



Introduction to Linux

Linux Essentials Session-1

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WAY TO REINVENT YOURSELF

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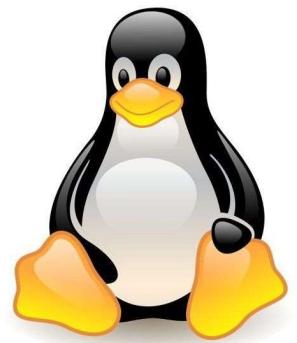
- ▶ Why/Where/When Linux
- ▶ Linux Evolution
- ▶ Major Open Source Applications
- ▶ FSF and OSI
- ▶ Open Source Software and Licensing
- ▶ Using Linux on Different Platforms



Why Linux?

Where Linux?

When Linux?



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▶ Why Linux?



- ★ **Total cost of ownership**
- ★ **Beginner friendly and easy to use**
- ★ **Reliability**
- ★ **Hardware**
- ★ **Software**
- ★ **Security**
- ★ **Freedom**
- ★ **Annoying crashes and reboots**
- ★ **Server segment**
- ★ **Linux is everywhere**

* <http://www.linuxandubuntu.com>

► Where Linux?



<http://www.tecmint.com>



London
Stock
Exchange



New York Stock Exchange



WIKIPEDIA

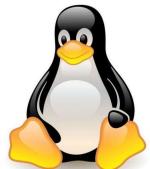


30 Companies and Devices Running on GNU/Linux

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► Where Linux?



1. Google

The services of which includes search, cloud computing and online advertising technologies runs on Linux.

2. Twitter

Twitter, famous online social networking and micro-blogging site is Powered by Linux.

3. Facebook

Facebook, one of the most famous and most widely used Social Networking service runs on the same platform.

4. Amazon

An American based international company which deals with International Online Retailing is in the list of Linux powered Company.

5. IBM

IBM (International Business Machine Corporation) the American based company which for sure don't requires any introduction, is again powered by Linux.

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Cited from: <https://www.tecmint.com>



Where Linux?

6. McDonalds

The world's largest chain of hamburger fast food restaurant uses GNU/Linux (Ubuntu) too.

7. Submarines

The submarines in the United State Navy are controlled by same platform.

8. NASA

National Aeronautical and Space Administration, The United Nations Space program widely uses Linux in many of their programmes.

9. Watches

Most of you would not be knowing that there are Linux Powered Watches in the market, already. The watch developed by IBM running Linux.

10. Mobile Devices

True, you all know that Linux is powering Mobile Phones, Tablets and Kindle.



Where Linux?

11. Space

A Specific Linux Distro (Debian) is already in the space. Debian led all the rest.

12. Raspberry pi

The business card sized computer designed for electronic projects as well as desktop computing which is very cheap in cost and is fully functional. Raspberry is a landmark in Linux Development.

13. Desktop Computing

Though a little late, Linux made a notable presence in the desktop computing market. In school and academics as well as in government offices Linux are being widely used, these days.

14. Corporates

The corporate offices are using Linux and finds it more productive than any other alternatives.



Where Linux?

15. New York Stock Exchange

New York Stock Exchange (NYSC) which provides means for buyers and sellers in order to trade shares of stock in companies registered for public trading relies solely on Linux.

16. Traffic Controlling

The Traffic controlling system in most of the countries be it Road Traffic or Air Traffic Linux proved to be the best than any other available alternative.

17. Nuclear Projects

When it comes to Nuclear Ambitious projects, Linux is the best option. One of such OS is QNX, which lately is acquired by Blackberry Ltd.

18. Bullet Trains

The Bullet Trains in Japan runs at the speed of 240-320 km/h. All train tracking, maintenance, scheduling and controlling is Linux based.



Where Linux?

19. Internet Hosting

More than 70% of Internet Hosting and service providers are Linux based. Thought this statistic is difficult to figure out but based upon the Linux compatible hardware sold, and demand for cross platform compatible hardware, the above statistics is a rough estimation.

20. Missiles and Weapons

The Missiles and destructive weapons of next generation is themed to be much advanced and Intelligent system than its predecessors. Well what else would have been its alternative.

► When Linux?



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Linux Evolution

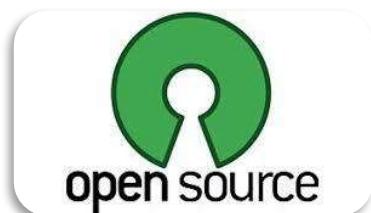


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What is Linux?



