

# Free and Open Source Software (FOSS) for Everyone & Everything

A global playing and working field for all

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Open Source Evangelist / FOSS Advocate

Linux Accra Users Group



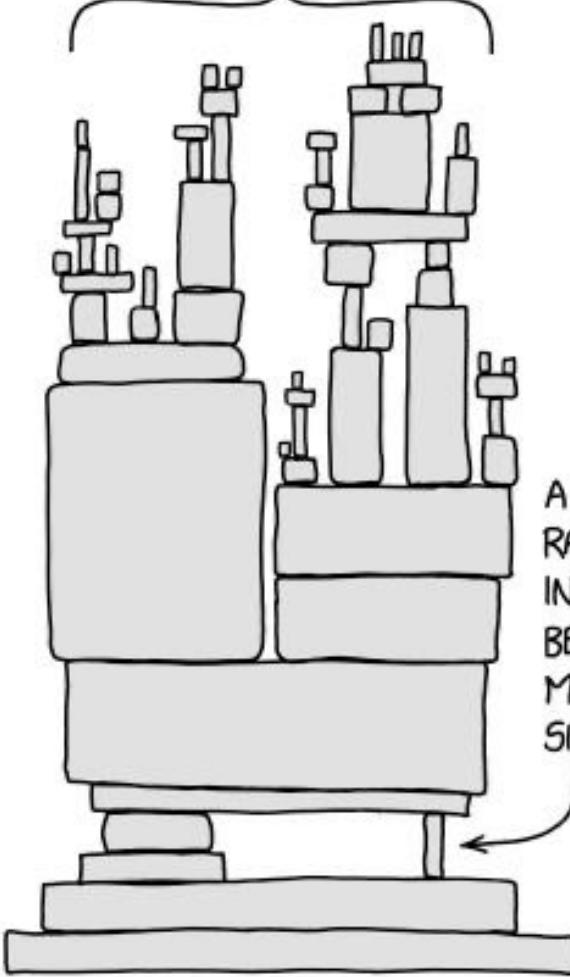
[open.enockseth.co/foss\\_adsc.pdf](http://open.enockseth.co/foss_adsc.pdf)

CC-BY-SA 4.0

# Introduction

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ALL MODERN DIGITAL  
INFRASTRUCTURE



# Linux Accra Users Group

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# Linux Accra Users Group

- Oldest and the largest Linux user group in Ghana. -  
<https://linuxaccra.org/>
- Community made up of Open source and Linux hobbyists, professionals, enthusiasts, developers as well as newbies
- Meet: Saturday from 2pm to 5pm at the Ghana-India Kofi Annan Centre of Excellence in ICT - Advance Information Technology Institute -  
<https://www.aiti-kace.com.gh/>



# Free and Open Source Software

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What & Why?

# Early Software Days

- In the 1950s and into the 1960s almost all software was produced by computer science academics and corporate researchers working in **collaboration**.
- **Source code** was generally distributed with the software
  - IBM “**SHARE**” user group
  - Digital Equipment Computer Users' Society (DECUS)

- **Source code:**
  - `if encrypt(password) == encryptedpassword, then login=1, end`
- **Compiled code:**
  - `00100101110101001100110000111101100011000111000110101`

# Open Letter to Hobbyists:

*"Your sharing is Stealing"*

Bill Gates, 1976



-2-

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?

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.

What about the guys who re-sell Altair BASIC, aren't they making money on hobby software? Yes, but those who have been reported to us may lose in the end. They are the ones who give hobbyists a bad name, and should be kicked out of any club meeting they show up at.

I would appreciate letters from any one who wants to pay up, or has a suggestion or comment. Just write me at 1180 Alvarado SE, #114, Albuquerque, New Mexico, 87108. Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software.

*Bill Gates*  
Bill Gates  
General Partner, Micro-Soft

# Monopoly abuse

US justice department 1999:

“Microsoft is a monopolist and it engaged in massive anticompetitive practices that harmed innovation and limited consumer choice”



*"Unquestionably one of the great seminal figures of the hacker culture."*  
—Eric Raymond, open source evangelist and author of *The Cathedral and the Bazaar*

# FREE AS IN FREEDOM

RICHARD STALLMAN'S  
CRUSADE FOR FREE SOFTWARE



SAM WILLIAMS

*"The most fundamental way of helping other people, is to **teach** people how to do things better or how to better their lives. For people who use computers, this means **sharing** the recipes you use on your computer, in other words the programs you run."*

# 1980's: Stallman defined “Free Software”

The freedom to:

- ✓ Use
- ✓ Study
- ✓ Distribute
- ✓ improve  
the program



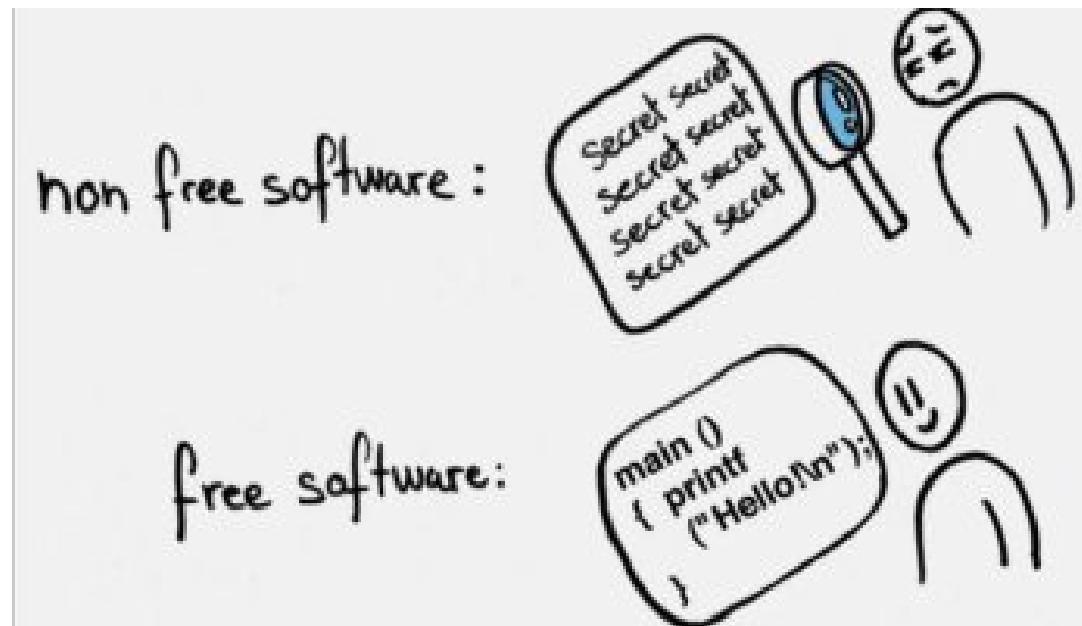
# Free Software Licenses

The freedoms are guaranteed and enforced by licenses, e.g.

