

# Chapter 1 Why Linux?

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## Gain Some Perspective

Why should you care about Linux? To answer this question, you will need to gain some perspective about the history of various operating systems, Linux philosophy and its market impact. Once this perspective is gained you can begin to comprehend how Linux benefits to you personally, how businesses and the world are already benefiting from Linux and other free and open source projects.

## Order Up! - What is an operating system?

An operating system is much like a waitress or server at a restaurant. She is a big part of your eating out experience. She will usually greet you and take your order, she submits that order to kitchen and returns with your food. She assists you with drinks, extra napkins or utensils or what ever else you need. Finally, she makes sure you settle your bill appropriately and sends you on your way.

Although she does several things as part of her job, her primary focus is very specific. She is your interaction with the restaurant. She doesnt maintain the building or cook the food, however she makes sure your experience with all the things happening in a restaurant is pleasant.

In much the same way an operating system allows a user to interact with a computer and defines the experience. For instance, when you click on an icon to start your web browser, the operating system recognizes the clicking of the mouse, communicates with the processor, the RAM and other components of the computer to open the application on your computer screen. The operating system is not the web browser or other program you may be running, much like they waitress is not your food, but she is the one that brings you your food. It is what allows you to use the hardware on your computer. A computer without an operating system is door stop. It may be able to power on but nothing useful to the user can happen. It is fundamentally the most important feature of a computer. It is what allows you to start programs, have a file system to navigate through and store files, have menus, move the mouse, type on the keyboard and in a very real sense interact with the computer.

Operating systems come in various favors depending on the experience that you want. Many users prefer the Microsoft Windows experience while other may prefer the Apple OSX or Linux experience. Which operating system works best for you?

## A brief history in operating systems?

In order to fully appreciate and understand the various operating systems available, you will need to understand the history of how these operating systems came about. By recounting the history of these software and computer movements we can gain an understanding of their culture and approach to software and how we derived with our current dynamics in technology.

### Microsoft

We will begin with the most well known and most commonly used operating system Microsoft Windows and each of its various incarnations over the years. Microsoft was founded by Bill Gates and Paul Allen in Albuquerque, New Mexico April 4, 1975. In its earliest beginnings Microsoft was not an operating system company. Its founders originally saw potential to implement the programming language BASIC interpreter on a new computer at the time called the Micro Instrumentation and Telemetry System or MITS. Bill Gates was attending Harvard and dropped out to start Microsoft and Paul Allen worked at Honeywell.

On January 1, 1979 Microsoft moved from Albuquerque to Bellevue Washington in an effort to recruit top quality programmers. “Steve Ballmer joined the company on June 11, 1980 and would later succeed Bill Gates as CEO.”<sup>1</sup>

The success of Microsoft BASIC was followed by the Z-80 SoftCard in 1980, which allowed the Apple II computer to run popular business software and initiated Microsofts first partnership with Apple.

At this time Microsoft was only moderately successful. It wasn't until Microsoft contracted with IBM did they dive into the operating system business and jump from a humble start up to a more mature corporation. In 1981, IBM was in the market for an operating system as for their new home and business computers and Microsoft agreed to provide that operating system. However there was a problem. Microsoft didn't have access to an operating system, so they bought one called 86-DOS from Tim Paterson for about \$90,000, which they then sold to IBM for more than four times that much.<sup>2</sup> As part of sales agreement with IBM, Microsoft also kept the rights to DOS allowing them to also sell DOS to other computer makers. IBM later regretted this decision.

Microsofts next venture with Apple started in the early 1980s when Apple acquired a graphical interface for an operating system from Xerox which allowed a user to drag and drop items, resize and overlap windows and use menus to navigate program options. Microsoft was contracted by Apple to help implement this graphical interface on their Apple computers. A short time later Microsoft released a very similar graphical interface built on top of DOS called Windows

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<sup>1</sup>[https://en.wikipedia.org/wiki/History\\_of\\_Microsoft](https://en.wikipedia.org/wiki/History_of_Microsoft)

<sup>2</sup><http://forwardthinking.pcmag.com/software/286148-the-rise-of-dos-how-microsoft-got-the-ibm-pc-os-contract>

