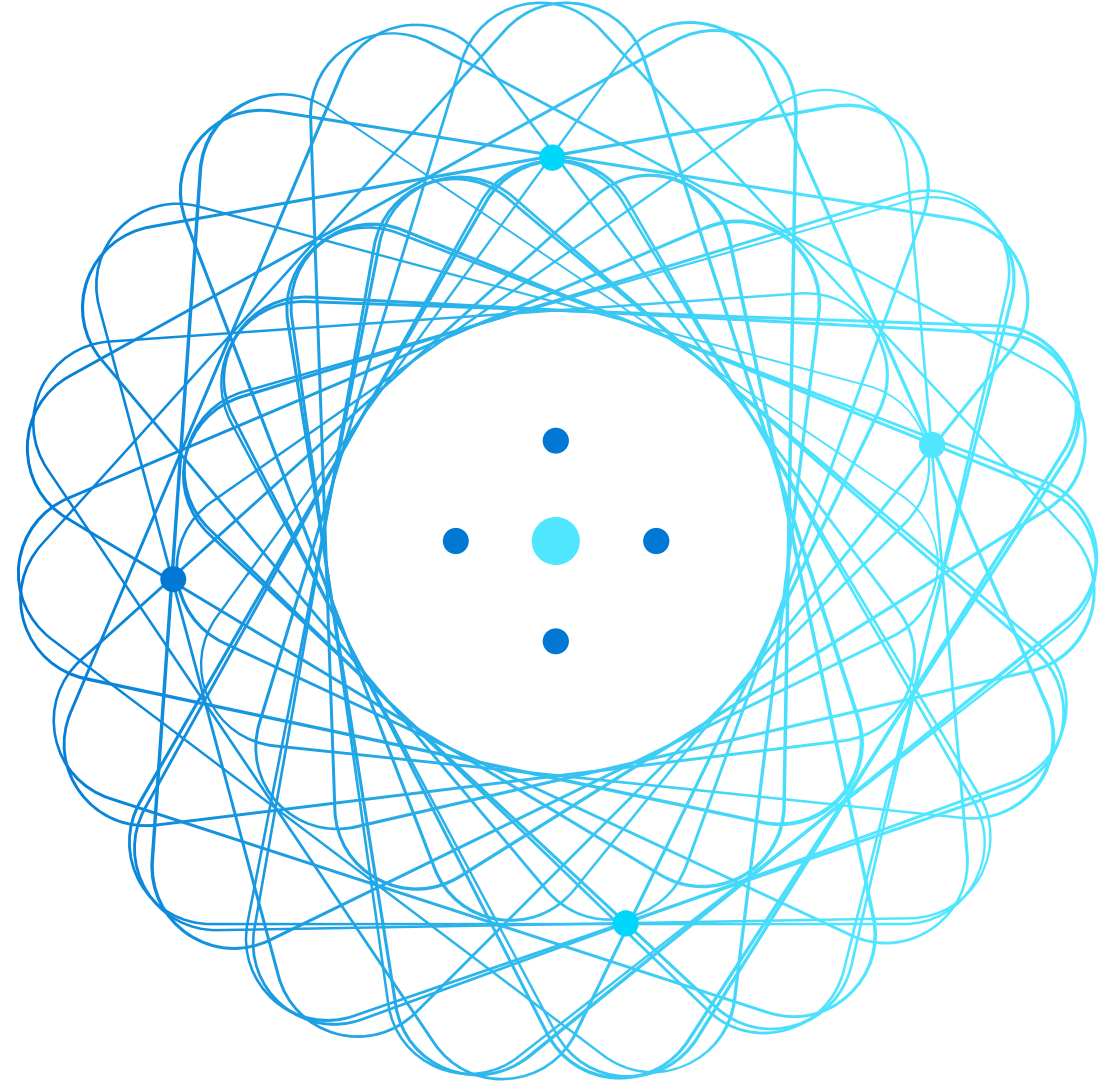


# AZ-900

## Learning Path 01: Cloud concepts



# Learning Path Outline



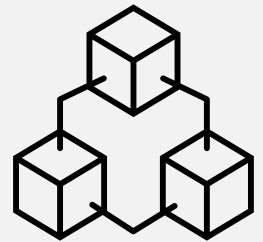
# Learning Path 01 - Outline

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



# Cloud Computing

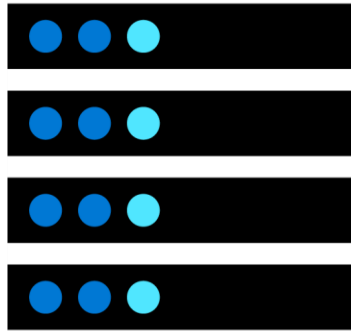


# Cloud computing - Objective Domain

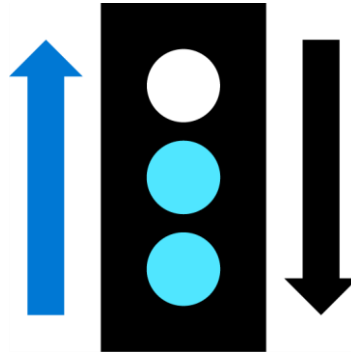
- Define cloud computing
- Describe the shared responsibility model
- Define cloud models, including public, private, and hybrid
- Identify appropriate use cases for each cloud model
- Describe the consumption-based model
- Compare cloud pricing models

