Module 3: AWS Global Infrastructure Overview

Module overview

Topics

- AWS Global Infrastructure
- AWS service and service category overview

Knowledge check

Module objectives

After completing this module, you should be able to:

- Identify the difference between AWS Regions, Availability Zones, and edge locations
- Identify AWS service and service categories

Section 1: AWS Global Infrastructure

Module 3: AWS Global Infrastructure Overview

AWS Global Infrastructure

•The **AWS Global Infrastructure** is designed and built to deliver a **flexible**, **reliable**, **scalable**, and **secure** cloud computing environment with high-quality **global network performance**.

•AWS continually updates its global infrastructure footprint. Visit one of the following web pages for current infrastructure information:

- AWS Global Infrastructure Map:
  https://aws.amazon.com/about-aws/global-infrastructure/#AWS_Global_Infrastructure_Map
  Choose a circle on the map to view summary information about the Region represented by the circle.
- Regions and Availability Zones:
  https://aws.amazon.com/about-aws/global-infrastructure/regions_az/
  Choose a tab to view a map of the selected geography and a list of Regions, Edge locations, Local zones, and Regional Caches.

AWS Regions

- An **AWS Region** is a geographical area.
- Data replication across Regions is controlled by you.
- Communication between Regions uses AWS backbone network infrastructure.
- Each Region provides full redundancy and connectivity to the network.
- A Region typically consists of two or more **Availability Zones**.

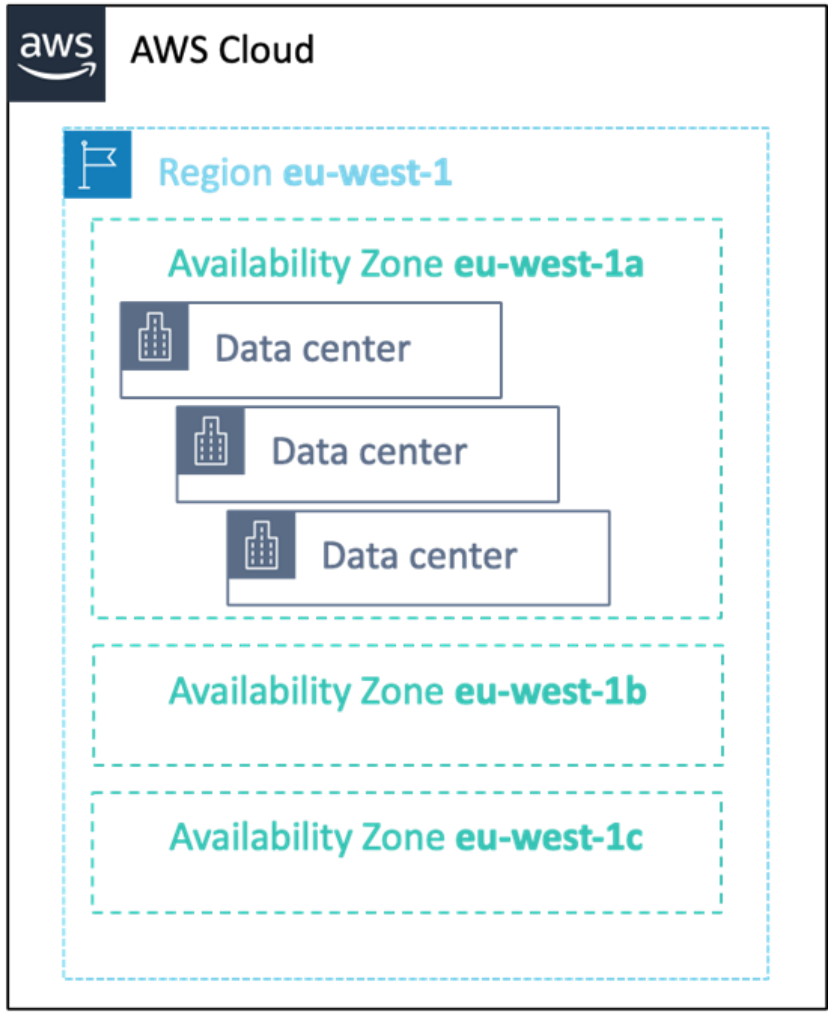
Example: London Region

Selecting a Region

Determine the right Region for your services, applications, and data based on these factors

Availability Zones

- Each **Region** has multiple Availability Zones.
- Each **Availability Zone** is a fully isolated partition of the AWS infrastructure.
  - Availability Zones consist of discrete **data centers**
  - They are designed for fault isolation
  - They are interconnected with other Availability Zones by using high-speed private networking
  - You choose your Availability Zones.
  - **AWS recommends replicating data and resources across Availability Zones** for resiliency.

