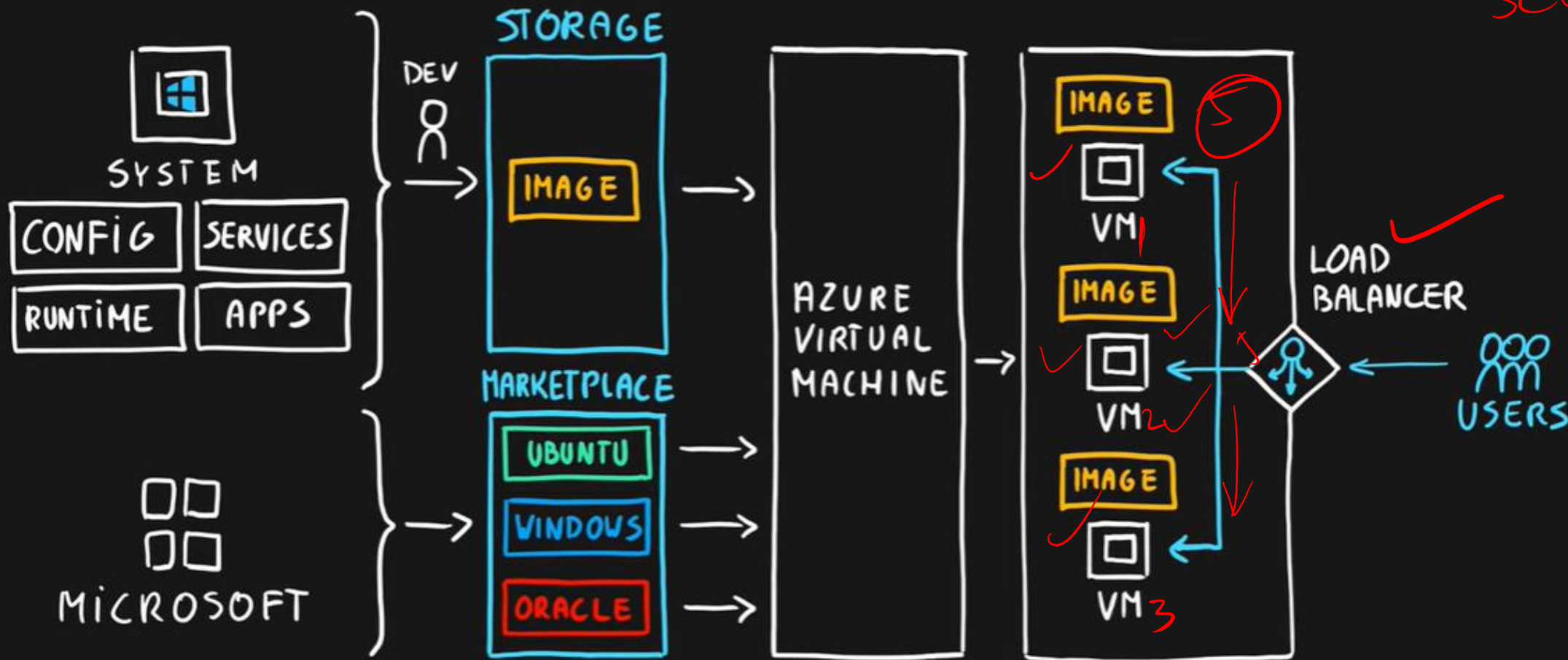


Azure Virtual Machine Scale Sets

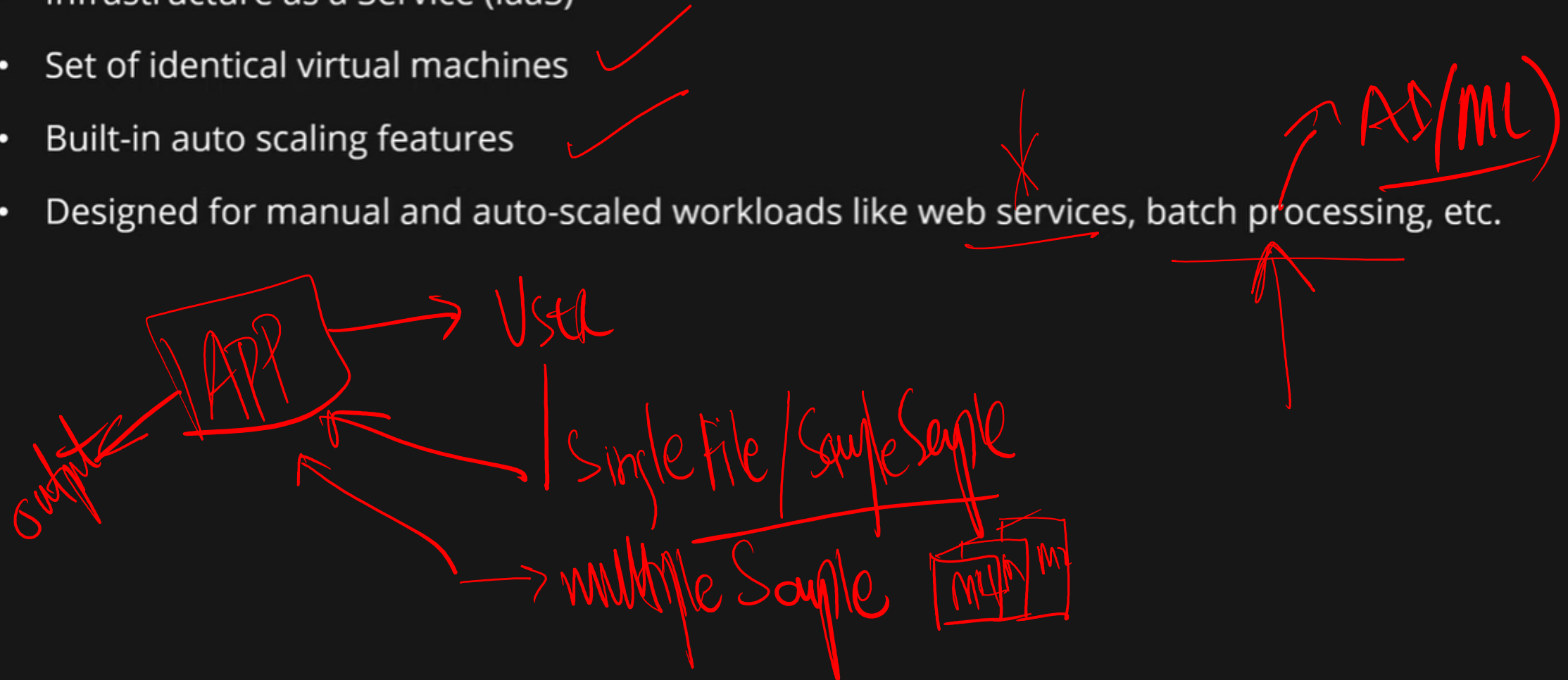
Question: Vertical/Horizontal Scaling?



