

The background of the slide is a photograph of a server room. Several tall, black server racks are visible, each filled with blue-lit components. The racks are arranged in rows, and the floor is a dark, reflective surface. The overall lighting is dim, with the primary light source being the blue glow from the servers.

# Azure Compute 102

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Getting Started with Cloud Compute

# About me!

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**Daniel Colón**

Azure Solutions Architect Expert, AWS Solutions Architect - Professional



# Division of Responsibility

	Responsibility	SaaS	PaaS	IaaS	On-prem
Responsibility always retained by the customer	Information and data	Customer	Customer	Customer	Customer
	Devices (Mobile and PCs)	Customer	Customer	Customer	Customer
	Accounts and identities	Customer	Customer	Customer	Customer
Responsibility varies by type	Identity and directory infrastructure	Shared	Shared	Customer	Customer
	Applications	Microsoft	Shared	Customer	Customer
	Network controls	Microsoft	Shared	Customer	Customer
	Operating system	Microsoft	Microsoft	Customer	Customer
Responsibility transfers to cloud provider	Physical hosts	Microsoft	Microsoft	Microsoft	Customer
	Physical network	Microsoft	Microsoft	Microsoft	Customer
	Physical datacenter	Microsoft	Microsoft	Microsoft	Customer

 Microsoft  Customer  Shared

# Azure Fundamentals

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- Storage
- Compute
- Network

# Azure Compute

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Collection of cloud-based services in **Microsoft Azure** that provide the infrastructure, tools, and resources for running applications and workloads



# Benefits of Azure Compute

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## **Scalability**

Automatically scale resources based on demand

## **Cost Efficiency**

Pay-as-you-go pricing and support for reservations

## **High Availability**

Built-in redundancy and geographic distribution options

## **Security**

Compliance with global standards and built-in security measures.

# Azure Compute



## API Apps

Easily build and consume Cloud APIs



## App Service

Quickly create powerful cloud apps for web and mobile



## Azure Compute Fleet (Preview)

Easily provision and manage Azure compute capacity at scale



## Azure CycleCloud

Create, manage, operate, and optimize HPC and big compute clusters of any scale



## Azure Dedicated Host

A dedicated physical server to host your Azure VMs for Windows and Linux



## SQL Server on Virtual Machines

Host enterprise SQL Server apps in the cloud



## Static Web Apps

A modern web app service that offers streamlined full-stack development from source code to global high availability



## Azure Functions

Process events with serverless code



## Azure Kubernetes Fleet Manager (Fleet)

Enable multi-cluster and at-scale scenarios for Azure Kubernetes Service clusters



## Azure Kubernetes Service (AKS)

Simplify the deployment, management, and operations of Kubernetes



## Virtual Machine Scale Sets

Manage and scale up to thousands of Linux and Windows virtual machines



## Azure Spot Virtual Machines

Provision unused compute capacity at deep discounts to run interruptible workloads



## Container Instances

Easily run containers on Azure without managing servers



## Service Fabric

Develop microservices and orchestrate containers on Windows or Linux



## Azure Spring Apps

A fully managed Spring Cloud service, built and operated with Pivotal



## Azure Virtual Desktop

The best virtual desktop experience, delivered on Azure



## Azure VMware Solution

Run your VMware workloads natively on Azure



## Batch

Cloud-scale job scheduling and compute management



## Cloud Services

Create highly available, infinitely scalable cloud applications and APIs



## Virtual Machines

Provision virtual machines for Ubuntu, Red Hat, Windows, and more



## Web Apps

Quickly create and deploy mission critical web apps at scale

# Resource Groups

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Container that holds related resources for an Azure solution

Can include all the resources for the solution, or only those resources that you want to manage as a group

Best Practice to add resources that share the same lifecycle to the same resource group so you can easily deploy, update, and delete them as a group





# Account, Subscriptions, Resource Groups

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Account

Subscriptions

Resource Groups

Resources

# Resource Group

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Resource group is a logical container for a group of resources

