AWS Cloud Computing Introduction

Ashish Gajjar

WHAT? WHY? HOW?

1

What is Cloud Computing?

What is Cloud Computing?

so,
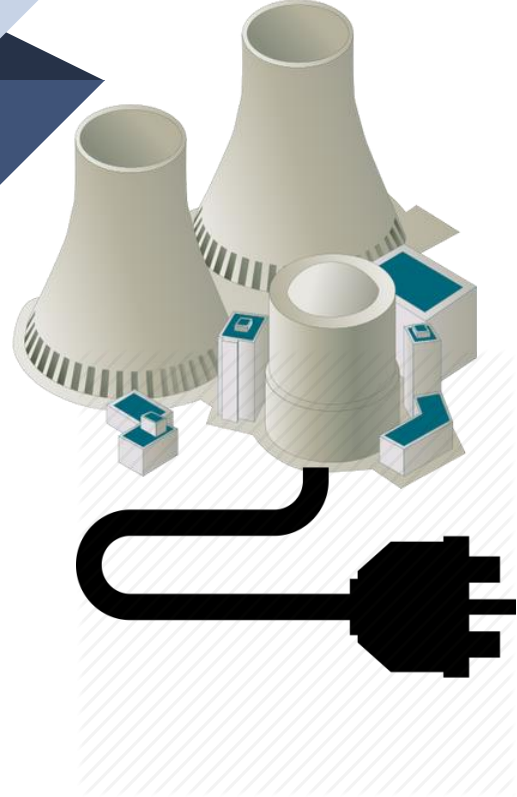what is
this?

What is Cloud Computing ?

Think of your electricity service…

Power is available to you **on-demand**, you **pay** only for **what you use**…

…and you plug into a vast electrical grid **managed by professionals** to get you the **lowest cost**, **most reliable** power with much **greater efficiency and safety** than you could probably do on your own.

Attributes of Cloud Computing

- **Elastic Capacity (Scale)**

- **No CapEx or Initial Investment**

- **On-demand availability**

- **Pay per use**

- **Reliable and Secure**
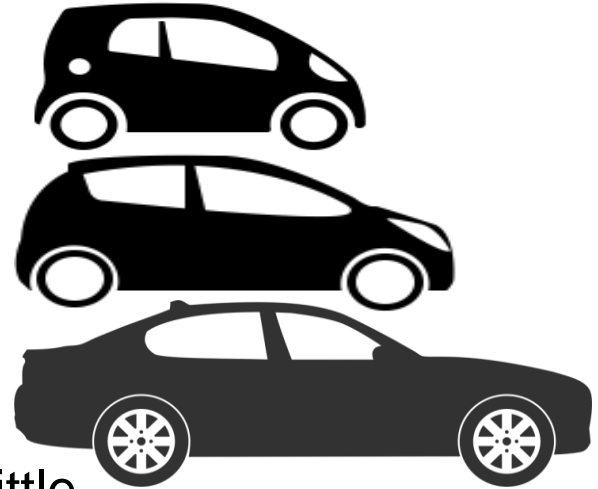
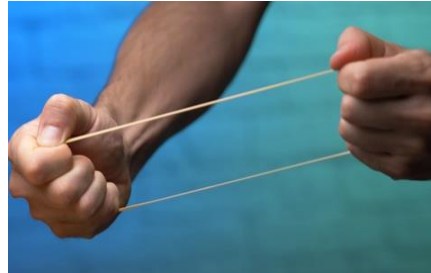- **Lower Cost**

- **Self-Service Model**

Elastic Capacity (Scale)

Car As a Service

Buy a Car

- you will probably either buy two much or two little.
- If you buy two much, you' re wasted money.
- if you buy two little you will have downtime.
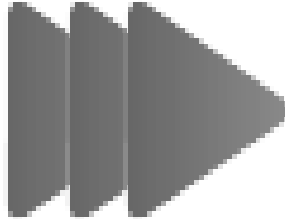- Cloud can scale with your business need

No CapEx or Initial Investment

Buy a Car

Huge Initial Investment
Limited Choice
Driver Expenses
Regular Maintenance
Gasoline expenses
Break Down

