Introduction to AWS Compute services

AWS CONCEPTS

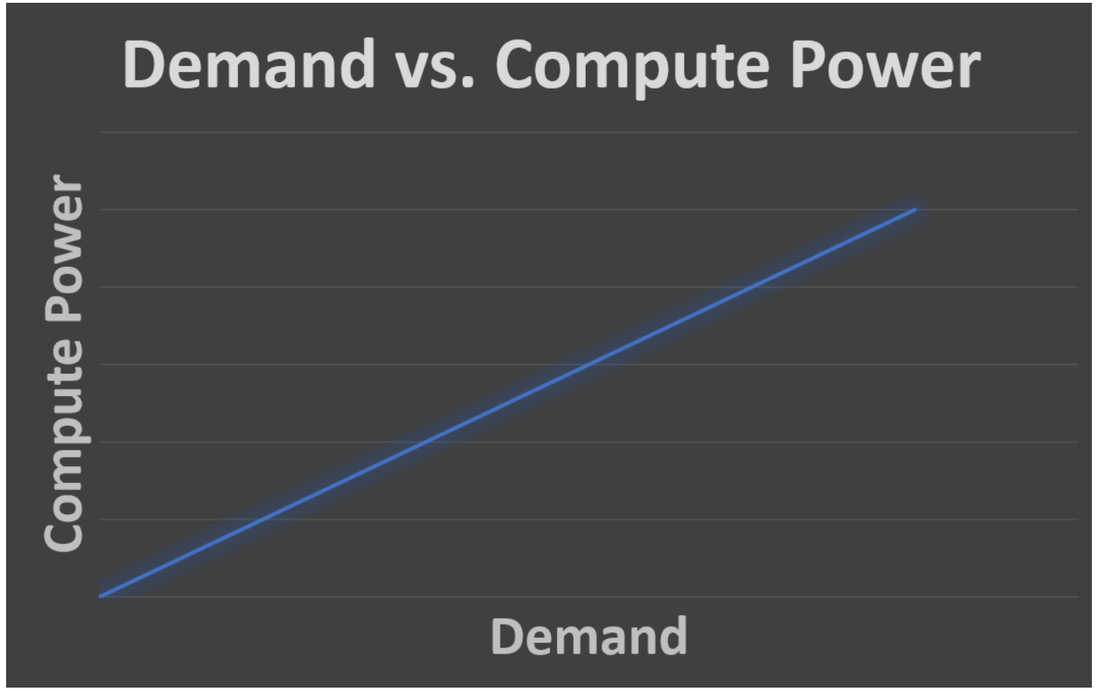
Amar Suchak
Software Engineer, Microsoft

Why do we need compute services?

- Imagine it's Black Friday
- Your website crashes due to high traffic
- What do you do?

Compute: the backbone of digital solutions

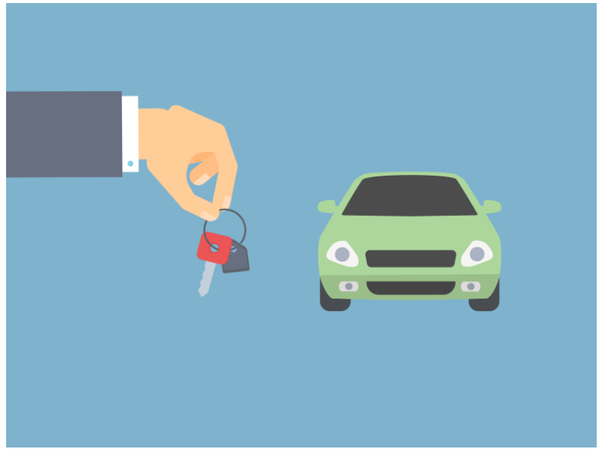
- Definition: providing computing power on-demand
- Importance: scalability, flexibility, and cost-efficiency



