable amount of time before they are re-activated. The at least one subset of components are selected from the hardware elements, one or more program modules comprising the operating system, and the like. The dynamic variable amount of time is independent of the periodic rate and based on a sleep state of a set of threads in a sleep queue.

References Cited

U.S. Patent Documents
5,247,677 A * 9/1993 Wall et al. 718/103
6,584,571 A * 6/2003 Fung 713/310
6,499,102 B1 * 12/2002 Everwitz 713/1
6,438,704 B1 * 8/2002 Harris et al. 711/502
6,173,405 B1 * 1/2001 Watts et al. 713/322
6,158,012 A * 12/2000 Watts, Jr. 713/322

Primary Examiner—Lewis A. Ballock, Jr.
Attorney, Agent, or Firm—Lee & Hayes, PLLC

14 Claims, 4 Drawing Sheets
The invention claimed is:

1. A computer-implemented method for providing thread scheduling in a device, the device comprising one or more hardware elements operatively coupled to an operating system comprising a plurality of program modules, the method comprising:
   - scheduling one or more threads according to a predetermined periodic rate;
   - setting a system timer to generate a notification at the predetermined periodic rate;
   - determining whether or not there are any threads to execute;
   - responsive to a determination that there are no threads to execute:
     (a) deactivating one or more of the hardware elements and the program modules for a dynamic variable amount of time, the dynamic variable amount of time being independent of the predetermined periodic rate and being based on a sleep state of a set of threads in a sleep queue; and
     (b) resetting the system timer to generate the notification after the dynamic variable amount of time has elapsed since the deactivating; and
   wherein the method further comprises:
   - receiving the notification after the dynamic variable amount of time has elapsed since the deactivating; responsive to the receiving:
   - resetting the system timer to generate the notification at the predetermined periodic rate; and
   - activating the one or more of the hardware elements and the program modules.

**United States Patent**

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<td>Date of Patent</td>
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**Abstract**

The subject invention provides dynamically variable idle time thread scheduling in a device with a high system tick rate. A device based on the subject invention includes an operating system, a set of application program modules, and one or more hardware elements. A thread scheduling mechanism in the operating system schedules threads at a periodic rate. Upon determining that there are no threads to execute, at least a subset of components are deactivated for a dynamic variable amount of time before they are re-activated. The at least one subset of components are selected from the hardware elements, one or more program modules comprising the operating system, and the like. The dynamic variable amount of time is independent of the periodic rate and based on a sleep state of a set of threads in a sleep queue.
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Summary Description of Item

Summary Description of Item
Who counts as an inventor?

**Person A:** “We should build a better umbrella”

**Person B:** “The architecture would broadly include a handle that is capable of securing a beverage container to the umbrella”

**Person C:** “We need to use a spring-loaded cuff to enable different sized beverage containers to be secured to the umbrella”

**Person D:** “I’ll implement your spec!”

---

**United States Patent**

**Inventors:** Mason Schott McMullin, #7 Ridgetop St., St. Louis, MO (US) 63174; Robert Platt Bell, 8033 Washington Rd., Alexandria, VA (US) 22308; Mark Andrew Seo, 8033 Washington Rd., Alexandria, VA 22308

**Date of Patent:** Oct. 28, 2003

**Class:** 62/128, 159/128

**Field of Search:** 62/128, 159/128

**Publication Data:** US 2003/0075208 A1 Apr. 24, 2003

**References Cited**

**U.S. PATENT DOCUMENTS**


10 Claims, 5 Drawing Sheets

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**How would you rule? #1**

PollEv.com/cse403au
Who counts as an inventor?

- Person A
- Person B
- Person C
- Person D
Most recently, the verdict had been whittled down to $539 million for Apple. Samsung filed to appeal that earlier this month. But the two companies were able to reach an agreement before it could be litigated again.

Meta has appealed
As of Feb 2023, (first) appeal failed
More patent concepts

**War chest**: a collection of patents owned by a company

- To protect their investments from competitors
- To help them avoid lawsuits from competitors
  - May motivate purchasing the IP (or the competitor!)
- To use in licensing agreements
  - Including defensively with cross-licensing agreements
    - You license me yours, I’ll license you mine (win-win)
Under PAX [peace], members grant each other royalty-free patent licenses covering Android and Google Applications on qualified devices. This community-driven clearinghouse, developed together with our Android partners, ensures that innovation and consumer choice—not patent threats—will continue to be key drivers of our Android ecosystem. PAX is free to join and open to anyone.
More patent concepts

**Patent troll (non-practicing entity):** an entity that owns a patent without practicing the technology, for the purpose of asserting it against others (for payment)

- Patent troll suits cost defendants approximately $29 billion per year on litigation (2014 study), before counting the corresponding decline in investment in R&D
Apple has been ordered by a federal court in Texas today to pay $505 million to a patent troll called VirnetX, the latest turn in an eight-year-old legal battle over FaceTime and iMessage patents, according to Bloomberg.

How would you rule? #2
PollEv.com/cse403au
Should Apple have to pay the troll for patent infringement?

Yes

No

Total Results: 0
Apple wins U.S. appeal over patents in $502 mln VirnetX verdict

By Blake Brittain

March 30, 2023 1:53 PM PDT - Updated 7 months ago
Trade Secret
Trade secret

• **Protects**: concept, idea, info, or innovation

• **Protects against**: misappropriation (but **NOT** independent creation of same work)

• **Requirements**:  
  • info not generally known or available  
  • **must spend reasonable effort to maintain secrecy**  
  • company derives some (economic) value from secrecy

• **Term**: no predefined limit

• **Cost**: no registration or examination

So what happens if someone reveals a trade secret?
Tesla settles with engineer accused of taking AI trade secrets

By Blake Brittain

April 19, 2023 4:07 PM PDT - Updated 7 months ago

Jury Hits Ford With $105M Contract And Trade Secrets Verdict

By Ryan Davis - Listen to article

Law360 (October 26, 2022, 5:40 PM EDT) -- A Michigan federal jury found Wednesday that Ford Motor Co. breached a contract with Versata Software and misappropriated its trade secrets, awarding Versata a total of $104.65 million in damages after a three-week trial.

