



# Module 3: AWS Global Infrastructure Overview

## AWS Academy Cloud Foundations

# 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](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:

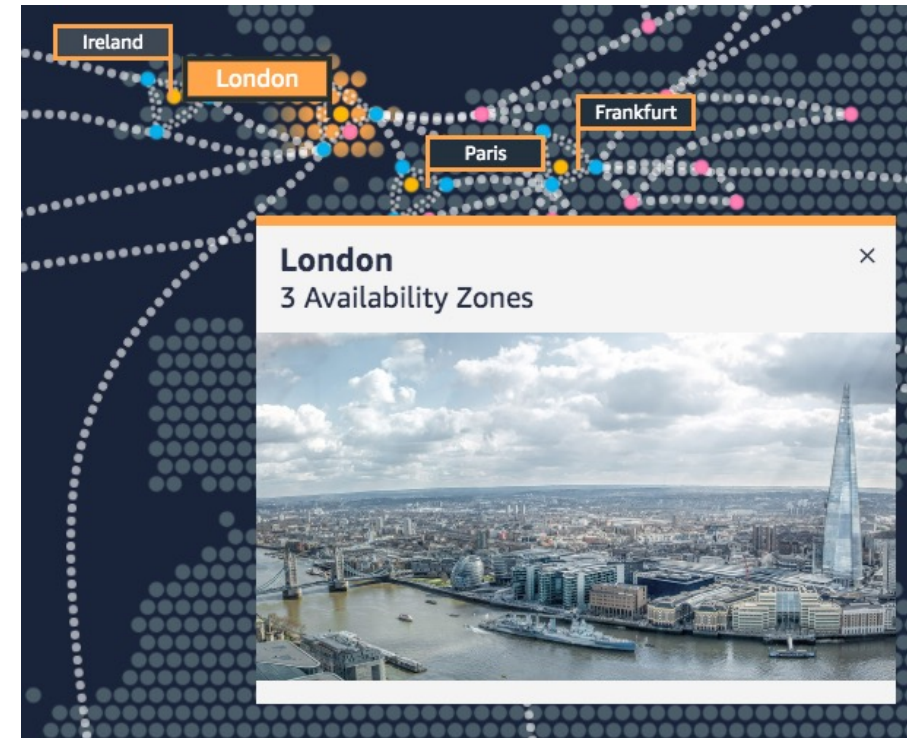
[https://aws.amazon.com/about-aws/global-infrastructure/regions\\_az/](https://aws.amazon.com/about-aws/global-infrastructure/regions_az/)

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



Data governance, legal requirements



Proximity to customers (latency)



