**Types of virtualization. Advantages and disadvantages:**

[**http://inbound.kelsercorp.com/blog/the-7-types-of-virtualization**](http://inbound.kelsercorp.com/blog/the-7-types-of-virtualization)

As we have seen before, virtualization is a very useful and powerful tool nowadays and it has a lot of different uses, like for example, if you were to partition a basic hard disk in order to create two hard drives, then they would be two “virtualized hard disks”, as the hardware is a single hard disk that was digitally separated into two. The usual goal of virtualization is to centralize administrative tasks while improving scalability and overall hardware-resource utilization. There are several types of virtualization. In this report we will cover the 6 primary types of virtualization. Each one of them differs from the others according to the element it is used on and according to the different effect on network security each of them have.

The first and most well-known type of virtualization we will cover is the **OS virtualization**. It consists of putting a second or multiple instances of an operating system, like Windows or Linux, on a single machine. The main advantage of this method is that empowers businesses to reduce the amount of hardware required to run their programs by reducing the number of physical machines. It also saves companies a lot of money on energy, cabling, hardware and more, while allowing them to run the same quantity of software. But, although this technique offers a lot of advantages, it might leed to some failures while using it. OS Virtualization has a high risk in physical fault. For example, if you are hosting 5 virtual OS on a single machine and it fails, every different operating system running on it will fail too. Another disadvantage would be that performance might suffer when running some type of really demanding software, and, finally, not all applications support OS Virtualization. Sometimes your applications or Operating System may face issues and act differently on virtual environment without giving any clues.

<http://www.sysprobs.com/disadvantages-virtualization-opinion>

**The next type is the Application-Server Virtualization**. It is often referred to as ‘advanced load balancing’, as it spreads applications across serves and servers across applications. This enables IT departments to balance the workload of specific software in an agile way that does not overload a specific server or underload a specific application. In addition, it also allows easier management of servers and applications, since you can manage them as a single instance instead of having to install a copy of the applications on every client machine. Finally, it gives greater network security, as only one server is visible to the public while the rest are hidden behind a reverse proxy network security appliance. But, if the application server goes down, then clients cannot access the application in any way. Moreover, it can be expensive to set up, so it is not useful in a network with only a few client computers.

<http://www.orosk.com/application-server/>

**Administrative virtulization** is one of the least-known forms of virtualization, likely due to the fact that it is used in data centers. The concept of administration, or “management”, virtulization means segmented admin roles through group and user policies. For example, certain groups may have access to read specific servers, infrastructure, application files and rules, but not to change them.

**Another type of virtulization is Network virtulization**, that envolves virtually managing IPs, and is accomplished through tolos like routing tables, NICs, switches and VLAN tags. It is the process of combining hardware and software netowrk resources and functionality into a single, software based administrative entity, a virtual network. This method offers several advantages. The first one, as it is for all the virtualization techniques, is that it takes less time, effort and money spent on hardware, that is one of the most expensive costs associated with running an IT department, just after the price of your workforce. Network virtualization makes development, testing and deployment of new apps a lot faster, which will leed to more productivity and better performance of the company in the market. And finally, as well as improving the security of the system, as we explained in the first type, network virtuallization also improve recovery times if a hardware failure occurs. A virtualized network helps get your systems and applications back up faster because cloud services have an extraordinary record when it comes to providing solid uptime. On the other hand, there are some disadvatanges. For example this virtualization might not be compatible with other servers and applications and it needs training to network administrators in the companies, beacuase maybe nota all personnel are ready to learn new computer skills in order to manage a virtualized system.

<http://enterprise-es.netscout.com/content/what-are-benefits-network-virtualization>

<http://connectusfund.org/9-prevailing-advantages-and-disadvantages-of-virtualization>

**Hardware Virtualization** is one of the rarest forms of virtualization. It is similar to OS virtualization and, in fact, often required for it. The only difference is, that instead of putting multiple instances on a single machine, chunks of the machine are partioned off to perform specific tasks.

**And finally, the storage or memory virtualization**. This type uses virtualization to enable better functionality and more advanced features in computer data storage systems. This storage systems use special hardware and software along with disk drives in order to provide very fast and reliable storage for computing and data processing. Within the context of storage system, there are two primary types of virtualization that can occur: blocky virtualization, that refers to the separation of logical storage from physical storage, allowing the administrators of the system greater flexibility in how they manage storage for users; and file virtualization, which eliminates the dependencies between the data accessed at the file level and the location where the files are physically stored, providing opportunities to optimize storage use and server consolidation.

<https://en.wikipedia.org/wiki/Storage_virtualization>

**ADVANTAGES**

To sum up, virtualization is a very useful technique which offers a lot of advantages to the companies like reducing the spending for hardware, an easier backup and disaster recovery system, a better business continuity, as it offers access to software, files and communications anywhere, as well as enable multiple people to access the same information at a time; and more efficient IT operations, as it offers an easier route for technicians to install and maintain software, distribute updates and maintain a more secure network. On the other hand, virtualization also has some disadvantages, for example, setting up a virtualized environment in a company is not cheap, because of the initial investment in software and hardware, depending on the existing network; or possible learning curve, as implementing and managing a virtualized environment will require staff with expertise in the field. In conclusion, for many businesses, comparing the advantages to the disadvantages, moving to a virtual environment is typically pretty straight-forward

http://milner.com/company/blog/technology/2015/07/14/the-advantages-and-disadvantages-of-virtualization