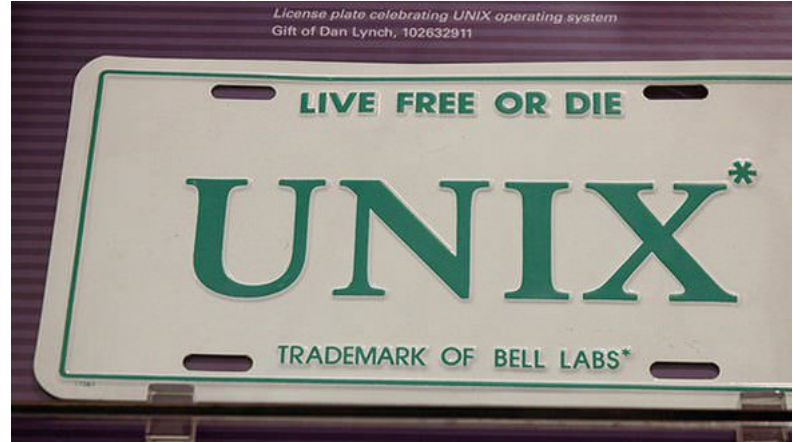
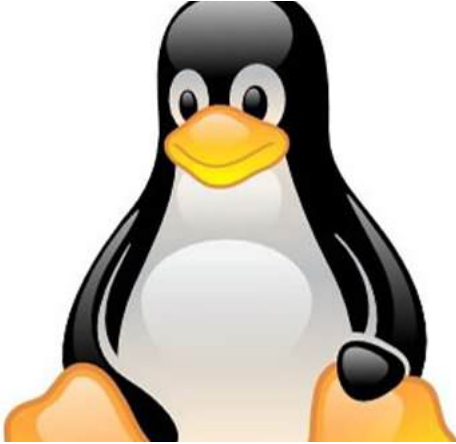


Linux vs. Unix



Diffen > Technology > Computers > Software > Operating Systems

Linux is an open source, free to use operating system widely used for computer hardware and software, game development, tablet PCS, mainframes etc. **Unix** is an operating system commonly used in internet servers, workstations and PCs by Solaris, Intel, HP etc.

Comparison chart

	Linux User Rating (2275):	Unix User Rating (935):
Cost	Linux can be freely distributed, downloaded freely, distributed through magazines, Books etc. There are priced versions for Linux also, but they are normally cheaper than Windows.	Different flavors of Unix have different cost structures according to vendors
User	Everyone. From home users to developers and computer enthusiasts alike.	Unix operating systems were developed mainly for mainframes, servers and workstations except OSX, Which is designed for everyone. The Unix environment and the client-server program model were essential elements in the development of the Internet
Development and Distribution	Linux is developed by Open Source development i.e. through sharing and collaboration of code and features through forums etc and it is distributed by various vendors.	Unix systems are divided into various other flavors, mostly developed by AT&T as well as various commercial vendors and non-profit organizations.
Manufacturer	Linux kernel is developed by the community. Linus Torvalds oversees things.	Three biggest distributions are Solaris (Oracle), AIX (IBM) & HP-UX Hewlett Packard. And Apple Makes OSX, an unix based os..
Usage	Linux can be installed on a wide variety of computer hardware, ranging from mobile phones, tablet computers and <u>video game</u>	The UNIX operating system is used in internet servers, workstations & PCs. Backbone of the majority of finance

