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LESSON : AWS

SUBJECT: EC2

BATCH : B 303

AWS-DEVOPS



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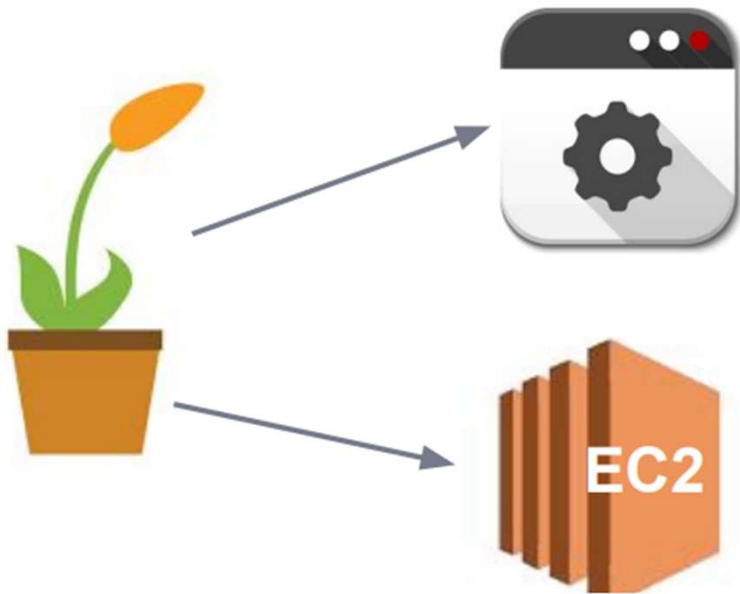
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Introduction to EC2

Introduction to EC2

What is EC2?



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

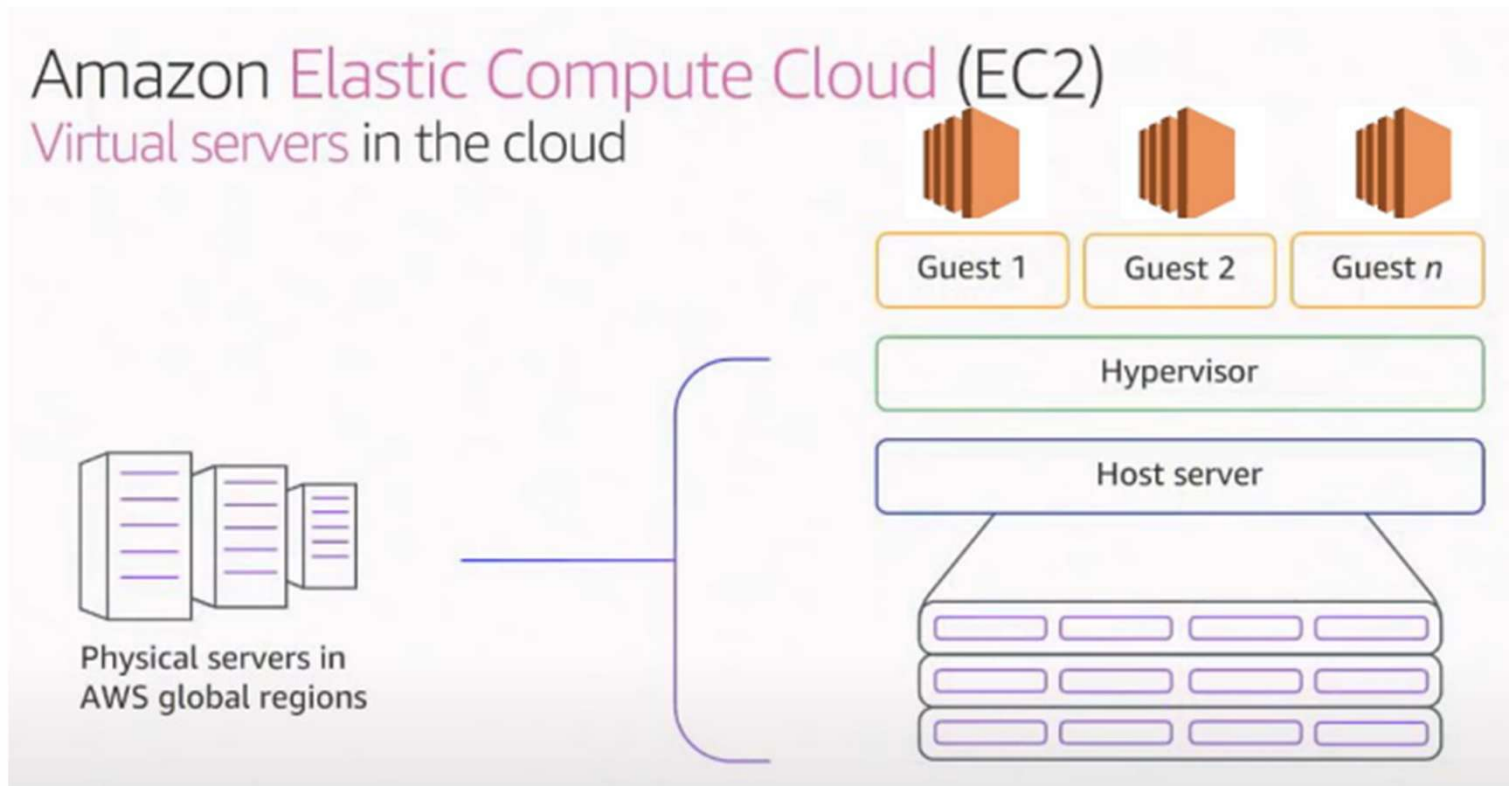
Introduction to EC2

What is EC2?



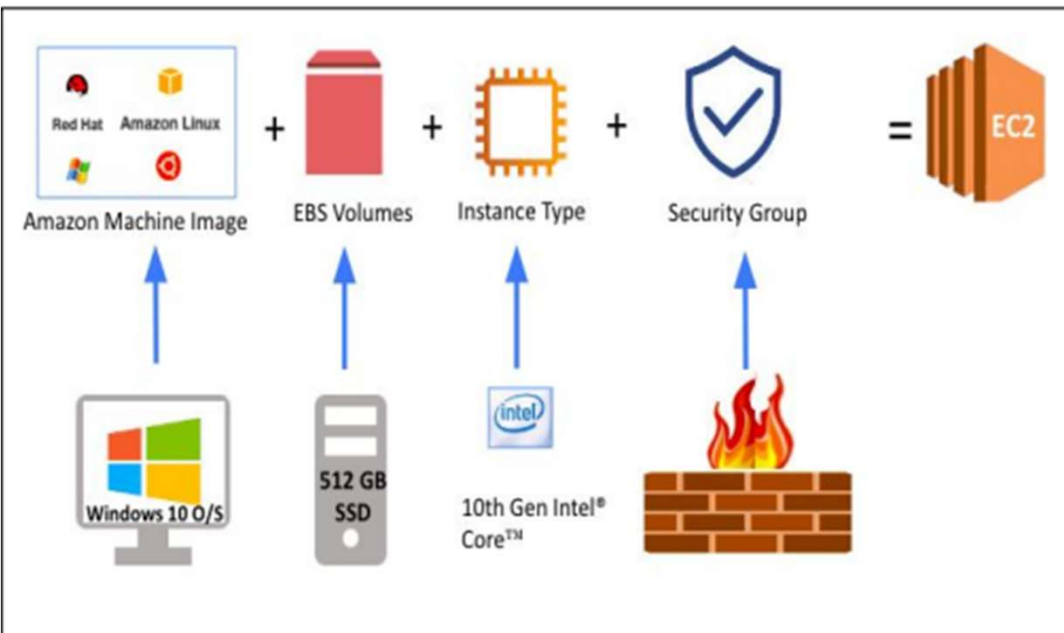
Introduction to EC2

What is EC2?



