

Cloud Computing for **Beginners**

Infrastructure as a Service (IaaS)

By Idan Gabrieli

The background image is a high-angle, wide shot of a coastal town. In the foreground, a grassy cliffside slopes down towards a harbor. The harbor is filled with numerous boats, including several white fishing vessels with red accents and a few larger commercial ships. A long pier extends into the water. To the left, a curved road with a stone wall runs along the edge of the cliff. In the middle ground, a large, modern white building complex with multiple wings and a central tower-like structure is prominent. Other smaller buildings and houses are scattered around it. In the background, rolling hills and mountains are visible under a cloudy sky. A semi-transparent teal rectangle is overlaid in the center of the image, containing the title text.

Cloud Computing Terminology Overview

CLOUD COMPUTING – TERMINOLOGY OVERVIEW

What, Why, How?



WHAT IS CLOUD COMPUTING?

Official Definition

*Cloud computing is a model for enabling **on-demand** network access to a **shared pool** of configurable **computing resources** that can be **rapidly provisioned and released** with minimal management effort*

pool of available resources



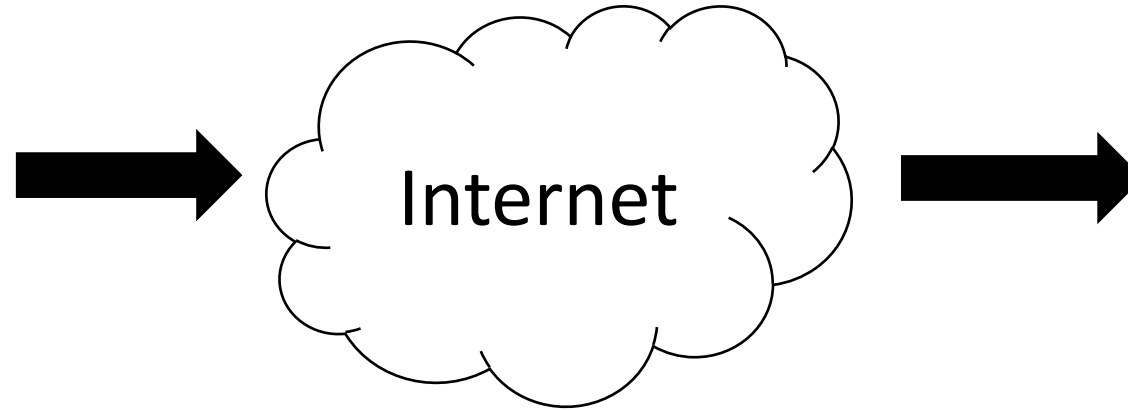
WHAT IS CLOUD COMPUTING?

Official Definition

Web-based management system



Allocating **Virtual Resources** **On-demand**

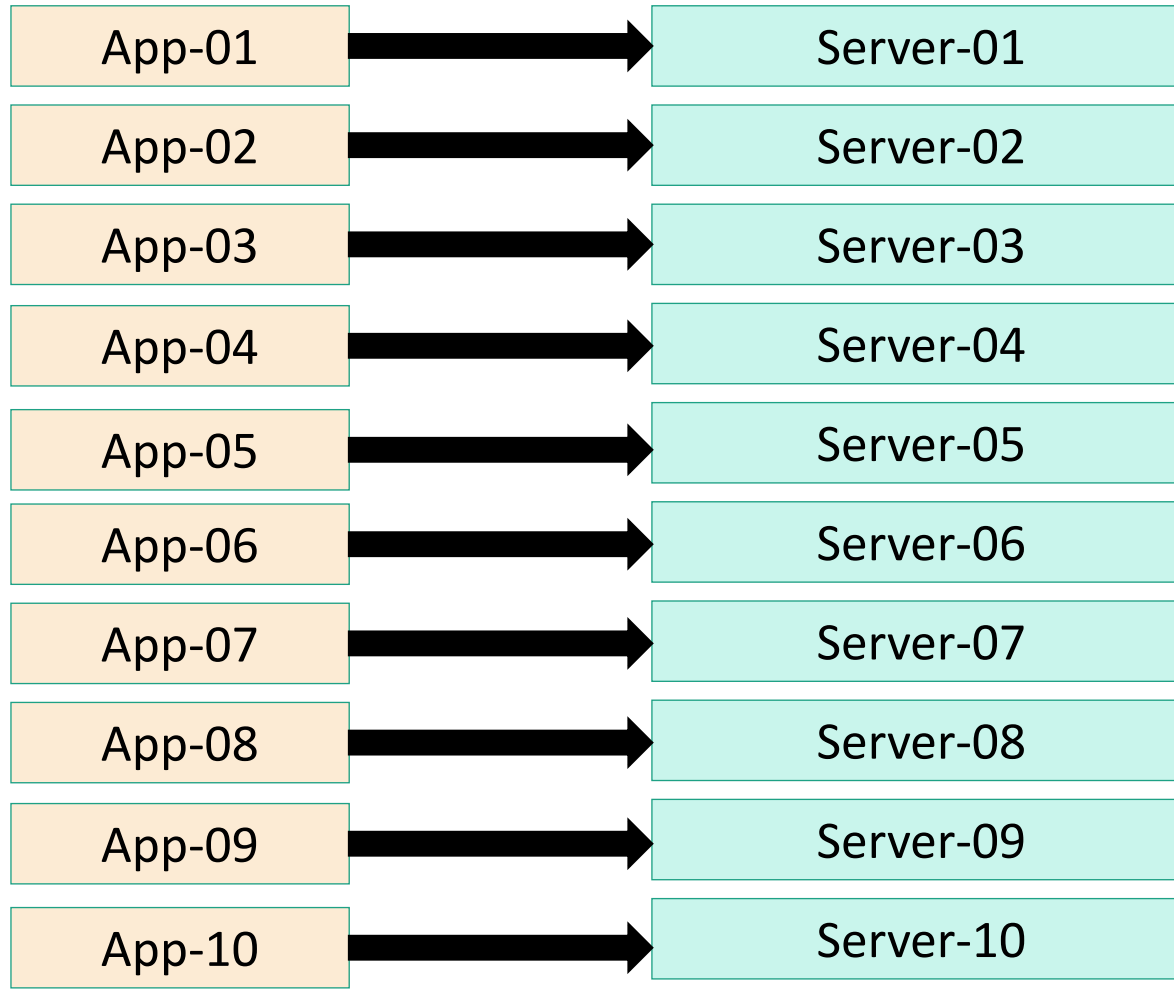


pool of available resources



WHAT IS CLOUD COMPUTING?

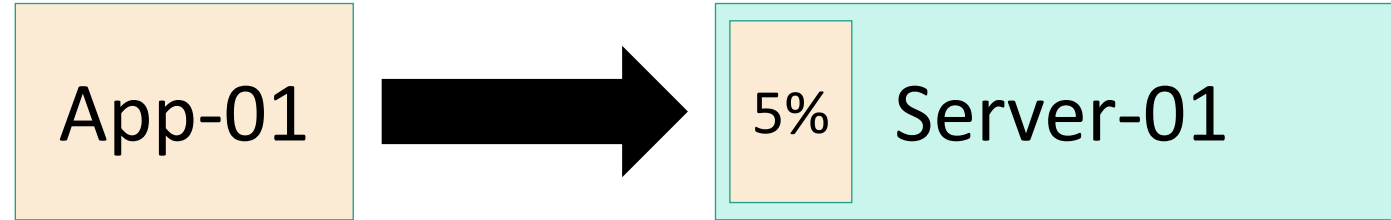
Virtual Resources



Up to **10**
Applications

WHAT IS CLOUD COMPUTING?

