Introduction to AWS Services

- Amazon Web Services

- As of today, largest public cloud/cloud computing platform on earth!

- It all started in 2006

- 10 years and these guys are the market leaders.

- AWS certification started in 2013

- AWS certification adds value, and is hot in the job field.

- Internet access
- PC/laptop
- AWS free tier account
- Knowledge of IT/IT related terms.

- https://aws.amazon.com/certification/our-certifications/

- 2 Year validity

- AWS Certified Cloud Practitioner

Associate Level

- AWS Certified Developer Associate, AWS Certified SysOps Admin Associate

 **AWS Certified Solution Architect Associate**

Professional

- AWS Certified DevOps Professional, AWS Certified Solution Architect Professional

Specialty Certification

- ~~AWS Certified Security~~, AWS Certified Advanced Networking, AWS Certified Big data

AWS Global Infrastructure

- AWS Regions
- AWS Availability Zones
- AWS Data Centers
- AWS Edge Locations /
Points of Presence
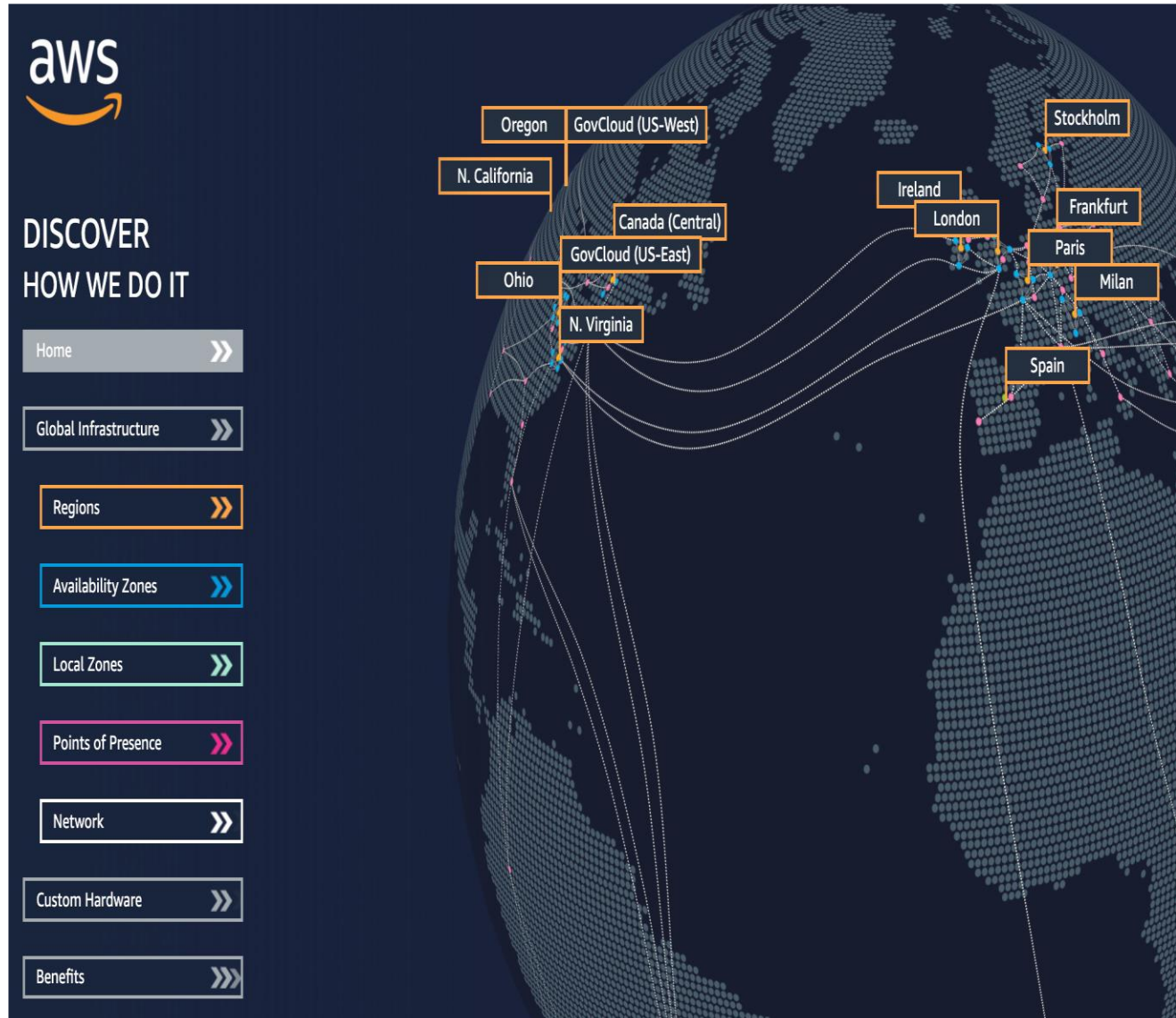
- **Region**: Physical location in the world where AWS resource exists, they have multiple Availability Zones.

