Open Source Software

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COSS C01

Agenda

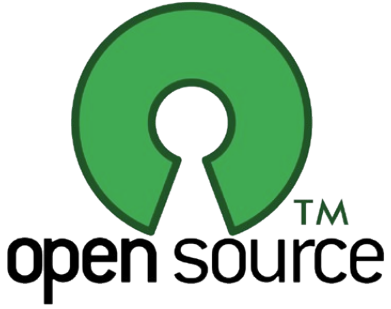
1. Legal definition (open source software)
2. A (very) short history
3. Traditional open source
4. Challenges to traditional open source
5. Open source foundations
6. Open source control mechanisms
7. Community vs. commercial open source

1. What is Open Source Software?

Free and Open Source Software Definition

- Software is **free software** [1] if
  - The user is granted rights to
    - Use, study, modify, and distribute the software
    - Free of charge and other restrictions
- Managed by the Free Software Foundation

- Software is **open source software** [2] if
  - The user is granted rights to
    - Use, modify, and distribute the software
    - Free of charge and other restrictions
- Managed by the Open Source Initiative



- For all practical purposes, free and open source software are the same

[1] See https://www.gnu.org/philosophy/free-sw.html.en
[2] See https://opensource.org/osd

Example Open Source Software

The MIT License (Template)

1. Copyright <YEAR> <COPYRIGHT HOLDER>

2. Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

3. The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

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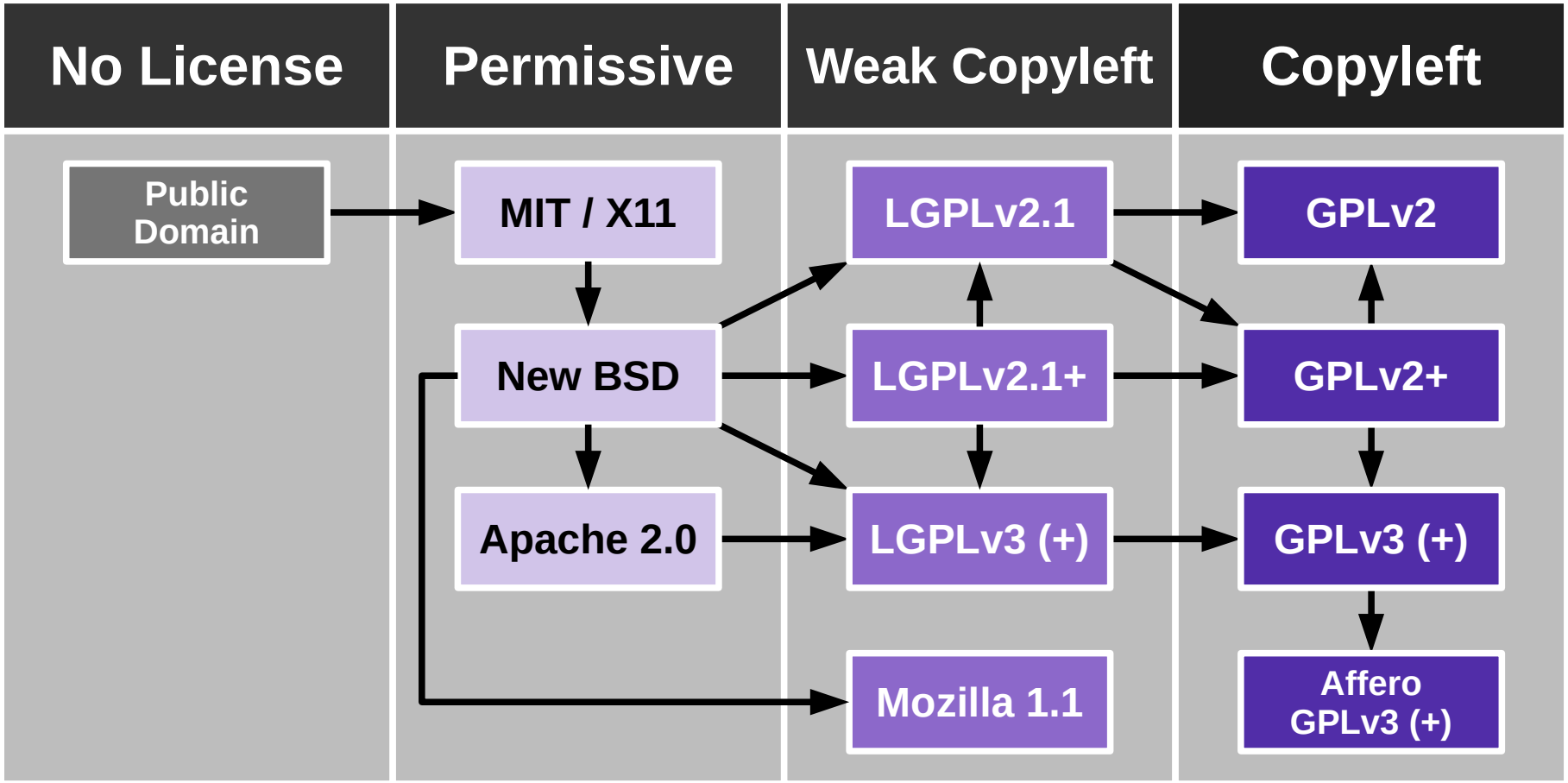
Anatomy of Open Source Licenses

1. Copyright notice
   - The name of the owner and when this work was created and updated
2. Rights grant
   - The rights granted to a user if they fulfill obligations matching the use-case
3. Obligations to fulfill
   - A set of obligations (requirements) before the rights grant becomes valid
4. Prohibitions (none in the MIT license)
   - A set of things the user is prohibited from
5. Disclaimer
   - The usual disclaimer of warranties, guarantees, etc.

