

Linux basic command

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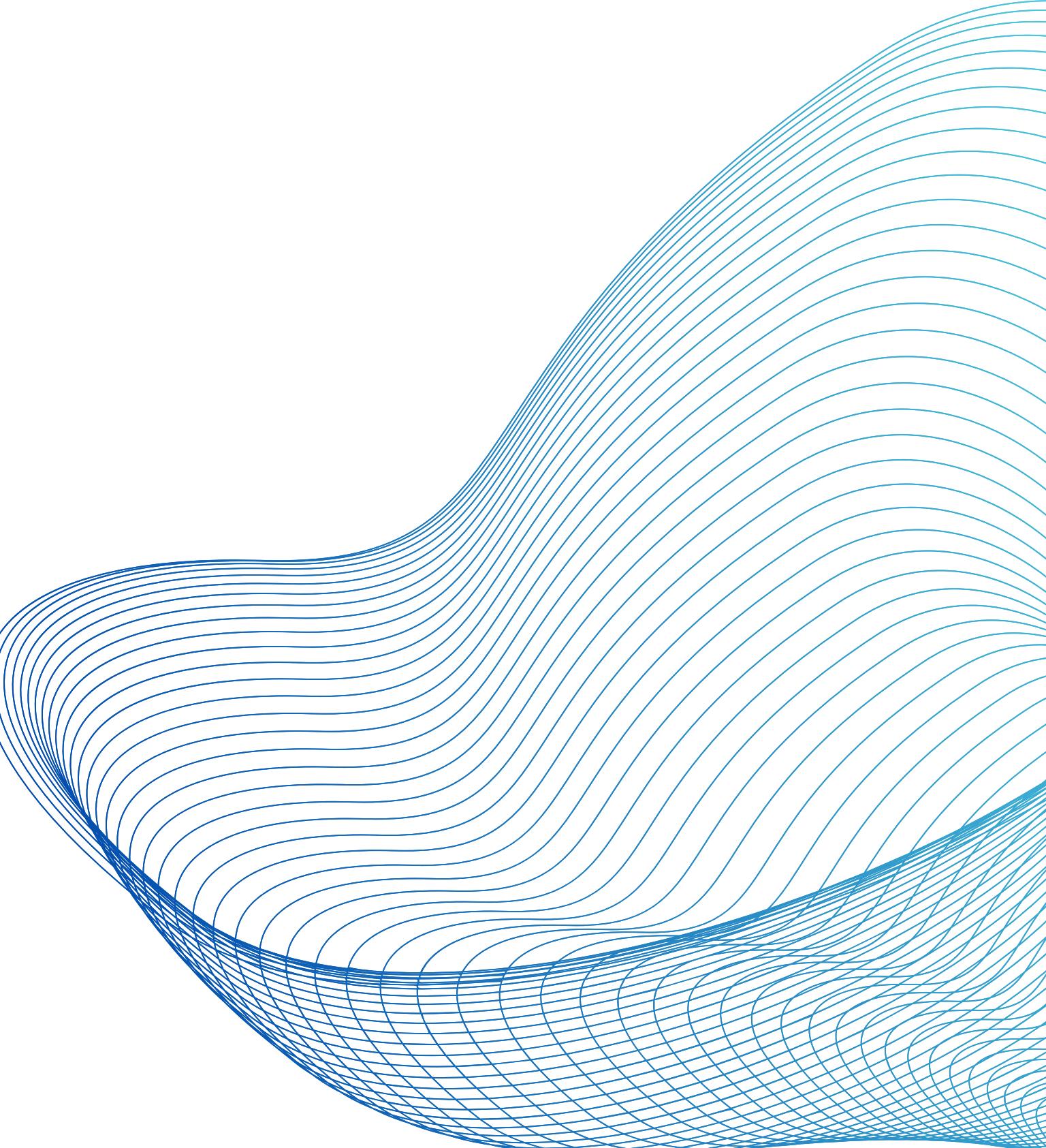


what is command ?

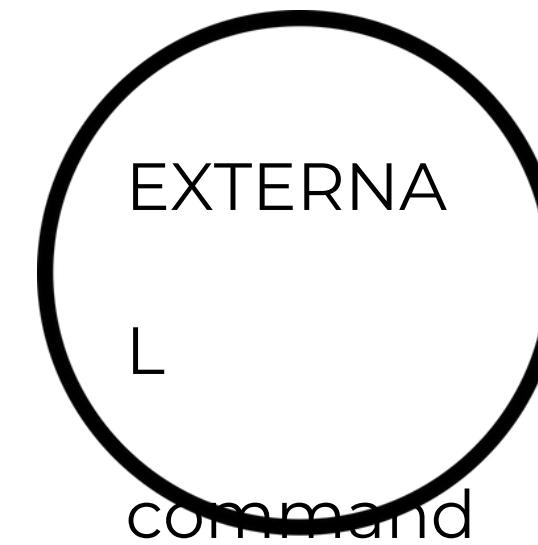
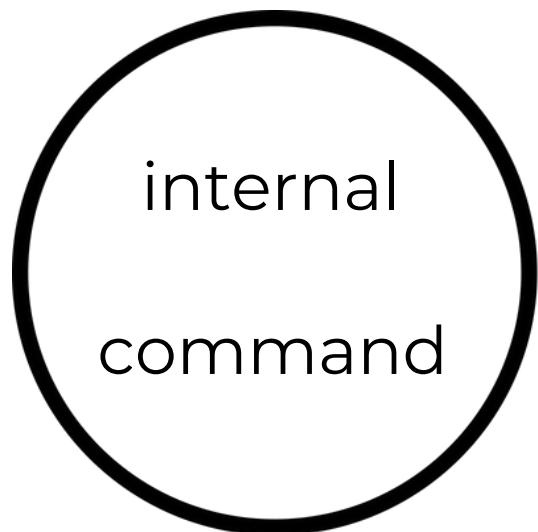
A COMMAND IS A SPECIFIC INSTRUCTION GIVEN TO A COMPUTER APPLICATION TO PERFORM SOME KIND OF TASK OR FUNCTION

COMMANDS ARE USUALLY ENTERED VIA A COMMAND-LINE INTERPRETER, LIKE COMMAND PROMPT.