Introduction to EC2

What is EC2?



- In fact, EC2 is a kind of computer such as your desktop in your home. Components of the EC2 are similar to conventional computer devices.
- Each EC2 component refers to one of the conventional computer parts such as Operation System, Hard Disk and Intel/AMD processors, etc.

Introduction to EC2

EC2 Features



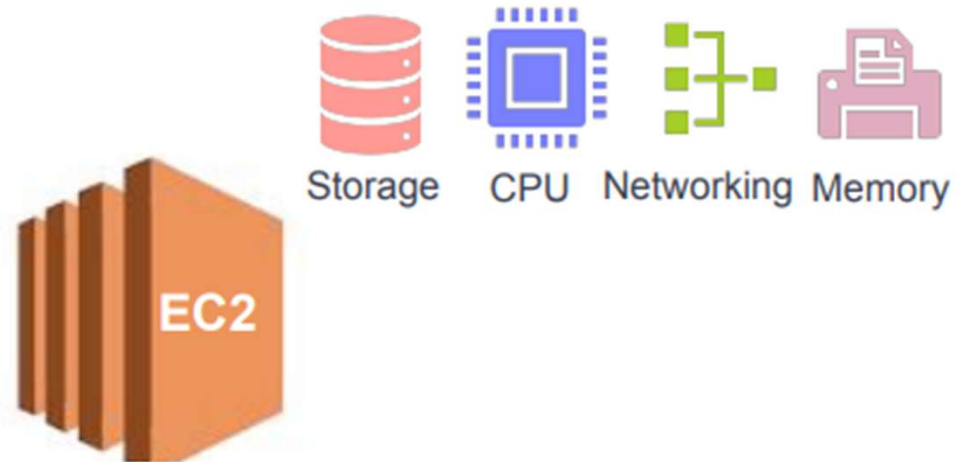
- Pay as you go,
- Setup and ready to use within 1 minute,
- CPU, Memory and Storage Capacity needs can be arranged within minutes,
- Create, Stop or Terminate instances via EC2 console easily.



Types of Instances

EC2 Instances

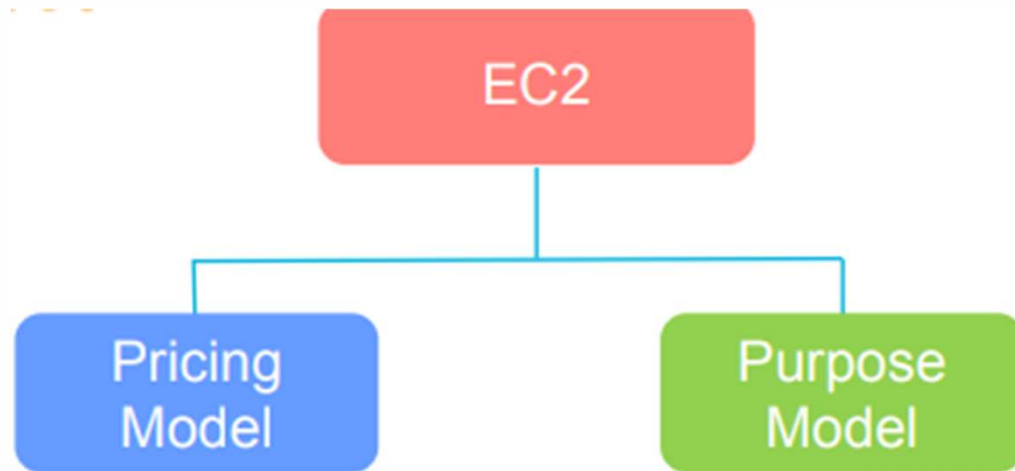
Types of Instances



- Amazon EC2 provides a wide selection of instance types optimized to fit different use cases.
- Instance types comprise varying combinations of **CPU**, **memory**, **storage**, and **networking** capacity

EC2 Instances

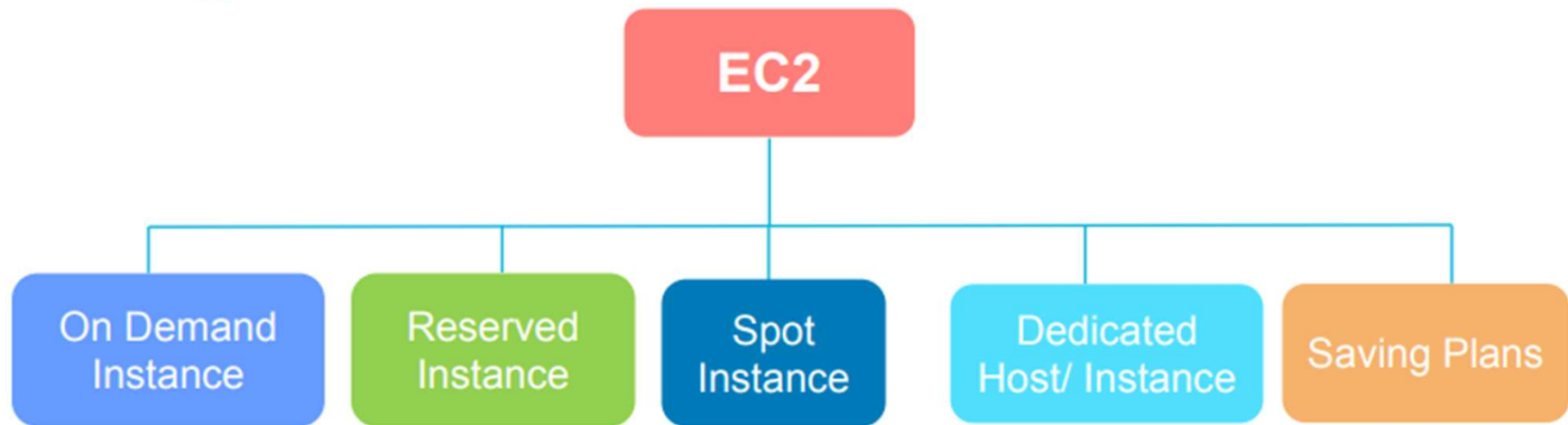
Types of Instances



- Instance types are grouped into a variety of families based on target application profiles and pricing options. It is possible to categorize EC2 types under two main perspective :
- These are Pricing Model and Purpose Model.

EC2 Instances

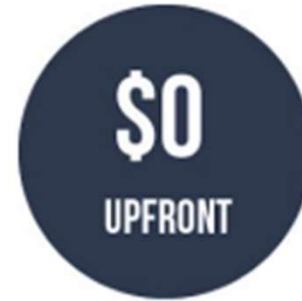
Pricing Model of Instances



When we look at the pricing perspective, AWS offers 5 different types of instance pricing.

