



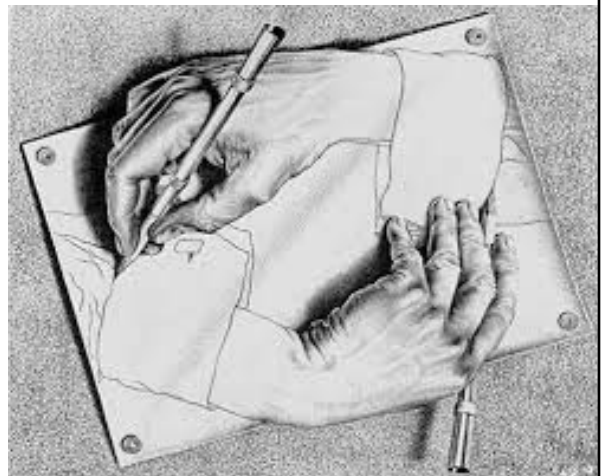
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# Introduction to EC2



## Today's Takeaways

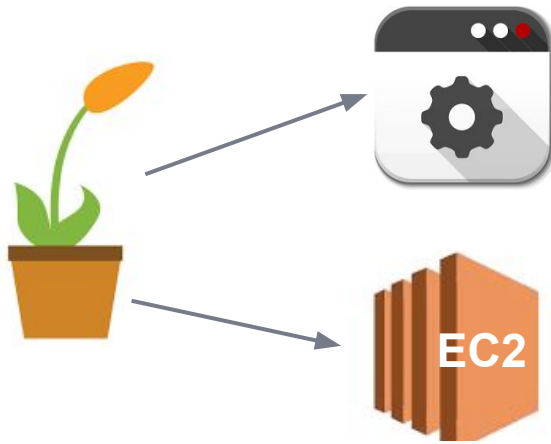
- ▶ Introduction to EC2
- ▶ EC2 Instance Types
- ▶ Creating an EC2 instance





# Introduction to EC2

## What is EC2?

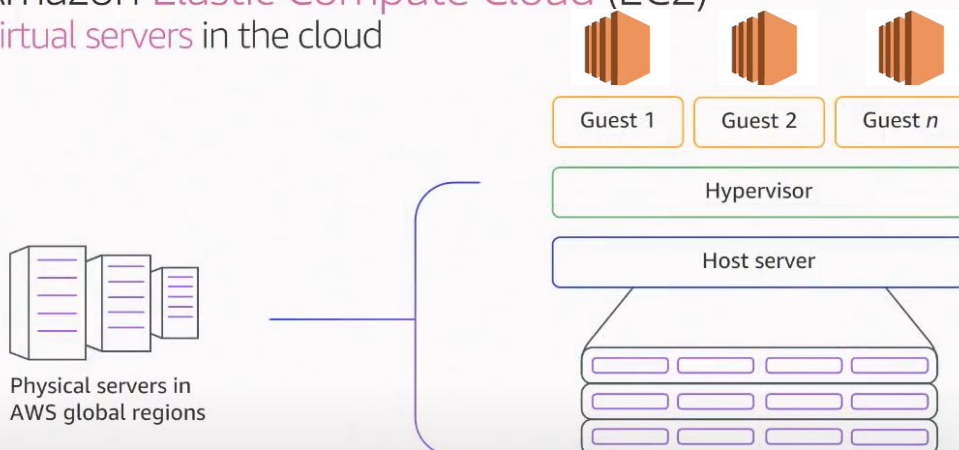


- EC2 stands for **Elastic Compute Cloud** in AWS.
- EC2 is a service that **allows you to run application** programs in the computing environment.
- EC2 is a web service that provides **secure, resizable compute capacity** in the cloud. It is designed to make web-scale cloud computing easier for developers.



