

AZ-900T01

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

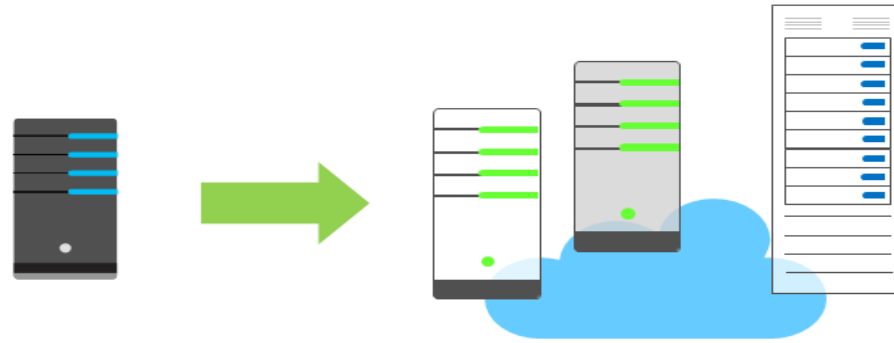
Predictive cost considerations

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.



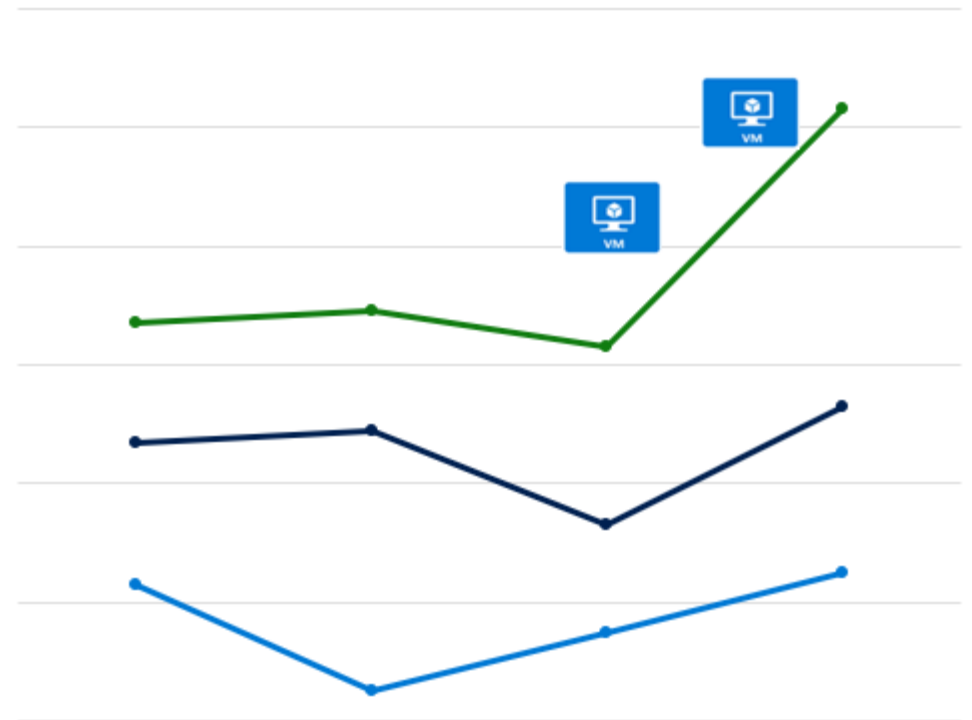
- Cloud providers are very large businesses, and thus can leverage the benefits of economies of scale and then pass those benefits on to their customers.

