



BATCH : 146 - 149
LESSON : AWS
DATE : 01.08.2023
SUBJECT : AWS-EC2

ZOOM GİRİŞLERİNİZİ LÜTFEN **LMS** SİSTEMİ ÜZERİNDEN YAPINIZ





AWS CLOUD



Review

- **Virtualization**
- **Benefits of Cloud**
- **Public, Private, Hybrid**
- **IaaS, PaaS, SaaS**
- **AWS Shared Responsibility Model**
- **AWS Free Tier**
- **6 benefits of the Cloud**
 - **Trade fixed expense for variable expense**
 - **Benefit from massive economies of scale**
 - **Stop guessing capacity**
 - **Increase speed and agility**
 - **Stop spending money running and maintaining data centers**
 - **Go global in minutes**



AWS EC2



EC2

What is EC2 ?

- EC2 stands for Amazon **Elastic Compute Cloud**.
- EC2 is a web service that provides **secure, resizable compute capacity** in the cloud.
- It is a service that allows you to run application programs in the computing environment.





EC2

EC2 Features:

- **EC2 provides you to pay only for the resources that you actually use.**
- In the past, creating a server for our business sometimes took days, weeks, but now within a minute, we can create a virtual machine that suits our wishes.
- **If you use EC2 you don't have to buy physical servers. Instead, you select a server that has more CPU capacity, RAM capacity and you can buy a server for a 3-year term.** So it means you can plan for 3 years in advance.

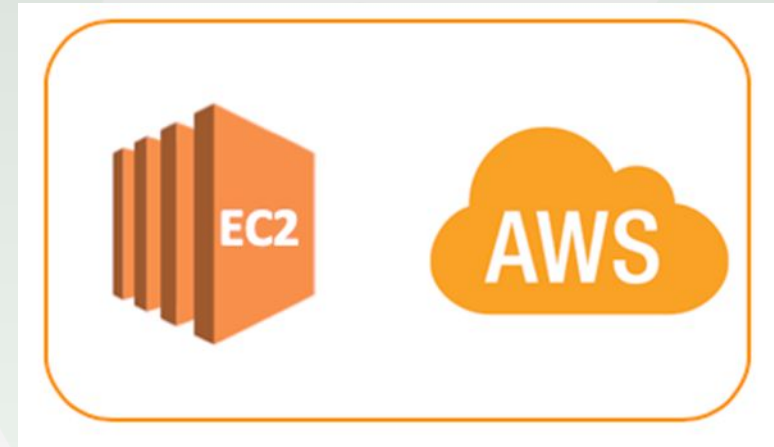




EC2

Advantage of EC2:

- Pay what you use
- Elasticity
- Control
- Reliability





EC2

EC2 Basic Components:



AWS EC2



Security Group



Amazon AMI



Instance Block
Storage



EBS



Elastic
Load Balancer



EC2
Auto Scaling



EC2

EC2 Window

aws

Services

Search

[Option+S]

EC2

S3

RDS

DynamoDB

ElastiCache

VPC

IAM

CloudFormation

Elastic Kubernetes Service

Instances

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Load Balancing

Load Balancers

Target Groups

Auto Scaling

Launch Configurations

Instances Info

Find instance by attribute or tag (case-sensitive)

Refresh

Connect

Instance state

Actions

Launch instances

< 1 >

⚙

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
No instances							
You do not have any instances in this region							
<div>Launch instances</div>							

