CLOUD COMPUTING

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OUTLINES

- INTRODUCTION
- WHY CLOUD ?
- WHAT IS CLOUD COMPUTING ?
- CHARACTERISTICS OF CLOUD
- BENIFITS OF CLOUD
- CLOUD ARCHITECTURE
- SERVICE MODELS
- DEPLOYMENT MODELS
- USE CASES

INTRODUCTION

A cloud is nothing but the Internet or Network which provides user with shared access to on demand computing resources.

INTRODUCTION

Before cloud Computing

Suppose you want to host a website, these are following things you need to do:

- Buy a stack of servers.
- High traffic ? More servers.
- Monitoring and maintaining servers.

Storage

INTRODUCTION

Disadvantage

- Setup is expensive.
- Troubleshooting problems can be tedious and may conflict your business goals.
- Since the traffic is varying your servers idle most of the time.
- Maintenance.
- Data Recovery

WHY CLOUD?

- Put your data on cloud servers and that is it | No need to buy expensive servers.
- Scalability| Your servers capacity will vary according to traffic.
- Cloud provider manage servers and services |No need to worry about Infrastructure.
- Huge Data storage

WHAT IS CLOUD COMPUTING ?

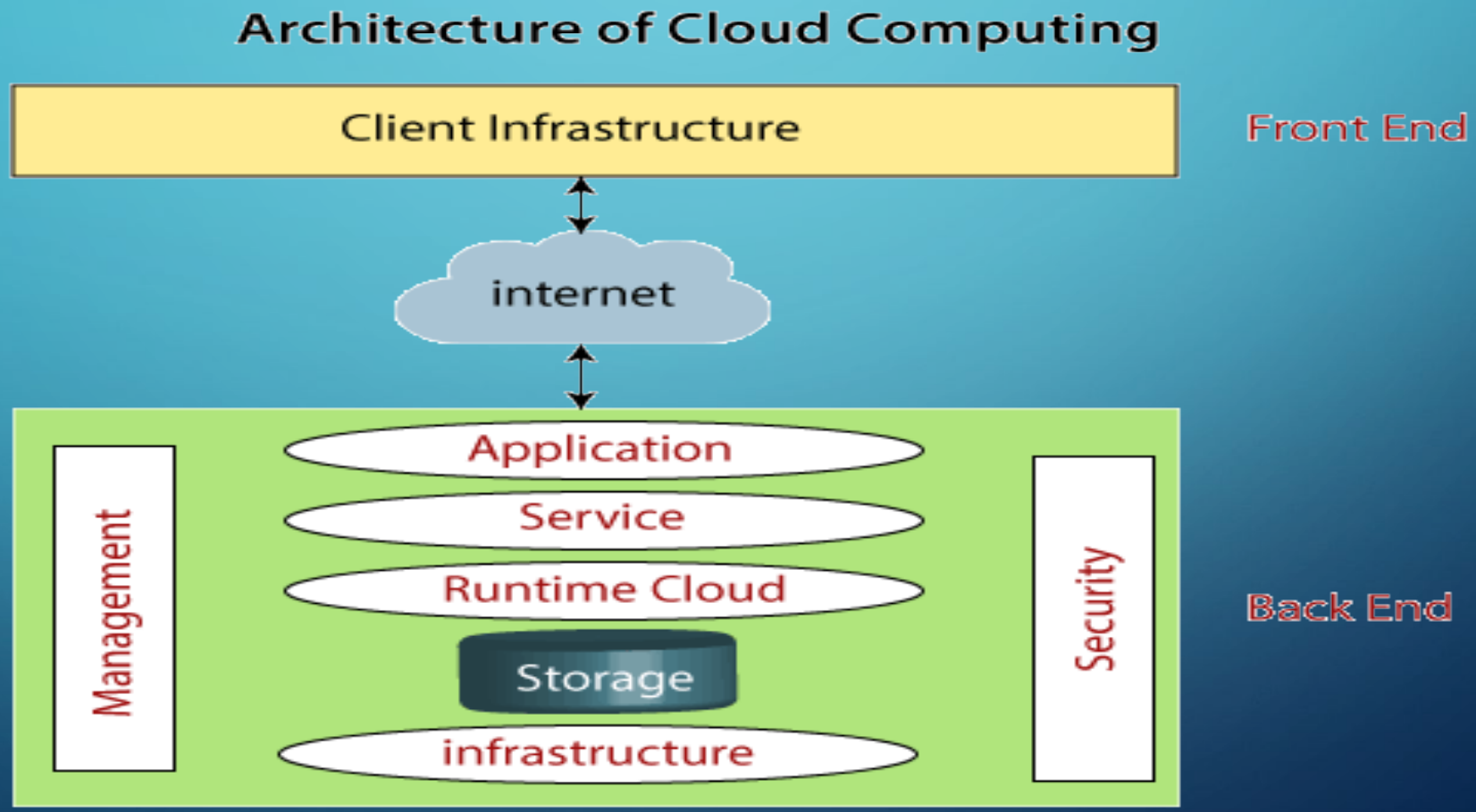
Cloud computing is the on-demand delivery of IT resources over the Internet such as servers, storage, and database etc. with pay-as-you-go pricing.

