Introduction to SA and Cloud Fundamentals

AWS Certifications

Solutions architect

Design, develop, and manage cloud infrastructure and assets, work with DevOps to migrate applications to the cloud.

Cloud data engineer

Automate collection and processing of structured/semi-structured data and monitor data pipeline performance.

https://d1.awsstatic.com/training-and-certification/docs/AWS_certification_paths.pdf

Solutions Architect Exam

- Exam Code: SAA-C03
- Number of Questions: 65
  - 50 are counted
  - 15 are not counted
  - You will not know which questions are counted
- Passing Score: 720 out of 1000
- Question format: Multiple choice and Multiple response
- Cost: $150 USD

Exam Guide Summary

- **Domain 1**: Design Secure Architectures (**30%**)
- **Domain 2**: Design Resilient Architectures (**26%**)
- **Domain 3**: Design High-Performing Architectures (**24%**)
- **Domain 4**: Design Cost-Optimized Architectures (**20%**)

Exam Guide

Resources

- Exam Guide
- Tutorials Dojo Cheat Sheets
- Tutorials Dojo Practice Exams
- Adrian Cantrill or Stephane Mareek

Cloud Fundamentals

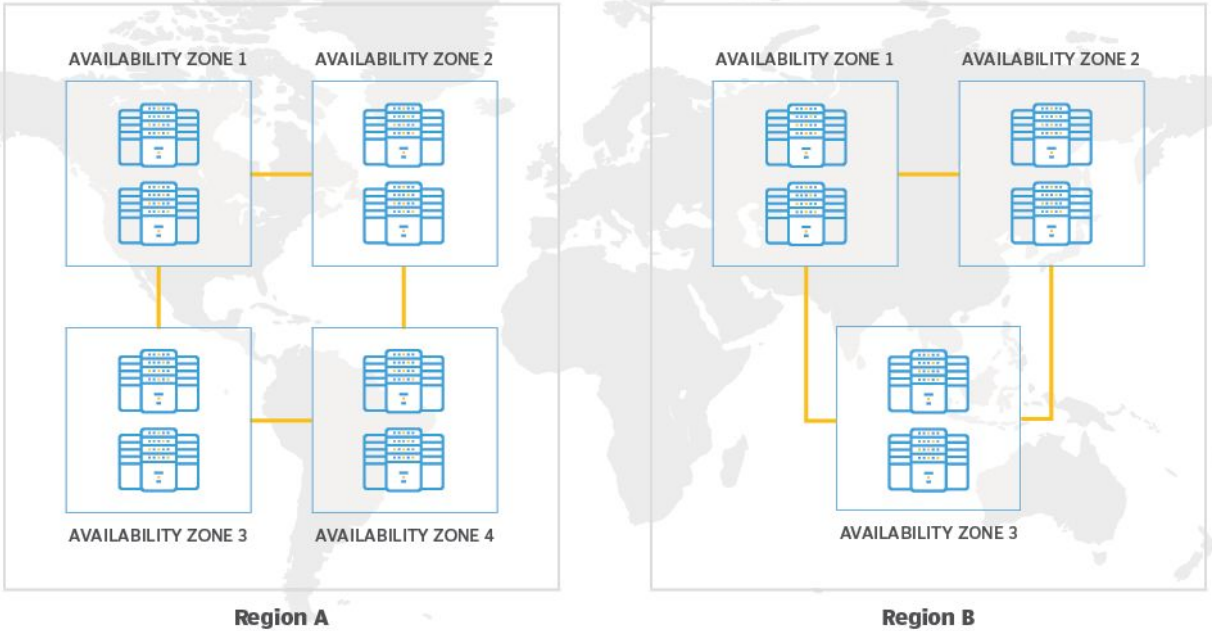
What is Cloud?

