Microsoft Azure

AZ-900T0x Module 01: Cloud concepts

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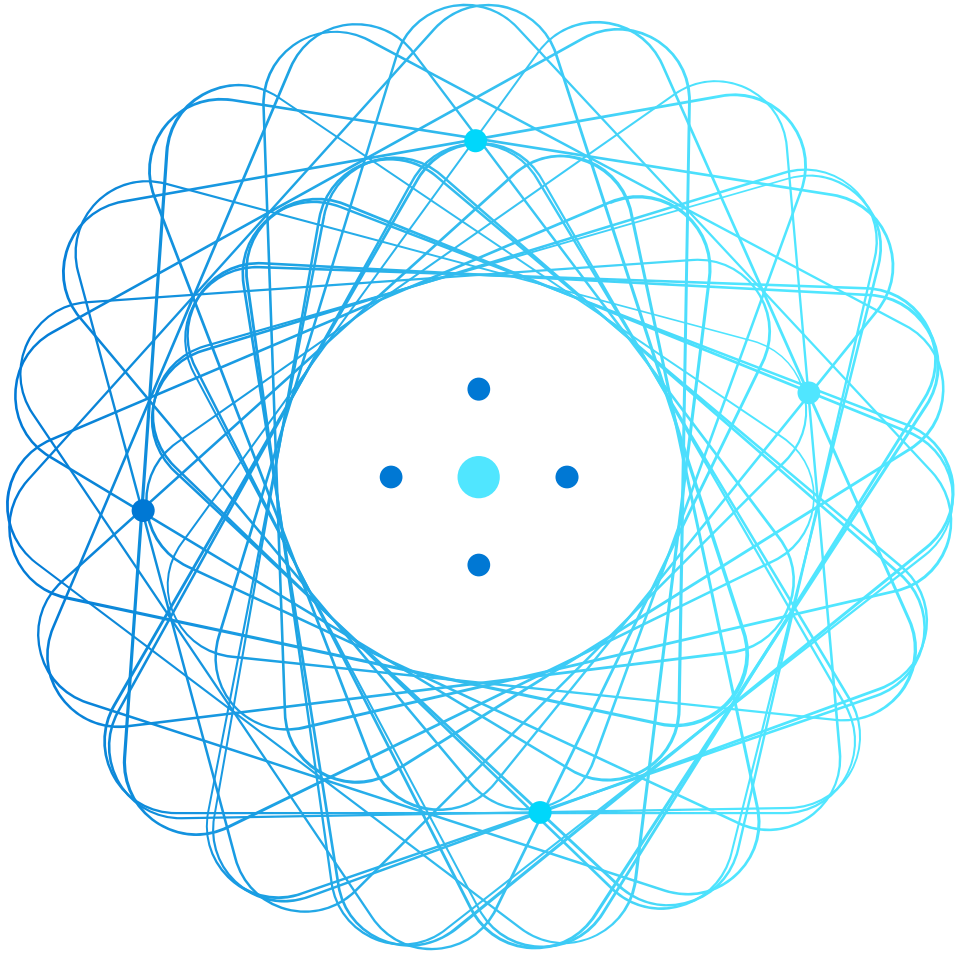


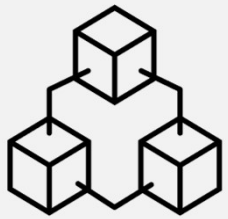
Module Outline

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

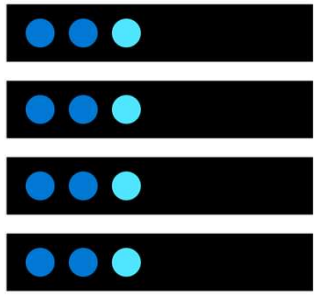


Cloud Models - Objective Domain

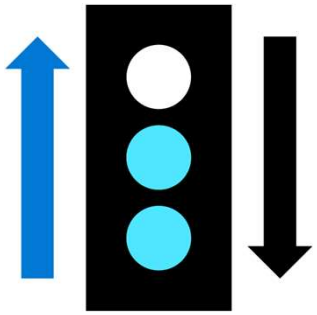
- Define cloud computing
- Describe Public cloud
- Describe Private cloud
- Describe Hybrid cloud
- Compare and contrast the three different cloud models

What is cloud computing?

