

1- Azure Virtual Machines

- VMs provide **infrastructure as a service (IaaS)** in the form of a virtualized server and can be used in many ways.
 - Just like a physical computer, you can customize all of the software running on your VM. VMs are an ideal choice when you need:
 - Total control over the operating system (OS).
 - The ability to run custom software.
 - To use custom hosting configurations.
 - An Azure VM gives you the flexibility of virtualization without having to buy and maintain the physical hardware that runs the VM.
 - As an **IaaS** offering, you still need to configure, update, and maintain the software that runs on the VM.
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Scale VMs in Azure

- You can run single VMs for testing, development, or minor tasks.
 - Or you can group VMs together to provide high *availability*, *scalability*, and *redundancy*.
 - Azure can also manage the grouping of VMs for you with features such as *scale sets* and *availability sets*.
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Virtual machine scale sets

- **!** Scale sets allow you to centrally *manage*, *configure*, and *update* a large number of **VMs** in minutes.
 - The number of VM instances can automatically increase or decrease in response to demand
 - you can set it to scale based on a defined schedule.
 - Virtual machine scale sets also automatically deploy a **load balancer** to make sure that your resources are being used efficiently.
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Virtual machine availability sets

- **!** Tool to help you build a more resilient, highly availability environment.
- Availability sets are designed to ensure that VM's **stagger updates**, and have **varied power and network connectivity**, preventing you from losing all your VMs with a single network or power failure.

- Availability sets do this by grouping VM's in *2 ways*
 1. Update Domain
 2. Fault Domain

Update Domain

- distributes VMs across multiple update domains. An update domain is a logical group that ensures that not all VMs in an Availability Set are updated or rebooted at the same time during planned maintenance.
- This further enhances the availability of your application because it reduces the risk of all VMs being offline simultaneously.

Fault Domain

- distributes the VM's across multiple fault domains.
- A fault domain is a group of physical hardware within an azure datacenter

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- ! fault domains are focused on handling unexpected failures, while update domains are used for planed maintenances and updates.
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GETTING STARTED WITH VMs

AZURE VM PRICING

PAY-AS-YOU-GO	RESERVED VM INSTANCES	SPOT PRICING
Pay by the second	An advanced purchase	Purchase unused compute capacity
No long-term commitment	1-year or 3-year commitment	Up to 90% cheaper than pay-as-you-go
No upfront payments Increase/decrease capacity as needed	Upfront payment (up to 72% cheaper than pay-as-you-go)	Workloads run on spot instances must tolerate interruptions
Pay only for what you use	Best option if you have applications with steady-state usage	A good option if you are running interruptible applications
Low cost and flexible option	Offers budget predictability	Very low compute costs

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Activate Windows
Go to Settings to activate Windows

