Cloud Computing Basics

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Table of Contents

- Introduction to Cloud Computing
- Why Cloud Computing?
    - Virtualization
    - Containerization Technology
    - Software Development Cycle
    - Serverless
- Service Model
- Deployment Models
- Conclusions

1 Introduction to Cloud Computing

Introduction to Cloud Computing

Tulip

Introduction to Cloud Computing

Tulip

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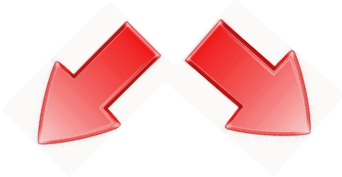
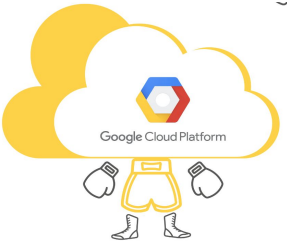
Introduction to Cloud Computing

www.clarusway.com





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Introduction to Cloud Computing

What is Cloud Computing?

- The **Cloud** term refers to software and services running on the Internet, not locally on your computer.

- So you can store and access data and programs over the internet rather than the hard drive of your computer

Cloud Computing = Application running on someone else's computer

Introduction to Cloud Computing

Evolution of the Cloud Computing

- In 2002, Amazon Web Services (AWS) launched its public cloud,

Introduction to Cloud Computing

Popular Cloud Computing App.

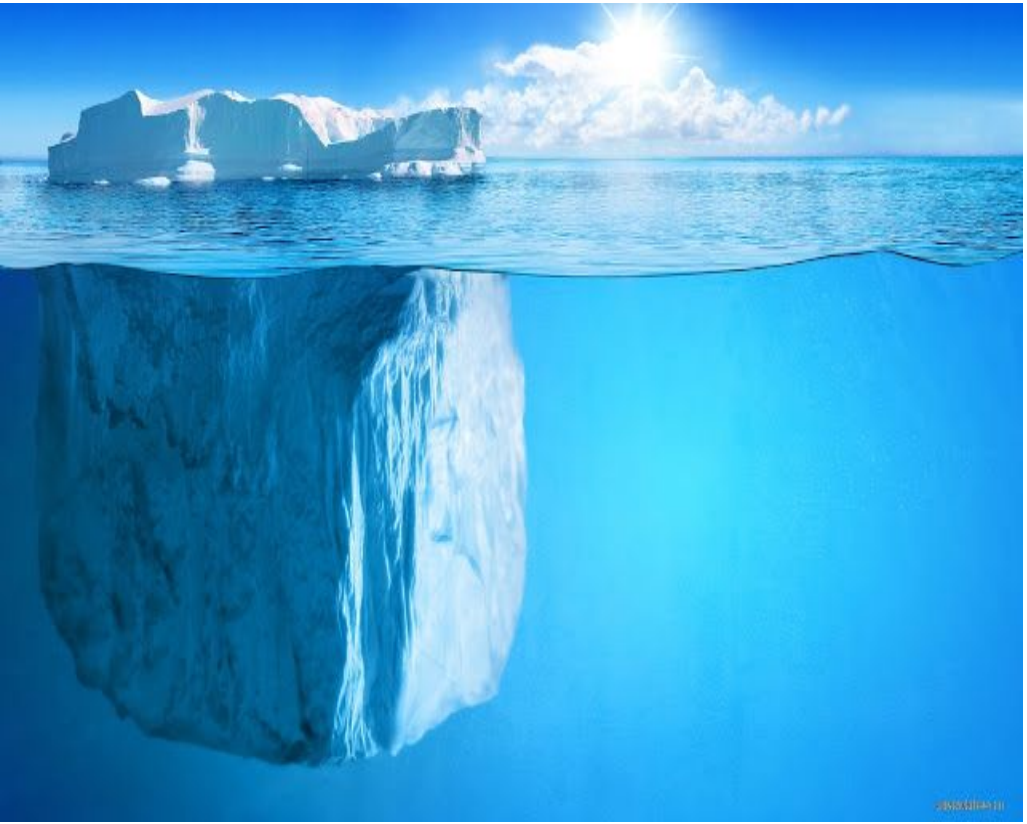
- Cloud usage is now spreading rapidly around the world.

- Examples of companies using cloud computing :
  - Google Drive,
  - Netflix,
  - Apple iCloud,
  - Dropbox,
  - Microsoft Office Online.

iCloud

What is Cloud Computing?

Cloud Computing vs. Cloud Storage



Cloud Storage

Cloud Computing

Cloud

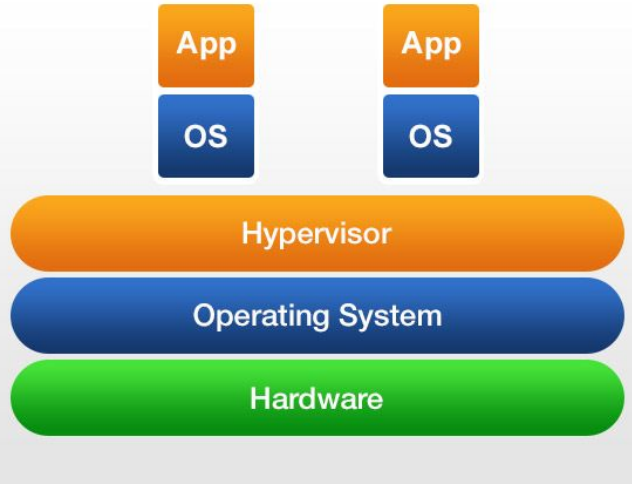
2 Why Cloud Computing?

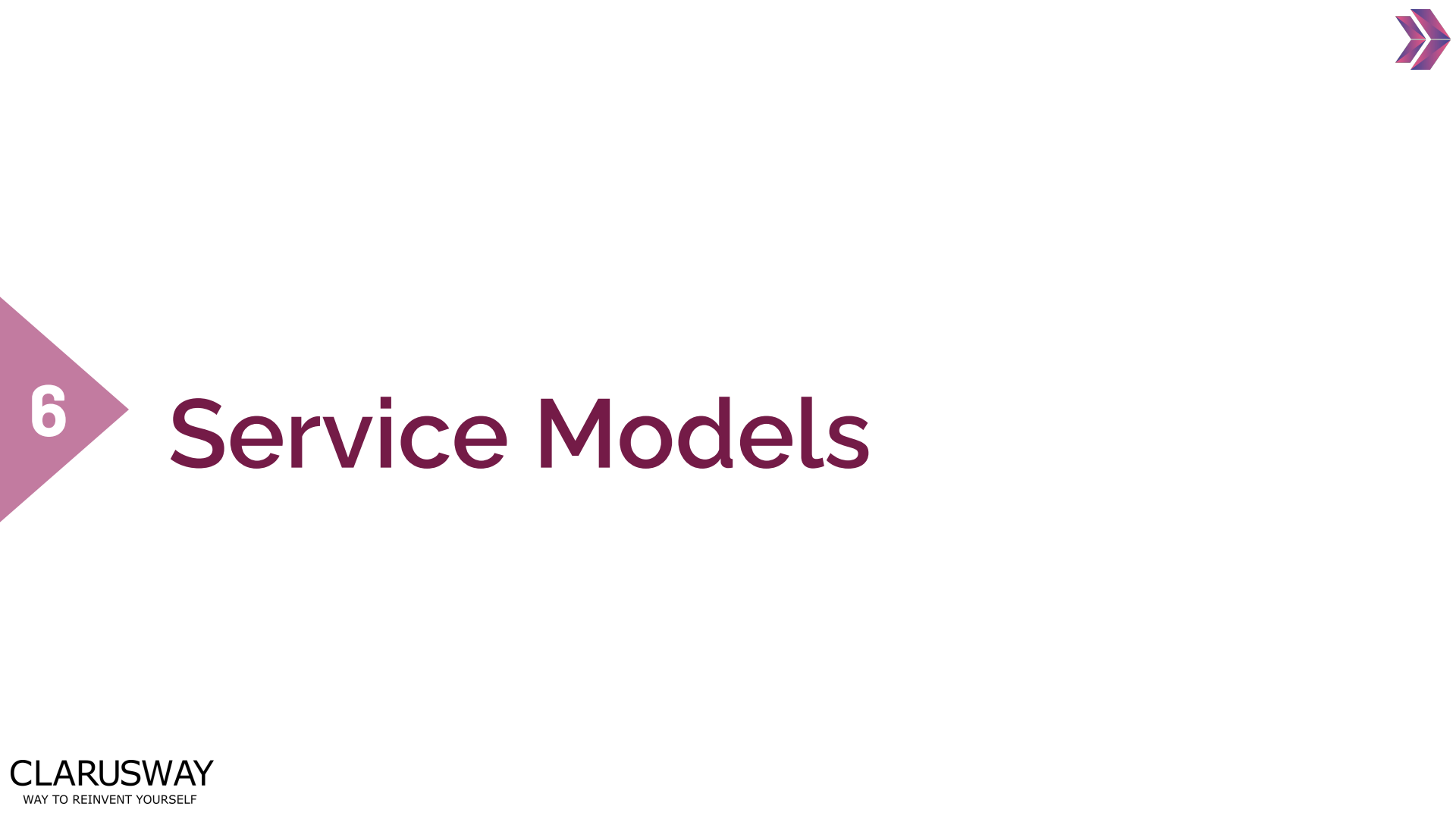
Why Cloud Computing?