- Free
- Open-Source
- OS

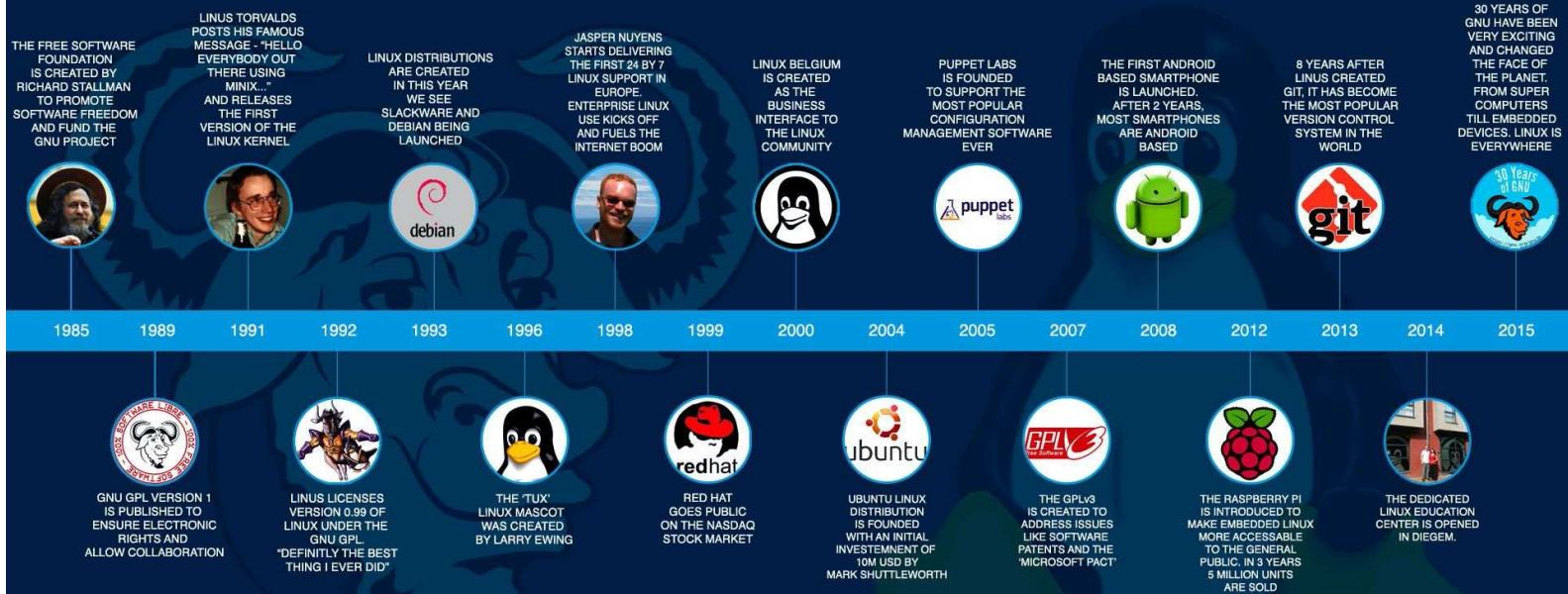


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MEMORABLE LINUX EVENTS CELEBRATING 30 YEARS OF GNU LINUX



1991

Memorable Linux Events



Linus Benedict Torvalds



Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be big and professional like gnu) for 386(486) AT clones. This has been brewing since april, and is starting to get ready. I'd like any feedback on things people like/dislike in minix, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) among other things).

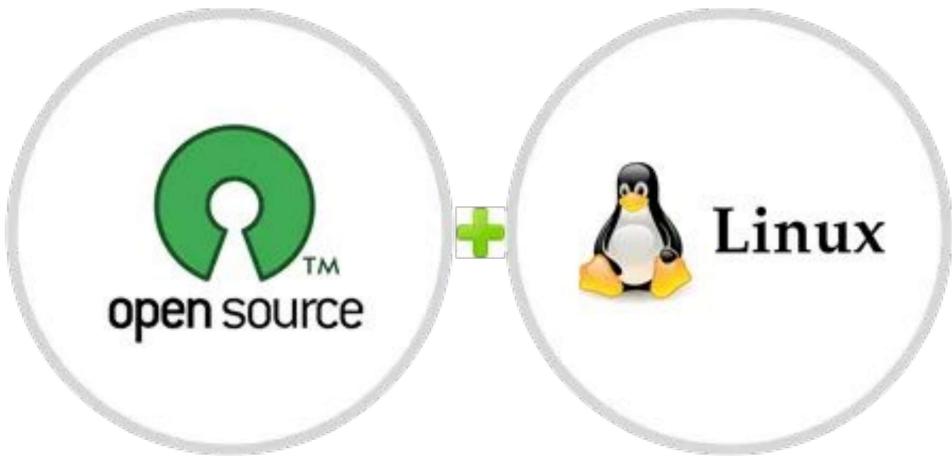
I've currently ported bash(1.08) and gcc(1.40), and things seem to work. This implies that I'll get something practical within a few months, and I'd like to know what features most people would want. Any suggestions are welcome, but I won't promise I'll implement them :-)

Linus (torv...@kruuna.helsinki.fi)

PS. Yes - it's free of any minix code, and it has a multi-threaded fs. It is NOT portable (uses 386 task switching etc), and it probably never will support anything other than AT-harddisks, as that's all I have :-(.

