Raspberry Pi
Unit 8: Super User

CSC270—Spring 2020
Showcased Projects

https://create.arduino.cc/projecthub/ahmedismail3115/arduino-based-amazon-echo-using-1sheeld-84fa6f?ref=platform&ref_id=424_trending___&offset=91
Raspberry Pi Cloud

The Raspberry Pi–based server that could transform edge computing

By Ian Barker | Published 2 days ago | Follow @IanDBarker

- TuringPi.com
- Mini-cloud
- <$200
- i2c bus
- 1Gbps Ethernet connection
- eMMC memory on board + SD card drive

https://betanews.com/2020/04/16/raspberry-pi-edge-server/
How memory bandwidth is killing AMD's 32-core Threadripper performance

Explore on Your Own

- Raspberry Pi Projects: https://itsfoss.com/raspberry-pi-projects/
Linux Administration
• Create **new user**
• Customize **environment**
• Install **packages**
• Install a **LAMP** stack
• Install **WordPress**
• Checking the **Logs**
Outline

Unit 8

• Create new user
• Customize environment
• Install packages

Unit 9

• Install a LAMP stack
• Install WordPress
• Checking the Logs
• Open Source

• Many "Distros"

GNU Packages

Linux Kernel

Libraries

GUI

Debian
Fedora
Ubuntu
Red Hat
Suse

X11
Gnome
KDE
What the kernel does

- Manages memory
- Manages processes
- Provides device drivers
- Enforces security and services system calls
"All the details [of Linux] have changed—the hardware is very different, the problems we have are very different, and my role is very different. But the whole 'make it better and have interesting challenges' is all the same."

Linus Torvalds
Linux Administration

- Linux kernel
- Android
- Chrome OS
- OSX (almost)

https://www.linuxjournal.com/content/25-years-later-interview-linus-torvalds
Linux Administration

- **Linux Market Share (2018)**
  - Laptops: **2.1%**, MS 87%, OSX 10%
  - Servers: **96.5%**, MS 1.8%, FreeBSD 1.72%

https://www.linuxjournal.com/content/25-years-later-interview-linus-torvalds
- **pi**: default user name when installing Raspbian

- **raspberry**: default user password for **pi**

- **Can** run programs, create/edit files in /home/pi directory

  - Cannot install apps, cannot edit files in other users's home, cannot edit/view system files

  - **But**, *pi* is allowed to use "sudo" command!
• **root** is the account of the **super-user**

• **root** can
  
  • install apps (**apt-get**)  
  
  • look at all files from **all** users  
  
  • create/edit/delete **system** files  
  
  • **mess up** the system  
  
  • "Some" users can temporarily become root with **sudo**  

• **pi** and **root** have different **home directories**
ls -a

whoami

groups

sudo su

hostname

last

w

ping

Create Yourself!

Create Yourself!

- What is a Linux User?
- Home directory
- Privileges
- whoami
- sudoers group
Customizing Your Environment

```
    cd
    ls -a
    less .bashrc

    emacs -nw .bashrc

    # DT's customizations
    PS1="\[\e[35m\]@\[\e[m]\]\[\e[31m\]\[\e[36m\]\[\e[m]\]\[\e[36m\]\[\e[m]\]\[\e[31m\] $ "
    alias emacs='emacs -nw'
    alias ll='ls -l'
    alias h='history'

    source .bashrc
```
Installing Packages