

# 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

pub  
private  
hybrid

## 2 Cloud benefits

- Benefits of the cloud

## 3 Cloud service types

- IaaS, PaaS, and SaaS

Pizza

NIST



# Cloud computing

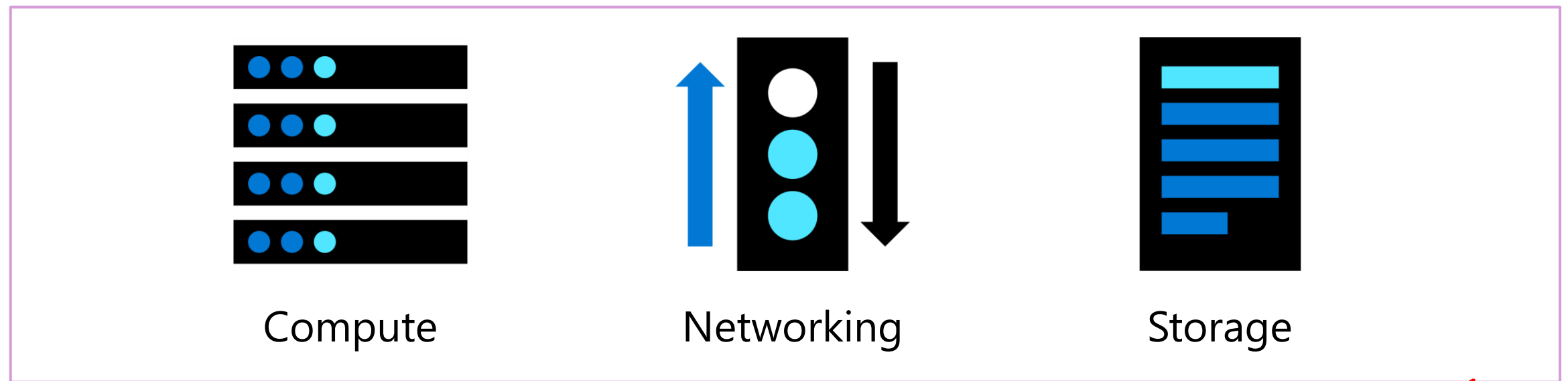


# What is cloud computing?

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

AWS  
Azure (Red Dog)  
GCP  
IBM

Alibaba



Bicep → ARM  
Template Sprache Resource

2011  
ab 2013  
Windows Azure (Classic)  
Azure 2.0  
X  
ARM  
Azure Resource Manager API