- **Availability Zone** : Consist of one or more discrete data centers/AWS facility area, each with redundant power, networking and connectivity, housed in separate facilities.

- The AWS Cloud operates **40 Availability Zones** within **15 geographic Regions** around the world, with **nine more Availability Zones** and **four more Regions** coming online throughout the next year. AWS keeps on adding them!!!!

- **Edge Location**: CDN(Content Delivery Network) end points for Cloud Front. Place where data is cached.50+ edge locations and growing!

Region and Availability Zones
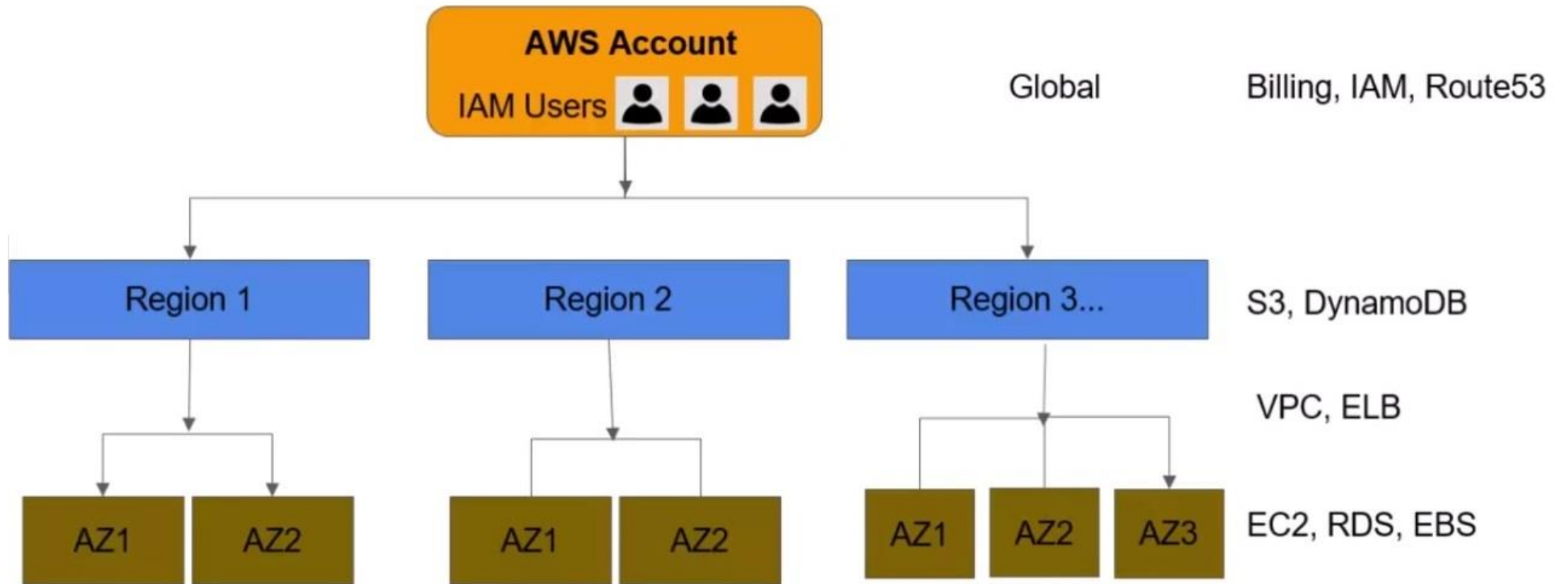
Region = Independent Geographic Area

