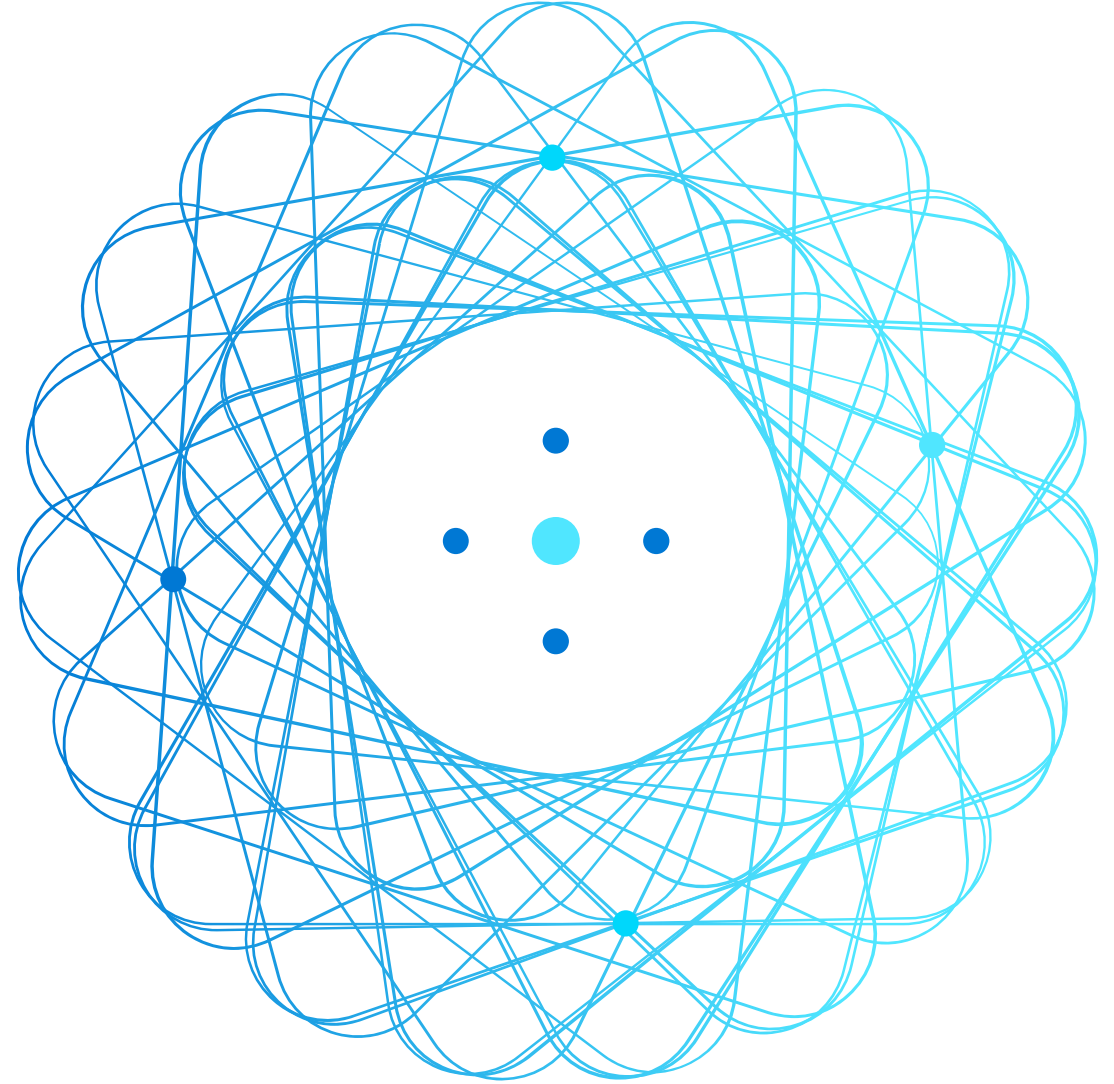


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Module 01:

Cloud concepts



Module Outline



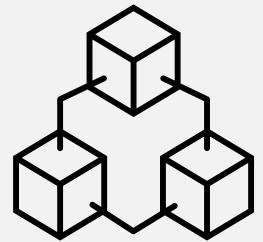
Module 01 - Outline

You will learn the following concepts:

