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Who is the Solution Architect Associate for?

Finding creative solutions by leveraging cloud services instead of reinventing the wheel. Big picture thinking.

Shows you have broad knowledge across many domains
Great for those who get bored easily since you need to wear multiple hats.

It's **less** about the "how are we are going to implement this?" and **more** about the "what are we going to implement?"

What value does Solution Architect Associate hold?

The **most popular** AWS Certification

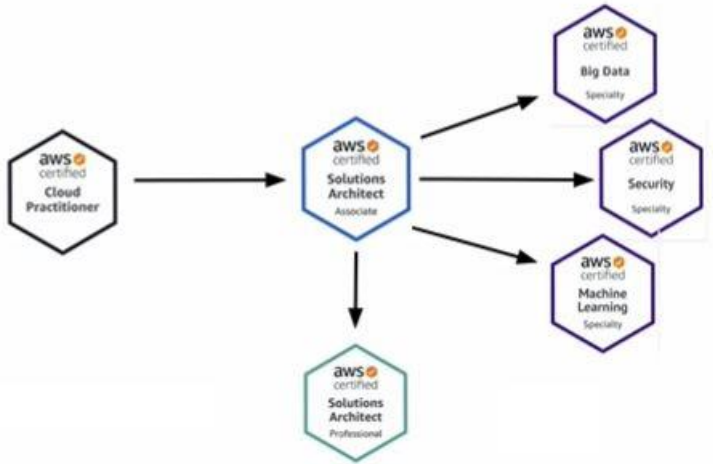
In demand with startups because
you can help wherever help is needed

Recognized as the **most important**
certification at the associate level.

Will help you **stand out** on résumés.
Not likely to increase your salary but more job opportunities

Still not sure why?

- ✓ Most in demand
- ✓ Not too easy but not to hard
- ✓ Requires least amount of technical knowledge
- ✓ When in doubt which cert to take, since it provides most flexible future learning path
- ✓ If you're new to Cloud Computing take the CCP and then Solution Architect Associate



OVERVIEW

Table of Contents

- What is “Cloud Computing”?
- The Differences that Distinguish AWS
- AWS Reference Model
- AWS Shared Responsibility Model
- AWS Training & Certification
- Getting Started With AWS

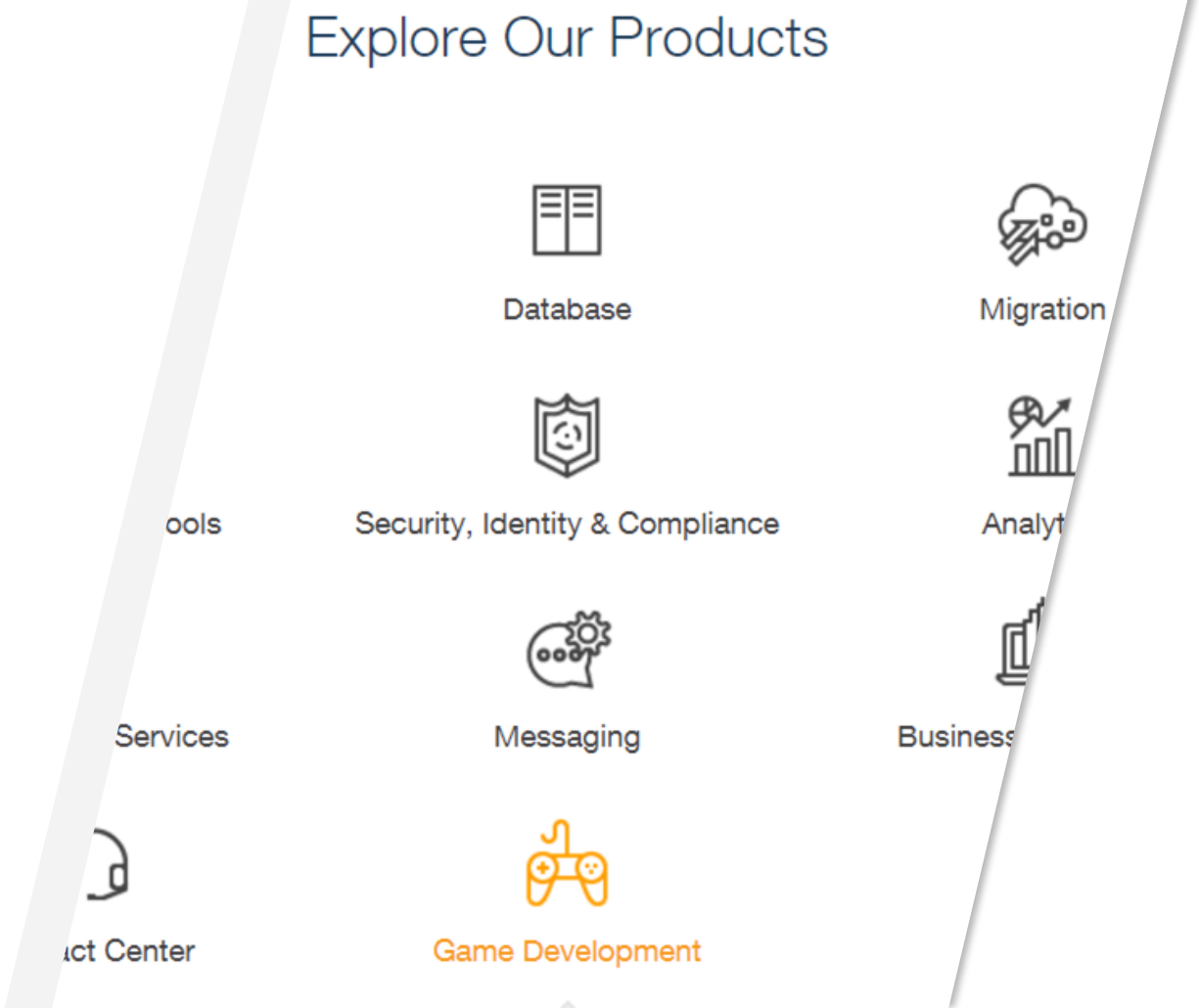
What is Cloud Computing?

Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources through a cloud services platform via the internet with pay-as-you-go pricing.

Amazon Web Services **– Overview of Amazon Web Services**

What Exactly Is Amazon Web Service?

Amazon Web Services is a secure cloud services platform with over 100 different services that include solutions.



The Differences that Distinguish AWS

The Differences that Distinguish AWS

Flexible

Cost-effective

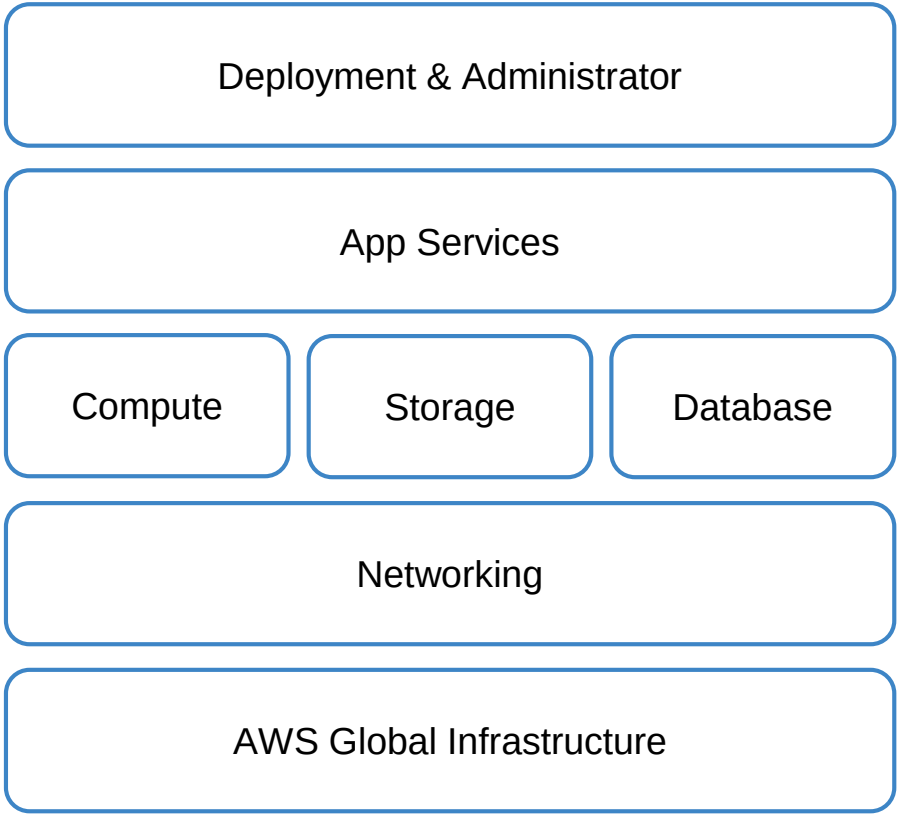
Scalable and elastic

Secure

Experienced

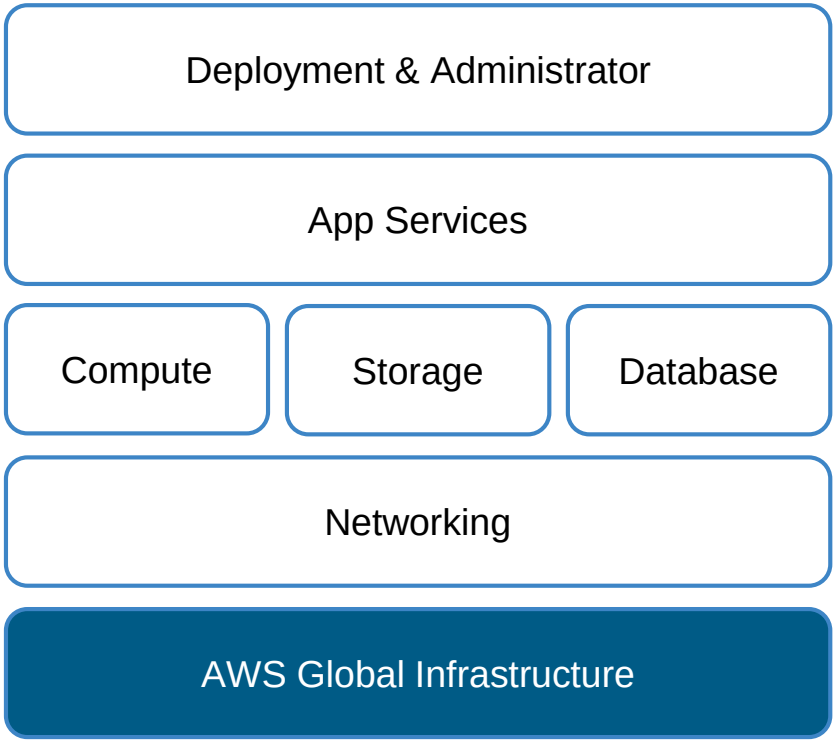
AWS Reference Model

AWS Reference Model



Amazon Web Services **– Overview of Amazon Web Services**

AWS Global Infrastructure



Data Center:

A single data center typically houses several thousands of servers.

Availability Zone:

Availability Zones consist of one or more discrete data centers, each with redundant power, networking and connectivity, housed in separate facilities.

