Welcome to CCT490!

Understanding Open Source Software Production

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University of Toronto
September 8, 2010

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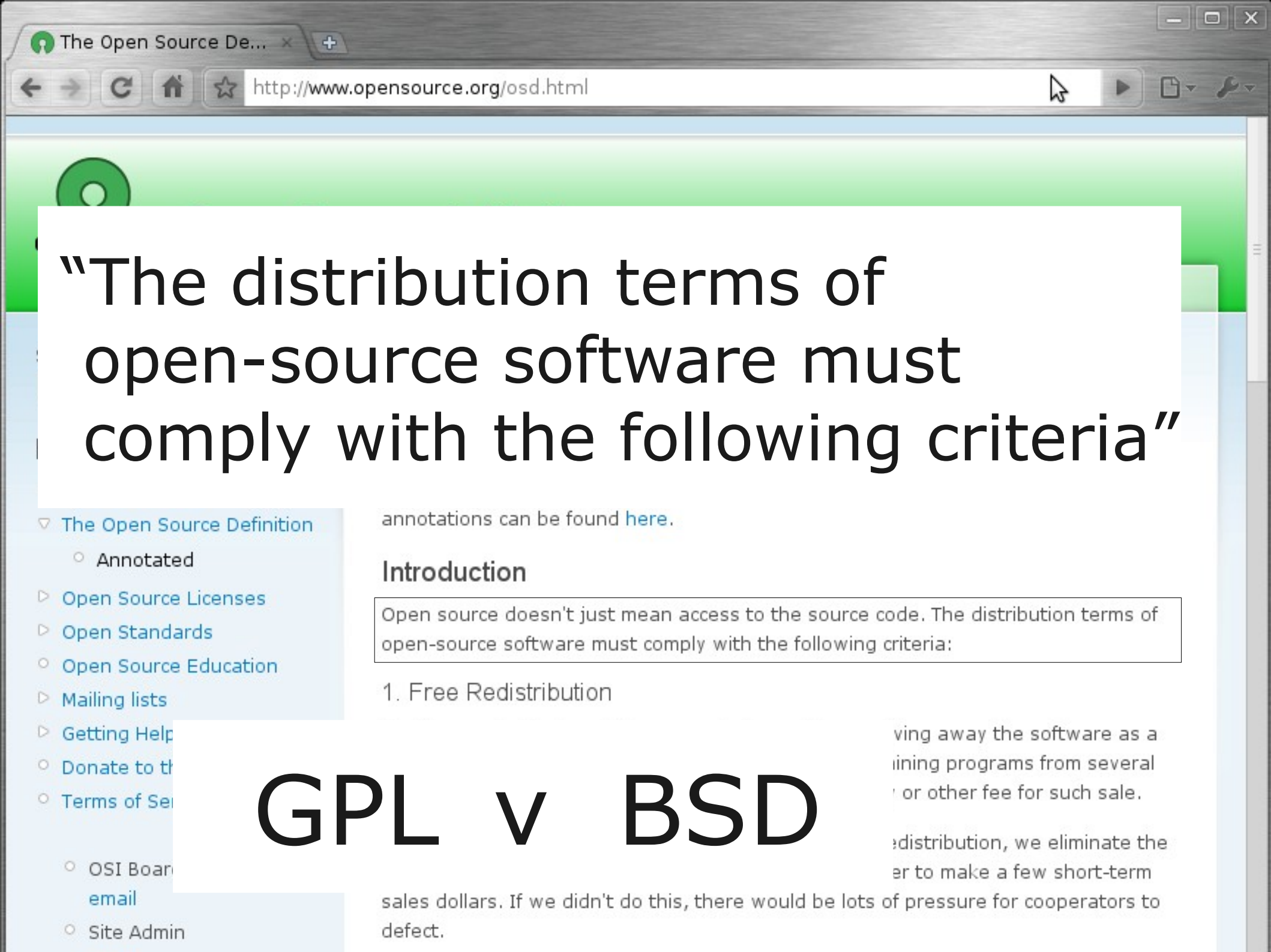
What is “Open Source Software”?

Let’s look at the Open Source Definition!


The Open Source De...
http://www.opensource.org/osd.html
"The distribution terms of open-source software must comply with the following criteria"
The Open Source Definition
Annotated
Open Source Licenses
Open Standards
Open Source Education
Mailing lists
Getting Help
Donate to th
Terms of Se
OSI Boar
email
Site Admin
annotations can be found here.
Introduction
Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria:
1. Free Redistribution
ving away the software as a
ining programs from several
or other fee for such sale.
edistribution, we eliminate the
er to make a few short-term
sales dollars. If we didn't do this, there would be lots of pressure for cooperators to defect.
GPL v BSD

1. Free Redistribution

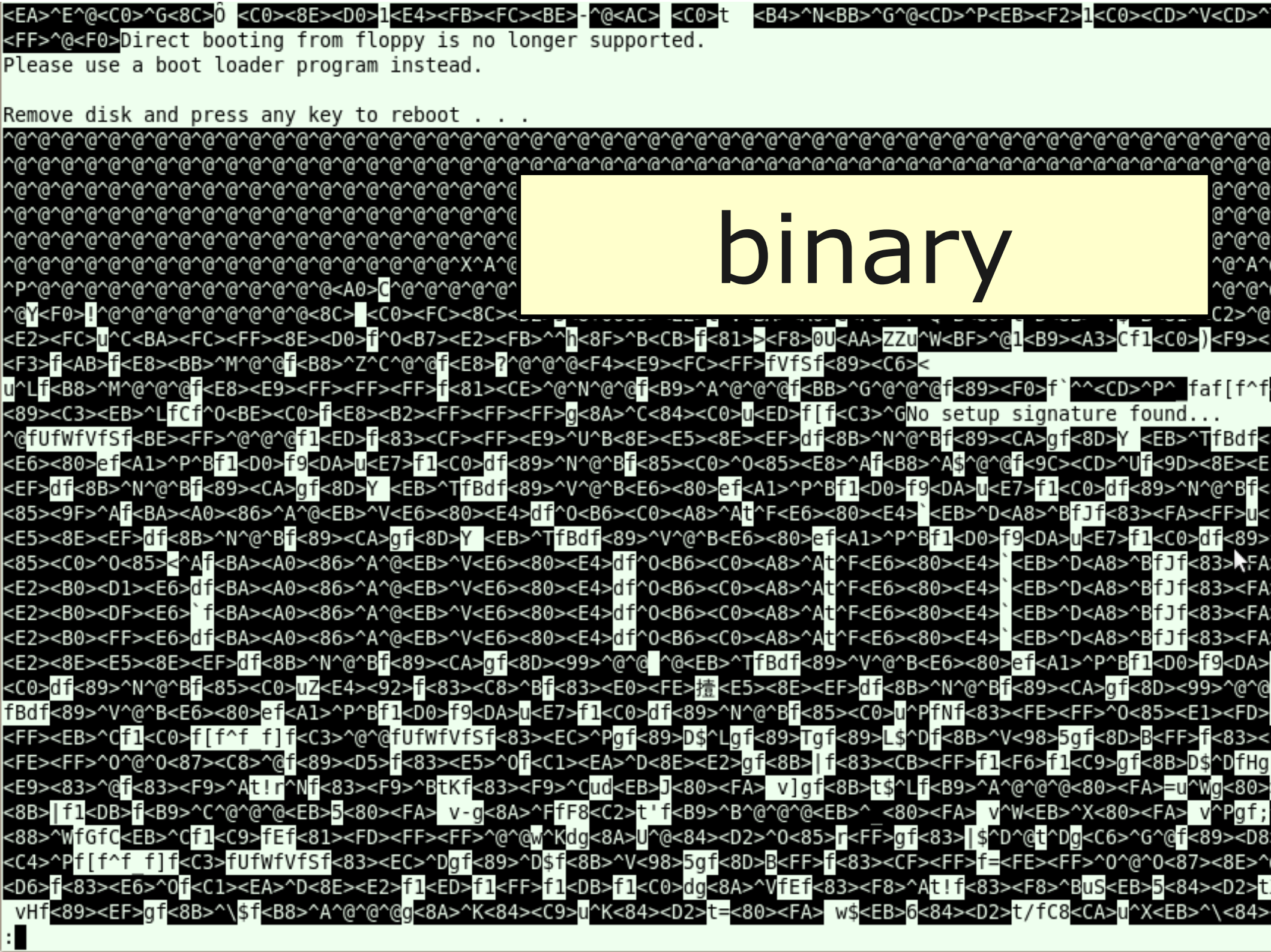
The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

