



Microsoft Azure Administration

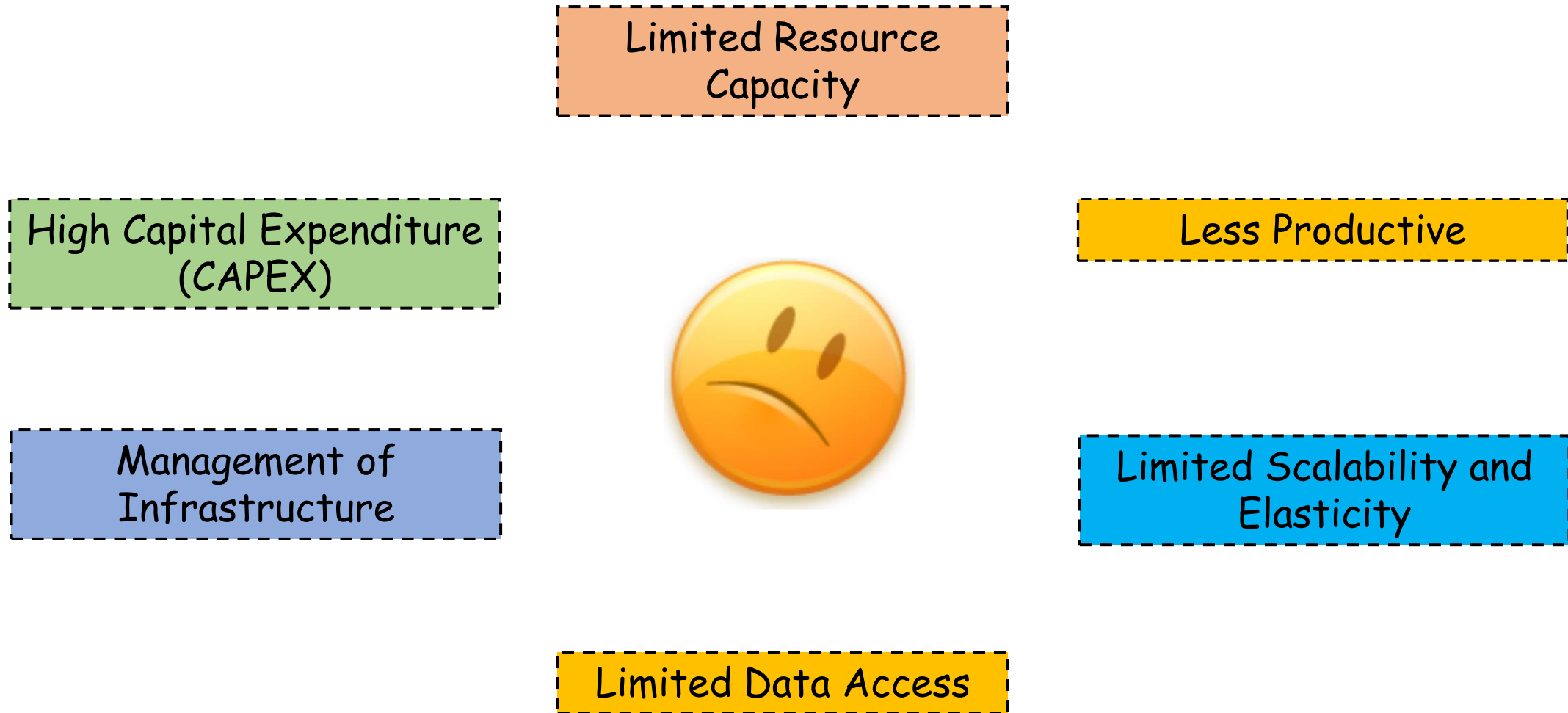
Module-01: Understanding the Cloud Computing Concepts

Contents

- What is Cloud Computing?
- Benefits of using cloud services
- Cloud Service Models
- Cloud Deployment Models
- What is Virtualization?

Why Cloud?

