

# GNU/Linux

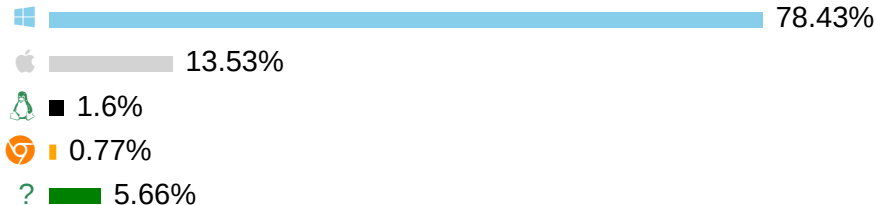
WANG Xiaolin

`wx672ster+linux@gmail.com`

September 1, 2019

# Desktop Market Share

June 2019



<http://gs.statcounter.com>

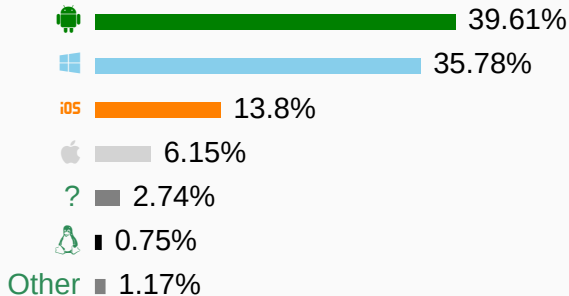
Why Linux?

# OS Market Shares

June 2019

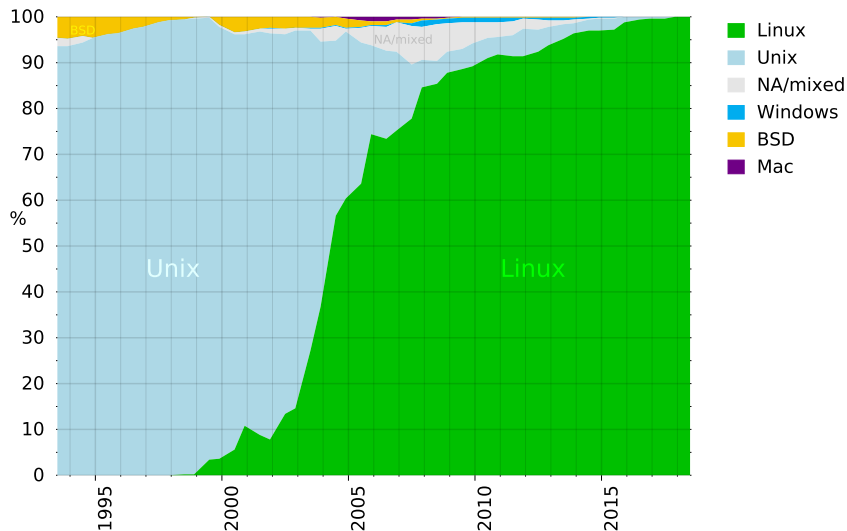
## Everything is a computer

PCs, Servers, Smartphones, Tablets...



<http://gs.statcounter.com>

# Supercomputer Top500



# No Textbook

🚲 Do you need a book to learn riding a 🚲?

G Google

G "linux command line tutorial"

G "bash tutorial"

G "bash scripting tutorial"

G "linux programming tutorial"

E English

/etc/hosts

202.203.132.242 cs2.swfu.edu.cn

202.203.132.241 cs6.swfu.edu.cn

202.203.132.245 cs3.swfu.edu.cn

📖 <https://cs6.swfu.edu.cn/moodle>

📖 <https://cs3.swfu.edu.cn/tech>

# Homework

## Weekly tech question

1. What was I trying to do?
2. How did I do it? (steps)
3. The expected output? The real output?
4. How did I try to solve it? (steps, books, web links)
5. How many hours did I struggle on it?

✉ [wx672ster+linux@gmail.com](mailto:wx672ster+linux@gmail.com)

🇬🇧 Preferably in English

# What's GNU/Linux?

## GNU's Not Unix! — provides free apps

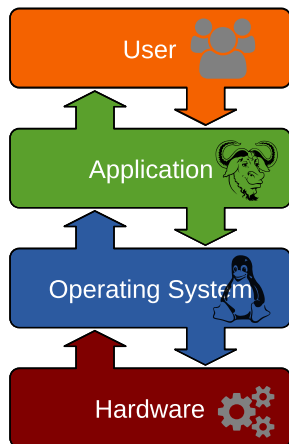


(GNU's Not Unix!) is a project that was headed by Richard Stallman, in 1984, that intended to develop a complete Unix-like operating system that is free software.