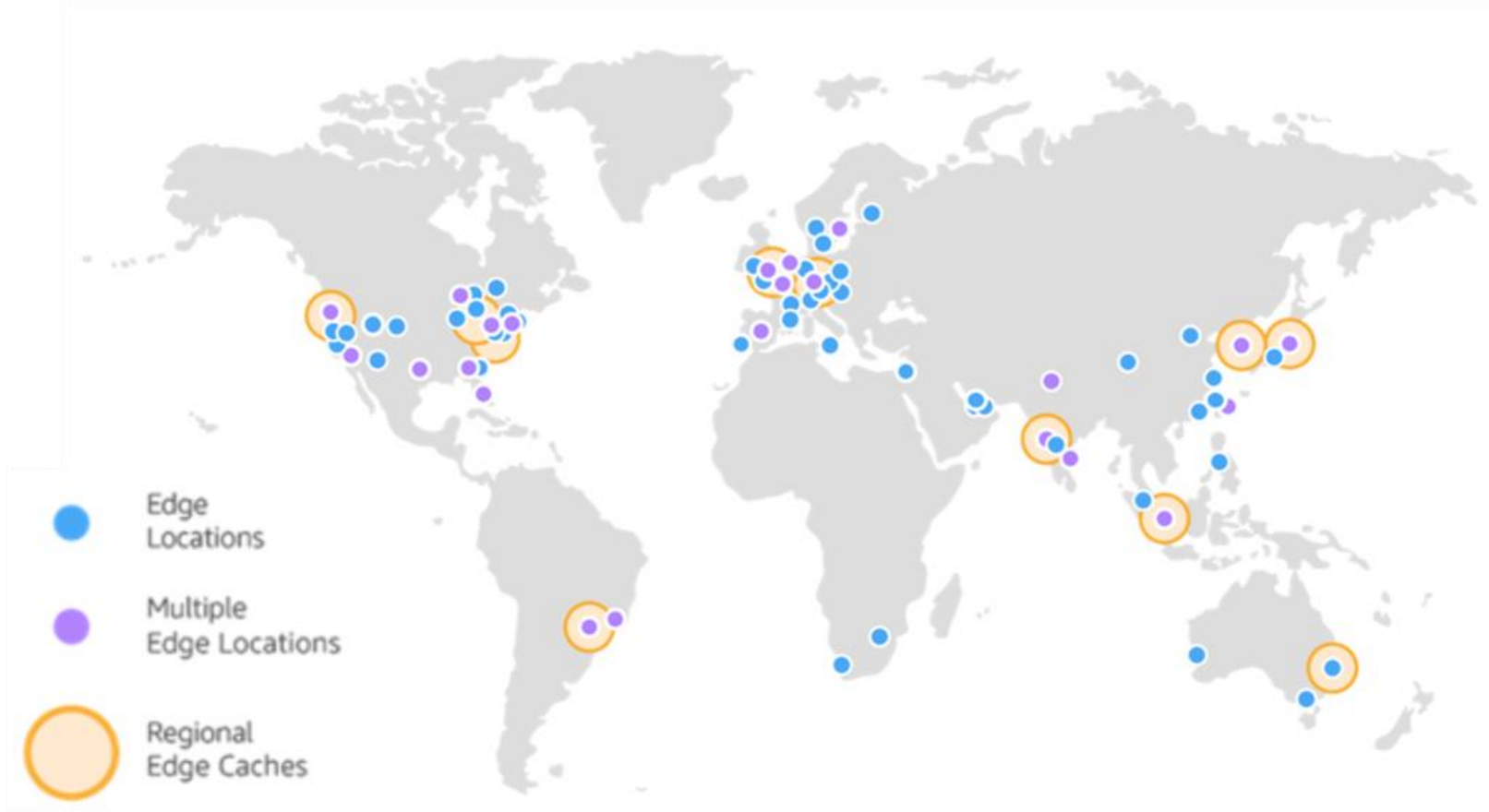


AWS data centers

- AWS data centers are designed for security.
- Data centers are where the data resides and data processing occurs.
- Each data center has redundant power, networking, and connectivity, and is housed in a separate facility.
- A data center typically has 50,000 to 80,000 physical servers.

