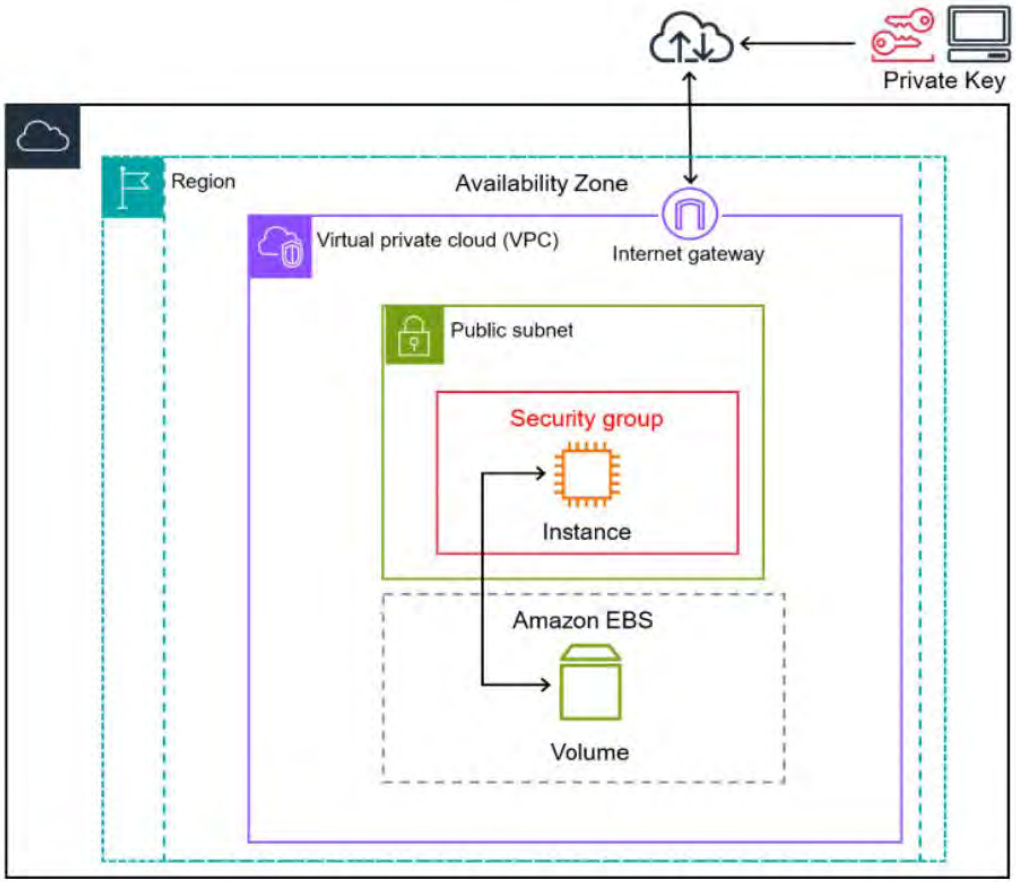
iamneo

Amazon EC2

Introduction to Amazon EC2

- Amazon Elastic Compute Cloud (Amazon EC2) is a web service that
- provides secure, resizable compute capacity in the cloud.
- Access reliable, scalable infrastructure on demand. Scale capacity within minutes with SLA commitment of 99.99% availability. Provide secure compute for your applications.

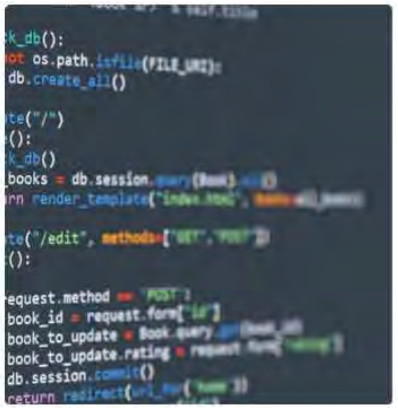
Introduction to Amazon EC2



Introduction to Amazon EC2

1. A computing powerhouse
2. Flexible and reliable
3. Affordable and cost-effective

What can you do with Amazon EC2?

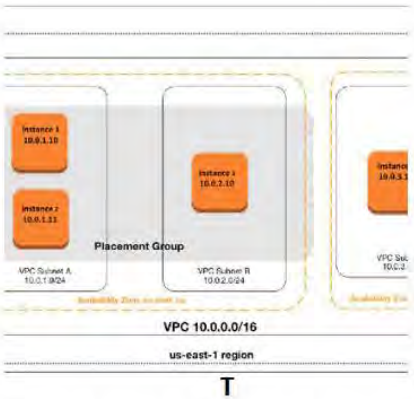


Application Development

Use EC2 as an environment to develop, test, and deploy applications, from simple web apps to complex enterprise solutions.