Traditional IT Infrastructure Issues

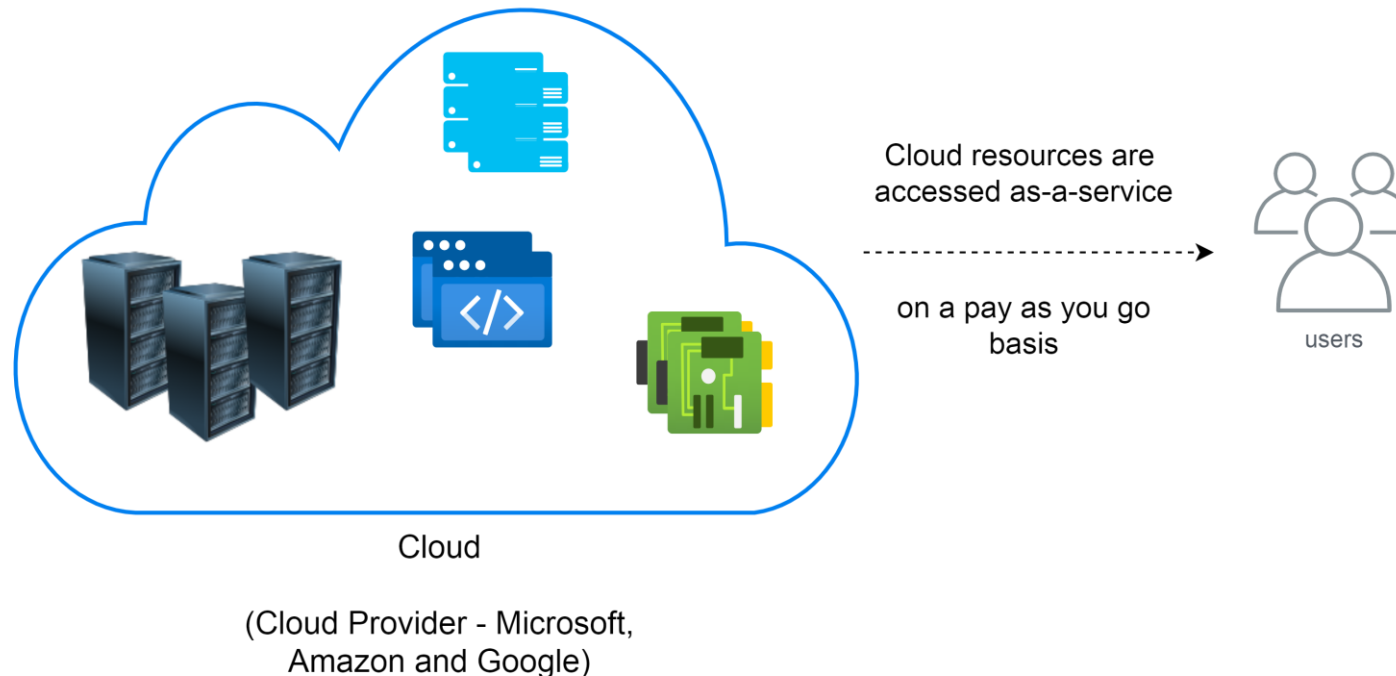




Overview of Cloud Computing

What is Cloud Computing?

- Cloud computing is on-demand access, to computing resources—applications, servers, data storage, development tools, networking capabilities, and much more as a service
- Accessed typically over Internet



What is Cloud Computing?

Cloud computing is about “renting” resources vs purchasing hardware

Pay for what you use

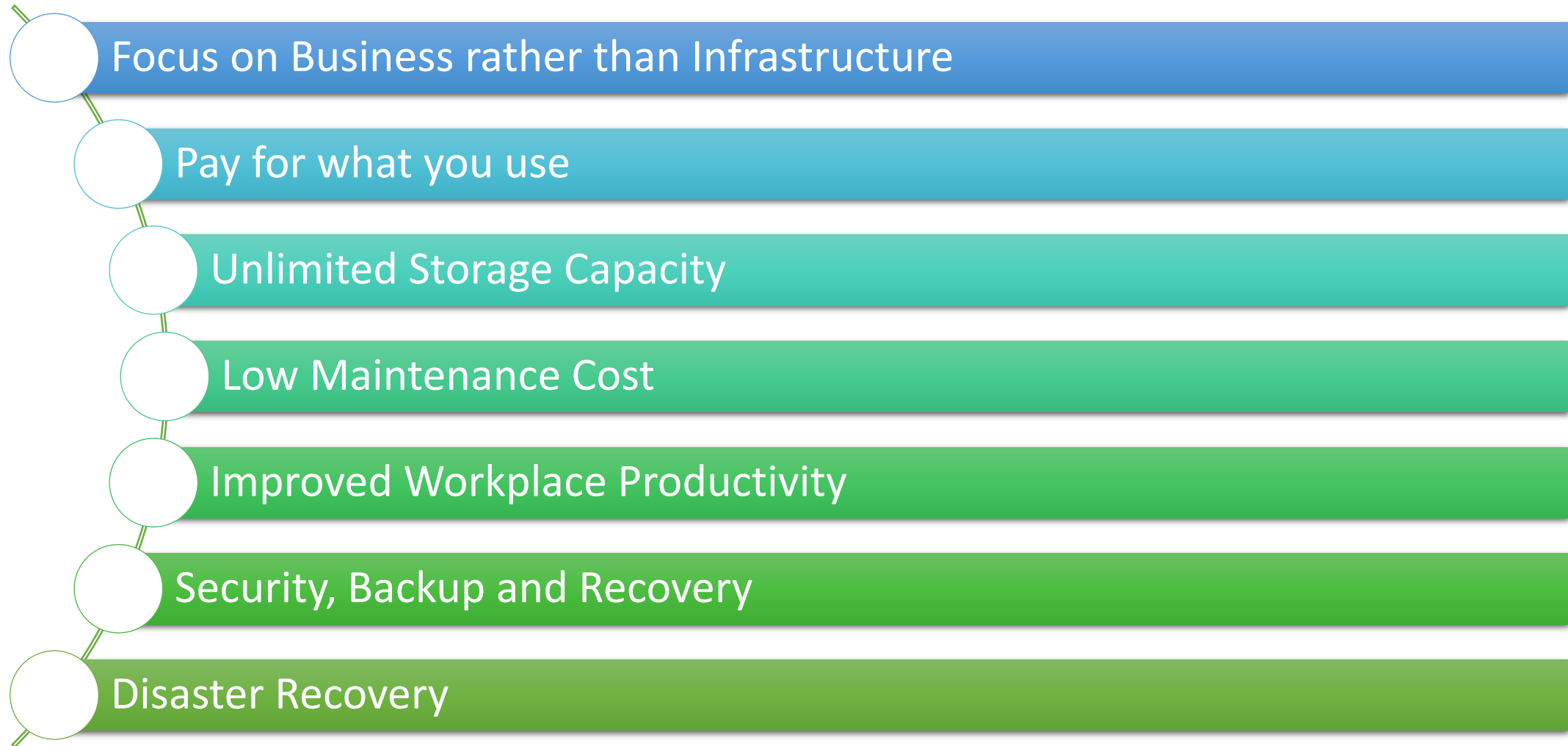
Run your applications in cloud provider’s datacentre