DEFINITION

Cloud computing is a model for enabling *ubiquitous*, convenient, *on-demand* network access to a shared pool of *configurable* computing resources (e.g., networks, servers, storage, applications and services) that can be *rapidly provisioned* and released with *minimal management* effort or service provider interaction.

Source : National Institute of Standards and Technology 2011

CLOUD COMPUTING ARCHITECTURE



CLOUD COMPUTING APPLICATIONS

Organizations of every type, size, and industry are using the cloud for a wide variety of use cases data backup, disaster recovery, email, virtual desktops, software development and testing, big data analytics, and customer-facing web applications.

Example-

> Business Applications:

Salesforce – Provide tools for ecommerce and sales

Paypal – Safe Payment

> Data Storage and Backups

> Video game makers are using the cloud to deliver online games to millions of players around the world.

CHARACTERISTICS CLOUD

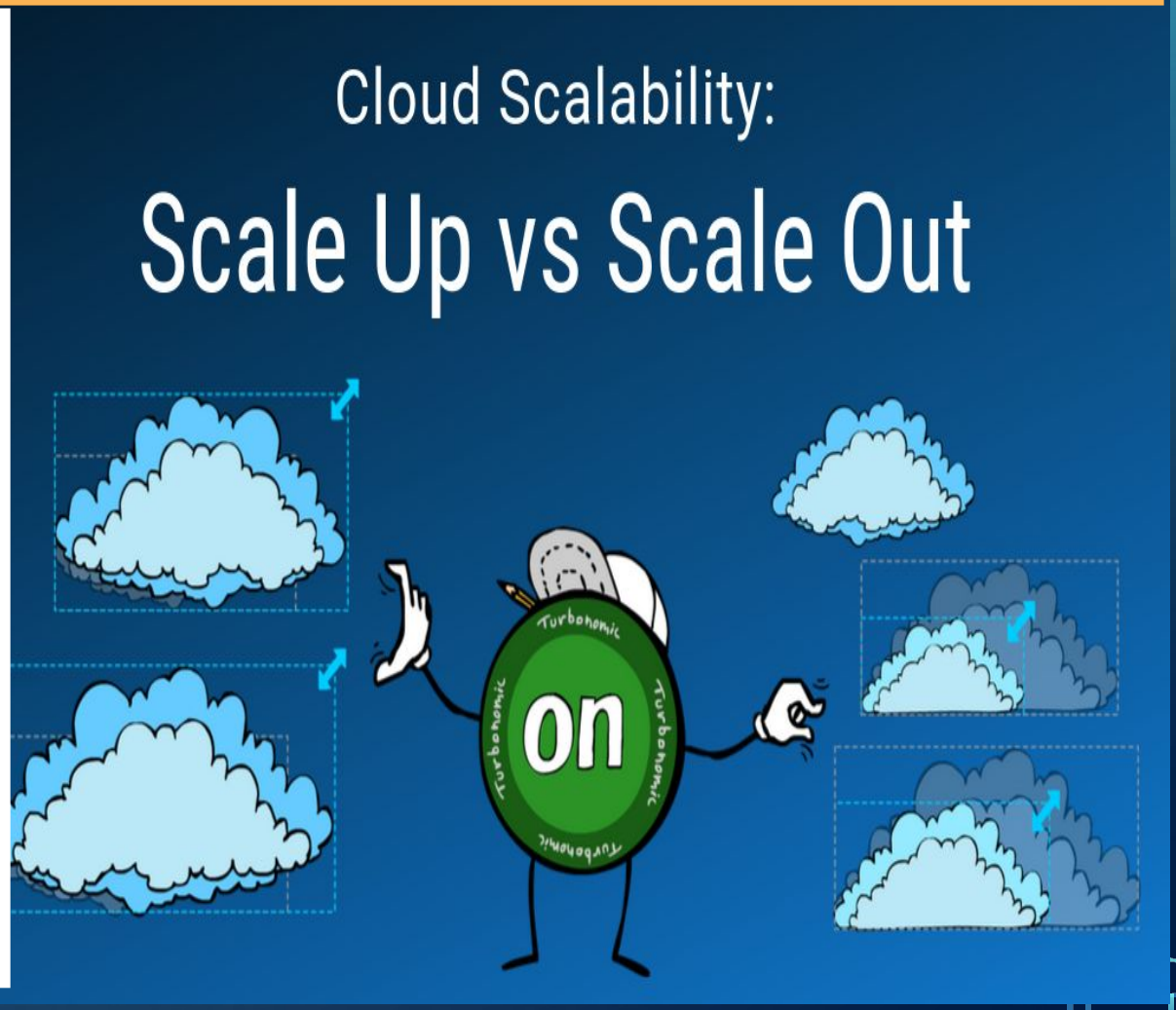
- Agility
- Scalability
- On Demand Dynamic Provisioning
- Multi-tenancy
- Security
- Tariff for metered usage