COMMANDS MUST ALWAYS BE ENTERED INTO A COMMAND LINE INTERPRETER EXACTLY. ENTERING A COMMAND INCORRECTLY (WRONG SYNTAX, MISSPELLING, ETC.) COULD CAUSE THE COMMAND TO FAIL OR WORSE, COULD EXECUTE THE WRONG COMMAND OR THE RIGHT COMMAND IN THE WRONG WAY, CREATING SERIOUS PROBLEMS.



TYPES OF COMMAND



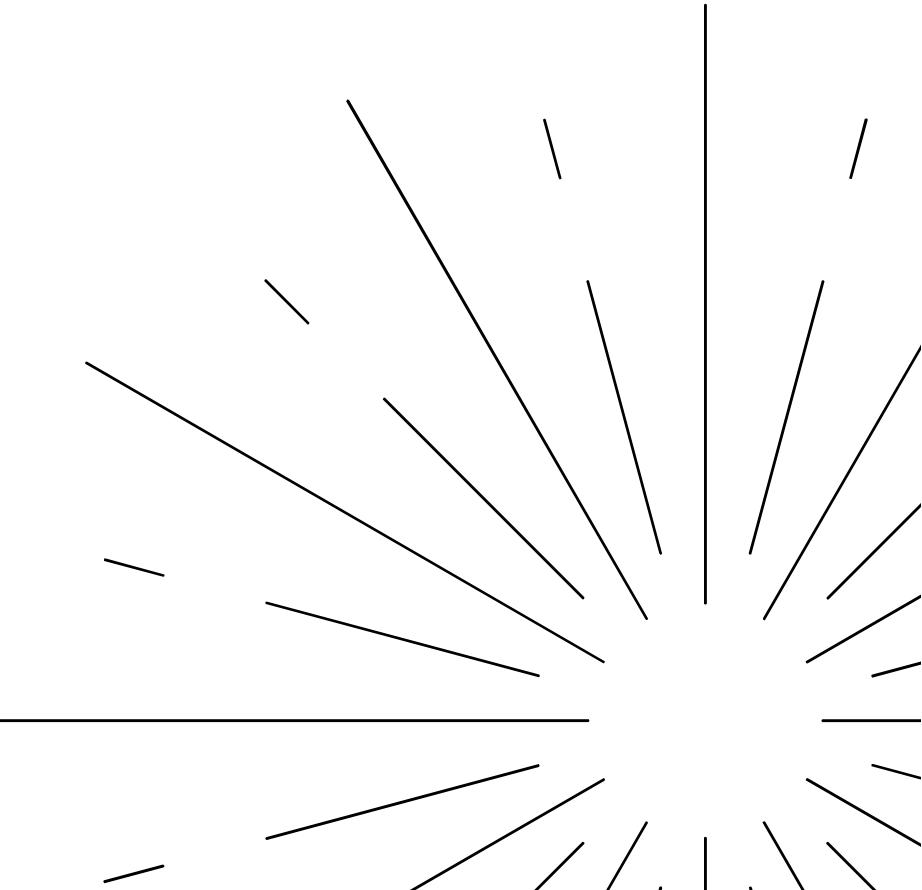
- Internal commands are built-in functionalities of the shell itself. They are implemented within the shell program and do not require separate executable files. Examples of internal commands in Linux shells like Bash include "ed" (change directory), "echo" (print text), "pwd" (print working directory), "history" (display command history), and "export" (set environment variables). Since they are part of the shell, internal commands are executed directly without launching an external program.

- External commands are separate executable files that are stored in the file system. These commands provide additional functionalities beyond the built-in capabilities of the shell. Examples of external commands include "ls" (list files and directories), "grep" (search text patterns), "cat" (concatenate and display file content), "cp" (copy files), and "rm" (remove files). External commands are executed by the shell by locating the corresponding executable file in one of the directories specified in the system's PATH environment variable.

COMMANDS

some Basic linux command

- SSH
OPEN REMOTE LOGIN CLIENT
- W SHOWS WHO IS LOGGED AND WHAT ARE THEY DOING.
- WHATIS SHOWS ONE LINE MANUAL PAGE DESCRIPTION.
- WHOAMI IT DISPLAYS THE NAME OF THE CURRENTLY LOGGED-IN USER.
- MAN MAN IS THE SYSTEM'S MANUAL PAGER.
- SUDO SUDO ALLOWS A PERMITTED USER TO EXECUTE A COMMAND AS THE SUPERUS ANOTHER USER, AS SPECIFIED BY THE SECURITY POLICY.
- HISTORY SHOWS HISTORY OF COMMANDS EXECUTED
- CAL DISPLAYS CALENDAR.
- PWD PRINTS NAME OF PRESENT WORKING DIRECTORY.
- CD USED TO CHAGE CURRENT WORKING DIRECTORY.
- MKDIR USED TO CEATE A DIRECTORY
- RMDIR USED TO REMOVE A DIRECTORY
- LS LISTS EVERYTHING IN PRESENT WORKING DIRECTORY
- UNAME
GET INFORMATION ABOUT CURRENT KERNEL