Car As a Service

No Initial Investment
Flexible Choice
No Driver Expenses
No Regular Maintenance
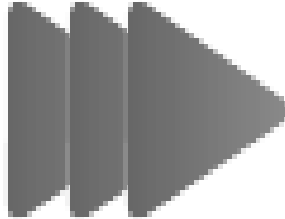No Gasoline expenses
No worries for Break Down

On-demand availability

Buy a Car

Stuck to what ever available difficult to change with modernization or time. Compromise flexibility of Choice

Car As a Service

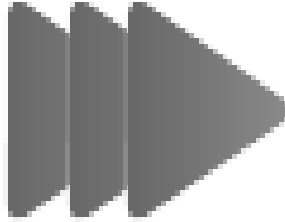On demand Availability And Flexibility of choice

Pay per use

Buy a Car

No option for pay per use. Only Gasoline or Patrol can be pay per use.

Car As a Service

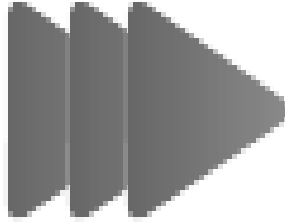Exact pay per use. Based on miles you use, capacity and facility you choose.

Reliable and Secure

Buy a Car

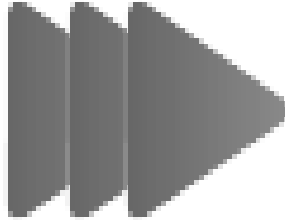Break Down and Security we need to take care

Car As a Service

We have a choice to select service provider based on our choice.

Lower Cost

Huge cost at initial and some cost for maintenance and operation with no or little choice available for Car
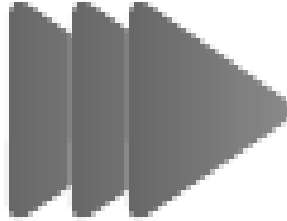
Car As a Service

Zero initial cost, no maintenance or operational cost with ample of choice for car

Self-Service Model

We are responsible to follow up for maintenance and operation cost. Even for break down.

Car As a Service

All choice of car or service providers are at your finger tip. No need to connect any one.
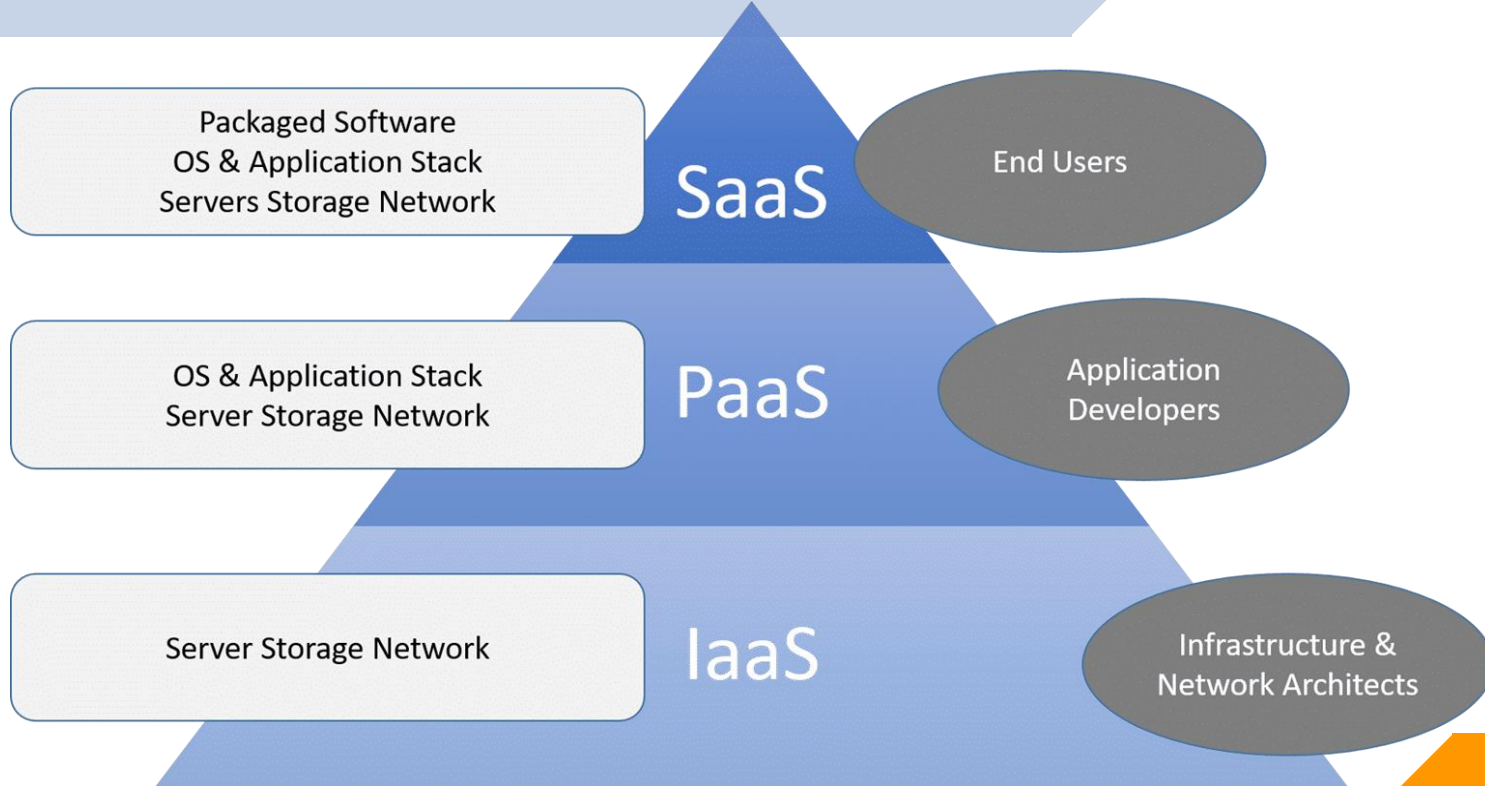
What is cloud computing?

- Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing.

- Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services (AWS).

Cloud Service Models

SaaS

Packaged Software
OS & Application Stack
Servers Storage Network

End Users

PaaS

OS & Application Stack
Server Storage Network

Application
Developers

IaaS

Server Storage Network

Infrastructure &
Network Architects

15

Infrastructure as a Service (IaaS)

- IaaS contains the basic building blocks for cloud IT.
- You manage the server which can be physical and virtual, as well as the operating system. Usually the data center provider no access to your server.
- It typically provides access to networking features, computers and data storage space.
- IaaS gives you the highest level of flexibility and management control over your IT resources.

Platform as a Service (PaaS)

- Someone else manages the underlying HW and OS.
- You just focus on your applications.
- Someone else worries about security, patching, updates, maintenance etc.

Software as a Service (SaaS)

☐ Think of E-Mail. All you manage in your inbox.

☐ In most cases, people referring to SaaS are referring to end-user applications (such as web-based email). With a SaaS offering, you don't have to think about how the service is maintained or how the underlying infrastructure is managed.

☐ You only need to think about how you will use that particular software.
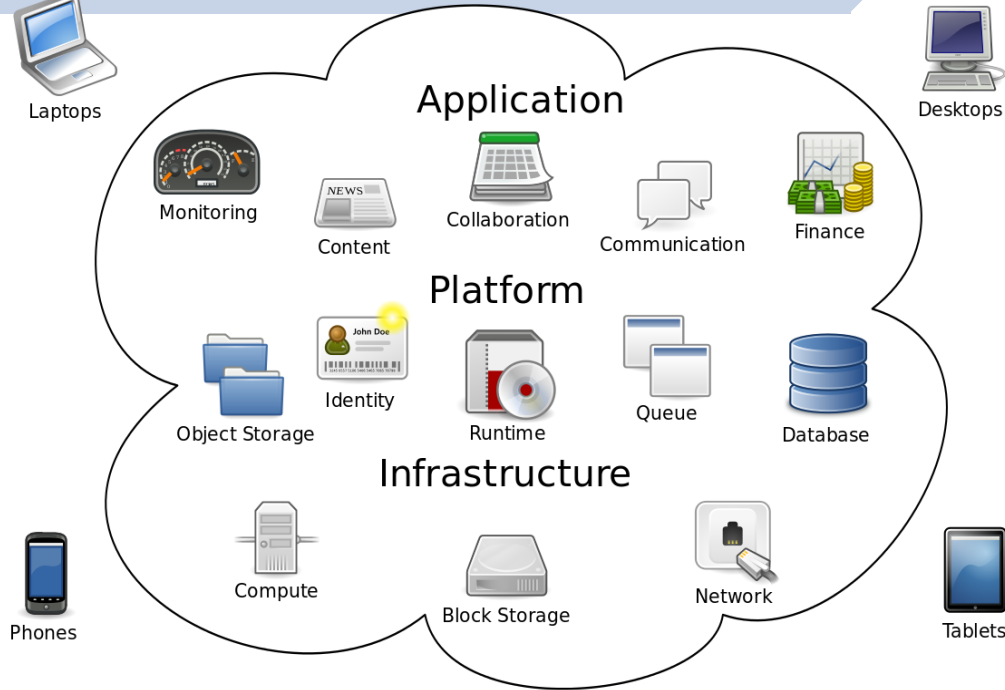
Cloud Computing Service Models
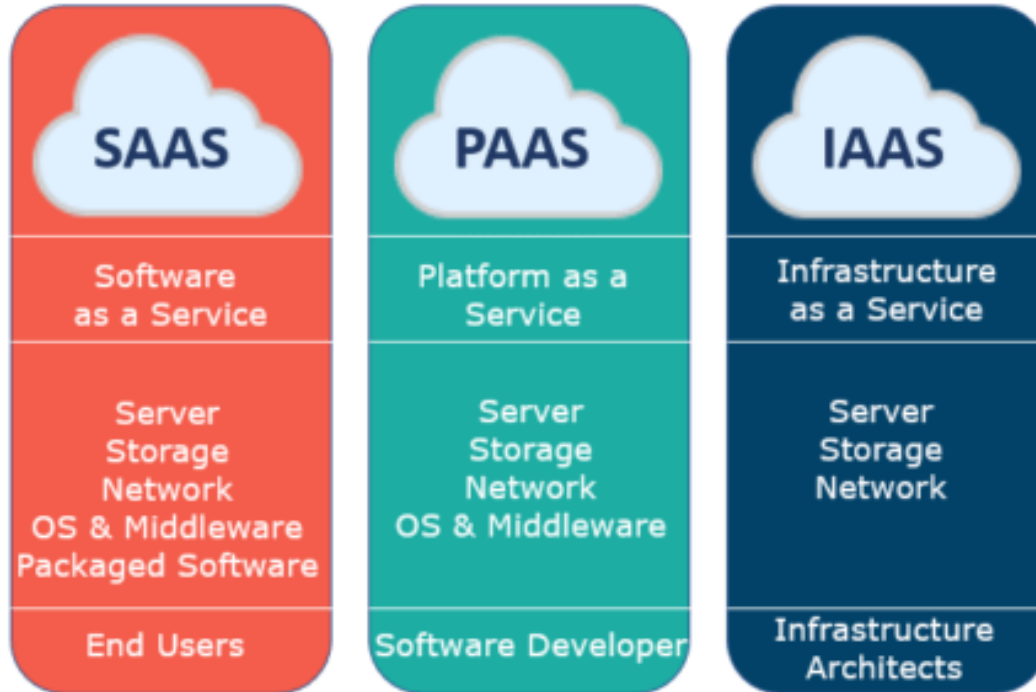
Cloud computing

WHAT
is AWS?

WHEN
did AWS start?

WHY
is AWS so popular?

Amazon **W**eb **S**ervices

Amazon

Web

Services

=

Cloud Service Provider

- Provides a cloud-based platform or cloud services
- Allows you to rent out virtual servers that you access remotely

2004

- AWS started out as a department within Amazon Inc.
- Used only by early Amazon customers.
- Web services are not available publicly.

2006

- AWS officially started its operation as a public cloud service provider
- Released Amazon S3 (Simple Storage Service)
- Released Amazon SQS (Simple Queue Service)

Why is aws so popular?

Today
- Offers hundreds of fully-featured services that are available globally.
- Provides a highly reliable, scalable, and low-cost infrastructure platform in the cloud.
- Used by millions of customers.
- Supports various workloads.
- Significantly lower your operating costs.
- Enables companies to scale globally in minutes.

Most functionality

- AWS has significantly more <u>services</u>, and more features within those services, than any other cloud provider–from infrastructure technologies like compute, storage, and databases to emerging technologies, such as machine learning and artificial intelligence, data lakes and analytics, and Internet of Things.

