

Viability of Linux as a Daily Driver

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Abstract—Linux has emerged as a popular alternative to proprietary operating systems like Windows and macOS. However, it is often perceived as a niche operating system that only suits tech-savvy users. This research paper assesses the feasibility of Linux as a daily use operating system by examining its features, performance, and usability. We conducted a study with four participants who used different Linux distributions, such as Ubuntu, Pop!_OS, OpenSuse and Fedora, and performed various tasks, including installing applications, customizing desktop environments, and testing hardware compatibility. Our results demonstrate that Linux is a practical option for everyday use, with multiple advantages over proprietary operating systems, such as customization options, improved security, and better performance on older hardware. Furthermore, our survey of college students indicates that most of them are disinclined to pay for proprietary operating systems such as Windows. Nevertheless, Linux poses some challenges, such as software incompatibility and a more complex learning curve for inexperienced users. In conclusion, this research paper suggests that Linux is a viable alternative for those willing to learn and looking for a secure and customizable operating system.

Index Terms—Linux, Operating systems, Daily driver, Viability, User experience, Desktop environments, Compatibility, Software availability, System performance, Customization

1 INTRODUCTION

Linux has gained popularity as an alternative to proprietary operating systems such as Windows and macOS. While it was once viewed as a niche operating system, Linux has become more mainstream in recent years due to its numerous benefits, including customization options, enhanced security, and better performance on older hardware [1]. Despite this, there is still a common perception that Linux is challenging to use and not suitable for daily use [2].

The purpose of this research paper is to examine the feasibility of Linux as a daily use operating system by evaluating its features, performance, and usability [3]. To achieve this, we conducted a study with four participants who used different Linux distributions, including Ubuntu, Zorin, and Fedora [4]. We asked them to perform various tasks, such as installing applications, customizing desktop environments, and testing hardware compatibility. Additionally, we conducted a survey of college students to understand their attitudes towards proprietary operating systems like Windows [5].

In this paper, we will present our findings and analyze the advantages and challenges of using Linux as a daily use operating system. We will also compare Linux to proprietary operating systems and provide recommendations for those considering using Linux as their primary operating system. The rise of Linux in recent years has made it a viable option for many users [6].

2 BACKGROUND

Linux is an open-source operating system that has been gaining popularity over the years [6]. It is known for its security, stability, and reliability [1]. Linux has been widely used in servers, supercomputers, and mobile

devices. However, its use as a daily desktop operating system has been debated [2]. The purpose of this research paper is to investigate the viability of Linux as a daily use operating system [3].

3 LITERATURE REVIEW

The use of Linux as a daily use operating system has been gaining attention in recent years. Linux is known for its stability and security, which makes it a suitable candidate for everyday use. However, there are still some concerns regarding its usability and compatibility with certain hardware and software.

One of the most popular Linux distributions for desktop use is Ubuntu [7]. Ubuntu is known for its user-friendly interface and extensive software library. In a study conducted by the Linux Foundation, it was found that 84.3% of Linux users use Ubuntu as their primary operating system [8]. The study also found that the majority of Linux users are developers and IT professionals.

Another popular Linux distribution for desktop use is PopOS [9]. PopOS is known for its focus on productivity and usability. It comes with pre-installed software that is useful for developers and gamers. PopOS also has an intuitive interface that makes it easy for users to customize their desktop.

Fedora is another Linux distribution that is commonly used for desktop use [10]. Fedora is known for its cutting-edge technology and its focus on open-source software. It is a popular choice among developers and IT professionals due to its extensive software library and support for the latest hardware.

OpenSUSE is a Linux distribution that is known for its stability and security [11]. It is often used in enterprise

environments due to its reliability and ease of management. OpenSUSE also has a large software library and an easy-to-use interface that makes it suitable for desktop use.

In conclusion, Linux is a viable option for daily desktop use. Its stability, security, and open-source nature make it an attractive choice for users. However, its usability and compatibility with certain hardware and software may still be a concern for some users. The choice of Linux distribution will also depend on the user's specific needs and preferences.

4 RESEARCH AND METHODOLOGY

The research methodology involved recruiting four participants who are 18 years old. One of the participants had previous experience using Linux, one uses it daily, while the other two participants had never used it before [12]. The participants were selected through convenience sampling, and they were all volunteers who were interested in participating in the study.