Zeitgeist (The spirit of the time)

Why Cloud Computing: New Concepts

- Virtualization
- Containerization Technology
- Software Development Cycle
- Serverless

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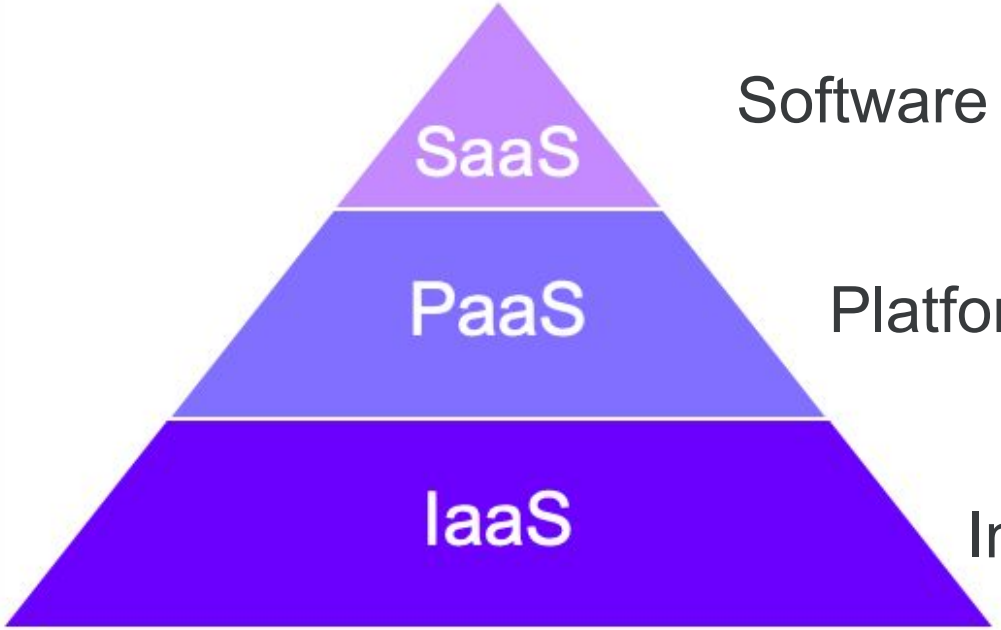
Service Models

Service Models

Cloud Service Models



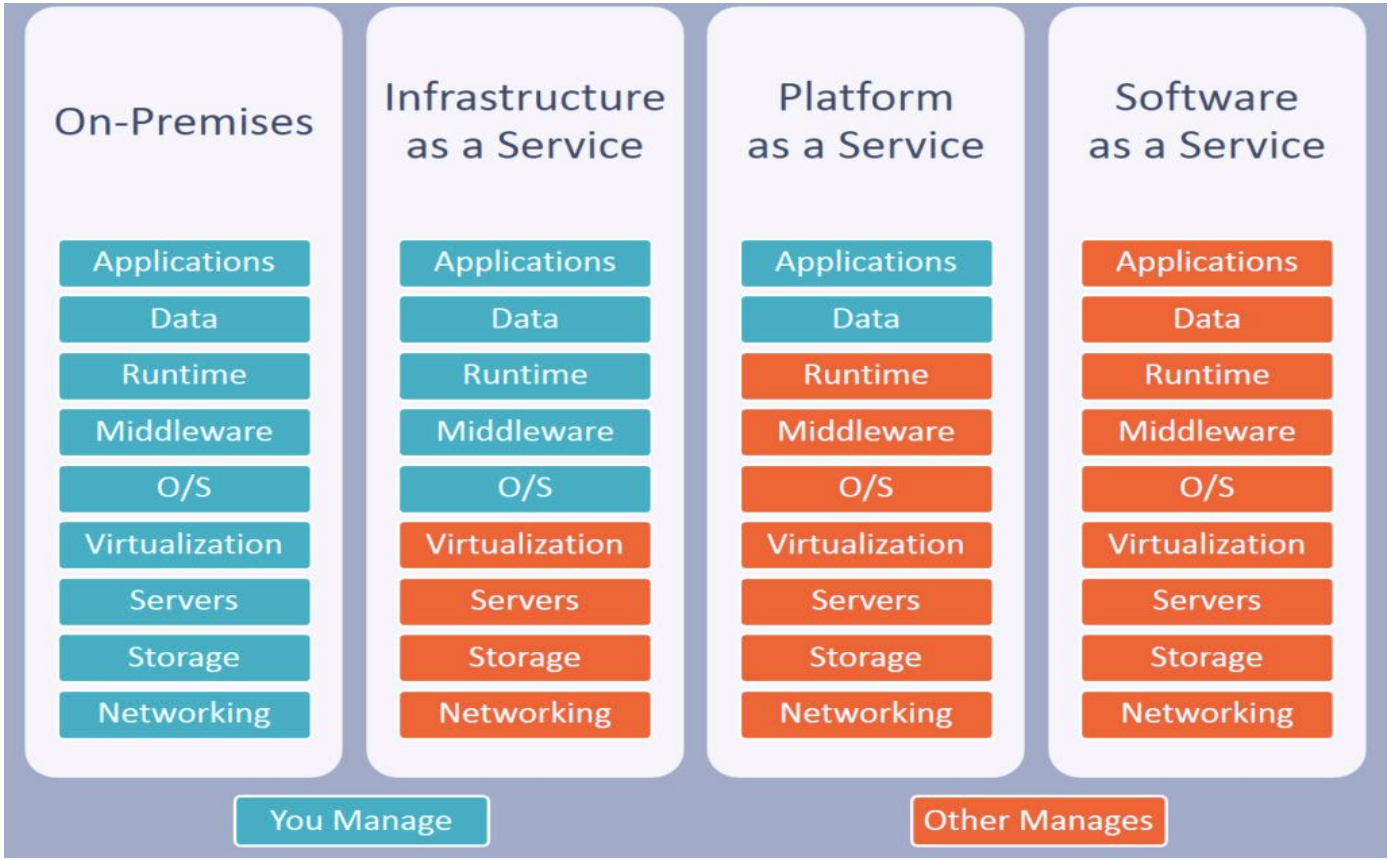
Software as a Service

Platform as a Service

Infrastructure as a Services

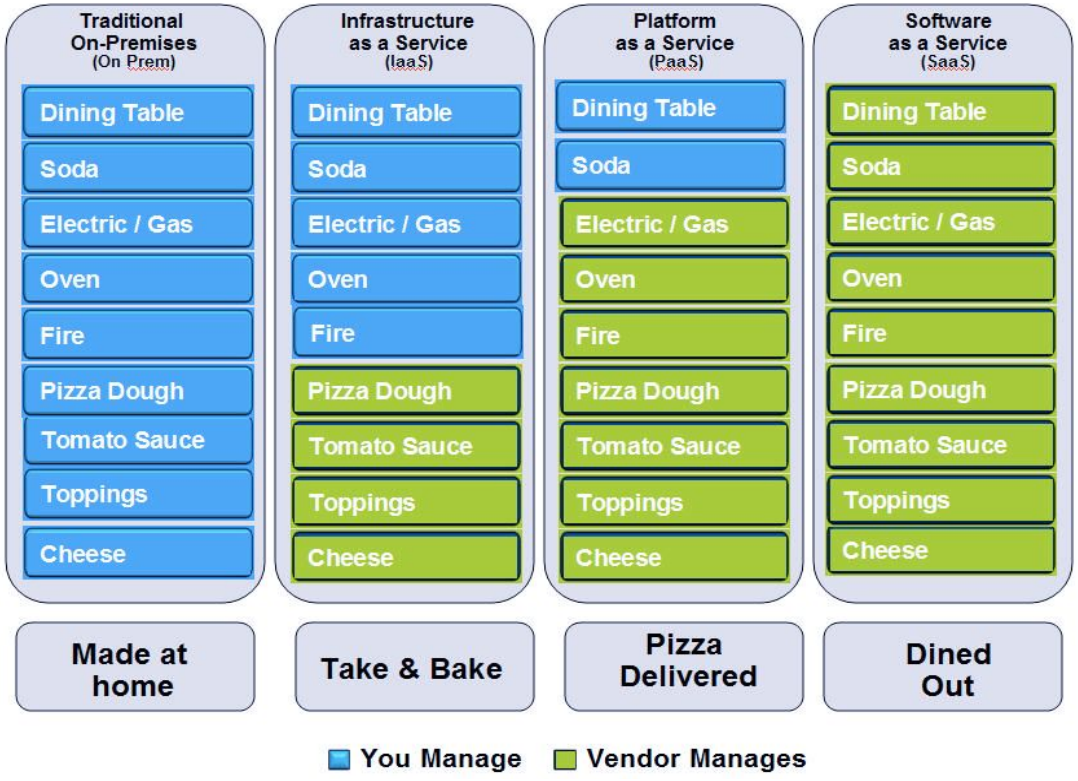
Service Models

Cloud Service Models



Service Models

Pizza Analogy for Service Model Comparison



- **On-Premise Model**; You take **all** the ingredients-Make it yourself
- **IaaS Model**; You buy **some** ingredients- Make it yourself
- **Paas Model**; Order pizza delivered
- **Saas Model**; Go to the pizzeria.

Getting Started with AWS

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Table of Contents

- Introduction to AWS
- What does AWS offer?
- AWS Infrastructure
- AWS Free Tier
- Creating an AWS Account

1

Introduction to AWS

Introduction to AWS

What is AWS?