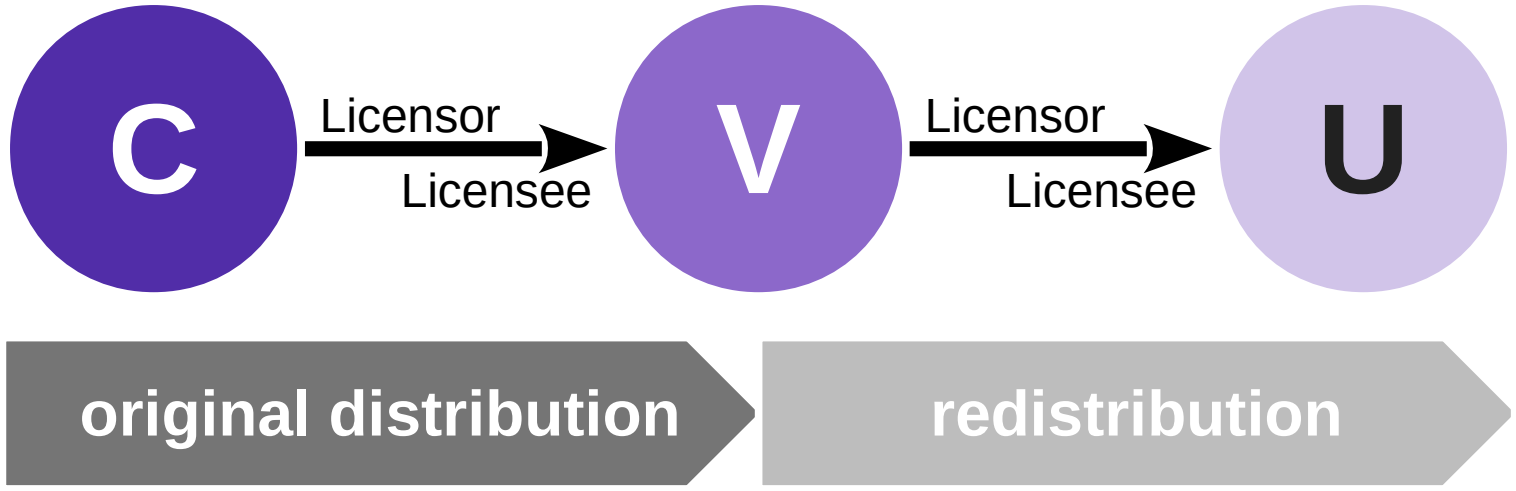
The Most Common Obligations

- Legal notices
  - Provide attribution
  - Provide license text
  - Provide disclaimers
  - Provide additional notices
- Copyleft

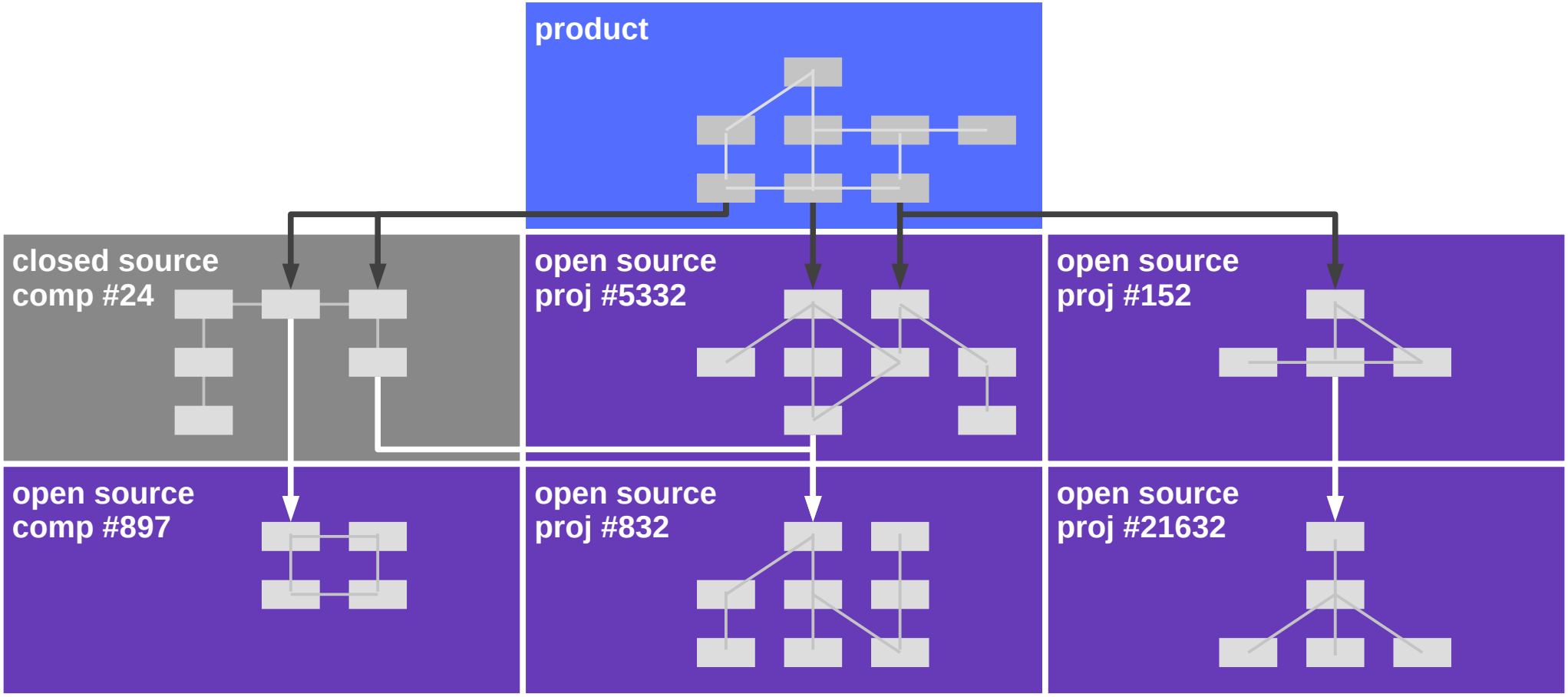
Open Source License Categories and Families



Distribution and Rights Propagation



The Open Source Software Supply Chain



2. A (Very) Short History

Short History of Open Source

- 1960-1979: Not-born-yet (the first era) [LT02]
  - Little or no recognition of software as intellectual property
  - Free sharing of source code, allowing for rapid diffusion and innovation
- 1980-1989: Philosophy (the second era)
  - Founding of the Free Software Foundation by Richard Stallman in 1985
  - Invention of GNU public license for “freeing software”
- 1990-1999: Pragmatism (the third era)
  - Founding of Open Source Initiative in 1998, increased pragmatism
  - Start of growth in number of projects as well as open source licenses
- 2000-2009: Professionalization (the fourth era)
  - Professionalization of open source, away from pure volunteerism
  - Increased focus on commercialization
- 2010-today: Mainstream (the current era)
  - Continued strong growth, simplified access, improved tooling
  - Open source as an on-ramp to the cloud

