Linux Operating Systems

The Benefits and Drawbacks Of Using Linux as Your Primary Operating System

The Goal today is to provide information on an alternative to Windows as your primary operating system. But Why?

This issue becomes more important since Windows has now announced that **October 14, 2025 will be end of support for Windows 10.**

This includes security updates, non-security updates, and technical support. **They have however announced that you will be able to obtain Extended Security Options (ESUs) for Windows 10 on a subscription basis for 3 more years ($427 for three years).**

Since most existing PCs will not run Windows 11, Microsoft recommends purchasing a new PC and moving to Windows 11.

Linux is stable, secure, user friendly, and best of all, free. It will run on virtually any PC or laptop operating today.

A Little Background on the Linux Operating System

- **Linux was developed by Linus Torvalds in 1991** while he was a college student in Finland. History available in his book, **Just For Fun, the story of an accidental revolution.**
- Linux is based on **Unix (which was originally developed and released by Bell Labs in 1971** and widely used since then) so extremely stable and secure.
- After it's release, **Linux was organized and developed to be an open-source free operating system** under GPL (general public license agreement) **basically guaranteeing free access to all users!**
- **All system code and additions are available to all users** so it is fully customizable for system improvements and applications.
- Today, there are more than **600 active Linux Distros** (more on this in a minute) and 500 in the development phase.
- **Global community of active Linux users (desktop) now exceeds 40 million.**
- **The Android operating system is Linux based and powers 85% of all smartphones.** It is installed on over 1.6 billion smart phone and Chromebooks annually.

Some Major Users of Linux

- 96.3% of the top one million web servers are running Linux!
- United States Department of Defense (Red Hat Linux) is the largest single user of Linux
- FAA, Federal Aviation Administration (Red Hat Linux)
- US Navy in conjunction with Ratheon software for VTOL drones
- National Nuclear Security Administration on their supercomputer (10th fastest in world, IBM Roadrunner) (Redhat Enterprise Linux)
- Virtually all cloud servers including Microsoft’s Azure cloud is running Linux.
- Amazon, Dell, Facebook, Google, IBM, Oracle, Samsung, etc. etc. etc.
- NASA. Perseverance rover that recently landed on Mars is using a Linux operating system.

Linux now runs on all of the fastest Supercomputers in the World!

What Are The Benefits Using a Linux Based Operating System vs Windows?

- **Linux runs on virtually any hardware including old (i.e. low RAM) machines.** It was originally designed by Linus Torvalds for his 386 IBM XT. **This means that older slower computers can be used longer rather than replaced.**
- **You (the user) are in total control of your system, updates, and configuration...not Microsoft or Apple**. Systems are easily customizable and most application software is free.
- **Linux is the most Secure Operating System Available.**..one reason cloud servers, super computers, government and corporations are using it. The basic architecture of the Linux system aids in the stability of the operating system. It's tiered permission structure protects the individual parts of the system from virus attacks, etc.
- **Linux is Free from spyware and other data gathering software vs Windows which is constantly gathering your user data for commercial uses.**
- **Available in "easy to install" distros for Windows and Apple users not familiar with the system.** It can also be made to look like Windows 10 or 11 if desired.
- There is a strong support community on-line as well as blogs for the individual distributions (e.g. Zorin, Mint, etc.).

Why Stay with Microsoft?

- Most computers come with Windows installed so there is a fear of changing operating system on new or fairly new computers. That said, most major computers makers (e.g. Dell, Lenovo, HP, etc.) will install a Linux based operating system upon customer request.

- There is some learning curve with Linux for Windows/mac users. This is being reduced as the user interfaces (DEs, desktop environments) are made to look and work more like Windows/mac computers.

- Local support may be scarce (no Geek Squad, etc.) however the on line community is available for solving most issues.

What is a Linux Distribution (Distro)?

- A linux distribution (distro) is the complete operating system made from components available from various open source projects and programmers including:
  - The Linux Kernel...modular, multitasking, Unix-like operating system
  - GNU shell utilities (terminal interface and commands)
  - The X server (allowing graphical user interface)
  - An installer and other service packages
  - Various application software including browsers, office packages, CAD, video editing, etc. etc.
  - Many Distros are function driven (i.e. focused on engineering, video editing, etc.)

Popular and Widely Used Distros

- Fedora Wordstation by RedHat (widely used by the government, pay for technical support)
- Mint Linux
- Ubuntu Linux
- Pop OS Linux
- openSUSE Linux
- Zorin 17 Linux
- Peppermint OS
- Arch Linux
- And the list goes on forever!!

Why Install Linux on a PC or MAC

- **Linux may be installed on virtually any functional PC or MAC no matter how old or how little RAM**
- **Linux and application software is free unlike Windows.**
- **There is no spy ware, monitoring of keystrokes, software subscriptions, etc. related to Linux although some distros charge for PRO versions or for technical support (e.g. RedHat).**
- **Many distros focus on saving old machines that can no longer support Windows or Apple operating system**
- **Many Linux apps are fully compatible with Windows file formats (word, excel, ppt, etc.)**
- **Due to the efficiency of Linux operating system, most computers run much faster on Linux than with Windows or Apple operating systems. There is no bloatware, advertisements, spyware embedded in the software.**
- **There is virtually an unlimited assortment of application software available for the linux operating system. Some apps ask for donations to keep projects going or to provide technical support as most are by individuals or small groups rather than major companies.**
- **Linux can also be run virtually on a Windows PC or set up for dual boot if desired.**
- **Alternatively, Windows can be run as a virtual PC on a Linux machine if desired via Oracle VirtualBox or other virtualization software. Oracle Virtualbox is free and fully Linux compatible if you wish to run a virtual PC within Linux.**

How to Install Linux (and this can vary a bit from Distro to Distro)

- Download Distro ISO from internet. Most are available from Distro's website.
- Create a bootable device using Belena etcher or other similar software (used to flash OS images a suitable USB drive)
- Start computer and go to boot menu.
- Select boot drive where Distro ISO is located.
- Select and proceed through install process.
- Many systems can be run from the memory stick or device if you wish to test the system prior to installation.
- Again, these operating systems can be run virtually if you wish to continue running Windows as your primary operating system and just play with Linux.

Demonstration of Zorin

- Zorin Linux (what this PC is running) is using a Windows-like layout by GNOME (GNU Network Object Model Environment). GNOME is widely used as a desktop environment for Linux distributions.
- There are many available layouts within the Zorin package to create different (and more familiar) appearances.
- Desktop Environments may be easily added and changed by simply logging out and back in of your computer.
- Virtualbox allows users to run virtual Windows PCs and alternate Linux operating systems in order to test and evaluate them.
- Software Store is available for other applications.

Next Steps When the Time Comes...

- If your PC is older and running Windows 10 very slowly or incapable of upgrading to Windows 11, may wish to consider installing a Linux distribution as your primary operating syyou stem. **All data can be saved and reloaded back on to your machine once the new operating system is installed.**

- If you wish to experiment with Linux in order to learn more about it or familiarize yourself with it, **you may want to consider running a Linux system virtually** or as a dual boot system on your current computer (assuming your PC has the resources to support this).

- **We are planning further education within the club on other Linux topics as well as providing Linux support (similar to current Microsoft support) if our club members are interested.** Some members are already using Linux based computers as their primary operating system with good results.

Conclusion

- Questions??
- Thanks for your time!