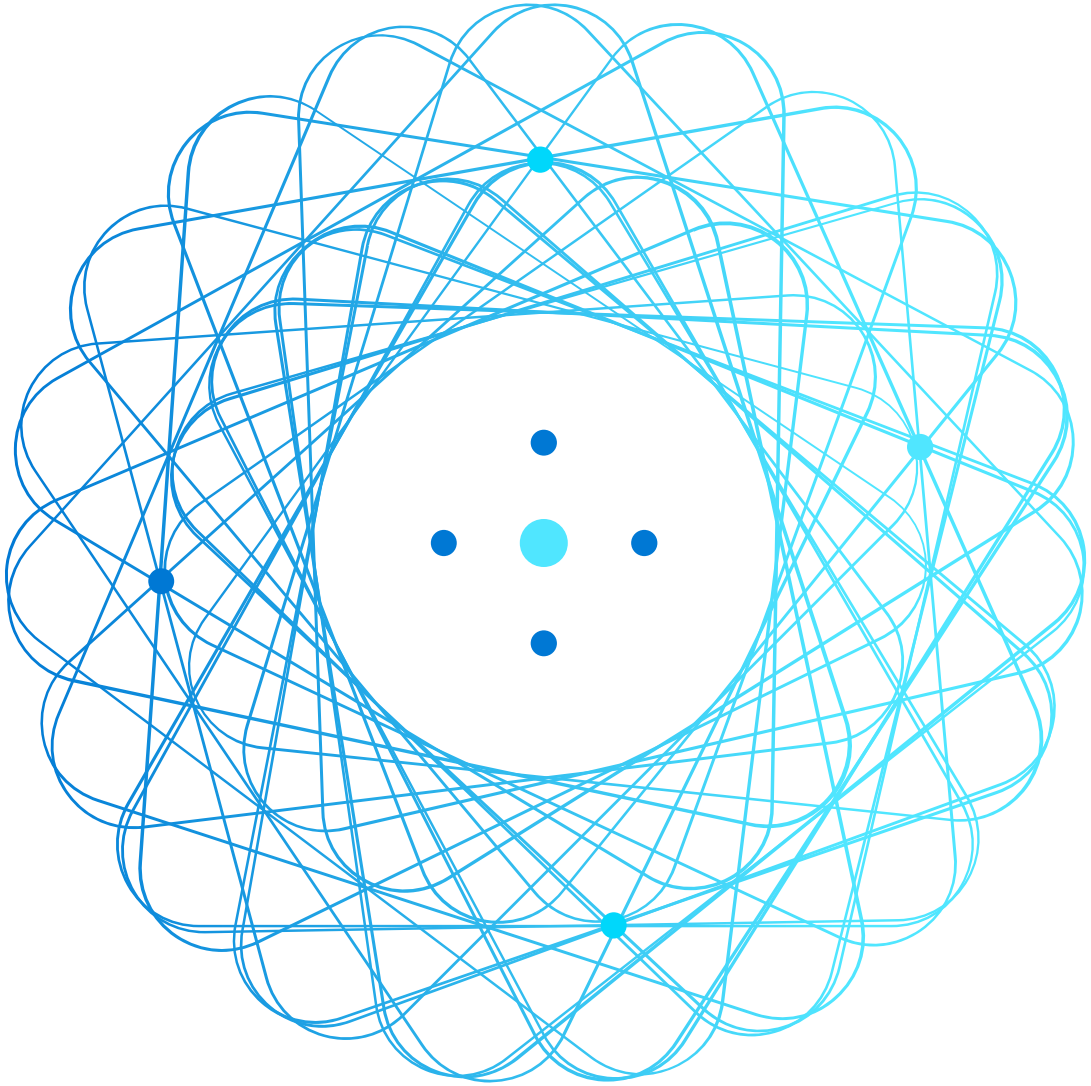
Microsoft Azure

AZ-900

Learning Path 01: Cloud concepts



*aaS
SaaS
PaaS
IaaS

public
private
hybrid

Cloud

Learning Path Outline

Cost

Learning Path 01 - Outline

You will learn the following concepts:

- **Cloud Computing**
  - What is cloud computing
  - Shared responsibility
  - Cloud models
  - Capital vs Operational costing
- **Cloud Benefits**
  - Benefits of the cloud
- **Cloud Service Types**
  - IaaS, PaaS, and SaaS

AWS

Azure

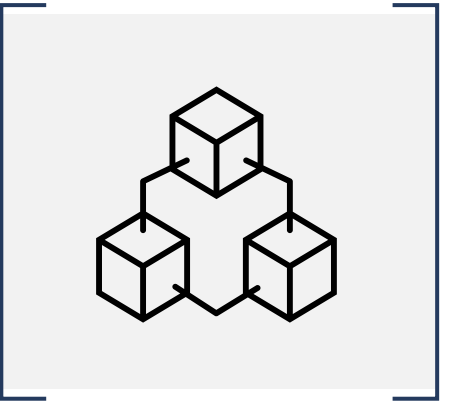
GCP

IBM

2011 Windows Azure

ab 2013 Azure ARM

Cloud Computing



Alibaba?