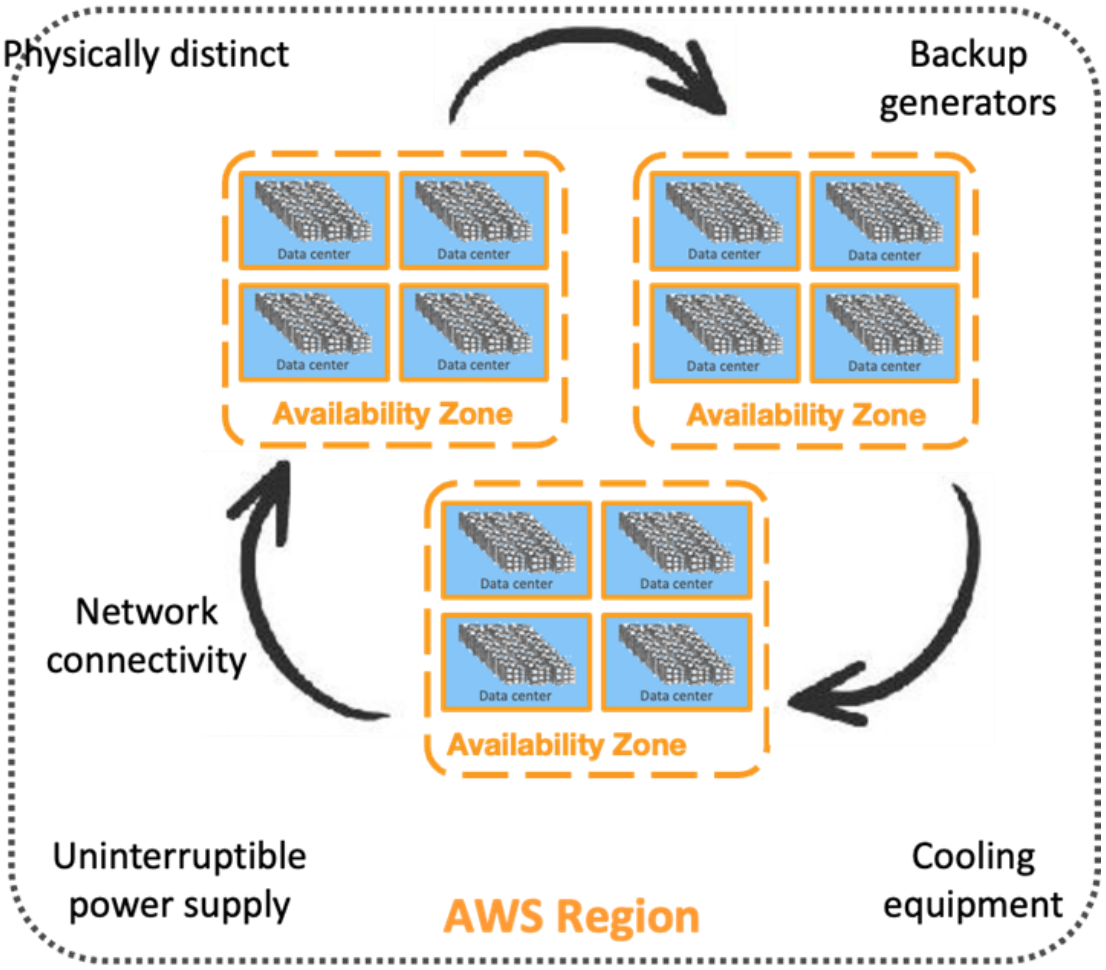
Points of Presence

- AWS provides a global network of Points of Presence locations
- Consists of **edge locations** and a much smaller number of **Regional edge caches**
- Used with Amazon CloudFront
  - A global Content Delivery Network (CDN), that delivers content to end users with reduced latency
- Regional edge caches used for content with infrequent access.