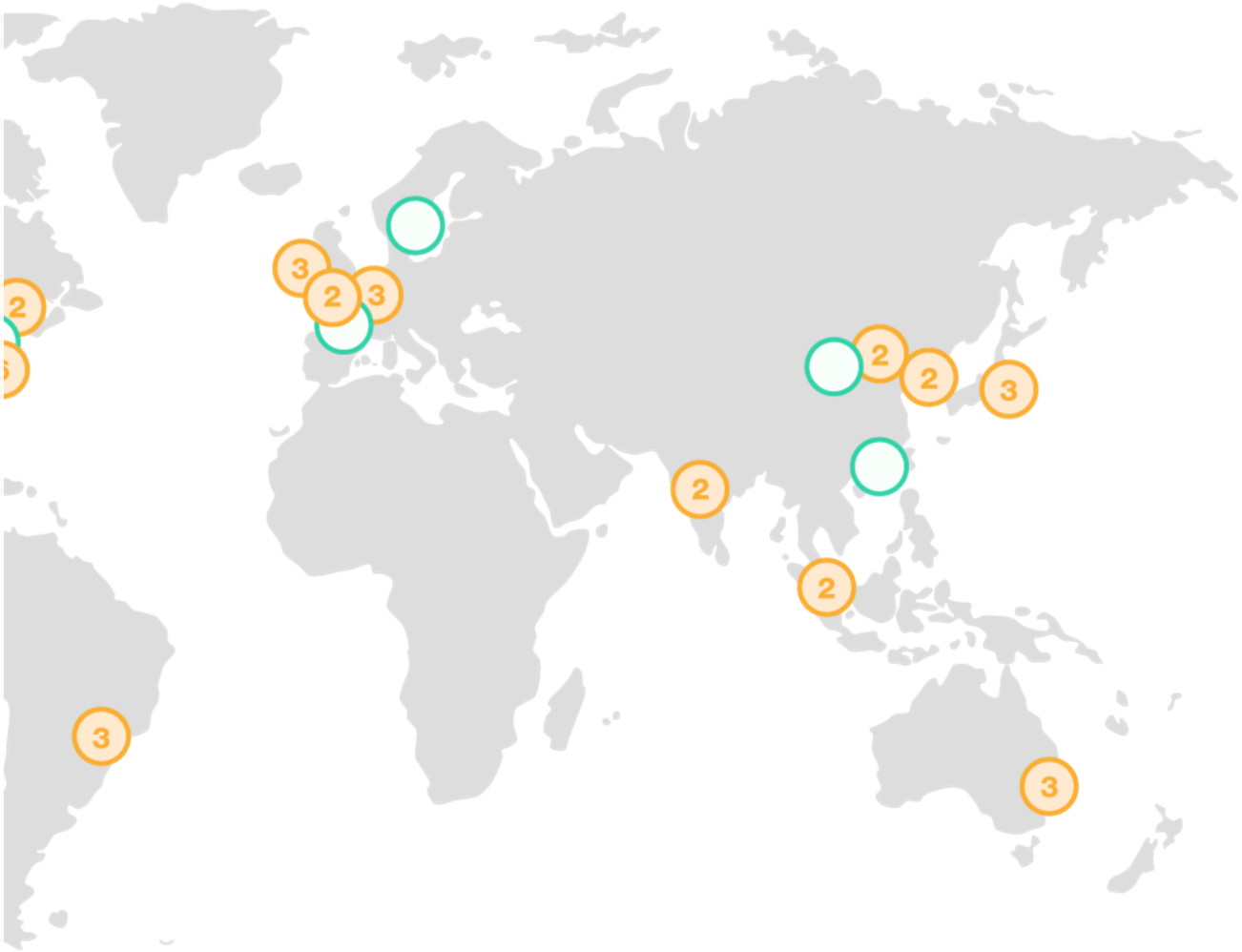
Regions:

A Region is a physical location in the world where we have multiple Availability Zones. Communicate between regions use public Internet Infrastructure.