1.0 which was release to the public earlier months earlier than Apples, beating them to the market. As you can imagine Apple was not pleased. Steve Jobs recounts,

Their meeting was in Jobs's conference room, where Gates found himself surrounded by ten Apple employees who were eager to watch their boss assail him. Jobs didn't disappoint his troops. "You're ripping us off!" he shouted. "I trusted you, and now you're stealing from us!" Gates just sat there coolly, looking Steve in the eye, before hurling back, in his squeaky voice, what became a classic zinger. "Well, Steve, I think there's more than one way of looking at it. I think it's more like we both had this rich neighbor named Xerox and I broke into his house to steal the TV set and found out that you had already stolen it."<sup>3</sup>

In 1988, Apple sued Microsoft. Bill Gates is quoted by InfoWorld Newsweekly during this time as saying: "We're saying that these graphic interface techniques, the ideas, are not copyrightable."<sup>4</sup> After a five year legal battle the courts sided with Microsoft.

Microsoft later released Microsoft Windows version 3.0 in 1990 and version 3.11 in 1993. At this time Microsoft was still not the dominate operating system on the desktop. Other operating systems such as AmigaOS<sup>5</sup>, BeOS<sup>6</sup> and OS/2<sup>7</sup> from IBM as well as others were worthy contenders for the desktop market.

It wasnt until 1995, with the release of Windows 95 did Microsoft solidify their dominance in the market. Windows 95 introduced the start menu button and was a significant upgrade to DOS and Windows 3.11. Other features included a "taskbar across the bottom of the screen, which contain[ed]"<sup>8</sup> icons of all your running programs and Internet Explorer 4 as the web browser.

As Microsoft approached the new Millennium they released Windows 98, Windows 2000 which was specifically designed for business use and Windows Me designed for home use. It was during this time Microsoft Windows ran over 90% of the desktop computing market and Microsoft took advantage of this dominance.

During this time, Internet Explorer was bundled with every copy of Windows, which meant users didnt need to download the then leading web browser Netscape Navigator. This was an intentional act on Microsoft to "cut off Netscape's air supply" and gain dominance in the web browser market according to Steven

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<sup>3</sup><https://www.quora.com/How-did-Microsoft-not-get-sued-by-Apple-if-they-ripped-off-the-Macintosh-and-their-GUI>

<sup>4</sup><http://electronics.howstuffworks.com/tech-myths/5-myths-about-bill-gates4.htm>

<sup>5</sup><https://en.wikipedia.org/wiki/AmigaOS>

<sup>6</sup><https://en.wikipedia.org/wiki/BeOS>

<sup>7</sup><https://en.wikipedia.org/wiki/OS/2>

<sup>8</sup>[https://en.wikipedia.org/wiki/Windows\\_95](https://en.wikipedia.org/wiki/Windows_95)

McGeady, vice president at Intel. Microsofts abuse of its monopolistic position initiated the United States and 20 other states to file an antitrust case against Microsoft in 1998.<sup>9</sup> In 1999, “Judge Thomas Penfield Jackson [decided]... that Microsoft had taken action to crush threats to [its] monopoly, including Apple, Java, Netscape, Lotus Notes, RealNetworks, Linux and others.” Microsoft appealed and settled with the department of Justice in 2001 with essentially a slap on the wrist.<sup>10</sup>

Other lawsuits followed with the European Commission regarding Microsofts abuse of its dominant position with its Windows Media Player and from complaints by Novell and Sun Microsystems of its Windows operating system.<sup>11</sup>

In the early 2000s, Microsoft released Windows XP which became its most popular and longest running operating system. Window Vista, Windows 7 and 8 followed and on July 29, 2015 Windows 10 was released which featured a re-designed menu, Cortana a voice activated interface and a re-designed web browser called Microsoft Edge.

## Apple

It would be difficult to image a world without Apple and the impact of iTunes and the iPhone in our modern culture. On April Fools day 1976, Steve Jobs and Steve Wozniak founded Apple. The early computers of the mid-1970s where costly and out of the price range for Wozniak. So when MOS Technology made available a 6502 CPU chip for \$20 (roughly \$83 today), Wozniak saw an opportunity to get his own computer. He designed and built a circuit board to work with the 6502 chip and wrote a version of the BASIC programming language for it. While showing off his new computer at a Homebrew Computer Club meeting, he met Steve Jobs.

