Why Linux

- Its Secure
- Can revive older computers
- Perfect for Programmers
- Faster Updates
- Customization
- Variety of Distributions
- Free to Use
- Its Open Source means its free
- Better Community Support
- Reliability
- Privacy

How does Linux differ from other operating systems?

Comparison

Linux
- Open Source
- Free
- Free Software
- Live CD Distribution
- Secure
- NO
- Low Hardware Cost
- Customizable add features

Windows
- Closed Source
- Cost 150-320
- Cost Software
- NO
- Insecure
- Virus, Malware
- High Hardware Cost
- Not Customizable

What is the difference between Unix and Linux?

Difference between Unix and Linux

Unix

1. It is an operating system which *can be only used by its copyrighters*.

2. It was developed mainly for servers, workstations and mainframes.

3. Unix copyright vendors decide different costs for their respective Unix Operating systems.

Linux

1. It is an open-source operating system which is *freely available to everyone*.

2. Nowadays, Linux is in great demand. Anyone can use Linux whether a home user, developer or a student.

3. Linux is freely distributed, downloaded, and distributed through magazines also. And priced distros of Linux are also cheaper than Windows.

Who uses Linux?

Who uses Linux? continued

Who Uses Linux Computers?

facebook   amazon.com

Google   Microsoft

For many years, **NASA, Google, Amazon and Facebook** have used predominately Linux computers due to their speed & security. **In 2017, Microsoft secretly switched nearly all of their cloud computers to Linux!** It is therefore only a matter of time until everyone in the world is using Linux.

Who "owns" Linux?

- Linus Benedict Torvalds
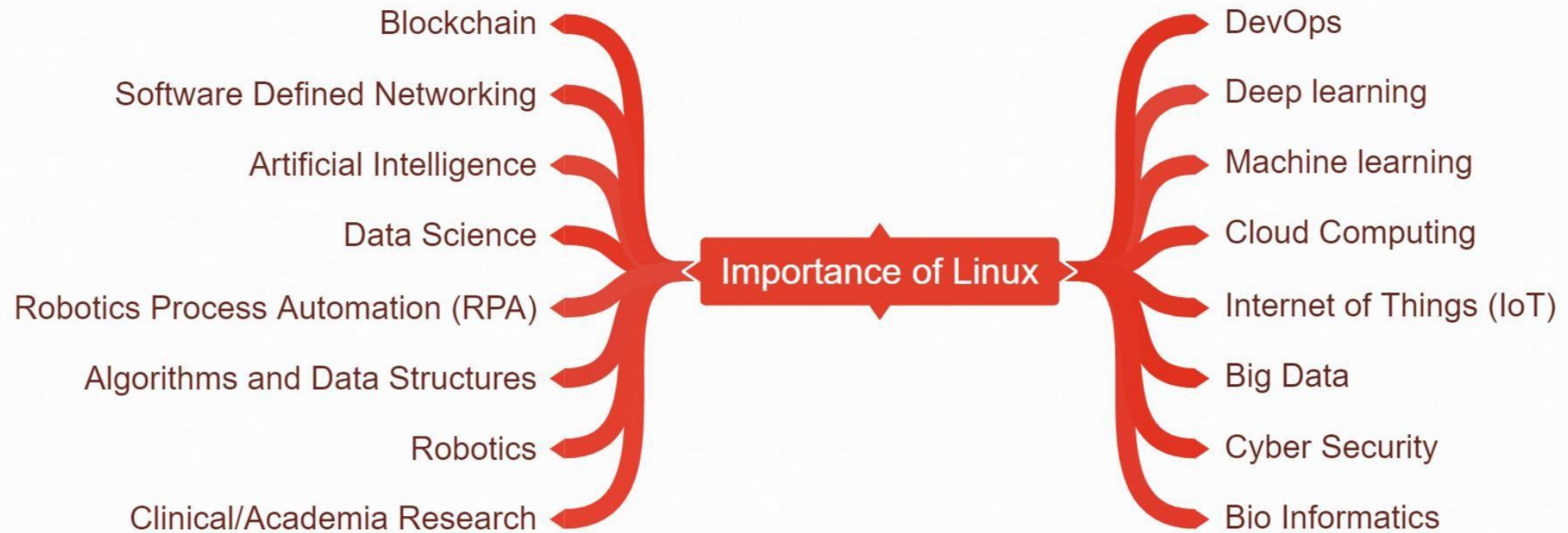
How was Linux created?

