



**Core Architectural  
Components.**



## Important Notes



Identify yourself in Zoom, using your name and last name



Mute your microphone along the course unless you have questions



Raise the hand if you have questions during the session



Focus your questions on the presented topic

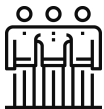


Turn off your camera in case of connection issues

## Academy Code of Conduct



Be respectful, there are no bad questions or ideas.



Be welcoming and patient



Be careful in the words that you choose

## Session Goal

**At the end of this session, you will be able to:**

- Understand the different architecture types in Azure and what are their advantages and disadvantages.
- Get familiar with Regions and Availability Zones
- Learn about Resources and Resource Groups in Azure and start working with them.



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- Long life learner martial arts
- Dog lover

# Table of Contents

## Cloud Architecture Models

How can we manage our architecture?

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## Regions and Availability Zones

Learn about them is a must when working with cloud

---



## Resource Groups

Why do we need them?

---



## Azure Resource Manager

One manager to rule them all

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# ■ **Cloud Architecture Models.**

When talking about cloud architecture, there are 3 general models that should be considered:

- Private
- Public
- Hybrid





# ■ Private Cloud Architecture



The services within the cloud are offered to specific users and not to the public.

- The main benefits of this is that an organization can create their own cloud they completely control but they get all the benefits of the public cloud also.



## Disadvantages

- The organization's IT department is responsible for the cloud management and not Microsoft (in this case).
- It's management requires the same staffing and maintenance expenses.

# ■ Public Cloud Architecture



The most important here are Azure, Aws, GCP among others, and the only thing requested is to have an internet connection so you would be able to master the different services.

### Advantages

- You can reduce costs, because there is no need of purchasing, managing and maintaining hardware and application infrastructure and you as a user only pay a low monthly fee for this.

### Disadvantages

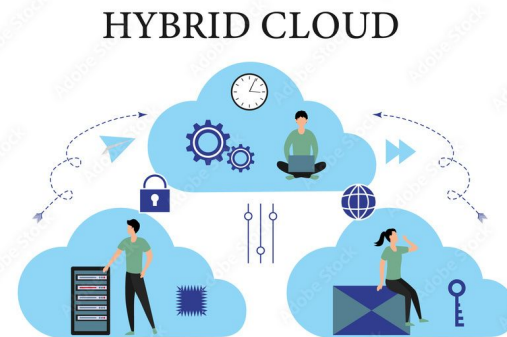
- You do not have control about updates or features offered
- You do not have physical access to the servers



# ■ Hybrid Cloud Architecture

This is a mix of public and private cloud, because for many companies, moving entirely to a cloud provider is not as easy as it looks

- You can avoid disruptions and outages.
- In some cases, certain applications does not live in the public cloud for regulatory reasons, governance issues, etc.
- Allows applications and data to span both public and private cloud.
- It alleviate CapEx investments