Virtual Machine Scale Sets

Key Characteristics

- Infrastructure as a Service (IaaS)
- Set of identical virtual machines ✓
- Built-in auto scaling features ✓
- Designed for manual and auto-scaled workloads like web services, batch processing, etc.



Azure Compute Services

Summary

Service	Configuration Control / Maintenance	Autoscaling	Min Nodes	Max Nodes	Scalability
Virtual Machines	☆☆☆☆☆	No	1	1	☆
VM Scale Sets	☆☆☆☆☆	Yes	1	1000/600	☆☆☆☆☆

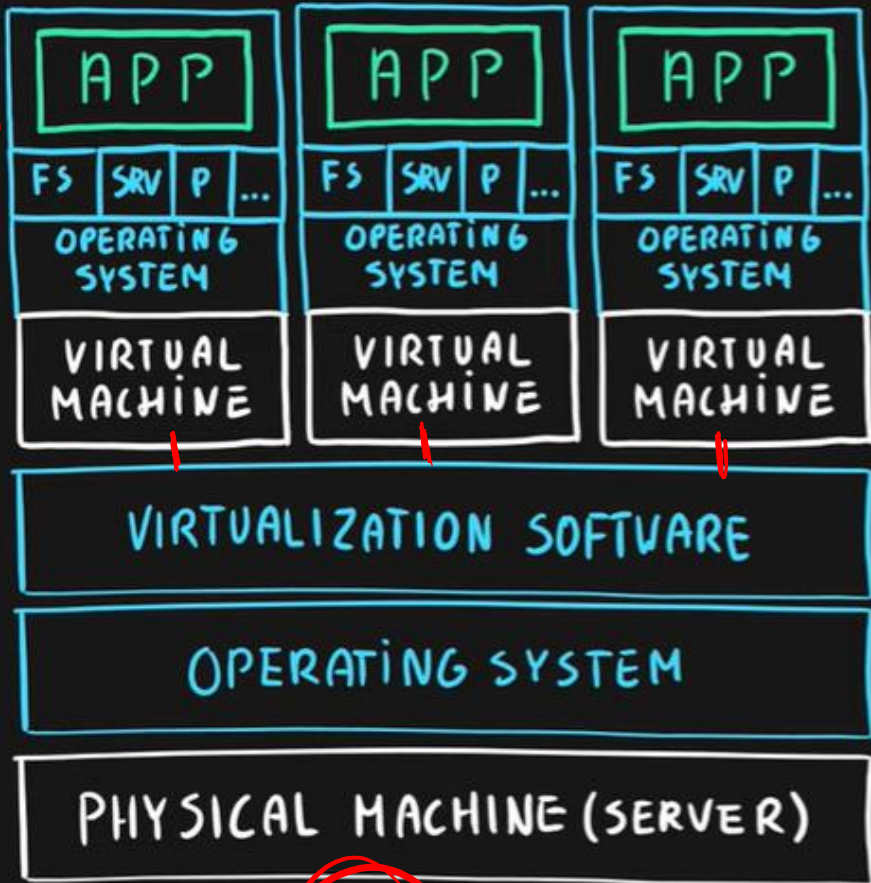
Handwritten notes:

- Red checkmarks above 'Service', 'Autoscaling', 'Min Nodes', and 'Max Nodes'.
- Red checkmarks to the left of 'Virtual Machines' and 'VM Scale Sets'.
- Red circles around the '1' values in the 'Min Nodes' column.
- Red circles around the '1' value in the 'Max Nodes' column for Virtual Machines and the '1000/600' value for VM Scale Sets.
- A red box around the '1000/600' value with an arrow pointing to the handwritten word 'Subscriptions'.
- A red underline under the 'Scalability' column for VM Scale Sets.

