

How Linux Can Solve Your Company's 6 Largest Problems

Are you getting a good night's sleep, or are your business problems [keeping you awake](#) at night? If you answered, "Keeping me awake," you're not alone. When you conduct an internet search for business problems in the current technology environment, you will see that many businesses share the same concerns. As John Rampton lists on [Entrepreneur](#), many [business leaders have challenges](#) such as growing revenue, hiring the right candidates, increasing profit, regulations, and keeping their employees satisfied by offering great benefits.

While these are significant issues, the more veiled concern is the technology infrastructure that businesses must utilize to stay competitive. Today's businesses operate in an increasingly technological world. Businesses must cultivate their technology departments or suffer financial loss due to neglect. The most common technology problems of many businesses today have solutions that can be found in Linux. Linux is the most stable, reliable, and secure OS for [various reasons](#) that can help you and your team ensure an improved business environment with solutions to these common problems.

Some of the most common problems expressed by CIOs are:

- [Poor Security for Data](#)
- [Insufficient Backup and Disaster Recovery](#)
- [High Cost of Constantly Changing Technology](#)
- [Outdated Hardware and Software](#)
- [Insufficient IT Support](#)
- [Lack of Highly Skilled Talent](#)

These problems, as identified by [CIOs and IT leaders](#) across the nation, are prevalent and cause server downtime, cut into profits, and are responsible for missed opportunities. Ultimately, these problems cost businesses time and money to remedy. [These problems](#) are solvable and Linux can help by providing a secure, inexpensive, long-lasting infrastructure with built-in technical support. Linux provides plenty of options to develop a robust system, deploying and managing a total end-to-end information technology infrastructure to address these common issues.

Poor Security for Data

Viruses, malware, and ransomware are threats to businesses as well as consumers. These threats cost individuals and businesses valuable time and money to remedy. According to the [2016 Internet Security Threat Report](#) created by [Symantec](#), ransomware attacks are increasing. In the report, Symantec recorded a 36% increase in ransomware infections alone during 2016.

The Windows OS is considerably more vulnerable to ransomware than Linux. Windows is a much larger target due to having the largest [share of the market](#) for operating systems. If a criminal group wants to negatively impact an individual or business using viruses, malware, or ransomware, the biggest payoff is to use the channel that reaches the maximum population.

"Over the past 12 months alone, over a third of businesses (38%) have been affected by viruses and malware causing a loss of productivity, and experienced inappropriate IT resource use by employees (36%). One in five (21%) has experienced data loss or exposure due to targeted attacks." – [Kaspersky IT Security Risks Report 2016](#)

Another reason that Windows is so riddled with attacks is that Windows was not originally [designed with security](#) in mind. Windows' original development was based on a single-user DOS system. As a result, Windows allows the user administrator level privileges and rights, which give the user the freedom to install applications and download from the internet, but also exposes the system to malicious attacks.

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In contrast, for a user to install applications on Linux, they must obtain the software from a trusted source like a repository, and then, they must approve the software. The result is that the only applications that are installed are the necessary ones for the system to work – no bloatware or hidden programs that make the system vulnerable.

In addition, because Linux is an open source platform, Linux is inherently [more secure](#). The Linux kernel has several different layers of security, which help avoid not only purposeful alterations like a virus or malware, but also accidental changes that may occur from employees.

“With Linux, you have a worldwide community providing security fixes, not a single company with closed source code.” - Ken Hess, [PCWorld](#)

The large community of developers helps ensure a more protected platform. Every day, there are thousands of developers looking at and improving the code constantly. With more people available to see and test lines of code in the software, ensure regular kernel updates, and implement security patches consistently, errors and viruses are discovered and remedied much more quickly - before minor problems can become major.

Insufficient Backup and Disaster Recovery

If you have ever had a loss of data in your business due to a breach of security, hardware or software failure, or from someone's mistake, you know how stressful and expensive it can be to try to recover.