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

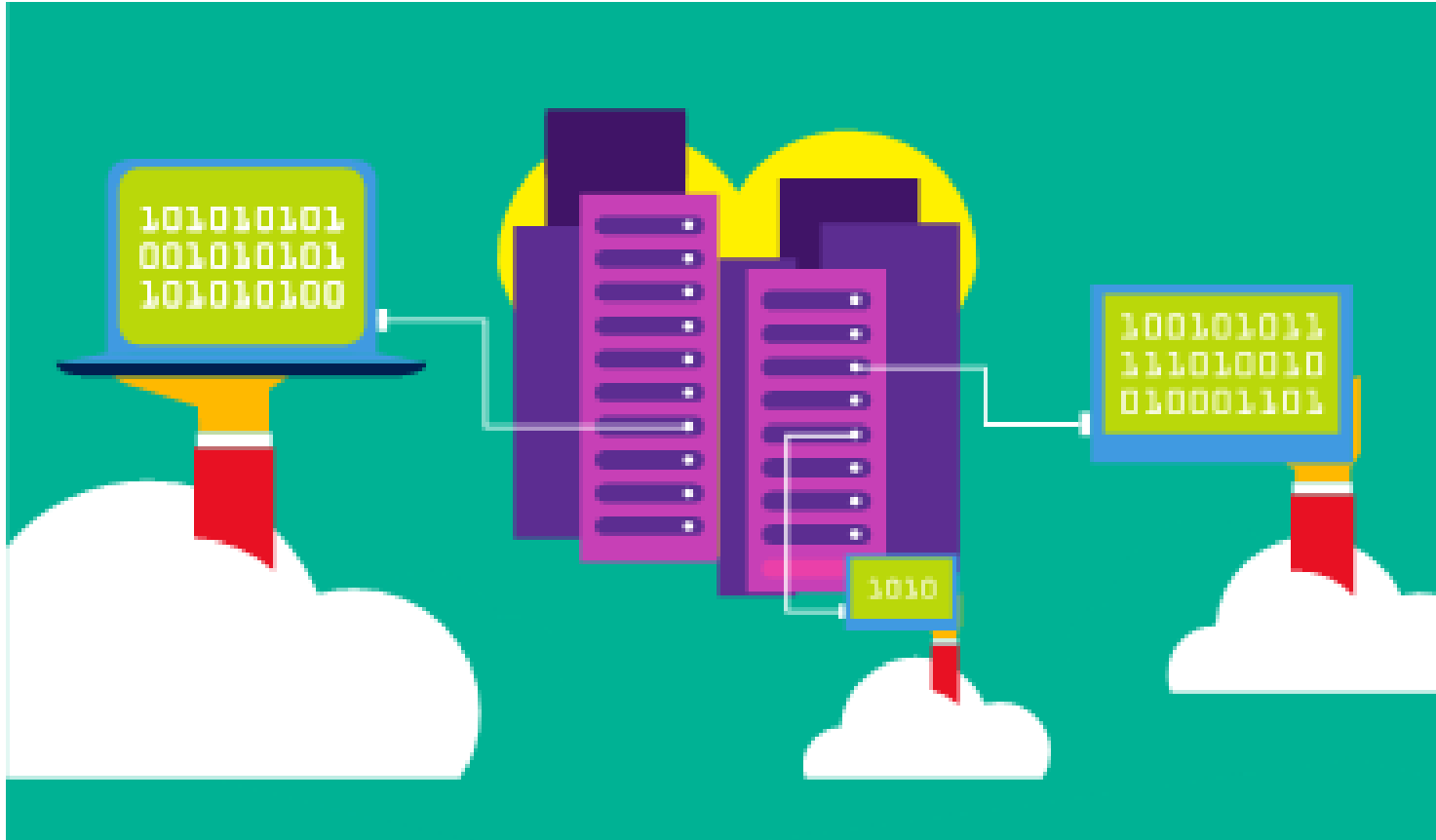
- No upfront costs.
- No need to purchase and manage costly infrastructure.
- Ability to pay for additional resources as they are needed.
- Ability to stop paying for resources that are no longer needed.



