

Introduction to Linux

Linux Essentials
Session-1

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Why Linux?

Where Linux?

When Linux?



Why Linux?



- ★ **Total cost of ownership**
- ★ **Beginner friendly and easy to use**
- ★ **Reliability**
- ★ **Hardware**
- ★ **Software**

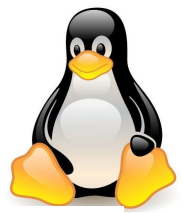
- ★ **Security**
- ★ **Freedom**
- ★ **Annoying crashes and reboots**
- ★ **Server segment**
- ★ **Linux is everywhere**

Where Linux?



30 Companies and Devices
Running on GNU/Linux

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.

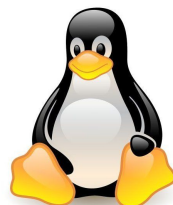
4. Amazon

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.

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.

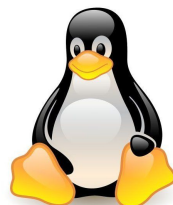
13. Desktop Computing

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 (NYSE) 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?



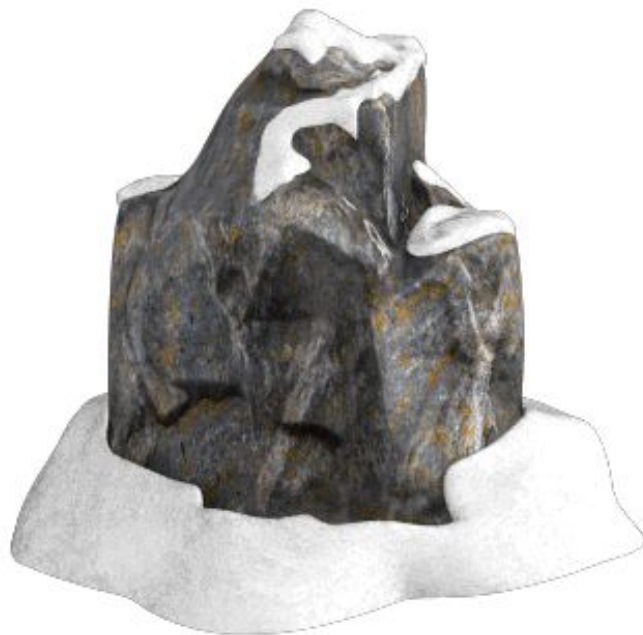
19. Internet Hosting

More than 70% of Internet Hosting and service providers are Linux based. Though 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?



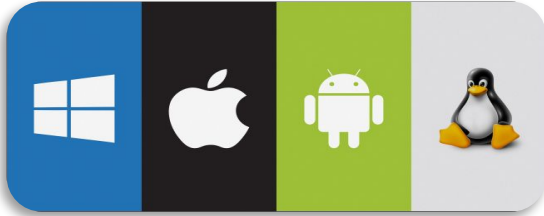


Linux Evolution



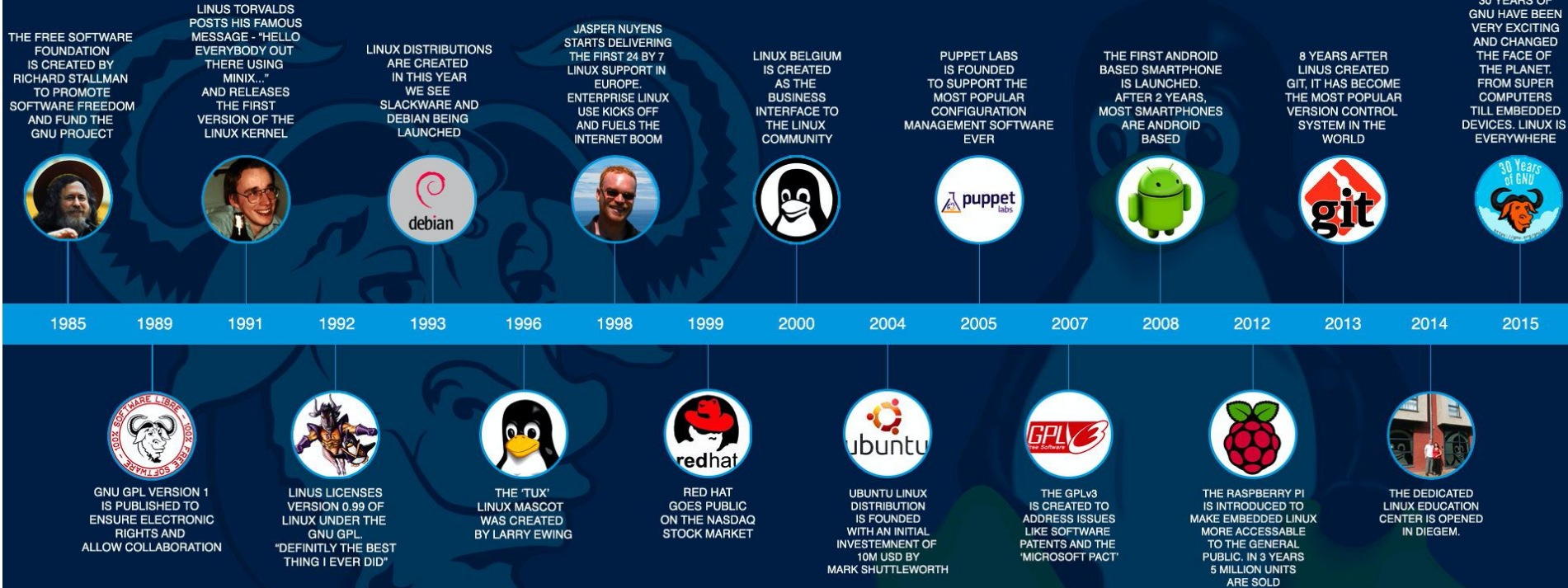
What is Linux?