Cloud provider is responsible for the physical hardware and facilities necessary to execute your work

Cloud provider responsible for keeping the services they provide up to date

Examples of Cloud providers:
Microsoft, Amazon, Google, Alibaba, Oracle, Dell, IBM

Benefits of Cloud Computing



Characteristics of Cloud Computing



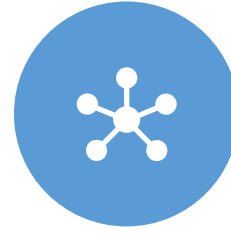
ON-DEMAND
SELF-SERVICES



RESOURCE
POOLING



ELASTICITY



BROAD NETWORK
ACCESS



MEASURED
SERVICE



PAY AS YOU GO



AVAILABILITY

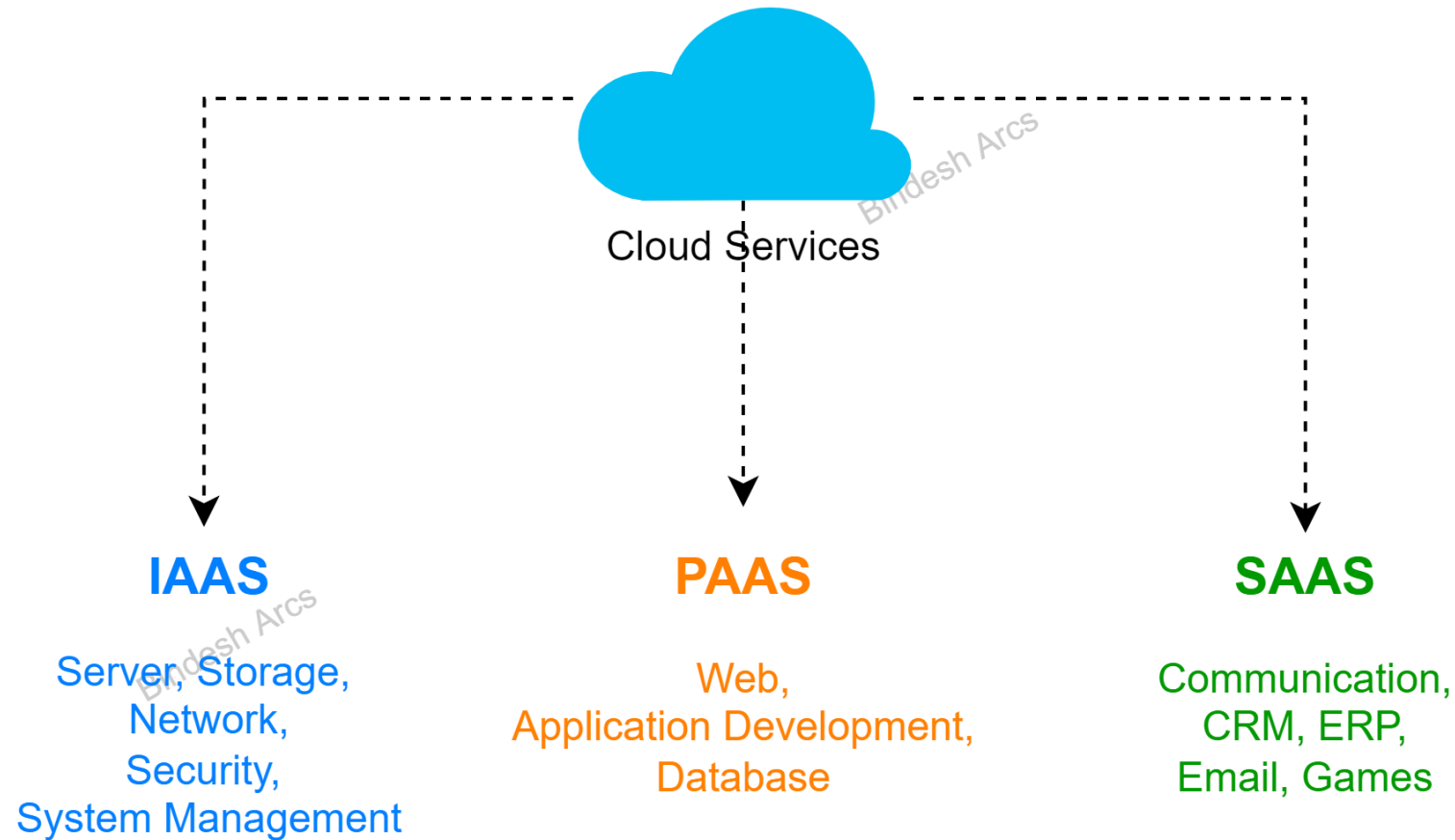