To ensure that the participants had access to the necessary hardware and software, they were provided with laptops running different Linux distributions, including Ubuntu, PopOS, Fedora, and OpenSUSE [13]. The participants were instructed to use the Linux distribution as their daily operating system for a period of two weeks.

During the two-week period, the participants were asked to keep a journal of their experiences with the Linux operating system. The journal included information on any issues they encountered, their overall impressions of the system, and their experience using Linux compared to other operating systems they have used in the past [14].

At the end of the two-week period, the participants were interviewed individually to gather more detailed information about their experiences with the Linux operating system. The interviews were conducted using a semi-structured format, with open-ended questions that allowed participants to elaborate on their experiences and opinions [15].

The data collected from the journals and interviews were analyzed using thematic analysis to identify common themes and patterns in the participants' experiences with Linux. The analysis focused on identifying the strengths and weaknesses of the Linux operating system as a daily use operating system, as well as any challenges or barriers that participants encountered during their use [16].

The study was conducted with the informed consent of the participants, and their confidentiality was ensured throughout the study [17]. The study did not involve any risks or harm to the participants, and they were free to withdraw from the study at any time without penalty.

5 RESULTS

Based on the responses gathered from the participants, the following results and findings were observed:

Advantages of Linux were cited to include frequent updates, more customization options than Windows,

and better security and privacy. Linux was reported to be advantageous over other operating systems due to its open-source nature, user-focused approach, and ease of installation. Performance was generally reported to be quicker than other operating systems, and the level of customization available on Linux was reported to be fun and easy, although overwhelming for new users. Linux was reported to be superior to other operating systems in terms of security and privacy.

Ease of installation was reported to be easy with the help of YouTube tutorials, and software compatibility was generally good, with some challenges in running certain games and professional software. Most required applications were reported to work fine on Linux, except for professional software like Adobe Suite. Challenges faced by participants included Bluetooth issues and the need to install extra applications to play certain games or run professional software. Inability to play certain games or run enterprise software such as the Autodesk Suite was also reported.

Hardware compatibility was reported to be mostly good, but participants encountered issues with printers and Bluetooth pairing that were resolved by troubleshooting or removing and re-pairing the device. No other hardware compatibility issues were reported.

Participants advised that Linux could be a great OS for personal use, although it may not be suitable for workplace use. Linux was reported to provide the user with absolute freedom to use whatever they like, and it is free. All participants recommended Linux for personal use.

In terms of software installation, participants encountered issues with installing certain packages or applications, such as Emacs and Doom Emacs in Set 1, but were able to resolve these issues through troubleshooting or online resources. Participants in Set 2 installed Zervo with no reported issues. Customizing the Linux desktop environment was reported to be easier than Windows and Mac combined, and completing specific tasks such as editing documents or creating presentations was reported to be easy and smooth in both sets.

Experimentation with different software applications available for Linux revealed that while some features were different from their counterparts on other operating systems, usability and performance were generally good.

Overall, participants had positive experiences with Linux as a daily use operating system, citing advantages such as performance, customization, and security. While some challenges were faced in terms of software and hardware compatibility, they were generally able to be resolved. All participants recommended Linux for personal use, although some advised caution for workplace use.

6 DISCUSSION AND ANALYSIS

6.1 Ease of installation and setup

All four individuals reported a relatively easy and straightforward installation process for their respective Linux distributions. They also noted that most of the necessary software and drivers were included in the

installation, making it easy to set up the system for daily use. However, some minor issues were encountered, such as hardware compatibility issues with certain peripherals (e.g., printers, webcams), which required additional troubleshooting and installation steps.

6.2 Customizability and flexibility

One of the biggest advantages of Linux is its customizability and flexibility, allowing users to tailor their desktop environment and software to their needs and preferences. All four individuals reported a high degree of satisfaction with the customizability of their respective Linux distributions, particularly in terms of desktop environments, window managers, and software choices. They also noted that Linux offers a wide range of open-source software and tools, which are often more flexible and customizable than their proprietary counterparts on other operating systems.

6.3 Software availability and compatibility

While Linux offers a wide range of open-source software and tools, some users may encounter compatibility issues with certain proprietary software and services that are only available on other operating systems. For example, one of the participants reported difficulties using Microsoft Office and other proprietary software on Linux, which required the use of alternative solutions (e.g., LibreOffice, OnlyOffice). However, all four individuals noted that there are often viable alternatives available on Linux, and that the open-source nature of the platform allows for greater flexibility and collaboration in software development.

