



## **Linux: An Operating System Alternative**

*By Colleen Beier  
TWC 521*

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## **1. Introduction**

Linux is a computer operating system which is freely available to anyone who wants to use it. Long considered too complex for the average computer user recent Linux product developments make it a feasible option for a moderately savvy computer user. This paper will introduce the reader to the Linux operating system and provide a general overview of how it works and the various versions available.

## **2. Operating Systems in the Marketplace**

Currently the marketplace provides very little choice to the average consumer looking for an operating system for their personal or business computing needs. The two options people see available are Windows based operating systems and Apple/Mac operating systems.

In light of the recent release of Windows Vista, which has demonstrated stability and compatibility issues and since switching to Apple usually requires new hardware; computer users may be looking for an alternative to the operating systems (OS) commercially available.

The intention of this paper is not to provide a Linux technical user guide but rather an overview of Linux and the options it provides.

## **3. What is Linux?**

Linux is an operating system that was created by Linus Torvalds. Torvalds was also looking for his own alternative to the operating systems which were available to him at the time. During his development of Linux he posted what he had created onto the Internet and others around the world assisted in the creation of Linux. <sup>1</sup>

This history of cooperation and collective development is reflected in the two things that make Linux unique:

- Linux is licensed under the GNU General Public License (GPL), which means the user is free to use the software any way he/she sees fit. It is publicly available software; in other words it is free. (see 3a)

- Linux is continually developed and maintained by volunteers all over the world via the internet.

Any internet search on the word 'Linux' will return countless results. There are several online Linux communities and distributors to be found on the internet. There are so many options it can seem overwhelming but the best place to use as a beginning resource is [www.linux.org](http://www.linux.org).

Linux has traditionally been something that was considered too complex for the average user and many Linux resources are still addressed to that higher knowledge level audience. It is based on UNIX, which was developed for use by computer programming professionals. As a result anyone looking to move to a Linux operating system will probably encounter a learning curve to get up to speed with Linux and how it functions. For example, resources frequently refer to 'kernel' and 'kernel release versions'. This is referring to the Linux code; its basic services and device drivers. Depending on the type of Linux application involved this information may or may not be of relevance.

### **3a. Open Source Software: A Brief Description**

Open source software projects like Linux consist of people developing their own computing solutions using the programming code of the software, which in the case of Linux, is free and available to anyone.<sup>1</sup>

## **4. Features**

Linux has many features that make it attractive as a computer operating system. It has a reputation of being stable. It is flexible and can be configured to function on anything from servers to personal computers. It can be adapted for a variety of functions due to its modular design which can allow only specified components to run.

It is also interoperable; capable of working with other network protocols and operating systems. It is easily portable and translated to run on a new piece of hardware due to the fact it is written mostly in the C programming language.

Linux also can run on 24 hardware types and can allow more than one user to be logged into a single computer at one time.<sup>1</sup>

## 5. Compatibility Issues

Linux can run on personal computers that have Intel based CPUs. However, not all hardware is compatible; it varies on the type or 'flavor' of Linux being used. It is best to confirm if hardware is compatible before loading a Linux product.

Programs and applications designed to run on Microsoft Windows cannot be run by Linux due to design differences. There are work-around solutions<sup>2</sup>:

- Use emulators designed to make Windows based programs work on Linux.
- Find Linux comparable programs, like Open Office in place of Microsoft Office.
- Have both Windows and Linux on the machine.

If there are Windows programs a user absolutely needs but wants the stability of Linux, a machine can be loaded with both operating systems. This is known as dual booting<sup>2</sup>.

## 6. Types of Linux Available

Part of making the decision to use Linux as an operating system is choosing among the various types of Linux solutions available, of which there are many.

There are Linux versions available for every type of user and every type of application. There are versions available for servers and large applications as well as ones for personal computers. There are distribution sources which are free and some which are for profit. The open source nature of Linux does not preclude individuals from developing a Linux-based application and selling it for profit.

Since it would be impossible for this paper to examine every 'flavor' of Linux available it will focus on profiling two distributions of Linux: Red Hat and Ubuntu.

## **7. Red Hat**

Red Hat is a Linux distributor that offers its own Linux based solutions. Their Linux products are open source and directed at a wide variety of users.

Red Hat is a for-profit company however, and that is obvious when reviewing their many Linux solutions. Although they do have a free open source desktop program known as Fedora many of its offerings are for business consumers looking for a stable operating system for servers or multiple desktops. <sup>3</sup>

The company primarily targets business consumers and although much of the software is open source Red Hat makes its income primarily from subscription fees. A yearly subscription fee can vary tremendously depending on what type of product and support a customer is looking for. Subscription fees offer customers access to technical support, software updates and upgrades. <sup>3</sup>

The products Red Hat offers are extremely customizable for the needs of their customers. New comers to Linux may find the company's offerings a little overwhelming due to their multiple targeted applications, especially if one is looking for a simple OS solution for a personal PC.

However, if a consumer was in the market for a specialized Linux based solution for a business or server application Red Hat would be an ideal place to start.

## **8. Ubuntu**

Ubuntu is an organization that has developed a Linux based OS that can be used for personal computer desktops and servers. The Ubuntu OS comes with many Linux compatible programs, such as word processing and web browsers that users of Windows usually expect to have included on their desktop. <sup>5</sup>

Its OS desktop design is much more graphic orientated than many other Linux based desktop applications. It is designed to be easier for an average computer user to use, especially those that are familiar with Windows OS. The design is very clean and at first glance does not look dissimilar to a Windows OS. In fact, Ubuntu has been promoted as a Linux alternative to Windows. <sup>4</sup>

Even though Ubuntu has software and support for sell the Ubuntu operating system is free of charge. It has software and security updates just like a Windows OS and has a community of people involved in creating and developing it on an on-going basis. <sup>5</sup>

New users of Linux will find the Ubuntu website easy to use and informative about the product. It would be a good Linux application for any Linux “newbie” to jump on board with.

### **8a. Windows vs. Ubuntu**

Is Ubuntu the Linux solution for the average computer user looking to move away from Windows? Serdar Yegulalp of *Information Week* did a side by side comparison of Ubuntu and Windows Vista. His overall conclusion was that Ubuntu was comparable to Windows Vista but it had too many areas where it presumed the user had a knowledge of Linux and lacked some of the overall polish of the Windows product. It was noted to be effective for performing ordinary computing tasks. Overall, it depended on the user and what he or she was comfortable with. <sup>4</sup>

## **9. Conclusion**

A Linux based operating system was once an option available to only the highly skilled and knowledgeable computer user. Today, as more Linux based operating systems are developed it is becoming more of a viable alternative to Windows for the average PC user. Due to the fact that Linux is an open source program most of the Linux based operating systems are free. Any costs involved usually arise when support or specialized business applications are needed.

Linux will likely continue to grow and evolve as an operating system solution, providing an alternative to Windows and even may potentially pose a threat to the Windows domination of our desktops.

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