



# Linux Overview

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- What is Linux?
- Unix and Linux
- Unix System Architecture
- Unix Philosophy
- Linux File system Hierarchy

# What is Linux?



- **Linux kernel**

- Developed by Linus Torvalds
- Strictly speaking, 'Linux' is just the kernel

- **Associated utilities**

- Standard tools found on (nearly) all Linux systems
- Many important parts come from the GNU project
- Free Software Foundation's project to make a free Unix
- Some claim the OS as a whole should be 'GNU/Linux'

- **Linux distributions**

- Kernel plus utilities plus other tools, packaged up for end users
- Generally with installation program
- Distributors include: Red Hat, Debian, SuSE, Ubuntu etc.

# Unix and Linux



- Linux is based on Unix
  - Unix philosophy
  - Unix commands
  - Unix standards and conventions

# Unix System Architecture

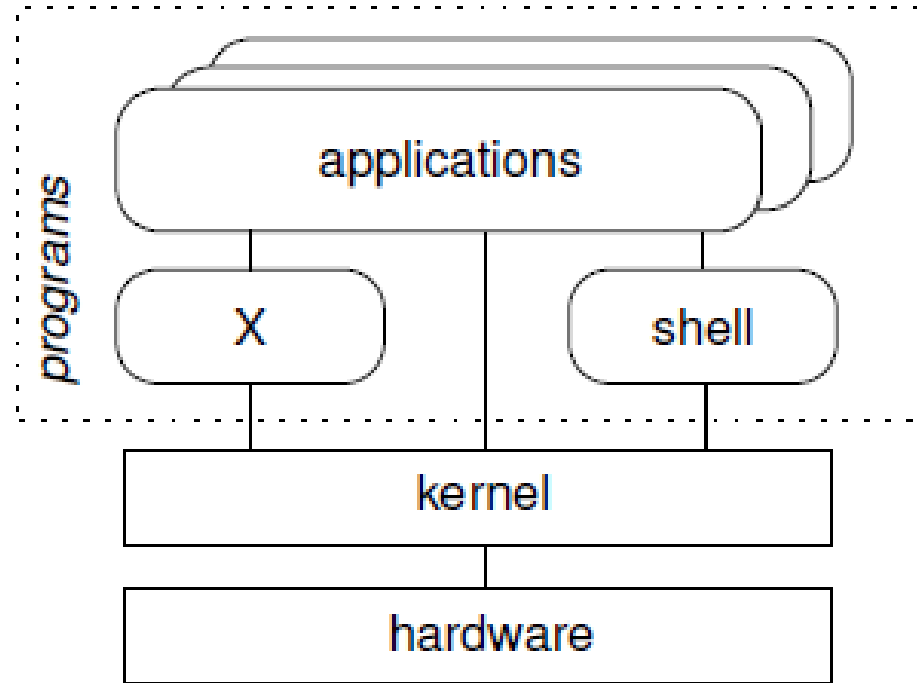


Fig: Unix System Architecture

- The shell and the window environment are programs
- Programs' only access to hardware is via the kernel

# Unix Philosophy



- Multi-user
  - A user needs an account to use a computer
  - Each user must log in
  - Complete separation of different users' files and configuration settings
- Small components
  - Each component should perform a single task
  - Multiple components can be combined and chained together for more complex tasks
  - An individual component can be substituted for another, without affecting other components

