**Virtualization**is used to create a virtual version of an underlying service With the help of Virtualization, multiple operating systems and applications can run on the same machine and its same hardware at the same time, increasing the utilization and flexibility of hardware. It was initially developed during the mainframe era.

It is one of the main cost-effective, hardware-reducing, and energy-saving techniques used by cloud providers. Virtualization allows sharing of a single physical instance of a resource or an application among multiple customers and organizations at one time. It does this by assigning a logical name to physical storage and providing a pointer to that physical resource on demand. The term virtualization is often synonymous with hardware virtualization, which plays a fundamental role in efficiently delivering Infrastructure-as-a-Service (IaaS) solutions for [cloud computing](https://www.geeksforgeeks.org/cloud-computing/). Moreover, virtualization technologies provide a virtual environment for not only executing applications but also for storage, memory, and networking.

*Virtualization*

* Host Machine: The machine on which the virtual machine is going to be built is known as Host Machine.
* Guest Machine: The virtual machine is referred to as a Guest Machine.

**Work of Virtualization in Cloud Computing**

Virtualization has a prominent impact on Cloud Computing. In the case of cloud computing, users store data in the cloud, but with the help of Virtualization, users have the extra benefit of sharing the infrastructure. Cloud Vendors take care of the required physical resources, but these cloud providers charge a huge amount for these services which impacts every user or organization. Virtualization helps Users or Organisations in maintaining those services which are required by a company through external (third-party) people, which helps in reducing costs to the company. This is the way through which Virtualization works in Cloud Computing.

**Benefits of Virtualization**

* More flexible and efficient allocation of resources.
* Enhance development productivity.
* It lowers the cost of IT infrastructure.
* Remote access and rapid scalability.
* High availability and disaster recovery.

## Pay peruse of the IT infrastructure on demand.

* Enables running multiple operating systems.

**Drawback of Virtualization**

* **High Initial Investment:**Clouds have a very high initial investment, but it is also true that it will help in reducing the cost of companies.
* **Learning New Infrastructure:** As the companies shifted from Servers to Cloud, it requires