



Introduction to Unix/Linux

IT 4423

Unix/Linux Administration

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Spring 2012

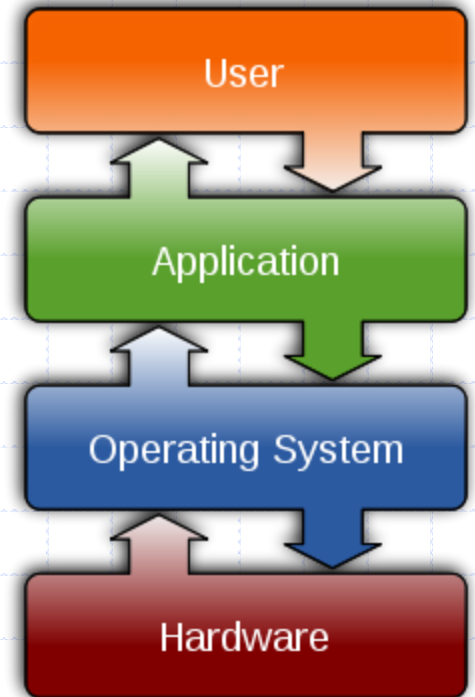


Overview

- ◆ Unix/Linux
- ◆ Ubuntu
- ◆ Installation

Operating System

- ◆ An operating system (OS) is software that manages computer hardware resources and provides common services to other software programs
 - Program execution (processor management)
 - Memory management
 - Hardware device management
 - File system
 - API
 - User interface



Major OS in the market

◆ UNIX and Unix-like

- UNIX
- GNU/Linux
- Mac OS X, iOS, Android

◆ Microsoft Windows

- Desktop: Windows XP, Windows Vista, Windows 7
- Server: Windows NT, Windows Server 2008
- Mobile: Windows Phone

◆ Other (older)

- Apple Mac OS
- OS/2

UNIX

- ◆ Originally developed in 1969 by a group of AT&T employees at Bell Labs
- ◆ UNIX is a trademark owned by the Open Group
- ◆ Major branches
 - BSD: OpenBSD, FreeBSD
 - Solaris: OpenSolaris, Oracle Solaris
 - Mac OS X
 - IBM AIX