Who created Linux ?

- The Linux kernel was initially written by **Linus Torvalds** a student at the University of Helsinki, Finland.

- Based on **Minix**, a simplified kernel used for teaching OS design.

- Linux was originally written in Intel 386 assembly and C, booted from floppy to run outside OS

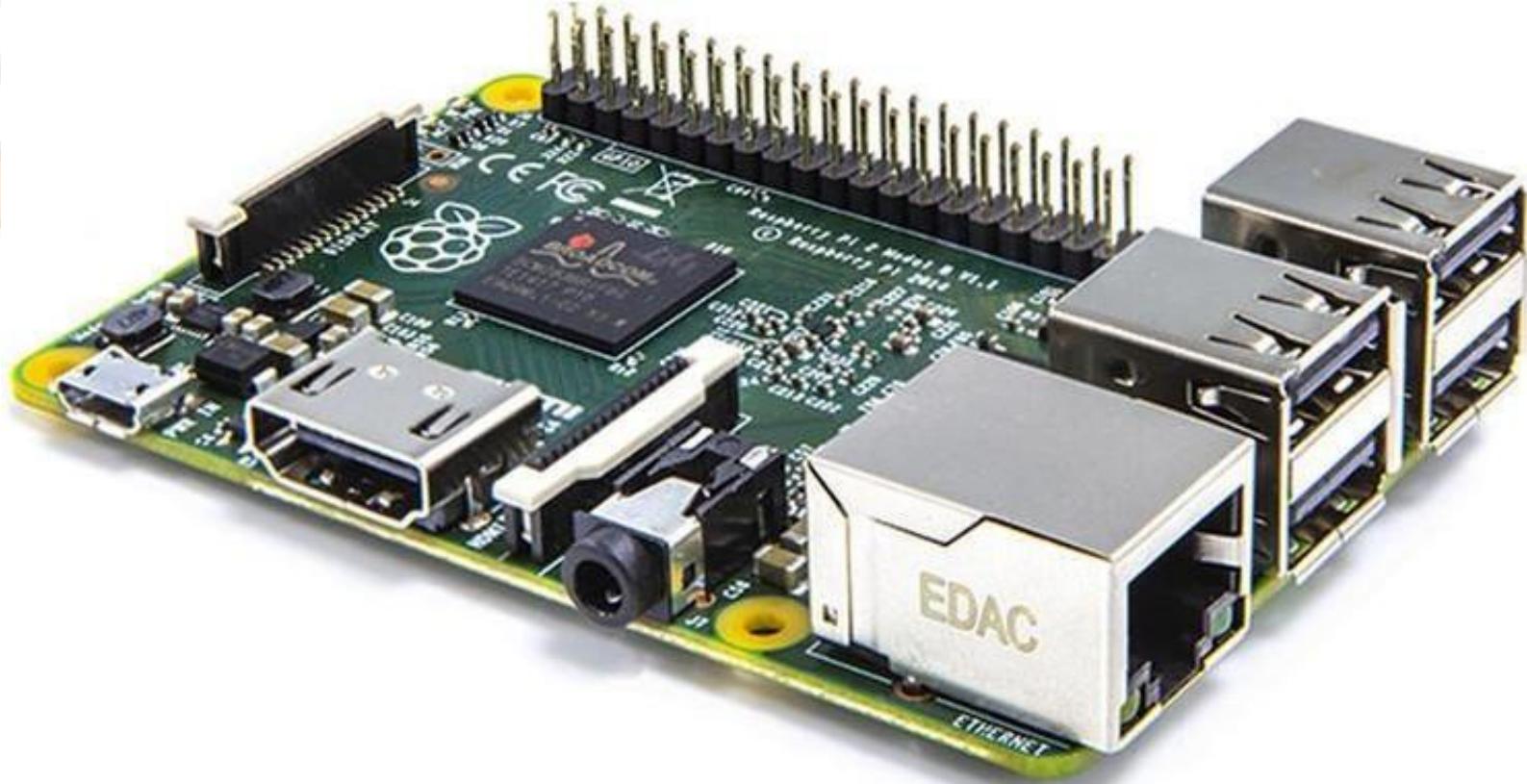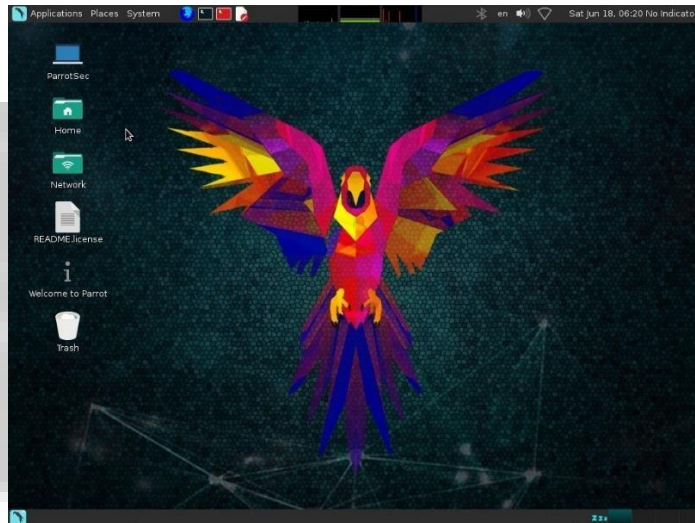- First version released to the Internet in September 1991.
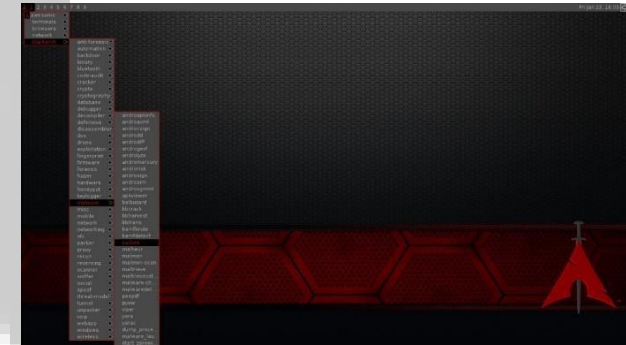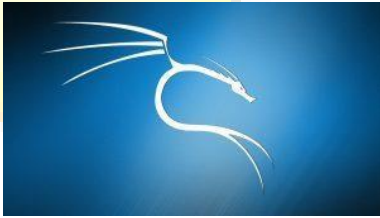
Importance of Linux