Big Data

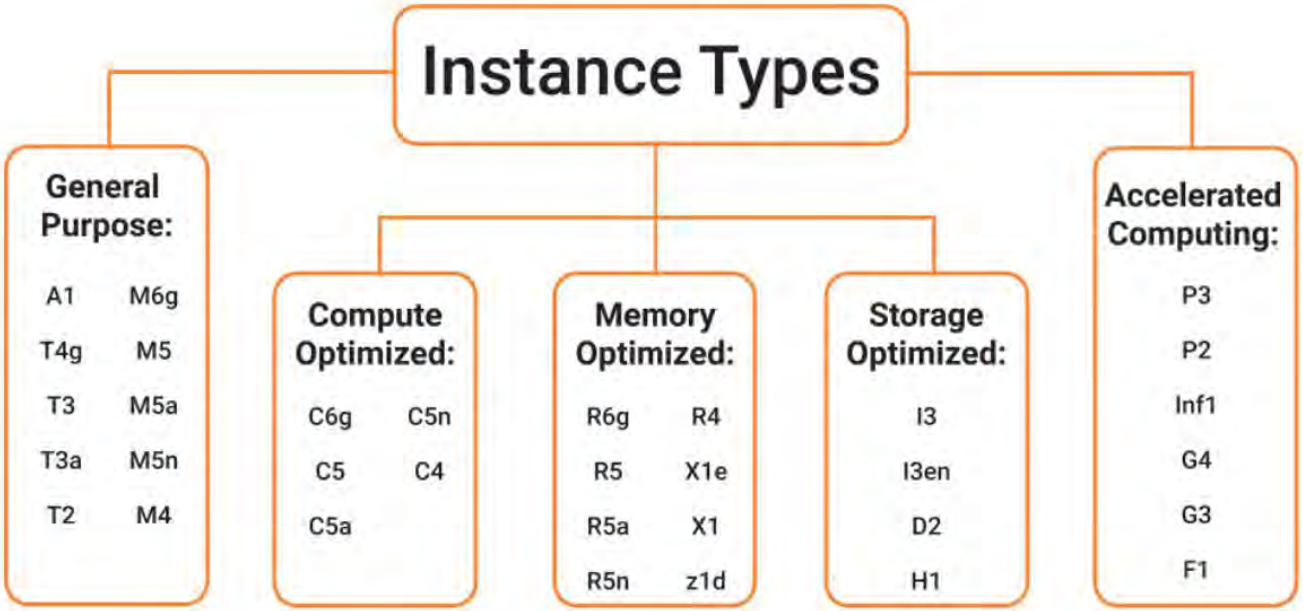
Run big data applications and workloads, including Hadoop and Spark, on EC2's powerful clusters of instances.



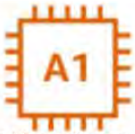
Team Collaboration

EC2 can be used for team collaboration and project management. Share instances and allow various group-level permissions to drive collaboration and productivity.

