Amazon Web Services (AWS) Cloud

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Agenda

- Cloud Computing - An Overview
- Why AWS
- Benefits of Cloud Computing
- Cloud Service Models
- AWS Certifications
- AWS Shared Responsibility Model
- AWS Free Tier

Cloud Computing - An Overview

- Cloud computing gives you access to servers, storage, databases, and a broad set of application services over the Internet.
- A cloud services provider such as Amazon Web Services,Google Cloud Platform,Microsoft Azure owns and maintains the network-connected hardware required for these application services, while you provision and use what you need via a web application.
- **Amazon Web Services** offers reliable, scalable, and inexpensive cloud computing services. Free to join, pay only for what you use.

Why AWS ?

- Locations
- Automated Multi-Region Backups
- Disaster Recovery
- Flexibility and Scalability
- Pay-As-You-Go Pricing Model
- Security

Gartner Magic Quadrant - 2021

Ref: https://aws.amazon.com/resources/analyst-reports/gartner-mq-cips-2021/

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Benefits of Cloud Computing

- **Agility** - The cloud allows you to innovate faster because you can focus your valuable IT resources on developing applications.
- **Elasticity** - Now, you can provision the amount of resources that you actually need, knowing you can instantly scale up or down with the needs of your business.
- **Deploy globally in minutes** - You can easily deploy your application in multiple physical locations around the world. This means you can provide a lower latency and better experience for your customers simply and at minimal cost.
- **Cost Savings** - Pay for only as you consume it.

Cloud Service Models

Cloud service models come in different flavors out of which we will look at three in detail :

- SAAS (Software as a Service)
- PAAS (Platform as a Service)
- IAAS (Infrastructure as a Service)

Software as a Service

- SaaS or Software as a Service is a model that gives quick access to cloud-based web applications.
- The vendor controls the entire computing stack, which you can access using a web browser.
- These applications run on the cloud and you can use them by a paid licensed subscription or for free with limited access.

Eg: Google G Suite, Microsoft Office 365, Dropbox

Platform as a Service

- Platform as a Service or PaaS is essentially a cloud base where you can develop, test and organize the different applications for your business.
- Implementing PaaS simplifies the process of enterprise software development.
- The virtual runtime environment provided by PaaS gives a favourable space for developing and testing applications.

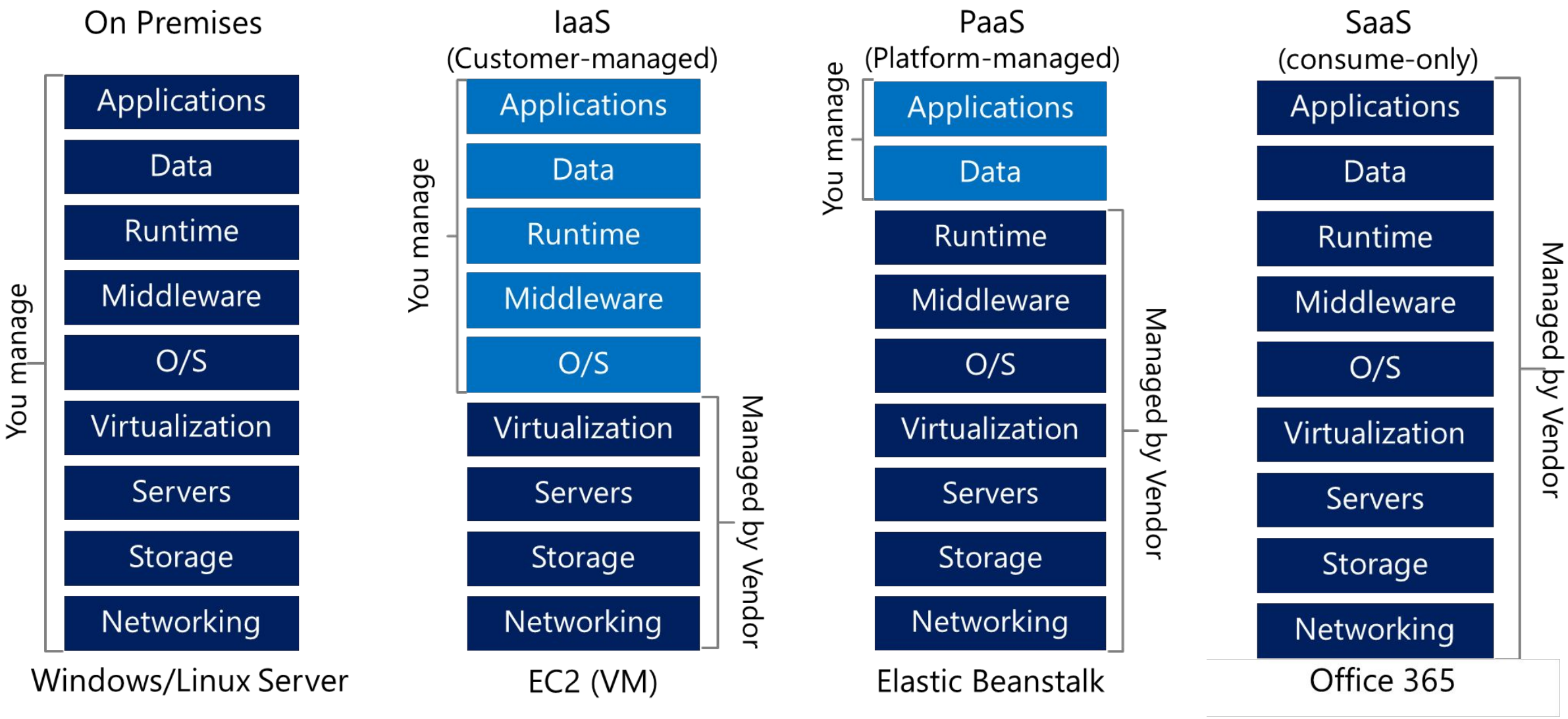
Eg : Google App Engine and AWS Elastic Beanstalk

