

LINUX HARD WARE CONSIDERATION



Purpose

At the end of this presentation, members should be in position to know:

- The Basic Installations of Linux
- Kernel versions and general knowledge
- Some Linux Distributions
- Hardware necessities for Unix and Linux
- Hardware requirements for Linux



Basics Installations (WHY)

- Laptop (Hand Held/ Notebook)
- Desktop (Personal Use)
- Server (For more other users)

All these Installations need different considerations in terms of software(SW) and Hardware (HW)



Kernel Version

Each Linux installation made, involves an identical Kernel version, different kernel versions have different Hardware requirements.

- The Linux kernel has developed since 1991 up to date with different developments involved.
- When ever a new Kernel is developed, some thing has to be fixed, and some thing has to be added, which automatically require a different set of hardware or software.
- Check for your Kernel version [***uname-r***]



Kernel development History

- <[Major Release].[Stability]>.<Minor Release>

For Example 2.6.23-45

Version	Date	Consideration
1.0	14 March 1994	Single processor i386
1.2	7 march 1995	Alpha, SPARC, MIPS
2.0	9 June 1996	SMP (Support for Multiple Processors)
2.2	26 Jan 1999	M68K and Power PC
2.4.0	4 Jan 2001	PA-RISC for HP
2.6.0	18 Dec 2003	New lines of CPUs

Linux Distribution

We cannot list all the distributions of Linux but some of the common ones;

- Redhat
- Debian
- SuSE
- SlackWare

Each distribution comes with different hardware requirements although most of them shall have a converging point

- Remember the rule of thumb.

REF: www.linux.org/distributions



Processors

Some software(distributions) shall not run on other processors (CPUs), which means as you are doing your installation considerations, the type of processor before you is also another restriction. A list of common processors;

- Intel
- PPC
- Alpha
- SPARC

Check closely whether you have 32-bit or 64-bit processor which is another key to the software to install.

The other advantage of Linux is that it uses the processor in protected mode.



Hardware

At the beginning of Linux, it was only available for 'open' hardware because the hackers could easily write drivers for them.

As time went on, different manufacturers released Unix /Linux drivers for their hardware and more generous people wrote and provided Unix/Linux drivers of different Hardware.

Time shall come when all hardware is automatically compatible to Unix/Linux, today you have to check whether the Hardware you are trying to buy/install is Linux/Unix provided (www.linux.org/hardware)



Hardware.....

Hardware benefits of Linux development have shifted from hardware compatibility to a number of;

- Complete systems (pre-installed)
- Hardware components (Drivers)
- Laptops that are automatically compatible
- PDAs, Palmtops and hand-held devices are now Linux enabled



Hardware.....

- What hardware consideration are important in this case;
 - Memory (RAM)
 - HDD
 - ODD (and Floppy)
 - CPU Processor Speed
 - Video Card
- Other consideration
 - Networking
 - Input Devices
 - Audio (sound Card)



Memory

Although each Kernel, each distribution and each installation shall ask for different RAM, here we shall look at a personal computer for Linux training.

- The memory needed will be around 256MB as the bare minimum for X-Windows(although 512MB is the recommended) and some thing below for only CLI
- The SWAP space should always be twice the available memory



HDD

Different installations shall ask for different HDD capacity but remember for our case, 30GB can be enough for all the items we are going to do.

- Although a 10GB can work, we need to consider user files (music, movies, photos)
- Remember when you are doing a custom partition, the */boot* partition should be a primary partition
- Partitions
- Remember the 'Rule of thumb'



CPU-Speed (intel)

- What is the CPU-speed norm?
 - Most distributions shall work properly on the current processor speed out there.
- Look out for 32-bit and 64-bit processors and distributions
- The 'Rule of Thumb' still applies



Video (display) & Input devices

- For nice x-Windows, the video card should have memory above 8MB although different distributions shall ask for some thing different
- Think of a Any Keyboard
- A three button mouse(or any mouse that can emulate three mouse button) is nice, X-windows has a lot of scrolling



Networking and Audio

- Ethernet is the Norm for connectivity, and it is 99% compatible and supported by Linux
- Other connectivities can be supported but you need to check out for drivers
- Although not a neccessity, Audio has become a must component of a computer, most sound cards are supported by Linux still, need to look out for drivers on Internet if it is not automatically plugged.



Finally

- Don't forget the rule of thumb:
“As long as Windows XP is working properly so should a Linux Desktop installation work properly and better”
- Imagine any device and look for the drivers and help, it might be your imagination stopping you from working.