AWS infrastructure features

- Elasticity and scalability
  - Elastic infrastructure; dynamic adaption of capacity
  - Scalable infrastructure; adapts to accommodate growth
- Fault-tolerance
  - Continues operating properly in the presence of a failure
  - Built-in redundancy of components
- High availability
  - High level of operational performance
  - Minimized downtime
  - No human intervention



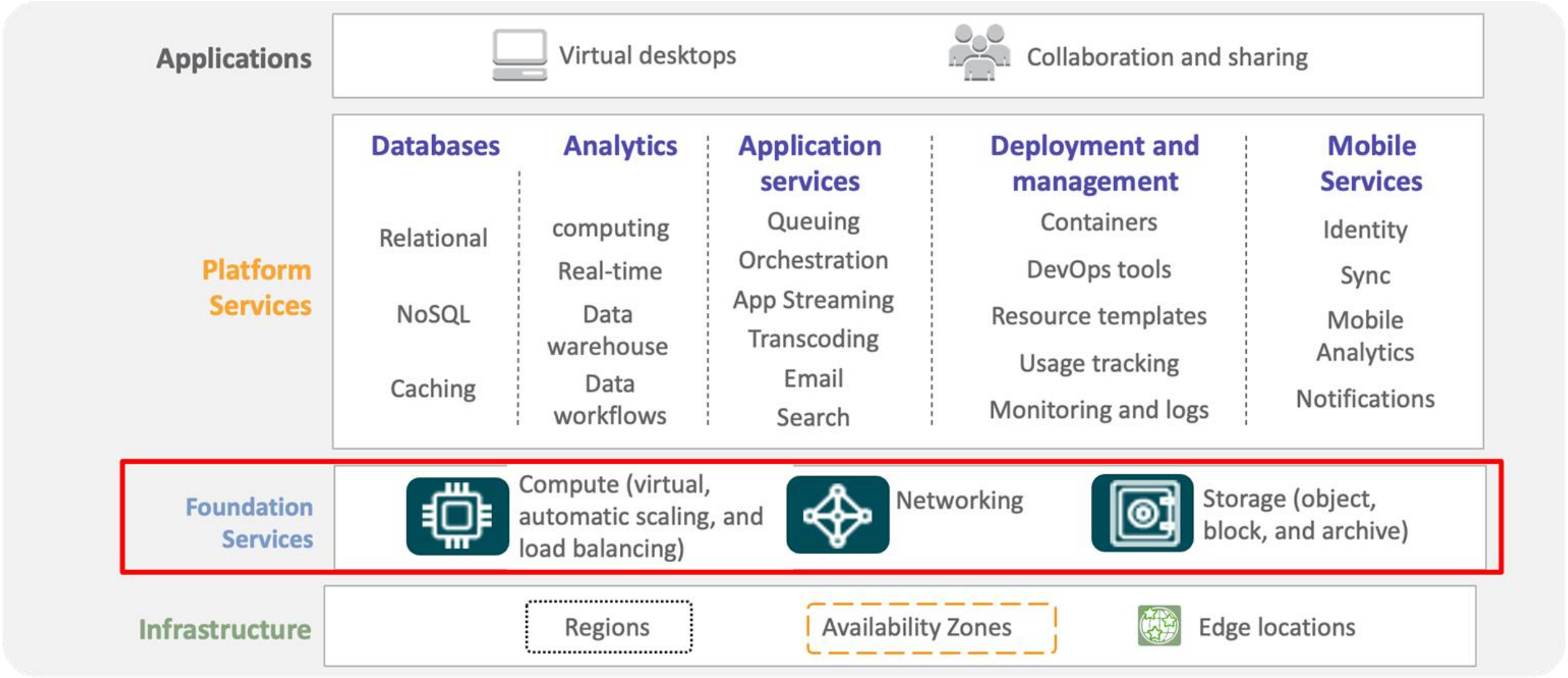
Section 1 key takeaways

- The **AWS Global Infrastructure** consists of Regions and Availability Zones.
- Your choice of a **Region** is typically based on compliance requirements or to reduce latency.
- Each **Availability Zone** is physically separate from other Availability Zones and has redundant power, networking, and connectivity.
- **Edge locations**, and **Regional edge caches** improve performance by caching content closer to users.

