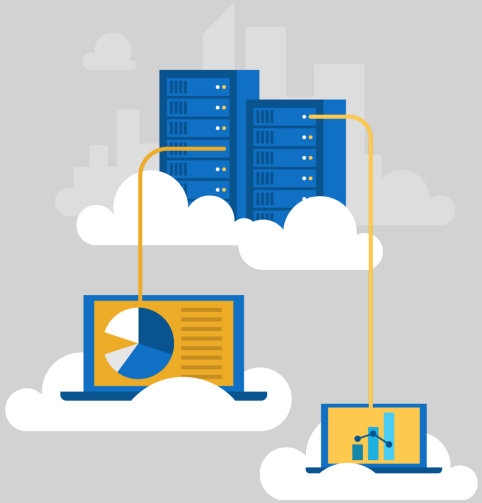
Microsoft

AZ-900T01
Module 01:
Cloud concepts

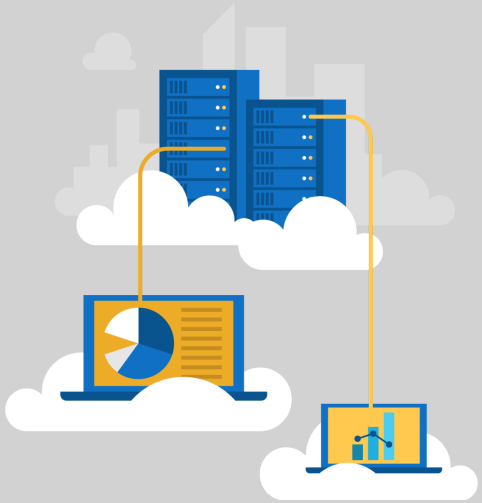
Lesson 01: Learning objectives



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?



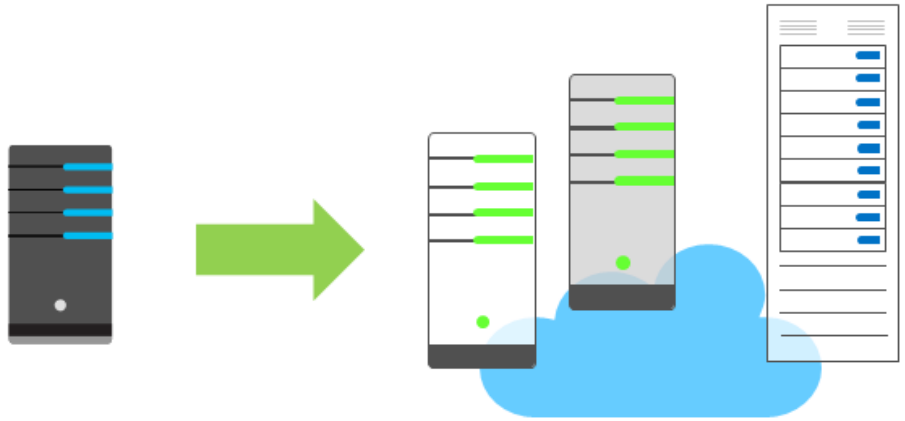
Key concepts and terms

- Cloud services have certain characteristics and considerations, such as:

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

Economies of scale

- The concept of *economies of scale* is the ability to do things less expensively and more efficiently when operating at a larger scale in comparison to operating at a smaller scale.