"Cloud"

NIST 2011

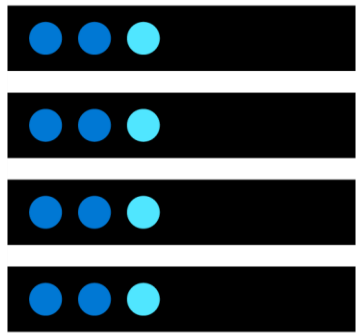
Cloud computing - Objective Domain

- Define cloud computing
- Describe the shared responsibility model
- Define cloud models, including public, private, and hybrid
- Identify appropriate use cases for each cloud model
- Describe the consumption-based model
- Compare cloud pricing models

What is cloud computing?

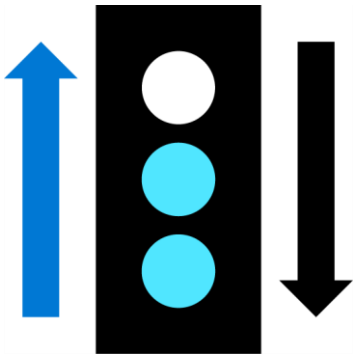
ARM API
Azure Portal
Powershell
Azure CLI
Template
json
Bicep

Cloud Computing is the delivery of computing services over the internet, enabling faster innovation, flexible resources, and economies of scale.