- GNU GPL (General Public License)
  - The 4 freedoms + copyleft (share alike)
  - if binary offered, source code must be offered too
    - (on request, at low cost)
    - must stay GPL.
- BSD (Berkeley Software Distribution)
  - Attribution
  - No copyleft requirements for distribution
  - BSD code often in closed source software (MS, Mac, ...)
- Apple Public Source License v2

# 1998: “Open Source” sounds better than “Free Software”?





The software Freedoms  
require access to the source code



“Open Source Software” (OSS)  
Free Open Source Software (FOSS)  
Free Libre Open Source Software (FLOSS)

# Software Categories

	<b>Freedoms</b>	<b>Source code</b>	<b>Modification</b>	<b>Redistribution</b>	<b>Free of cost</b>	<b>Ads</b>	<b>Anti-features</b>
<b>Free / Open Source software</b>	yes	yes	yes	yes	typically yes	typically no	no
<b>Proprietary software</b>	no	no	no	typically no	typically no	typically no	often
<b>Freeware</b>	no	no	no	typically no	yes	typically no	often
<b>Shareware</b>	no	no	no	yes	typically no	typically no	often
<b>Crippleware / Freemium</b>	no	no	no	typically no	Lite=yes/full=no	typically no	yes
<b>Trialware</b>	no	no	no	typically no	for x days	typically no	yes
<b>Adware</b>	no	no	no	typically no	typically yes	yes	yes

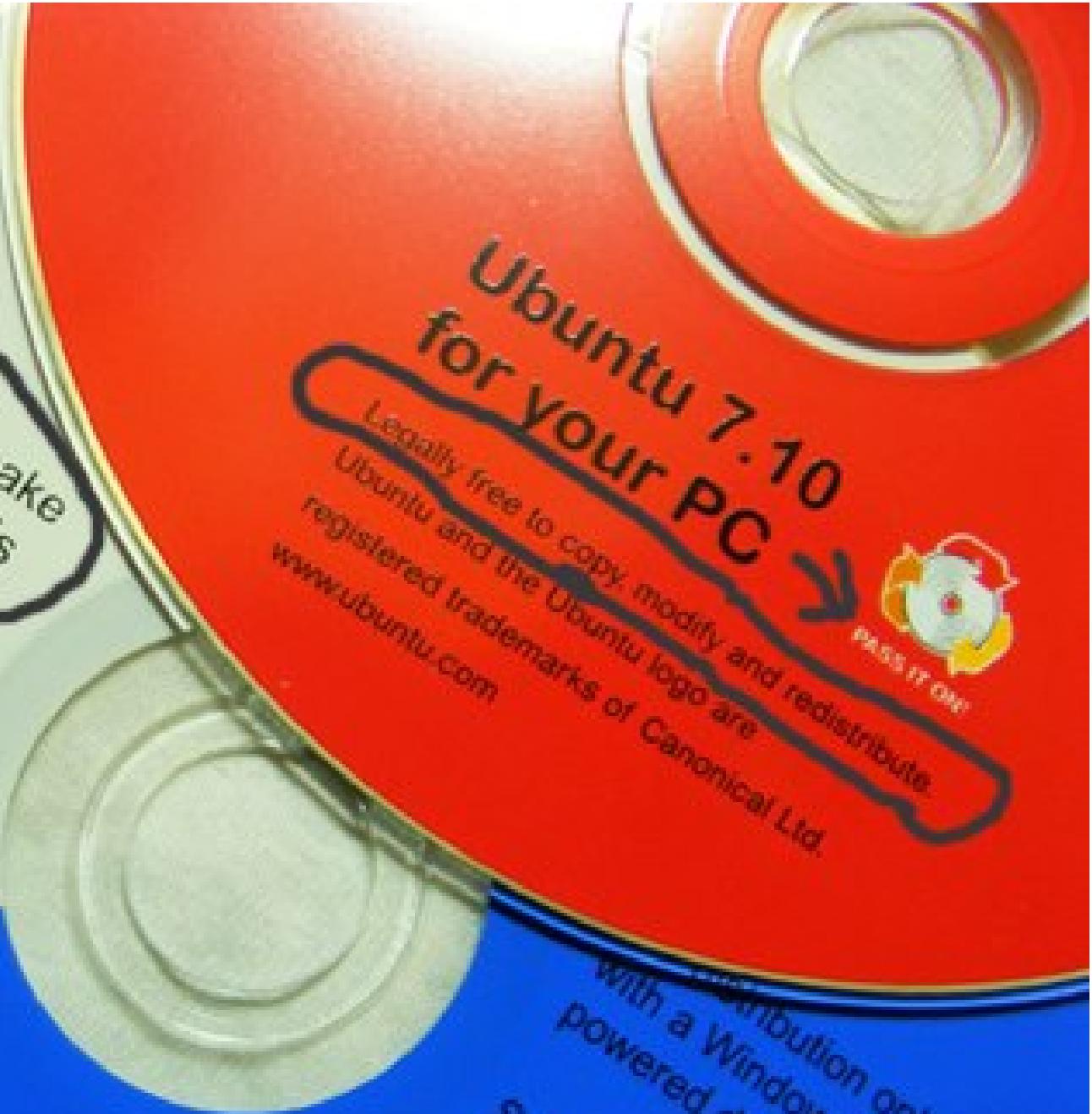
Anti-features are features that users don't want, including:

- Copy-protection
- DRM = Digital Rights/Restrictions Management
- Data lock-in because of secret file formats
- Time-limit / Planned obsolescence
- Artificial limitations (e.g. limited RAM, HD and max 3 concurrent programs in MS Windows Vista Home)
- Advertisements
- Tracking / Spyware



Windows  
**Mobile**

Do not lend or make  
illegal copies of this  
software.

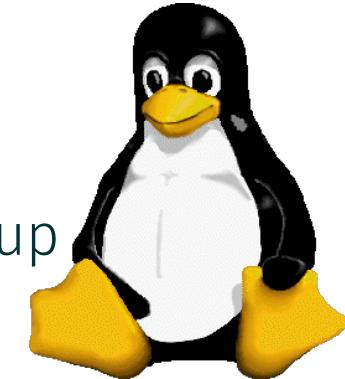


Getting Started  
i-mate  
with Wind...  
Includes ...