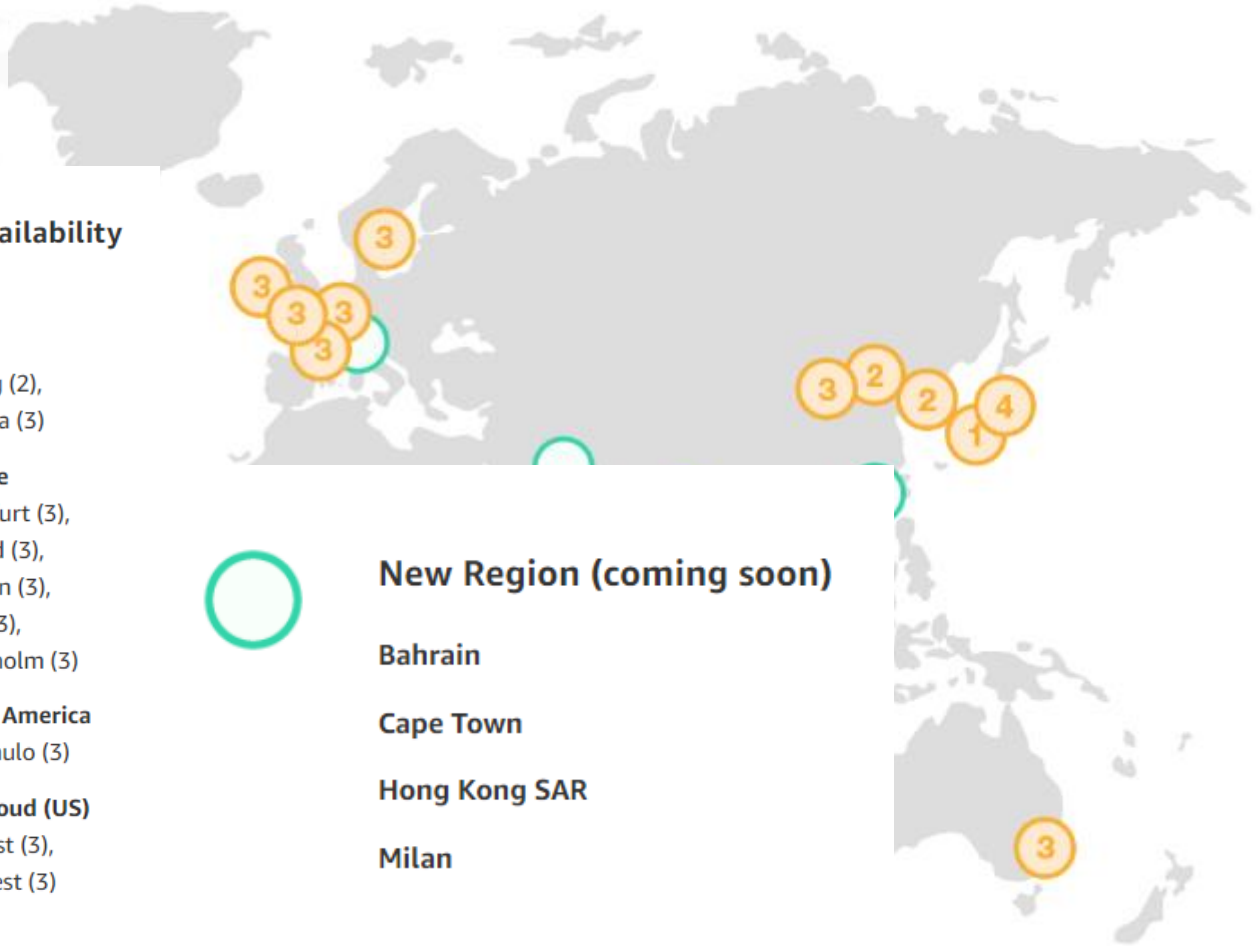
Amazon Web Services **– Overview of Amazon Web Services**

AWS Global Infrastructure

The AWS Cloud spans 61 Availability Zones within 20 geographic regions around the world, with announced plans for 12 more Availability Zones and four more AWS Regions in Bahrain, Cape Town, Hong Kong SAR, and Milan.



AWS Global Infrastructure



Region & Number of Availability Zones

US East
N. Virginia (6),
Ohio (3)

US West
N. California (3),
Oregon (4)

Asia Pacific
Mumbai (2),
Seoul (2),
Singapore (3),
Sydney (3),
Tokyo (4),
Osaka-Local (1)[1]

Canada
Central (2)

China
Beijing (2),
Ningxia (3)

Europe
Frankfurt (3),
Ireland (3),
London (3),
Paris (3),
Stockholm (3)

South America
São Paulo (3)

GovCloud (US)
US-East (3),
US-West (3)

New Region (coming soon)

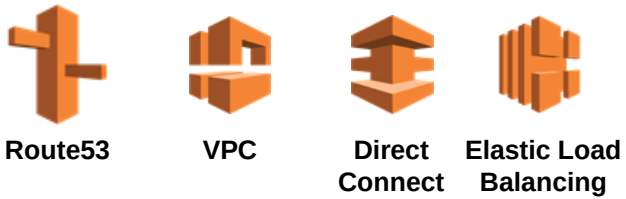
Bahrain

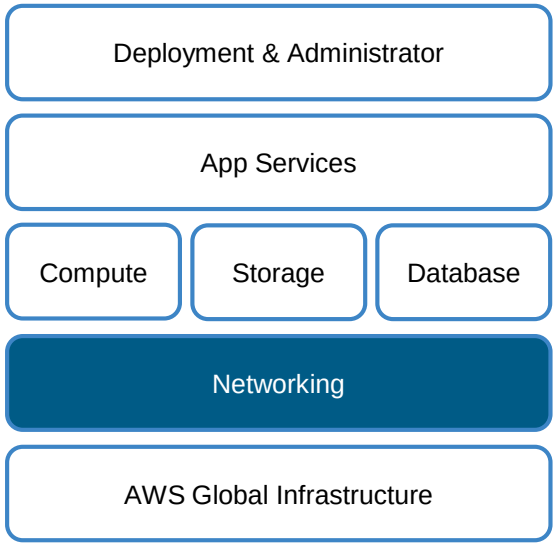
Cape Town

Hong Kong SAR

Milan

Networking





- **AWS Route 53**

is a reliable and cost-effective managed Cloud based Domain Name System (DNS) web service that translates domain names into numeric IP

- **Elastic Load balancing:**

Elastic Load Balancing distributes incoming application traffic across multiple EC2 instances, in multiple Availability Zones. This increases the fault tolerance of your applications.

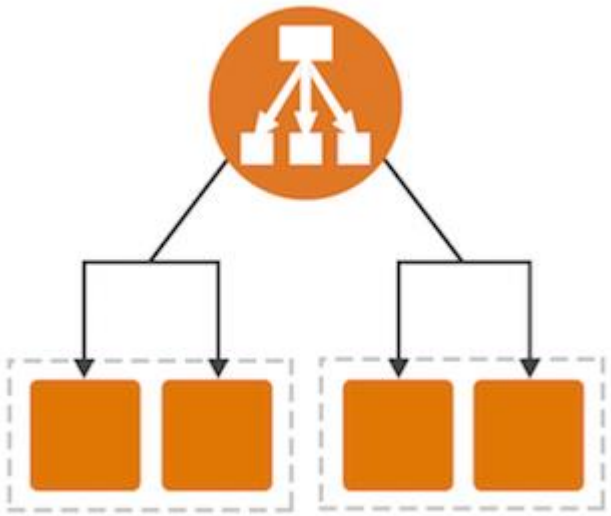
- **Direct connect:**

dedicated network connection from your premises to AWS.