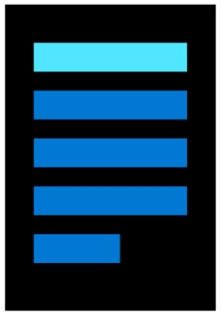
Cloud Computing is the delivery of computing services over the internet, enabling faster innovation, flexible resources, and economies of scale.



Compute



Networking



Storage

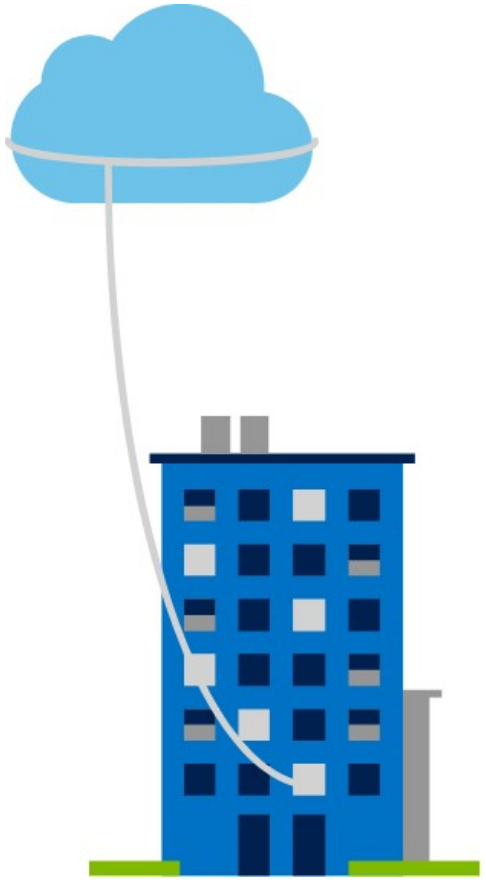
Analytics

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.

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

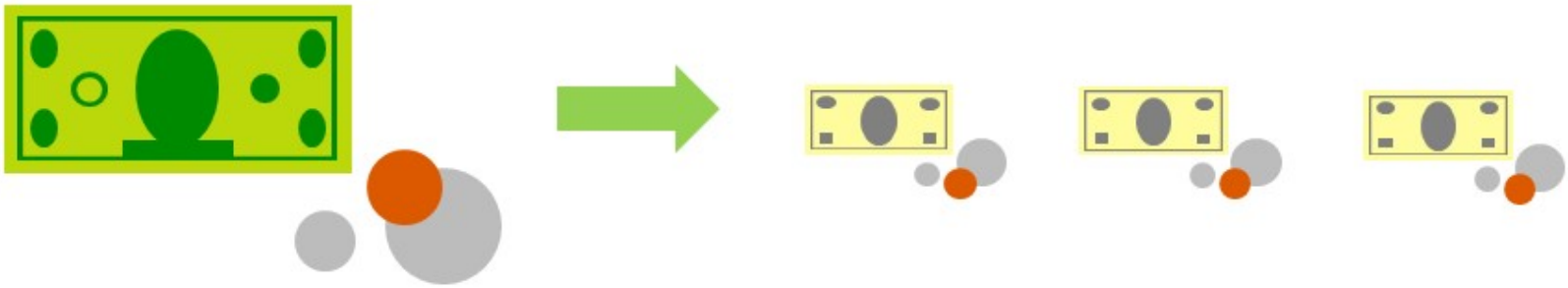
Compare CapEx vs. OpEx

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)

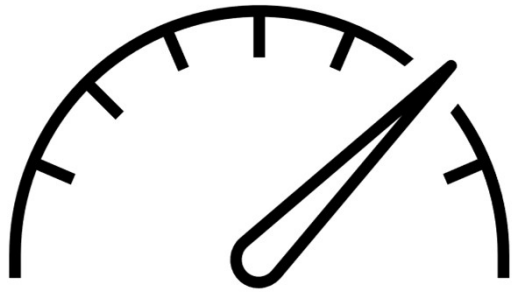
- Spend on products and services as needed, pay-as-you-go
- Get billed immediately