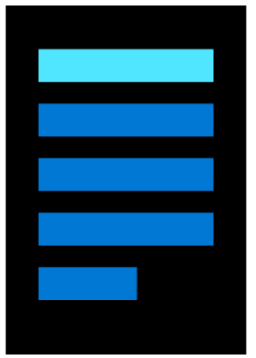
Compute

VM



Networking

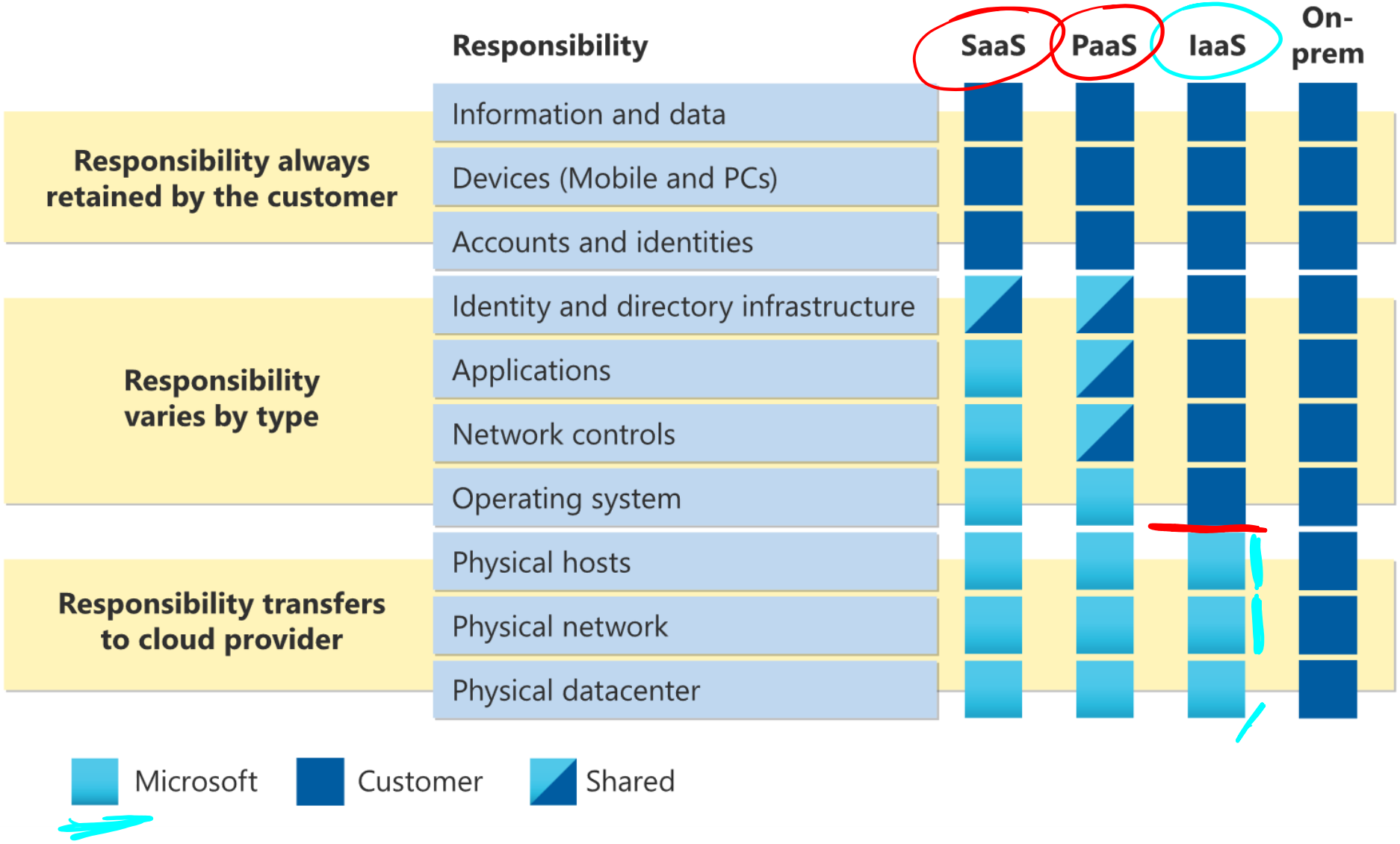
VNet
TCP/IP



Storage

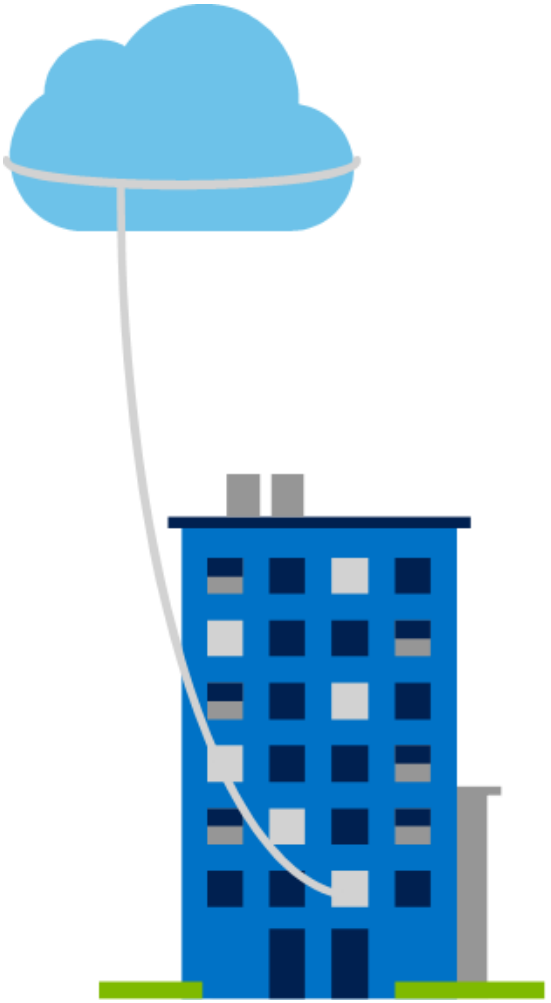
DB

Shared responsibility model



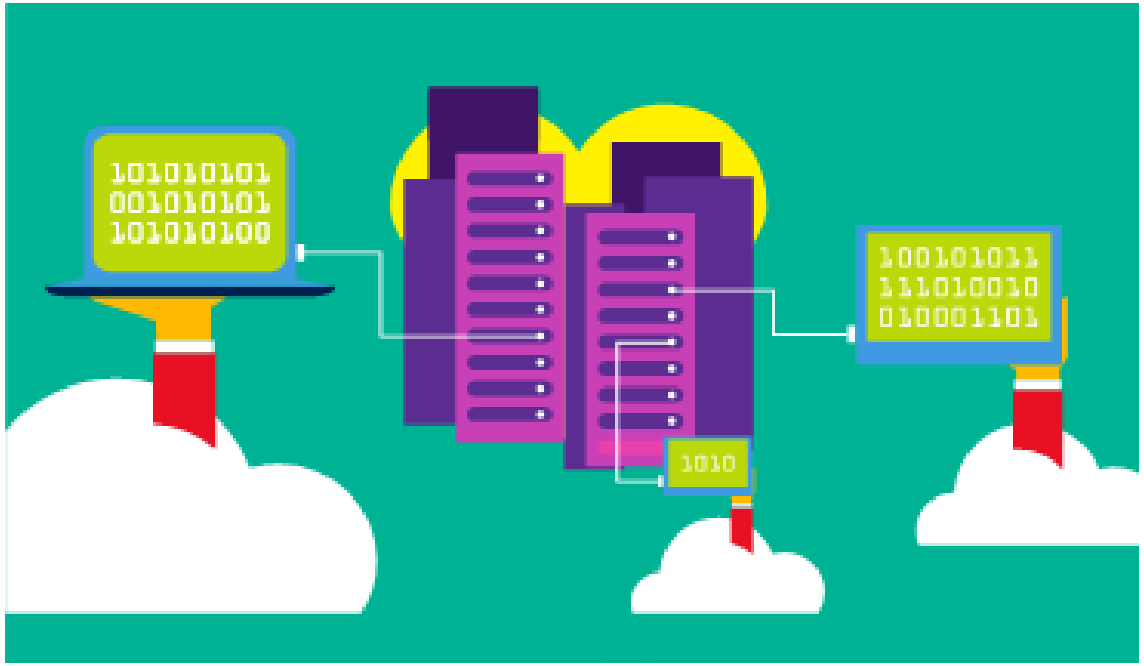
Private cloud = On Prem

- Organizations create a cloud environment in their datacenter.
- Organization is responsible for operating the services they provide.
- Does not provide access to users outside of the organization.