- **Virtual Private Cloud:**

a logically isolated section of the Amazon Web Services (AWS) cloud where you can launch AWS resources in a virtual network that you define.

Networking



- **Elastic Load Balancing**

Elastic Load Balancing automatically distributes incoming application traffic across multiple Amazon EC2 instances.

Elastic Load Balancing supports two types of load balancers: Application Load Balancers and Classic Load Balancers. Choose the load balancer type that meets your needs.

Benefit

- Available
- Elastic
- Secure

Amazon Web Services **– Overview of Amazon Web Services**

Compute

- **Elastic Compute Cloud (EC2):**

a web service that provides secure, resizable compute capacity in the cloud.

- **Auto Scaling:**

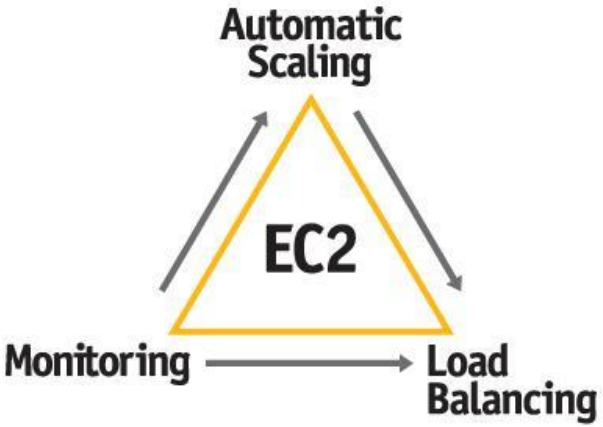
Automatically launch or terminate EC2 instances based on user-defined policies, health status checks, and schedules

- **Lambda**:

AWS Lambda is a zero-administration compute platform for back-end web developers that runs your code for you in the AWS cloud and provides you with a fine-grained pricing structure.

Amazon Web Services **– Overview of Amazon Web Services**

Compute



- **Elastic Compute Cloud**

Ec2 offers Virtual computing Environment (Instances) you can launch and manage with a few clicks of mouse or few lines of code.

Benefit:

- Elastic Web-Scale Computing ,Completely Controlled
- Flexible Cloud Hosting Services , Integrated
- Reliable ,Secure
- Inexpensive
- Easy to Start

Amazon Web Services **– Overview of Amazon Web Services**

EC2 pricing option

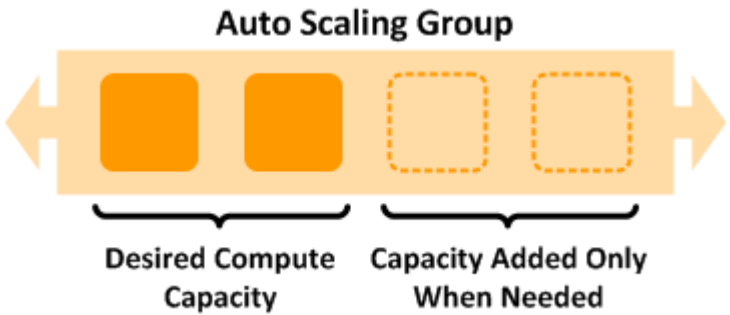
	On demand instances	Reserved instances	Spot instances
Term	pay as you go	One year or three year	bid on unused capacity; instances can be lost if you outbid
Benefit	low cost and flexibility	predictability ensure compute capacity is available when need	large scale, dynamic workload
Cost	pay for what you use	pay low or no upfront fee; overall cost is lower	spot price base on supply and demand

EC2 Pricing Fundamental

- Compute:
  Clock hour of server time
- instance type
- purchase type
- OS and software package
- Block storage
  additional storage, backup, data transfer
- Load balancing
- data processing
- detailed monitoring
- EIP
- Data transfer
- Regional data transfer
- data transfer out

Amazon Web Services **– Overview of Amazon Web Services**

Compute



Auto scaling

Auto Scaling helps you maintain application availability and allows you to dynamically scale your Amazon EC2 capacity up or down automatically according to conditions you define. When you use Auto Scaling, your applications gain the following

Benefits:

- Better fault tolerance.
- Better availability.
- Better cost management.

Storage

Amazon Glacier

S3

EBS

Deployment & Administrator

App Services

Compute | **Storage** | Database

Networking

AWS Global Infrastructure

AWS Cloud Storage Products

If You Need:	Consider Using:
Persistent local storage for Amazon EC2, for relational and NoSQL databases, data warehousing, enterprise applications, Big Data processing, or backup and recovery	Amazon Elastic Block Store (Amazon EBS)
A simple, scalable, elastic file system for Linux-based workloads for use with AWS Cloud services and on-premises resources. It is built to scale on demand to petabytes without disrupting applications, growing and shrinking automatically as you add and remove files, so your applications have the storage they need – when they need it.	Amazon Elastic File System (Amazon EFS)
A fully managed file system that is optimized for compute-intensive workloads, such as high performance computing, machine learning, and media data processing workflows, and is seamlessly integrated with Amazon S3	Amazon FSx for Lustre
A fully managed native Microsoft Windows file system built on Windows Server so you can easily move your Windows-based applications that require file storage to AWS, including full support for the SMB protocol and Windows NTFS, Active Directory (AD) integration, and Distributed File System (DFS).	Amazon FSx for Windows File Server
A scalable, durable platform to make data accessible from any Internet location, for user-generated content, active archive, serverless computing, Big Data storage or backup and recovery	Amazon Simple Storage Service (Amazon S3)
Highly affordable long-term storage that can replace tape for archive and regulatory compliance	Amazon Glacier
A hybrid storage cloud augmenting your on-premises environment with Amazon cloud storage, for bursting, tiering or migration	AWS Storage Gateway
A portfolio of services to help simplify and accelerate moving data of all types and sizes into and out of the AWS cloud	Cloud Data Migration Services
A fully managed backup service that makes it easy to centralize and automate the back up of data across AWS services in the cloud as well as on premises using the AWS Storage Gateway.	AWS Backup

Storage

- **Simple Storage Service (S3)**

Durable storage, any object
99.999999999% durability of object
Unlimited storage of object of any type
Up to 5TB size per object

- **Elastic Block Storage (EBS)**

Hight performance block a storage device
mount as drive to instance

- **Glacier**

Amazon Glacier is a storage service optimized for infrequently used data, or "cold data."