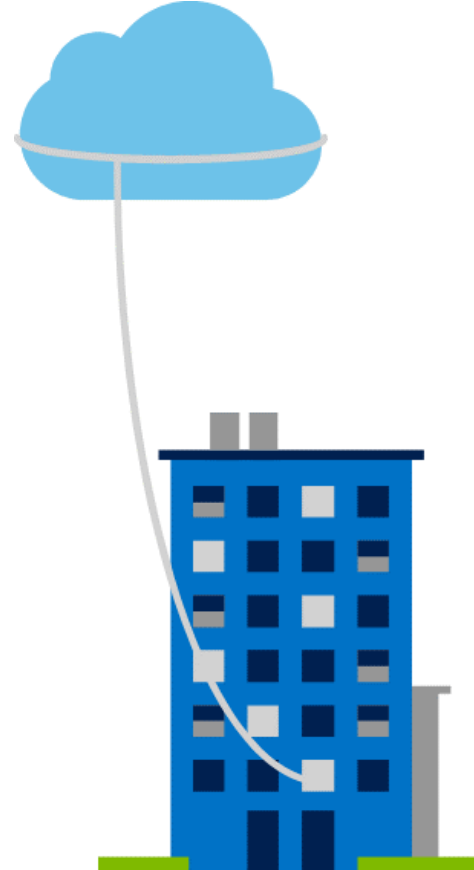
NIST

## 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.

On Premises

- Self Service
- Automation
- Cost Management
- Security, Monitoring

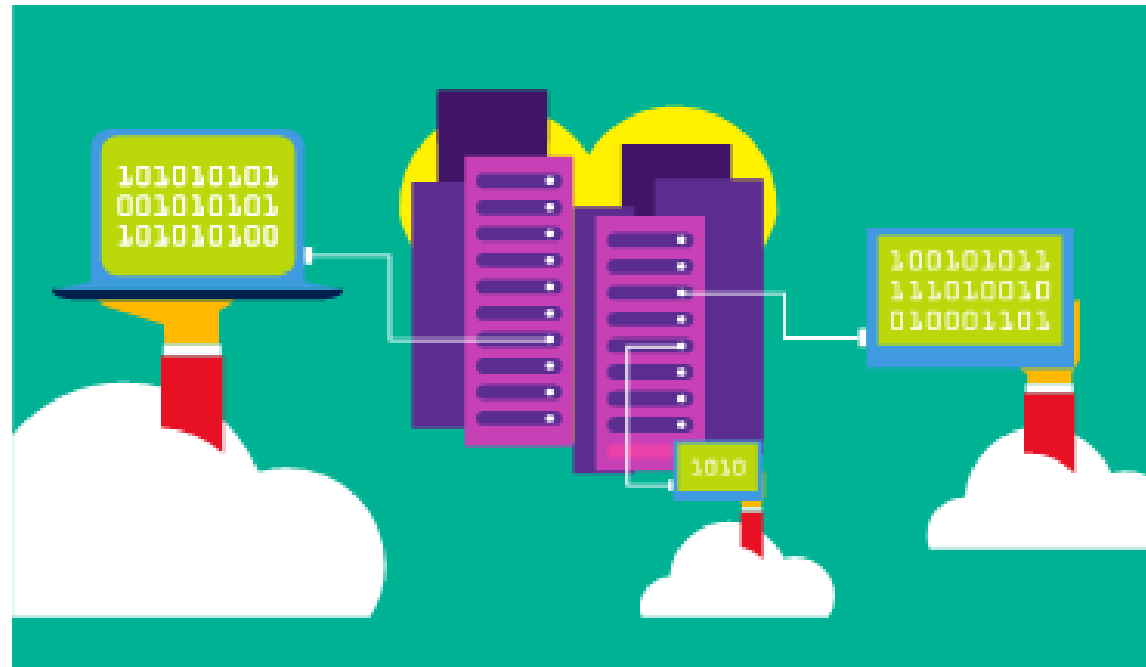


NIST

# 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).

Azure Account  
(Legal)



# 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)

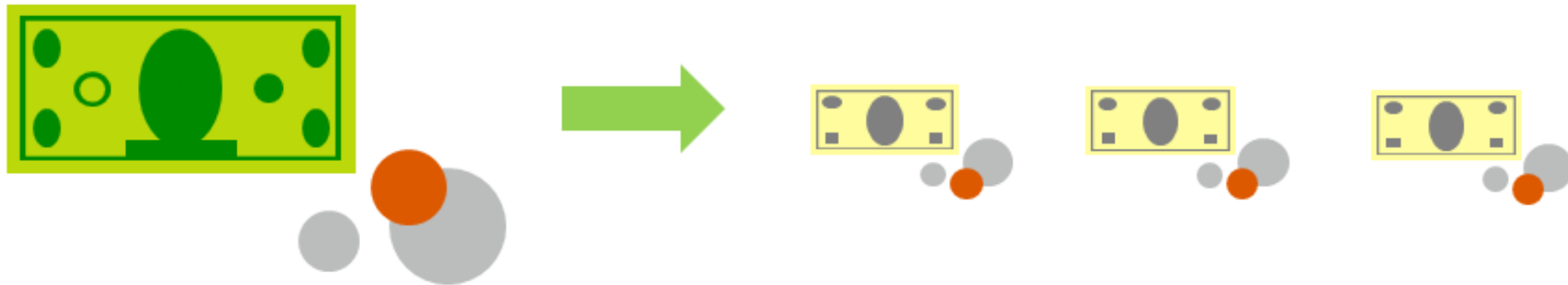
- The upfront spending of money on physical infrastructure.
- Costs from CapEx have a value that reduces over time.