- AWS stands for **Amazon Web Services.**
- Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted **Cloud Platform.**

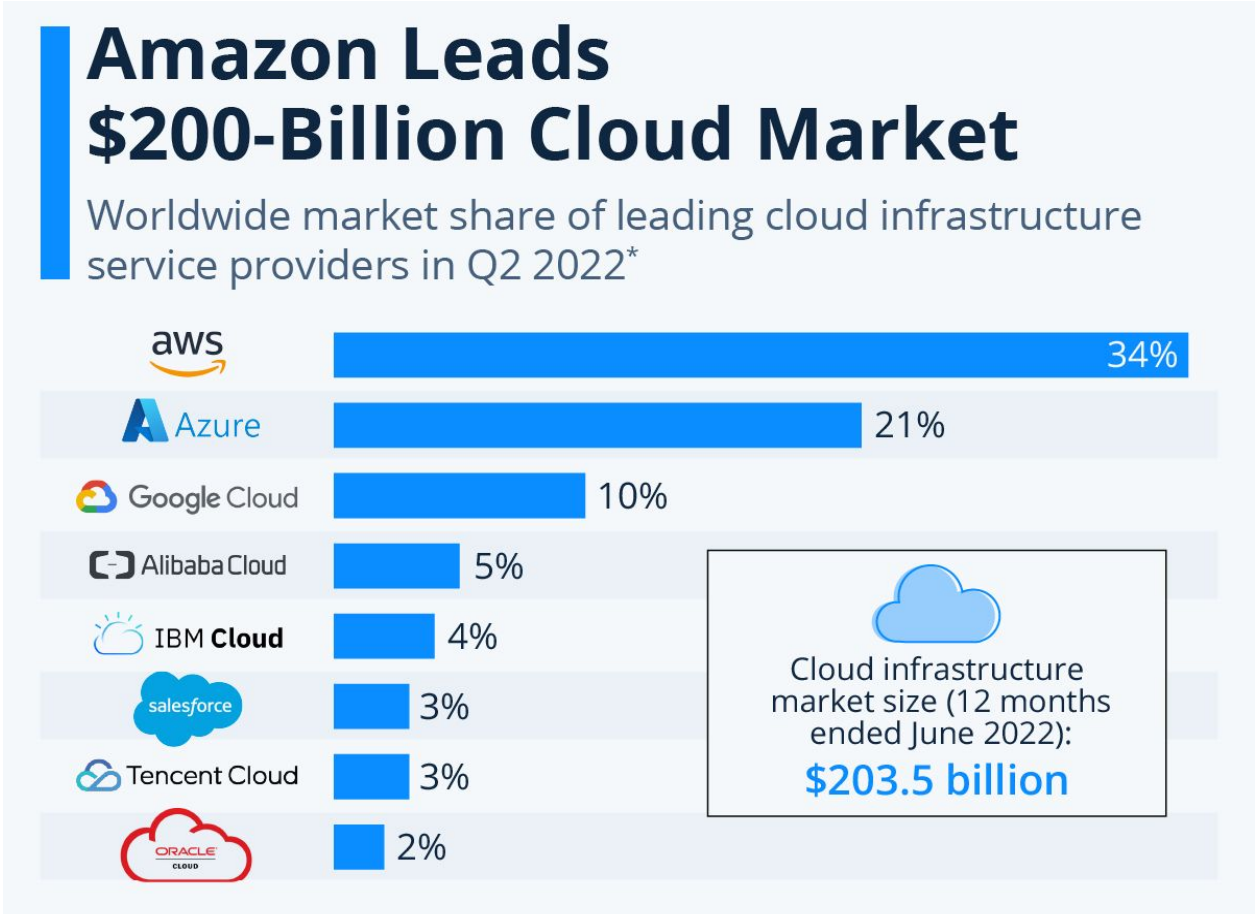
Introduction to AWS

What is AWS?

- AWS provides **on-demand** delivery of **technology services** via internet.
- It offers **over 200** fully featured services.

GO

Introduction to AWS



GO

Introduction to AWS

AWS Pros

- Many featured services and largest global infrastructure.
- Most comprehensive and broadly adopted provider.
- Pay-as-you-go.
- High availability and scalability.

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Introduction to AWS

AWS Cons

- Complex service functionalities can be a challenge for beginners.
- Billing can be confusing.
- Can be costly in comparison to others.

GO

2

What does AWS offer?

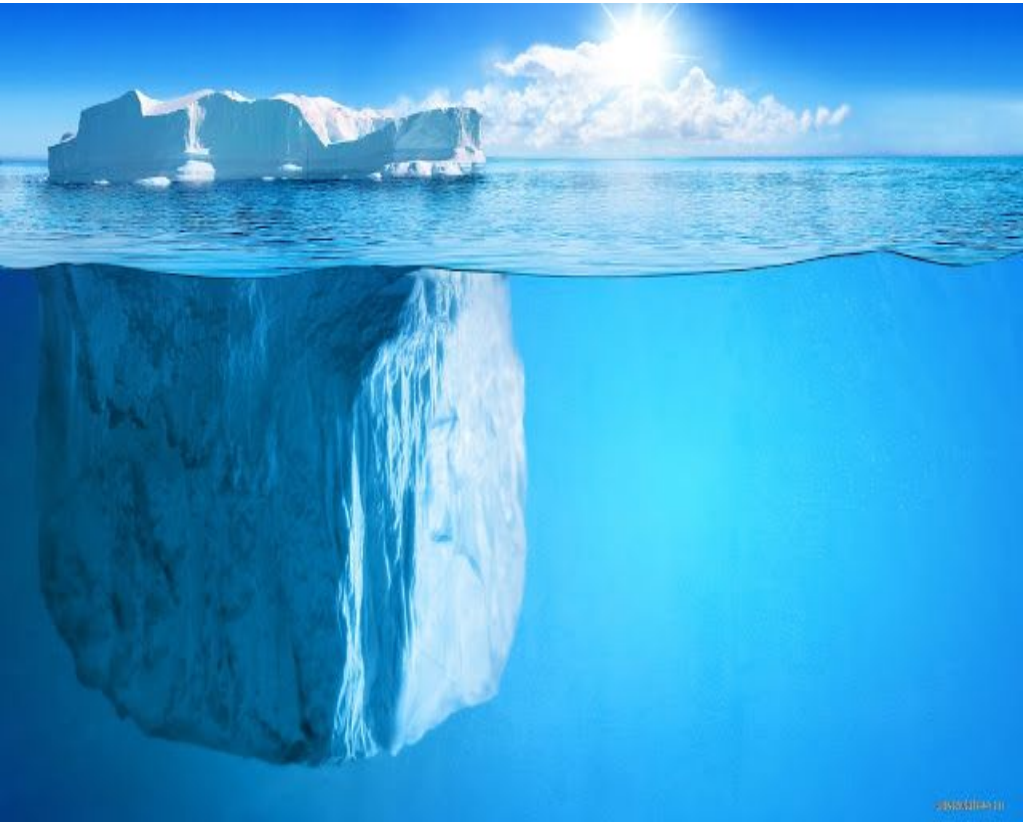
What does AWS offer?

AWS Services

GO

What does AWS offer?

AWS Core Services



Cloud Storage

Cloud Computing

www.my-store.com

trigger

Staff

customer

Sign Up

CloudFront

AWS Lambda

VPC

- Web Server work in EC2 machine (nginx-apache httpd)
- Auto Scaling
- Load Balancing