## Amazon Elastic Compute Cloud (EC2)

### Virtual servers in the cloud

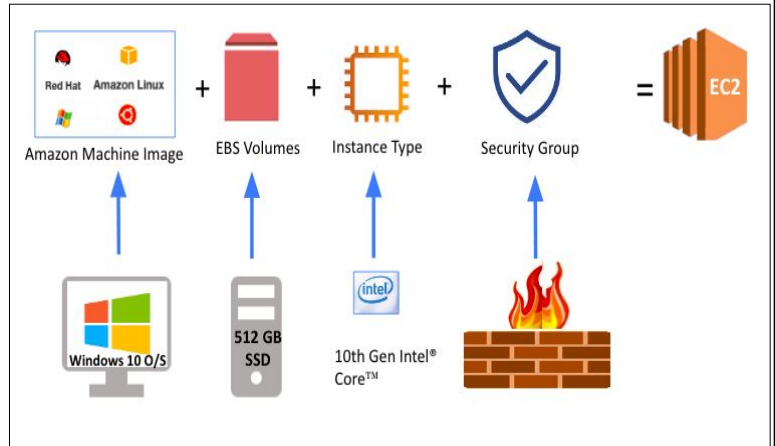




# Introduction to EC2

## 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.



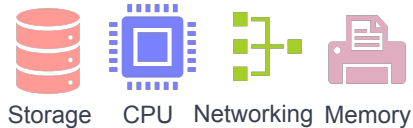
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# Types of Instances



## EC2 Instances

### Types of Instances

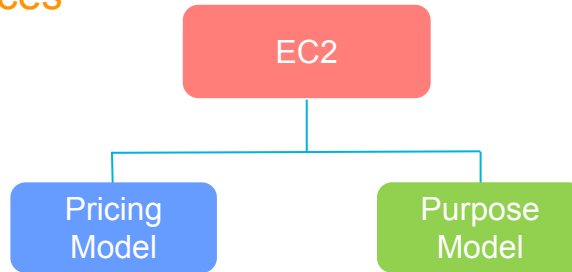


- Amazon EC2 provides a wide selection of instance types optimized to fit different use cases.
- Instance types comprise varying combinations of CPU, memory, storage, and networking capacity



# EC2 Instances

## Types of Instances

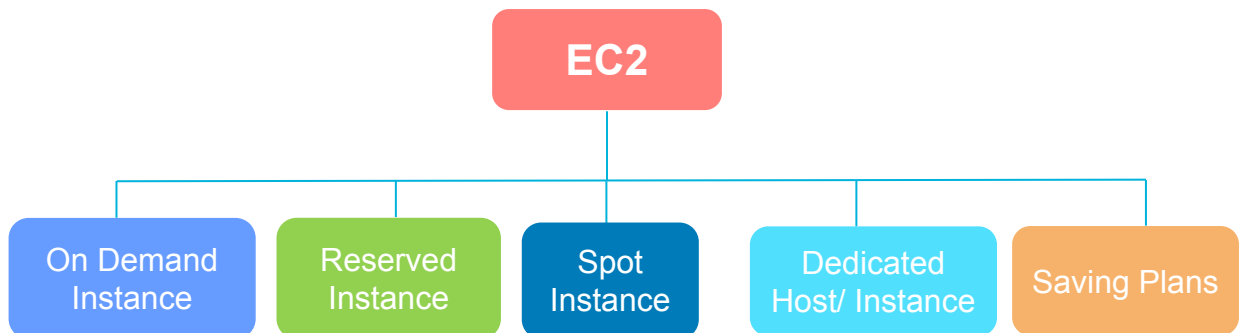


- Instance types are grouped into a variety of families based on target application profiles and pricing options. It is possible to categorize EC2 types under **two main perspective** :
- These are **Pricing Model** and **Purpose Model**.



# EC2 Instances

## Pricing Model of Instances

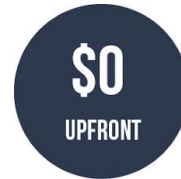


When we look at the pricing perspective, AWS offers 5 different types of instance pricing.



## 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 Pricing

- 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---->>>  $\$ 0.0116 * 24 * 30 = \$ 8.32$

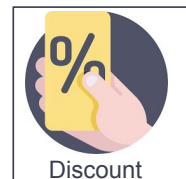


## EC2 Instances

### Reserved Instances (RI)



Commitments



Discount

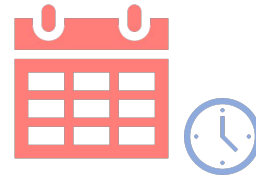


- Reserved Instances provide you with a **significant discount (up to 75%)** compared to On-Demand instance pricing.
- It is a tariff that takes advantage of the discounted price by giving AWS a **1 or 3-year commitment**.