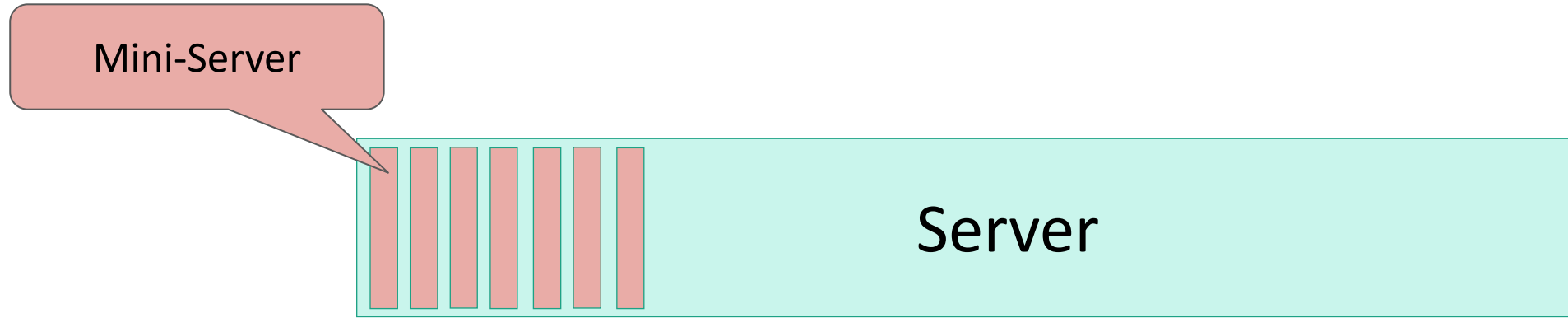
Virtual Resources



Low Server Utilization – **5%**

WHAT IS CLOUD COMPUTING?

Virtual Resources?



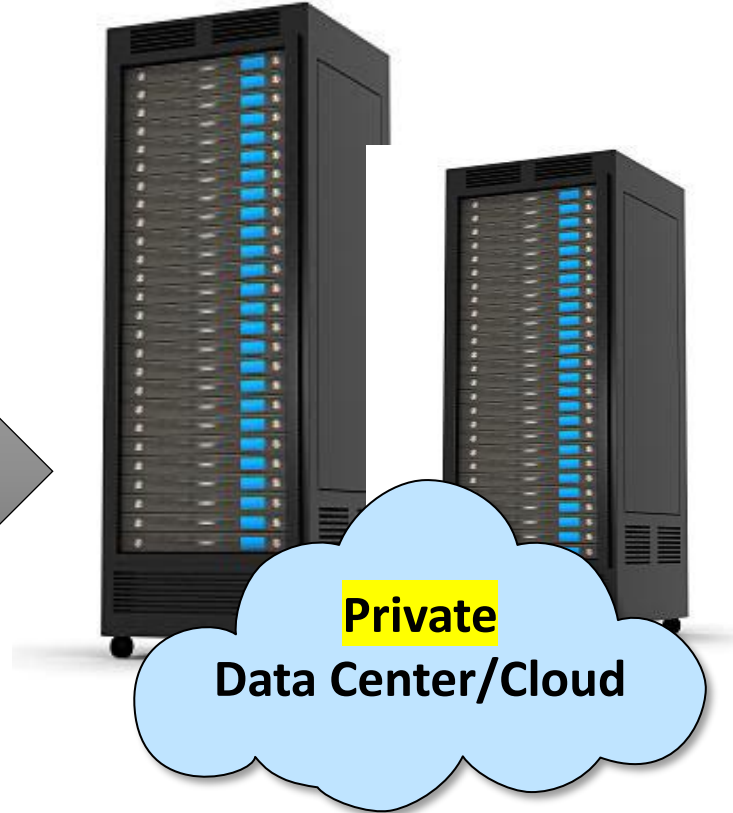
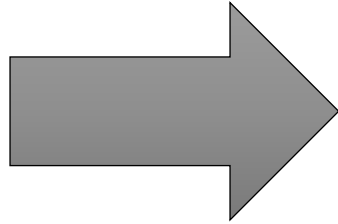
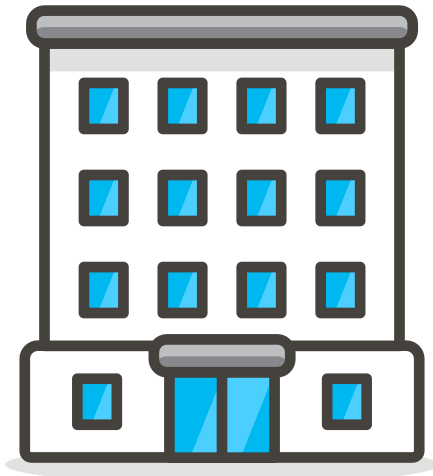
10 Servers X 100 mini-servers = **1,000**

Break down **physical resources** into a pool of
smaller **virtual resources**

WHAT IS CLOUD COMPUTING?

Private Cloud

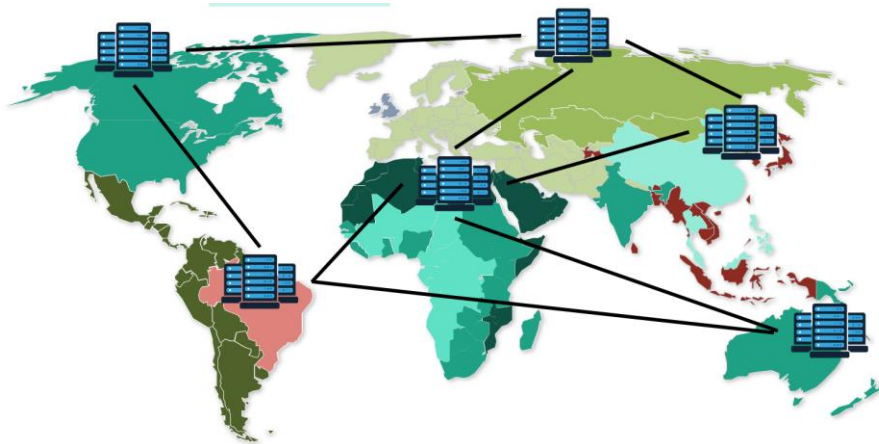
Large/Medium Size Company



Managed, Controlled
and Maintained by the
IT department

WHAT IS CLOUD COMPUTING?