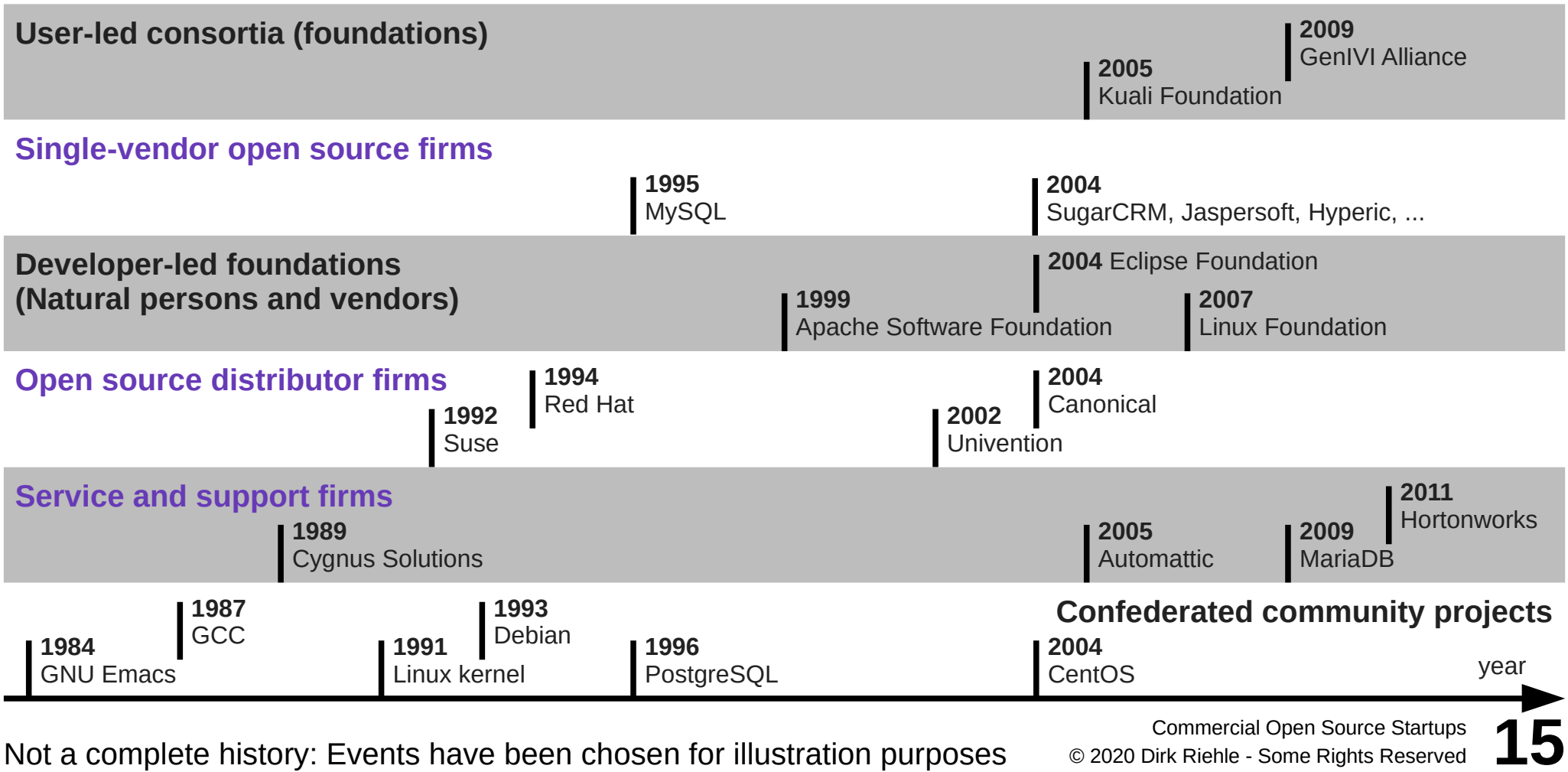
Sustainable Open Source Projects

- Non-profit open source organizations
  - Confederated community projects [1]
  - Open source **vendor-led foundations**
  - Open source **user-led foundations**

- For-profit open source firms
  - **Single-vendor** open source **firms**
  - Open source **distributor firms**
  - **Service and support firms**

[1] See “What to Call Traditional Community Open Source Projects Not Hosted by a Foundation?”

Open Source Project Strata and History



Not a complete history: Events have been chosen for illustration purposes

3. Traditional Open Source Software

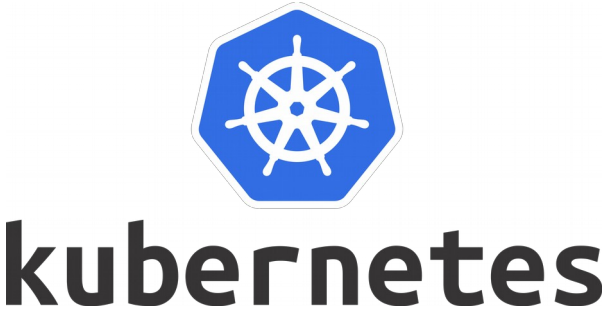
Aspects of an Open Source Project [1]

- Name
- License / rights
- Place

[1] Bad naming: Neither open source software nor their communities are projects

The Name of an Open Source Project

- Uniquely identifies project
- Ideally supported by place / domain
- Should be trademarked
- Often visually supported



The License of an Open Source Project

2009

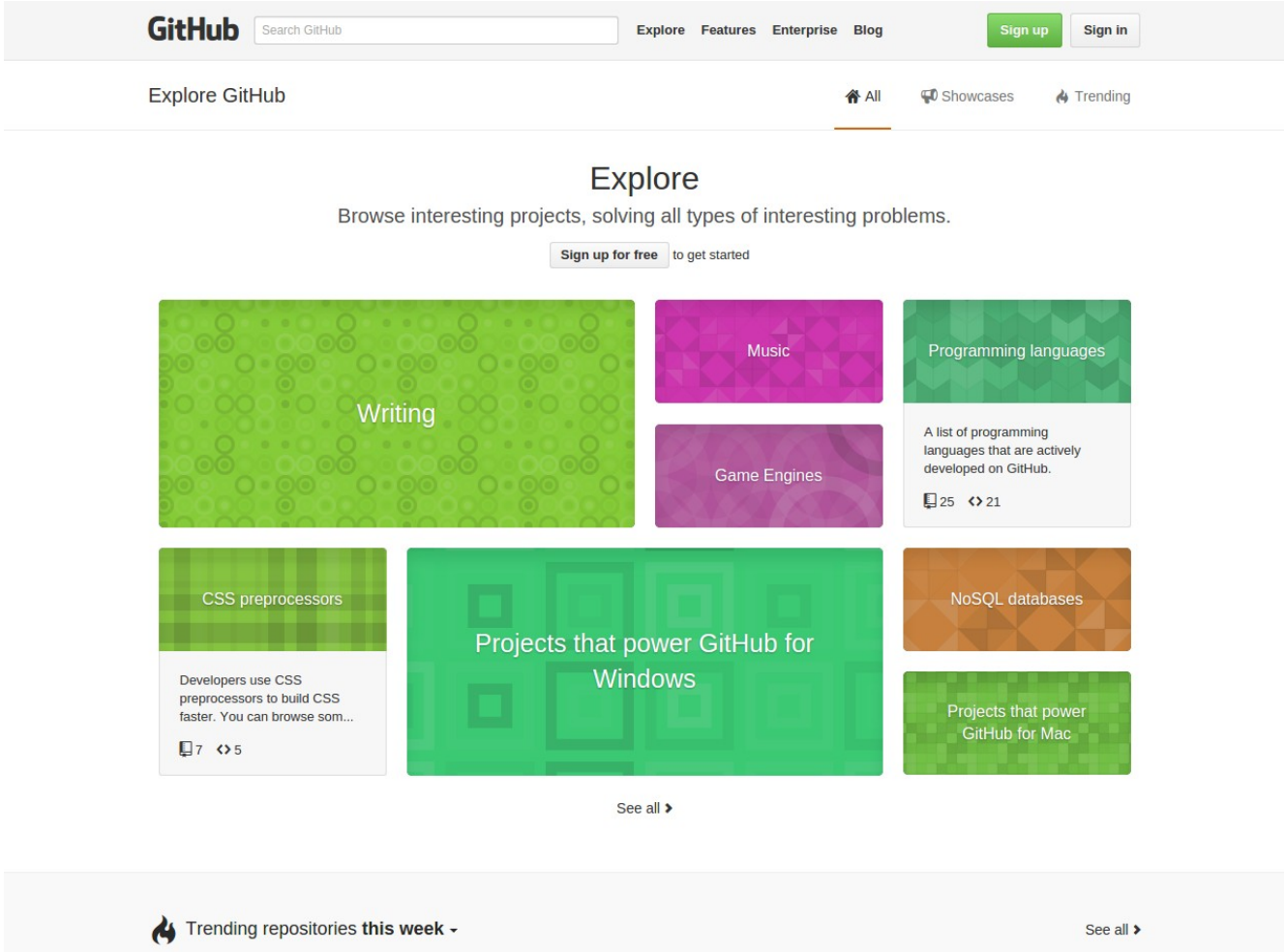
#	Name	Market Share
1	GNU General Public License (GPL) 2.0	52.20%
2	GNU Lesser General Public License (LGPL) 2.1	9.84%
3	Artistic License (Perl)	9.01%
4	BSD License 2.0	6.27%
5	GNU General Public License (GPL) 3.0	4.15%
6	Code Project Open 1.02 License	3.59%
7	Apache License 2.0	3.58%
8	MIT License	3.32%
9	Mozilla Public License (MPL) 1.1	1.25%
10	Common Public License (CPL)	0.64%
11	zlib/libpng License	0.51%
12	Academic Free License	0.43%
13	Eclipse Public License (EPL)	0.40%
14	Open Software License (OSL)	0.37%
15	GNU Lesser General Public License (LGPL) 3.0	0.37%
16	Mozilla Public License (MPL) 1.0	0.30%
17	PHP License Version 3.0	0.28%
18	Ruby License	0.26%
19	Sun Berkeley License (BSD 2+)	0.18%
20	Common Development and Distribution License	0.16%

