

# Introduction to AWS



# Instructor

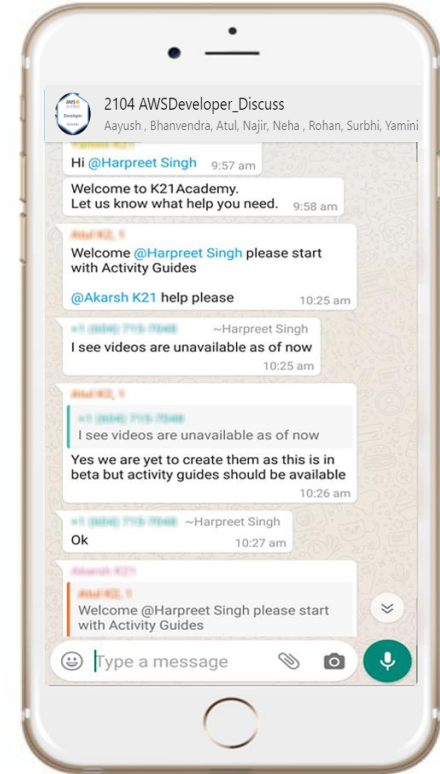


- **18 years of working experience** in MNC's
- Certified AWS Architect
- Experience in Corporate training
- Extensive knowledge in Designing and Delivering Corporate IT solutions



# WhatsApp & Ticketing System

[support@k21academy.com](mailto:support@k21academy.com)



# Success Stories




Rohan Mode  
AWS SAA-C02 Certified

 /rohan-mode/




Bhanvendra Singh  
AWS SAA-C02 Certified

 bhanvendra-singh-gaur-790a8a195/



Kamala Narayan  
AWS SAA - C02 Certified

 kamala-narayan-2b2707192




Palayam Sundaram  
AWS SAA-C02 Certified

 palayam-sundaram-13567b10/




Toluwani Daramola  
AWS SAA-C02 Certified


 /toluwanidaramola

# Success Stories




 Sujatha Arunachalam  
sujatha-arunachalam/



 Ronald McCoy  
ronald-mccoy-186228/




 Joanna Schrap  
joanna-s-252109/




 Al Pineda  
alpineda0/



 Toluwani Daramola  
toluanidaramola/

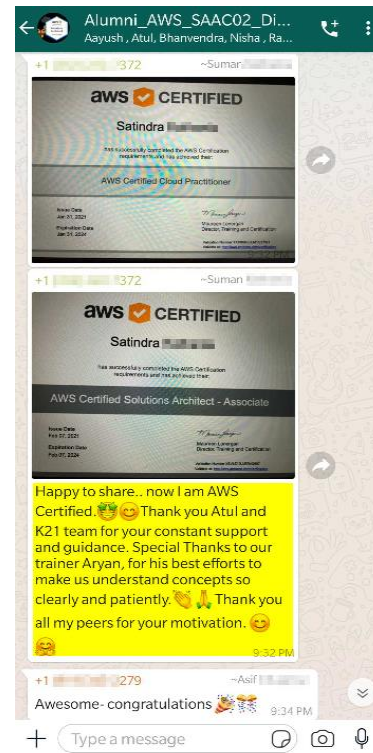
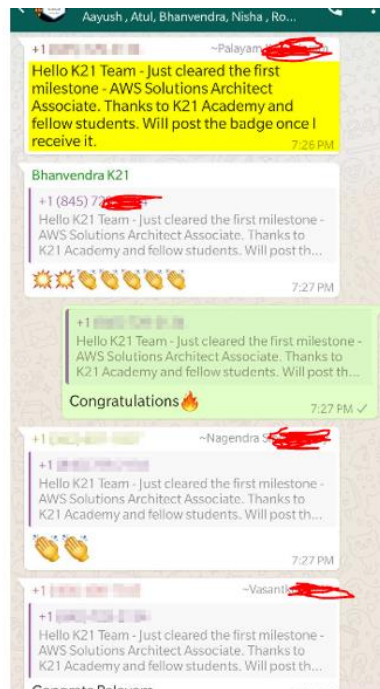
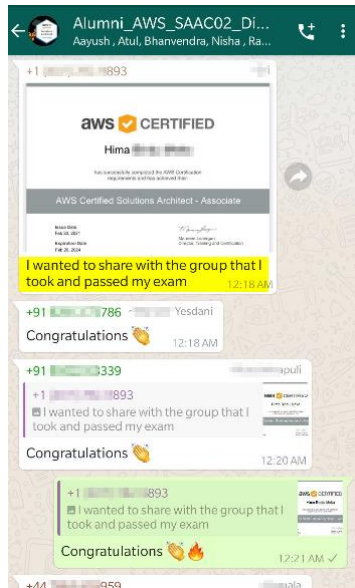


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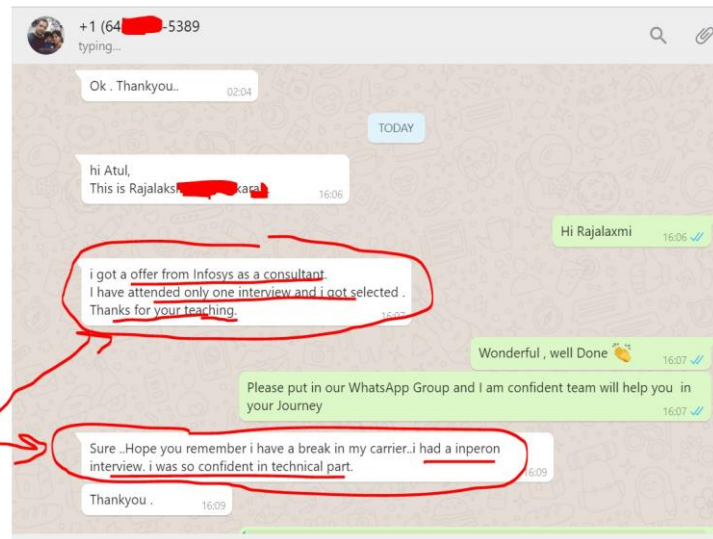
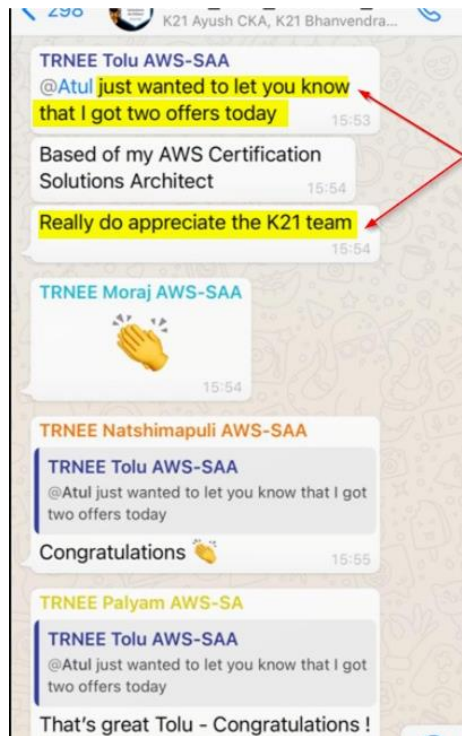
 Michael Oehlert  
michaelwoehlert/