Storage

- **S3**

Amazon S3 has a simple web services interface that you can use to store and retrieve any amount of data, at any time, from anywhere on the web. S3 provide Object-level storage.

Key Features:

- Simplicity.
- Durability.
- Scalability.
- Security.
- Broad integration with other AWS services
- Cloud Data Migration options
- Enterprise-class Storage Management.

Amazon S3 Storage Classes

- **General Purpose**

Amazon S3 Standard

Amazon S3 Standard offers high durability, availability, and performance object storage for frequently accessed data.

Amazon S3 Storage Classes

- **Unknown or changing access**

Amazon S3 Intelligent-Tiering (S3 Intelligent-Tiering) — NEW

The S3 Intelligent-Tiering storage class is designed to optimize costs by automatically moving data to the most cost-effective access tier, without performance impact or operational overhead

Amazon S3 Storage Classes

- **Infrequent Access**

Amazon S3 Standard - Infrequent Access (Standard - IA)

S3 Standard-IA is for data that is accessed less frequently, but requires rapid access when needed. S3 Standard-IA offers the high durability, high throughput, and low latency of S3 Standard

Amazon S3 One Zone-Infrequent Access (S3 One Zone-IA)

S3 One Zone-IA stores data in a single AZ and costs 20% less than S3 Standard-IA.

Amazon S3 Storage Classes

Archive

Amazon Glacier

Amazon Glacier is a secure, durable, and extremely low-cost storage service for data archiving.

Amazon S3 Glacier Deep Archive (S3 Glacier Deep Archive) COMING SOON

Performance across the S3 Storage Classes

	S3 Standard	S3 Intelligent-Tiering*	S3 Standard-IA	S3 One Zone-IA†	S3 Glacier	S3 Glacier Deep Archive**
Designed for durability	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)
Designed for availability	99.99%	99.9%	99.9%	99.5%	99.99%	99.99%
Availability SLA	99.9%	99%	99%	99%	99.9%	99.9%
Availability Zones	≥3	≥3	≥3	1	≥3	≥3
Minimum capacity charge per object	N/A	N/A	128KB	128KB	40KB	40KB
Minimum storage duration charge	N/A	30 days	30 days	30 days	90 days	180 days
Retrieval fee	N/A	N/A	per GB retrieved	per GB retrieved	per GB retrieved	per GB retrieved
First byte latency	milliseconds	millseconds	milliseconds	milliseconds	select minutes or hours	select hours
Storage type	Object	Object	Object	Object	Object	Object
Lifecycle transitions	Yes	Yes	Yes	Yes	Yes	Yes

S3 Pricing Fundamental

Storage pricing

Request pricing

S3 Storage Management pricing

Data Transfer pricing

S3 Transfer Acceleration pricing

Cross-Region Replication pricing

AWS GovCloud Region

Amazon Web Services **– Overview of Amazon Web Services**

Storage

EBS

Amazon Elastic Block Store (Amazon EBS) provides persistent block storage volumes for use with Amazon EC2 instances in the AWS Cloud.

Features:

- High Performance Volumes
- Availability
- Encryption
- Access Management
- Snapshots
- Elastic Volumes

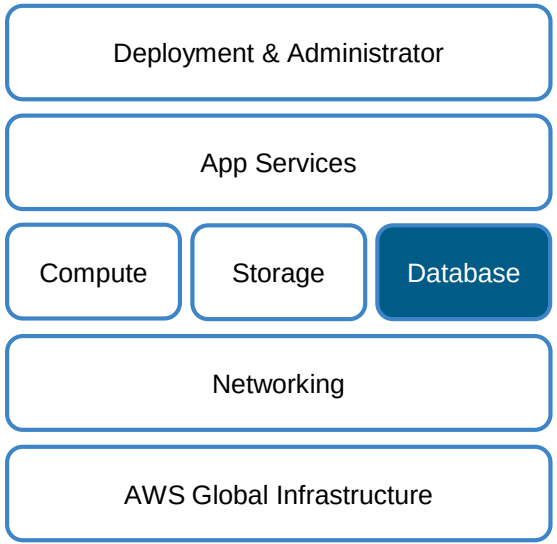
Amazon EBS Volume Types

	Magnetic	Cold HDD	Throughput Optimized HDD	General Purpose SSD	Provisioned IOPS SSD
Max volume size	1 TiB	16 TiB	16 TiB	16 TiB	16 TiB
Max IOPS/volume	40 to 200	250	500	10,000	20,000
Max throughput/volume	40 to 90 MiB/sec	250 MiB/s	500 MiB/s	160 MiB/sec	320 MiB/sec
Use cases	• Infrequent data access	• Workloads involving large, sequential I/O	• Workloads involving large, sequential I/O	• Boot volumes • Small to Medium DBs • Dev and Test environments	• I/O-intensive workloads • Relational DBs • NoSQL DBs