1992

Memorable Linux Events

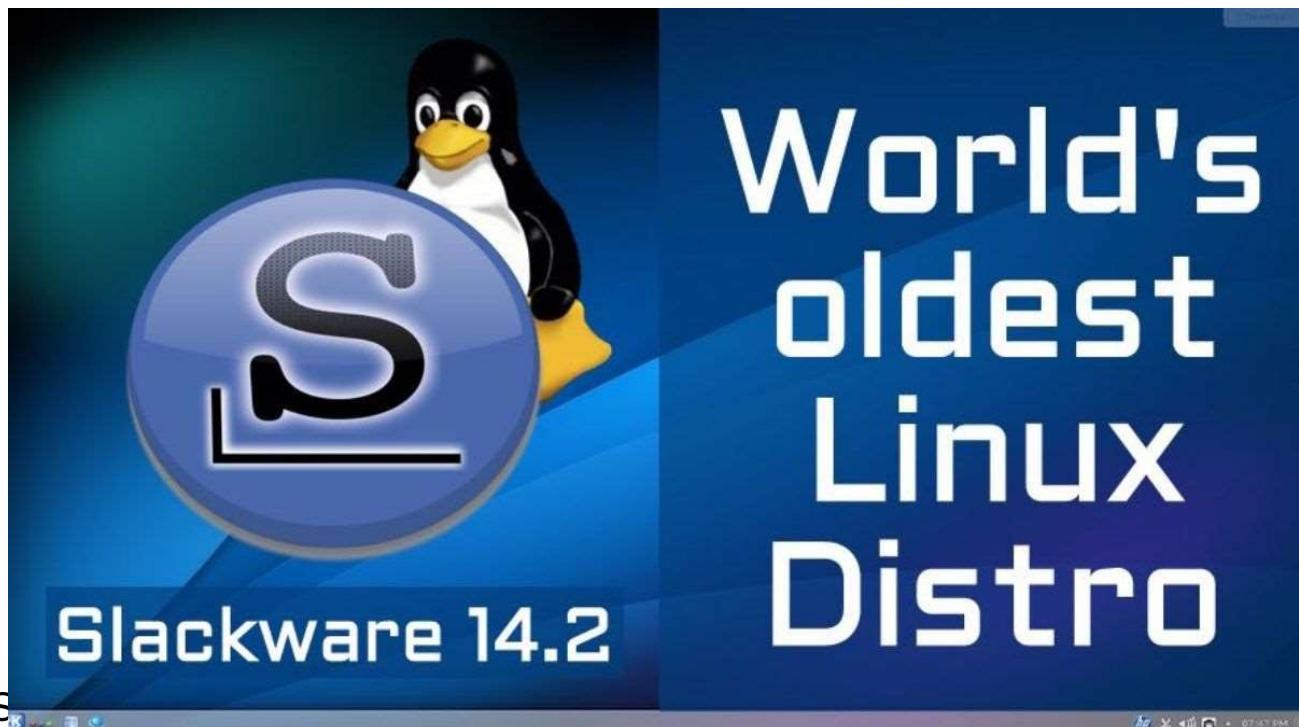


"Making Linux GPLed was definitely the best thing I ever did."

Torvalds, L.