# To Inspire You

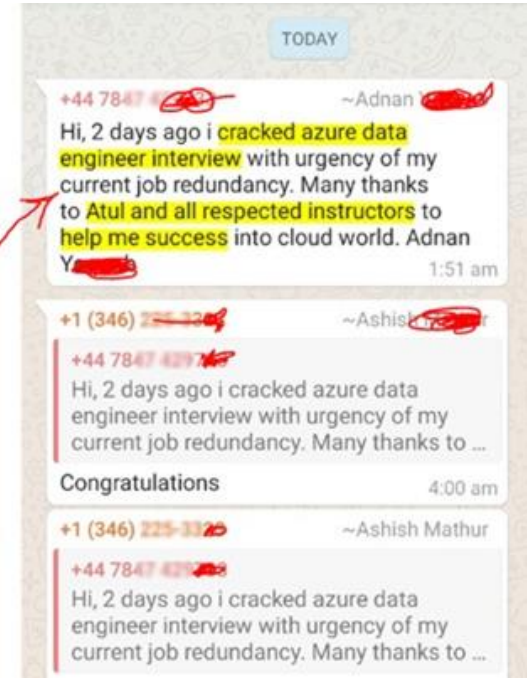
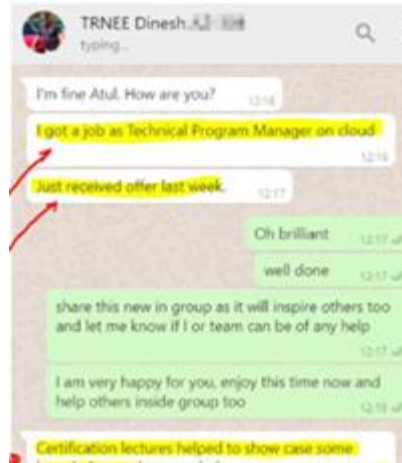
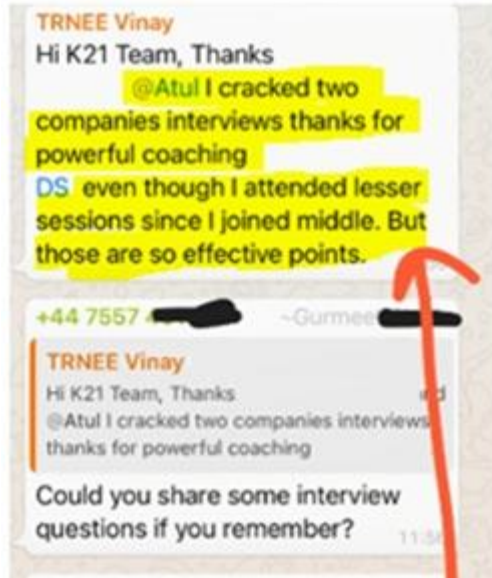




# To Inspire You: Jobs



# To Inspire You: Jobs







# AWS SAA-C02 Module Agenda

# Agenda: Module

- Cloud Introduction
- Cloud service model
- Cloud Deployment Model
- AWS Introduction
- AWS Global Infrastructure
- AWS Region
- AWS Availability Zones

# Agenda: Module

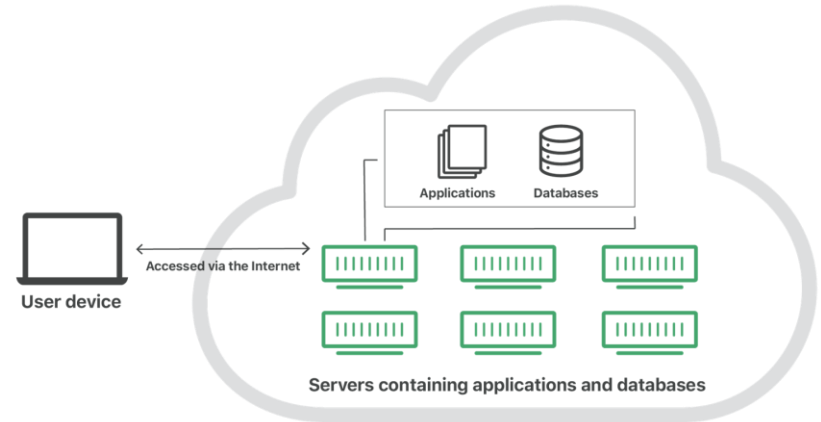
- AWS Services
- Create Linux EC2 Machine
- Create Windows EC2 Machine
- Web Server (IIS) on EC2
- Ways To Access Services



# Cloud Service Model

# What is Cloud ?

- Cloud computing is the delivery of computing services: servers, storage, databases, networking, tools and software over the Internet.
- Cloud computing enables companies to consume a compute resource, such as a servers, storage or an application, as a utility like water or electricity, rather than having to build and maintain computing infrastructures in house.



