

Lecture 2 Introduction to Linux Notes

1. What is an Operating System?

1. An operating system provides all fundamental software features of a computer. It allows you to use the computer's hardware, providing you basic tools that make the computer useful.

2. What is a kernel?

1. A Kernel is a software component that is responsible for managing the low-level features of the computer. This includes managing system hardware, memory allocation, CPU time, and program to program interaction.

3. Which other parts aside from the kernel identify an OS?

1. Command-Line Shells
2. Graphical User Interfaces (GUI)
3. Utility and Productivity Programs
4. Libraries

4. What is linux?

1. Linux is Unix-like Operating System that consists of a kernel, libraries, and utilities. It is popular in academic and business environments.

5. What is a linux distribution?

1. A Linux distribution is any OS that runs the Linux kernel.

6. List at least 4 linux characteristics:

1. Linux is open source.
2. Linux is highly scalable and customizable.
3. Linux includes many of the Unix tools including many important internet server programs and programming languages.
4. A majority of server applications on the internet run on some version of Linux.
5. Linux can be installed on nearly any system because it supports almost every processor architecture.

7. What is Ubuntu?

1. Ubuntu is a Linux distribution that is freely available with both community and professional support

8. What is Debian?

1. Debian is an all-volunteer organization that is dedication to creating and developing free software(Began in 1993).

9. List and define the different types of licensing agreements

1. **Open Source:** the software is allowed to be distributed for a fee or free. Source code is distributed alongside the software.
2. **Closed Source:** the software cannot be distributed with the source code. The user is prohibited from modifying or changing the code.
 1. **Freeware:** the software is free, but the source code is not available.
 2. **Shareware:** the software is free on a trial basis.
3. **Free Software:** the software is distributed with the source code. It can be free or acquired through a fee.

10. What is Free Software? Define the 4 freedoms.

1. Free Software is a software that is distributed with the source code and is acquired through a fee or for free.
 1. **Freedom 0:** use the software for any purpose.
 2. **Freedom 1:** examine the source code and modify it as you see fit.
 3. **Freedom 2:** redistribute the software.
 4. **Freedom 3:** redistribute your modified software.

11. What is virtualization?

1. Virtualization is creating virtual versions of something.

12. List 3 benefits of virtualization

1. It allows running multiple OSs on one machine without dual booting.
2. It allows for applications to be tested before installing them on a host machine.
3. It reduces the costs by lowering the physical hardware that must be purchased for a network.

13. What is a hypervisor? Include definitions of the 2 types

1. A hypervisor is a software or hardware that is in charge of creating, managing, and running virtual machines.
 1. **Type 1 (bare-metal hypervisor):** runs directly on the hardware. It is basically the OS for the physical machine.
 2. **Type 2:** an application that runs on top of an OS. More commonly used in client-side virtualization.

14. What is the difference between Guest OS and Host OS?

1. The difference between Guest OS and Host OS is that Host OS is the OS that is running in the computer where the hypervisor is installed. On the other hand, Guest OS is the OS that is being virtualized in the virtual machine.

15. What is virtualbox?

1. VirtualBox is a powerful x86 and AMD64/Intel64 virtualization product for enterprise as well as home use.