Introduction to Global infrastructure in AWS and AWS EC2 Service

Learning Objectives

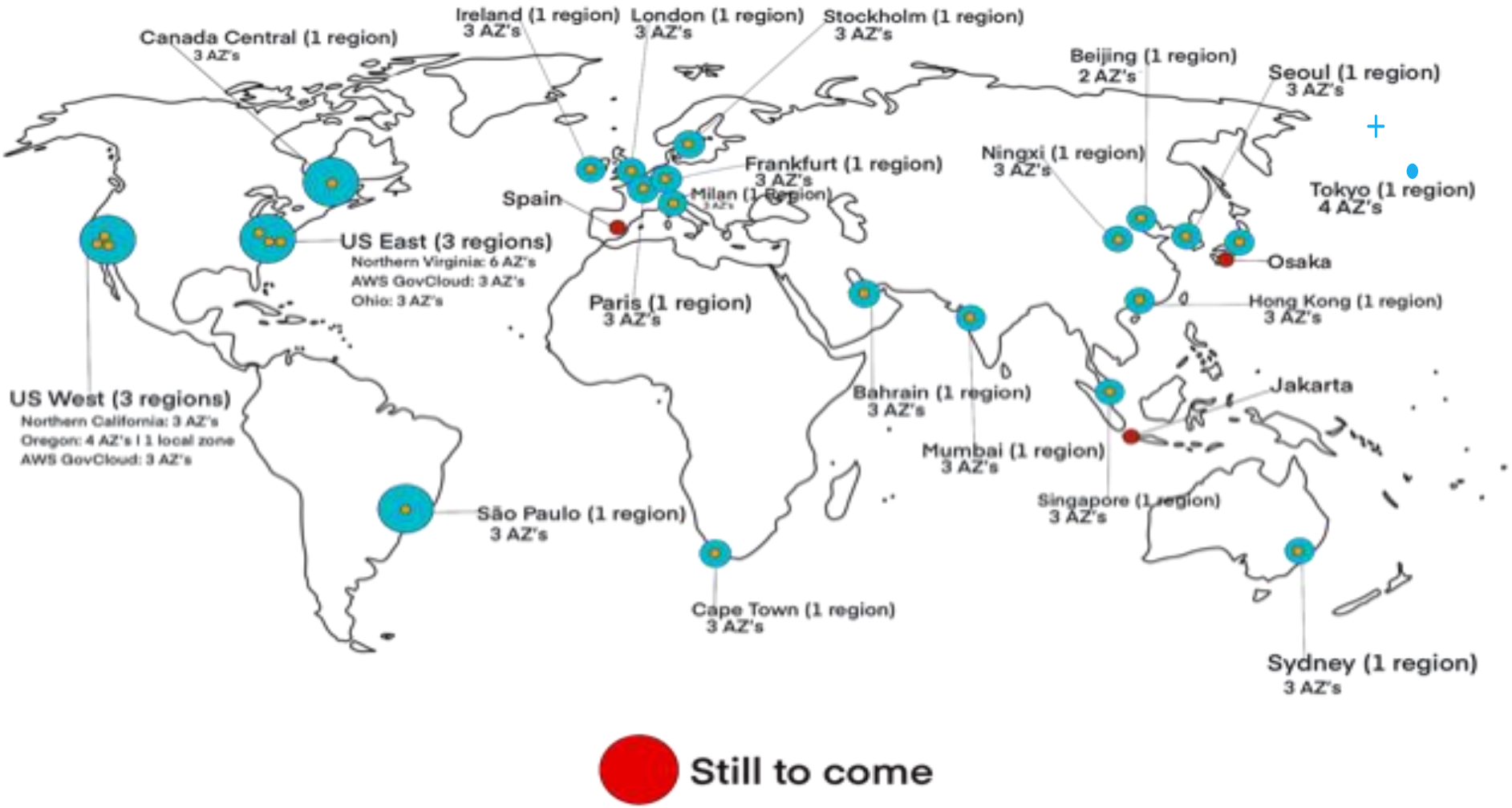
- Describe the Regions and Availability Zone in AWS.
- Describe the Elastic Cloud Compute.

Agenda

- OPENING (5 mins).
- CONTENT & PRACTICE (60 mins).
- CFU (20mins)
- CLOSING (5 mins).