Jobs saw the commercial potential of Wozniaks computer and quickly was able to sell an order of 50 computers to a hobby store in the area. With the help of friend Ronald Wayne, he and Wozniak built circuit boards while Jobs secured parts and found buyers. Eventually, 200 Apple I computers were built.

Apple was still not a successful business and struggled securing funds to build and distribute the Apple II which added significant improvements to its predecessor. Steve Jobs came into contact with angel investor Mike Markkula who was able to secure a \$250,000 bank loan. The Apple II was a huge success and solidified Apple as a tech company.

In May 1980, the Apple III computer was developed but was not successful due to an issue with overheating and thousands of computers were recalled.

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<sup>9</sup>[https://en.wikipedia.org/wiki/Browser\\_wars](https://en.wikipedia.org/wiki/Browser_wars)

<sup>10</sup>[https://en.wikipedia.org/wiki/United\\_States\\_v.\\_Microsoft\\_Corp](https://en.wikipedia.org/wiki/United_States_v._Microsoft_Corp).

<sup>11</sup>[https://en.wikipedia.org/wiki/Microsoft\\_Corp\\_v.\\_Commission](https://en.wikipedia.org/wiki/Microsoft_Corp_v._Commission)

With the failure of the Apple III, the company looked forward to its latest venture the Macintosh 128k computer and the Lisa. It was around this time that in exchange for stock options Apple was allowed to tour Xerox's research and development center (PARC). It was here that Jobs was introduced to the Xerox Alto computer which featured a mouse-driven graphical interface.<sup>12</sup>

An engineer named Larry Tesler conducted the demonstration. He moved the cursor across the screen with the aid of a "mouse." Directing a conventional computer, in those days, meant typing in a command on the keyboard. Tesler just clicked on one of the icons on the screen. He opened and closed "windows," deftly moving from one task to another. He wrote on an elegant word-processing program, and exchanged e-mails with other people at PARC, on the world's first Ethernet network. Jobs got a "little bit" excited watching this presentation. He could not believe that Xerox wasn't doing much with this technology:

"Jobs was pacing around the room, acting up the whole time," Tesler recalled. "He was very excited. Then, when he began seeing the things I could do onscreen, he watched for about a minute and started jumping around the room, shouting, 'Why aren't you doing anything with this? This is the greatest thing. This is revolutionary!'" Steve Jobs ... went back to Apple and demanded that his team, which was working on the next generation of personal computer, change their thinking. He wanted menus, he wanted windows, he wanted a mouse!<sup>13</sup>

It was during this time Jobs recruited Microsoft to assist in developing its graphical interface. The first popular Graphical User Interface (GUI) computer the Apple Macintosh was made available in 1984. The Macintosh was a moderate success however its impact is still felt. Modern desktops still have icons that represent files and folders that can be click on and moved around. There are menus and windows that can overlap and allow for multi-tasking.

In 1985, with the embarrassment of the Apple III still looming in the shadows, poor sales of the Lisa computer due to its exorbitant pricing and visionary differences with the board of directors, Jobs was stripped of all his duties and later resigned from his position as Chairman of the Board. It is interesting to note that upon leaving Apple, Jobs continued to be successful, taking ownership of the visual effects company Pixar and founding a new computer company called NeXT Inc, which built computers running the Unix based operating system NeXTstep.

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<sup>12</sup>[https://en.wikipedia.org/wiki/History\\_of\\_Apple\\_Inc](https://en.wikipedia.org/wiki/History_of_Apple_Inc).

<sup>13</sup><http://zurb.com/article/801/steve-jobs-and-xerox-the-truth-about-inno>

By 1995, Apple was struggling and was looking for new operating system to replace its aging system which was lagging behind its competitors. Apple decided to purchase Steve Jobs company NeXT Inc, which not only brought the NeXTstep operating system which is the foundation of Apples current OSX, it also brought Jobs back in management who quickly became CEO.

After years of mismanagement Apple was financially limping along, so in an effort to save the company, Jobs leaned on an unlikely former rival for assistance. In 1997, Apple reconciled its long standing legal battle with Microsoft in favor of receiving a \$150 Million investment from the software company and agreed to a five-year commitment to release Microsoft Office for MacIntosh.