- Cloud is a collection of servers owned by a third party, for example Amazon
- You can use these servers for websites, machine learning, etc.
- Services make certain tasks easier
    - E.g. Setting up a database or managing networking
- Regardless of your location, if you're online, you can access your stored information in the cloud anytime
- You only pay for what you need

IT Concepts

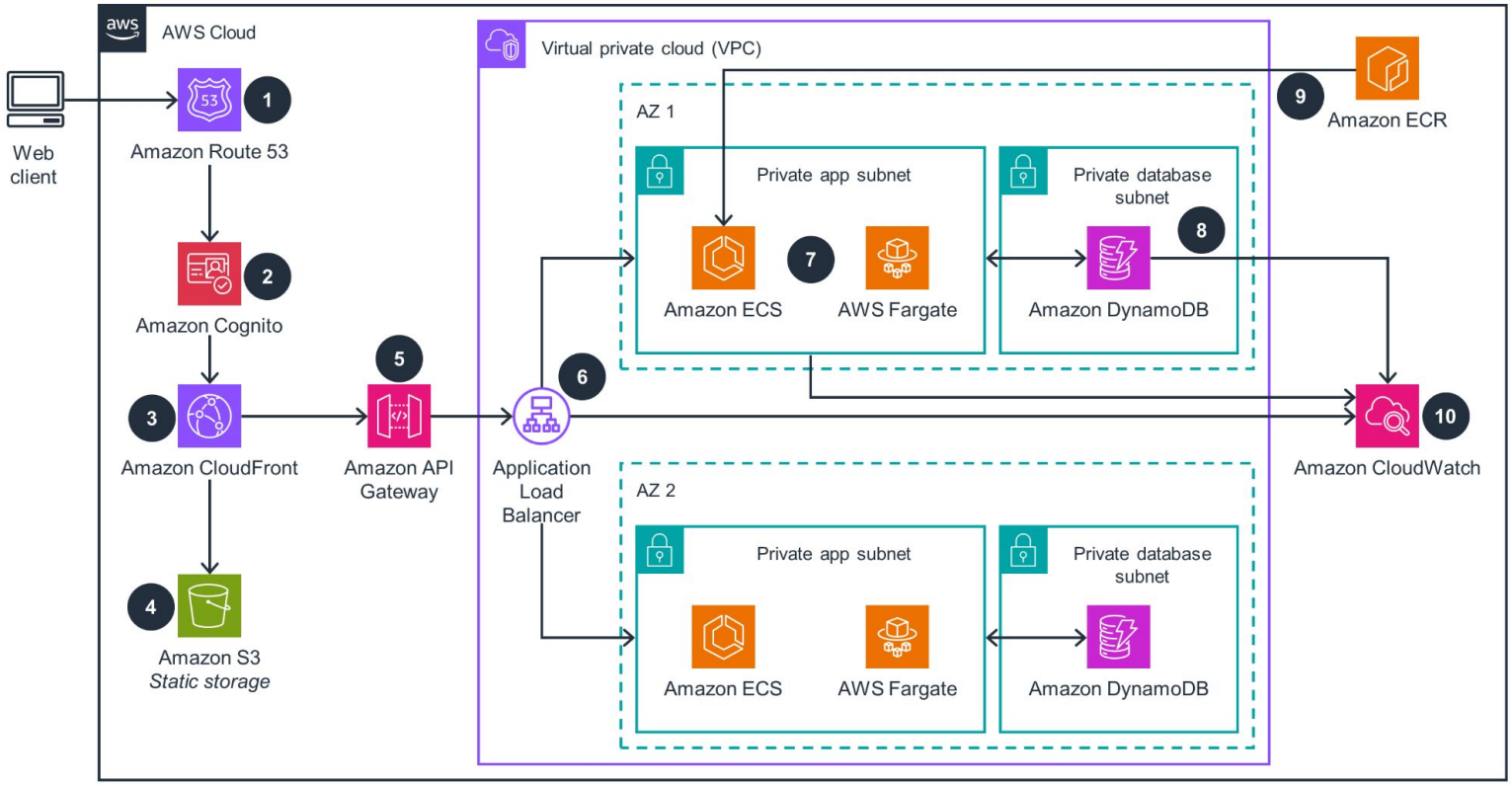
- **Networking**
  - Web of connected devices that talk to each other, making it easy to share information and work together. In AWS, you will get your own Virtual Private Cloud (VPC) to set up a network.
- **Databases**
  - Structured collection of data that is organized and stored electronically, allowing for efficient data retrieval, manipulation, and management
- **Serverless**
  - Cloud model where developers focus on writing code, and the cloud provider handles server management, scaling, and resource allocation automatically
  - Includes services such as Lambda, S3, API Gateway, and Step Functions

