AWS Solutions Architect Associate

Section 3: AWS Fundamentals – IAM & EC2

# 18. How to SSH using Mac or Linux

> chmod 0400 EC2Tutorial.pem

> ssh -i EC2Tutorial.pem [ec2-user@35.180.100.144](mailto:ec2-user@35.180.100.144)

Exam question:

When you first download a file, its permission is 0644 that’s too open, so private key can leak.

how to fix it?

Text

Description automatically generated

Solution: change the permission of the file and then use it to SSH to the instance.

# 24. Security Group Deep Drive

SG regulate:

* Access to Ports
* Authorised IP ranges - IPv4 and IPv6
* Control of inbound network (from other to the instance)
* Control of outbound network (from instance to other)

SG - Good to know:

* Can be attached to multiple instances
* Locked down to a region . VPC combination
* Does live outside the EC2 - if traffic is blocked EC2 instance won’t see it
* If you app is not accessible (**time out**) —> Security group issue
* App gives a “**Connection refused**” —> its either application error or it’s not launched
* All **inbound** traffic is **blocked** by default
* All **Outbound** traffic is **Authorised** by default

Diagram

Description automatically generated

# Private Vs Public Vs Elastic IP

Diagram

Description automatically generated

<https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.RegionsAndAvailabilityZones.html>

# 29. EC2 instances Launch Types

1. On Demand
2. Reserved
   * Reserved instance
   * Convertible reserved instance
   * Scheduled reserved instances
3. Spot instance
4. Dedicated instance
5. Dedicated hosts

Details:

* On Demand Instances
  + Recommended for Short and uninterrupted workload, predictable pricing
  + Pay for what you use - Billing per second after first minute
  + Highest cost – No upfront payment – no long term commitment
* Reserved (minimum 1 year)
  + Up to 75% discount compared to On demand
  + Pay upfront for what you use with long term commitments
  + Reservation period is up to 1 or 3 years
  + Recommended for steady state usage application (example: **database**)
  + Reserved Instances:
    - long workload
  + Convertible Reserved Instances
    - Up to 54% discount
    - long workload with flexible instances
  + Scheduled Reserved instances
    - Launch within the time window that you reserve (every Thursday between 3pm to 6pm for 1 year)
    - When you require the instance for a fraction of a day / week / month
* Spot Instances
  + short workload, for cheap, can lose instance (not reliable)
  + 90% discount compared to On- Demand
  + Useful for workloads that are **resilient to failure** (you can retry)
    - Batch job
    - Data analysis
    - Image processing
  + Not good to run critical job or databases
* Dedicated instances:
  + do not share hardware with other customers
  + full control of EC2 instance placement
  + visibility into the underlying sockets / physical cores of the hardware
  + min 3 years reservation
  + more expensive
  + Useful for
    - Software that have complicated licensing model (BYOL – Bring Your Own License)
    - For companies that have string regulatory or compliance needs
* Dedicated hosts:
  + book an entire physical server and control instance placement
  + may share hardware with other instances in the same account
  + no control over instance placement

Graphical user interface, application

Description automatically generated

Table

Description automatically generated

# 30. Spot instance & Spot fleet

Text

Description automatically generated

Diagram

Description automatically generated

Text

Description automatically generated

# 32. EC2 Instance Types Deep Dive

Graphical user interface, text, application

Description automatically generated

# 33. EC2 AMIs

Custom AMI – Advantages

Text

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application

Description automatically generated