# What is cloud computing?

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



Compute

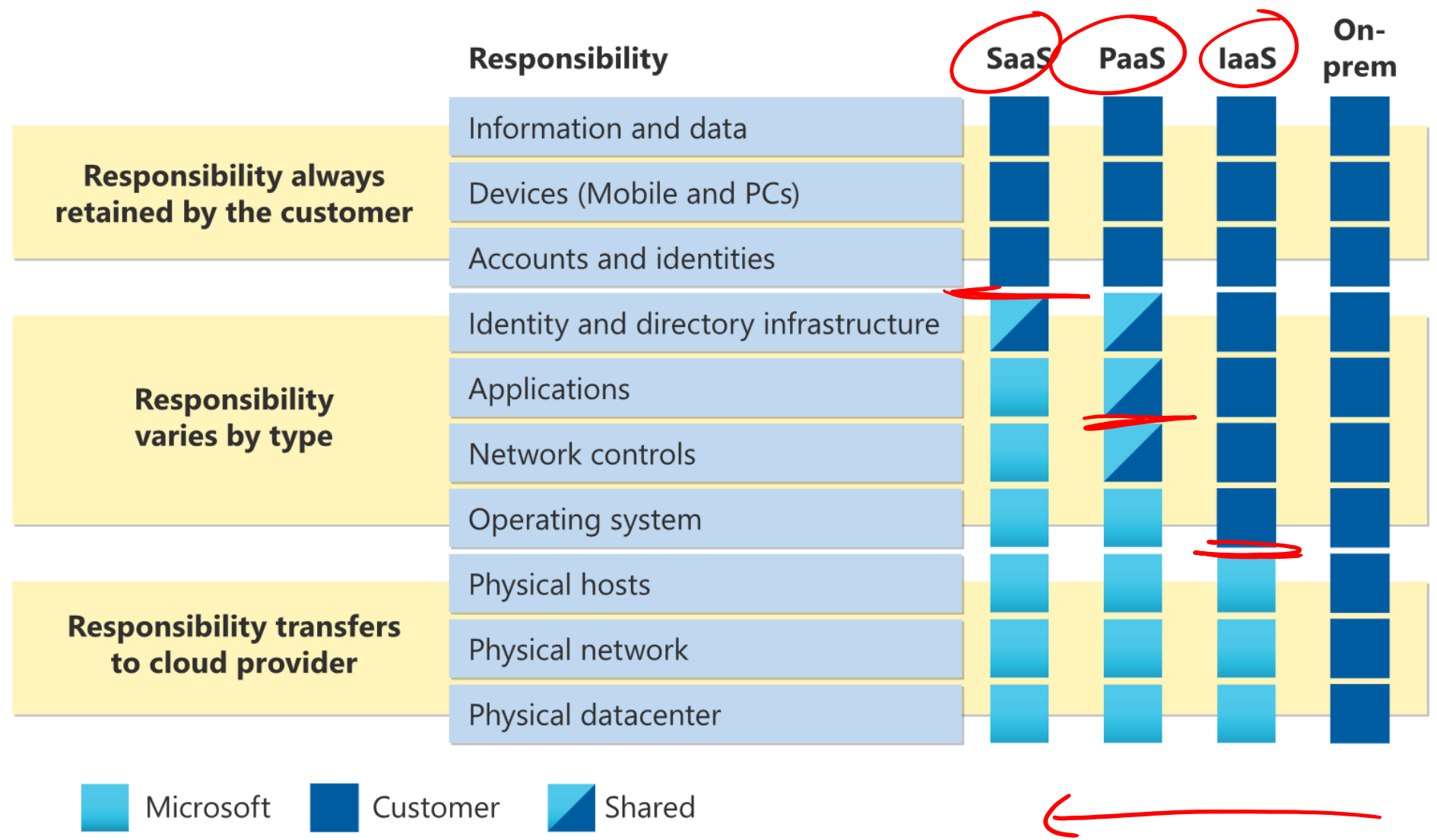


Networking



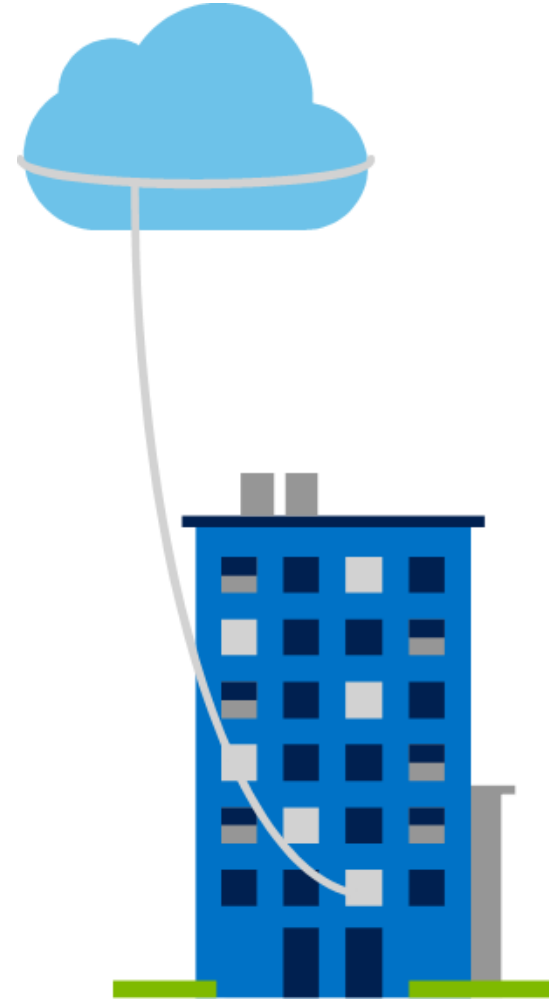
Storage

# Shared responsibility model



# Private cloud = on premises

- 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.