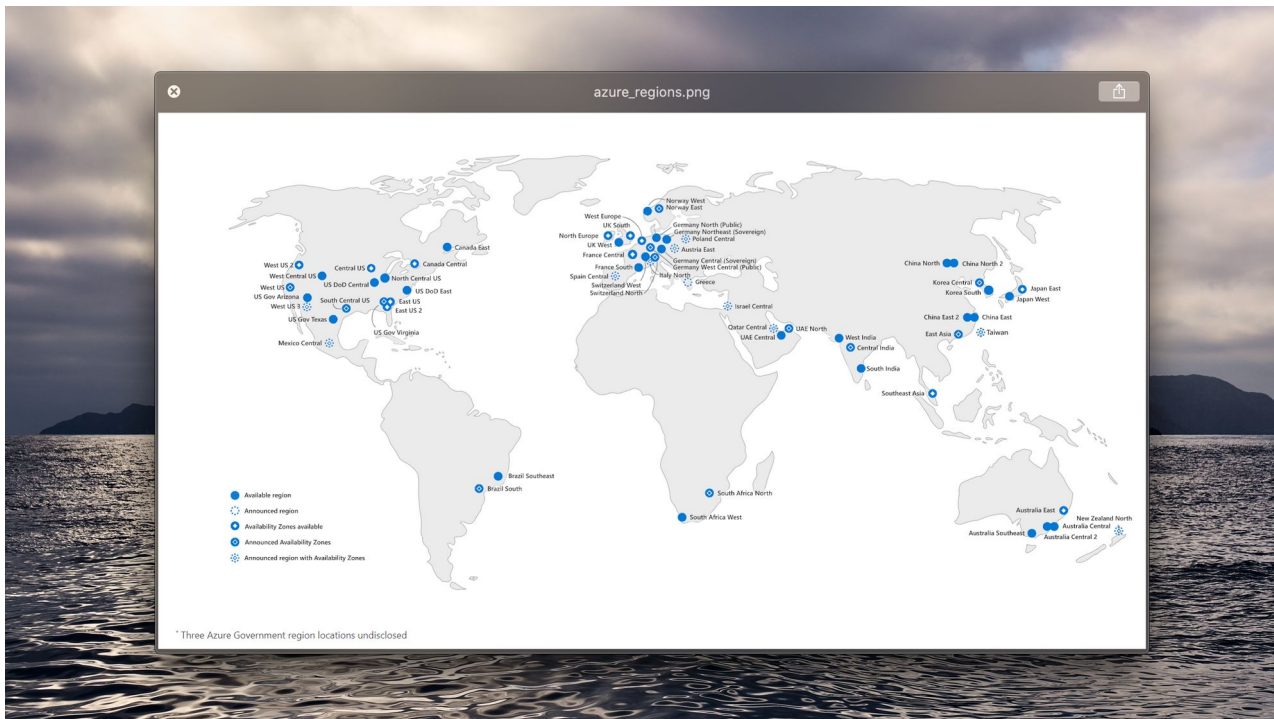
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- It can bring a lot of complexity to the infrastructure

## ■ **Regions and Availability Zones.**



These are the main component that has to deal with the performance of your applications and the amount you pay for them





## What are regions?

A region is a set of data centers deployed within latency-defined perimeter and connected through a dedicated regional low-latency network.



## How do we choose the best region?

Usually we can based our decision on 3 different options

- Location: Choose a region close to your users to minimize latency.
- Features: Some features are not available in all regions (those who are not core), if you need a specific feature, some regions might be unavailable.
- Price: The price of service vary from region to region





## Paired Regions

Each region is paired with another region, that means that these paired regions are in the same geographic area.

Example:

1. East US is paired with West US
2. France Central is paired with France South

Brazil South is the exception because it is paired with South Central US.

Using Azure region pairs for multi-region deployments will ensure that in the event that the primary region experiences an outage, then you can failover to the secondary region.

For update purposes, Azure serializes platform updates and only one region in a pair is updated at any one time.

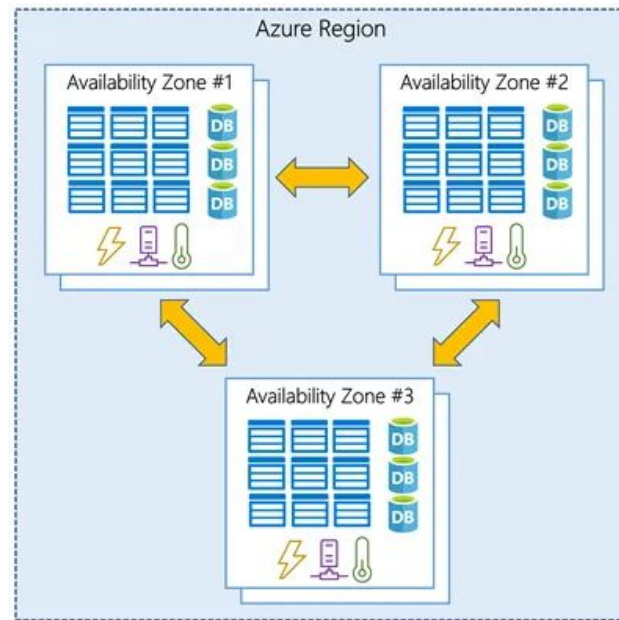
## Availability Zones

These are unique physical locations within an Azure region; each one has its own power, cooling and networking.