Linux Importance IoT (internet of things)

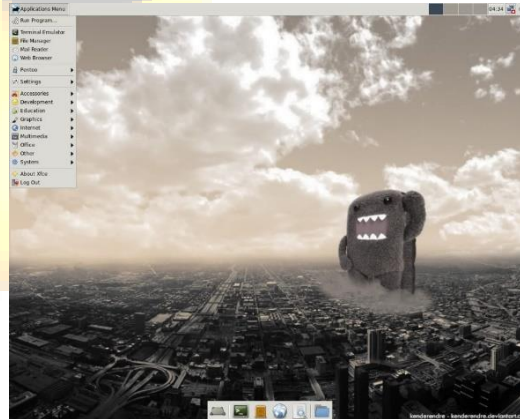# Linux Hacking Distros

- https://itsfoss.com/linux-hacking-penetration-testing/

Linux Hacking continued!!

Linux and Autonomous Driving

Internet of Things (IoT)
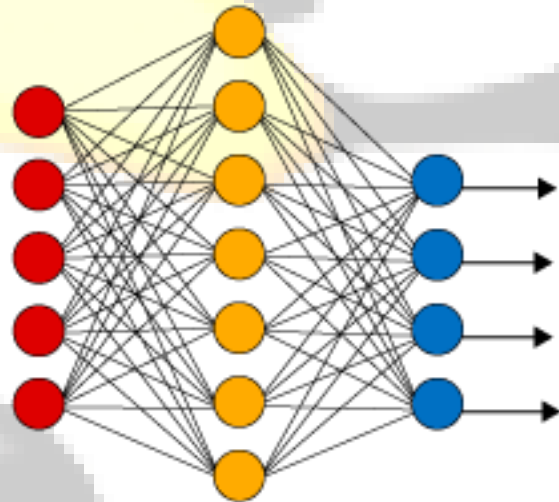
Machine Learning

