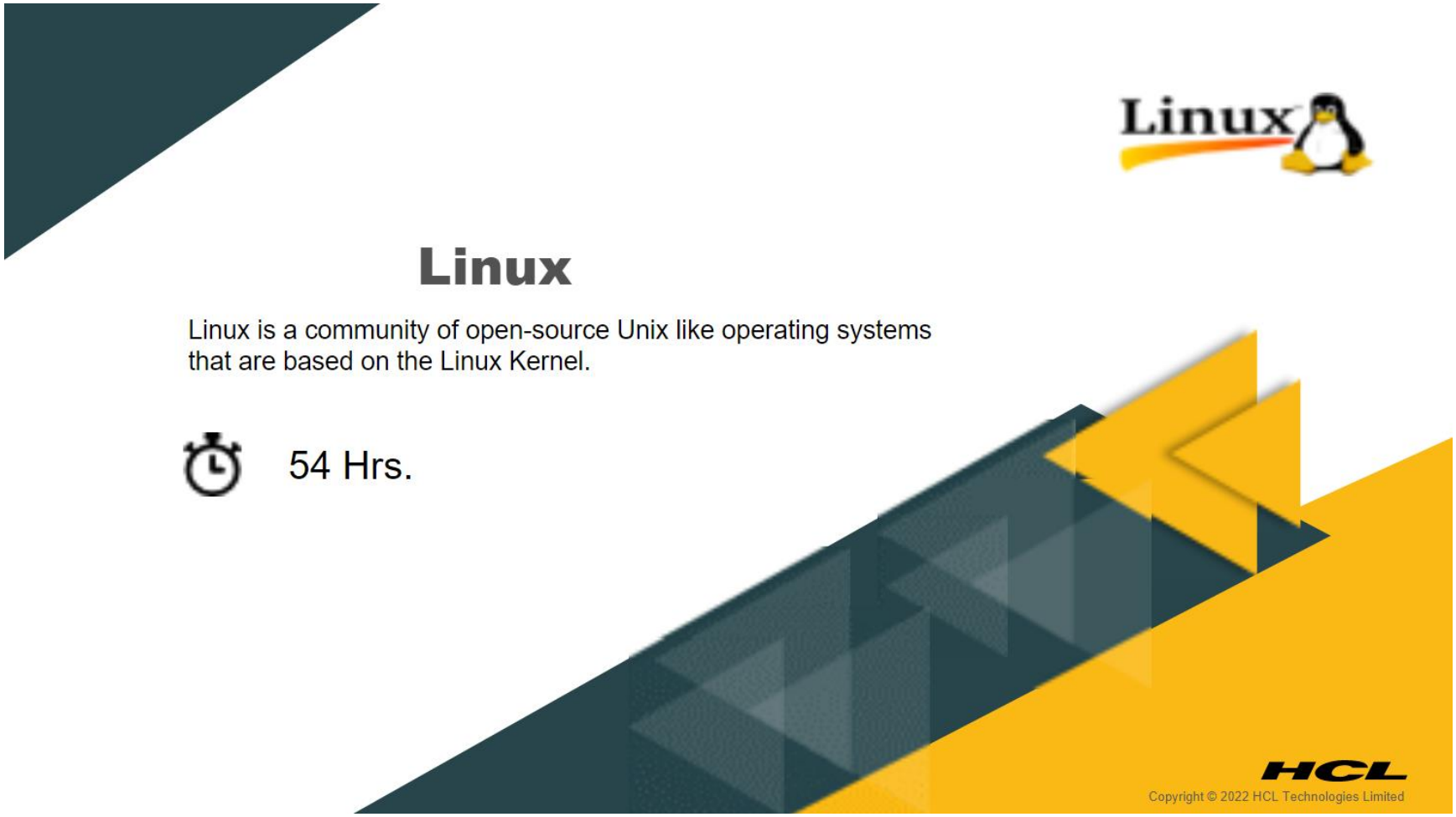
Linux
Linux
Linux is a community of open-source Unix like operating systems that are based on the Linux Kernel.
54 Hrs.
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Module Duration

54 hrs.

S. No.	Topic	Duration (in hrs.)
1	Linux History And Introduction	6
2	Linux-Basics	6
3	Vim Editor	6
4	Linux Commands	6
5	File Permissions	6
6	Process Control	6
7	UNIX	6
8	Unix shell scripting	12

** Note: 15 hours of additional hands-on lab practice*

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LINUX

Chapter
1

History And Introduction

Linux is an open-source operating system.