Lesson 03: Types of cloud models



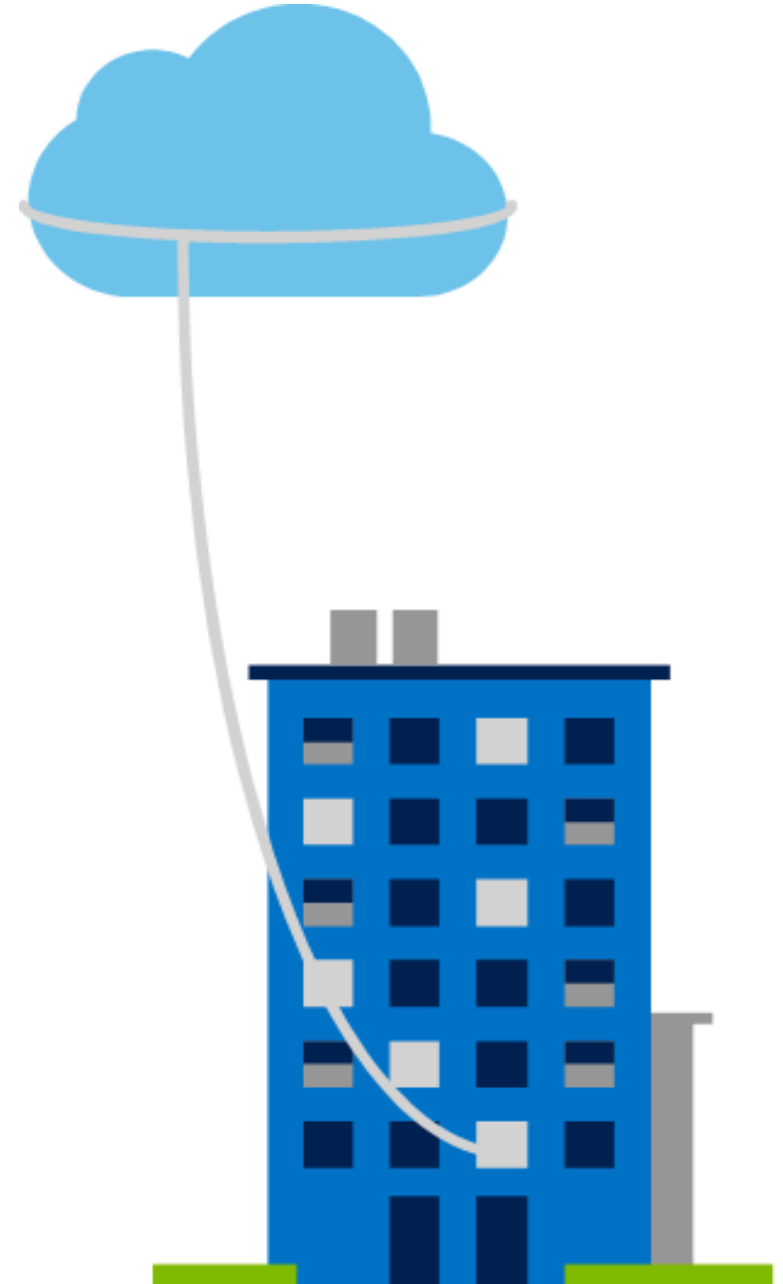
Public cloud



- 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.