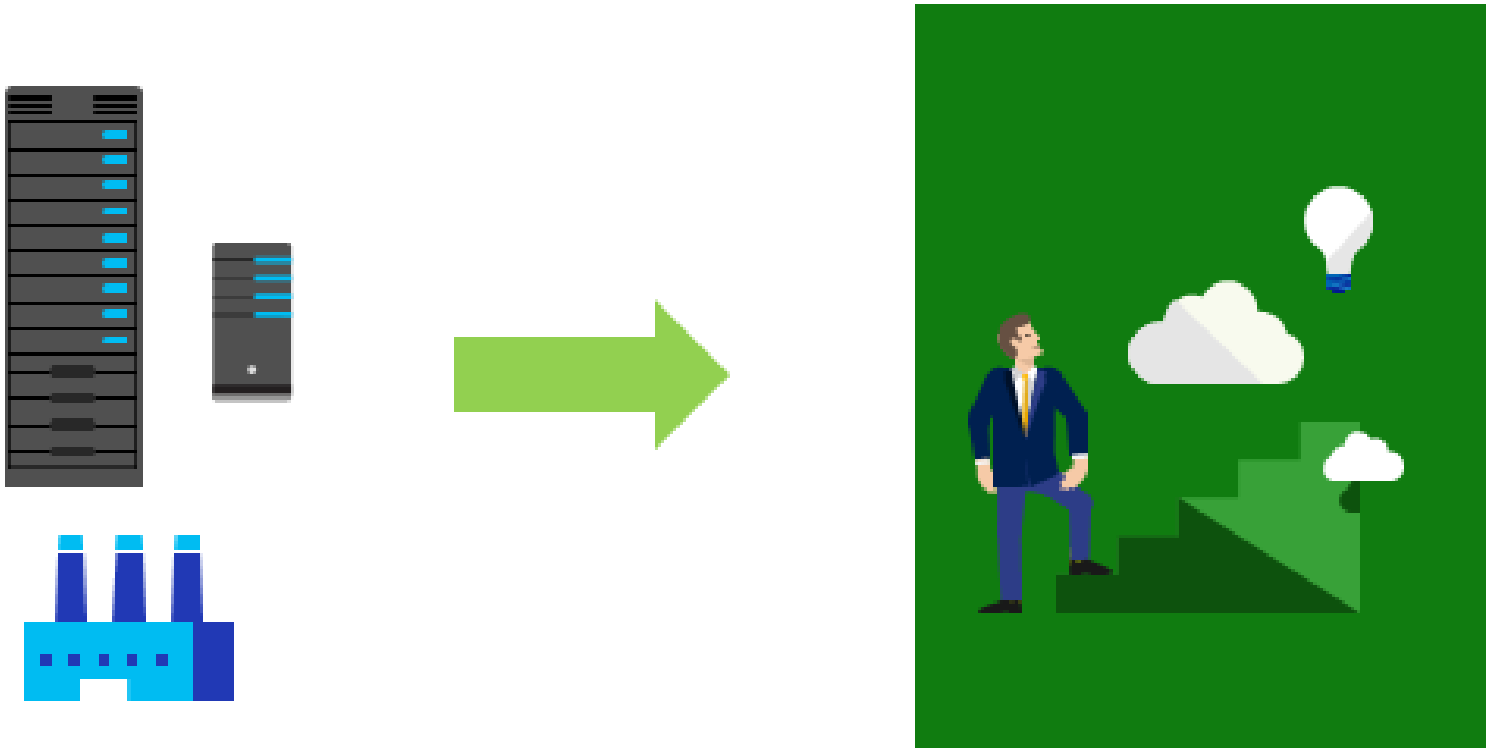
- Cloud providers such as Microsoft, Google, and Amazon Web Services (AWS) are very large businesses, and thus can leverage the benefits of economies of scale and then pass those benefits on to their customers.

CapEx vs. OpEx

- Capital Expenditure (CapEx) : spend on physical infrastructure up front, deduct the expense from your tax bill.
  - High upfront cost, value of investment reduces over time.

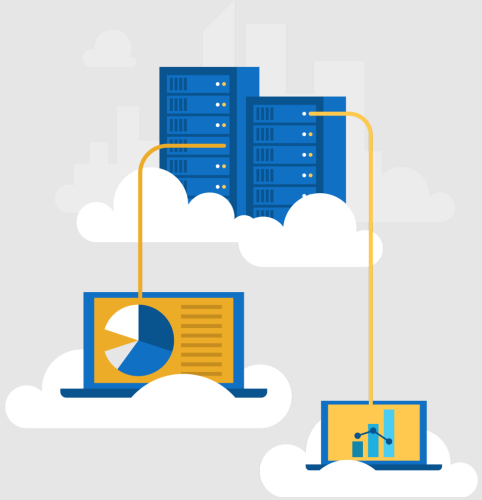
- Operational Expenditure (OpEx) : spend on services or products as needed, and get billed immediately. Deduct the expense from your tax bill in the *same year*.
  - No upfront cost, pay-as-you use.