Cloud Service Models

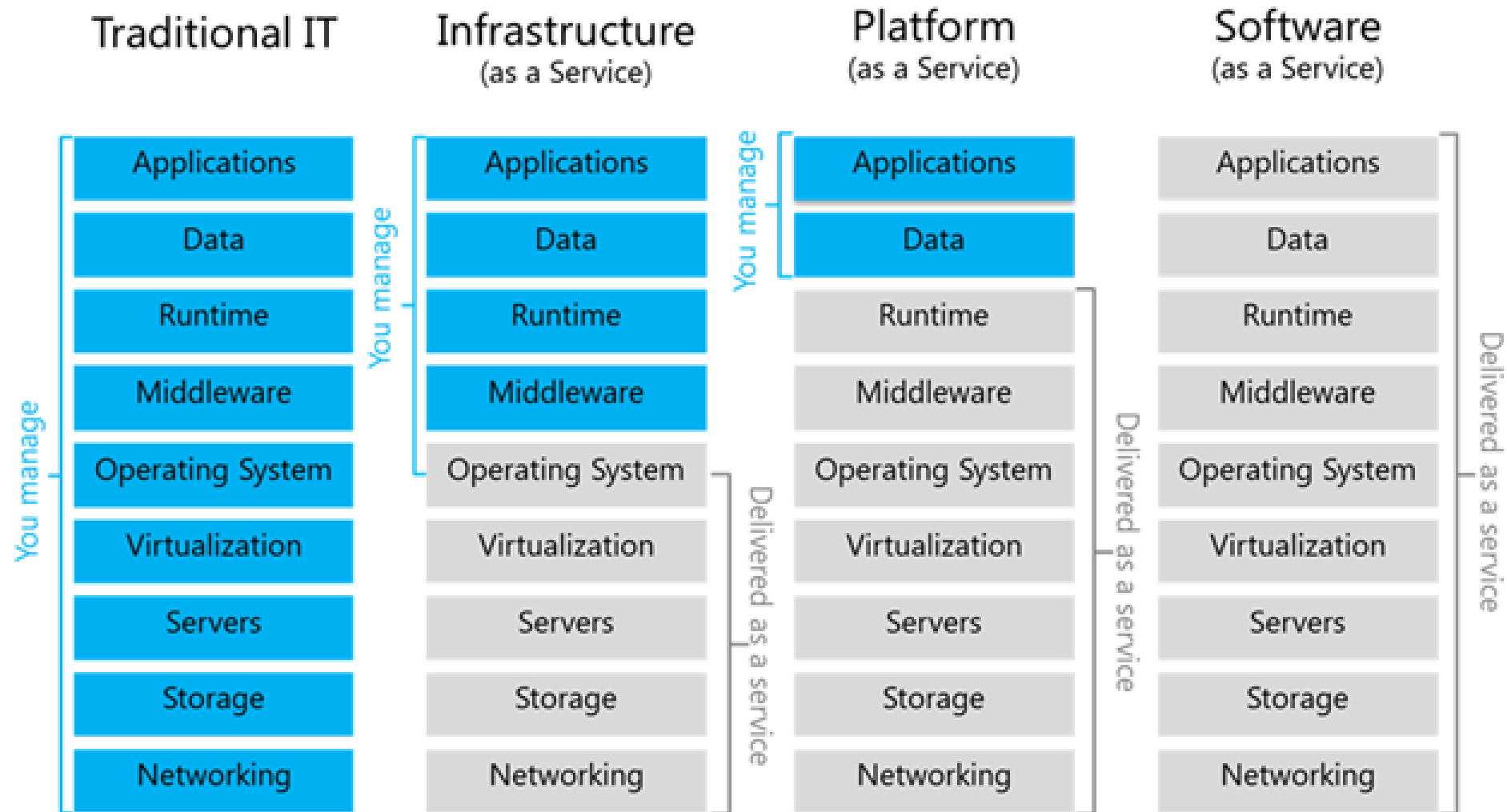
Cloud Service Models

- Cloud computing types are service deployment models which let you choose the level of control over your information and types of services you need to provide
- There are three main types of cloud computing services, sometimes called the cloud computing stack because they build on top of one another. There are as follows:
 - 1) Infrastructure-as-a-service (IaaS)
 - 2) Platform-as-a-service (PaaS)
 - 3) Software-as-a-service (SaaS)