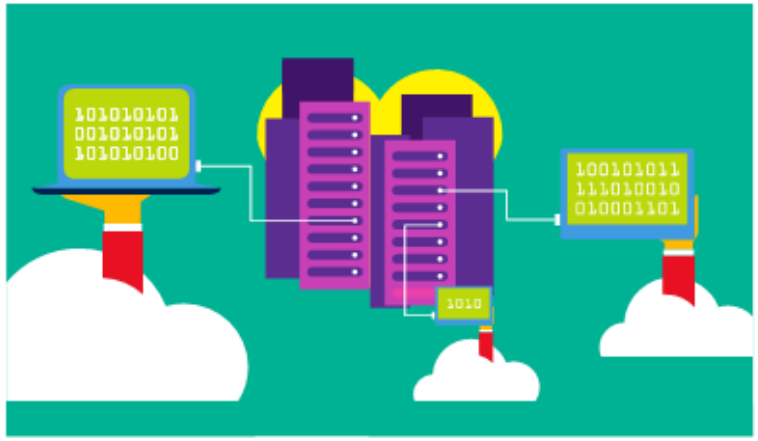


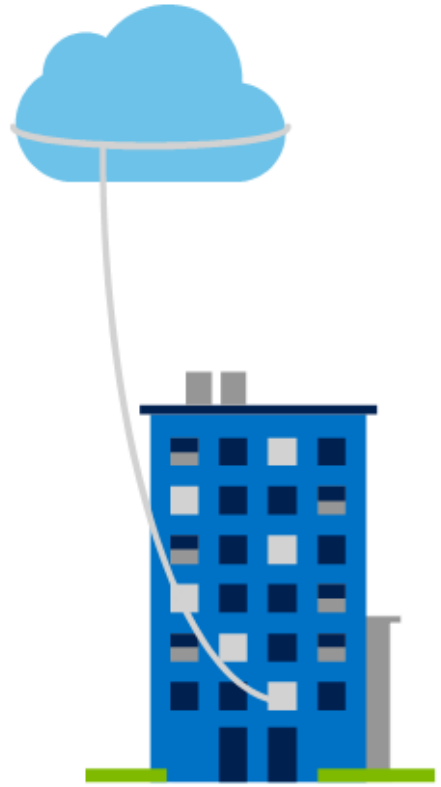
Public cloud

- Owned by cloud services or hosting provider.
- Provides resources and services to multiple organizations and users.
- Accessed via secure network connection (typically over the internet).



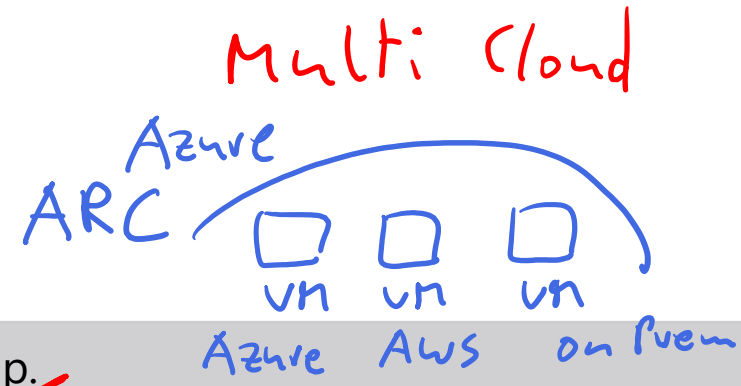
Hybrid cloud





Combines **Public** and **Private** clouds to allow applications to run in the most appropriate location.

Cloud model comparison



Public Cloud	• No capital expenditures to scale up. • Applications can be quickly provisioned and deprovisioned. • Organizations pay only for what they use.
Private Cloud	• Hardware must be purchased for start-up and maintenance. • Organizations have complete control over resources and security. • Organizations are responsible for hardware maintenance and updates.
Hybrid Cloud	• Provides the most flexibility. • Organizations determine where to run their applications. • Organizations control security, compliance, or legal requirements.