# Cloud Characteristics



**On-demand  
self-service**

No human  
intervention  
needed to  
get  
resources



**Broad  
network  
access**

Access  
from  
anywhere



**Resource  
pooling**

Provider  
shares  
resources  
to  
customers



**Rapid  
elasticity**

Get more  
resources  
quickly as  
needed

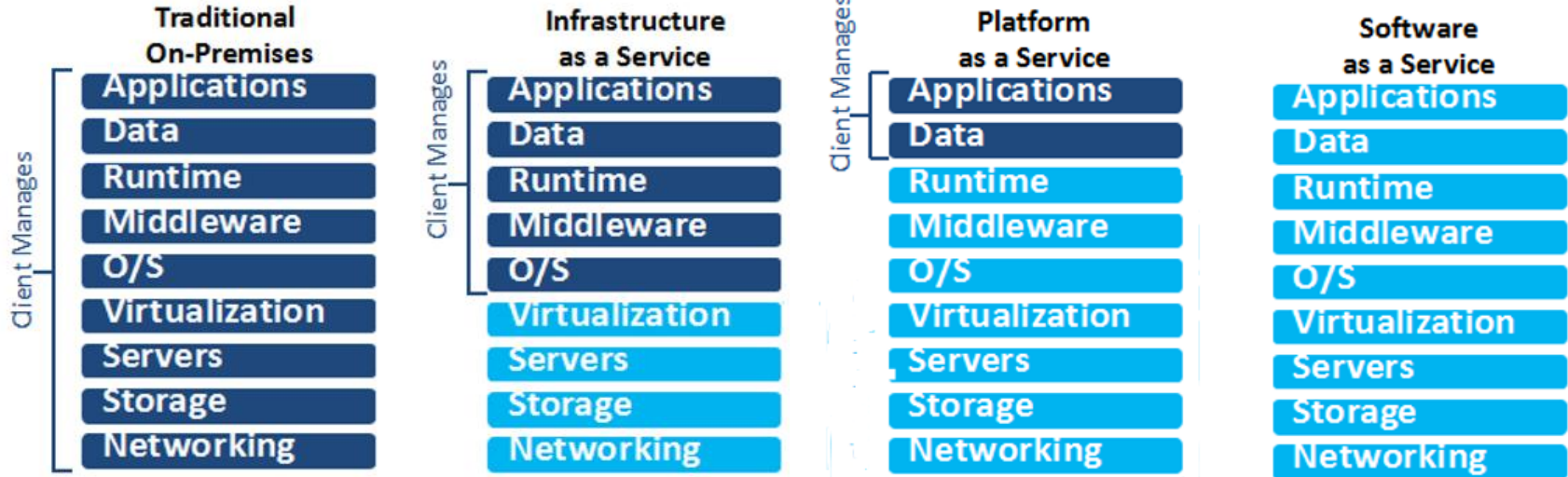


**Measured  
service**

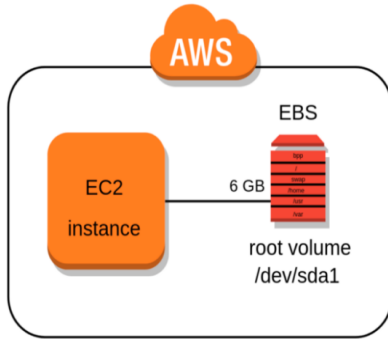
Pay only  
for what  
you  
consume



# Cloud Service Model



# Example: IaaS



**Amazon Elastic Compute Cloud** (Amazon **EC2**) provides scalable computing capacity in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

# Example: SaaS



AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

You can simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring. At the same time, you retain full control over the AWS resources powering your application and can access the underlying resources at any time.

# Example: SaaS

- Google Workspace (formerly GSuite)
- Dropbox.
- Salesforce.
- Cisco WebEx.
- SAP Concur.
- GoToMeeting.



# Cloud Deployment Model



## **PUBLIC CLOUD**

- Offered by third-party providers
- Available to anyone over the public internet
- Scales quickly and conveniently



## **HYBRID CLOUD**

- Combination of both public & private cloud
- Shared security responsibility
- Helps maintain tighter controls over sensitive data & processes

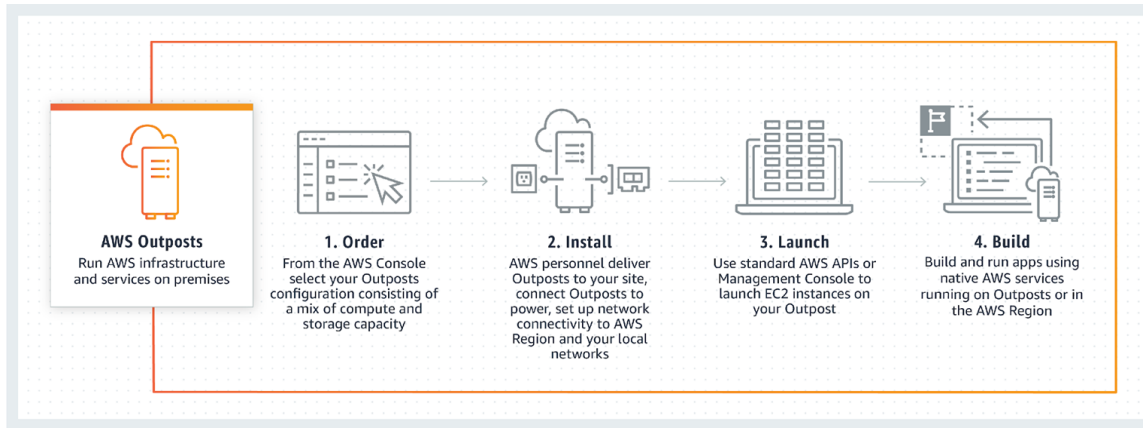


## **PRIVATE CLOUD**

- Offered to select users over the internet or a private internal network
- Provides greater security controls
- Requires traditional data center staffing & maintenance

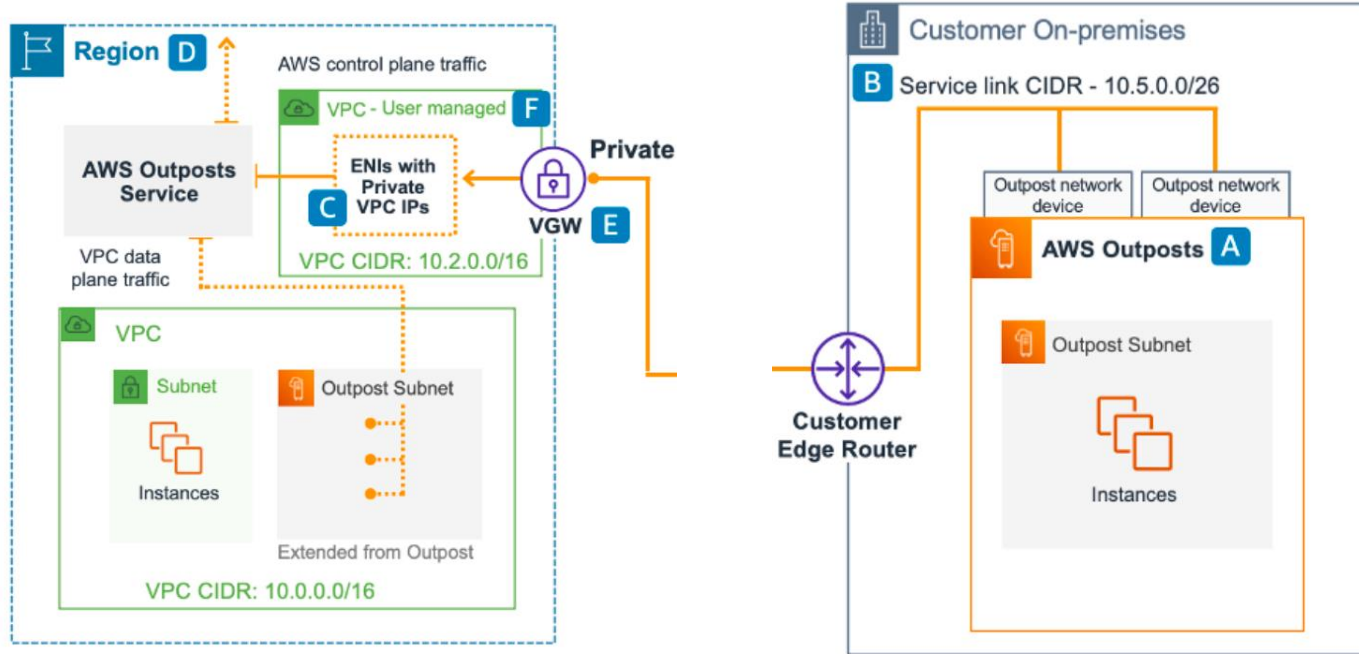
# AWS Outpost

AWS Outposts is a fully managed service that offers the same AWS infrastructure, AWS services, APIs, and tools to virtually any datacenter, co-location space, or on-premises facility for a truly consistent hybrid experience. AWS Outposts is ideal for workloads that require low latency access to on-premises systems, local data processing, data residency, and migration of applications with local system interdependencies.