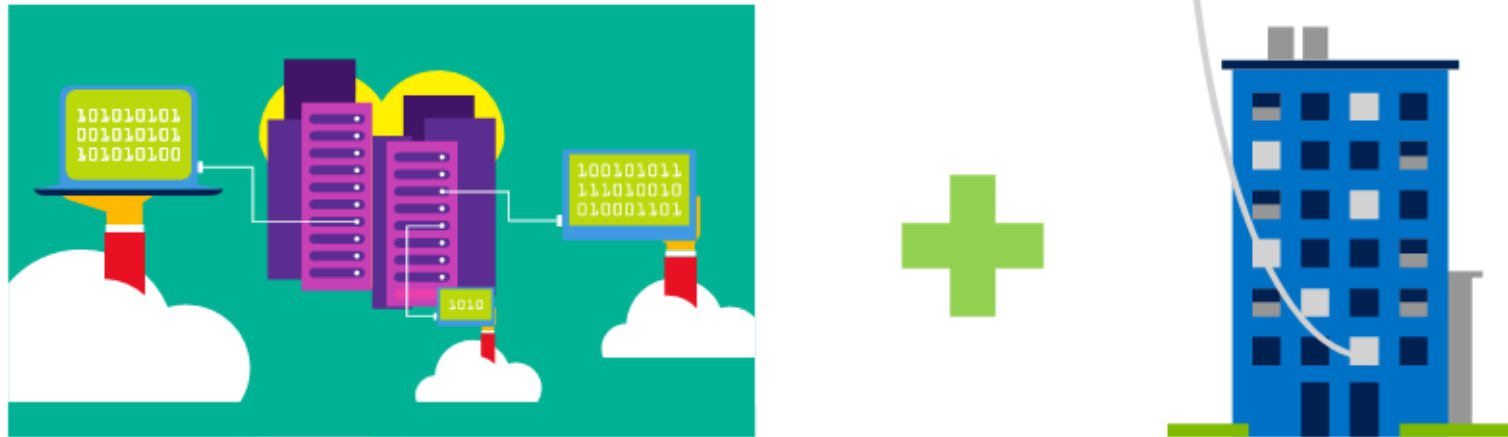
# Public cloud

- 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

Azure Stack HCI



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.

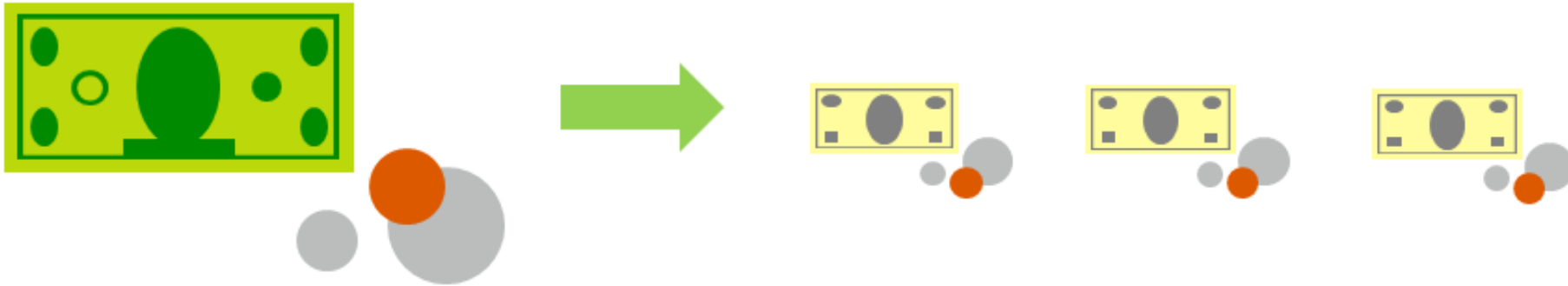
# Compare CapEx vs. OpEx

## Capital Expenditure (CapEx)

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

## Operational Expenditure (OpEx)

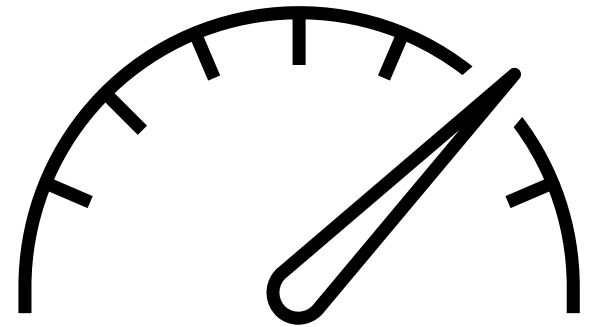
- Spend on products and services as needed, pay-as-you-go
- Get billed immediately