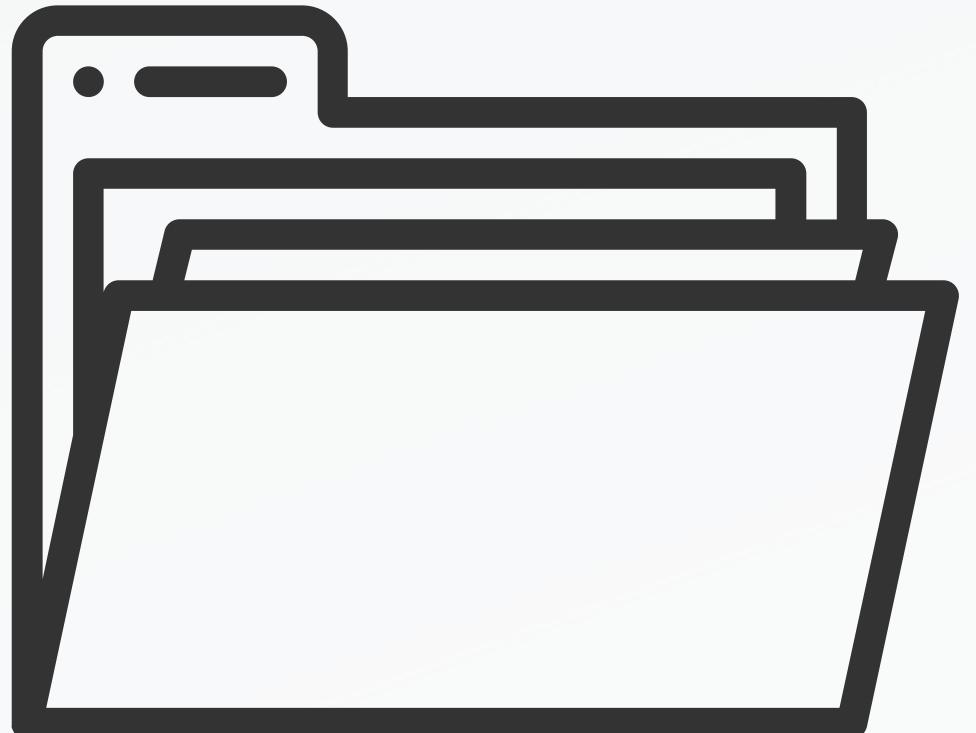


FILE HIERARCHY SYSTEM



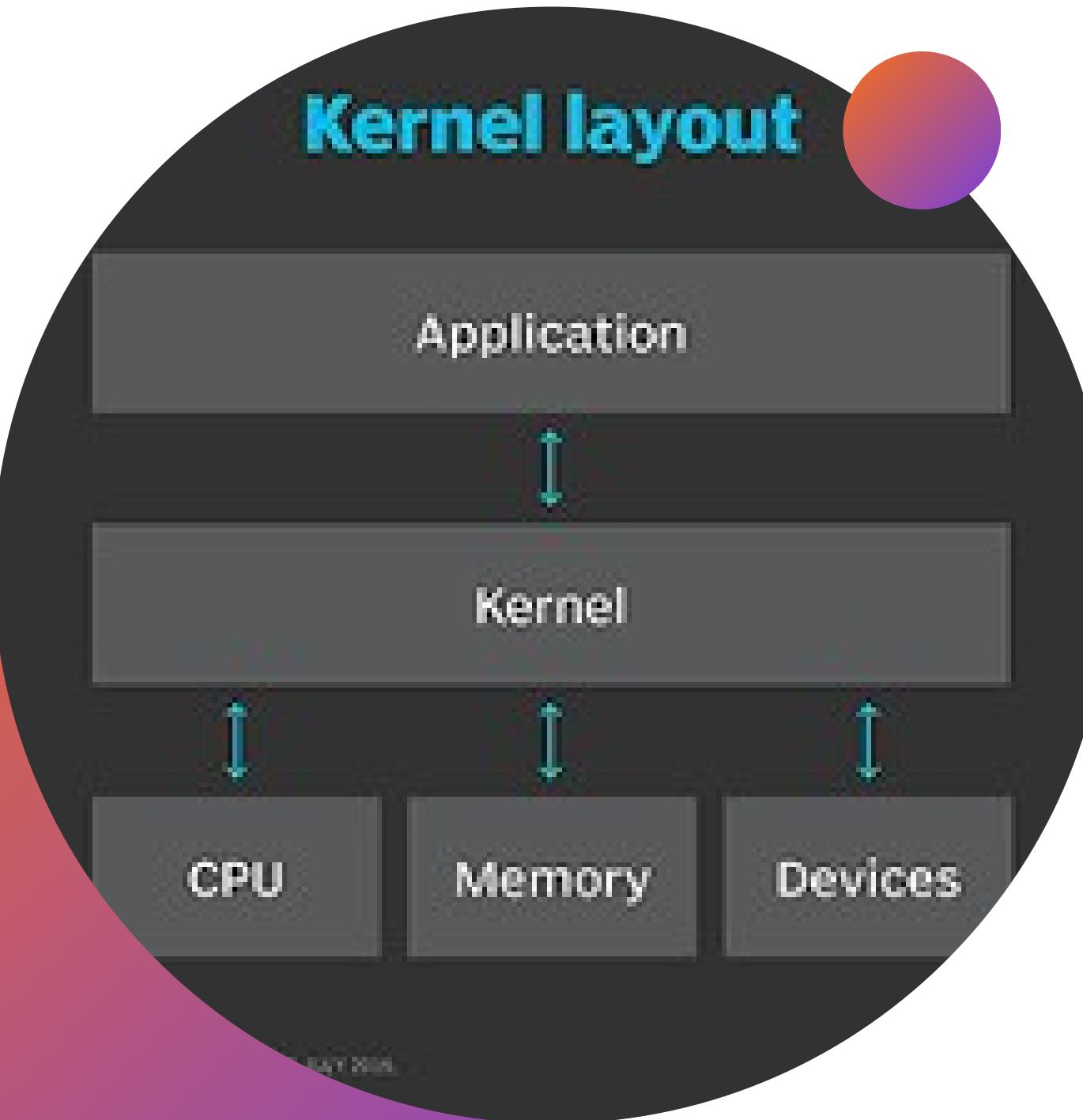
- The Linux File Hierarchy Structure or the Filesystem Hierarchy Standard (FHS) defines the directory structure and directory contents in Unix-like operating systems. It is maintained by the Linux Foundation. In the FHS, all files and directories appear under the root directory /.

- Most of these directories exist in all UNIX operating systems and are generally used in much the same way; however, the descriptions here are those used specifically for the FHS and are not considered authoritative for platforms other than Linux.