Select an instance

Feedback

Looking for language selection? Find it in the new Unified Settings

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Privacy

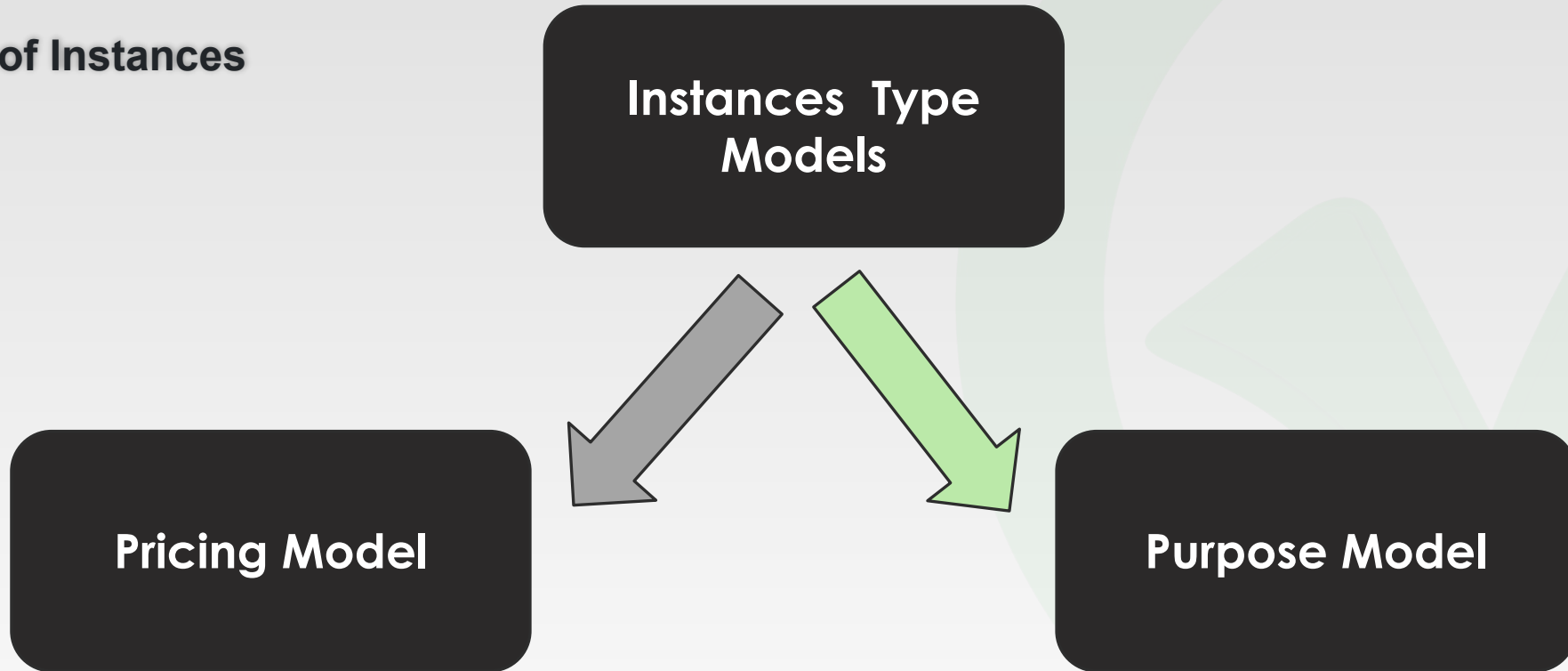
Terms

Cookie preferences



EC2

EC2 Type of Instances





EC2

EC2 Pricing Model

EC2

On Demand

Reserved

Spot

Dedicated
Host/Instance

Saving Plans



EC2

EC2 Pricing Model

AWS EC2 pricing plans

On demand

one of the most expensive options, suitable when you need uninterrupted compute, no up-front commitment