EC2 Instances

On Demand Instances



- You pay for compute capacity by the “hour “or the “second”
- No commitments
- No upfront payments
- You can increase or decrease your compute capacity
- Pre-estimated

EC2 Instances

On Demand Instances



On-Demand instances are recommended for

- Users that prefer the low cost and flexibility of Amazon EC2 without any up-front payment or long-term commitment
- Applications with short-term, spiky, or unpredictable workloads that cannot be interrupted

EC2 Instances

On Demand Instances

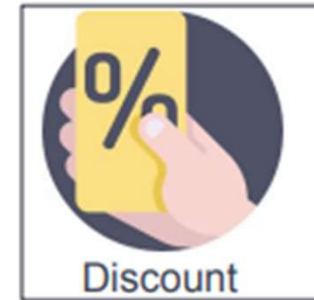
- t2.micro in us-east-1 (N.Virginia)
- cost : \$ 0.0116/hour



- 25 seconds usage--->>> $\$ 0.0116 / 60 = \$ 0.00019$ (min 60 seconds)
- 60 seconds usage--->>> $\$ 0.0116 / 60 = \$ 0.00019$ (min 60 seconds)
- 30 minutes usage--->>> $\$ 0.0116 / 2 = \$ 0.0058$)
- 1 month usage---->>> $\$ 0.0116 * 24 * 30 = \$ 8.32$)

EC2 Instances

Reserved Instances (RI)



- Reserved Instances provide you with a significant discount (up to 75%) compared to On-Demand instance pricing.
- It is a tariff that takes advantage of the discounted price by giving AWS a 1 or 3-year commitment.

EC2 Instances

Reserved Instances (RI)



Reserved Instances are recommended for:

- Applications with steady state usage
- Applications that may require reserved capacity
- Customers that can commit to using EC2 over a 1 or 3 year term to reduce their total computing costs

EC2 Instances

Scheduled Reserved Instances



- It's an Instance model derived from Reserved Instance
- This model is very similar to the Reserved Instance and provides you to make the purchase over 24 hours.
- Thanks to the Scheduled Reserved Instance, you can run an instance only between the hours you reserved in reduced price.

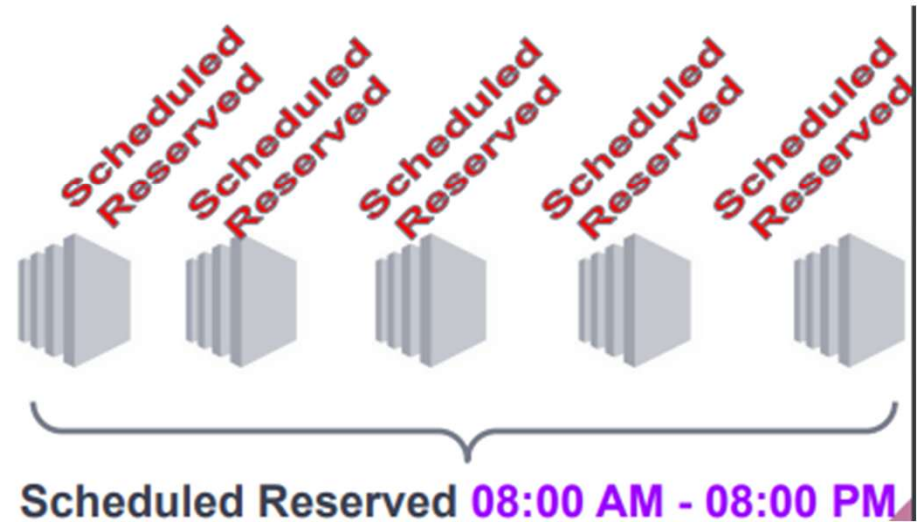
EC2 Instances

Example

www.e-commerce



RESERVED INSTANCE: 7/24



EC2 Instances

Spot Instance



- In Spot Instance, you can enter a purchase order by setting a target price.
- The machine runs when the current price falls below the target price.
- The machine automatically shuts down if the price exceeds that target price.
- You can save up to 90% cost advantage.

EC2 Instances

Spot Instance

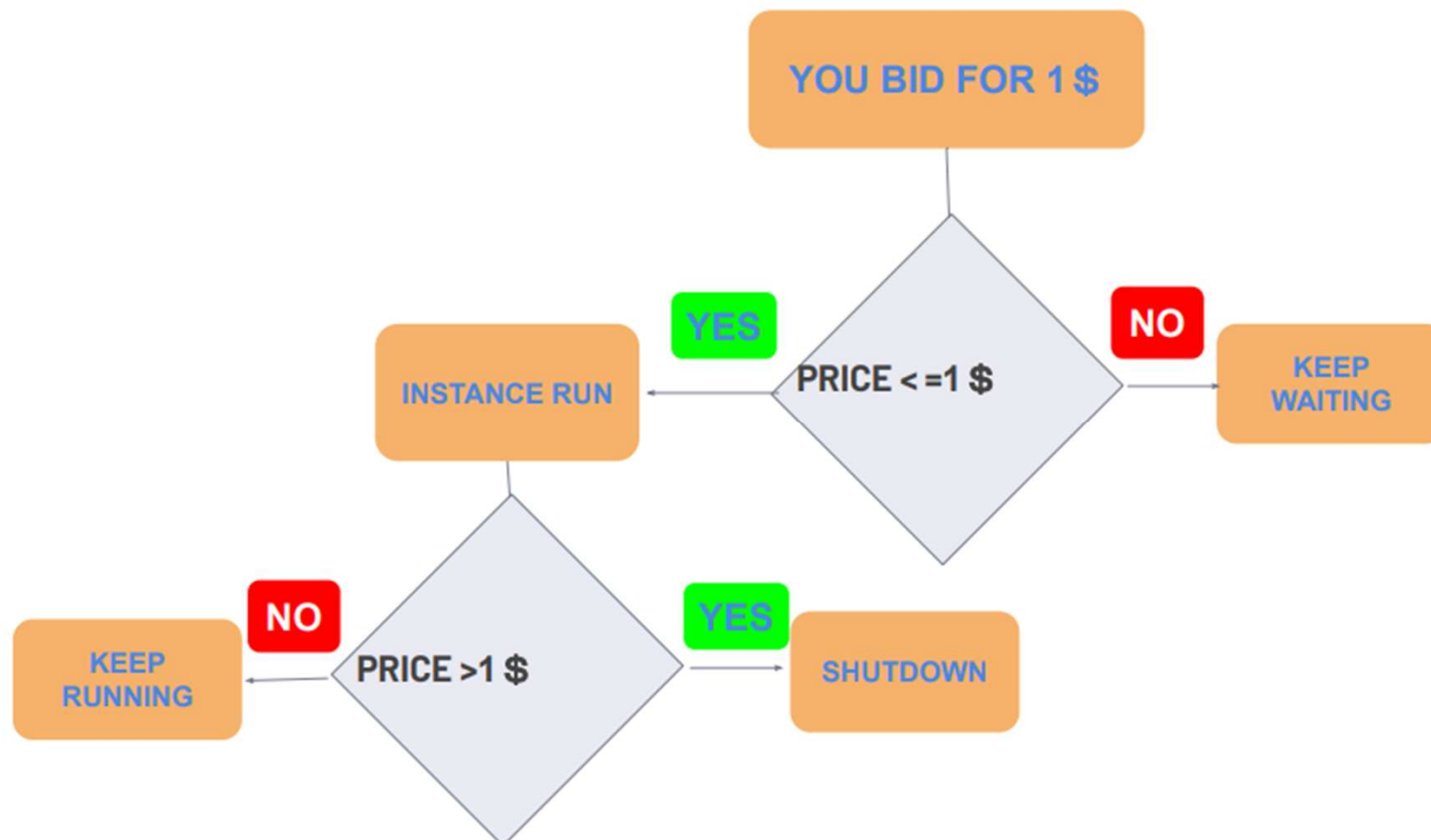


Spot instances are recommended for:

- Applications that have flexible start and end times
- Non-continuity jobs such as testing

EC2 Instances

Spot Instance



EC2 Instances

Spot Instance vs. On Demand Price



Pay for 45 minutes



45
minutes



Spot Instance

???????