SOME EHS DIRECTORIES

- 1./ : Primary hierarchy root and root directory of the entire file system hierarchy.
- 2./bin Essential command binaries that need to be available in single-user mode; for all users, e.g., cat,ls, cp.
- 3. /boot Boot loader files, e.g., kernels
- 4. /dev : Essential device files. e.g.. /dev/null
- 5. /etc : Contains configuration files required by all programs. This also contains startup and shutdown shell scripts used to start/stop individual programs.
- 6. /home : Users' home directories, containing saved files, personal settings, etc
- 7./lib : Libraries essential for the binaries in /bin/ and /sbin/
- 8. /media: Mount points for removable media such as CD-ROMs.
- 9. /mnt : Temporary mount directory where sysadmins can mount filesystems.
- 10. /opt :Optional application software packages. Contains add-on applications from individual vendors
- 11. /sbin : Essential system binaries, e.g., fsck, init, route.
- 12. /srv : Site-specific data served by this system, such as data and scripts for web servers, data offered by FTP servers, and repositories for version control systems.
- 13. /tmp : Temporary files. Often not preserved between system reboots, and may be severely size restricted.
- 14. /usr : Secondary hierarchy for read-only user data: contains the majority of (multi-)user utilities and applications
- 15. /proc: This is a virtual filesystem with text information about system resources.



What is kernel

KERNEL IS CENTRAL COMPONENT OF AN OPERATING SYSTEM THAT MANAGES OPERATIONS OF COMPUTER AND HARDWARE. IT BASICALLY MANAGES OPERATIONS OF MEMORY AND CPU TIME. IT IS CORE COMPONENT OF AN OPERATING SYSTEM. KERNEL ACTS AS A BRIDGE BETWEEN APPLICATIONS AND DATA PROCESSING PERFORMED AT HARDWARE LEVEL USING INTER-PROCESS COMMUNICATION AND SYSTEM CALLS.

KERNEL LOADS FIRST INTO MEMORY WHEN AN OPERATING SYSTEM IS LOADED AND REMAINS INTO MEMORY UNTIL OPERATING SYSTEM IS SHUT DOWN AGAIN. IT IS RESPONSIBLE FOR VARIOUS TASKS SUCH AS DISK MANAGEMENT, TASK MANAGEMENT, AND MEMORY MANAGEMENT.