## EC2 Instances

### 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

### 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

### Example

www.e-commerce



RESERVED INSTANCE: 7/24



CLARUSWAY  
WAY TO REINVENT YOURSELF

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## 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.

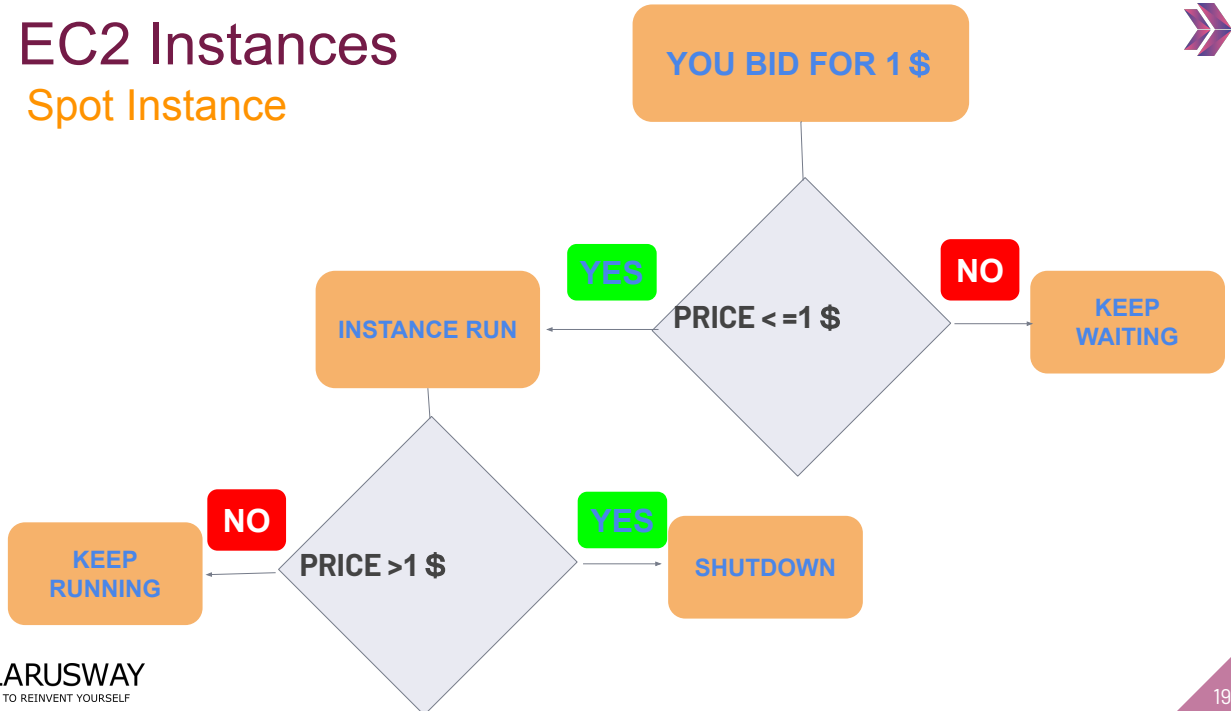
CLARUSWAY  
WAY TO REINVENT YOURSELF

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## EC2 Instances

### Spot Instance



## EC2 Instances

### Spot Instance vs. On Demand Price



**Pay for 45 minutes**



**45  
minutes**



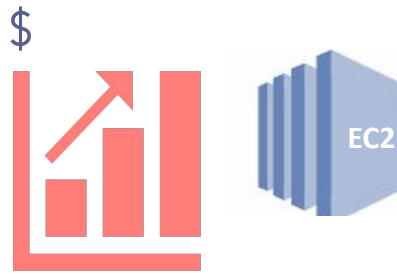
**Spot Instance**

**???????**



## EC2 Instances

### Spot Instance



Spot instances are recommended for:

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



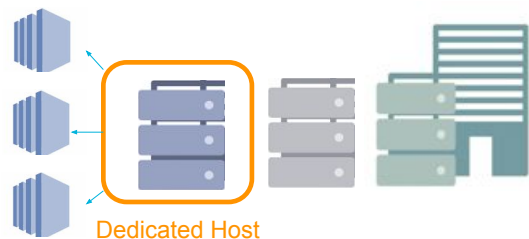
## EC2 Instances

### Dedicated Host/Instance

A Dedicated Host is a physical server the whole capacity of with EC2 instance is dedicated to your use.