Deep learning

Simple Neural Network

Deep Learning Neural Network
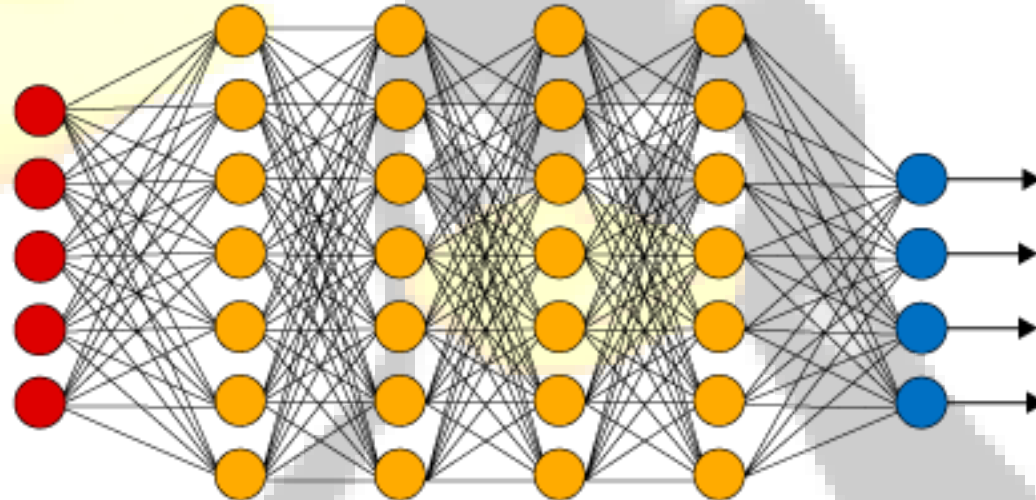
🔴 Input Layer 🟠 Hidden Layer 🔵 Output Layer