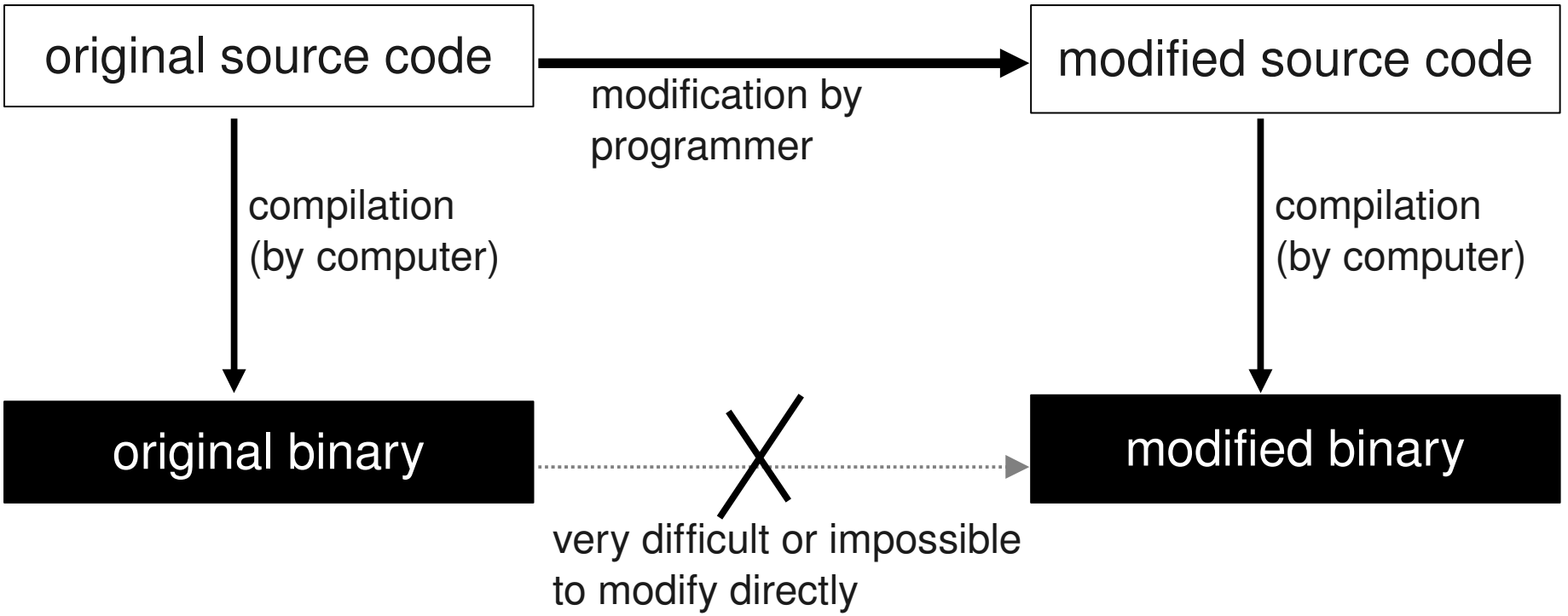
2. Source Code

The program must include source code, and must allow distribution in source code as well as compiled form. [...]

```
36 /*
37  * Define kernel_config_data and kernel_config_data_size, which contains the
38  * wrapped and compressed configuration file.  The file is first compressed
39  * with gzip and then bounded by two eight byte magic numbers to allow
40  * extraction from a binary kernel image:
41  *
42  *   IKCFG_ST
43  *   <image>
44  *   IKCFG_ED
45  */
46 #define MAGIC_START "IKCFG_ST"
47 #define MAGIC_END "IKCFG_ED"
48 #include "config_data.h"
49
50
51 #define MAGIC_SIZE (sizeof(MAGIC_START) - 1)
52 #define kernel_config_data_size \
53  (sizeof(kernel_config_data) - 1 - MAGIC_SIZE * 2)
54
55 #ifdef CONFIG_IKCONFIG_PROC
56
57 static ssize_t
58 ikconfig_read_current(struct file *file, char __user *buf,
59         size_t len, loff_t * offset)
60 {
61  return simple_read_from_buffer(buf, len, offset,
62            kernel_config_data + MAGIC_SIZE,
63            kernel_config_data_size);
64 }
65
66 static const struct file_operations ikconfig_file_ops = {
67  .owner = THIS_MODULE,
68  .read = ikconfig_read_current,
69 };
70
```

source code


Direct booting from floppy is no longer supported.
Please use a boot loader program instead.
Remove disk and press any key to reboot . . .
binary
No setup signature found...


original source code
modification by
programmer
modified source code
compilation
(by computer)
compilation
(by computer)
original binary
modified binary
very difficult or impossible
to modify directly

3. Derived Works

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

So:

1. Free Redistribution
2. Source Code
3. Derived Works

+ another 7 clauses

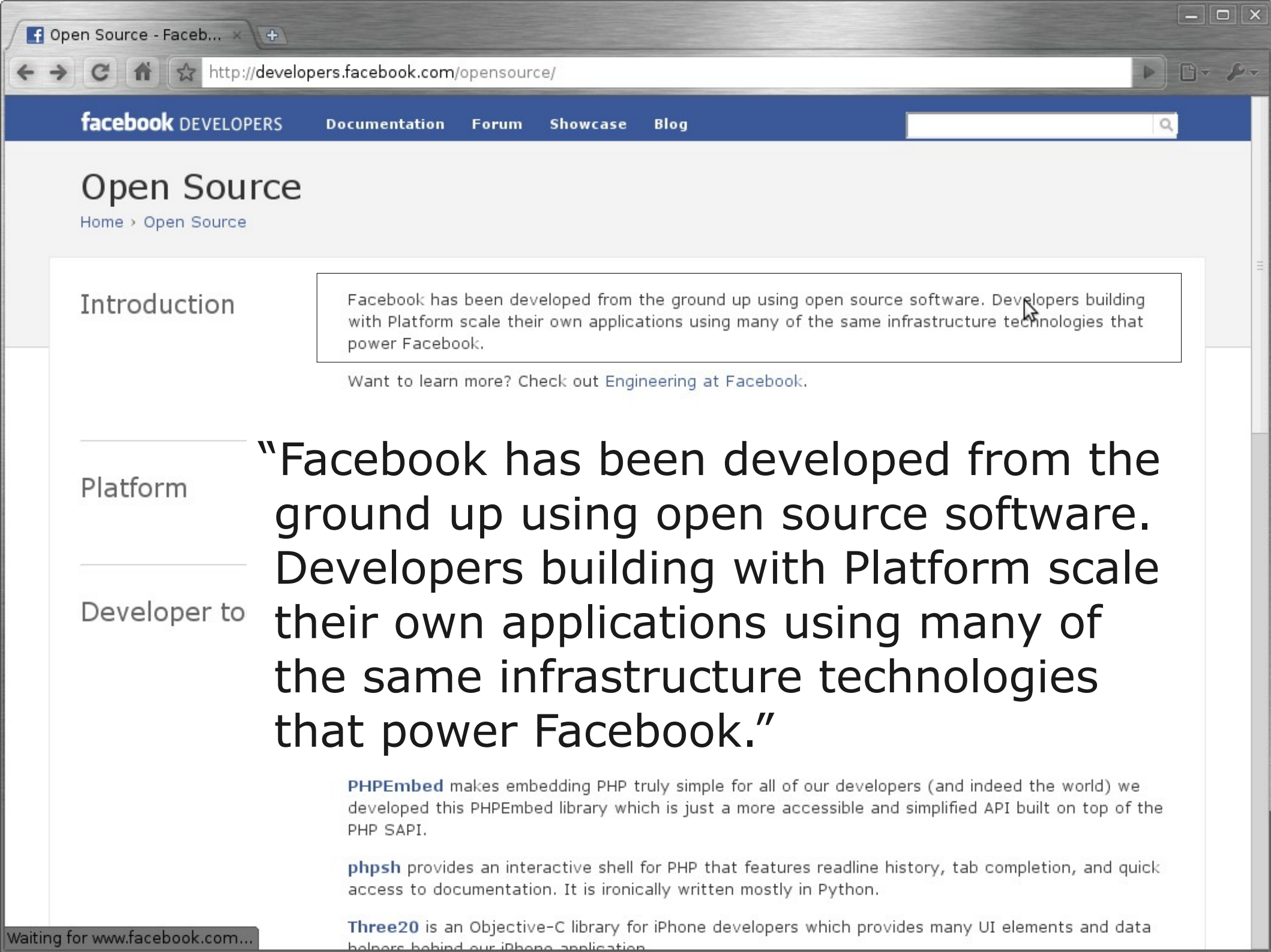
“Free Software”

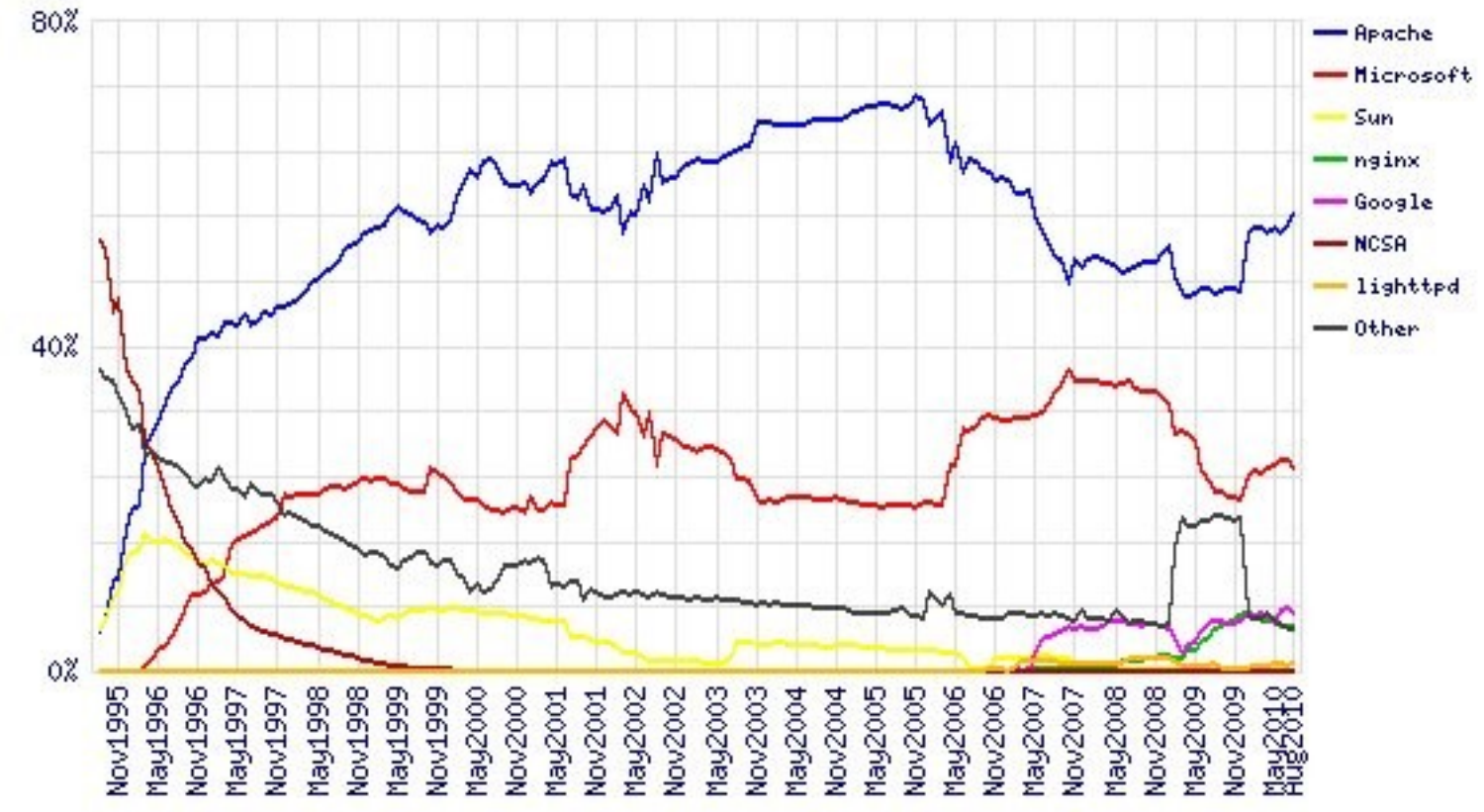
“The Open Source Definition”
vs.
“The Free Software Definition”