- **Cloud Models**
 - Public, Private, and Hybrid cloud
 - Choosing the best for you
- **Cloud Benefits and Considerations**
 - Benefits of the cloud
 - Cloud considerations
- **Cloud Services**
 - IaaS, PaaS, and SaaS
 - Sharing responsibility



Cloud Models

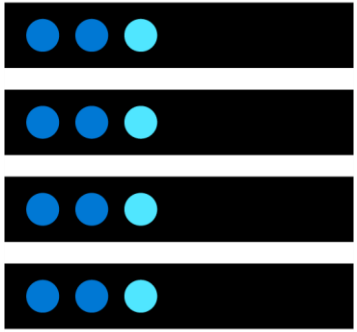


Cloud Models - Objective Domain

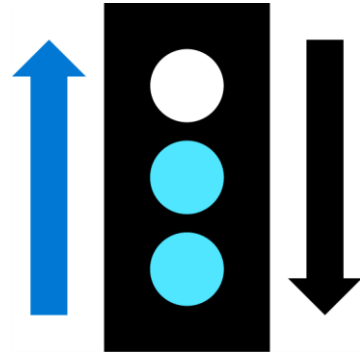
- Define cloud computing
- Describe Public cloud
- Describe Private cloud
- Describe Hybrid cloud
- Compare and contrast the three different cloud models

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



Analytics

The five important traits



On-demand
self-service

No human
intervention
needed to get
resources



Broad network
access

Access from
anywhere



Resource
pooling

Provider
shares
resources to
customers



Rapid
elasticity

Get more
resources
quickly as
needed



Measured
service

Pay only for
what you
consume

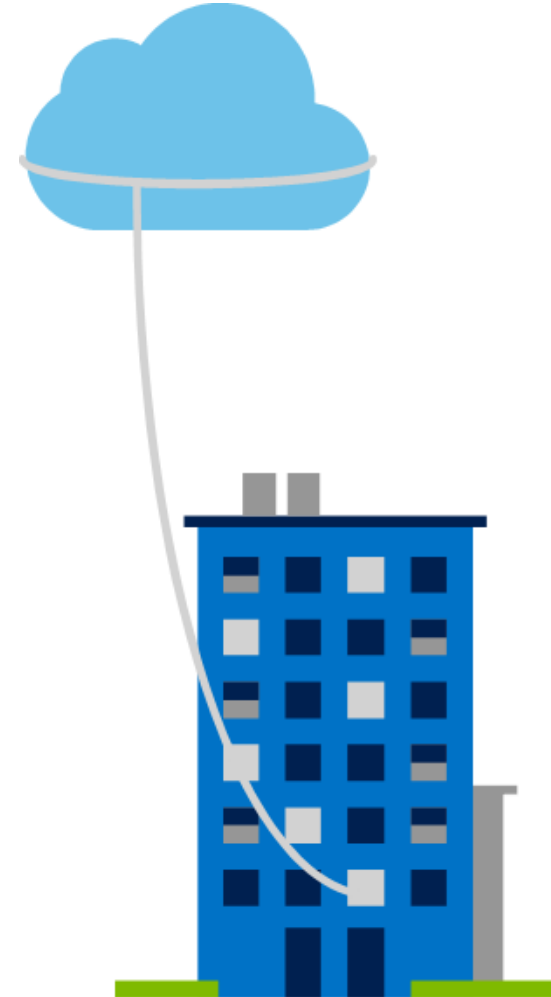
Public cloud

- 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

- 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.



Hybrid cloud



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

Community cloud

- Collaborative, multi-tenant platform.
- Several distinct organizations sharing same applications.
- Research & development environment.
- Government agencies, Healthcare, Financial services firms, Education Institutions and etc.



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.

Cloud benefits and considerations



Cloud Benefits - Objective Domain

- Identify the benefits of cloud computing such as High Availability, Scalability, Elasticity, Agility, and Disaster Recovery.
- Identify the differences between Capital Expenditure (CapEx) and Operational Expenditure (OpEx).
- Describe the consumption-based model.