Public Cloud

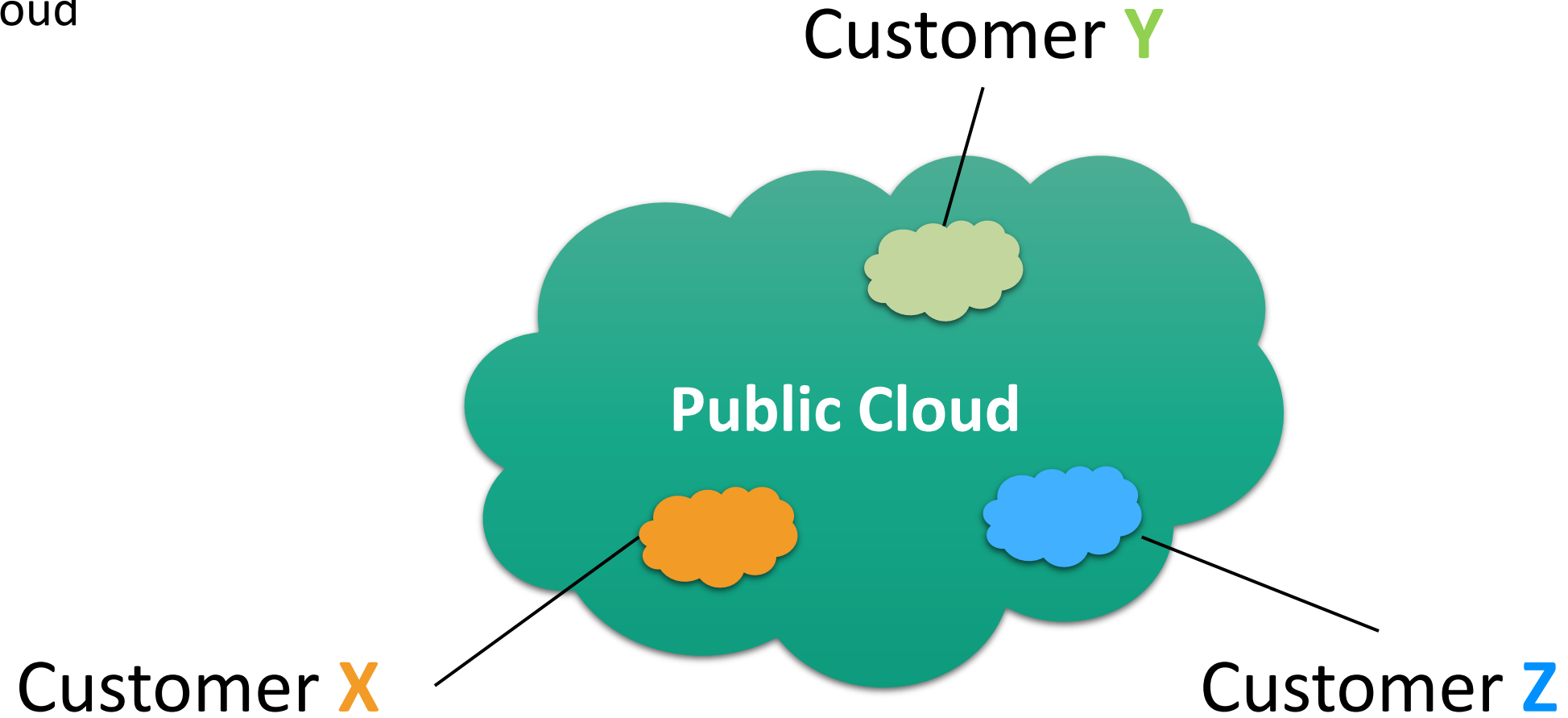


Public Cloud Provider

Rent IT resources on-demand

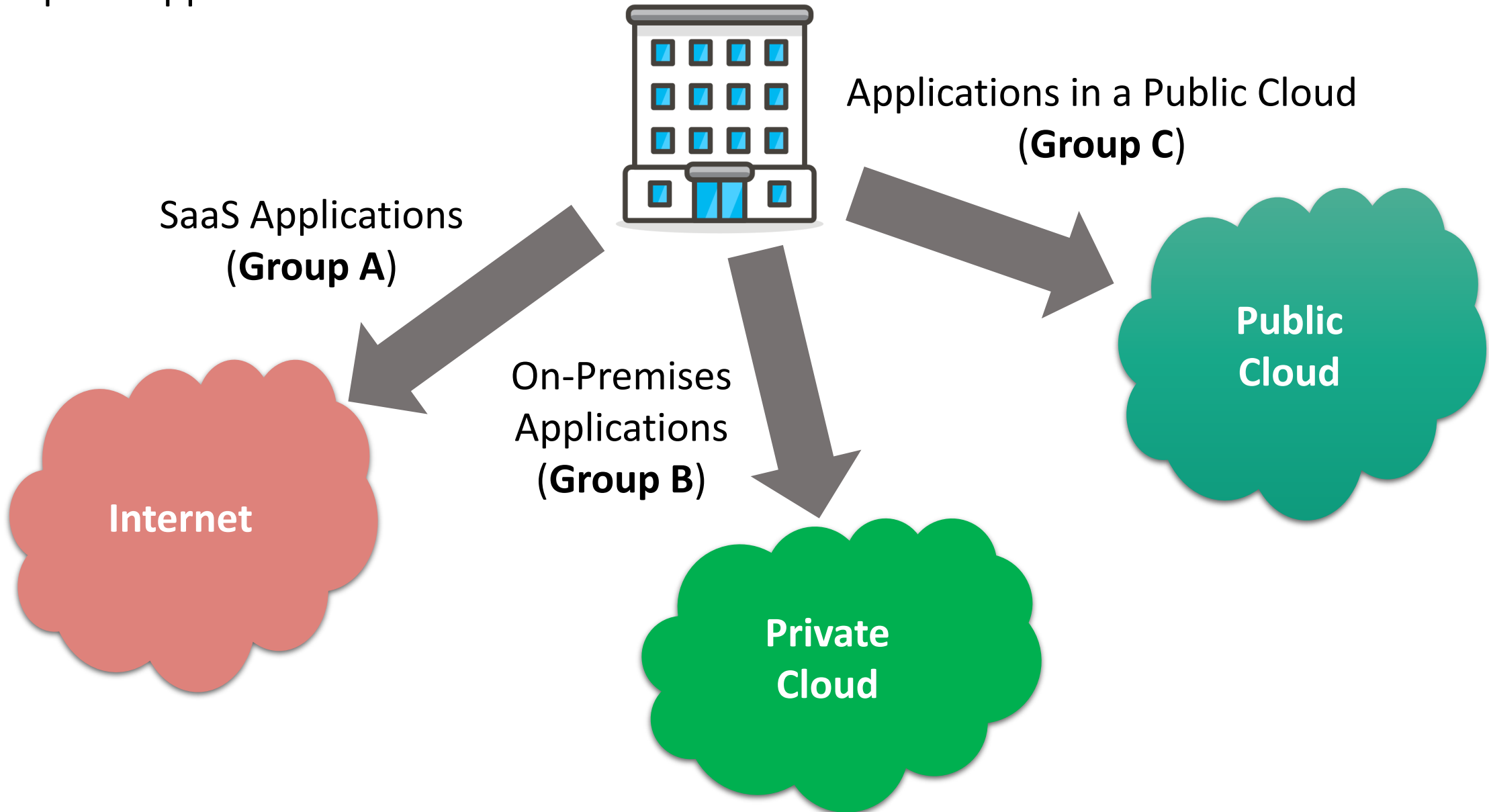
WHAT IS CLOUD COMPUTING?