- Register domain name of the website
-Publishing on Internet
-Routing policies

- Best seller images,
- Inventory List etc.
- Data Log

-Customer info
-System Backups

EC2

AWS Route 53

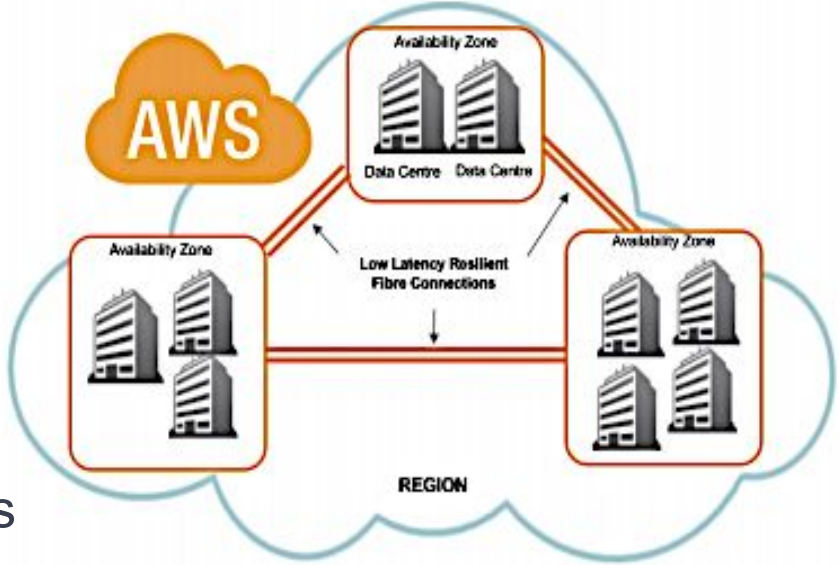
S3

RDS

3 AWS Infrastructure

AWS Infrastructure

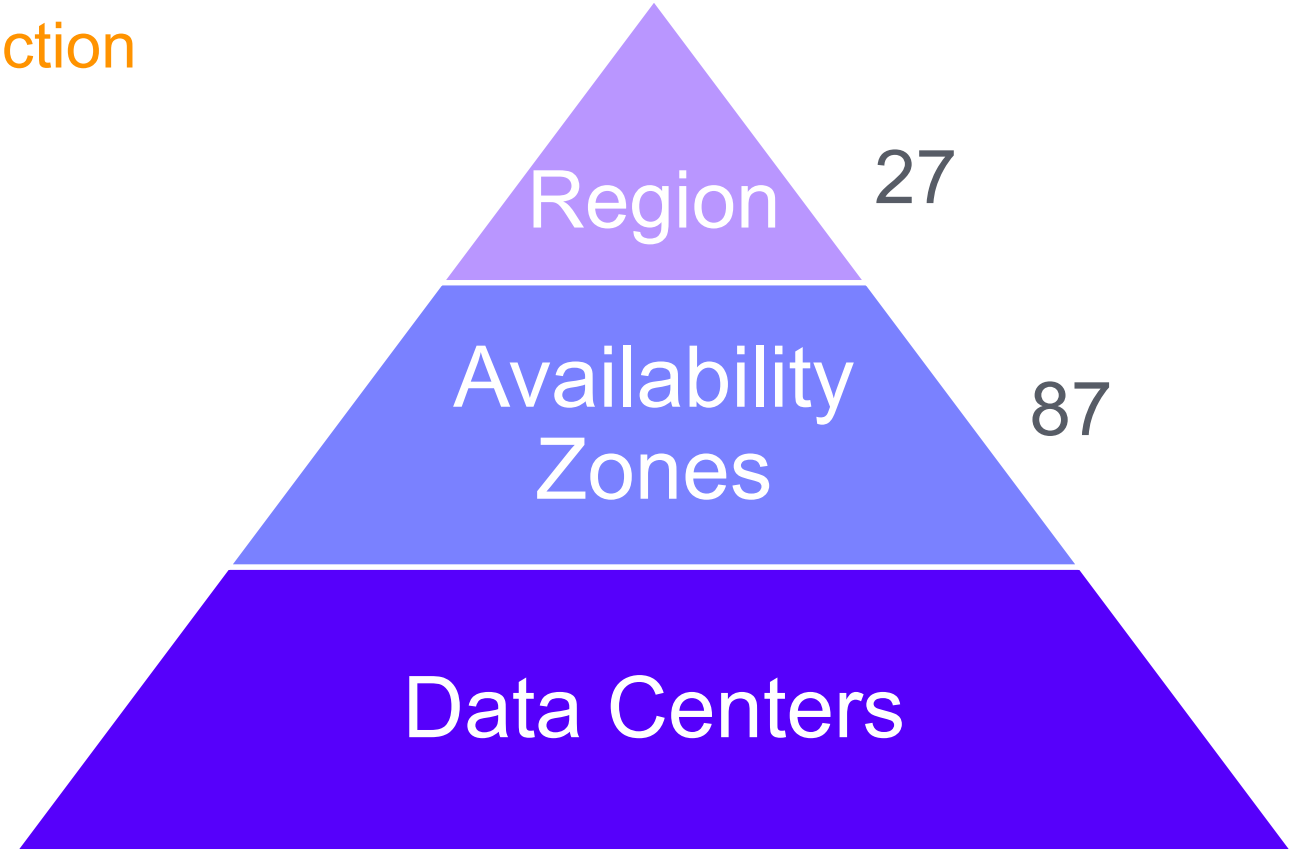
Introduction



- AWS Regions and Availability Zones
- Multiple Availability Zones in AWS Region
- Availability Zones consist of one or more discrete Data Centers

AWS Infrastructure

Introduction



AWS Infrastructure

AWS Regions

27 Geographic Regions

N. Virginia is the region with the most service-support. In the other regions, not all services of AWS are in progress.

Current Regions

New Regions coming soon

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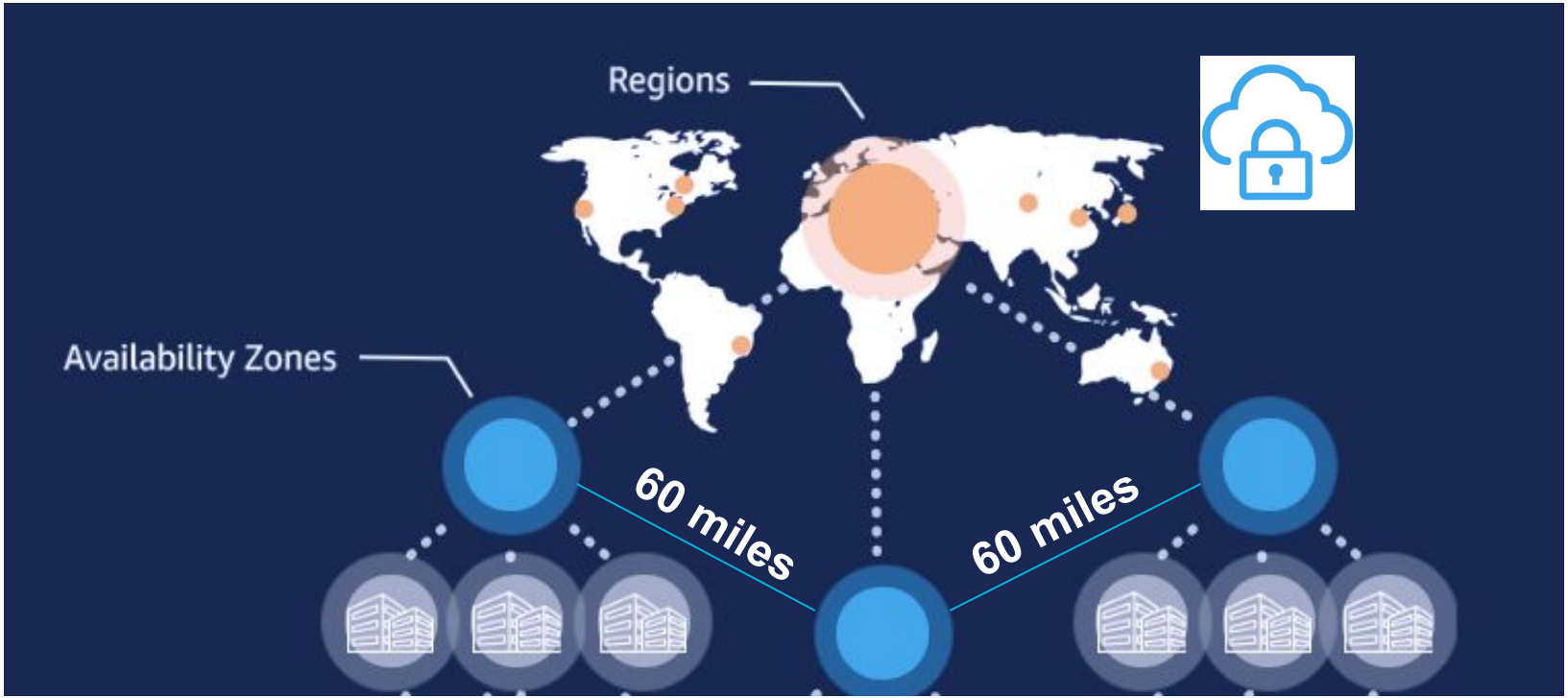
AWS Infrastructure

AWS Availability Zones



AWS Infrastructure

AWS Availability Zones

- An Availability Zone is a facility where the data centers are located.
- There are currently 87 Availability Zones (as of Sept 2022).
- All AZ’s in an AWS region are interconnected with metro fiber.
- All traffic between AZ’s is encrypted.
- AZ’s are physically separated by a meaningful distance, many kilometers, from any other AZ, although all are within 100 km (60 miles of each other).

AWS Infrastructure

AWS Data Centers

- The data center infrastructure consists of **physical or hardware-based tools and components.**
- AWS data centers are **secure** by design.

Northern Virginia Data Center

AWS Infrastructure

AWS Local Zones

- AWS Local Zones are a new type of AWS infrastructure deployment that places AWS compute, storage, database, and other select services closer to large population, industry, and IT centers **where no AWS Region exists today.**

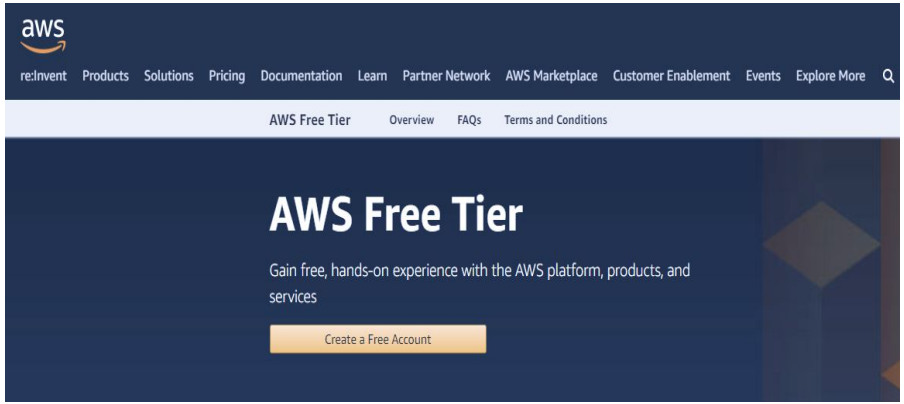
- Each AWS Local Zone location is an **extension of an AWS Region**

- AWS Local Zones is now available only in **US.**

4 AWS Free Tier

AWS Free Tier

What is AWS Free Tier?



GO

- The AWS free tier is a account type that lets you gain free, hands-on experience with AWS products and services.

- The AWS free tier provides customers the ability to explore and try out AWS services free of charge up to specified limits for each service.

AWS Free Tier

Free Tier Offer Types

The Free Tier is comprised of three different types of offerings;

- Services with a **12-month free tier** allow customers to use the product for free up to specified limits for one year from the date the account was created.

- Services with an **always free** offer allow customers to use the product for free up to specified limits as long as they are an aws customer.

- Services with a **short term trial** are free to use for a specified period of time or up to a one-time limit depending on the service selected.