Cloud Benefits

High availability

Scalability

Global reach

Agility

Disaster recovery

Fault tolerance

Elasticity

Customer latency capabilities

Predictive cost considerations

Security

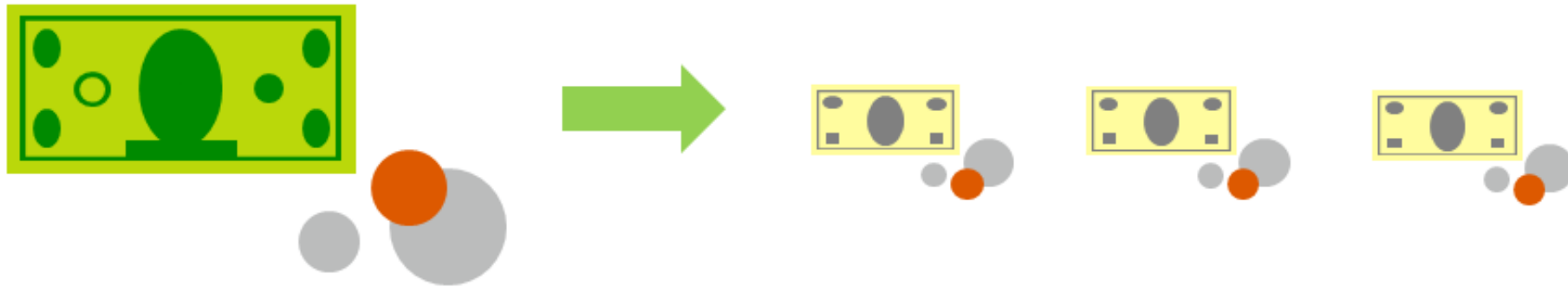
Compare CapEx vs. OpEx

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)

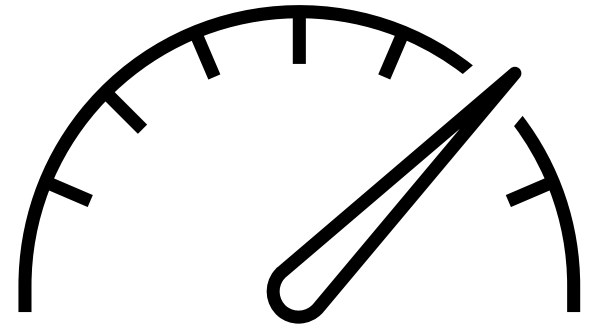
- Spend on products and services as needed, pay-as-you-go
- Get billed immediately