1991 comp science student

Usenet posting to the newsgroup  
"comp.os.minix":



*"I'm doing a (**free**) operating system  
(just a **hobby**, won't be big and  
professional like gnu) for 386(486) AT  
clones."*

*"**Making Linux GPL'd**  
**was definitely**  
**the best thing I ever did.**" ~ Linus Torvalds*



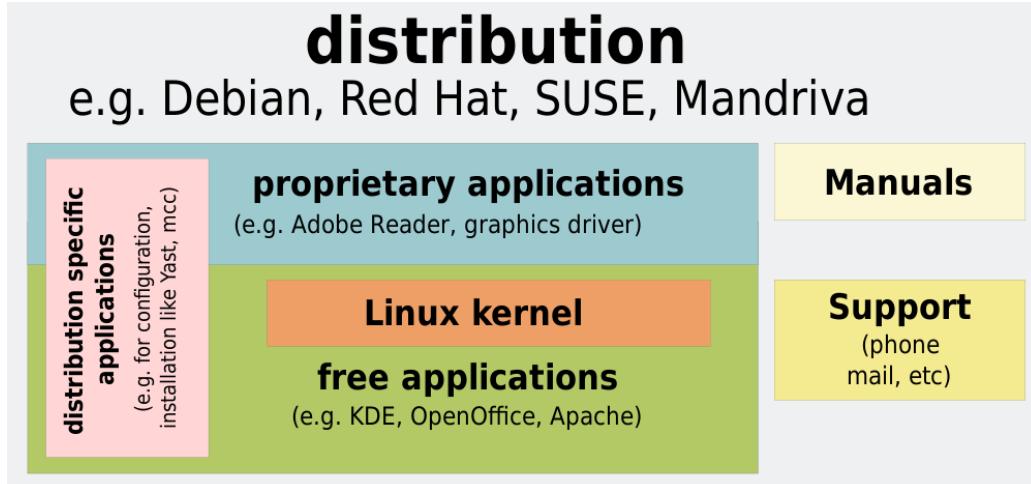
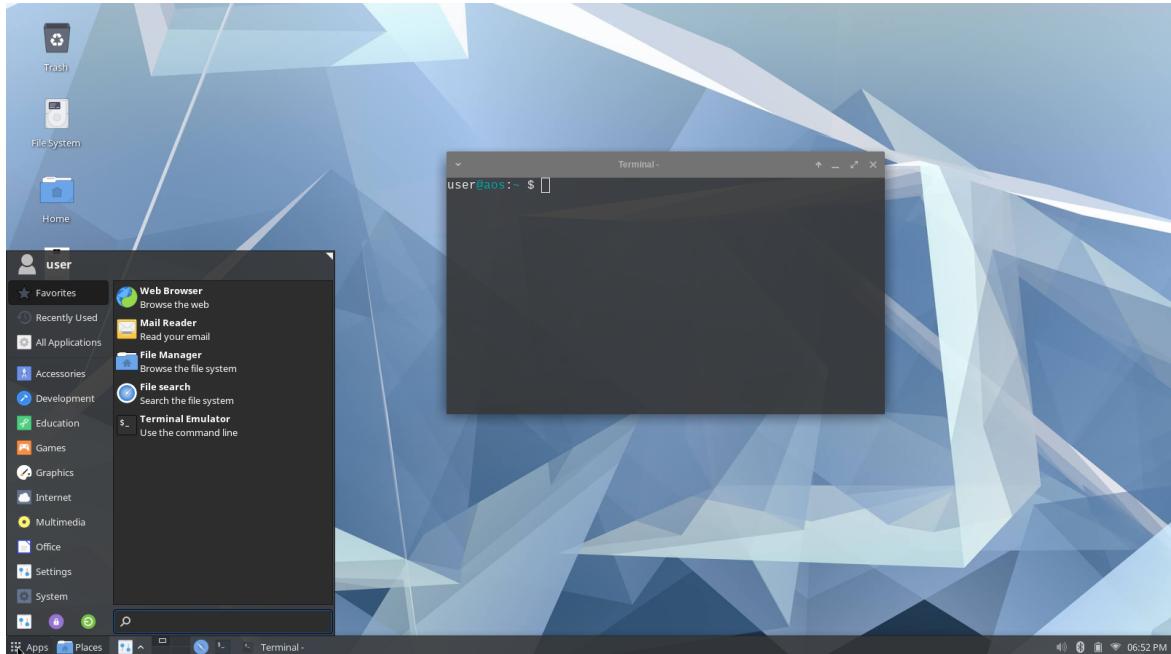
“Open Source ... it's just a **superior** way of working together and generating code.”

“Like science, Open Source allows people to build on a solid base of previous **knowledge**, without some silly hiding.”

“you can obviously never do as well in a closed environment as you can with **open scientific methods**.”

Linus Torvalds (2007-03-19). The Torvalds Transcript: Why I 'Absolutely Love' GPL Version 2.

