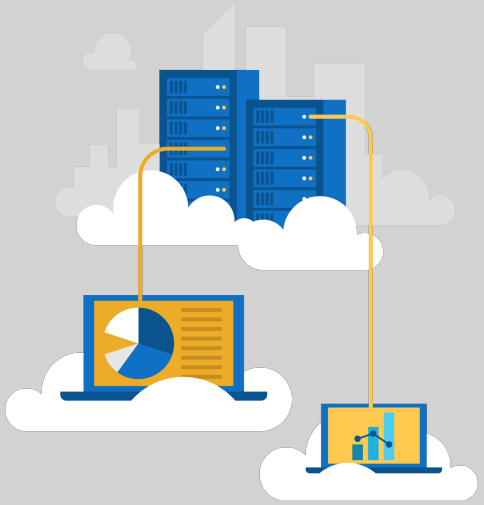
Microsoft

AZ-900T0x Module 01: Cloud concepts

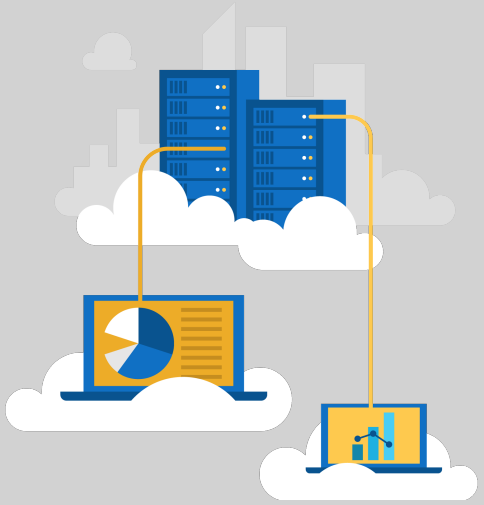
Lesson 01: Learning objectives



Module 1 – Learning objectives

- Describe and understand cloud services and their benefits.
- Understand key terms you will encounter when working with cloud services.
- Understand public, private, and hybrid cloud models.
- Understand infrastructure as a service (IaaS).
- Understand platform as a service (PaaS).
- Understand software as a service (SaaS).

Lesson 02: Why cloud services?



Cloud computing

- **Compute power** - such as Linux servers or web applications.
- **Storage** - such as files and databases.
- **Networking** - such as secure connections between the cloud provider and your company.
- **Analytics** - such as visualizing telemetry and performance data.

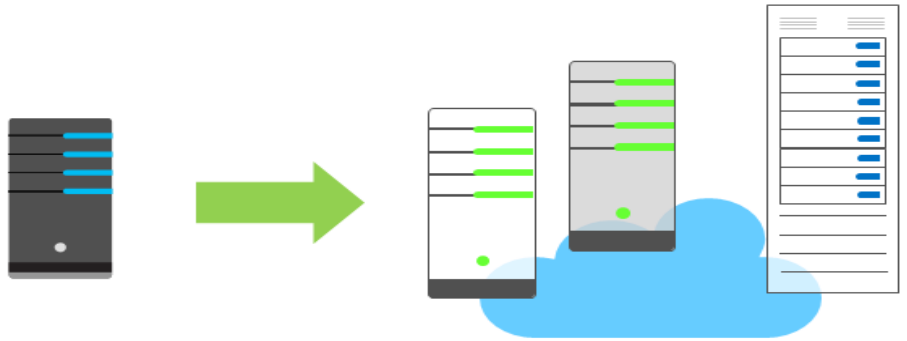
Cloud providers include Microsoft, Amazon, and Google

Key concepts

- High availability
- Fault tolerance
- Scalability
- Elasticity
- Global reach
- Customer latency capabilities
- Agility
- Predictive cost considerations
- Disaster recovery
- Security

Economies of scale

- The concept of *economies of scale* is the ability to reduce costs and gain efficiency when operating at a larger scale in comparison to operating at a smaller scale.



