Business and Sustainability Models Around Free and Open Source Software

OUCS, 12 January 2009

Event tag: **ossw_fosssustain2009**
Hashtag: **ossw**

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- Housekeeping
- Who are OSS Watch?

http://www.oss-watch.ac.uk
info@oss-watch.ac.uk

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OSS Watch

Objectives for the day

•Understand the varying licensing and community models that underlie free and open source sustainability models.

• Have a greater familiarity with the most commonly-employed sustainability models.

• Recognise where FOSS exploitation strategies may be of value.

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Fundamentals of Free and Open Source Software

Ross Gardler

Slides adapted from a deck created by Rowan Wilson

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What we will cover:

- What is FOSS?
- Some history
- Varieties of FOSS Licence
- How a FOSS project works

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What is FOSS?

- Software
- Software License
- Software development methodology
- High Quality
  - Linux, Apache HTTPD, Firefox, OpenOffice.org, XenSource, MySQL, SugarCRM, Alfresco
- Business model

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What we will cover:

- What is FOSS?
- **Some history**
- Varieties of FOSS Licence
- How a FOSS project works

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Some History (Early days of software)

- Originally specialist software bundled with hardware
- Source code supplied under permissive licences
- Personal computers created a software market
- Bill Gates writes open letter to 'Hobbyists' in 1976:

  "*Hardware must be paid for,*
  but software is something to share...
  Is this fair?"

- Software was sold
  - Some felt this was detrimental to software production

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Some More History (A turning point - 1984)

- Richard Stallman commences GNU Emacs
  - first software from the GNU Project (think GNU/Linux)

- Free Software Foundation (1985)
  - committed to maintaining software 'Freedom' as both a pragmatic and political aim

Free as in Speech (liberty) not free as in beer

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The FSF's Four Freedoms

- The freedom to run the program, for **any purpose**
- The freedom to **study** how the program works, and **adapt** it to your needs
- The freedom to **redistribute** copies so you can help your neighbour
- The freedom to **improve** the program, and **release** your improvements to the public

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Yet More History (Birth of a divide – 1998)

- 'The Cathedral and The Bazaar'
  - Eric Raymond
- Netscape make their browser Free Software
- Open Source Initiative founded (1998)
  - Apolitical, business oriented explanation of the virtues of Free Software
  - Eric Raymond is first president

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Open Source Initiative

- Pragmatic approach to Free Software
  - Open Source term adopted
- Focus on development methodology
- Defines the Open Source Definition
  - Derived from the Debian Free Software Guidelines
- Ten criteria for an open source licence

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Open Source Definition

- Freely Redistributable
- Source Code Included
- Derived Works Permitted
- Integrity of Author's Source Code
- No Discrimination Against Persons or Groups
- No Discrimination Against Fields of Endeavour
- Distribution of Licence (Rights)
- Licence Must Not Be Specific to a Product
- Licence Must Not Restrict Other Software
- Licence Must Be Technology-Neutral (no 'click wrap')

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Open Source Vs. Free Software

- Open Source Initiative:
  - “dump the moralizing and confrontational attitude that had been associated with 'free software' in the past and sell the idea strictly on the same pragmatic, business-case grounds that had motivated Netscape.” http://opensource.org/history
- Free Software Foundation:
  - “For the Open Source movement, non-free software is a suboptimal solution. For the Free Software movement, non-free software is a social problem and free software is the solution.” http://www.fsf.org/licensing/essays/free-software-for-freedom.html

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Open Source Initiative

- 70+ accredited licences
- Licence proliferation committee
  - Reduce confusion
  - Retire “duplicate” licences
  - Categorise licences according to “importance”
    - 9 are 'Licenses that are popular and widely used or with strong communities”

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Any questions so far?

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- **Varieties of FOSS Licence**
- How a FOSS project works

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Varieties of FOSS Licence: Permissive

- Allow inclusion in non-FOSS software
- Suitable where widest uptake is desirable
- Examples of permissive licences are:
  - Modified BSD
  - MIT
  - Academic Free
  - Apache Software Licence

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Varieties of FOSS Licence: Copyleft

- Derivative works, if distributed, must use same licence
- Cannot be incorporated into non-FOSS products
- Suitable when desire is to legally enforce FOSS status
- Examples of copyleft licences:
  - GNU General Public License
  - Open Software License
  - Common Development and Distribution License

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Varieties of FOSS Licence: Partial Copyleft

- Derivative works, if distributed, use same licence
- May be incorporated into non-FOSS products
- Suitable in order to keep a portion of the work FOSS
  - compromise between full copyleft and permissive
- Examples of weak or partial copyleft licences:
  - GNU Lesser General Public License
  - Mozilla Public License
  - Eclipse Public License

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Varieties of FOSS Licence: Badgeware

- Only one 'badgeware' OSI-approved licence
  - Common Public Attribution License
- Adaptation of Mozilla Public License (partial copyleft)
- Derivative must prominently display original author's details or organisation at runtime.

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Any questions so far?

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Copyright Ownership models

- **Centralised ownership**
  - Copyright is owned by the project owner
  - Contributors assign copyright to project owner
  - Project owner releases under chosen FOSS licence
- **Aggregated ownership**
  - Copyright owned by original authors
  - Contributors license their code to project owner
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A Flawed Copyright Ownership model

- **Distributed ownership**
  - Contributions individually licenced as FOSS
  - Common in the academic world
    - Collaboration Agreements
- ***Don't use this model***
  - Legal action against infringers hard to coordinate
  - Legal action against project requires coordination from defendants
  - Outbound licence changes require agreement from all

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Contributor Agreements and Governance

- Contributor Licence Agreements (CLA) required
  - Solve problems of distributed ownership
- Can be a barrier to contribution so keep them simple
- Well-run projects need a clear contribution policy
  - what agreement is needed?
  - who can commit?
  - who decides what code is included in the release?
  - And more..
- info@oss-watch.ac.uk

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Employees, Academics and Contractors

- Who owns “internal” contributions?
  - Employment contracts
  - IP Policies
  - Consultancy contracts
- Default position is that:
  - Employers own employees work
  - Contractors own their own work
- Academics often own their copyrighted work
  - See contract and policies

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Versioning and IP Management

- Version Control software is critical
  - Facilitates distributed team development of software
  - Track contributions and manage IP
- A critical tool in even a single developer project

In OSS Watch's experience, many software development projects based in UK education have problems with recording ownership information accurately, leading to problems when the time comes to release.

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The Role of Community

- Open Source is a development methodology

"Open source is a development method for software that harnesses the power of distributed peer review and transparency of process." - *http://www.opensource.org/*

- FOSS licences protect the development model
  - Irrevocable licence
  - Open governance
  - Managed IP

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Is FOSS always Community Led?

- FOSS business models may not build community
  - Some business models use FOSS as a marketing
- Does this matter? Do you believe the promise of FOSS?

  "The promise of open source is better quality, higher reliability, more flexibility, lower cost, and an end to predatory vendor lock-in." - *http://www.opensource.org/*
- Whether community is important or not is dependant on:
  - your business model (Open Source), and/or
  - your ethics (Free Software)

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Any questions so far?