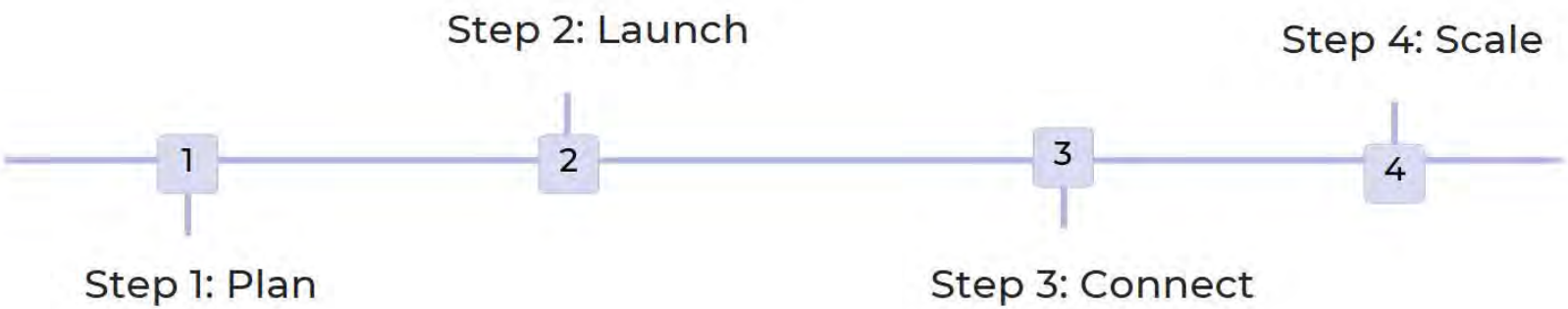
Instance Types



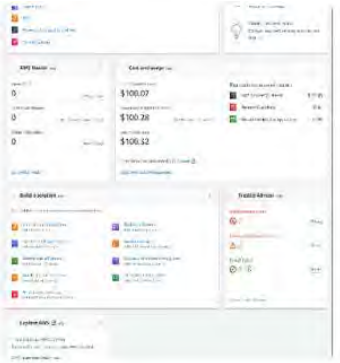
Instance Types

General Purpose	Compute Optimised	Memory Optimised	Accelerated Computing	Storage Optimised
 ARM based core and custom silicon	 Compute - CPU intensive apps and DBs	 RAM - Memory intensive apps and DB's	 Processing optimised- Machine Learning	 High Disk Throughput - Big data clusters
 Tiny - Web servers and small DBs		 Xtreme RAM - For SAP/Spark	 Graphics Intensive - Video and streaming	 IOPS - NoSQL DBs
 Main - App servers and general purpose		 High Compute and High Memory - Gaming	 Field Programmable - Hardware acceleration	 Dense Storage - Data Warehousing

Launching and Configuring EC2 Instances



Introduction to AWS Management Console



Sign Up or Log In

Create and log in to your AWS Management Console account. Follow the instructions to access the console.

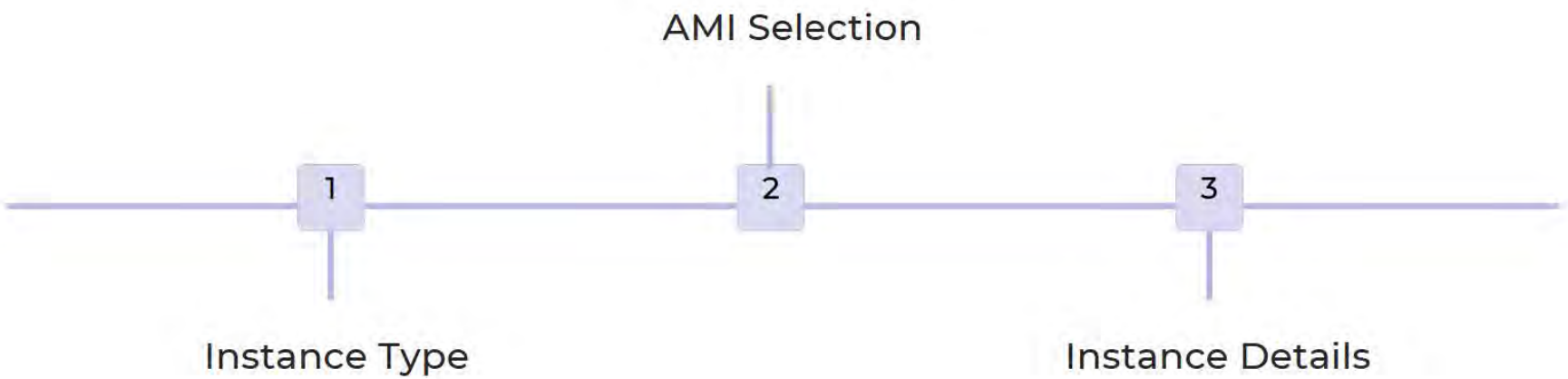
AWS Dashboard

The dashboard is the home page of your AWS Management Console. Explore the various services AWS offers.

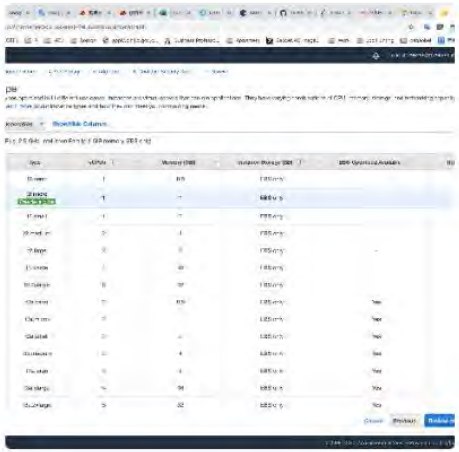
Configuring Settings

Quickly access, configure, and customize your settings and preferences according to your needs.