Consumption-based model

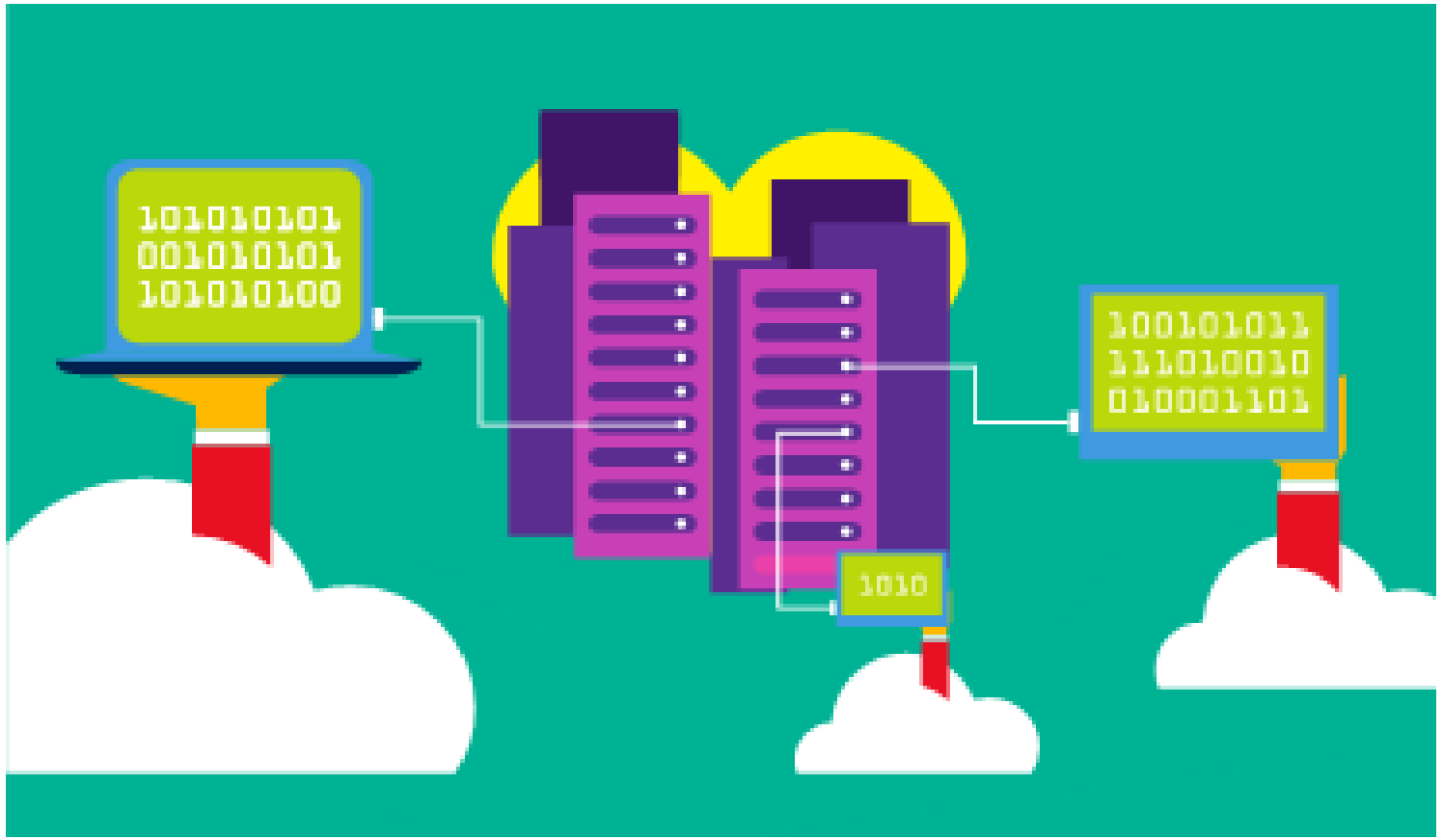


Users only pay for the resources they use

Lesson 03: Types of cloud models



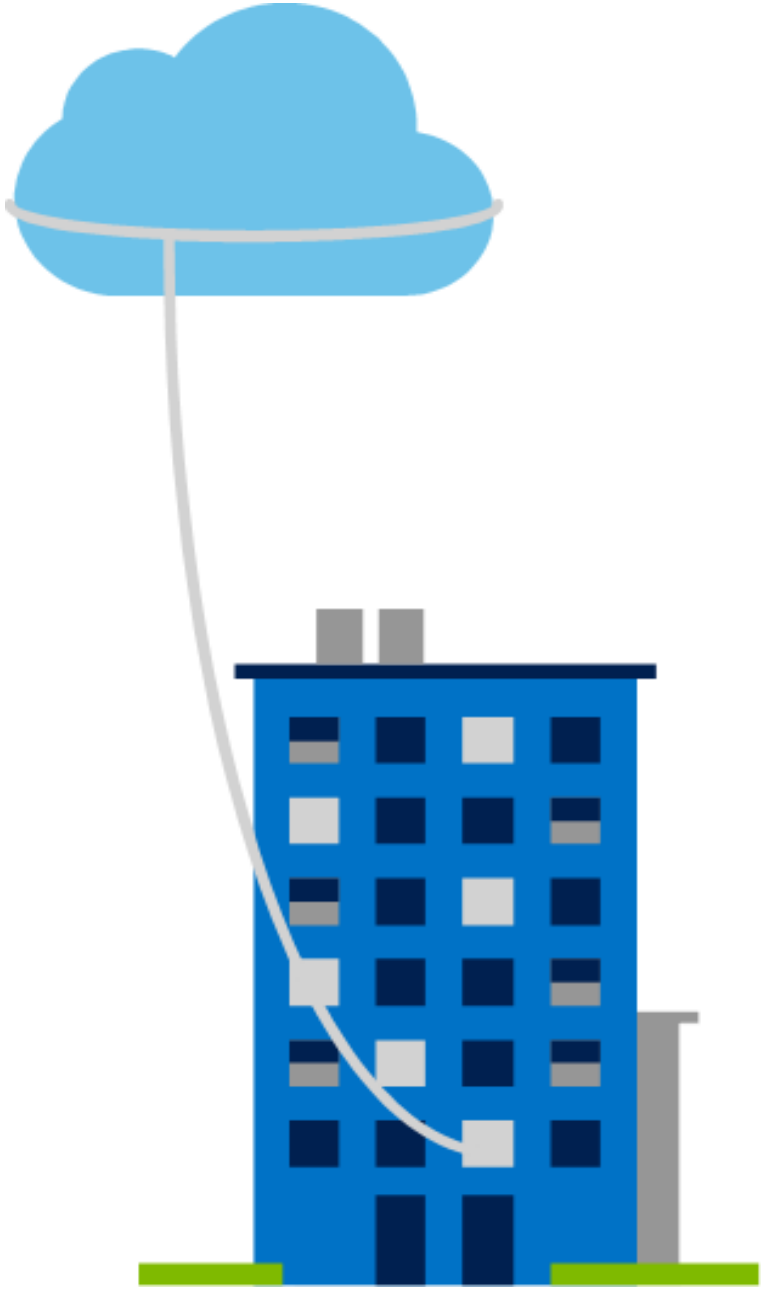
Public cloud



- 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 data center.
- 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 CapEx. You don't have to buy a new server to scale up.
- Agility. Applications can be made accessible quickly, and deprovisioned whenever needed.
- Consumption-based model. Organizations pay only for what they use and operate under an OpEx model.

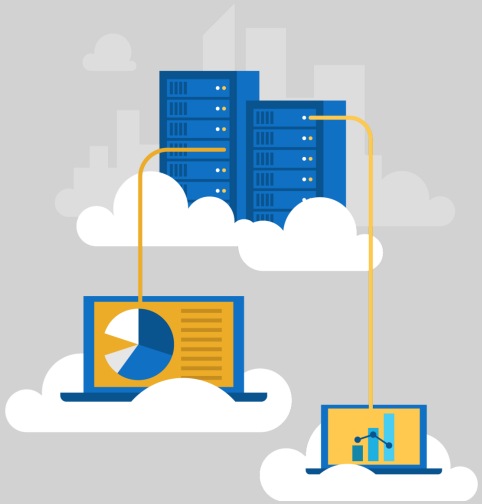
Private cloud:

- Control. Organizations have complete control over resources.
- Security. Organizations have complete control over security.

