

Introduction to Linux

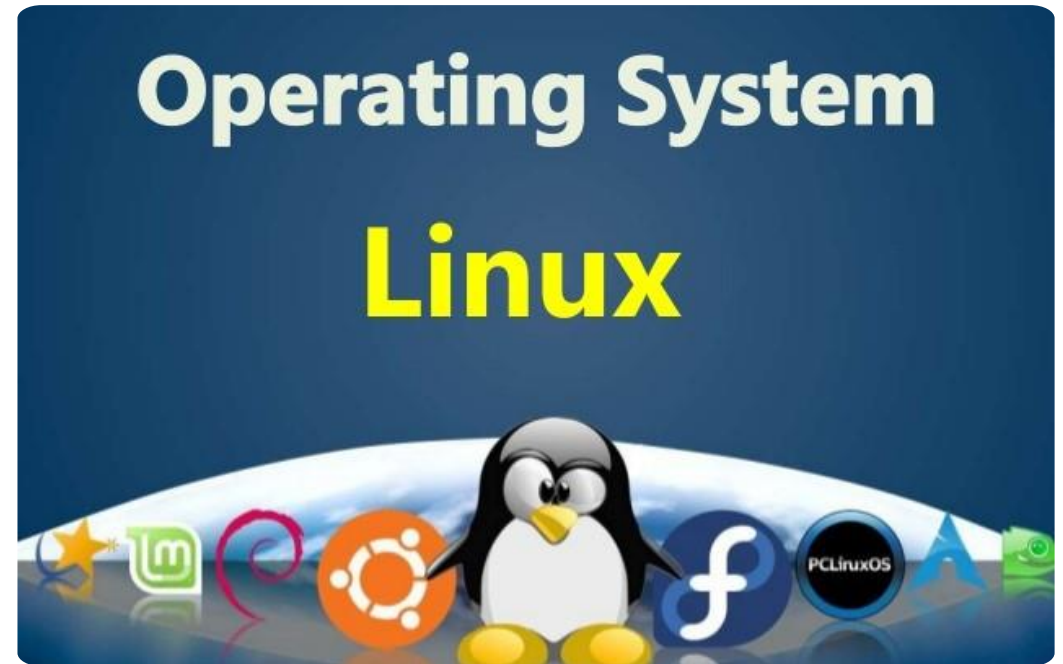


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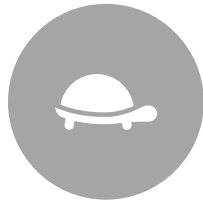
- ✔ Why Linux?
- ✔ What is Linux?
- ✔ What is GNU?
- ✔ GNOME and KDE
- ✔ Linux timeline
- ✔ Microsoft WSL2



Why Linux?



VIRUSES,
MALWARES



SLOW DOWNS,
REBOOTS



CRASHES



COSTLY
REPAIRS



LICENSING
FEES



RELIABILITY



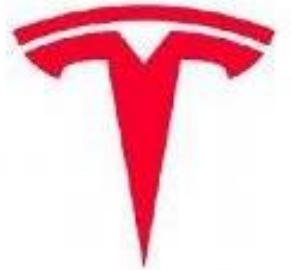
Why Linux?



Google, Facebook, Twitter, and Amazon are all powered by Linux. Yes, Linux is not among the most popular OS for the general consumers. But, Linux leads the Industry.



Why Linux?