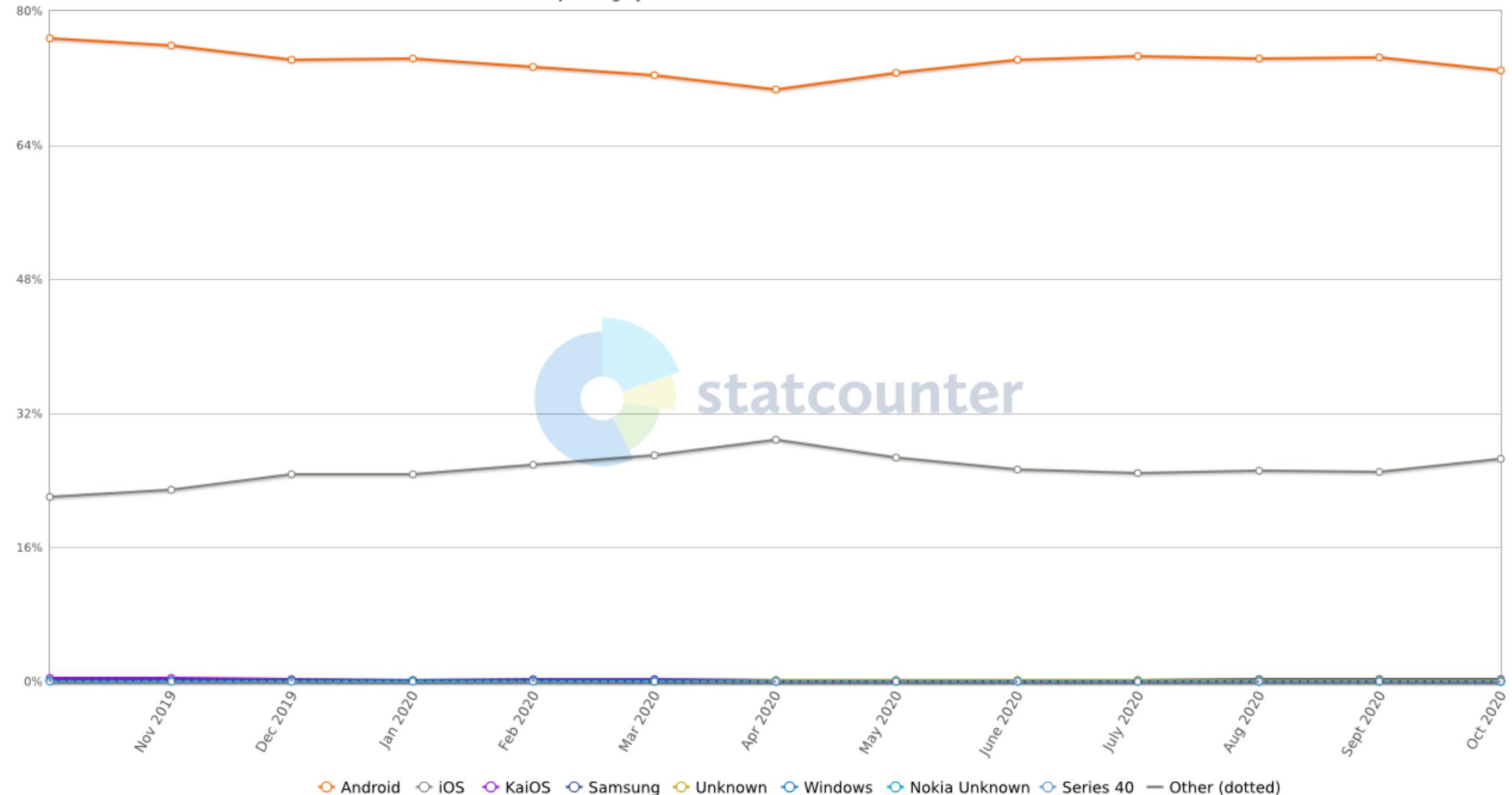
# Linux Distributions - Distros



Data span:		
Last 6 months		Go
Rank	Distribution	HPD*
1	<a href="#">MX Linux</a>	3504▲
2	<a href="#">Manjaro</a>	2364▼
3	<a href="#">Mint</a>	2187▼
4	<a href="#">Pop!_OS</a>	1631▲
5	<a href="#">Ubuntu</a>	1431▼
6	<a href="#">Debian</a>	1253▼
7	<a href="#">elementary</a>	1174▼
8	<a href="#">Fedora</a>	980▼
9	<a href="#">Solus</a>	918▼
10	<a href="#">KDE neon</a>	862▼
11	<a href="#">Zorin</a>	794▼
12	<a href="#">EndeavourOS</a>	793-
13	<a href="#">openSUSE</a>	765-
14	<a href="#">deepin</a>	731▼
15	<a href="#">Arch</a>	661-
16	<a href="#">Ubuntu Kylin</a>	642▲
17	<a href="#">Linuxfx</a>	599▲
18	<a href="#">antiX</a>	595▼
19	<a href="#">CentOS</a>	535▼
20	<a href="#">Puppy</a>	491-
21	<a href="#">PCLinuxOS</a>	475▼
22	<a href="#">ArcoLinux</a>	468▼
23	<a href="#">Lite</a>	468-
24	<a href="#">Kali</a>	462▼
25	<a href="#">FreeBSD</a>	431▼
26	<a href="#">SparkyLinux</a>	392▼
27	<a href="#">EasyOS</a>	379-
28	<a href="#">Mageia</a>	370-
29	<a href="#">Lubuntu</a>	358▼
30	<a href="#">Peppermint</a>	357▼
31	<a href="#">Tails</a>	324▼

distrowatch.com

**StatCounter Global Stats**  
Mobile Operating System Market Share Worldwide from Oct 2019 - Oct 2020



# android



100% of World top 500 Supercomputers run Linux



## Why use FLOSS?

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## FREE SOFTWARE AND OPEN SOURCE FOUNDATION FOR AFRICA

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*Africa can **bridge the digital divide***

- *by adopting open source*
- *thus narrowing the effect of techno-colonialism"*

*"Need for technology*

- *that is controlled by local communities*
  - *and not by foreign companies,*
- *that is public property*
- *and empowers people to be self-reliant"*

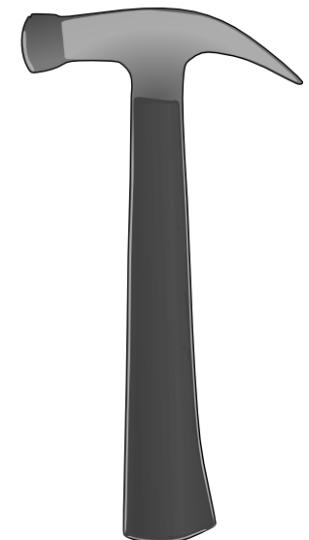
# Stay in Control!

If you don't control the program, the program controls you!

## Would you accept **tools** with these rules?

You are forbidden to

- modify this paper-clip
- let other people use your hammer
- use this hammer for removing nails
- tell others what is written in this book



# So why do you accept such rules for Software tools?

You are forbidden to

- copy
- reverse engineer
- modify
- use in certain circumstances
- use in certain countries
- ....

Why?

# Stay secure!

You can't trust software  
if its source code is hidden

From the European Parliament investigation into the Echelon system (05/18/2001):

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*“If security is to be taken seriously, **only those operating systems should be used whose source code has been published and checked**, since only then can it be determined with certainty what happens to the data.”*

Cryptographer, computer security expert Bruce Schneier:

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“Secrecy and security aren't the same, even though it may seem that way. **Only bad security relies on secrecy**; good security works even if all the details of it are public.”

“If researchers don't go public, things don't get fixed. Companies don't see it as a security problem; they see it as a PR problem.”

“Demand open source code for anything related to security”

Why?

Avoid:  
data lock in  
vendor lock in

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Improve interoperability

Why?

Easy localization and customization

Why?

FLOSS tools are  
most often cross-platform

Why

Fun

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Learning

Why?

“Linux is the benchmark of **quality**”

## Coverity Report 2012

### Coverity Scan で OSS に貢献

The gold standard for open source

Coverity Scan: free code analysis service for open source developers



apachecloudstack  
open source cloud computing

630,050,863

lines of open source code scanned by Coverity

Why?

Modularity and lightweight solutions  
allow to use small or old devices

Why?



Save energy!

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Don't use personal operating systems  
in multi-user environments

Why?

Reduce costs

# AN UPDATE IS AVAILABLE FOR YOUR COMPUTER

COOL, MORE  
FREE STUFF!



linux

NOT AGAIN!



windows

OOH, ONLY  
\$99!



mac

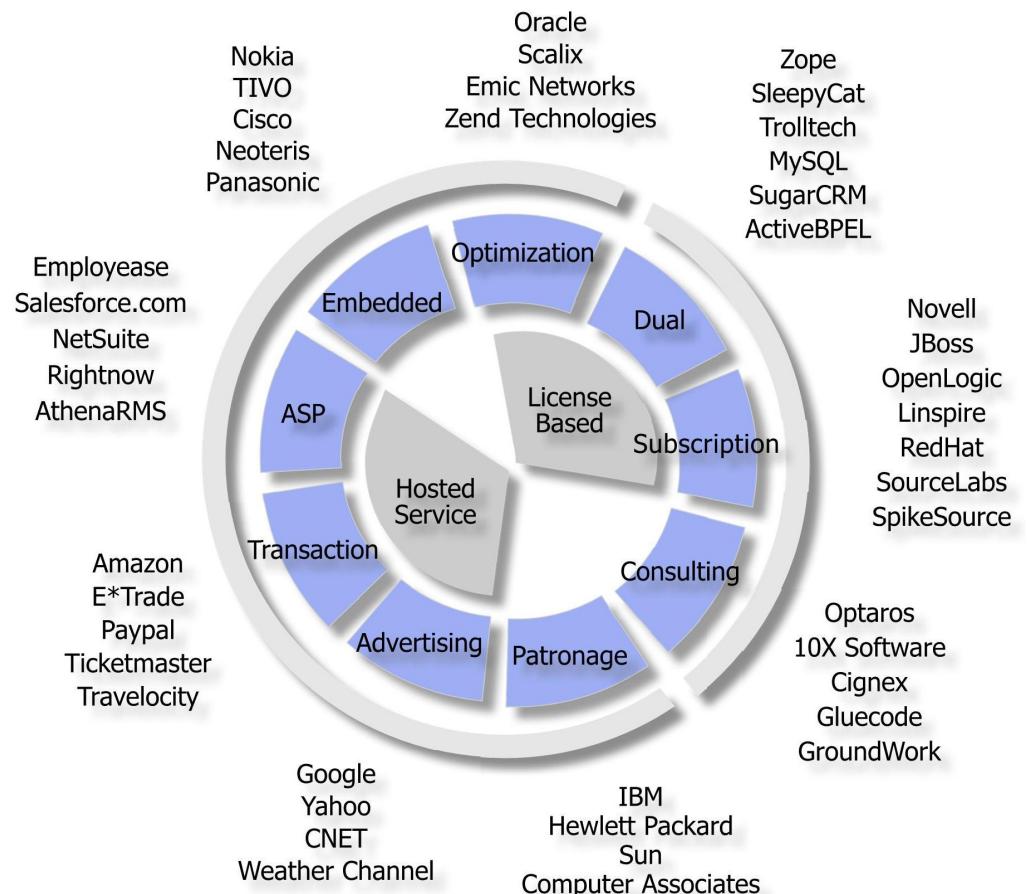
Why?