Topic Coverage

Topics
Introduction To LINUX
History Of Linux
Linux Distributions
Installation
Disks And Partitions

6 Hours

Discussion on Why LINUX

Discussion Point

- What is OS
- Why Linux
- LINUX distributions

Instructions & Duration

- The participants will discuss their knowledge on OS and Open Source and relative concepts

What is Linux ?

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- A fully-networked 32/64-Bit Unix-like Operating System
- Multi-user, Multitasking, Multiprocessor
- Has the X Windows GUI
- Coexists with other Operating Systems
- Runs on multiple platforms
- Includes the Source Code

Why Linux

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- Linux is “Unix like” based OS.
- Multi-user and multi-tasking i.e.
  - one person can be logged on to the same Linux computer at the same time.
  - the same user could even be logged into their account from two or more terminals at the same time.
  - a user can have more than one process (program) executing at the same time.
- Virus free

Linux Origin

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

Richerd Stallman

Linus Torvalds

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Linux Origin

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- In 1984 Richard Stallmon - The GNU Project a Free Software Foundation project .The idea was to provide a complete working UNIX like Operating System at the earliest. The development of a complete OS was going to take a long time ,to speed up his project, Richard's looked for utilities already available with source that can be added to GNU Project. Most of the work was completed but still the core kernel was not available.
- Around the same period i.e. in the late 80's and early 90's , Linus Torvalds a Graduate student in Finland, began developing UNIX like kernel and in 1991 he first announced his work in email message on the comp.os.minux mailing list.
- This was what Richard Stallmon looking for, and added it in his Free Software Foundation project.

What is GNU Open Source?

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- Freedom 0: The freedom to run the program, as you wish
- Freedom 1: The freedom to study the source code and change it to do what you wish
- Freedom 2: The freedom to copy and redistribute the program when you wish
- Freedom 3: The freedom to distribute modified versions, when you wish

Linux Distribution

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- Distribution Concept
- **Free Distributions**
  - Fedora Core
  - Debian and Ubuntu
  - Gentoo
  - Slackware
  - Knoppix
  - centOS
  - Many, many more
- **Commercial Distributions**
  - Red Hat Enterprise
  - Suse
  - Yellow Dog

Red Hat Distribution

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- **Red Hat Enterprise Linux**
  - Stable, thoroughly tested software
  - Audience are corporate and enterprise users.

- **Fedora Project**
  - More new applications
  - Red hat sponsored project, but no official Red Hat support
  - Community supported.
  - Audience are personal systems.

Red Hat Enterprise Linux

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- Commercial Distribution
- Enterprise-targeted operating system
- Focused on mature open source technology
- 12-18 month release cycle
- Versions available started from 2.1, 3.0, 4.0 5.0 6.0 now 7.0
- Support available up to 24 x 7 coverage plans
- Supports many processor architectures
- Intel x86-compatible, Intel Itanium 2, AMD64, IBM PowerPC on eserver iSeries and eServer pSeries and IBM Mainframe on eServer zSeries and S/390

The Fedora Project

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- Red Hat-sponsored open source project
- Focused on latest open source technology
- Rapid four to six month release cycle
- Available as free download from the internet
- An open, community-supported proving ground for technologies which may be used in upcoming enterprise products
- Red Hat does not provide formal support for Fedora Project

Installation of Red Hat Enterprise Linux

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- Fresh Installation (New)
- Upgradation

Methods of Installations

- Attended
- Unattended

Modes of Installations

- GUI Based (Graphical Installation)
- CLI Based (Text Based Installation)

Sources of Installation

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- CD-ROM
- Hard Disk
- Network
  - NFS Server
  - FTP Server
  - HTTP Server
  - PXE installation

Conventions for Naming the Disks and Partitions

- Linux uses a very different naming scheme that provides far more information than that used by MSDOS or Microsoft Windows
- /dev/xxyN
- The dev refers to the devices directory. The devices directory is where all information about devices is stored
- The xx refers to the type of hard disk. The xx is replaced by hd for an Integrated Drive Electronics (IDE) hard disk and by sd for a Small Computer Systems Interface (SCSI) hard disk

IDE Hard Disk = /dev/sd

SCSI Hard Disk = /dev/**sd**

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Cont..

