



# GNU/Linux

WANG Xiaolin

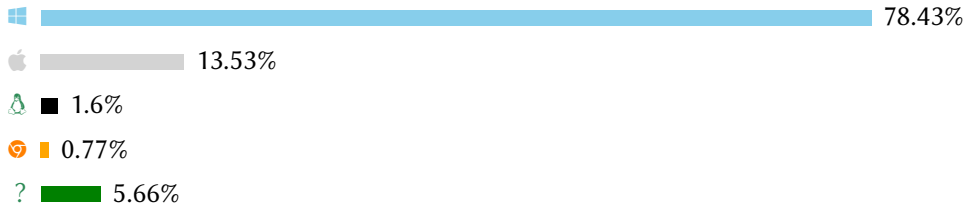
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September 15, 2022



# Desktop Market Share

June 2019



Why Linux?

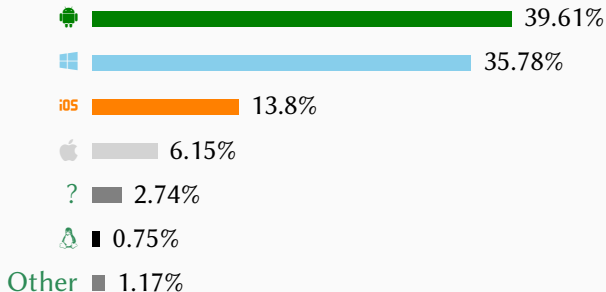
<http://gs.statcounter.com>

# OS Market Shares

June 2019

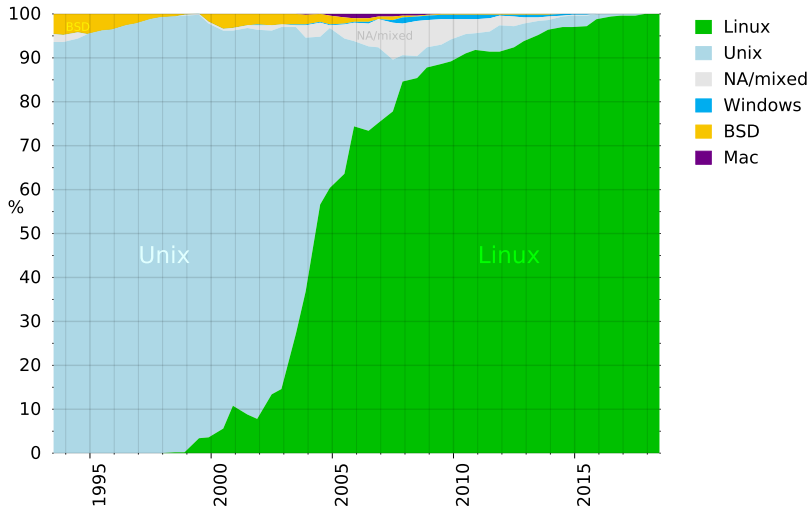
## Everything is a computer

PCs, Servers, Smartphones, Tablets...



<http://gs.statcounter.com>

# Supercomputer Top500



# No Textbook



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

🔍 Google

🔍 "linux command line tutorial"

🔍 "bash tutorial"

🔍 "bash scripting tutorial"

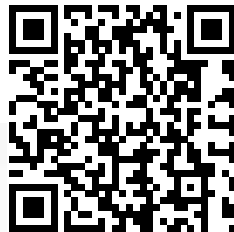
🔍 "linux programming tutorial"

📖 English

🎓 <https://cs6.swfu.edu.cn/moodle/course/view.php?id=13>

📖 <https://cs6.swfu.edu.cn/calibre>


# 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?

 <https://cs6.swfu.edu.cn/moodle/mod/forum/view.php?id=251>

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

 Preferably in English

# What's GNU/Linux?

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

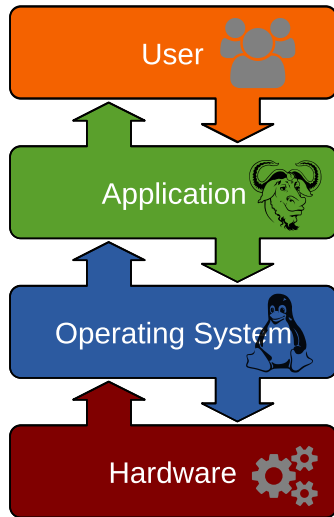


(GNU's Not Unix!) is a project that was headed by Richard Stallman, in 1984, that intended to develop a complete Unix-like operating system that is free software.