Hybrid cloud:

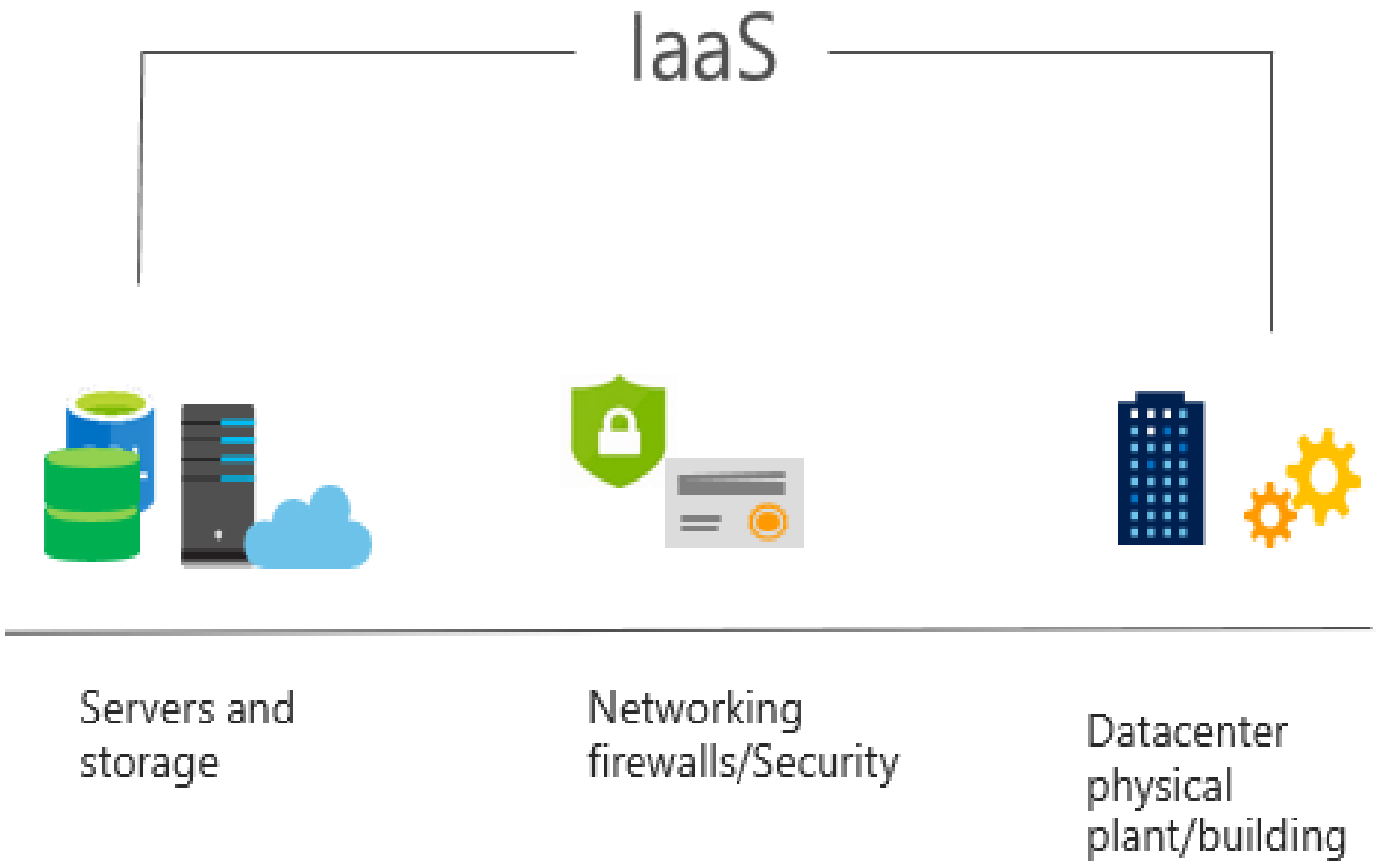
- Flexibility. The most flexible scenario. With a hybrid cloud setup, an organization can determine whether to run their applications in a private cloud or in a public cloud.
- Compliance. Organizations maintain the ability to comply with strict security, compliance, or legal requirements as needed.

