Lecture 2 Introduction to Linux Notes

1. What is an Operating System?

An operating system provides all fundamental software features of a computer. An OS enables you to use the computer's hardware providing you the basic tools that make the computer useful. All of those features relay on the OS's kernel. Other OS features are owed to additional programs that run atop the kernel.

2. What is a kernel?

An OS kernel is a software component that's responsible for managing low-level features of the computer, including the following managing system hardware, memory allocation, CPU time, and program to program interaction.

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

The kernel is at the core of any OS, but it's a component that most users don't manipulate. Instead, most users interact with a number of other software components.Such as programs include the following:

Command-Line Shells

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 This wa the de facto way of using computers before the Graphical
Interface was invented. CMDs work by typing commands in a shell. In
Linux, the entire system can be control via the CLI.
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Graphical User Interfaces

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 GUI's rely on icons, menus, and a mouse pointer for user interaction.
Linux relies on a GUI known as the X Windows System in combination
with desktop environment program suites.
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Utility and Productivity Programs

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 Tools like web browsers, document processors and text editors.
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Libraries

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 Libraries are collections of programming functions that can be used
by a variety of programs.
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4. ## What is linux?

   Linux is a Unix-Like Operating System popular in academic and business environments.

5. ## What is a linux distribution?

   A complete Linux system package.The following elements make up a Linux Distribution:

   ### A Linux Kernel

   Different distributions use different versions of the Linux Kernel

   ### Core Unix Tools

   For instance, the GNU tool set, the X Windows System, a Desktop Environment, disk partitioning tools etc.

   ### Supplemental Software

   For instance, server applications, user applications, and more.

   ### Startup Scripts

   These are scripts that differentiate distributions they range from launching dozens of programs at startup to even modify the way the desktop environment.

   ### An Installer

   Different distributions use different installers and manage software differently as well. One of the key elements is the package manager a distribution uses.

6. ## List at least 4 linux characteristics:

   1. linux is open source software
   2. Linux is available free of charge
   3. Linux includes many of the Unix tools including many important Internet server programs and programming languages out of the box.
   4. Linux is highly scalable and customizable.

7. ## What is Ubuntu?

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

8. ## What is Debian?

   Debian is an all-volunteer organization dedicated to developing free software and promoting the ideals of the Free Software community.

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

10. Software is type of intellectual property that is governed by copyright laws and, in some countries, patent laws.

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## Types of licensing agreement:
1. Open Source: the software may be distributed for a fee of free.
2. Closed Source: the software is not distributed with the source code.
3. Freeware: the software is free but the source is not available.
4. Shareware: the software is free on a trail basis.
5. Free Software: the software is distributed with the source code. The
software can be free of charge or obtained by a fee.
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10. What is Free Software? Define the 4 freedoms.

1. The Free Software Foundation (FSF) is critical force in the open source world. The FSF defines four specific software freedoms: Freedom 0: use the software for any purpose. Freedom 1: examine the source code and modify it as you see fit. Freedom 2: redistribute the software. Freedom 3: redistribute your modified software.

11. What is virtualization?

1. Virtualization is defined as creating versions of something.

12. List 3 benefits of virtualization

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

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

1. Software or Hardware in change of creating, managing, and running virtual machines. Type 1 (bare-metal hypervisor) This type hypervisor runs directly on the hardware. Type 2 hypervisor its an application that runs on top of an operating system.

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

1. Host OS - The operating system that is running in the computer where the hypervisor is installed.
2. Guest OS - The operating system that is being virtualized in the virtual machine.

15. What is virtualbox?

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