

SESSION 2

Activate Windows
Go to Settings to activate Windows.

Creating an AWS Account

<https://portal.aws.amazon.com/billing/signup#/start/email>



Explore Free Tier products with a new AWS account.

To learn more, visit aws.amazon.com/free.



Sign up for AWS

Root user email address

Used for account recovery and some administrative functions.

AWS account name

Choose a name for your account. You can change this name in your account settings after you sign up.

Verify email address

OR

Sign in to an existing AWS account

- Add Root User Id
- Add Root password
- Specify it as personal account
- Enter details for the account
- Enter Credit or Debit card details (If you go over free tier you will be charged)
- Confirm your identity
- Select a supporting plan (Basic Support-Free)
- Congratulations!!!
- Log in to your account

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**Server (1): Database+
Memory+Compute+Network**

**Server (2): Database+
Memory+Compute+Network**

**Server (n): Database+
Memory+Compute+Network**

Data Center

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What is cloud computing?

- On demand delivery (pay as you go) of compute, power, databases (IT resources)
- **Network hosted on the internet to store, manage and process data without installing and maintaining than on- premise.**
- The application runs on physical systems that are not specified in real. The information stored in the locations that are also not specified or unknown, administration of the systems are outsourced to others and can be accessed by the user. This is called as Virtualisation
- Cloud computing hides all the detail of system implementation from users and developers.

On Premise: You own the server, hire IT team, take all the risk.

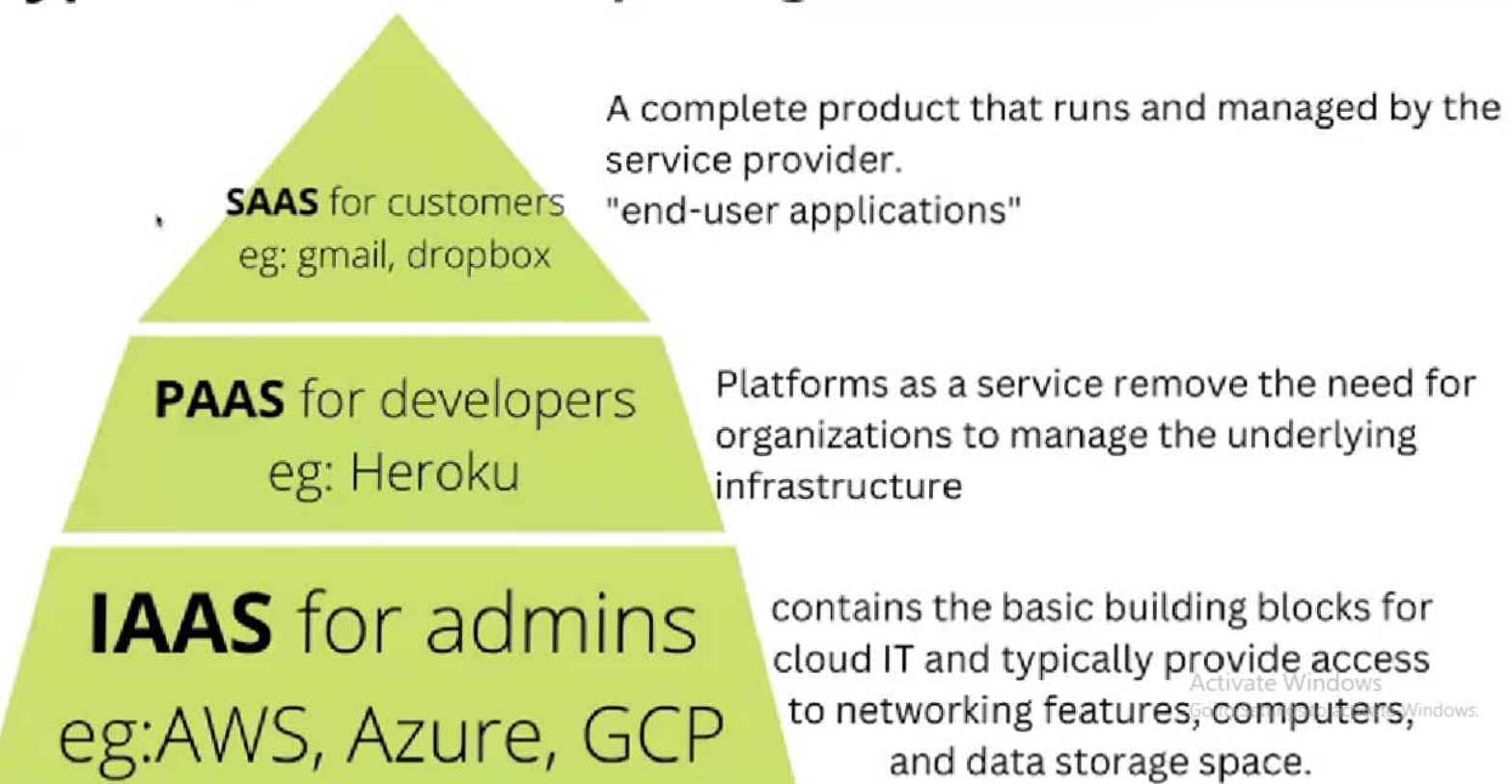
On Cloud : Someone else own the server, hire IT team, take all the risk. You are responsible for configuring cloud services and code. It is easily scalable