AWS Free Tier

Billing Policy

- You are recommended to set **a billing alarm** to stay within the limits.
- If your application use exceeds the free tier limits, you simply pay standard, **pay-as-you-go service rates.**
- AWS Free Tier is applied to your **monthly usage**. It will expire on the 1st day of each month and does not accumulate.

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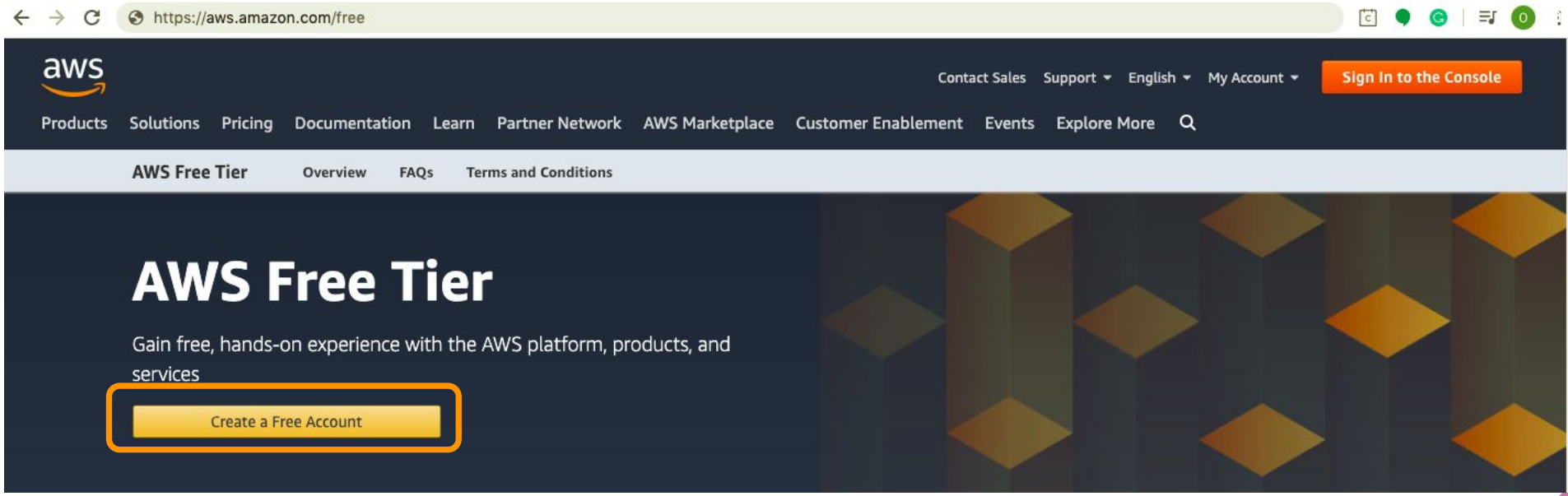
Creating AWS Free Tier

Creating AWS Free Tier

https://aws.amazon.com/free

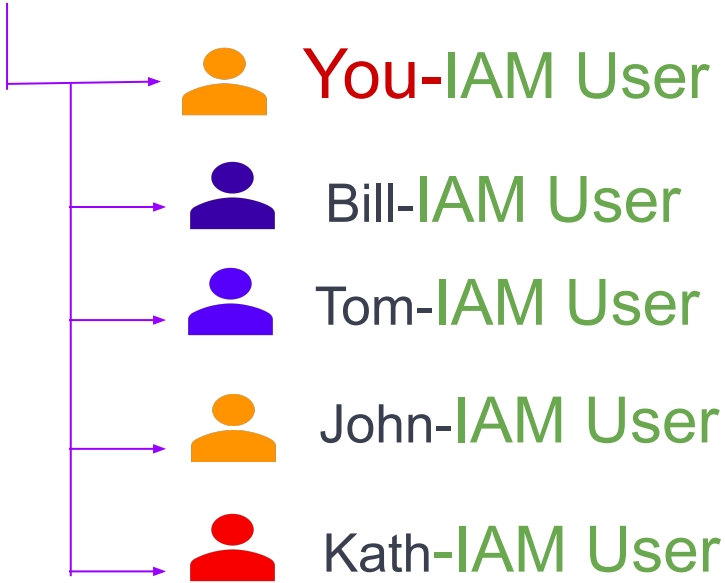
- Click, "**Create Free Account**"



IAM Users

What is Root User and IAM User.

AWS Account Owner - Root User (you)

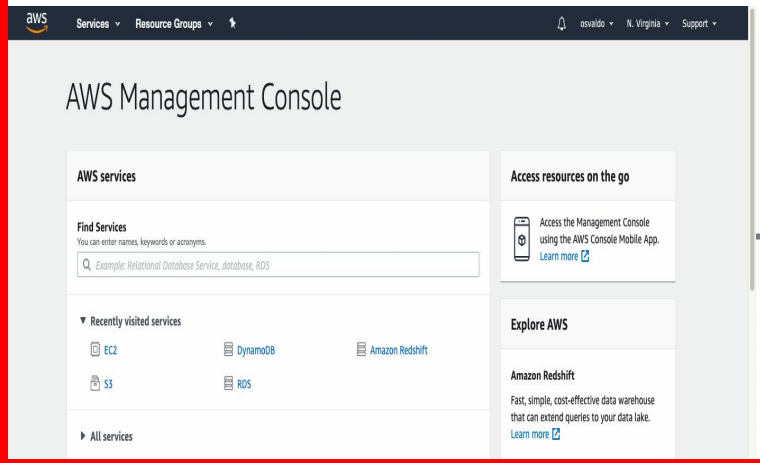


- Root User is a special user
- Username is email used to create account
- Generally, cannot limit permissions of Root User
- Cannot delete Root User
- Best practices:
  - Enable MFA for Root User
  - Don't user Root User for day-to-day work
  - Keep password in a secure location

IAM Users

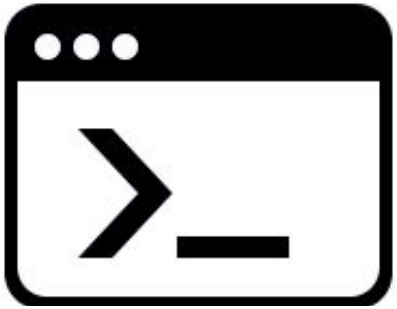
Access Types

AWS Management Console



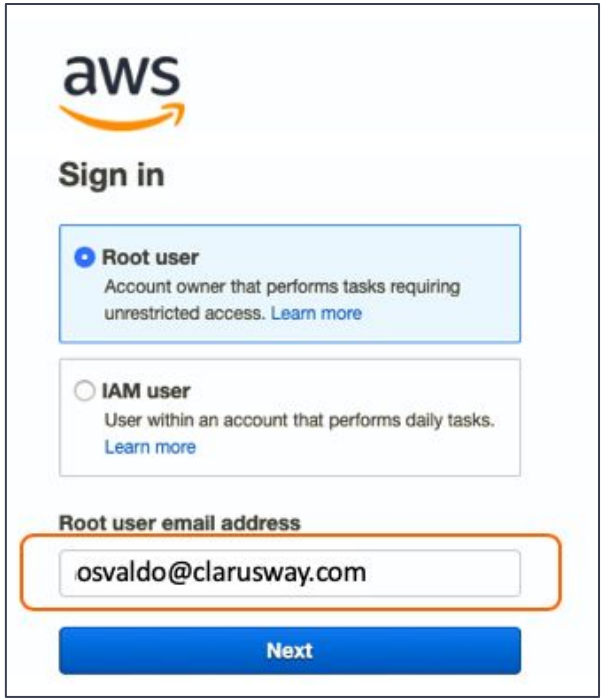
- ROOT USER
- IAM USER.

Programmatic Access



IAM Users

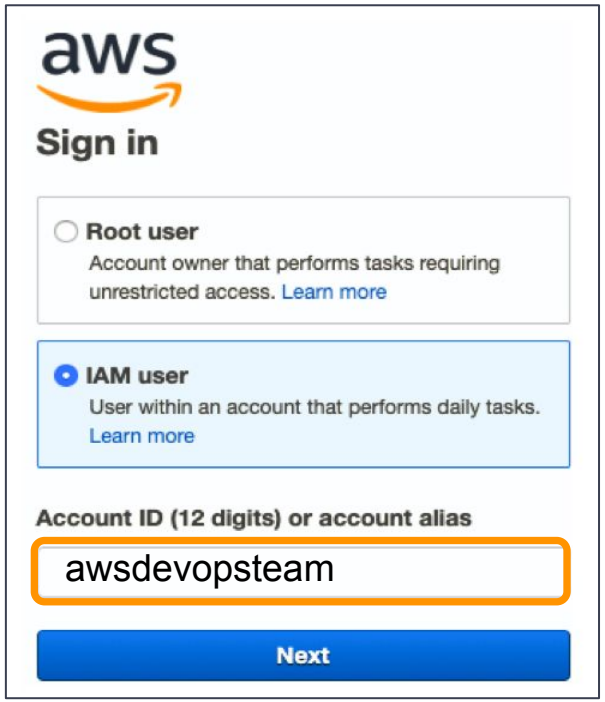
Sign in with Root User- **AWS Management Console Access**



