Next Generation Cloud Leadership

Cloud Services

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Objectives

- Provide AVP & VP level management with the skills & knowledge they need to be more Cloud conversant both from a practical and strategic perspective
- Ultimate objective is for some participants to get certified as AWS Cloud Practitioners

CLOUD SERVICES

Examine service offerings available with the major Cloud Solution Providers (CSPs)

- Examine leading public Cloud platforms and compare their services
- Developing <u>for</u> Cloud
- Developing <u>on</u> Cloud
- Foundations of key public Cloud platforms
- High-level survey of available AWS services
- Evaluate case studies - determining services to target for a Cloud project

Cloud Solution Providers (CSPs)

Cloud Solution Providers (CSPs)

Biggest players in the space:

➢ Microsoft Azure

➢ AWS (Amazon Web Services)

➢ GCP (Google Cloud Platform)

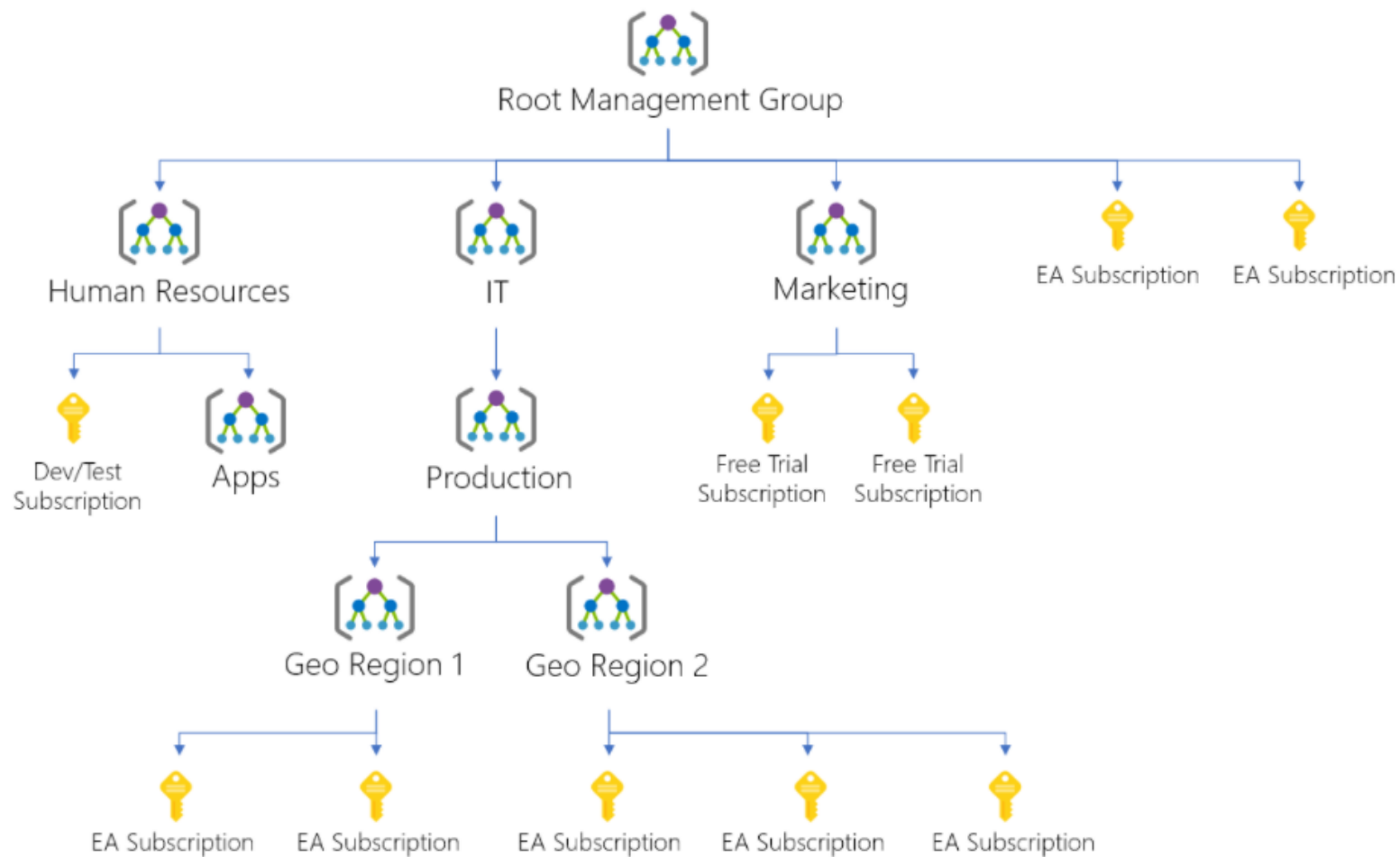We're going to focus on comparing Azure & AWS