# Hybrid Cloud



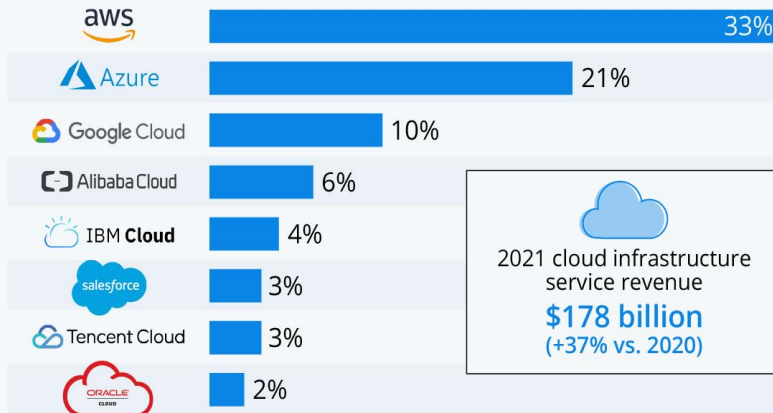


# Introduction

# Market Survey Of AWS

## Amazon Leads \$180-Billion Cloud Market

Worldwide market share of leading cloud infrastructure service providers in Q4 2021\*



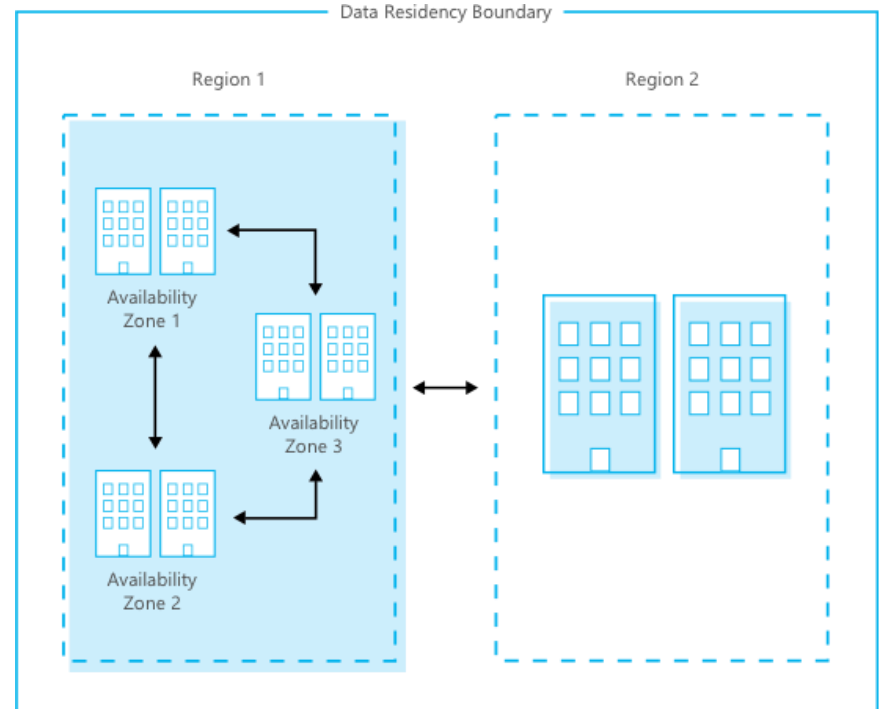


# AWS Global Infrastructure

# AWS Global Infrastructure

## AWS Global Infrastructure Consists of:

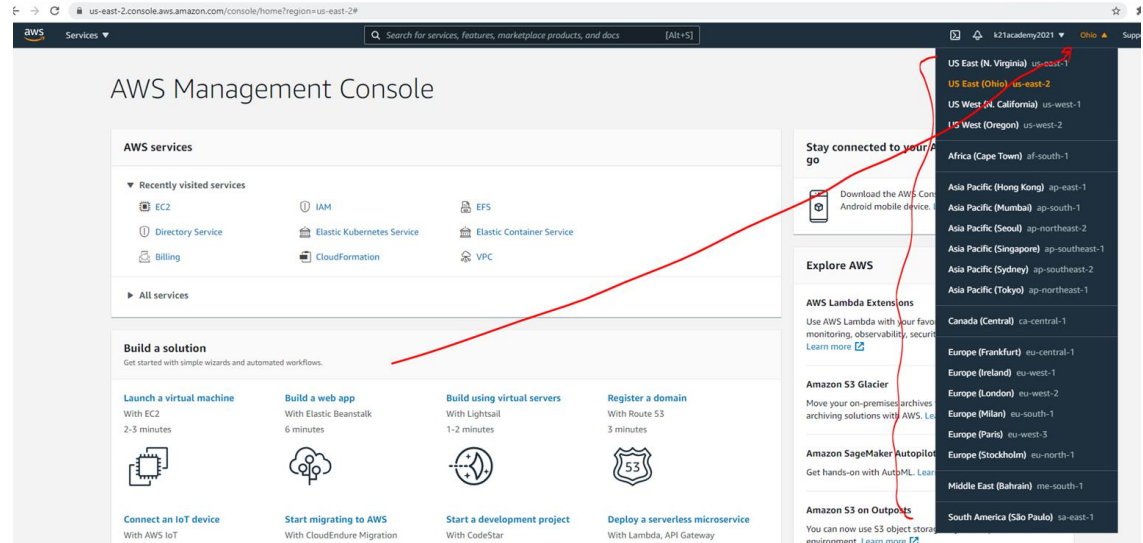
- Regions
- Availability Zones
- Edge Locations