Types of kernel

1 monolithic kernel

2 micro kernel

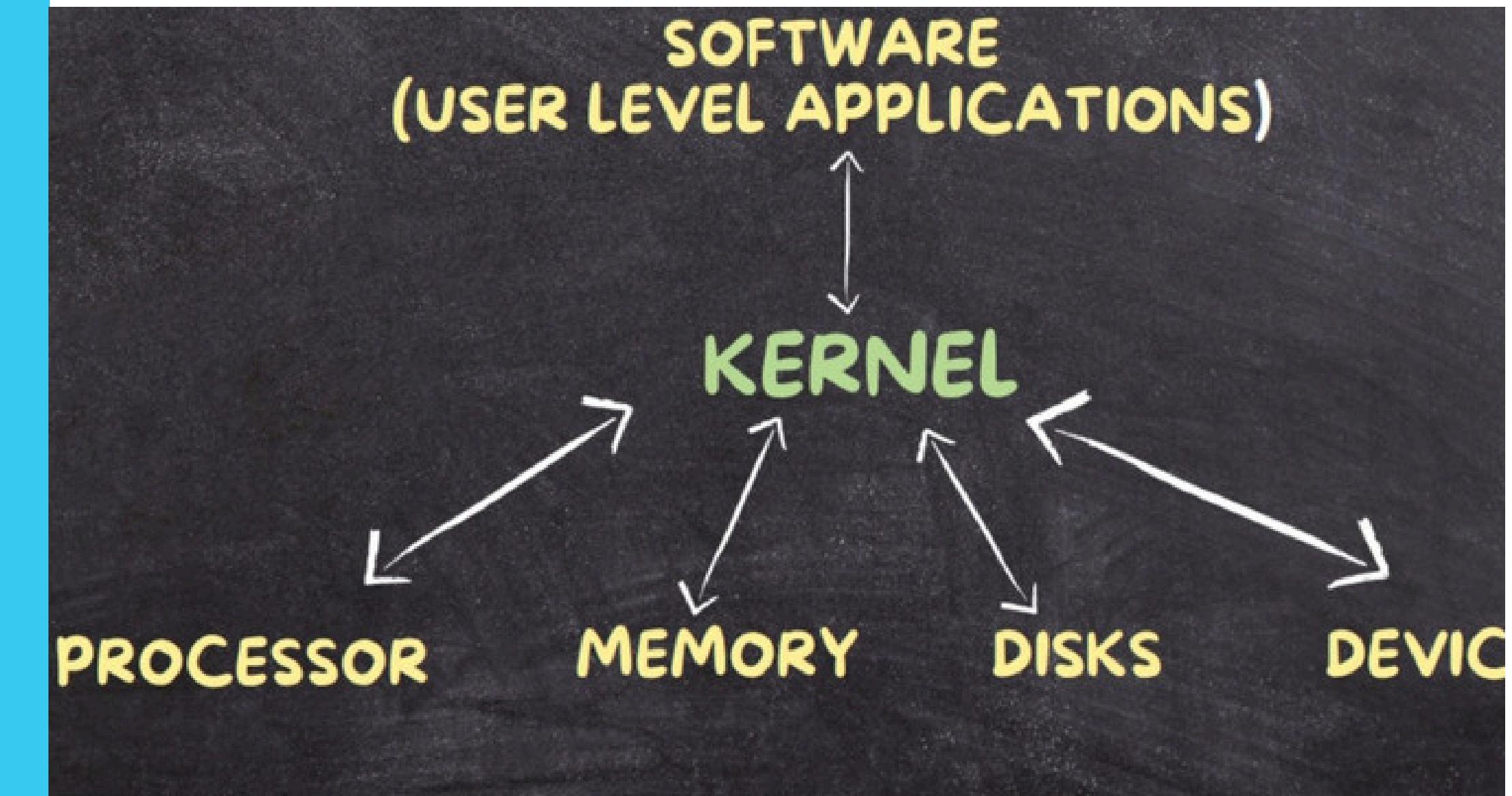
hybrid kernel

exo kernel

nano kernel

Objective of kernel

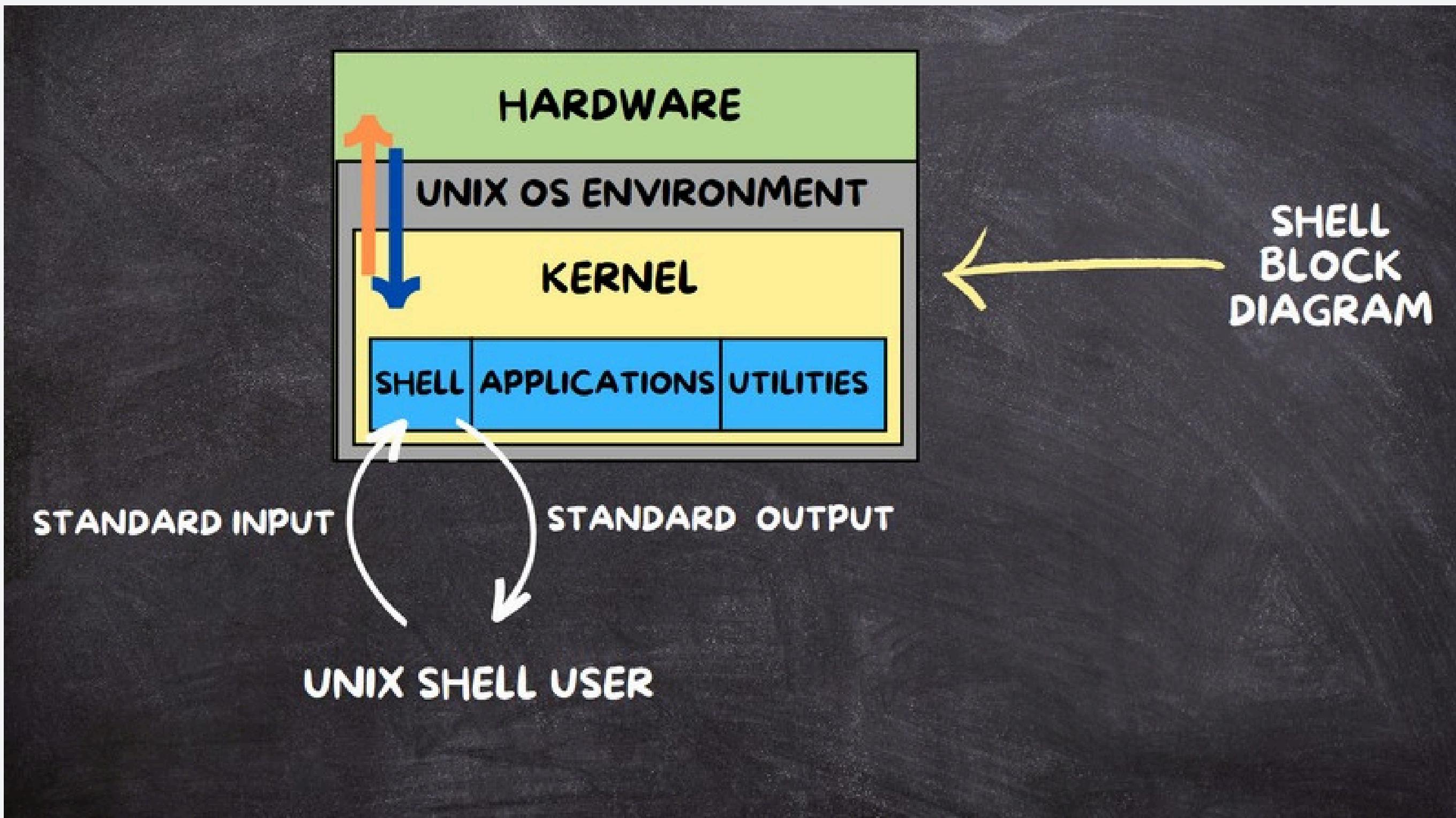
1. TO ESTABLISH COMMUNICATION BETWEEN USER LEVEL APPLICATION AND HARDWARE.
2. TO DECIDE STATE OF INCOMING PROCESSES.
3. TO CONTROL DISK MANAGEMENT.
4. TO CONTROL MEMORY MANAGEMENT.
5. TO CONTROL TASK MANAGEMENT.



SHELL

- THE SHELL IS THE NAME OF THE PROGRAM THAT RUNS IN THE TERMINAL, GIVING YOU A COMMAND PROMPT, POPULAR ONES ARE SH, BASH, ZSH, FISH, ASH, CSH (NOTICE HOW THEY ALL END IN - SH?). THE SHELL IS A PROGRAM WHICH PROCESSES COMMANDS AND RETURNS OUTPUT, LIKE BASH IN LINUX.

- IT INTERPRETS AND PROCESSES THE COMMANDS ENTERED BY THE USER. UNLIKE USERS, THE SHELL HAS ACCESS TO THE KERNEL. USERS CAN ONLY GAIN ACCESS TO THE KERNEL BY USING A SHELL AND ENTERING COMMANDS (I.E. RUNNING PROGRAMS). SYSTEM CALLS ARE USED BY PROGRAMS TO GAIN ACCESS TO KERNEL FUNCTIONALITY. THE SYSTEM API IS MADE UP OF ALL SYSTEM CALLS.



TERMINAL

THE TERMINAL IS A DEVICE THAT GIVES YOU ACCESS TO THE CONSOLE OF YOUR COMPUTER. IN THE PAST IT WAS A PHYSICAL DEVICE (BEFORE TERMINALS WERE MONITORS WITH KEYBOARDS, THEY WERE TELETYPE) AND THEN ITS CONCEPT WAS TRANSFERRED INTO SOFTWARE, LIKE GNOME TERMINAL.