# 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

Scalability

Predictability

Governance

Elasticity

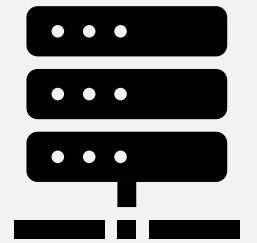
Reliability

Security

Manageability



# Cloud service types

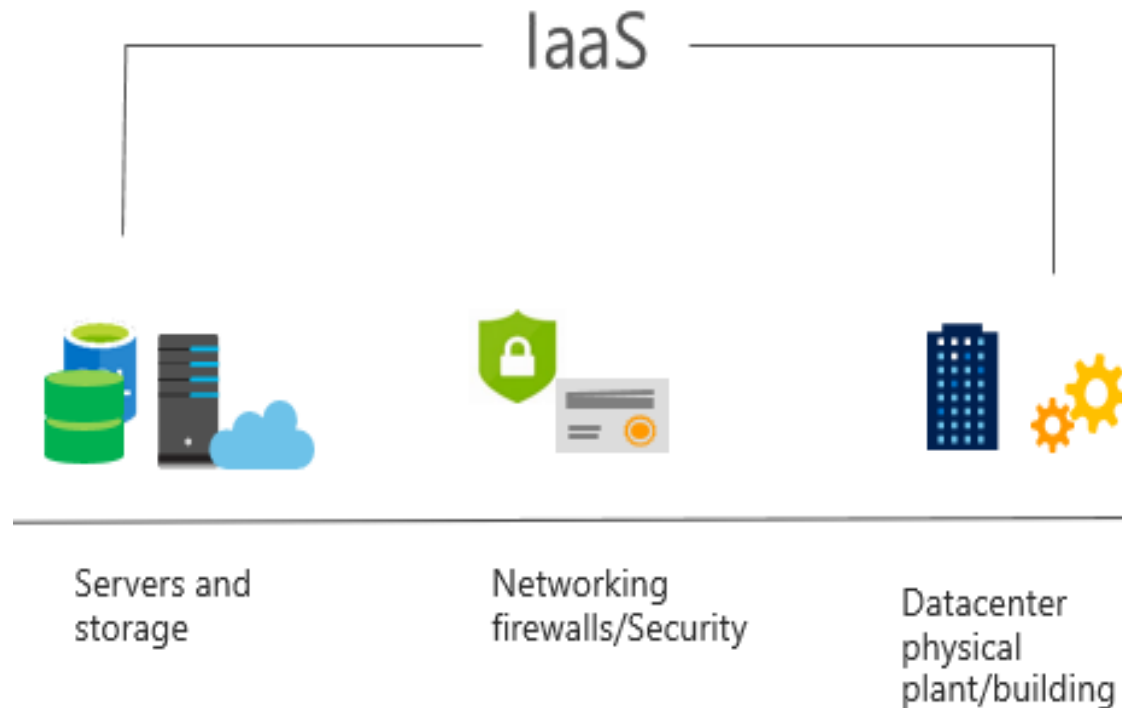


# Cloud Services - Objective Domain

- 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)