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Thank you

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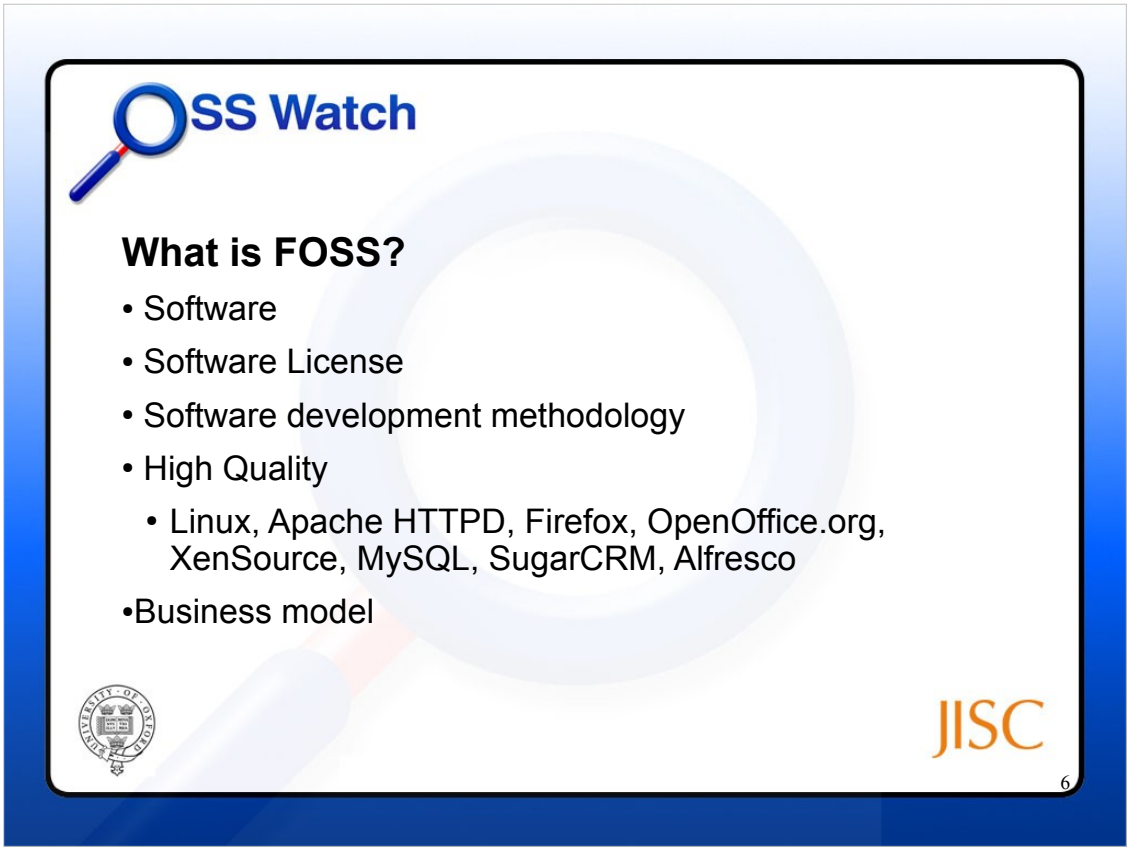

•Software that anyone has the right to use, adapt and distribute

• Adaptation is achieved by giving users access to the software's source code

• These rights are transmitted via copyright licensing

• It is often available at minimal or no cost

• It is often maintained and developed by a community of interested parties who may or may not be salaried for their work

• It has an increasingly high public profile and market share (linux, apache httpd, firefox, open office, xensource)

