

# AZ900 - SESSION 1

# TODAY

- First half of the materials
- Some practical questions
- Hopefully some questions :)

# SOME HELPFUL LINKS :

- The study materials
  - Azure portal
- az900 in 3 hours from FreeCodeCamp
  - Whizlabs to train yourself

Sign into docs using your own email

# REGISTERING FOR THE EXAM

## Practical questions #1

[techacademy@ing.com](mailto:techacademy@ing.com)

Please try this to activate the ING account, follow the below steps:

1. Visit <https://esi.microsoft.com>
2. Enter your ING e-mail address
3. Verify your e-mail address by entering your verification code
4. Now connect a private Microsoft account to you ING e-mail address\*\*This ensures you own the certificate after your training
1. Pick a training and start learning!

# STUDY AND THE GROUPS

- Please come and study
  - Please take the exam

# ABOUT THE EXAM

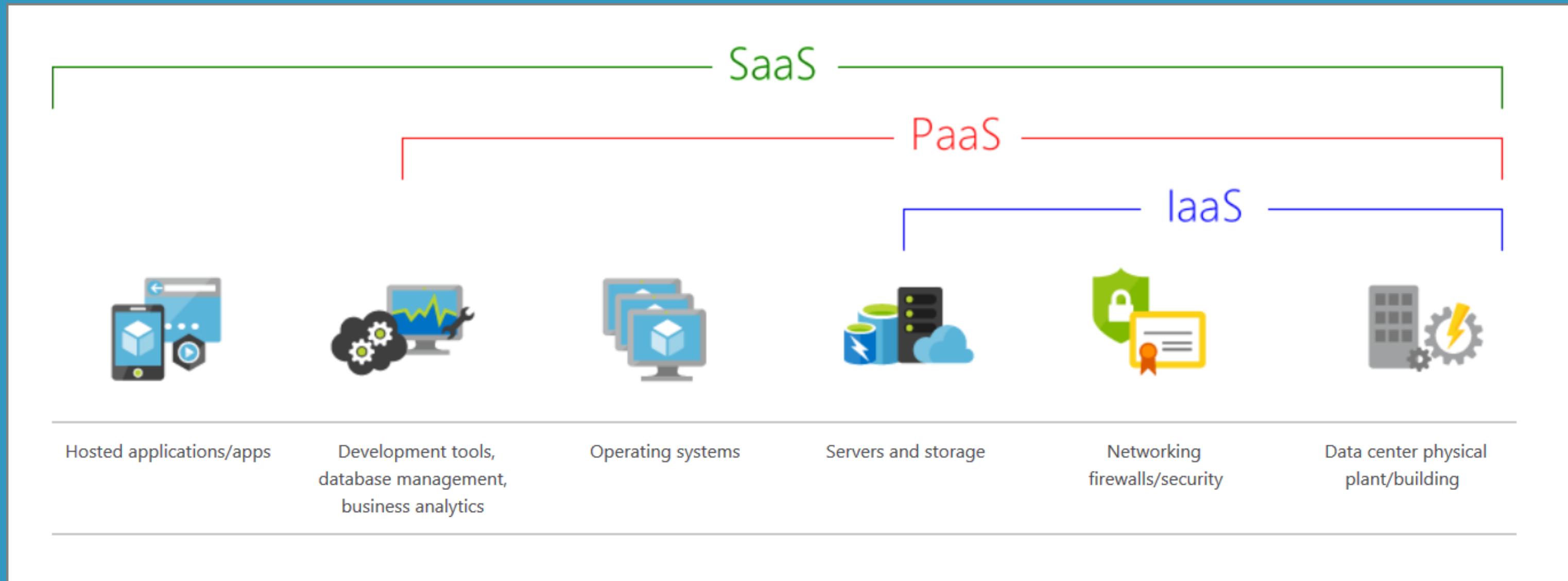
- Use your own laptop if you can
  - Prepare well
- Try out questions and 'frame yourself'

