Microsoft

AZ-900

Learning path 01: Cloud concepts

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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

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Deployment

AWS

2011 Windows Azure (classic)

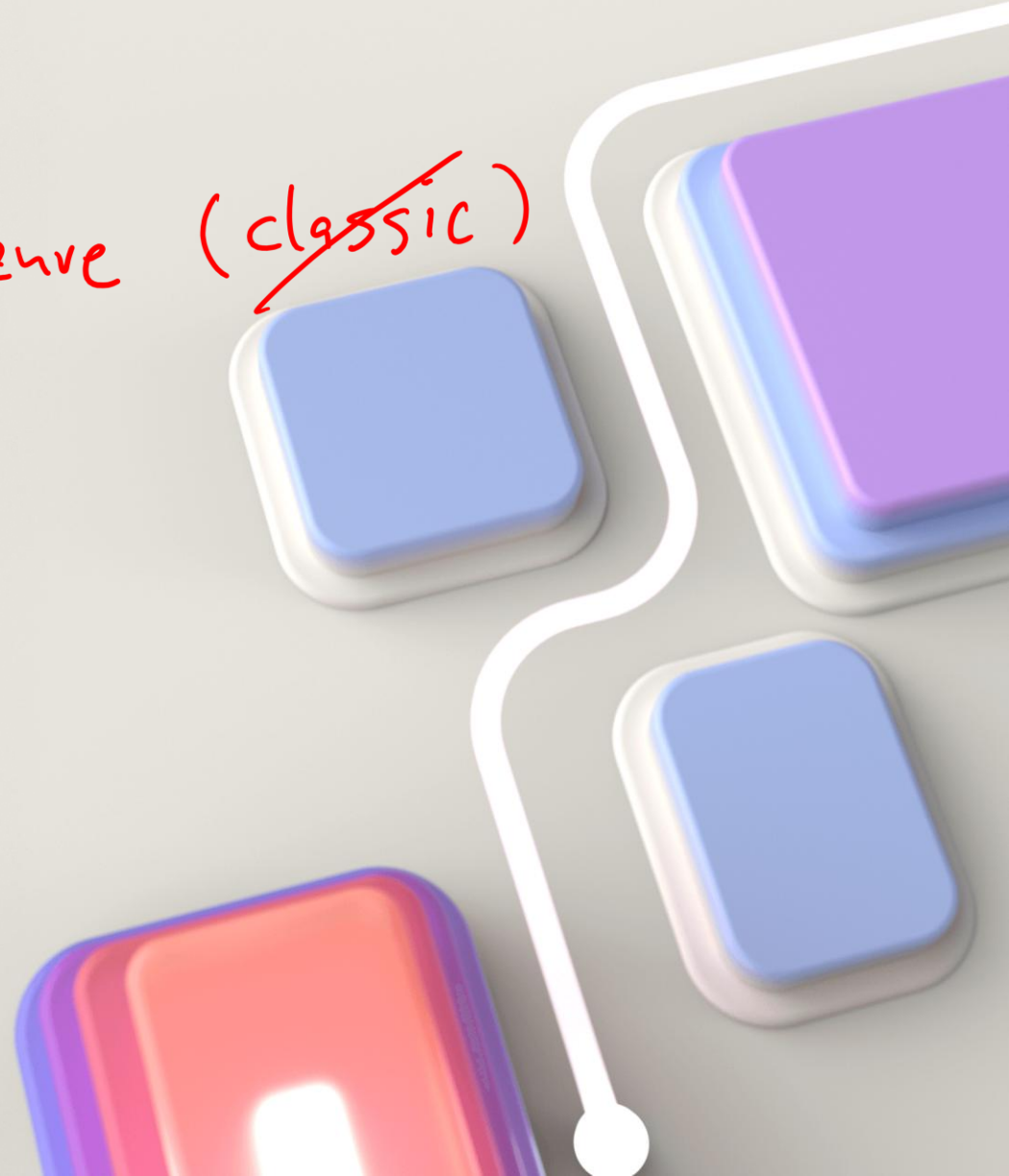
2013 Azure ARM

Cloud computing

GCP

IBM

Alibaba



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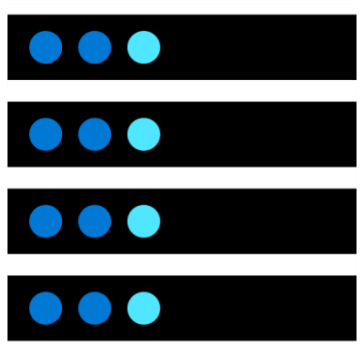