“The average cost of recovery from a single security incident is estimated to be \$86.5K for small and medium businesses and \$861k for enterprises.” – [Kaspersky IT Security Risks Report 2016](#)

With Windows and MacOS, you must use whatever backup and restore tool comes installed, or pay for software and/or hardware that can be ultimately quite expensive. However, many of the Linux tools used for backing up and recovering data are available in the trusted repository and come included with the standard Linux distribution. There are several different tools available.

With Linux disaster recovery systems, there are many media storage types you can use to backup the information you need to restore your system. Because the Linux boot system is tremendously compact compared to contemporary operating system standards, you can put the basic Linux boot system, partition information, and other image data on a USB flash memory drive or on a set of CDs. Then, if a Linux server becomes unbootable, you can often restore it by simply plugging the flash drive into a USB port.

The backup tools that are available for Linux, like [Amanda](#) and [Bacula](#), are free and there is a [wide variety to choose from](#) to make sure it fits the needs of your business. This [article on TechRepublic](#) lists and explains several examples of the latest Linux disaster recovery tools like [Knoppix](#).

An alternative backup and recovery solution is to use the more current method of [backing up your data on the cloud](#). Many of the cloud backup vendors use servers that run on Linux. There are many programs and services available and these vendors have plans that are affordable for both individuals and [businesses](#). Most of these services also offer a method for accessing your files, as well as a recovery process. Other open-source solutions like KVM, OVF, and OVA include using virtual machines to spin up a virtual copy of your system in the cloud, if you have a failure, until the time that the original can be restored.

One of the current largest presences in the cloud computing world today is Amazon Web Services (AWS). Amazon is not just an outlet for online shopping anymore – Amazon is the largest market share holder for cloud computing with [33.8% of the global market share](#). AWS [uses Linux](#) through Amazon Linux, Xen, and other open source projects.

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As the demand for cloud computing and backup increases, the importance of security, scalability, high availability, and elasticity will raise proportionately. Linux and other open source platforms can provide this scalability by providing cloud servers using the most secure, flexible, and reliable OS.

“Online backup services are one of the best ways to protect yourself against loss of precious computer data, whether it's a result of a crashed hard drive or an unintentional deletion.” – [Michael Muchmore](#), PCMag

High Cost of Constantly Changing Technology

It is increasingly difficult for even the best technology professionals to stay informed about upcoming technology. At the same time, the demand to master the current technology in the company is high, but it takes a lot of time. The balance comes when you create a long-term strategy for the technology in your company, but also keep that strategy flexible to exploit unexpected developments in new technology.

Normally, a company either upgrades the memory and processors in each machine, keeps using old software and applications, or pulls and replaces the machines with newer ones. These are possible solutions, but each upgrade costs money, time, and the employees will lose production in the meantime. Using Linux [makes more sense](#) and will be more beneficial to businesses.

Companies that use Linux are able to utilize its lightweight kernel, only install apps that are necessary, and utilize existing hardware. This strategy will help ensure you extract additional lifespan out of your machines and save time, money, and aggravation long term. See how [Amazon cut the cost of technology](#) by around 25% by switching to Linux.

Your competitors may be upgrading their hardware and software more often than you, so it may seem they have an advantage. However, if your competitors have a policy or philosophy of updating their hardware and software every few years, they will spend more money trying to keep up with the constant changes. The companies that utilize Linux on their existing systems will get more time from their hardware and save on the overall cost of technology in the short term and long term.

Outdated Hardware and Software

According to the [2017 PWC CEO Global Survey Report](#), 70% of respondents answered that they are somewhat or extremely concerned about the speed of technological change. They are not alone because many business leaders are worried about the pace of change in technology due to hardware and software becoming outdated more quickly.

Upgrades are expensive and technology is evolving at an exponential rate. It can seem like unbridled spending when your company must upgrade or replace outdated hardware or software. If your equipment is outdated, the processors may run slower and the RAM will get bogged down by the regular addition of more robust features with updates to software. Also, the available memory in the servers will quickly shrink as a result of the updates and applications growing in size and features.