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- /dev/xxyN

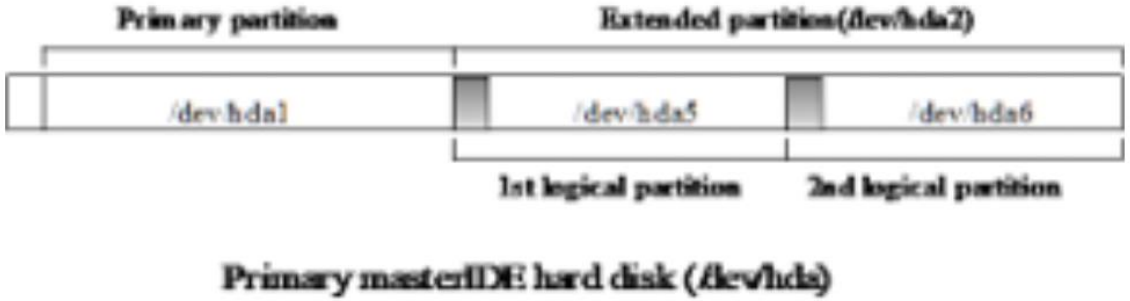
Primary Master	=	*/dev/sda*
Primary Slave	=	*/dev/sdb*
Secondary Master	=	*/dev/sdc*
Secondary Slave	=	*/dev/sdd*

- The y is replaced by a letter representing each disk. For example, a would be the first disk and b the second

Cont..

/dev/xxyN

- The N is replaced by a number for each partition on a drive. For example, 1 would be the first partition and 2 the second



Cont..

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- Primary partitions are represented by the numbers 1, 2, 3, and 4. Logical partitions start with 5.
  - /dev/sda1 is the device file for the first primary partition on the first EIDE disk
  - /dev/sda5 is the first logical partition on the second IDE disk

Mount Point

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

- The Linux operating system is a filing system
- Whenever you want to attach another filing system to Linux, you must tell Linux where to see the contents of the file system you are attaching. This is called the mount point.
- The mount point for the CD-ROM file system is /media/cdrom

You may install bootloader in one of two places

- **The master boot record (MBR)** — This is the recommended place to install a boot loader, unless the MBR already starts another operating system loader, such as System Commander. The MBR is a special area on your hard drive that is automatically loaded by your computer's BIOS and is the earliest point at which the boot loader can take control of the boot process. If you install it in the MBR, when your machine boots, GRUB presents you the grub menu which can be configured to boot Red Hat Enterprise Linux or any other operating system.
- **The first sector of your boot partition** — This is recommended if you are already using another boot loader on your system. In this case, your other boot loader takes control first. You can then configure that boot loader to start GRUB, which then boots Red Hat Enterprise Linux.

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What is SWAP Partition ?

- swap partitions are used to support virtual memory. In other words, data is written to a swap partition when there is not enough RAM to store the data your system is processing.
- **Size of SWAP**
- At least 256 MB
- Twice the amount of RAM on your machine
- Swap should equal 2x physical RAM for up to 2 GB of physical RAM, and then 1x physical RAM for any amount above 2 GB, but never less than 32 MB.
- Red Hat Enterprise Linux supports up to 32 swap files

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Sample Partition Structure

- What is Linux ?
- Linux Origin
- GNU Open Source
- Linux Distribution
- Installation of RHEL
- Disks and Partitions

Mount Point	Size
/boot	200 MB
/	10000 MB
/usr	2048 MB
/var	512 MB
/home	512 MB
SWAP	Use recommended size

Q1. Which of the following are the Linux distributions?

a) Fedora

b) Suse

c) Red hat

d) All of the above

Q2 Primary partition is devided into how many partitions?

a) 2

b) 3

c) 4

d) None of the above

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Q3. What is mount point?

a) where to see the contents of the file system you are attaching

b) Remove the file

c) Implement Security

d) None of the above

Q4. MBR stands for

a) Mega Boot record

b) Master Boot Record

c) Master Booting Response

d) Mega Byte Record

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Re-Cap

Discussion Point

- What is OS
- Open source
- LINUX distributions
- Disks and partitions

Instructions & Duration

- The participants will discuss based on their understanding of Operating System, Linux distributions and clarify their doubts.
- One of the scholar could be the facilitator along with the trainer.

Next Session Details

Preparation for the next session

- Have to know RHEL 7.0 Installation Process.
- Install in oracle virtual box.

Cue Card for Assimilation Check

Question Number	Correct Answer	Slide Number
1	d	Slide 10 (Linux Distributions)
2	c	Slide 22 (partitions)
3	a	Slide 23(Mount Point)
4	b	Slide 24(Boot Loader)

References

- https://www.guru99.com/introduction-linux.html
- https://www.tutorialspoint.com/operating_system/os_linux.htm


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