WIKIPEDIA



Google

TESLA

NETFLIX

IBM



amazon

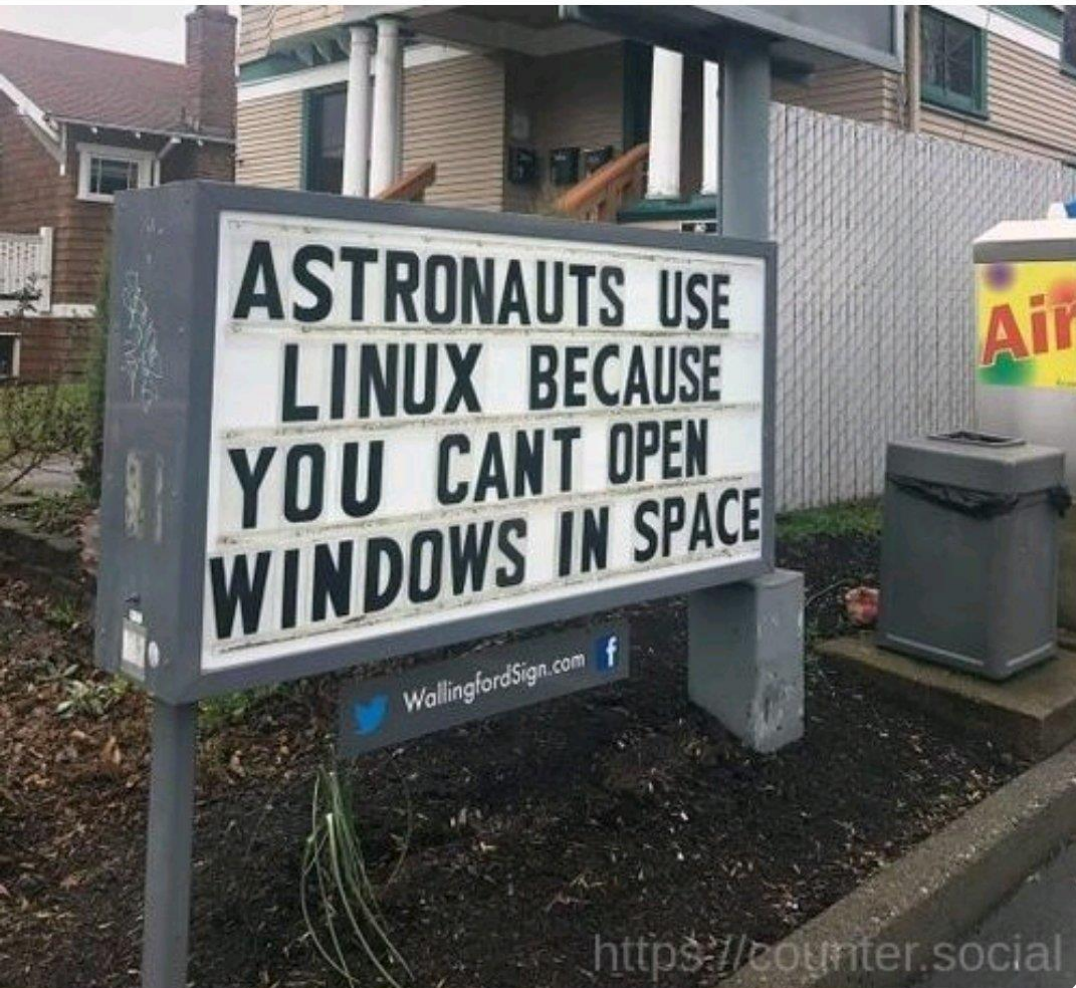


SPACEX



Steven Vaughan-Nichols • 2nd
Contributing Editor Red Ventures/ZDNet
1w • 🌐

So that's why!