Database

Amazon DynamoDB

Amazon RDS



Relation Database service

Databse-as-a-service

No need to install or manage database instances

scalable and fault tolerant configurations

DynamoDB

Provisioned throughtput NoSQL database

Fast, predictable performance

Fully distributed, fault tolerant architecture

Self-managed

Your choice of database running on EC2

Application Service

Amazon SQS

Reliable, hightly scalable, queue service for storing messages

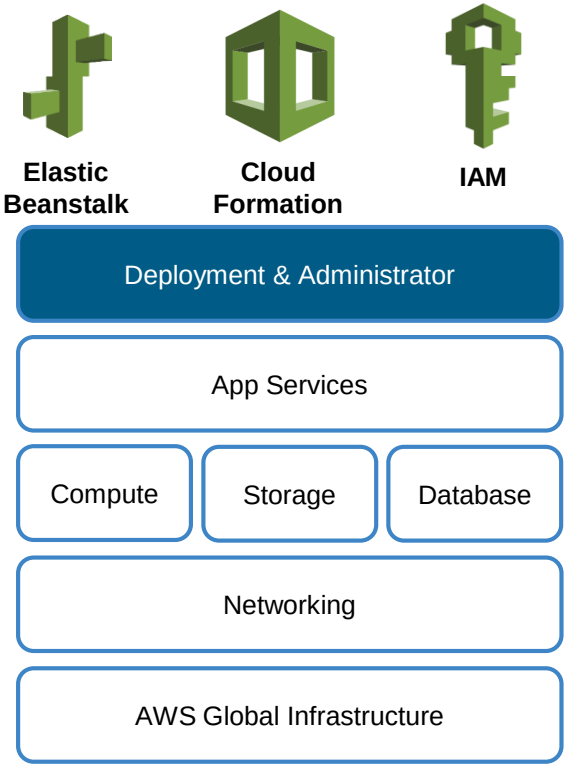
Amazon SNS

Amazon Simple Notification Service (**Amazon SNS**) is a web service that enables applications, end-users, and devices to instantly send and receive notifications

Amazon Cloudfront

Amazon CloudFront is a global content delivery network (CDN) service that securely delivers data, videos, applications, and APIs to your viewers with low latency and high transfer speeds

Deployment & Administrator



Elastic Beanstalk

You can simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring.

Cloud Formation

AWS CloudFormation gives developers and systems administrators an easy way to create and manage a collection of related AWS resources, provisioning and updating them in an orderly and predictable fashion.

Identity & Access Management

Centrally manage access and authentication of your users to your AWS resources.

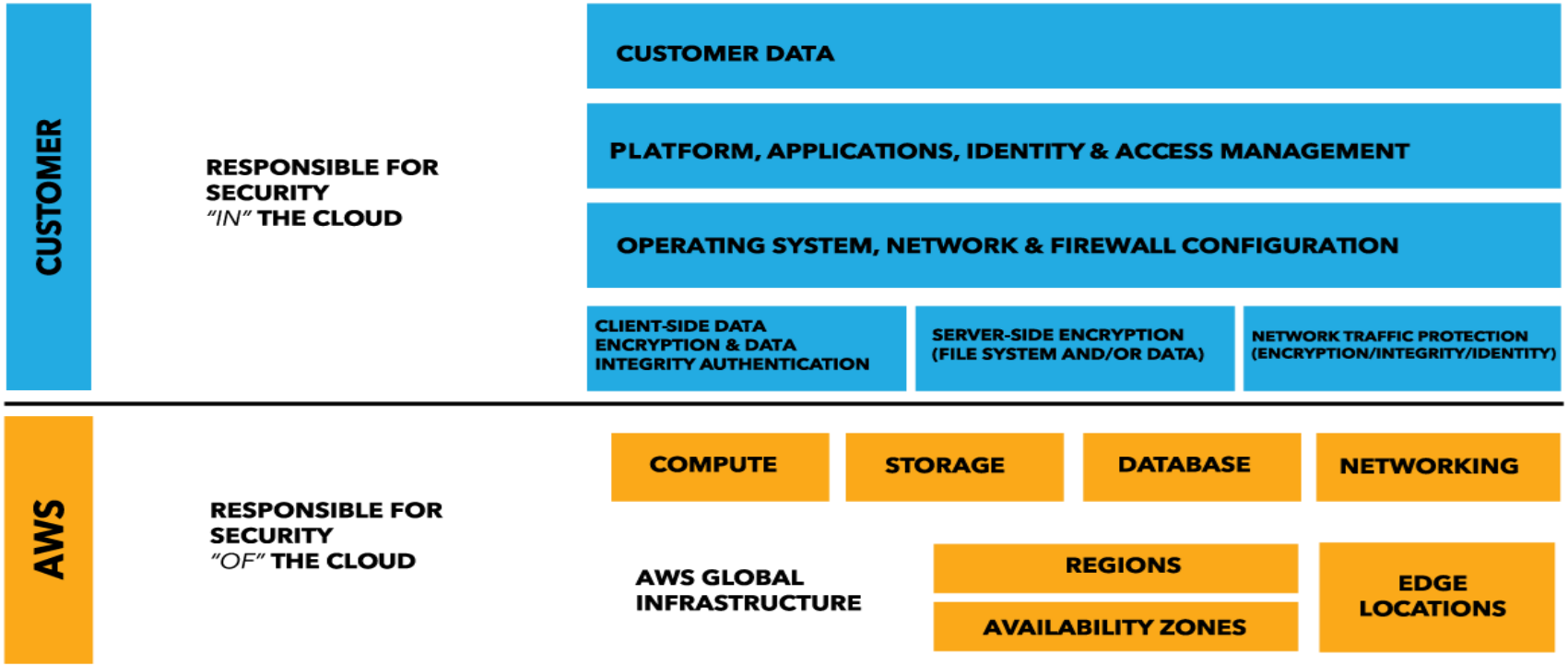
Amazon Web Services **– Overview of Amazon Web Services**