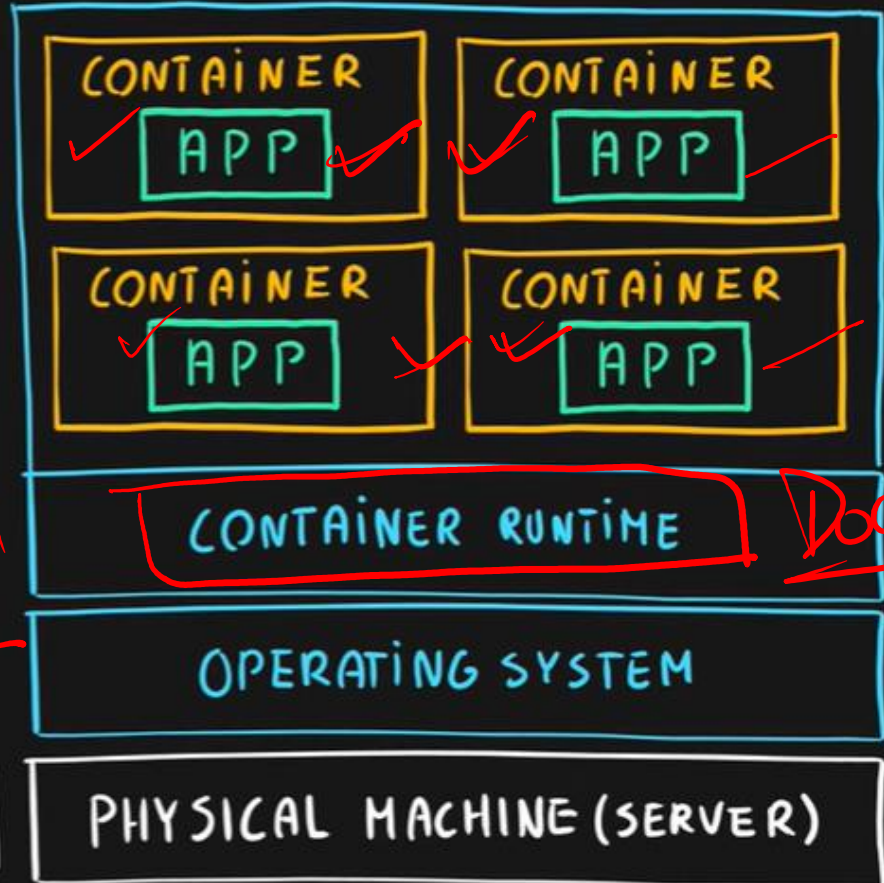
Containers vs VMs



Handwritten red notes: "30s" circled, with an arrow pointing to the top layer of the VM diagram.



Handwritten red "VM" circled.



Handwritten red notes: "Spezialum" (circled), "light" (circled), "Docker/Hub" (circled), and "OS" (circled).

Containers

Key Characteristics

- Use host's operating system ✓
- Emulate operating system (VMs emulate hardware)
- Lightweight (no O/S)
 - Development Effort
 - Maintenance ✓
 - Compute & storage requirements
- Respond quicker to demand changes ✓
- Designed for almost any scenario ✓

