# Amazon EC2

Small Workload – Website with few visitors

Large Workload – Screening 10 million compounds against cancer target

Advantages of EC2

* On-Demand compute power – Provision in minutes instead of days in On-Premise
* Complete automation in provisioning
* Pay per use (Stop/Terminate when not in use or not required)

## Payment

## Instance Types

## AMIs

## Securely Access instances on the cloud

## Protect Instances with Security Groups (Virtual Firewalls)

## Un-attended Launch

## Monitor Instances

## Manage Instances

## Change Capabilities of Instance

# Auto Scaling

## Auto-Scaling Checklist

1. How long does it take to launch and configure a server?
2. What metrics have the most relevance to your app’s performance?
3. How many AZs the Auto-scaling group should span?
4. What existing resources can be used, like SG’s and AMI’s?
5. Do you want to increase/decrease capacity or just want to ensure specific number of servers are always running?

* Consider using Route-53 to increase load balancing features
* Consider Pre-Warming
* Benchmark app to decide on CPU, Memory, DiskIOPS. Configure autoscaling policy based on Benchmarks
* Use Multiple AZs for high availability
* Make everything De-coupled
* Plan load testing before go-live
* Track, log and monitor all autoscaling activities – Alarms for over-scaling or insufficient scaling

EBS IOPS – 18000? Which one? EBS Types and when should what be used? Especially cold storage, ssd, and throughput optimized

EBS Snapshots – cross region replication

EBS Storage Costs – SSD, Cold HDD etc.

S3 Lifecycle policies, Prefixing, Pre-signed URLs

VPC Flow Logs, CloudWatch, CloudTrail, Trusted Advisor

SQS Metrics

RedShift snapshots – cross region? How?

Redshift Encryption, Accessing from EC2,

EBS Data Encryption

VPC Peering & Cross Account Access

NAT Instance Vs NAT Gateway – Can they be used simultaneously, Migration, Conversion etc?

AutoScaling – Scaling policies

Storage Gateway

VPC EndPoints

Class ELB Vs Application Load Balancer

Hosting static website on Route53, using CloudFront

Using Elasticache with DB

Kinesis – Firehose etc. and working with S3

ECS, ECR, Container Orchestration

Route53 – Routing policies (Simple, Weighted etc.)

DynamoDB Streams

Trusted Advisor Vs Inspector Vs WAF Vs Config

Connecting from On-Premise to Cloud – VPN, Direct Connect

Data Transfer from On-Premise to Cloud

Security Groups Vs NACLs Vs Route Tables Vs RDS parameter Groups

Storage Costs –

RDS -Options Groups and Parameter groups

Issues related to CloudFront Caching

DR Models – Compare and contrast Performance (Speed), Cost, Operational Efficiency etc.