Launching an EC2 Instance



Configuring Instance Details



Instance Name

Name your instance and specify the purpose so you can easily identify it later on.

Instance Type

Specify the details for the instance type.

Configuring Instance Details

Port range	Protocol	Source
22	TCP	[redacted]/3
443	TCP	[redacted]/3
80	TCP	[redacted]/3
0 - 65535	TCP	0.0.0.0/0

Port range	Protocol	Destination
All	All	0.0.0.0/0

Security Groups

Choose the security groups you want your instance to be associated with.

Key Pairs

Choose the key pair to log in to your instance.

Choosing Storage Options

EBS Volume

Elastic Block Store (EBS) lets you store data separately from the instance. It can be easily attached or detached to the instance.

Instance Store Volume

Instance Store Volumes work similarly to EBS, but the data is tied to the instance's lifecycle.

Snapshot

Creating a snapshot ensures that you have a backup of your instance. Snapshots can be created on demand or scheduled.

Setting Up Security Groups

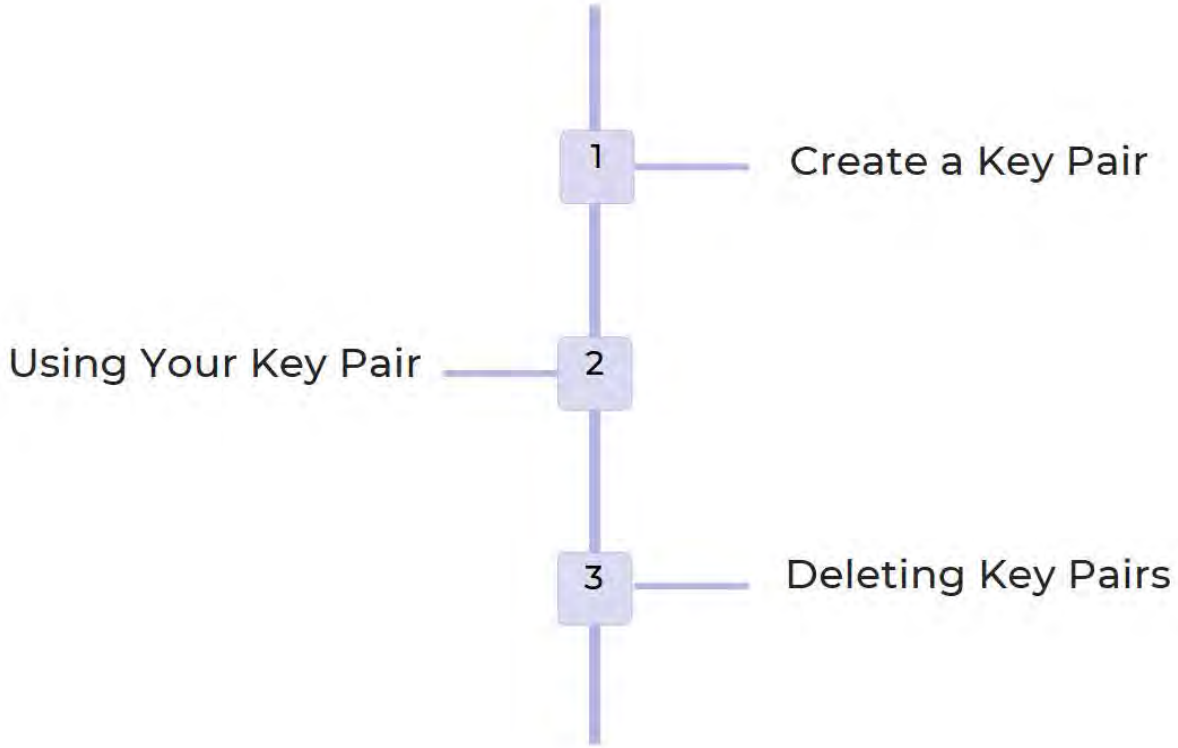
Inbound Rules

- Control access to the instance
- Specify ports and protocols
- Allow unrestricted access

Outbound Rules

- Control instance access to the internet
- Specify ports and protocols
- Allow unrestricted access