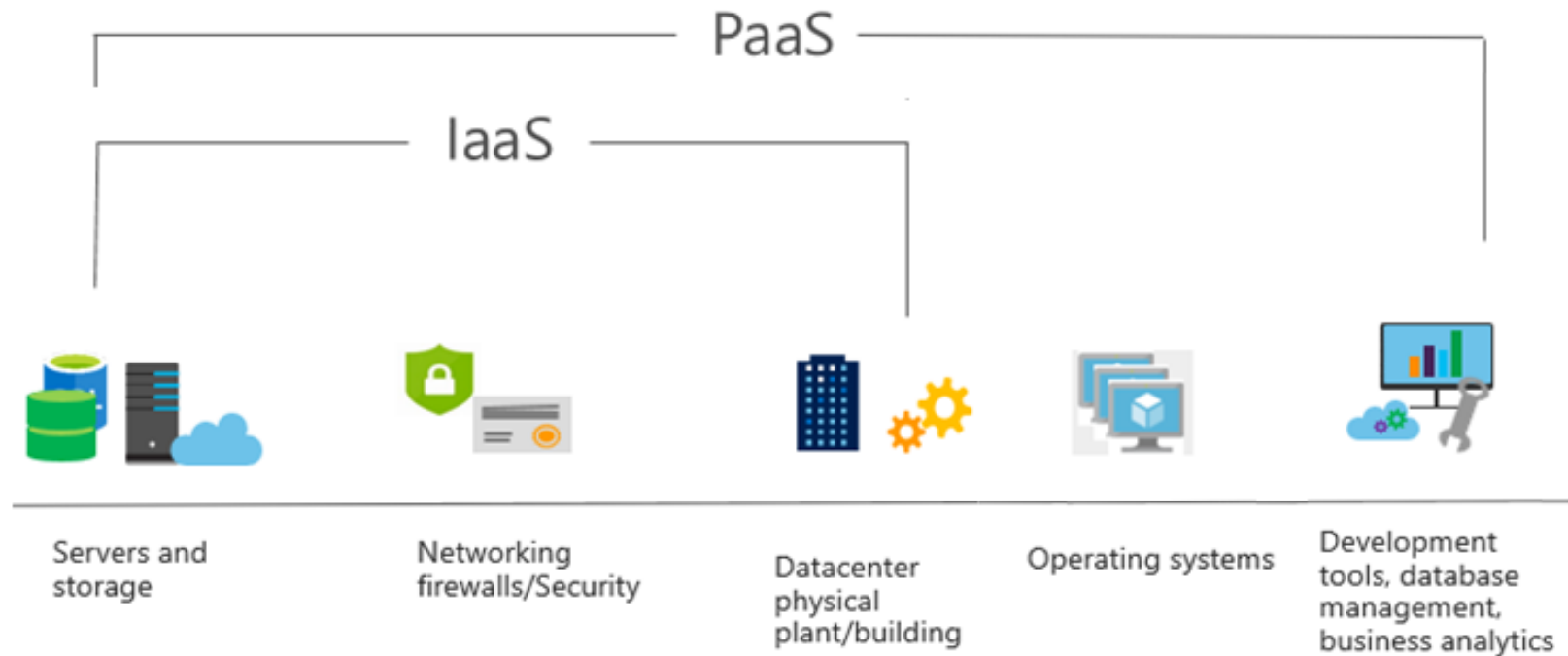
# Infrastructure as a Service (IaaS)