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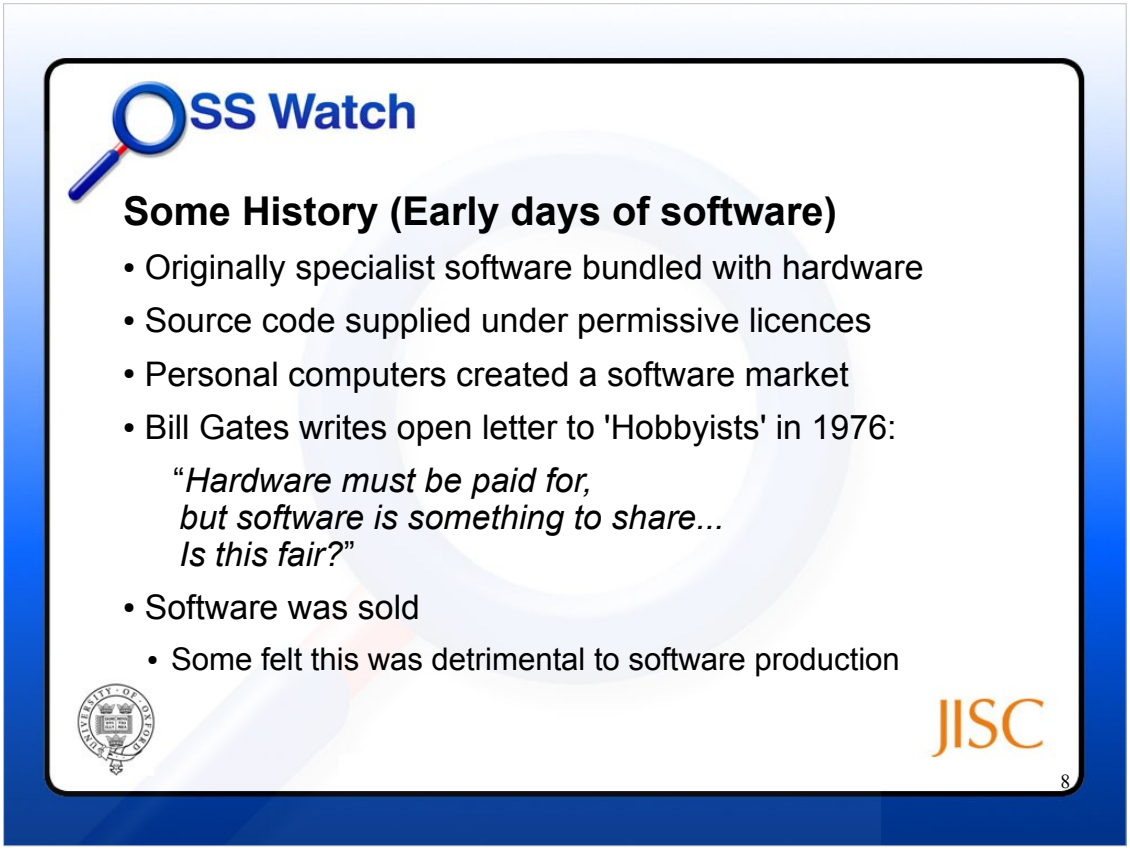
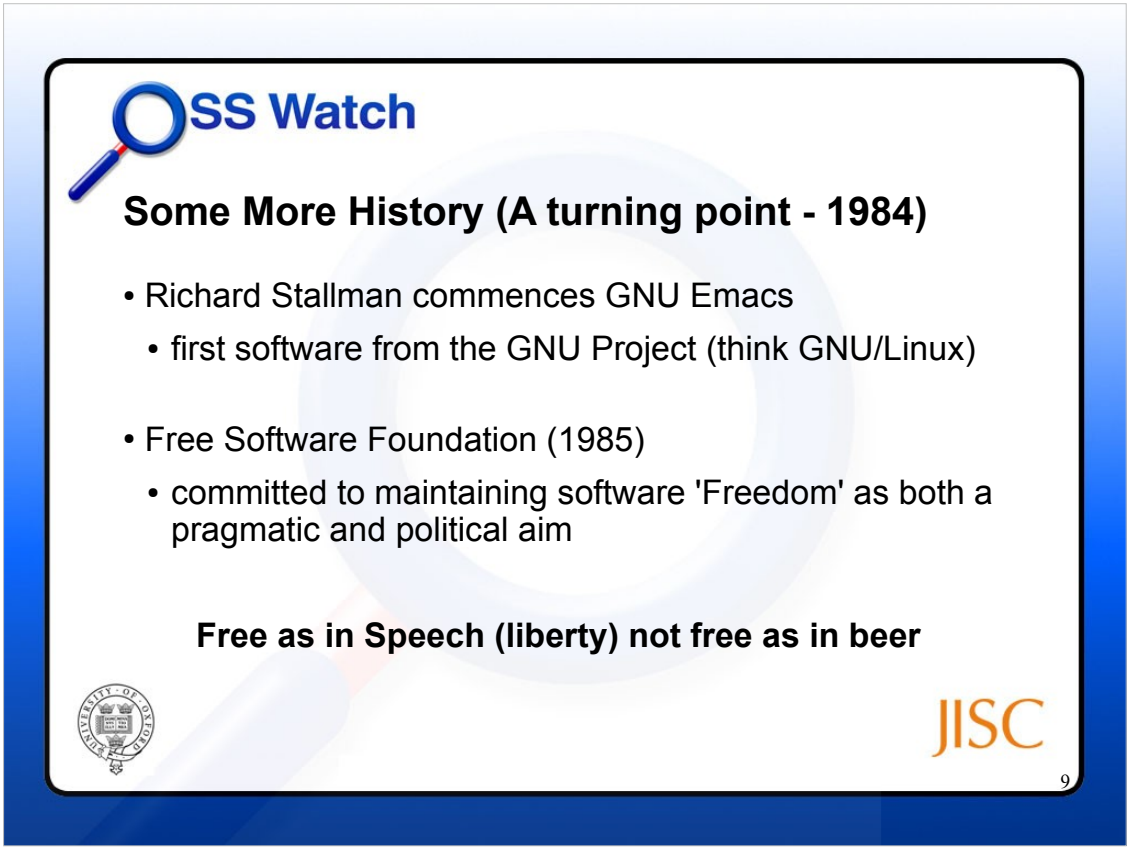
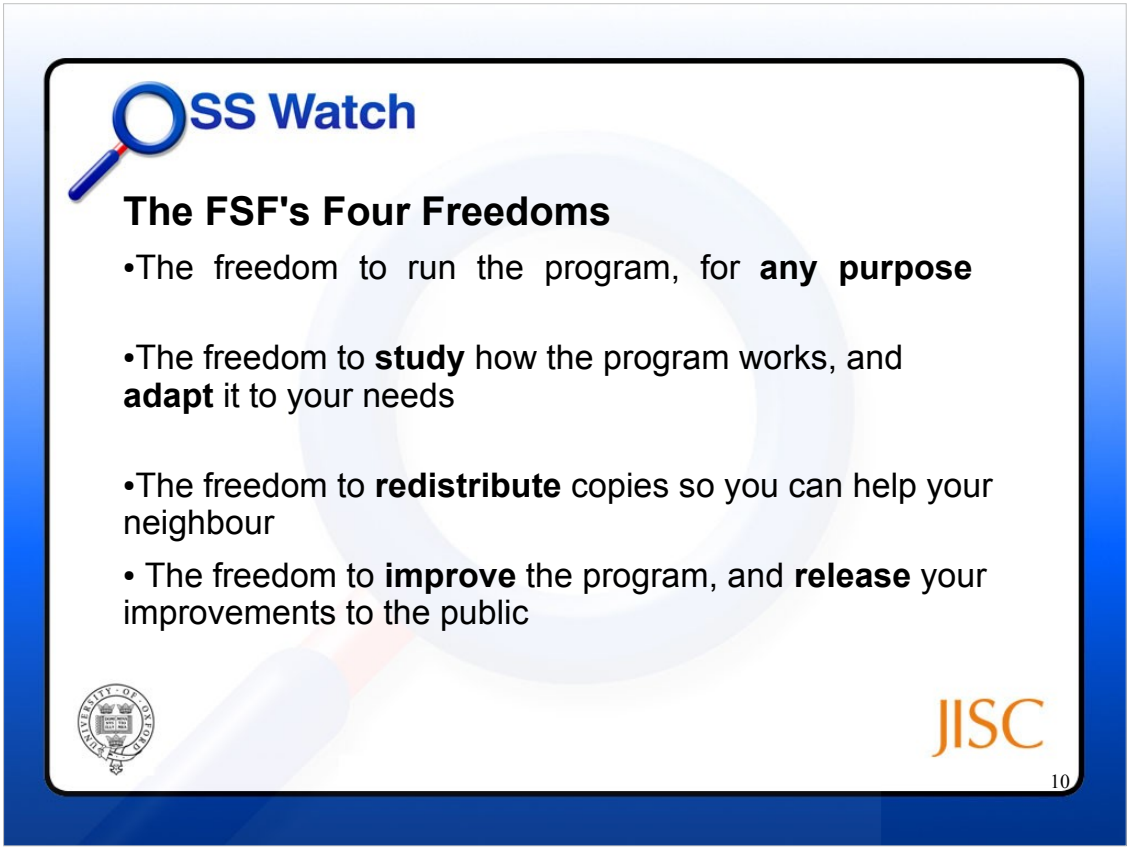


- Until the mid 1970s most software thought to have little intrinsic value
- Exchange of software and its source code was the norm, packaged with expensive hardware under permissive licences
- Advent of personal computers in late 1970s changed the perception of software's value
- Bill Gates writes open letter to 'Hobbyists' in 1976:

  "*Hardware must be paid for, but software is something to share... Is this fair?*"
- Software became productized, source access closed off
- Many developers, particularly within academic communities, felt that this was detrimental to software quality