If the infrastructure is not strong enough to handle the processes of the business, the infrastructure may become unwieldy or fail. The resulting downtime from a severely strapped system or a system failure can cost businesses potential millions of dollars.

“IT downtime costs North America \$700 billion a year from \$1 million a year for a mid-sized company to more than \$60 million for a large enterprise.” – [business.com](#)

In contrast, Linux is an extremely lightweight operating system. If your hardware is using a lightweight operating system, fewer resources are needed by the server and clients to run. Performance of the system will improve and remain steady, resulting in extended life of older hardware. The older hardware will run well

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on Linux and there are no hardware upgrades necessary after each new version of the software is released, unlike some of the proprietary competitors. Linux runs on x86 32-bit and 64-bit architectures. If your server or client performs on Windows, it will also perform on Linux.

Being lightweight also means that the only applications that can be installed are the ones the user chooses. If your employees only use their machines to manage email, browse the internet, and perform basic office tasks such as word processing and project management, you only need to install the software for those tasks. Any applications can easily be added or deleted in the future without the worry of viruses, malware, or automatic installation of unnecessary programs or affiliates. Each Linux distribution provides consistent updates for the packages and sources several times each year.

Most of the Linux software is available free or by voluntary donation determined by the user. The large community is always patching and improving performance of the programs further, as well as capturing viruses and defects before they become key complications.

Insufficient IT Support

Businesses that do not have a proper amount of technical support will see increased downtime due to employees encountering problems and not able to troubleshoot for themselves. Hiring more support staff is a huge expense, but when a business takes advantage of the provided support system of Linux OS code maintainers, the business will see substantial savings in overhead costs.

The large, worldwide developer community of Linux is constantly reviewing and improving the source code, creating security solutions, and generating system enhancements. Linux is a constantly evolving OS and releases for upgrades, new versions, and software updates are made practically every day. All updates to the Linux kernel are studied, tested, and permitted [by other developers before they are released](#) so that high standards of security and reliability are upheld.

The Linux Foundation is the primary supporting foundation for Linux. This foundation is a business cooperative of groups like HP, IBM, Intel, Novell, and other members who sponsor, with membership fees and donations, Linus Torvalds and other developers that work on Linux. The Linux Foundation is beneficial for Linux users because its presence guarantees the constant development of Linux and continuous supply of support.

However, if you prefer a commercial solution, there are specially developed versions of Linux for the business market such as [Red Hat Enterprise Linux \(RHEL\)](#) that offer the Linux kernel with extra security, reliability, and IT support services. This [data sheet](#) explains more about the RHEL operating system and additional features.

Lack of Highly Skilled Talent

According to the [2016 Gartner CIO Agenda Report](#), the largest issue that CIOs feel is blocking their success is the ability to find the right talent with the skills needed. In the report, 22% of CIOs that identified their main barrier chose lack of IT skills as their number one concern. The biggest skills gap is around big data, analytics, and information management.

According to Neal Jenson, Managing Director of the consulting firm BBS, in his experience with consulting businesses, reflected in [this article](#) in Forbes, hiring the right talent with the right skills is a major problem that most businesses face.

“Despite high unemployment, many companies struggle to find the right talent with the right skills for their business.” – Neal Jenson, Forbes’

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If the employees in a business are not trained properly to do their job, tasks take longer, expenses rise, and profits decrease due to extended timelines. When employees are lacking in skills, training is the best solution. In [this infographic created by Mindflash](#), the comparison of investing in current employees rather than hiring new ones is displayed showing that it is much more beneficial to businesses to train and invest in current employees instead of hiring.

Not only can the Linux OS help your business with these challenges as described, but Linux Academy can help your team learn Linux and other cloud technologies such as Amazon Web services (AWS), DevOps, Containers, Red Hat Certifications, Big Data, and other cloud computing technologies. Visit [our website](#) for more information on the [courses](#) and [features](#) at Linux Academy.