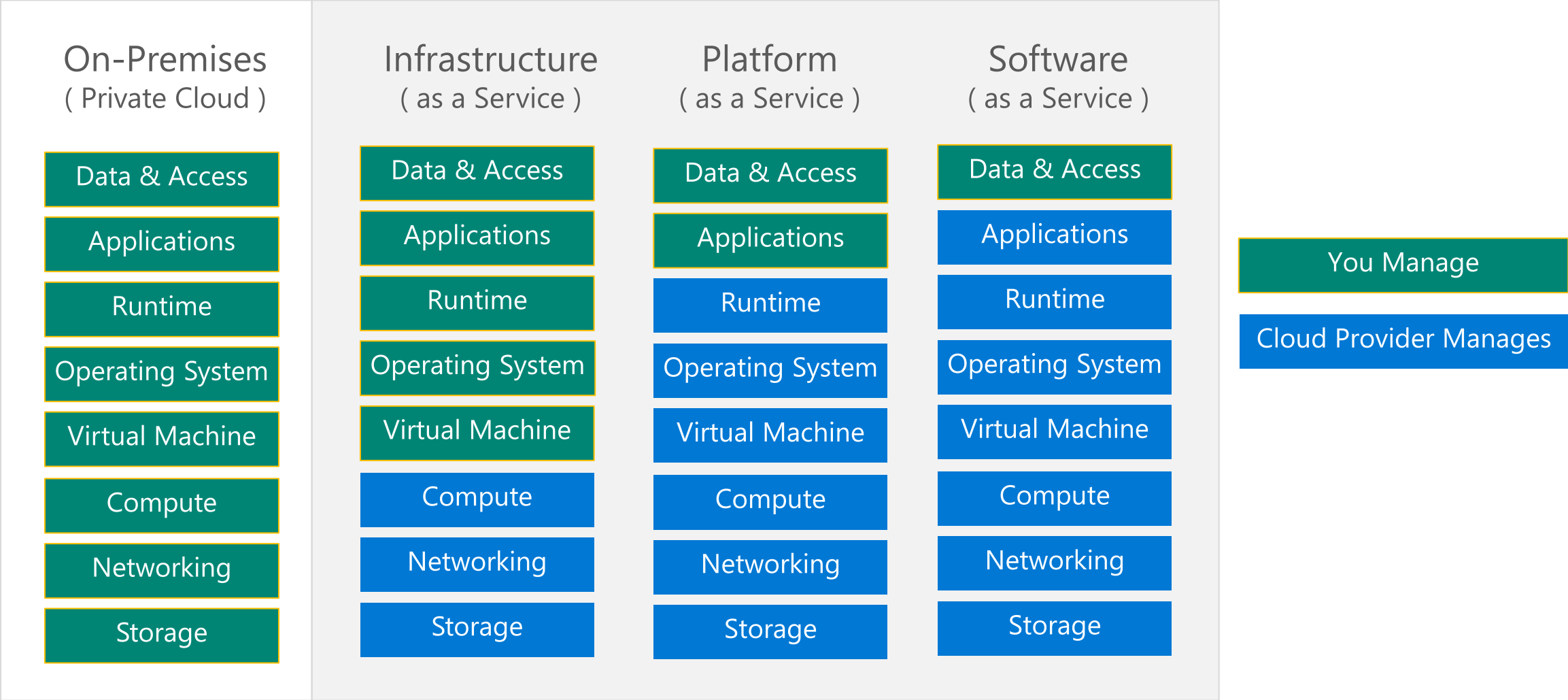
Hybrid cloud:

- Most flexibility.
- Organizations determine where to run their applications.
- Organizations control security, compliance, or legal requirements.

