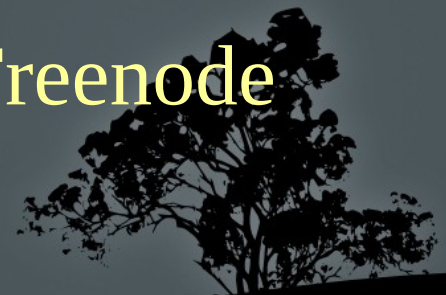


Junior Level Linux Professional (LPIC-1)

- Trainer: Theodotos Andreou (B.Sc, CCNA, CEH, CMI, LPIC-1, LFCE)
- <https://www.theo-andreou.org>
- <https://git.theo-andreou.org>
- <https://joindiaspora.com/u/theodotos>
- theo@theo-andreou.org
- Matrix: [@theodotos:matrix.org](https://matrix.to/#/@theodotos:matrix.org)
- IRC: theodotos on #ubuntu-cy on Freenode



Introduction to Linux and LPIC-1



History of Linux

- Free Software (Free as in 'Freedom'):
 - **Freedom 0:** The freedom to run the program for any purpose.
 - **Freedom 1:** The freedom to study how the program works, and change it to make it do what you wish.
 - **Freedom 2:** The freedom to redistribute and make copies so you can help your neighbor.
 - **Freedom 3:** The freedom to improve the program, and release your improvements (and modified versions in general) to the public, so that the whole community benefits.



History of Linux

- Free Software Foundation – FSF
 - Founded by Dr Richard M. Stallman
 - Protect and Promotes Free Software
 - Develops GNU
 - Support the GNU License and derivatives



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

History of Linux

- 1983: **GNU Project (GNU's Not Unix!)**
 - Aims at the creation of a Free Operating System based on UNIX
 - Components of GNU:
 - Compilers (gcc)
 - Tools (GNU Binutils, Coreutils)
 - Shell (Bash Shell)
 - Library (GNU C Library)
 - GUI (GNOME)
 - Kernel?

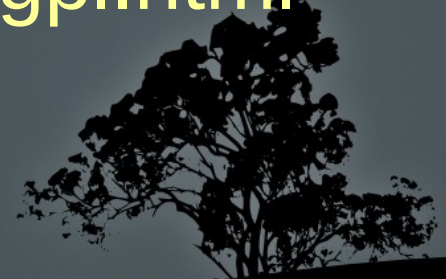


<http://www.gnu.org/>

History of Linux

- GNU General Public Licence – GPL
 - Enforces the 4 Basic Freedoms
 - Derivatives must be distributed under the same terms (Copyleft)
 - The most popular Free Software License

<http://www.gnu.org/licenses/gpl.html>



History of Linux

- 1991: Linux – The "Kernel"
 - Developed by Linus Torvalds
 - Developed by an independent community of enthusiasts over the Internet
 - Completed the missing piece from the GNU puzzle
 - The most popular Free Operating System
 - Today it is developed by the Linux Foundation (est. 2007)
 - Linux vs GNU/Linux



History of Linux

- 1997: The Cathedral and the Bazaar
 - Authored by Eric S. Raymond
 - In the "Cathedral" model:
 - Code is distributed to everybody after the completion and not in-between
 - In the "Bazaar" model:
 - Code is available at every stage of the development
 - Model used during the Linux development



History of Linux

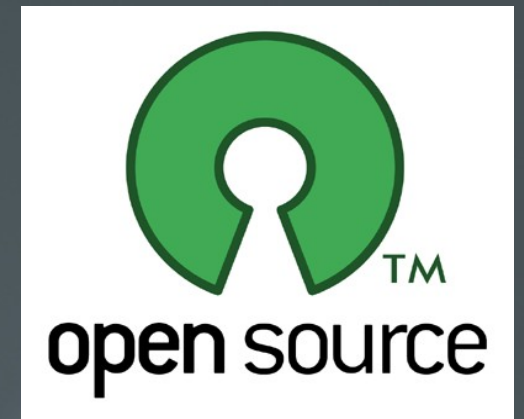
- Linus Law (Formulated by E.S.R):

Given enough eyeballs, all bugs are shallow



History of Linux

- Open Source Software – OSS
 - The word«Free» is related to "Freedom" but also to "No cost" (Gratis)
 - The Free Software ideals were met with skepticism by businesses
 - 1998: Open Source Initiative – OSI
 - OSI adopted a more pragmatic approach to attract businesses.



<http://www.opensource.org/>

Linux Advantages

- Independence from traditional EULAs
- Right to copy
- Code Availability for customizations
- Stability
- Performance
- Security
- Rich application suite
- Cost



Linux Advantages

- Package Management
- Multilingual
- Protection from vendor lock-in
- Open Standards – Interoperability
- Support for a wide range of programming languages
- Privacy
- Supports many architectures (Intel, ARM, Mips, ...)