Each region that supports Availability Zones, has a minimum of three separated zones.

For Virtual Machines, you have to select how many zones you want it to be in and is a best practice to have at least two of them.

There are some services that automatically replicate across zones



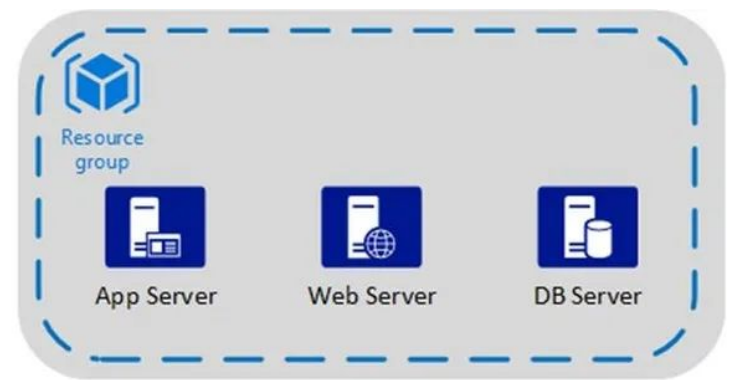
 **Resource Groups.**

# What are resource groups?

We can say that is a container that holds related resources for an Azure solution, and it has the resources you want to manage as a group.



**Segmentation by Function**



**Segmentation by Application**



There are some considerations that must be taken:

- Each resource can only exist in a single resource group.
- Resources can be added or removed to any resource group at any time.
- Resources can be moved from one resource group to another.
- Resources from multiple regions can be contained in one resource group.
- The manager of the resource group can give users access to a resource group and everything in it.
- A resource can interact with other resources in different resource groups.
- A resource group has a location, or region, as it stores metadata about the resources in it.

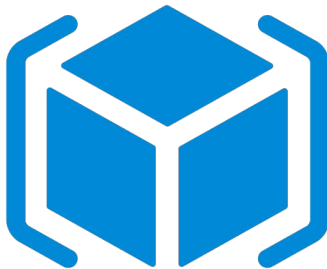
■ **Azure Resource Manager (ARM).**



## What is an ARM?

Whenever we want to create, update or delete something on Azure, we use ARM to do that. It is the tool that helps us with the deployment and management of the services in Azure.

That means, everytime we interact with any resource on Azure, it goes through the ARM.

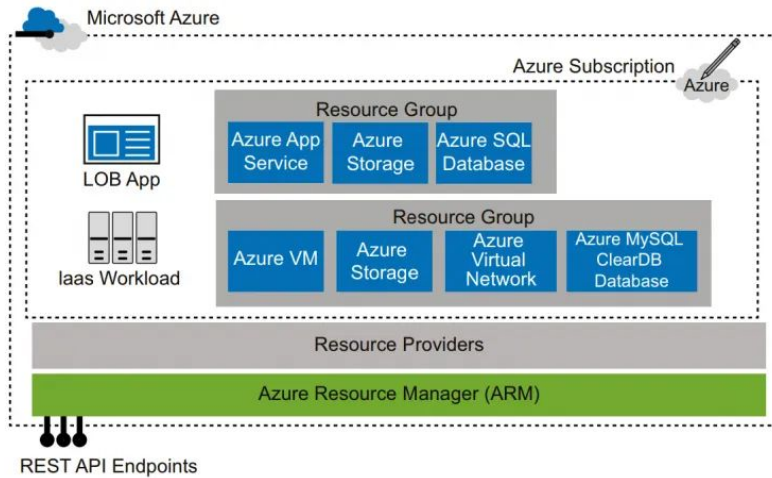


**AZURE RESOURCEMANAGER**



It provides some useful characteristics

- Group resource handling
- Consistency
- Dependencies
- Access Control
- Tagging
- Billing





# Q & A

**Please answer the survey form  
of this session:**





**Thank you**