- Free
- Open-Source
- OS



MEMORABLE LINUX EVENTS

CELEBRATING 30 YEARS OF GNU LINUX





Linus Benedict Torvalds



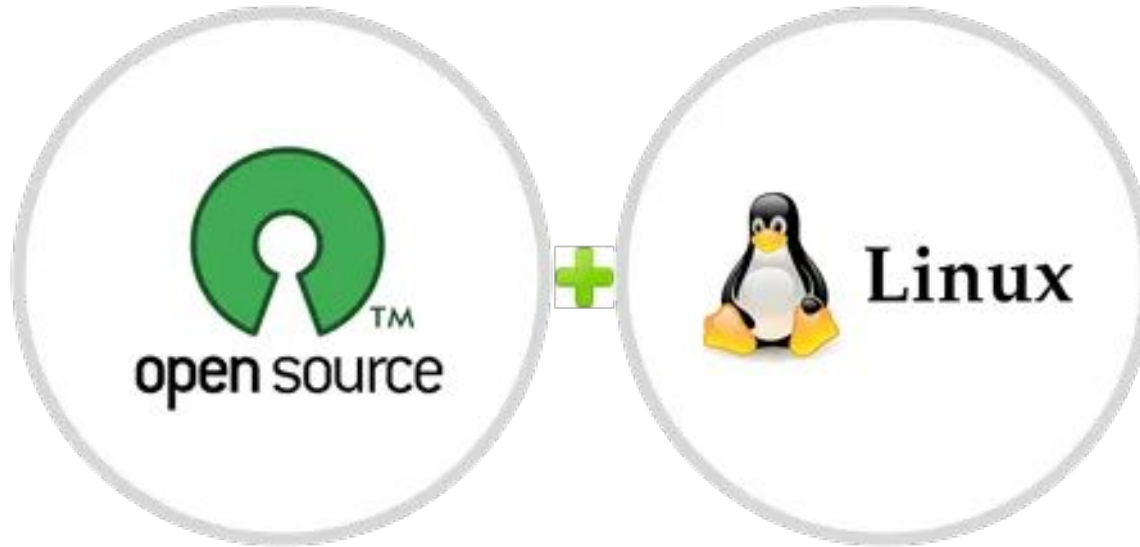
Hello everybody out there using minix -

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).