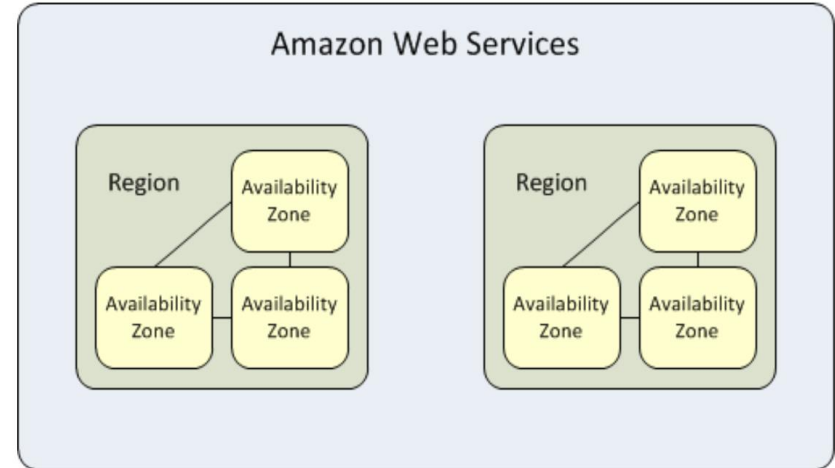
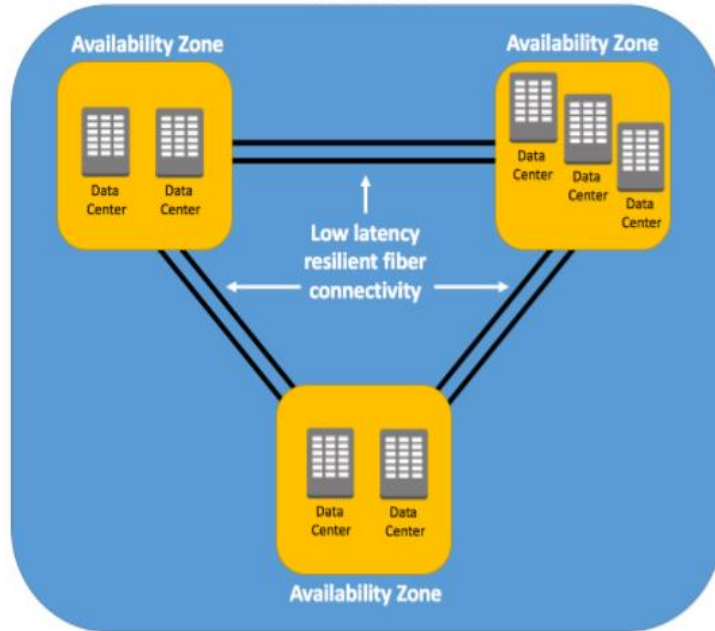
# AWS Region



# Choosing Region



# AWS Zones



# Choosing Zone

← → ↻ [us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard](https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard) ☆

aws Services Search for services, features, marketplace products, and docs [Alt+S]

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances 1 Launch into Auto Scaling Group

Purchasing option ☐ Request Spot instances

Network vpc-532c9d38 (default) Create new VPC

Subnet No preference (default subnet in any Availability Zone) Create new subnet

Auto-assign Public IP No preference (default subnet in any Availability Zone)

Placement group subnets: subnet-d43620ae | Default in us-east-2b, subnet-24ba624f | Default in us-east-2a, subnet-0d75b4a90c264502 | us-east-2c, subnet-4485fb08 | Default in us-east-2c

Capacity Reservation Open

Domain join directory No directory Create new directory

IAM role None Create new IAM role

CPU options ☐ Specify CPU options

Shutdown behavior Stop

Stop - Hibernate behavior ☐ Enable hibernation as an additional stop behavior

Enable termination protection ☐ Protect against accidental termination

Monitoring ☐ Enable CloudWatch detailed monitoring

# AWS Global Infrastructure

With millions of active customers and tens of thousands of partners globally, AWS has the largest and most dynamic ecosystem. Customers across virtually every industry and of every size, including start-ups, enterprises, and public sector organizations, are running every imaginable use case on AWS.

## 26 Launched Regions

Each with multiple Availability Zones  
(AZ's)