2016

#	Name	Market Share
1	GNU General Public License (GPL) 2.0	25%
2	MIT License	19%
3	Apache License 2.0	16%
4	GNU General Public License (GPL) 3.0	10%
5	BSD License 2.0 (3-clause, New or Revised)	7%
6	Artistic License (Perl)	5%
7	GNU Lesser General Public License (LGPL) 2.1	5%
8	GNU Lesser General Public License (LGPL) 3.0	2%
9	Microsoft Public License	2%
10	Eclipse Public License (EPL)	2%
11	Code Project Open License 1.02	1%
12	Mozilla Public License (MPL) 1.1	< 1%
13	Simplified BSD LIcense (BSD)	< 1%
14	Common Development and Distribution License	< 1%
15	GNU Affero General Public License v3 or later	< 1%
16	Microsoft Reciprocal License	< 1%
17	Sun GPL with Classpath Exception v2.0	< 1%
18	CDDL-1.1	< 1%
19	zlib/libpng License	< 1%
20	Common Public License (CPL)	< 1%

The Place of an Open Source Project

- Wants to be found
- Wants to explain itself
- Needs to market itself
- Where work gets done



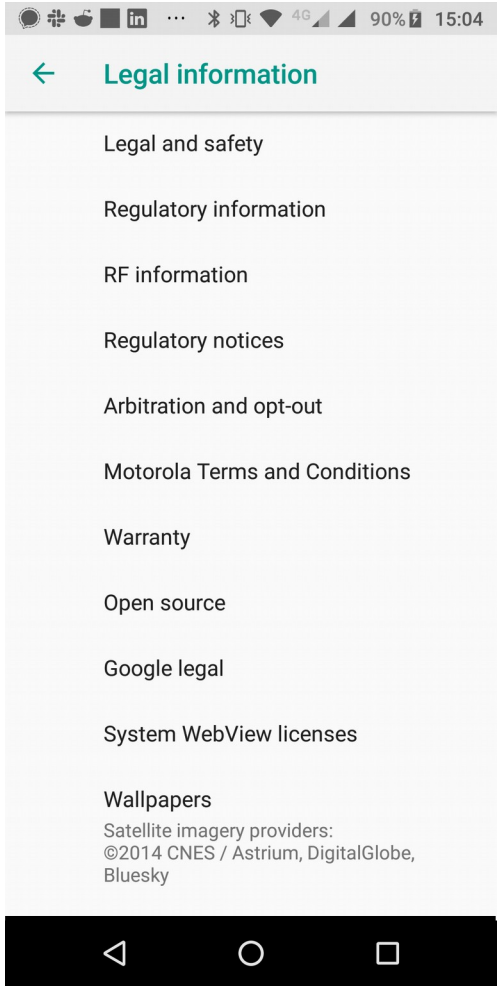
4. Challenges to Traditional Open Source

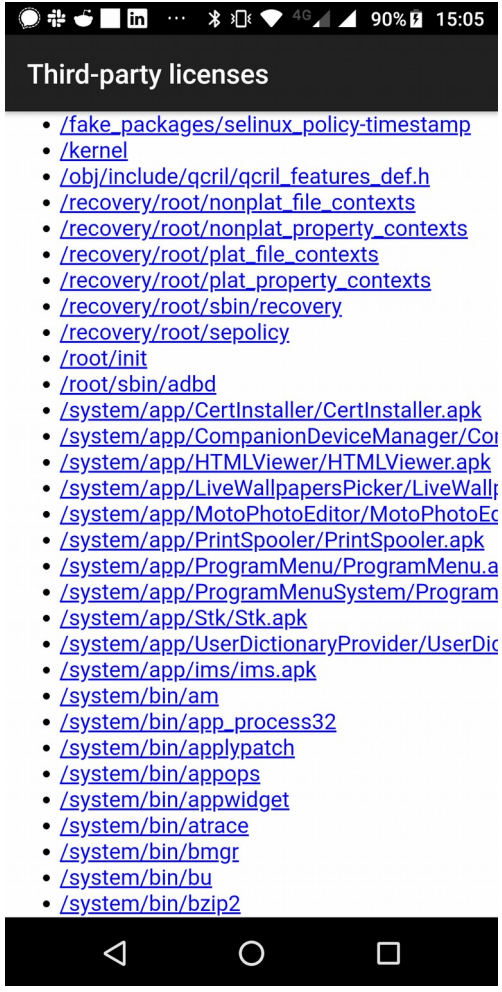
Challenges to Traditional Open Source

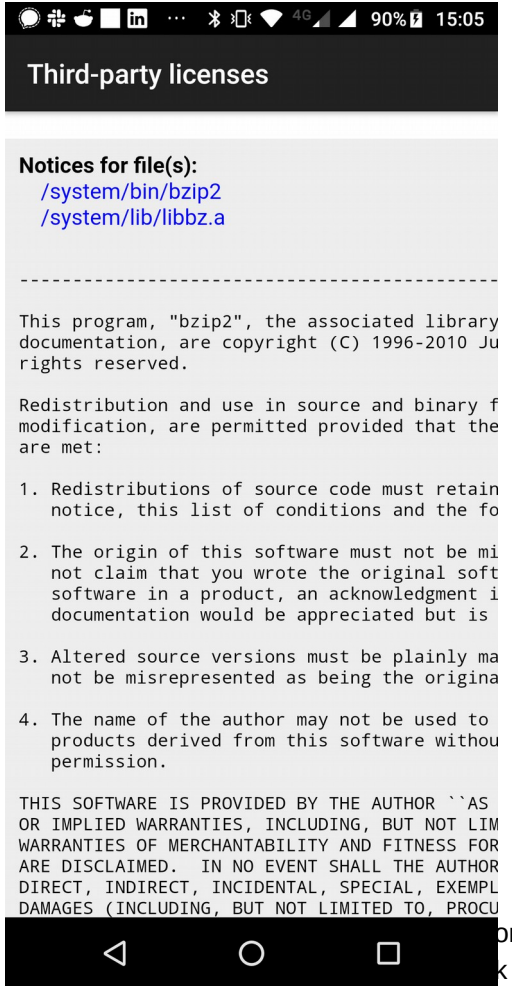
- Challenges to using open source code
  - **Ensuring license compliance**
  - **Ensuring clean intellectual property**
  - **Managing security vulnerabilities**
  - **Managing the technical dependency**
- Challenges to contributing to project
  - Avoiding abuse of contributions
  - Maintaining your interests
- Challenges to building a business
  - **Ensuring access to trademarks**