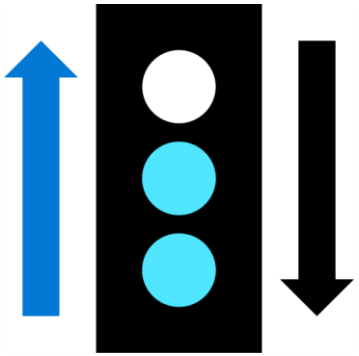
What is cloud computing?

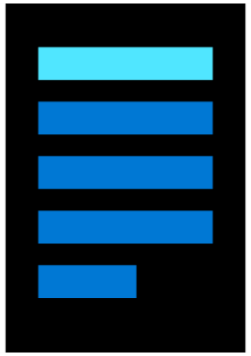
Cloud computing is the delivery of computing services over the internet, enabling faster innovation, flexible resources, and economies of scale.



Compute



Networking



Storage

SQL DB

☑ CosmosDB

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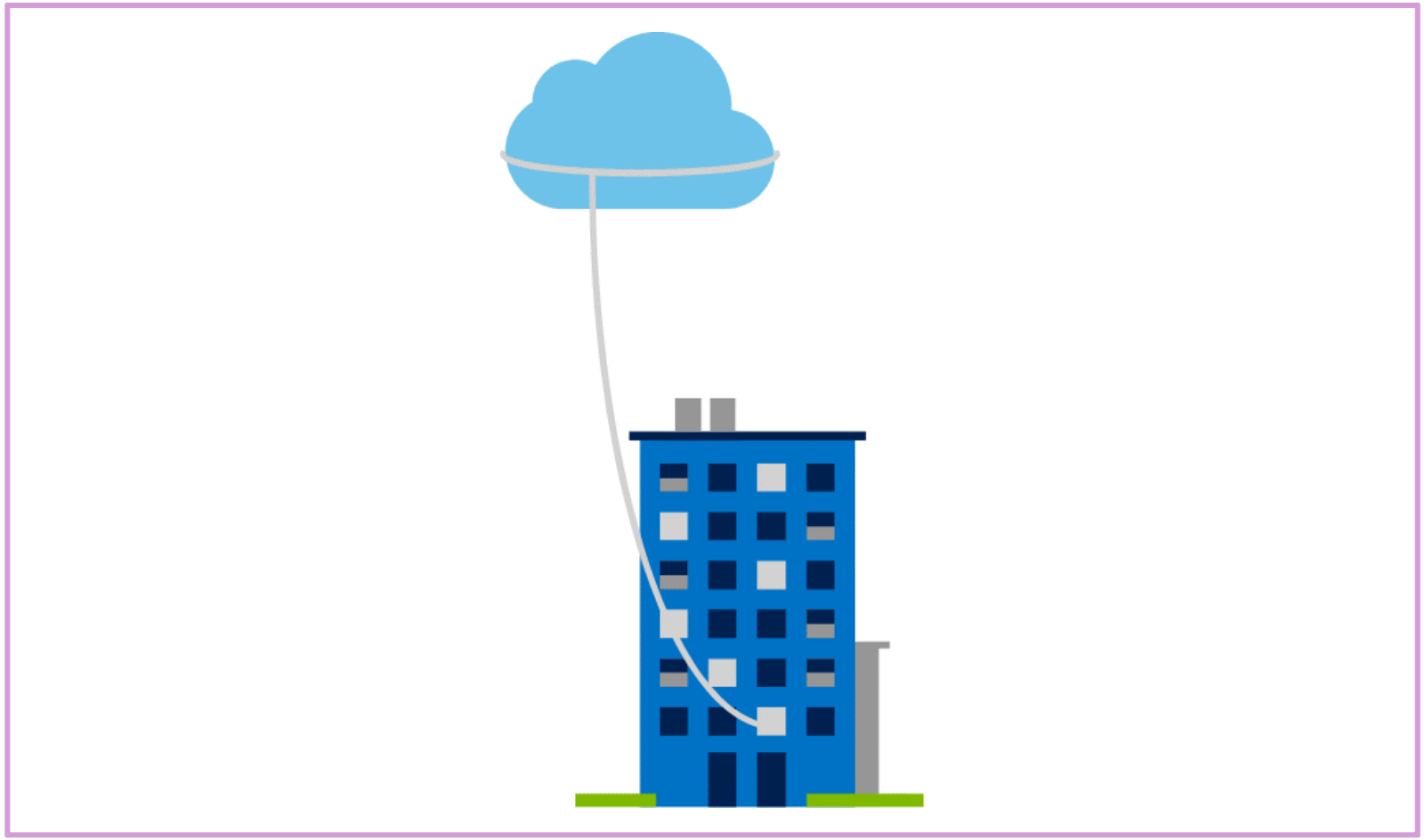
Private cloud