- Cloud providers are very large businesses, and thus can leverage the benefits of economies of scale and then pass those benefits on to their customers.

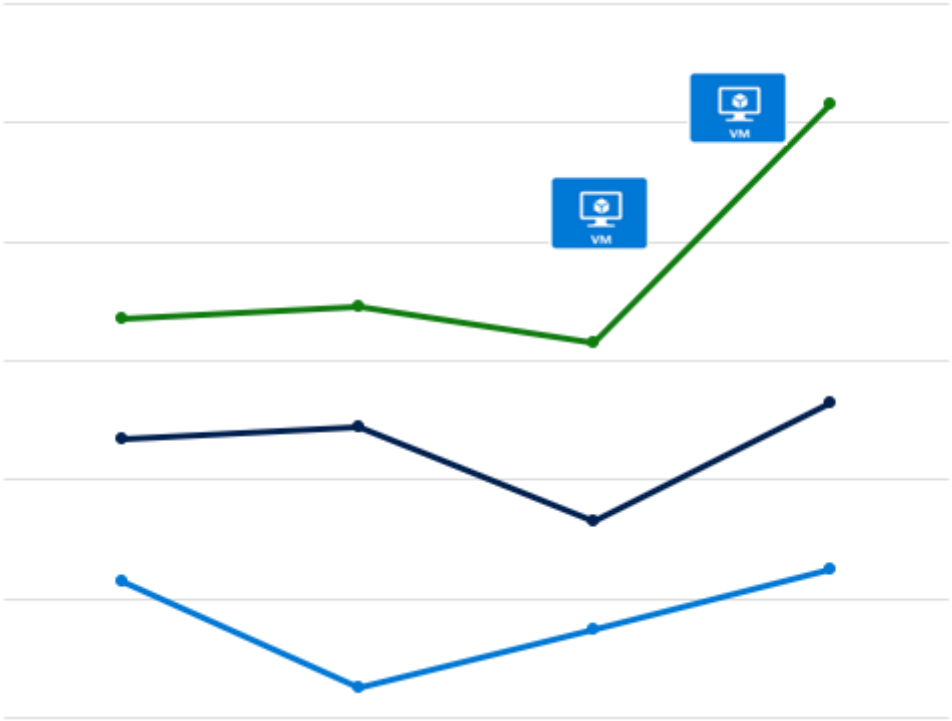
CapEx vs. OpEx

- Capital Expenditure (CapEx)
  - Spend on physical infrastructure upfront.
  - Deduct the expense from your tax bill.
  - High upfront cost, value of investment reduces over time.

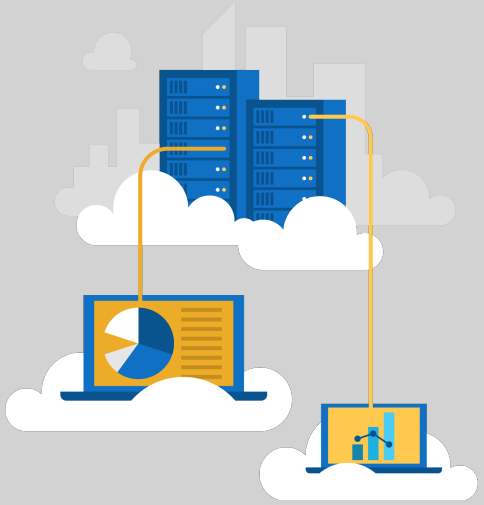
- Operational Expenditure (OpEx)
  - Spend on services or products as needed.
  - Get billed immediately.
  - Deduct the expense from your tax bill in the same year.
  - No upfront cost, pay-as-you use.

Consumption-based model

- No upfront costs.
- No need to purchase and manage costly infrastructure.
- Ability to pay for additional resources as they are needed.
- Ability to stop paying for resources that are no longer needed.