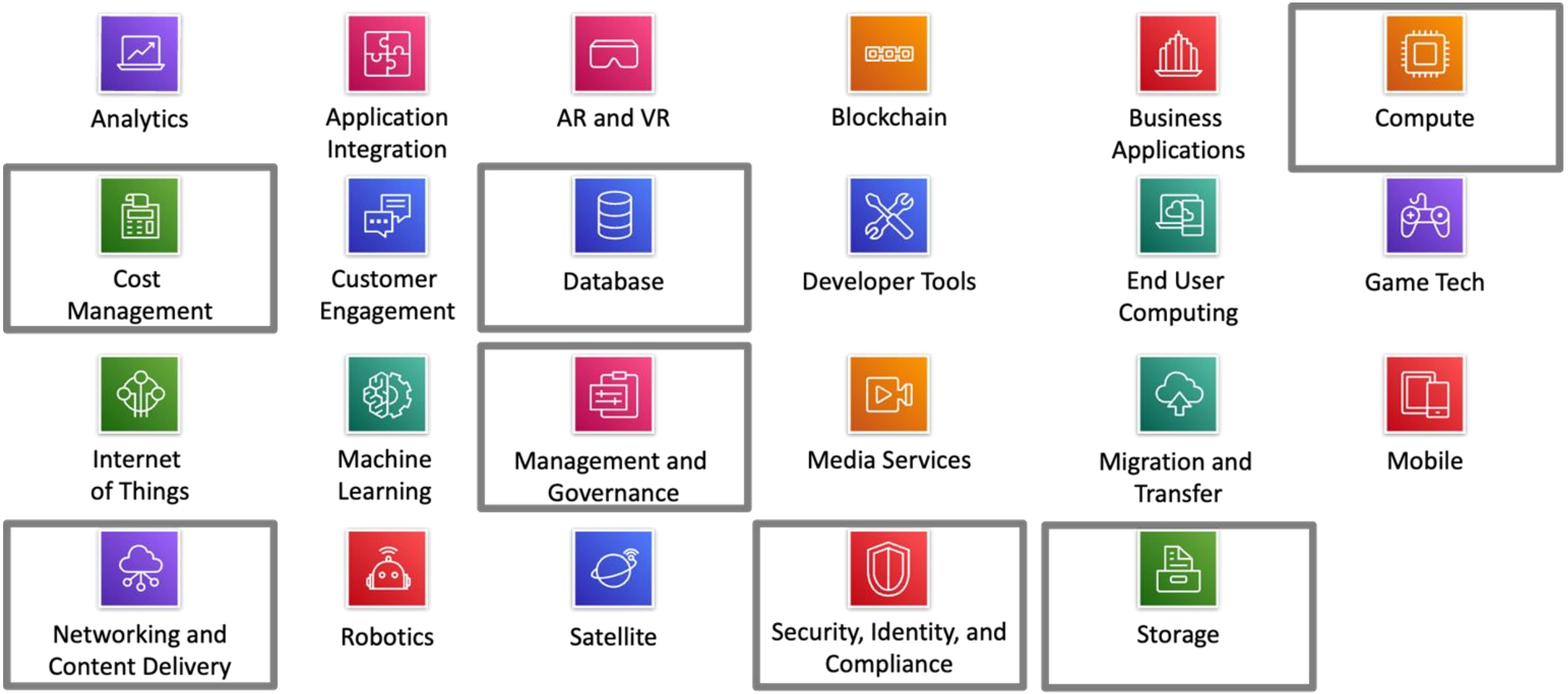
Section 2: AWS services and service category overview

Module 3: AWS Global Infrastructure Overview

AWS foundational services



AWS categories of services



Storage service category

Photo from https://www.pexels.com/photo/black-and-grey-device-159282/

AWS storage services

- Amazon Simple Storage Service (Amazon S3)
- Amazon Elastic Block Store (Amazon EBS)
- Amazon Elastic File System (Amazon EFS)
- Amazon Simple Storage Service Glacier