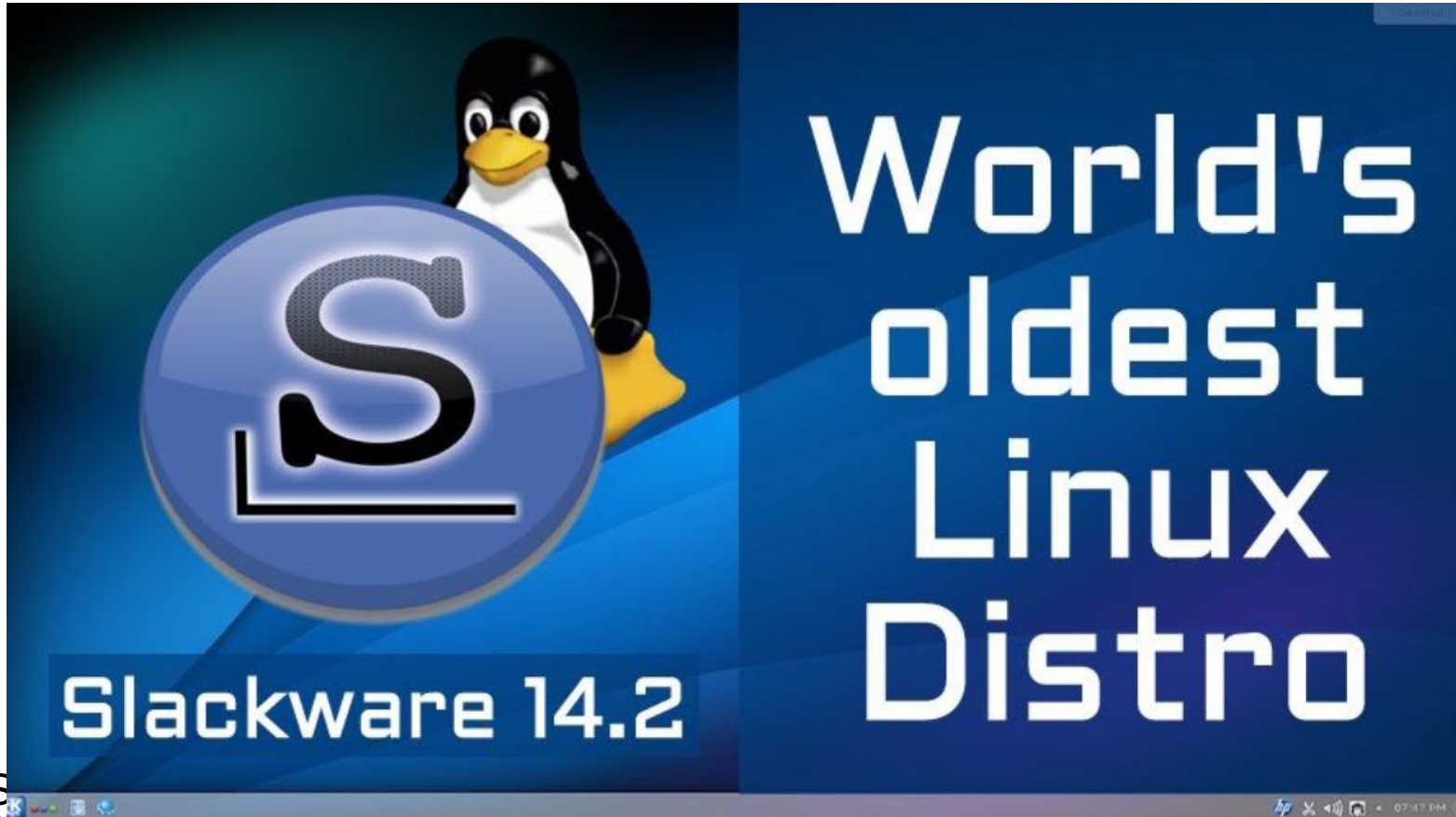
I've currently ported bash(1.08) and gcc(1.40), and things seem to work. This implies that I'll get something practical within a few months, and I'd like to know what features most people would want. Any suggestions are welcome, but I won't promise I'll implement them :-)