6 Advantages of Cloud Computing

1. **Trade Capital Expense for variable expense (CAPEX for OPEX):** No upfront cost only pay as you go model.
2. **Massive economies of scale:** You are sharing cost with other customers
3. **Stop guessing capacity:** You can scale up/down based on your need.
4. **Increase speed and Agility:** Launch instance within few clicks .
Rapid develop, test and launch.
5. **Stop spending money on running and maintaining data centres,** focus on your own customers
6. **Go global in minutes:** Deploy your app in multiple regions of the world in few clicks. Provide lower latency and a better experience for your customers at minimal cost.

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Types of Cloud Computing



**SaaS: Don't worry about how the service is maintained.
It just works and is available
example: AWS Rekognition**

**PaaS: Don't worry about provisioning, configuring, or
understanding the hardware or OS
example: ElasticBeanstalk(EBS), AWS Lambda(Function
as a service)**

**IaaS: Don't worry about the IT staff, data centres and
Hardware.**

Cloud Computing Models

It signifies how servers are deployed and provisioned over the internet so that various organisations and companies can access these servers. There are 3 types of models:

1. **Public Cloud:**

- It is available to everyone, pay as you go model
- It is for low level security organisation
- The infrastructure in this cloud model is owned by the entity that delivers the cloud services, not by the customer.
- hassle-free Infrastructure management, cost effective, high scalability

2. **Private Cloud:**

- Internal cloud, for single organisation.
- Better control, high security, but are less scalable and costly
- Hospitals, public sectors

3. **Hybrid Cloud:**

- combining aspects of both private and public cloud and sharing data and applications between them.

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Questions on Cloud Computing

1. You **ONLY** want to manage Applications and Data. Which type of Cloud Computing model should you use?
2. What is the pricing model of Cloud Computing?
3. A company would like to benefit from the advantages of the Public Cloud but would like to keep sensitive assets in its own infrastructure. Which deployment model should the company use?
4. Cloud computing is a kind of abstraction which is based on the notion of combining physical resources and represents them as _____ resources to users.

1. Paas
2. Pay as you go
3. Hybrid Model
4. Virtual

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AWS Fundamentals

(Security, scalability, cost savings, flexibility)

AWS History

2002: documentation was prepared and was launched internally

2004: SQS(Simple Queue Service) was launched.

2006: AWS was officially launched

Today AWS is the leader.

AWS Global Infrastructure

99 AZs, 31 Regions around the world.

- AWS Regions: physical location in the world with with AZs
- Availability Zones(AZs): datacenters
- Edge Location: datacenter owned by a trusted partner

<https://aws.amazon.com/about-aws/whats-new/>

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AWS Regions

- Regions are large distinct geographical areas with multiple AZs(at least 2), however, each AZ is restricted to a specific AWS Region (cluster of data centers).
- Every region is physically isolated from and independent of every other region in terms of location, power, and water supply.
- AWS largest region is US-East, every new service becomes available here first.
- US East (N. Virginia) is where you see your billing information.
- It is a best practice to choose a region that is geographically close to users, this reduces latency because data reaches the users more quickly.
- Most AWS services are region scoped.
- AWS Global Services: IAM, Route53, CloudFront, WAF(Web Application Firewall).
- While selecting a region, different reasons could be: (How to choose a region?)