Lesson 03: Types of cloud models

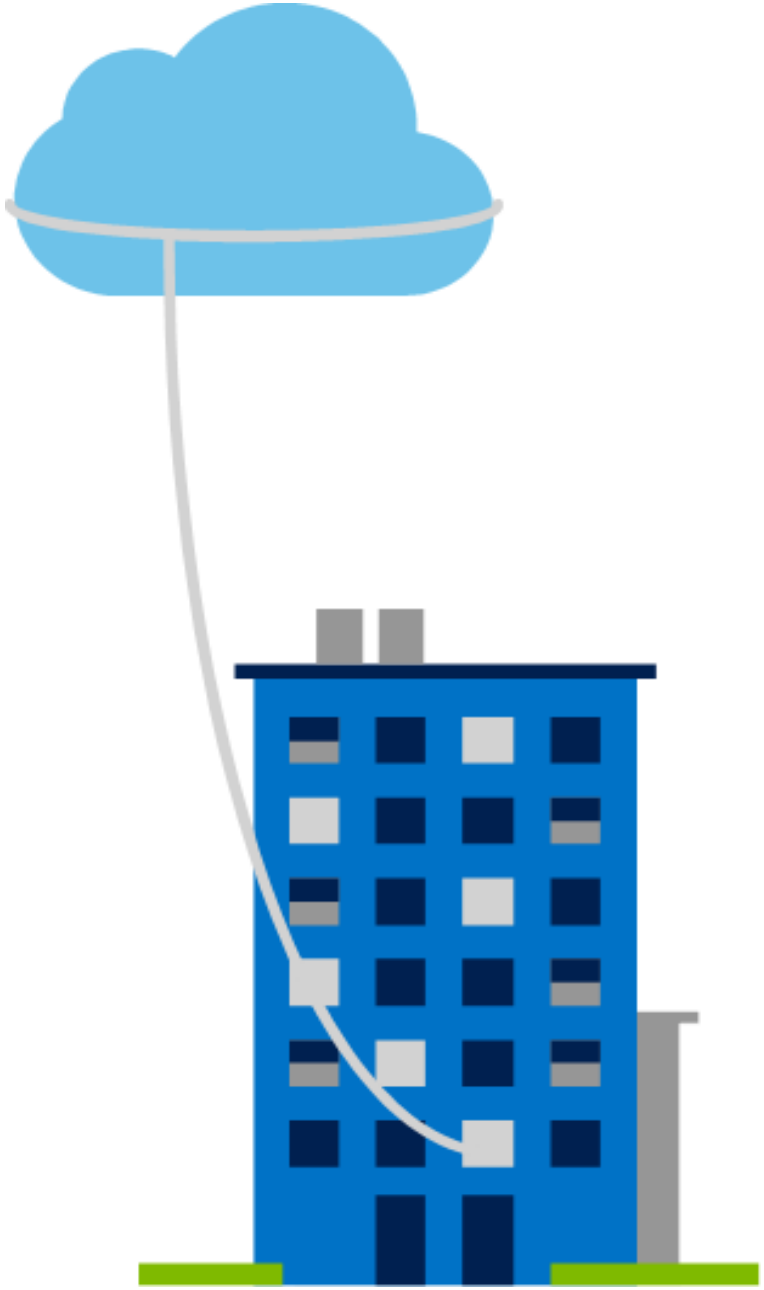


Public cloud

- 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).

Private cloud

- Owned and operated by the organization that uses cloud resources.
- Organizations create a cloud environment in their datacenter.
- Self-service access to compute resources provided to users within the organization.
- Organizations responsible for operating the services they provide.



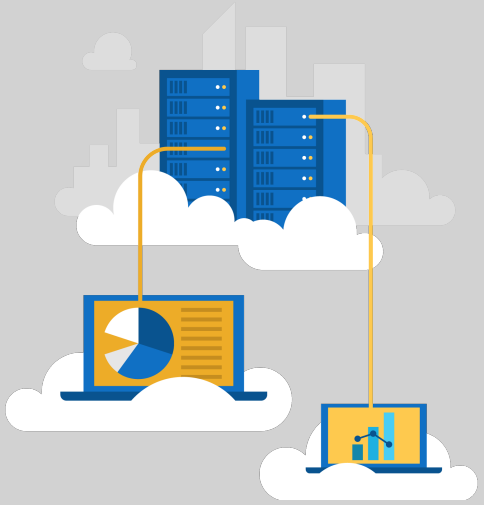
Hybrid cloud

Combines *Public* and *Private* clouds to allow applications to run in the most appropriate location.