Compute service category

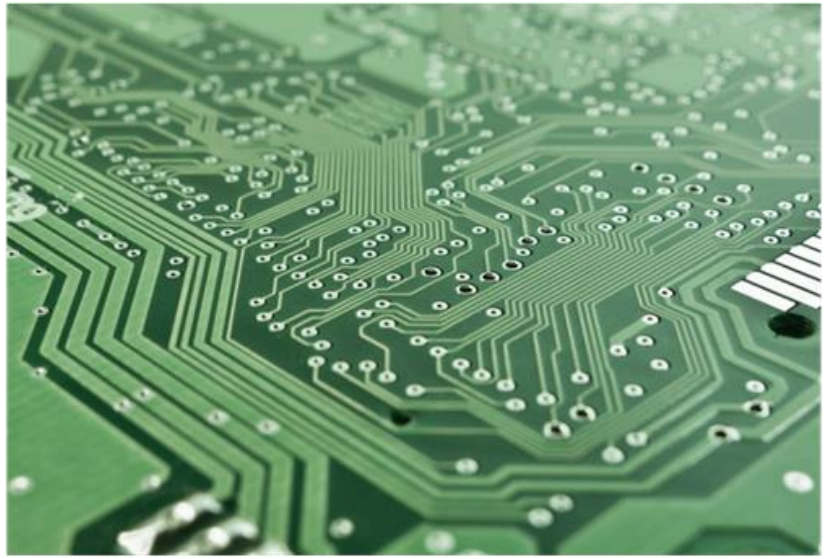


Photo from https://www.pexels.com/photo/technology-computer-lines-board-50711/

AWS Compute services

- Amazon EC2
- Amazon EC2 Auto Scaling
- Amazon Elastic Container Service (Amazon ECS)
- Amazon EC2 Container Registry
- AWS Elastic Beanstalk
- AWS Lambda
- Amazon Elastic Kubernetes Service (Amazon EKS)
- AWS Fargate

Database service category

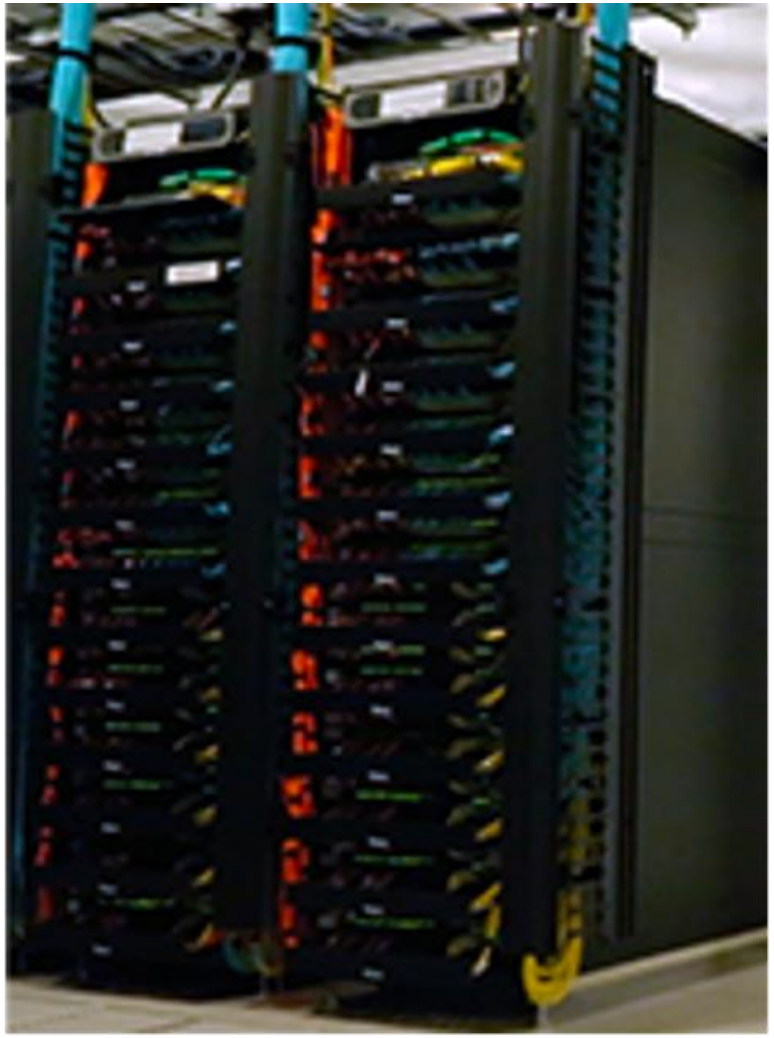


Photo from https://aws.amazon.com/compliance/data-center/data-centers/

AWS Database services

- Amazon Relational Database Service
- Amazon Aurora
- Amazon Redshift
- Amazon DynamoDB

