

Introduction to Linux operating system

utrains.org





Linux

Table of content

1. Introduction
2. Linux Distributions
3. Linux architecture
4. Advantages and disadvantages of Linux

1. Introduction

What is Linux?



What is Linux?

- ⬡ Linux is a community of open-source Unix like operating systems that are based on the **Linux Kernel**
- ⬡ It was initially released by **Linus Torvalds** on September 17, 1991.
- ⬡ It is a **free and open-source** operating system and the source code can be modified and distributed to anyone commercially or non-commercially under the GNU General Public License.

Linus Torvalds

Creator and historically, the principal developer of The Linux Kernel



What is Linux?

- Initially, Linux was created for **personal computers**
- Gradually, it was used in other machines like **servers, mainframe computers, supercomputers, etc.**
- Nowadays, Linux is also used in **embedded systems like routers, automation controls, televisions, digital video recorders, video game consoles, smartwatches, etc.**

What is Linux?

- ⬡ The biggest success of Linux is **Android** OS
- ⬡ **Android**, the OS that is running on smartphones and tablets is **based on the Linux Kernel**.
- ⬡ Due to android, **Linux has the largest installed base of all general-purpose operating systems**.



2. Linux distributions

What are the main Linux distributions?



Linux distributions

- ⬡ A **Linux distribution** is an operating system that is made up of a collection of softwares based on the **Linux kernel**
- ⬡ That is, It contains the Linux kernel, supporting libraries and softwares.
- ⬡ You can get a Linux based operating system by downloading one of the **Linux distributions**
- ⬡ These distributions are available for different types of devices like **embedded devices, personal computers**, etc.

Linux distributions

⬡ Around **600 + Linux Distributions** are available and some of the popular Linux distributions are:

- CentOS
- Ubuntu
- Debian
- Fedora
- Red Hat (RHEL) etc.



3. Linux architecture

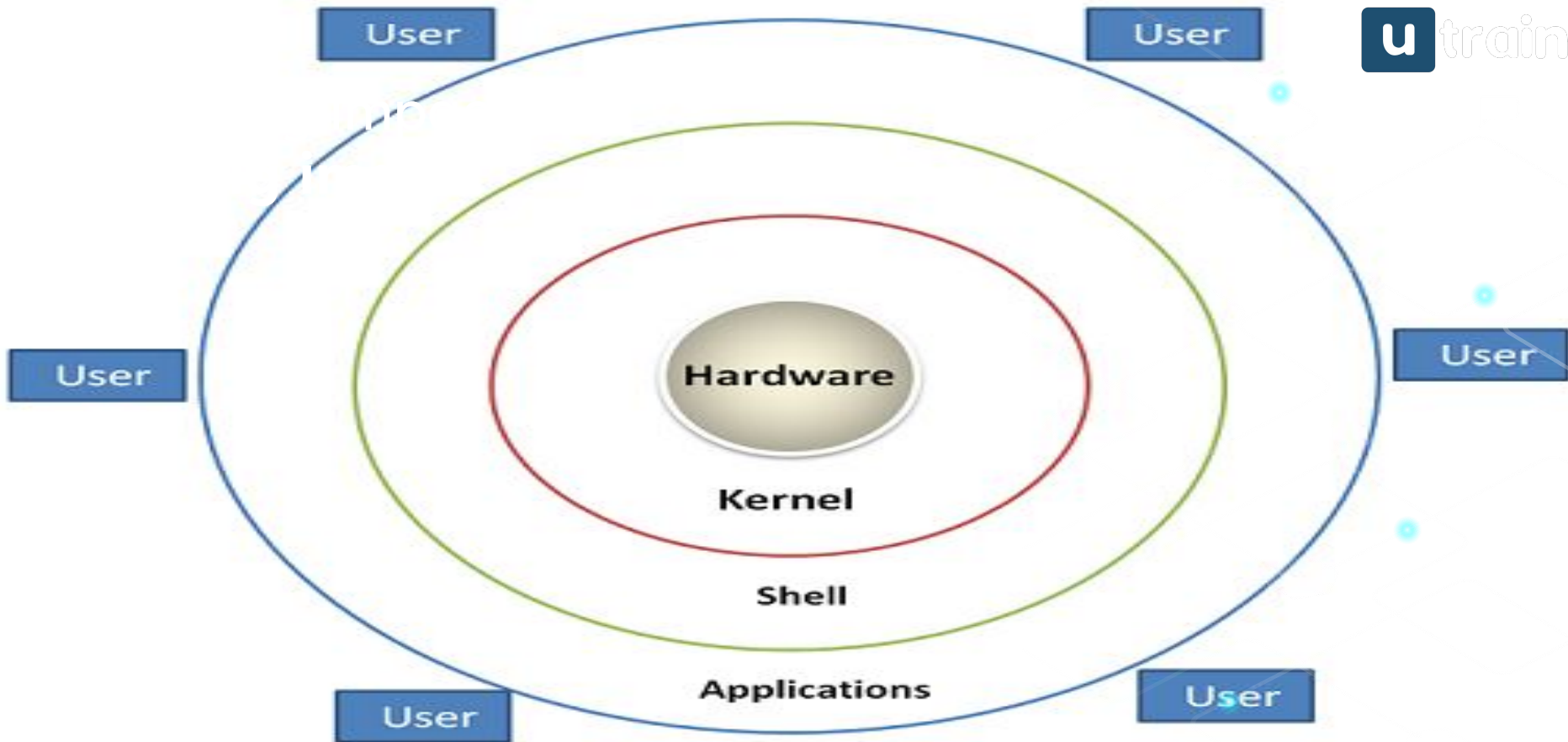
What are the main components of the Linux architecture?