EC2 Instances

Dedicated Host/Instance



- A Dedicated Host is a physical server the whole capacity of which EC2 instance is dedicated to your use.
- Not only your instances are reserved but also they are physically separated from the other servers.
- A Dedicated Host consists of Dedicated Instance capacities according to your needs. You may choose to buy a Dedicated Host or only one Dedicated Instance also.

EC2 Instances

Saving Plans

ON DEMAND



5000 HOURS OF USAGE

1500\$

SAVING PLAN

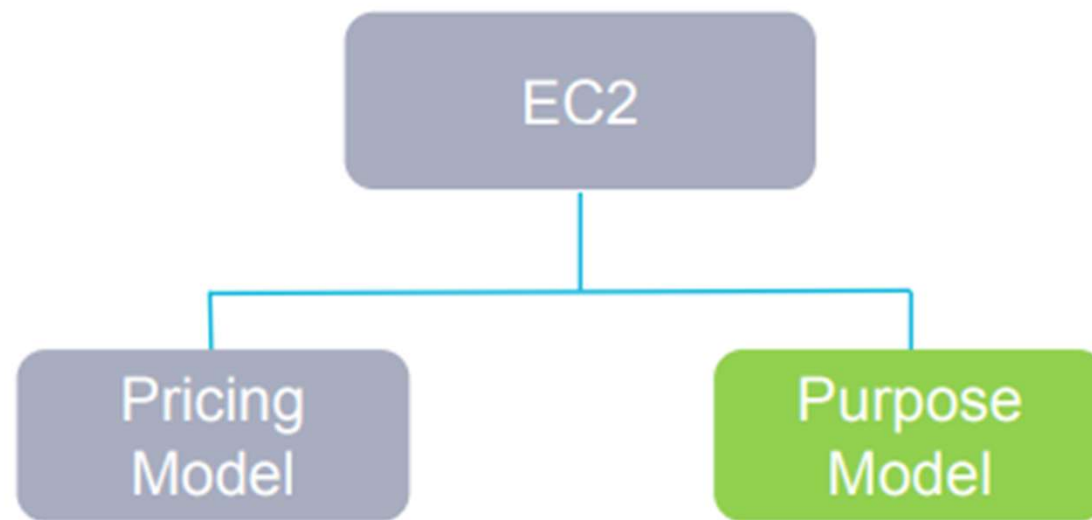


5000 HOURS OF USAGE

1000\$

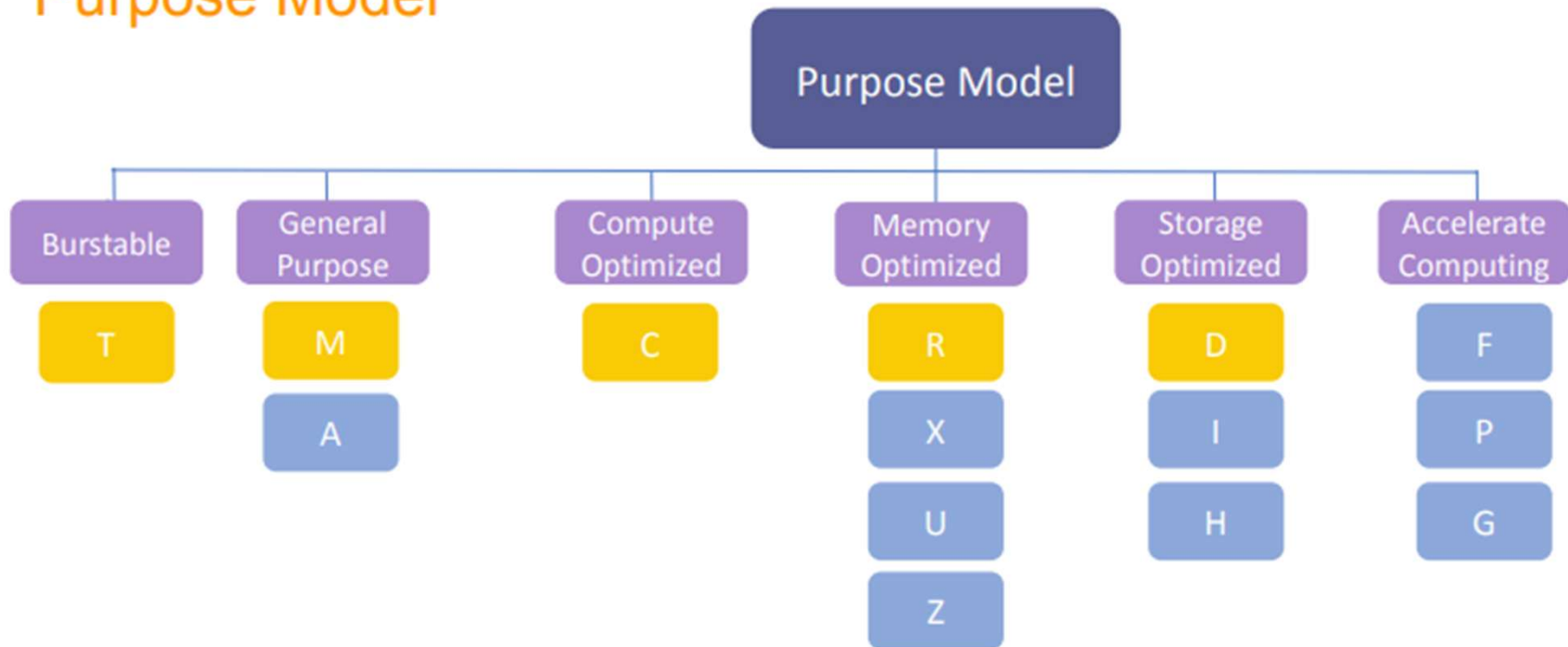
EC2 Instances

Purpose Model



EC2 Instances

Purpose Model



- AWS offers 14 different types of virtual machines in 6 categories

EC2 Instances

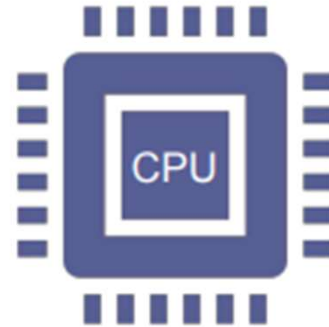
General Purpose



- General purpose instances provide a balance of compute, memory and networking resources, and can be used for a variety of diverse workloads.
- There are T, M and A options that we can use for standard and application needs.
 - This is the most commonly used instance type and ideal for web servers.

EC2 Instances

Compute Optimized



- Compute Optimized instances are ideal for compute bound applications that benefit from high performance processors.
- Instances belonging to this family are well suited for batch processing workloads, media transcoding, high performance web servers, dedicated gaming server, etc.

