

# AZ-900

## Learning path 01: Cloud concepts



# Learning path 01—outline

You will learn the following concepts:

## 1 Cloud computing

- What is cloud computing
- Shared responsibility
- Cloud models
- Capital vs operational costing

## 2 Cloud benefits

- Benefits of the cloud

## 3 Cloud service types

- IaaS, PaaS, and SaaS

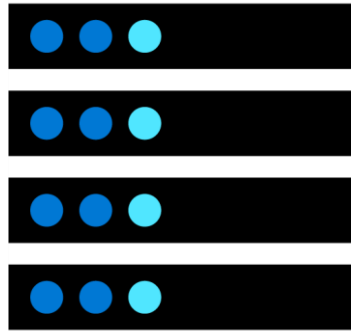


# Cloud computing

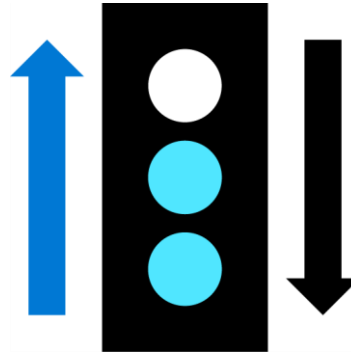


# What is cloud computing?

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



Compute



Networking



Storage

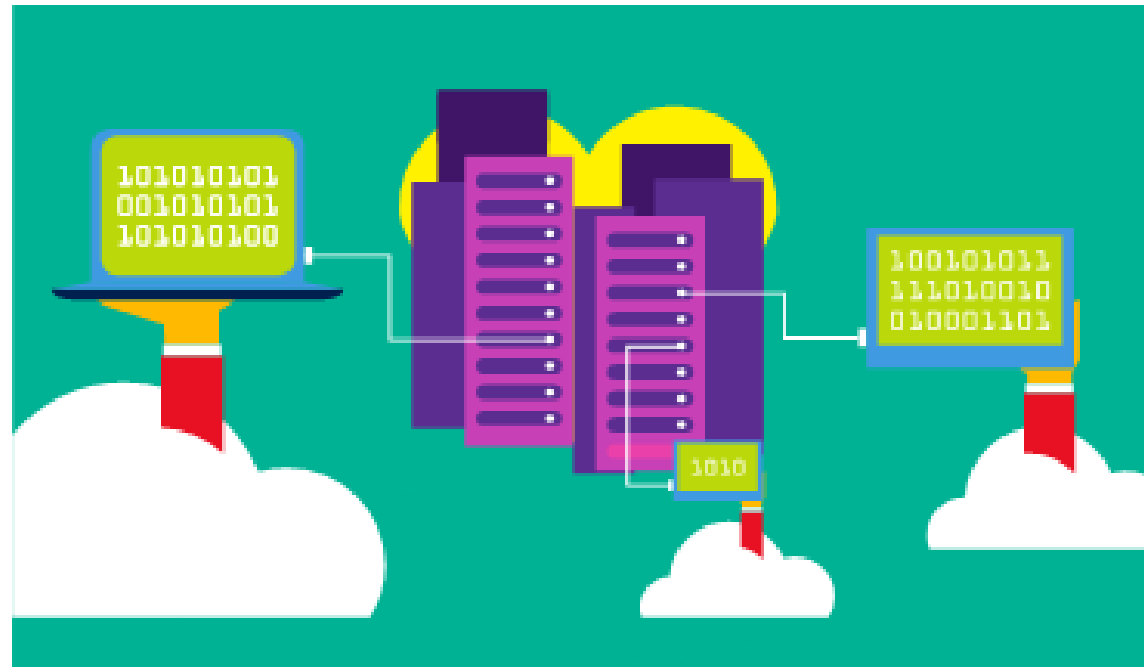
# Private cloud

- Organizations create a cloud environment in their datacenter.
- Organizations are 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.



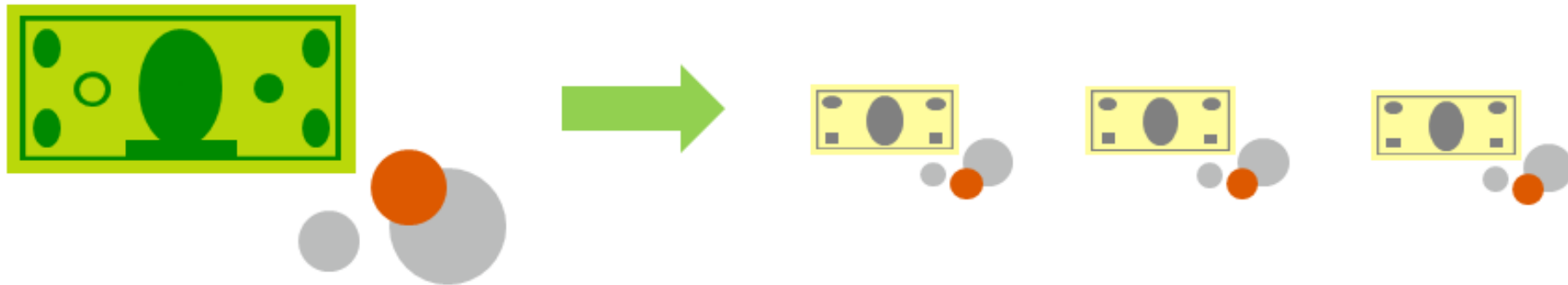
# Compare CapEx vs. OpEx

## Capital expenditure (CapEx)

- The upfront 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.