## 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

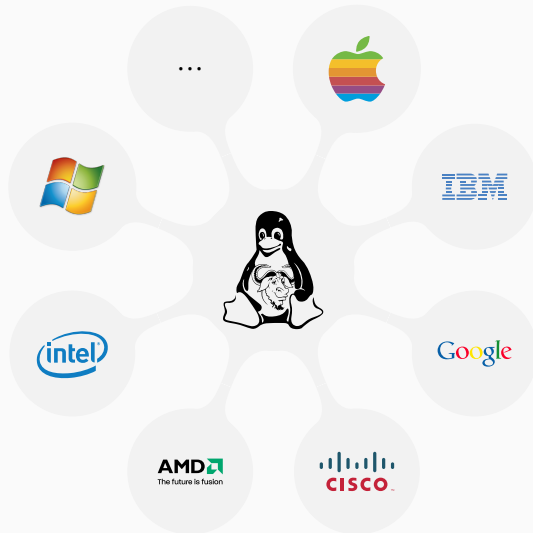
## Share and share alike

``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!



## 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

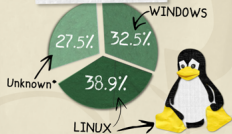


2014

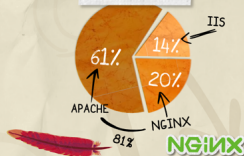
# Open Source Owns the Web

#web25  
edition

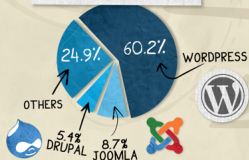
## Operating Systems



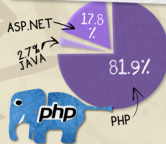
## Web Servers



## Content Management

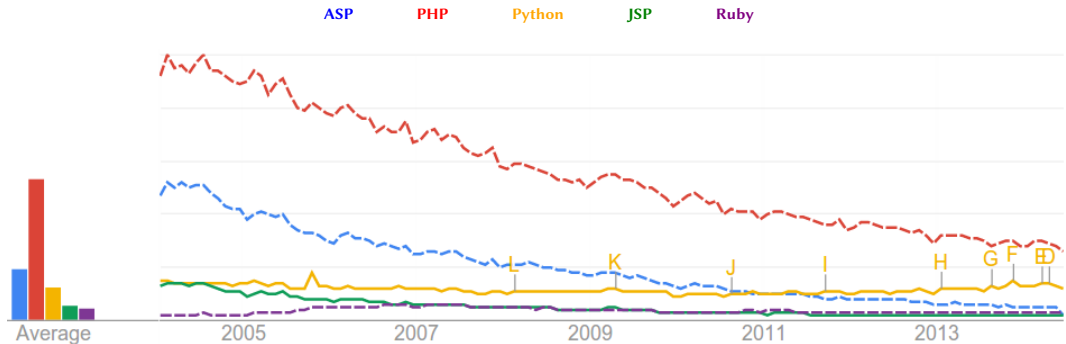


## Server-Side Languages



# More Facts

## Popular Web Programming Tools



PHP, Python, JSP, Ruby are Linux friendly

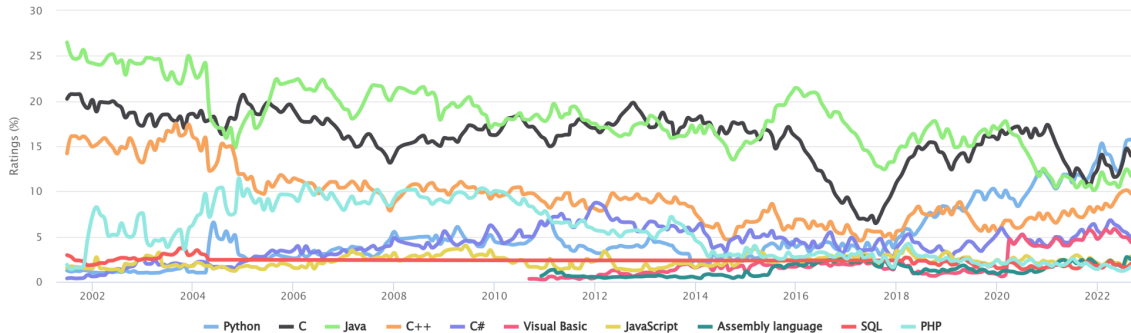
<https://www.google.com/trends>

# More Facts

## Top10 Programming Languages

TIOBE Programming Community Index

Source: [www.tiobe.com](http://www.tiobe.com)