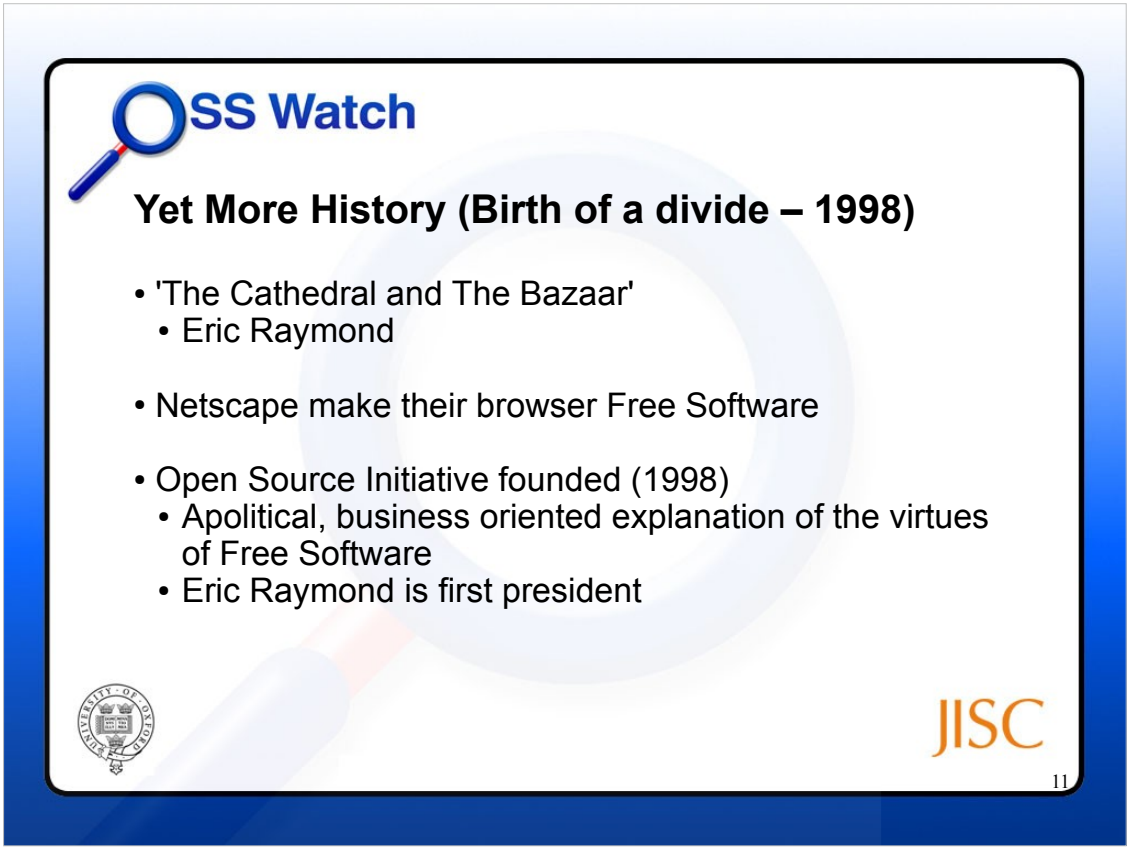


- As a result of the 'closure' of the source code to Emacs in 1985, MIT Artificial Intelligence researcher Richard Stallman rewrote the software and made his version available under a new kind of licence, drafted by himself
- His licence prevented re-licensing under variant terms and mandated that derivative works, if distributed, must carry the same licence
- Stallman founded the Free Software Foundation at the same time, committed to maintaining software 'Freedom' as both a pragmatic and political aim
- Due to an unfortunate semantic collision in English, the use of 'Free' is widely and incorrectly thought to refer to price, not liberty (beer vs speech)



The FSF's Four Freedoms

- *The freedom to run the program, for any purpose (**freedom 0**).*
- *The freedom to study how the program works, and adapt it to your needs (**freedom 1**). Access to the source code is a precondition for this.*
- *The freedom to redistribute copies so you can help your neighbor (**freedom 2**).*
- *The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (**freedom 3**). Access to the source code is a precondition for this.*



- In late 1997 Eric Raymond gave a paper at the O'Reilly Perl Conference called 'The Cathedral and The Bazaar'
- In early 1998, partly as a result of the success of Raymond's paper, Netscape decides to release the source code of its struggling web browser to the world
- Some within the Free Software community decide that Raymond's apolitical, business-oriented explanation of the virtues of the Free Software and permissive licences ought to have an advocacy group
- In February 1998 the Open Source Initiative is founded, with Raymond as its first president. The term 'Open Source' begins to be widely used, having been borrowed from the vocabularies of journalism and intelligence.

Open Source Initiative

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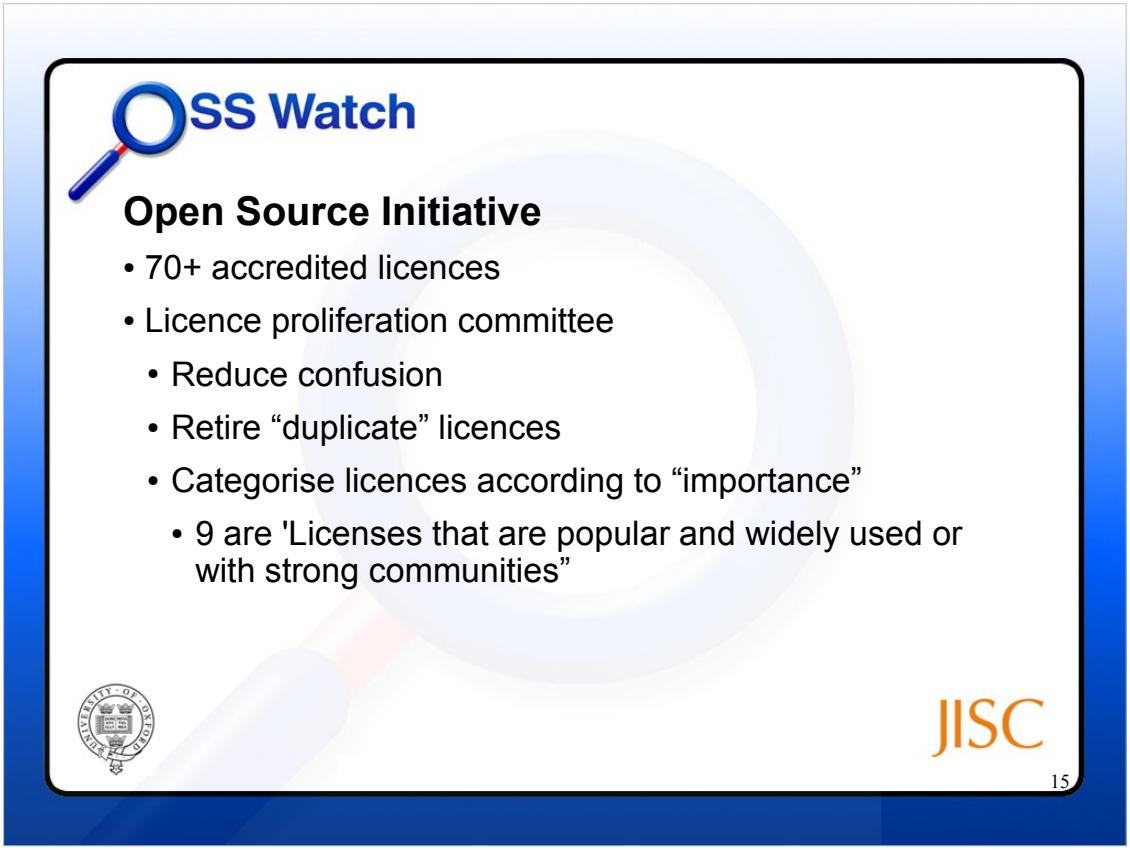

- Seventy two licences are currently accredited by the OSI as meeting these criteria
- The most commonly used are the BSD (permissive) and the GPL (copyleft)
- The sheer number of OSI-approved licences is officially considered a problem, and the OSI is working to reduce this number through retiring some licences which duplicate the functionality of others. Recently the OSI has categorised their licences with a result that just nine achieve the description of 'Licenses that are popular and widely used or with strong communities”
- For practical purposes OSS Watch defines its remit with reference to the OSI approved licence list

Any questions so far?