Lightweight

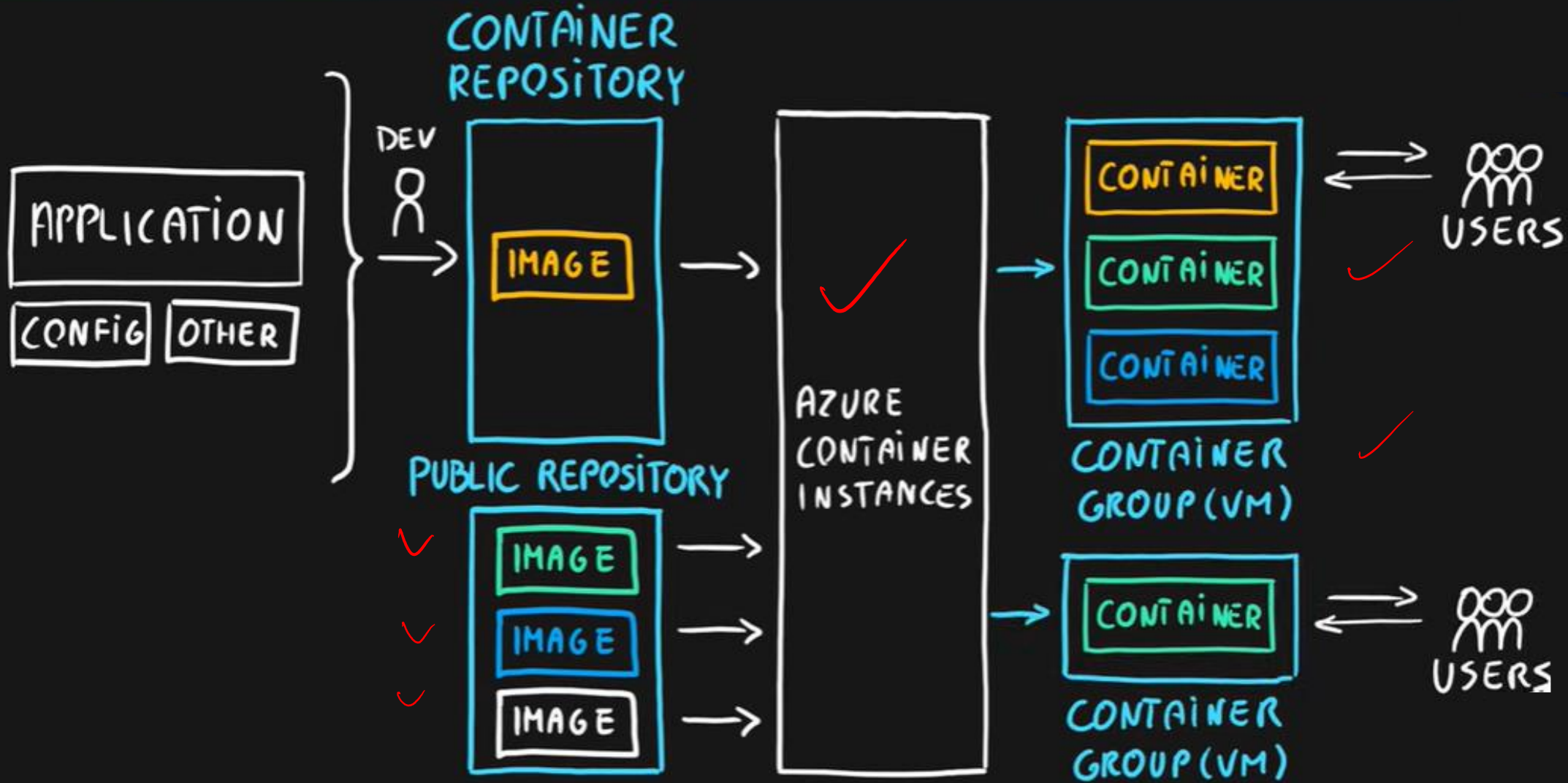
MANAGEMENT

	VM	Container ✓
(i) Space memory (MB)	xxxxx	xx
(ii) Time (s)	xxxxxx	xxx

↳ Computational Complexity

User → App → Result
IN FEWER

Azure Container Instances



Azure Container Instances

Key Characteristics

- Simplest and fastest way to run a container in Azure
- Platform as a Service ✓
- Serverless Containers ✓
- Designed for
 - Small and simple web apps/services ✓
 - Background jobs ✓
 - Scheduled scripts ✓

BEARINGS → *autonomous programs*



Dashboard > New >

Marketplace

My Saved List

Recently created

Service Providers

Categories

Get Started

AI + Machine Learning

Analytics

Blockchain

Compute

Containers

container

Pricing : All

Operating System : All

Showing All Results



Red Hat OpenShift Container Platform Self-

Red Hat

Red Hat OpenShift Container Platform 3.11 - Self Managed IaaS Offer



Docker container with prestashop 1.7.6.7

SEAQ SERVICIOS SAS

Docker container with prestashop 1.7.6.7



Container Instances

Microsoft

The fastest container in Azure

The fastest and simplest way to run a container in Azure.



[Dashboard](#) > [New](#) > [Marketplace](#) >

Container Instances

Microsoft



Container Instances [Save for later](#)

Microsoft

[Overview](#)[Plans](#)

Azure Container Instances offers the fastest and simplest way to run a container in Azure, without having to provision any virtual machines and without having a higher-level service.

Useful Links

[Learn more](#)[Documentation](#)

Resource group *

(New) az-900-aci

[Create new](#)

Container details

Container name * ⓘ

amdemo-aci ✓

Region * ⓘ

(Europe) West Europe ▼

Image source * ⓘ

- Quickstart images
- Azure Container Registry
- Docker Hub or other registry

Image * ⓘ

microsoft/aci-helloworld (Linux) ▼

Size * ⓘ

1 vcpu, 1.5 GiB memory, 0 gpus

[Change size](#)

[Review + create](#)

[< Previous](#)

[Next : Networking >](#)

✓ Validation passed

Basics Networking Advanced Tags Review + create

Basics

Subscription	Visual Studio Enterprise
Resource group	(new) az-900-aci
Region	West Europe
Container name	amdemo-aci
Image type	Public
Image	microsoft/aci-helloworld:latest
OS type	Linux
Memory (GiB)	1.5
Number of CPU cores	1
GPU type (Preview)	None

Create

< Previous

Next >

[Download a template for automation](#)

amdemo-aci

Container instances

Search (Ctrl+/) <<

 Start  Restart  Stop  Delete  Refresh

- Overview
- Activity log
- Access control (IAM)
- Tags
- Settings
- Containers
- Identity
- Properties
- Locks
- Export template
- Monitoring
- Metrics
- Alerts

Resource group [\(change\)](#)

az-900-aci

Status

Running

Location

West Europe

Subscription [\(change\)](#)

Visual Studio Enterprise

Subscription ID

1a2cde19-3af3-4c1d-b5fc-37d7704b9033


Tags [\(change\)](#)

[Click here to add tags](#)

OS type

Linux

IP address

52.236.157.1 (Public) 

FQDN

Container count

1

Copy to clipboard

CPU

100

90

80

Welcome to Azure Container Instances!