Government Regulations and Data Governance

Customer Proximity reduces latency

Service availability

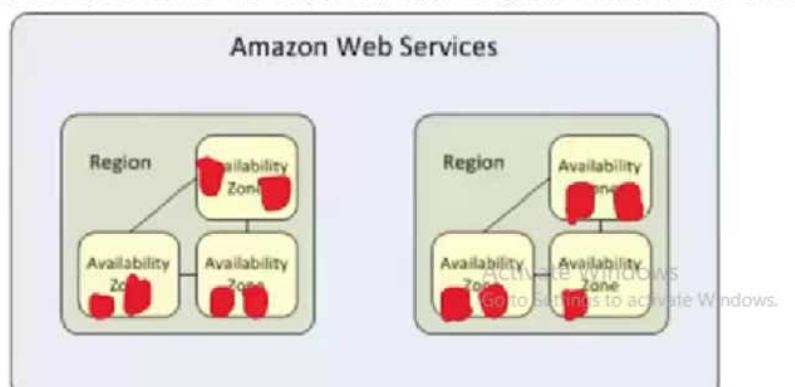
Pricing

Region Name	Region Code	Number of AZs
US East (Northern Virginia)	us-east-1	6
US East (Ohio)	us-east-2	3
US West (Oregon)	us-west-2	4

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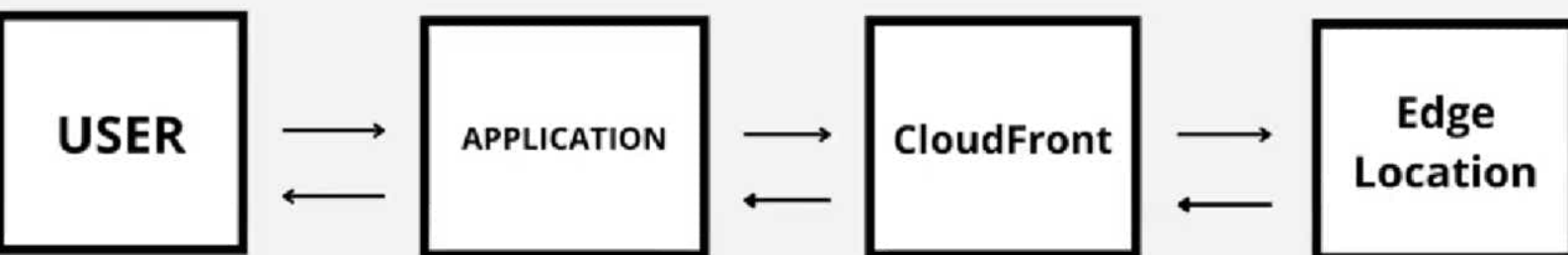
Availability Zones

- An AZ is a datacenter owned and operated by AWS.
- Each region has at least 2 AZs (usually 3, max 6, min 3)
- AZs are composed of one or more discrete data center with redundant power, network and connectivity.
- They are separate from each other so they are isolated from disasters.
- AZs are connected with high bandwidth and ultra low latency networking
- Multi-Azs: distributing your instances across multiple Azs. When an entire availability zone goes down, AWS is able to failover workloads to one of the other zones in the same region
- AZs are represented by region code followed by a letter identifier.
example: us-east-1a, us-east-1b, us-east-1c, us-east-1d, us-east-1e, us-east-1f.



Edge Location(Point of Presence)

- An edge location is a data centers owned by a trusted partner of AWS which has direct connection to the AWS network. This result in low latency no matter where the end user is located geographically.
- These location serve requests for CloudFront and Route53. Requests going to either of these services will be routed to the nearest edge location automatically.
- S3 Transfer Acceleration traffic and API Gateway endpoint traffic also use the AWS edge location



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AWS Global Infrastructure Questions

1. Which Global Infrastructure identity is composed of one or more discrete data centers with redundant power, networking, and connectivity, and are used to deploy infrastructure?
 2. Which are the 3 pricing fundamentals of the AWS Cloud?
 3. Which of the following options is NOT a point of consideration when choosing an AWS Region? a. Capacity b. Compliance with data governance and legal requirements, c. proximity to customers d. Available services and features within a Region e. pricing.
 4. Having Data Centers near your users reduces the _____
1. AZs 2. Compute, Storage, and data transfer 3. Capacity is unlimited in the cloud
4. Latency