- 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.



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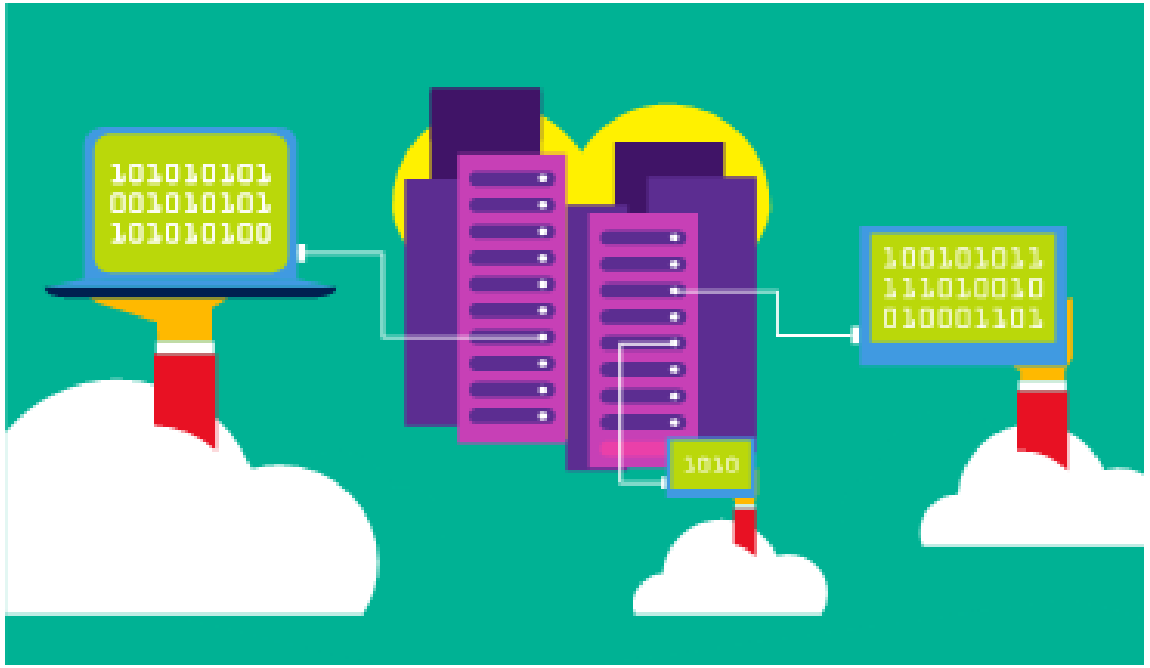
Public cloud

NIST

- 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).



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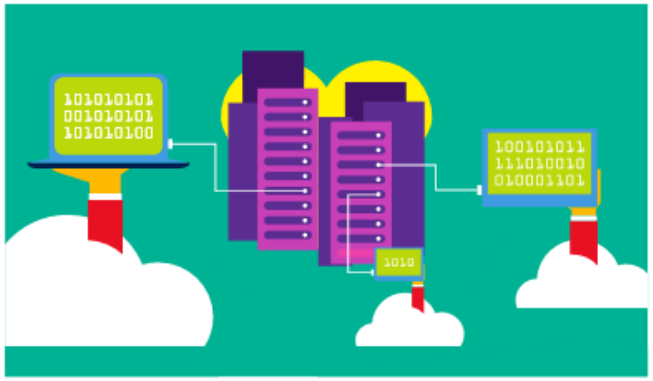
Hybrid cloud



Combines **public** and **private** clouds to allow applications to run in the most appropriate location.