Cloud Service Models

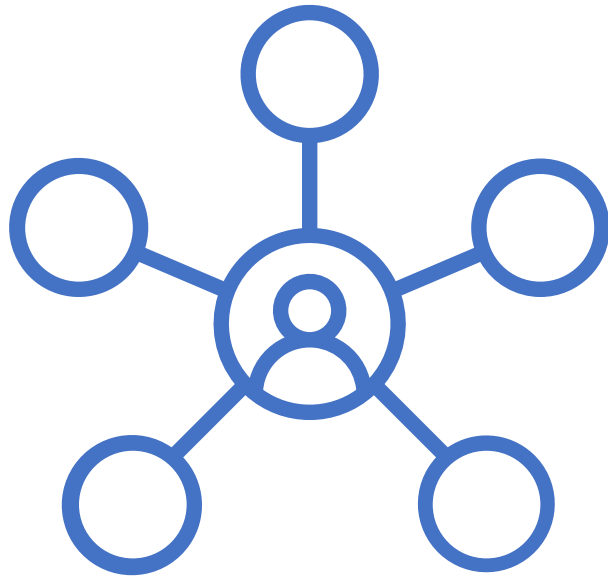


Cloud Service Models



Cloud Service Models

- 1) **IaaS** : Infrastructure-as-a-service offers a standardized way of acquiring computing capabilities on demand and over the web. Such resources include storage facilities, networks, processing power, and virtual private servers. **E.g.**, Azure Virtual Machines services
- 2) **PaaS** : Platform-as-a-Service is halfway between Infrastructure as a Service (IaaS) and Software as a Service (SaaS). It offers access to a cloud-based environment in which users can build and deliver applications without the need of installing and working with IDEs. **E.g.**, Force.com, Heroku
- 3) **SaaS** : Software-as-a-Service offers applications that are accessed over the web and are not managed by your company, but by the software provider. **E.g.**, Office365



Cloud Deployment Models

Cloud Deployment Models

Cloud

- Public Cloud
- Private Cloud
- Community Cloud

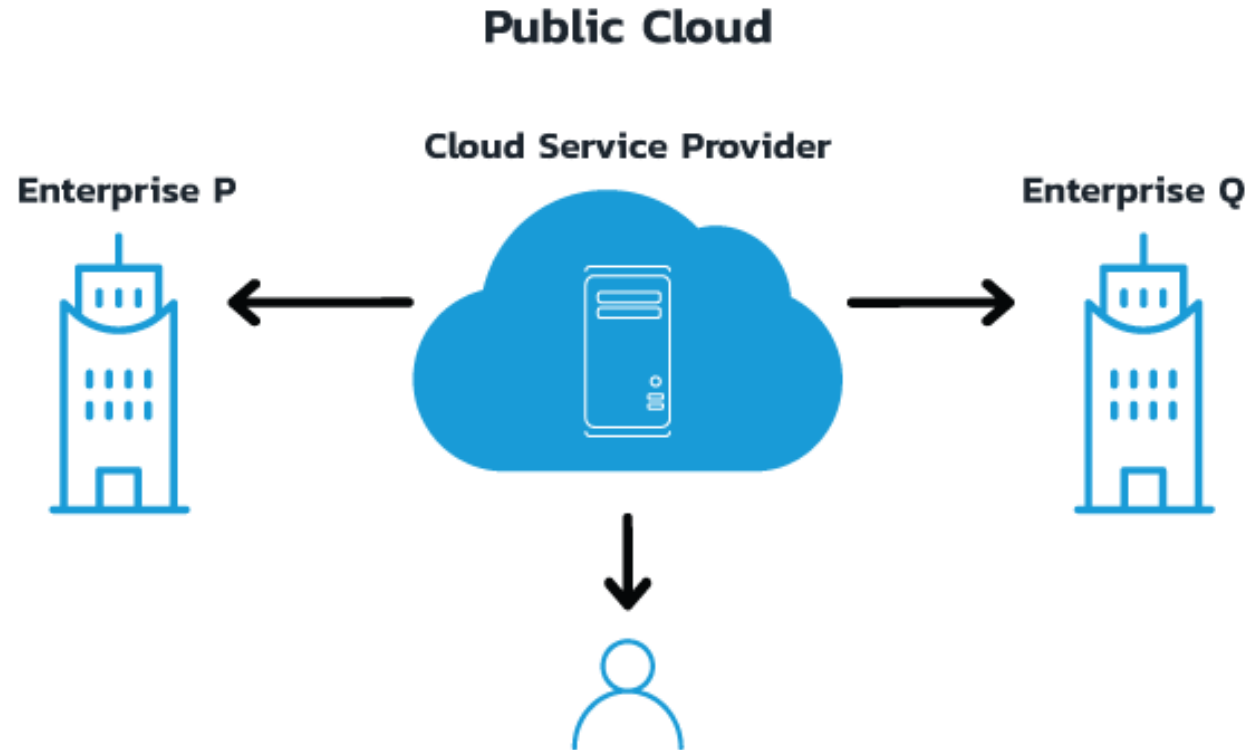
Hybrid Cloud

On-Premise

Public Cloud

- Most common type of cloud computing deployment
- The cloud resources (like servers and storage) are owned and operated by a third-party cloud service provider and delivered over the internet
- All hardware, software and other supporting infrastructure are owned and managed by the cloud provider
- Example : Microsoft Azure, AWS, Google Cloud
- Advantages
 - Lower costs
 - Reduced Maintenance
 - Unlimited scalability
 - Reliable