Betriebskosten

## Operational expenditure (OpEx)

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

Subscription  
Dum



# 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



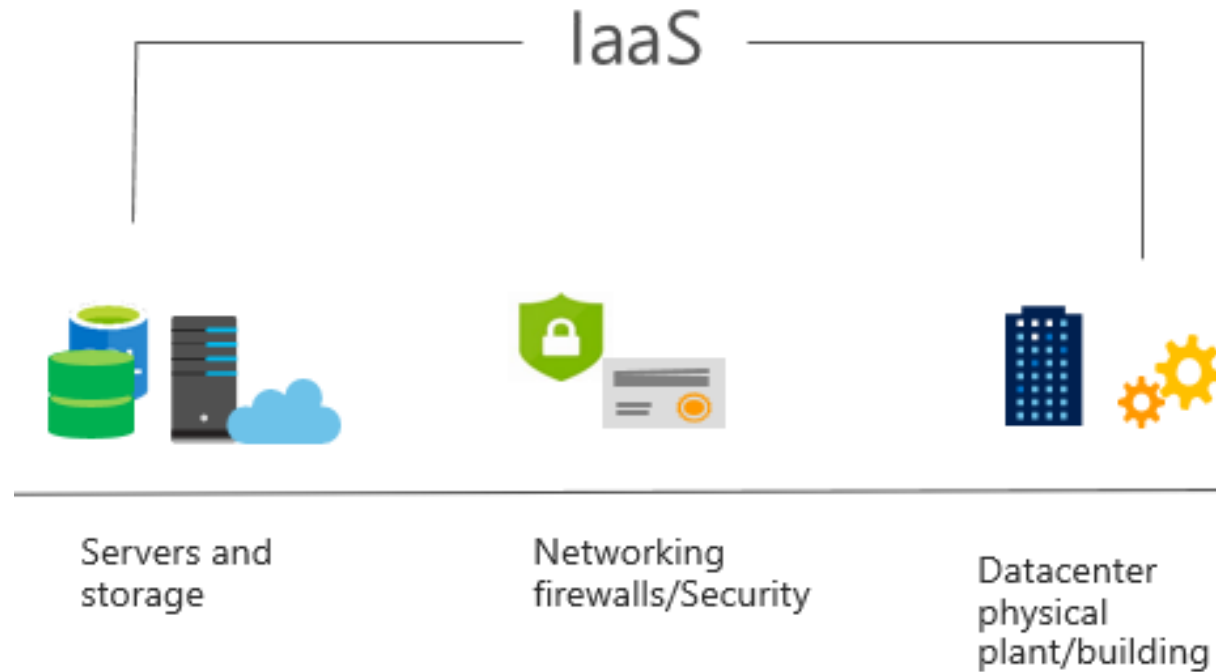
# Cloud benefits

|                                  |  |
|----------------------------------|--|
| High availability <i>!</i>       | Elasticity                               |
| Scalability                      | Reliability                              |
| Predictability                   | Security <i>\$ 10<sup>9</sup> / year</i> |
| Governance <i>ISO SOC Policy</i> | Manageability                            |