EC2 Instances

Memory Optimized



- Memory optimized instances are used in situations requiring a high-performance database, real-time large data analytics, and high memory usage.
- There are R, X, Z and U type instances in this category.

EC2 Instances

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.
- It is the best used for the fast disk structures we need in NoSQL databases or data warehouse solutions.
- There are D, H and I type of instances in this category.

EC2 Instances

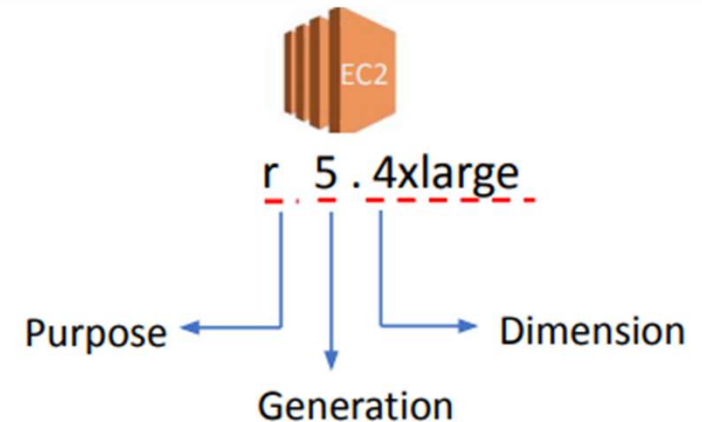
Accelerated Computing



- Preferred when you need machine learning, deep learning calculation, and analysis.
- There are F, P and G type of instances in this category.

EC2 Instances

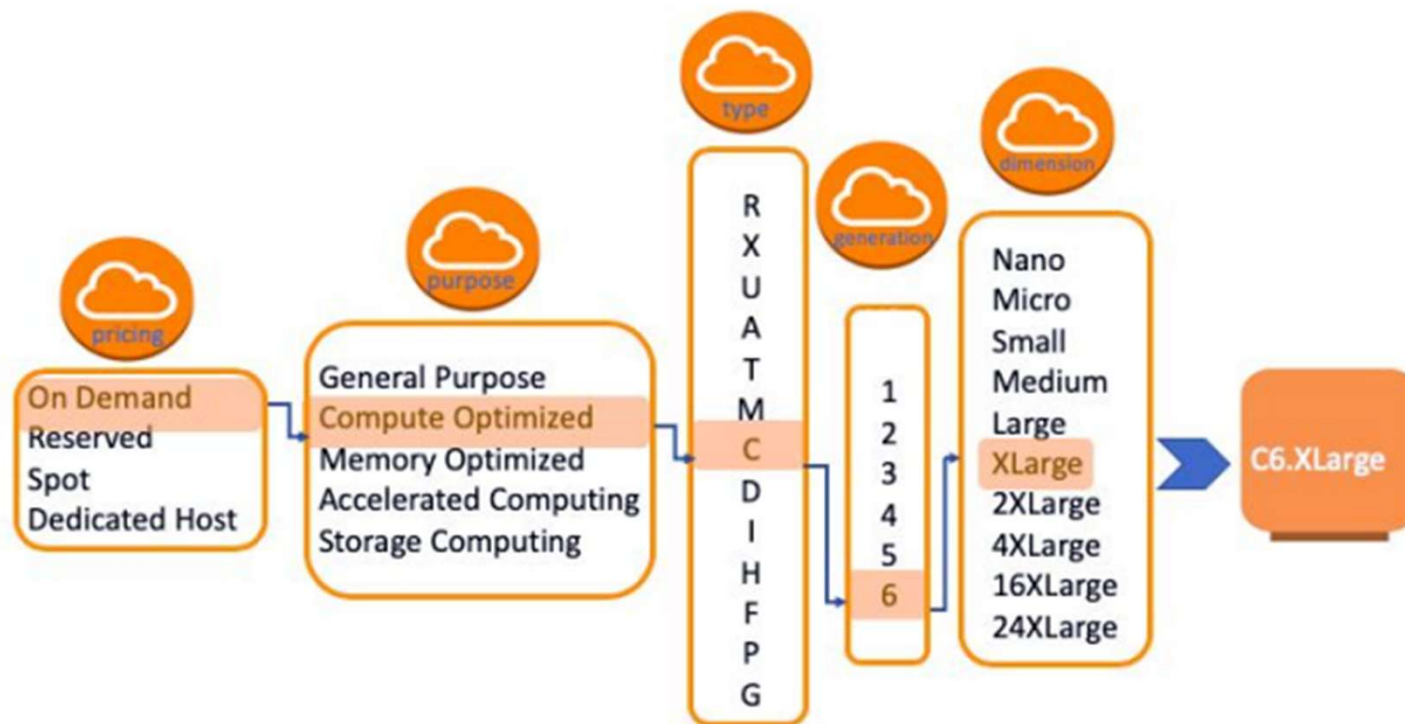
Instance Coding



- R refers to its purpose. It means this EC2 is Memory Optimized instance.
- 5 refers to instance generation. For example, the last generation of the r-family is 5.
- 4xlarge refers to dimension of instance. AWS has built servers of various sizes to suit every need in instance families. For example, the r5-family has 8 different sizes starting from large to 24xlarge.
- Not all models have instances in every generation and size.

EC2 Instances

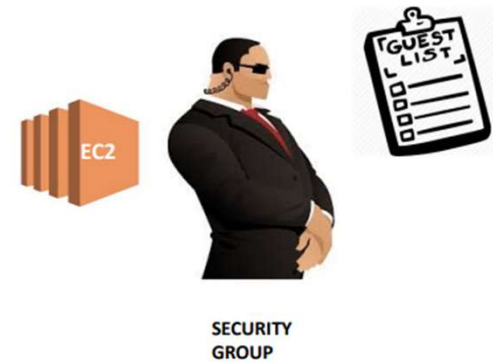
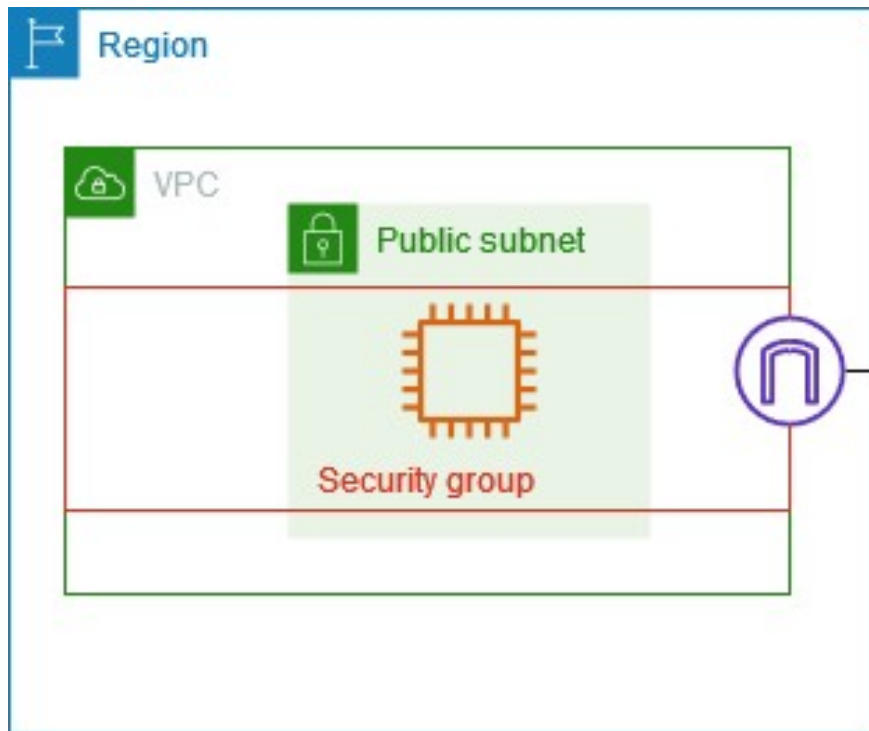
Instance Coding