Meeting the challenge with AWS

Server Based

- Continuous availability
- Dedicated resources
- More control
- Customization (like owning a car)



Serverless

- On-demand execution
- No server management
- Event-driven
- Cost-effective
- It's like using a taxi service; it's there when you need it and gone when you don't

EC2 unpacked

- Virtual servers in the cloud
- Customizable configurations (OS, storage, location)
- Focus on customization

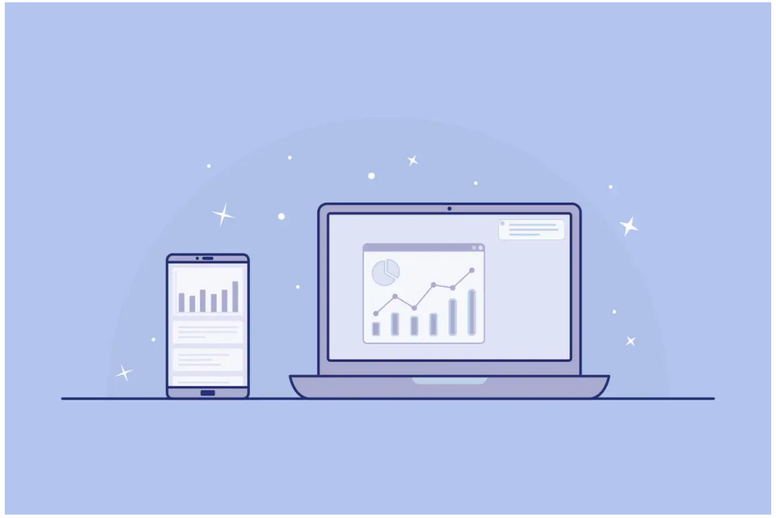
Lambda unpacked

- Serverless computing platform
- Name comes from Lambda calculus
- Event-driven architecture (file uploads, database changes)
- Focus on convenience

In real life

EC2

- Hosting websites
- Scalability and customization



Lambda

- Real-time image processing
- Event-driven tasks

Beyond EC2 and Lambda

AWS Compute

Instance	Containers	Serverless	Edge and hybrid	Cost and capacity management
 Amazon EC2	 Amazon ECS	 AWS Lambda	 AWS Outposts	 AWS Savings Plan
 Amazon EC2 Spot	 Amazon ECR		 AWS Snow Family	 AWS Compute Optimizer
 Amazon EC2 Autoscaling	 Amazon EKS		 AWS Wavelength	 AWS Elastic Beanstalk
 Amazon Lightsail	 AWS Fargate		 Vmware Cloud on AWS	 EC2 Image Builder
 AWS Batch			 AWS Local Zones	 Elastic Load Balancing

Let's practice!

AWS CONCEPTS

Introduction to AWS Database services

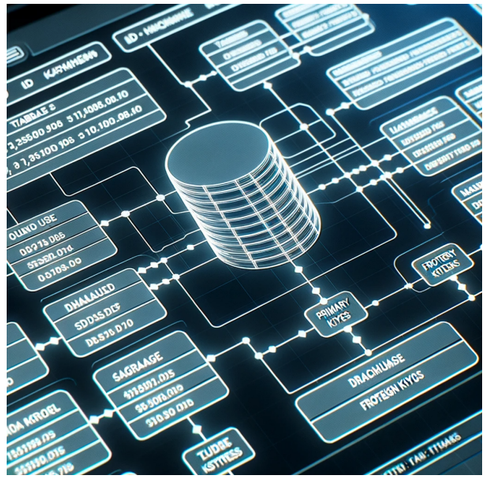
AWS CONCEPTS

Amar Suchak
Software Engineer, Microsoft

Why are databases crucial?