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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.

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Compare CapEx vs. OpEx

Invest

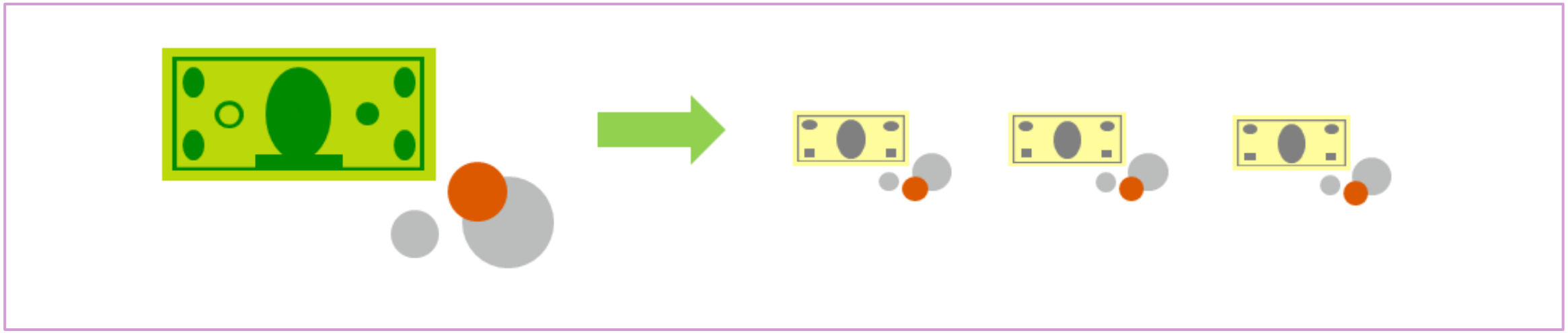
Capital expenditure (CapEx)

- 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.



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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.

VM size

SKU

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Cloud benefits

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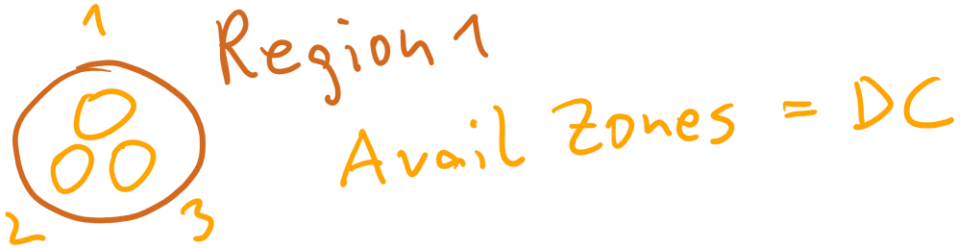
Cloud benefits



High availability	Elasticity
Scalability	Reliability
Predictability	Security ! private EP
Governance	Manageability