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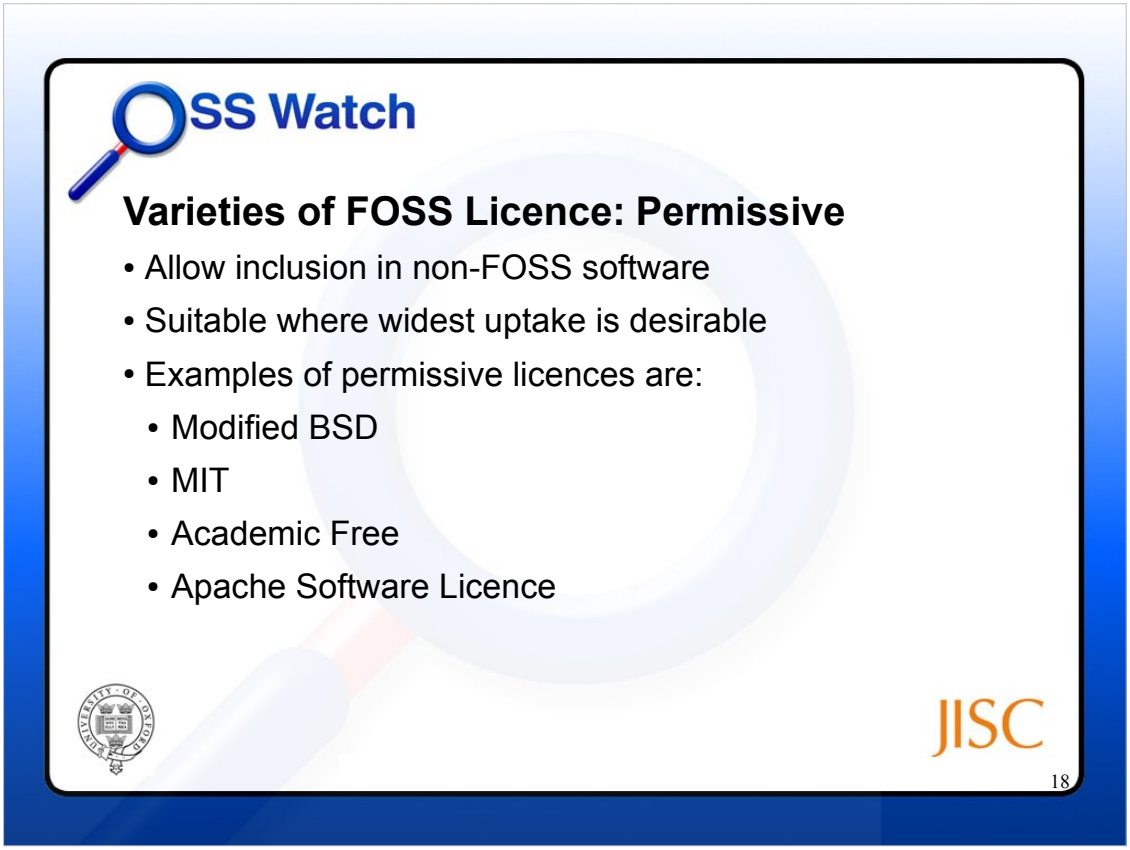
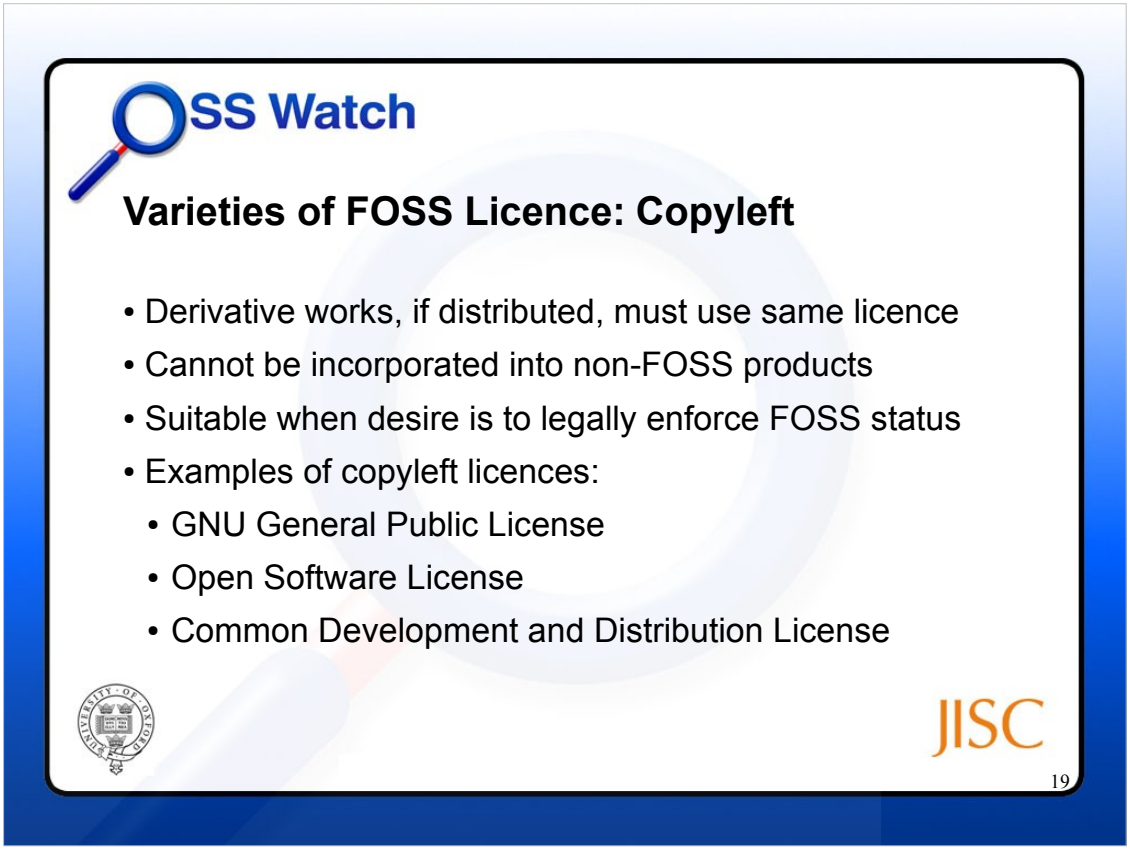


