AWS Certified Solutions Architect: Associate - 3.0 Amazon EC2 and EBS

filename: amazon-acsaa-3-1-amazon_ec2_basics
Title: Amazon EC2 Basics
Subtitle: AWS Certified Solutions Architect: Associate

3.1 Amazon EC2 Basics

- Introduction
  - What is EC2?
  - Elastic Compute Cloud
- Instance Types
  - Defines resources
    - vCPU
    - Memory
    - Storage
    - Network
  - Types
    - m4: Balanced
    - c4: CPU Optimized
    - r3: Memory Optimized
    - i2: Storage Optimized
    - g2: GPU Optimized
- Amazon Machine Images (AMI)
  - Deployable system image
    - OS and configuration
    - Initial state of patches
    - Applications and system software
  - All are currently x86 Windows/Linux images
  - Can be private, published from Amazon or published by 3rd parties
- Addressing an instance
  - Public DNS name
  - Public IP
  - Elastic IP
- Initial access
  - RDP/SSH
  - Password/Key file
- Virtual Firewall
  - EC2-Classic Security Group
  - VPC Security Group
- Instance Lifecycle
  - Bootstrapping
    - Passing a script to an OS at boot time
      - Apply patches
      - Join a directory
      - Install software
      - Copy files
      - Installing Chef/Puppet/SC client
  - VM Import/Export
    - Allows moving instances between and on-premises environment
  - Instance metadata
- Instance tags
  - Allow tracking instances
  - Up to 10 per instance
  - Very useful for reporting
    - Project
    - Environment
    - BillingCode
- Monitoring an instance
  - Basic CloudWatch
- Modifying an instance
  - Instance type
  - Security groups
  - Termination protection
- Pricing options
  - Types
    - On-demand Instances
    - Reserved Instances

- - - All Upfront
      - Partial Upfront
      - No Upfront
    - Spot Instances
  - Solutions can mix types
    - Reserved for minimum load
    - On-demand for peak load
- Tenancy
  - Shared Tenancy
  - Dedicated Instances
    - Dedicates hardware to a client
    - Instances can launch on any dedicated host
  - Dedicated Host
    - Allows mapping instances to specific dedicated hosts
    - Useful for meeting licensing requirements
- Placement groups
  - Common 10Gbps network connection within an AZ
  - Allows placing instances together that can benefit from improved networking
  - Example: Web front-end and database back-end
- Storage
  - Instance Stores (Ephemeral Storage)
    - Attached to the physical host
    - Does not survive a shutdown or failover
      - Does survive a reboot
    - Designed for temporary use
  - Elastic Block Store (EBS Storage)
    - Persistent storage
    - Replicated within the AZ
    - Types
      - Magnetic
      - General Purpose SSD
      - Provisioned IOPS
- Backup/Recovery (Snapshots)
  - Point-in-time snapshots
  - Stored in S3, although containers are not able to be managed
  - Must be manipulated through EC2
  - Stored in the same region as the instance
  - Can be copied to other regions
  - New volumes can be provisions from the snapshot
- Encryption
  - Instances can be encrypted
  - Used AWS KMS
  - Uses AES-256
  - Minimal impact on performance