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Cloud service types

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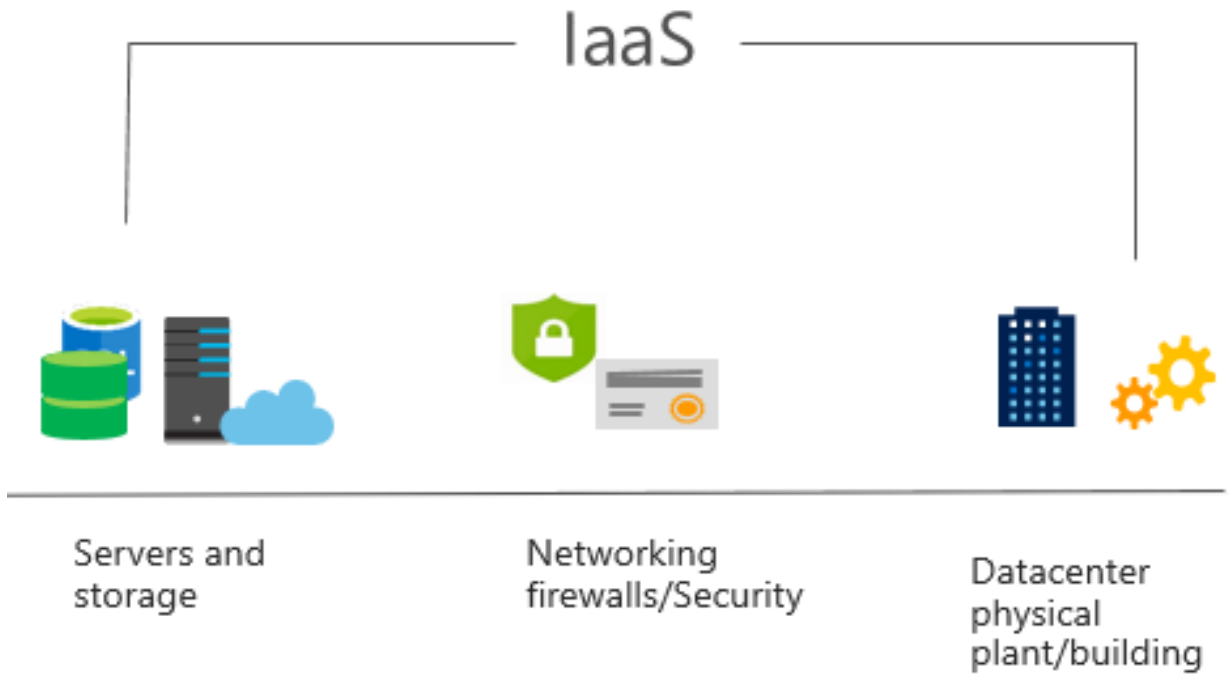
Infrastructure as a service (IaaS)



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

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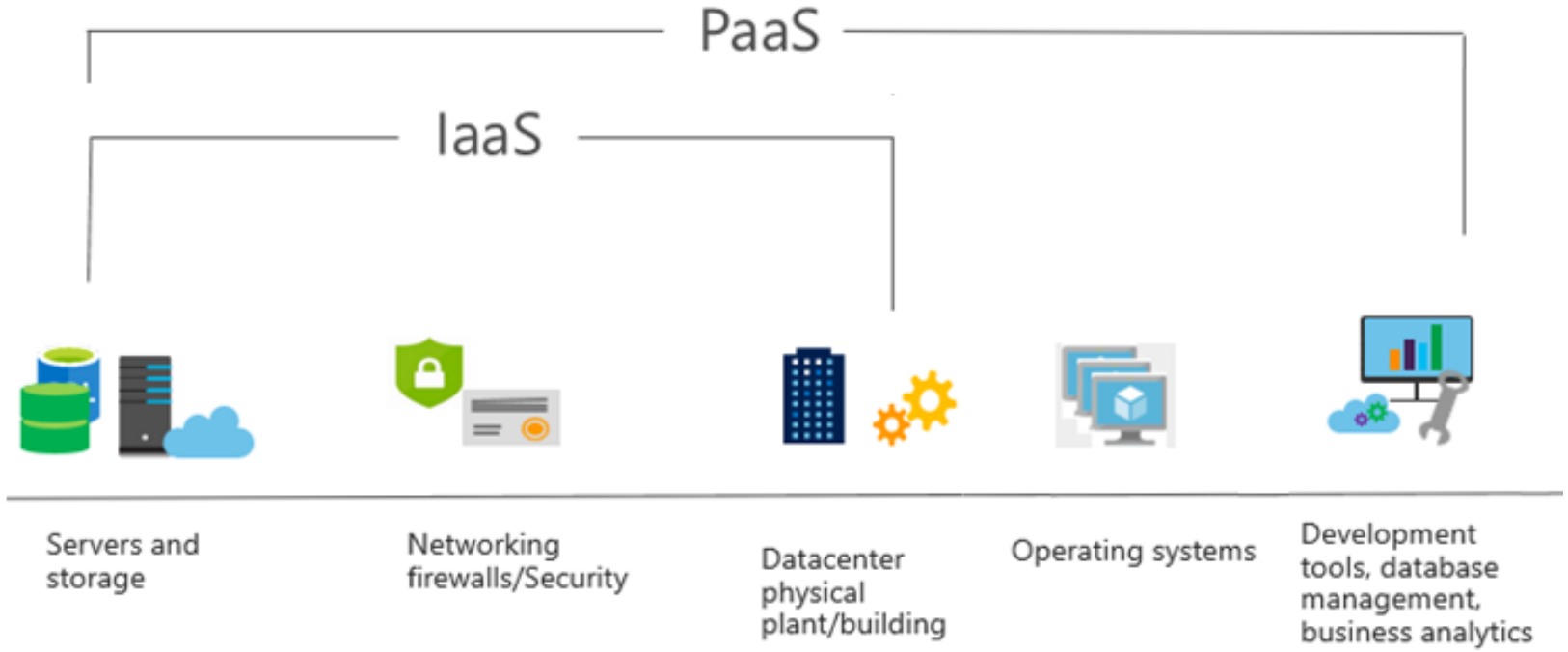
Platform as a service (PaaS)