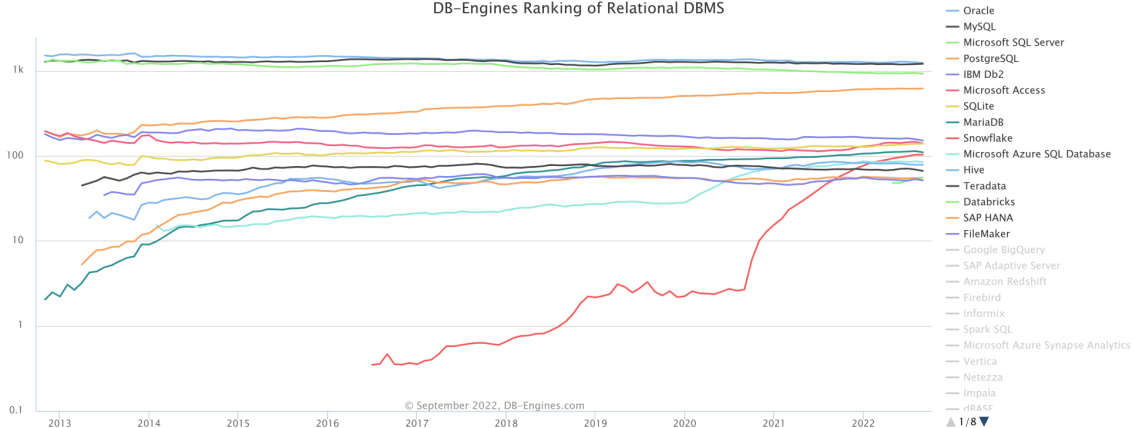


*TIOBE Index for September 2022*

# More Facts

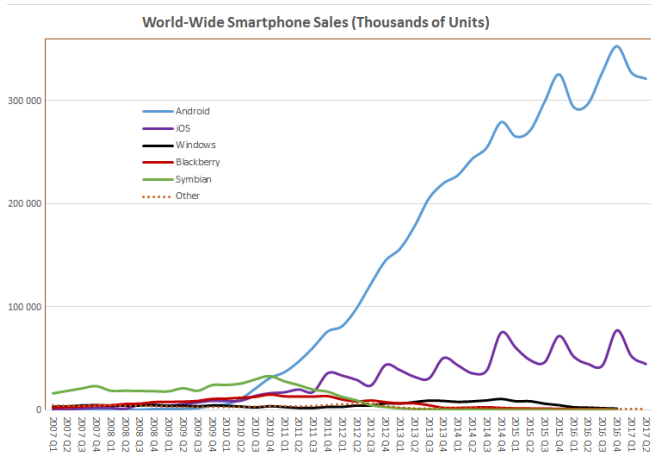
## Databases

DB-Engines Ranking of Relational DBMS



DB-Engines Ranking — Trend of Relational DBMS Popularity

# Smartphone Market Share



86.1%



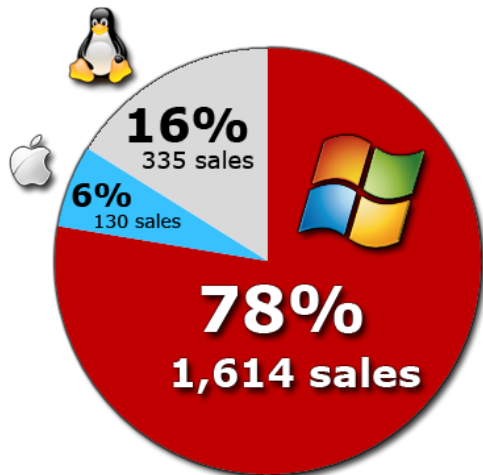
13.7%

Other | 0.2%

# Games

## Steam platform support



-  since 2002
-  since 2010
-  since July, 2012



Steam Linux Sale Results  
DefendersQuest.com

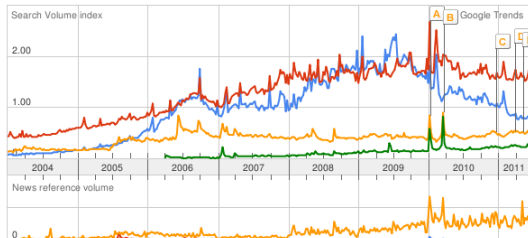
# Use The Right Tools For The Right Jobs

I don't mean  is for everyone to do everything

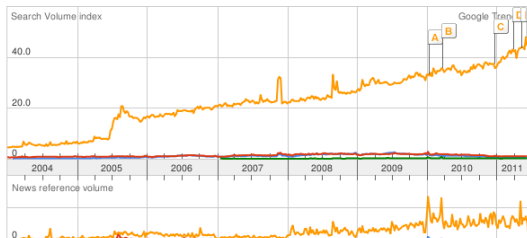
- ▶  is the platform of choice for audio enthusiasts and gamers
- ▶  are the choice for most graphics designers, desktop publishing firms, and video production houses
- ▶ SGI is king when it comes to 3D modelling/animation
- ▶ Solaris and other commercial Unices have there place in the world

# 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

## Which Distribution?