A TERMINAL WINDOW, ALSO KNOWN AS A TERMINAL EMULATOR, IS A TEXT-ONLY WINDOW THAT EMULATES A CONSOLE IN A GRAPHICAL USER INTERFACE (GUI). IN OTHER WORDS, A GRAPHICAL USER INTERFACE APPLICATION FROM WHICH WE CAN ACCESS A USER'S CONSOLE.



LINUX

THE LINUX KERNEL IS THE MAIN COMPONENT OF A LINUX OPERATING SYSTEM (OS) IS THE CORE INTERFACE BETWEEN A COMPUTER'S HARDWARE AND ITS PROCESSES. IT COMMUNICATES BETWEEN THE 2, MANAGING RESOURCES AS EFFICIENTLY AS POSSIBLE. THE KERNEL IS SO NAMED BECAUSE LIKE A SEED INSIDE A HARD SHELL-IT EXISTS WITHIN THE OS AND CONTROLS ALL THE MAJOR FUNCTIONS OF THE HARDWARE, WHETHER IT'S A PHONE, LAPTOP, SERVER, OR ANY OTHER KIND OF COMPUTER.

CHARACTERISTICS OF LINUX OS

:
FREE & OPEN SOURCE
COMMAND LINE INTERFACE

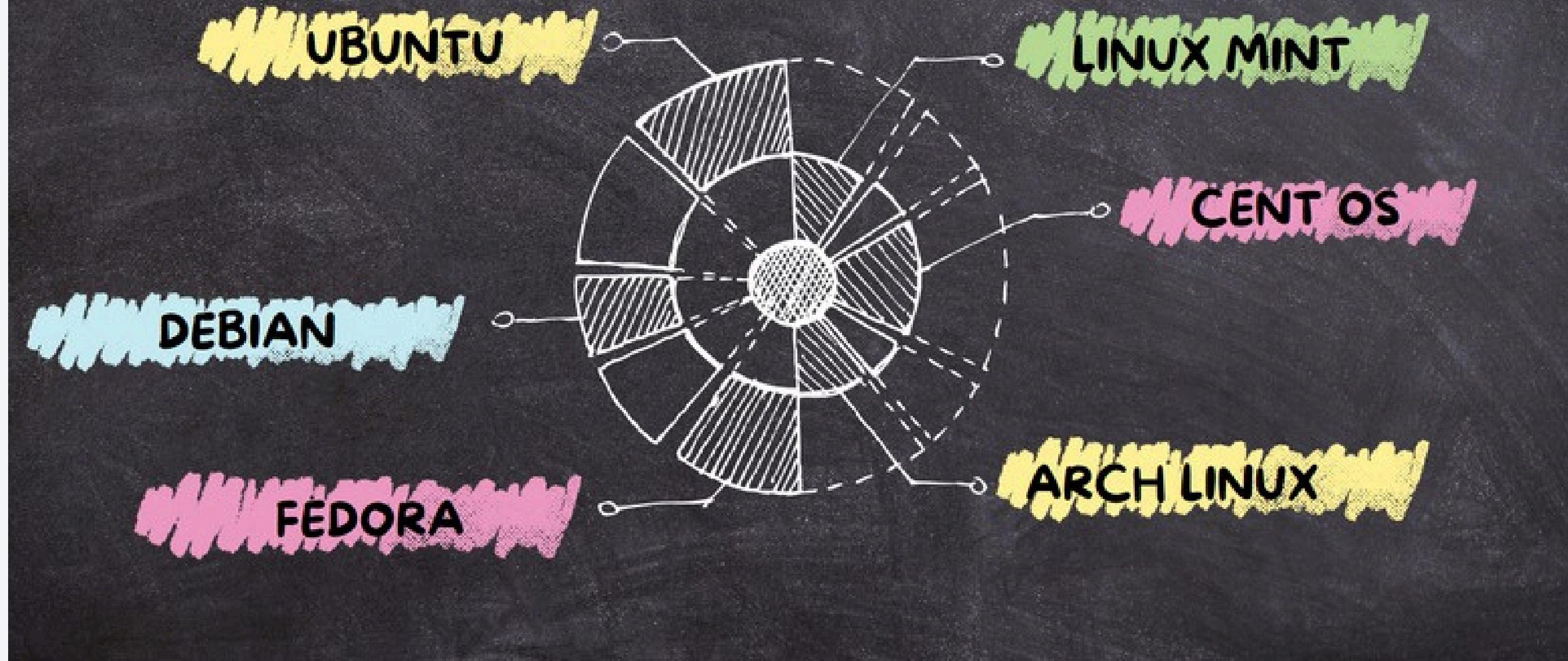


SUPPORTS
MULTITASKING
LIGHTWEIGHT
INFRASTRUCTURE



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LINUX DISTRIBUTIONS



UBUNTU : IT IS THE MOST WELL KNOWN LINUX DISTRIBUTION. UBUNTU IS A NEXT VERSION OF DEBIAN AND EASY TO USE FOR NEWBIES. IT COMES WITH A LOTS OF PRE- INSTALLED APPS AND EASY TO USE REPOSITORIES LIBRARIES.

LINUX MINT: MINT IS BASED ON UBUNTU AND USES ITS REPOSITORY SOFTWARE SO SOME PACKAGES ARE COMMON IN BOTH. IT FOCUSES ON SIMPLICITY, EASE OF USE AND A POLISHED DESKTOP EXPERIENCE.