AI and Linux
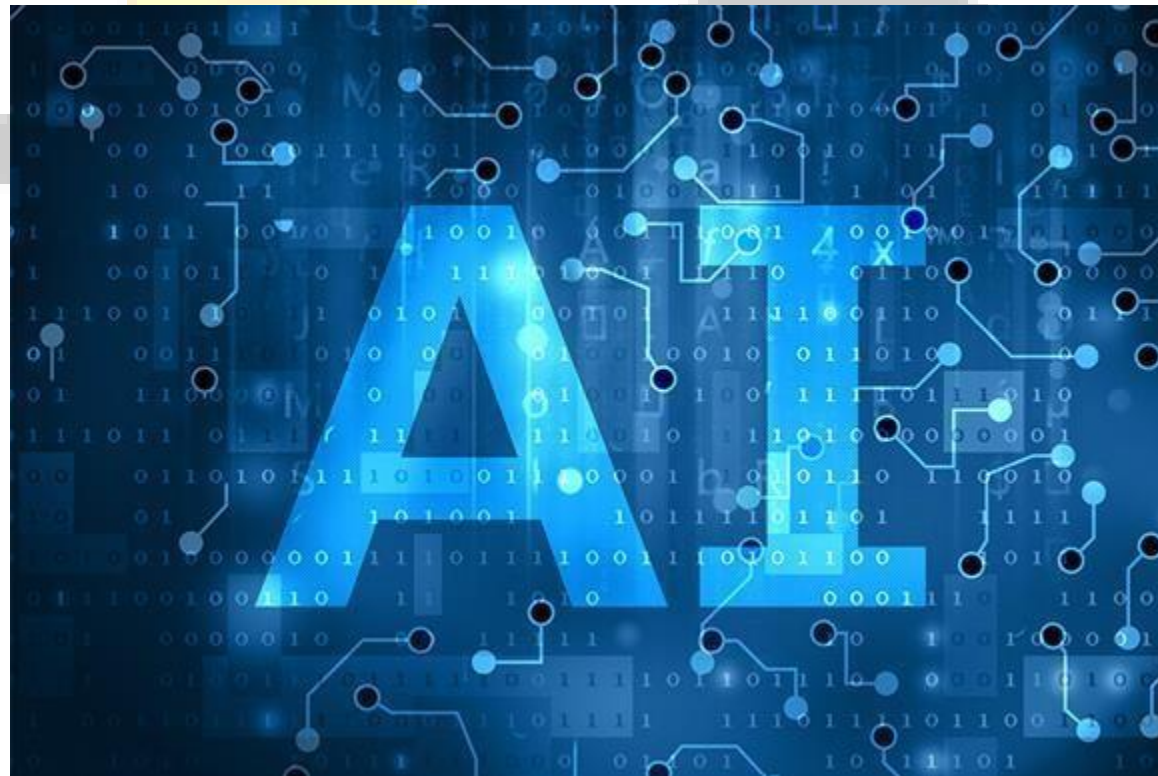
Cloud Computing and Linux

Satellite and Linux

Next Gen Rockets

SPACEX

SpaceX's Falcon 9 and Falcon Heavy win $297M in US military launch contracts

Robotics Process Automation
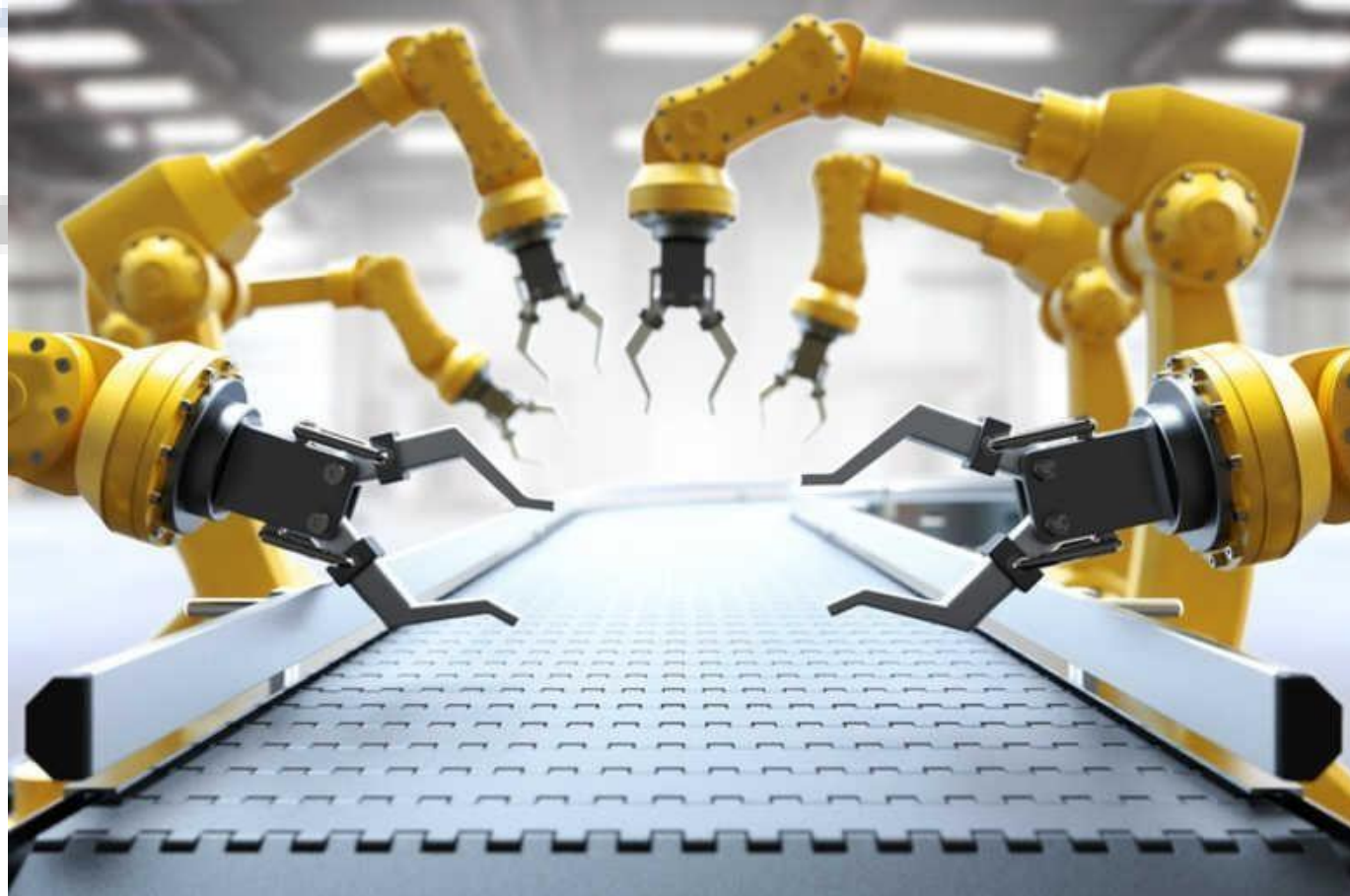
Robots and Linux

Drones

How can I contribute to Linux?