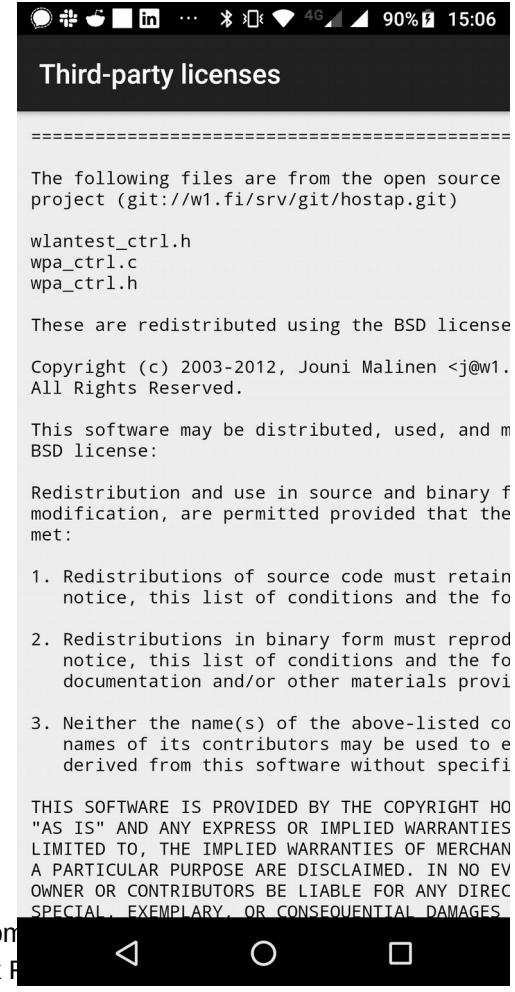
} **Maintaining your interests**

Ensuring License Compliance

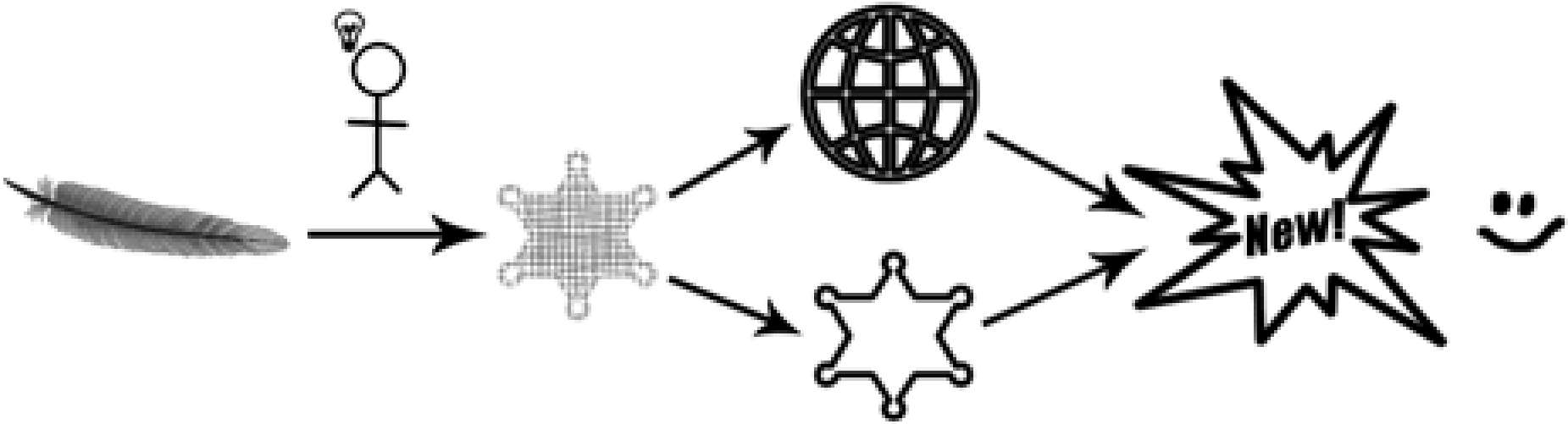






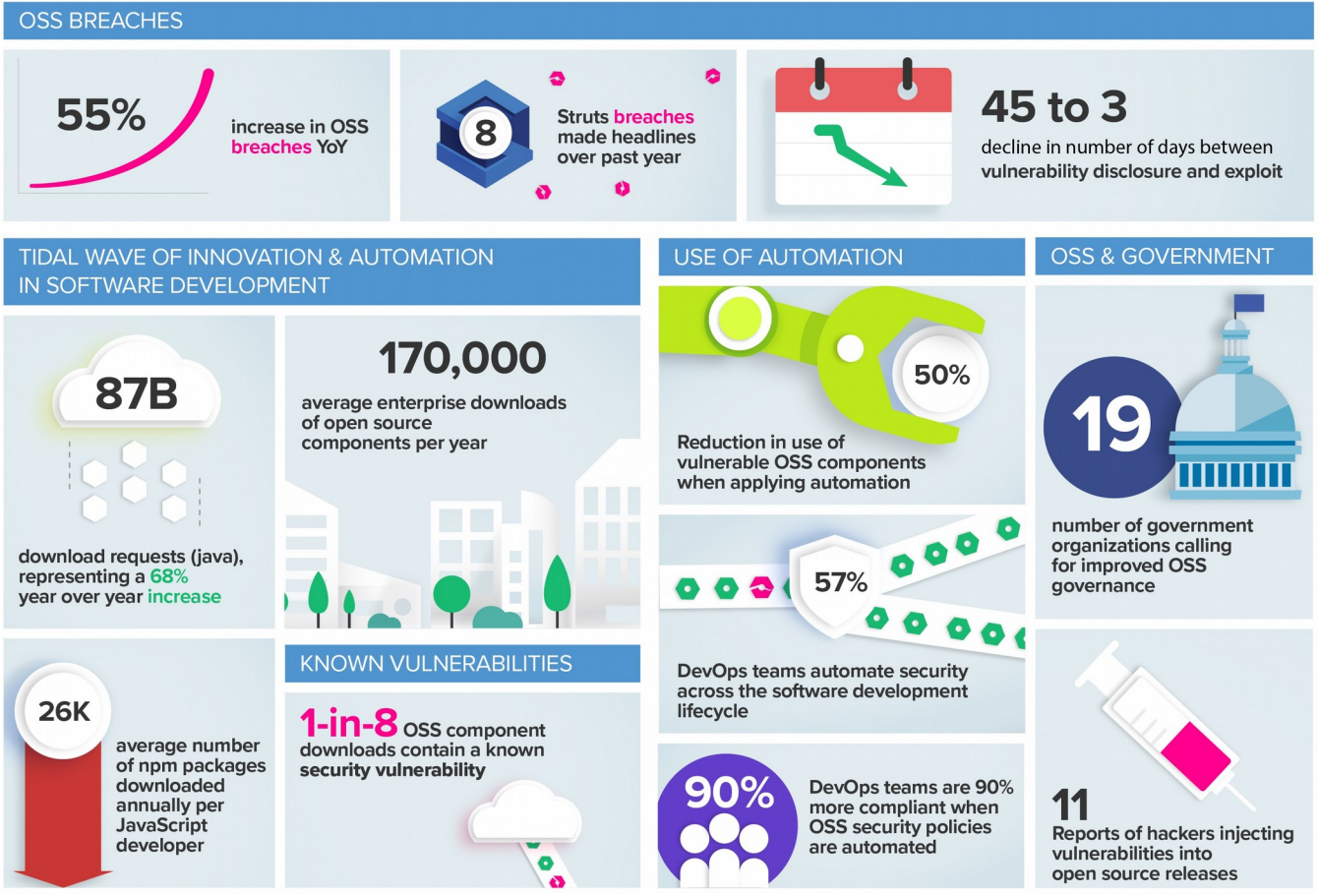