- This makes it faster, easier, and more cost effective to move your existing applications to the cloud and build nearly anything you can imagine.
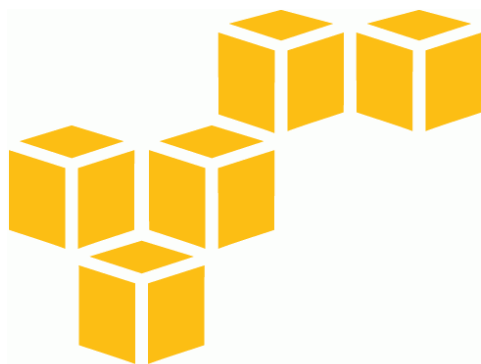
Largest community of customers and partners

- AWS has the largest and most dynamic community, w millions of active customers and tens of thousands of partners globally.
- Customers across virtually every industry and of every size, including startups, enterprises, and public sector organizations, are running every imaginable use case on AWS.

AWS Partner Network (APN) Thousands of systems integrators. And Independent software vendors (ISVs)

Most secure

- AWS is architected to be the most flexible and secure cloud computing environment available today. Our core infrastructure is built to satisfy the security requirements for the military, global banks, and other high-sensitivity organizations.

- This is backed by a deep set of cloud security tools, with 230+ security, compliance, and governance services and features. AWS supports 90+ security standards and compliance certifications.

Fastest pace of innovation

With AWS, you can leverage the latest technologies to experiment and innovate more quickly. We are continually accelerating our pace of innovation to invent entirely new technologies you can use to transform your business.

For example, in 2014, AWS pioneered the serverless computing space with the launch of AWS Lambda, which lets developers run their code without provisioning or managing servers. And AWS built Amazon SageMaker, a fully managed machine learning service that empowers everyday developers and scientists to use machine learning–without any previous experience.

Most proven operational expertise

AWS has unmatched experience, maturity, reliability, security, and performance that you can depend upon for your most important applications. For over 13 years, AWS has been delivering cloud services to millions of customers around the world running a wide variety of use cases. AWS has the most operational experience, at greater scale, of any cloud provider.
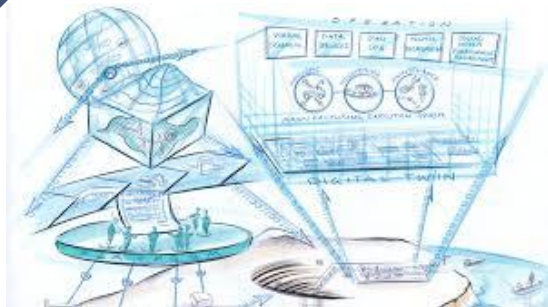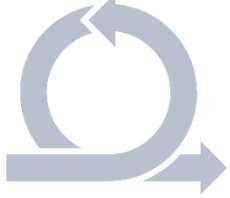
What is AWS?

- AWS (Amazon Web Services) is a Cloud Provider.
- They provide you with servers and services that you can use on demand and scale easily.
- AWS has revolutionized IT over time.
- AWS powers some of the biggest websites in the world.
  - Amazon.com
  - Netflix