Understanding database types

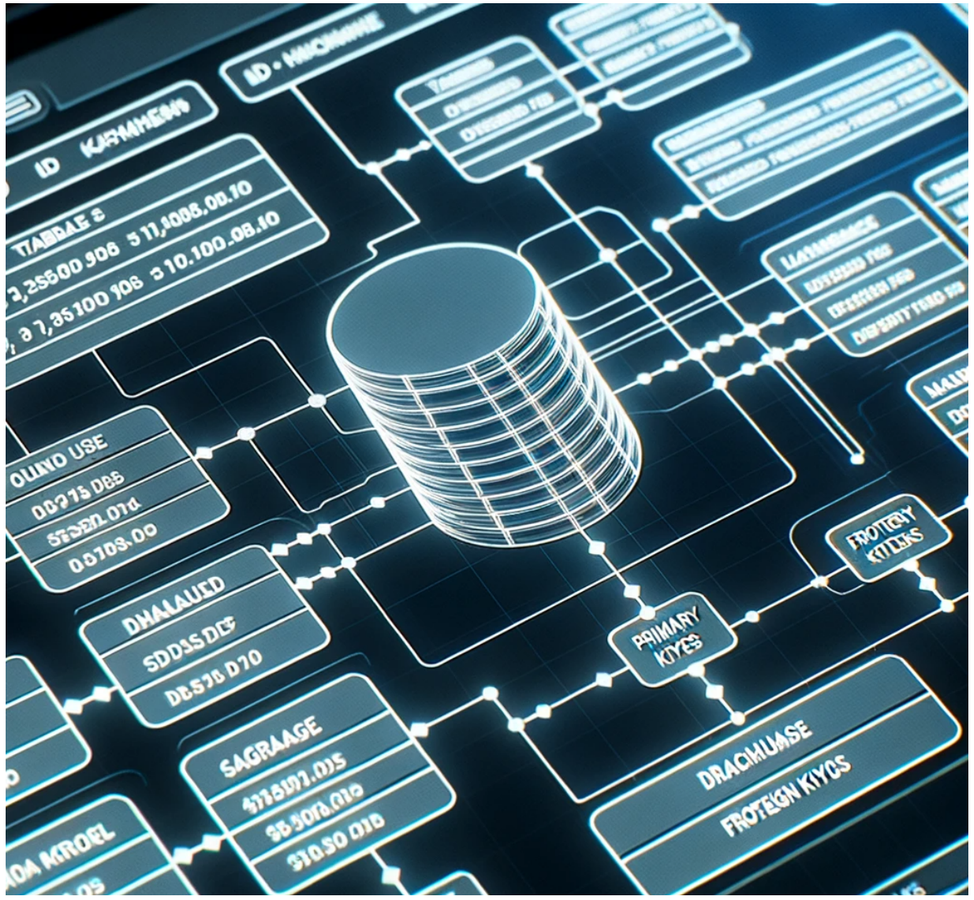
- Relational Databases (RDS)
  - Like a well-organized bookshelf
  - Use MySQL, PostgreSQL, Oracle, etc.
  - Ideal for traditional applications
  - AWS RDS: the sturdy bookshelf of the digital world



- NoSQL Databases (DynamoDB)
  - Like a dynamic magazine rack
  - Flexible schema for unstructured data
  - Ideal for mobile apps, IoT, gaming
  - AWS DynamoDB: adaptable and ready for ever-changing content

Diving into RDS

- Scalable and cost-effective
- Supports multiple database engines like MySQL, PostgreSQL, etc



