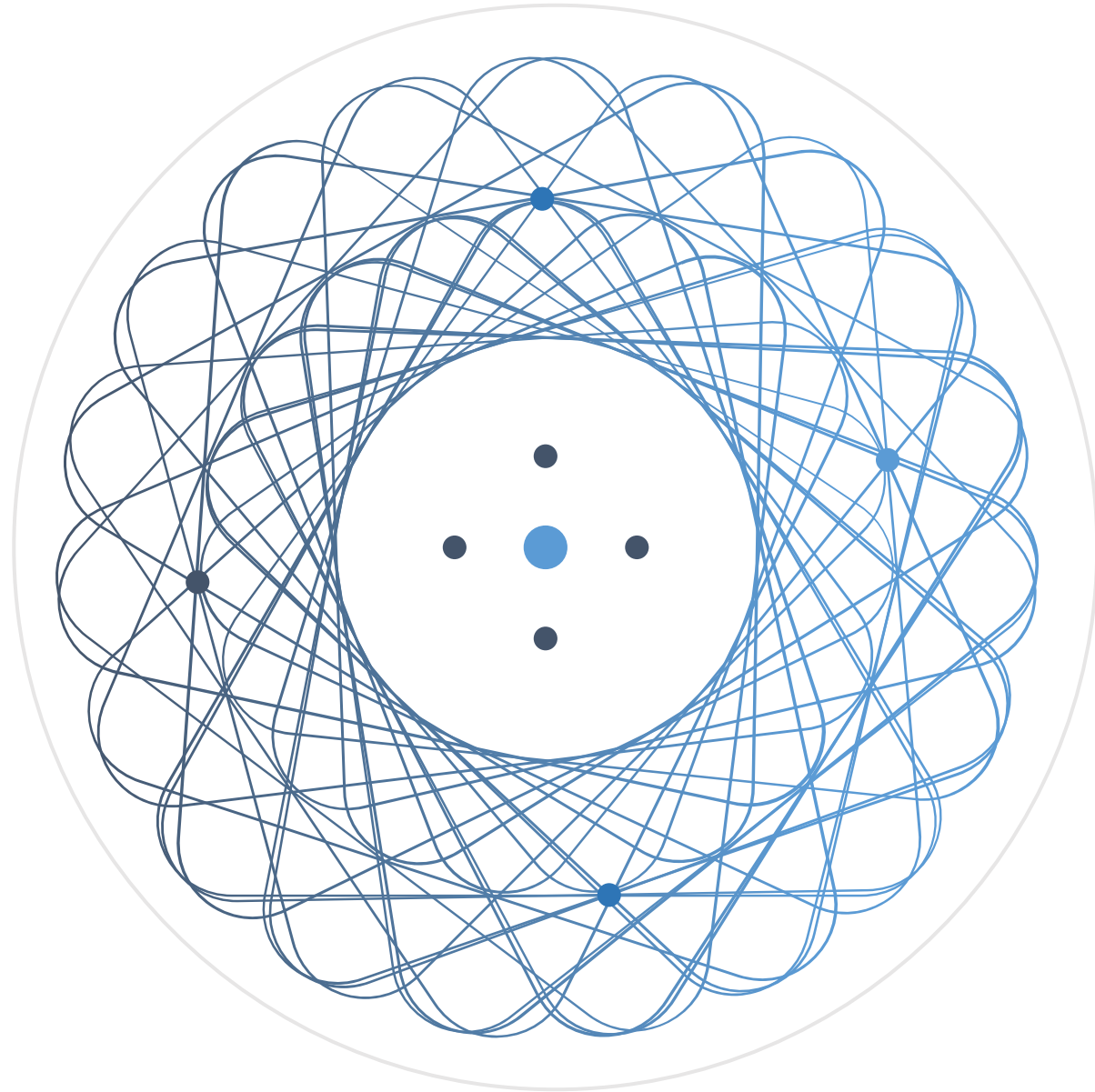**Microsoft Azure**

Cloud concepts

Ali Khawaja

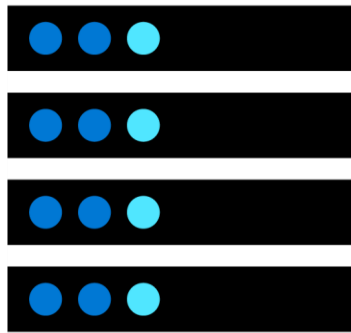Sr. Cloud Solutions Architect

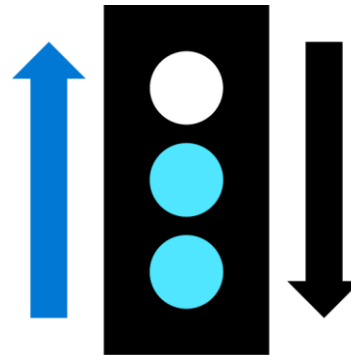Microsoft Arabia

Cloud computing concepts

- 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.
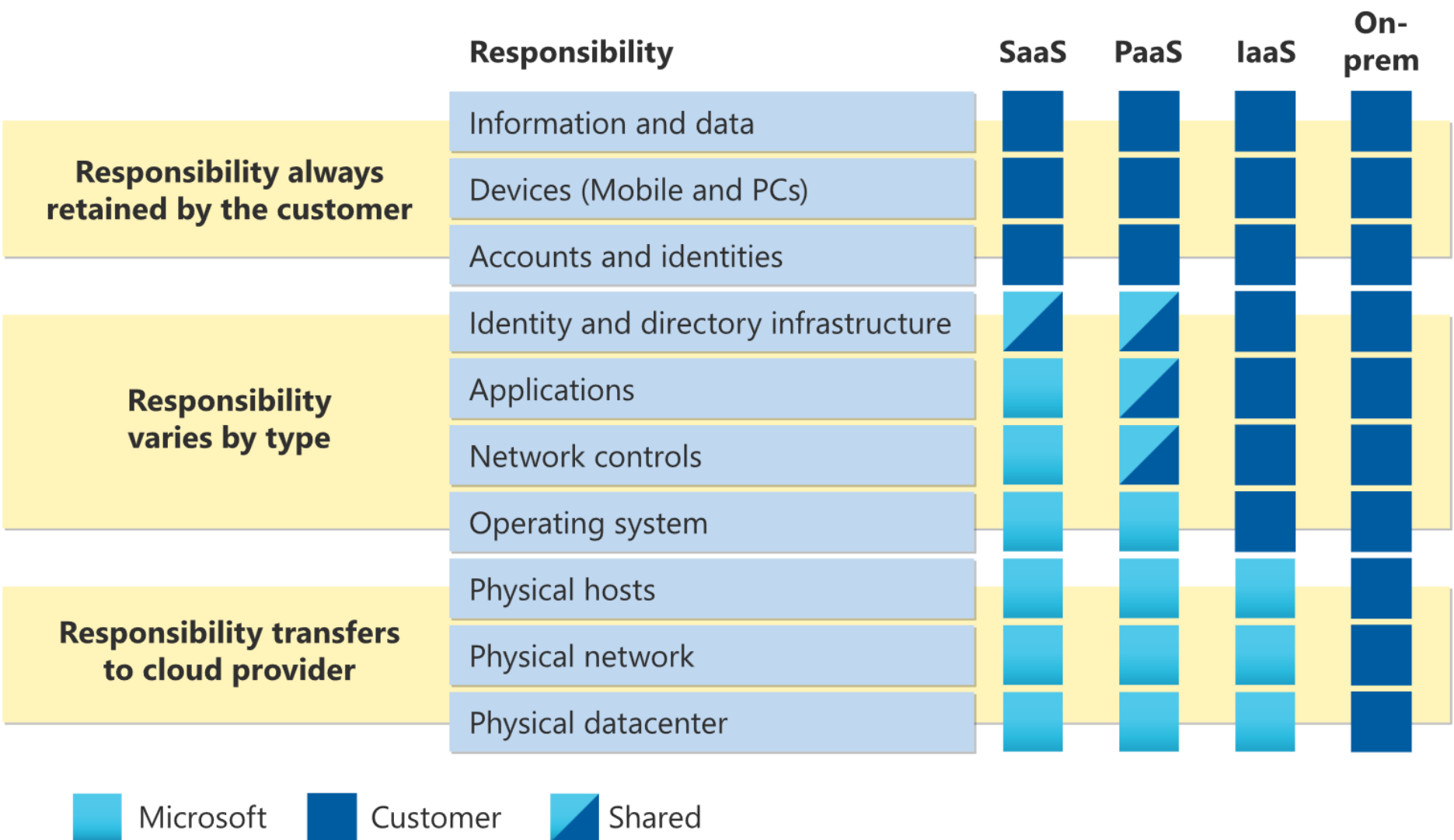
Compute

Networking

Storage

Shared responsibility model

Responsibility	SaaS	PaaS	IaaS	On-prem
Responsibility always retained by the customer				
Information and data	Customer	Customer	Customer	Customer
Devices (Mobile and PCs)	Customer	Customer	Customer	Customer
Accounts and identities	Customer	Customer	Customer	Customer
Responsibility varies by type				
Identity and directory infrastructure	Shared	Shared	Customer	Customer
Applications	Microsoft	Shared	Customer	Customer
Network controls	Microsoft	Shared	Customer	Customer
Operating system	Microsoft	Microsoft	Customer	Customer
Responsibility transfers to cloud provider				
Physical hosts	Microsoft	Microsoft	Microsoft	Customer
Physical network	Microsoft	Microsoft	Microsoft	Customer
Physical datacenter	Microsoft	Microsoft	Microsoft	Customer