Advantages of AWS

WFH

Agility

Easy to use

EASE OF USE ICON

Flexible

Cost Effective

Document Control

Document Control

Reliable

Secure

DR

DISASTER RECOVERY PLAN ?
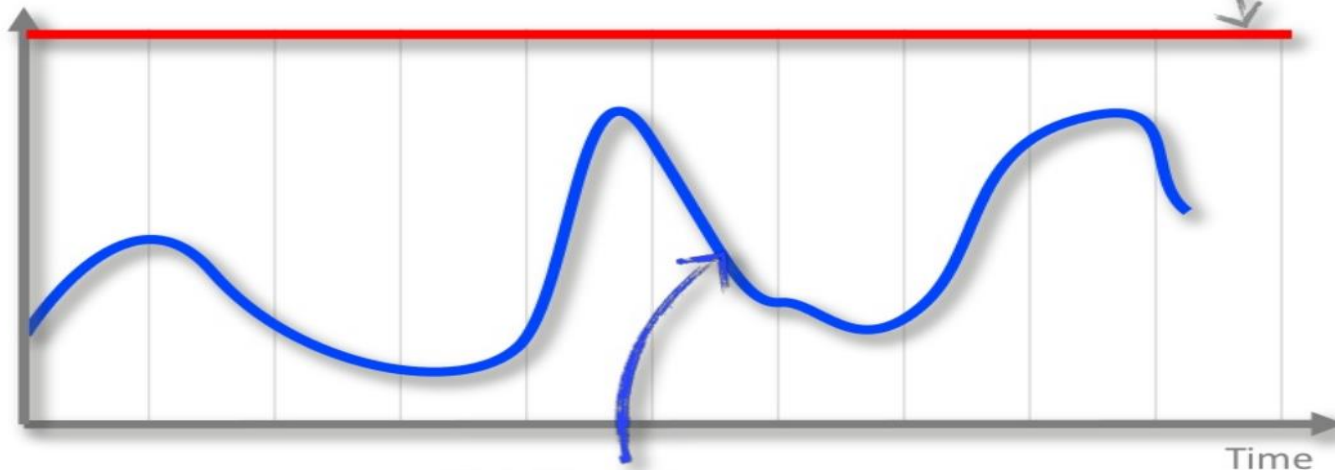
#1 Reduced Time To Market

1 instance for 500 hours
=
500 instances for 1 hour

You choose where to balance cost against time

Many Enterprises Worry That These are the Only Two Choices
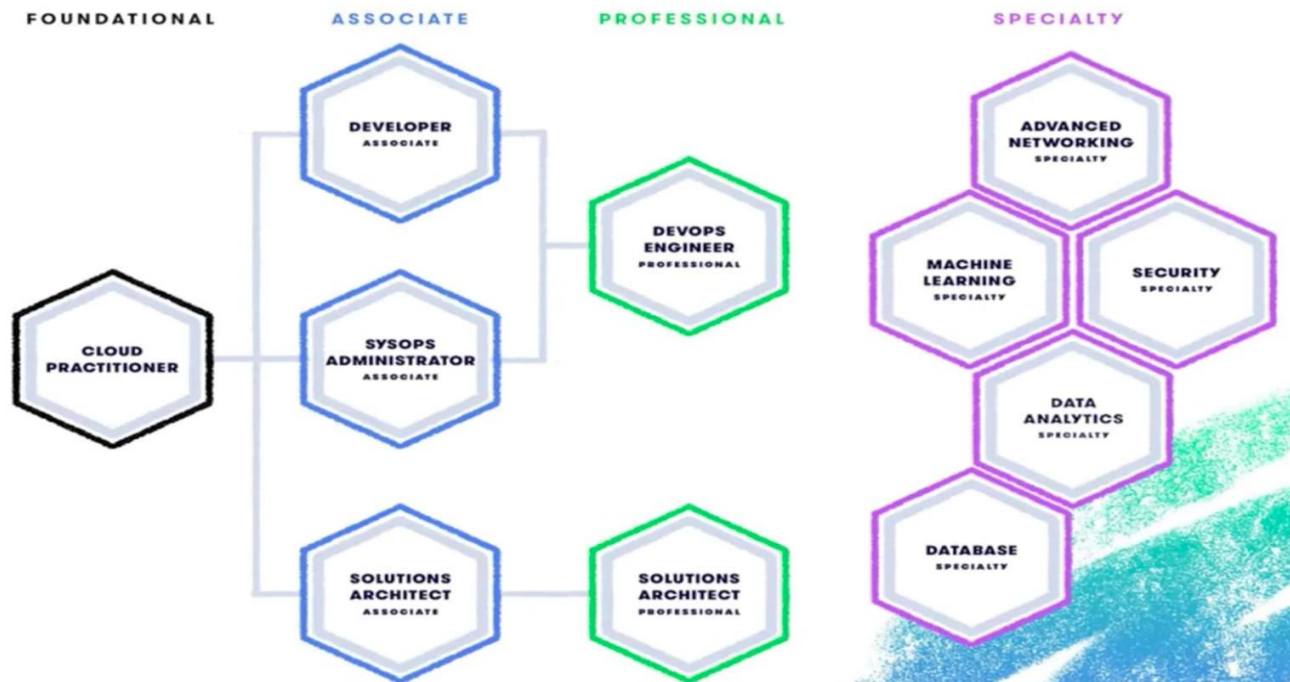
Build a "private" cloud