Microsoft Azure

➢ Portal accessible at https://portal.azure.com

➢ Identity & Access Management handled via Azure Active Directory

➢ Users, groups, roles, and policies

➢ Unit of access & activity is the "subscription"

➢ Additional layer of management group sits above subscription

Microsoft Azure
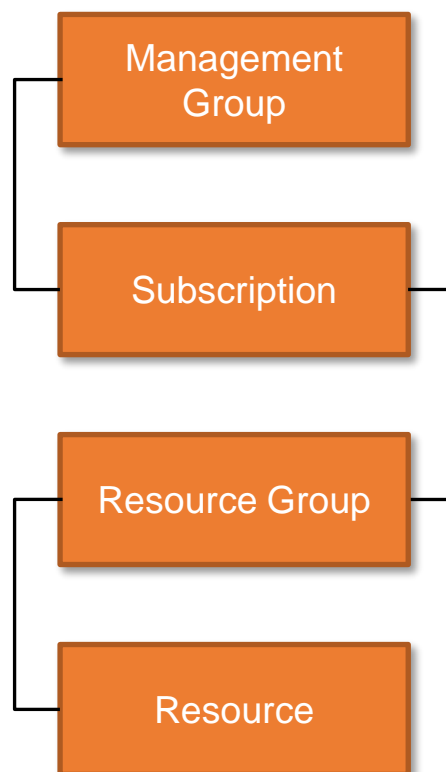
➢ Uses concept of "region" for geographical location of resources

➢ By selecting region closest to app usage, can minimize latency

➢ Each region includes multiple availability zones (clustering of data centers in that region)

➢ And region pairs provide support for BC/DR
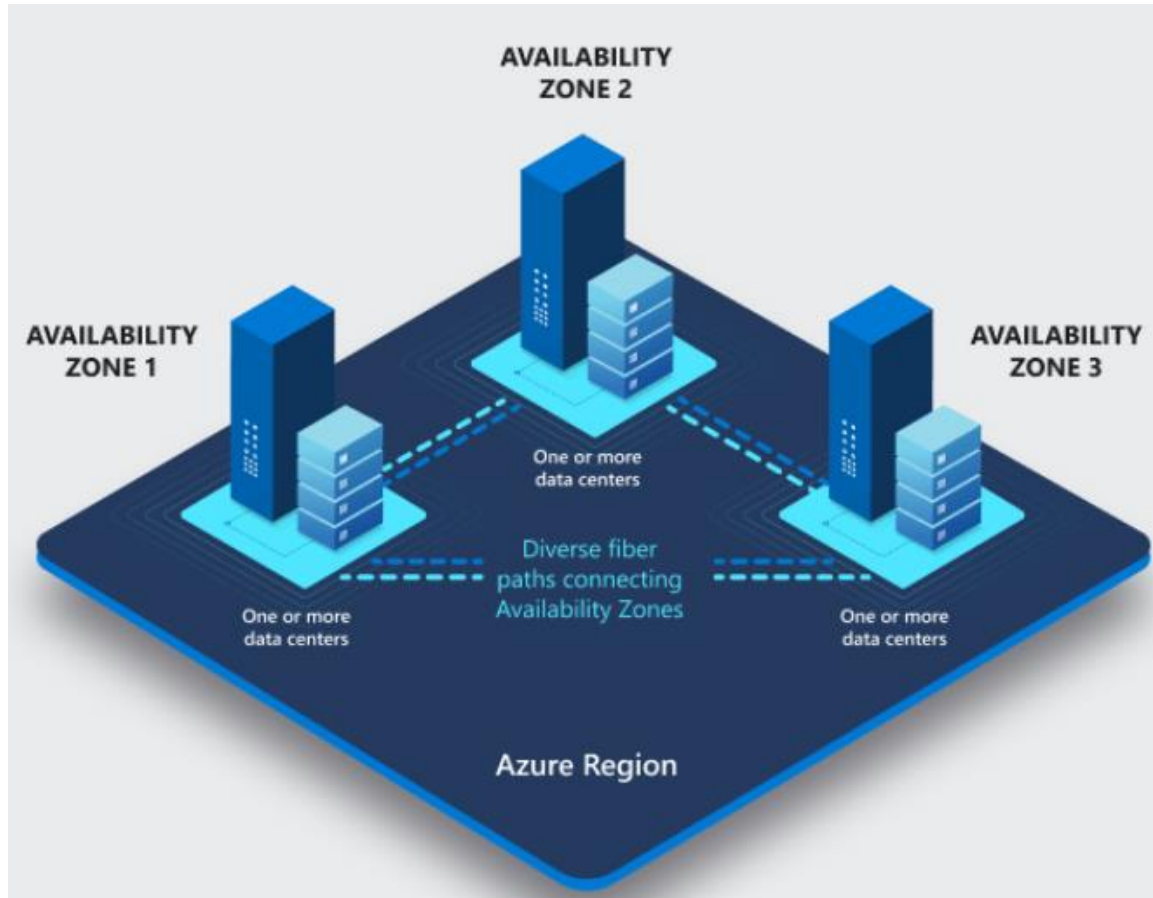
# Microsoft Azure