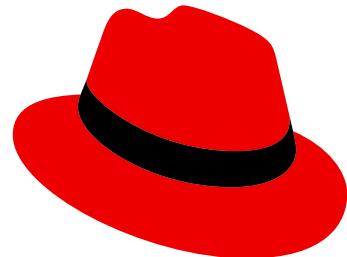
Business opportunities

# "Seven open source business strategies for competitive advantage"

John Koenig, IT Manager's Journal, 2004

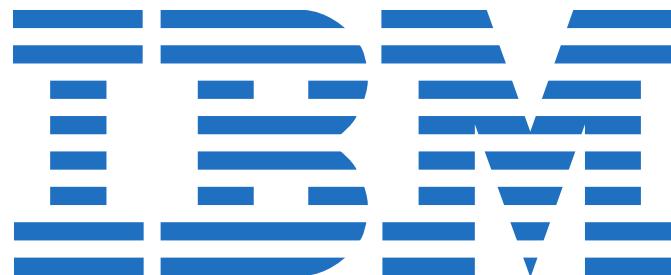
*"Companies continue to waste their development dollars on software functionality that is otherwise free and available through Open Source. They persist in buying third-party proprietary platforms or creating their own proprietary development platforms that deliver marginal product differentiation and limited value to customers"*





# Red Hat

*“IBM’s \$34 billion acquisition of open-source software developer Red Hat (RHT) is “resetting” the cloud landscape, according to IBM (IBM) CEO Ginni Rometty. Announced on Sunday, the move puts a 60% premium on Red Hat’s Friday closing stock price.” - Yahoo Finance*



Why?

## Better support

Support is often core  
of the FOSS business model  
+ fair competition of service providers