# 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.

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

# Cloud benefits



# Cloud benefits

**High availability**

**Elasticity**

**Scalability**

**Reliability**

**Predictability**

**Security**

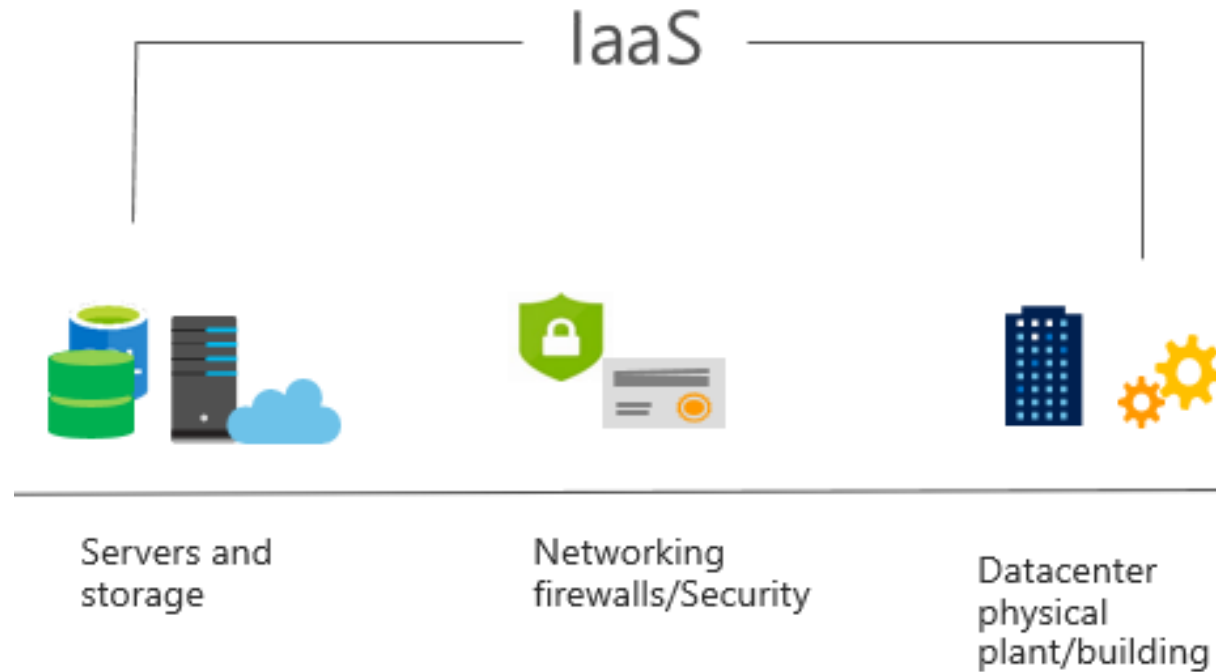