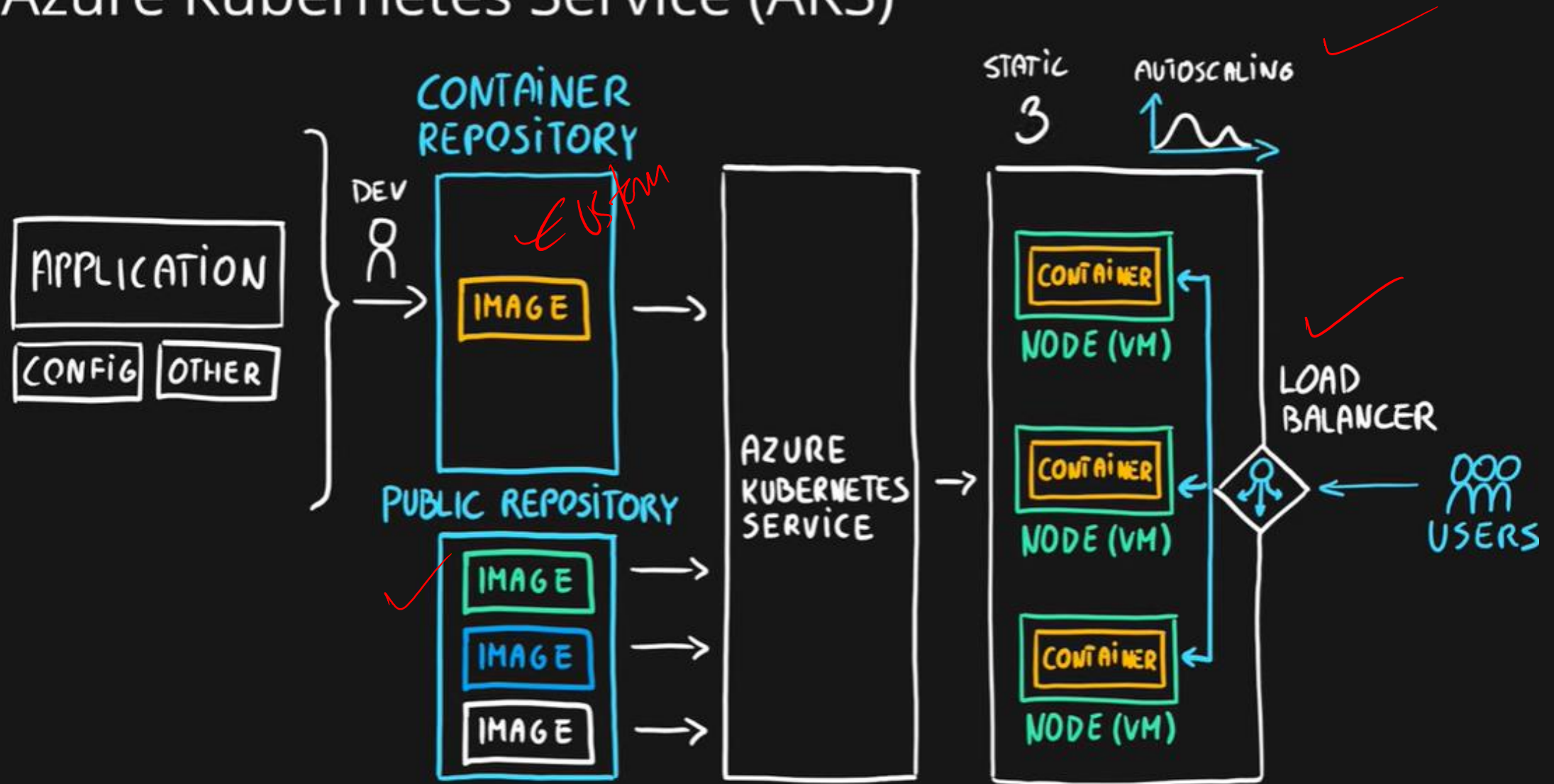


Azure Compute Services

Summary

Service	Configuration Control / Maintenance	Autoscaling	Min Nodes	Max Nodes	Scalability
Virtual Machines	☆☆☆☆☆	No	1	1	☆
VM Scale Sets	☆☆☆☆☆	Yes	1	1000/600	☆☆☆☆☆
Container Instances	☆☆☆	No	0	20	☆☆

Azure Kubernetes Service (AKS)



Azure Kubernetes Service (AKS)

Production

Key Characteristics

- Open-source container orchestration platform ✓
- Platform as a Service ✓
- Highly scalable and customizable ✓
- Designed for high scale container deployments (anything really!) ✓