Lesson 04: Types of cloud services

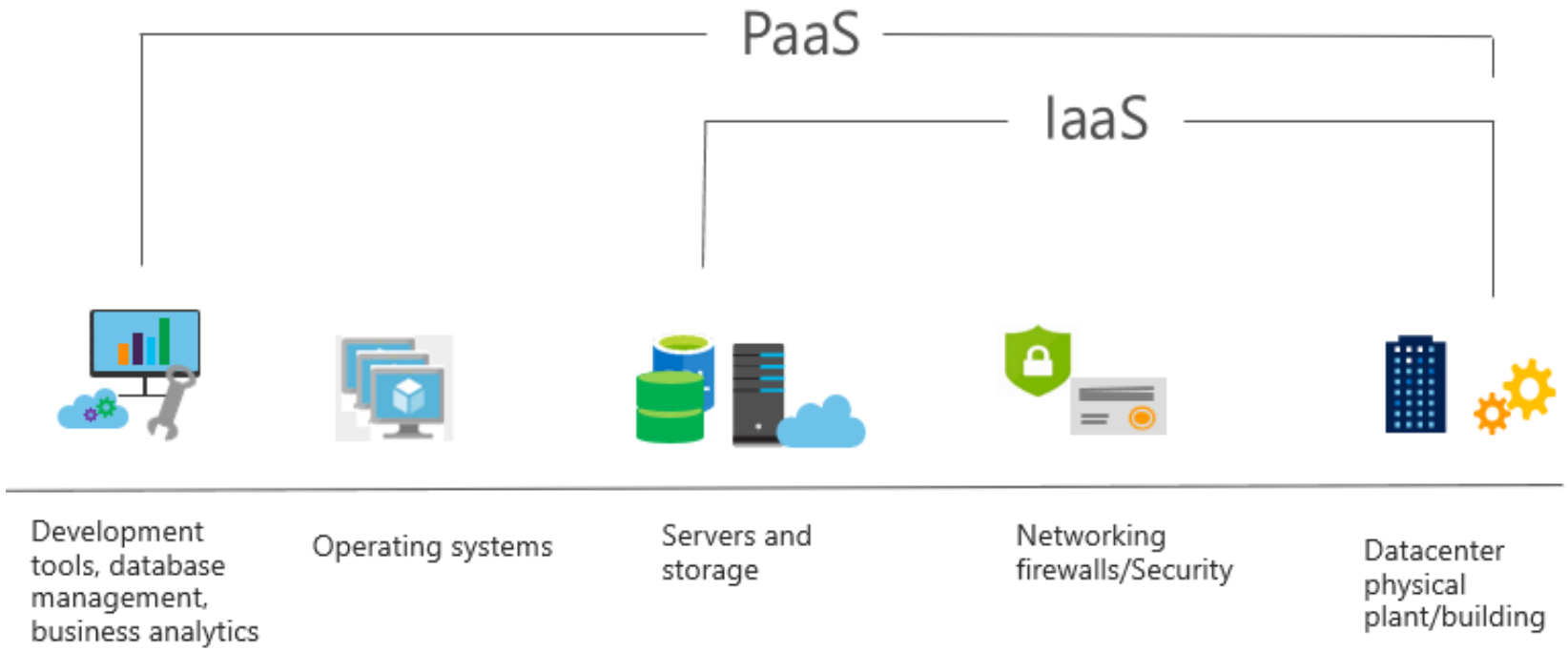


Infrastructure as a Service (IaaS)

- 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.