Why Do We Care?

Who uses this anyway?


Mozilla | Firefox web ...
http://en-us.www.mozilla.com/en-US/
mozilla
Products
Add-ons
Support
Community
About
Firefox 3.6
Meet the world's best browser,
made just the way you like it. Learn more.
Download Firefox - Free
3.6.8 for Linux i686
English (US) (9.4MB)
Release Notes
Other Systems and Languages
What's Happening at Mozilla?
The Firefox 4 Beta is Here!
Help make the next version of the world's best browser.
Firefox for Mobile
The best Web browser has
gone mobile!


Open Source - Faceb...
http://developers.facebook.com/opensource/
facebook DEVELOPERS
Documentation
Forum
Showcase
Blog
Open Source
Home › Open Source
Introduction
Facebook has been developed from the ground up using open source software. Developers building with Platform scale their own applications using many of the same infrastructure technologies that power Facebook.
Want to learn more? Check out Engineering at Facebook.
Platform
Developer to
"Facebook has been developed from the ground up using open source software. Developers building with Platform scale their own applications using many of the same infrastructure technologies that power Facebook."
PHPEmbed makes embedding PHP truly simple for all of our developers (and indeed the world) we developed this PHPEmbed library which is just a more accessible and simplified API built on top of the PHP SAPI.
phpsh provides an interactive shell for PHP that features readline history, tab completion, and quick access to documentation. It is ironically written mostly in Python.
Three20 is an Objective-C library for iPhone developers which provides many UI elements and data
Waiting for www.facebook.com...



Market Share for Top Servers Across All Domains August 1995 - August 2010, http://news.netcraft.com/

NETCRAFT

Site Search

Netcraft Services

Sites on the Move

Today's changes

Last week

Last Month

Internet Exploration

Netcraft Toolbar

What's that site running?

Search Web by Domain

Internet Data Mining

Hosting Provider Switching Analysis

Hosting Provider Server Count

Hosting Reseller Survey

SSL Survey

Web Server Survey Archive

Performance

Hosting Providers' Network Performance

Dedicated Server Monitoring

Security

Anti-Phishing Toolbar

Automated Security Testing

Dedicated Server Monitoring

Web Application Testing & Site Audits

Security Services FAQ

Hosting Providers sites ordered by failures 43 sites

Click on a column heading to sort by that column, click twice to reverse order. Click the site name to see graphs of site performance.

FAQ

Rank	Performance graph	Company site	OS	Outage hh:mm:ss	Failed Req%	DNS	Connect	First byte	Total	Kb/s	size(K)
1	www.nyi.net	New York Internet	FreeBSD		0.000	0.105	0.065	0.140	0.369	84	18
2	www.inetu.net	INetU	FreeBSD	0:00:00	0.006	0.107	0.082	0.193	0.534	80	21
3	www.datapipe.net	Datapipe	unknown	0:00:00	0.009	0.058	0.034	0.070	0.102	204	5
4	www.multacom.com	Multacom	FreeBSD	0:00:00	0.012	0.079	0.059	0.119	0.294	56	16
5	www.navisite.com	www.navisite.com	Windows Server 2003	0:00:00	0.012	0.146	0.079	0.235	0.508	96	33
6	www.iWeb8.com	iWeb Technologies	Linux	0:00:00	0.015	0.163	0.093	0.186	0.186	-	0
7	www.poundhost.com	www.poundhost.com	Linux	0:00:00	0.015	0.214	0.097	0.199	0.310	88	10
8	www.qubenet.net	www.qubenet.net	Linux	0:00:00	0.018	0.124	0.079	0.160	0.602	72	24
9	www.kattare.com	Kattare Internet Services	Linux	0:00:00	0.018	0.164	0.089	0.177	0.522	76	29
10	www.swishmail.com	Swishmail	FreeBSD	0:00:00	0.021	0.115	0.066	0.133	0.334	86	17
11	www.servint.net	ServInt	Linux	0:00:00	0.021	0.220	0.074	0.152	0.376	112	21
12	www.acens.com	www.acens.com	Linux	0:00:00	0.021	0.213	0.092	0.405	0.712	67	24
13	www.uk2.net	www.uk2.net	Linux	0:00:00	0.024	0.236	0.098	0.201	0.520	125	37
14	www.dinahosting.com	www.dinahosting.com	Linux	0:00:00	0.027	0.086	0.097	0.196	0.196	-	0
15	www.rackspot.com	www.rackspot.com	Linux	0:00:00	0.027	0.183	0.157	0.315	0.631	74	21
16	www.memset.com	www.memset.com	Linux	0:00:00	0.033	0.129	0.108	0.395	0.618	127	22
17	www.cwcs.co.uk	www.cwcs.co.uk	Linux	0:00:00	0.039	0.196	0.076	0.157	0.465	101	39