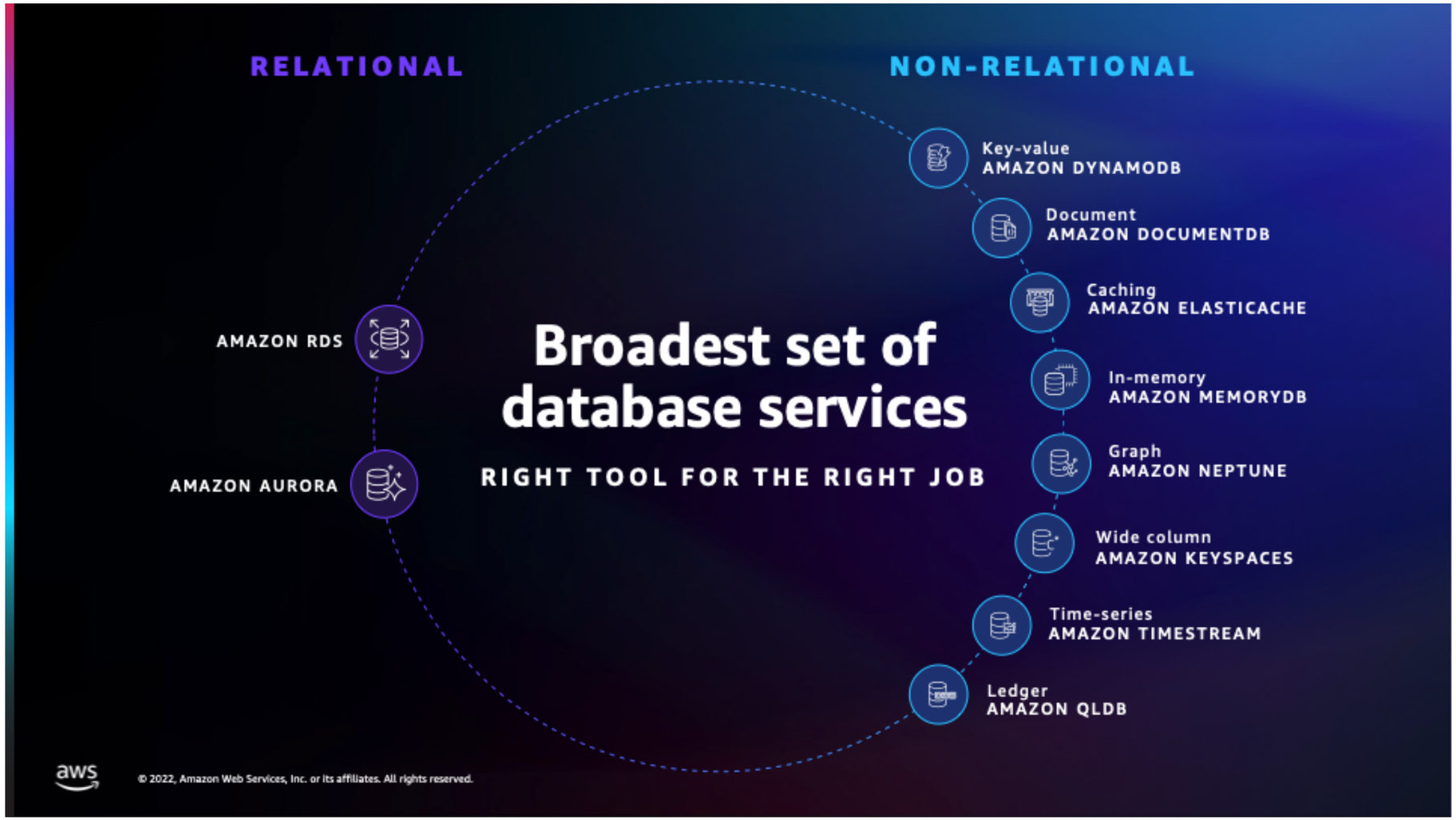
DynamoDB unpacked

- Designed for web-scale applications
- Provides single-digit millisecond latency