- ➢ Intended to help protect against data center failure

- ➢ Utilizes private fiber for optimized network connectivity

Microsoft Azure
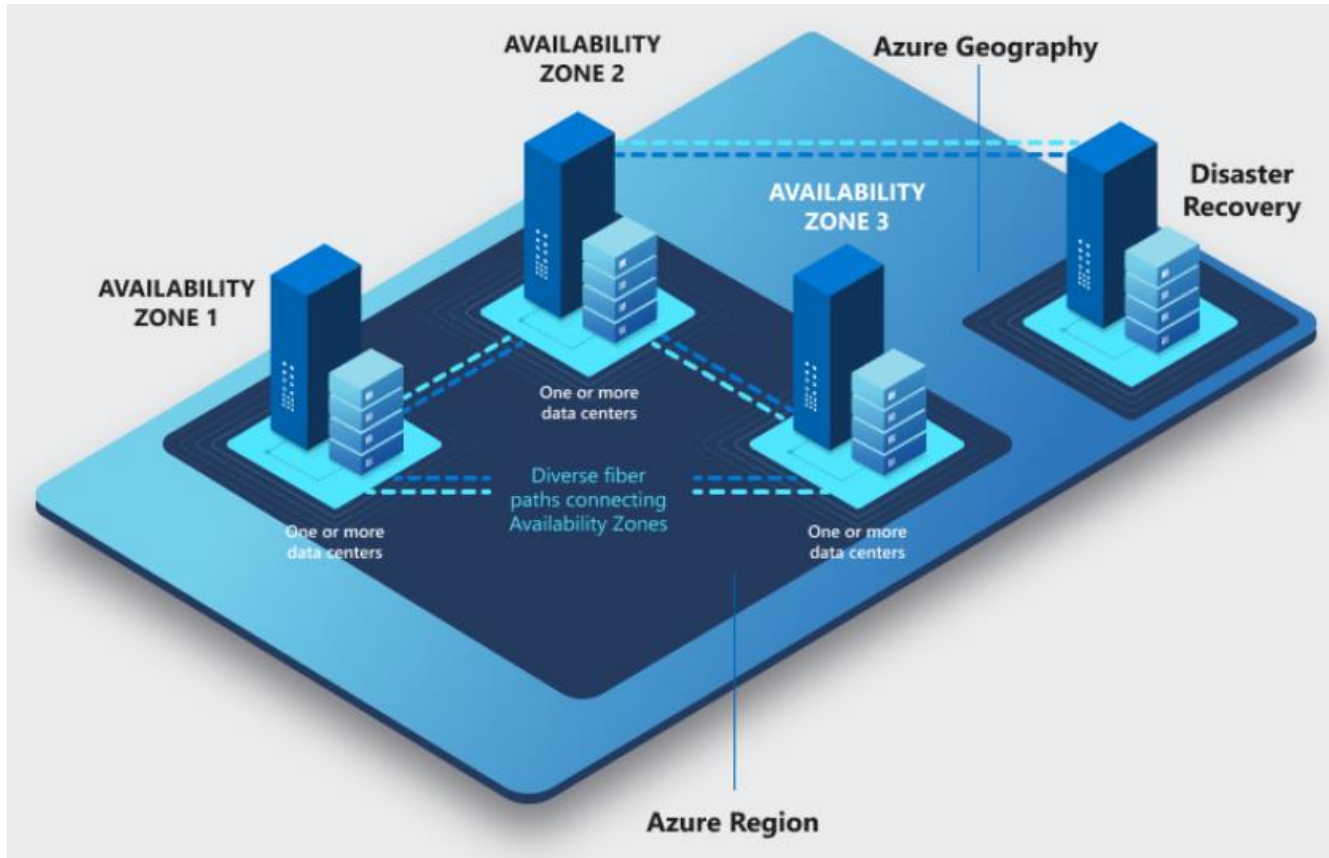
- ➢ Regions are paired

- ➢ Maintenance on pairs is coordinated to help minimize downtime

Microsoft Azure

Americas	Europe	Africa	Asia Pacific
Brazil South	France Central	South Africa North	Australia East