Azure Compute Services

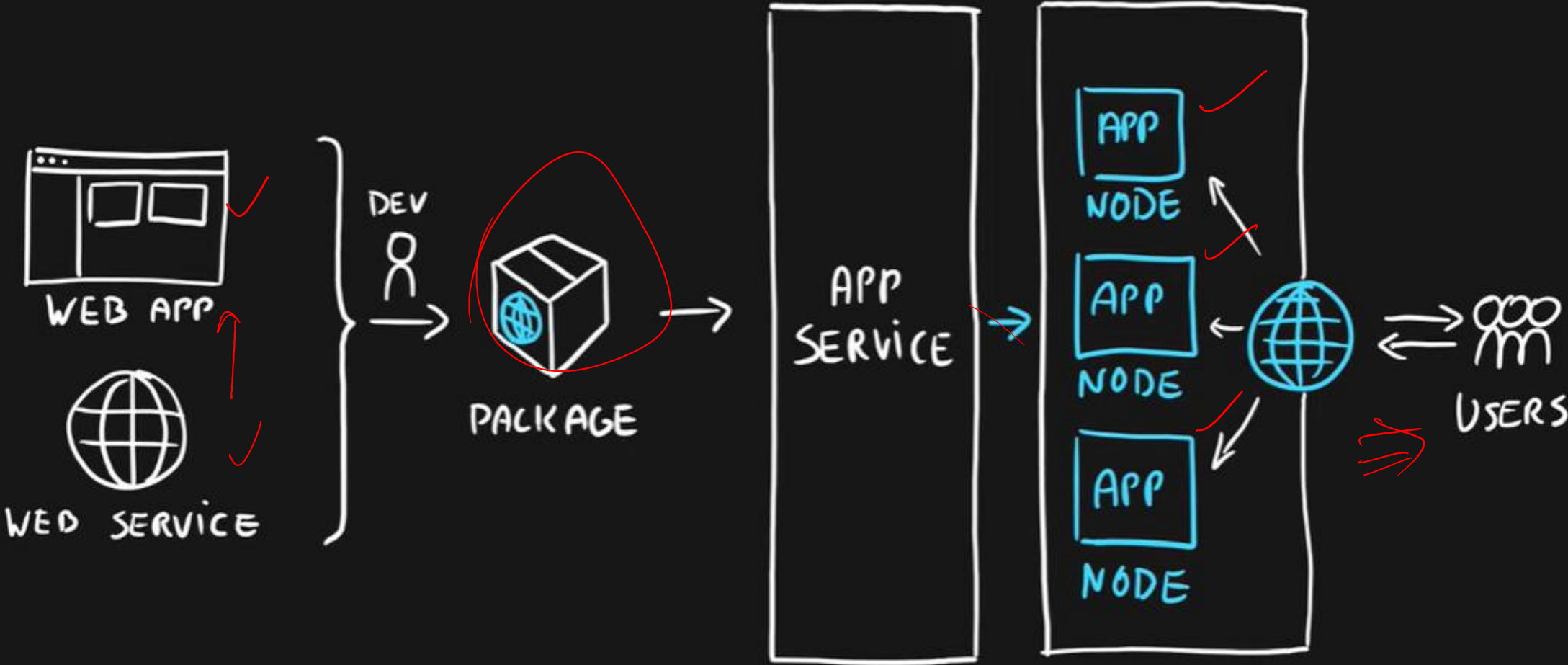
Summary

Service	Configuration Control / Maintenance	Autoscaling	Min Nodes	Max Nodes	Scalability
① Virtual Machines ✓	☆☆☆☆☆	No	1	1	☆
② VM Scale Sets ✓	☆☆☆☆☆	Yes	1	1000/600	☆☆☆☆☆ ✓
③ Container Instances ✓	☆☆☆	No	0	20	☆☆
④ Kubernetes Service ✓	☆☆☆☆	Yes ✓	3	100	☆☆☆☆ ✓

Handwritten notes:

- A vertical line with checkmarks on the left side of the table, corresponding to the circled numbers 1-4.
- A red circle around the number '3' in the 'Min Nodes' column for Kubernetes Service, with an arrow pointing to the handwritten note "powerful machine".
- A red box around the number '100' in the 'Max Nodes' column for Kubernetes Service.
- A red checkmark next to the 'Scalability' column for VM Scale Sets.
- A red checkmark next to the 'Scalability' column for Kubernetes Service.

App Service



App Service

Key Characteristics

- Designed as enterprise grade web application service
- Platform as a Service
- Supports multiple programming languages and containers



[Dashboard](#) >

New

Search the Marketplace

Azure Marketplace [See all](#)

Popular

Get started

Recently created

AI + Machine Learning

Analytics

Blockchain

Compute

Containers



Windows Server 2016 Datacenter

[Quickstarts + tutorials](#)



Ubuntu Server 18.04 LTS

[Learn more](#)



Web App

[Quickstarts + tutorials](#)

Resource Group * ⓘ

Create new

A resource group is a container that holds related resources for an Azure solution.

Name *

az-900-appservice ✓

OK

Cancel

Instance Details

Name *

Publish *

Runtime stack *

Operating System

Region *

Central US

ⓘ Not finding your App Service Plan? Try a different region.

App Service Plan

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app.

Review + create

< Previous

Next : Monitoring >

Operating System *

Linux Windows

Region *

West Europe

i Not finding your App Service Plan? Try a different region.

App Service Plan

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. [Learn more](#)

Windows Plan (West Europe) * **i**

(New) ASP-az900appservice-80a9

[Create new](#)

Sku and size *

New App Service Plan

Name *

 ✓

Review + create

< Previous

Summary



Web App
by Microsoft

Details

Subscription	1a2cde19-3af3-4c1d-b5fc-37d7704b9033
Resource Group	az-900-appservice
Name	amdemo-appservice
Publish	Code
Runtime stack	.NET Core 3.1 (LTS)

App Service Plan (New)

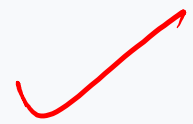
Name	amdemo-appservice-plan
Operating System	Windows
Region	West Europe
SKU	Free

Create

< Previous

Next >

[Download a template for automation](#)



Hey, App Service developers!

Your app service is up and running.
Time to take the next step and deploy your code.

Have your code ready?
Use deployment center to get code published from your client or setup continuous deployment.

Don't have your code yet?
Follow our quickstart guide and you'll have a full app ready in 5 minutes or less.



Dashboard > Microsoft.Web-WebApp-Portal-8953055e-a405 | Overview >

amdemo-appservice

App Service

Search (Ctrl+/)

Browse Stop Swap Restart Delete Get publish profile Reset publish profile Send

i .NET Framework 4.8 is coming to App Service starting in late July 2020 and will complete around late September 2020. Click to learn progress on the deployment.

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Security
- Events (preview)
- Deployment
 - Quickstart
 - Deployment slots
 - Deployment Center

Resource group (change)
[az-900-appservice](#)


Status
Running

Location
West Europe

Subscription (change)
[Visual Studio Enterprise](#)

Subscription ID
1a2cde19-3af3-4c1d-b5fc-37d7704b9033

Tags (change)
[Click here to add tags](#)

 **URL**
<https://amdemo-appservice.azurewebsites.net>

App Service Plan
[amdemo-appservice-plan \(F1: Free\)](#)

FTP/deployment username
No FTP/deployment user set

FTP hostname
ftp://waws-prod-am2-327.ftp.azurewebsites.wind

FTPS hostname
ftps://waws-prod-am2-327.ftp.azurewebsites.wind

OUTPUT DEBUG CONSOLE TERMINAL

1: dotnet



Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS E:\demo> dotnet new mvc

The template "ASP.NET Core Web App (Model-View-Controller)" was created successfully.
This template contains technologies from parties other than Microsoft, see <https://aka.ms/aspnetcore/3.1-third-party-notices> for details.