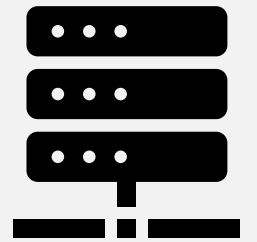
Consumption-based model

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 services

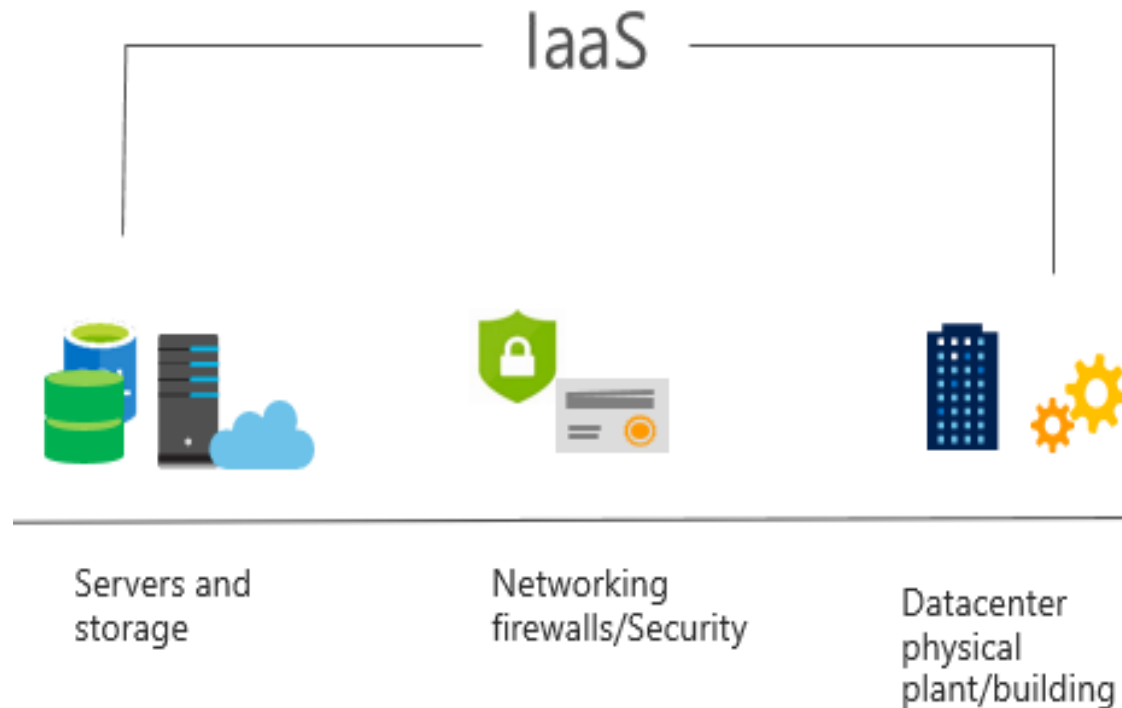


Cloud Services - Objective Domain

- Describe Infrastructure-as-a-Service (IaaS)
- Describe Platform-as-a-Service (PaaS)
- Describe Software-as-a-Service (SaaS)
- Identify a service type based on a use case
- Describe the shared responsibility model
- Describe serverless computing

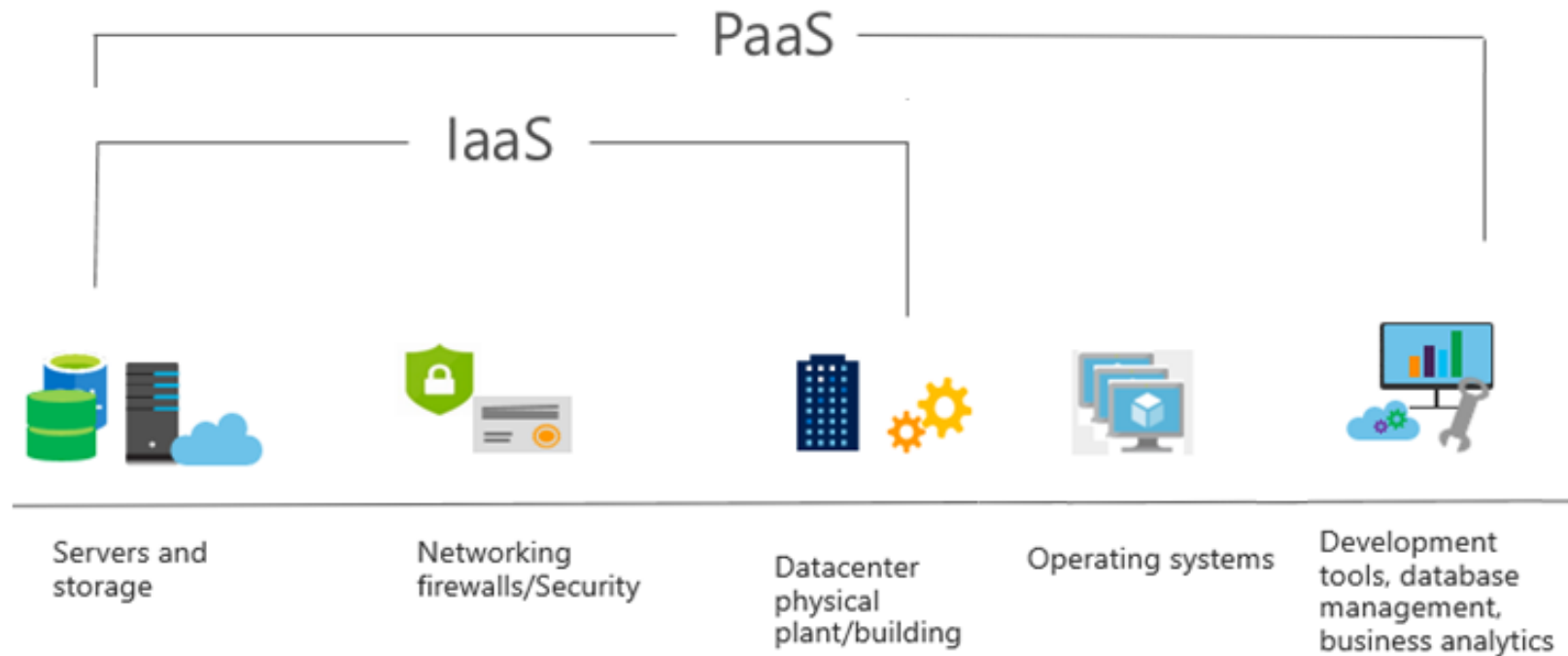
Infrastructure as a Service (IaaS)