Not only your instances are reserved but also they 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 Recap



Dedicated  
Host/Instance

Spot



On Demand

Reserved

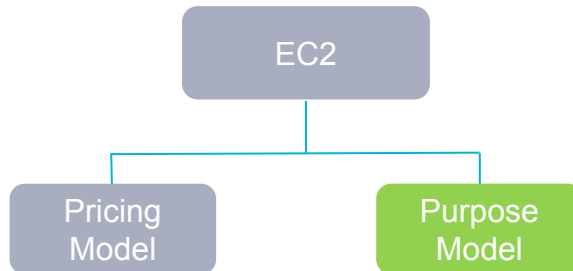
Saving Plan





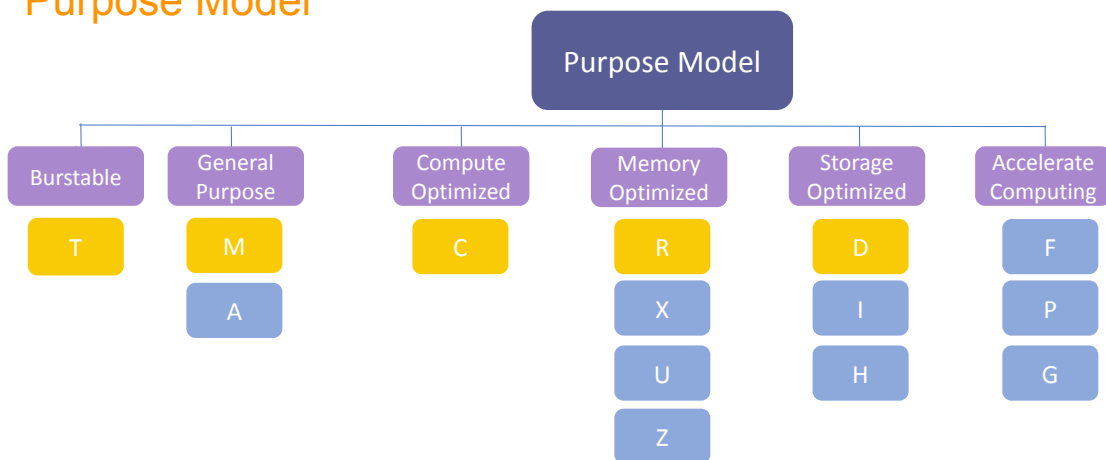
# EC2 Instances

## Types of Instances Recap



# EC2 Instances

## Purpose Model

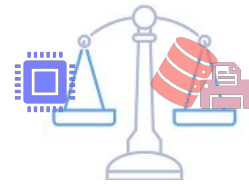


AWS offers 14 different types of virtual machines in 6 categories



## EC2 Instances

### General Purpose



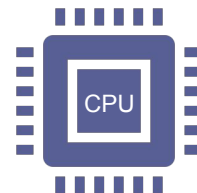
General Purpose

- 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

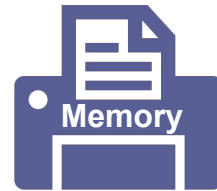


- Compute Optimized instances are ideal for compute bound applications that benefit from **high performance processors**.
- Instances belonging to this family are well suited for batch processing workloads, media transcoding, high performance web servers, dedicated gaming server, etc.



## 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

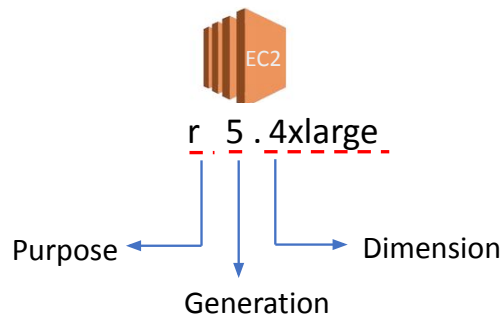


- Preferred when you need machine learning, deep learning calculation, and analysis.
- There are F, P and G type of instances in this category.



## 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.





## Introduction to EC2

Let's get our hands dirty!

- Introduction of EC2 console
- Creating an EC2 instance
- Creating an EC2 instance with user data
- Working with Instance Actions



# THANKS!

## Any questions?

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