# Linux File System Hierarchy

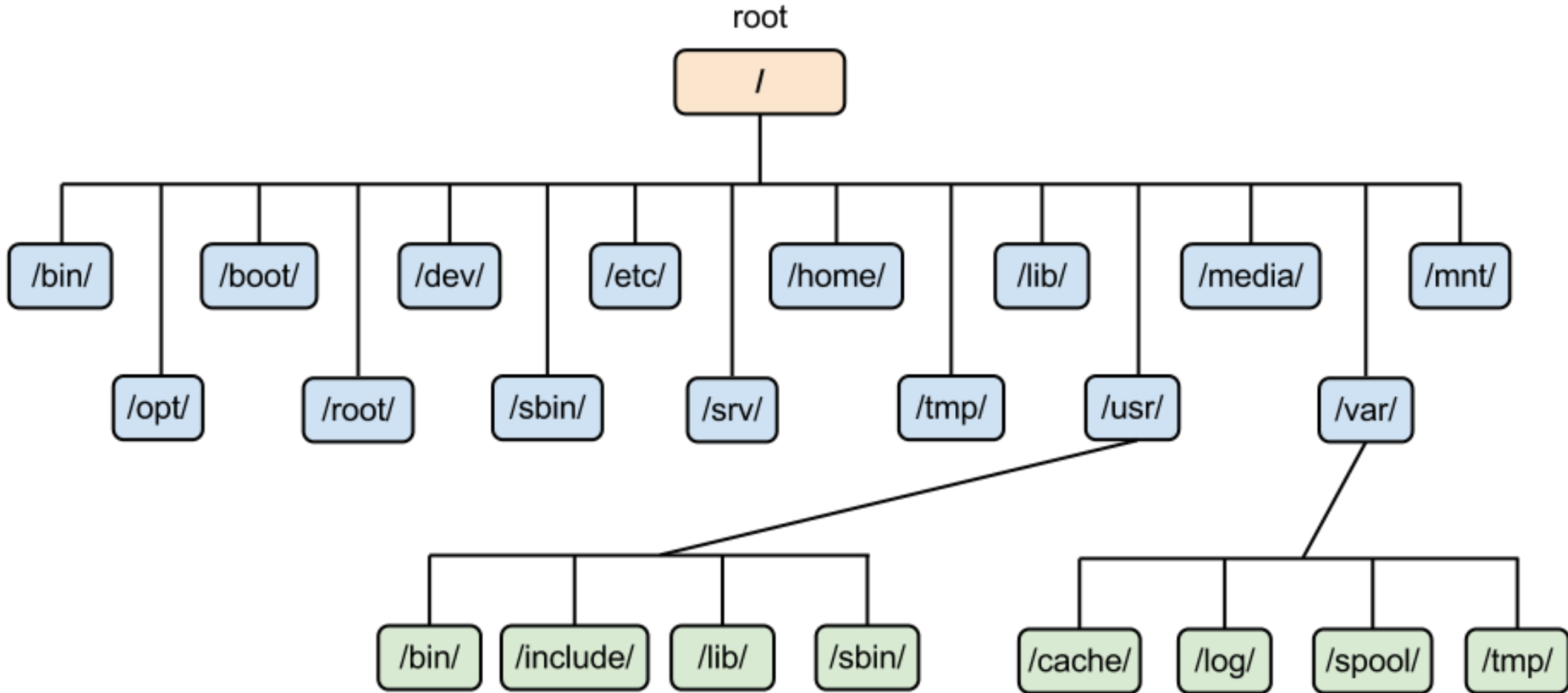


Fig: The Linux directory structure

# Directories defined by the FHS



Directory	Description
/bin	Contains binary commands that can be used by system administrators, users, and scripts; this directory shouldn't contain subdirectories and can be accessed in single user mode
/boot	Contains the Linux kernel and static files needed to boot the computer
/dev	Contains device files, such as the CD/DVD-ROM drive
/etc	Contains static configuration files, which are also unshareable files, meaning they're local to the machine
/home	An optional directory that might not be included in all Linux distributions; in openSUSE, it's the user's home directory
/lib	Contains shared libraries that are loaded when a program starts
/media	Contains the mount point for removable media



# Directories defined by the FHS (Cont.)



Directory	Description
/mnt	Empty by default, but administrators can use it to mount other resources, such as CD/DVD-ROM drives
/opt	Contains static shareable add-on software packages
/root	Contains the recommended home directory for the root user; not all Linux distributions use it, but it's used in CentOS, RHEL, openSUSE,
/sbin	Contains system binaries used by the system administrator
/srv	Contains data files for services
/tmp	Contains temporary files that system administrators should delete whenever the system is booted
/usr	Contains shareable, read-only applications and files
/var	Contains variable data files, such as log files

Thank You

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