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



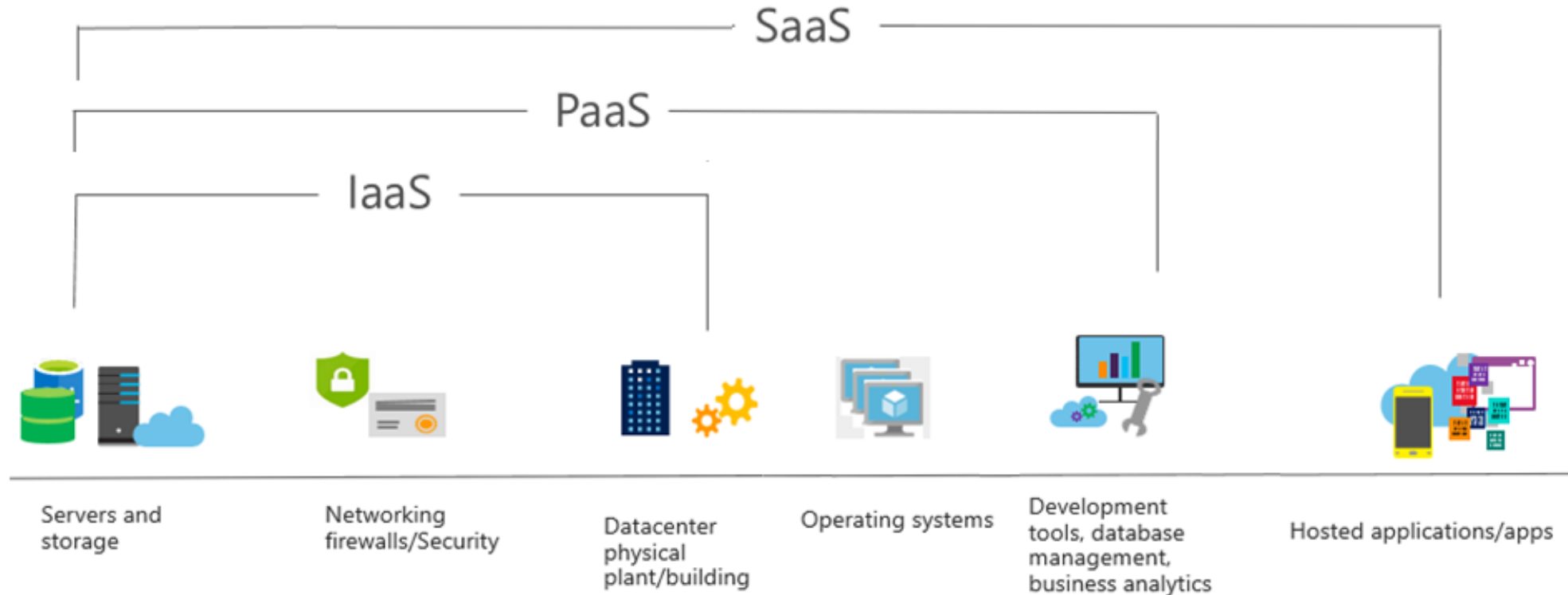
Platform as a Service (PaaS)

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



Software as a Service (SaaS)

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.