DynamoDB continued

- DynamoDB uses a key-value model
- A key maps to a value

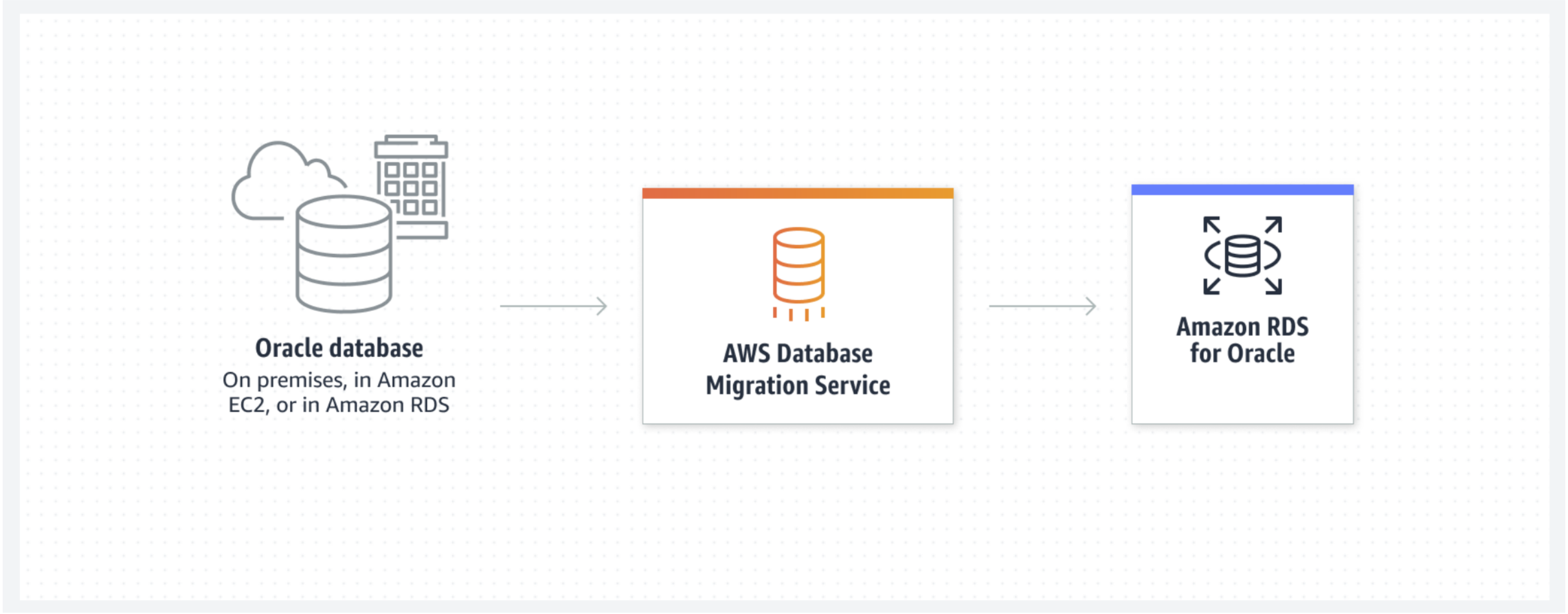
Beyond RDS and DynamoDB



[1] https://docs.aws.amazon.com/whitepapers/latest/aws-overview/database.html

AWS database migration services

Moving data from on-premises databases to AWS



[1] https://aws.amazon.com/dms/

Let's practice!

AWS CONCEPTS

Introduction to AWS Storage services

AWS CONCEPTS

Amar Suchak
Software Engineer, Microsoft

Storage vs. Databases

Storage

- Keep data safe and accessible
- Backups, large files, documents
- Disaster recovery and archiving

Databases

- Organizing and querying structured data

Storage services

AWS storage services

Object, file, and block storage

Amazon Simple Storage Service (S3)

Object storage with industry-leading scalability, availability, and security for you to store and retrieve any amount of data from anywhere.

Amazon Elastic File System (EFS)

A simple, serverless, elastic, set-and-forget file system for you to share file data without managing storage.

FSx

Amazon FSx

Fully managed, cost-effective file storage offering the capabilities and performance of popular commercial and open-source file systems.

Amazon Elastic Block Store (EBS)

Easy to use, high-performance block storage service for both throughput and transaction-intensive workloads at any scale.