## Linux — the kernel



was written by Linus Torvalds, a graduate student of the University of Helsinki in Finland, in early 1990s.



# A Short History of GNU/Linux and Open Source

- 1972: Ritchie created C language. Unix version 2 written mostly by Thompson in C.
- 1984: RMS started the GNU project.
- 1985: FSF was founded by RMS, The GNU manifesto was published.
- 1991: Linux version 0.01 was released on the net.
- 1994: Linux version 1.0 was released.



# Meet The Parents



Ritche



Thompson

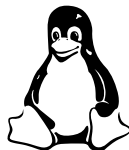


RMS



Linus

UNIX



# How Is GNU/Linux?



# What's Open Source?

OSI — Open Source Initiative

GPL — GNU General Public License, a free, *copyleft* license for software and other kinds of works

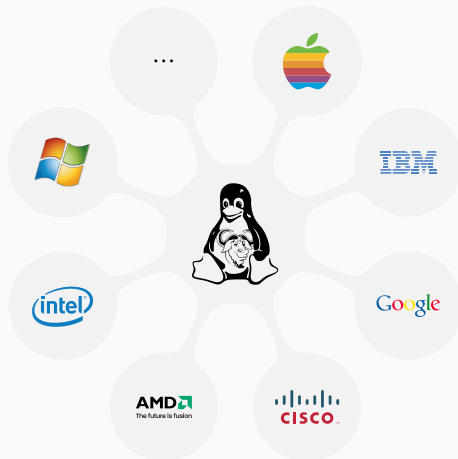
## Share and share alike

“what you take from the community, you give back.”

- ▶ Free redistribution
- ▶ Source Code must be included when a modified version is released
- ▶ Derived works follows the same license as of the previous works

# Are Companies Into Open Source?

Definitely!



Why? Because it benefits them as well.

## The most active companies over the 3.19 to 4.7 development cycles

Company	Changes	Percent	Company	Changes	Percent
Intel	14,384	12.9%	Outreachy	1,524	1.4%
RedHat	8,987	8.0%	Vision Engraving Systems	1,456	1.3%
none	8,571	7.7%	Free Electrons	1,453	1.3%
unknown	7,582	6.8%	NXP Semiconductors	1,445	1.3%
Linaro	4,515	4.0%	Mellanox	1,404	1.3%
Samsung	4,338	3.9%	Atmel	1,362	1.2%
SUSE	3,619	3.2%	Broadcom	1,237	1.1%
IBM	2,995	2.7%	NVIDIA	1,146	1.0%
consultants	2,938	2.6%	Code Aurora Forum	1,033	0.9%
Renesas Electronics	2,239	2.0%	Imagination Technologies	963	0.9%
Google	2,203	2.0%	Huawei Technologies	937	0.8%
AMD	2,100	1.9%	Facebook	877	0.8%
Texas Instruments	1,917	1.7%	Pengutronix	790	0.7%
ARM	1,617	1.4%	Cisco	692	0.6%
Oracle	1,528	1.4%	Qualcomm	656	0.6%

# Linux Development Report 2015

By Linux foundation

- ▶ Nearly 12,000 developers from more than 1,200 companies have contributed to the Linux kernel since tracking began 10 years ago
- ▶ Just since the last report, more than 4,000 developers from 200 companies have contributed to the kernel, half of whom contributed for the first time
- ▶ The number of paid developers is on the rise, as companies aggressively recruit top Linux talent. More than 80% of kernel development is done by developers who are being paid for their work. Volunteer developers tend not to stay that way for long

# Why Is It Popular?

GNU/Linux presents a *choice*, an alternative to the *closed approach* of companies.

## It's popular among different groups

- ▶ geeks and hobbyists
- ▶ IT professionals
- ▶ Software developers
- ▶ System/Network administrators
- ▶ Internet/Network engineers

In a world without walls and fences, who needs  
Windows and Gates?

# Is Open Source A Viable Solution?

Yes!