Linux architecture

The Linux architecture has the following components:

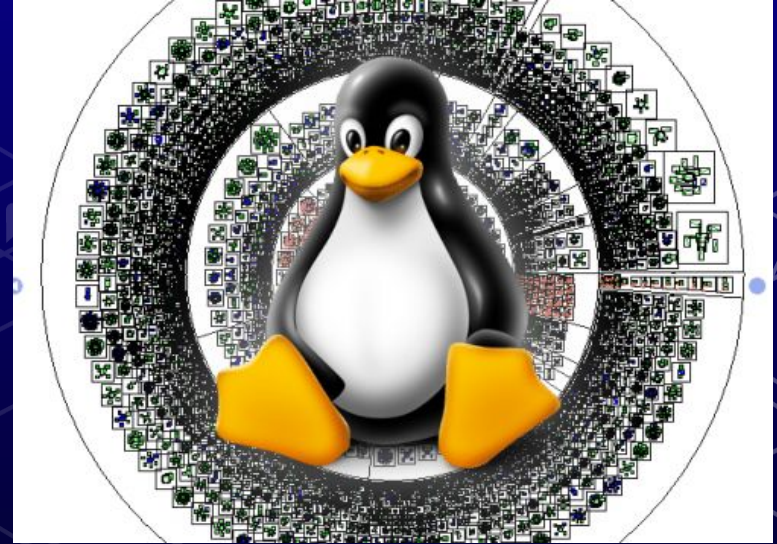
- The Kernel
- System Libraries
- The Shell
- The Hardware layer
- System utilities