Since that time Apple has been very successful with their iMAC, iBook and Power Mac G4 computer heading into the year 2000. Mac OSX was introduced in 2001 and replaced the aging MAC OS 9 operating system. Apple also announced and opened a line of Apple retail stores during this time. <sup>14</sup>

In the following years Apples released iTunes, the iPOD and finally the iPhone which now accounts for the majority of Apples revenue. In 2011, Steve Jobs died due to complications to pancreatic cancer. <sup>15</sup> After his death, Tim Cook replaced Steve Jobs as CEO of Apple.

## Unix

Throughout the early history of computing, computers were large and filled entire rooms and were only used by a handful of universities, businesses and the military for mostly research purposes. Each computer ran its own operating system. Even between various IBM machine models the operating system, programming, input method and function could be completely different. The thought of taking a program that was written on one machine and have it run on a different machine was preposterous.

In 1969 all of computing changed. Ken Thompson and Dennis Ritchie who worked at AT&T Bell Lab Research facility developed the Unix operating system that could be run on practically any machine. Since Unix was suitable for all computers and became quickly adopted by universities and companies, it has been called the universal operating system. It was written in the C programming language which was invented by Thompson and which is the basis of many popular operating systems today including Windows and MAC OSX. <sup>16</sup>

The popularity of Unix grew immensely in the 1970s and 1980s. The University of California, Berkeley was an early adopter. In the mid-1970s, a young graduate student, Bill Joy created his own flavor of Unix and called it Berkeley Software Distribution or BSD. It should also be noted that Joy is also attributed to

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<sup>14</sup>[https://en.wikipedia.org/wiki/History\\_of\\_Apple\\_Inc](https://en.wikipedia.org/wiki/History_of_Apple_Inc).

<sup>15</sup>[https://en.wikipedia.org/wiki/Steve\\_Jobs#Death](https://en.wikipedia.org/wiki/Steve_Jobs#Death)

<sup>16</sup>[https://en.wikipedia.org/wiki/History\\_of\\_Unix](https://en.wikipedia.org/wiki/History_of_Unix)

developing the networking protocols TCP/IP which is the underlying basis upon which data is transferred on the Internet. TCP/IP was first developed and integrated in BSD and is now the defacto protocol used for networking in all other operating systems. Bill Joy went on to also develop the vi text editor (think notepad in Windows), which is still a significant tool used today by programmers. He is also known for the Java programming language. In 1982, Joy co-founded Sun Microsystems which offered Unix servers for businesses. <sup>17</sup>

Throughout the 1980s and 1990s various flavors of Unix began to appear such as, Xenix from Microsoft, IBM AIX, FreeBSD, HP/UX, SunOS and UnixWare from Novell, just to name a few. Steve Jobs used a variant of FreeBSD called Darwin to build his NeXTstep operating system which became Apples OSX. So if you are using an Apple computer, congratulations, you are using Unix. <sup>18</sup>

Unix is the widely used, most influential operating system you have never heard of. Microsoft Windows, Apples OSX and as you will soon come to understand, Linux, were all influenced by Unix in one way or another. Either by it's integration of TCP/IP, actually using a free version of Unix as its core or just modeling its structure and functionality, all of our current operating systems have been impacted in some way by Unix.

## Free Open Source Software and Linux

It all started with a printer. One particular Xerox 9700 printer in the MIT Artificial Intelligence Laboratory. The frustration of this printer constantly jamming came to a head with one particular employee of the MIT Lab, Richard Stallman. As a programmer, Stallman wanted to program the printer so that all users waiting for a print job would be alerted if the printer was ever jammed. This required having the programming source code from the Xerox, which they flatly refused to provide to Stallman. Richard considered this an outrage and a moral injustice. MIT had been a culture of sharing and exchanging source code. He felt not having this free exchange of code as immoral and unfortunately in the late 1970s and early 1980s closed and proprietary software was beginning to become the norm.