6.4 Performance and stability

Linux is generally known for its performance and stability, particularly in comparison to other operating systems that may become sluggish or unstable over time. All four individuals reported high levels of performance and stability on their respective Linux distributions, with fast boot times, smooth operation, and few crashes or errors. They also noted that Linux requires fewer system resources than other operating systems, making it an ideal choice for older or less powerful hardware.

Overall, the experiences of the four individuals using different Linux distributions suggest that Linux can be a viable and reliable option for daily use as an operating system, offering a high degree of customizability, flexibility, performance, and stability. While some compatibility issues with proprietary software may arise, the open-source nature of Linux provides ample opportunities for collaboration and development of alternative solutions.

7 ADVANTAGES OF LINUX AS A DAILY USE OPERATING SYSTEM

Linux is a popular operating system that offers many advantages for personal and professional use. Here are some of the key advantages of using Linux as a daily use operating system:

7.1 Cost-effective

One of the main advantages of Linux is that it is open-source and free to use. This makes it a cost-effective option for personal and professional use, as users can avoid the high costs associated with proprietary operating systems such as Windows and macOS.

7.2 Customizability

Linux offers users a high degree of customizability, allowing them to tailor the operating system to their specific needs and preferences. This includes the ability to customize the desktop environment, install only the necessary software, and configure the system to optimize performance.

7.3 Security

Linux is known for its robust security features, with frequent updates and patches that help to protect against malware, viruses, and other cybersecurity threats. This is especially important for individuals and businesses that handle sensitive data, as Linux's security features can help to prevent data breaches and cyber attacks.

7.4 Stability and reliability

Linux is known for its stability and reliability, with few crashes or system failures reported. This makes it a great choice for daily use, as users can avoid the frustration of dealing with unexpected crashes and system failures.

7.5 Community support

Linux has a large and active community of users and developers, offering support and assistance to those who use the operating system. This means that users can rely on a wealth of resources, including forums, documentation, and online tutorials, to help them troubleshoot issues and optimize their Linux experience.

7.6 Performance

Linux is known for its fast performance and efficiency, allowing users to complete tasks quickly and without lag. This can be especially important for individuals and businesses that require a high level of productivity and performance from their operating system.

Based on the QnA results, we found that users of various Linux distributions, including Ubuntu, PopOS, Fedora, and OpenSUSE, have experienced many of these advantages firsthand. They have praised the cost-effectiveness, customizability, security, stability, and community support offered by Linux, as well as its fast performance and efficiency. These advantages make Linux a viable option for daily use as an operating system.

8 CHALLENGES OF USING LINUX AS A DAILY USE OPERATING SYSTEM

8.1 Learning Curve

One of the biggest challenges faced by new users is the steep learning curve associated with Linux [2]. Unlike other operating systems like Windows or MacOS, Linux can be intimidating to new users with its command-line interface and complex configurations. However, once users become accustomed to the system, they often find that it is more efficient and customizable than other operating systems.

8.2 Software Compatibility

Linux is not as widely used as other operating systems, which can make it difficult to find software that is compatible with it. While many popular software packages have Linux versions available, there are still many programs that are only available for Windows or MacOS [18]. This can be a significant issue for users who rely on specific software programs for their work or hobbies [19].

8.3 Device Compatibility

Another challenge for Linux users is device compatibility. While Linux supports a wide range of devices, including printers, scanners, and webcams [20], some devices may not have Linux drivers available. This can be frustrating for users who need to use specific hardware for their work or personal needs [21].

8.4 Gaming Support

Gaming support for Linux is still limited, with many popular games only available on Windows or MacOS. While there are some games that are compatible with Linux, users may need to use emulation software or Wine to run them, which can be a complex and time-consuming process.

8.5 Lack of Technical Support

While Linux has a large and supportive community, technical support can be a challenge for new users. Unlike other operating systems that offer direct customer support, Linux users often need to rely on online forums and documentation to solve technical issues [2]. This can be difficult for users who are not familiar with the technical language used in these resources.

Despite these challenges, Linux has many advantages as a daily use operating system, including its customizability, security, and stability. With the support of the Linux community and a willingness to learn, users can overcome these challenges and enjoy the benefits of using Linux.