Public Cloud



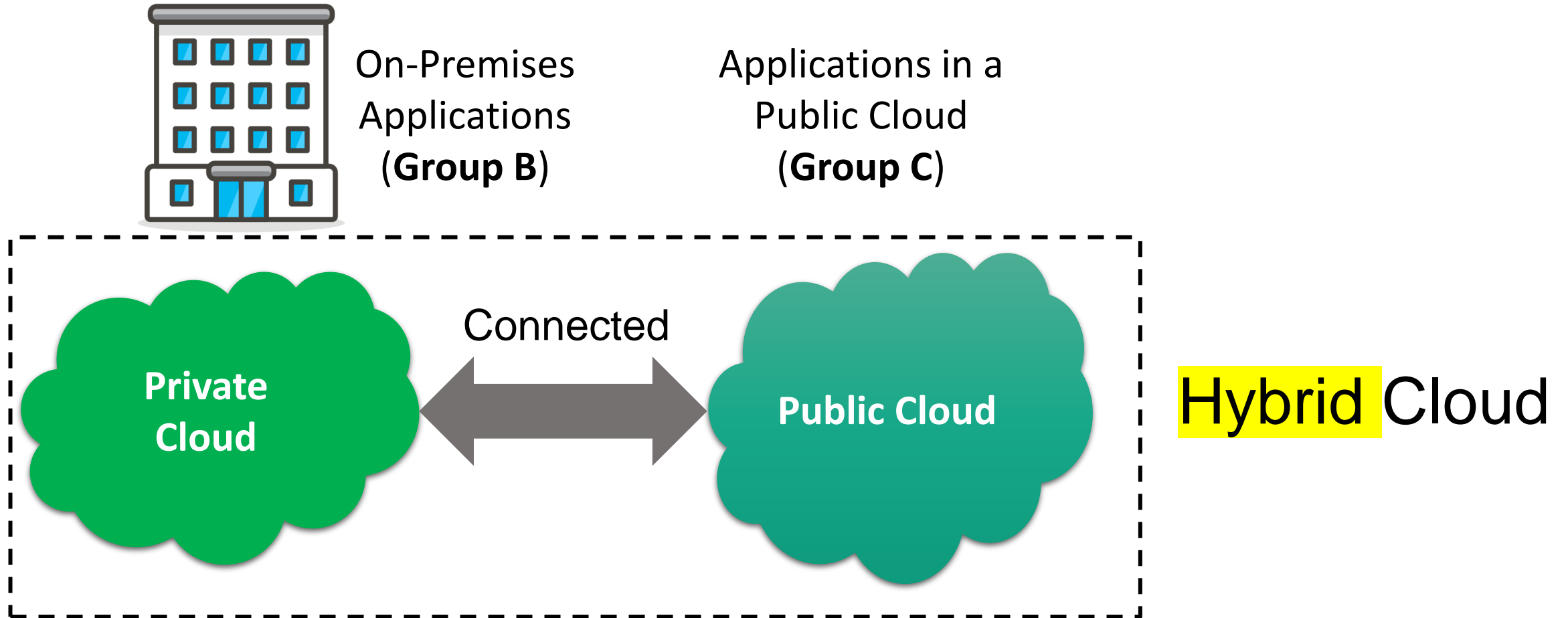
WHAT IS CLOUD COMPUTING?

Enterprise Applications



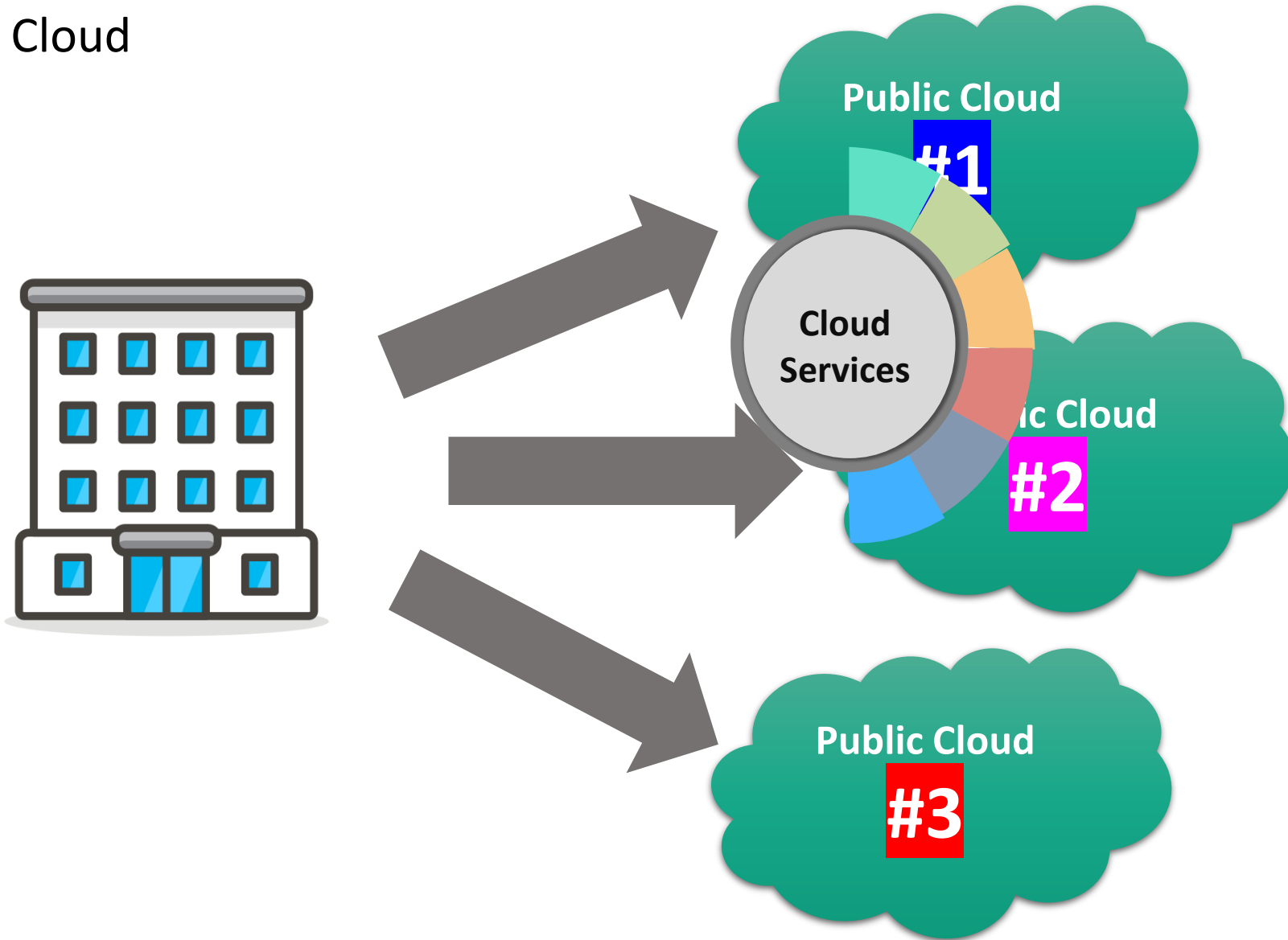
WHAT IS CLOUD COMPUTING?

Hybrid Cloud



WHAT IS CLOUD COMPUTING?

Multi Cloud



Multi Clouds

WHAT IS CLOUD COMPUTING?