Stallman embraced a culture where users had the freedom to share their programming code with the community and be able to study the code and make changes to it based upon your need. Unfortunately for him the world was moving away from this philosophy of sharing code. So in 1983 Stallman established the GNU project to promote this philosophy. <sup>19</sup>

The GNU (GNU is not Unix) project was built upon 4 founding software freedoms:

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<sup>17</sup>[https://en.wikipedia.org/wiki/Bill\\_Joy](https://en.wikipedia.org/wiki/Bill_Joy)

<sup>18</sup>[https://en.wikipedia.org/wiki/History\\_of\\_Unix](https://en.wikipedia.org/wiki/History_of_Unix)

<sup>19</sup>[https://en.wikipedia.org/wiki/Richard\\_Stallman](https://en.wikipedia.org/wiki/Richard_Stallman)

- The freedom to run the program as you wish, for any purpose (freedom 0).
- The freedom to study how the program works, and adapt it to your needs (freedom 1).
- Access to the source code is a precondition for this. The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.<sup>20</sup>

These software freedoms were also implemented into a software license called the General Public License or GPLv2 which programmers who agreed with Stallmans philosophy could use to license their software.

One primary goal of GNU was to build an operating system that was similar in functionality and even compatible to Unix but which honored the GNU philosophy. Unix was a stable and robust system but was quickly becoming proprietary. This led to Stallman to began working on the GNU Hurd operating system, but quickly realized he would need programs to run on his new operating system. An operating system without programs was impractical for users. Imagine starting your computer and logging in. Once logged it you had no word processor program to type a document, a web browser to navigate the internet or a music player to listen to music. So in addition to working on GNU Hurd, Stallman developed programs to run on his new operating system. Some notably the text editor Emacs a counterpart to vi develop by Bill Joy and a programming code compiler called GCC so other programmers could also build programs for his new system.

By 1990, GNU Hurd was struggling and wasn't mature enough to be usable however there were dozens of applications that were build for this operating system that wasn't coming to fruition. Stallman's operating system was at a standstill.

Enter Linus Torvalds, a Finnish student studying computer science at the University of Helsinki. Torvalds was impressed with Unix and wanted to run it on his personal computer, however the cost of proprietary Unix was far beyond what a poor college student could afford. So in 1991, Torvalds wrote his own operating system modeled after the functionality of Unix and he named it Linux a combination of his first name Linus and Unix. He used Stallman's GCC compiler to develop Linux and once he felt it was worthy of sharing, posted his creation on an Internet newsgroup. To his surprise, it was well received by the programming community and programmers for around the world began sending Torvalds code to contribute to this new operating system.

Linus never imaged his project he was doing "just for fun" would ever be so popular. Torvalds began implementing some of the contributed code in his

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<sup>20</sup><http://www.gnu.org/>



project and licensed it under Stallman's GNU GPLv2 license. Torvalds now had an operating system but no applications. Stallman's GNU project had lots of applications but no working operating system. It was a match made in computer nerd heaven. Torvalds rolled many of the GNU applications into Linux and a practical, functioning, free and open source, user ready system was born. <sup>21</sup>

Today, Richard Stallman continues to evangelize free (as in freedom) software and the GNU project as part of his Free Software Foundation (FSF). He has also extended his public awareness initiatives of the immorality of several other products and services such as Amazon, Apple, Skype and Netflix to name just a few. Linus Torvalds works for the Linux Foundation, a non-profit organization dedicated to promoting Linux which is funded by such companies as Intel, Oracle, Samsung, Google, Facebook, Hewlett-Packard, Toyota, Adobe, Capital One, Goldman Sachs, Honda, AT&T and dozens of other companies with a commitment to Linux. <sup>22</sup>

## **Use what works for you**

Consider the computer you are currently using and the computers you've chosen to use in the past. Why did you make the choice you did? What consideration did you give to the operating system? Modern operating systems are a product of the people and organizations that brought them forth. Their experiences define their approach to development and connection with its users and community and the ultimate outcome of their product.

Did you even know you had a choice? Each of the operating systems discussed in the chapter have their strengths and weaknesses. Many user seem to use what they were first introduced to or what their friends or family members recommend. Most users once comfortable with an operating system seem to stick with what they know, even when drastic updates occur that significantly change the user experience and functionality.