<https://counter.social>

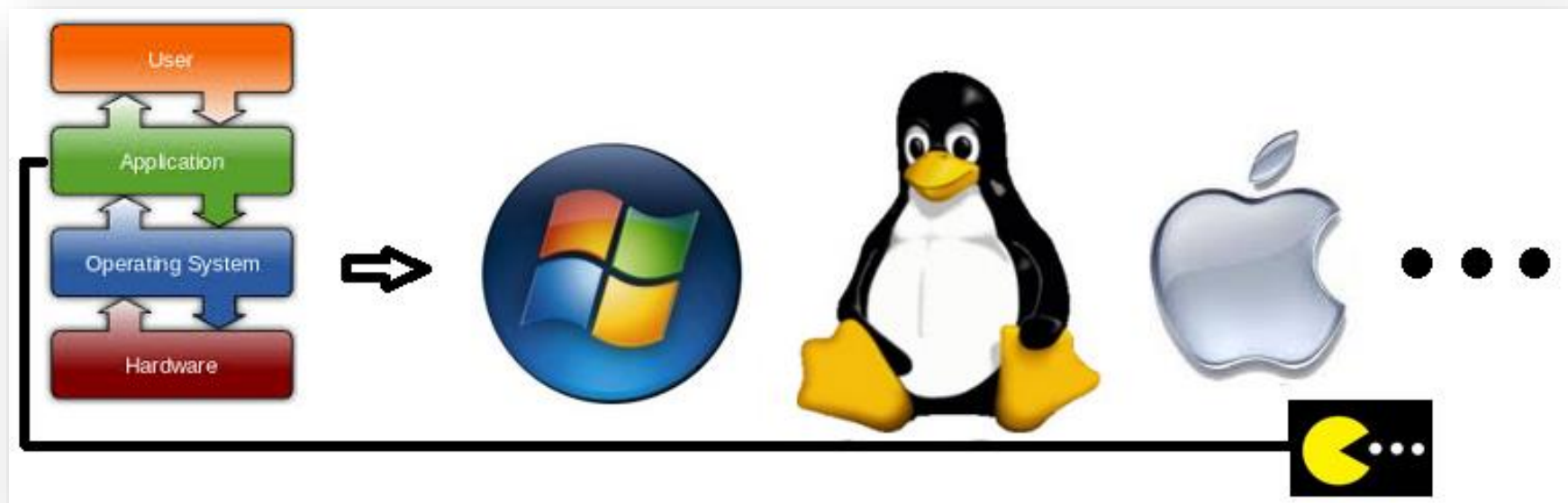
Humour



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What is Linux?

- ✓ The OS sits between applications and hardware and makes the connections between all of your software and the physical resources that do the work.