#1

#2

Rip everything out and move to AWS

AWS CERTIFICATIONS

FOUNDATIONAL   ASSOCIATE   PROFESSIONAL   SPECIALTY

DEVELOPER
ASSOCIATE

DEVOPS
ENGINEER
PROFESSIONAL

ADVANCED
NETWORKING
SPECIALTY

MACHINE
LEARNING
SPECIALTY

SECURITY
SPECIALTY

CLOUD
PRACTITIONER

SYSOPS
ADMINISTRATOR
ASSOCIATE

DATA
ANALYTICS
SPECIALTY

SOLUTIONS
ARCHITECT
ASSOCIATE

SOLUTIONS
ARCHITECT
PROFESSIONAL

DATABASE
SPECIALTY

AWS Foundational-Level Certifications

Skills covered:

- Basic AWS architectural foundations
- Key AWS services
- AWS security and compliance

AWS Associate-Level Certifications

Skills covered:

- How AWS-based applications work
- Build secure applications on AWS platform
- Learn how to deploy hybrid AWS systems
- Hands-on AWS application design
- Aws application development
- Secure environments in AWS environment

AWS Professional-Level Certifications

Skills covered:

- Deploy complex AWS migration
- Learn cost-optimization strategies
- Implement CD strategies
- Monitor and log AWS systems
- Implement scalable systems on AWS

AWS Specialty Certifications

Skills covered:

- Design and maintain Big Data
- Use AWS to automate data analysis
- Automate AWS systems for network deployments
- Kinesis, Athena, Quicksight, and Rekognition
- AWS for ML solutions
- Design secure ML solutions

AWS Solutions Architect Associate Exam Overview

Multiple Choice

Has **1** correct response and **3** incorrect responses

A company has a web application that uses Internet Information Services (IIS) for Windows Server. A file share is used to store the application data on the network-attached storage of the company's on-premises data center. To achieve a highly available system, they plan to migrate the application and file share to AWS.

Which of the following can be used to fulfill this requirement?

○ Migrate the existing file share configuration to Amazon EFS.

○ Migrate the existing file share configuration to Amazon EBS.

● Migrate the existing file share configuration to Amazon FSx for Windows File Server.

○ Migrate the existing file share configuration to AWS Storage Gateway.

Multiple Response

Has **2** correct responses out of **5** response options

You are working as a Solutions Architect in a new startup that provides storage for high-quality photos which are infrequently accessed by the users. To make the architecture cost-effective, you designed the cloud service to use an S3 One Zone-Infrequent Access (S3 One Zone-IA) storage type for free users and an S3 Standard-Infrequent Access (S3 Standard-IA) storage type for premium users. When your manager found out about this, he asked you about the differences between using S3 One Zone-IA and S3 Standard-IA.

What will you say to your manager? (Select TWO.)

☐ Unlike other Amazon object storage classes, which store data in a minimum of three Availability Zones (AZs), S3 One Zone-IA stores data in a single AZ.

☑ Storing data in S3 One Zone-IA costs less than storing it in S3 Standard-IA.

☐ Storing data in S3 One Zone-IA costs more than storing it in S3 Standard-IA but provides more durability.

☑ Unlike other Amazon object storage classes, which store data in a minimum of three Availability Zones (AZs), S3 One Zone-IA stores data in two AZs only. Hence the name, One Zone-IA since the data replication is skipped in one Availability Zone.

☐ S3 One Zone-IA offers lower durability and low throughput compared with Amazon S3 Standard and S3 Standard-IA which is why it has a low per GB storage price and per GB retrieval fee.

AWS Solutions Architect Associate Exam

Exam Code	**SAA-C03**
Release Date	August 2022
Prerequisites	None
No. Of Questions	65
Score Range	100 - 1000
Passing Score	720
Time Limit	2 hours 10 minutes

Section	% of Scored Items	Score Performance	
		Needs Improvement	Meets Competencies
Section 1.0: Design Secure Architectures	30%	██████	
Section 2.0: Design Resilient Architectures	26%		██████
Section 3.0: Design High-Performing Architectures	24%	██████	
Section 4.0: Design Cost-Optimized Architectures	20%	██████	

Exam Code	SAA-C03
Release Date	August 2022
Prerequisites	None
No. Of Questions	65
Score Range	100 - 1000
Passing Score	720
Time Limit	2 hours 10 minutes