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

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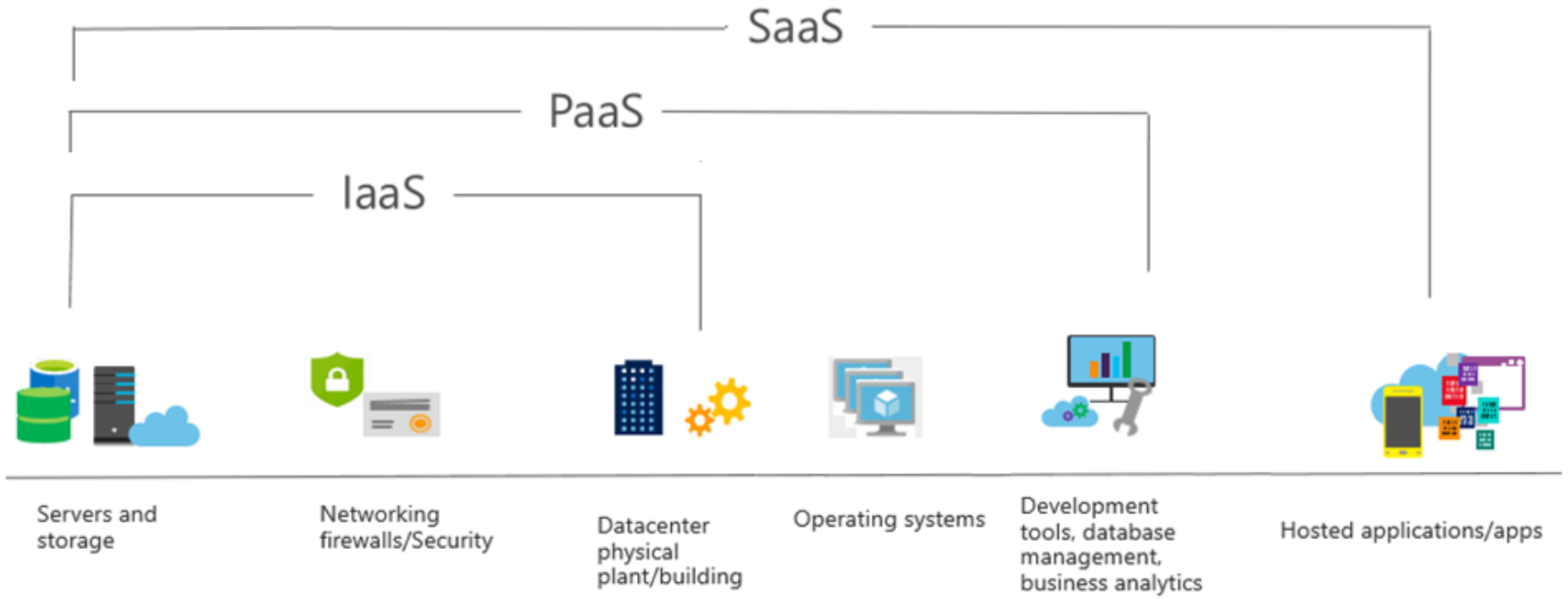
Software as a service (SaaS)