	<u>consoles</u> , to mainframes and supercomputers.	infrastructure and many 24x365 high availability solutions.
File system support	Ext2, Ext3, Ext4, Jfs, ReiserFS, Xfs, Btrfs, FAT, <u>FAT32</u> , NTFS	jfs, gpfs, hfs, hfs+, ufs, xfs, zfs format
Text mode interface	BASH (Bourne Again SHell) is the Linux default shell. It can support multiple command interpreters.	Originally the Bourne Shell. Now it's compatible with many others including BASH, Korn & C.
What is it?	Linux is an example of Open Source software development and Free Operating System (OS).	Unix is an operating system that is very popular in universities, companies, big enterprises etc.
GUI	Linux typically provides two GUIs, <u>KDE</u> and <u>Gnome</u> . But there are millions of alternatives such as LXDE, Xfce, Unity, Mate, twm, ect.	Initially Unix was a command based OS, but later a GUI was created called Common Desktop Environment. Most distributions now ship with Gnome.
Price	Free but support is available for a price.	Some free for development use (Solaris) but support is available for a price.
Security	Linux has had about 60-100 viruses listed till date. None of them actively spreading nowadays.	A rough estimate of UNIX viruses is between 85 -120 viruses reported till date.
Threat detection and solution	In case of Linux, threat detection and solution is very fast, as Linux is mainly community driven and whenever any Linux user posts any kind of threat, several developers start working on it from different parts of the world	Because of the proprietary nature of the original Unix, users have to wait for a while, to get the proper bug fixing patch. But these are not as common.
Processors	Dozens of different kinds.	x86/x64, Sparc, Power, Itanium, PA-RISC, PowerPC and many others.
Examples	<u>Ubuntu</u> , <u>Fedora</u> , Red Hat, Debian, Archlinux, Android etc.	OS X, Solaris, All Linux
Architectures	Originally developed for Intel's x86 hardware, ports available for over two dozen CPU types including ARM	is available on PA-RISC and Itanium machines. Solaris also available for x86/x64 based systems.OSX is PowerPC(10.0-10.5)/x86(10.4)/x64(10.5-10.8)
Inception	Inspired by MINIX (a Unix-like system) and eventually after adding many features of GUI, Drivers etc, Linus Torvalds developed the framework of the OS that became LINUX in 1992. The LINUX kernel was released on 17th September, 1991	In 1969, it was developed by a group of AT&T employees at Bell Labs and Dennis Ritchie. It was written in "C" language and was designed to be a portable, multi-tasking and multi-user system in a time-sharing configuration.

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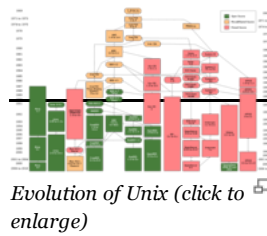
6 Related Video

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8 References

History of Unix vs. Linux

In 1960, the Massachusetts Institute of Technology, AT&T Bell Labs, and General Electric were working on an experimental operating system called Multiplexed Information and Computing Service or MULTICS. This was designed to run on the GE-645 mainframe computer. But it performed poorly. AT&T Bell Labs called off this project and deployed its resources elsewhere. But Ken Thompson, one of the developers from Bell Labs continued to develop for the GE-645 mainframe, and wrote a game for that computer called Space Travel. But the game was too slow on the GE machine and expensive also, costing \$75 per execution. So he re-wrote the game in assembly language for Digital Equipment Corporation's PDP-7 with help from Dennis Ritchie.



This experience, combined with his work on the Multics project, led Thompson to start a new operating system for the PDP-7 and they developed a file system as well as the new multi-tasking operating system itself with the help of a small team of developers. They included a command line interpreter and some small utility programs. This was named as UNICS in 1970, and later change into UNIX.

In 1985, Richard Stallman created the Free Software Foundation and developed the GNU General Public License (GNU GPL), in order to spread software freely. Many of the programs required in an OS (such as libraries, compilers, text editors, a UNIX shell, and a windowing system) were completed by the early 1990s, but few elements such as device drivers, daemons, and the kernel were incomplete. In 1991, Linus Torvalds began to work on MINIX, a Unix-like OS, whose code was freely available under GNU GPL project. Then he developed the first LINUX kernel and released it on 17 September 1991, for the Intel x86 PC systems. This kernel included various system utilities and libraries from the GNU project to create a usable operating system. All underlying source code can be freely modified and used.

Usage of Linux and Unix

Linux OS is great for small- to medium-sized operations, and today it is also used in large enterprises where UNIX was considered previously as the only option. A few years back, Linux was considered as an interesting academic project, but most big enterprises where networking and multiple user computing are the main concerns; people didn't consider Linux as an option. But today, with major software vendors porting their applications to Linux, and as it can be freely distributed, the OS has entered the mainstream as a viable option for Web serving and office applications.

But there are some circumstances where UNIX is the obvious choice, or used to be. If an enterprise used massive symmetric multiprocessing systems, or systems with more than eight CPUs, they needed to run UNIX in the past. UNIX was far more capable in handling all the processes more effectively than Linux. However since 2004 more of the world's biggest supercomputers now run Linux than unix. Since 2011 Linux powers over 90% of the top 500 servers. It runs also on the biggest (as of 2011): RIKEN Advanced Institute for Computational Science Cores: 705024 Power: 12659.89 kW Memory: 1410048 GB

Linux - Unix Differences in Cost & Distribution

Linux can be freely distributed, as it is an open Source OS. So anyone can get a copy of Linux from books, magazines, or from the internet also. For server versions, organizations typically pay distributors for a support contract, not the software. The major distributors are RED HAT, Mandrake, and SUSE. For server hardware, IBM, HP, Dell are the major ones.