# Cloud service types

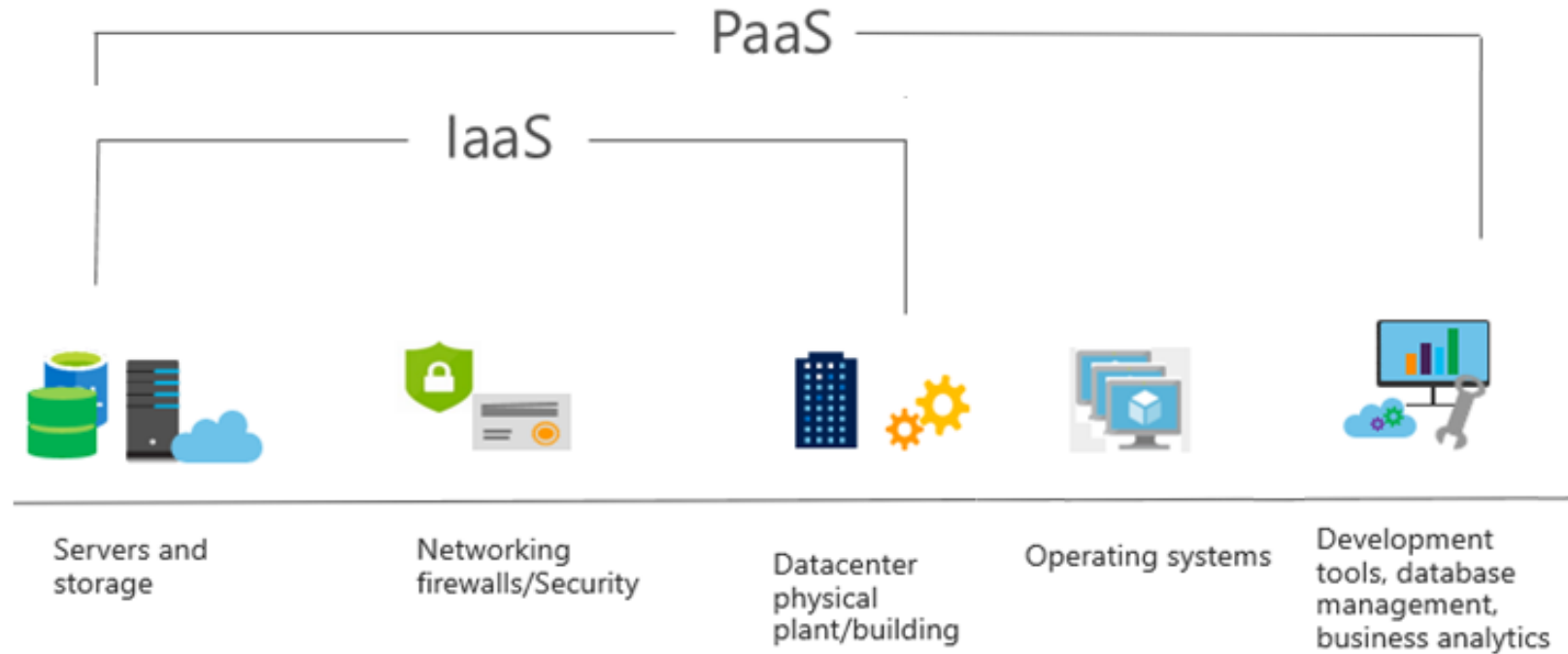


# Infrastructure as a service (IaaS)



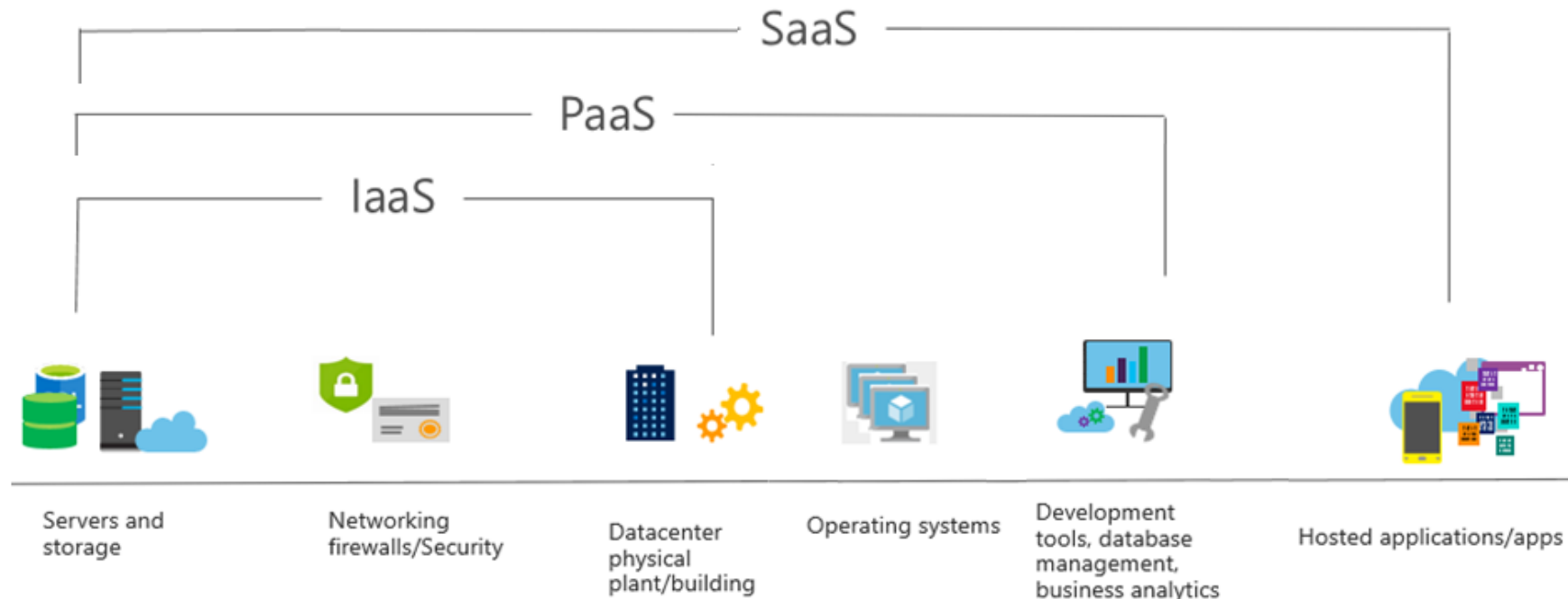
Build pay-as-you-go IT infrastructure by renting servers, virtual machines, storage, networks, and operating systems from a cloud provider.