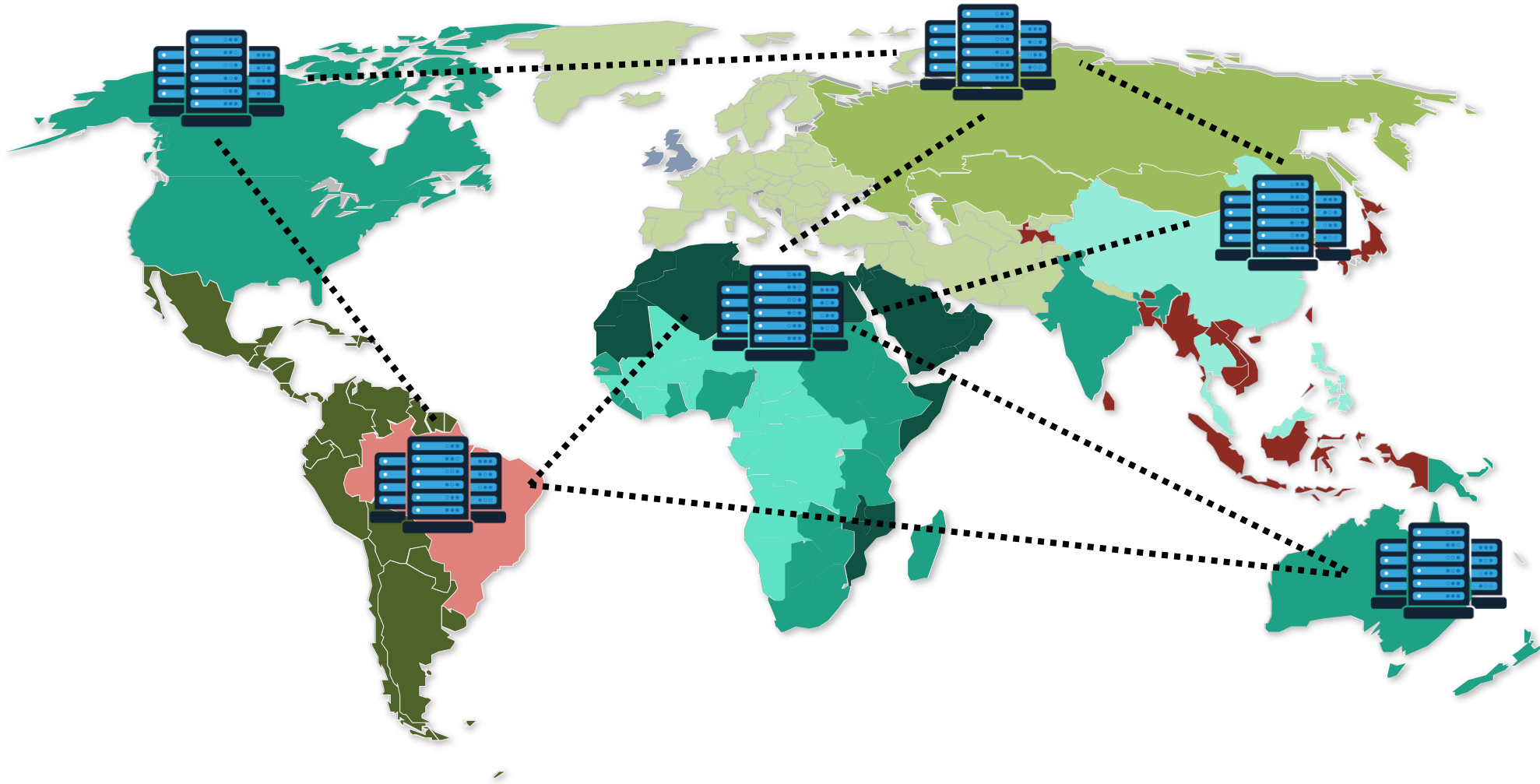
Public Cloud Providers



Pay based on consumption

WHAT IS CLOUD COMPUTING?

Hyperscale Public Cloud Providers



WHAT IS CLOUD COMPUTING?

Hyperscale Public Cloud Providers



Global
Coverage

Almost
Unlimited Capacity

Latest
Technologies

Variety of Cloud
Services

SLAs

CLOUD SERVICE MODELS

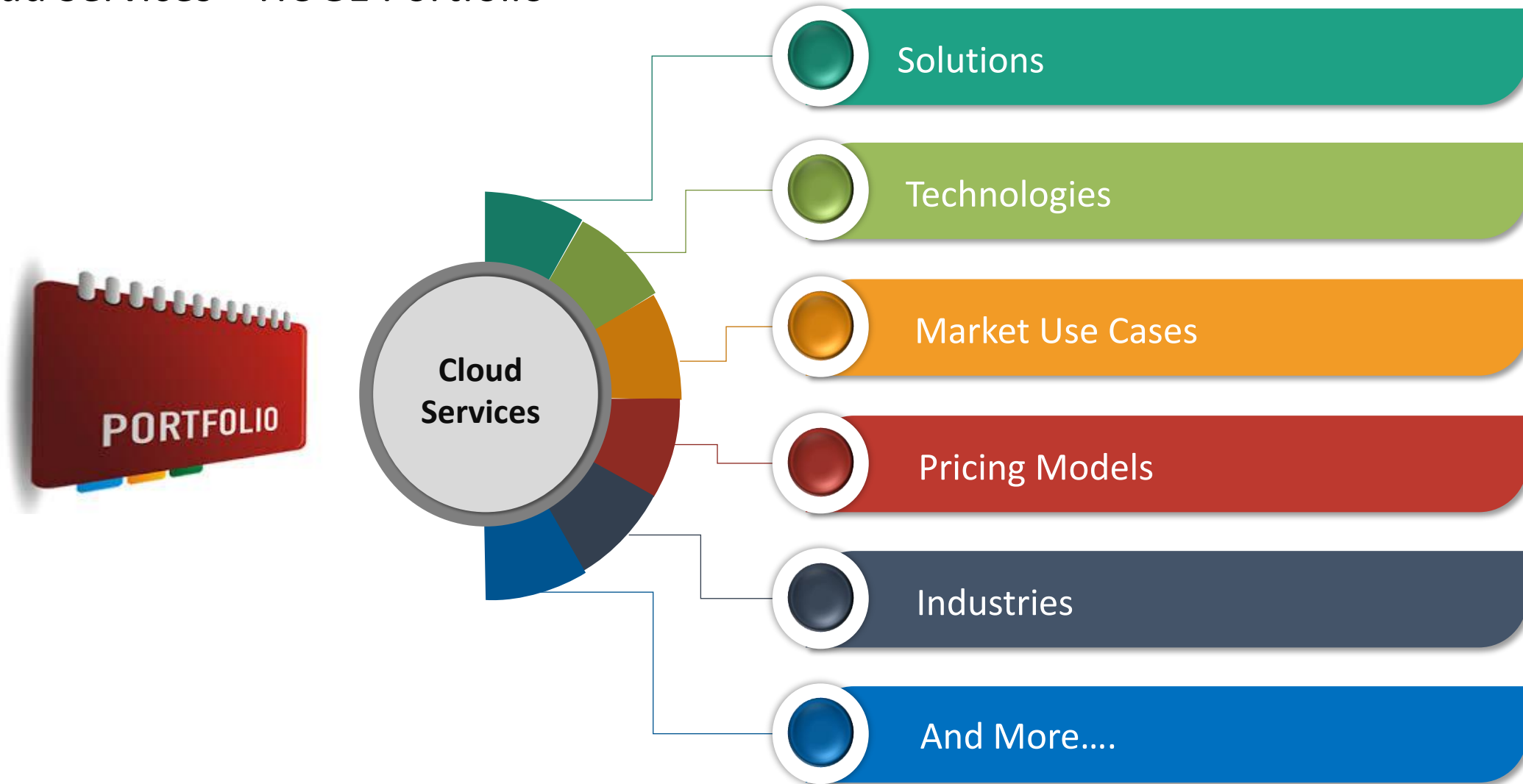
“X as a Service”