Linux cons

- Some notable proprietary apps are not available on Linux
- Hardware and Drivers support issues
- Too many options result in confusion
- Migration to Linux can be costly

Distributions

- **Slackware**
- **Debian**
- **Red Hat**
- **Ubuntu**
- **Fedora**
- **SUSE/openSUSE**
- **Mandriva**
- **Gentoo**
- **Arch**
- **PCLinuxOS**
- **Puppy**
- **Knoppix**
- **Sabayon**
- **CentOS**
- ...

<http://distrowatch.com/>



Standards

- POSIX: Standard for UNIX systems
 - Linux is not 100% compatible with POSIX (hence the term "UNIX-Like")
- File System Hierarchy Standard (FHS)
- Linux Standard Base:
 - An effort by many distributions for a common base



Linux Adoption

- 68% of web servers
- Internet Services (email, dns, ftp etc)
- Governments
- Stock-Markets
- 100% of TOP500 super-computers
- Schools/Universities
- Research Institutions
- Non Profit/Non Government organizations
- Businesses
- Service Providers
- King of the cloud (90% share):
 - 92 % in AWS
 - ?? in GCP
 - >50% in Azure
- Mobile devices (Android)
- Embedded/IoT devices
- Movie Productions
- ChromeBooks
- Laptop/PCs
- International Space Station

http://en.wikipedia.org/wiki/Linux_adopters



Contributions to Linux

Google

CISCO

FUJITSU

IBM

NEC

ORACLE®

hp



Microsoft

HITACHI

AMD

i n v e n t

intel®

Inspire the Next

NOKIA



reddit



中国移动通信
CHINA MOBILE



MOTOROL



NetApp®

ARM



Panasonic

Novell



Adobe



CITRIX®

DELL™



HUAWEI

EMC²

where information lives®

LEXMARK



LG



redhat

SIEMENS



TEXAS
INSTRUMENTS

TOSHIBA

vmware®

YAHOO!

Support

- Red Hat (Red Hat Enterprise Linux)
- SUSE
- Canonical (Ubuntu)
- Community Support
 - Forums
 - Mailing Lists
 - IRC
 - NewsGroups
 - Element/Matrix

<http://www.ubuntu.org/>



Documentation

- The Linux Documentation Project
<http://www.tldp.org/>
- <https://www.linux.com/tutorials>
- <https://access.redhat.com/documentation/en-us/>
- <http://www.debian.org/doc/>
- <https://help.ubuntu.com/>

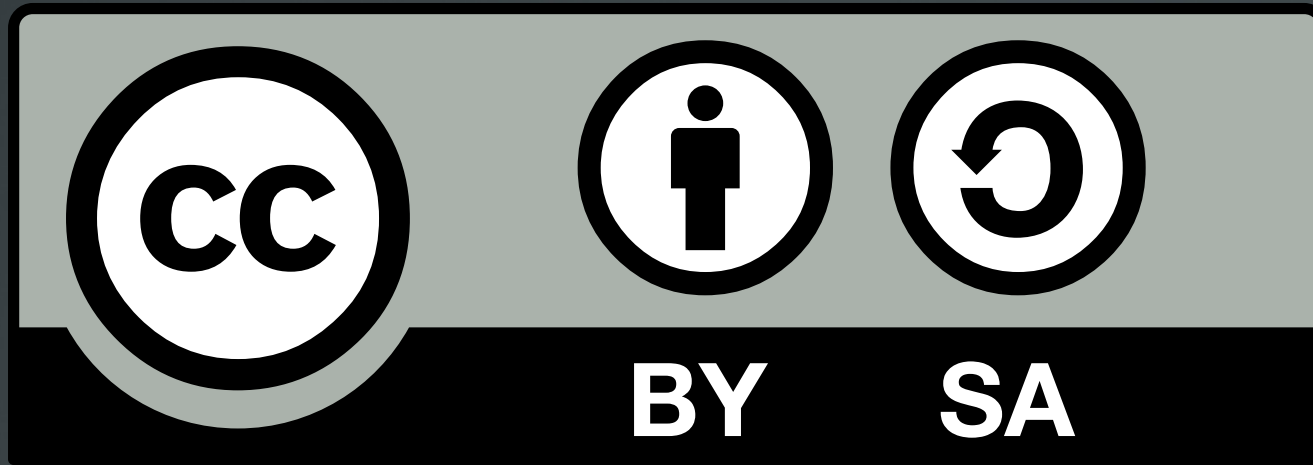


Resources about LPI

- Books:
 - LPIC-1 Linux Professional Institute Certification Study Guide: Exam 101-500 and Exam 102-500, 5th Edition
- <http://www.linux-praxis.de/lpisim/lpi.html>
- <https://www.tuxcademy.org/media/lpic1/>
- <http://www.lpi.org/>



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