# FOR THE EXAM

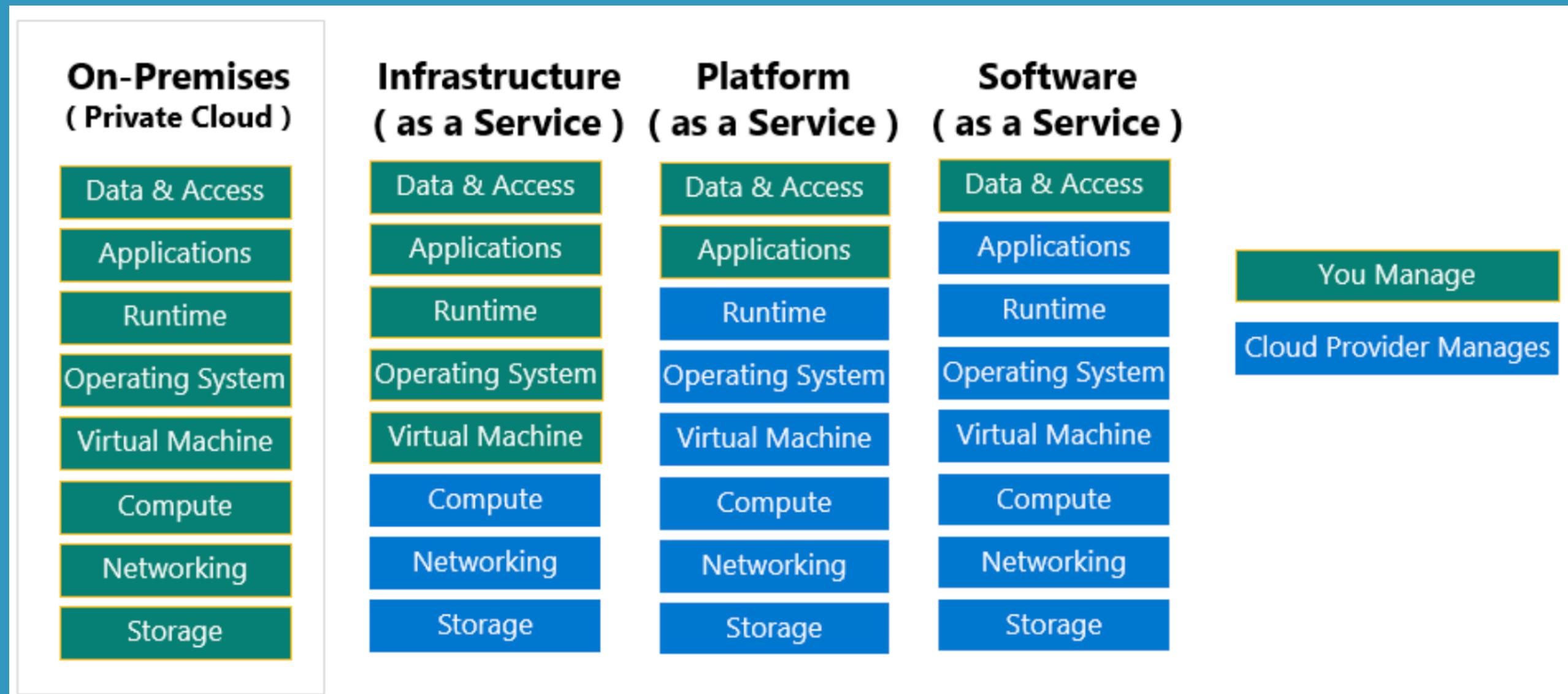
AZ-900 Domain Area	Weight
Describe cloud concepts	20-25%
Describe core Azure services	15-20%
Describe core solutions and management tools on Azure	10-15%
Describe general security and network security features	10-15%
Describe identity, governance, privacy, and compliance features	20-25%
Describe Azure cost management and Service Level Agreements	10-15%