Canada Central	Germany West Central		Central India*
Central US	North Europe		Japan East
East US	Norway East		Korea Central
East US 2	UK South		Southeast Asia
South Central US	West Europe		East Asia*
US Gov Virginia	Sweden*		
West US 2			
West US 3			
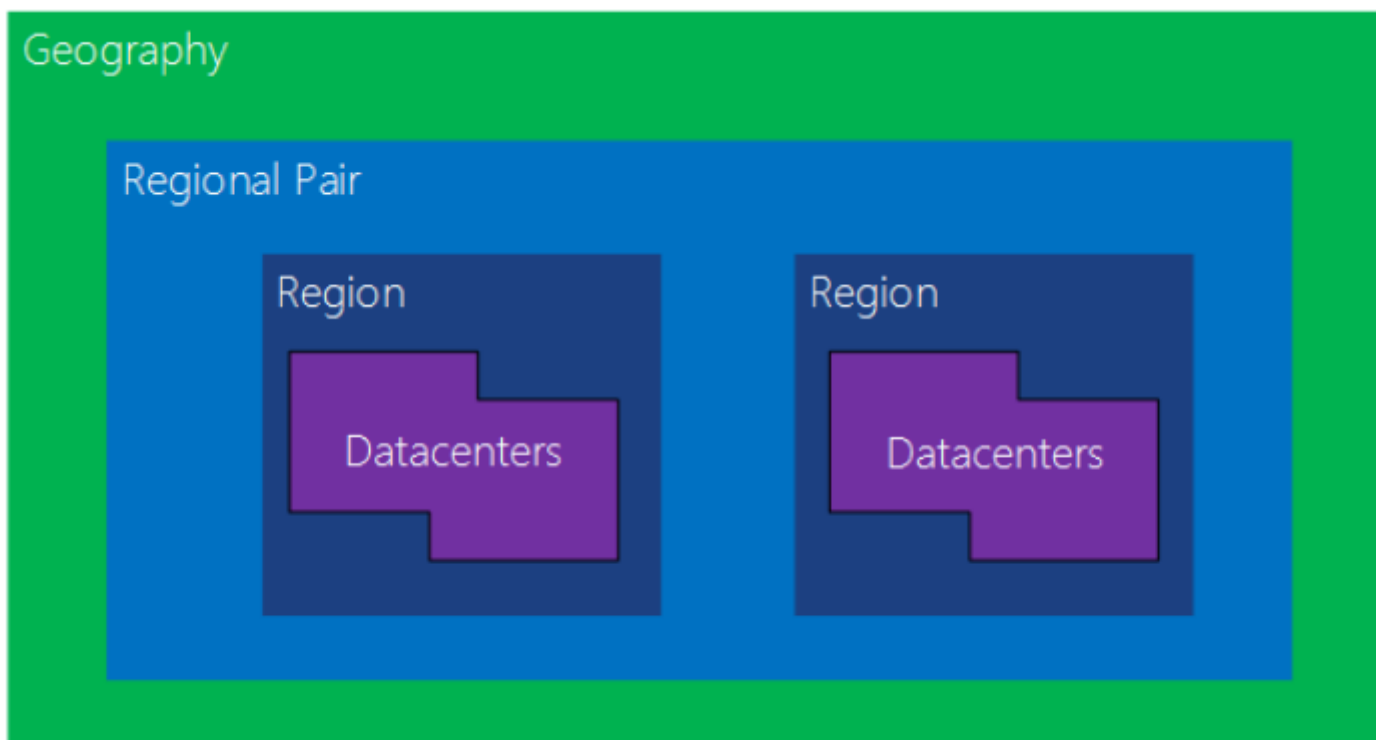
Examples of region pairs include:

Primary	Secondary
West US	East US
North Europe	West Europe
Southeast Asia	East Asia

Full list available at https://docs.microsoft.com/en-us/azure/best-practices-availability-paired-regions#what-are-paired-regions

Microsoft Azure

➢ When creating Azure resources, organized in resource groups

➢ Mechanism for organizing access, security, and resource boundaries

➢ Every Azure resource will live in a resource group

AWS (Amazon Web Services)

➢ Management console accessible at https://aws.amazon.com

➢ Identity & Access Management handled via the IAM service

➢ Users, groups, roles, and policies
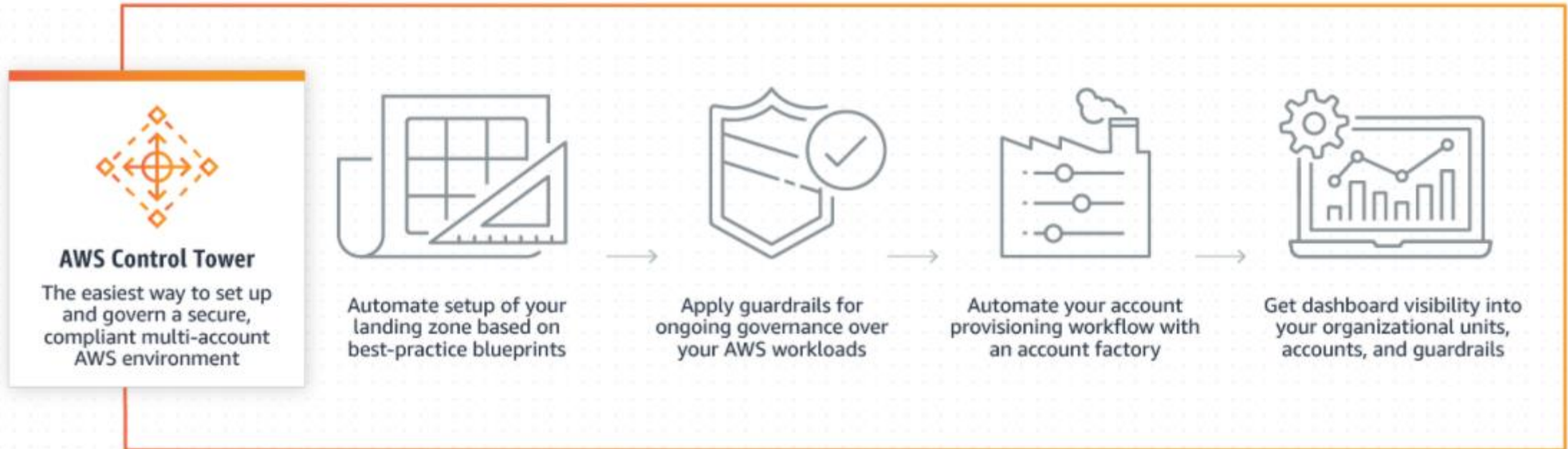
➢ Unit of access & activity is the "account"

AWS (Amazon Web Services)

➢ No real concept of management group

➢ AWS Control Tower provides similar capabilities

➢ Assignment of groups & roles to AWS organizations

AWS (Amazon Web Services)

AWS Control Tower

The easiest way to set up and govern a secure, compliant multi-account AWS environment