Lesson 04: Types of cloud services

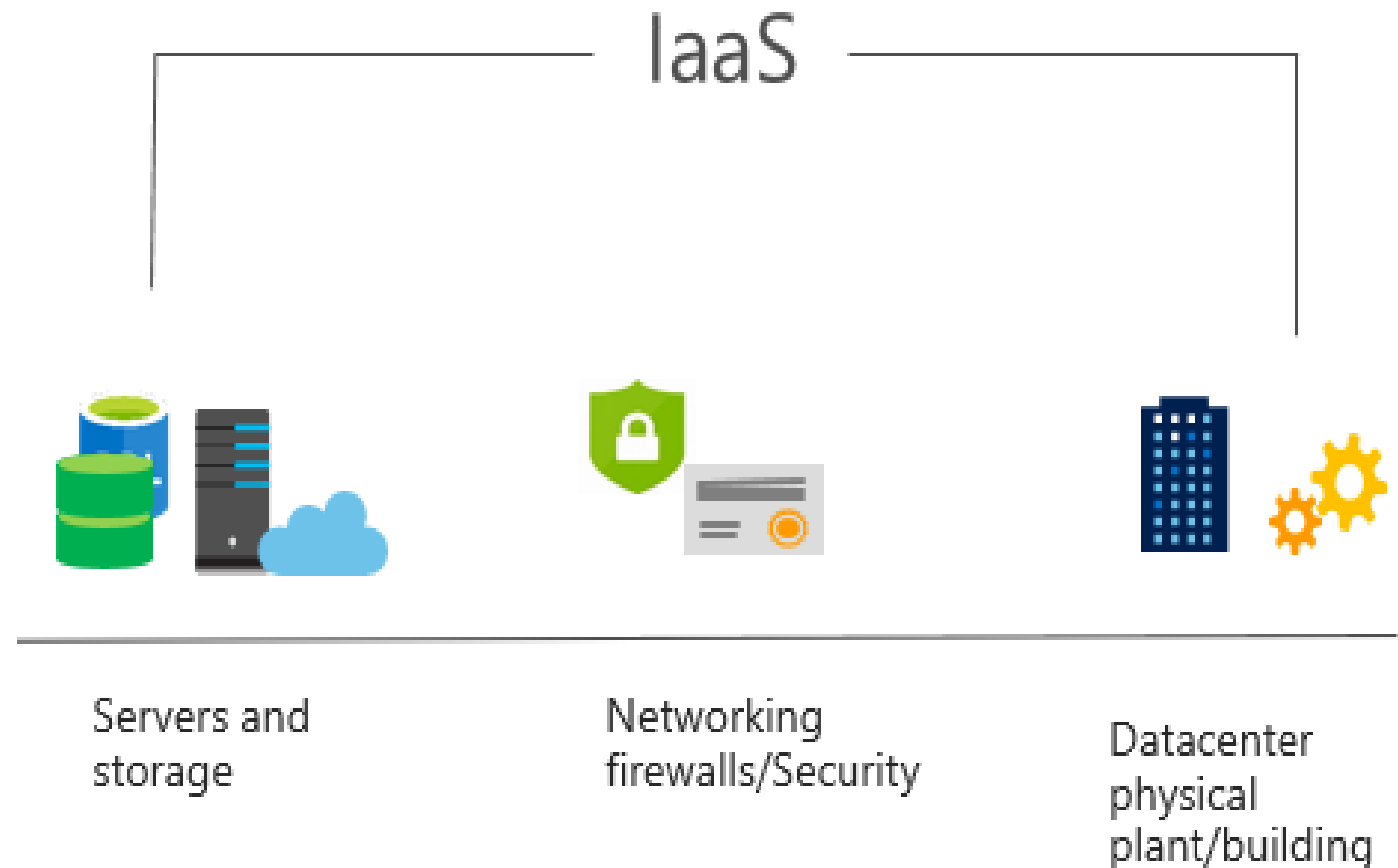


Shared responsibility model

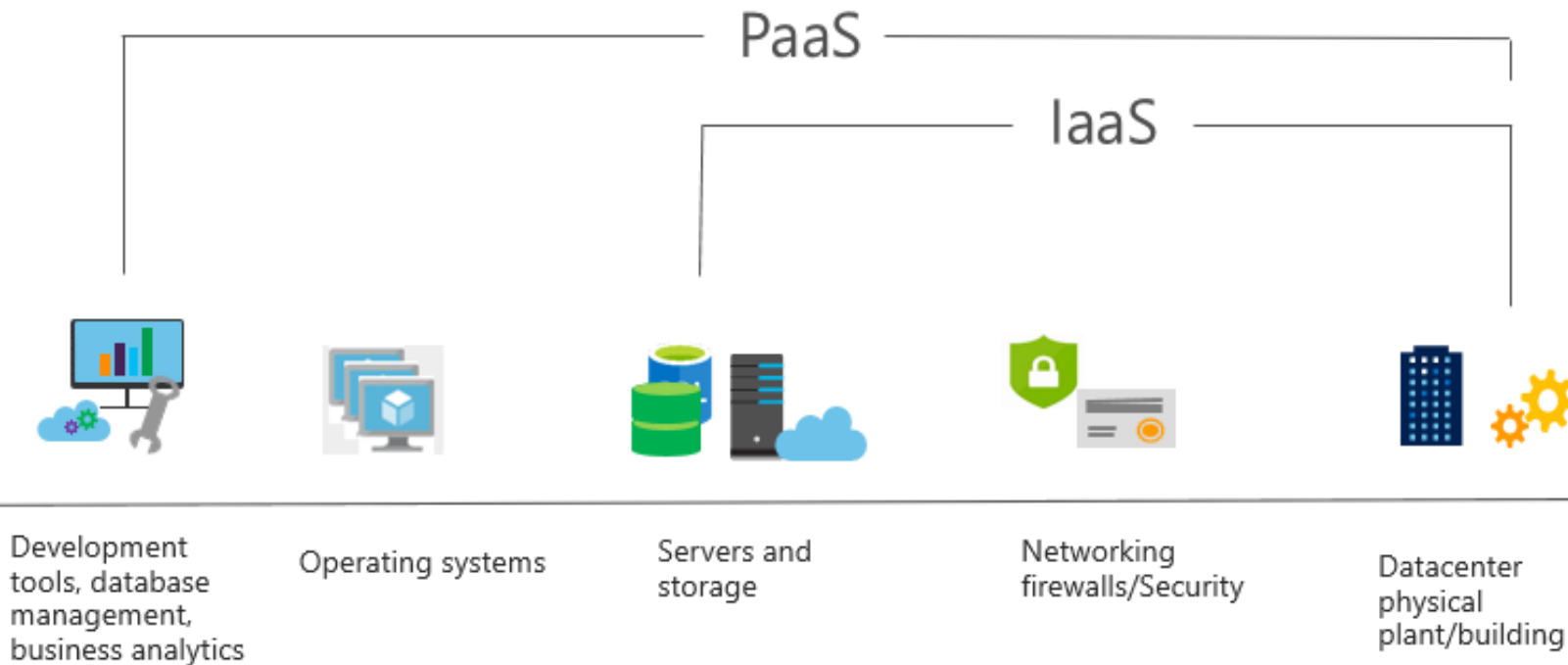


Infrastructure as a Service (IaaS)

- 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.