Sovereign Cloud

Compare CapEx vs. OpEx

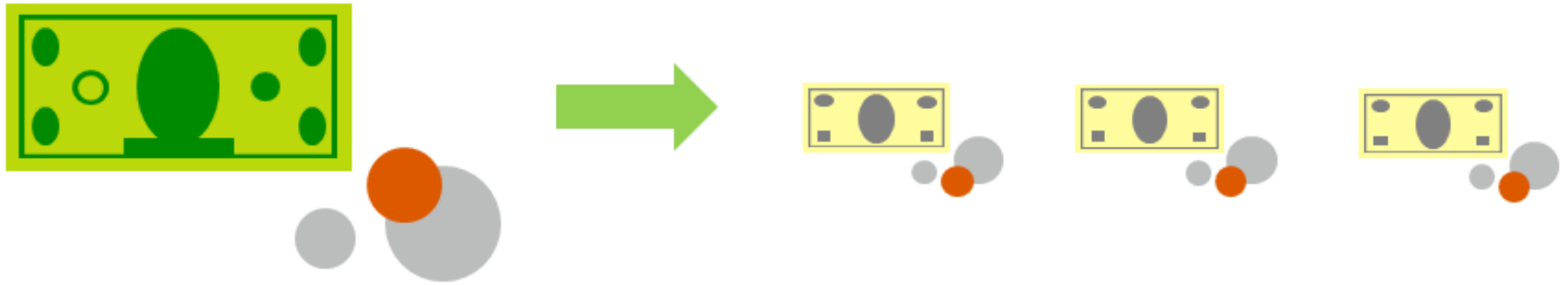
Capital Expenditure (CapEx)

- The up-front spending of money on physical infrastructure.
- Costs from CapEx have a value that reduces over time.

Operational Expenditure (OpEx)

- Spend on products and services as needed, pay-as-you-go
- Get billed immediately

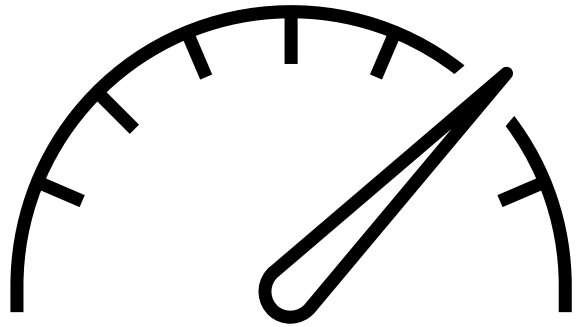
Cost



Consumption-based model

Cloud service providers operate on a consumption-based model, which means that end users only pay for the resources that they use. Whatever they use is what they pay for.

- Better cost prediction
- Prices for individual resources and services are provided
- Billing is based on actual usage