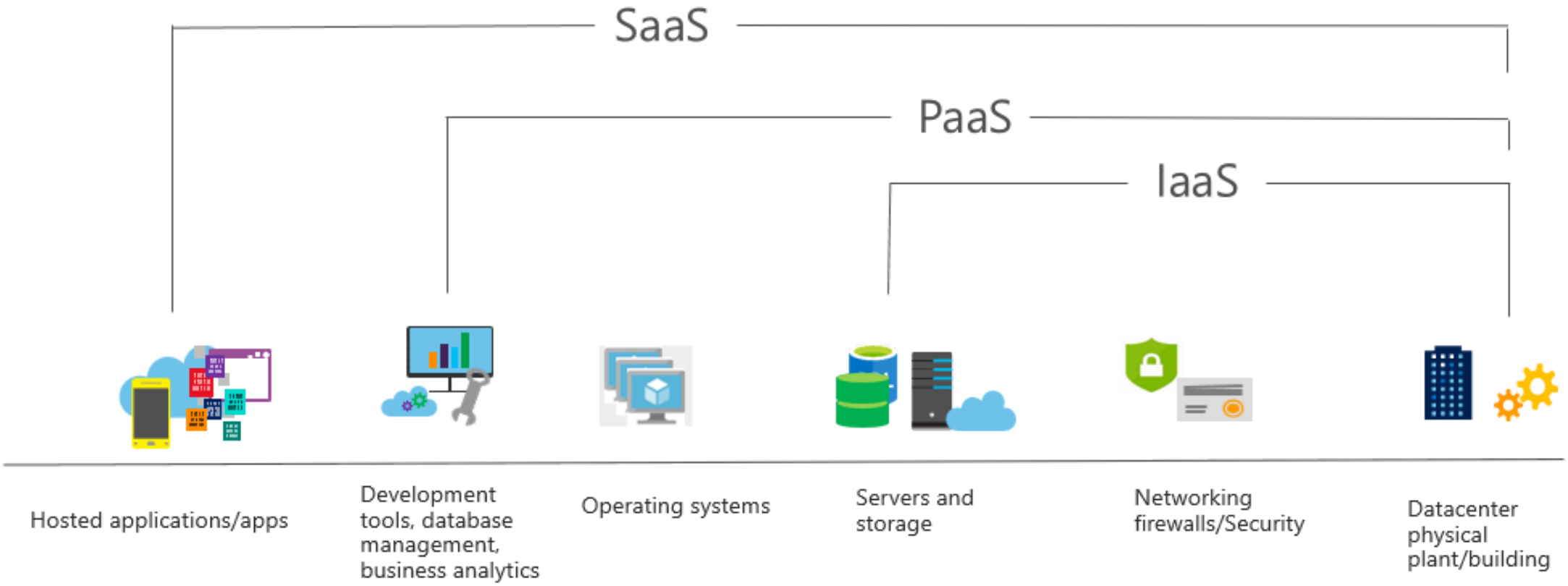


Platform as a Service (PaaS)



- 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.