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

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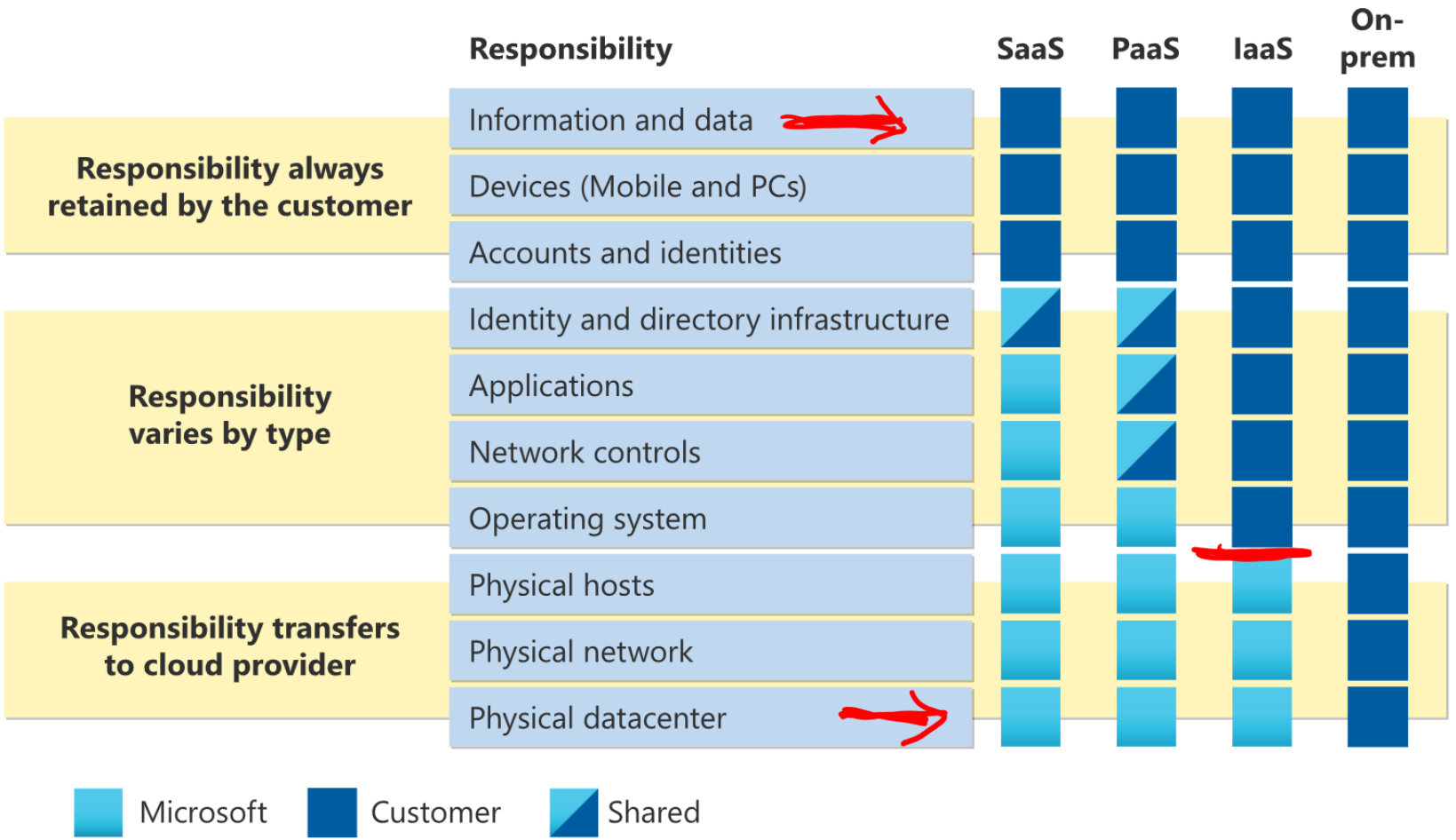
Shared responsibility model



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Cloud service comparison

CaaS

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.

On Prem

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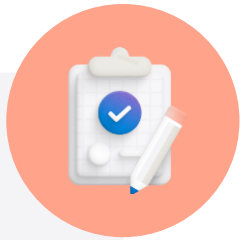
Learning path 01 review



Microsoft Learn Modules (learn.microsoft.com/training)

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

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