**Governance**

**Manageability**

# Cloud service types

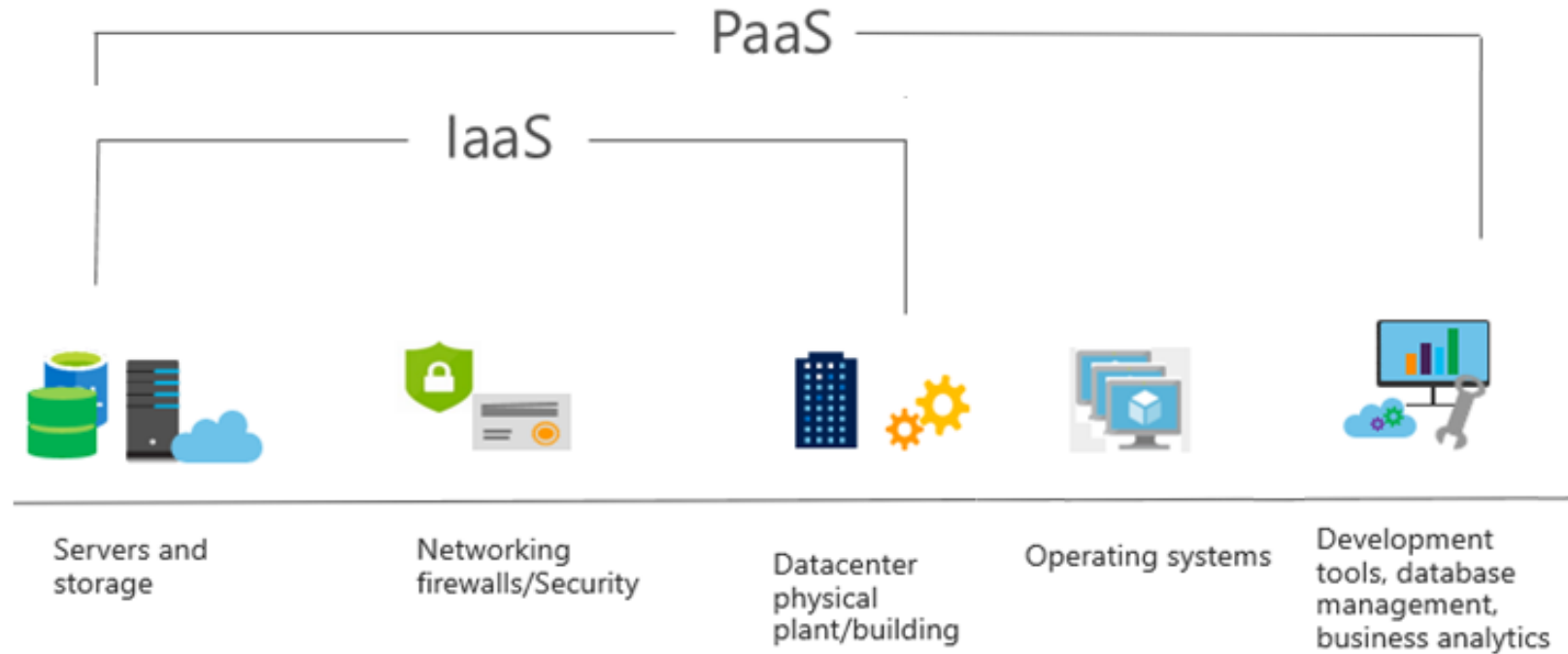


# Infrastructure as a service (IaaS)



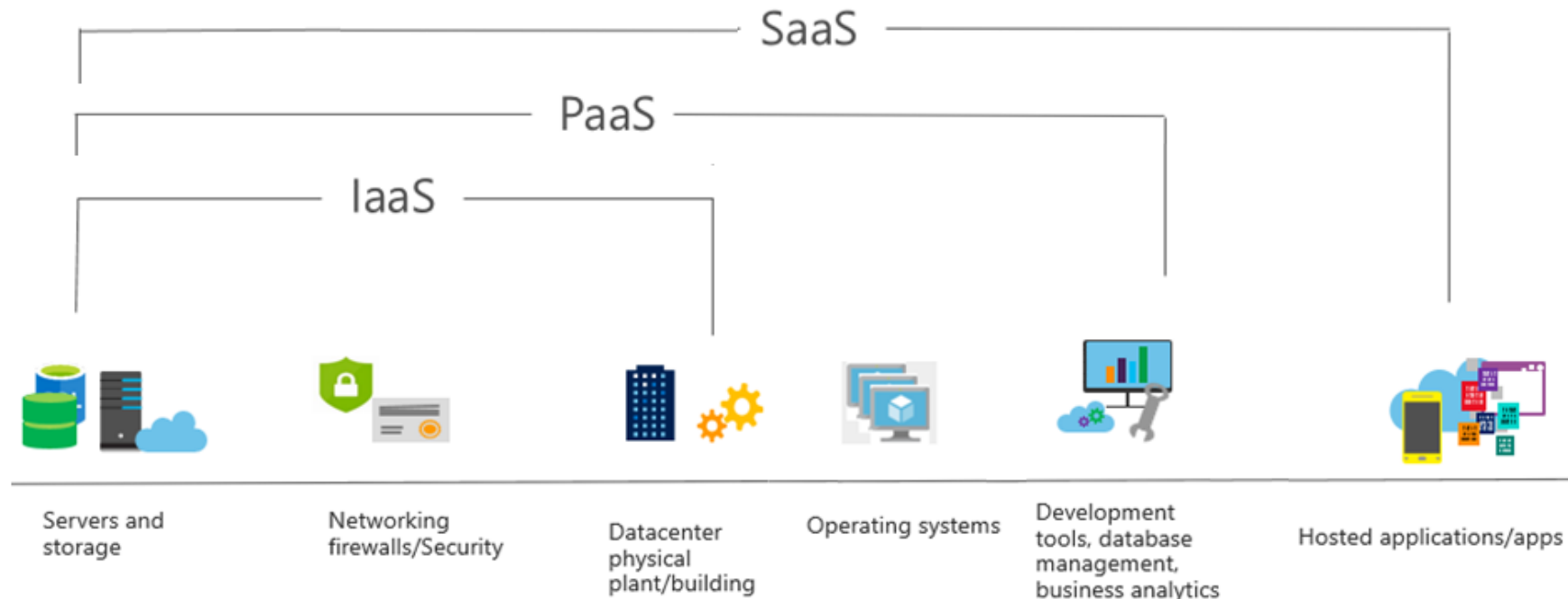
Build pay-as-you-go IT infrastructure by renting servers, virtual machines, storage, networks, and operating systems from a cloud provider.

