## What is cloud Computing?

Cloud computing is on demand delivery of computing power, database storage, applications, and other services through a cloud service. This cloud service has a pay as you go pricing. Should think of cloud computing as I am renting someone else's computer.

## Advantages of Cloud Computing

There are numerous advantages of utilizing cloud computing. However, let's focus on the 6 main primary ones. They are as followed:

1. **When using the cloud, we are trading capital expense for variable expense.**
   a. In simple terms this means that as a cloud user I will be paying only for what I use. I don't have to spend money (capital) for building our data centers and servers. This especially advantageous if I do not know exactly how many servers / computing power I will need now and in the future.

2. **Benefit from massive economies of scale.**
   a. Amazon, Google, Microsoft, etc. have purchasing power amount that will make it difficult for me to compete with them. Additionally, thanks to their economies of scale they have the ability to pass on cost savings to myself directly.

3. **No need to guess about capacity.**
   a. By using the cloud, I have the ability to scale up or down easily depending on my needs without a long-term contract. This is advantageous since I will no longer buy too much capacity and waste money or buy too little and have down time.

4. **Increased speed & agility**
   a. Getting up and running on the cloud is very easy and quick. No need to take time and energy to build our servers or rent data center space.

5. **No need to worry about running & maintaining data centers**
   a. Thanks to the cloud I no longer have to worry about running & maintaining data centers. Instead, I could focus on what I am good at and let experts manage the infrastructure.

6. **Ability to go global in minutes**
   a. Thanks to the cloud I could easily deploy an application in multiple regions in different parts of the global with just a few clicks. Minimizing costs and lowering latency.

## 3 Types of Cloud Computing

1. **Infrastructure as A Service (IAAS):** Cloud infrastructure services, are made of highly scalable and automated compute resources. IAAS is fully self-service for accessing and monitoring computers, networking, storage, and other services. IAAS allows businesses to purchase resources on-demand and as-needed instead of having to buy hardware outright. I will manage the server and operating system. The data center provider will not have access to my server.

2. **Platform as A Service (PAAS):** Cloud platform services, provide cloud components to certain software while being used mainly for applications. PAAS delivers a framework for developers that they can build upon and use to create customized applications. All servers, storage, and networking can be managed by the enterprise or a third-party provider while the developers can maintain management of the applications. I just focus on the applications while someone else manages the underlying hardware or operating systems (security, patching, updates, maintenance, etc.).

3. **Software as A Service (SASS):** Software as a Service, also known as cloud application, services, represents the most commonly utilized option for businesses in the cloud market. SaaS utilizes the internet to deliver applications, which are managed by a third-party vendor, to its users. A majority of SaaS applications run directly through your web browser, which means they do not require any downloads or installations on the client side.

## 3 Types of Cloud computing Deployments

1. **Public Cloud:** AWS, Microsoft Azure, Google Cloud
2. **Private Cloud:** I manage it in our data center (Openstack or VMware)
3. **Hybrid:** Mixture of public & private

## Cloud Spend Trend & Market Share

The amount that I.T departments spend on cloud computing has been steadily increasing. A report has shown that in 2015 the % spend for cloud computing out of all IT spend was 4.3%. In 2019 the spend has risen to 13.2%. Industry experts predict that in 2021 this spend will rise to 15.3%. In terms of market share of public clouds (2019) it is dominated by the big three Amazon (AWS) which has 47% of the public market share, Microsoft Azure with 22%, Google Cloud with 8%. The remainder is Alibaba with 7% and other with 16%.