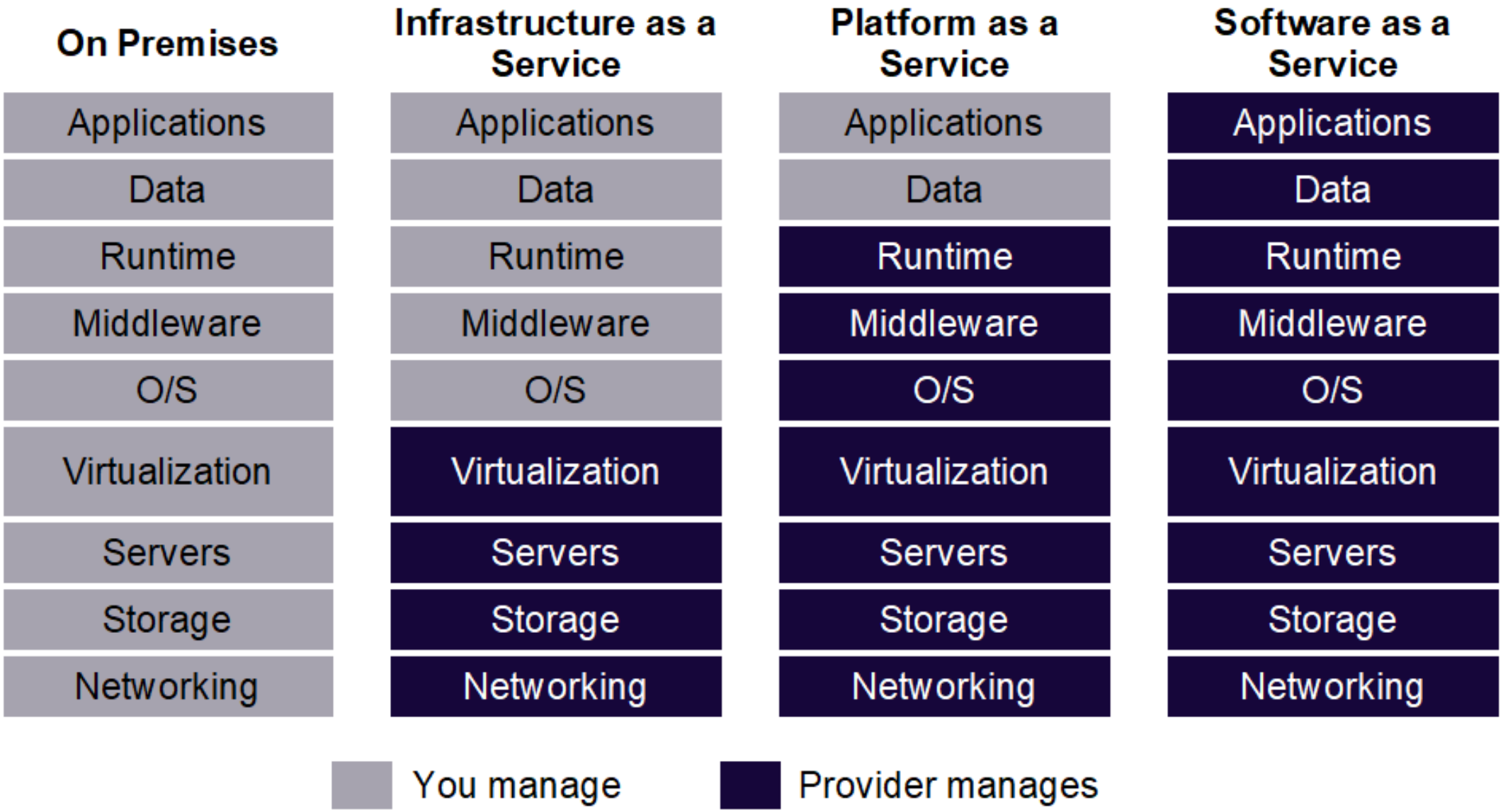
Cloud service comparison

- IaaS: Flexibility. IaaS is the most flexible cloud service as you have control to configure and manage the hardware running your application.

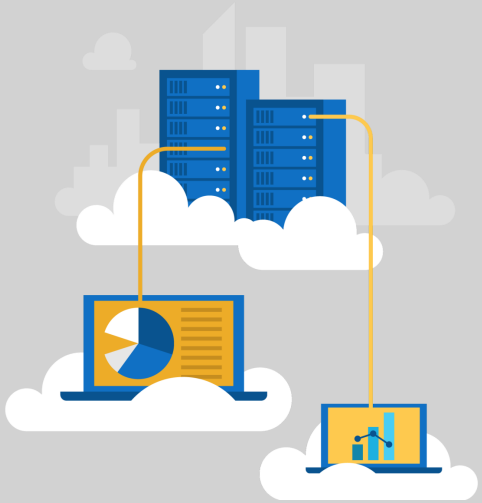
- PaaS: Productivity. Users can focus on application development only, as all platform management is handled by the cloud provider. Working with distributed teams as services is easier, as the platform is accessed over the internet and can be made globally available more easily.

- SaaS: Pay-as-you-go pricing model. Users pay for the software they use on a subscription model, typically monthly or yearly, regardless of how much they use the software.

Management responsibilities



Lesson 05: Module review questions



Module 1 review questions

1. What are some of the benefits to using cloud services?
2. Which cloud model provides the greatest degree of flexibility?
3. You need to run two types of applications:

    (a) legacy applications requiring specialized hardware

    (b) newer applications running on commodity hardware

Which cloud deployment model is best for you?