Availability Zone = Multiple isolated locations / data centers within a region
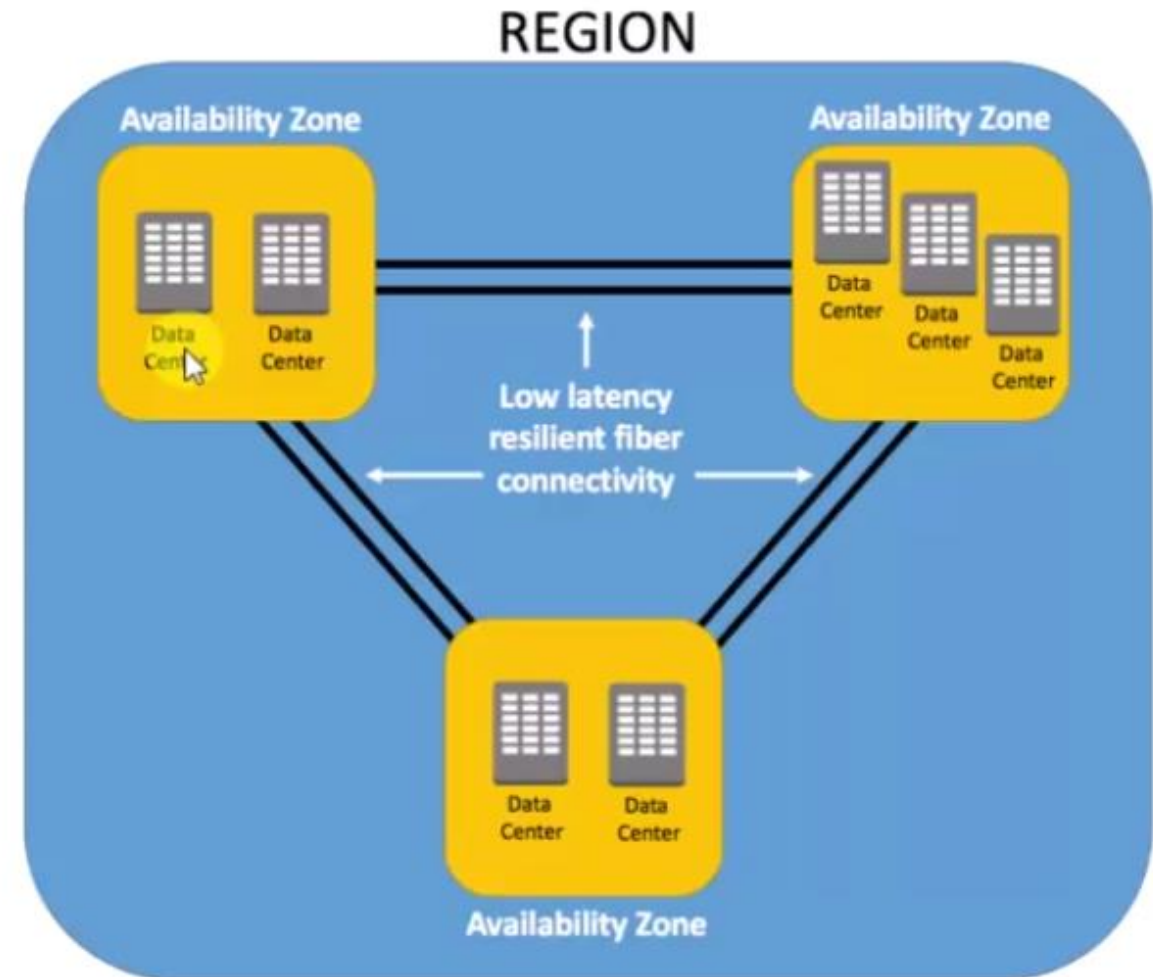
REGION

Region contains at least 2 AZs (except for Osaka region)

US West - California (us-west-1)

A W S ACCOUNT USERS AND SERVICES

A W S NETWORKING & CONTENT DELIVERY

- **VPC**: Virtual Private Cloud is isolated cloud resources within AWS. Think of them as isolated Data centers.