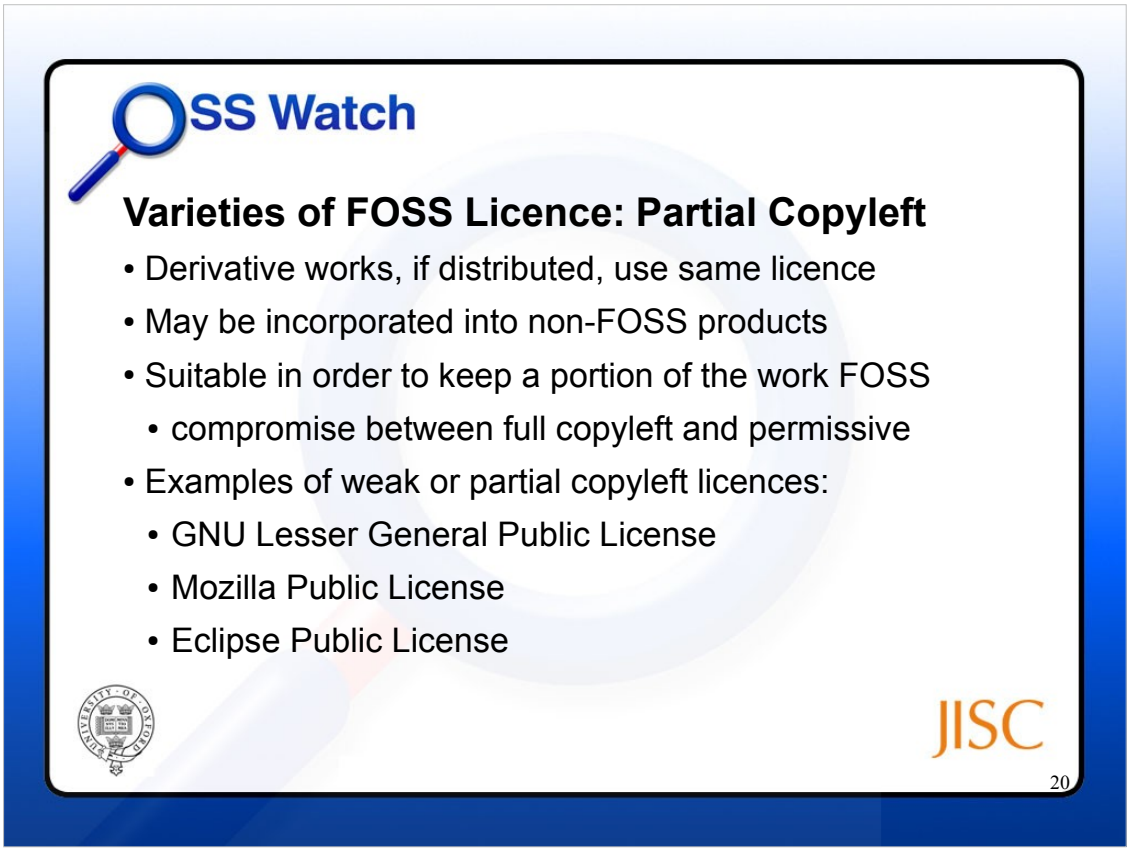
Permissive

- Provide a broad grant of the author's rights under copyright, with few conditions attached
- Potential conditions include attribution of the original author, inclusion of original exclusions of warranty and liability, indemnification of original authors against losses caused by the distributor's adaptations etc
- Permissive licences do not prevent the incorporation of the code they cover within non-FOSS works
- They are particularly suitable for code where the author's primary objective is wide uptake – for example code implementing a proposed standard
- Examples of permissive licences are the BSD, MIT, Academic Free and Apache Software Licences



Copyleft

- Provide a broad grant of the author's rights under copyright, under the condition that any adaptation of the work, if distributed, must bear the same licence
- Copyleft licences prevent the incorporation of the code they cover within proprietary works by others
- They are particularly suitable for code where the author's primary objective is keeping their work and adaptations of their work Free and Open
- Examples of copyleft licences are the GNU General Public License, the Open Software License and the Common Development and Distribution License

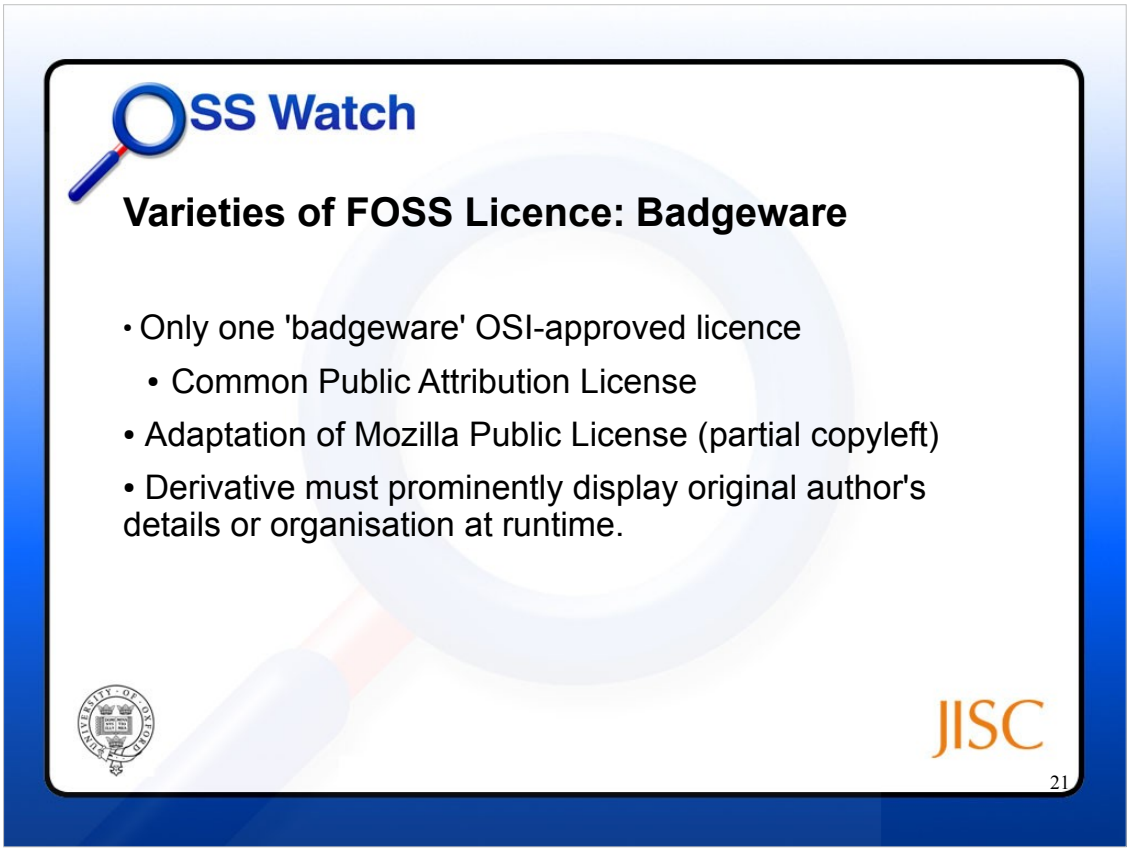


•Provide a broad grant of the author's rights under copyright, under the condition that some adaptations (or parts of adaptations) of the work, if distributed, must bear the same licence

• They are generally drafted as full copyleft with some exclusions, facilitating the creation of hybrid works containing some weak or partial copyleft code and some code

• They are particularly suitable for code where the author's primary objective is keeping a portion of their work Free and Open, while allowing some with non-Free, non-Open code to be integrated and distributed with it.

