A Brief History of Linux

The Unix operating system was conceived and implemented in 1969, at AT&T's Bell Laboratories in the United States by Ken Thompson, Dennis Ritchie, Douglas McIlroy, and Joe Ossanna. First released in 1971, Unix was written entirely in assembly language, as was common practice at the time. Later, in a key pioneering approach in 1973, it was rewritten in the C programming language by Dennis Ritchie (with the exception of some hardware and I/O routines). The availability of a high-level language implementation of Unix made its porting to different computer platforms easier.

Due to an earlier antitrust case forbidding it from entering the computer business, AT&T was required to license the operating system's source code to anyone who asked. As a result, Unix grew quickly and became widely adopted by academic institutions and businesses. In 1984, AT&T divested itself of Bell Labs; freed of the legal obligation requiring free licensing, Bell Labs began selling Unix as a proprietary product, where users were not legally allowed to modify Unix. The GNU Project, started in 1983 by Richard Stallman, had the goal of creating a "complete Unix-compatible software system" composed entirely of free software. Work began in 1984. Later, in 1985, Stallman started the Free Software Foundation and wrote the GNU General Public License (GNU GPL) in 1989. By the early 1990s, many of the programs required in an operating system (such as libraries, compilers, text editors, a Unix shell, and a windowing system) were completed, although low-level elements such as device drivers, daemons, and the kernel, called GNU/Hurd, were stalled and incomplete.

Linus Torvalds has stated that if the GNU kernel had been available at the time (1991), he would not have decided to write his own.

Although not released until 1992, due to legal complications, development of 386BSD, from which NetBSD, OpenBSD and FreeBSD descended, predated that of Linux. Torvalds has also stated that if 386BSD had been available at the time, he probably would not have created Linux.

MINIX was created by Andrew S. Tanenbaum, a computer science professor, and released in 1987 as a minimal Unix-like operating system targeted at students and others who wanted to learn the operating system principles. Although the complete source code of MINIX was freely available, the licensing terms prevented it from being free software until the licensing changed in April 2000.

In 1991, while attending the University of Helsinki, Torvalds became curious about operating systems. Frustrated by the licensing of MINIX, which at the time limited it to educational use only, he began to work on his own operating system kernel, which eventually became the Linux kernel.

Torvalds began the development of the Linux kernel on MINIX and applications written for MINIX were also used on Linux. Later, Linux matured and further Linux kernel development took place on Linux systems. GNU applications also replaced all MINIX components, because it was advantageous to use the freely available code from the GNU Project with the fledgling operating system; code licensed under the GNU GPL can be reused in other computer programs as long as they also are released under the same or a compatible license. Torvalds initiated a switch from his original license, which prohibited commercial redistribution, to the GNU GPL. Developers worked to integrate GNU components with the Linux kernel, making a fully functional and free operating system.

Linux Community

A distribution is largely driven by its developer and user communities. Some vendors develop and fund their distributions on a volunteer basis, Debian being a well-known example. Others maintain a community version of their commercial distributions, as Red Hat does with Fedora, and SUSE does with openSUSE.

In many cities and regions, local associations known as Linux User Groups (LUGs) seek to promote their preferred distribution and by extension free software. They hold meetings and provide free demonstrations, training, technical support, and operating system installation to new users. Many Internet communities also provide support to Linux users and developers. Most distributions and free software / open-source projects have IRC chatrooms or newsgroups. Online forums are another means for support, with notable examples being LinuxQuestions.org and the various distribution specific support and community forums, such as ones for Ubuntu, Fedora, and Gentoo. Linux distributions host mailing lists; commonly there will be a specific topic such as usage or development for a given list.

There are several technology websites with a Linux focus. Print magazines on Linux often bundle cover disks that carry software or even complete Linux distributions.

Although Linux distributions are generally available without charge, several large corporations sell, support, and contribute to the development of the components of the system and of free software. An analysis of the Linux kernel showed 75 percent of the code from December 2008 to January 2010 was developed by programmers working for corporations, leaving about 18 percent to volunteers and 7% unclassified.[74] Major corporations that provide contributions include Dell, IBM, HP, Oracle, Sun Microsystems (now part of Oracle) and Nokia. A number of corporations, notably Red Hat, Canonical and SUSE, have built a significant business around Linux distributions.

The free software licenses, on which the various software packages of a distribution built on the Linux kernel are based, explicitly accommodate and encourage commercialization; the relationship between a Linux distribution as a whole and individual vendors may be seen as symbiotic. One common business model of commercial suppliers is charging for support, especially for business users. A number of companies also offer a specialized business version of their distribution, which adds proprietary support packages and tools to administer higher numbers of installations or to simplify administrative tasks.

Another business model is to give away the software in order to sell hardware. This used to be the norm in the computer industry, with operating systems such as CP/M, Apple DOS and versions of Mac OS prior to 7.6 freely copyable (but not modifiable). As computer hardware standardized throughout the 1980s, it became more difficult for hardware manufacturers to profit from this tactic, as the OS would run on any manufacturer's computer that shared the same architecture.

Linux Distributions

Linux has a number of different versions to suit nearly any type of user. From new users to hard-core users, you’ll find a “flavor” of Linux to match your needs. These versions are called distributions (or, in the short form, “distros.”) Nearly every distribution of Linux can be downloaded for free, burned onto disk (or USB thumb drive), and installed (on as many machines as you like).

The most popular Linux distributions are:

* Ubuntu Linux
* Linux Mint
* Arch Linux
* Deepin
* Fedora
* Debian
* openSUSE

Developers maintain many popular Linux distributions today. Among the longest-standing is Debian, a free and open-source distribution that has 50,000 software packages. Debian inspired another popular distribution, Ubuntu, funded by Canonical Ltd. Ubuntu uses Debian’s deb package format and package management tools, and Ubuntu’s developers push changes back upstream to Debian.

A similar relationship exists between Red Hat, [Fedora](https://www.digitalocean.com/community/tags/fedora), and CentOS. Red Hat created a Linux distribution in 1993, and ten years later split its efforts into Red Hat Enterprise Linux and Fedora, a community-based operating system that utilizes the Linux kernel and elements from the GNU Project. Red Hat also has a relationship with the CentOS Project, another popular Linux distribution for web servers. This relationship does not include paid maintenance, however. Like Debian, CentOS is maintained by a community of developers.

Linux Philosophy

Linux has a philosophy that underlies the entire operating system and which strongly affects the way in which administrators and advanced users interact with it. This philosophy is very similar to that of its UNIX parenthood. It is called “The Linux Way.”

Whether we know it or not, most of us have some sort of philosophy of life. That may be as simple as, “Be kind to others,” or it might be a very complex life philosophy.Linux treats everyone equally and allows everyone the maximum amount of power. That is egalitarian. Other operating systems are elitist and exclusive because they withhold or hide their power behind an inflexible Graphical User Interface that allows one to do only what the developers think we should be allowed to do.The Linux philosophy is epitomized by the ease with which one can open a terminal emulator to access the CLI and its concomitant power. Linux has several fine GUI desktop environments from which to choose so that every user can choose the one she likes best. And yet the power of the CLI is only a click away with many choices for both the terminal emulator and the shell.For even more flexibility there is the screen program which provides for multiple shell sessions within a single terminal session. This is particularly useful when logging in remotely because if your connection fails the screen session continues along with all of the programs running in the various shells launched within the screen session. I still use the GUI desktop but as much to provide me with the flexibility of multiple console sessions with screen running in them as to run programs like LibreOffice, Firefox and Thunderbird.