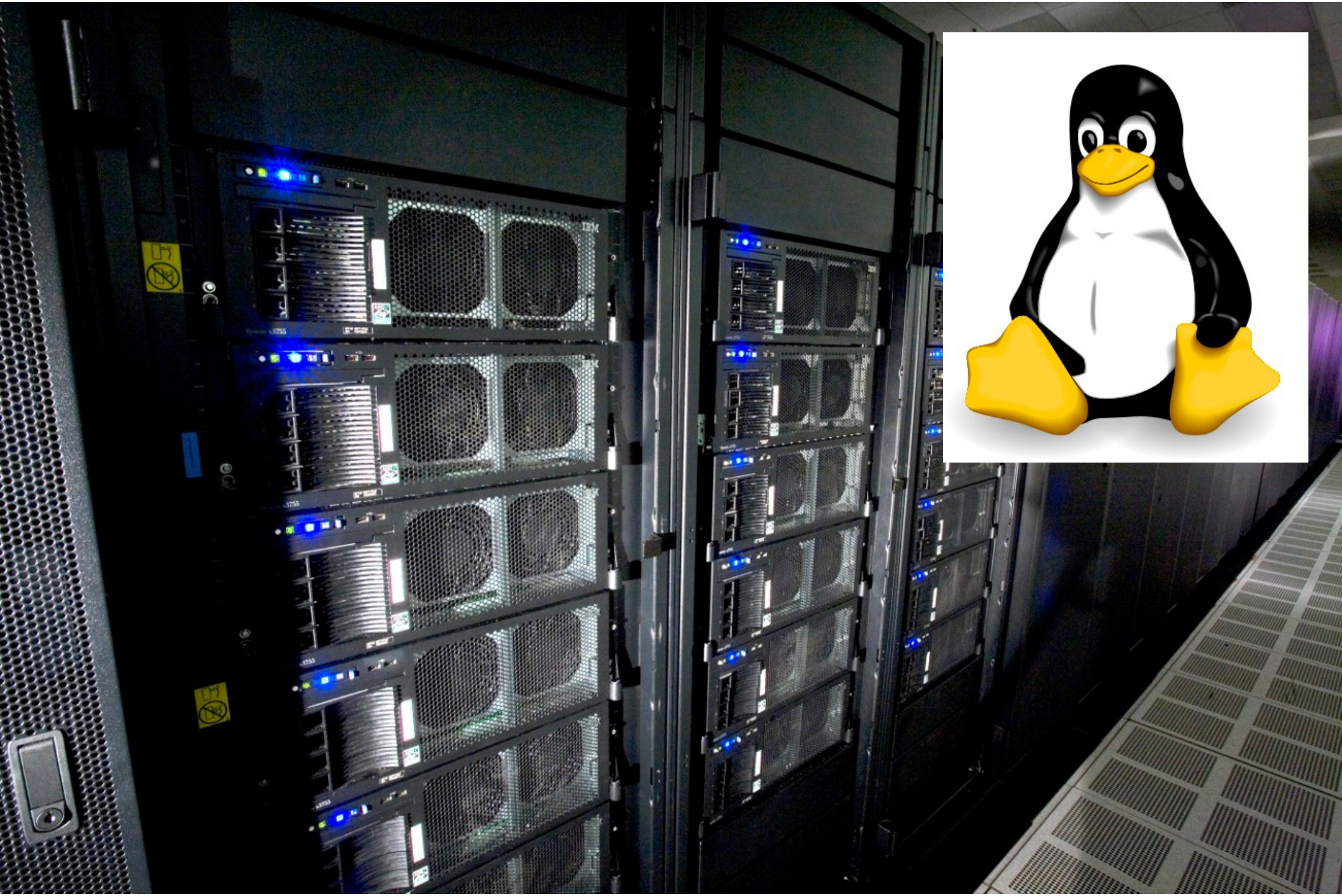


image source: http://www.lanl.gov/news/albums/computer/Roadrunner_1207.jpg

Who Much Did It Cost to Produce It?

>$10 billion

(McPherson et al. 2008)

HOW TO "READ" FM TUNER SPECIFICATIONS

Popular Electronics

WORLD'S LARGEST-SELLING ELECTRONICS MAGAZINE JANUARY 1975/75¢

PROJECT BREAKTHROUGH!

World's First Minicomputer Kit to Rival Commercial Models...

"ALTAIR 8800" SAVE OVER $1000

ALSO IN THIS ISSUE:

- An Under-$90 Scientific Calculator Project
- CCD's—TV Camera Tube Successor?
- Thyristor-Controlled Photoflashers

TEST REPORTS:

Technics 200 Speaker System
Pioneer RT-1011 Open-Reel Recorder
Tram Diamond-40 CB AM Transceiver
Edmund Scientific "Kirlian" Photo Kit
Hewlett-Packard 5381 Frequency Counter

18101

MICROSOFT

William H. Gates
President

819 Two Park Central Tower, Albuquerque, NM 87108
(505) 256-3600

February 3, 1976

An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a hobby computer is wasted. Will quality software be written for the hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby market to expand, hired Monte Davidoff and developed Altair BASIC. Though the initial work took only two months, the three of us have spent most of the last year documenting, improving and adding features to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC. The value of the computer time we have used exceeds $40,000.

The feedback we have gotten from the hundreds of people who say they are using BASIC has all been positive. Two surprising things are apparent, however. 1) Most of these "users" never bought BASIC (less than 10% of all Altair owners have bought BASIC), and 2) The amount of royalties we have received from sales to hobbyists makes the time spent of Altair BASIC worth less than $2 an hour.

Why is this? As the majority of hobbyists must be aware, most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?