► Memorable Linux Events

1993 ➤



► Memorable Linux Events

1995 ➤



► Memorable Linux Events

1996



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► Memorable Linux Events

1997

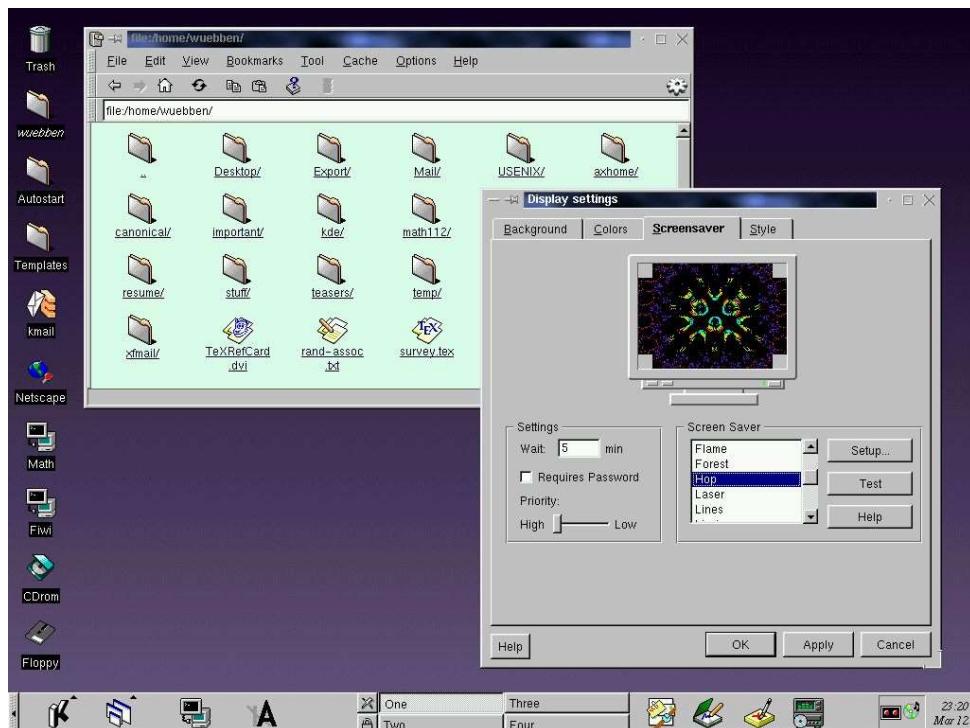


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Memorable Linux Events

1998

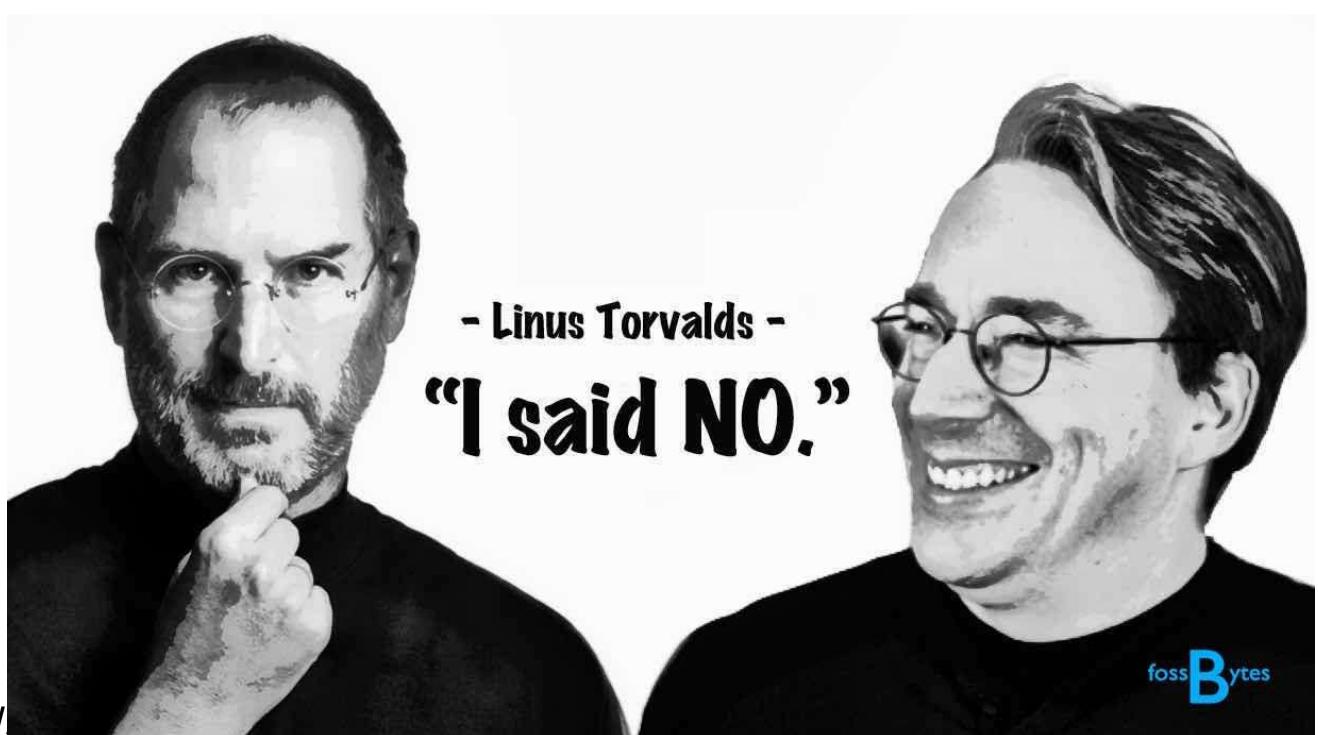


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Memorable Linux Events

2000



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Memorable Linux Events

2002

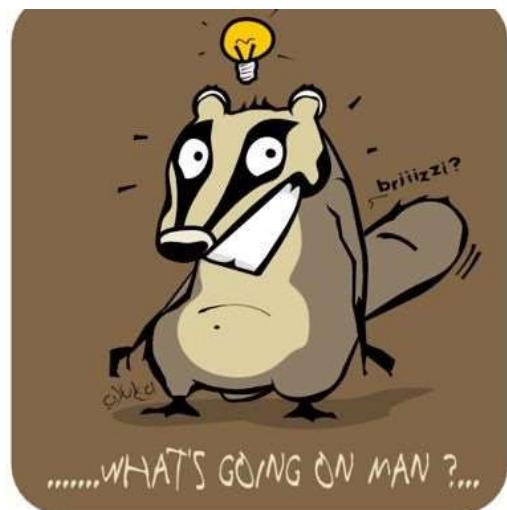


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Memorable Linux Events

2004



 ubuntu