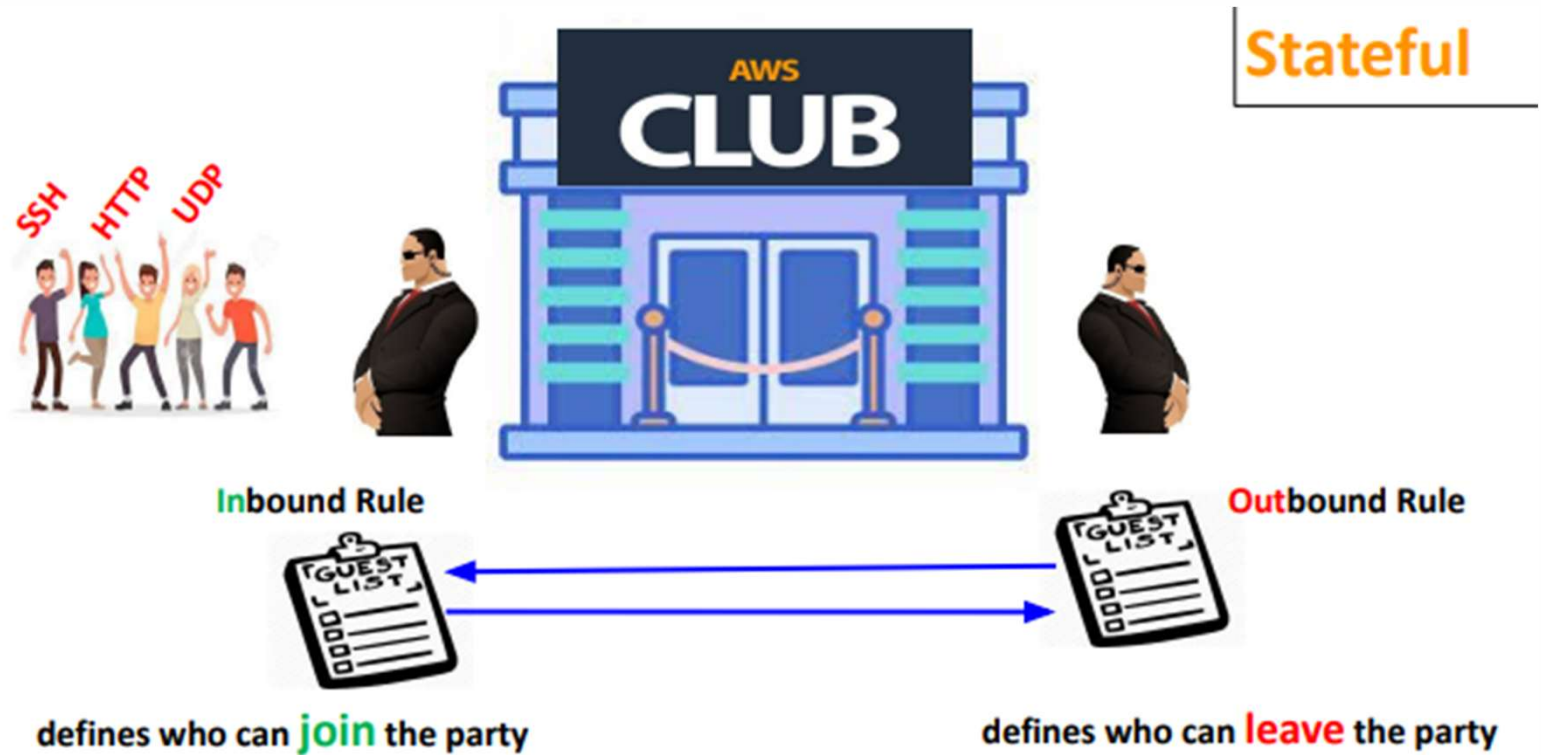


Security Groups

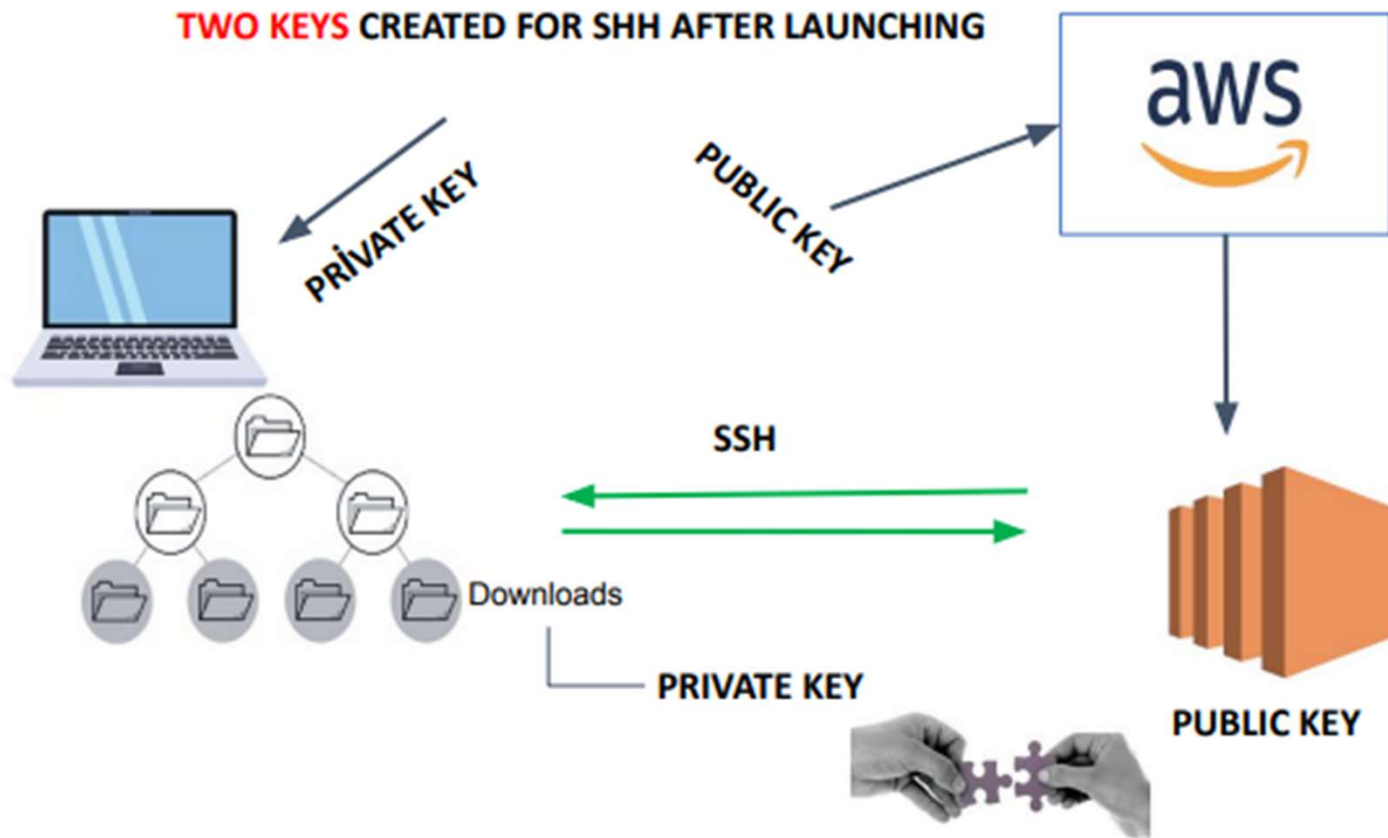
Security Groups



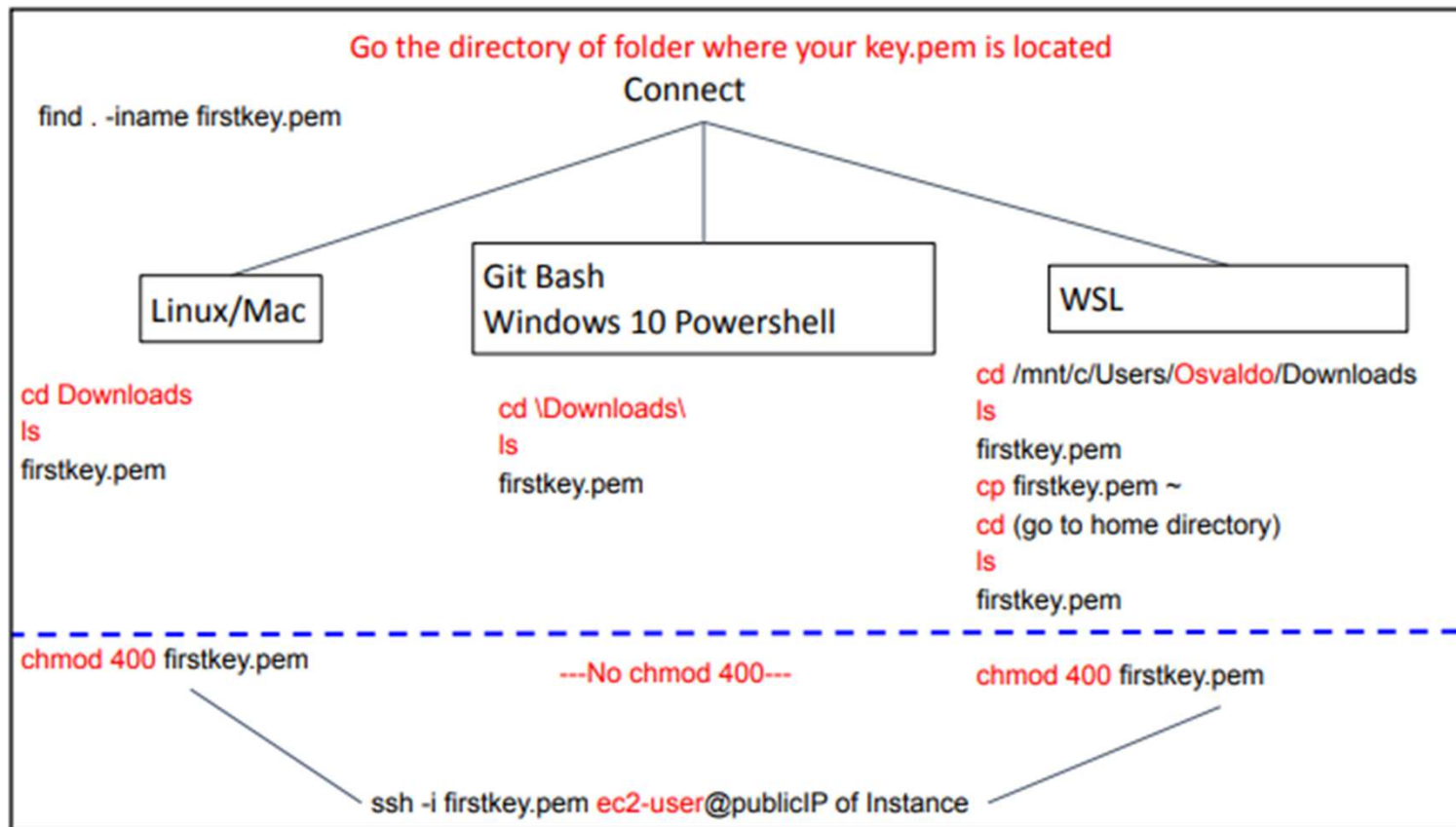