## 84 Availability Zones

## 17 Local Zones

## 24 Wavelength Zones

For ultralow latency applications

## 8 Announced Regions

## 30 Announced Local Zones

## 2x More Regions

With multiple AZ's than the next  
largest cloud provider

## 245 Countries and Territories Served

## 108 Direct Connect Locations

## 310+ Points of Presence

300+ Edge Locations and 13 Regional  
Edge Caches



# AWS Services

# Traditional vs AWS

## Traditional Infrastructure



Firewalls



ACLs



Administrators

### Security



Router



Network Pipeline



Switch

### Networking



On-Premises Servers

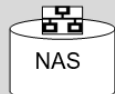
### Servers



DAS



SAN



NAS

### Storage



Security Groups



NACLs



IAM



ELB



VPC



AMI



EC2 Instances



EBS



EFS



S3

## Amazon Web Services



# AWS Services

## Deployment & Management

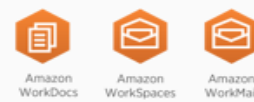
### Application Services



### Mobile Services



### Enterprise Applications



## Application Services

### Administration & Security



### Deployment & Management



### Analytics



## Foundation Services

### Compute



### Storage & Content Delivery



### Database



### Networking



# AWS Services

## Compute



**Amazon EC2:**  
Virtual servers in cloud



**Amazon EC2 Auto Scaling:**  
Scales compute capacity to meet the requirement



**Elastic Load Balancer:**  
Routes traffic equally to healthy instances



**AWS Elastic Beanstalk:**  
Executes and manages applications



**AWS Lambda:**  
Executes codes without servers


## Security and Identity Management




**AWS WAF:**  
Filters malicious web traffic




**AWS IAM:**  
Securely manages access to services and resources



**AWS Shield:**  
DDoS protection



**AWS KMS:**  
Manages creation and encryption of keys




**AWS Directory Service:**  
Hosts or manages active directory



**AWS Cloud HSM:**  
Hardware based key storage for regular compliance



**AWS GuardDuty:**  
Managed threat detection service



**Amazon Cognito:**  
Identify management to apps

## Networking



**Amazon VPC:**  
Isolated cloud resources



**Amazon Route 53:**  
Scalable Domain Name System




**Amazon Direct Connect:**  
Dedicated network connection to AWS



**Amazon PrivateLink:**  
Secure access service hosted on cloud



**Amazon API Gateway:**  
Build, manage and deploy APIs



**AWS Transit Gateway:**  
Easily Scalable VPC and account connections

## Storage and CDN




**Amazon S3:**  
Scalable storage in cloud




**Amazon EBS:**  
EC2 block storage volumes



**AWS Storage Gateway:**  
Hybrid storage integration



**Amazon S3 Glacier:**  
Low-cost archive storage in cloud



**AWS CloudFront:**  
Global content delivery network



**Amazon EFS:**  
Fully managed file system for EC2

## Management tools



**AWS OpsWorks:**  
Automated operation with chef and puppet



**AWS Config:**  
Track resources inventory and changes



**AWS CloudTrail:**  
Tracks user activity and API usage



**AWS CloudWatch:**  
Monitors resources and applications



**AWS CloudFormation:**  
Creates and manages resources with template



**AWS Trusted Advisor:**  
Optimize performance and security

## Database



**Amazon Aurora:**  
High performance management relational database



**Amazon RDS:**  
Managed database service for MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server



**Amazon QLDB:**  
Fully managed Ledger database



**Amazon Redshift:**  
Quick, simple, cost-effective data warehouse



**Amazon Neptune:**  
Fully managed Graph database service



**Amazon DynamoDB:**  
NoSQL managed database



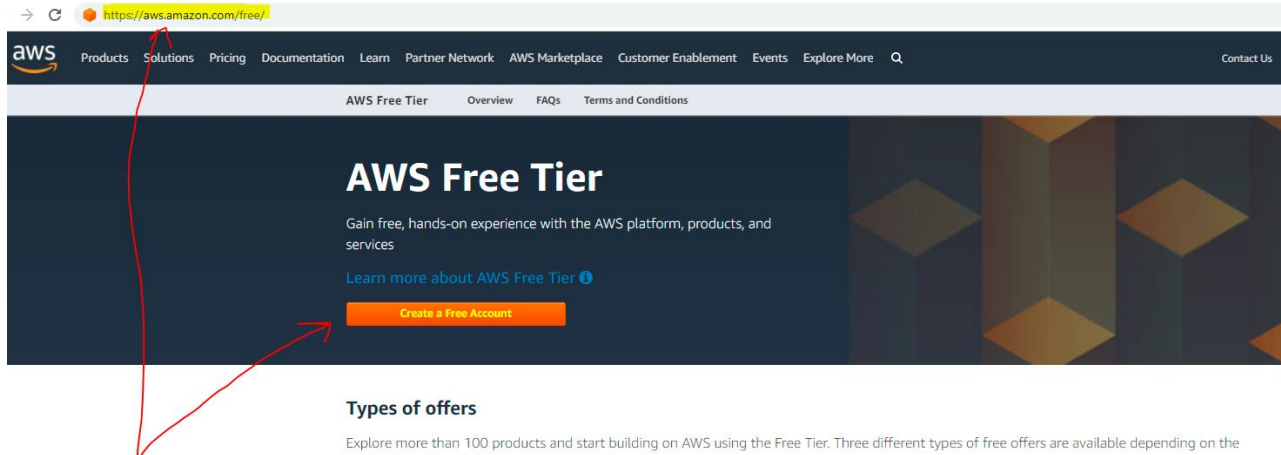
**Amazon ElastiCache:**  
In memory caching system



# Activity Guide

## Create FREE Account

# Register for FREE Cloud Account



The screenshot shows the AWS Free Tier page. A red arrow points from the browser's address bar, which contains <https://aws.amazon.com/free/>, down to the 'Create a Free Account' button. Another red arrow points from the 'Solutions' link in the top navigation bar down to the same button. The page content includes the AWS logo, navigation links (Products, Solutions, Pricing, Documentation, Learn, Partner Network, AWS Marketplace, Customer Enablement, Events, Explore More), and a search icon. Below the navigation bar is a sub-header 'AWS Free Tier' with links for 'Overview', 'FAQs', and 'Terms and Conditions'. The main heading is 'AWS Free Tier', followed by the text 'Gain free, hands-on experience with the AWS platform, products, and services'. A link 'Learn more about AWS Free Tier' with an information icon is present. The 'Create a Free Account' button is a prominent orange rectangle. Below this is a section titled 'Types of offers' with the text 'Explore more than 100 products and start building on AWS using the Free Tier. Three different types of free offers are available depending on the product used. See below for details on each product.' Three offer types are listed: 'Always free' (with an infinity icon), '12 months free' (with a calendar icon), and 'Trials' (with a stopwatch icon). Each offer type has a brief description of its terms.

**AWS Free Tier**


Gain free, hands-on experience with the AWS platform, products, and services

[Learn more about AWS Free Tier](#)

[Create a Free Account](#)


### Types of offers

Explore more than 100 products and start building on AWS using the Free Tier. Three different types of free offers are available depending on the product used. See below for details on each product.




**Always free**

These free tier offers do not expire and are available to all AWS customers



**12 months free**

Enjoy these offers for 12-months following your initial sign-up date to AWS



**Trials**

Short-term free trial offers start from the date you activate a particular service

# Register for FREE Cloud Account

<b>COMPUTE</b>  Free Tier 12 MONTHS FREE <b>Amazon EC2</b> <b>750 Hours</b> per month Resizable compute capacity in the Cloud. 750 hours per month of Linux, RHEL, or SLES ▼	<b>STORAGE</b>  Free Tier 12 MONTHS FREE <b>Amazon S3</b> <b>5 GB</b> of standard storage Secure, durable, and scalable object storage infrastructure. 5 GB of Standard Storage ▼	<b>DATABASE</b>  Free Tier 12 MONTHS FREE <b>Amazon RDS</b> <b>750 Hours</b> per month of db.t2.micro database usage (applicable DB engines) Managed Relational Database Service for MySQL, PostgreSQL, MariaDB, Oracle BYOL, or SQL Server. ▼	<b>STORAGE</b>  Free Tier 12 MONTHS FREE <b>Amazon S3</b> <b>5 GB</b> of standard storage Secure, durable, and scalable object storage infrastructure. 5 GB of Standard Storage ▼	<b>STORAGE</b>  Free Tier 12 MONTHS FREE <b>Amazon CloudFront</b> <b>50 GB</b> of data transfer out Web service to distribute content to end users with low latency and high data transfer speeds. ▼	<b>STORAGE</b>  Free Tier 12 MONTHS FREE <b>Amazon EFS</b> <b>5 GB</b> of storage Simple, scalable, shared file storage service for Amazon EC2 instances. 5 GB of storage ▼
<b>DATABASE</b>  Free Tier ALWAYS FREE <b>Amazon DynamoDB</b> <b>25 GB</b> of storage Fast and flexible NoSQL database with seamless scalability. 25 GB of Storage ▼	<b>MACHINE LEARNING</b> NEW  Free Tier FREE TRIAL <b>Amazon SageMaker</b> <b>2 Months</b> free trial Machine learning for every data scientist and developer. 250 hours per month of ml.t3.medium on SageMaker ▼	<b>COMPUTE</b>  Free Tier ALWAYS FREE <b>AWS Lambda</b> <b>1 Million</b> free requests per month Compute service that runs your code in response to events and automatically manages the compute resources. ▼	<b>STORAGE</b>  Free Tier 12 MONTHS FREE <b>Amazon Elastic Block Storage</b> <b>30 GB</b> any combination of General Purpose (SSD) or Magnetic Persistent, durable, low-latency block-level storage volumes for EC2 ▼	<b>STORAGE</b>  Free Tier ALWAYS FREE <b>Amazon Glacier (Glacier API only)</b> <b>10 GB</b> of storage retrievals Long-term, secure, durable object storage. ▼	<b>STORAGE</b>  Free Tier ALWAYS FREE <b>AWS Storage Gateway</b> <b>100 GB</b> free per account Hybrid cloud storage with seamless local integration and optimized data transfer. ▼

# Register for FREE Cloud Account



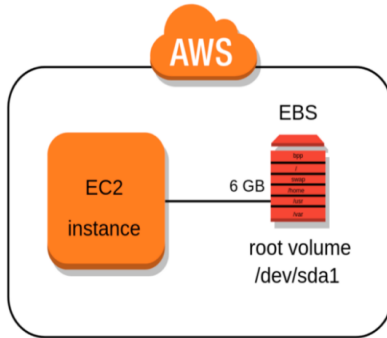
## **Register for AWS Free Tier Account Amazon Web Services & Login to AWS Console**