There is no cost associated with creating a resource group

Deleting a Resource Group deletes all resources within the Resource Group



# Examples of Resources

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Virtual Machine

Storage

Virtual Network

Network Interface

Virtual Hard Drive



# Virtual Machines

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Scalable and customizable virtualized computing resources

Support for multiple operating systems (Windows, Linux)

## **Use cases:**

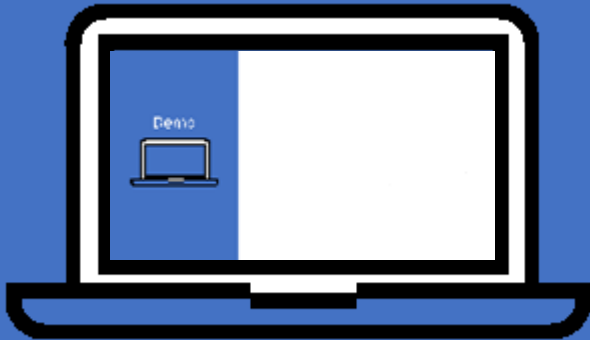
Legacy application migration

Custom workloads

Development/testing environments



# Demo



# Virtual Machines

<https://learn.microsoft.com/en-us/azure/virtual-machines/>

# Virtual Machine Scale Sets

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Deploy and manage a group of identical virtual machines (VMs)

Scale number of VMs based on demand or a defined schedule

High availability and load balancing across multiple VMs

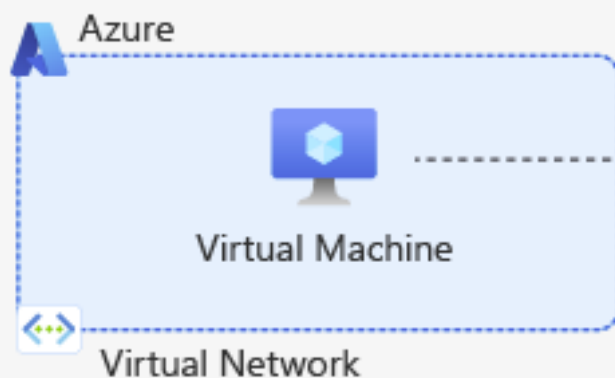
## **Use cases:**

Hosting large-scale applications

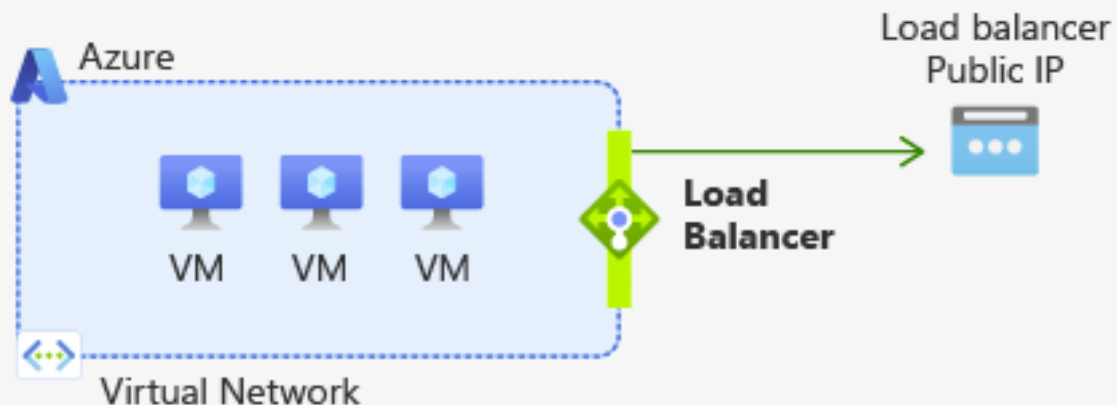
Scalable backend services for APIs, web apps, or mobile apps