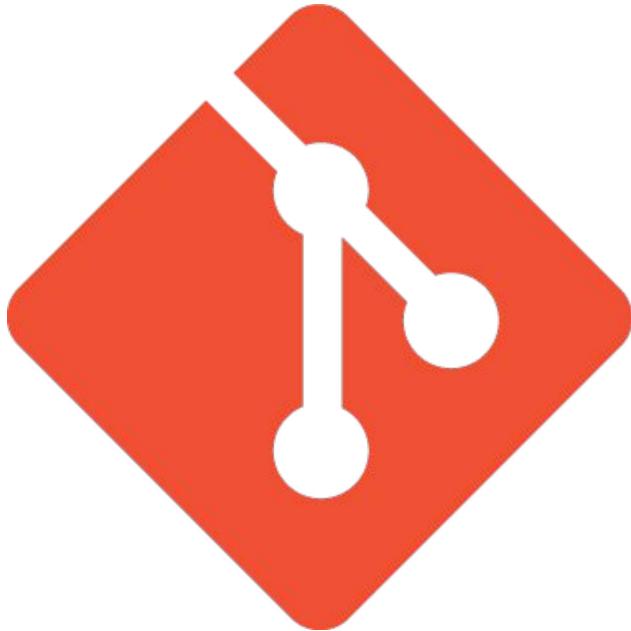
 ubuntu

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► Memorable Linux Events

2005



git

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2008



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► Memorable Linux Events

2009



Operating System



Google Chrome OS

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► Memorable Linux Events

2014



"Microsoft loves Linux"
-Satya Nadella, 2014

Microsoft ❤️ Linux

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► Memorable Linux Events

2019



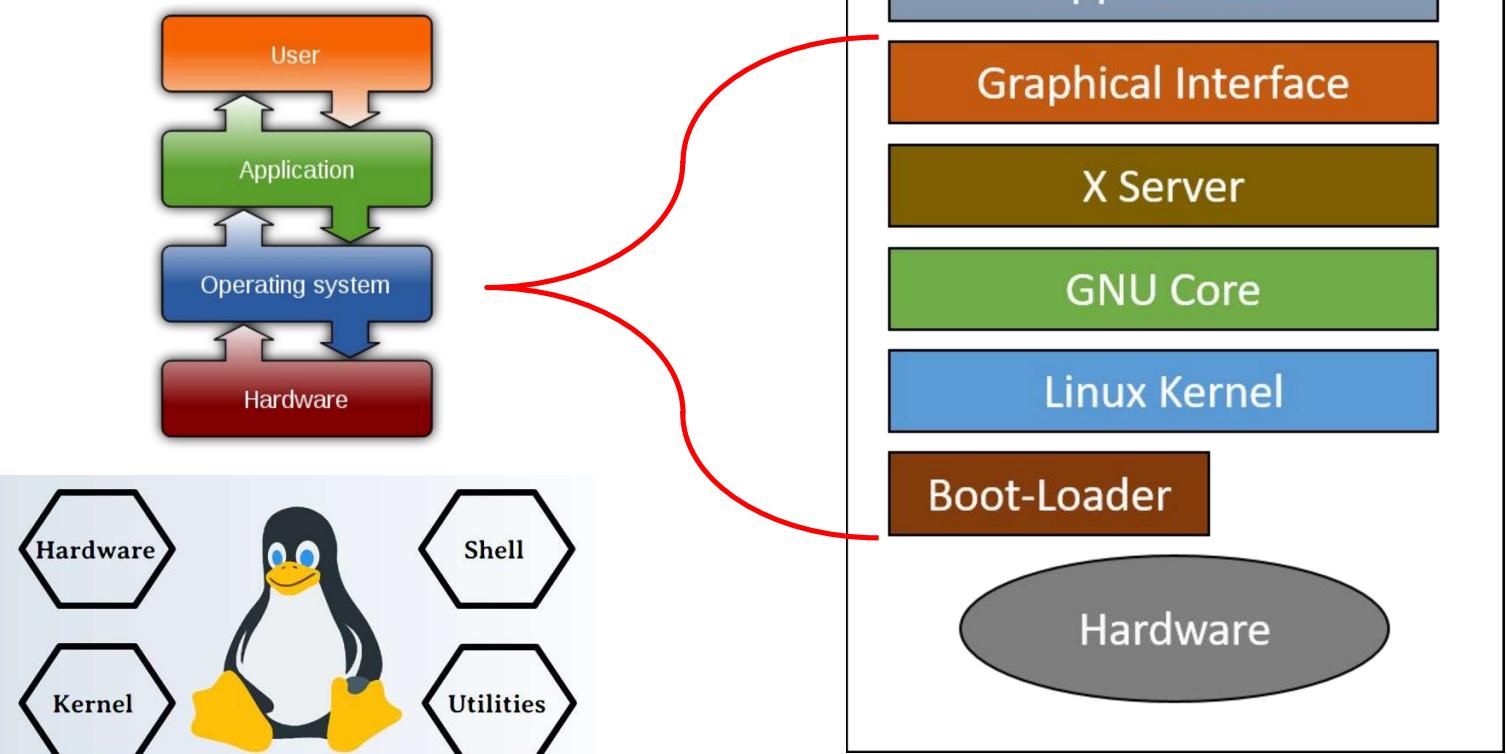
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► Kahoot!