# CLOUD COMPUTING - CORE CONCEPTS

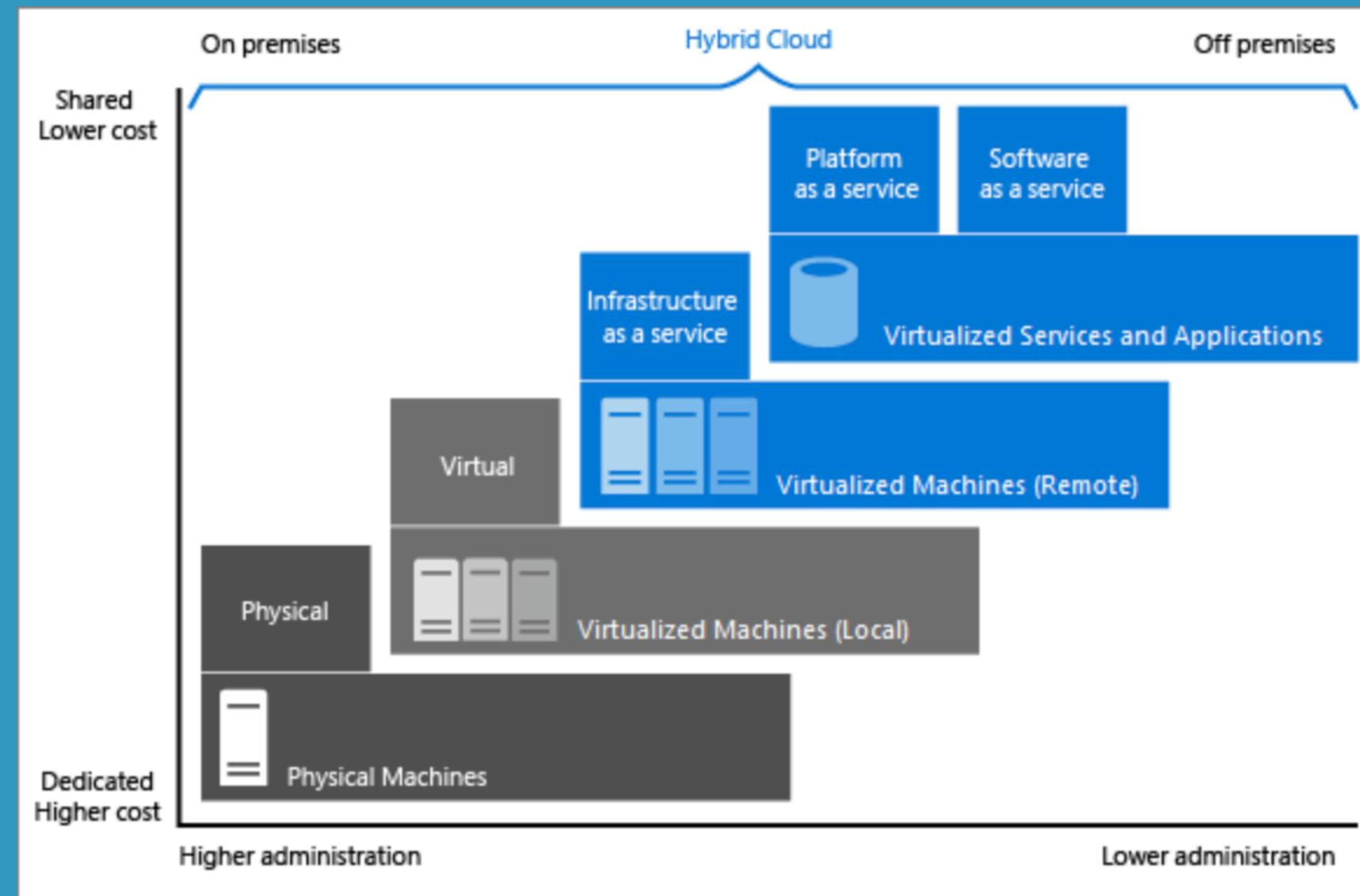
# IAAS, PAAS, SAAS



# IAAS, PAAS, SAAS



# PRIVATE, HYBRID AND PUBLIC CLOUD



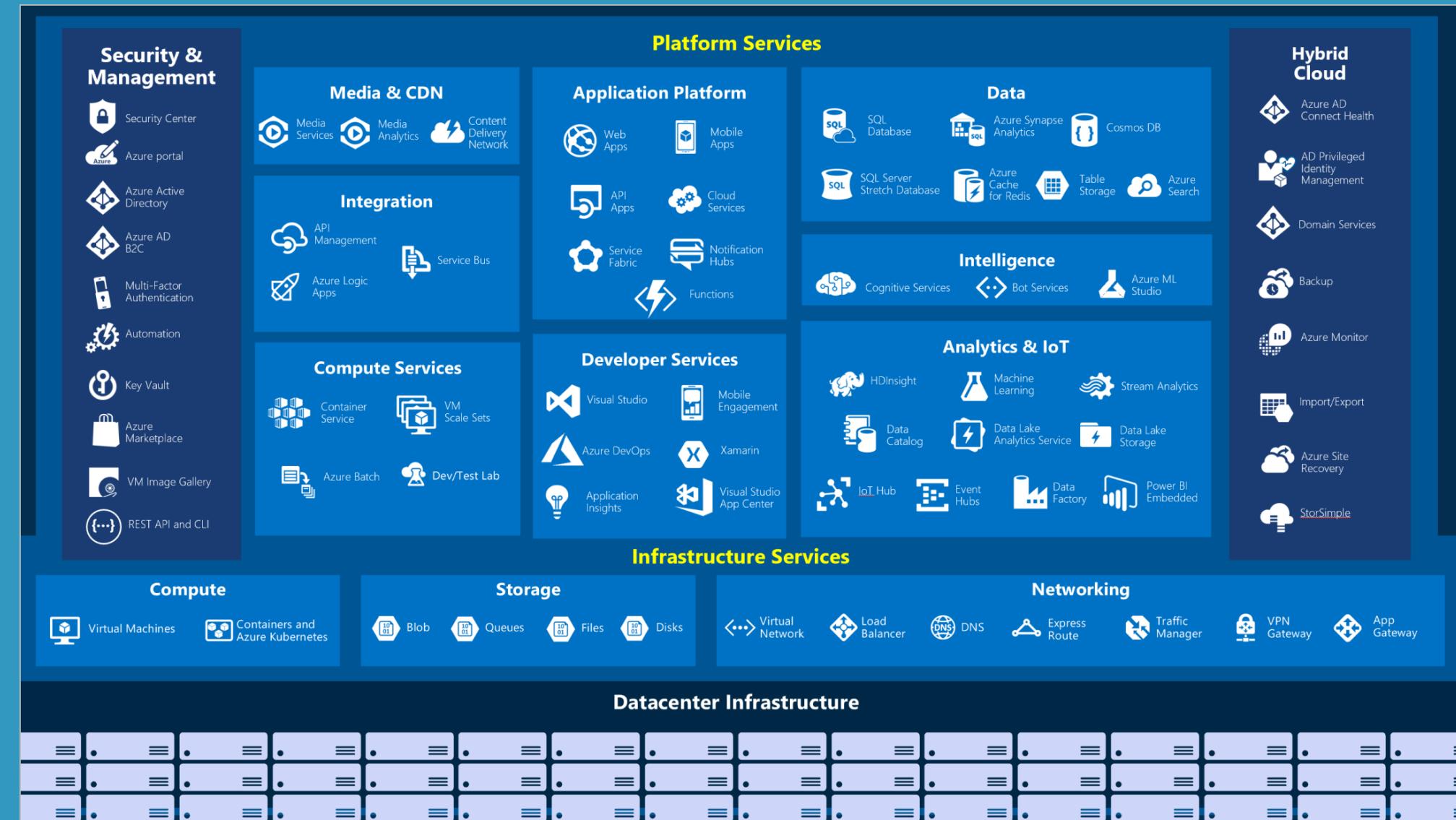
# WHY THE CLOUD

Reliable, Scalable, Elastic, Agile, Geo-Distributed,  
Disaster Recovery

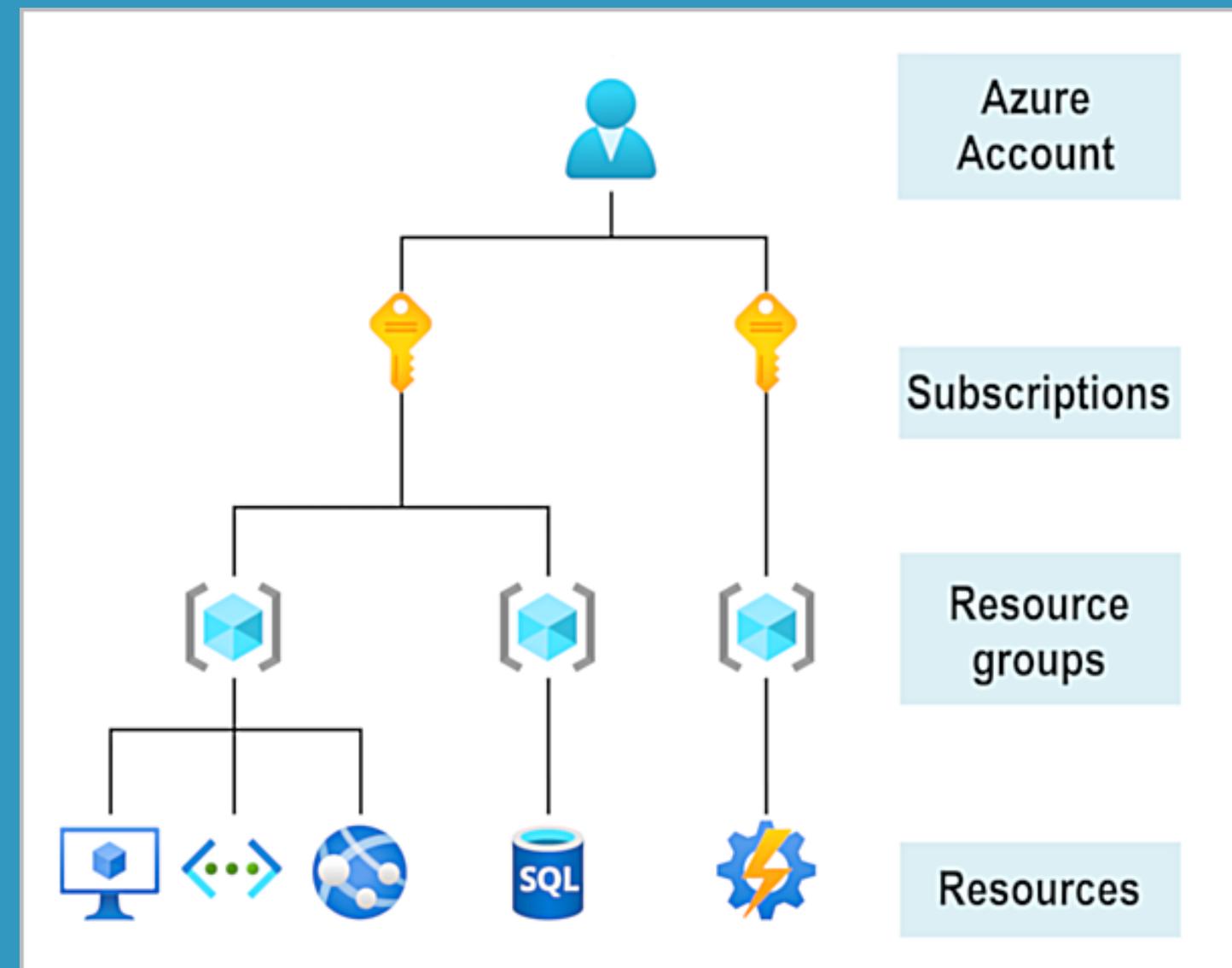
# WHAT IS AZURE

## Azure Portal and Azure Marketplace

# AZURE SERVICES



# AZURE ACCOUNTS



# AZURE CORE SERVICES

# AZURE CORE SERVICES

- Complete Overview

# AZURE CORE SERVICES

- Data
- Compute
- Storage
- Networking

# AZURE DATABASE AND ANALYTICS SERVICES

# AZURE COSMOS DB

- Azure Cosmos DB
  - SchemaLess
  - Flagship product
  - Fully scalable

