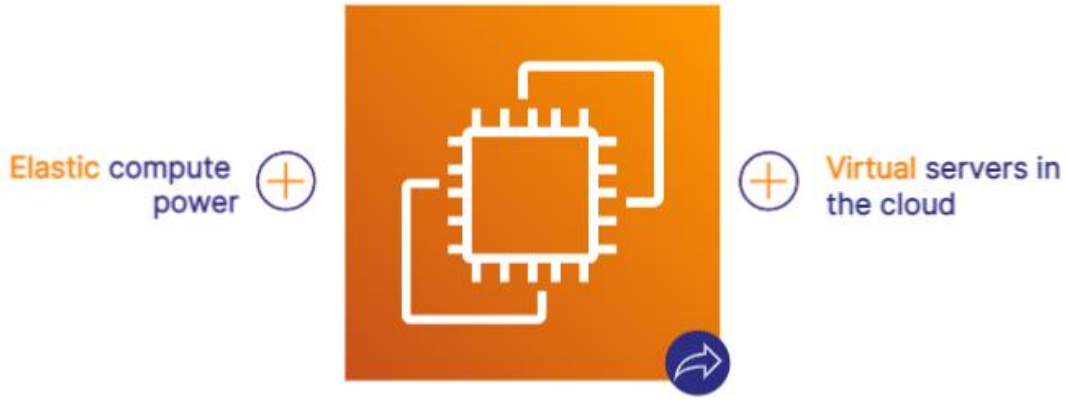
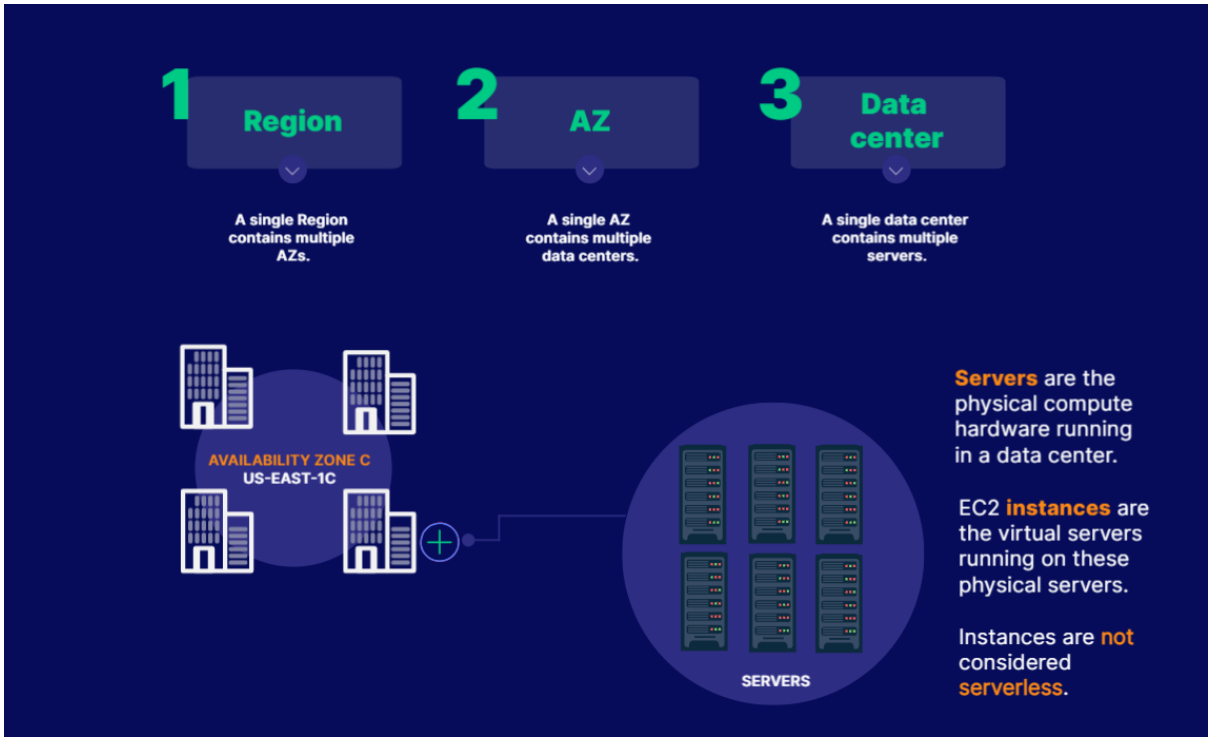
Elastic Compute Cloud (EC2):

- EC2 allows you to rent and manage virtual servers in the cloud.
- EC2 is a foundational service used for managing your virtual instances.