Top 10 contributors to the Linux kernel since version 2.6.36

Company	Number of changes to the kernel.
No company name	11,413
Red Hat	7,563
Intel	5,075
Novell	3,050
Unknown	2,998
IBM	2,638
Texas Instruments	2,124
Consultant	1,859
Broadcom	1,780
Nokia	1,367
Microsoft	688 → #21
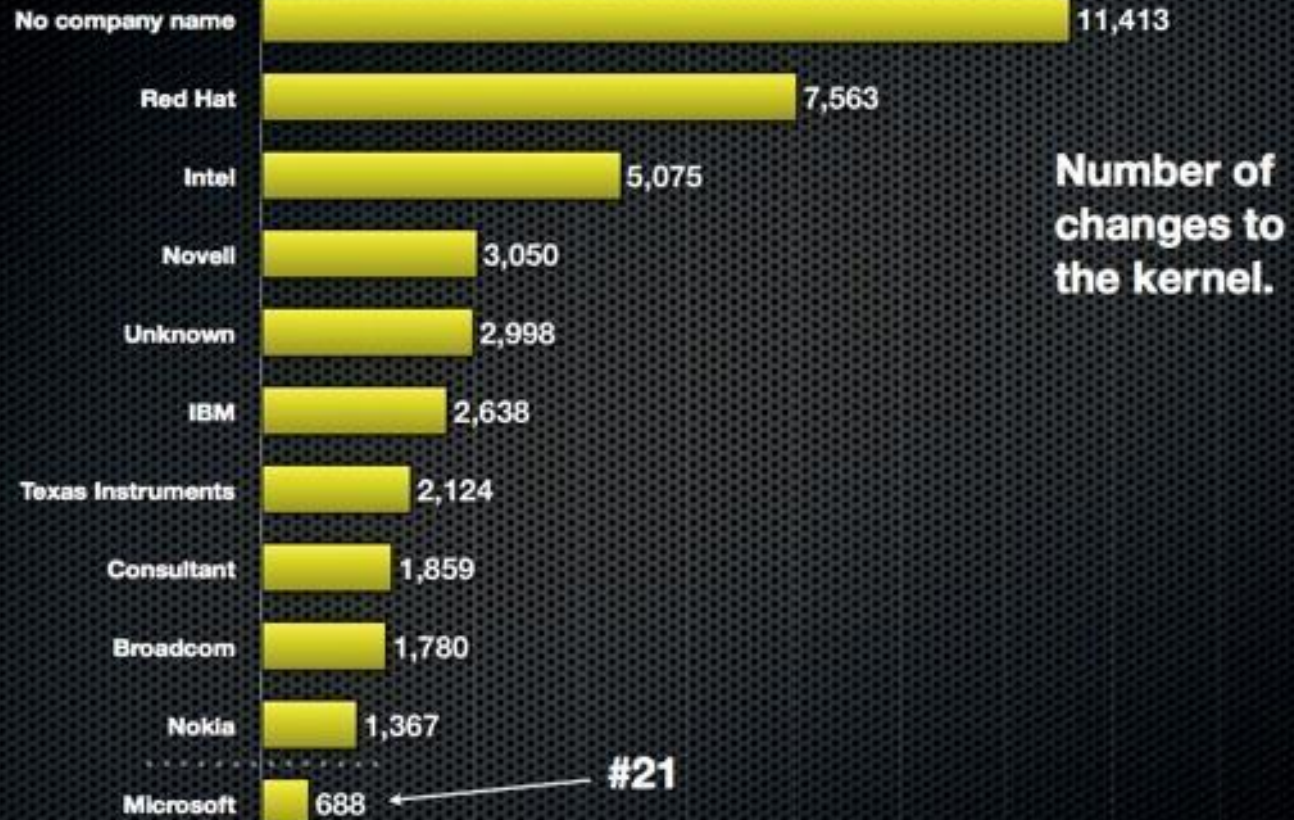
Data source: Linux Foundation

www.pingdom.com

Linux kernel ??