[Edition 6]

[Last Update 210624]

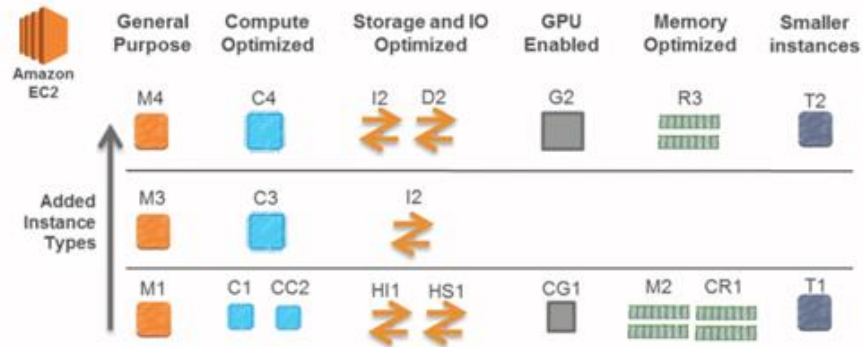
### **Contents**

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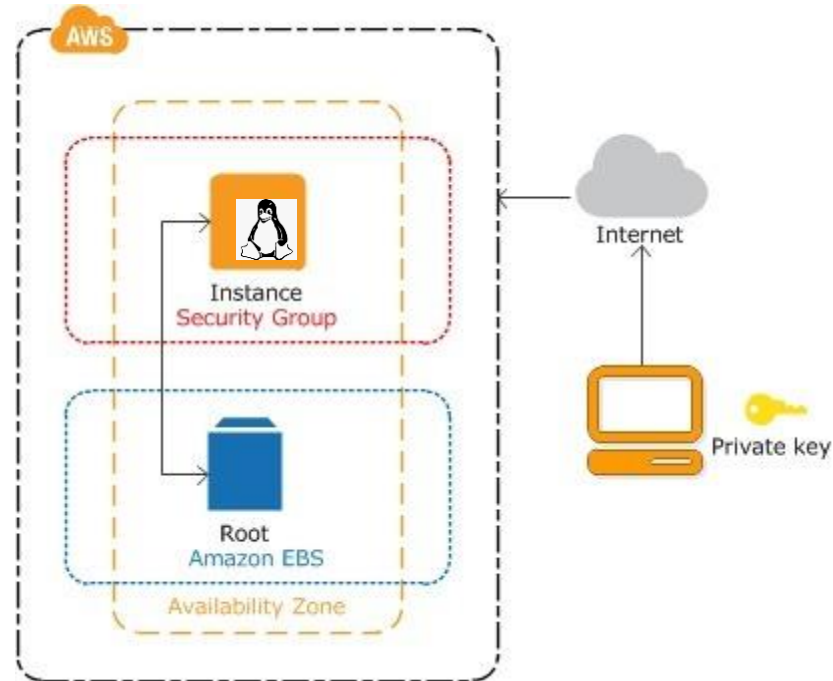


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## Amazon EC2: Instance Types