Methods to Access an EC2 Instance

There are several ways to access your EC2 instances.

AWS Management Console

You're able to configure and manage your instances via a web browser.

Secure Shell (SSH)

SSH allows you to establish a secure connection to your instance from your local laptop.

EC2 Instance Connect (EIC)

EIC allows you to use IAM policies to control SSH access to your instances, removing the need to manage SSH keys.

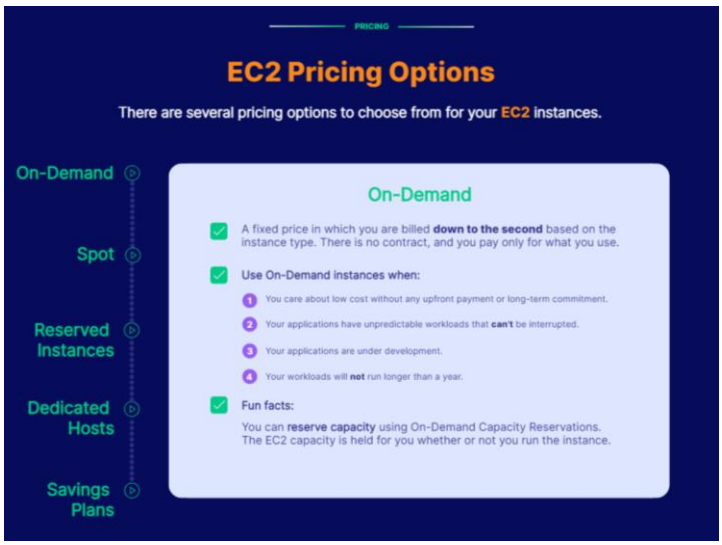
AWS Systems Manager

Systems Manager allows you to manage your EC2 instances via a web browser or the AWS CLI.

The most common way to connect to Linux **EC2** instances is via **Secure Shell (SSH)**.

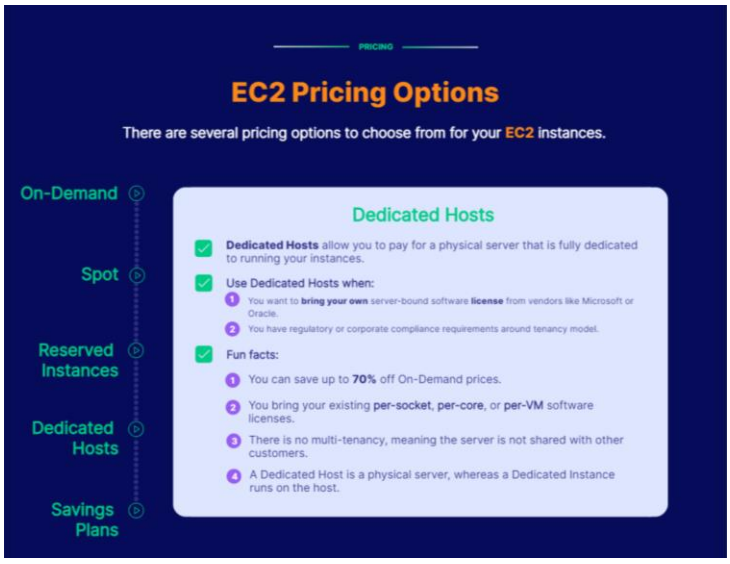
1 Generate a key pair

2 Connect via SSH




PRICING
EC2 Pricing Options
There are several pricing options to choose from for your EC2 instances.
On-Demand
Spot
Reserved Instances
Dedicated Hosts
Savings Plans
Spot
Spot instances let you take advantage of unused EC2 capacity. Your request is fulfilled only if capacity is available.
Use Spot instances when:
1 You are not concerned about the start or stop time of your application.
2 Your workloads can be interrupted.
3 Your application is only feasible at very low compute prices.
Cheapest Option
Fun facts:
1 You can save up to 90% off On-Demand prices.
2 You pay the spot price that's in effect at the beginning of each hour.


