

# Lecture 2 Introduction to Linux Notes

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## 1. What is an Operating System?

\* An operating system provides all fundamental software features of a computer. The OS allows users to use the computer's hardware providing users the basic tools that make a computer useful.

## 2. What is a kernel?

\* The kernel is a software component that is responsible for managing low-level features of the computer such as the system hardware, CPU time, memory allocation, and programs being able to interact with each other.

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

\* A OS is not only identified by the kernel but also by whether it has common-line shells, graphical user interface, utilities and productivity programs, and libraries.

## 4. What is linux?

\* Linux is an open source operating system very similar to Unix and is used by many businesses and academic environments.

## 5. What is a linux distribution?

\* A Linux distribution is a complete Linux system package. It can be an OS but with Linux kernel still involved in the background. Some Linux distributions are for sale since they include proprietary components.

## 6. List at least 4 linux characteristics:

- \* Linux is open source software
- \* Linux is free of charge to install
- \* Linux is very scalable and customizable

- \* Linux can be installed in almost any system since it supports almost every processor architecture

## 7. What is Ubuntu?

- \* Ubuntu is a linux distribution which is freely available to all users and has a strong community with professionals to support.

## 8. What is Debian?

- \* Debian is an all-volunteer organization with a mission statement to develop free software to the public. Debian is known to be the grandfather of all linux distributions along with slackware and open suse.

## 9. List and define the different types of licensing agreements.

- \* Open source = the software may be distributed for a fee or free. The source code is distributed with the software.
- \* Closed source = the software is not distributed with the source code. the user is restricted from modifying the code.
- \* Freeware = the software is free but the source code is not available.
- \* Shareware = the software is free on a trial basis.

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

- \* Free software is software that is distributed with the source code. The four freedoms are:
- \* Freedom 0 = the freedom to use the software for any purpose.
- \* Freedom 1 = the freedom to to examine the source code and modify it.
- \* Freedom 2 = the freedom to redistribute the software.
- \* Freedom 3 = the freedom to redistribute own modified software.

## 11. What is virtualization?

- \* Virtualization is to create a virtual version of something.

## 12. List 3 benefits of virtualization:

- \* Virtualization allows to run multiple OSs in one machine without dual booting.
- \* Virtualization allows apps to be tested in a sandbox environment before installing them into host machines.
- \* Virtualization reduces costs by decreasing the need for physical hardware.

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

- \* A hypervisor is the software/hardware in charge of creating, managing, and running virtual machines. There are two types of hypervisor which are type 1 and type 2. Type 1 is when the hypervisor is basically the OS for the physical machines with no host OS involved making Type 1 faster than Type 2 since Type 2 hypervisor runs applications on top of the host OS.

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

- \* The host OS is running on the physical main computer you are working on while the guest OS is being virtualized in the virtual machine.

### 15. What is VirtualBox?

- \* VirtualBox is a powerful x86 AMD64/Intel64 virtualization hypervisor for enterprise or home use.