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

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



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





Memorable Linux Events

1996

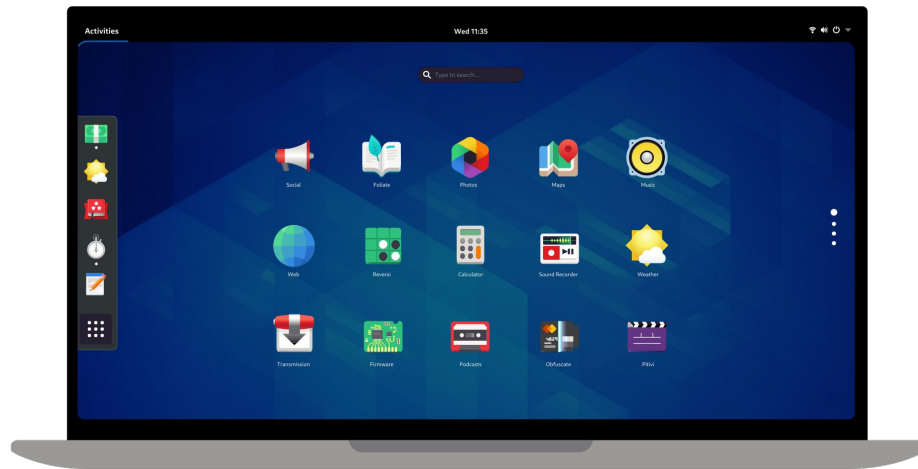


Memorable Linux Events

1997