E-mail
Password

IAM Users

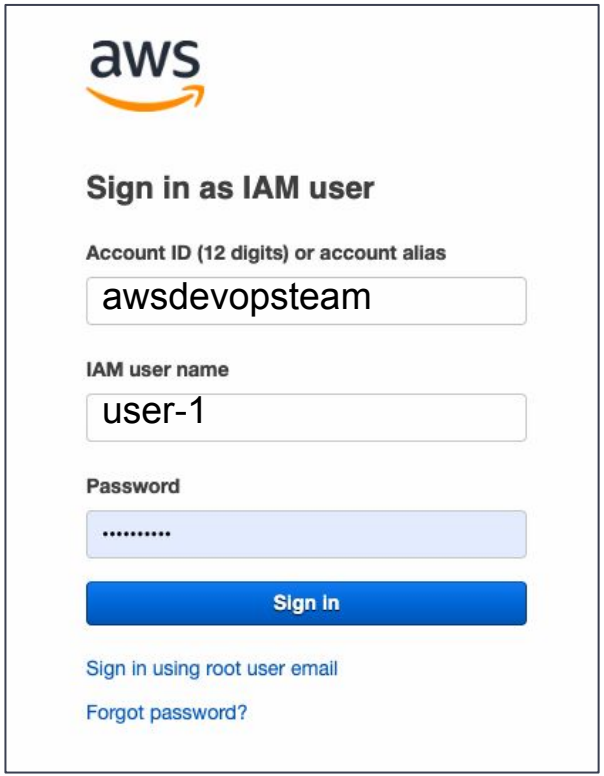
Sign in with IAM User- AWS Management Console Access



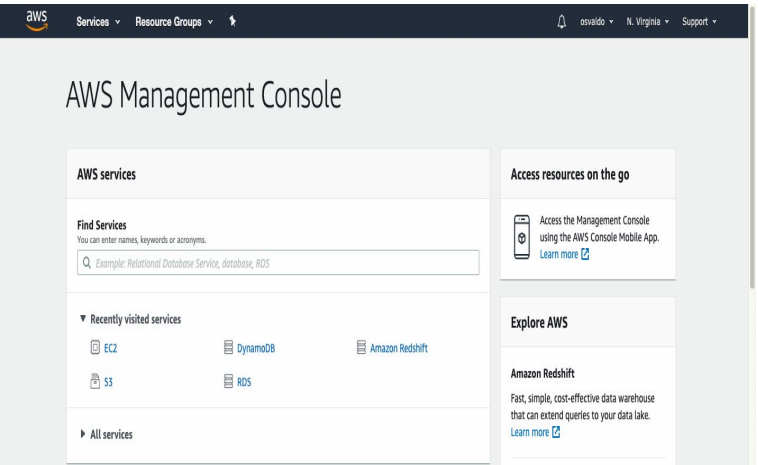
Account ID/Alias

User name

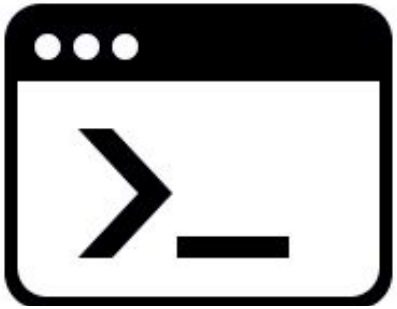
Password



AWS Management Console

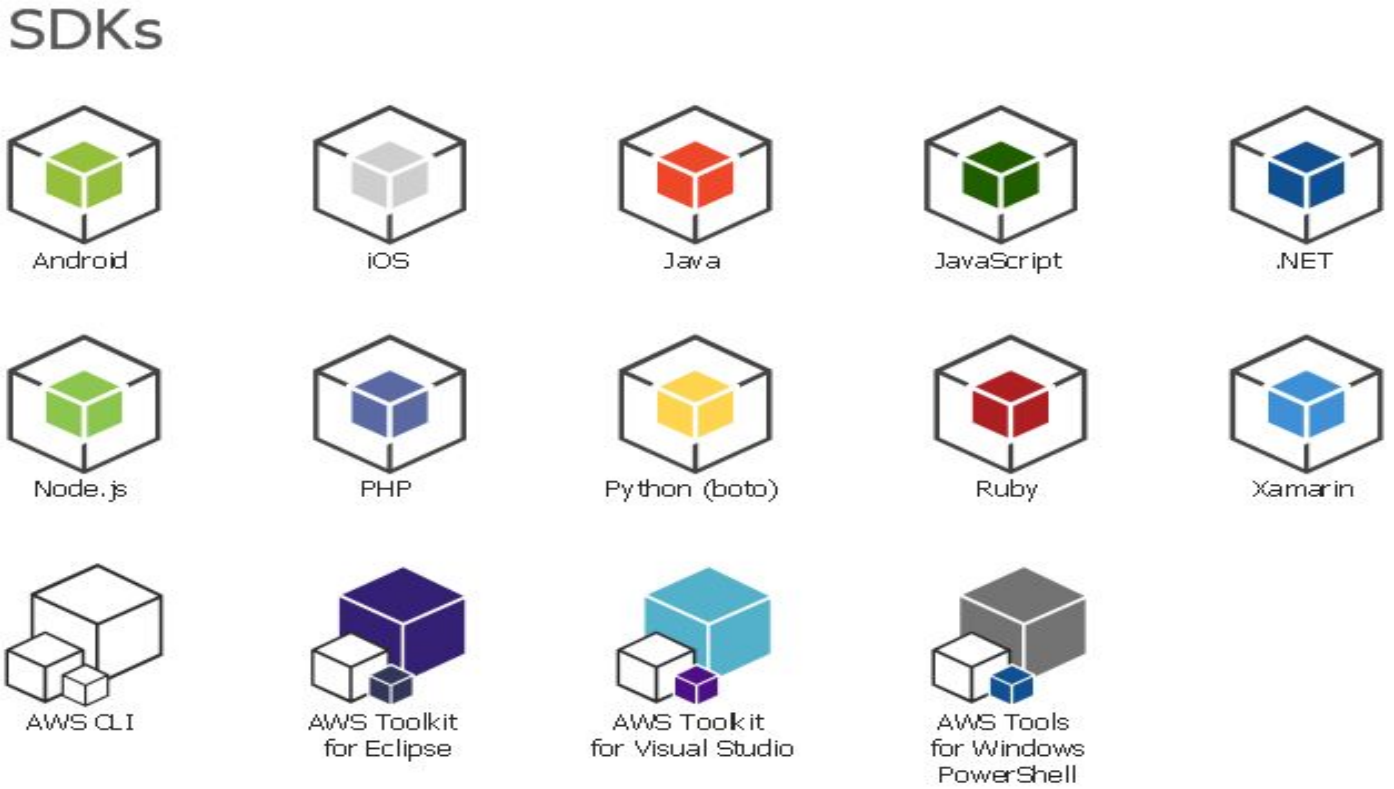


Programmatic Access



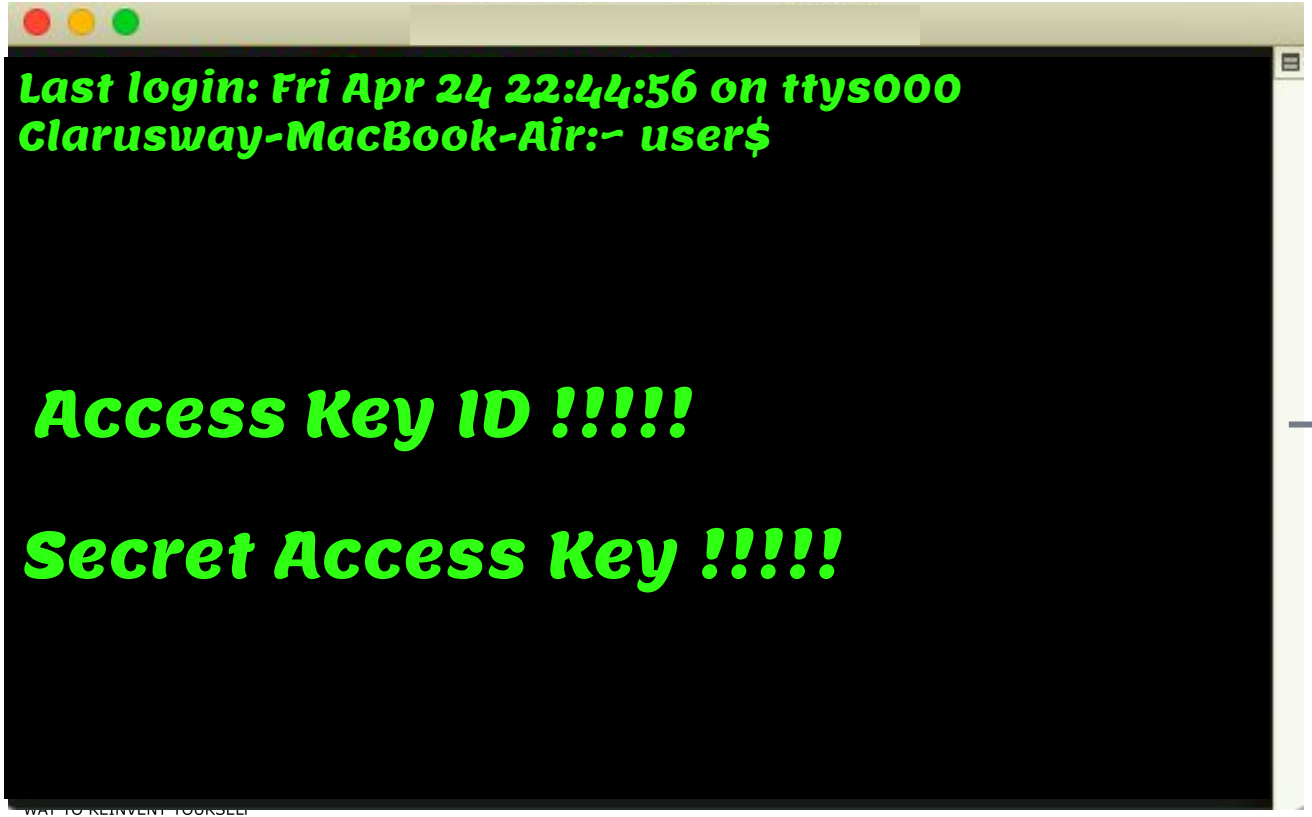
IAM Users

Sign in with IAM User- **Programmatic Access**



IAM Users

Sign in with IAM User- Programmatic Access



AWS CLI

**ROOT USER

IAM USER.