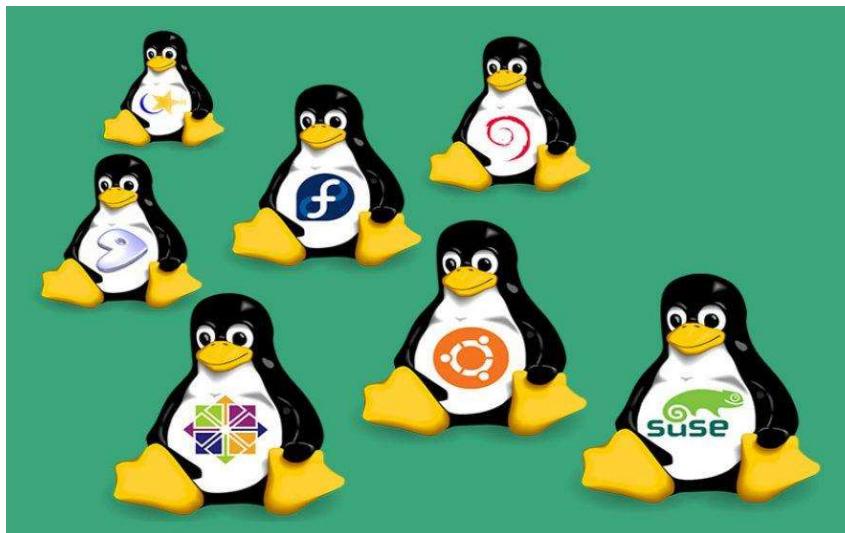
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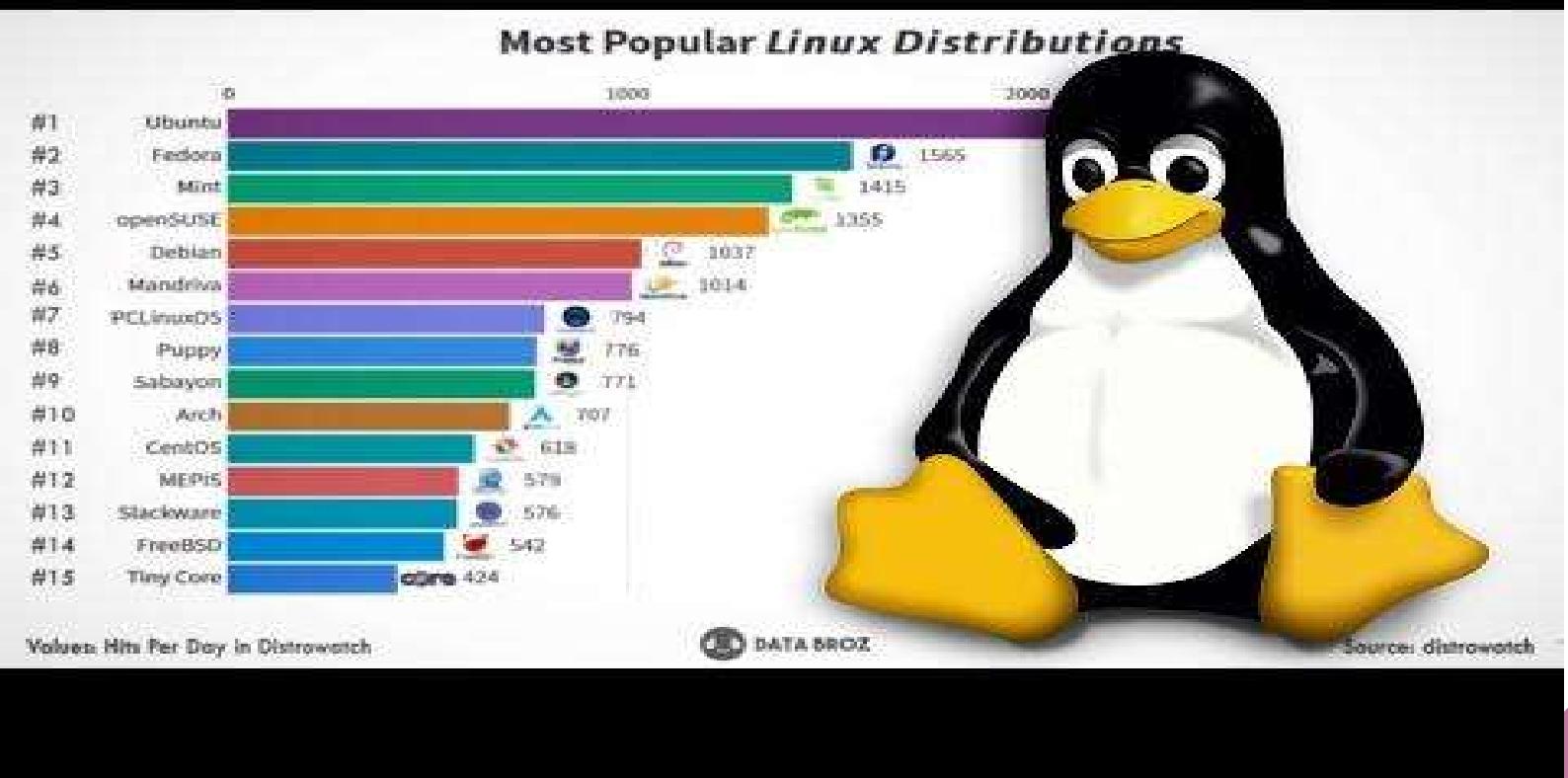
Components of Linux



Popular Linux Distributions

- [Debian](#)
- [Ubuntu](#)
- [Mint](#)
- [Manjaro](#)
- [openSUSE](#)
- [RedHat](#)
- [Fedora](#)

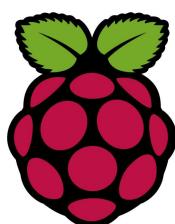




► Linux Embedded Systems

Embedded System

An embedded system is a computer system that is dedicated to one or two specific functions.



