Lecture 2 Introduction to Linux Notes

Important concepts:

- **Operating System:**
- An operating system provides all the fundamental software features of a computer
- **Kernel:**
- software component that is responsible for managing low-level features of the computer and program to program interactions
- **Components of an operating system:**
- applications,graphical user interfaces ,daemons/shells,hardware.libraries
- **Linux :**
- unix-like operating system which consists of kernel,libraries, and utilities that make up an entire operating system
- **Linux Characteristics:**
- Free and Open-Source,Shell/ Command-line Interface,End-to-end encryption, Extremely Flexible,Portable Environment
- **GNU Toolchain:**
- Set of programming tools produced by the GNU Project used for developing software applications and operating systems. This tool chain plays a vital role in the development of Linux.
- **Linux Distribution:**
- A complete system package is called a Linux Distribution 5 elements make up a complete package. The following elements are A Linux Kernel,Core Unix Tools,Supplemental Software,Startup Scripts,An Installer
- **What is Ubuntu:**
- Ubuntu is a **Linux Distribution** freely available with both community and professional support
- **Ubuntu Release cycles:**
- **Ubuntu** is shipped in stable and regular release cycles
- Regular or non-lts: Shipped every six months and supported for nine months
- LTS(Long-Term Support):Shipped every two even years and is supported for 5 years
- **What is Debian:**
- **Debian** is an all-volunteer organization dedicated to developing free software and promoting the ideals of the free software community
- **Different software licensing models (open source vs closed source):**
- 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.
- **The 4 Freedoms of Free Software:**
- Freedom:0 use the software for any purpose
- Freedom 1:Examine the source code and modify as you see fit
- Freedom 2:redistribute the software
- Freedom 3 redistribute or modified software
- **Virtualization:**
- Defined as creating virtual versions of something

- **Hypervisor and types:**
- Software or Hardware in charge of creating, managing, and running virtual machines
- Types:Type 1 (bare-metal hypervisor)This type of hypervisor runs directly on the hardware.The hypervisor is basically the operating system for the physical machine. Type 1 has better performance than type 2 because there is not host OS involved and the system is dedicated to supporting virtualization
- Type 2 hypervisor its an application that runs on top of an operating system. This is most community used in client-side virtualization. Keep in mind that the host OS consumes resources and a host OS failure means that virtual machines will fail as well.
- **VirtualBox:** Powerfulx86 and AMD64/Intel64 virtualization product for enterprise as well as home use . Not only is VirtualBox an extremely feature rich, high performance product for enterprise customers, it is also the only professional solution that is freely available as Open Source Software under the terms of the GNU General Public License version 3.

List of the main Linux distributions

Debian,Red Hat, Slackware

List of some of the Debian Based Linux distributions

Linux mint Kali Linux,Parrot OS, Linux Deepin,Mx Linux, SteamOS

List of some of the Red Hat-based Linux distributions

Fedora Linux,Euler OS,Mageia

List of some of the Ubuntu Based Linux Distributions

Linux Lite, Elementary OS, Pop OS, Zorin OS, Peppermint