IAM Users

Sign in with IAM User- **AWS CLI**

YOUR TERMINAL

SECRET ACCESS KEY
ACCESS KEY ID

AWS CLI

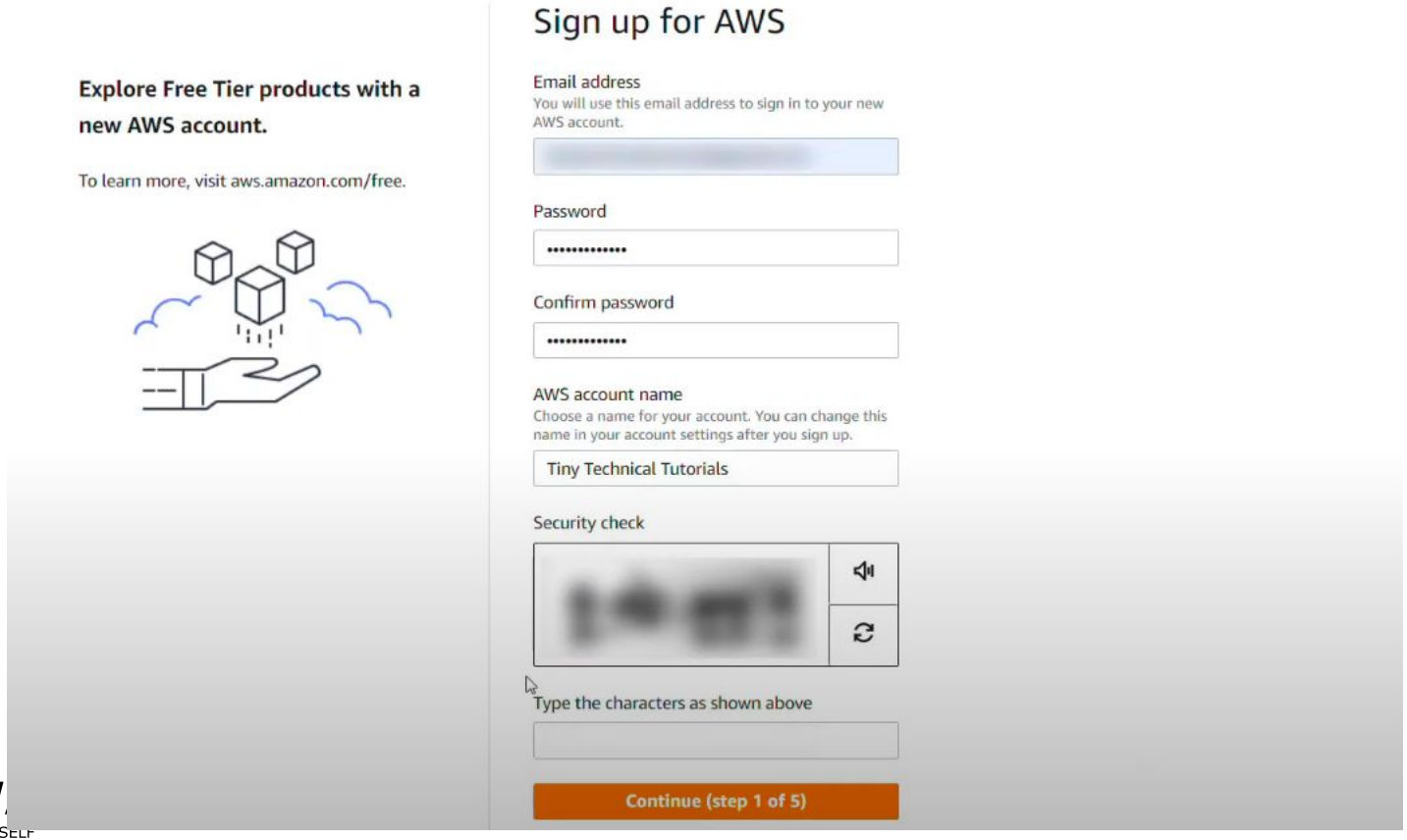
THANKS!

Any questions?

You can find me at:

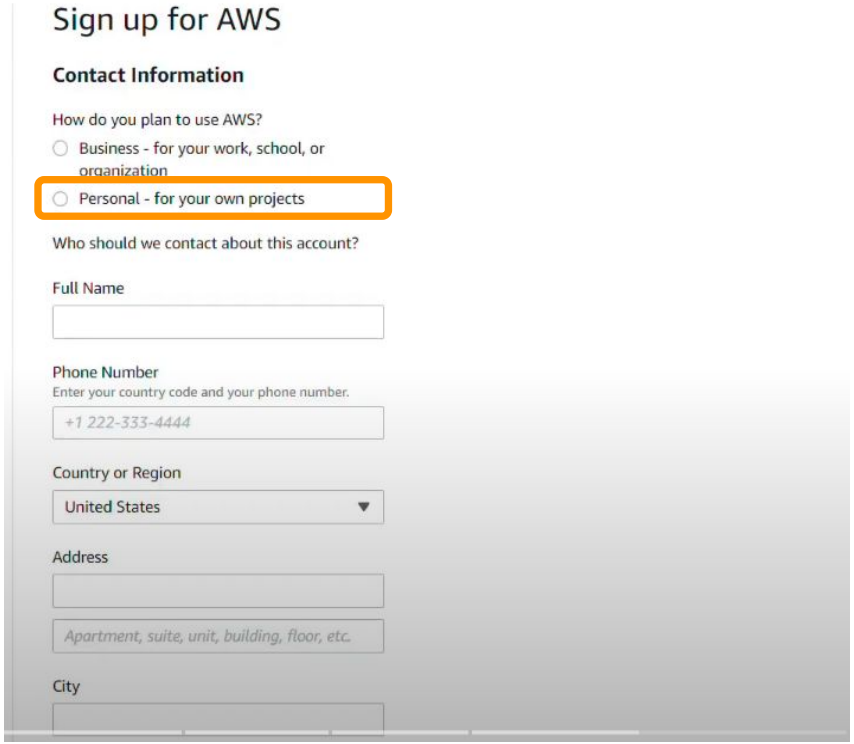
- @osvaldo
- osvaldo@clarusway.com

Creating AWS Free Tier

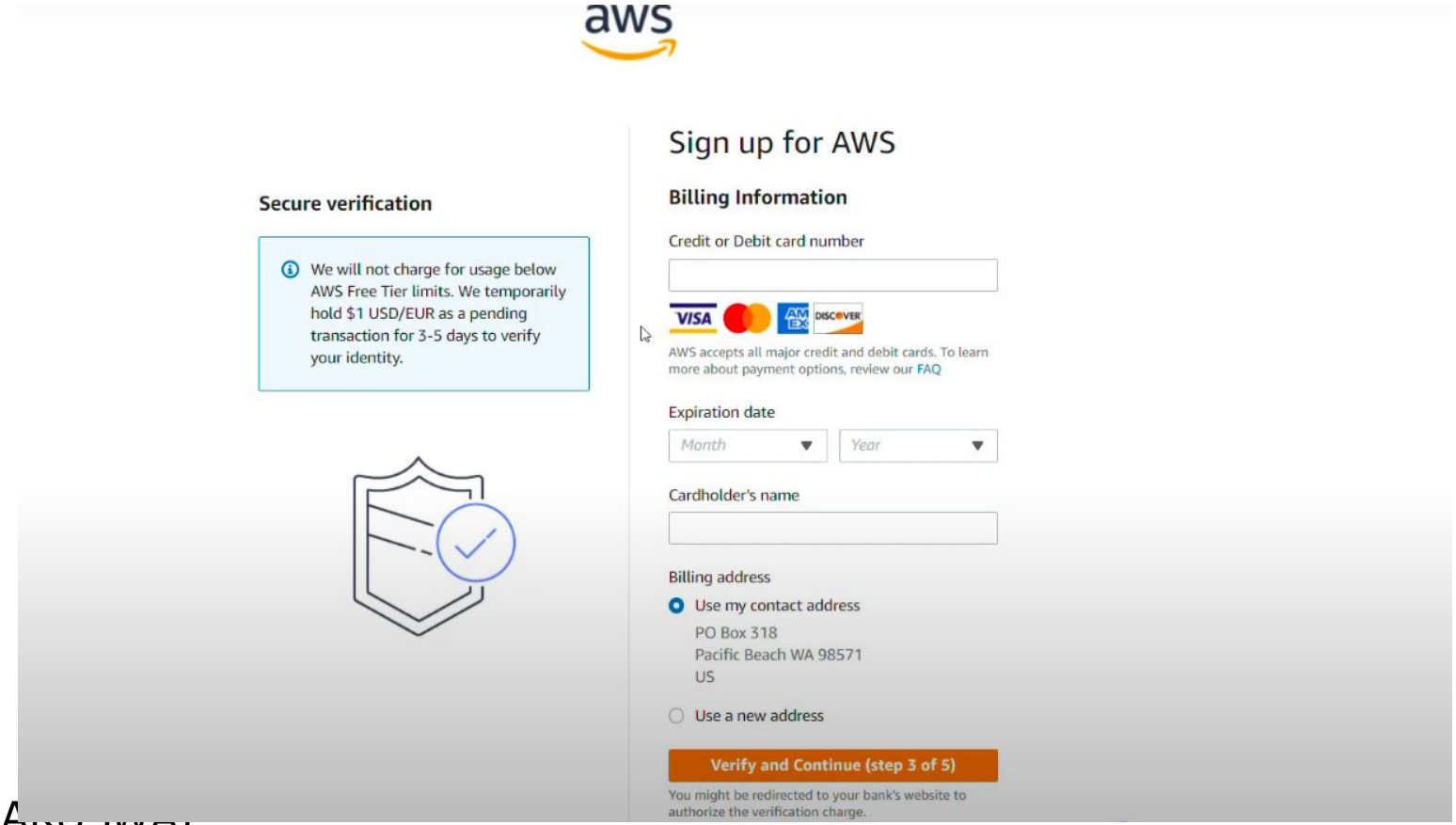


Creating AWS Free Tier

- Select "**Personal**" as an account Type and then fill your contact information.

