

TRADITIONAL IT OVERVIEW:

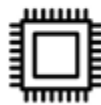
1. Basically how websites works is a client sends a request to the network and network carries the request to the server and then server will give a response to us...that is how we view websites
2. For clients to find server and server to find clients we need to have ip addresses



- 3.
4. Basically if we want to send a post mail we use a network like fedx etc...here fedx will act as a network ...it will send the post to the address which we mentioned in it..and receiver receives it...similarly if receiver wants to reply back he will send to the address of the post
5. Server is composed of CPU(to do some calculation), RAM(to store information and to retrieve it)..if we have both CPU and RAM ..we can think like it works like a brain

What is a server composed of?

- Compute: CPU
- Memory: RAM



+



=



- 6.

7. A storage Data to hold long term data And a Database to store the data in a structured way and also it has networking tools like routers,switch,DNS server

- Storage: Data



- Database: Store data in a structured way



- Network: Routers, switch, DNS server



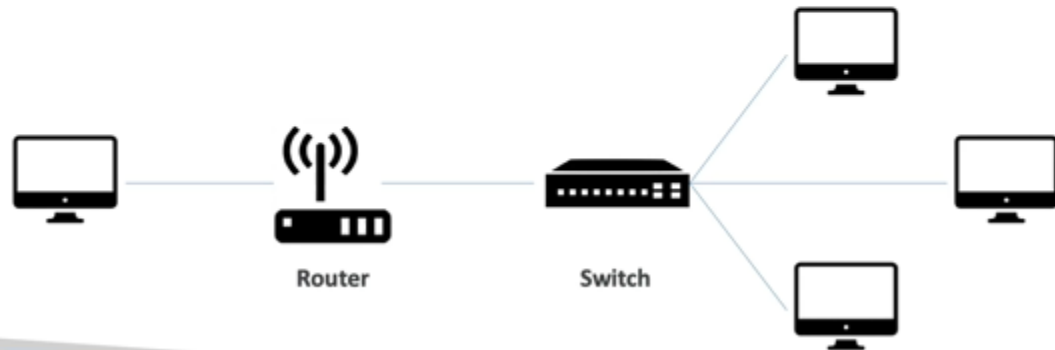
8.

9. A cloud will be giving all of this to us

10. Basic It terminology

IT Terminology

- Network: cables, routers and servers connected with each other
- Router: A networking device that forwards data packets between computer networks.They know where to send your packets on the internet!
- Switch: Takes a packet and send it to the correct server / client on your network



11.

12. Basically in old days we used have servers in our home..later as the demand increased companies allocated separate office and data centers to store the servers and problems with them are listed below

Problems with traditional IT approach

- Pay for the rent for the data center
- Pay for power supply, cooling, maintenance
- Adding and replacing hardware takes time
- Scaling is limited
- Hire 24/7 team to monitor the infrastructure
- How to deal with disasters? (earthquake, power shutdown, fire...)

13.

14. Can we externalize(overcome) all this? Yes by using cloud

WAT IS CLOUD COMPUTING?

1. Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources
 2. Here on-demand delivery means “you get it when you need it”
 3. And Then through a cloud services platform with pay-as-you-go pricing
 4. We can exactly choose the right type and size of computing resources we need
 5.
 - Through a cloud services platform with pay-as-you-go pricing
 - You can provision exactly the right type and size of computing resources you need
 - You can access as many resources as you need, almost instantly
 - Simple way to access servers, storage, databases and a set of application services
-
- Amazon Web Services owns and maintains the network-connected hardware required for these application services, while you provision and use what you need via a web application.

You've been using some Cloud services



Gmail

- E-mail cloud service
- Pay for ONLY your emails stored (no infrastructure, etc.)



Dropbox

- Cloud Storage Service
- Originally built on AWS



Netflix

- Built on AWS
- Video on Demand

6.

The Deployment Models of the Cloud

Private Cloud:

- Cloud services used by a single organization, not exposed to the public.
- Complete control
- Security for sensitive applications
- Meet specific business needs

Public Cloud:

- Cloud resources owned and operated by a third-party cloud service provider delivered over the Internet.
- Six Advantages of Cloud Computing

Hybrid Cloud:

- Keep some servers on premises and extend some capabilities to the Cloud



7.

8. By using hybrid cloud..we have control over sensitive assets in our private infrastructure
9. Also we have flexibility and cost-effectiveness of public cloud

The Five Characteristics of Cloud Computing

- **On-demand self service:**
 - Users can provision resources and use them without human interaction from the service provider
- **Broad network access:**
 - Resources available over the network, and can be accessed by diverse client platforms
- **Multi-tenancy and resource pooling:**
 - Multiple customers can share the same infrastructure and applications with security and privacy
 - Multiple customers are serviced from the same physical resources
- **Rapid elasticity and scalability:**
 - Automatically and quickly acquire and dispose resources when needed
 - Quickly and easily scale based on demand
- **Measured service:**
 - Usage is measured, users pay correctly for what they have used

10.