Introduction to AWS Global Infrastructure and EC2.

Global Infrastructure



- 23 Regions
- 2 or more than 2 AZs in a region

Regions

- A Distinct Geographical Location where AWS has it's own infrastructure.
- Each AWS region is completely autonomous.
- At present time 21 region and 2 GOVs cloud region.

- What are factors for choosing an AWS Region ?

1. Services
2. Security
3. Cost
4. Latency

Availability Zones (AZ)

- Highly Available Data Centers
- Each AZs Totally Isolated With Each Other
- Each Regions more than 3 AZs
- Availability - 99.9999%
- Durability – 99.99999999999%

Only cloud provider that supports macOS
#Choice of Intel, AMD, and Arm-based processors

- Compute Service : Provide resizable compute capacity in the cloud.
- It allows organizations to obtain and configure virtual servers in amazon’s data centers.
- Increase or decrease capacity within minutes, not hours or days.
- SLA commitment of 99.999% availability for each Amazon EC2 region. Each region consists of at least 3 availability zones.

EC2 Instance

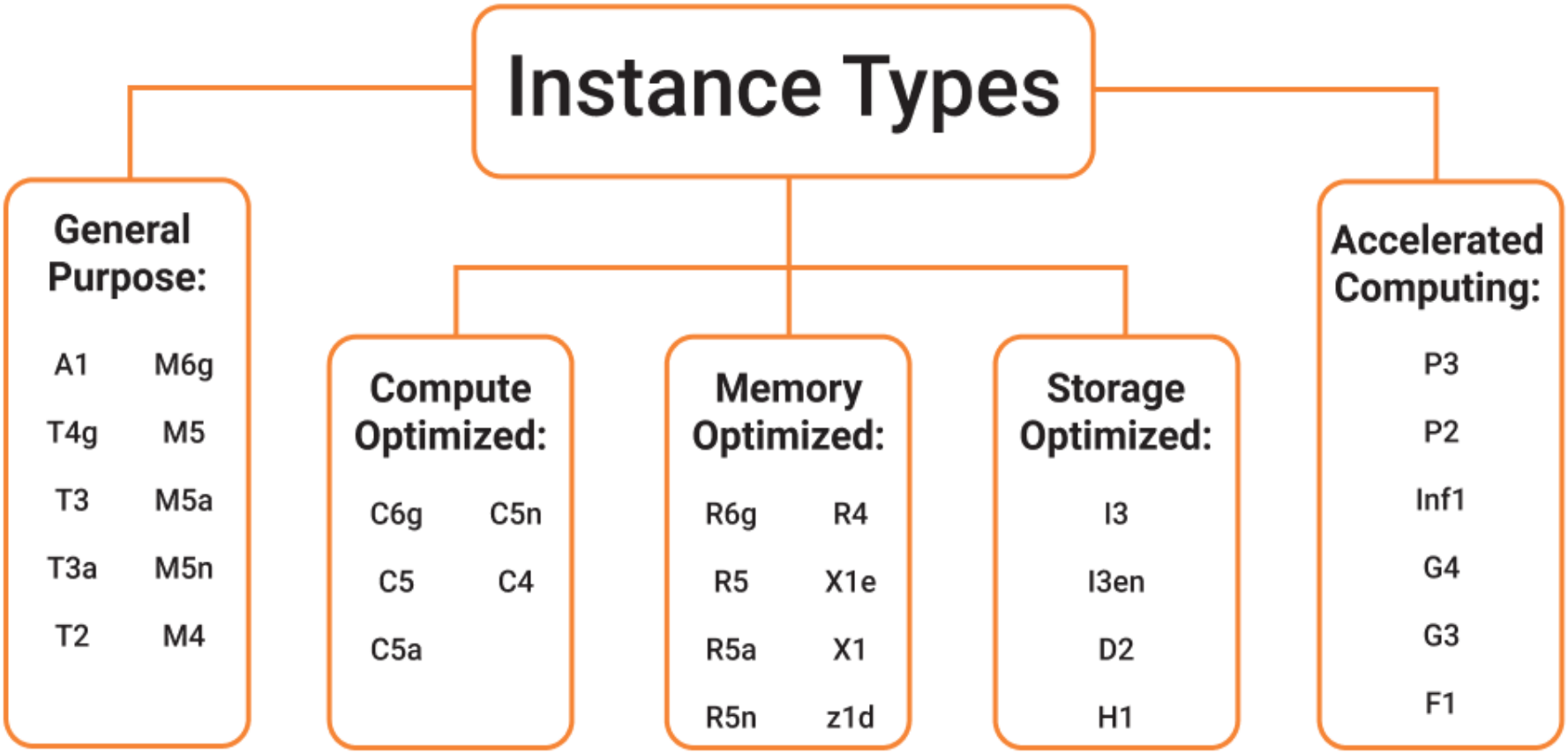
- An EC2 instance is a Virtual Server in Amazon's Elastic Compute Cloud (EC2) for running applications on the Amazon Web Services Infrastructure.

