

Chapter 1 – What Is Linux?

Quiz

- 1. What are the two main versions of UNIX that influenced Linux, and how did each begin?**
UNIX System V is the evolutionary result of a project at AT&T Bell Laboratories. BSD UNIX is an offshoot version begun with an early distribution of AT&T UNIX by computer science students at the University of California at Berkeley.
- 2. Write down five main functions of an operating system.**
 - Provide a framework for executing programs
 - Share system resources (CPU, memory, disk) with other programs and users
 - Allow communication with devices (monitor, keyboard, network, printer, etc.) and other programs
 - Provide an interface for programs to access these functions
 - Provide utilities with which users can do useful work
- 3. What is the difference between a *process* and a *program*?**
A *program* is the machine instructions and data space it needs to run in order to perform a task. A *process* is a program that is being run.
- 4. What is the UNIX/Linux philosophy?**
A program should do one thing well. Complex problems should be solved by combining simple programs whenever possible. Write as little new code as possible leveraging existing code and utilities in order to solve a problem.
- 5. What is the difference between an “open system” and an open source system?**
An “open system” implements an interface (to users or other programs) that is well documented and adheres to standards such that others can easily write software to interoperate or share data with it. An open source system allows others to freely use the source code for their own purposes or even to modify the code to suit their needs.

Exercises

- 1. Identify one or two other popular or historical operating systems and compare their features with those of Linux. [level: *medium*]**
Windows is the most obvious comparable operating system to Linux, both in terms of architecture and common hardware platform. Many UNIX (and therefore Linux) features have migrated into Windows over its lifetime. Linux also competes with traditional “mainframe” operating systems in some environments. VMS runs on both multi-user minicomputers as well as workstation platforms, so it is a significant competitor to Linux. MULTICS was considered the state-of-the-art at the time Thompson and Ritchie began their work on UNIX and is generally considered to be their major inspiration. Though not in wide use today, it provided many facilities still considered important in operating systems.

Projects

- 1. Compare two Linux distributions. What tools do they share? Name some tools that are unique to one distribution. [level: *easy*]**
The purpose here is for the student to become familiar with various Linux distributions. This information can be found in the install guide for a particular distribution or on the web site of a particular distribution supporter or vendor.