A cloud computing **service** that is **managed for you**

By a **cloud service provider**

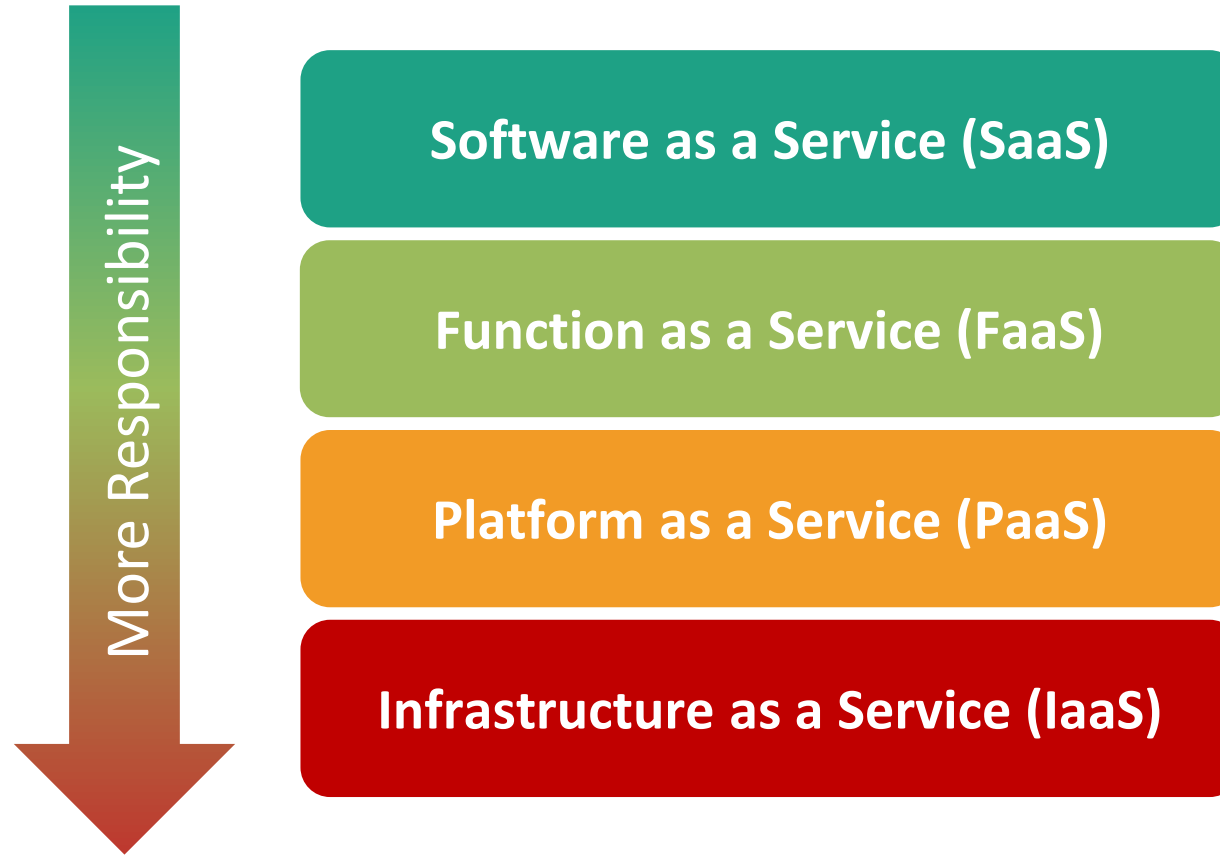
CLOUD SERVICE MODELS

Cloud Services – HUGE Portfolio



CLOUD SERVICE MODELS

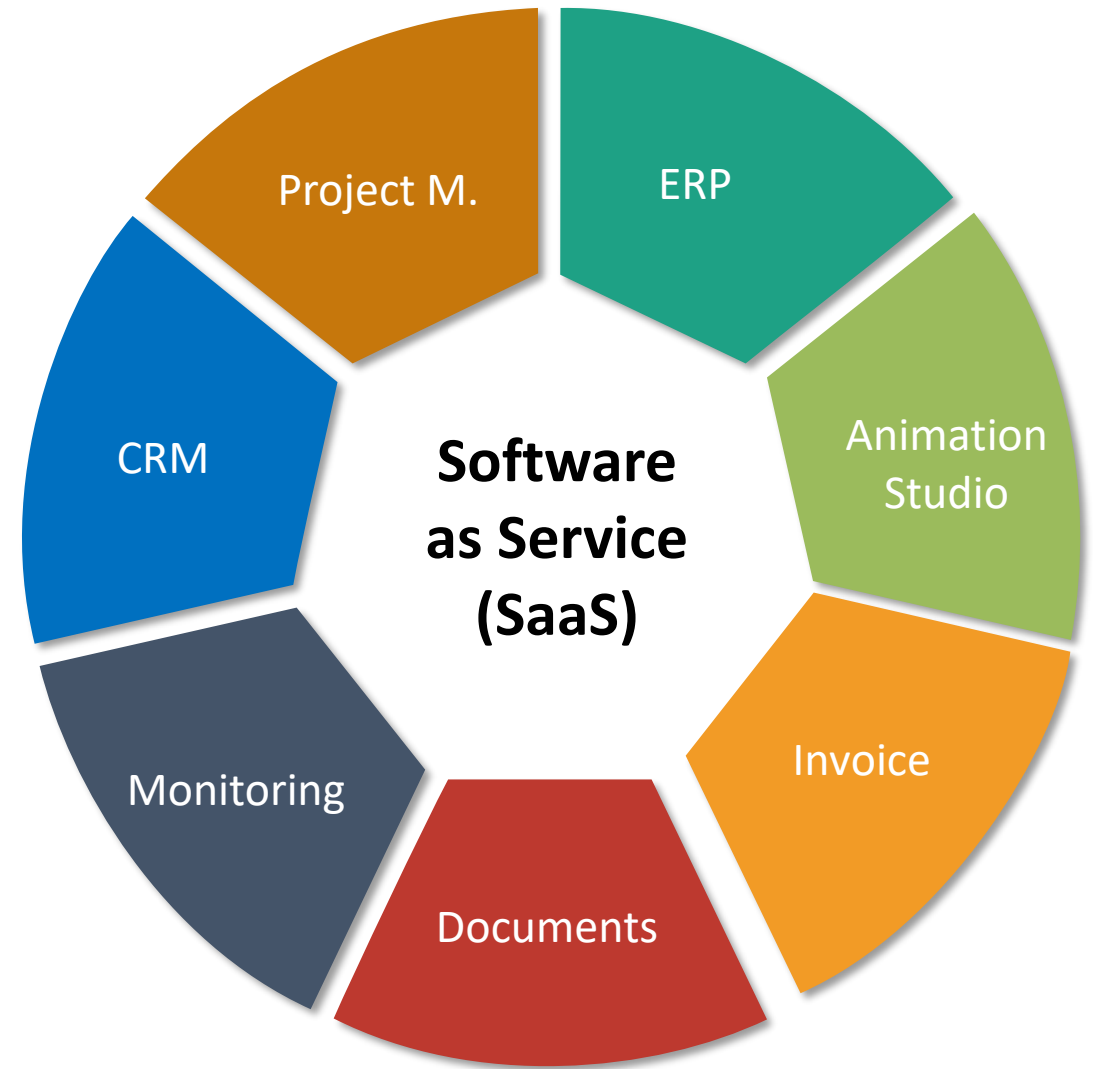
“X as a Service”