Unix-like Variants

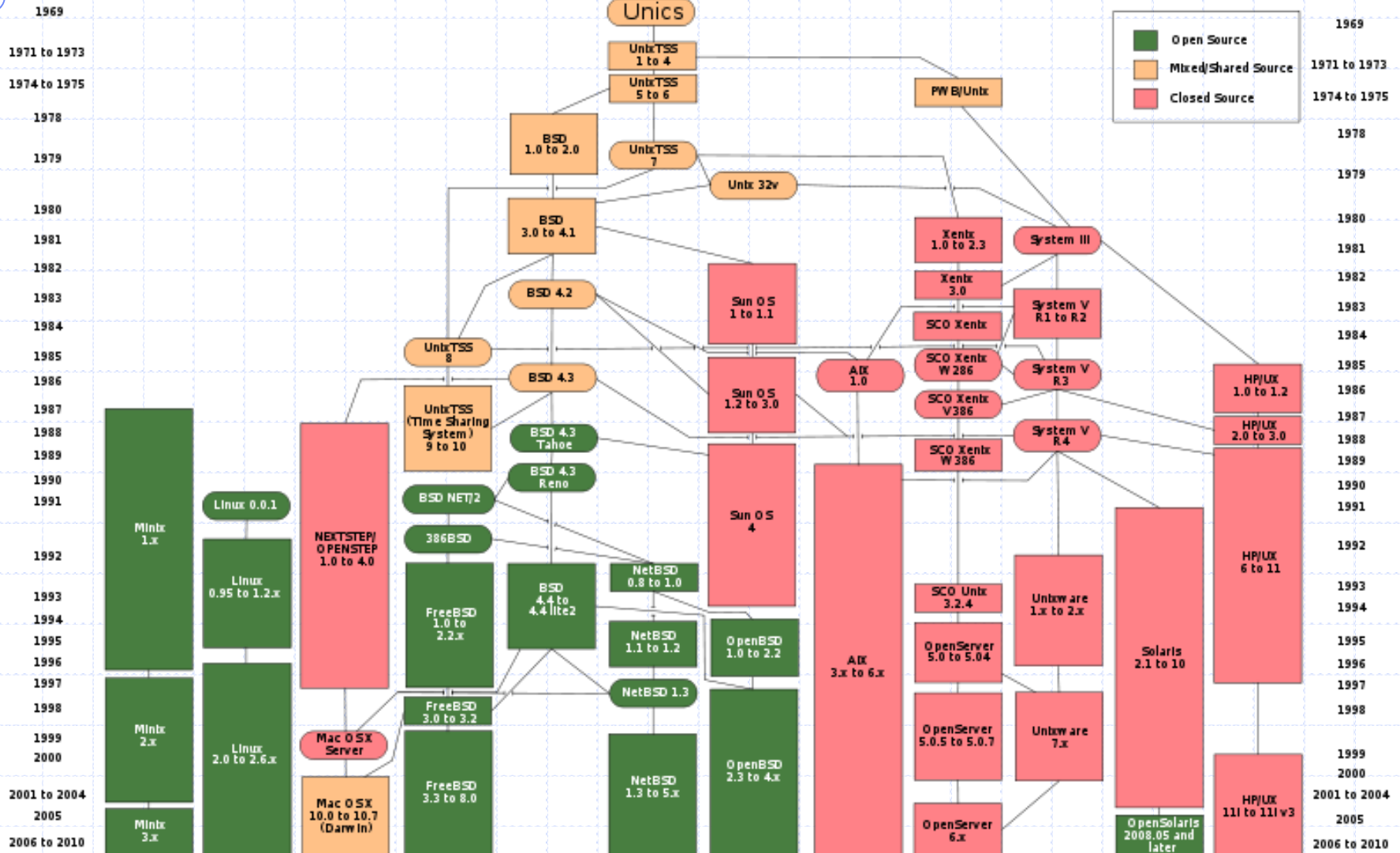


Image source: http://upload.wikimedia.org/wikipedia/commons/7/77/Unix_history-simple.svg

Linux

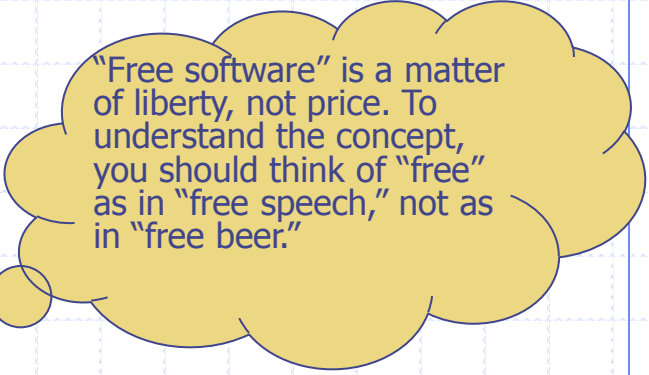
- ◆ The family of Unix-like computer operating systems using the Linux kernel
 - The kernel was developed and maintained by Linus Torvalds
- ◆ Free and open source software (FOSS)
 - License: GNU GPL
 - "GNU/Linux" or "Linux"
 - ◆ http://en.wikipedia.org/wiki/GNU/Linux_naming_controversy



- ◆ Linux logo: Tux



Free Software



"Free software" is a matter of liberty, not price. To understand the concept, you should think of "free" as in "free speech," not as in "free beer."

◆ GNU Free Software Definition:

- Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it means that the program's users have the four essential freedoms:
 - ◆ Freedom 0: the freedom to run the program, for any purpose.
 - ◆ Freedom 1: The freedom to study how the program works, and change it so it does your computing as you wish (freedom 1).
 - ◆ The freedom to redistribute copies (freedom 2).
 - ◆ The freedom to distribute copies of your modified versions to others (freedom 3).

◆ See <http://www.gnu.org/philosophy/free-sw.html>

Linux Distributions

- ◆ Linux is distributed in the form of distributions
 - Kernel + GNU tools and libraries + additional software.
- ◆ Hundreds of Linux distributions are currently under development
- ◆ Popular ones
 - Debian/Ubuntu
 - RedHat/Fedora
 - openSUSE
 - More
 - ◆ <http://distrowatch.com/dwres.php?resource=major>

Ubuntu Linux

- ◆ Ubuntu is an ancient African word meaning 'humanity to others'. It also means 'I am what I am because of who we all are'.
- ◆ Most popular Linux distribution
 - <http://distrowatch.com/stats.php?section=popularity>
- ◆ Releases, editions and variants
 - Recent versions (two releases every year): 11.04 (released in April 2011), 11.10 (released in October 2011)
 - Ubuntu Desktop, Ubuntu Server
 - Kubuntu, Xubuntu, Lubuntu, Edubuntu
 - <https://wiki.ubuntu.com/Releases>

Download and Installation

◆ Download Ubuntu Linux

- Most recent versions:
<http://www.ubuntu.com/download>
- Earlier releases: <http://releases.ubuntu.com/>

◆ Installation choices

- LiveCD, LiveUSB
- Fresh install with CD/USB
- Dual boot side by side with Windows
- Virtual machines
- Install directly within Windows

Ubuntu Installation on VMware Player

◆ VMware Player 3

- Download from

http://downloads.vmware.com/d/info/desktop_downloads/vmware_player/3_0

◆ Installation guide

- <http://www.howtogeek.com/howto/11287/how-to-run-ubuntu-in-windows-7-with-vmware-player/>

Summary

◆ Key terms

- Open source, GNU
- OS, Unix, Linux
- Linux distribution
- VMWare, virtual machine

◆ Kill skills

- Install Ubuntu Linux in VMware Player.

Good Readings and Resources

◆ Operating systems

- <http://computer.howstuffworks.com/operating-system.htm>

◆ Unix history

- http://www.computerworld.com/s/article/print/9133570/Unix_turns_40_The_past_present_and_future_of_a_revolutionary_OS

◆ GNU philosophy

- <http://www.gnu.org/philosophy/philosophy.html>

◆ Linux distributions

- <http://distrowatch.com/dwres.php?resource=major>