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



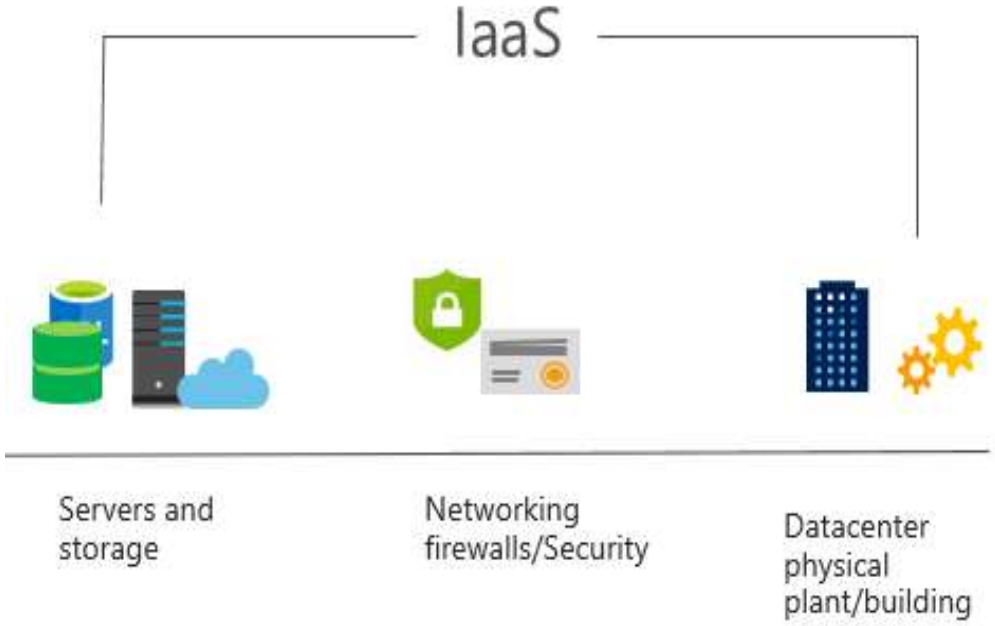
Cloud services

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

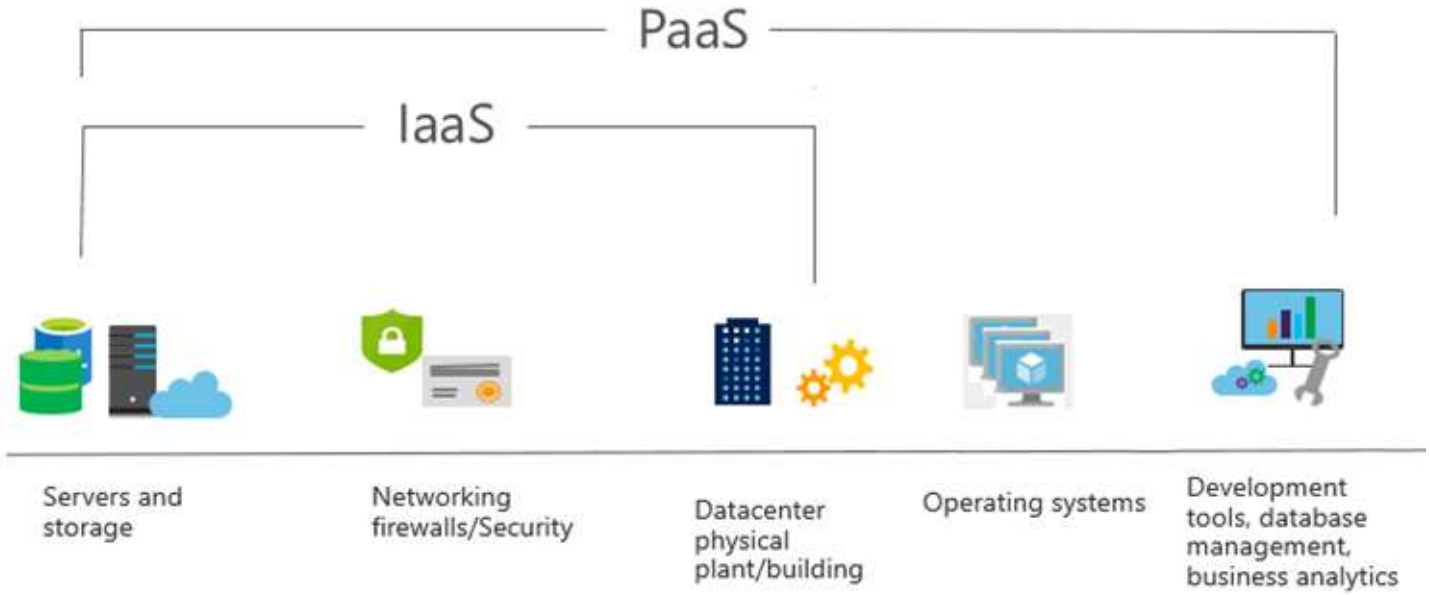
Infrastructure as a Service (IaaS)