The trial, which kicked off Oct. 4 in Detroit before U.S. District Judge Matthew F. Leitman, hinged on a 2004 agreement between Ford and Versata involving software Versata developed to manage how components in Ford vehicles are configured during assembly.

The jury found that Ford breached the agreement by misusing and disclosing confidential information, reverse engineering Versata’s software for its own commercial use, and using it without a license. It awarded $82.26 million on those claims.

In addition, the jury found that Ford misappropriated three Versata trade secrets and awarded $22.39 million on those claims. Jurors also found that Ford’s actions were not willful and malicious, and rejected Versata’s claims regarding a fourth alleged trade secret.

Ford appealed

How would you rule? #3 PollEv.com/cse403au
Should Ford have to pay Versata for stealing trade secrets?

Yes

No

Total Results: 0
[Judge] also said jurors had no basis to determine how long Ford would have needed to develop three trade secrets it allegedly stole, and that this also required voiding the damages award.
Trademark
Trademarks

- **Protects**: any word, name, symbol, or device, or any combination thereof used to distinguish goods from others

- **Protects against**: others using the mark, likelihood of confusion and dilution

- **Excluded**: use in other industries / geographic areas

- **Requirements**: use mark in commerce or register with intent to do so in future; must maintain quality control over goods

- **Term**: 10 year renewable (no upper limit)
USPTO on trademarks

"A trademark is a word, name, symbol, or device that is used in trade with goods to indicate the source of the goods and to distinguish them from the goods of others."

"Trademark rights may be used to prevent others from using a confusingly similar mark, but not to prevent others from making the same goods or from selling the same goods or services under a clearly different mark."
Is your project name trademarked?
### Allergy Alert

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Bowlmates

Word Mark: BOWLMATES


Mark Drawing Code: (4) STANDARD CHARACTER MARK
Serial Number: 85731067
Filing Date: September 17, 2012

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Meta Platforms hit with US trademark lawsuit from tech company Metabyte

By Blake Brittain

September 22, 2023 5:41 PM PDT · Updated 2 months ago


REUTERS/Francis Mascarenhas

Summary

- Metabyte said former Facebook’s rebrand would cause confusion
- Lawsuit joins at least three others over Meta Platforms’ name

Copyright
Copyright

• **Protects:** expression of ideas in a medium, but not the ideas

• **Protects against:** reproduction, copy distribution, derivative work creation (but **NOT** independent creation of same work)

• **Requirements:** original work, fixed in tangible form

• **Term:** author's life + 70 years

• **Cost:** simple, no registration
"Copyright is a form of protection provided to the authors of 'original works of authorship' including literary, dramatic, musical, artistic, and other intellectual works, published and unpublished. The 1976 Copyright Act generally gives the owner of copyright the exclusive right to reproduce the copyrighted work, to prepare derivative works, to distribute copies ..."

"The copyright protects the form of expression rather than the subject matter of the writing. For example, a description of a machine could be copyrighted, but this would only prevent others from copying the description; it would not prevent others from writing a description of their own or from making and using the machine. “
More facts on copyright

- 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.

Would posting someone’s email, social media, or photo, be a violation of copyright?

Who owns the copyright of AI generated code (e.g. through copilot)?
If a third party sues a commercial [Microsoft] customer for copyright infringement for using Microsoft’s Copilots or the output they generate, we will defend the customer and pay the amount of any adverse judgments or settlements that result from the lawsuit, as long as the customer used the guardrails and content filters we have built into our products.

What about “fair use” of material?

**Fair use**: a limitation and exception to copyright that allows duplication and use under certain conditions

The fair use of a copyrighted work ... is not an infringement of copyright

Factors to consider when determining fair use:

- **purpose and character of the use**, e.g., is use for commercial or nonprofit educational purposes
- **nature of the copyrighted work**
- **amount and substantiality** of the portion used in relation to the copyrighted work as a whole
- **effect of use upon the market** for or value of the copyrighted work
The companies went to trial over the matter in 2012 but the jury was split on the crucial question of whether Google’s use of Java APIs was protected by "fair use," which permits copying under limited circumstances.

Google appealed

How would you rule? #4
PollEv.com/cse403au
Should APIs be able to be freely used under the "Fair Use" doctrine?

Yes

No

Total Results: 0
On April 5, 2021, after 10 years of litigation, the U.S. Supreme Court published its decision in the much-watched *Google v. Oracle* dispute. The Court held that use of certain "declaring code" from the Java API in the Android operating system was a fair use under Section 107 of the Copyright Act. The Supreme Court provided a detailed explication of how, in the context of the copyright in computer code, federal courts should assess the four guiding fair use factors set forth in Section 107: (1) the purpose and character of the use; (2) the nature of the copyrighted
Licensing
Licensing – a class in itself!

Intellectual property can be shared through licensing - use by others doesn’t always have to result in a lawsuit!

**Proprietary licenses**: allow the use of IP, typically for the exchange of money or cross-licensing rights

**Open-source licenses**: allow the use of software to promote freely* sharing and encouraging creative works

UW CSE 403 Au23
A dev's guide to open source software licensing

A CRASH COURSE IN LICENSING.

https://github.com/readme/guides/open-source-licensing
Take aways from today

It’s important to be aware of ways YOU can protect your intellectual property

as well as

It’s important to be aware of protection OTHERS may have on IP that you may want to leverage

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