- AMI (Amazon Machine Image): An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

EC2 Instance

- Communities AMIs
- Amazon linux
- RedHat
- Ubuntu
- Debian
- Centos
- Fedora
- SuSe
- Windows
- MacOs
- Instances are created from Amazon Machine Images

EC2 Instances



EC2 Instance Type

- EC2 (T2 Micro) Instance Type is free tier eligible. Micro instances are eligible for the AWS free usage tier.
- For the first 12 months following your AWS sign-up date, you get up to 750 hours of micro instances each month.
- When your free usage tier expires or if your usage exceeds the free tier restrictions, you pay standard, pay-as-you-go service rates. (T2 Micro) Comes Under General Purpose.

Reserve Instances

Configure Instance Details

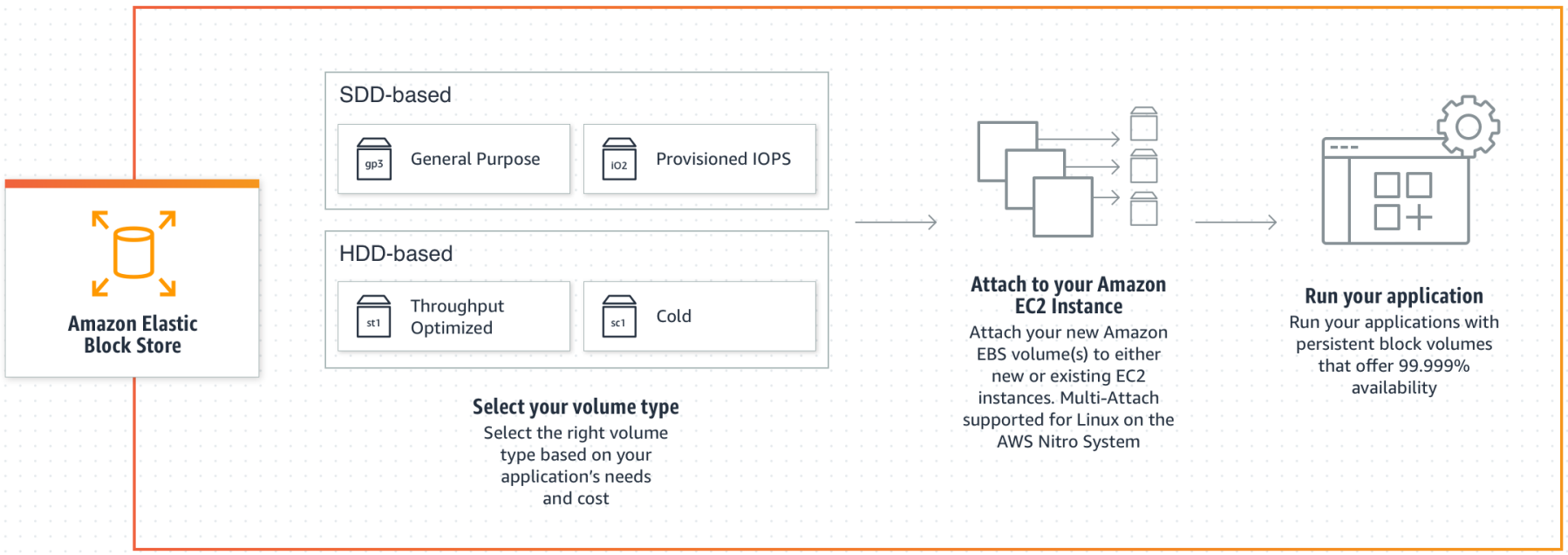
- Number of Instances
- Network (VPC)
- Subnet (Zone)

Storage In EC2

1. • Root EBS Volume
2. • Extra EBS

EBS – Elastic Block Storage - Amazon Elastic Block Store (Amazon EBS) is an easy-to-use, scalable, high-performance block-storage service designed for Amazon Elastic Compute Cloud (Amazon EC2).

