# AZURE

## WHAT IS CLOUD ?

- Cloud refers to the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user.
- It allows users to access and utilize these resources over the internet, rather than relying on local hardware and software.
- Essentially, it's like renting computing power and storage space from a third-party provider, rather than owning and maintaining it yourself.
- Cloud computing is the delivery of computing services over the internet ("the cloud"). These services include:
  - **Servers**
  - **Storage**
  - **Databases**
  - **Networking**
  - **Software**
  - **Analytics**
  - **Intelligence**

**Benefits of Cloud Computing:**

- Cost-effective: Pay only for what you use.
- Reliable: High uptime, data backup, disaster recovery.
- Scalable and elastic: Quickly adapt to changing needs.
- Secure: Enterprise-grade security features.

### WHAT IS AZURE ?

Microsoft Azure is a cloud computing platform and service created by Microsoft. It provides Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) solutions for building, deploying, and managing applications.

## Scalability and Elasticity in Azure

- Lets Consider a company uses a taxsmile, which is a tax submission portal that runs on on-prem.
- If in february, the company deployed 2 physical servers to handle normal workloads, during the peak tax season, they need to improve up by adding 3 more servers for load testing and stress handling.
- For this it takes various steps :
    - Getting approvals from stakeholders such as - directors, COO, and CTO.
    - Placing a hardware order with a vendor from Germany.
    - Having network engineers work 24/7 in multiple shifts to fit the new servers.
    - Renting additional physical space to accommodate the servers.
    - Arranging extra power supply for the new hardware.
- This entire process will take more time and resources. But when the traffic falls down the extra servers will remain unused and it will consume the space, power etc.
- But when we use Azure the process would be simpler. The team can rent the servers required and can also add extra server when the traffic is more, by just clicking save button which hardly takes a minute. When the traffic is reduced we can scale up the servers.
- The key difference is that on-prem scaling is manual, time-consuming, and costly, while Azure provides
    - scalability - increase/decrease resources easily
    - elasticity - automatic adjustment based on demand

  these makes azure faster, more flexible, and cost-effective.