Infrastructure as a Service

- IaaS or Infrastructure as a Service is basically a virtual provision of computing resources over the cloud.
- An IaaS cloud provider can give you the entire range of computing infrastructures such as storage, servers, networking hardware alongside maintenance and support.

Eg: Amazon EC2, Microsoft Azure VM and Google Compute Engine.

Cloud Service Models - Comparison



AWS Certifications

Professional

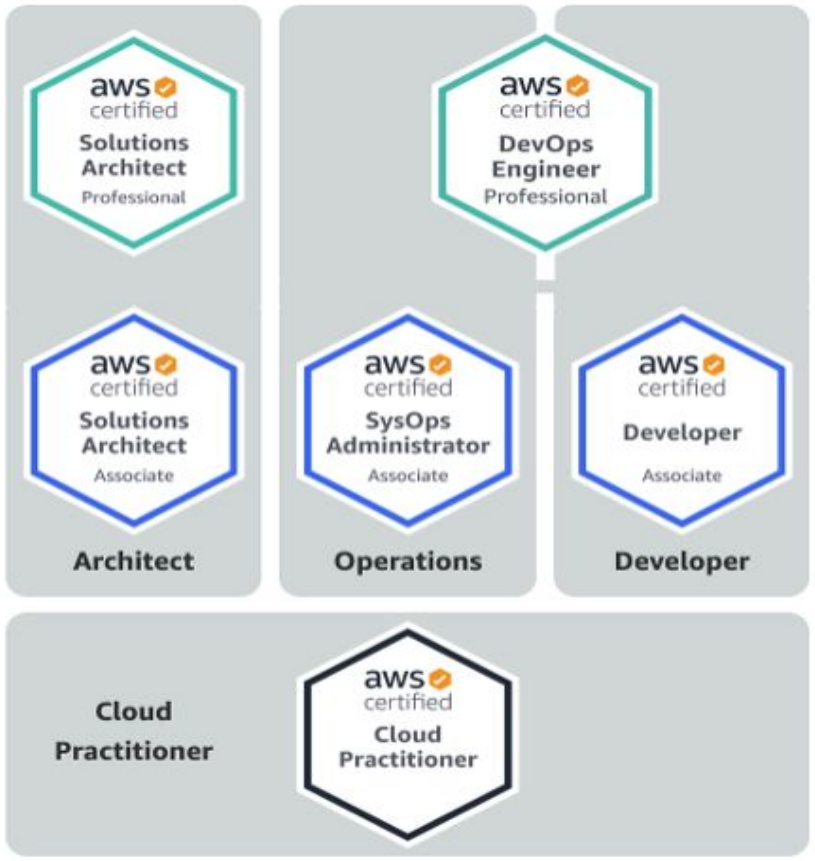
Two years of comprehensive experience designing, operating, and troubleshooting solutions using the AWS Cloud

Associate

One year of experience solving problems and implementing solutions using the AWS Cloud