Ensuring Clean Intellectual Property [1]



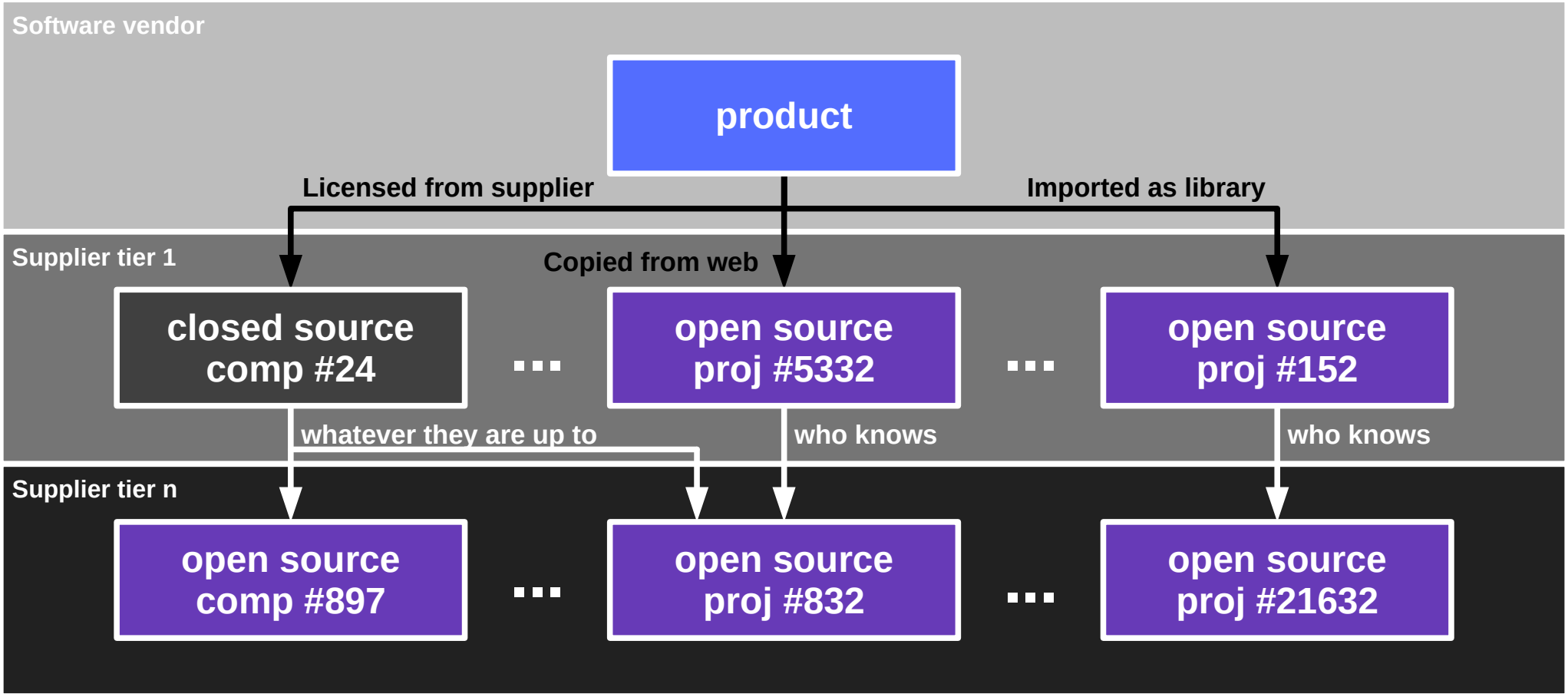
[1] See https://www.eclipse.org/projects/dev_process/ip-process-in-cartoons.php

Managing Security Vulnerabilities [1]