## **The impact of Linux how it is being used?**

### **Did you even consider other options?**

### **So Many Operating Systems.**

Many don't realize they have a choice. The operating system mentioned in this chapter are all good. They each have their own approach. There is good and bad with each. I see many unhappy with what they are currently using and they continue to use it.

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<sup>21</sup>[https://en.wikipedia.org/wiki/History\\_of\\_Linux](https://en.wikipedia.org/wiki/History_of_Linux)

<sup>22</sup><http://www.linuxfoundation.org/about/members>

Understand that you have a choice. It boggles my mind that most computer users believe they only have one choice, and that's Microsoft Windows, unless you are into design or a hipster then there is Apple OSX. I understand this is due to a You have a choice. If you have only eaten at McDonalds your whole life, What experience do you want to have? lack of knowledge. You have a choice. To reflect back on restaurant and waitress analogy,

## **Licensing and Philosophy**

All operating systems have their strengths and weaknesses. However what sets Linux apart from what most desktop users are familiar with is the approach Linux takes in its development and licensing.

Linux encourages its users to make copies and share with your community. You are also encouraged to make changes to the software and modify it to your own needs. It is this philosophy of community sharing and participation which is completely foreign in an Apple and Microsoft world and is inherently part of the GPLv2 licenses. It is the approach that we can make software better by sharing, working together as a community and building off each others ideas. This is in complete opposition to proprietary development that is done behind closed doors by a small select group of individuals. Linux as well as other open source projects.

This open approach to software development allows for software freedom. You are no longer confined to one or two choices in your operating system which is designed with a “one size fits all” option. Since the GPLv2 license allows you to modify and redistribute Linux, you have literally hundreds of options for your own unique style or needs or you can create your own. (Suse Studio)

## **Distributions**

Individuals, communities and organizations have created their own version or “flavor” of Linux called distributions. These distributions are specialized or customized for specific purposes or follow a specific design. Let's discuss some of these distributions.

### **Red Hat**

Red Hat is a multi-billion dollar company and the largest Linux company. They develop a distribution of Linux called Red Hat Enterprise Linux or RHEL designed for larger business servers. They charge thousands of dollars for support and other services. It is most used flavor of Linux in this environment.

Red Hat also offers a free testing version of their OS called Fedora, with a workstation option for desktop and laptop computers. In addition there are

options for cloud computing and servers. Fedora is their testing bed flavor of Linux, offering “cutting edge” applications on technology which most likely be implemented into future releases of their stable and solid RHEL version. since Fedora is cutting edge it maybe a bit rough around the edges, meaning not everything may work as expected or have a lot of bugs. On the plus side you get the latest and greatest features and technology. You are sacrificing stability for the newest and shiniest stuff. Much of what is developed in Fedora is adopted later by other distribution. Fedora is not recommended for new users.

## **Ubuntu**

Ubuntu is one of the most popular Linux distributions for desktop and new users. Canonical is the company behind Ubuntu which attempt to make Linux easy to use. Canonical also make a server version of Ubuntu which is growing in popularity and use.

ubuntu is free to download and use and has an option to pay for support. Ubuntu has become so popular that other groups customize Ubuntu and use it as a base for their own flavor of Linux. One of these distributions is Linux mint, which is based on Ubuntu but adds other tools and customization that has become very popular for desktop and new users.

## **Security Distributions**

Some distributions of Linux are focused on security or penetration testing. Kali Linux offers tools which test the security of other computers and networks. these tools are used to try and gain access to systems using password crackers or network packet sniffing or port scanners.

TAILS Linux is designed to offer animosity while online which makes it difficult to track user location or browsing activity. It runs as a liveCD or USB which means you load an image of TAILS on to a usb drive or burn the image to a CD on DVD, put it into your system and boot your computer. TAILS never actually installs on your system. It runs strictly from the CD, DVD or USB and your RAM. It never touches your hard drive. When your system is rebooted all evidence of that user’s activities is wiped clean. Edward Snowden has been known to use TAILS Linux to keep his location and activity unknown from the US government.

## **Debian and Slackware**

Debian and Slackware are two of the oldest surviving Linux distributions, having been started in the early to mid 1990’s. Either distribution is not normally recommended for beginners due to the steep learning curve and additional configuration needed to make a desktop system comfortable for a typical user.