Foundational

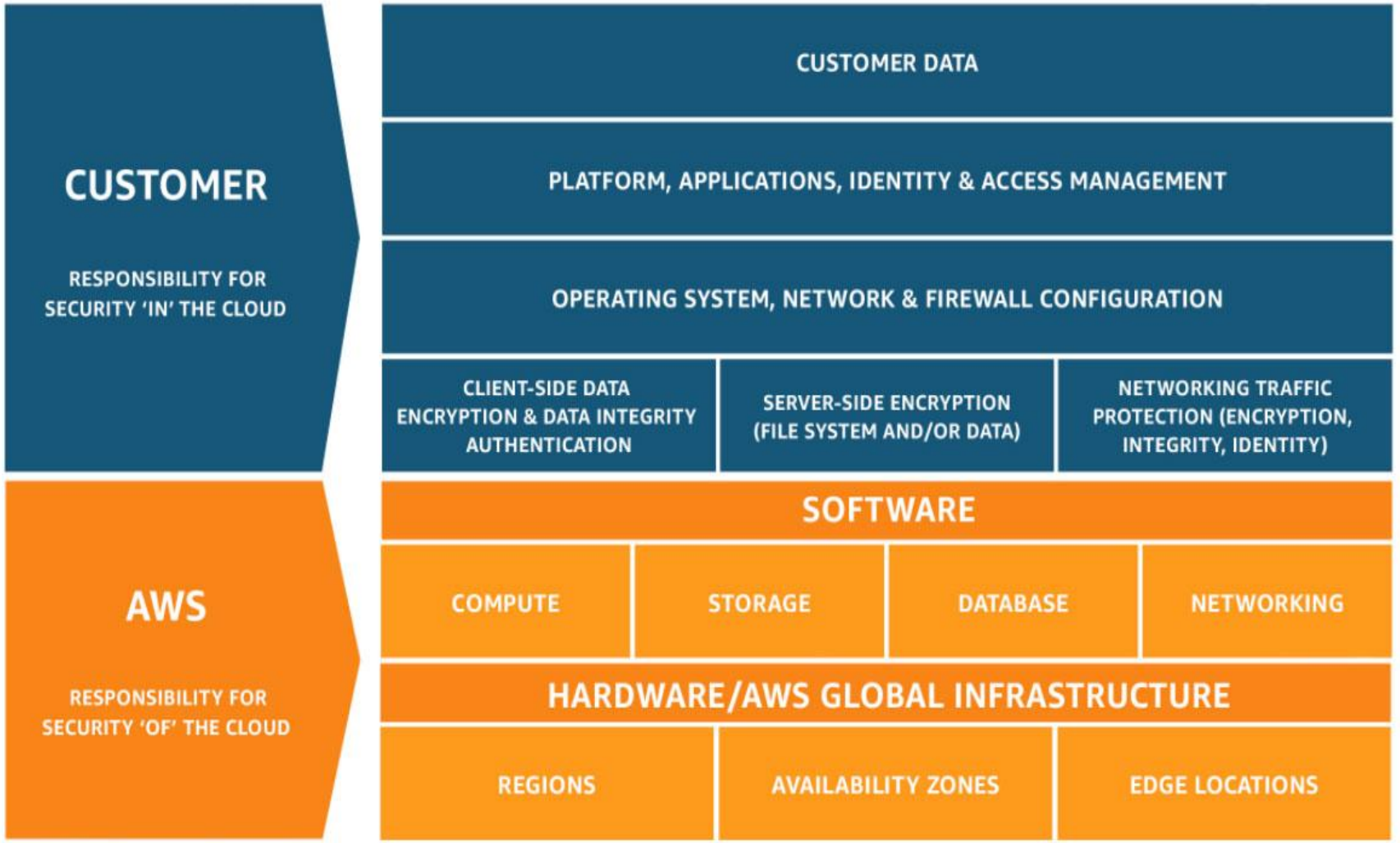
Six months of fundamental AWS Cloud and industry knowledge



Specialty

Technical AWS Cloud experience in the Specialty domain as specified in the **exam guide**

AWS Shared Responsibility Model



Ref: https://aws.amazon.com/compliance/shared-responsibility-model/

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Regions

- AWS provides a more extensive global footprint than any other cloud provider, and it opens up new Regions faster than other providers.
- To support its global footprint and ensure customers are served across the world.
- AWS maintains multiple geographic regions, including Regions in North America, South America, Europe, Asia Pacific, and Middle East.
- Currently there are 26 geographic regions and even more in the works.

Availability Zones

- AZ give customers the ability to operate production applications and databases that are more highly available, fault tolerant, and scalable by placing them in multiple data centers.
- AWS maintains **84 AZ** around the world and adding more.
- Each AZ can be multiple data centres (typically 3), and at full scale can be hundreds of thousands of servers.
- They are fully isolated partitions of the AWS Global Infrastructure.
- With their own power infrastructure, the AZs are physically separated by a meaningful distance from other AZ, although all are within **100 km**.

Edge Locations

- To deliver content to end users with lower latency, Amazon uses a global network of **310+** Points of Presence (**300** Edge Locations and **13** Regional Edge Caches) in **90+** cities across **47** countries.

Security :

- Protection against network and application layer attacks
- SSL/TLS Encryption and HTTPS
- Access Control
- Compliance (PCI-DSS Level 1, HIPAA, ISO 9001, ISO 27001)

AWS Free Tier

- AWS allows people to create free tier accounts where there are limits to certain services to use but if within limits, the cost factor is very low to get started.
- Go to the following link to view more details about the free tier account : https://aws.amazon.com/free/
- Sign Up using an existing email address.
- Sign Up using a debit/credit card.
- Validate the account using your mobile number – Call/Text.

Lab:

Creating an AWS Account