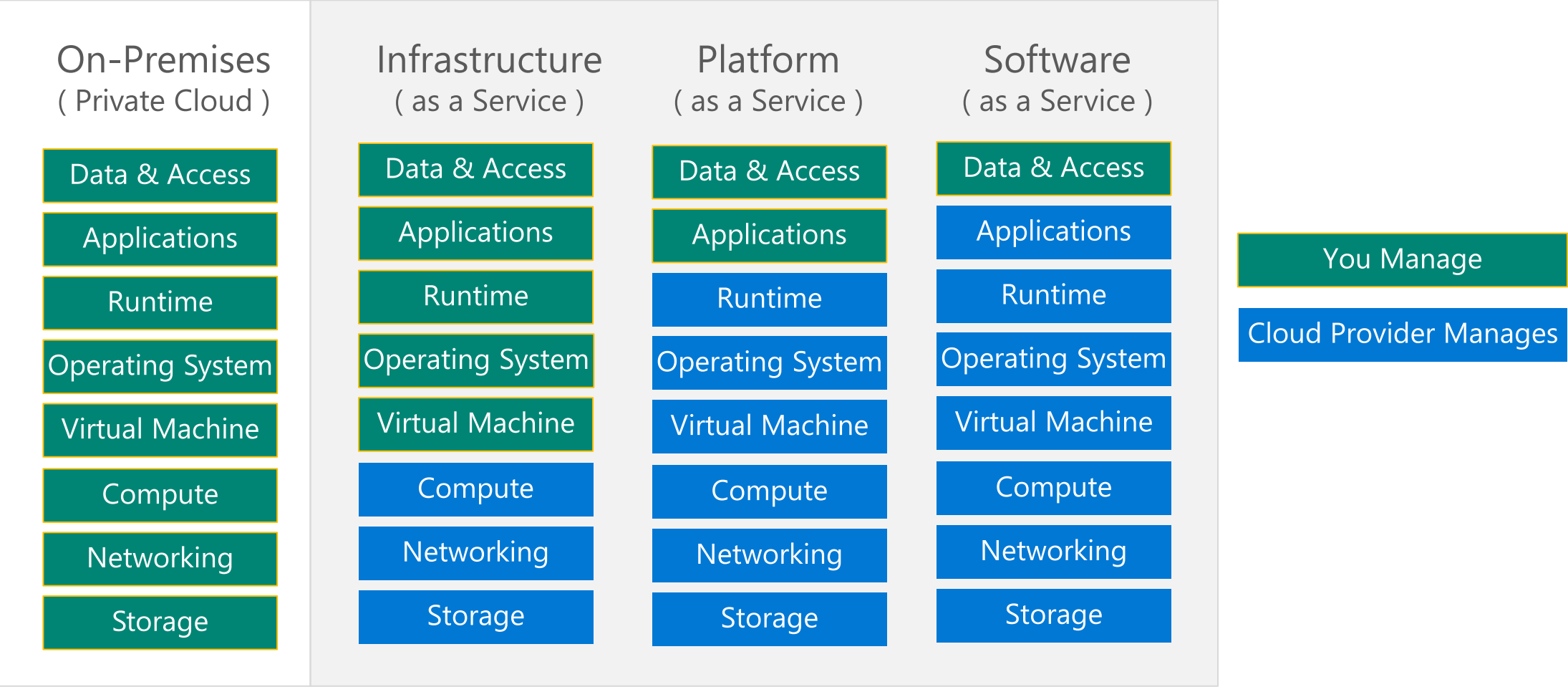
Platform management is handled by the cloud provider.

SaaS

Pay-as-you-go pricing model.

Users pay for the software they use on a subscription model.

Shared responsibility model

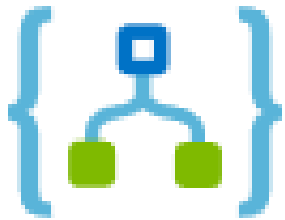


Serverless Computing

With **serverless computing applications**, the cloud service provider automatically provisions, scales, and manages the infrastructure required to run the code.



Azure Functions is code running your service and not the underlying platform or infrastructure. It creates infrastructure based on an event.



Azure Logic Apps is a cloud service that helps you automate and orchestrate tasks, business processes, and workflows when you need to integrate apps, data, systems, and services.

Module 01 Review



Microsoft Learn Modules
(docs.microsoft.com/Learn)

- Microsoft offers Public, Private, and Hybrid cloud models so you can build based on your needs.
- From high-availability to elasticity to disaster recovery to pay-as-use the benefits of the Azure cloud are numerous.
- IaaS, PaaS, SaaS, and serverless, or a combination.
- Shared responsibility.