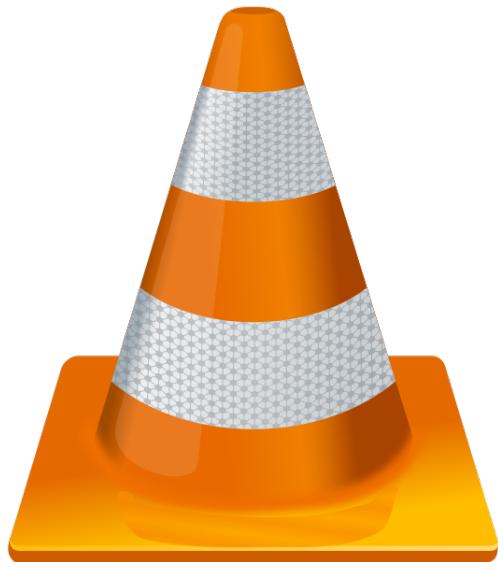
## Easier troubleshooting

Because of transparency

# FLOSS Examples

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# Multimedia



# Web Browsers



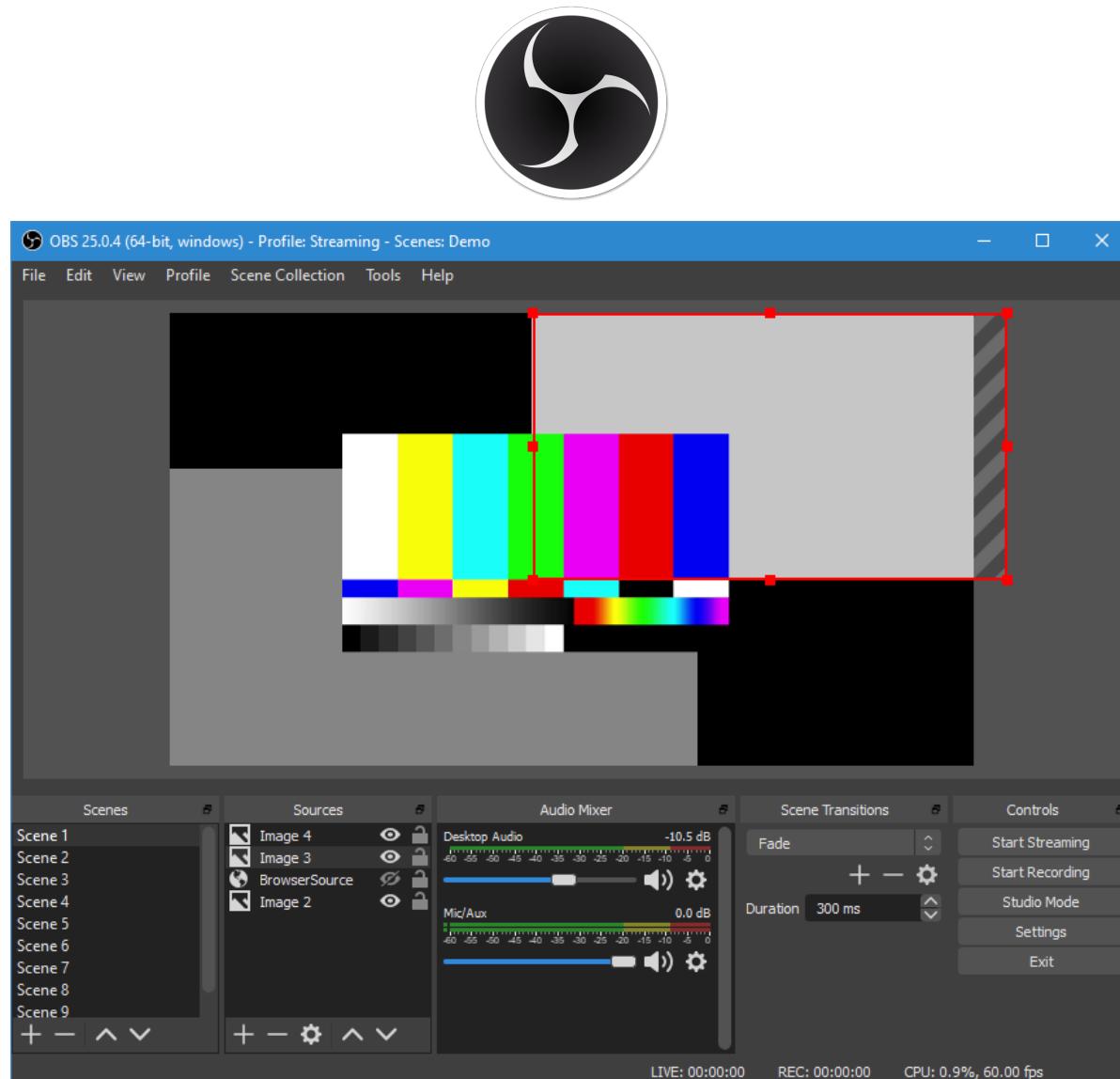


WORDPRESS

Drupal™



# Streaming, Recording



<https://obsproject.com/>

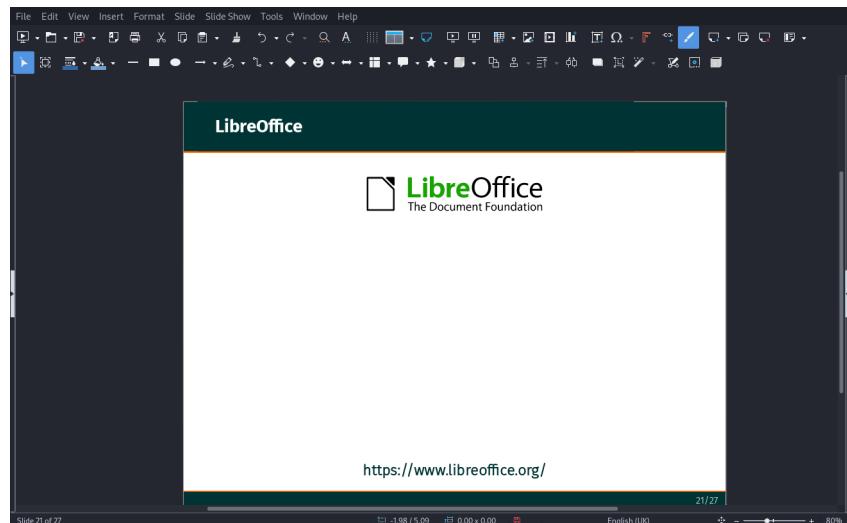
Geo!!!



OSGeo



# Office, Typesetting, Present, Spreadsheet



<https://www.libreoffice.org/>



More....

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NGINX

[https://en.wikipedia.org/wiki/  
List\\_of\\_free\\_and\\_open-  
source\\_software\\_packages](https://en.wikipedia.org/wiki/List_of_free_and_open-source_software_packages)

The infrastructure of the largest companies is built on top of FLOSS and they are contributing to it

Google, Facebook, IBM, etc



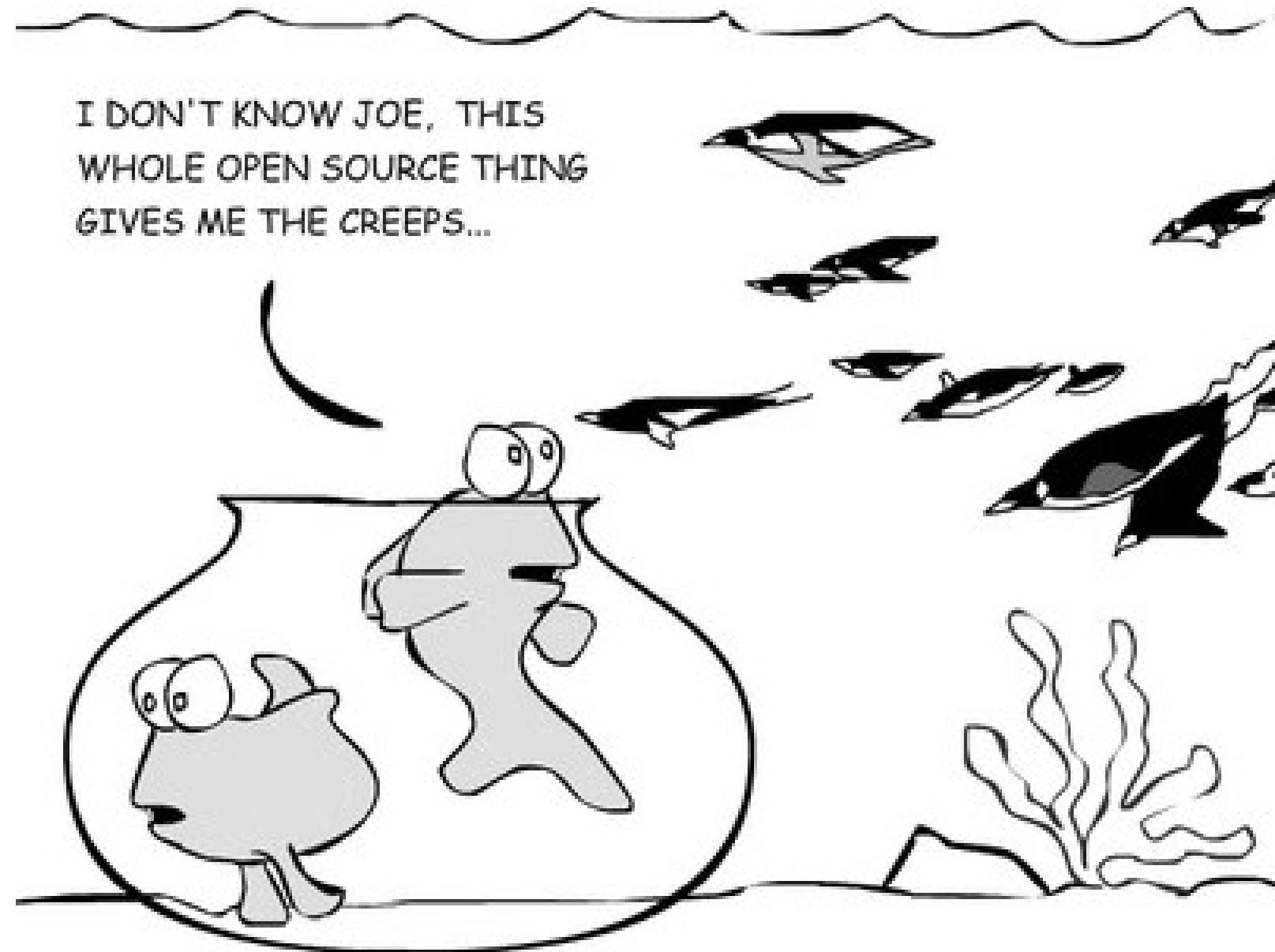
# Reflections

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In your institution...

- how much money is spent yearly on software licensing?
- how much effort (FTE) is put into license management?
- how much unlicensed software is in use?
- which proprietary software is still in use?