# AZURE SQL DATABASE

- Microsoft SQL Server
  - PaaS
  - You can migrate

# AZURE SQL DATABASE

- Creating one

# AZURE SQL MANAGED INSTANCE

- Almost SQL Database

# AND MORE

- Azure database for MySQL
- Azure Database for PostgreSQL

# BIG DATA AND ANALYTICS

Lots of stuff, can't move in a DB

- Azure Synapse Analytics (SQL Queries on warehouse, reporting)
- Azure HDInsight (Spark, Hadoop, Kafka AAS)
- Azure Databricks (Specialized Spark with APIs)
- Azure Data Lake Analytics

# AZURE COMPUTE SERVICES

# ALL SERVICES

Everything

General

Compute

Networking

Storage

Web

Mobile

Containers

Databases

Analytics

COMPUTE (28)

	Virtual machines	★
	Virtual machine scale sets	★
	Function App	★
	App Services	★
	Kubernetes services	★
	Availability sets	★
	Disks	★

# ALL SERVICES

- LOL

# VMs AND VM SCALE SETS

- When you need a computer (OS, VPN, software, ...)
  - Deploy multiple similar VMs
  - When you start going hybrid
  - (Azure Batch, super computer like)

# CONTAINERS AND KUBERNETES

- Deploy and manage containers
  - Default if not specified
  - Orchestration, Fast, Reliable, ...
- Container Instances (Docker AAS)
  - AKS k8s AAS

# APP SERVICE

- PAAS
- Enterprise
- Mobile apps, API apps, WebApps, ...
- Glue between services

# FUNCTIONS

- MicroBilling
- Big push in the industry
- Serverless, Infinite scalability, Event driven