Security Groups



Recap



Recap



Recap



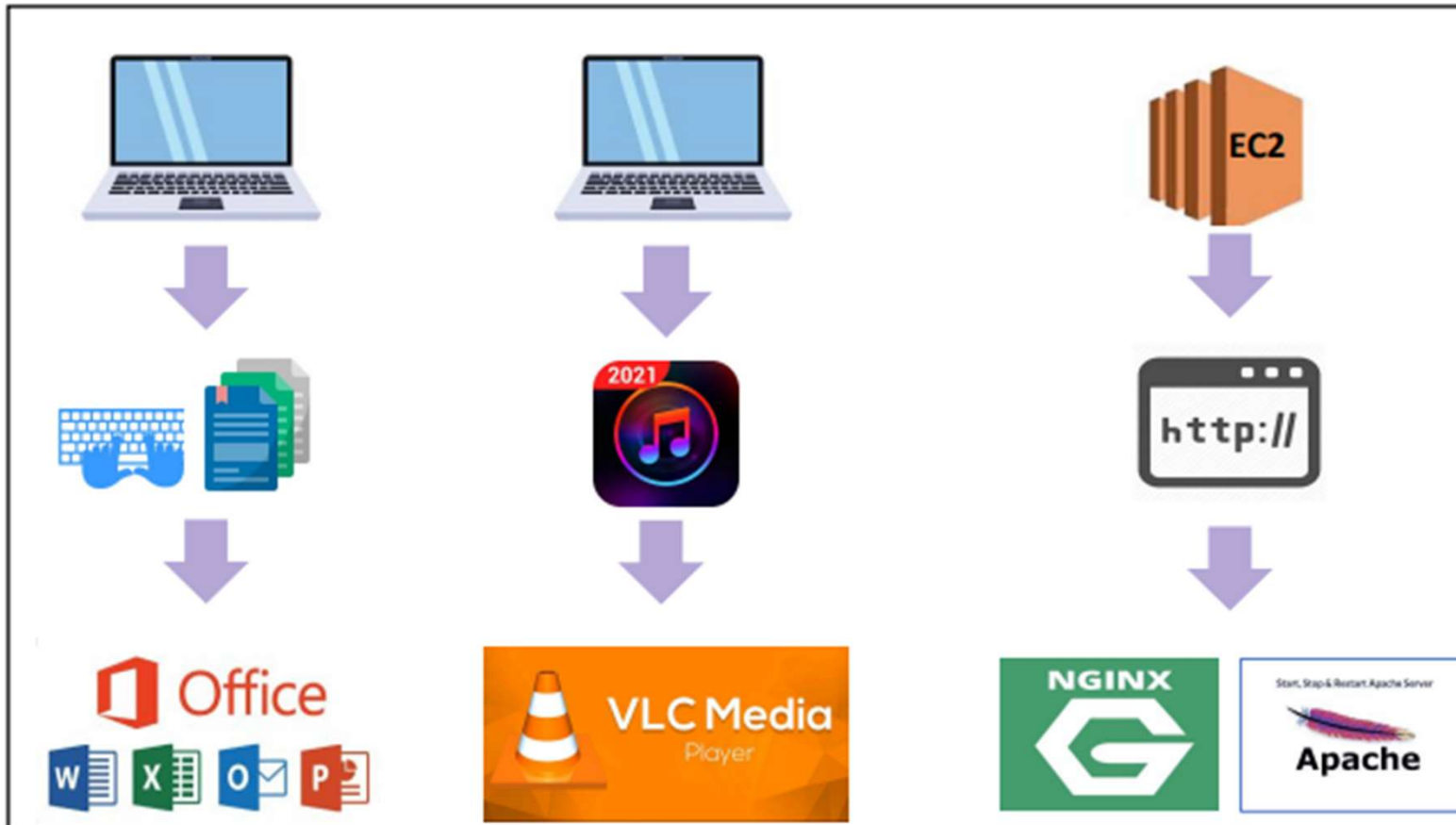
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APPLICATION