Networking and content delivery service category

AWS networking and content delivery services

- Amazon VPC
- Elastic Load Balancing
- Amazon CloudFront
- AWS Transit Gateway
- Amazon Route 53
- AWS Direct Connect
- AWS VPN

Security, identity, and compliance service category

Photo by Paweł Czerwiński on Unsplash

AWS security, identity, and compliance services

- AWS Identity and Access Management (IAM)
- AWS Organizations
- Amazon Cognito
- AWS Artifact
- AWS Shield

AWS cost management service category

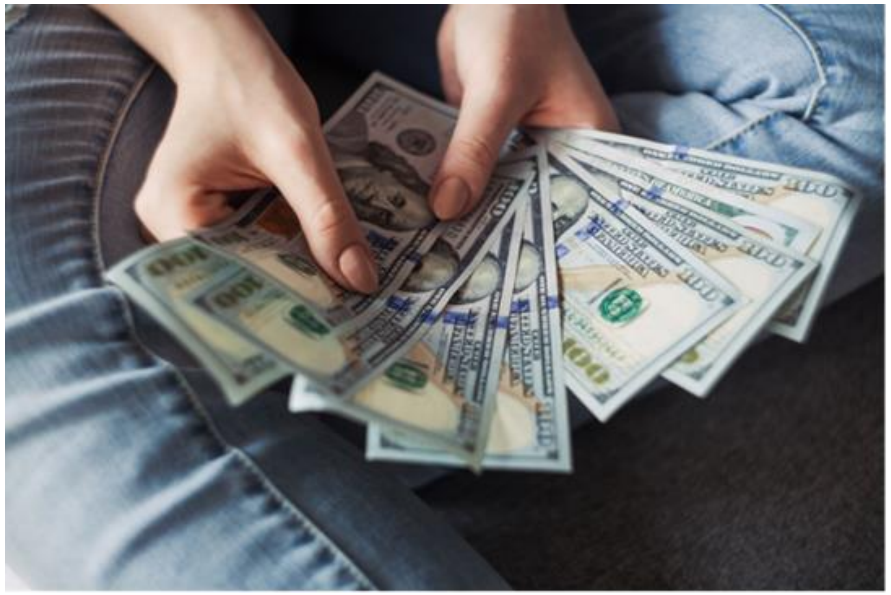


Photo by Alexander Mils on Unsplash

AWS cost management services

- AWS Cost and Usage Report
- AWS Budgets
- AWS Cost Explorer

Management and governance service category

Photo by Marta Branco from Pexels

AWS management and governance services

- AWS Management Console
- AWS Config
- Amazon CloudWatch
- AWS Auto Scaling
- AWS Command Line Interface
- AWS Trusted Advisor
- AWS Well-Architected Tool
- AWS CloudTrail

Module wrap-up

Module 3: AWS Global Infrastructure Overview

Module summary

In summary, in this module you learned how to:

- Identify the difference between AWS Regions, Availability Zones, and edge locations
- Identify AWS service and service categories

Complete the knowledge check

Sample exam question

Which component of AWS global infrastructure does Amazon CloudFront use to ensure low-latency delivery?

Choice	Response
A	AWS Regions
B	AWS edge locations
C	AWS Availability Zones
D	Amazon Virtual Private Cloud (Amazon VPC)

Sample exam question answer

Which component of AWS global infrastructure does Amazon CloudFront use to ensure low-latency delivery?

The correct answer is B.

The keywords in the question are component of AWS global infrastructure, CloudFront, low-latency.

Additional resources

- AWS Global Infrastructure: https://aws.amazon.com/about-aws/global-infrastructure/
- AWS Regional Services List: https://aws.amazon.com/about-aws/global-infrastructure/regional-product-services/
- AWS Cloud Products: https://aws.amazon.com/products/

Thank you

Corrections, feedback, or other questions?

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