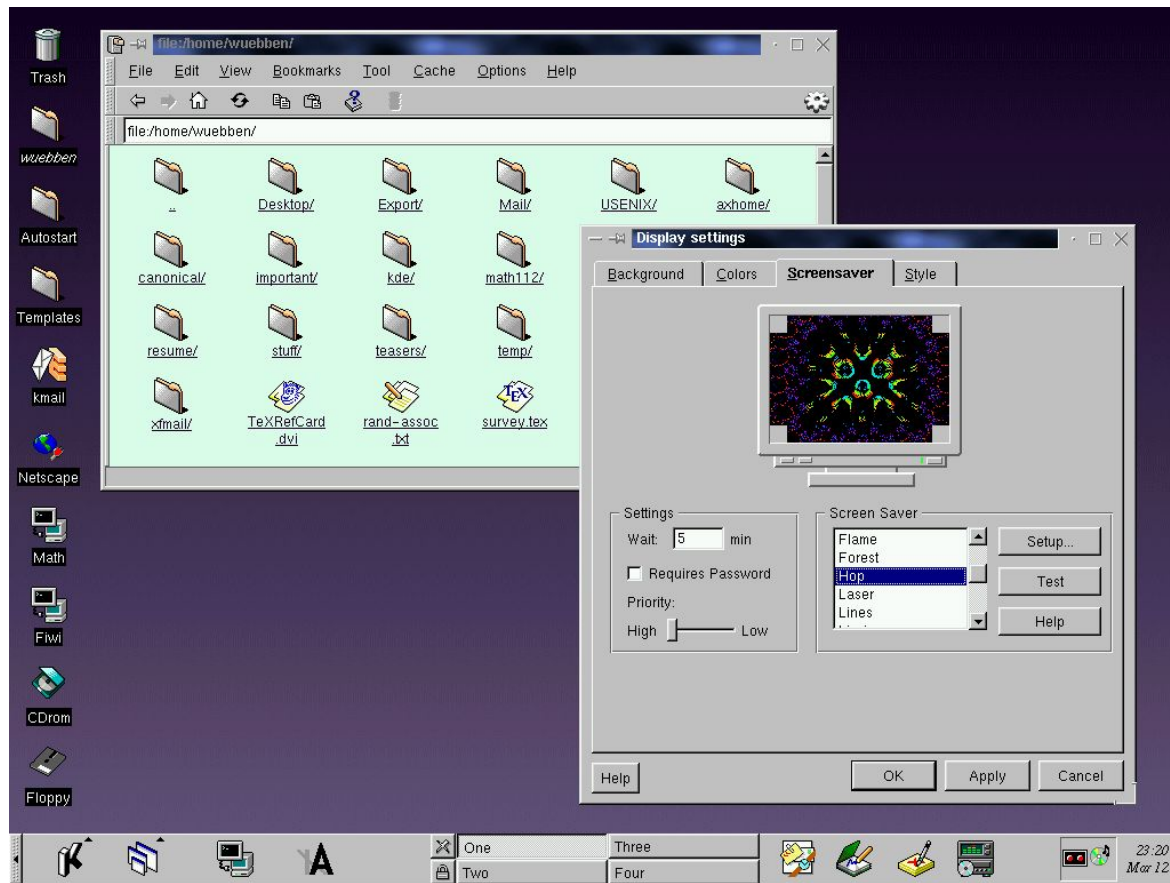


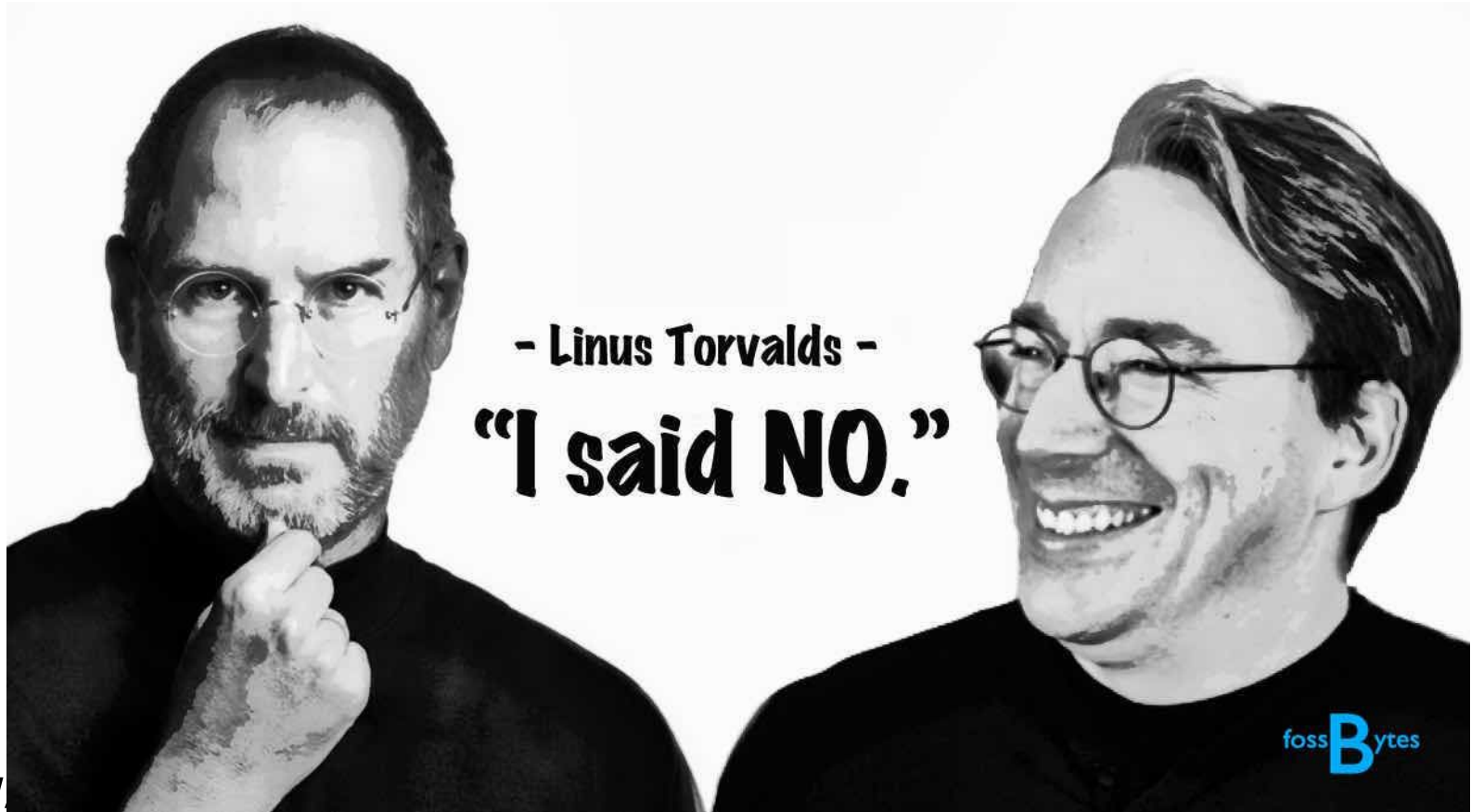
GNOME™



Memorable Linux Events

1998

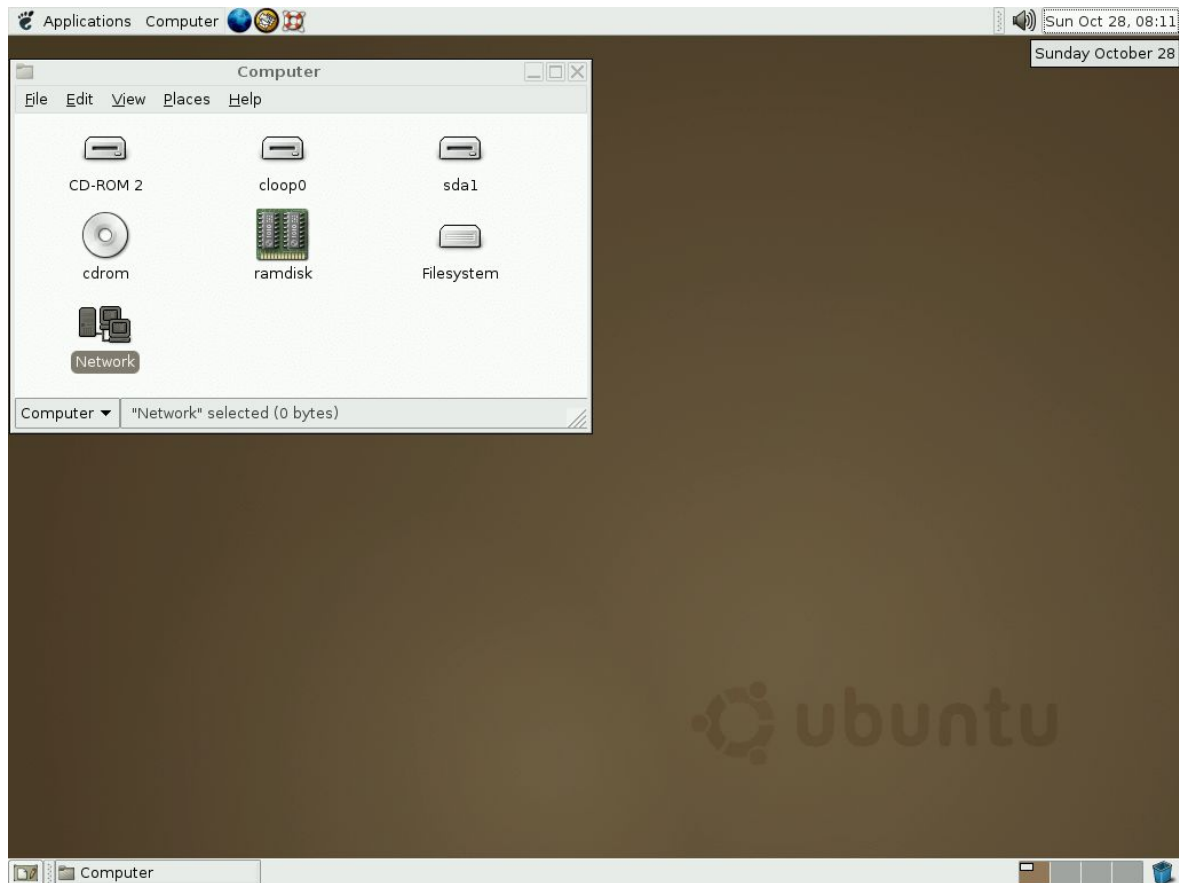






Memorable Linux Events

2004





git





Google™



Operating System



Google Chrome OS



`"Microsoft loves Linux"`