Big data processing and batch workloads

# Virtual Machine Scale Sets vs VMs

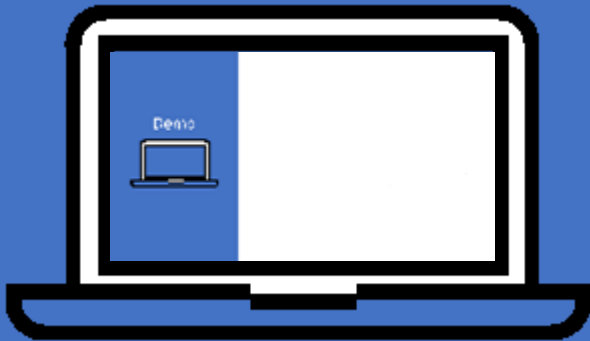


Does not scale as  
networks grow



Scales as network grow

# Demo



## VM Scale Sets

<https://learn.microsoft.com/en-us/azure/virtual-machine-scale-sets/>



# Container Instances

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Fast and simple way to run containers without managing virtual machines or requiring a complex orchestration framework

Supports Linux and Windows containers

Per-second billing and automatic scaling of resources

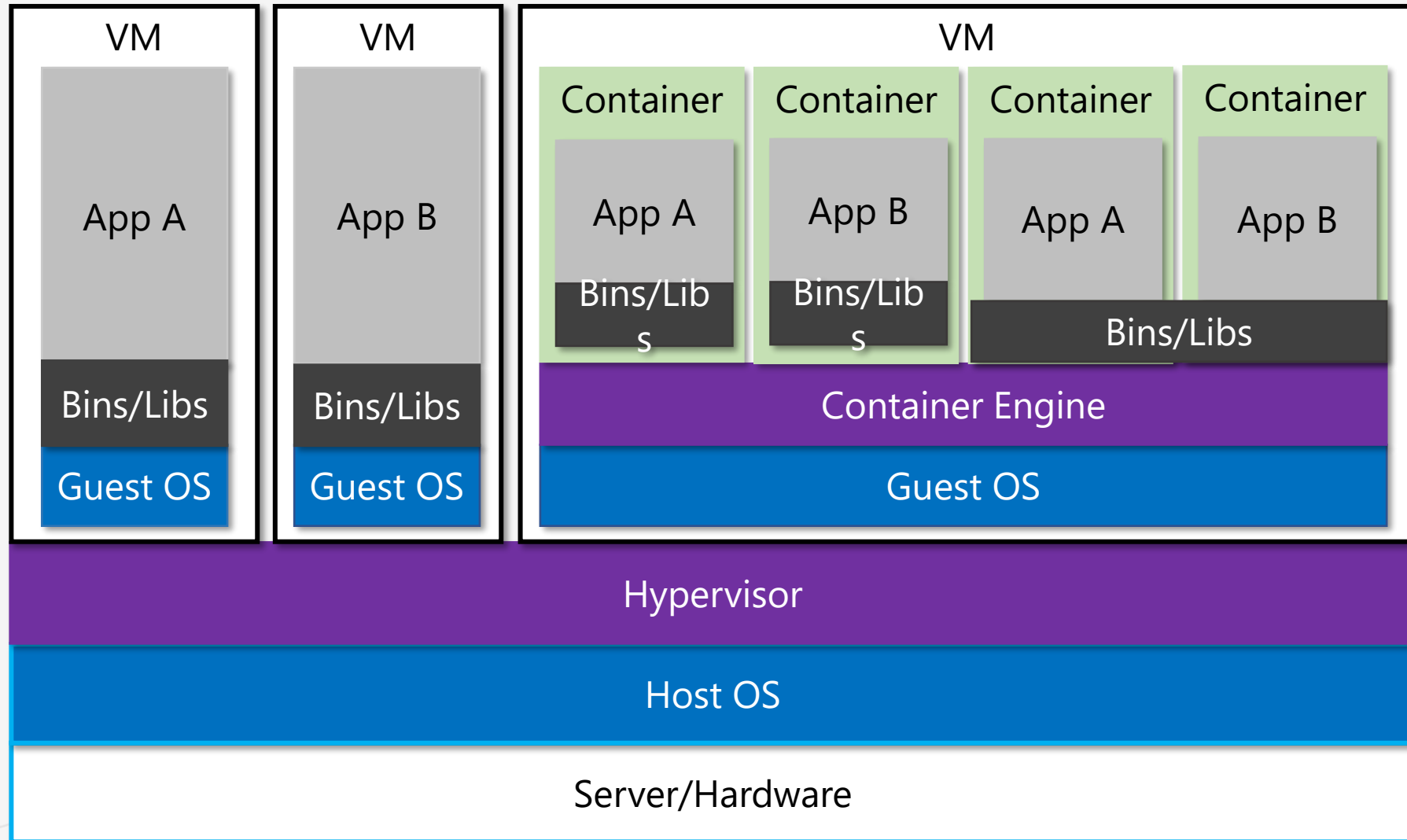
## **Use Cases:**

Development and testing of containerized applications

Running background jobs or event-driven tasks

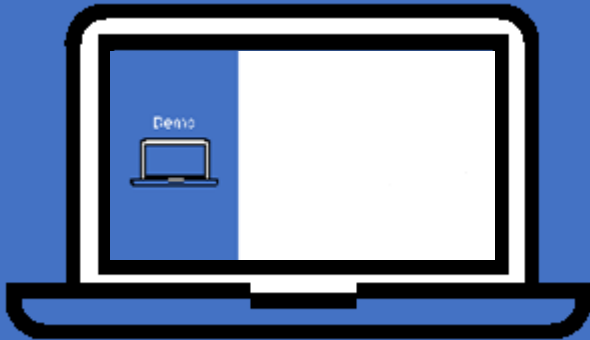
Proof of concept and short-lived workloads

# Containers vs VMs



Containers Share  
OS  
And where  
Appropriate  
Bins/Libs

# Demo



# Container Instances

<https://learn.microsoft.com/en-us/azure/container-instances/>

# Kubernetes Services

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A managed container orchestration service