Major Open Source Applications



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► What is open-source



Open-source software is software with source code that anyone can inspect, modify, and enhance.

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► Desktop Applications



1. LibreOffice
2. VLC Media Player
3. GIMP
4. Shotcut
5. Brave
6. Audacity
7. KeePass
8. Thunderbird
9. FileZilla
10. Linux



Cited from: <https://www.techradar.com/best/best-open-source-software> 37

► Server Applications

- [Apache Web Server](#)
- [NGINX](#)
- [MySQL](#)
- [Samba](#)
- [ownCloud](#)



► Package Management Tools

- Contemporary distributions of Linux-based operating systems install software in pre-compiled packages, which are archives that contain binaries of software, configuration files, and information about dependencies.



- **dpkg**: Debian Package Manager
- **apt-get**
- **rpm**: Red Hat Package Manager
- **yum**: yellowdog updater modified



Free Software Foundation (FSF)

Open Software Initiative (OSI)



► FSF and OSI



Free Software Foundation (FSF)

- The Free Software Foundation (FSF) is a nonprofit organization with a worldwide mission to promote computer user freedom.
- The FSF is working to secure freedom for computer users by promoting the development and use of free software and documentation.



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

► FSF and OSI



Open Source Initiative (OSI)

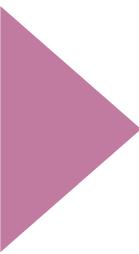
- The Open Source Initiative (OSI) is a non-profit organization dedicated to the promotion of open-source software.
- OSI was founded in 1998 by Bruce Perens and Eric Raymond.



<https://opensource.org/>



Open-Source Software and Licensing



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► Open-source Licensing



Open source licenses are licenses that comply with the Open Source Definition — in brief, they allow the software to be freely used, modified, and shared. To be approved by the Open Source Initiative (also known as the OSI), a license must go through the Open Source Initiative's license review process.



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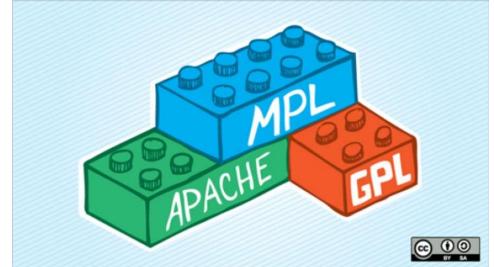
Open-source Licensing



Popular Licenses

The following OSI-approved licenses are popular, widely used, or have strong communities:

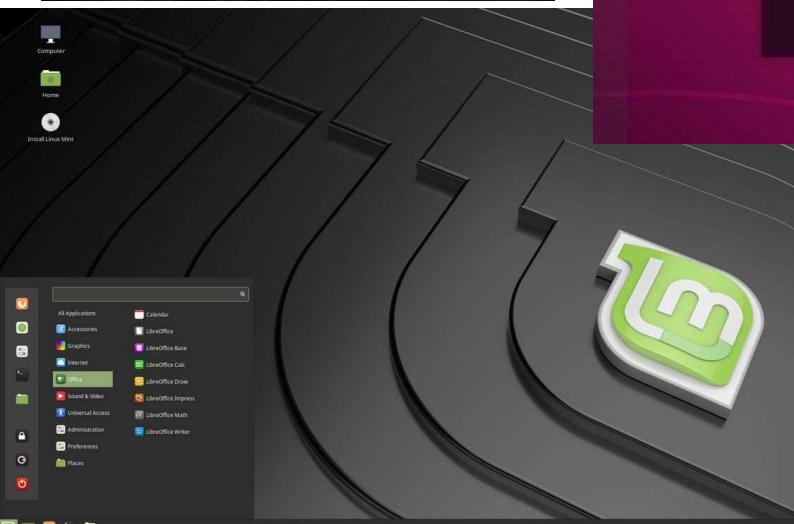
- Apache License 2.0
- BSD 3-Clause "New" or "Revised" license
- BSD 2-Clause "Simplified" or "FreeBSD" license
- GNU General Public License (GPL)
- GNU Library or "Lesser" General Public License (LGPL)
- MIT license
- Mozilla Public License 2.0
- Common Development and Distribution License
- Eclipse Public License version 2.0