• Examples of weak or partial copyleft licences are the GNU Lesser General Public License, the Mozilla Public License and the Eclipse Public License



Badgeware

- Currently there is only one 'badgeware' OSI-approved licence: the Common Public Attribution License
- It is an adaptation of the partial copyleft licence the Mozilla Public License
- It mandates that any adapted version of the covered work must prominently advertise the original author's details or organisation at runtime.
- This goes beyond any other FOSS licence's attribution requirements

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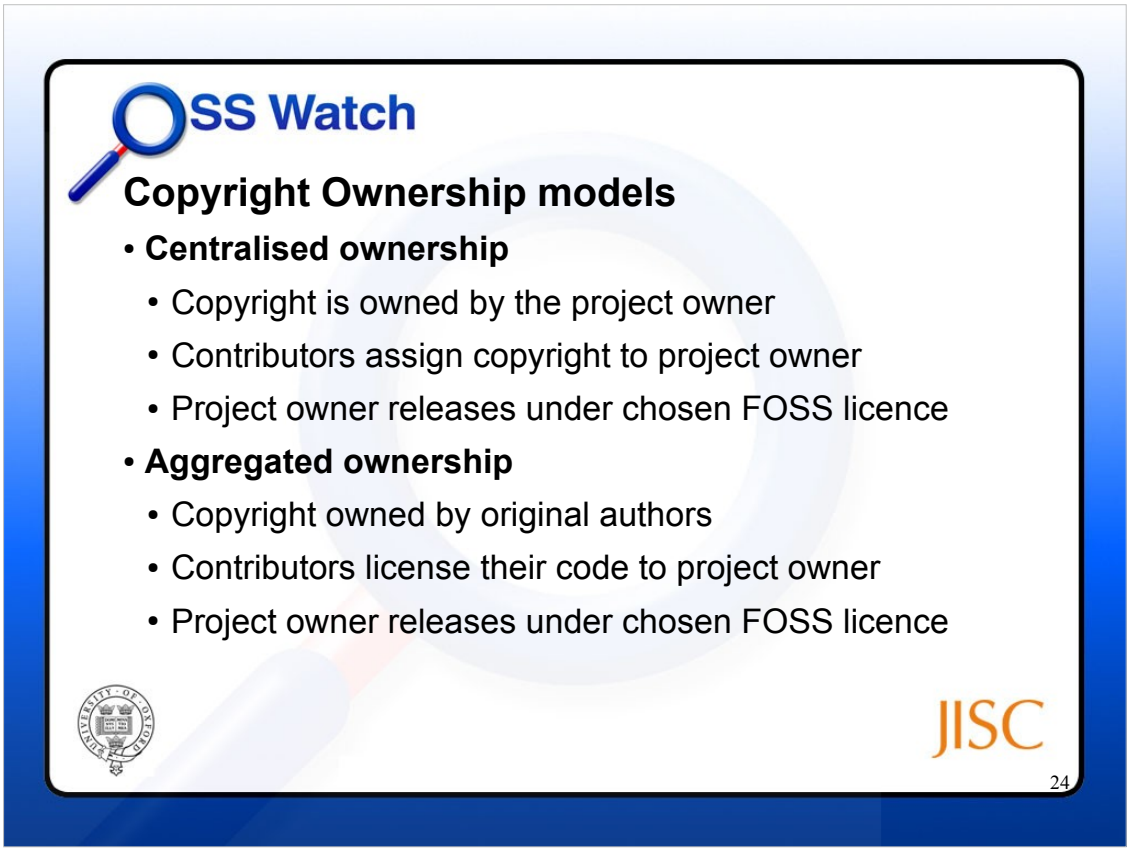

Ownership models

- **Centralised ownership** – anyone who wants to get code into the core project must assign ownership of their code to the project owner, who then licenses out to the world under the selected FOSS licence.
- **Aggregated ownership** – contributors license their code to the project owner, who then licenses (and sub-licenses) out to the world under the selected FOSS licence.
- **Distributed ownership** – all contributors and project owner license their particular contributions out to the world under the selected FOSS licence.

A Flawed Copyright Ownership model

- **Distributed ownership**
  - Contributions individually licenced as FOSS
  - Common in the academic world
    - Collaboration Agreements
- ***Don't use this model***
  - Legal action against infringers hard to coordinate
  - Legal action against project requires coordination from defendants
  - Outbound licence changes require agreement from all

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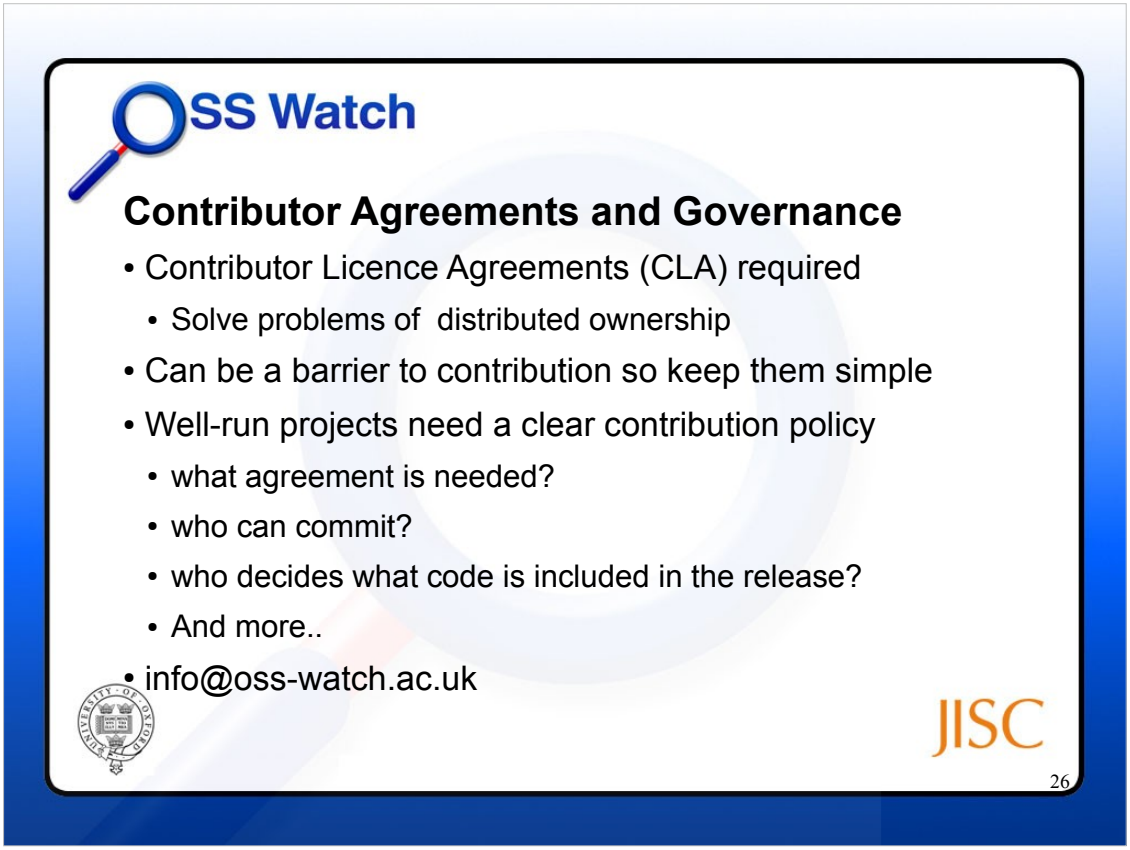
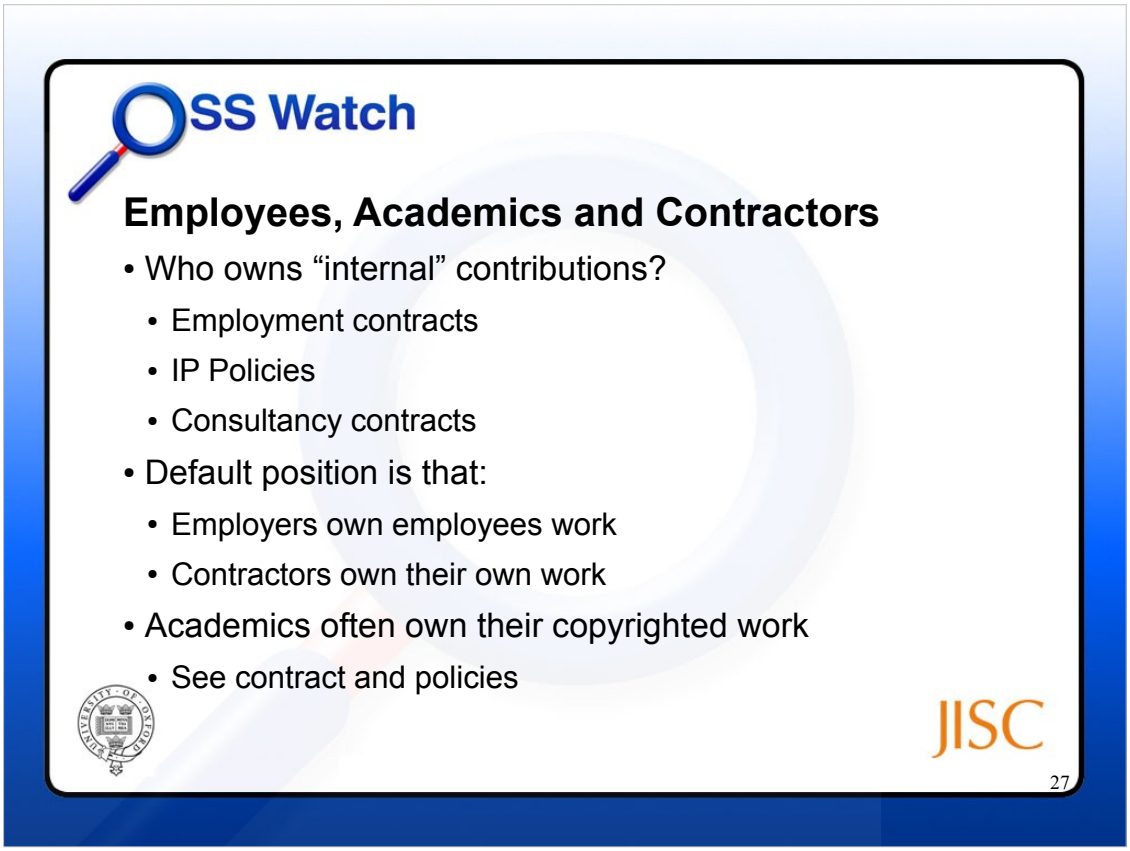