Amazon File Cache

High-speed cache for datasets stored anywhere, accelerate cloud bursting workloads.

Understanding storage types

Active Storage (Direct Storage)

- Like your recent emails, readily accessible
- Ideal for day-to-day operations
- **AWS S3:** designed for ease of access and management
  - Object storage service
  - Used for storing and retrieving any amount of data, anytime, from anywhere
  - Can get pricey

Archival Storage

- Like old emails, accessed infrequently
- Ideal for long-term data retention
- **AWS Glacier:** cost-effective for long-term storage
  - Used for data archiving and long-term backup
  - Long-term, low-cost, and secure cloud storage service

Diving into S3

- S3 stands for Simple Storage Service
- Highly scalable, durable, and secure
- Wide variety of use cases like website hosting, data backup, and content distribution

Storage classes

S3 Standard:

- Frequently accessed data
- Low latency, high throughput
- Content distribution and dynamic websites

S3 Intelligent-Tiering:

- Moves data between frequent and infrequent access tiers
- Optimizes storage costs

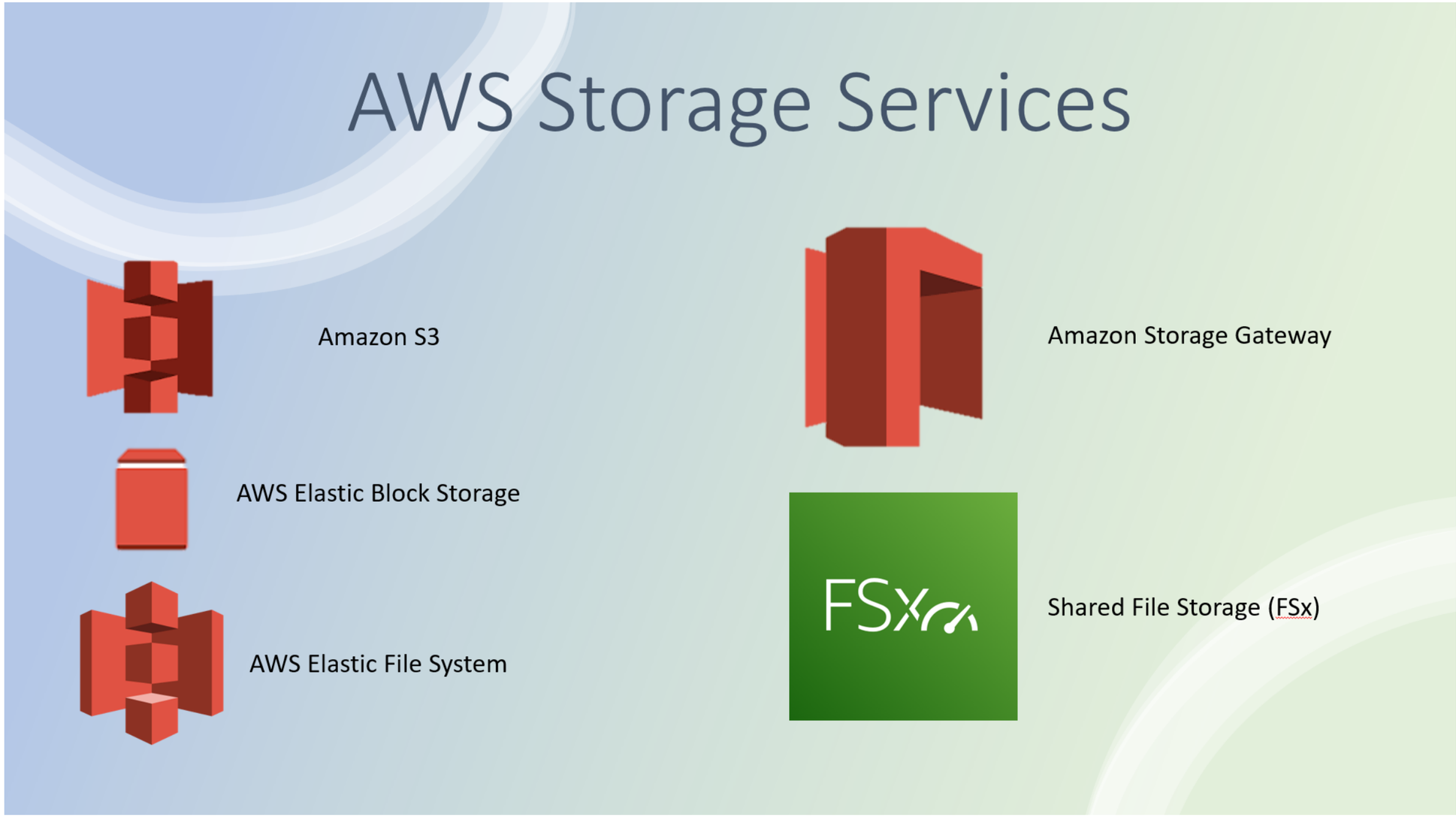
S3 Standard-IA (Infrequent Access):