SOFTWARE AS A SERVICE (SAAS)

Consume Software Features

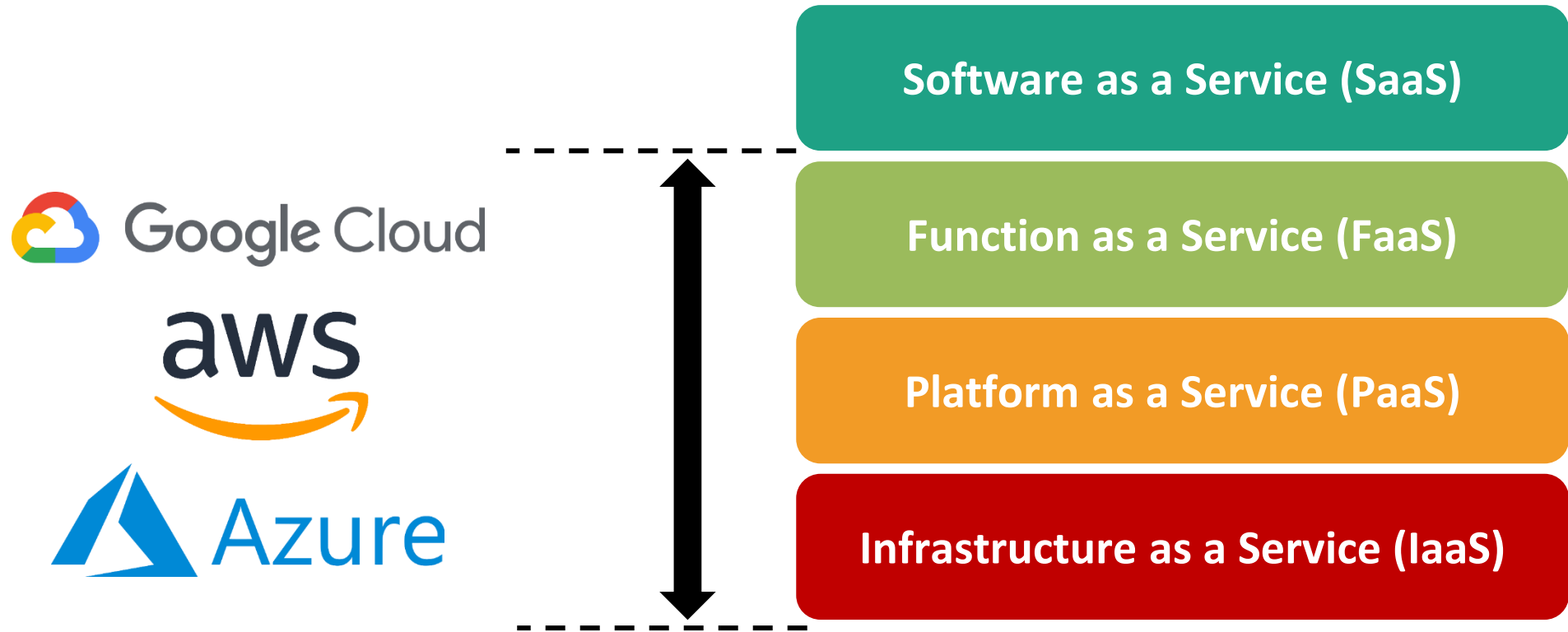
- ✓ Users are gaining access to software features with a web browser
- ✓ All back-end infrastructure is managed by the software provider and hosted in the cloud
- ✓ A software service with a subscription period
- ✓ No local software installation
- ✓ Quick release new features for all customers
- Drawbacks
 - Security (data stored outside...)
 - 3rd party service availability (up time)
 - End-user network connectivity



IAAS, PAAS, FAAS

Public Cloud Service Providers

How to **develop** and **deploy** an application in a cloud environment?



INFRASTRUCTURE AS A SERVICE (IAAS)

You Build Your Virtual Infrastructure

Software as a Service (SaaS)

Function as a Service (FaaS)

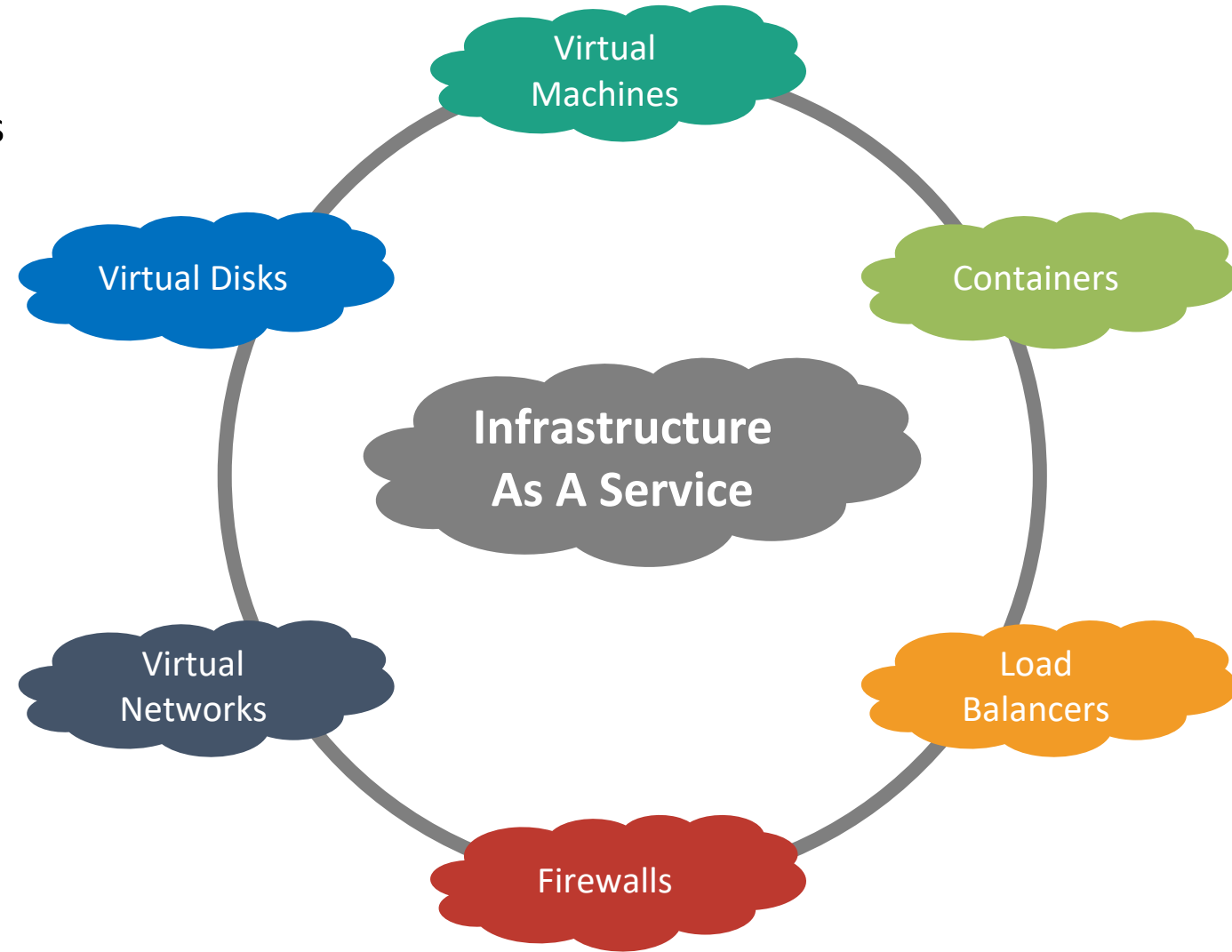
Platform as a Service (PaaS)