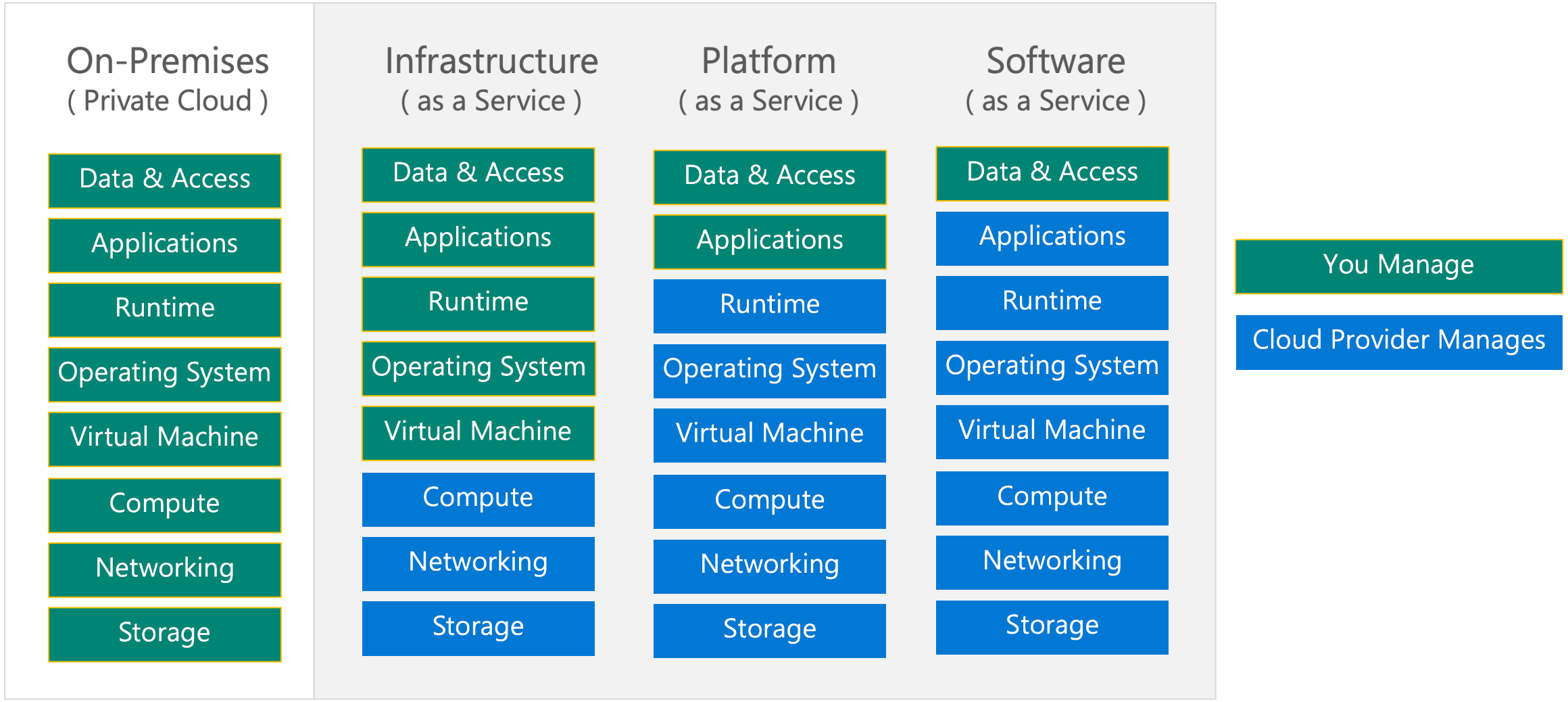
Cloud model comparison

Public cloud:	• No capital expenditures to scale up. • Applications can be quickly provisioned and deprovisioned. • Organizations pay only for what they use.
Private cloud:	• Organizations have complete control over resources. • Organizations have complete control over security.
Hybrid cloud:	• Most flexibility. • Organizations determine where to run their applications. • Organizations control security, compliance, or legal requirements.