-Satya Nadella, 2014

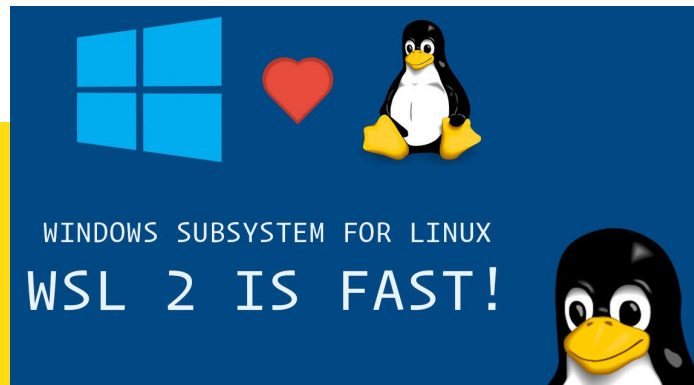
Microsoft  Linux



WSL 2 BRINGS

Linux Kernel in Windows 10

For Real!

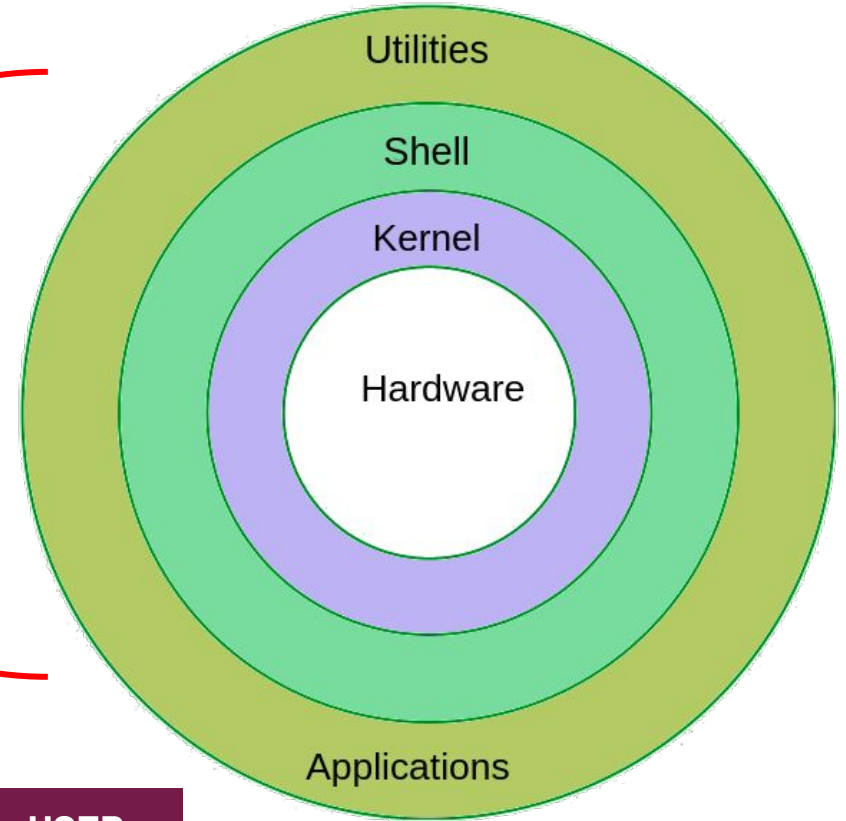
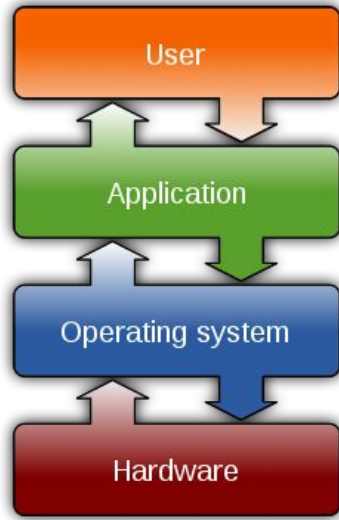




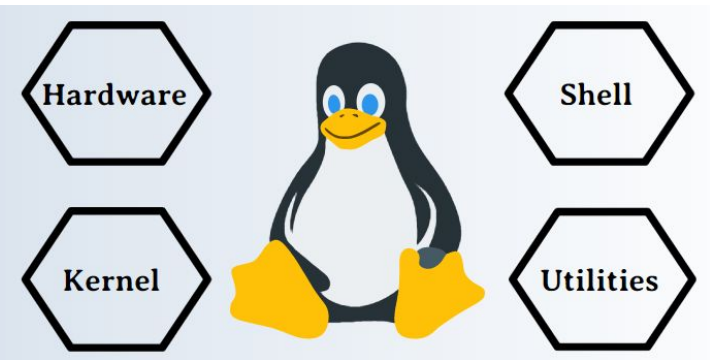
Kahoot!