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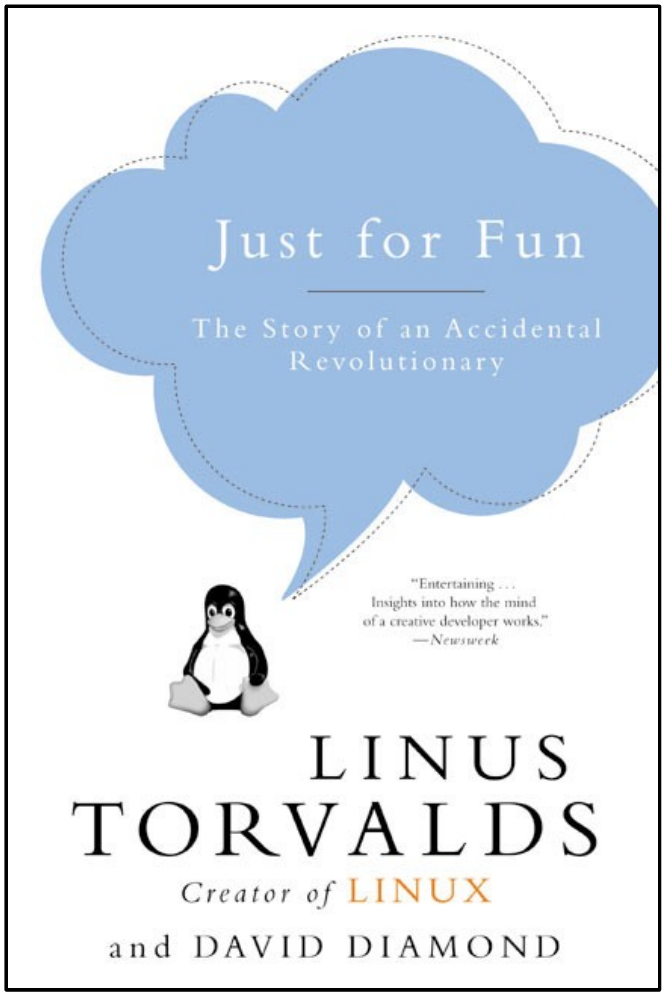
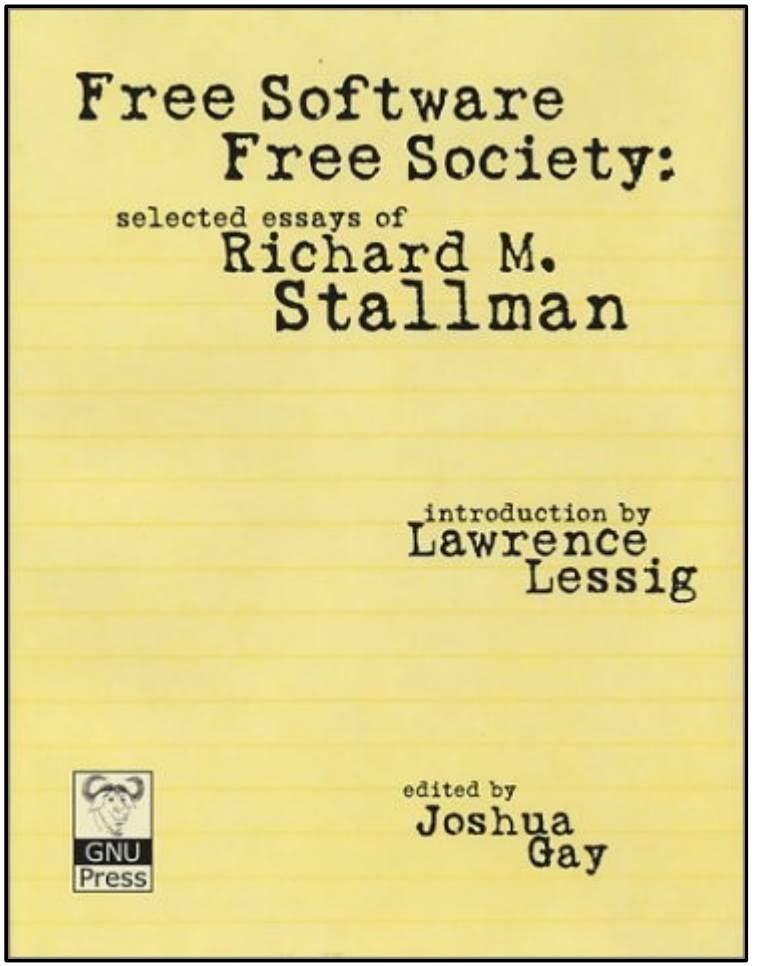
Why is this? As the majority of hobbyists must be aware, most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?

Is this fair? One thing you don't do by stealing software is get back at MITS for some problem you may have had. MITS doesn't make money selling software. The royalty paid to us, the manual, the tape and the overhead make it a break-even operation. One thing you do do is prevent good software from being written. Who can afford to do professional work for nothing? What hobbyist can put 3-man years into programming, finding all bugs, documenting his product and distribute for free? The fact is, no one besides us has invested a lot of money in hobby software. We have written 6800 BASIC, and are writing 8080 APL and 6800 APL, but there is very little incentive to make this software available to hobbyists. Most directly, the thing you do is theft.

Why Would People Work for Free?


Just for Fun
The Story of an Accidental Revolutionary
"Entertaining . . . Insights into how the mind of a creative developer works."
—Newsweek
LINUS TORVALDS
Creator of LINUX
and DAVID DIAMOND


Free Software Free Society:
selected essays of
Richard M. Stallman
introduction by
Lawrence Lessig
GNU Press
edited by
Joshua Gay

“I had a lot of fun.”