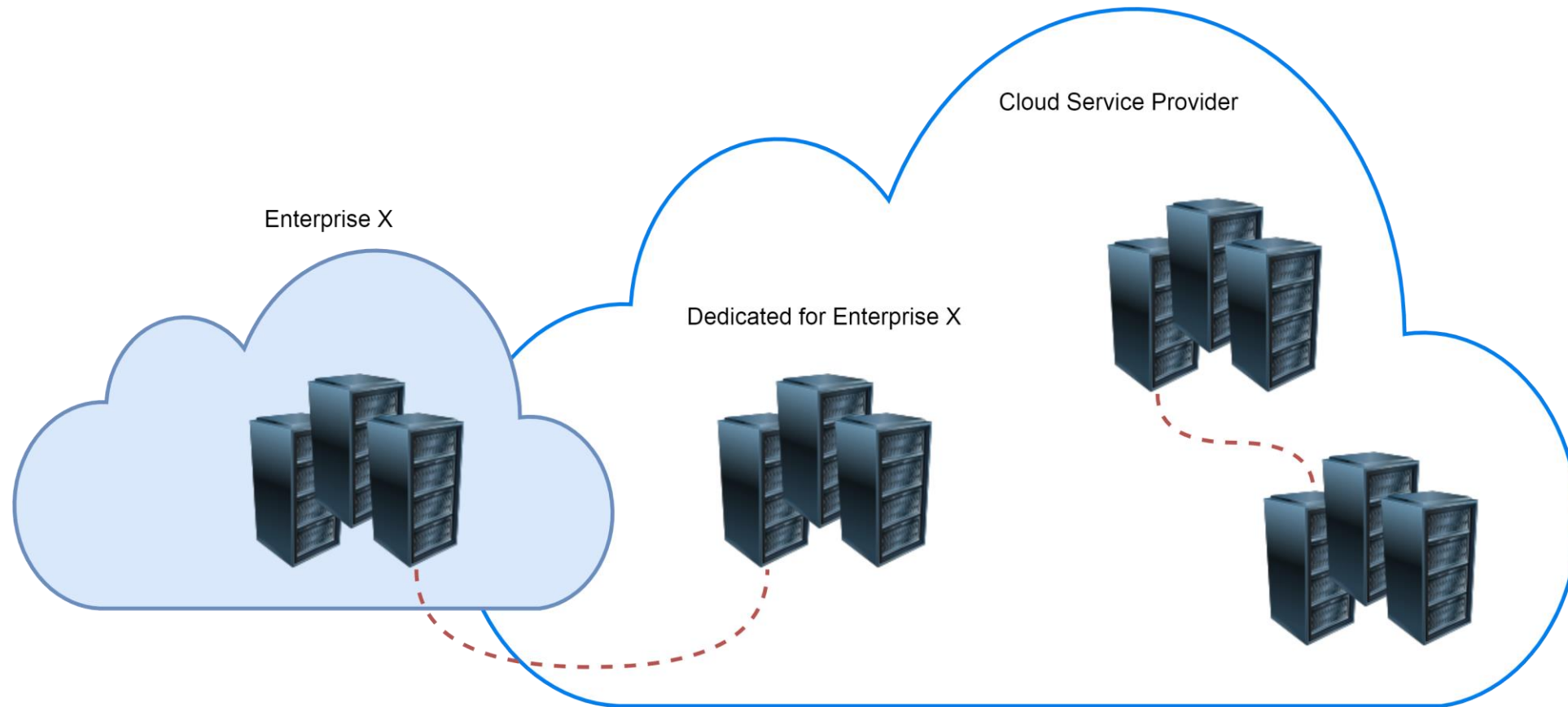
Public Cloud – Conceptual Diagram



Private Cloud

- Private cloud consists of cloud computing resources used exclusively by one business or organization and not for public users
- Can be physically located at your organization's on-site datacenter
- The services and infrastructure are always maintained on a private network and the hardware and software are dedicated solely to your organization
- Example : Government agencies, Financial institutions, VMware, HPE
- Advantages
 - Flexibility
 - Control
 - Scalability