This being said both Debian and Slackware have a reputation for being solid and stable, making them excellent candidates for servers. It is not that Debian or Slackware can't be used for the desktop, it is just that most users prefer additional set up than what comes "out of the box" with these distributions. This is one reason Ubuntu has become so popular. Ubuntu is built off of Debian Linux, but which adds some nice easy to use features which enhance the desktop experience. Linux Mint is another very popular Linux distribution designed for ease of use and is built off of Debian. In fact, Debian is so solid and well tested, it has become the most used built upon distribution by other distributions using it as its core.

Slackware Linux is known for being very "vanilla", meaning it hasn't been fiddled with much. There has been very little configuration. It is pure in its approach and is also known as the "most unix-like" version Linux. It is this pure and untouched state that attracts Slackware its users.

## **So Many More**

There is a Linux distribution for everyone's specific needs. There are distributions designed for gamers, graphic designers or those who only speak a rare dialect of Mongolian. Distributions such as Puppy Linux or Tiny Core Linux are designed to run on older and out-dated machines because they use very little resources.

Other speciality Linux distribution run on routers or run Voice over IP (VOIP) phone systems. Gentoo Linux is designed to install the entire system and all program from programming source code allowing it to run extremely efficient on your machine. Peppermint Linux is built to only use cloud services such as Google Drive, Evernote and other online applications. GParted Linux is a tool to partition your hard drive while Clonezilla is used to create snapshots and make backups for your hard drive. There are versions of Linux that run on cash registers or on cell phones.

Whatever your unique case is or just for general computer use, there is a Linux distribution for you.

## **So Which Version of Linux Should I Use?**

The most commonly asked question from interested Linux users is, "Which one should I use?". If you come from a Microsoft or Apple world you may not be used to so many choices and this can be overwhelming to those new to exploring Linux. The answer as to which version of Linux to use is not a straightforward one. What should happen is you should research a few distributions and try them out and see which one you like better. However, if you are new to Linux you may not know what to research or what to look for or you may not understand what you find. So we'll suggest first trying Ubuntu or Linux Mint to get your feet wet. If you're happy with what you experience then continue using it. If you become

comfortable with either of those choices then experiment with others. Most Linux distributions are free, so there is very little risk and you can always return to Ubuntu or Linux Mint. By testing the waters with these 2 distributions you get a feel for desktops you like, alternative applications you're use to, the Linux way of doing things and being introduced to a community. If there is any aspect of your experience where you're wanted to try something new then explore. This new found freedom and larger selection of options is quite liberating.

## **But no one uses Linux**

Linux has a strong Internet and cloud application presence. This is why Google uses Linux as the backbone of their search engine, Amazon, Facebook, Twitter, Instagram and Snapchat also are built off of Linux. Microsoft Windows server has become popular running internal networks due to its Active Directory tools. However when it comes to the Internet and public facing applications Linux is king. Linux runs over 80% of the web pages on the Internet. It is the preferred operation system in Data Centers and mass storage. Linux is used to generate animated movies such as Shrek and special effects for Titanic and others.

Android is Linux. The majority of the world's smart phones run Android which is Linux. If you own an Android phone you are running Linux and probably didn't even know it.

Linux is the main operating system found in many cars such as Toyota.

So whether you've known it or not Linux has been a big part of your life. Each time you've done a Google search, accessed a web page, used Facebook or Snapchat, used your cell phone or accessed your on-board computer system in your car you have been using Linux.

## **How Can Linux Help Me**

One huge benefit is that Linux is usually free, which means it and all its tools professionally. Set up a web server, remote storage, home automation, voice over IP server or hundreds of other (turn key Linux) applications that can be used for your own business or personal use or to practice administering a server to gain experience on application needed by large tech companies, such as Google Amazon, Facebook and Twitter.

Build up your resume by joining a community. You can triangulate bugs and submit bug reports, write documentation, offer technical support or help code. Many of these communities keep public records, documenting names of those who contributed and exactly what they contributed. To a potential employer proving your real world experience and skills may prove essential in getting hired.

Sell your support. If you become expert on an application or particular tool, why not make money on your expertise.

- Get a job
- Get an edge on the competition
- Use tools large corporations have
- Start your own business

## Chapter 2

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