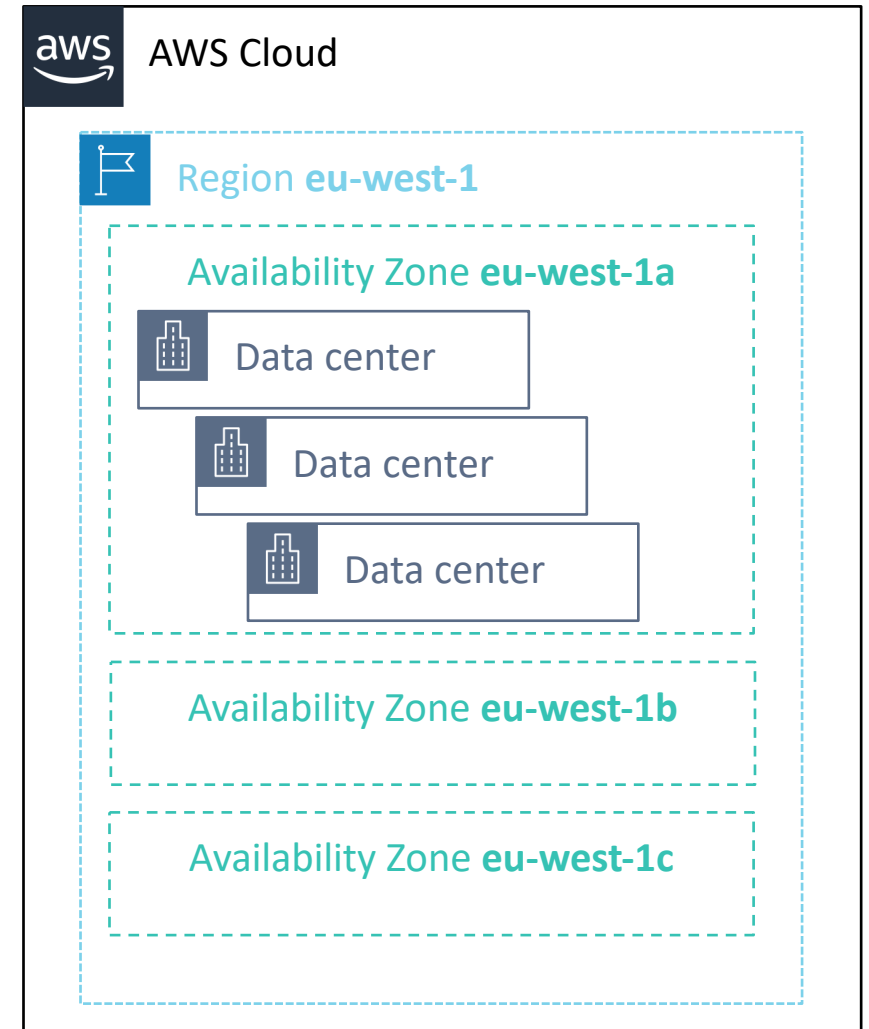
Services available within the Region



Costs (vary by Region)

# 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.



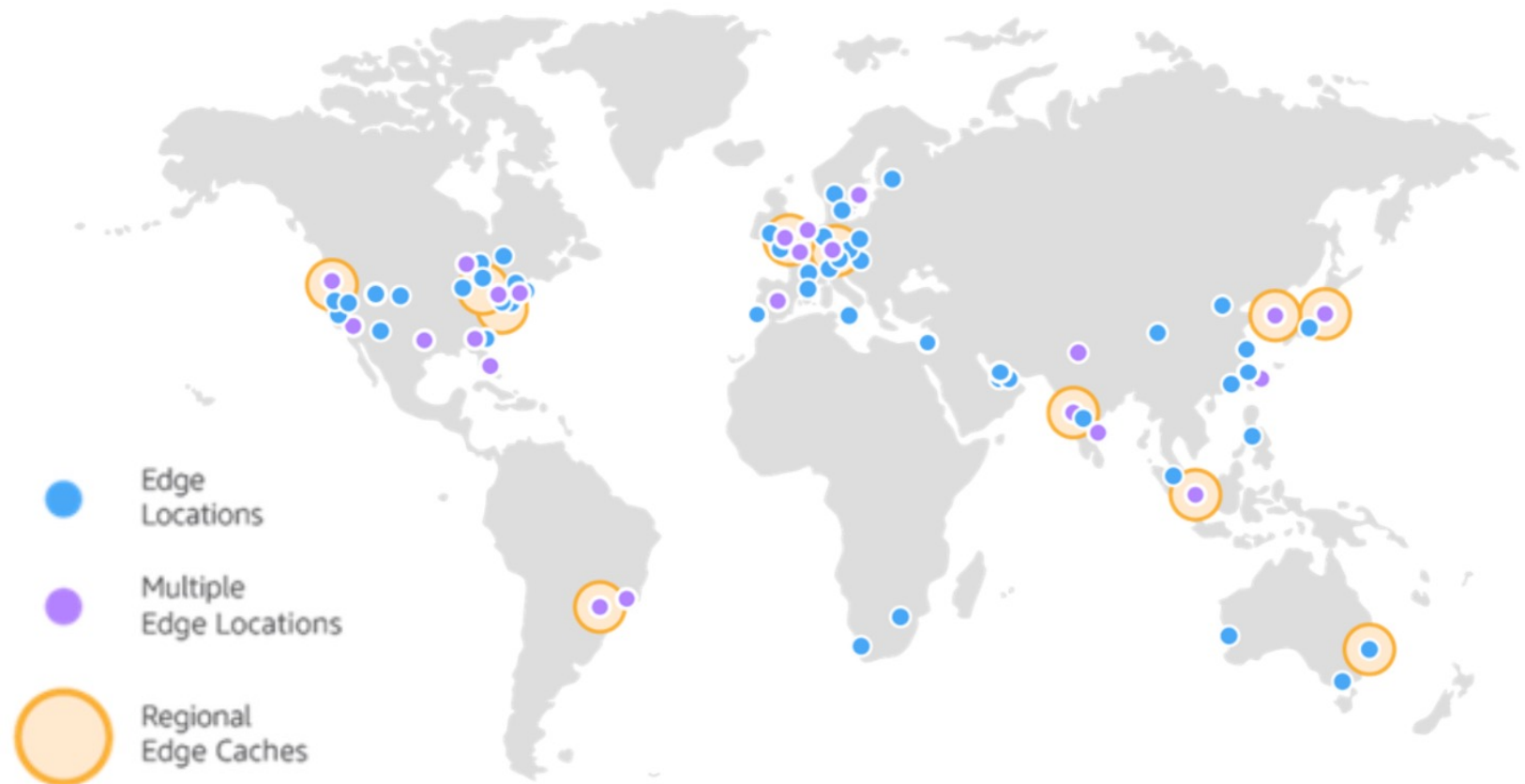
# AWS data centers

- 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