- Less frequently accessed data, but still needs rapid access
- Backups and disaster recovery

S3 Glacier and S3 Glacier Deep Archive:

- Long-term archival of rarely accessed data

Other storage services



Let's practice!

AWS CONCEPTS

Congratulations

AWS CONCEPTS

Amar Suchak
Software Engineer, Microsoft

datacamp

Disclaimer

Domain 1: Cloud concepts

- **1.1:** Define the benefits of the cloud
- **1.2:** Identify design principles of the AWS cloud
- **1.3:** Understand the benefits of and strategies for migration to the AWS cloud
- **1.4:** Understand concepts of cloud economics
- 24% of the exam

Domain 2: Security and compliance

- 2.1: Understand the AWS shared responsibility model
- 2.2: Understand AWS Cloud security, governance, and compliance concepts.
- 2.3: Identify AWS access management capabilities
- 2.4: Identify components and resources for security
- 30% of the exam

Domain 3: Cloud technology and services

- 3.1: Define methods of deploying and operating in the AWS Cloud
- 3.2: Define the AWS global infrastructure.
- 3.3: Identify AWS compute services.
- 3.4: Identify AWS database services.
- 3.5: Identify AWS network services
- 3.6: Identify AWS storage services
- 3.7: Identify AWS artificial intelligence and machine learning (AI/ML) services and analytics services
- 3.8: Identify services from other in-scope

Domain 4: Billing, pricing and support

- 4.1: Compare AWS pricing model
- 4.2: Understand resources for billing, budget, and cost management
- 4.3: Identify AWS technical resources and AWS Support options
- 12% of the exam

Exam guide

AWS Certified Cloud Practitioner (CLF-C02) Exam Guide

Introduction

The AWS Certified Cloud Practitioner (CLF-C02) exam is intended for individuals who can effectively demonstrate overall knowledge of the AWS Cloud, independent of a specific job role.

The exam validates a candidate's ability to complete the following tasks:

- Explain the value of the AWS Cloud.
- Understand and explain the AWS shared responsibility model.
- Understand security best practices.
- Understand AWS Cloud costs, economics, and billing practices.
- Describe and position the core AWS services, including compute, network, database, and storage services.
- Identify AWS services for common use cases.

What's next?

Course

AWS Cloud Technology and Services

Master AWS cloud technology with our course - ideal for hands-on learning and practical applications in the AWS ecosystem.

Over 3 hours AWS Cloud Rahulraj Singh

Course

AWS Security and Cost Management

Master AWS security, governance, and cost optimization to prepare for the Cloud Practitioner certification.

Over 3 hours AWS Cloud Dev Bhosale

Thank you!

AWS CONCEPTS