11. Advantages of cloud computing

12. Trade capital expense for operation expense ..it means that we dont own any hardware and physical room for storing our servers and thereby saving money

13. Aws will reduce prices if more people are sharing the resources

Six Advantages of Cloud Computing

- **Trade capital expense (CAPEX) for operational expense (OPEX)**
 - Pay On-Demand: don't own hardware
 - Reduced Total Cost of Ownership (TCO) & Operational Expense (OPEX)
- **Benefit from massive economies of scale**
 - Prices are reduced as AWS is more efficient due to large scale
- **Stop guessing capacity**
 - Scale based on actual measured usage
- **Increase speed and agility**
- **Stop spending money running and maintaining data centers**
- **Go global in minutes: leverage the AWS global infrastructure**

14.

15. Problems solved by cloud

Problems solved by the Cloud

- **Flexibility:** change resource types when needed
- **Cost-Effectiveness:** pay as you go, for what you use
- **Scalability:** accommodate larger loads by making hardware stronger or adding additional nodes
- **Elasticity:** ability to scale out and scale-in when needed
- **High-availability and fault-tolerance:** build across data centers
- **Agility:** rapidly develop, test and launch software applications

16.

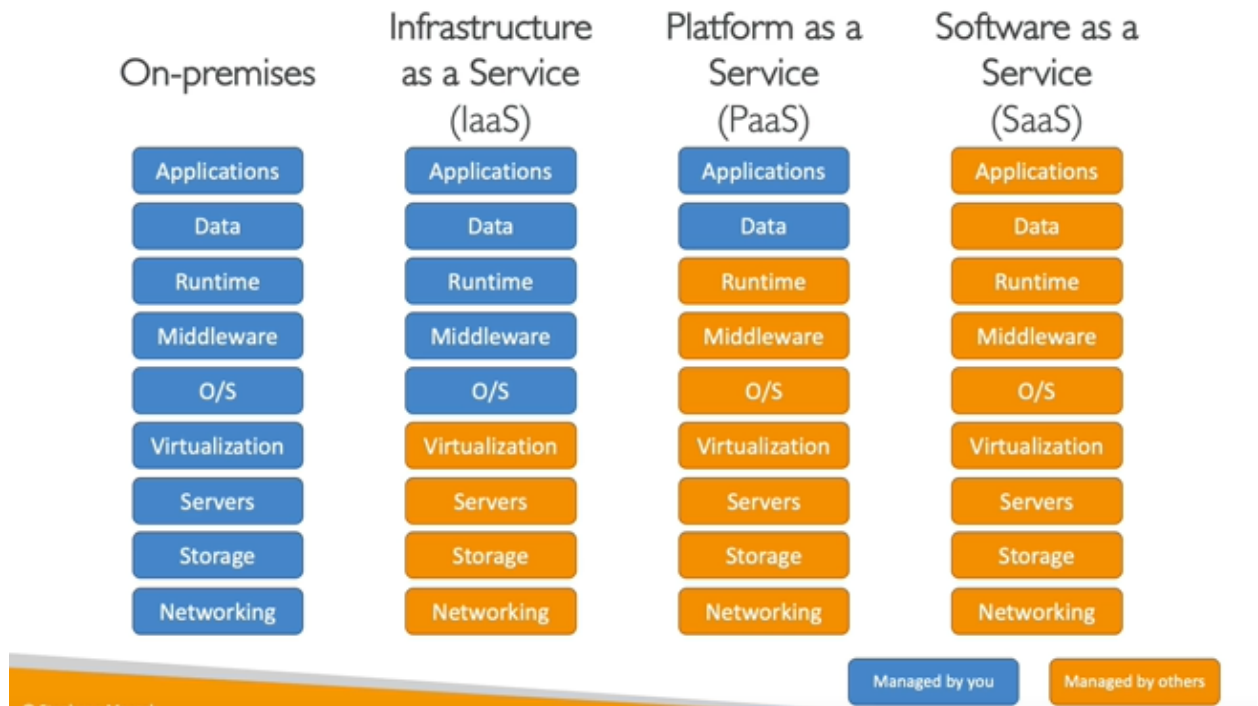
TYPES OF CLOUD COMPUTING:


1. Infrastructure as a Service(IaaS), Platform as a Service(PaaS), Software as a Service(SaaS)

Types of Cloud Computing

- **Infrastructure as a Service (IaaS)**
 - Provide building blocks for cloud IT
 - Provides networking, computers, data storage space
 - Highest level of flexibility
 - Easy parallel with traditional on-premises IT
- **Platform as a Service (PaaS)**
 - Removes the need for your organization to manage the underlying infrastructure
 - Focus on the deployment and management of your applications
- **Software as a Service (SaaS)**
 - Completed product that is run and managed by the service provider

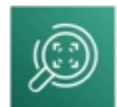
2.