Reserved instances

one-year or three-year commitment, size flexibility, saving up to 72%

Spot instances

saving up to 90%, bidding on unused capacity

Saving plans

best for mixed EC2 instances

Dedicated host

use your existing server-bound software licenses to reduce costs

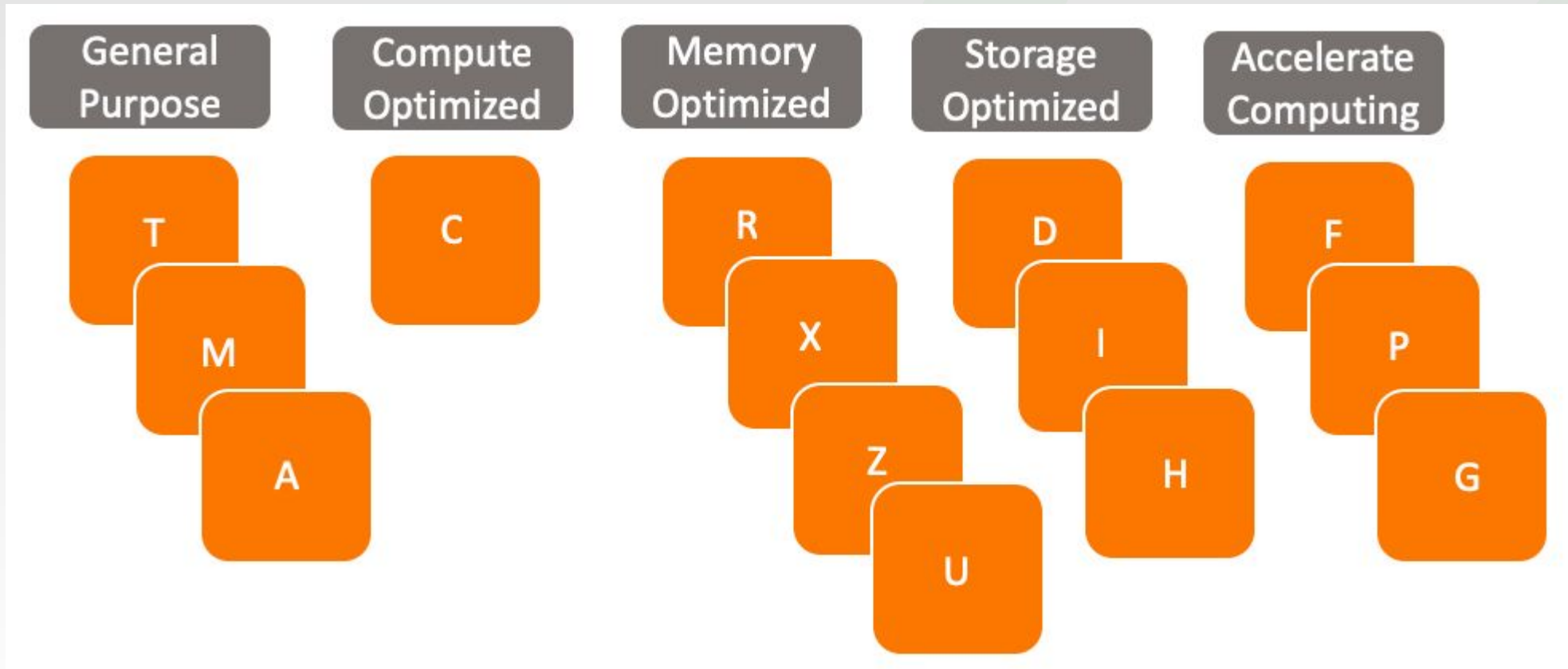
Per second billing

pay only for what you use



EC2

EC2 Purpose Model





EC2

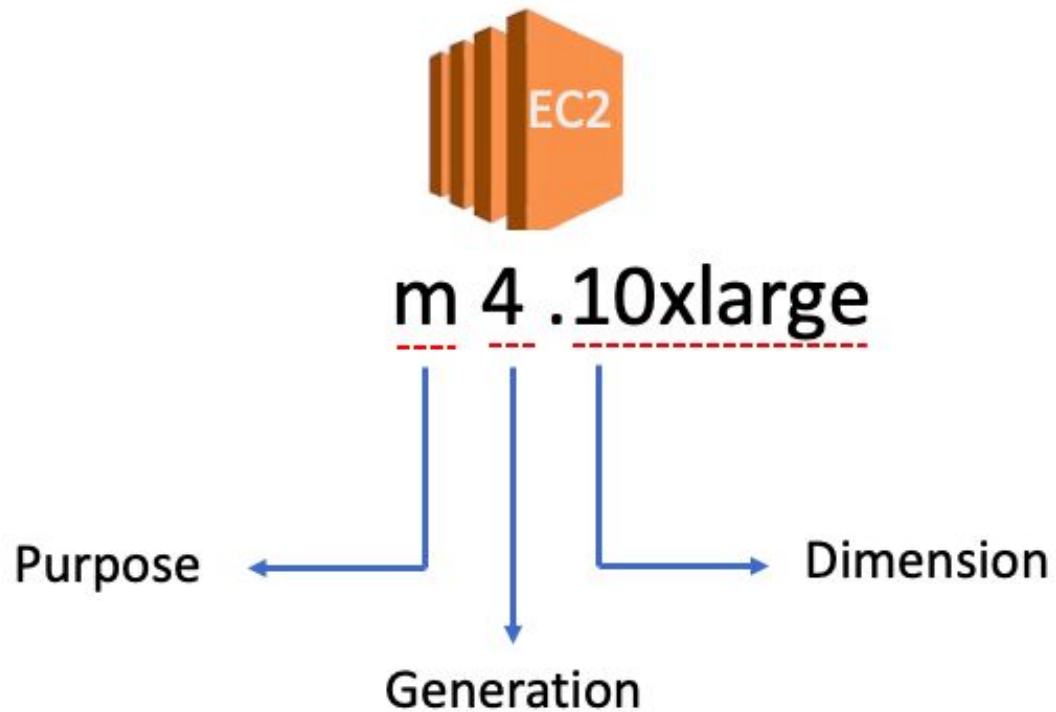
EC2 Instances

	General Purpose		Compute Optimized	Memory Optimized		Accelerated Computing	Storage Optimized		
Type	t2	m5	c5	r4	x1e	p3	h1	i3	d2
Description	Burstable, good for changing workloads	Balanced, good for consistent workloads	High ratio of compute to memory	Good for in-memory databases	Good for full in-memory applications	Good for graphics processing and other GPU uses	HDD backed, balance of compute and memory	SDD backed, balance of compute and memory	Highest disk ratio
Mnemonic	t is for tiny or turbo	m is for main or happy medium	c is for compute	r is for RAM	x is for xtreme	p is for pictures	h is for HDD	i is for IOPS	d is for dense