Using Linux on Different Platforms



Linux Alternatives



Linux Alternatives

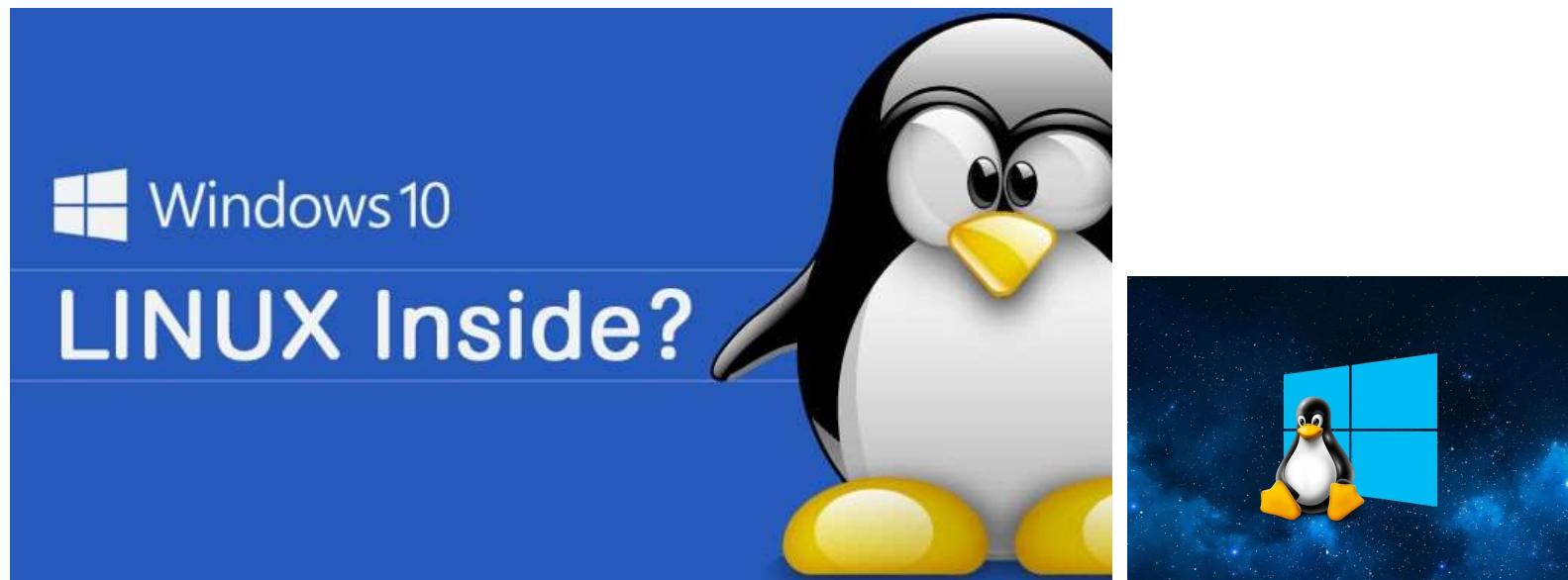
LMS: Try it

A screenshot of a web-based Learning Management System (LMS) interface. The URL is 'lms.clarusway.com/mod/lti/view.php?id=1315'. The page title is 'CLARUSWAY Way to Reinvent Yourself'. On the left, there's a sidebar with a navigation menu: 'Linux', 'Participants', 'Badges', 'Competencies' (which is checked), 'Grades', 'General', 'Course Overview', 'Introduction of Linux', 'Major Open-Source Applications', 'Open-Source Software and Licensing', 'How to install and run Linux? (Optional)', and 'Command Line Basics' (which is highlighted). The main content area has a heading 'Try it' and a sub-section 'Loading...'. It displays a terminal-like interface with the text 'Welcome to JS/Linux (x86)' and instructions for connecting via 'vflogin'. At the bottom, there are links for 'Complementary Interactive Lesson about...', 'Jump to...', 'Check Yourself ▶', and a footer note: '48'

Linux Alternatives



WSL 2



Linux Alternatives



Linux Distros on Virtual Machines

MacOS/Windows

<https://www.virtualbox.org/wiki/Downloads>



ORACLE
VM
VirtualBox

Windows



VMware Player

<https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html>



Linux Distros on Virtual Machines



<https://ubuntu.com/download/desktop>



<https://www.debian.org/distrib/netinst>



THANKS!

Any questions?

Kahoot!



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<https://www.youtube.com/watch?v=o8NPllzkFhE>

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- [6:50 Most Popular Linux distros](#)
- [8:37 Installing Linux – VirtualBox](#)
- [18:05 Introduction to Linux operating system and comparison with windows](#)
- [24:32 Terminal vs. File Manager](#)
- [27:20 Command Line Interfaces on Ubuntu Operating system](#)
- [49:19 Brief of Linux commands](#)
- [52:04 Ownership in Linux Files \(Permissions in Linux\)](#)
- [1:04:58 Print, Email & Install Software on Linux](#)
- [1:25:34 Regular expressions In Linux/Ubuntu](#)
- [1:30:46 Basic Environment Variables](#)
- [1:35:56 Communication in Linux](#)
- [1:37:21 FTP \(File transfer protocol\)](#)
- [1:42:35 Types of Processes in Linux](#)
- [1:54:07 VI Editor Tutorial](#)
- [2:01:45 Shell Scripting In Linux](#)
- [2:09:11 What is PERL Programming](#)
- [2:13:58 Virtual Terminal](#)
- [2:20:00 Unix Administration in Linux](#)

<https://www.youtube.com/watch?v=V1y-mbWM3B8>

Components of Linux