Private Cloud: DC-as-a-Service



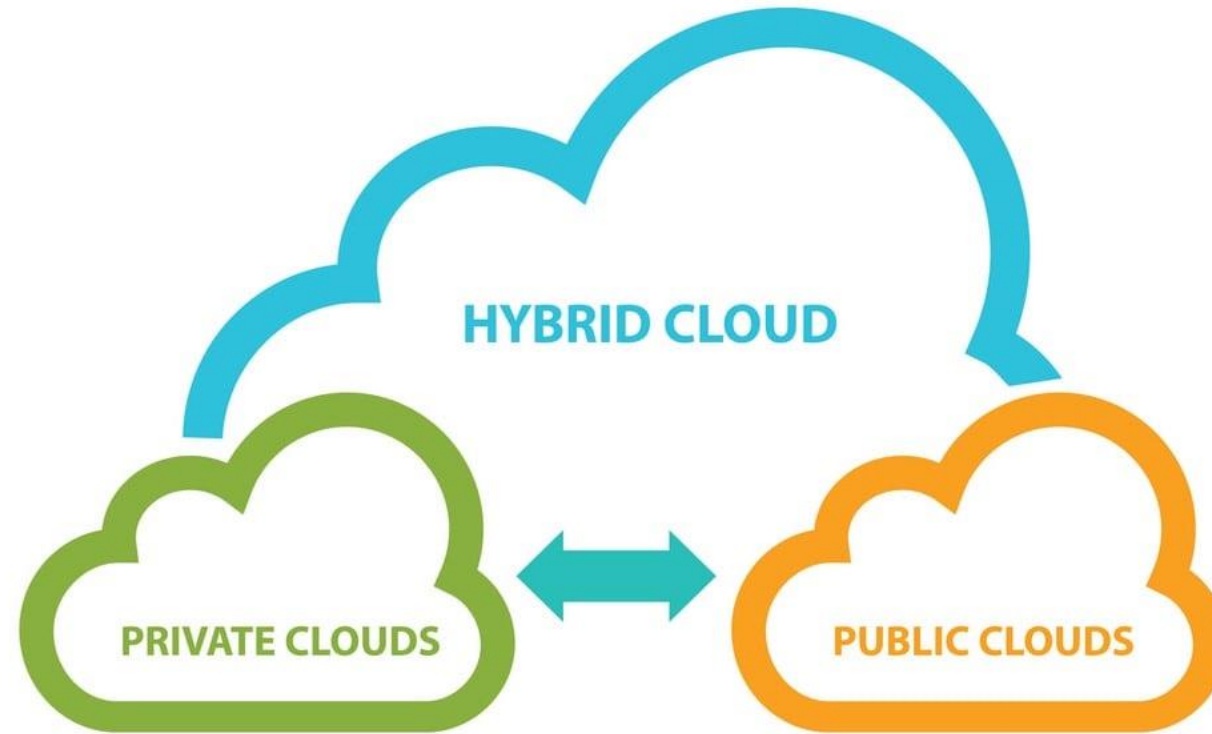
How Private Cloud works?

- Private cloud is a single-tenant environment, meaning all resources are accessible to one customer only—this is referred to as isolated access
- Private clouds are typically hosted on-premises in the customer's data center
- However, private clouds can also be hosted on an independent cloud provider's infrastructure or built on rented/leased infrastructure housed in an offsite data center
- Management models also vary—the customer can manage everything itself or outsource partial or full management to a service provider

Hybrid Cloud

- Combines on-premises infrastructure—or a private cloud—with a public cloud
- Hybrid clouds allow data and apps to move between the two environments
- The services and infrastructure are always maintained on a private network and the hardware and software are dedicated solely to your organization
- Example : Government agencies, Financial institutions
- Advantages
 - Flexibility
 - Control
 - Cost-effectiveness and Ease of migration