# Platform as a service (PaaS)



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

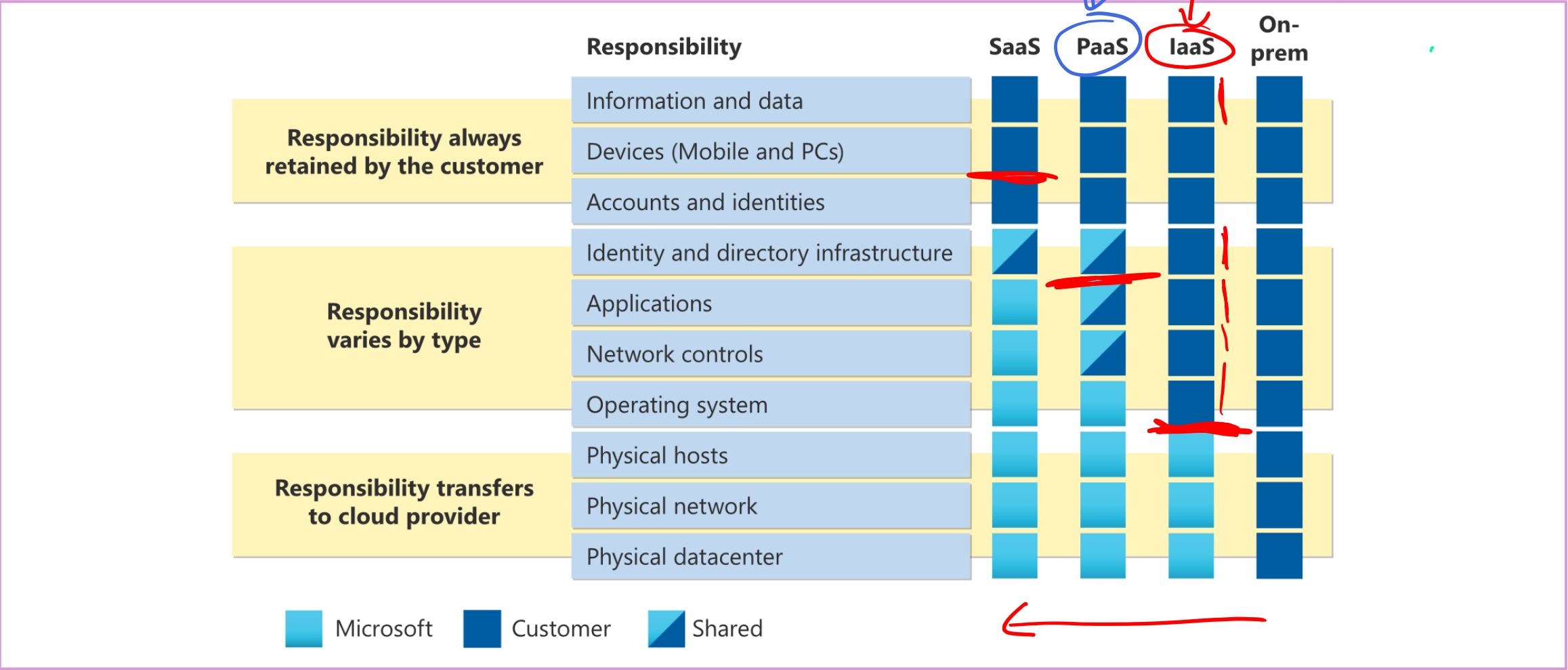
# Software as a service (SaaS)



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



# Shared responsibility model



# Cloud service comparison

## IaaS

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

Teig Supermarkt

## PaaS

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

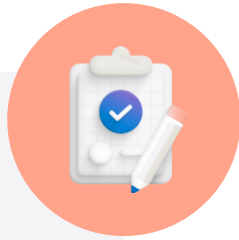
Fertig Pizza

## SaaS

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

Italienen

# 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<sup>\*</sup>
- Benefits of cloud computing
- Cloud service types

aaS

skalierbar  
schnell  
kein invest