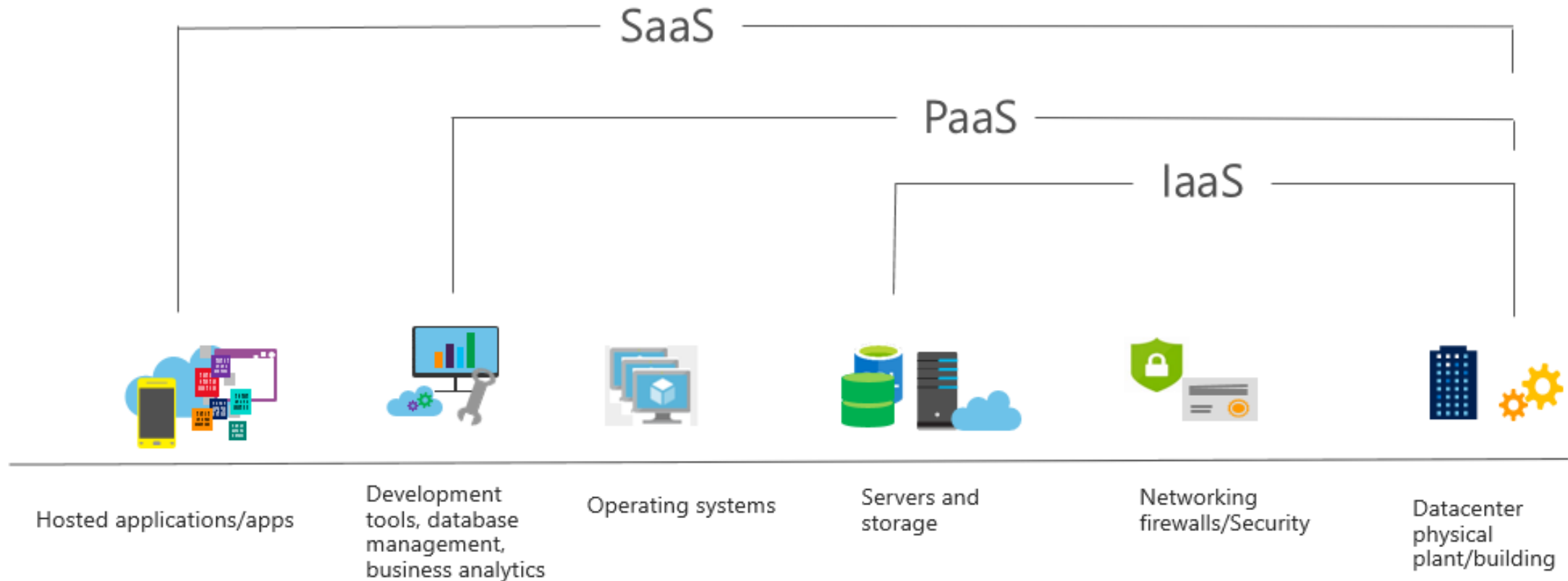


Platform as a Service (PaaS)



- 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

- 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.