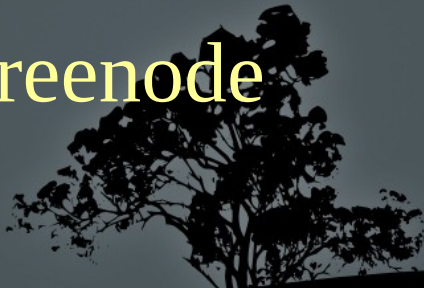


Junior Level Linux Professional (LPIC-1)

- 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.org/@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

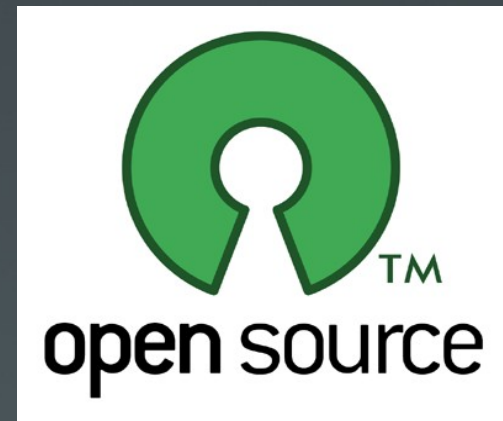
- Linus Law (Formulated by E.S.R):

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

invent

intel

Inspire the Next

NOKIA

reddit

中国移动通信
CHINA MOBILE

MOTOROL

NetApp

ARM

DREAMWORKS
ANIMATION SKG

Panasonic

Novell

Adobe

BT

CITRIX

DELL

EMC²
where information lives

LEXMARK

LG

redhat

SIEMENS

TEXAS
INSTRUMENTS

TOSHIBA

vmware

HUAWEI

YAHOO!

Support

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



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/>

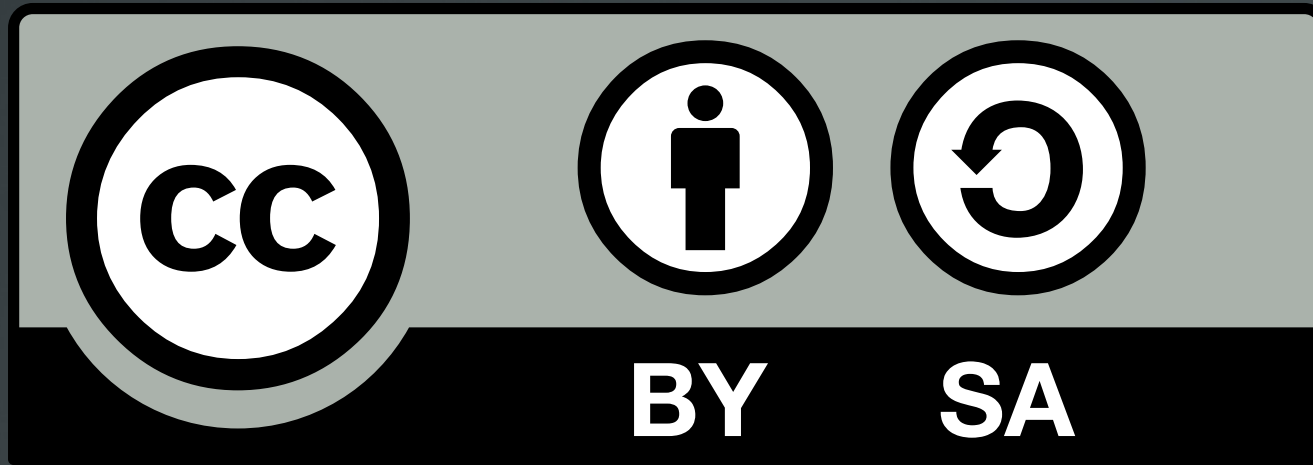


Resources about LPI

- 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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