Microsoft   Customer   Shared

Private cloud

- 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.
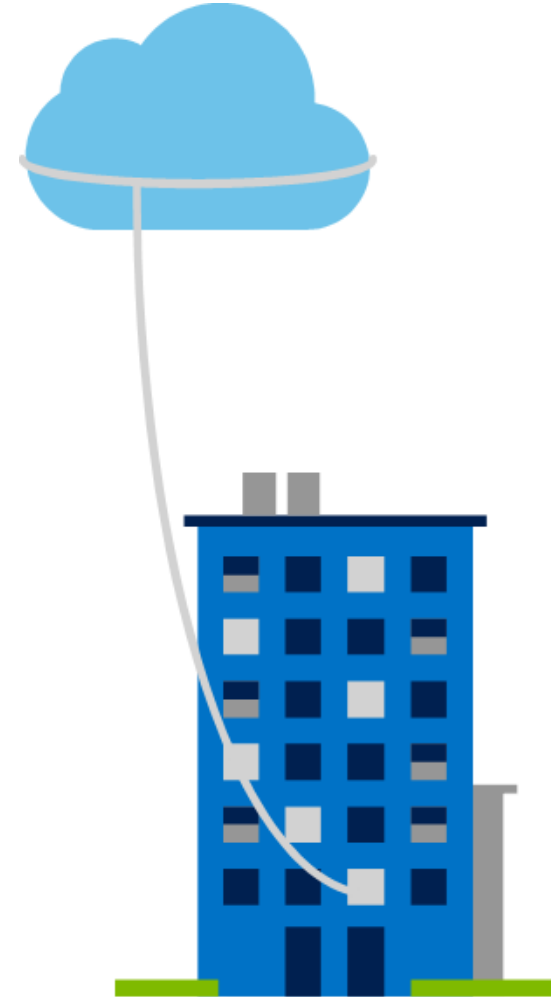
Public cloud

- 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

- 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
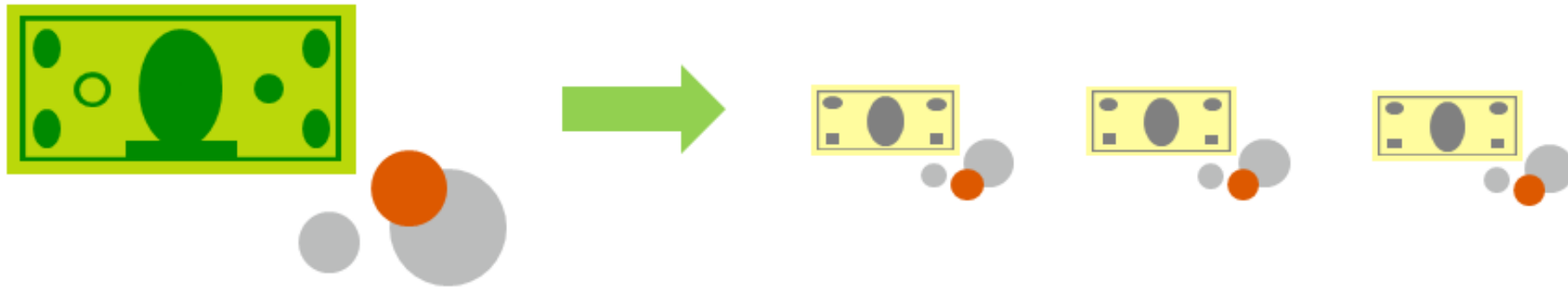
Consumption-based model

- 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
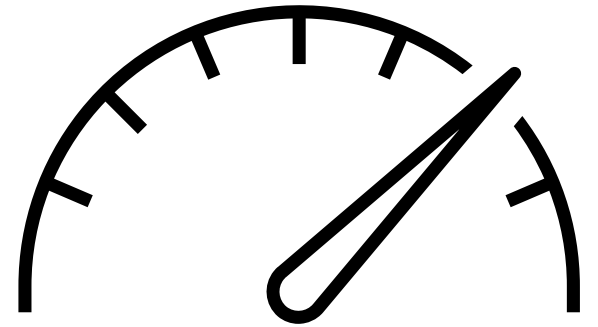
Cloud Benefits

High availability	Elasticity
Scalability	Reliability
Predictability	Security
Governance	Manageability