EC2

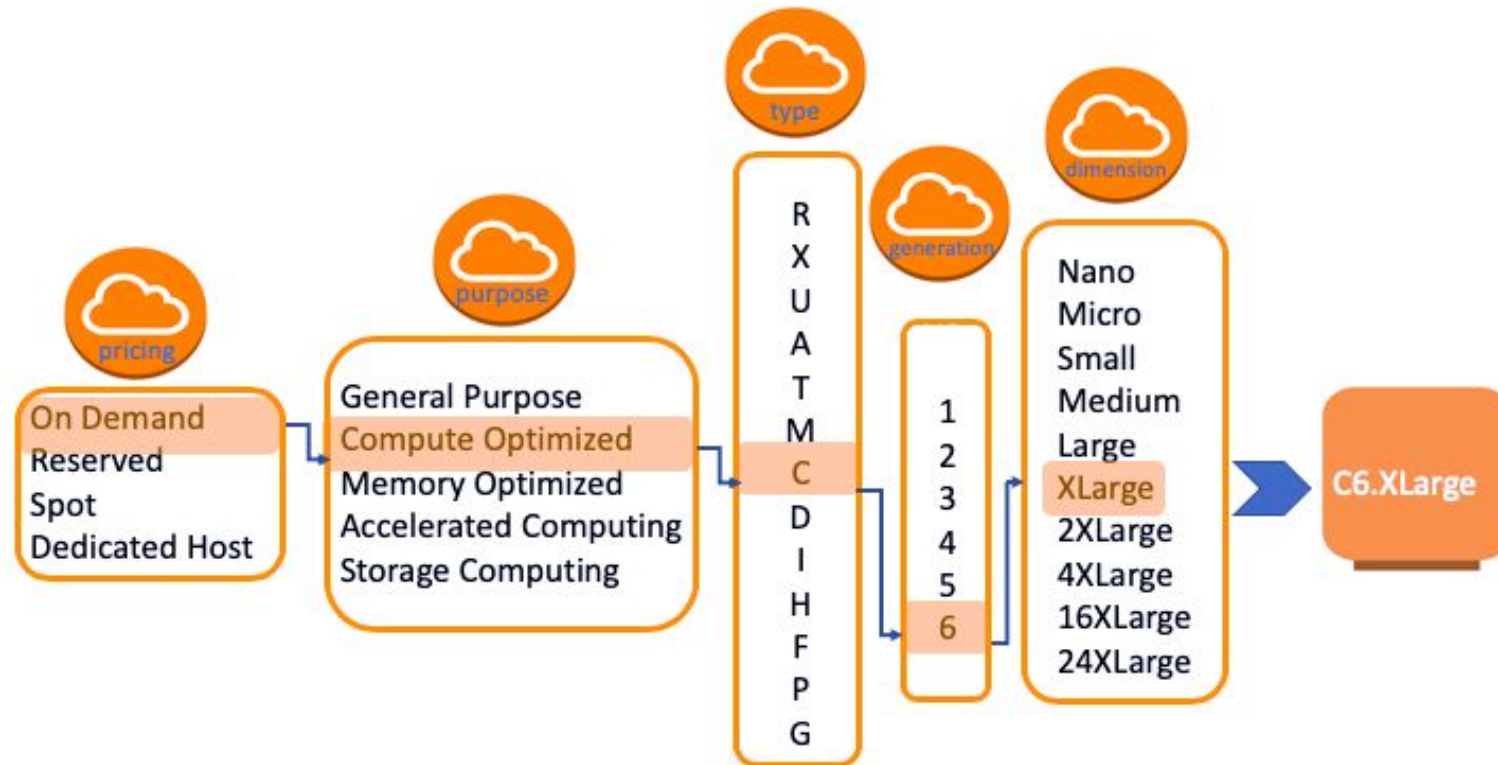
EC2 Code Definition of Instance Type





EC2

EC2 Code Definition of Instance Type





EC2

Pricing Models

On-Demand:

- No longer-term commitments or upfront payments are needed
- Applications with short-term, spiky, or unpredictable workloads
- Higher pricing

Spot Instances:

- Requesting of spare EC2 computing capacity
- Applications that have flexible start and end times
- Spot price is set and updated every 5 mins by Amazon
- Up to %90 lower than On-Demand

Reserved Instances:

- 1 or 3 year commitment
- Standard: up to %72 lower than On-Demand
- Customers have the flexibility to change the Availability Zone, the instance size, and networking type
- Convertible: up to %66 lower than On-Demand
- Additional flexibility, such as the ability to use different instance families, operating systems,
- No upfront, partial upfront, all upfront

Savings Plans

- 1 or 3 year commitment to a consistent amount of usage
- Compute Savings Plan: most flexibility, up to %66 lower than On-Demand
- EC2 Instance Savings Plan: commitment to usage of individual instance families in a Region , up to %72 lower than On-Demand

Dedicated Hosts

- A physical EC2 server dedicated for you.
- can be On-Demand (hourly)
- can be a Reservation (up to %70 lower than On-Demand)



EC2

Instance Families

General Purpose

- Provide a balance of compute, memory and networking resources, and can be used for a variety of diverse workloads.
- Good for administrative applications or low-traffic websites, small or mid-size databases.

Compute Optimized

- Have a higher ratio of virtual CPUs to memory than the other families and the lowest cost per virtual CPU of all the EC2 instance types.
- Used in frontend fleets for high-traffic websites, on-demand batch processing, distributed analytics, web servers, video encoding, and high-performance science and engineering applications.

