



Introduction to Linux



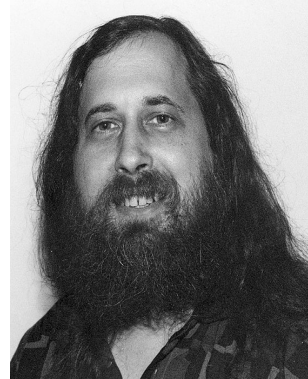
Unit objectives

After completing this unit, you should be able to:

- Discuss the history of Linux
- Name some important people in the history of Linux
- Discuss the GNU general public license

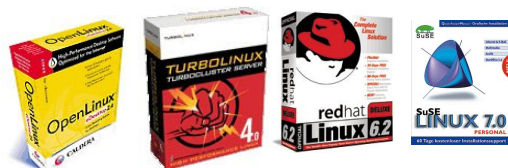
A short history of Linux (1 of 2)

- 1984: Richard Stallman starts GNU project
 - GNU's not UNIX
 - <http://www.gnu.org>
- Purpose: Free UNIX
 - "Free as in free speech, not free beer"
- First step: Re-implementation of UNIX utilities
 - C compiler, C library
 - emacs
 - bash
- To fund the GNU project, the Free Software Foundation founded
 - <http://www.fsf.org>



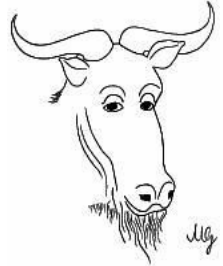
A short history of Linux (2 of 2)

- 1991: Linus Torvalds writes first version of Linux kernel
 - Initially, a research project about the 386 protected mode
 - Linus' UNIX -> Linux
 - Combined with the GNU and other tools to form a complete UNIX system
- 1992: First distributions emerge
 - Linux kernel
 - GNU and other tools
 - Installation procedure
- The rest is history



What's so special about Linux (GNU/Linux)?

- Most software (including the Linux kernel) is GPL'ed (GNU General Public License).
 - <http://www.gnu.org/copyleft/gpl.html>
- Linux is called *copyleft* (instead of *copyright*).
 - You can copy the software.
 - You get the source code.
 - You can alter the source code and recompile it.
 - You can distribute the altered source and binaries.
 - You can charge money for all this.
- You cannot change the license.
 - All your customers have the same rights as you.
 - You really cannot make money from selling the software alone.
- Other Open Source licenses (for example, BSD) are also used.



Effects of the license model

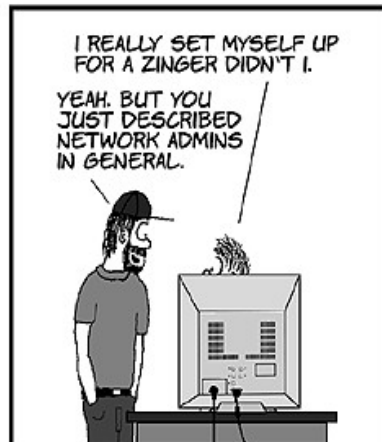
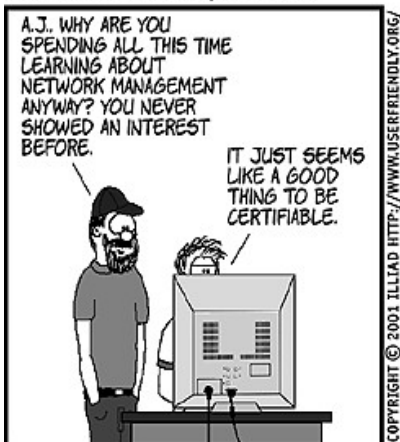
- Everybody has access to the source.
 - Volunteer software development on the Internet with centralized coordination.
 - Linus Torvalds coordinates new core kernel development.
 - Others coordinate other pieces of the kernel and OS.
- Peer reviews are possible.
 - Security
 - Performance
 - Reliability: “Given enough eyeballs, all bugs are shallow.”
- License cannot change.
 - Your changes (and name) will stay in forever.

Linux has become a way of life

IBM Power Systems

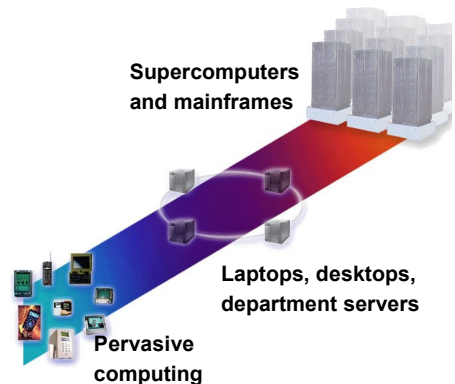
- Culture
 - Linus Torvalds
 - Richard Stallman
 - Eric Raymond
- Humor
 - User friendly
 - XKCD
- Mascot
 - Tux

USER FRIENDLY by Illiad



Linux today

- Linux covers the whole spectrum of computing.
 - Embedded devices
 - Laptops
 - Desktop systems
 - Development systems
 - Small and large servers
 - Mega clusters and supercomputers
- Linux is used throughout the world and in space.
- Linux is used by home users, by most of the largest companies in the world, and by many governments and institutions.



Linux hardware support

IBM Power Systems



System x
(Intel)



System p
(Power)



System i
(Power)



System z
(Mainframe)

- Also supported:
 - ARM, Itanium, Sparc, smart phones, and routers
 - Radios, televisions, chess players, and Jeopardy! contestants

Unit review

- The Linux kernel, combined with the GNU and other tools, forms a complete UNIX-like operating system.
- A distribution pulls together versions of the Linux kernel, libraries, and tools, tests them as a cohesive operating system, and adds an installation procedure and a convenient format for distribution.
- Most software in a Linux distribution is licensed under Open Source licenses such as the GNU GPL.
- Linux is developed as a world-wide collaboration of corporations and volunteers.
- Linux has been ported to more than 20 hardware architectures including virtually all PC hardware.
- Linux is used in a variety of small and large applications, homes, schools, small and large businesses, and governments.

Checkpoint

1. True or False: Linus Torvalds wrote the Linux operating system all by himself.
2. Which of the following statements is *not* true about software licensed under the GNU GPL?
 - a. You have the right to obtain and review the source code.
 - b. You cannot charge any money for the software.
 - c. You cannot change the license statement.
 - d. You can modify the source code and subsequently recompile it.
3. Who is the mascot of Linux?

Checkpoint solutions

1. True or False: Linus Torvalds wrote the Linux operating system all by himself.

The answer is false.

2. Which of the following statements is *not* true about software licensed under the GNU GPL?
 - a. You have the right to obtain and review the source code.
 - b. You cannot charge any money for the software.
 - c. You cannot change the license statement.
 - d. You can modify the source code and subsequently recompile it.

The answer is you cannot charge any money for the software.

3. Who is the mascot of Linux?

The answer is Tux.

Unit summary

Having completed this unit, you should be able to:

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- Discuss the GNU general public license