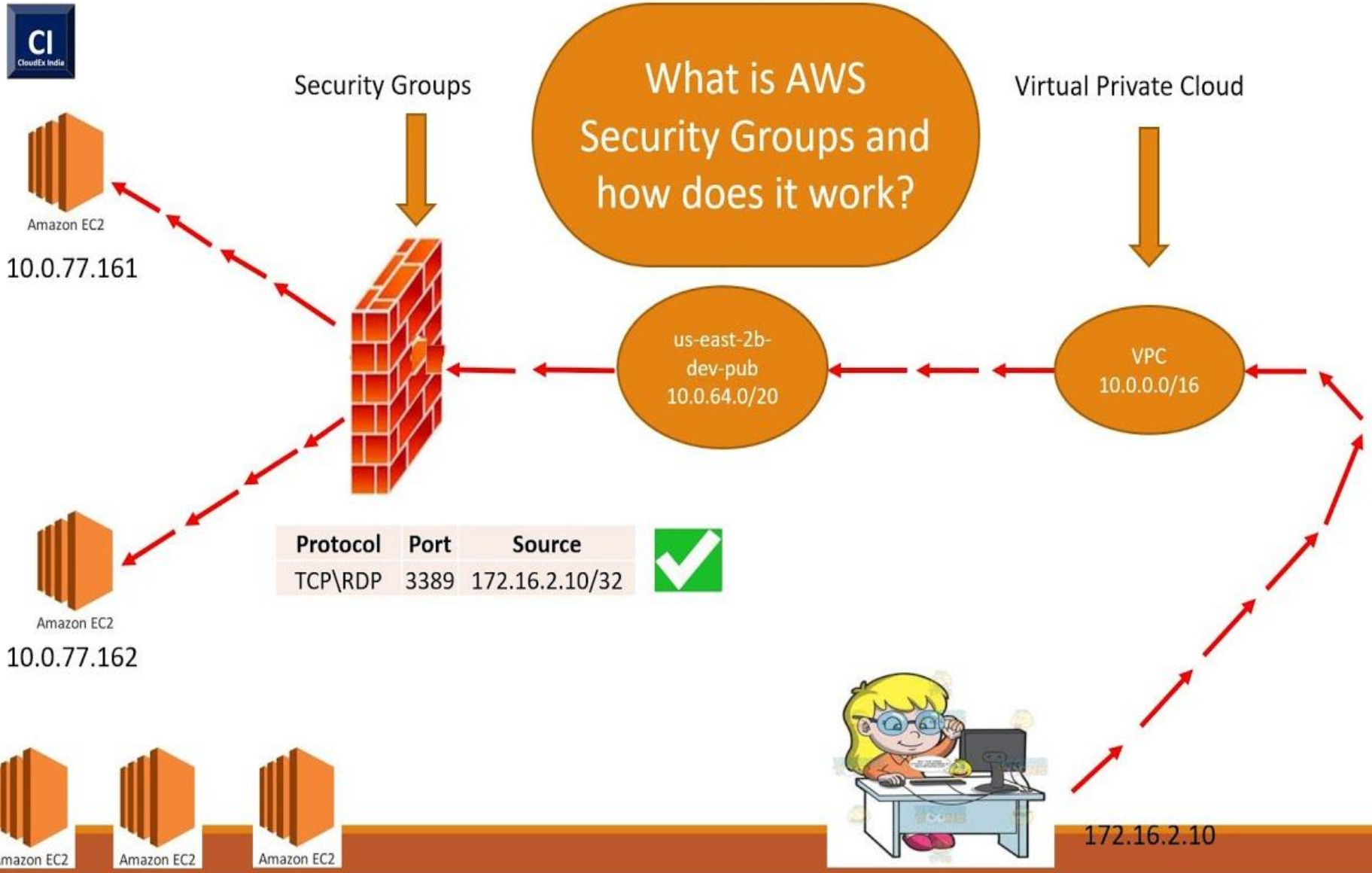
Elastic Block Store(EBS)



Introduction

AWS Security Groups: Instance Level Security

Security Group



Security Group

- A security group is a set of firewall rules that control the traffic for your instance. you can add rules to allow specific traffic to reach your instance.
- For example, if you want to set up a web server and allow Internet traffic to reach your instance add rules that allow unrestricted access to the HTTP and HTTPS ports.