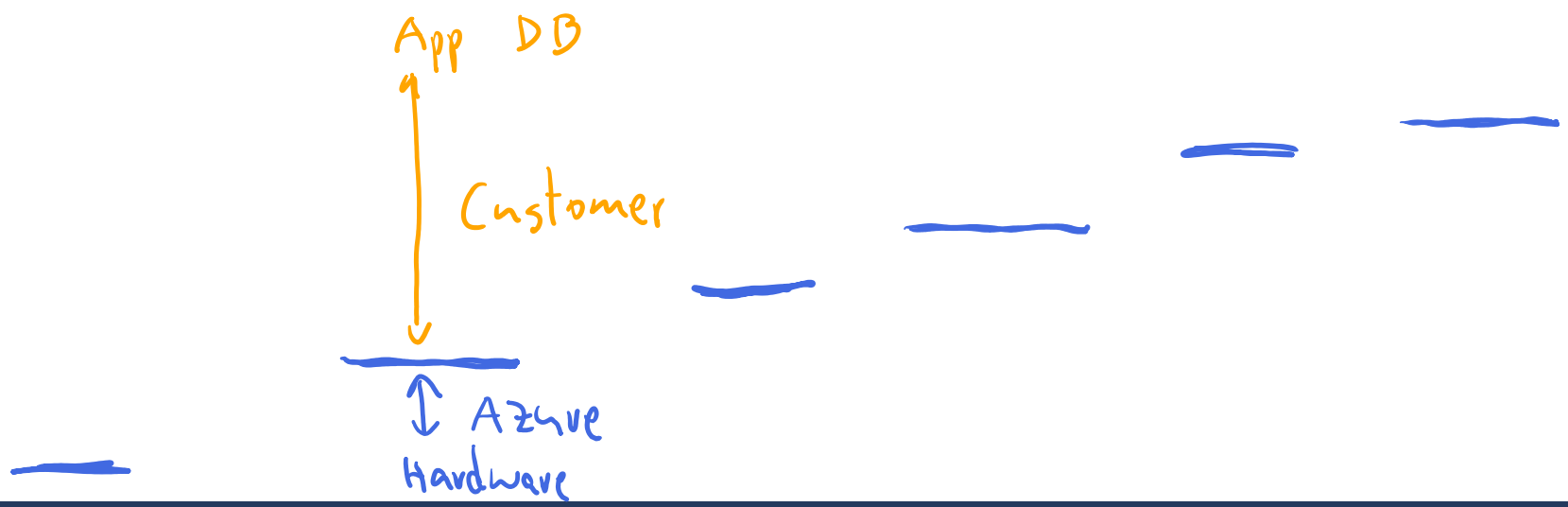
Cloud benefits

Cloud Benefits - Objective Domain

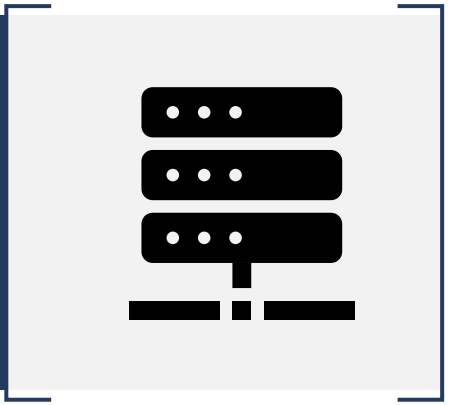
- Describe the benefits of high availability and scalability in the cloud.
- Describe the benefits of reliability and predictability in the cloud.
- Describe the benefits of security and governance in the cloud.
- Describe the benefits of manageability in the cloud.

Cloud Benefits

- High availability
- Elasticity
- Scalability
- Reliability
- Predictability
- Security
- Governance
- Manageability



Cloud service types



CaaS

Docker container ACI

Azure Functions

OnPrem IaaS PaaS SaaS

Portal M365 EXO

VM

VM

App

App Service

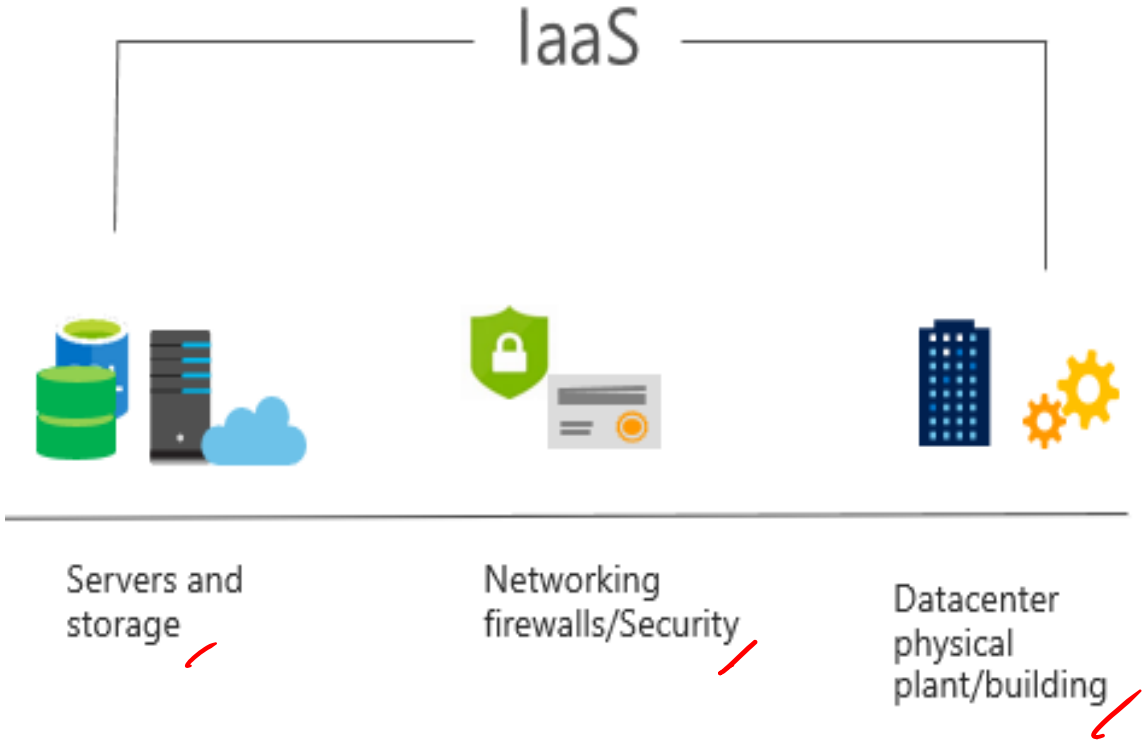
Java JS .Net Python Ruby Go

Cloud Services - Objective Domain

- Describe Infrastructure as a Service (IaaS)
- Describe Platform as a Service (PaaS)
- Describe Software as a Service (SaaS)
- Identify appropriate use cases for each cloud service (IaaS, PaaS, SaaS)