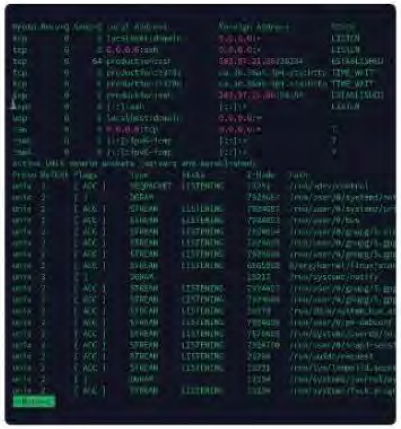
Creating and Using Key Pairs



Connecting to Instances using SSH or RDP

Windows -RDP

Mac -SSH



Linux -SSH

Understanding EC2 Instance States and Lifecycle

Running Instances

EC2 instances launched and running in a specific Availability Zone.

Stopped Instances

EC2 instances that have been stopped and can be re-launched when needed.

Terminated Instances

EC2 instances that have been terminated, and their data cannot be recovered.

Managing EC2 Instances using AWS Management Console

Launch an Instance

Reboot and Terminate

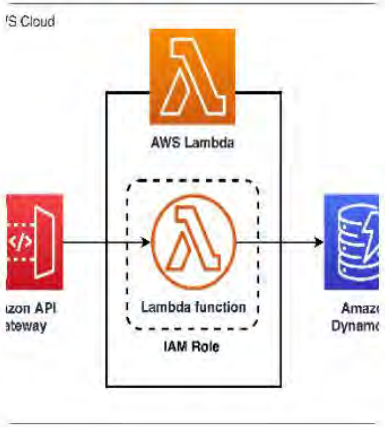
Scaling and Load Balancing

Monitoring and Troublehooting

Managing EC2 Instances using CLI

Command Line Interface

Automation using Shell Scripts



AWS Lambda Functions

Managing EC2 Instances using SDKs

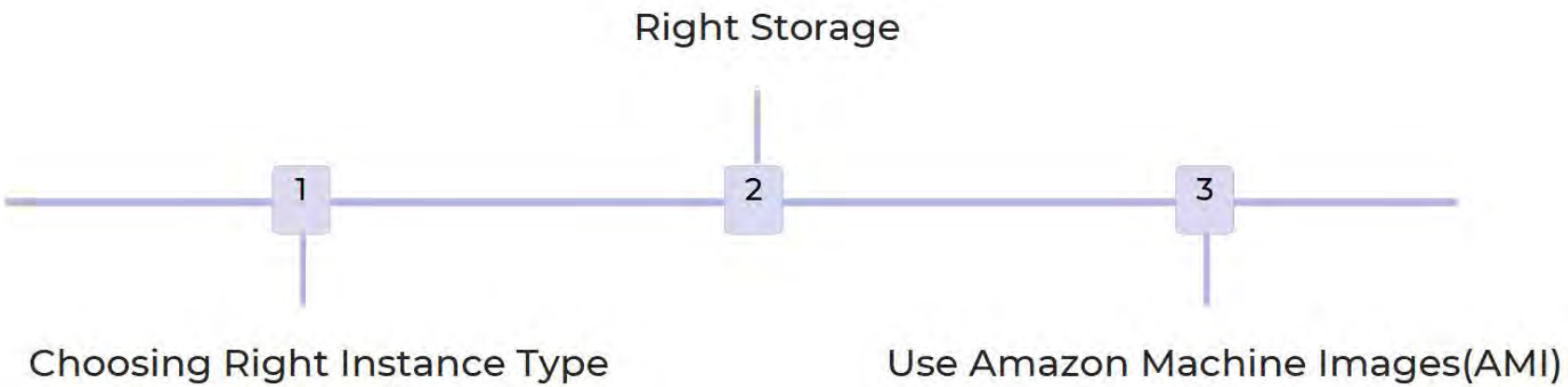
Amazon SDKs

Use AWS SDKs to manage EC2 instances programmatically from your preferred programming languages such as Node.js, Java, Python, etc.

AWS CloudFormation

Create your instances along with all required dependencies, security, network, and storage using AWS CloudformationStacks!

Best Practices for Optimizing EC2 Instances for Cost



Best Practices for Optimizing EC2 Instances for Cost

Use AWS Compute Optimizer

Utilize available AWS Compute Optimizer tools to efficiently choose the most cost-effective instance type for your workload

Reserved Instances

Save you up to 75% on EC2 instances and provide capacity reservation when you need it most.

Spot Instances

Utilize the unused capacity of Amazon EC2 instances at highly reduced prices and perform cost-efficient batch processing or run other workloads with flexible start and end times.