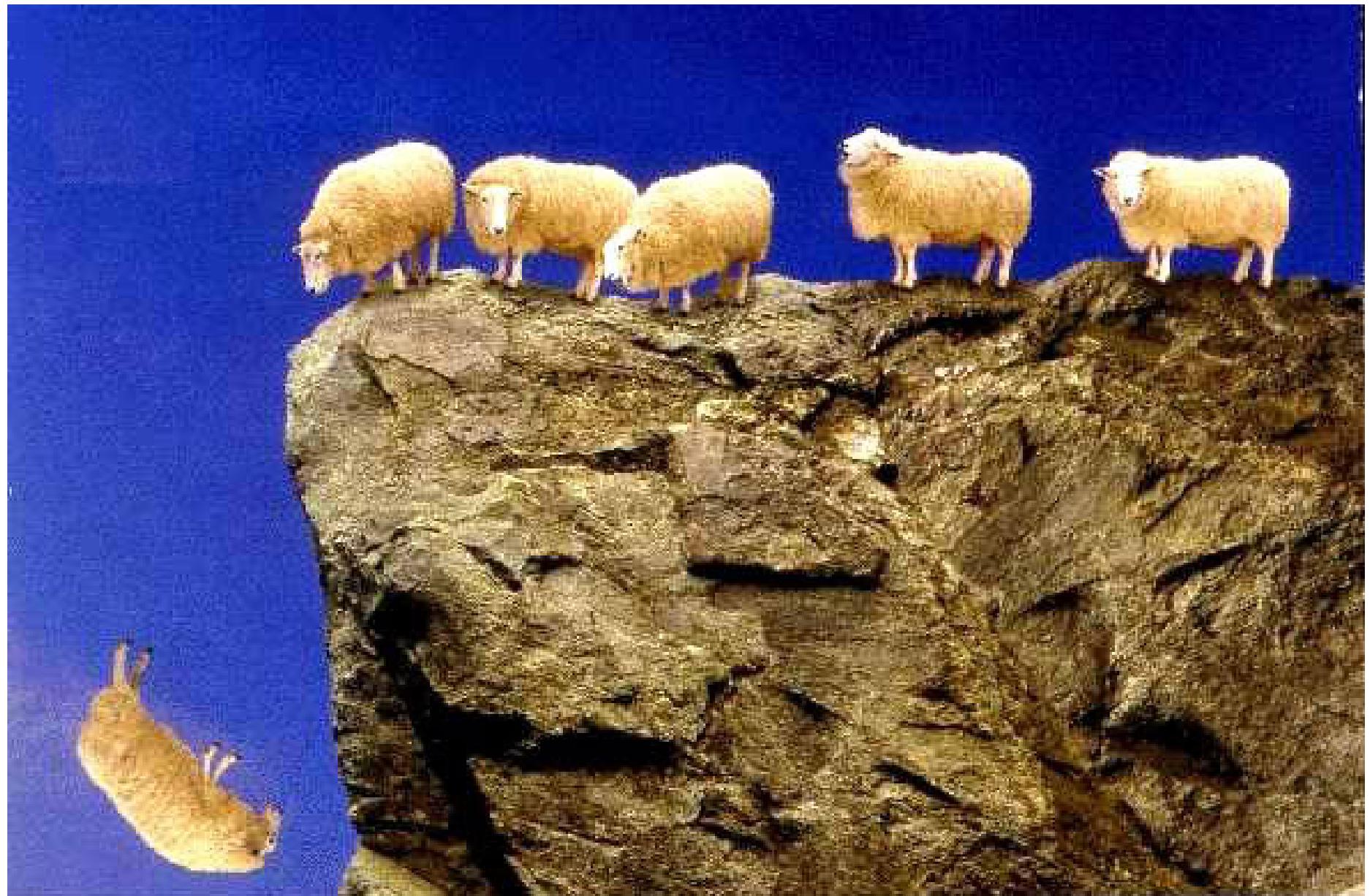
What is the FLOSS policy of your country,  
institution, ...?



Why are you not using (only) FLOSS?

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# Perceived Barriers



# pre-installation of non-free software



# Perceived Barriers?

## Fear, Uncertainty and Doubt about

- features?
- quality?
- sustainability?
- Support?
- requirement to participate in
- the community?



# Perceived Barriers?

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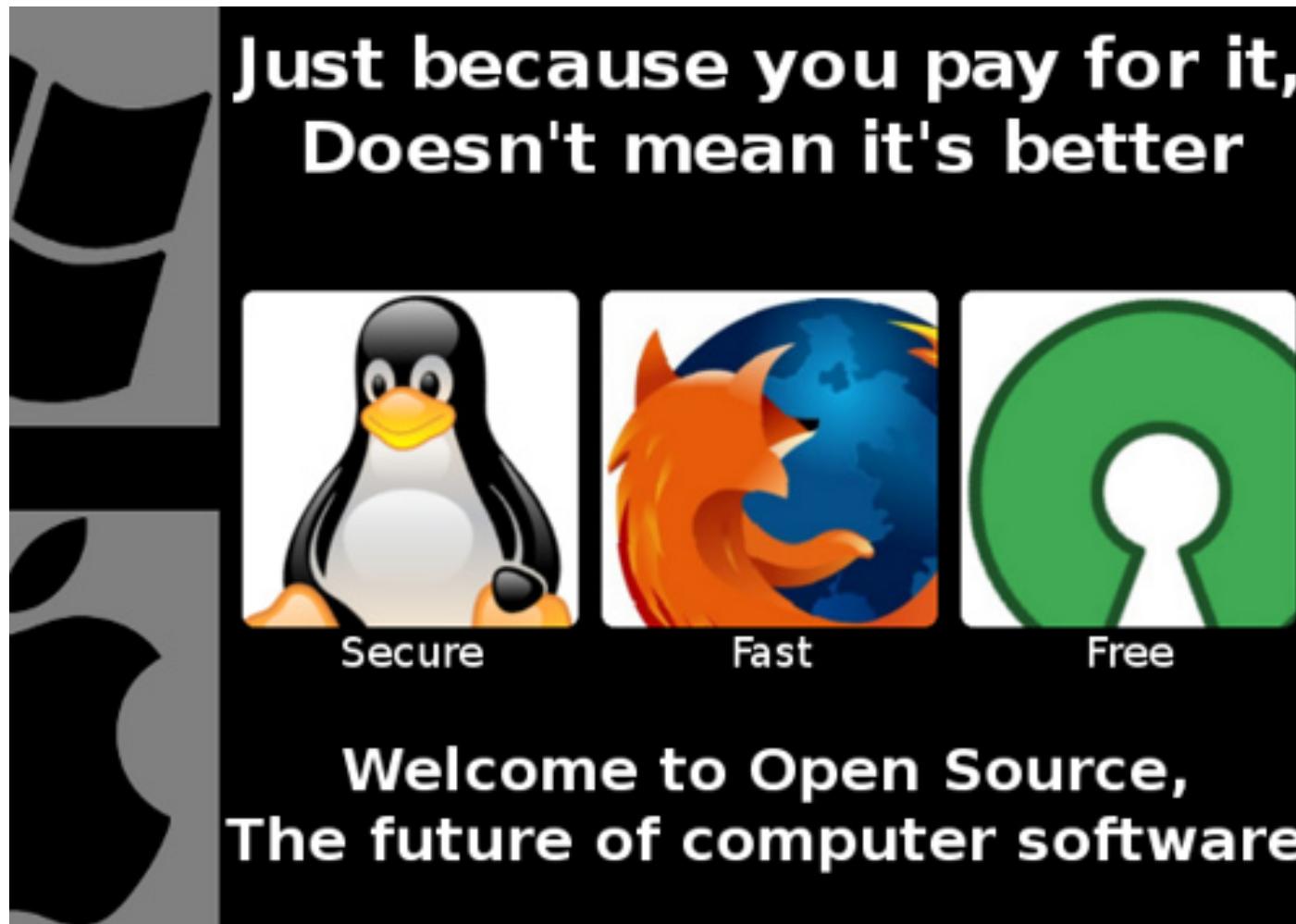
- transition costs
- limited in house expertise
- plethora of choice?