Security Group

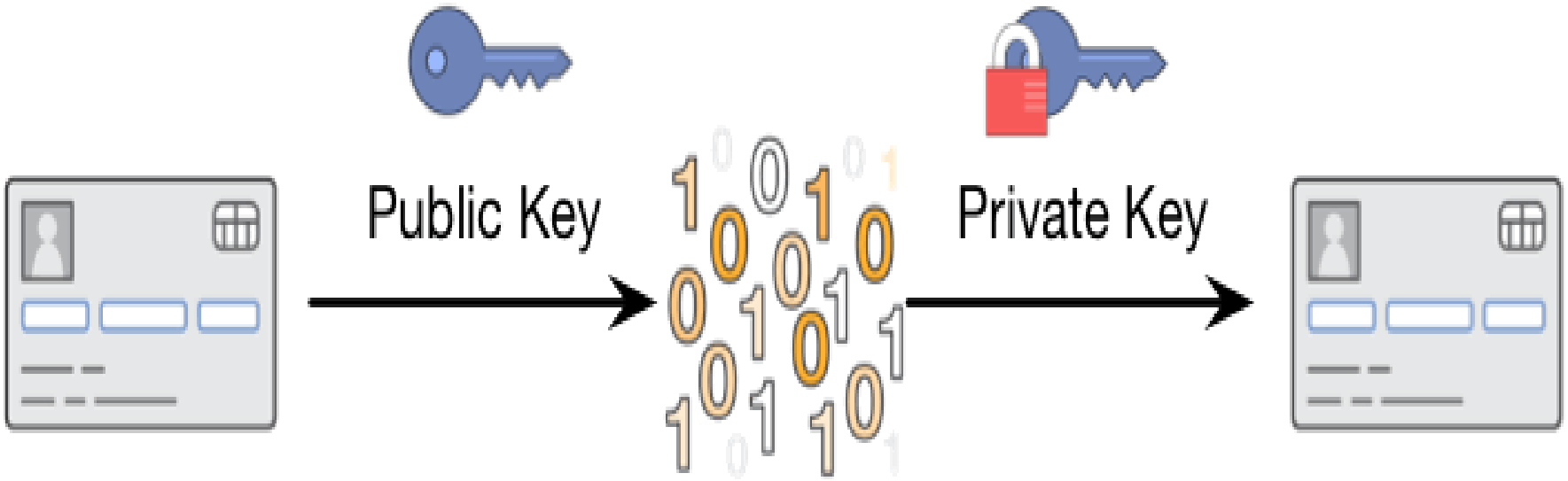
SSH

- Secure Shell
- Port range is 22 for Linux Machine

RDP

- Remote Desktop Protocol
- Port range is 3389 for Window Machine

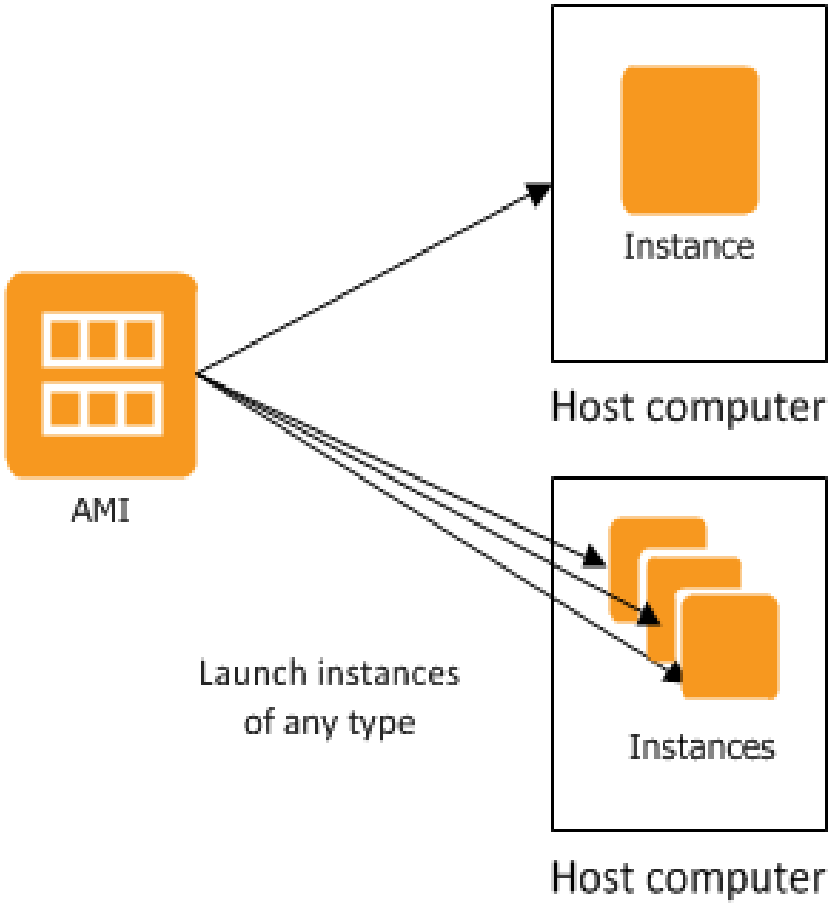
Key Pairs



Key Pairs