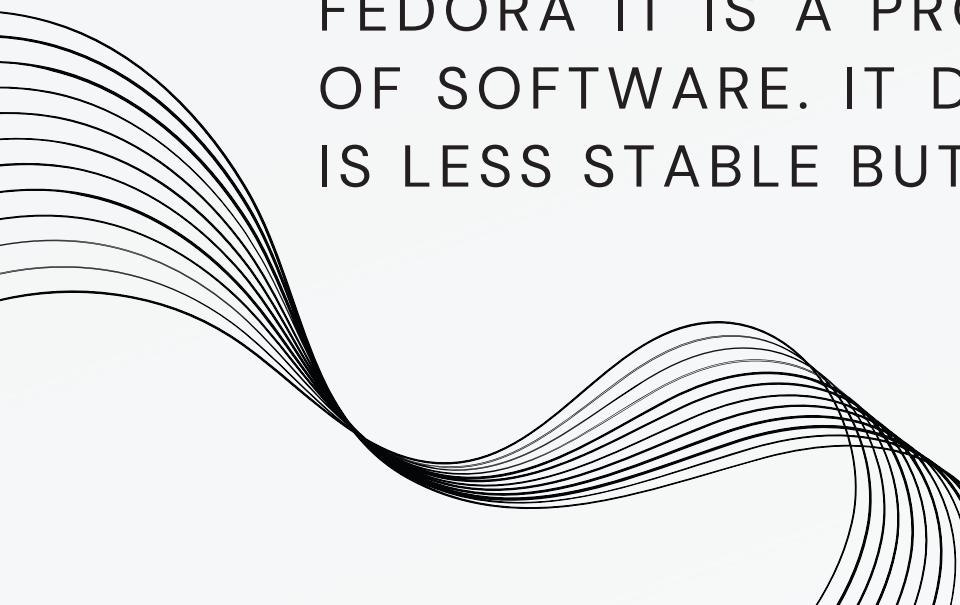
DEBIAN: DEBIAN HAS ITS EXISTENCE SINCE 1993 AND RELEASES ITS VERSIONS MUCH SLOWLY THEN UBUNTU AND MINT. DEBIAN IS A COMMUNITY-DRIVEN LINUX DISTRIBUTION KNOWN FOR ITS STABILITY, ROBUSTNESS, AND EMPHASIS ON FREE SOFTWARE PRINCIPLES. IT SERVES AS THE FOUNDATION FOR MANY OTHER LINUX DISTRIBUTIONS.

CENT OS: CENTOS IS A COMMUNITY PROJECT THAT USES RED HAT ENTERPRISE LINUX CODE BUT

REMOVES

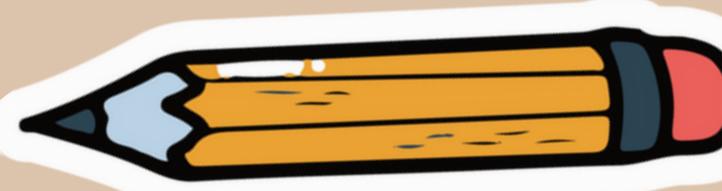
ALL ITS TRADEMARK AND MAKE IT FREELY AVAILABLE. IN OTHER WORDS, IT IS A FREE VERSION OF RHEL
AND PROVIDE A STABLE PLATFORM FOR A LONG TIME.

FEDORA IT IS A PROJECT THAT MAINLY FOCUSES ON FREE SOFTWARE AND PROVIDES LATEST VERSION OF SOFTWARE. IT DOESN'T MAKE ITS OWN DESKTOP ENVIRONMENT BUT USED UPSTREAM' SOFTWARE. IT IS LESS STABLE BUT PROVIDES THE LATEST STUFF.



Virtualization

- VIRTUALIZATION IS A PROCESS THAT ALLOWS FOR MORE EFFICIENT UTILIZATION OF PHYSICAL COMPUTER HARDWARE AND IS THE FOUNDATION OF CLOUD COMPUTING.
- VIRTUALIZATION USES SOFTWARE TO CREATE AN ABSTRACTION LAYER OVER COMPUTER HARDWARE THAT ALLOWS THE HARDWARE ELEMENTS OF A SINGLE COMPUTER- PROCESSORS, MEMORY, STORAGE AND MORE-TO BE DIVIDED INTO MULTIPLE VIRTUAL COMPUTERS, COMMONLY CALLED VIRTUAL MACHINES (VMS). EACH VM RUNS ITS OWN OPERATING SYSTEM (OS) AND BEHAVES LIKE AN INDEPENDENT COMPUTER, EVEN THOUGH IT IS RUNNING ON JUST A PORTION OF THE ACTUAL UNDERLYING COMPUTER HARDWARE.
- . OVERALL, VIRTUALIZATION OFFERS FLEXIBILITY, EFFICIENCY, RESOURCE OPTIMIZATION, AND SCALABILITY, MAKING IT A VALUABLE TECHNOLOGY FOR CONSOLIDATING INFRASTRUCTURE, REDUCING COSTS, AND ENABLING MORE DYNAMIC AND ADAPTABLE COMPUTING ENVIRONMENTS
- MERGER AND DEMERGER IS DONE WITH THE HELP OF VIRTUALIZATION.



