1. **Features of cloud computing:**

Cloud computing is on-demand availability of computer system resources like computing power, storage, etc without having to personally deal with physical hardware. This is made possible through massive data centers that hosts thousands of computers to run user specified tasks. There are many features of cloud computing. Some of them are listed below:

* **On demand self-service:** This is one of the vital characteristics that makes cloud computing so appealing. Anyone can literally spin up and down a server or computing power, or storage, or network bandwidth at any given time of the day or night without having to buy entire sets of hardware for it. With this service user can also monitor the computing capabilities and scale the server up and down as per the demand of the application deployed in the cloud.
* **Broad Network Access:** Cloud computing resources can be assessed through different platforms and devices over network, be it a private network as in private clouds or worldwide network like internet. Using cloud, we can upload the data to the cloud from anywhere and we can access it with any device if we have internet connection.
* **Resource Pooling:** Since cloud provides service to so many clients at the same time, resource pooling helps them give service to as many users as possible in cheapest price possible. Cloud providers acts like a manager who can provide access to its pooled computing resources using multi-tenant model. Multi-tenancy allows multiple customers to share common applications or physical infrastructure while retaining security and privacy over their data. On one hand resource pooling allows for the price of computing power to be much cheaper while also enabling cloud providers to become much more efficient as to not waste or create more computing than necessary.
* **Rapid elasticity or Scalibility:** If one was to set up his own actual server to run a web server, he would have to buy actual physical hardwares. When his server hits very high load, he will have to buy more servers and also figure out tedious process to how to interconnect them so as to distribute the load. However, with cloud computing’s rapid elasticity features, one can easily scale up or down instantaneously as the server hits higher/lower load. Just in time (JIT) service is the notion of requiring cloud elasticity either to provision more resources or less. This makes scaling automatic.
* **Measured Service:** In the traditional approach of owning a server, it is really hard to keep track of the service and resources one is actually being able to leverage. However, in cloud computing each and every resource usage like: VMs, storage, processing and bandwidth can be monitored, controlled, and reported. Resource utilization can also be highly optimized by using charge-per-use capabilities.
* **Security:** Until today, there have been no known breaches of the underlying resources of the major cloud platforms. Since big platforms has groups of security experts and engineers working to maintain the high level of security, it is always safer to use cloud to get secure services instead of trying to invent the wheels of security from scratch.

1. **Differences between IaaS, PaaS, and SaaS:**

* **IaaS:** Typically IaaS (Infrastructure as Service) includes cloud computing infrastructures like servers, network, operating systems, and storage. These are achieved through virtualization.