Processing post-creation actions...

Running 'dotnet restore' on E:\demo\demo.csproj...



AZURE



APP SERVICE

Visual Studio Enterprise



amdemo-annservice

Open in Portal

Browse Website

Start

Stop

Restart

Delete...

Deploy to Web App...

Configure Deployment Source...

Start Streaming Logs

Stop Streaming Logs

Generate Azure CLI Script

Start Remote Debugging

SSH into Web App



OUTPUT DEBUG CONSOLE TERMINAL

1: powershell

The template "ASP.NET Core Web App (Model-View-Controller)
This template contains technologies from parties other than Microsoft.
ms/aspnetcore/3.1-third-party-notices for details.

Processing next creation actions

OUTPUT

DEBUG CONSOLE

TERMINAL

2: Task - publish-release



1>Done Building Project "E:\demo\demo.csproj" (Clean target(s)).

Terminal will be reused by tasks

Running preDeployTask "publish-release"...

> Executing task: C:\Program Files\dotnet\dotnet.exe publish E:\demo\demo.csproj /property:GenerateFull

Always deploy the workspace "demo" to "amdemo-appservice"?

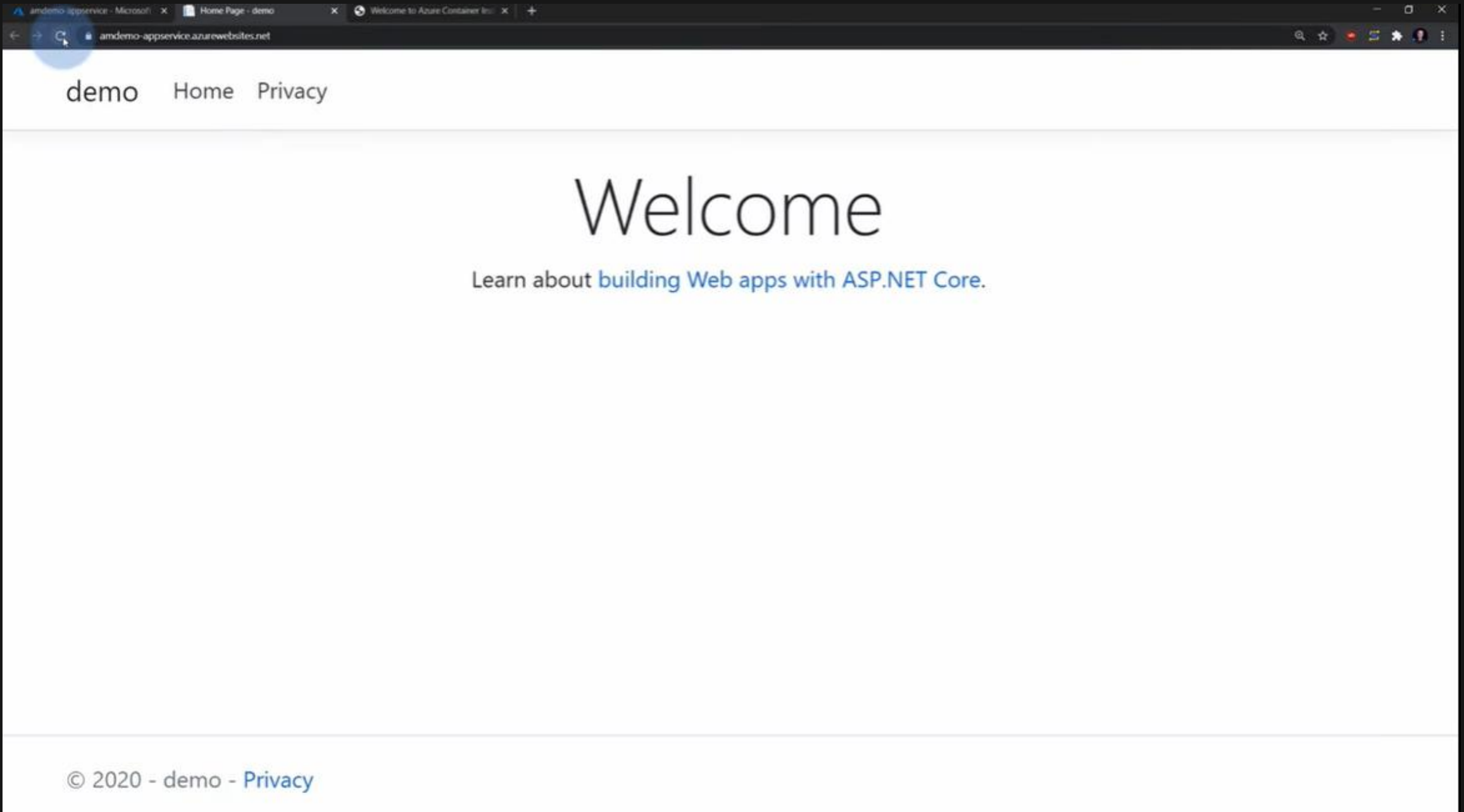
Microsoft (R) Build Engine v16.0.21471.1
Copyright (C) Microsoft Corporation

Source: Azure App Service (Ext...