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



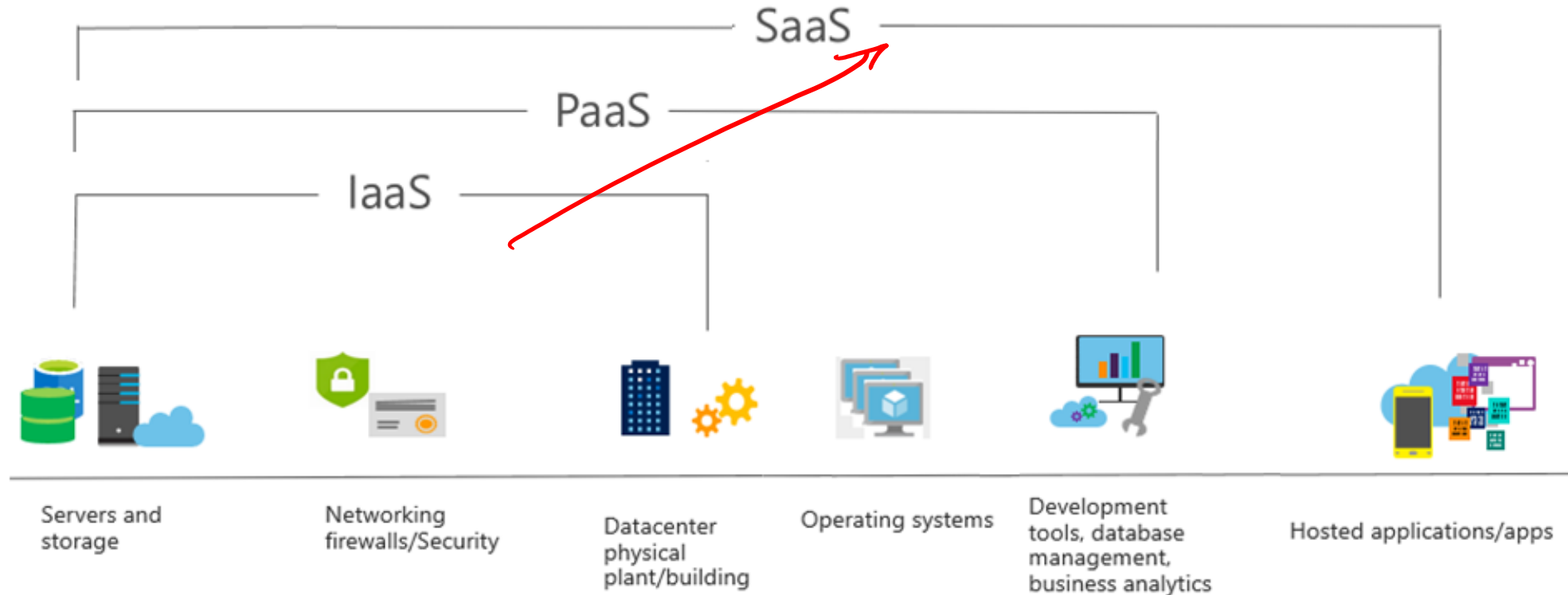
# Platform as a Service (PaaS)