Apache: the leading web server in the world



(<http://W3Techs.com>, 5 July 2019)

MySQL, PostgreSQL: popular DBs used among websites

Perl, PHP, Python: very hot scripting language

Sendmail: the most popular MTA in the world

BIND: the most popular DNS server in the world

GCC: most popular C/C++ compiler in the world

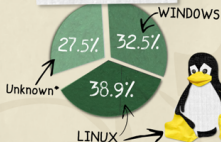


2014

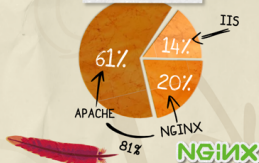
# Open Source Owns the Web

#web25  
edition

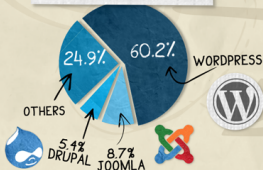
## Operating Systems



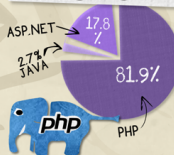
## Web Servers



## Content Management

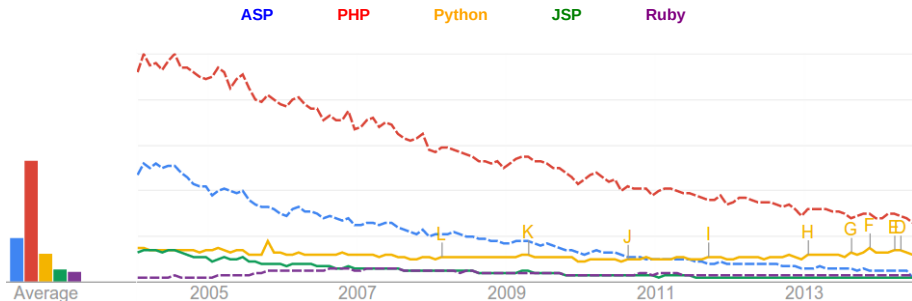


## Server-Side Languages



# More Facts

## Popular Web Programming Tools

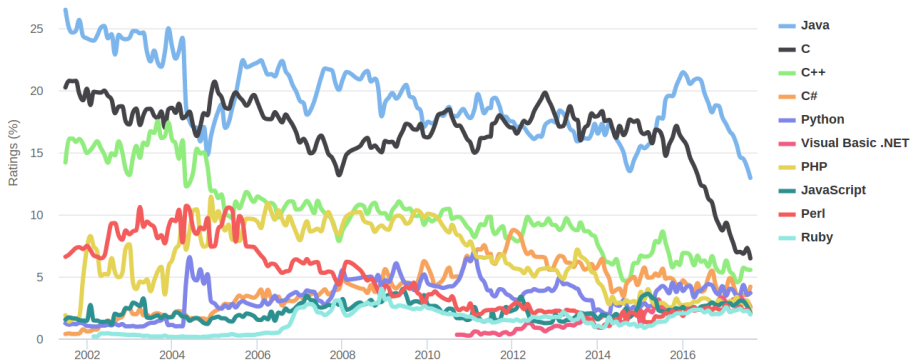


PHP, Python, JSP, Ruby are Linux friendly

<https://www.google.com/trends>

# More Facts

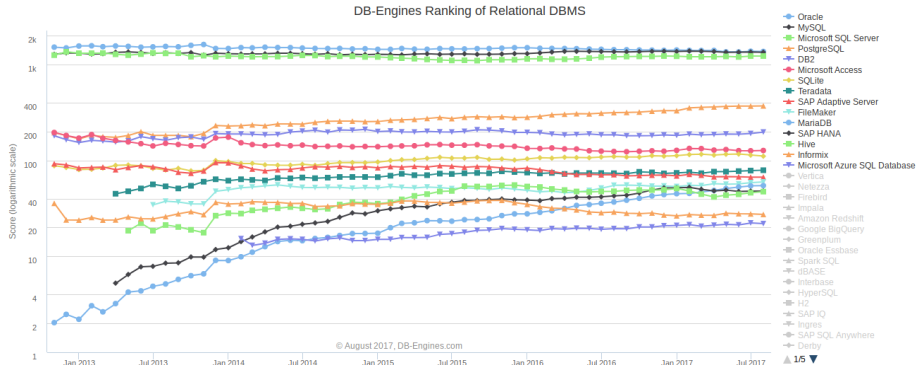
## Top10 Programming Languages



*TIOBE Index for July 2017*

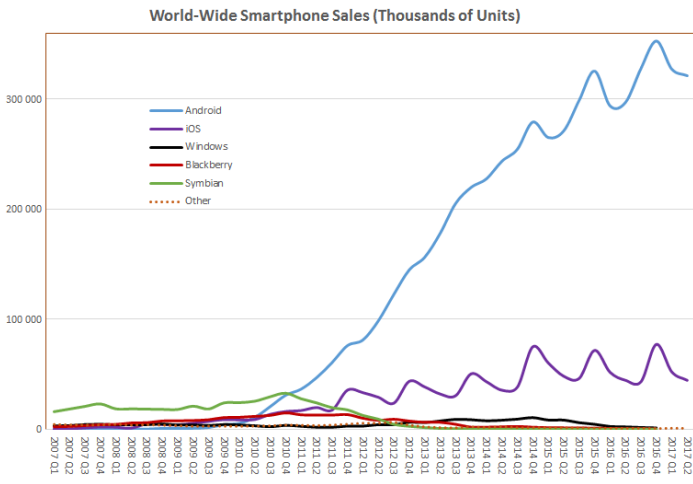
# More Facts

## Databases






DB-Engines Ranking — Trend of Relational DBMS Popularity