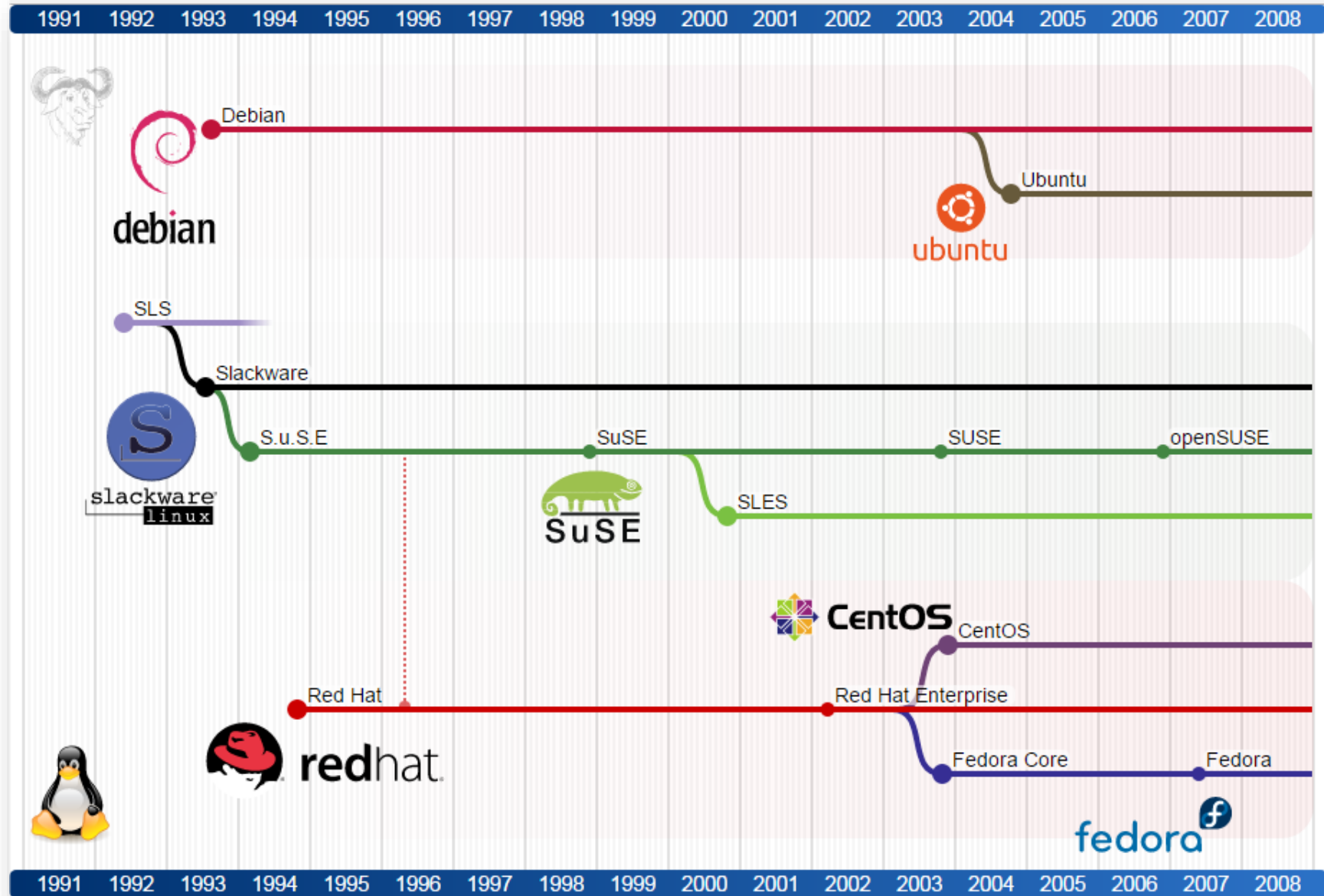


What is Linux?

- ✔ Linux® is an open source operating system (OS). An operating system is the software that directly manages a system's hardware and resources, like CPU, memory, and storage.



Linux Timeline











What is GNU?

- ✔ GNU is an operating system that is free software—that is, it respects users' freedom. The GNU operating system consists of GNU packages (programs specifically released by the GNU Project) as well as free software released by third parties. The development of GNU made it possible to use a computer without software that would trample your freedom.



What is GNU?

- ✓ GNU/Linux
- ✓ Free distros for PCs and workstations

Distribution	Brief Description
	<i>Dragora GNU/Linux-Libre</i> , an independent GNU/Linux distribution based on concepts of simplicity.
	<i>Dyne:bolic</i> , a GNU/Linux distribution with special emphasis on audio and video editing. This is a “static” distro, normally run from a live CD. Since it will not receive security updates, it should be used offline.
	<i>Guix System</i> , an advanced GNU/Linux distro built on top of GNU Guix (pronounced “geeks”), a purely functional package manager for the GNU system.
	<i>Hyperbola GNU/Linux-libre</i> , a long-term support simplicity-focused distribution based on Arch GNU/Linux.
	<i>Parabola GNU/Linux-libre</i> , a distribution based on Arch that prioritizes simple package and system management.
	<i>PureOS</i> , a GNU distribution based on Debian with a focus on privacy, security, and convenience.
	<i>Trisquel</i> , a GNU/Linux distribution based on Ubuntu that's oriented toward small enterprises, domestic users and educational centers.
	<i>Ututo S</i> , a GNU/Linux 100% free distribution. It was the first fully free GNU/Linux system recognized by the GNU Project.



What is GNOME?

- ✔ GNOME is a free and open-source desktop environment for Unix-like operating systems. GNOME was originally an acronym for GNU Network Object Model Environment, but the acronym was dropped because it no longer reflected the vision of the GNOME project.



GNOMETM



The screenshot shows a macOS desktop with a dark-themed stopwatch application in the foreground. The application has a large circular timer displaying '00:43.8' and a red 'Stop' button. In the background, a system status menu is open, showing various settings like 'Wired Connected', 'Location In Use', 'Night Light On', and a user profile 'marshall'. The menu also includes icons for Wi-Fi, Airplane Mode, and Power.

The image is a screenshot of a Windows 10 desktop environment. On the left, a photo viewer application is open, displaying a high-angle photograph of a dense urban skyline, identified by the title bar as 'Midtown Manhattan & Bryant Park-2...'. The viewer includes a toolbar with icons for zooming, rotating, and other editing functions. Below the photo, the status bar shows '1/1 · 3504 × 2336 · Modified 19%'. On the right, a File Explorer window is open, showing the 'Pictures' library. The left sidebar lists 'Home', 'Documents', 'Downloads', 'Music', 'Pictures' (which is selected), 'Videos', 'Trash', 'Mass memory', and 'Other Locations'. The main pane displays two image thumbnails. The first is titled 'Central Park, New York, USA--2005--panoramio.com.jpg' with a file size of 329.8 kB and a date of 'Thu'. The second is titled 'Manhattan from Brooklyn bridge--2013-12.jpg'. A third thumbnail is partially visible on the right edge. In the bottom right corner, there is a watermark for 'TECHPROED' featuring a green checkmark icon.