Simplifies deploying and managing containerized applications using Kubernetes

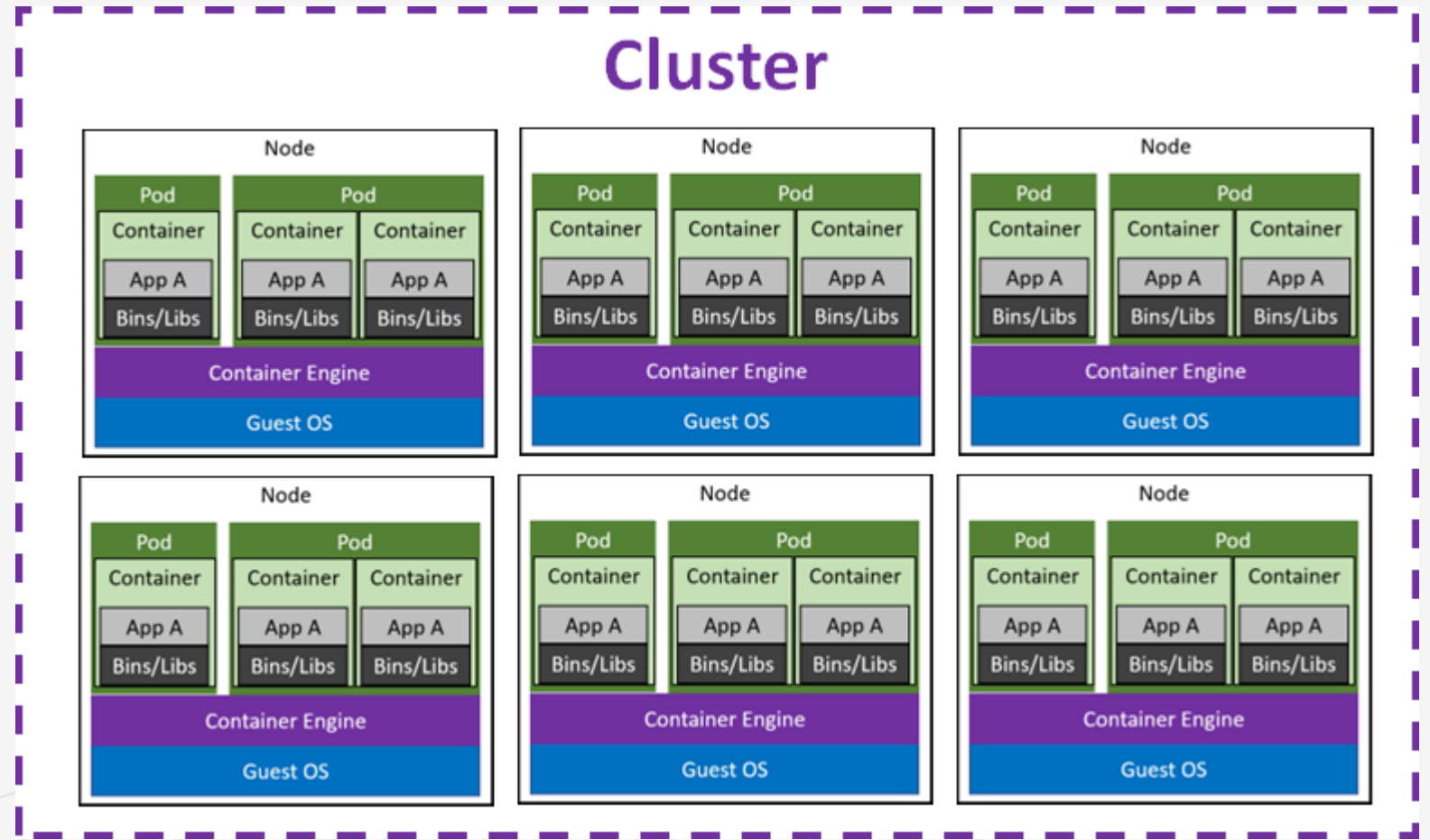
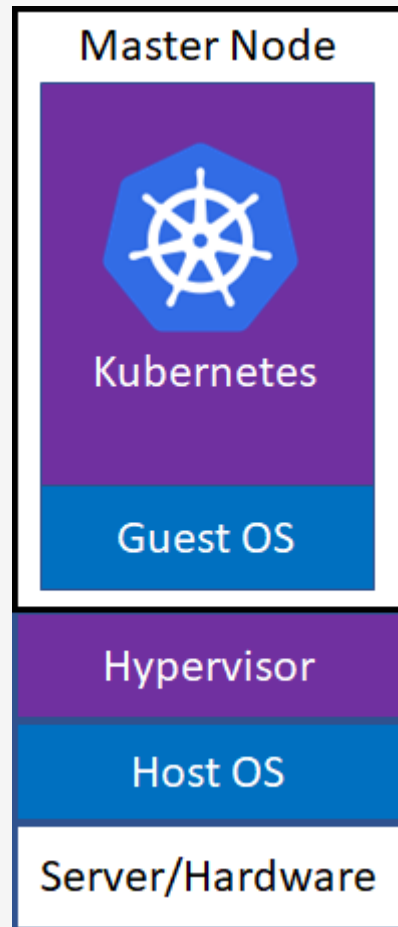
## **Use cases:**

Microservices architecture

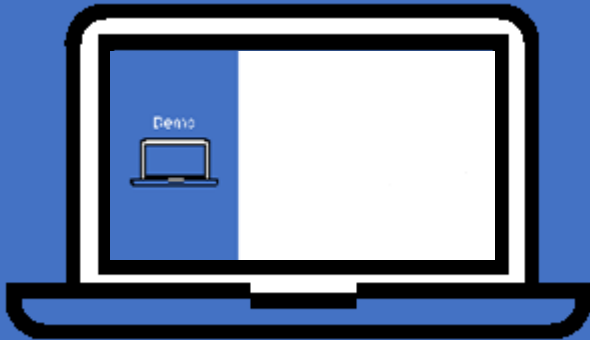
Containerized application hosting



# Kubernetes



# Demo



# Kubernetes Services

<https://learn.microsoft.com/en-us/azure/aks/>

# App Services

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Managed platform for building, deploying, and scaling web apps, RESTful APIs, and mobile backends

Supports programming languages like .NET, Java, Python, Node.js, and PHP

## **Use cases:**

Web application hosting

API integration

Mobile app backend services.