Lesson 04: Types of cloud services

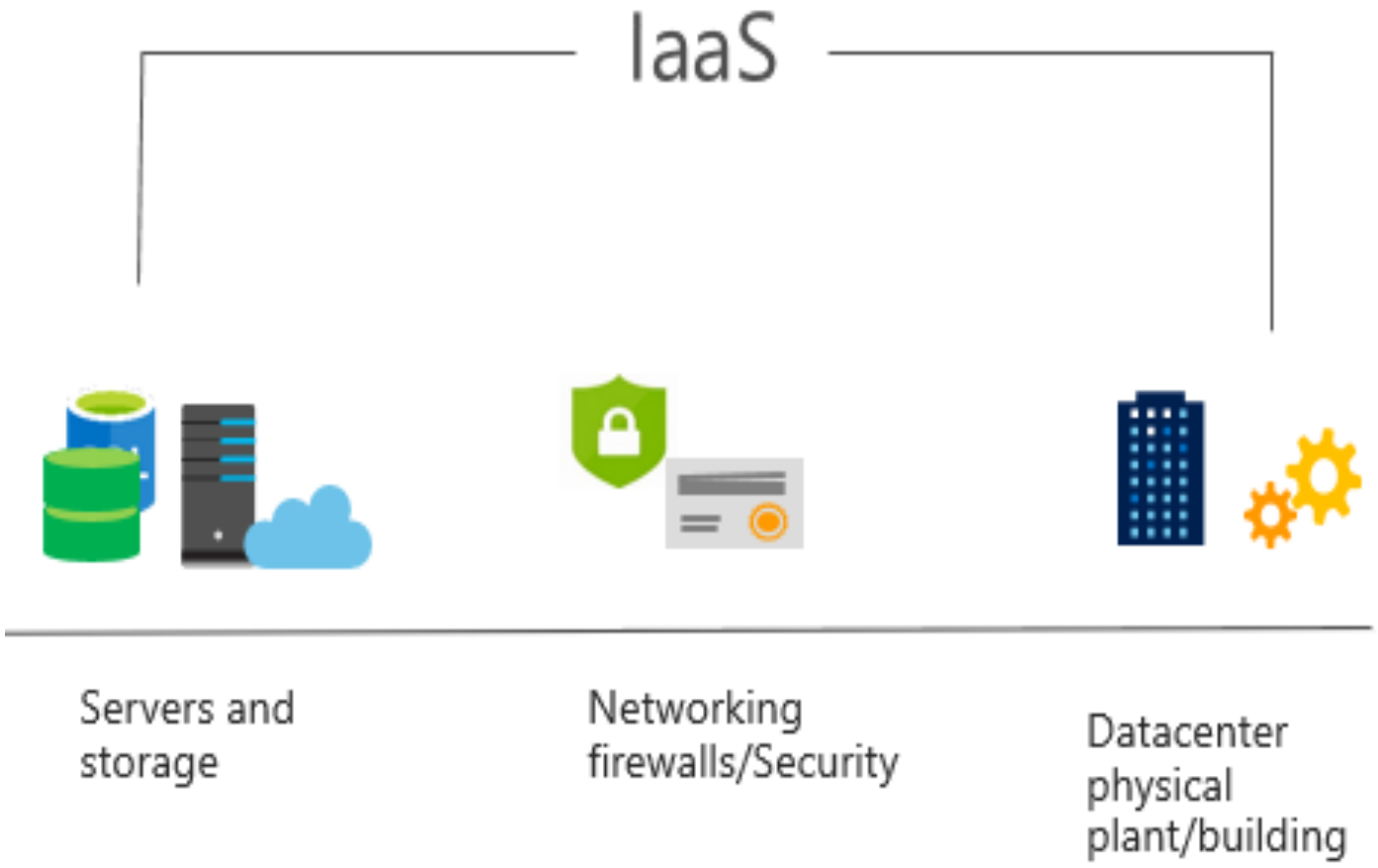


Shared responsibility model

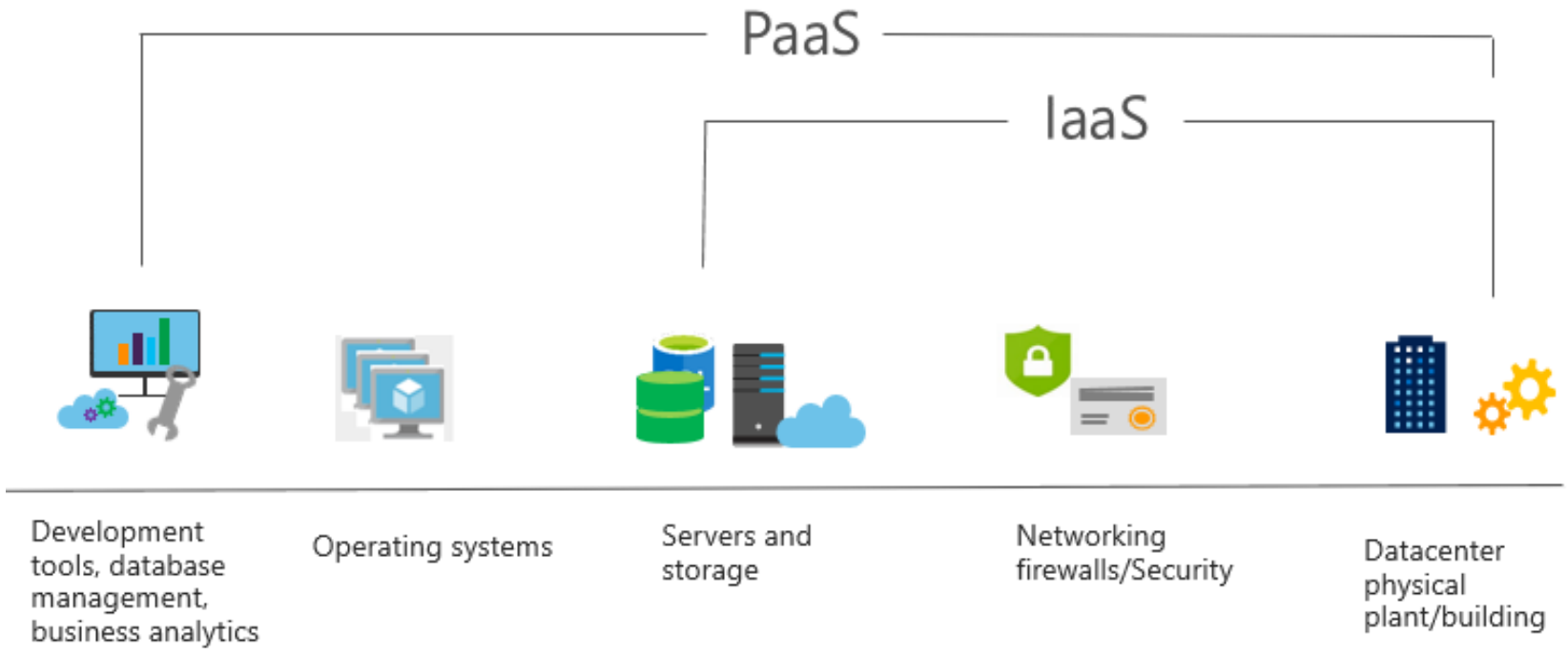


Infrastructure as a Service (IaaS)

- Most basic cloud computing services category.
- Build pay-as-you-go IT infrastructure by renting servers, virtual machines, storage, networks, and operating systems from a cloud provider.
- Instant computing infrastructure, provisioned and managed over the internet.