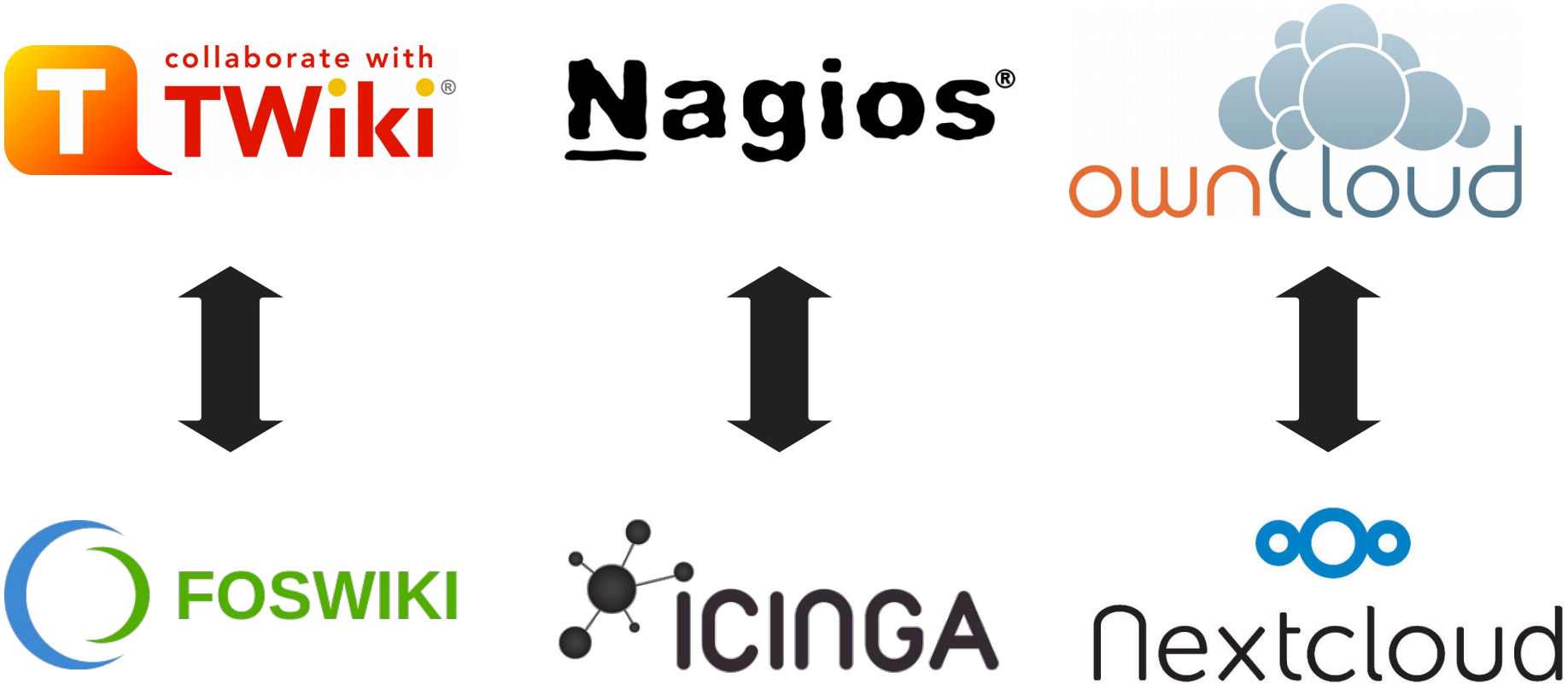


[1] See https://blog.sonatype.com/2018-state-of-the-software-supply-chain-report

Managing the Technical Dependency (Maintaining Your Interests)



Ensuring Access to Trademarks (Maintaining Your Interests)



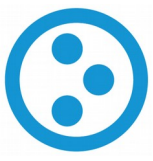
5. Open Source Foundations

Developer-led Open Source Foundations [R10a]

- An **developer-led open source foundation** is
  - a **non-profit organization** (foundation, consortium)
  - with the purpose of **managing and performing the development** of
  - **non-differentiating open source software**
  - made available to foundation members and **the general public**

- Typical members of a developer-led foundation are
  - Individual developers
  - Software vendors
  - Service providers
  - Consulting firms

Example Developer-led Open Source Foundations



Motivation for Developer-led Foundations

1. Support and protect people and their projects
   - Protect developers from lawsuits
   - Accept donations; manage books
   - Legally represent project interests

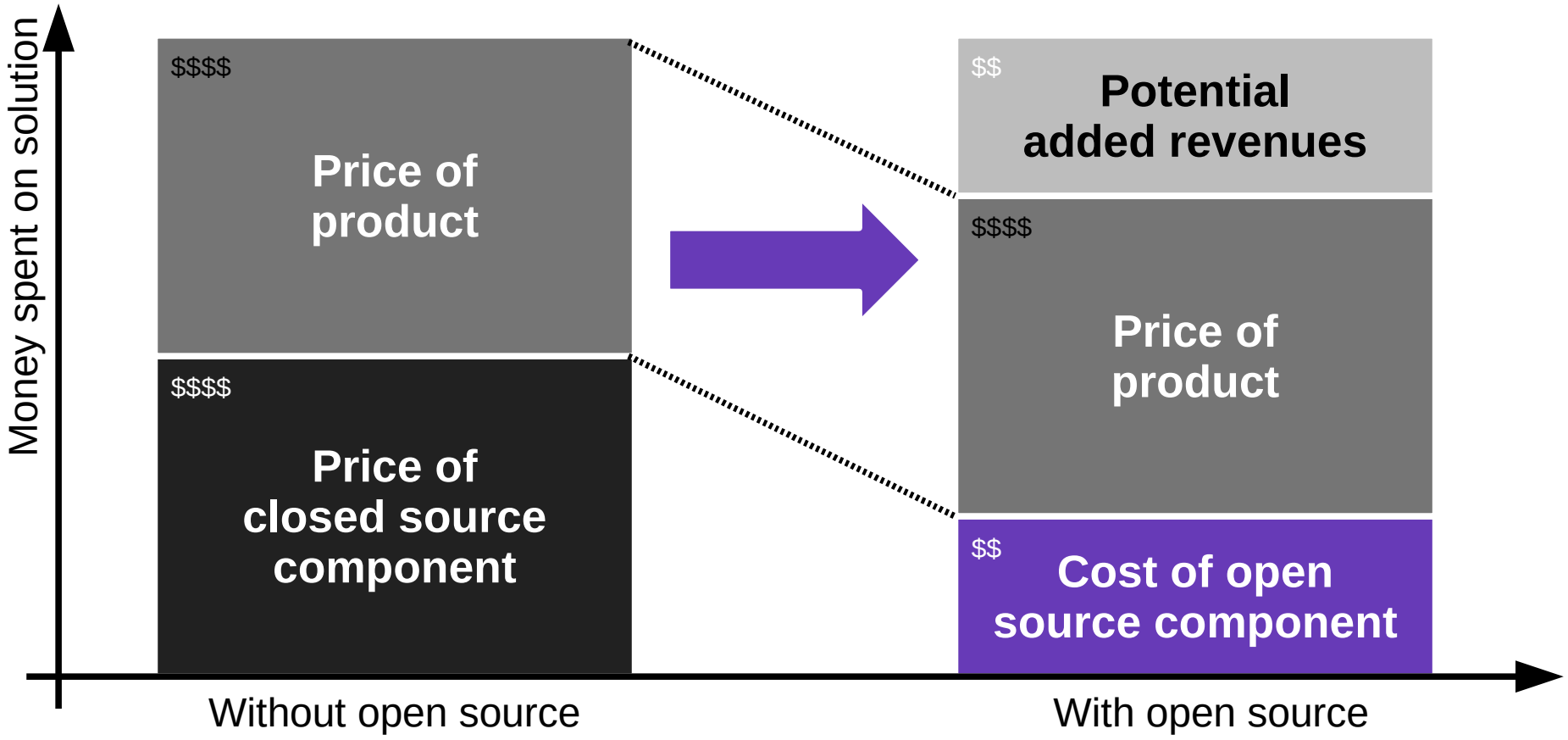
2. Create a stronger more competitive ecosystem
   - Increase share of customer wallet
   - Reach more price-sensitive customers
   - Grow addressable market

3. Create a fair and equal playing field for members
   - Regulate access to intellectual property
   - Regulate access to marketing channels
   - Regulate product roadmap and development

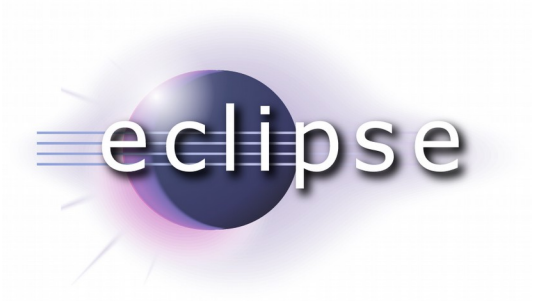
The Apache Software Foundation [A10]