UNIX is costly as compared to Linux; the midrange UNIX servers are priced in between \$25,000 and \$249,999 (including hardware). The major distributors are HP, IBM and SUN. A high end UNIX server can cost up to \$500,000. According to IDC, Gartner,

IBM is the market leader in UNIX servers, HP is in 2nd position and SUN is in the third position.

Commercial UNIX is usually custom written for each system, making the original cost quite high, whereas Linux has base packages also. In this respect, Linux is closer in its model to Windows than a commercial UNIX OS is. At the time of purchasing a UNIX server, users get a Vendor assistance plan on setting up and configuring the system. But with Linux, Vendor support must be purchased separately.

Threats and Security: Unix vs. Linux

Both of the operating systems are vulnerable to bugs but Linux is far more responsive in dealing with the threats. Linux incorporated many of the same characteristics and functions found in UNIX, including the segmentation of the user domain in a multi-user environment, the isolation of tasks in a multi-tasking environment, a password system that can be encrypted and/or located remotely and much more. As Linux is an open system OS, the bugs can be reported by anyone in the user/developers forum, and within days it can be fixed. But for UNIX, this is not the case, and user has to wait for a while, to get the proper bug fixing patch. The open source community delivers faster because it does not have to go through the endless development cycles of commercial-based operating systems.

At the same time, as an open source operating system, it is supported by tens of thousands of developers worldwide. To reiterate, this allows for better innovation and quicker-to-market features than anything UNIX can provide.

Market and future of Linux and Unix

According to International Data Corp. (IDC).Linux has grown faster than any other server OS over the past few years. Linux user base is estimated to be about more than 25 million machines, compared to 5.5 million for combined UNIX installations. Linux is gaining popularity because of its application in embedded technologies, free and easily availability. To compete with Linux, vendors such as HP, IBM, Sun are making customized UNIX with graphical user interface and user friendly interface which is also compatible with Linux. The main UNIX vendors--IBM, Sun, and Hewlett-Packard are already putting Linux interoperability features into future releases of AIX, Solaris, and HP-UX.

Related Video

Here's an interesting video that walks us through the history, differences and some common commands used in Linux and Unix environment:

Unix OS Class Lecture 2



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- Linux - Books and Novelties
- Unix - Books and Novelties

References

- Linux servers keep growing, Windows & Unix keep shrinking - *ZDNet*
- Wikipedia: GNU
- Wikipedia: Linux
- Wikipedia: Unix

Related Comparisons



GNOME vs KDE



Fedora vs Ubuntu



Ubuntu vs Linux Mint



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Comments: Linux vs Unix

Anonymous comments (5)

July 12, 2013, 2:39pm

I like linux .it provide high security

— 49.X.X.59

October 18, 2012, 6:41am

UNIX is the best OS...but you need to know how to use it efficiently....

— 59.X.X.16

September 5, 2013, 5:27am

linux provides better features than unix

— 124.X.X.254

March 6, 2013, 8:12pm

This was a telling comparison. IT explained the Linux is the framework for Operating Systems.

Great Job,

Kamal Miguel Campbell

— 199.X.X.139

April 1, 2011, 9:02pm

That's not true at all ! The Linux Kernel and every gnu/linux distro is 100% open source and free for everyone to download it , but there are some compaanies which add their own programmes to the linux kernel and create their own os which is not gnu/linux and can be sold ! Secondly it should be added that linux distros are the first in most companies' (such as Google) list of os for their servers ! Moreover there are are a lot less viruses for Linux , 19/20 of them are harmless and all of them can't be download using synaptic , other package managers or using a cell (terminal).Linux provides more than 2 GUIs (there are also XFCE , LXDE ...) and the marketplace of Linux is nearby 5% world wide.

Lastly Linux isn't based on Unix as a lot of people believes , but it was designed to look like Unix . Basically Linus Torvalds started creating what we today call "Linux Kernel" to overcome Minix (a Unix OS).

— 94.X.X.236



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