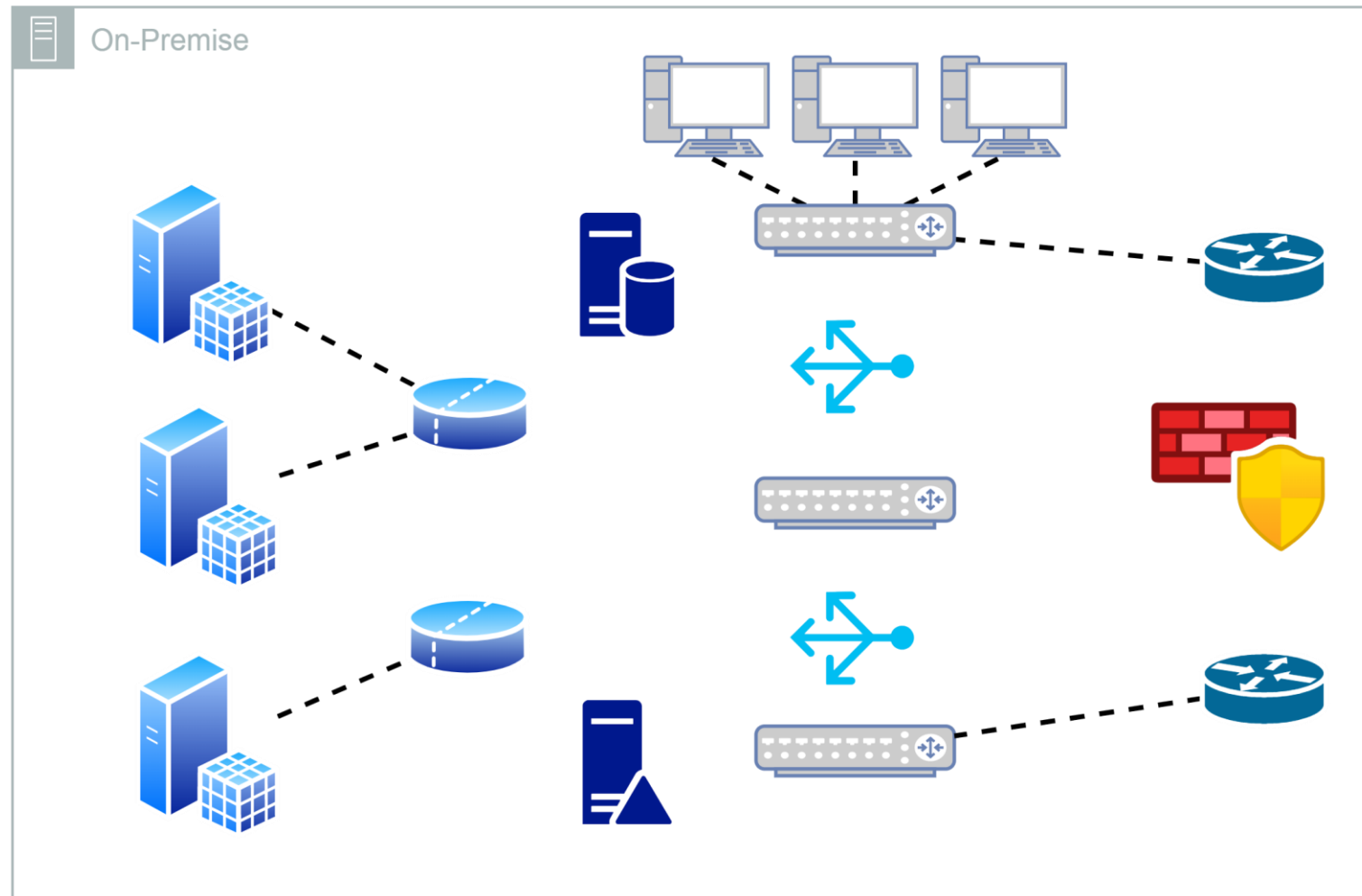
Hybrid Cloud

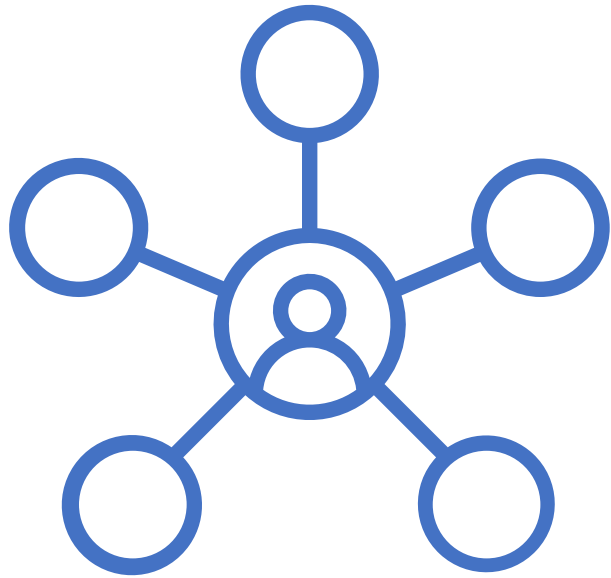


On-Premise

- Resources are deployed in-house and within an enterprise's IT infrastructure.
- An enterprise is responsible for maintaining the solution and all its related processes.
- An Enterprise is responsible for buying, setting-up and maintaining the infrastructure
- Advantages
 - Security
 - Customizability
 - Low latencies
 - Technology investments

On-Premise

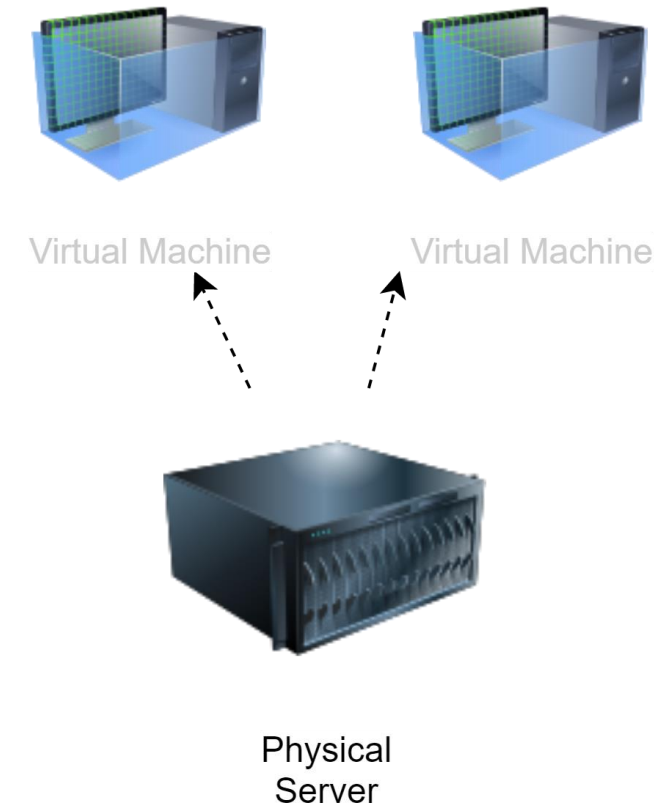




Virtualization

What is Virtualization?

- Virtualization is technology that lets you create useful IT services using resources that are traditionally bound to hardware
- It allows you to use a physical machine's full capacity by distributing its capabilities among many users or environments



How Virtualization works?

- Software called **hypervisors** separate the physical resources from the virtual environments—the things that need those resources
- **Hypervisors** can sit on top of an operating system (like on a laptop) or be installed directly onto hardware (like a server), which is how most enterprises virtualize
- Hypervisors take your physical resources and divide them up so that virtual environments can use them