Automate setup of your landing zone based on best-practice blueprints

Apply guardrails for ongoing governance over your AWS workloads

Automate your account provisioning workflow with an account factory

Get dashboard visibility into your organizational units, accounts, and guardrails

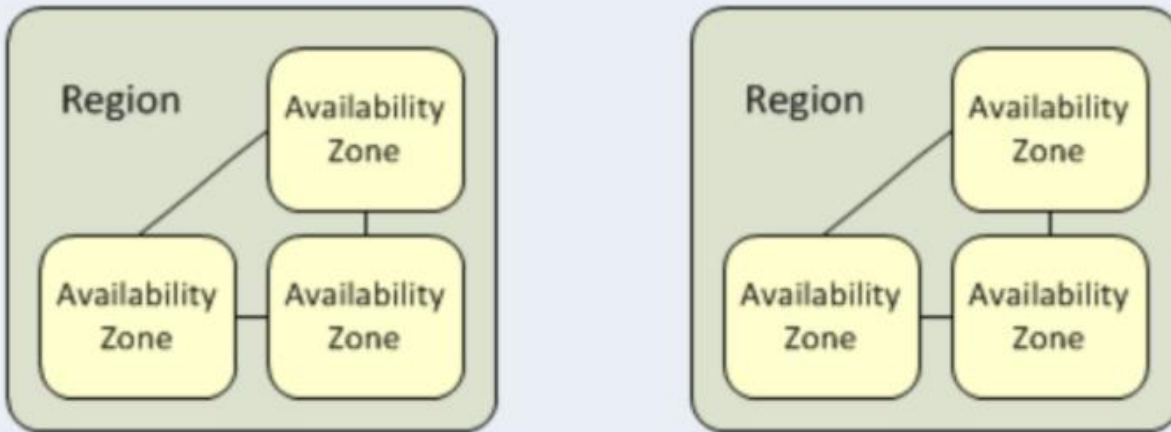See https://aws.amazon.com/controltower for additional detail (similar to Azure Blueprints)

AWS (Amazon Web Services)

➢ Also uses concept of "region" for geographical location of resources

➢ Similar capabilities as with Azure

➢ Multiple geographies and multiple availability zones within geography

➢ Does not use concept of pairs but still manages availability (implicit)

AWS (Amazon Web Services)

Amazon Web Services

- ➢ Intended to help protect against data center failure

- ➢ Utilizes private fiber for optimized network connectivity

- ➢ Mirrors Azure

AWS (Amazon Web Services)

➢ See https://aws.amazon.com/about-aws/global-infrastructure/regions_az/ for additional detail

AWS (Amazon Web Services)

➢ No real comparable option as with Azure resource groups

➢ Able to use tags (in Azure also) for organizing/managing resources

Developing for Cloud

Key areas of focus

➢ Compute

➢ Storage

➢ Networking

➢ Database

Compute in Azure

Includes

➢ Virtual Machines

➢ Azure Logic Apps

➢ Azure Functions

➢ Azure App Services

Compute in AWS

Includes

➢ EC2

➢ Lambda

➢ Elastic Beanstalk

Compute – Live Review

Includes

➢ Azure Storage

Includes

➢ S3 (Simple Storage Service)

Networking in Azure

Includes

➢ Virtual Networks

➢ Subnets

➢ Azure API Management

➢ Azure Traffic Manager

Networking in AWS

Includes

➢ VPCs

➢ Subnets

➢ API Gateway

➢ Route53

Networking – Live Review

Includes

➢ Azure SQL

➢ Azure Cosmos DB

➢ Azure Cache for Redis

Database in AWS

Includes

➢ RDS

➢ Amazon DynamoDB

➢ Amazon Aurora

Database – Live Review

Demo – Create VM

Demo – Create SQL Server DB

Developing on Cloud - Azure

Includes

➢ Azure Resource Manager (ARM) templates

➢ Azure Cloud Shell (includes Cloud-enabled VS Code interface)

➢ Azure Blueprints

Developing on Cloud - AWS

Includes

➢ AWS CloudFormation

➢ AWS Cloud9

➢ AWS Control Tower

Developing on Cloud - Terraform

➢ Supports multiple cloud implementations

➢ Uses HCL (Hashicorp Control Language)