TecAdmin.net

Linux System Architecture

The Linux Kernel



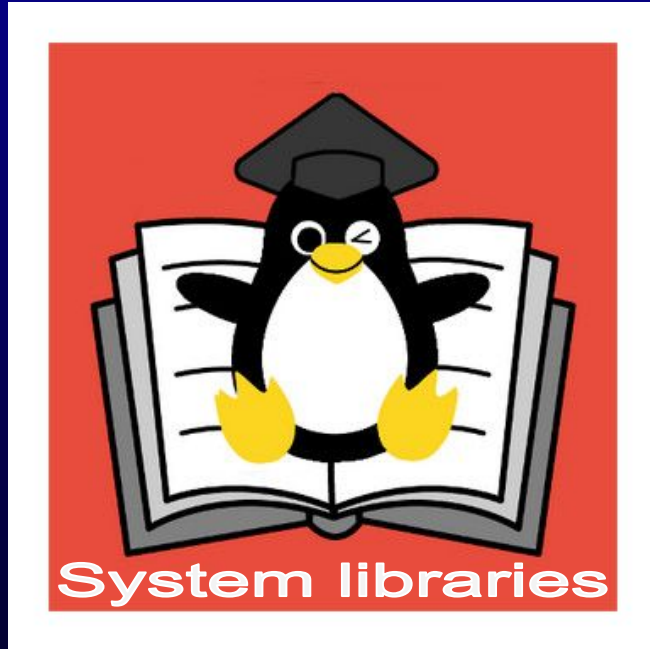
001

100

Linux architecture: The Kernel

- ⬡ The Kernel is the **core** of the Linux based operating system.
- ⬡ It virtualizes the common hardware resources of the computer to provide each process with its virtual resources.
- ⬡ The kernel is also responsible for preventing and mitigating conflicts between different processes. Different types of the kernel are:
 - **Monolithic Kernel**
 - **Hybrid kernels**
 - **Exo kernels**
 - **Micro kernels**

Linux architecture: The system libraries



- ⬡ The system library is made up of **special types of functions**
- ⬡ These functions are used to **implement the functionalities of the operating system.**

Linux architecture: The Shell

- ⬡ The **Shell** is an interface to the kernel which **hides the complexity of the kernel's functions from the users**.
- ⬡ It takes commands from the user and executes the corresponding Kernel's functions.



Linux architecture: The Hardware layer

- ⬡ This layer consists all peripheral devices like **Ram, CPU, Hard drive** etc.



Linux architecture: System utilities

- ⬡ The **System utilities** provides the functionalities of an operating system to the user.



4. Advantages and disadvantages of Linux

Why should we use Linux systems?



The advantages of Linux

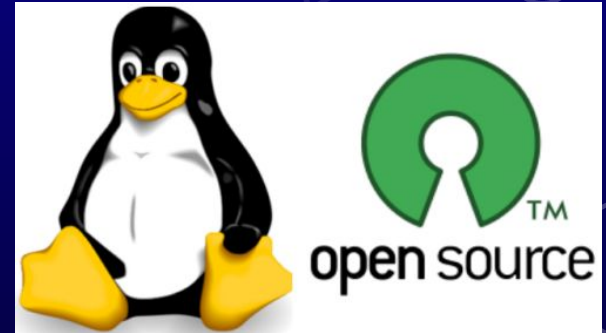
Linux has so many advantages. Let's look at some of them!



Advantages of Linux

The main advantage of Linux is that, it is an **open-source** operating system.

- ⬡ That is, the source code is **easily available for everyone**
- ⬡ Also, you are allowed to contribute, modify and distribute the code to anyone without any permissions.



Advantages of Linux

- ⬡ In terms of security, Linux is **more secure** than any other operating system.
- ⬡ This does not mean that Linux is 100 percent secure it has some malware for it. But, it is less vulnerable than any other operating system.
- ⬡ Thus, **It does not require any anti-virus software.**

Advantages of Linux

- ❖ The **software updates in Linux** are easy and frequent.
- ❖ Various Linux distributions are available so that you can use them according to your requirements or according to your taste.
- ❖ It has **a large community support**.
- ❖ It provides **high stability**. It rarely slows down or freezes and there is no need to reboot it after a short time.
- ❖ It maintains the **privacy of the user**, and handles many users more efficiently.

Advantages of Linux

- It is **network friendly**.
- The **flexibility** of Linux is high. There is no need to install a complete Linux suit; you are allowed to install only required components.
- Linux is **compatible with a large number of file formats**.
- It is fast and easy to install from the web. It can also install on any hardware even on your old computer system.
- It performs all tasks properly even if it has limited space on the hard disk.

The disadvantages of Linux

Linux has few disadvantages.



Disadvantages of Linux

The main disadvantage of Linux is:

- It is not very **user-friendly**. So, it may be confusing for beginners.

Thanks!

Any questions?

You can find us at:

website: <https://utrains.org/>

Phone: +1 (302) 689 3440

Email: contact@utrains.org





**Click on the link below to
contact the support team
for any issue!**

<https://utrains.org/support/>

**Create a ticket for your problem and we will get back to
you soon!**