AWS Solutions Architect Associate Exam Overview

Domain 1:
Design Secure Architectures
30%

Domain 4:
Design Cost-Optimized Architectures
20%

Domain 2:
Design Resilient Architectures
26%

Domain 3:
Design High-Performing Architectures
24%
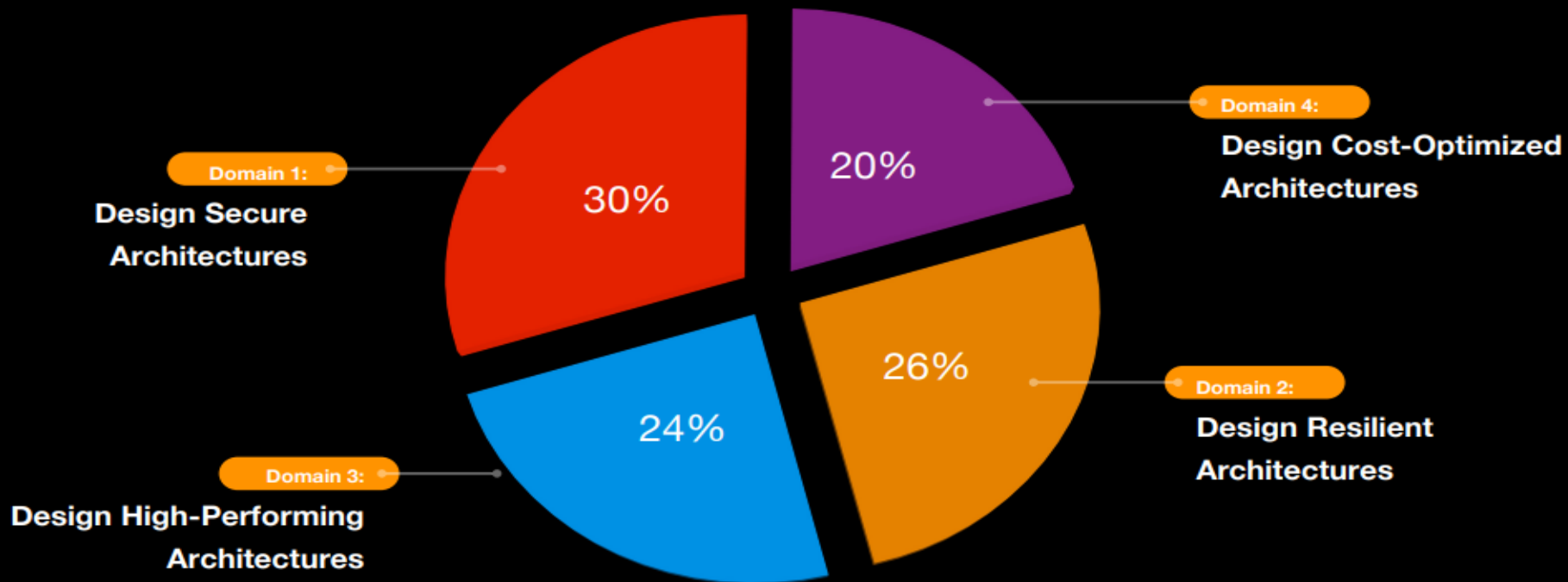
1. Design Secure Architectures
- Design secure access to AWS resources
- Design secure workloads and applications
- Determine appropriate data security controls

2. Design Resilient Architectures
- Design scalable and loosely coupled architecture
- Design highly available and/or fault-tolerant architectures

3. Design High-Performing Architectures
- Determine high-performing and/or scalable storage solutions
- Design high-performing and elastic compute solutions
- Determine high-performing database solutions
- Determine high-performing and/or scalable network architectures
- Determine high-performing data ingestion and transformation solutions

4. Design Cost-Optimized Architectures
- Design cost-optimized storage solutions
- Design cost-optimized compute solutions
- Design cost-optimized database solutions
- Design cost-optimized network architectures

Actual traffic pattern for Qualifiers 1 — CSK vs SRH (IPL 2018)

Featured EC2 Customers

- Netflix is a streaming service.
- Deployed thousands of servers and terabytes of storage within minutes
- Delivers Billions of Hours of Content Globally by Running on AWS

THANKS!

Any questions?