9 COMPARISON OF LINUX TO PROPRIETARY OPERATING SYSTEMS

When it comes to operating systems, Linux is often compared to proprietary systems like Windows and MacOS [22]. One of the biggest advantages of Linux over proprietary systems is its cost [6]. Linux is generally free to use, while proprietary operating systems require a license, which makes Linux a more affordable option for individuals and organizations. Another advantage of Linux is its high level of customization, which allows users to tailor their operating system to their specific needs [1]. In contrast, proprietary operating systems often have limited customization options. Linux is also known for its strong security features, such as built-in firewalls and regular updates [1]. While proprietary operating systems also have security measures in place, some argue that Linux's open-source nature makes it more secure [6]. On the other hand, while Linux has a large and supportive community, it may not always have the same level of commercial support as proprietary operating systems [3]. Additionally, proprietary operating systems often have better compatibility with certain software and hardware, while Linux may require additional drivers or software to function properly [2].

10 SURVEY RESULTS AND ANALYSIS

The survey results revealed that many participants were unaware of Windows' spyware problem, indicating a need for more awareness and education about privacy and security concerns with proprietary operating systems. Interestingly, many participants indicated that they would not pay for a Windows operating system, suggesting a preference for free and open-source options like Linux. Additionally, the survey results showed a preference for older versions of Windows, with some participants expressing a preference for Windows XP over Windows 11, possibly due to familiarity and simplicity or a perceived lack of value in newer versions.

When asked about the ease of use of Linux compared to other operating systems, the majority of respondents indicated that Linux was slightly more difficult to use, but not significantly so. However, a few respondents mentioned that Linux can be more challenging to use for tasks like installing software or configuring hardware.

In terms of software availability, a few respondents mentioned that Linux can be limited in terms of specialized or proprietary applications. However, most respondents felt that Linux had a good selection of open-source software that met their needs.

When asked about performance, most respondents felt that Linux was faster and more stable than other operating systems, especially older versions of Windows. Some respondents also noted that Linux requires fewer system resources and can run well on older or less powerful hardware.

Several respondents mentioned the importance of community support and documentation in using Linux. Many felt that the online community for Linux was very helpful in answering questions and providing guidance,

although a few felt that documentation could be more accessible and user-friendly.

When asked about security, most respondents felt that Linux was more secure than other operating systems, especially when it comes to malware and viruses. Some felt that Linux's open-source nature and frequent updates made it less vulnerable to attacks, while others mentioned the benefits of using a less popular operating system.

Overall, the survey results suggest a growing interest in alternative operating systems like Linux, particularly among those concerned about privacy and security and those seeking cost-effective options.

11 CONCLUSION

Based on our analysis and findings, Linux can be a viable daily use operating system for individuals and businesses. It offers a range of advantages such as improved security, stability, and cost-effectiveness. The survey results also showed that many people are unaware of Windows' spyware problems and are open to using an alternative operating system. However, we also found some challenges in using Linux, such as compatibility issues with certain software and hardware, and a steeper learning curve for new users.

11.1 Comparison to Proprietary Operating Systems

Comparison of Linux to proprietary operating systems such as Windows and macOS showed that Linux has comparable features and functionality, with the added benefits of being open source and more customizable.

11.2 Analysis of Linux Distributions

Our analysis of the different Linux distributions such as Ubuntu, PopOS, Fedora, and OpenSUSE revealed that they each have their own strengths and weaknesses, making it important for users to choose the right distribution for their needs.

11.3 Recommendations

Based on our research, we recommend the following for individuals and businesses considering Linux as a daily use operating system:

- Consider the specific needs and requirements of your organization before choosing a Linux distribution. Different distributions may be better suited for different purposes, such as server applications, development, or multimedia production.
- Be aware of the potential compatibility issues when using Linux, particularly with certain hardware and software. Before making the switch, it is important to ensure that all necessary applications and peripherals will work with Linux.
- Invest in training and support for new users to help overcome the steeper learning curve associated with Linux. This can include online tutorials, user groups, or professional training services.
- Consider the potential cost savings associated with using Linux, particularly for businesses. While there may be some upfront costs associated with transitioning to Linux, the long-term cost savings can be significant, particularly in terms of licensing fees for proprietary software.
- Be aware of the strengths and weaknesses of Linux compared to other operating systems. While Linux offers many benefits, it may not be the best choice for all users and situations. It is important to carefully consider the pros and cons before making the switch.

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