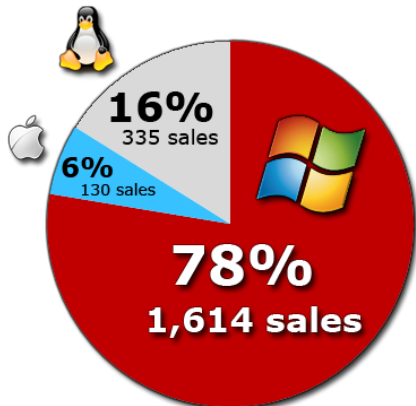
# Smartphone Market Share



# Games

## Steam platform support



-  since 2002
-  since 2010
-  since July, 2012



Steam Linux Sale Results  
DefendersQuest.com

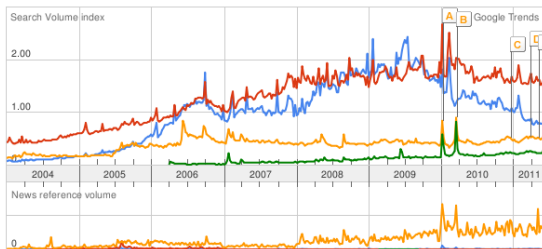
# Use The Right Tools For The Right Jobs

I don't mean  is for everyone to do everything

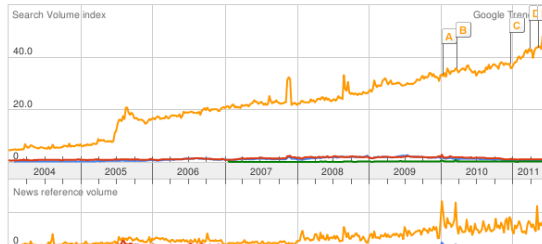
- ▶  is the platform of choice for audio enthusiasts and gamers
- ▶  are the choice for most graphics designers, desktop publishing firms, and video production houses
- ▶ SGI is king when it comes to 3D modelling/animation
- ▶ Solaris and other commercial Unices have there place in the world

# The Distance

**baidu** 1.00 **百度** 1.28 **google** 0.38 **谷歌** 0.08



**baidu** 1.00 **百度** 1.40 **google** 22.6 **谷歌** 0








# How To Learn GNU/Linux?

## My advices

► Use  to do your daily work. Can you do...

- homework on .
- coding on .
- lab work on .

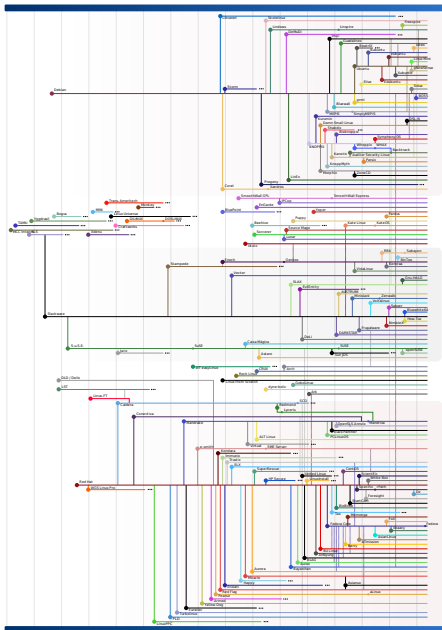
if **NO**

then Start **NOW!**



- Google
- English

# Distributions



# Which Distribution?