- **Direct Connect**: Dedicated network connection to AWS. Way of connecting to AWS without the need of internet. Helps the data transport from and to the AWS infra and secure line.

- **Route 53**: AWS DNS service.

Route 53 : Is named because the Default port No for DNS is 53

- **Cloud Front**: Remember, we were talking about this and edge location/CDN.-Global content delivery network. Edge location is the place that caches the data. **Example:** Your data is stored somewhere in US location, if someone from India wants to use your data, the data can be cached in Mumbai so that no need to pull data from US location-→Important topic.

A W S COMPUTE

- **EC2:** Elastic Compute Cloud. Virtual Servers in the Cloud. Popular service of AWS, virtualization concept.

- **EC2 Container Service:** Run and manage docker(container virtualization) containers:--→Doesn't come in the exam.

- **Elastic Beanstalk:** Run and manage web apps. For developer, just upload the code and Amazon does the validation and provisions resources for that requirement.→ Minimal/High level

- **Lambda:** Run the code without thinking/worrying about the servers. One of the powerful and expanding area AWS.→ Minimal

- **Lightsail:** Launch and manage virtual private servers, new offering introduced in 2016, reinvent.

SERVICES OFFERED

AWS STORAGE

- ▶ **S3:** Simple Storage Service. Scalable storage in the cloud. Secure and highly scalable. Pay for what you use. Object based storage→ Important topic.

- ▶ **Elastic File System:** Fully managed file system for EC2 instances. Block level storage. Think of it as NAS in the cloud for many EC2(Shared).

- ▶ **Glacier:** File archival place, data access takes 2-4 Hours retrieval time. Used as for backup. Secure and low cost storage option for data archive and long time backup.

▶ **Storage Gateway:** Hybrid Storage integration.

The AWS Storage Gateway is a service connecting an on-premises software appliance with cloud-based storage to provide seamless and secure integration between an organization's on-premises IT environment and AWS's storage infrastructure.

AWS Storage and Database Services

EBS
Elastic Block Storage

S3
Simple Storage Service

EFS
Elastic File System

RDS
Relational Database Service

DynamoDB
AWS NoSQL Database

Redshift
Data Warehousing

Elasticache
Fast and Flexible caching

A W S DATABASE

- ▶ RDS: Relational Database Services consisting of many DB's(Oracle, posgresql, MySQL and so on) in the cloud. Managed Relational DB services→ Important topic.

- ▶ DynamoDB: Managed Nosql DB in AWS. Non RDS.

- ▶ ElastiCache: In-memory cache to help the DB. Cache the data in Cloud to improve DB performance and to reduce DB load.

- ▶ RedShift: Fast, simple, cost effective data warehousing solution from AWS.

AWS Application and Development Services

API Gateway
Managed REST and Websocket APIs

SQS
Simple Queue Service

SNS
Simple Notification Service

SES
Simple Email Service

Cognito
User Management for Web
& Mobile Apps

CodeCommit
Hosted GIT Repository by AWS

CodeBuild
Continuous Integration Service

CodeDeploy
Automated Deployments

Code Pipeline
Continuous Delivery Service

Code Star
Develop, Build, Deploy, Manage and Track

AWS ANALYTICS

- ▶ **Athena:** Query data in S3 using SQL. New offering.

- ▶ **EMR:** Elastic Map Reduce, for managed Hadoop framework. To handle "big data".

- ▶ **Data Pipeline:** Orchestration of data-driven workflow.

- ▶ **CloudSearch:** Managed Search Service. Way of enabling your website/application with search capabilities (Auto complete, suggestion etc.).

- **ElasticSearch Service:** Run and scale elasticsearch clusters(which is open source) in AWS.

- **Kinesis:** Work with real time streaming data. Stream and analyze the data.

- **Machine Learning:** Build smart application quickly and easily. For developers. A promising technology.

- **QuickSight:** Fast and easy to use Business analytics tool.

A W S MIGRATION SERVICES

- ▶ **DMS:** Database Migration Service. Easier and managed DB migration service.

- ▶ **Server Migration:** Migrate on-premises servers to AWS.

- ▶ **Snowball:** Large scale data transfer. Use snowball appliance to move data to and from AWS cloud.