# LOGIC APPS

- Also Serverless
  - Connectors
  - Drag and Drop
- No software developers

# VIRTUAL DESKTOP AND LOGIC APPS, ...

- Computer in the cloud
- Drag and Drop for workflows

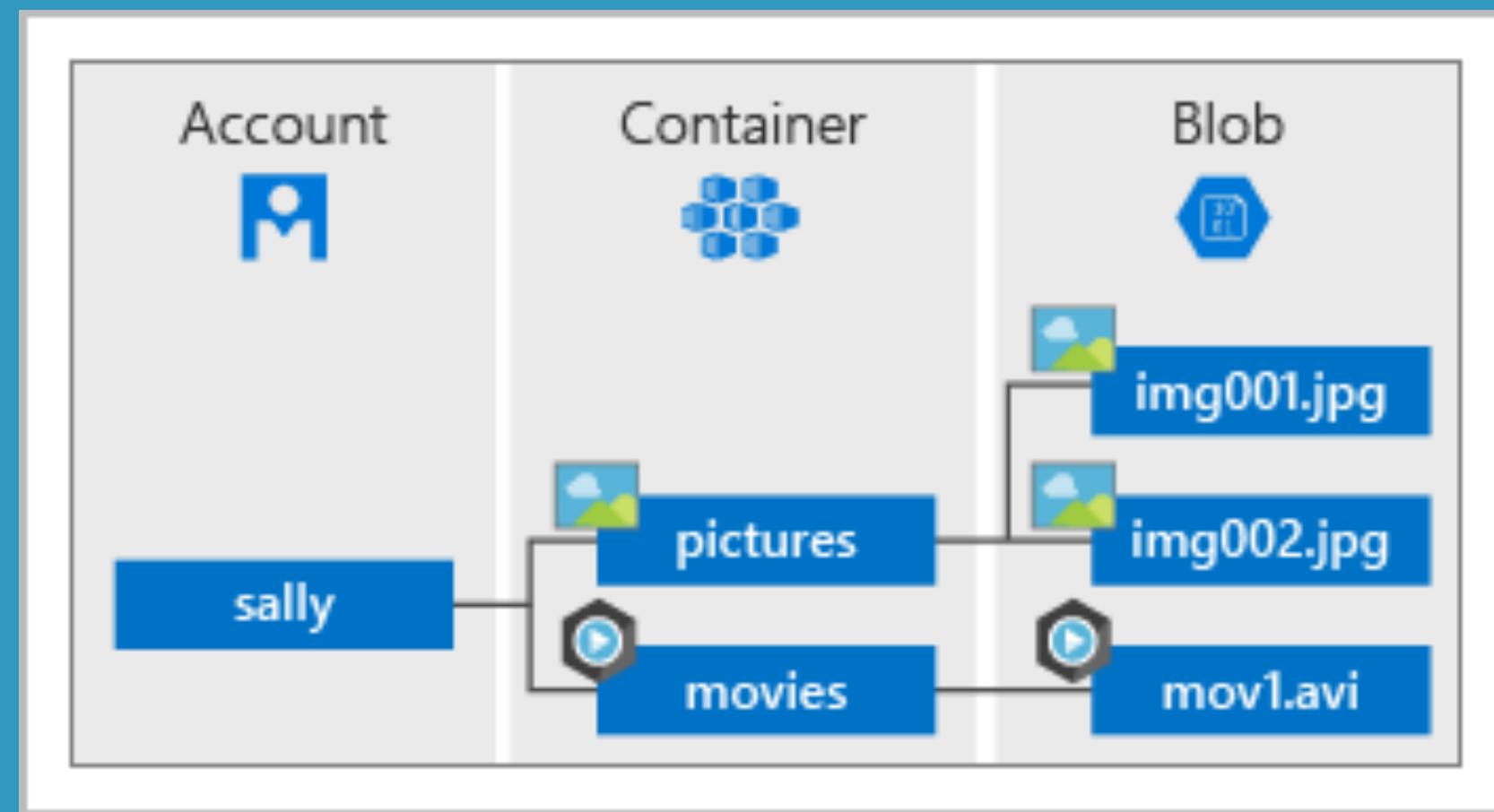
# AZURE STORAGE SERVICES

# TYPES

- Disk Storage (VMs, . . .)
- Blog storage (Video, images, documents, archiving)
- Files (SMB, NFS, Fileshares)

# ABOUT CONTAINERS AND ACCESS TIERS

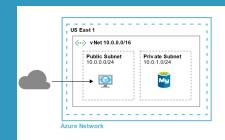
- Hot, Cool (30 days), Archive (180 days)



# AZURE NETWORKING SERVICES

# VIRTUAL NETWORKS

- Separated section of the Azure Network (IP addresses)
  - Resources HAVE to go in a VNet
- you divide VNets into Subnets (IP ranges)
  - Public subnets, private subnets



# VPN AND CONNECTIONS

- Express Route - On prem to cloud connection, with bandwidth
- Azure Connection - VPN to connect two local Az networks

# VPN GATEWAY

- From site to site
- From device to site
- Policy based or route based

# TYPES

- Virtual Networks (Router as a service)
- VPN Gateway (Policy or routing based)

# CORE SOLUTIONS AND MANAGEMENT TOOLS ON AZURE

# AI SOLUTIONS

# TYPES

- Azure Machine Learning -> DIY ML
- Azure Cognitive -> TY Azure, use as API
- Bot Service -> Create automated bots.  
Communication with human

# AZURE MACHINE LEARNING

- Private, historical data
- Special case, not in cognitive

# AZURE COGNITIVE SERVICES



The image shows the Microsoft Cognitive Services landing page. At the top, it says "Microsoft Cognitive Services" and "Give your apps a human side". Below this are six circular icons representing different services: Vision (eye), Speech (speech bubbles), Language (speech bubble), Knowledge (gear), Search (magnifying glass), and Labs (test tube). Below each icon is the service name and some specific features or projects.