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



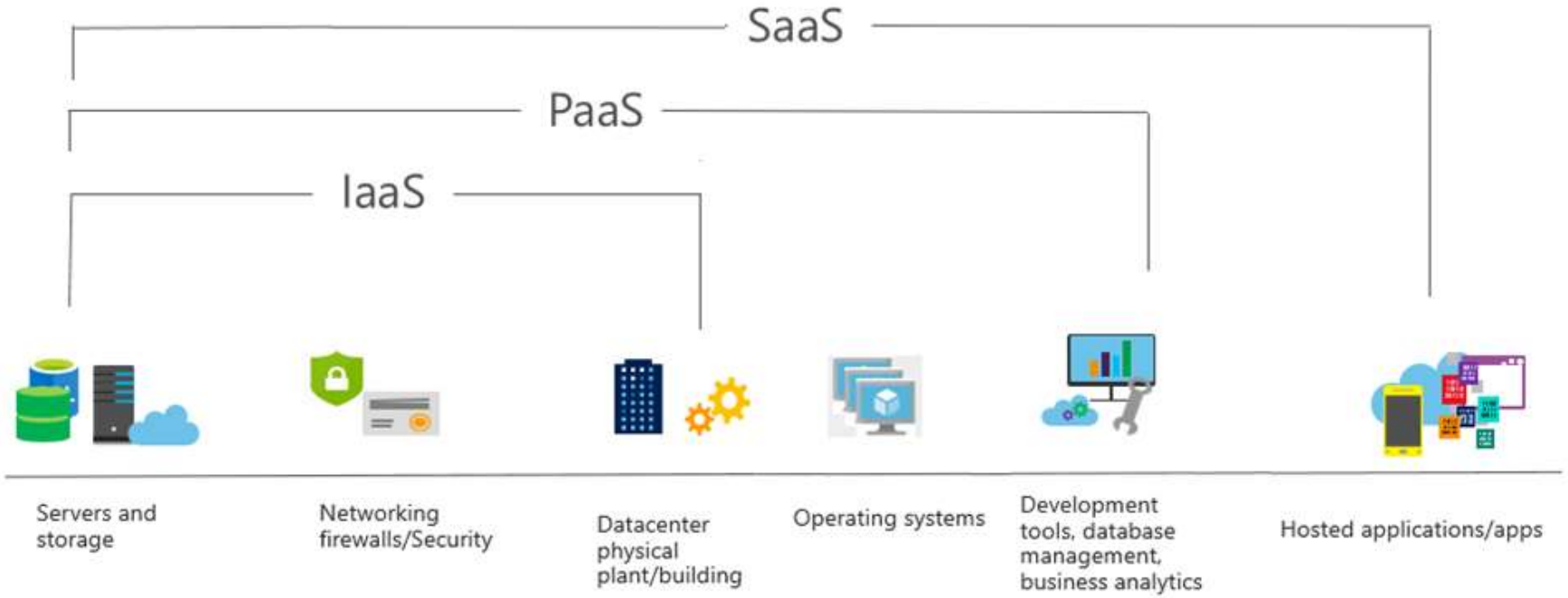
Platform as a Service (PaaS)