Type of Security Credentials

Email address and password	Associate with your AWS Account (Root)
IAM User name and password	Use for access the AWS management console
Access key	Typically use with CLI and programmatic requests like API and SDKs
Multi-Factor Authentication	Extra layer of security
	con be enable for root account and IAM user
Keypair	Used only for specific AWS services like Amazon EC2

AWS Shared Responsibility Model

AWS Shared Responsibility Model



Amazon Web Services **– Overview of Amazon Web Services**

AWS Training & Certification

Self-paced lab

Try product, gain new skill, and get hand-on practice working AWS techonologies

https://aws.amazon.com/training/self-paced-labs/

Training

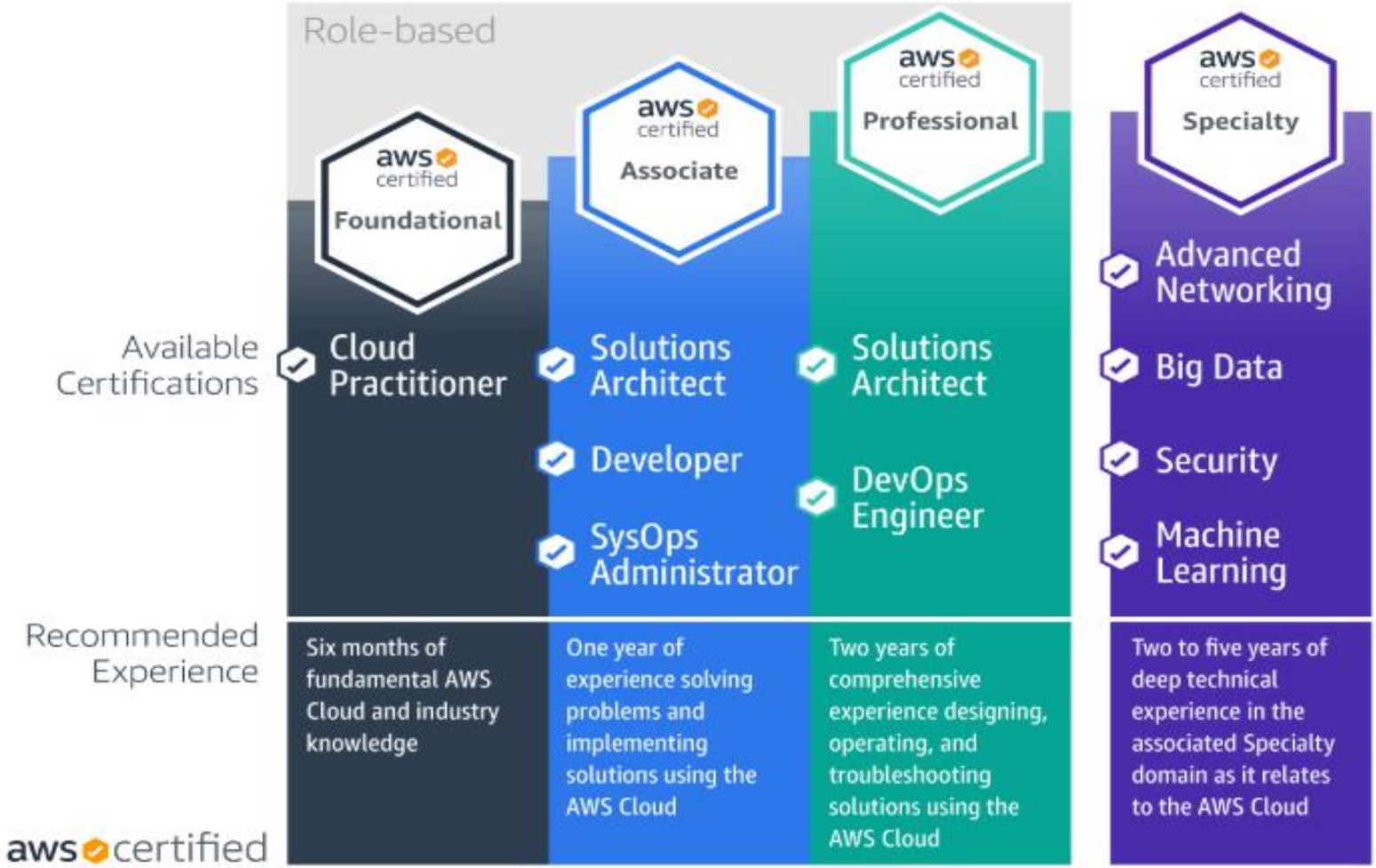
Build Technical experties to design and operate scalable, efficient applications on AWS

https://aws.amazon.com/training/

Certification

Validate your proven skills and experties with the AWS platform

https://aws.amazon.com/certification/


Role-based
aws certified Foundational
aws certified Associate
aws certified Professional
aws certified Specialty
Available Certifications
Cloud Practitioner
Solutions Architect
Developer
SysOps Administrator
Solutions Architect
DevOps Engineer
Advanced Networking
Big Data
Security
Machine Learning
Recommended Experience
Six months of fundamental AWS Cloud and industry knowledge
One year of experience solving problems and implementing solutions using the AWS Cloud
Two years of comprehensive experience designing, operating, and troubleshooting solutions using the AWS Cloud
Two to five years of deep technical experience in the associated Specialty domain as it relates to the AWS Cloud
aws certified

Getting Started With AWS

What are the first things to do with a new AWS Account?

1/ Stop using your root account as soon as possible

2/ Require multi-factor authentication for access

3/ Enable AWS Cloudtrail

4/ Track change to resources with AWS Config

5/ Enable a billing report, such as the AWS cost and usage Report

Questions