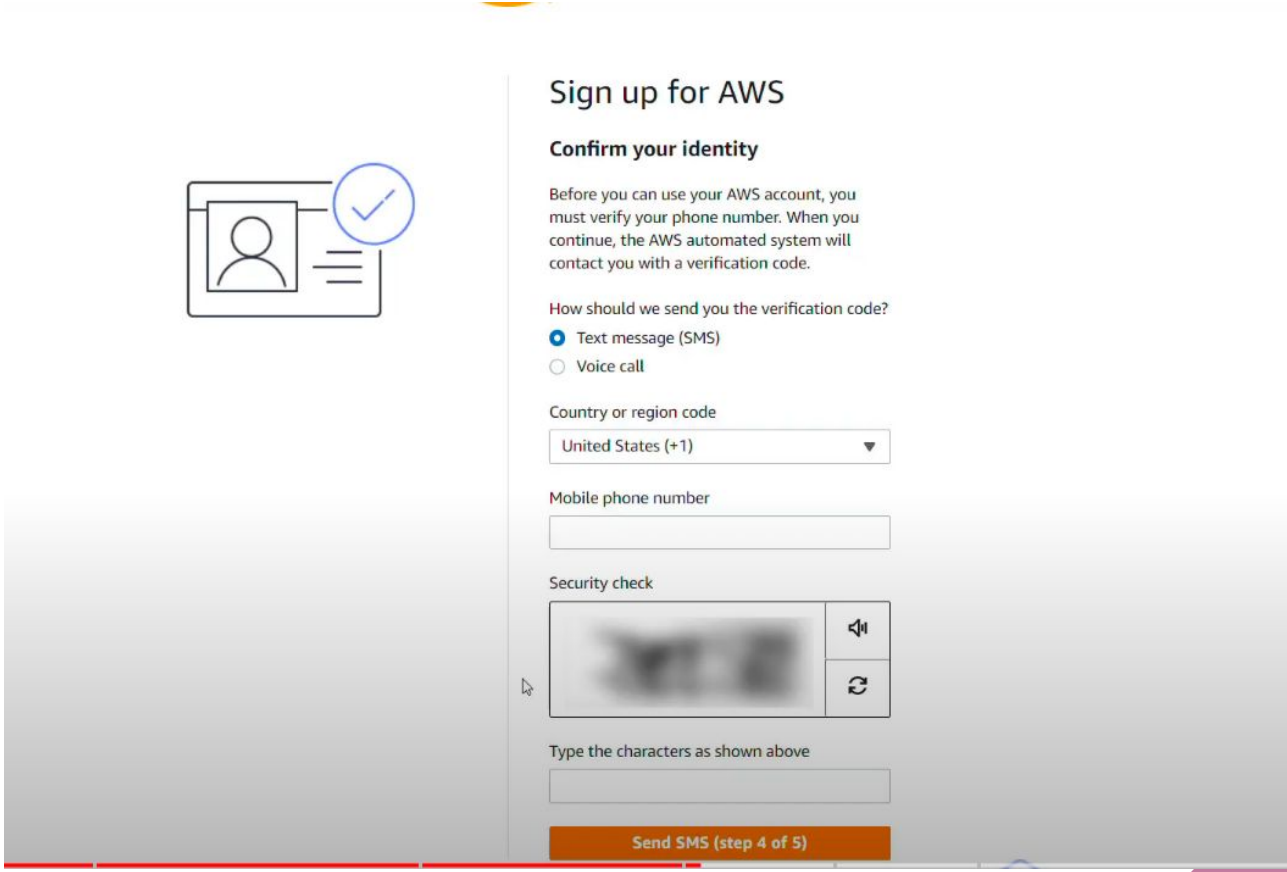


Creating AWS Free Tier



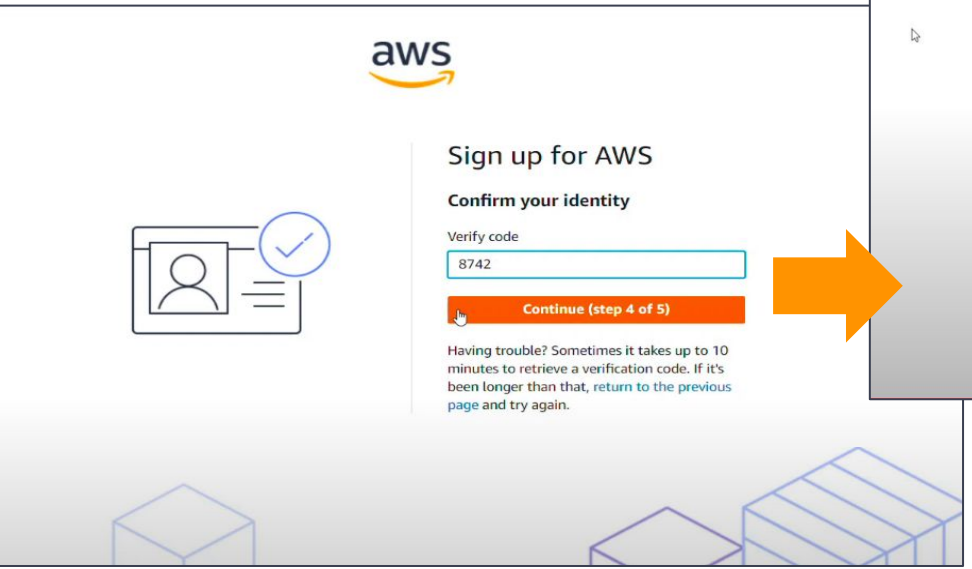
Creating AWS Free Tier

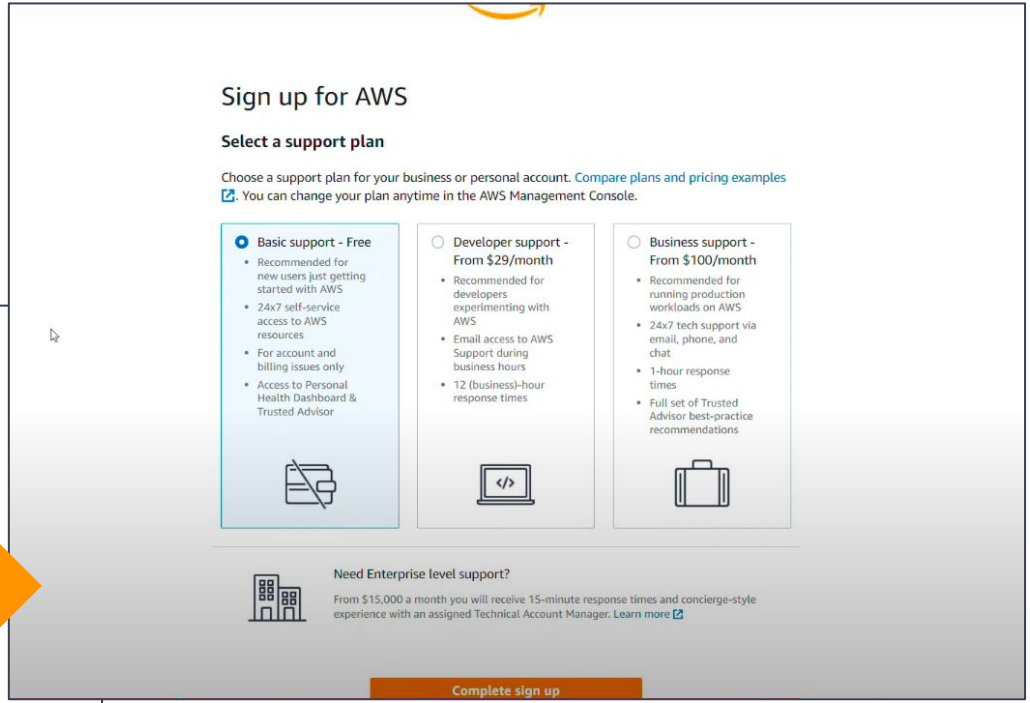
- Confirm your identity by entering **your phone** number and code displayed in the captcha.
- Choose "Contact me ".
- If you chose to verify your account by SMS, choose "Send SMS" instead, like in the picture.
- Then enter the PIN you receive by text message or voice call, and then choose "Continue".



Creating AWS Free Tier

- After verification, select the support Plan. Choose the "**Basic Plan** " which is free.





Creating AWS Free Tier

Congratulations!

Thank you for signing up with AWS.

We are activating your account, which should take a few minutes. You will receive an email when this is complete.

Go to the AWS Management Console

Sign up for another account or Contact Sales