Vision	Speech	Language	Knowledge	Search	Labs
Computer Vision	Bing Speech	Bing Spell Check	Academic Knowledge	Bing Autosuggest	Project Prague (gesture)
Content Moderator	Custom Speech Service	Language Understanding	Entity Linking	Bing Image Search	Project Cuzco (events)
Emotion		Linguistic Analysis	Knowledge Exploration	Bing News Search	Project Johannesburg (routing)
Face	Speaker Recognition	Text Analytics	Recommendations	Bing Video Search	Project Nanjing (isochrones)
Video		Translator Text & Speech	QnA Maker	Bing Web Search	Project Abu Dhabi (distance matrix)
Video Indexer		Web Language Model	Custom Decision Service	Bing Custom Search	Project Wollongong (location)
Custom Vision Service					

# AZURE DEVOPS

# AZURE DEVOPS

## Azure DevOps Services

Azure DevOps Services is a suite of services that address every stage of the software development lifecycle.

- **Azure Repos** is a centralized source-code repository where software development, DevOps engineering, and documentation professionals can publish their code for review and collaboration.
- **Azure Boards** is an agile project management suite that includes Kanban boards, reporting, and tracking ideas and work from high-level epics to work items and issues.
- **Azure Pipelines** is a CI/CD pipeline automation tool.
- **Azure Artifacts** is a repository for hosting artifacts, such as compiled source code, which can be fed into testing or deployment pipeline steps.
- **Azure Test Plans** is an automated test tool that can be used in a CI/CD pipeline to ensure quality before a software release.

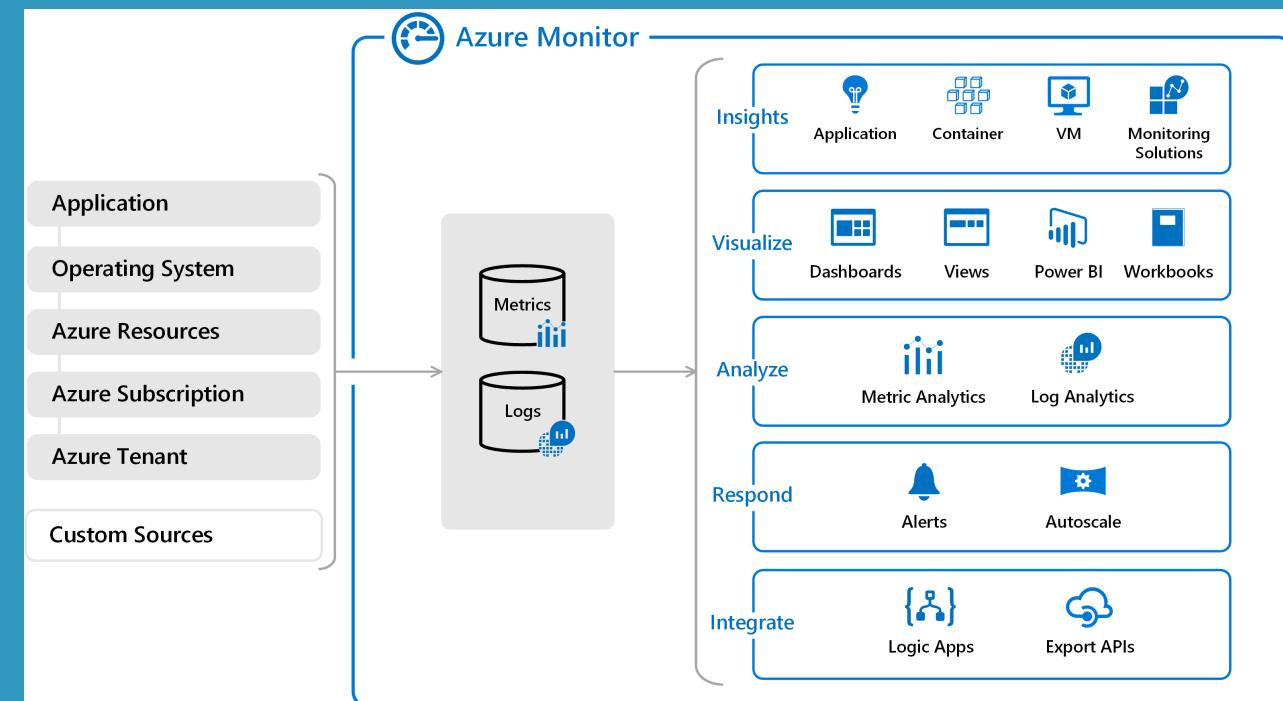
# MONITORING SERVICES

# AZURE ADVISOR

- Advisor
- Improve your reliability, costs, performance, security

# AZURE MONITOR

- Monitor
- Metrics and Logging, Alerting



# AZURE SERVICE HEALTH

- Service Health
- Actual Azure outages, maintenance, ... Is the problem on my hand?