- A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely.

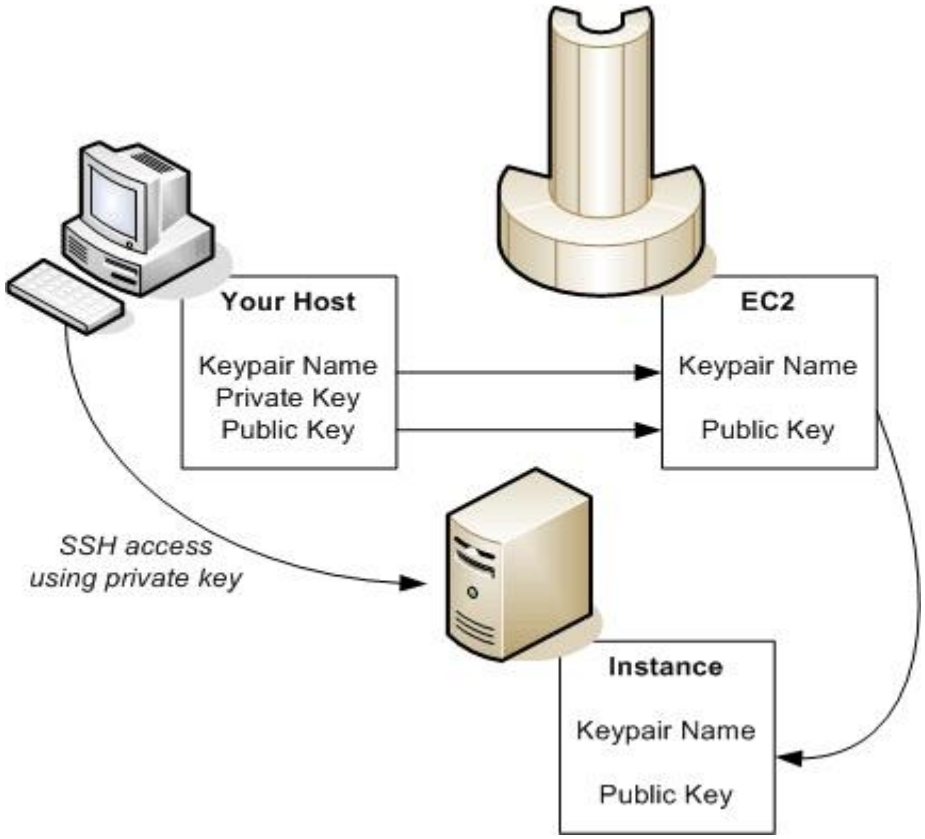
- For Windows AMIs, the private key file is required to obtain the password used to log into your instance.



Key Pairs

- For Linux AMIs, the private key file allows you to securely SSH into your instance.