3.  On-premises
4. Managed by others - AWS, GCP etc

Example of Cloud Computing Types

- **Infrastructure as a Service:**
 - Amazon EC2 (on AWS)
 - GCP, Azure, Rackspace, Digital Ocean, Linode
- **Platform as a Service:**
 - Elastic Beanstalk (on AWS)
 - Heroku, Google App Engine (GCP), Windows Azure (Microsoft)
- **Software as a Service:**
 - Many AWS services (ex: Rekognition for Machine Learning)
 - Google Apps (Gmail), Dropbox, Zoom



5. 

Pricing of the Cloud – Quick Overview

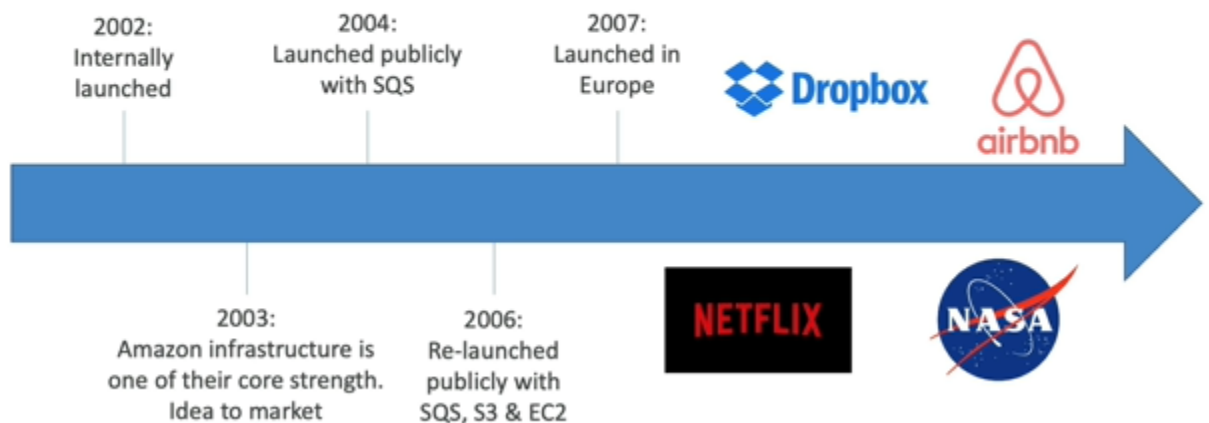
- AWS has 3 pricing fundamentals, following the pay-as-you-go pricing model
- Compute:
 - Pay for compute time
- Storage:
 - Pay for data stored in the Cloud
- Data transfer OUT of the Cloud:
 - Data transfer IN is free
- Solves the expensive issue of traditional IT



6.

AWS CLOUD OVERVIEW

AWS Cloud History



1.

AWS Cloud Number Facts

- In 2019, AWS had \$35.02 billion in annual revenue
- AWS accounts for 47% of the market in 2019 (Microsoft is 2nd with 22%)
- Pioneer and Leader of the AWS Cloud Market for the 9th consecutive year
- Over 1,000,000 active users

Figure 1. Magic Quadrant for Cloud Infrastructure as a Service, Worldwide



2.

AWS Cloud Use Cases

- AWS enables you to build sophisticated, scalable applications
- Applicable to a diverse set of industries
- Use cases include
 - Enterprise IT, Backup & Storage, Big Data analytics
 - Website hosting, Mobile & Social Apps
 - Gaming



3.

4. How to choose an AWS Region?

How to choose an AWS Region?

If you need to launch a new application, where should you do it?

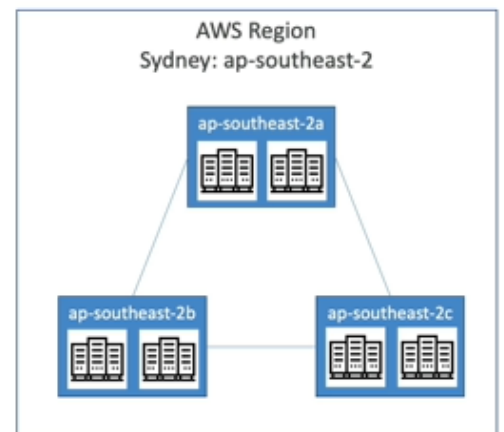


- **Compliance** with data governance and legal requirements: data never leaves a region without your explicit permission
- **Proximity** to customers: reduced latency
- **Available services** within a Region: new services and new features aren't available in every Region
- **Pricing**: pricing varies region to region and is transparent in the service pricing page

5.

AWS Availability Zones

- Each region has many availability zones (usually 3, min is 3, max is 6). Example:
 - ap-southeast-2a
 - ap-southeast-2b
 - ap-southeast-2c
- Each availability zone (AZ) is one or more discrete data centers with redundant power, networking, and connectivity
- They're separate from each other, so that they're isolated from disasters
- They're connected with high bandwidth, ultra-low latency networking



6.

7. As they all are connected with high bandwidth, ultra-low latency networking...they will form a region

8. Each zone may have 1 or 2 or 3 data centers ...which aws won't disclose

AWS Points of Presence (Edge Locations)

- Amazon has 400+ Points of Presence (400+ Edge Locations & 10+ Regional Caches) in 90+ cities across 40+ countries
- Content is delivered to end users with lower latency