# Platform as a service (PaaS)



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

# Software as a service (SaaS)

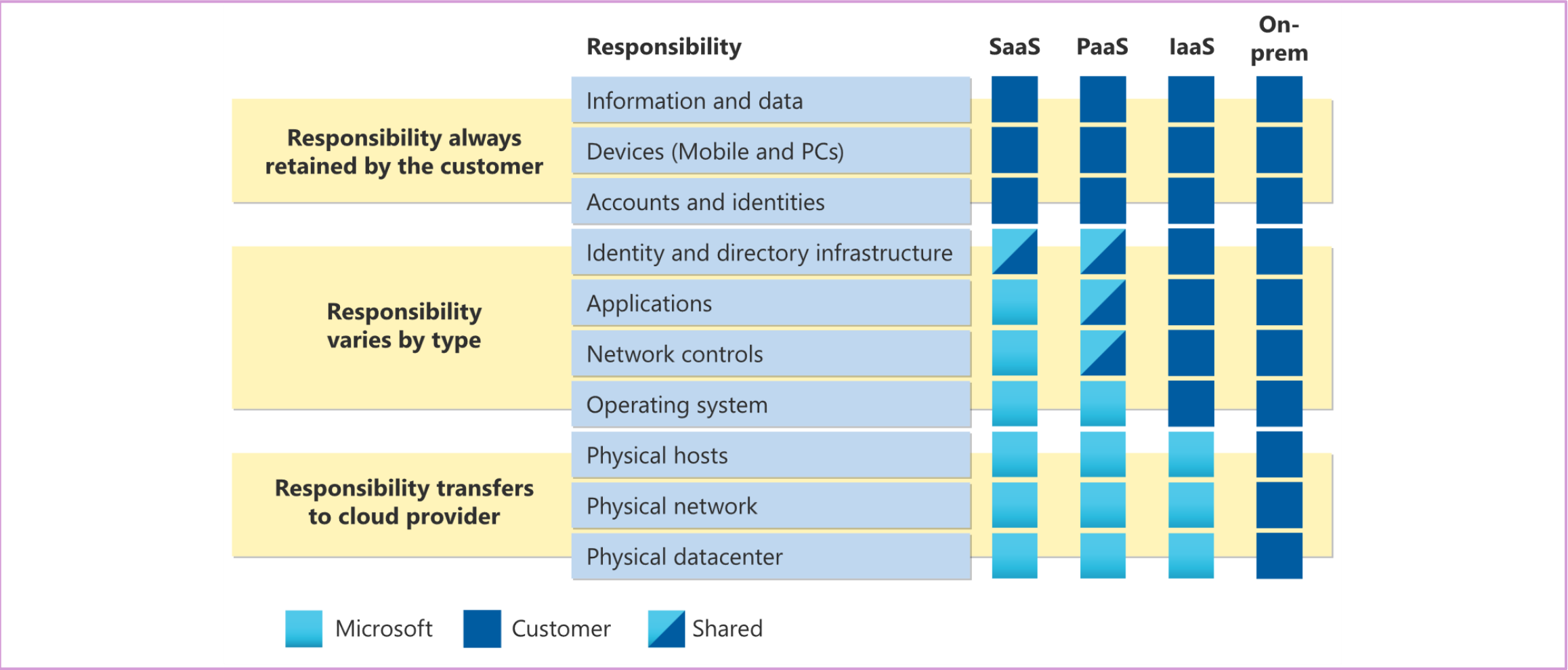


Users connect to and use cloud-based apps over the internet: for example, Microsoft Office 365, email, and calendars.



# Shared responsibility model

← Trend



# Cloud service comparison

## IaaS

- The most flexible cloud service.
- You configure and manage the hardware for your application.

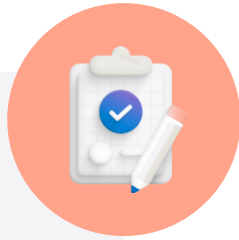
## PaaS

- Focus on application development.
- Platform management is handled by the cloud provider.

## SaaS

- Pay-as-you-go pricing model.
- Users pay for the software they use on a subscription model.

# Learning path 01 review



## Microsoft Learn Modules ([learn.microsoft.com/training](https://learn.microsoft.com/training))

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