- A linux Kernel is freely available, both to download and modify, any OS system that runs off the Linux kernel can call itself a Linux OS.

- Since its free, the users have the right to modify as they please.

- Linux as shown in the previous lectures is used practically everywhere in the world ☺. From smart phones, PC's, embedded devices, IOT devices, networking switches, servers, pretty much anything you can think off ☺ is using Linux one way or the other.

- Even devices like amazon kindles, run on Linux.

Smart phones and Linux

- Android is a mobile operating system developed by Google. It is based on a modified version of the Linux kernel and other open source software, and is designed primarily for touchscreen mobile devices such as smartphones and tablets.
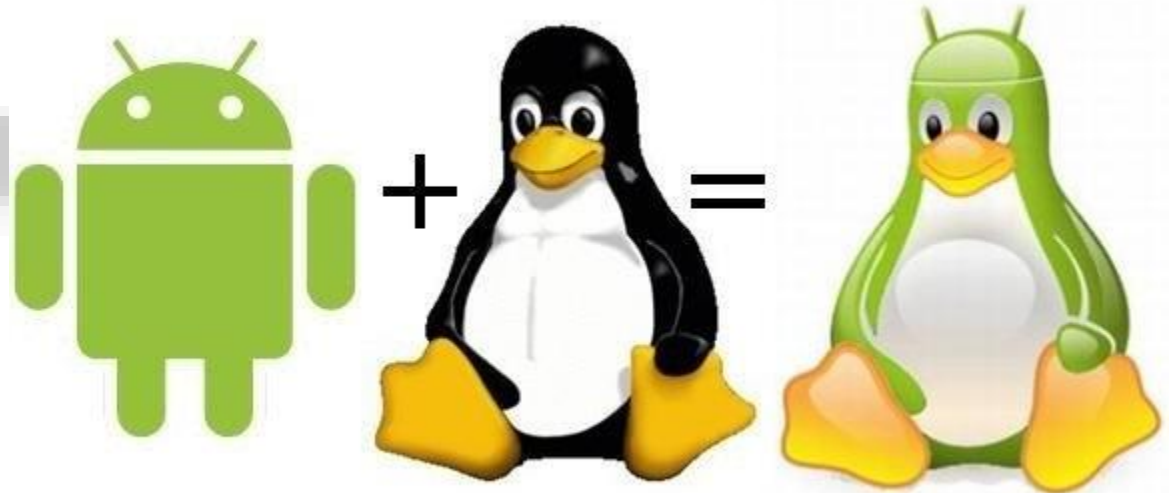
More on Distros

- Anyone can create a Linux Distro. But they have to be supported commercially or through a community of users who are willing to put their time and effort in developing, maintaining, and testing a given Linux version.

- Like Red Hat is a commercial version of Linux or SuSE linux

- Knoppix or Fedora, are free and community supported. Some like Ubuntu, fall in the middle and are offered free to the public while supported commercially by an organization.

So, what is command line

- Linux is all about command line!!

- Command line is shorthand for command line interface or CLI.

- Most modern computers use Graphical user interface or GUI

- The command line eschews graphical elements entirely.

- Users only see a prompt to launch programs. If GUI breaks, then CLI always works ☺ pretty much 99.99% of the time

What is OS and Distros:

Zorin OS is the alternative to Windows and macOS designed to make your computer faster, more powerful, secure, and privacy-respecting.

Zorin OS is **an Ubuntu-based Linux distribution** designed especially for newcomers to Linux. It has a Windows-like graphical user interface and many programs similar to those found in Windows.

Elementary OS is a Linux distribution based on Ubuntu LTS. It promotes itself as a "fast, open, and privacy-respecting" replacement to macOS and Windows.

CentOS, or the Community Enterprise Operating System, is a **popular Linux distribution**. It's derived from, and is fully compatible, with Red Hat Enterprise Linux. And while Red Hat is only available to use commercially through a subscription service, CentOS is available freely.

Ubuntu is a Linux distribution based on Debian and composed mostly of free and open-source software. Ubuntu is officially released in three editions: Desktop, Server, and Core for Internet of things devices and robots. All the editions can run on the computer alone, or in a virtual machine

 and more distros ….

Windows11 OS

THANK YOU