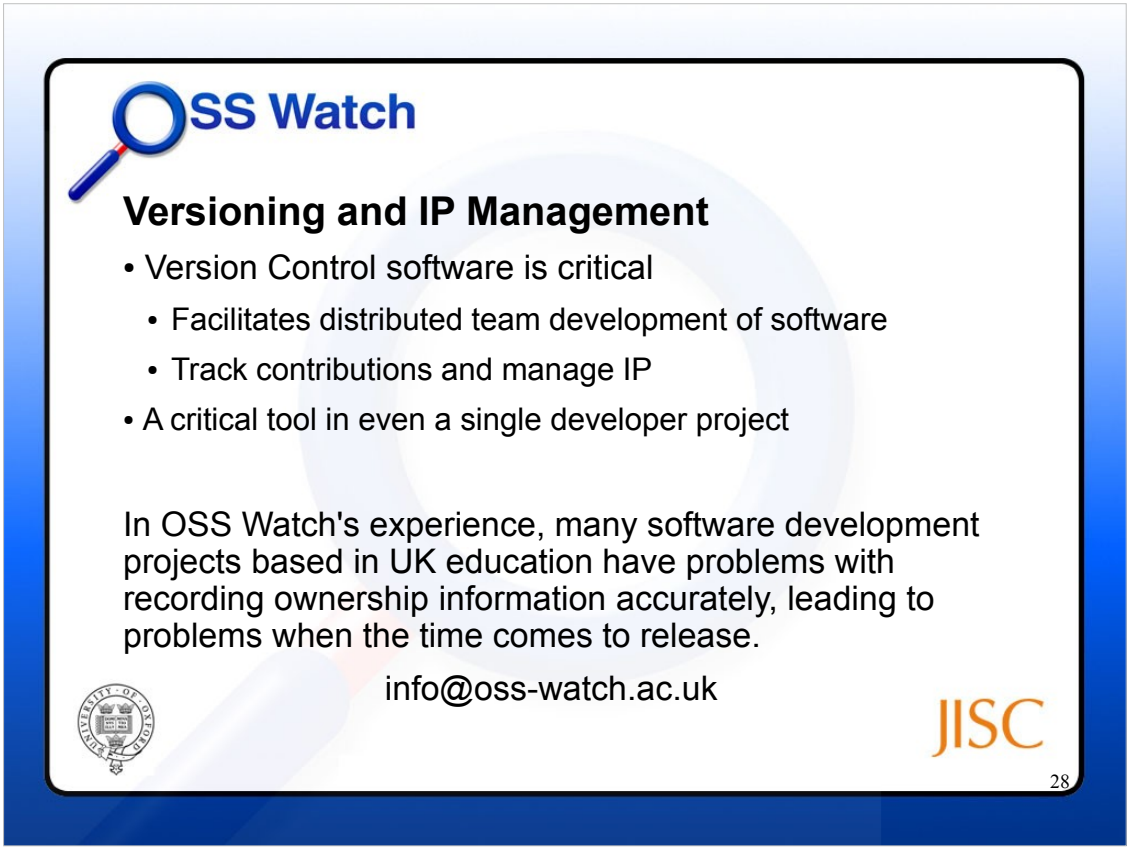
Contributor Agreements and Governance

- In the case of centralised and aggregated ownership models, some kind of agreement is required between contributors and the project owner.
- Such agreements can simplify administration (outbound licence changes, legal action against infringers) but will put off some contributors
- A well-run project needs to clearly formulate and state its policy for contributions – what agreement is needed? who can commit? who decides what code is included in the release?
- OSS Watch strongly recommends that projects write a simple governance statement and draft any necessary contributor agreements as early as possible



Employees, Academics and Contractors

- In addition to external contributors, a FOSS project needs to analyse and record the ownership status of code coming from more 'internal' contributors
- Employment contracts, IP policies and consultancy contracts can be examined to determine these details.
- By default, employers own the work that they employ others to create, whereas contractors own their work by default unless the contract in question says otherwise.
- Employment contracts for academic staff will tend to give them ownership of some categories of copyright work they create in the course of their academic work. Do not assume that this will be the case, however. Read your contract and institutional policies!



Versioning and IP Management

- One of the key pieces of technology that enables distributed and open development is Version Control software
- As well as enabling smooth development, versioning systems can be used to keep track of the ownership and licensing status of code within a project, linking logins to a database of contributor details
- In OSS Watch's experience, many software development projects based in UK education have problems with recording ownership information accurately, leading to problems when the time comes to release.

The Role of Community

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