Infrastructure as a Service (IaaS)

INFRASTRUCTURE AS A SERVICE (IAAS)

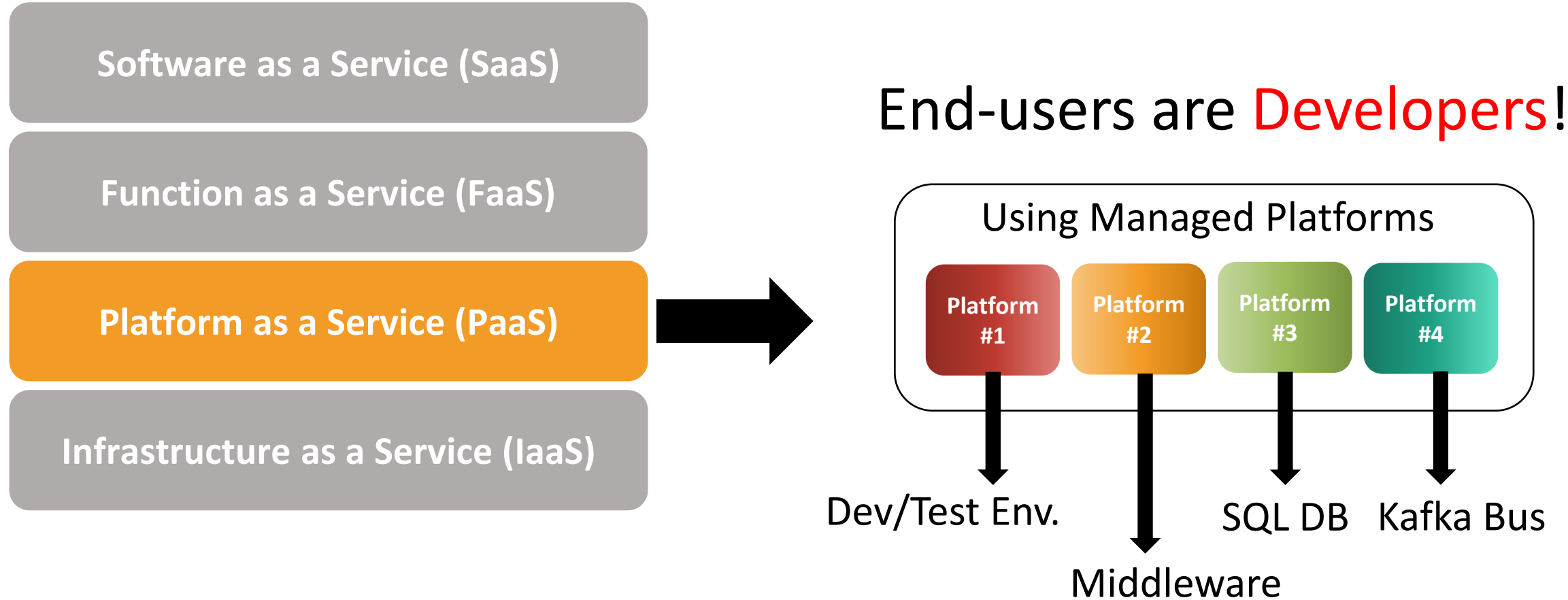
You Build Your Virtual Infrastructure

- ✓ Rent virtual resources to deploy applications
- ✓ Pay based on consumption
- ✓ Build and maintain the virtual infrastructure
- ✓ Cloud provider is handling the underlying physical infrastructure
- ✓ The “first generation” of cloud computing
- ✓ Migrate existing applications to the cloud
- ✓ End-users are IT administrators



PLATFORM AS A SERVICE

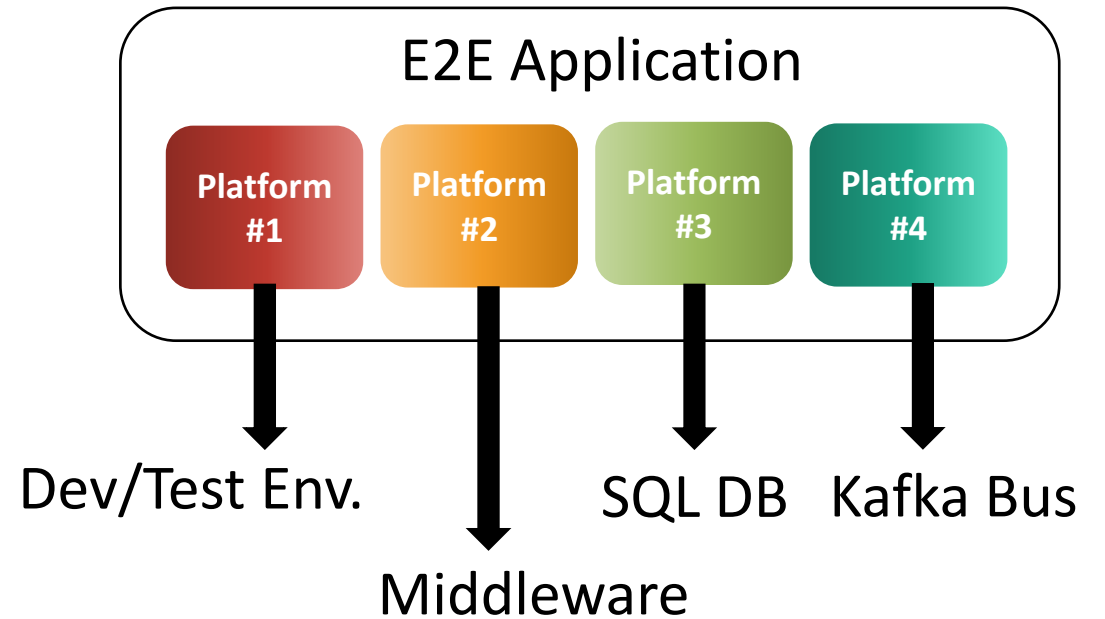
Build Your Application with Managed Platforms as Building Blocks



PLATFORM AS A SERVICE

Build Your Application with Managed Platforms as Building Blocks

- ✓ End-users are **developers**
- ✓ Use **managed cloud services** as building blocks for your E2E application
- ✓ The “**second** generation” of the cloud computing
- ✓ Let’s focus on the application and let’s the cloud provider handle the “IT overhead”
- ✓ **Many types of cloud services are PaaS**



FUNCTION AS A SERVICE

Forget about Servers with Serverless Computing

- ✓ End-users are developers
- ✓ “**Third** generation” of the cloud computing
- ✓ More cloud-native applications
- ✓ “Serverless” computing
- ✓ Write your application code as small **functions**
- ✓ A function is a piece of code **waiting to be triggered by an event**
- ✓ Virtual resources will be created when functions are triggered

Software as a Service (SaaS)

Function as a Service (FaaS)

Platform as a Service (PaaS)

Infrastructure as a Service (IaaS)