AGILITY

- rapid provisioning of computer resources
- It refers to the ability to rapidly develop, test and launch software applications that drive business growth.

SCALABILTY

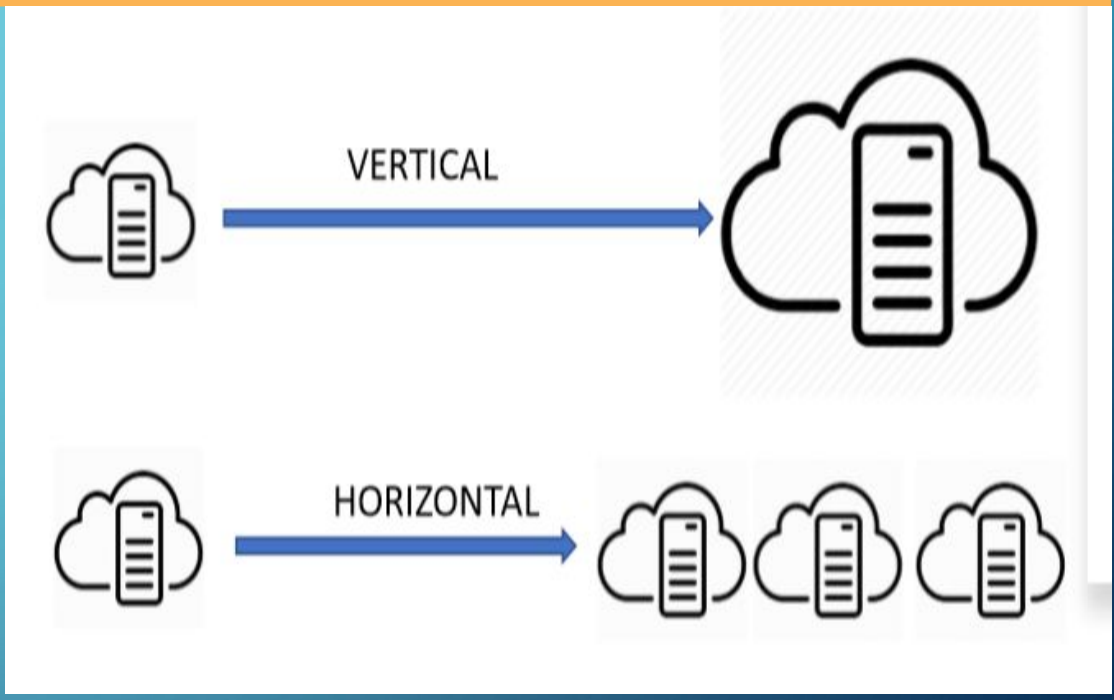
- The ability to increase workload size within existing infrastructure without impacting performance.
- Increasing or decreasing services and resources, is a planned event and static.
- It is a strategic resource allocation operation.