- Amazon EC2 supports two types Ecryption Technologies - ED25519 and RSA key pair types.



AWS Hands-on Labs

Labs on AWS Management Console

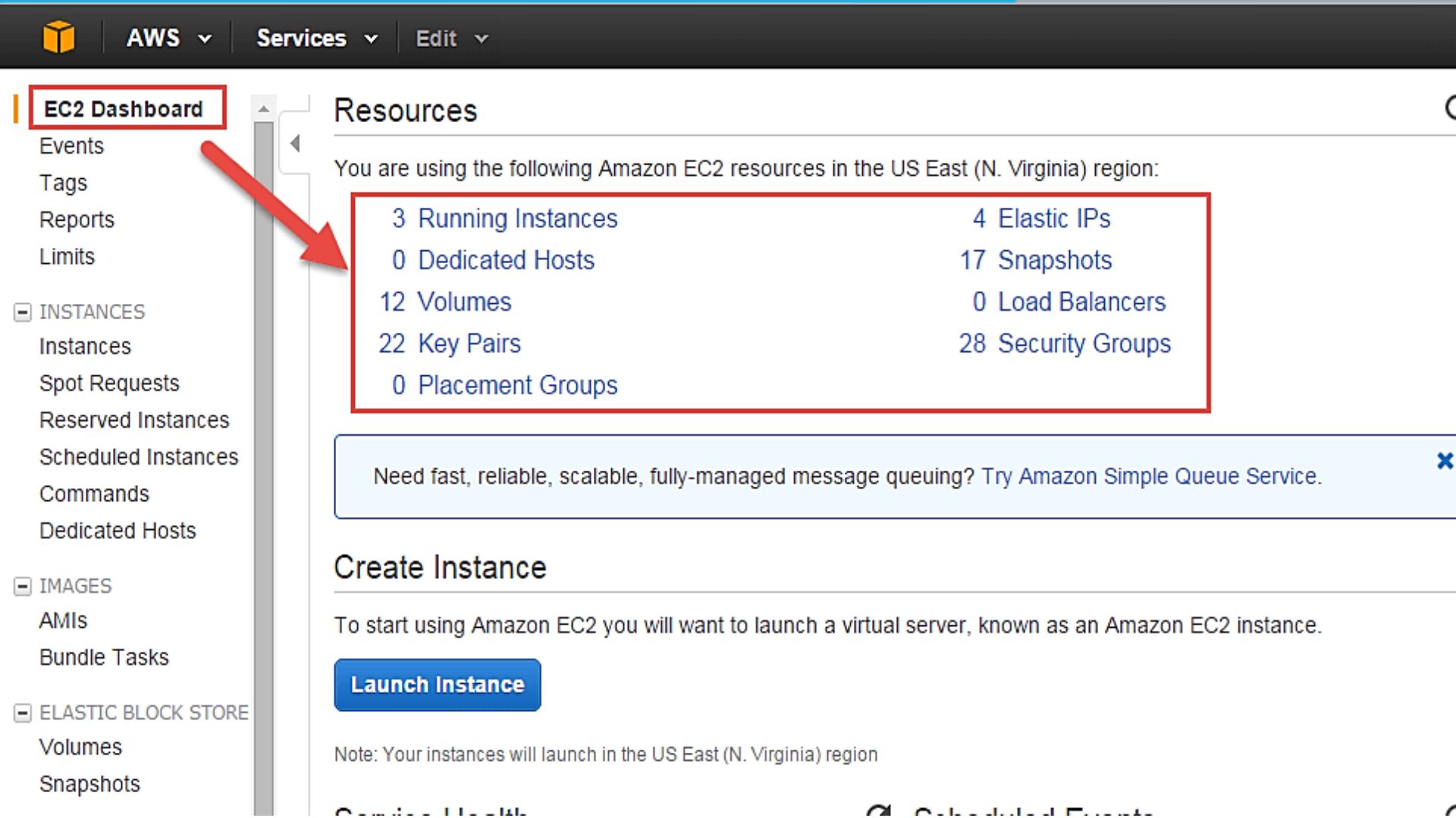
- How to create an EC2 Instance using Amazon Linux and windows.
- How to attach EBS volume on running instance.
- How to create snapshot.
- How to create an image.
- How to attach elastic IP on running instance.
- How to enable termination protection.
- How to change the security group on running instance and many more.