GNOME Desktop uses Linux distros

- Manjaro Linux
- Ubuntu
- Debian
- Solus
- Zorin OS
- Fedora
- Arch Linux
- CentOS
- OpenSUSE
- Kali Linux



What is KDE?

- ✔ KDE stands for K Desktop Environment. It is a desktop environment for Linux based operation system. You can think KDE as a GUI for Linux OS. KDE has proved Linux users to make it use as easy as they use windows. KDE provides Linux users a graphical interface to choose their own customized desktop environment.



Manjaro KDE



Manjaro is a distribution based on Arch Linux, aimed at simplifying its installation and configuration. The Manjaro KDE version, in particular, is configured to use KDE Plasma and KDE core applications.

What is KDE?

KDE stands for K Desktop Environment. It is a desktop environment for **Linux** based operation system. You can think **KDE** as a GUI for **Linux** OS. **KDE** has proved **Linux** users to make it use as easy as they use windows. **KDE** provides **Linux** users a graphical interface to choose their own customized desktop environment.

<https://kde.org/distributions/>



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KDE Desktop uses Linux distros

- Fedora
- KDE Neon
- Manjaro KDE Edition
 - Kubuntu
 - Linux Mint
- Arch with KDE
 - NetRunner
 - Chakra



Red Hat

- ✓ Red Hat is the world's leading provider of enterprise open source solutions, including high-performing Linux, cloud, container, and Kubernetes technologies.
- ✓ It became a subsidiary of IBM on July 9, 2019



2002

redhat
L I N U X



The Linux Backdoor Attempt of 2003

- ✔ Setting the user ID to zero is a problem because user ID number zero is the “root” user, which is allowed to do absolutely anything it wants—to access all data, change the behavior of all code, and to compromise entirely the security of all parts of the system.
- ✔ So the effect of this code is to give root privileges to any piece of software that called wait4 in a particular way that is supposed to be invalid. In other words ... it’s a classic backdoor.

What did the change do? This is where it gets really interesting. The change modified the code of a Linux function called wait4, which a program could use to wait for something to happen. Specifically, it added these two lines of code:

```
if ((options == (__WCLONE|__WALL)) && (current->uid = 0))  
    retval = -EINVAL;
```



Ubuntu 2004

- ✔ 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.



Version Control System - git 2005

- ✔ Git was created by Linus Torvalds in 2005 to develop Linux Kernel.



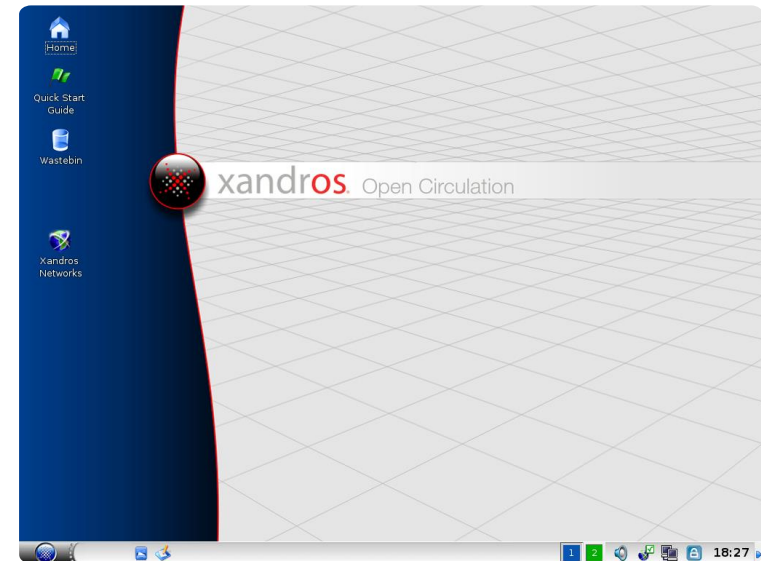
Android 2008

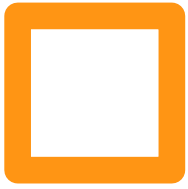
- ✔ First commercial Android device launched in September 2008
- ✔ Android is a mobile operating system based on a modified version of the Linux kernel and other open source software, designed primarily for touchscreen mobile devices such as smartphones and tablets