anti-competitive behaviour:

- monopoly abuse
- secret formats
- secret protocols
- data and vendor lock-ins

# Perceived Barriers?

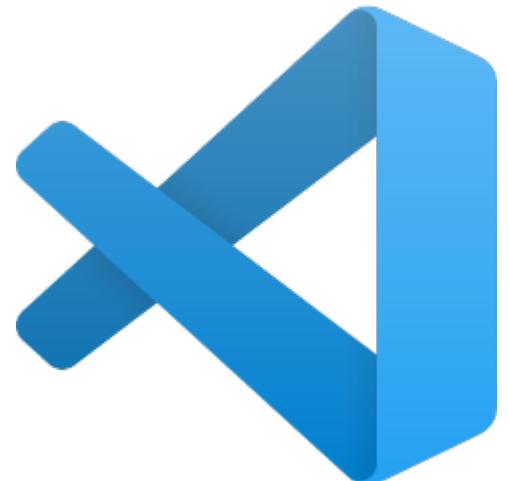
When people can't judge the quality of something, they look at the price, because they expect price and quality to be correlated



If you can't beat them?

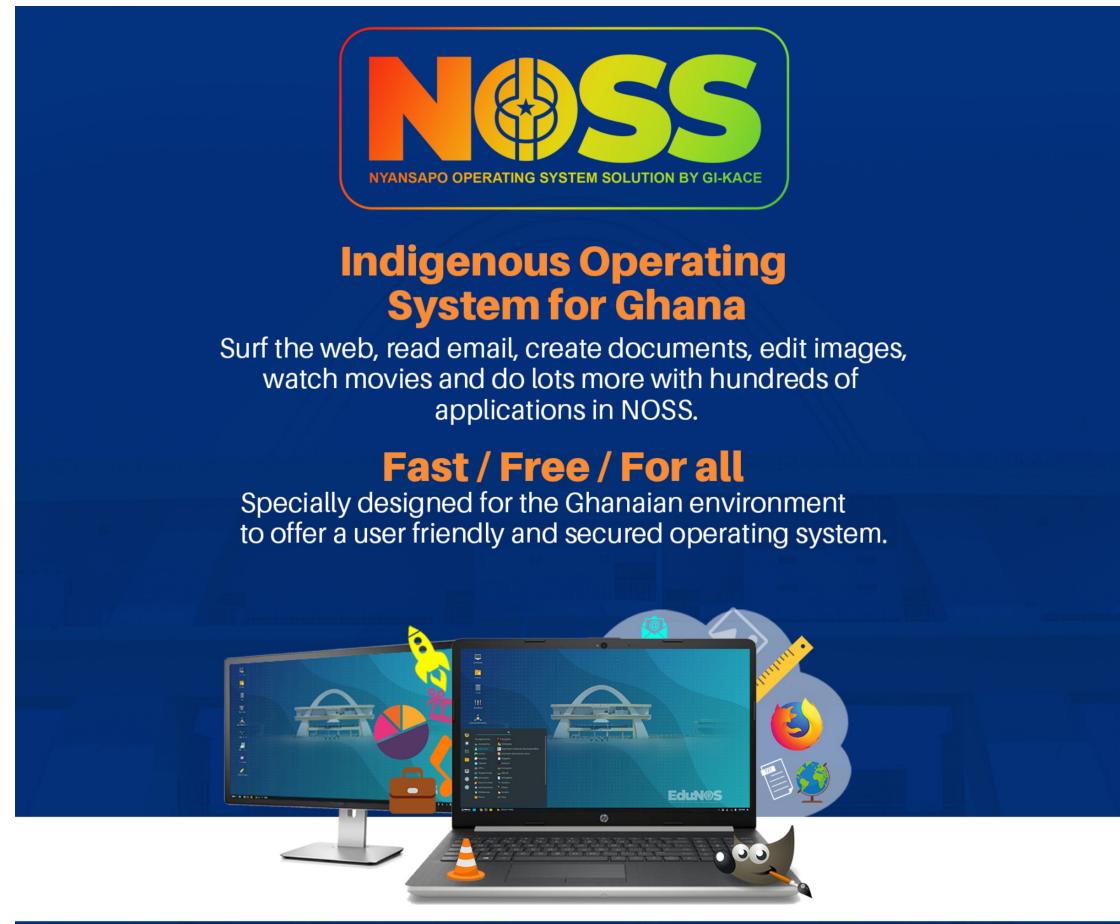


Microsoft acquired **GitHub**, a popular code-repository service used by many developers and large companies, for **\$7.5 billion** in stock. -  
<https://news.microsoft.com/announcement/microsoft-acquires-github/>



# In Ghana?

Ghana Centre for Free & Open Source Software (GCOSS) of the Ghana-India Kofi Annan Centre of Excellence in ICT , Bolgatanga as part of its objective has been working on localized Ghana distribution of **GNU/Linux** called Nyansapo Operating System Solutions (NOSS) based on **Debian**.



**NOSS**  
NYANSAPO OPERATING SYSTEM SOLUTION BY GI-KACE

**Indigenous Operating System for Ghana**

Surf the web, read email, create documents, edit images, watch movies and do lots more with hundreds of applications in NOSS.

**Fast / Free / For all**

Specially designed for the Ghanaian environment to offer a user friendly and secured operating system.

<https://www.aiti-kace.com.gh/noss>

# Credits

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This presentation is inspired by:

Free & Open Source Software (2017 update) by Frederik Questier,  
Professor; Founder at Open Patent Office -

[https://www.slideshare.net/Frederik\\_Questier/foss-workshop-for-jimma-university](https://www.slideshare.net/Frederik_Questier/foss-workshop-for-jimma-university)



Free/Libre and Open Source Software (FOSS)  
Copyleft Mayuri 2004

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## Thank You! Merci! Danke!

open [at] enockseth [dot] co

This presentation was made with 100% FOSS:

[open.enockseth.co/foss\\_adsc.pdf](http://open.enockseth.co/foss_adsc.pdf)