Yes

Don't show again

Skip for now



demo Home Privacy

Welcome

Learn about [building Web apps with ASP.NET Core.](#)

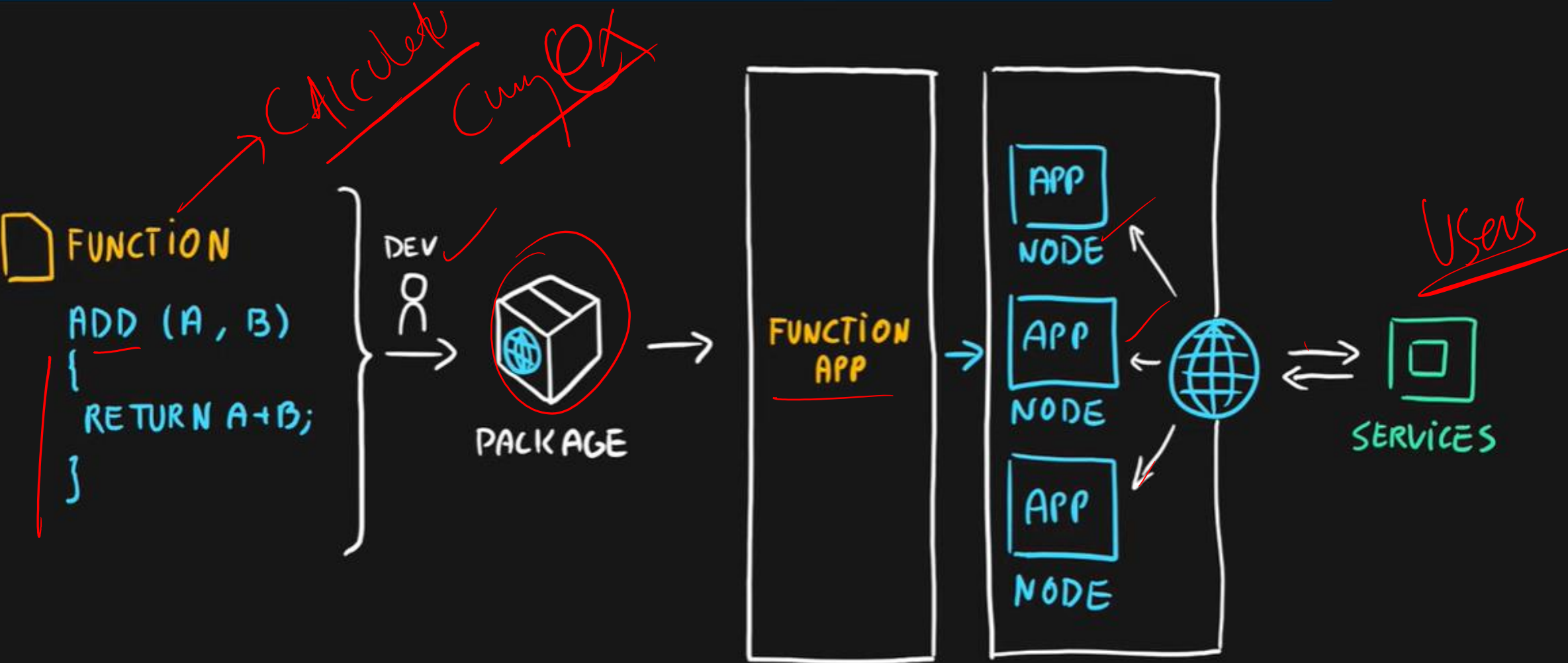
© 2020 - demo - [Privacy](#)

Azure Compute Services

Summary

Service	Configuration Control / Maintenance	Autoscaling	Min Nodes	Max Nodes	Scalability
Virtual Machines	☆☆☆☆☆	No	1	1	☆
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Container Instances	☆☆☆	No	0	20	☆☆
Kubernetes Service	☆☆☆☆	Yes	3	100	☆☆☆☆
App Service	☆☆	Yes	1	20/100	☆☆☆

Azure Functions (Function Apps)



Azure Functions (Function Apps)

Key Characteristics

- Platform as a Service ✓
- Serverless ✓
- Two hosting/pricing models
 - Consumption-based plan ✓
 - Dedicated plan
- Designed for micro/nano-services

Azure Compute Services

Summary

Service	Configuration Control / Maintenance	Autoscaling	Min Nodes	Max Nodes	Scalability
Virtual Machines	☆☆☆☆☆	No	1	1	☆
VM Scale Sets	☆☆☆☆☆	Yes	1	1000/600	☆☆☆☆☆
Container Instances	☆☆☆	No	0	20	☆☆
Kubernetes Service	☆☆☆☆	Yes	3	100	☆☆☆☆
App Service	☆☆	Yes	1	20/100	☆☆☆
Functions	☆	Yes	0	200	☆☆☆☆

Azure Compute Services

Summary

- **Virtual Machines (IaaS)** ✓
Custom software, custom requirements, very specialized, high degree of control ~~X~~ Autoscaling
- **VM Scale Sets (IaaS)** ✓
Auto-scaled workloads for VMs
- **Container Instances (PaaS)** | Test-/development
Simple container hosting, easy to start
- **Kubernetes Service (PaaS)** | Production / deployment / live
Highly scalable and customizable container hosting platform
- **App Services (PaaS)** | Web hosting
Web applications, a lot of enterprise web hosting features, easy to start
- **Functions (PaaS) (Function as a Service) (Serverless)** | Beacons / Small scale program
micro/nano-services, excellent consumption-based pricing, easy to start

THANK YOU!