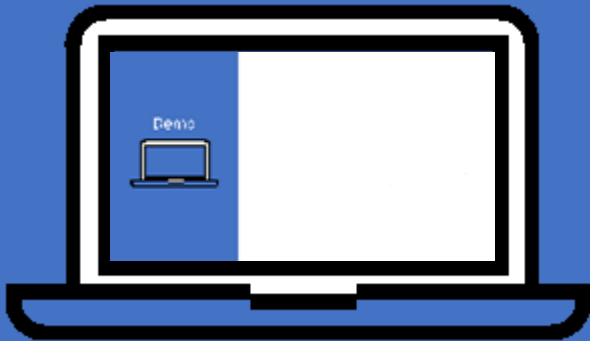
# App Services vs VMs

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<b>App Services</b>	<b>VMs</b>
PaaS Offering	IaaS Offering
Fully Managed	Full Control



# Demo



# App Services

<https://learn.microsoft.com/en-us/azure/app-service/>

# Functions

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A serverless compute option that runs code on-demand without managing infrastructure

Supports event-driven execution

**Use cases:**

Event processing

Automation

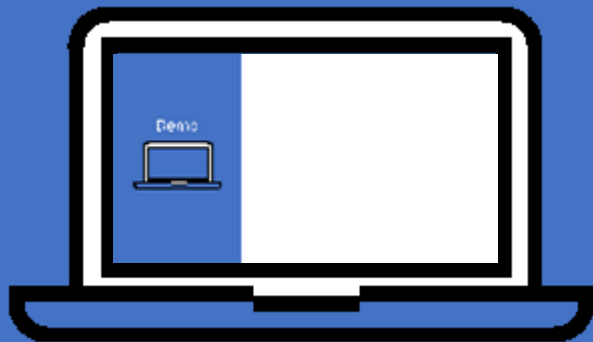
Lightweight application logic

# Functions vs App Services

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Feature	Azure Functions	Azure App Service
Architecture	Serverless	PaaS
Event-Driven	Yes	No
Use Cases	Lightweight APIs, background tasks, microservices	Web applications
Statefulness	Short-lived tasks	Stateful
Execution Time Limit	Yes	No
Cost	Pay per execution	Fixed higher cost

# Demo



# Functions

<https://learn.microsoft.com/en-us/azure/azure-functions/>

# Summary

## Overview of the core Azure Compute services

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### **Virtual Machines**

Customizable and scalable VMs for diverse workloads

### **Virtual Machine Scale Sets**

Auto-scaling for groups of identical VMs

### **Container Instances**

Run containers without managing infrastructure

### **Kubernetes Services**

Orchestration for containerized applications

### **App Services**

Managed platform for hosting web apps and APIs

### **Functions**

Serverless computing for event-driven tasks

# Resources

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## Azure Compute

<https://learn.microsoft.com/en-us/azure/?product=compute>

## AZ-104: Deploy and manage Azure compute resources

<https://learn.microsoft.com/en-us/training/paths/az-104-manage-compute-resources/>

## Link to Slides in GitHub

<https://github.com/danielecolon/Azure-Compute-102>

A decorative pattern of light gray lines forming a grid of diamond shapes, located at the bottom of the slide.

# What's Next

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## **Azure Storage 101:**

Getting Started with Cloud Storage

## **Azure Compute 102:**

Getting Started with Cloud Compute

## **Azure Networking 103:**

Getting Started with Cloud Networking