# MANAGING AND CONFIGURING AZURE

# OPTIONS

- Portal - Visually understand
- PowerShell / CLI - One off operations
- (Mobile) App - Monitor quickly, on the go
- ARM Templates - Repetitive tasks (Infra as code)

# IOT SERVICES

# IOT SERVICES

- IOT Hub - Managed central comm. hub
- IOT Central - dashboards, manage IOT devices (UI, templates)
- Sphere - Create secure IOT solutions.  
Specialized OS



# FOR NOW

# LET'S HAVE SOME FUN

You want to build an application that would have some basic level of Artificial intelligent modules. You don't have the required Artificial Intelligence skills. Which of the following can you still use to build these applications?

- A. Azure Machine Learning Studio
- B. Azure Cognitive Services
- C. Azure HDInsights
- D. Azure Functions

A company has just set up an Azure account. The developers want to use a service that would easily allow them to do the following.

- Create Virtual machines from pre-created custom images that have all the software and tools already installed.
- Set auto-shutdown and auto-start schedules on Virtual Machines.

Which of the following service could they use for this requirement?

- A. Azure DevTest Labs
- B. Azure DevOps
- C. Azure Logic Apps
- D. Azure Functions

You are planning to use the IoT Hub service in Azure. Does this service allow for communication from a device to the cloud and from the cloud to the device?

- A. Yes
- B. No

A company wants to deploy small pieces of code onto Azure. They want to cut the costs for hosting the code. Which of the following could they consider for hosting the code?

- A. Azure Virtual Machines
- B. Azure Batch service
- C. Azure Functions
- D. Azure Logic Apps

You want to deploy a virtual machine scale set to Azure. Could you deploy the scale set using the Azure command-line interface?

- A. Yes
- B. No

A company is planning to set a Microservices based application onto Azure. They want to use a service that could be used to orchestrate the deployment of container-based applications. Which of the following could be used for this purpose?

- A. Azure Functions
- B. Azure Kubernetes
- C. Azure Logic Apps
- D. Azure SQL Database

A company has just set up an Azure subscription and an Azure tenant. The company is exploring the different compute options available in Azure. Which of the following is NOT a compute option available in Azure?

- A. Azure Container Instances
- B. Azure Functions
- C. Azure SQL database
- D. Azure App Service

You want to create a virtual machine in Azure. You need to allocate around 30 GB of storage for the virtual machine. Which of the following disk would you use for this purpose?

- A. The OS disk
- B. A new data disk
- C. The temporary disk
- D. The local disk

Your company has a set of resources defined as part of a subscription. If they delete a resource group, would the resources in the resource group also get deleted?

- A. Yes
- B. No

Your company has a set of resources and resource groups defined as part of a subscription. Can you nest resource groups in Azure?

- A. Yes
- B. No

A company wants to create an Azure virtual machine as part of their subscription. Can the Azure virtual machine be a part of multiple resource groups?

- A. Yes
- B. No

Which of the following is the responsibility of the customer?

- A. Maintaining the underlying physical servers
- B. Security of data hosted on Azure virtual machines
- C. Uptime of the Virtual Machine service
- D. Cooling in the data center

Which of the following service falls under the category of serverless computing?

- A. Azure virtual machines
- B. Azure SQL database – Elastic pool
- C. Azure Functions
- D. Availability sets

Your company is planning on hosting resources using Azure services. You have to decide on the right service to use for the desired requirement. Which of the following would you use for the following requirement?  
“Provide the ability to host a private network in Azure”

- A. Azure App Service
- B. Azure Kubernetes
- C. Windows Virtual Desktop
- D. Azure Virtual Network

Your company is planning on hosting resources using Azure services. You have to decide on the right service to use for the desired requirement. Which of the following would you use for the following requirement?  
"Provide the ability to deploy and orchestrate container-based applications"

- A. Azure App Service
- B. Azure Kubernetes
- C. Windows Virtual Desktop
- D. Azure Virtual Network

Your company is planning on hosting resources using Azure services. You have to decide on the right service to use for the desired requirement. Which of the following would you use for the following requirement?  
“Provide the ability to host web-based applications. The platform should provide the ability to host applications based on different programming frameworks”

- A. Azure App Service
- B. Azure Kubernetes
- C. Windows Virtual Desktop
- D. Azure Virtual Network

Your company is planning on hosting resources using Azure services. You have to decide on the right service to use for the desired requirement. Which of the following would you use for the following requirement? "Provide an environment for desktop and application virtualization"

- A. Azure App Service
- B. Azure Kubernetes
- C. Windows Virtual Desktop
- D. Azure Virtual Network