The Apache Software Foundation […] provides **an established framework for intellectual property** and financial contributions that simultaneously **limits contributors potential legal exposure.** Through a collaborative and meritocratic development process, Apache projects deliver […] software products […]

Increase Share of Customer Wallet



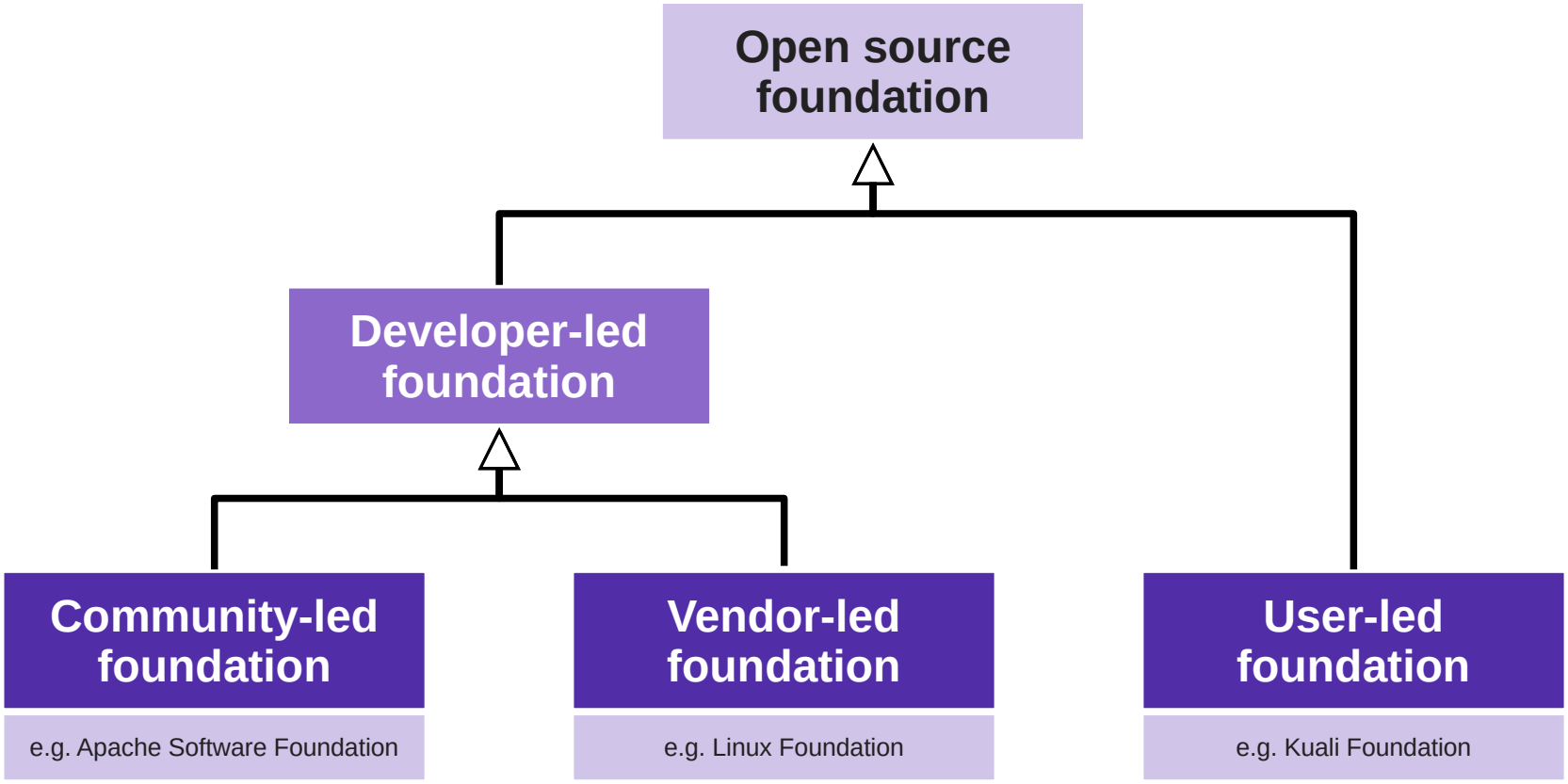
“Ganging Up On The 800lb Gorilla”



Wordpress Foundation [M10b]

The point of the foundation is to ensure free access, in perpetuity, to the software projects […] As part of this mission, the Foundation will be **responsible for protecting the WordPress, WordCamp, and related trademarks.** A 501(c)3 non-profit organization […]

Types of Open Source Foundations



6. Open Source Control Mechanisms

Control Points and Steering Mechanisms [R11]

1. Intellectual property control
    1. Copyright control
    2. Patent ownership
    3. Trademark control
    4. Domain ownership

2. Position of power control
    1. Social leadership
    2. Committer rights

Copyright Control and How it Can be Used

- Set-up
  - You are the only party with full copyright or relicensing right
    - Use a contributor (license) agreement to receive these rights from contributors
- Power
  - You can change the license going forward
    - Including to no open source license at all

Patent Ownership and How it Can be Used

- Set-up
  - You register critical patents used in the software
    - You chose a license without a patent usage rights grant
- Power
  - You can selectively keep people and companies from using the software
    - Or charge for the patent usage right

Trademark Control and How it Can be Used

- Set-up
  - You own one or all relevant trademarks
    - In open source, these are mostly textual and visual marks (logos)
- Power
  - You can pull trademark usage right permissions
    - You force the project to fork and start a new identity

Domain Ownership and How it Can be Used

- Set-up
  - You own the domain and/or identifying properties
    - Related properties are social media accounts etc.
- Power
  - Your can pull access to domains and accounts
    - You force the project to fork and start a new identity

Social Leadership and How it Can be Used

- Set-up
  - You are one or the recognized leader of a project
    - You do not have to be a developer, you just need the social recognition
- Power
  - You can split the project community, diminishing its power
  - You can keep unwanted people out of the project

Committer Rights and How it Can be Used

- Set-up
  - You are a committer (core developer) of the project
- Power
  - You can vote to keep unwanted people out of the project
  - You can delay or reject unwanted contributions
  - You lead the technical direction of the project

Control Points and Steering Mechanisms are Negotiation Tools

- You cannot retroactively revoke the open source license
- Your opponents can always (threaten) fork the project

7. Community vs. Commercial Open Source

Definition of Commercial Open Source

- **Commercial open source software** is open source software that
  - Is being managed and developed by one or more software vendors
    - For the purposes of generating revenues through derived products
- A **commercial open source software vendor** is a software vendor that
  - Manages and develops commercial open source software
- The product itself, sold by a vendor, is never open source software

Community vs. Commercial Open Source

	Community Open Source		Commercial Open Source
	Traditional	Foundation	
Copyright control	Distributed	Foundation	Company
Patent ownership	Individual	Agreement	Company
Trademark control	Individual, if any	Foundation	Company
Domain ownership	Individual	Foundation	Company
Social leadership	Distributed	Distributed	Company
Committer rights	Earned	Earned	Assigned

Summary

1. Legal definition (open source software)
2. A (very) short history
3. Traditional open source
4. Challenges to traditional open source
5. Open source foundations
6. Open source control mechanisms
7. Community vs. commercial open source

Thank you! Questions?

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