- an interview with J.K. Rowling

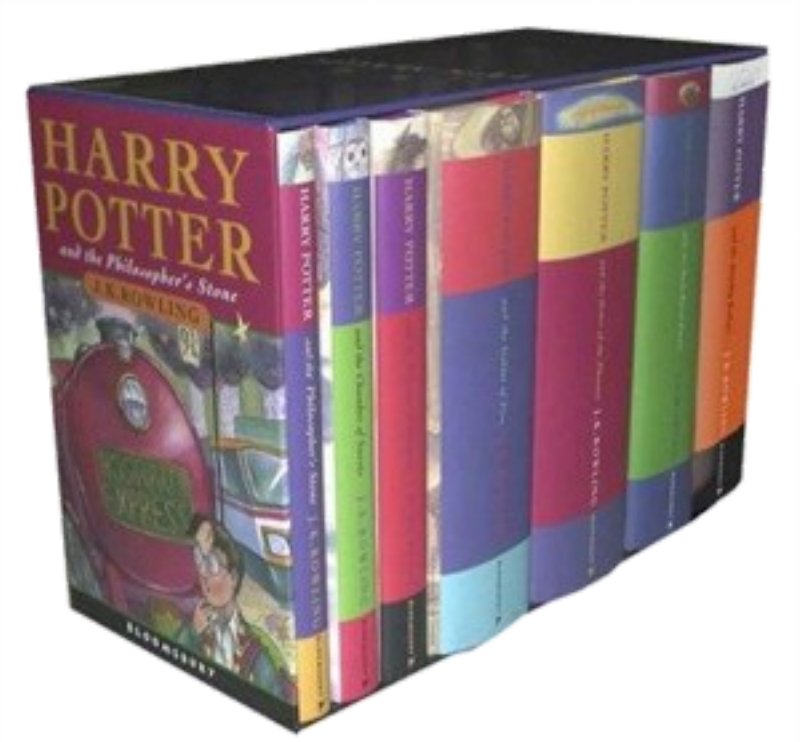
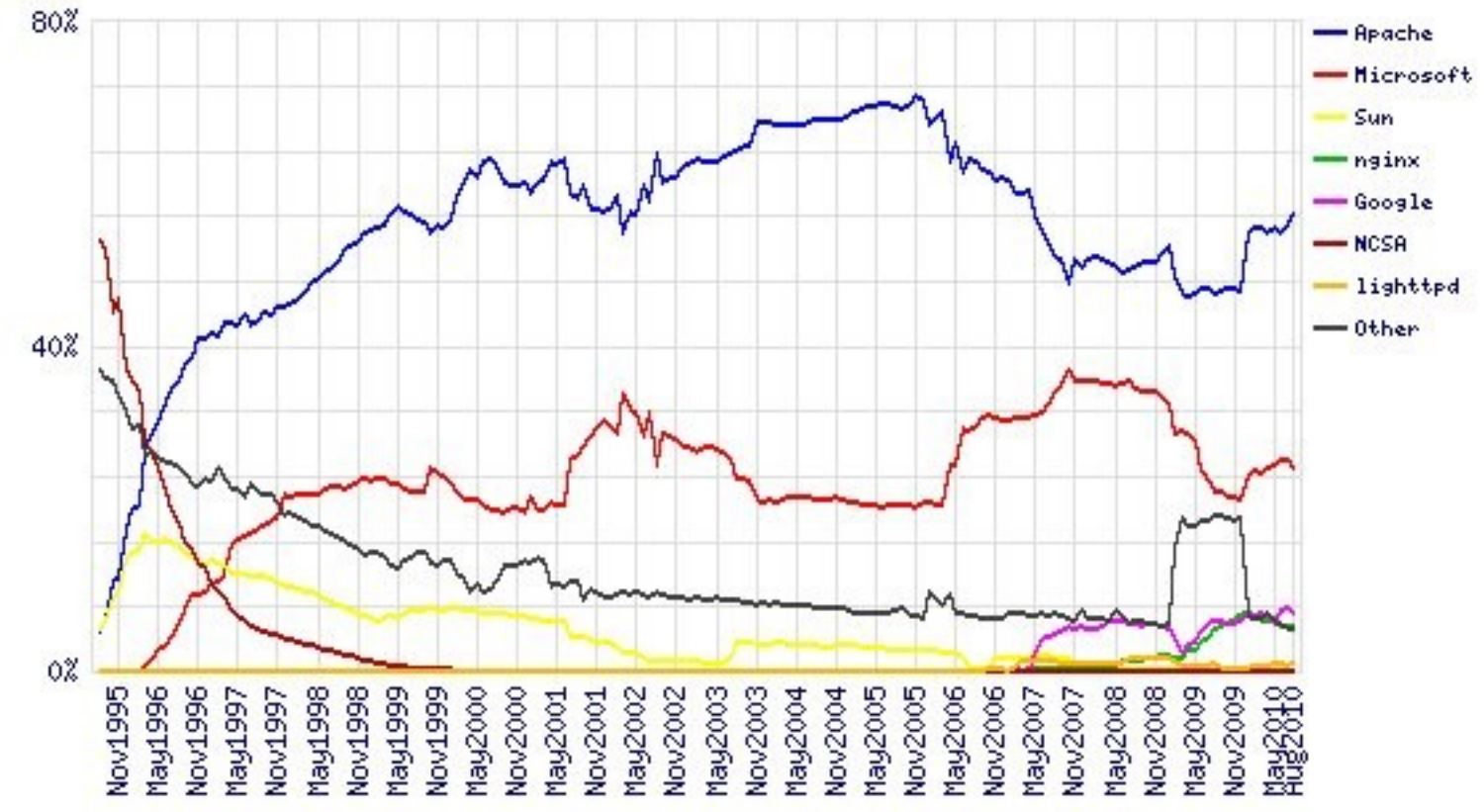


image source: http://en.wikipedia.org/wiki/File:Harry_Potter_Books.png

Company Name	Number of Changes	Percent of Total
None	13,850	21.1%
Red Hat	7,897	12.0%
IBM	4,150	6.3%
Novell	4,021	6.1%
Intel	3,923	6.0%
Unknown	2,765	4.2%
Oracle	2,003	3.1%
Consultant	1,480	2.3%
Parallels	1,142	1.7%
Fujitsu	1,007	1.5%
Academia	992	1.5%
Analog Devices	889	1.4%
Renesas Technology	884	1.3%
SGI	755	1.2%
Movial	738	1.1%
Sun	639	1.0%
HP	628	1.0%
Freescale	613	0.9%
Marvell	601	0.9%
MontaVista	574	0.9%
AMD	552	0.8%
Nokia	549	0.8%
Vyatta	513	0.8%
Google	512	0.8%
Atheros Communications	494	0.8%

Kroah-Hartman et al, 2009

How Can Open Source Compete?



Market Share for Top Servers Across All Domains August 1995 - August 2010, http://news.netcraft.com/

image source: http://www.lanl.gov/news/albums/computer/Roadrunner_1207.jpg

How Does Anything Get Done?