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

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.

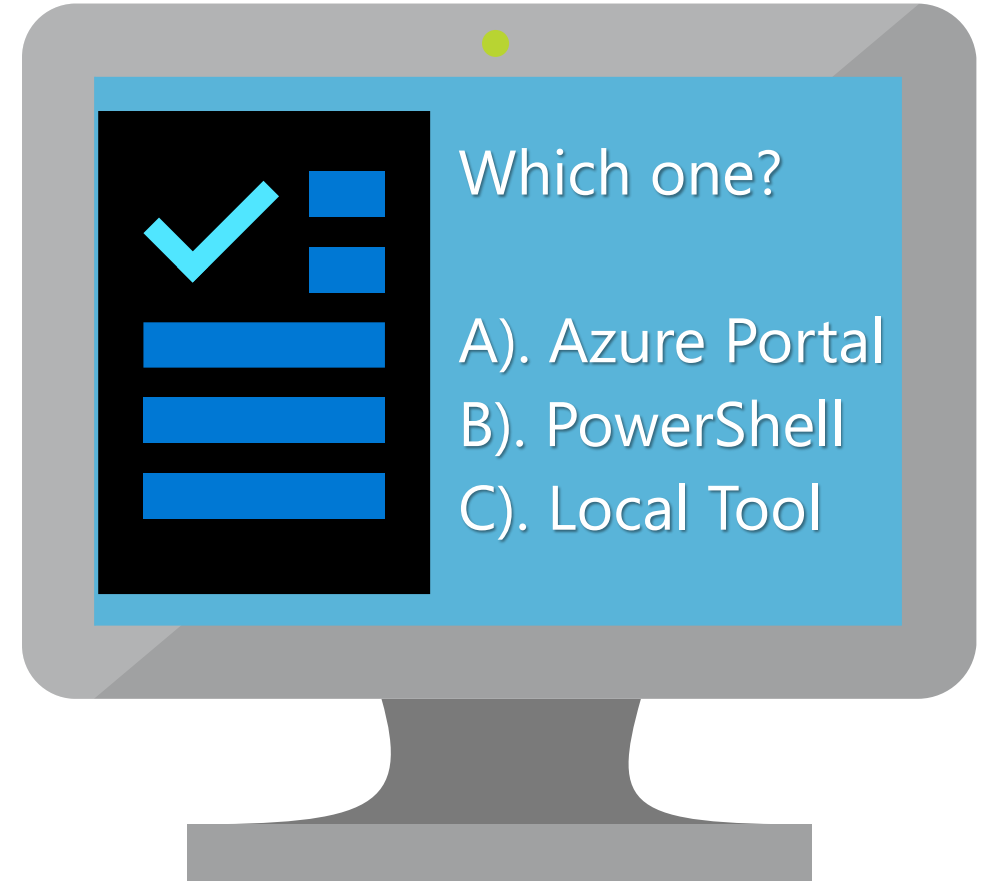
Users pay for the software they use on a subscription model.

# 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



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

Microsoft Learn Modules  
([docs.microsoft.com/Learn](https://docs.microsoft.com/Learn))