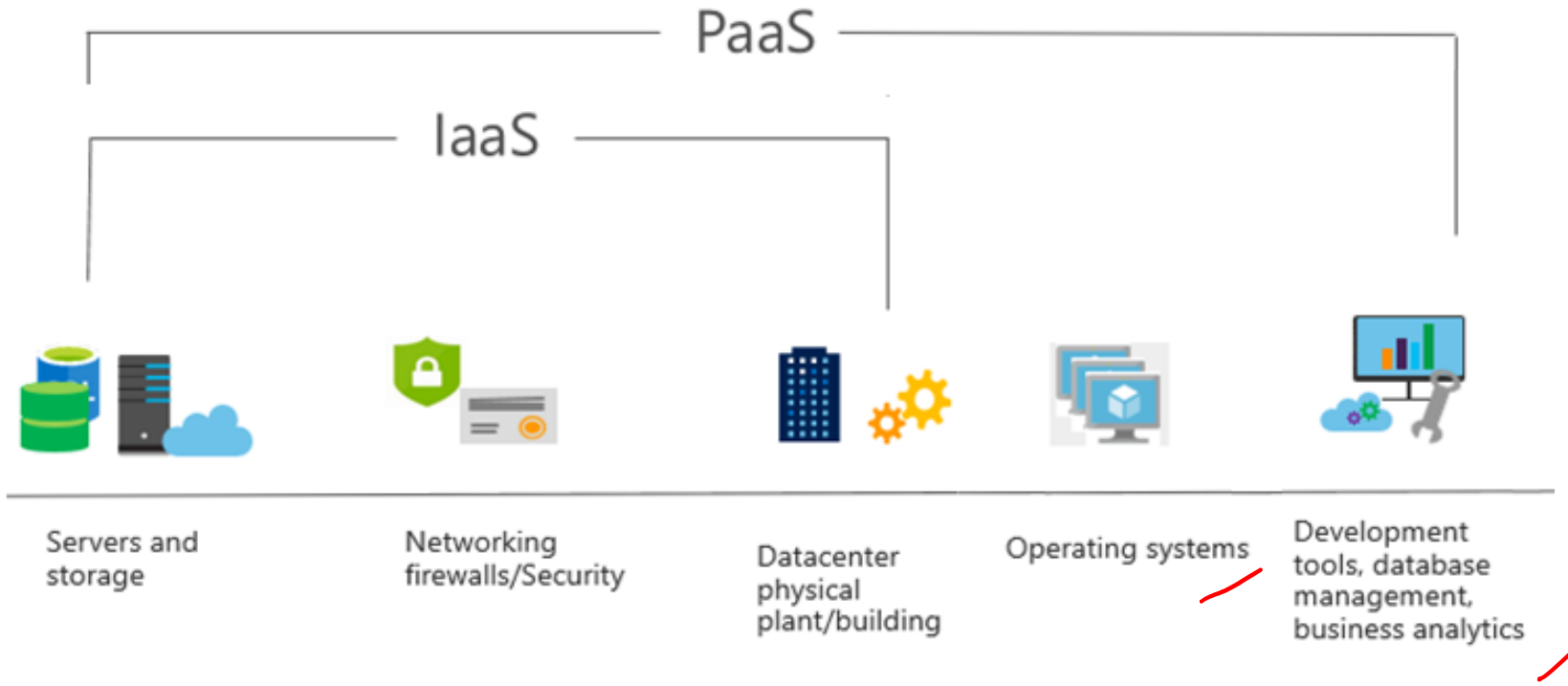
Infrastructure as a Service (IaaS)

Build pay-as-you-go IT infrastructure by renting servers, virtual machines, storage, networks, and operating systems from a cloud provider.



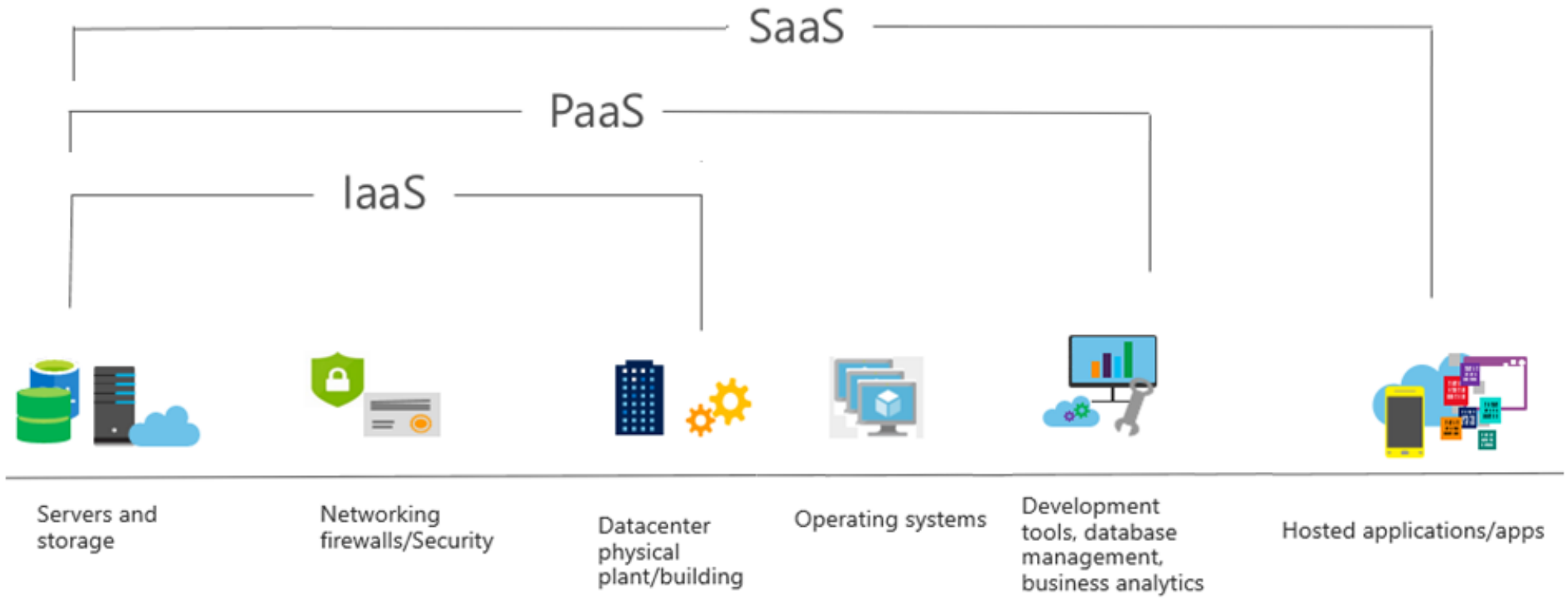
Platform as a Service (PaaS)