Xandros 2013

✓ Pre-installed Linux distribution on Asus Eee PC





chromeOS



Chrome OS

Google announced the project, based on Ubuntu, in July 2009

Microsoft  Linux

2014

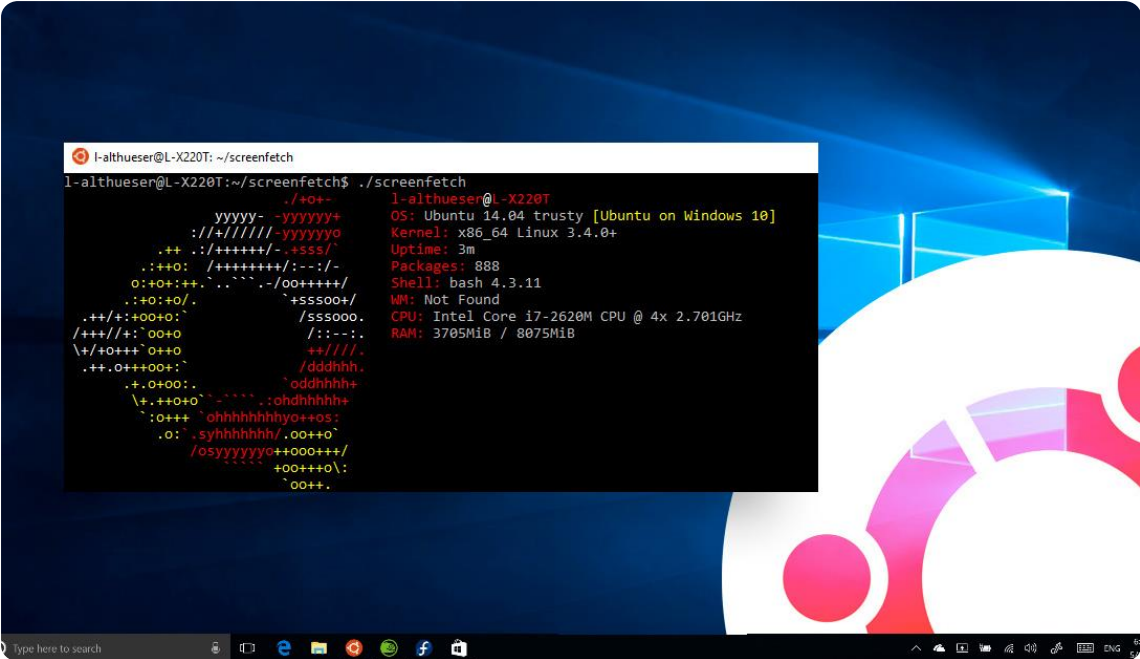
Satya Nadella, CEO of
Microsoft



2019

Windows Subsystem for Linux (WSL)
Now has version 2.

<https://itsfoss.com/windows-linux-kernel-wsl-2/>



The screenshot shows a Windows 10 desktop with a blue background and a large white and pink circular graphic on the right. A terminal window is open, displaying the output of the 'screenfetch' command. The output includes system information such as the OS (Ubuntu 14.04 trusty), kernel (x86_64 Linux 3.4.0+), uptime (3m), packages (888), shell (bash 4.3.11), WM (Not Found), CPU (Intel Core i7-2620M CPU @ 4x 2.701GHz), and RAM (3705MiB / 8075MiB). The terminal window title is 'l-althueser@L-X220T: ~/screenfetch\$./screenfetch'.

```
l-althueser@L-X220T: ~/screenfetch$ ./screenfetch
l-althueser@L-X220T
OS: Ubuntu 14.04 trusty [Ubuntu on Windows 10]
Kernel: x86_64 Linux 3.4.0+
Uptime: 3m
Packages: 888
Shell: bash 4.3.11
WM: Not Found
CPU: Intel Core i7-2620M CPU @ 4x 2.701GHz
RAM: 3705MiB / 8075MiB
```



WSL 2 BRINGS

Linux Kernel in Windows 10

For Real!





Kahoot

<https://kahoot.it/>



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