**History of UNICS/UNIX and LINUX or GNU/LINUX**

**The Early Days of Computing (1950s–1960s):**

Before UNIX, computers were huge, expensive, and ran specific software. Every vendor (IBM, DEC, etc.) had its own proprietary OS. This made sharing software and knowledge across systems almost impossible.

**Proprietary OS**:

A **proprietary operating system (OS)** is one that is **owned and controlled by a single company or individual**, and **its source code is not openly available to the public**. It Requires you to **buy a license** or agree to **terms of use,** Very limited — you cannot change the internals and you rely on the vendor for any Support and Updates (you depend on them).

In the 1950s–60s:

* Each computer had **its own unique OS**, often written in **machine-specific assembly**.
* If you bought a new model, you had to **rewrite your OS** and software.
* Operating systems were **deeply entangled with the hardware** they ran on.

**1964 – Multics Project starts at Bell Labs:**

* In **Murray Hill, New Jersey**, **Bell Labs**, along with **MIT** and **General Electric**, started developing a project called **Multics** (**Multiplexed Information and Computing Service**).
* The goal was to Build a **next-generation, multi-user, time-sharing OS**.
* Multics was **innovative** but became **too complex, slow, hard to maintain and delayed in delivery** because of theseBell Labs stopped the Multics project in 1969.

**1969 – Birth of UNIX (UNICS → UNIX):**

* After dropping Multics project, **Ken Thompson** who was working alone initially at Bell Labs later with the **Dennis Ritchie** and **Rudd Canaday**, created a simpler OS on a PDP(Programmed Data Processor)-7 minicomputer using assembly language.
* This system was first called **UNICS** ("Uniplexed Information and Computing Services") and Later renamed as **UNIX.**

**1971 – UNIX V1 – The first operational version:**

* UNIX V1 ran on PDP-11 which featured the basic tools like **File system, Shell, and Basic text editors.**

**1973 – UNIX Rewritten in C (Version 4):**

By 1973, **UNIX was rewritten in the C programming language** by Dennis Ritchie and it was a groundbreaking move. This was the **first system to decouple OS from hardware** which made **UNIX portable to other systems**.

**1975 – UNIX Version 6 (V6) - this version changed the world:**

* The **UNIX V6** ran on PDP-11 and **first widely distributed version to** **universities and academic institutions.**
* It was useful for **research**, **modifications** and **teaching OS internals**.
* It influenced **Andrew S. Tanenbaum**, who was a Computer science professor at Vrije Universiteit Amsterdam (Netherlands), created **MINIX** (**Mini UNIX** — a small, educational version of the UNIX operating system) in 1987.
* **Used in:**
  + **MIT**
  + **Harvard**
  + **UC Berkeley (which later created BSD)**

**Late 1970s–1980s – UNIX Evolves and Splits:**

* **UNIX V7 (1979)** was considered the last "clean" Bell Labs version.
* **Branches began:**
  + System V (AT&T)
  + BSD (Berkeley)
* **Features added:**
  + vi editor
  + C Shell (csh)
  + TCP/IP stack (in BSD)
* **Commercial versions emerged:** SunOS, HP-UX, AIX, SCO UNIX
  + This fragmentation led to the **“UNIX Wars”.**

**1983 – GNU Project Begins:**

* **Richard Stallman** started **GNU (GNU’s Not UNIX)** to create a free UNIX-compatible OS and developed **gcc (C Compiler), bash (Shell), and coreutils (ls, cat, etc.)** but GNU lacked a **kernel.**

**1991 – Linux is Born:**

* **Linus Torvalds**, a 21-year-old computer science student at the University of Helsinki, was frustrated by **MINIX** (an educational UNIX clone by Andrew Tanenbaum) because MINIX was closed for modification and couldn’t use full hardware features.
* So **Linus** created a **kernel** for his Intel 386 PC and Used **GCC** (**GNU** compiler) to build it.
* On **August 25, 1991**, he posted this on **comp.os.minix:**

“I’m doing a free operating system (just a hobby, won’t be big and professional like GNU)…” and **Licensed** it under the **GNU GPL(General Public Licence)** to ensure it stays free.

**1992 – GNU + Linux 🡪 Full OS:**

* People combined **GNU tools** (compiler, shell, etc.) and **Linux kernel**. The result was the **GNU/Linux Operating System 🡪** f**ully functional UNIX-like system.**
* It could **boot**, **compile**, **run services**, and **connect to the internet**.

**1993 Onward – Rise of Distributions:**

* **First distributions:**
  + Slackware (1993)
  + Debian (1993)
  + Red Hat (1994)

They bundled **Linux Kernel, GNU tools , Installer, package managers.**

**2000s–till now – Linux Dominates the World:**

* 90%+ of **cloud servers**
* 100% **of supercomputers**
* 70%+ of **mobile devices (Android)**
* **Most IoT devices**