Provides environment for building, testing, and deploying software applications; without focusing on managing underlying infrastructure.



Software as a Service (SaaS)

Users connect to and use cloud-based apps over the internet: for example, Microsoft Office 365, email, and calendars.



Cloud service comparison

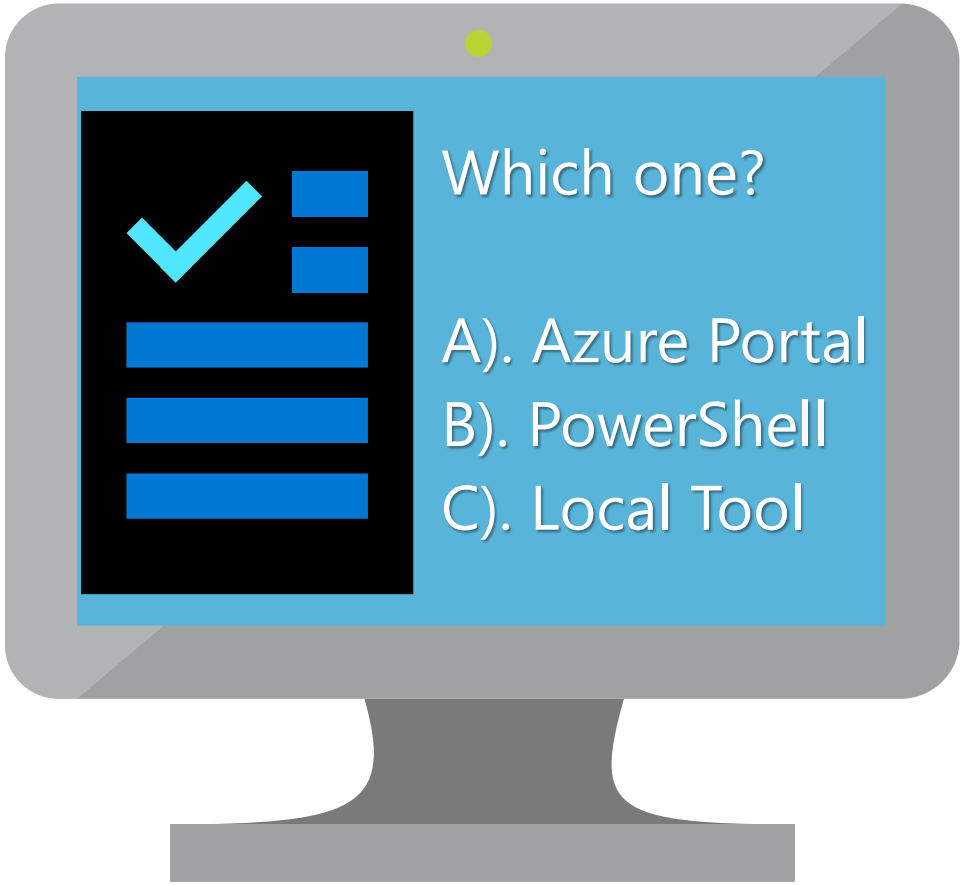
IaaS	PaaS	SaaS
The most flexible cloud service.	Focus on application development.	Pay-as-you-go pricing model.
You configure and manage the hardware for your application.	Platform management is handled by the cloud provider.	Users pay for the software they use on a subscription model.

Knowledge Check

Populate with instructions to use the polling tool of your choice

Learning Path 1

1. Use your Smartphones or Mobile Devices
2. Go to *(insert polling app link of your choice)*
3. Enter Code: 123-45-678
4. Please participate in the quiz for this section



Learning Path 01 Review

Microsoft Learn Modules
(docs.microsoft.com/Learn)

- The shared responsibility model
- Public, private, and hybrid-cloud
- Benefits of cloud computing
- Cloud service types