SCALABILITY STRATEGIES

- **Cloud Vertical Scaling** -refers to adding more CPU, memory, or I/O resources to an existing server, or replacing one server with a more powerful server. Can be accomplished by changing instance sizes, or in a data center by purchasing a new, more powerful appliance and discarding the old one.
- **Cloud Horizontal Scaling-** refers to Horizontal scaling in cloud computing means adding additional instances instead of moving to a larger instance size.

Note- Scaling vertically usually requires making the application unavailable for some amount of time.



SECURITY

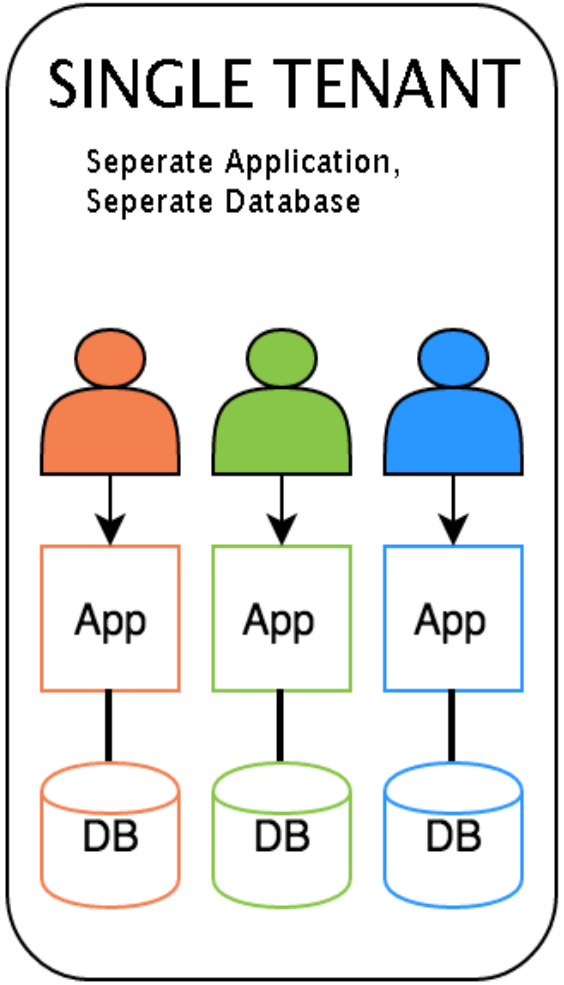
Every user services are completely

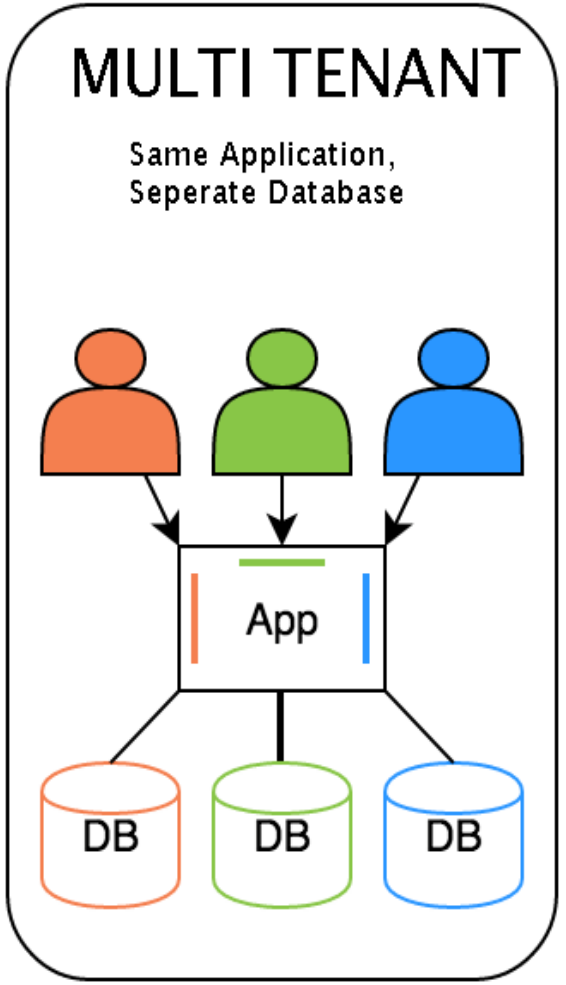
isolated from each other

MULTI-TENANCY

Single instance serves heterogeneous user requirements

single instance of software runs on a server and serves multiple tenant eg Cloud Services