PRICING
EC2 Pricing Options
There are several pricing options to choose from for your EC2 instances.
On-Demand
Spot
Reserved Instances
Dedicated Hosts
Savings Plans
Reserved Instances (RIs)
RIs allow you to commit to a specific instance type in a particular Region for 1 or 3 years.
Use Reserved Instances when:
1 Your application has steady state usage, and you can commit to 1 or 3 years.
2 You can pay money upfront in order to receive a discount on On-Demand prices.
3 Your application requires a capacity reservation.
Fun facts:
1 You can save up to 75% off On-Demand prices.
2 You are required to sign a contract.
3 You can reserve capacity in an Availability Zone for any duration.
4 You can pay All Upfront, Partial Upfront, or No Upfront. All Upfront for the max term earns the highest discount.
5 Provides convertible types at 54% discount.


PRICING
EC2 Pricing Options
There are several pricing options to choose from for your EC2 instances.
On-Demand
Spot
Reserved Instances
Dedicated Hosts
Savings Plans
Dedicated Hosts
Dedicated Hosts allow you to pay for a physical server that is fully dedicated to running your instances.
Use Dedicated Hosts when:
1 You want to bring your own server-bound software license from vendors like Microsoft or Oracle.
2 You have regulatory or corporate compliance requirements around tenancy model.
Fun facts:
1 You can save up to 70% off On-Demand prices.
2 You bring your existing per-socket, per-core, or per-VM software licenses.
3 There is no multi-tenancy, meaning the server is not shared with other customers.
4 A Dedicated Host is a physical server, whereas a Dedicated Instance runs on the host.

PRICING

EC2 Pricing Options

There are several pricing options to choose from for your EC2 instances.

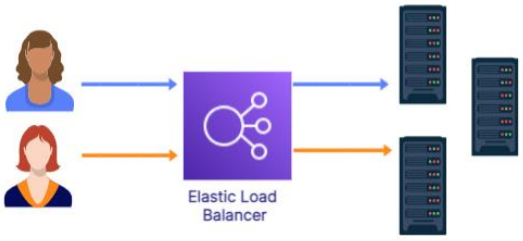
- On-Demand
- Spot
- Reserved Instances
- Dedicated Hosts
- Savings Plans

Savings Plan

- **Savings Plan** allows you to commit to compute usage (measured per hour) for **1** or **3** years.
- Use Savings Plans when:
  1. You want to lower your bill across multiple compute services.
  2. You want the flexibility to change compute services, instance types, operating sytems, or Regions.
- Fun facts:
  1. You can save up to **72%** off On-Demand prices.
  2. You are not making a commitment to a Dedicated Host, just compute usage.
  3. Savings can be shared across various compute services like EC2, Fargate, and Lambda.
  4. This does **not** provide a capacity reservation.

1

Elastic Load Balancing automatically distributes your **incoming application traffic** across multiple EC2 instances.



CLASSIC LOAD BALANCERS | APPLICATION LOAD BALANCERS | GATEWAY LOAD BALANCERS | NETWORK LOAD BALANCERS

2

EC2 Auto Scaling adds or replaces EC2 instances automatically across AZs, **based on need and changing demand**.

HORIZONTAL SCALING OR SCALING OUT

Auto Scaling reduces the impact of system failures and improves the availability of your applications.

Do **not** confuse horizontal scaling with vertical scaling (or **scaling up**), which **upgrades** an EC2 instance by adding more power (CPU, RAM) to an **existing server**.

EC2 pricing options

Understand On-Demand, Spot, Reserved Instances, Dedicated Hosts, and Savings Plans.

Know the types of load balancers

Classic, Application, Gateway, and Network

Understand real-world usage of EC2 instances

Deploying a database or a web application

Horizontal scaling vs. vertical scaling

Horizontal scaling (or scaling out) adds or replaces instances, while vertical scaling (or scaling up) upgrades an existing instance.

Understand the benefits of Auto Scaling

Remember Auto Scaling improves the availability of your applications, and don't confuse it with load balancing.

Understand how to connect to an EC2 instance from your local machine

A key pair is needed to access an EC2 instance from your local machine.