This Course

http://bit.ly/cct490

a shortcut for
http://takhteyev.org/courses/10F/cct490/

Lecture Schedule

Week 1 | September 8
An Introduction to Free and Open Source Software

Week 2 | September 15
Free and Open Source Software Today

Week 3 | September 22
Software and Culture

Week 4 | September 29
Economics of Innovation

Week 5 | October 6
Software as Intellectual Property

Week 6 | October 13
The Free Software Movement in the 1980s

Week 7 | October 20
The Rise of Linux

Week 8 | October 27
Producing Open Source Software

Week 9 | November 3
Economics of Open Source – 1

Week 10 | November 10
Economics of Open Source – 2

Week 11 | November 17
The Contemporary Politics of Free and Open Source Software

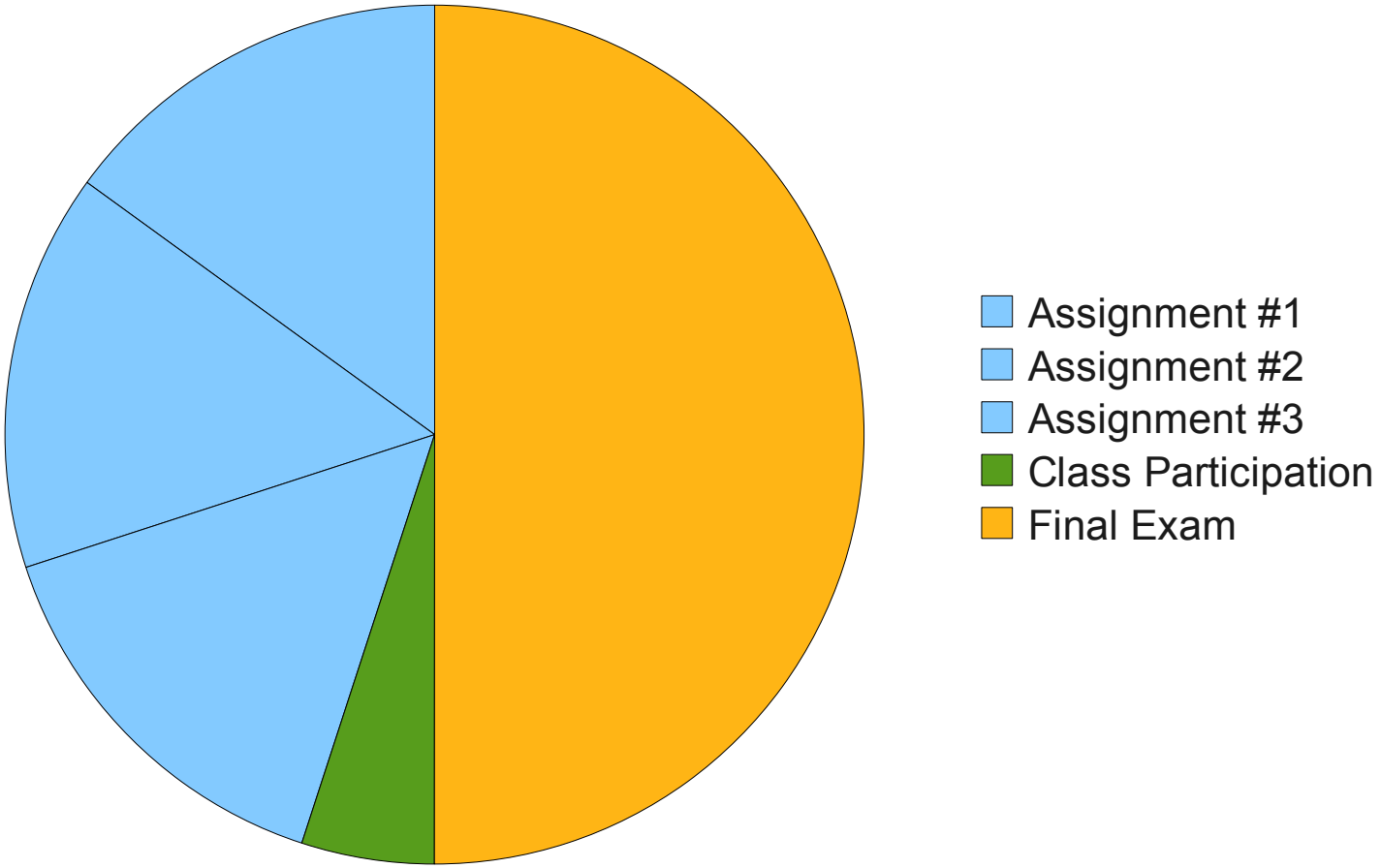
Week 12 | November 24
Wikipedia, Creative Commons, Open Science

Readings

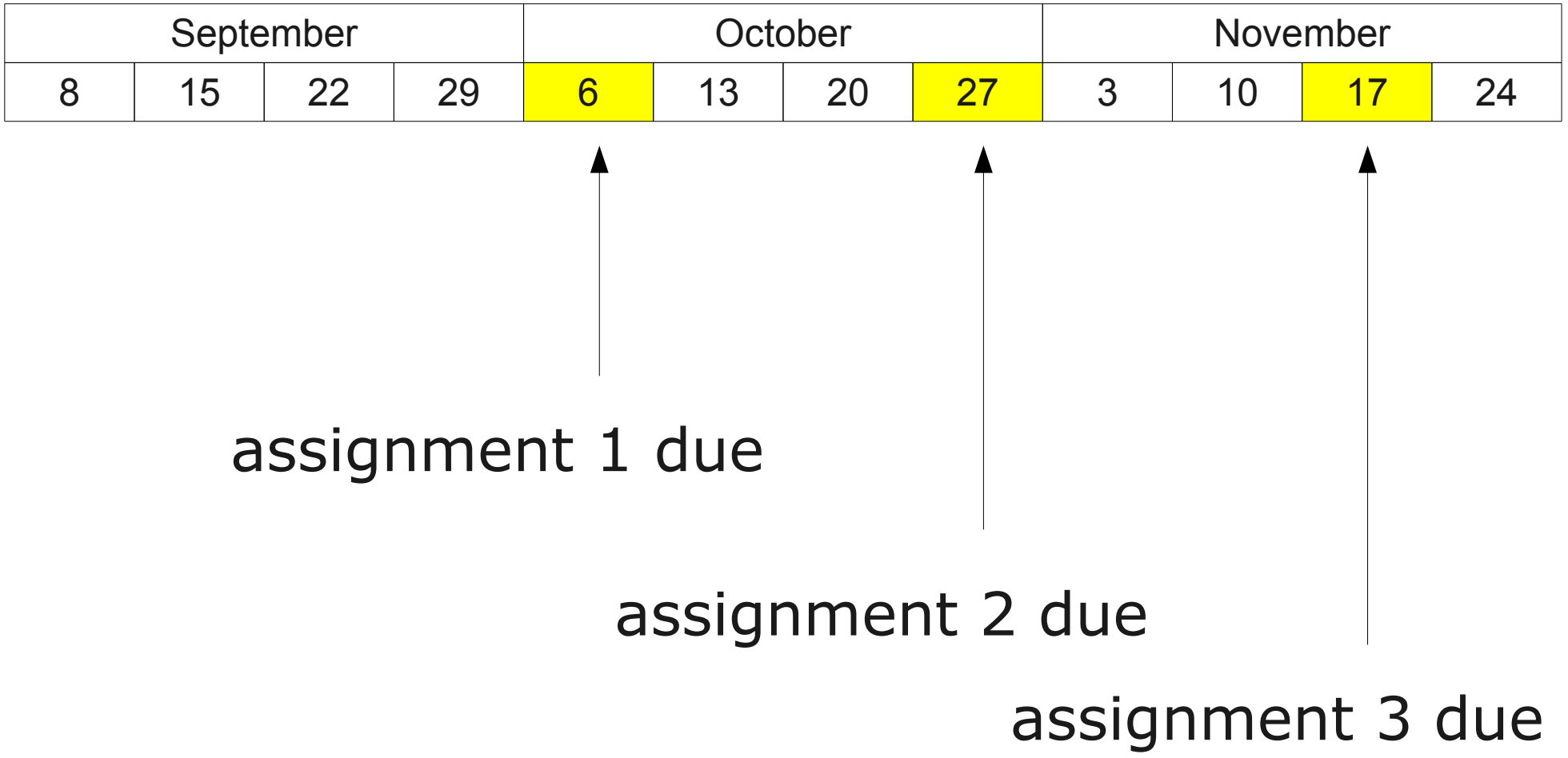
1. Get the course pack at Copy Center in South Building.

2. Some of the readings are on the internet.

Grading


Assignment #1
Assignment #2
Assignment #3
Class Participation
Final Exam

Due Dates


September
October
November
8
15
22
29
6
13
20
27
3
10
17
24
assignment 1 due
assignment 2 due
assignment 3 due

Contact Information

Office hours:

- Wed, 2-3pm, CC3018

Email:

- use UToronto mail
- “CCT490” in the subject line
- expect 2 day turn-around

Questions?