**Virtualization?**

* **Virtualization is the process of running a virtual instance of a computer system in a layer separate from the actual hardware. It is often inefficient and costly for organizations to deploy multiple servers to keep pace with their storage and processing needs. Instead, virtualization provides the ability to create multiple simulated environments from a single, physical hardware system. This process is done through software called a hypervisor, which connects directly to your hardware and allows you to split that one system into completely separate, distinct and secure environments called virtual machines. The hypervisor provides the ability to separate the machine’s resources — such as CPU, memory, storage and more — from the hardware and distribute them appropriately.**

**Benefits of Virtualization**

**From increasing the agility, flexibility and scalability of your business’s IT to increasing the performance of your workforce to allow for the optimization of resources, virtualization has numerous benefits for your organization.**

**Additional benefits include:**

**Reduced upfront hardware and continuing operating costs**

**Minimized or eliminated downtime**

**Increased IT productivity and responsiveness**

**Greater business continuity and disaster recovery response**

**Simplified data center management**

**Faster provisioning of applications and resources**

**Virtualization might not be the answer for every business, but it provides a beginning point and is a learning tool for anyone trying to optimize their IT strategies and get the most out of their current equipment.**

**Disadvantages of Virtualization**

**August 15, 2017 by Louise Gaille**

**Virtualization occurs when a virtual version of something is created instead of an actual version. With modern virtualization, this could include storage devices, networks, operating systems, or even servers. It is a process that began in the 1960s when some of the earliest mainframe computers had their system resources divided to work on different applications at once.**

**Since then, virtualization has expanded into almost every form of digital life. From virtual machines that act like a real computer to console emulation, many people take advantage of what virtualization can provide.**

**Like most technologies, there are advantages and disadvantages of virtualization that must be considered before fully implementing a system or plan.**

**The Advantages of Virtualization**

1. **It is cheaper.**

**Because virtualization doesn’t require actual hardware components to be used or installed, IT infrastructures find it to be a cheaper system to implement. There is no longer a need to dedicate large areas of space and huge monetary investments to create an on-site resource. You just purchase the license or the access from a third-party provider and begin to work, just as if the hardware were installed locally.**

1. **It keeps costs predictable.**

**Because third-party providers typically provide virtualization options, individuals and corporations can have predictable costs for their information technology needs. For example: the cost of a Dell PowerEdge T330 Tower Server, at the time of writing, is $1,279 direct from the manufacturer. In comparison, services provided by Bluehost Web Hosting can be a slow as $2.95 per month.**

1. **It reduces the workload.**

**Most virtualization providers automatically update their hardware and software that will be utilized. Instead of sending people to do these updates locally, they are installed by the third-party provider. This allows local IT professionals to focus on other tasks and saves even more money for individuals or corporations.**

1. **It offers a better uptime.**

**Thanks to virtualization technologies, uptime has improved dramatically. Some providers offer an uptime that is 99.9999%. Even budget-friendly providers offer uptime at 99.99% today.**

1. **It allows for faster deployment of resources.**

**Resource provisioning is fast and simple when virtualization is being used. There is no longer a need to set up physical machines, create local networks, or install other information technology components. As long as there is at least one point of access to the virtual environment, it can be spread to the rest of the organization.**

1. **It promotes digital entrepreneurship.**

**Before virtualization occurred on a large scale, digital entrepreneurship was virtually impossible for the average person. Thanks to the various platforms, servers, and storage devices that are available today, almost anyone can start their own side hustle or become a business owner. Sites like Fiverr and UpWork make it possible for anyone to set a shingle and begin finding some work to do.**

1. **It provides energy savings.**

**For most individuals and corporations, virtualization is an energy-efficient system. Because there aren’t local hardware or software options being utilized, energy consumption rates can be lowered. Instead of paying for the cooling costs of a data center and the operational costs of equipment, funds can be used for other operational expenditures over time to improve virtualization’s overall ROI.**

**The Disadvantages of Virtualization**

1. **It can have a high cost of implementation.**

**The cost for the average individual or business when virtualization is being considered will be quite low. For the providers of a virtualization environment, however, the implementation costs can be quite high. Hardware and software are required at some point and that means devices must either be developed, manufactured, or purchased for implementation.**

1. **It still has limitations.**

**Not every application or server is going to work within an environment of virtualization. That means an individual or corporation may require a hybrid system to function properly. This still saves time and money in the long run, but since not every vendor supports virtualization and some may stop supporting it after initially starting it, there is always a level of uncertainty when fully implementing this type of system.**

1. **It creates a security risk.**

**Information is our modern currency. If you have it, you can make money. If you don’t have it, you’ll be ignored. Because data is crucial to the success of a business, it is targeted frequently. The average cost of a data security breach in 2017, according to a report published by the Ponemon Institute, was $3.62 million. For perspective: the chances of being struck by lightning are about 1 in a million. The chances of experiencing a data breach while using virtualization? 1 in 4.**

1. **It creates an availability issue.**

**The primary concern that many have with virtualization is what will happen to their work should their assets not be available. If an organization cannot connect to their data for an extended period of time, they will struggle to compete in their industry. And, since availability is controlled by third-party providers, the ability to stay connected in not in one’s control with virtualization.**

1. **It creates a scalability issue.**

**Although you can grow a business or opportunity quickly because of virtualization, you may not be able to become as large as you’d like. You may also be required to be larger than you want to be when first starting out. Because many entities share the same resources, growth creates lag within a virtualization network. One large presence can take resources away from several smaller businesses and there would be nothing anyone could do about it.**

1. **It requires several links in a chain that must work together cohesively.**

**If you have local equipment, then you are in full control of what you can do. With virtualization, you lose that control because several links must work together to perform the same task. Let’s using the example of saving a document file. With a local storage device, like a flash drive or HDD, you can save the file immediately and even create a backup. Using virtualization, your ISP connection would need to be valid. Your LAN or Wi-Fi would need to be working. Your online storage option would need to be available. If any of those are not working, then you’re not saving that file.**

1. **It takes time.**

**Although you save time during the implementation phases of virtualization, it costs users time over the long-run when compared to local systems. That is because there are extra steps that must be followed to generate the desired result.**

**The advantages and disadvantages of virtualization show us that it can be a useful tool for individuals, SMBs, entrepreneurs, and corporations when it is used properly. Because it is so easy to use, however, some administrators begin adding new servers or storage for everything and that creates sprawl. By staying disciplined and aware of communication issues, many of the disadvantages can be tempered, which is why this is such an effective modern system.**