Components of Linux



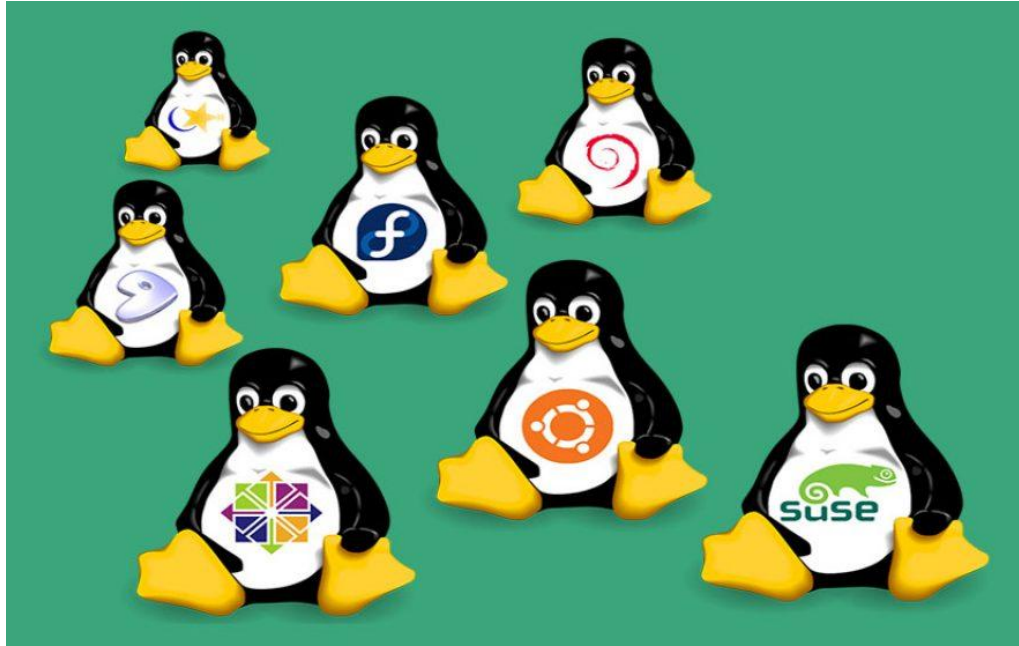
USER



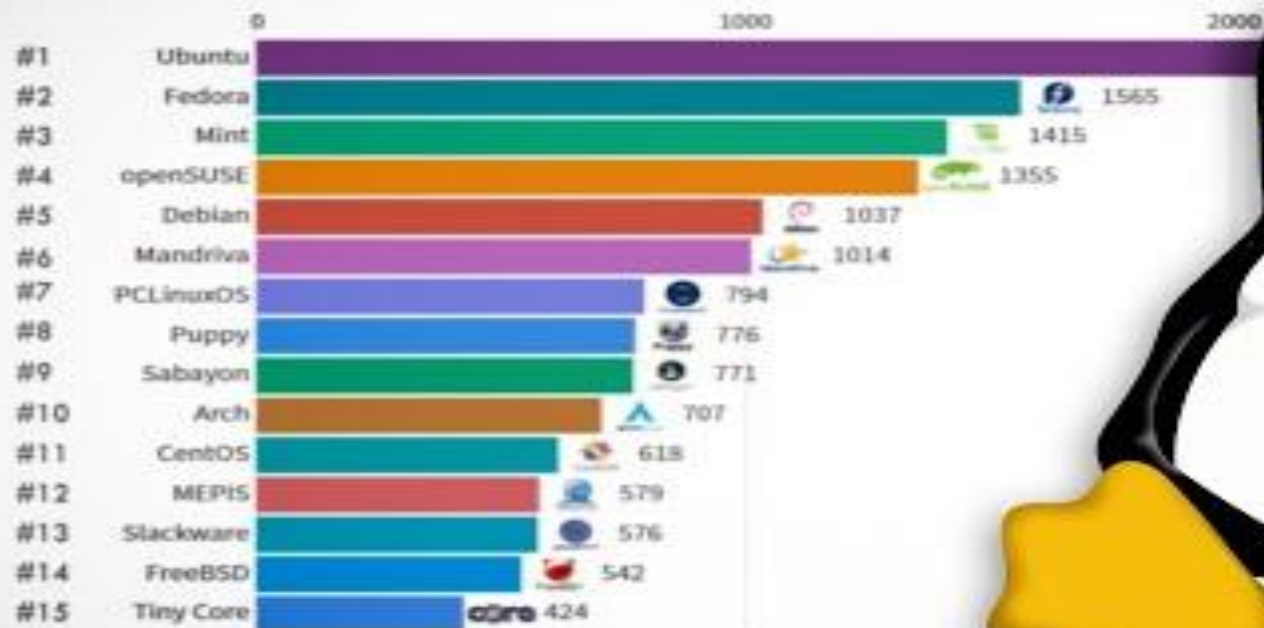
Popular Linux Distributions



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



Most Popular *Linux* Distributions



Values: Hits Per Day in Distrowatch

DATA BROZ

Source: distrowatch

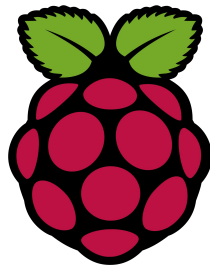


Linux Embedded Systems



Embedded System

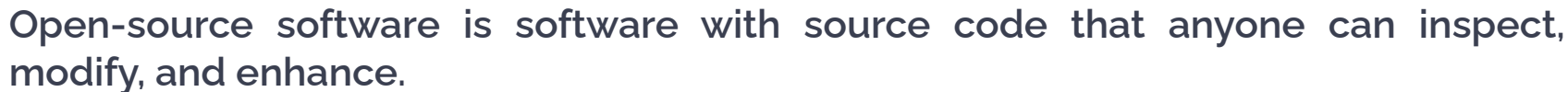
An embedded system is a computer system that is dedicated to one or two specific functions.