Hypervisor

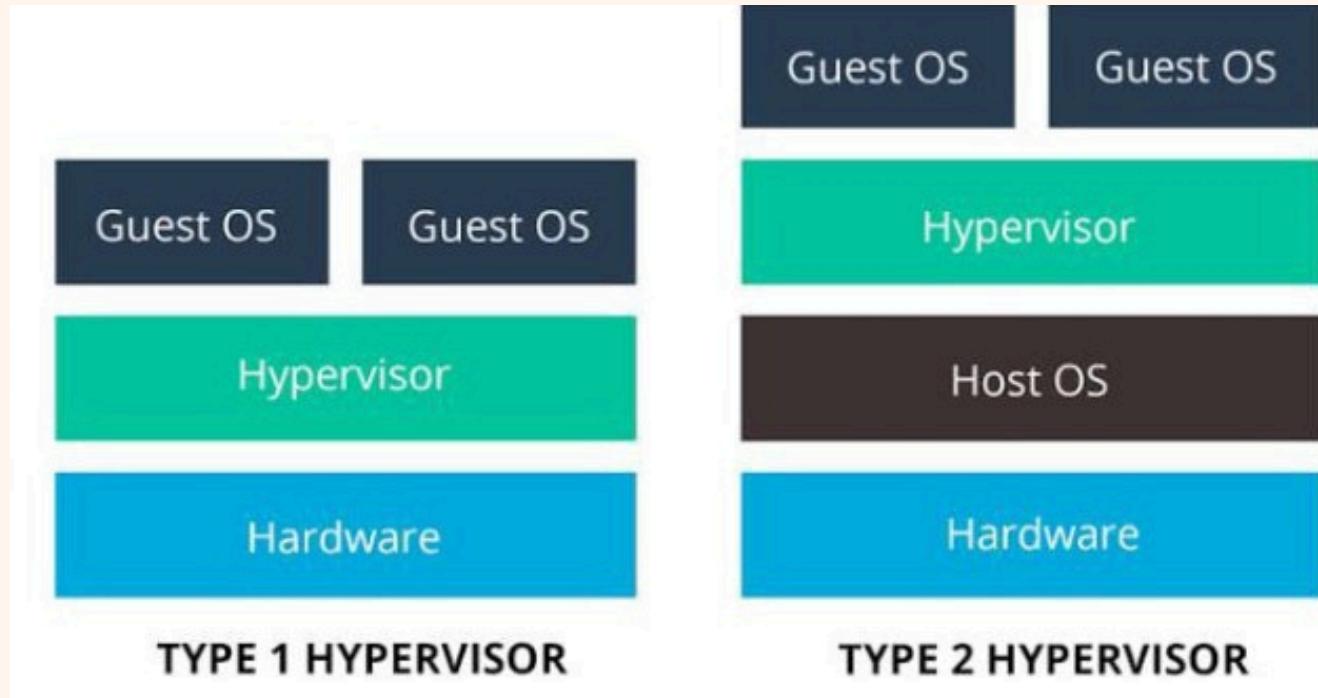
Quo kicu hisasfum Virtual Machine Mobitor Matagam dignissim lectus in ligula rhoncus, et bibendum risus dictum.

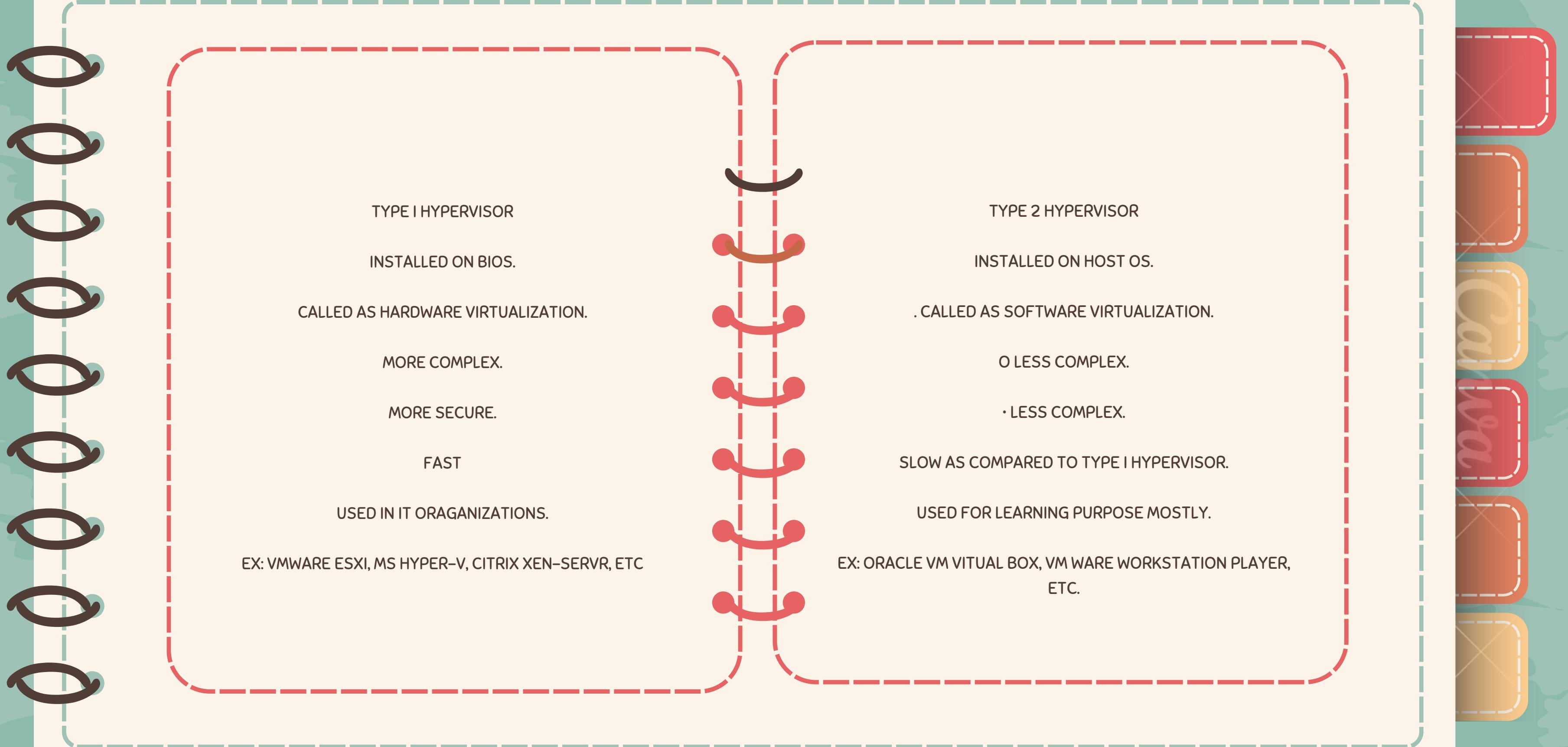
- A hypervisor is a form of virtualization software used in Cloud hosting to divide and allocate the resources on various pieces of hardware. The program which provides partitioning, isolation, or abstraction is called a virtualization hypervisor.

The hypervisor is a hardware virtualization technique that allows multiple guest operating systems (OS) to run on a single host system at the same time.

Types

- Type 1 Hypervisor
- Type 2 Hypervisor





Thank
you