Labs on AWS Management Console

Let's have a

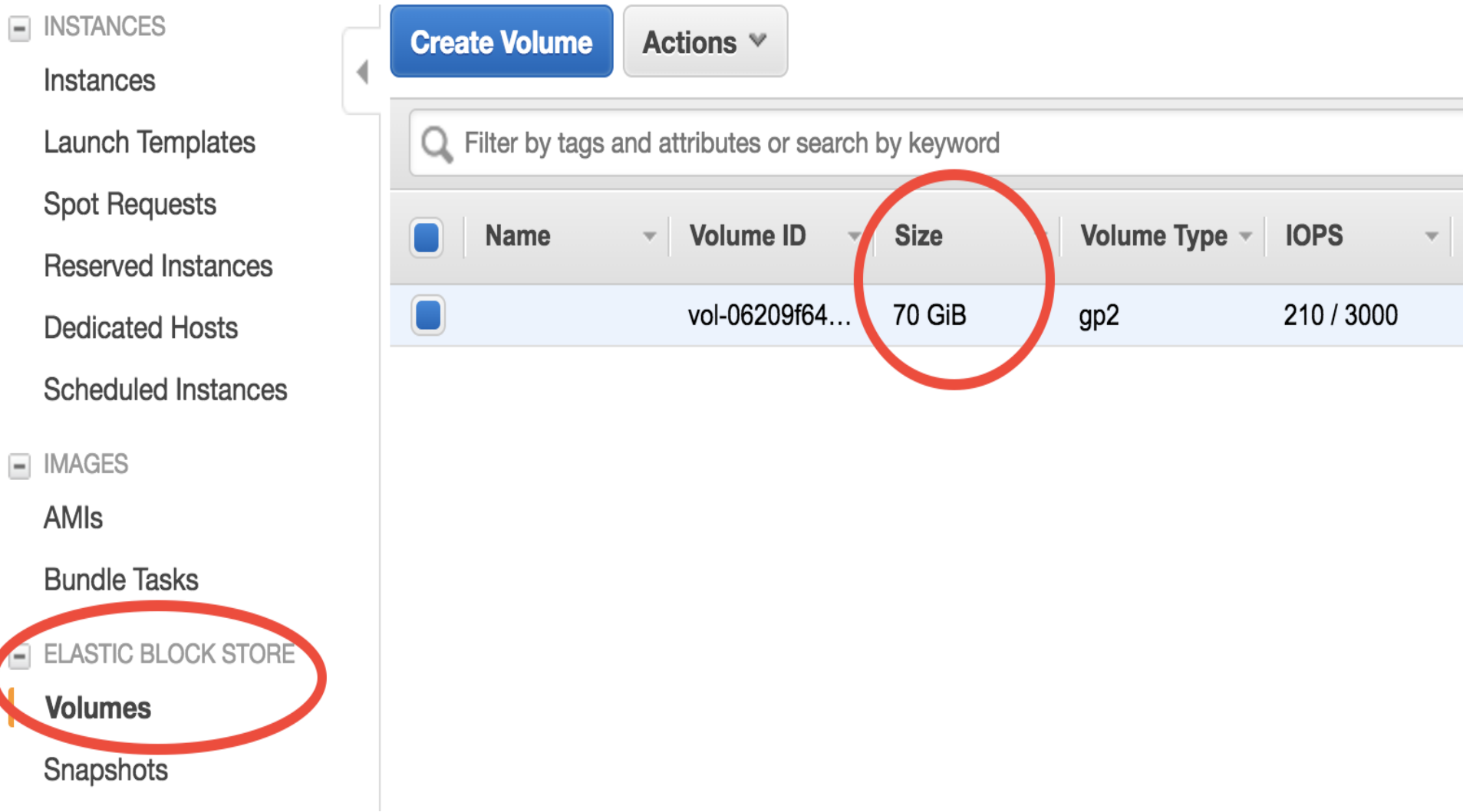
Look at...

How to create an EC2 Instance using Amazon Linux and windows:



Note: These Labs will perform on AWS Management Console.

How to attach EBS volume on running instance:



Note: These Labs will perform on AWS Management Console.

Check for Understanding

Closing

What did we learn today?