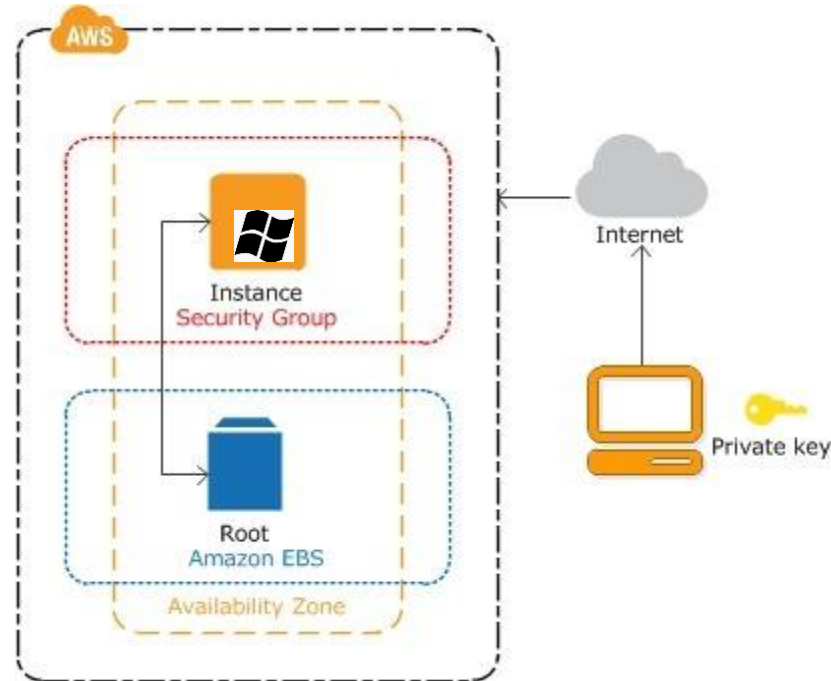


# Create Linux EC2 Machine

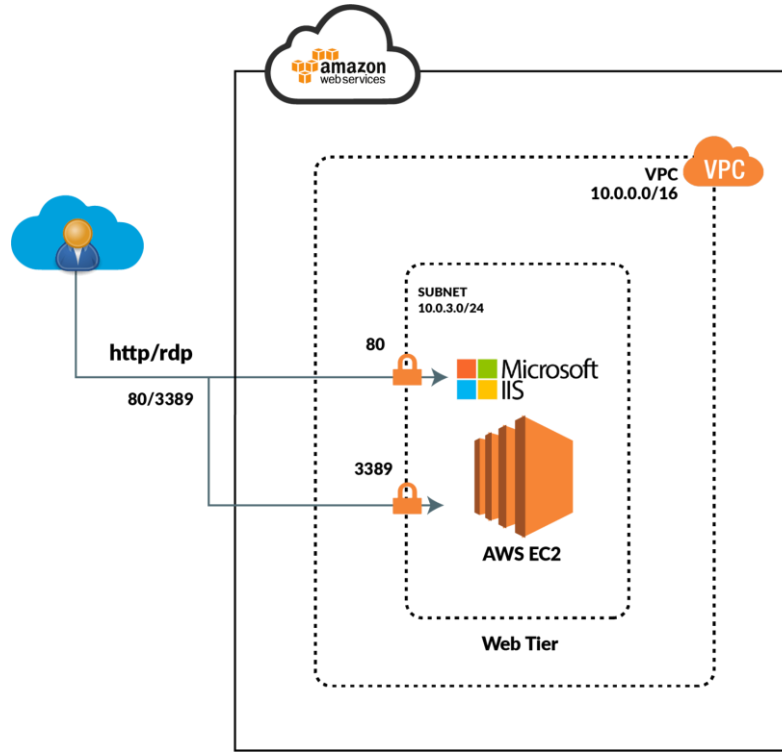




# Create Windows EC2 Machine



# Web Server (IIS) on EC2



# Module on Portal

2	Module 1 : Introduction To Cloud And AWS	✓
	● Presentation : Introduction To AWS	
	● Lesson 1 : Module & Cloud Overview (06:35 min)	
	● Lesson 2 : Cloud Service Model IaaS, PaaS, SaaS & Deployment Model Public, Private, Hybrid (08:50 min)	
	● Lesson 3 : AWS Overview Comparison (05:02 min)	
	● Lesson 4 : AWS Global Infrastructure Region AZ (08:05 min)	
	● Lesson 5 : AWS Services (10:19 min)	
	● Lesson 6 : IAM Users, Groups, Policy, & Roles (10:59 min)	
	● Lesson 7 : Compute EC2, Lambda, ECS, EKS, & Fargate (08:22 min)	
	● Lesson 8 : Storage Service Block Object File S3, EBS, & EFS (07:40 min)	
	● Lesson 9 : Network Service VPC Subnet Gateway, LB, Route 53 & CDN (09:04 min)	
	● Lesson 10 : Database Service RDS, DynamoDB, ElastiCache, RedShift, & Aurora (06:46 min)	
	● Lesson 11 : Automation Configuration, CloudFormation, & OpsWorks (06:31 min)	
	● Lesson 12 : Audit And Monitoring CloudWatch, And CloudTrail (04:44 min)	
	● Lesson 13 : Application Services SNS, SES, SQS, & SWF (10:00 min)	
	● Lesson 14 : DevOps Tools, CodeCommit, CodeBuild, CodeDeploy, & CodePipeline (09:15 min)	
	● Lesson 15 : AWS Architecture Overview (06:22 min)	
	● Lesson 16 : Activity Guide (Lab) Overview & Module Wrap-Up (10:22 min)	
	● Live Session Frequently Ask Questions (FAQ's)	

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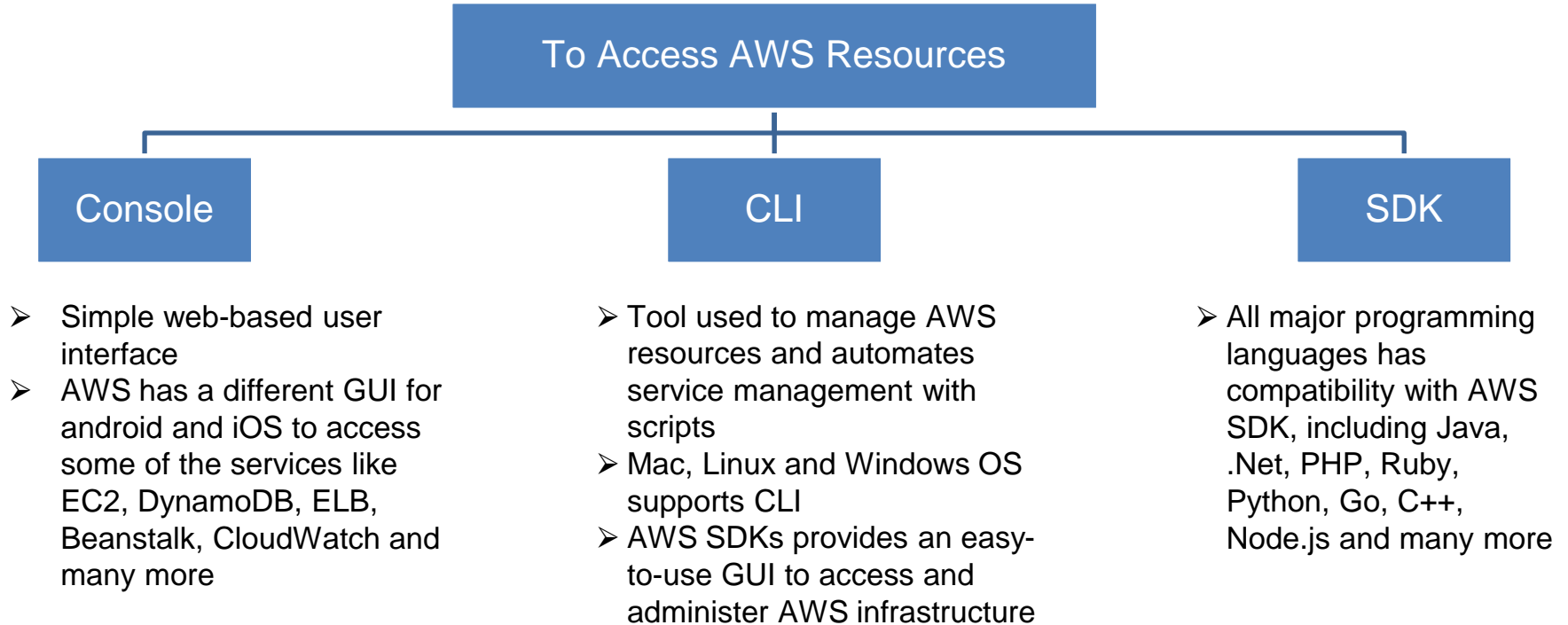
3	Module 2 : Create Cloud Account, Machine, And Install CLI	✓
	● Lesson 0 : Module Overview (04:25 min)	
	● Lesson 1 : Create AWS Free Trial Account (06:51 min)	
	● Activity Guide (Lab) : Create AWS Free Trial Account	
	● Atul's Voice Note: My Account Got Charged Even it says its FREE for 12 Months!!	
	● Lesson 2 : CloudWatch - Create Billing Alarm & Service Limits (19:22 min)	
	● Activity Guide (Lab) : CloudWatch - Create Billing Alarm & Service Limits	
	● Lesson 3 : Creating Windows Machine On AWS (16:38 min)	
	● Lesson 4: Connect Windows Machine on AWS From MAC (12:05 min)	
	● Lesson 5 : Reset Windows EC2 Machine Password (06:37 min)	
	● Activity Guide (Lab) : Create And Connect To Windows EC2 Machine	
	● Lesson 6: Configure Webserver IIS on Windows EC2 Machine (17:43 min)	
	● Activity Guide: Host Website On Windows EC2 Instance Using IIS	
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	● Lesson 8 : Connect Linux Machine on AWS From Mac (11:03 min)	
	● Lesson 9 : Troubleshoot Connectivity on Linux & Windows Machine (11:43 min)	
	● Activity Guide (Lab) : Create And Connect To Linux EC2 Machine	
	● Lesson 10 : Install & Configure AWS CLI (23:18 min)	
	● Lesson 11 : Use AWS CLI to Create S3 Bucket (05:15 min)	
	● Lesson 12 : Setup GIT, Node JS & SDK (19:16 min)	
	● Activity Guide (Lab) : Install & Configure AWS CLI, Setup GIT, Node JS & SDK	
	● Lesson 13 : Module Wrap-Up (01:01 min)	

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# Ways To Access Services

# Ways to Access AWS Resources



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