Memory Optimized

- Designed for memory-intensive applications, these instances have the lowest cost per GiB of RAM of all EC2 instance types.

Storage Optimized

- Storage optimized instances are designed for workloads that require high, sequential read and write access to very large data sets on local storage. They are optimized to deliver tens of thousands of low-latency, random I/O operations per second (IOPS) to applications.
- Storage-optimized instances are best for large deployments of NoSQL databases.

Accelerated Computing

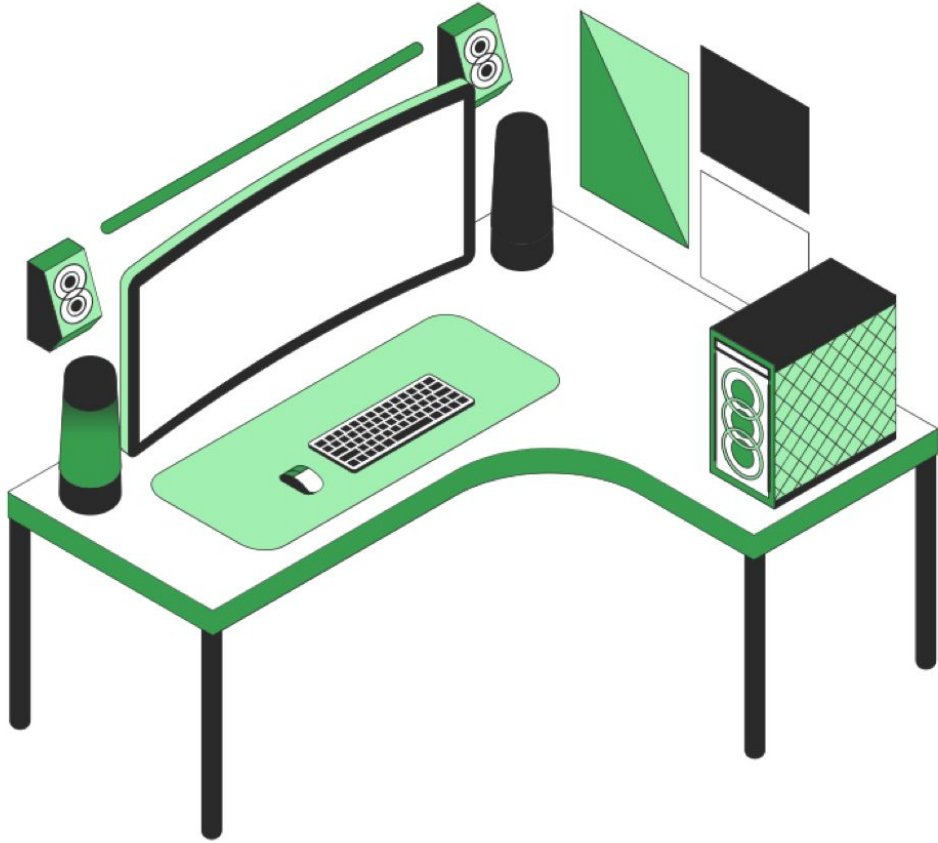
- Provide access to hardware-based compute accelerators such as graphics processing units (GPUs)
- Used to perform functions, such as floating point number calculations, graphics processing, or data pattern matching.



EC2

Certification Test Cases

- 1** A Developer is working on a small project for several hours, so the price does not matter much. The project cannot be interrupted. What pricing type of EC2 instance should he be using?
On-demand
- 2** Our team needs a cheap EC2 solution to test a small project. Interruptions are welcome. What pricing type of EC2 instance should he be using?
Spot
- 3** We have a small web site. It does not require great resources. What type of EC2 instance should we use?
General Purpose
- 4** We have a large amount of graphical data to process. What type of EC2 instance should we use?
Accelerated Computing



Do you
have any
questions?

Send it to us! We hope you learned
something new.