Availability zones vs. regions

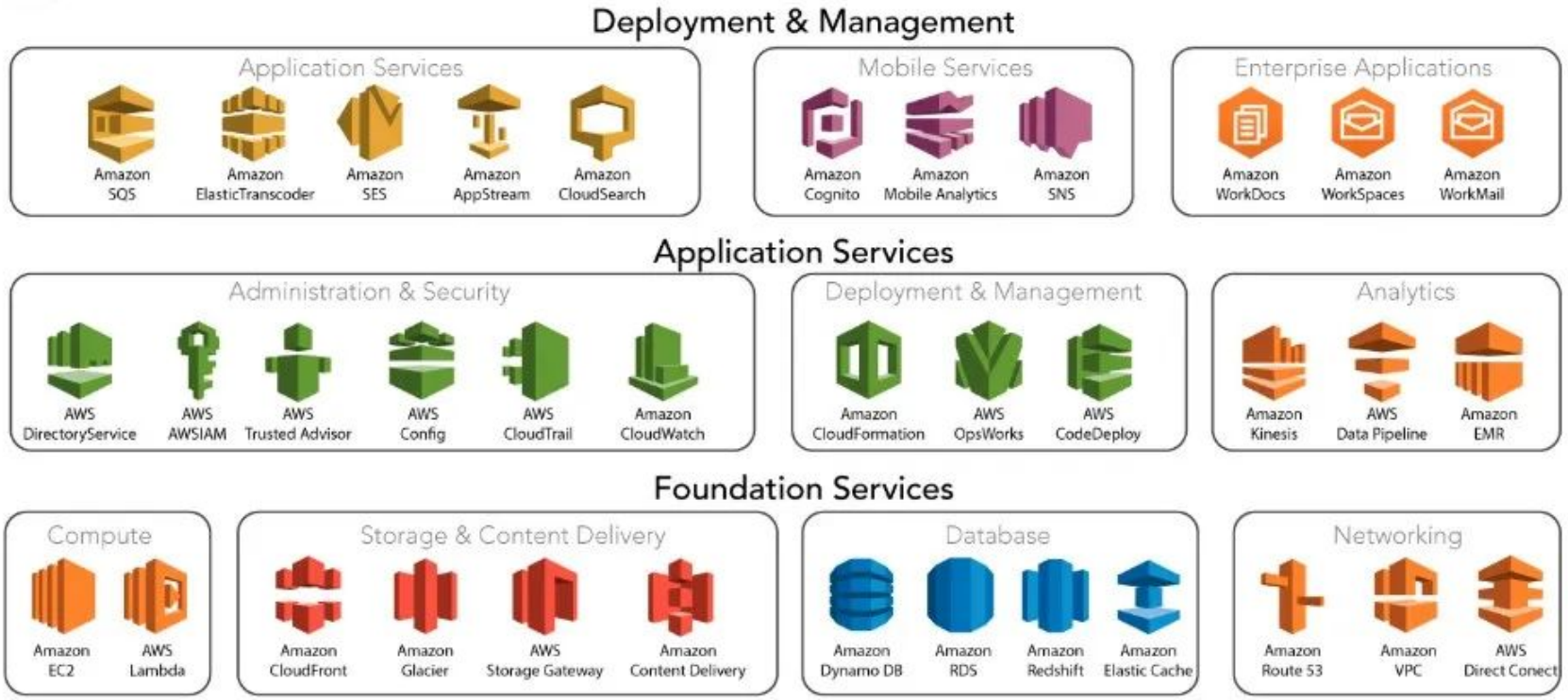


SOURCE: PAUL KIRVAN; DATA CENTERS: NEXUSBY/ADOBE STOCK

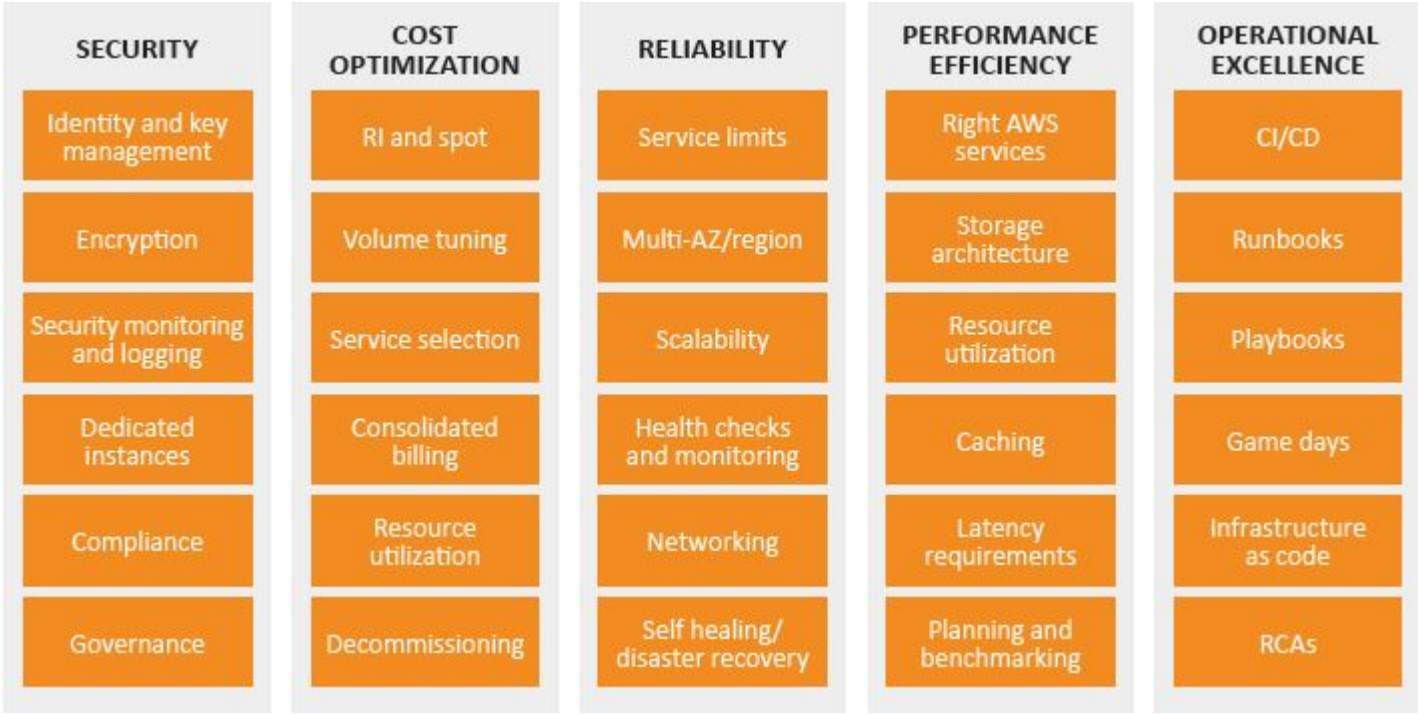
Example AWS Application



AWS Services



Well-Architected Framework



Example Question

Category: CSAA – Design Resilient Architectures

A company needs to deploy at least 2 EC2 instances to support the normal workloads of its application and automatically scale up to 6 EC2 instances to handle the peak load. The architecture must be highly available and fault-tolerant as it is processing mission-critical workloads.

As the Solutions Architect of the company, what should you do to meet the above requirement?

- Create an Auto Scaling group of EC2 instances and set the minimum capacity to 2 and the maximum capacity to 6. Deploy 4 instances in Availability Zone A.
- Create an Auto Scaling group of EC2 instances and set the minimum capacity to 4 and the maximum capacity to 6. Deploy 2 instances in Availability Zone A and another 2 instances in Availability Zone B.
- Create an Auto Scaling group of EC2 instances and set the minimum capacity to 2 and the maximum capacity to 4. Deploy 2 instances in Availability Zone A and 2 instances in Availability Zone B.
- Create an Auto Scaling group of EC2 instances and set the minimum capacity to 2 and the maximum capacity to 6. Use 2 Availability Zones and deploy 1 instance for each AZ.

Answer

- Create an Auto Scaling group of EC2 instances and set the minimum capacity to 2 and the maximum capacity to 6. Deploy 4 instances in Availability Zone A.
- **Create an Auto Scaling group of EC2 instances and set the minimum capacity to 4 and the maximum capacity to 6. Deploy 2 instances in Availability Zone A and another 2 instances in Availability Zone B.**
- Create an Auto Scaling group of EC2 instances and set the minimum capacity to 2 and the maximum capacity to 4. Deploy 2 instances in Availability Zone A and 2 instances in Availability Zone B.
- Create an Auto Scaling group of EC2 instances and set the minimum capacity to 2 and the maximum capacity to 6. Use 2 Availability Zones and deploy 1 instance for each AZ.

Hands-on Demo