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



Software as a Service (SaaS)

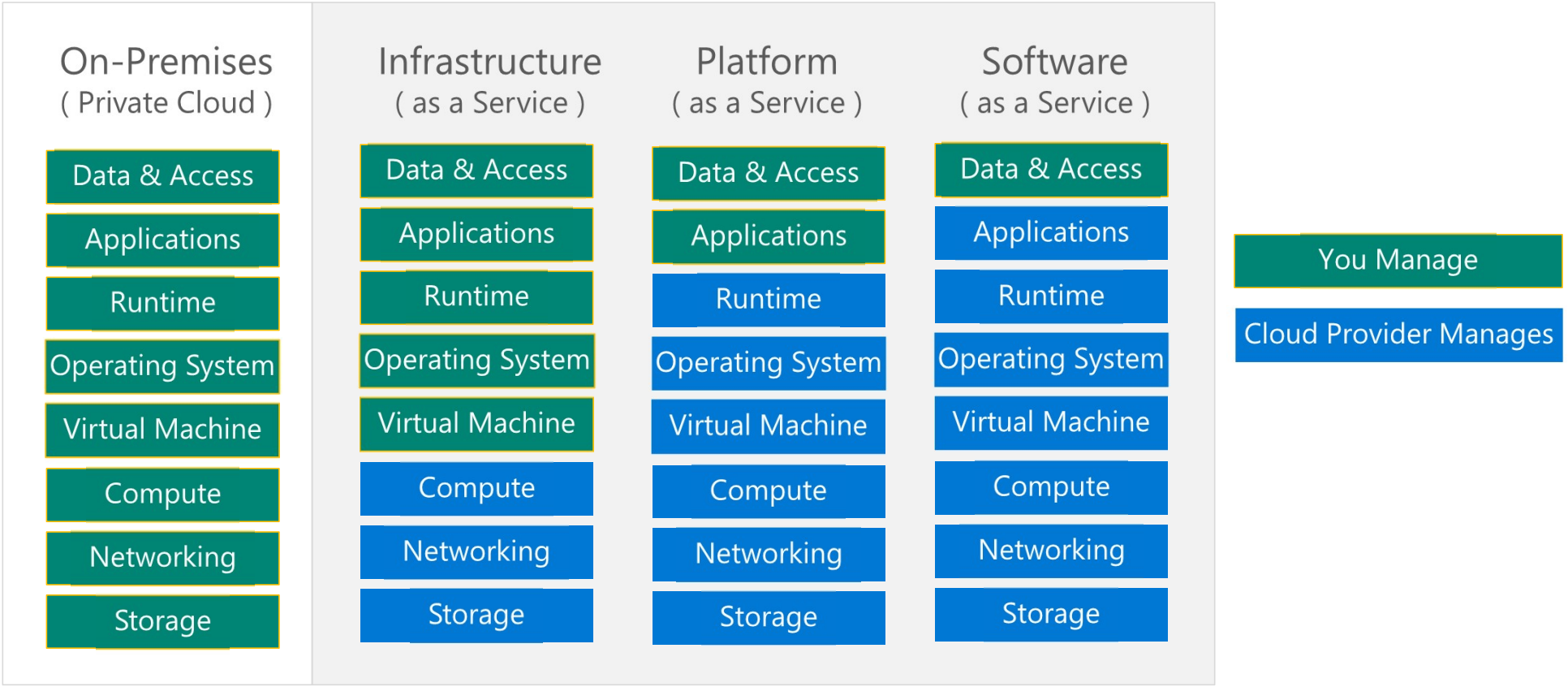
Users connect to and use cloud-based apps over the internet: for example, Microsoft Office 365, email, and calendars.



Cloud service comparison

IaaS	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.

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.