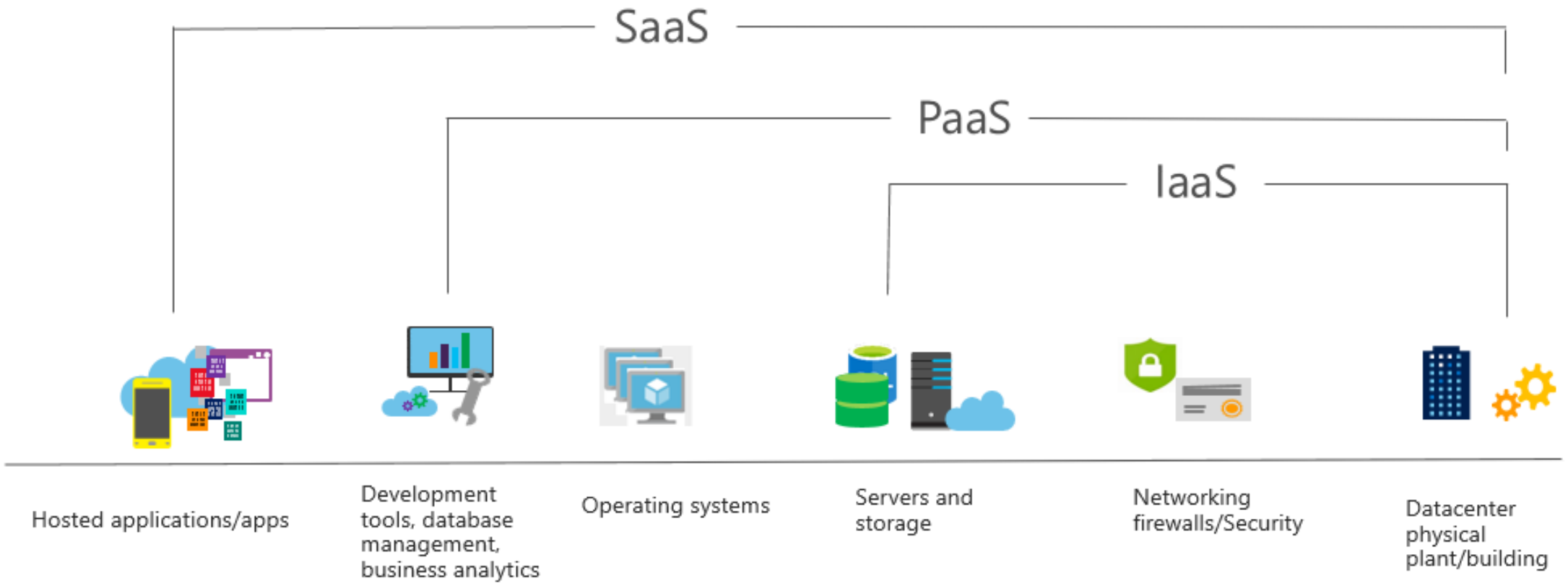


Platform as a Service (PaaS)



- Provides environment for building, testing, and deploying software applications.
- Helps create applications quickly, without focusing on managing underlying infrastructure.

Software as a Service (SaaS)



Centrally hosted and managed software for end users. Users connect to and use cloud-based apps over the internet. For example, Microsoft Office 365, email, and calendars.

Cloud service comparison

IaaS	PaaS	SaaS
• The most flexible cloud service. • You configure and manage the hardware for your application.	• Focus on application development. • Platform management is handled by the cloud provider.	• Pay-as-you-go pricing model. • Users pay for the software they use on a subscription model.

Lesson 05: Module review questions