EC2



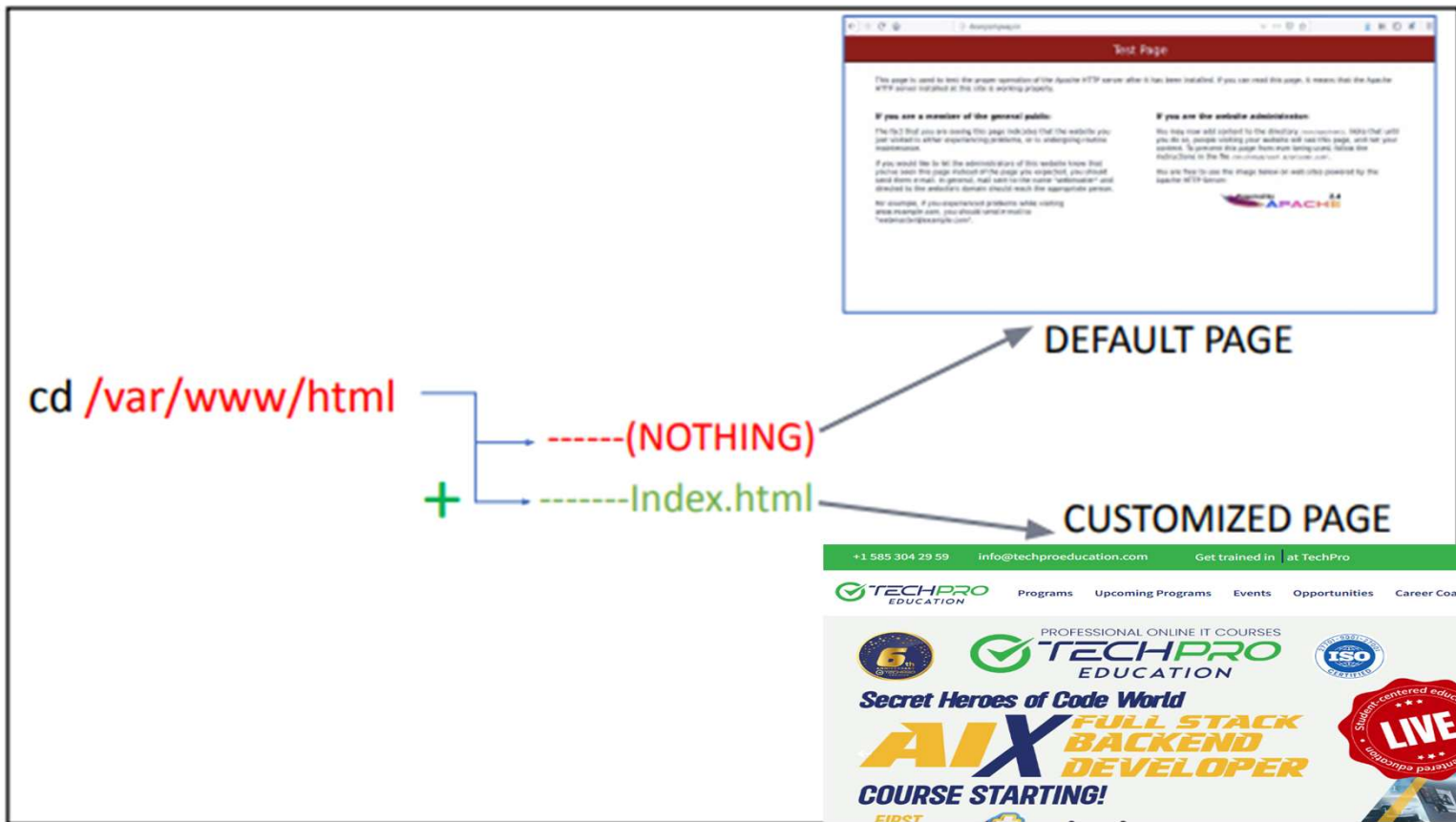
Recap



Recap



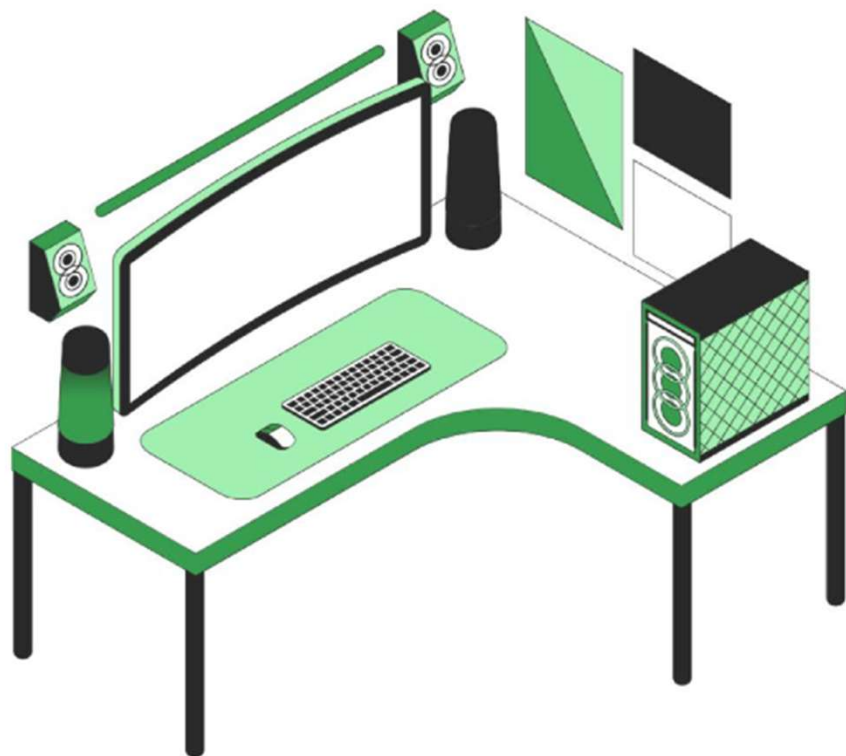
Recap





HOMEWORK

WEB SERVERLARI ARAŞTIRALIM...



Do you have any questions?

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