Major Open Source Applications





Desktop Applications



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





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)



open source
initiative

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/>

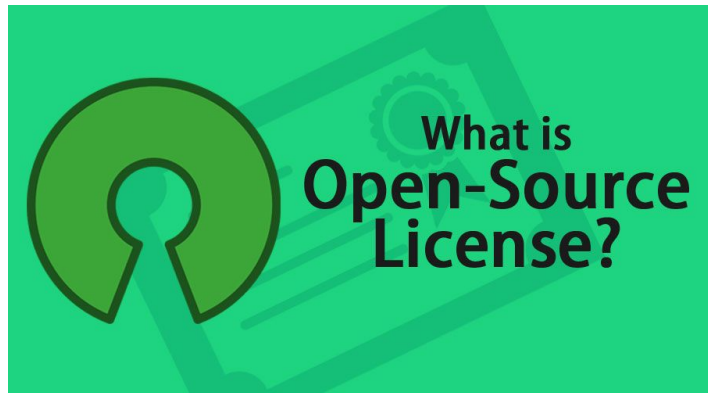


Open-Source Software and Licensing



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.



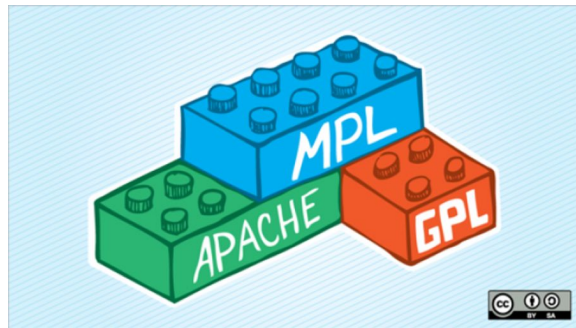


Open-source Licensing

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





LMS: Try it

The screenshot shows the Clarusway LMS interface. The top navigation bar includes the Clarusway logo and the tagline "Way to Reinvent Yourself". The left sidebar contains a menu with items like Linux, Participants, Badges, Competencies, Grades, General, Course Overview, Introduction of Linux, Major Open-Source Applications, Open-Source Software and Licensing, How to install and run Linux? (Optional), **Command Line Basics**, and Using the Command Line to Get Help. The main content area displays the "Try it" interactive lesson, which features a terminal window with the following text:

```
Loading...
Welcome to JS/Linux (x86)
Use 'vlogin username' to connect to your account.
You can create a new account at https://vfsync.org/signup .
Use 'export_file filename' to export a file to your computer.
Imported files are written to the home directory.

[root@localhost ~]#
```

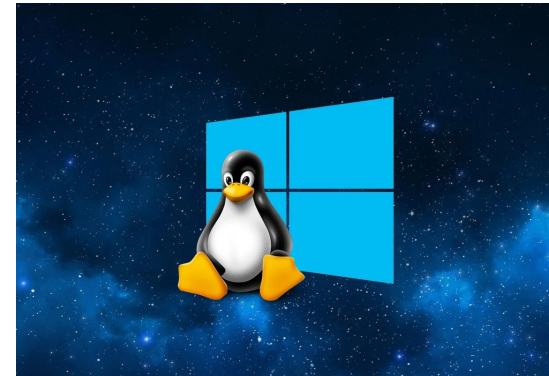
Below the terminal window, there is a link to a "Complementary Interactive Lesson about" and a "Check Yourself" button.



WSL 2

 Windows 10

LINUX Inside?





Linux Distros on Virtual Machines

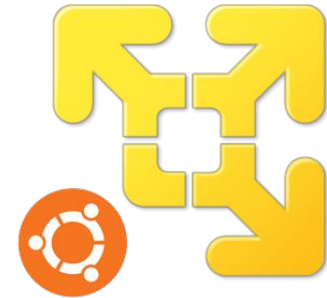
MacOS/Windows

Windows

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



ORACLE[®]
VM
VirtualBox



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>




ORACLE
VM
VirtualBox



VMware Player



Katacoda

**O'REILLY**
katacoda

KATACODA OVERVIEW & SOLUTIONS

TRY O'REILLY

LOG IN >

Ubuntu 18.04
Playground

Hello World

Interested in writing your own scenarios and demos?
Visit www.katacoda.com/teach

Terminal

IDE

Visualise Host

+

robert@host01:~\$

<https://www.katacoda.com/courses/ubuntu/playground1804>



THANKS!

Any questions?