TARIFF FOR METERED USAGE

Only for the resources allocated & utilized

– exclusively for your time of usage

BENEFITS OF CLOUD

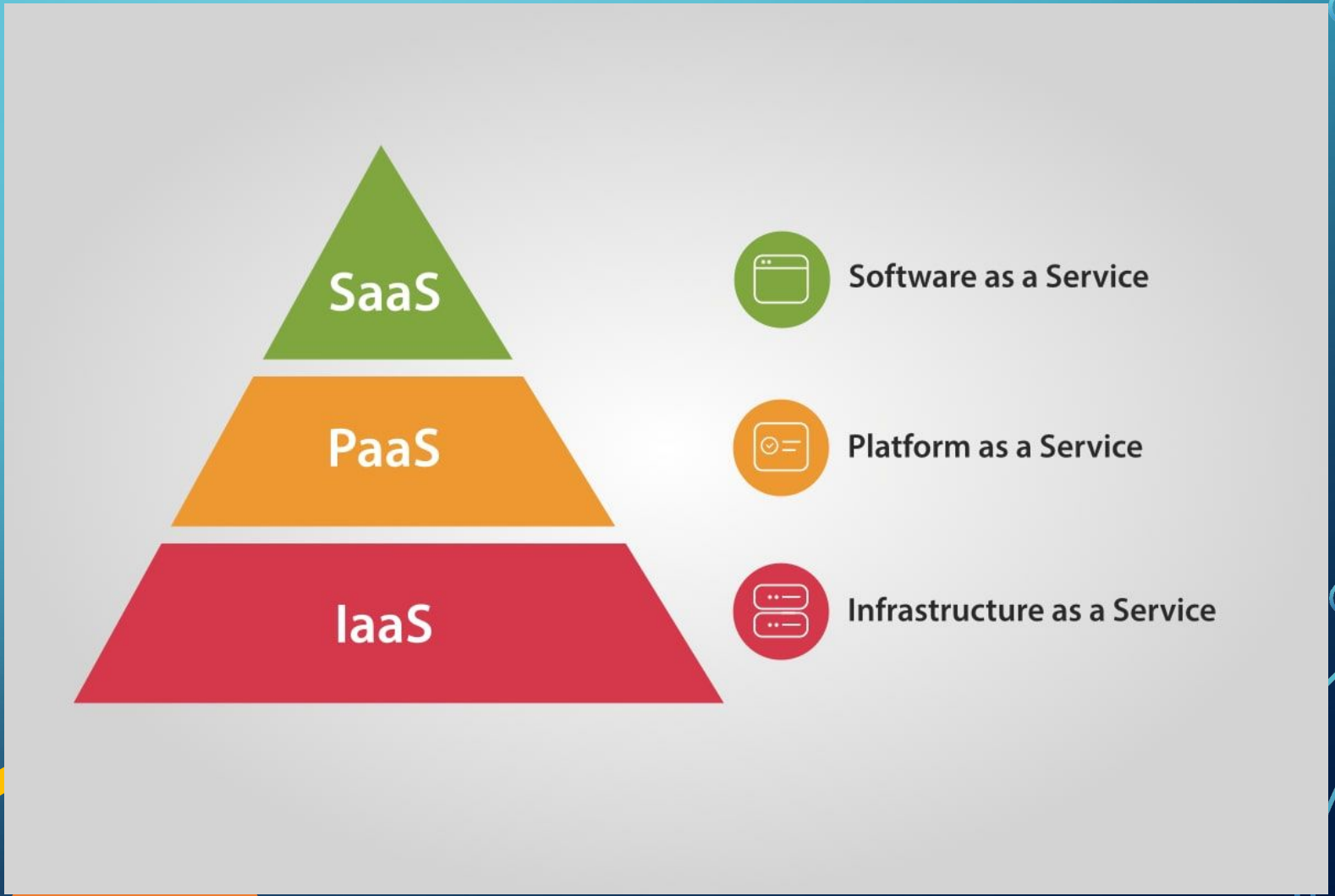
BENEFITS OF HOSTING WITH CLOUD

- Cloud hosting offers a level of scalability that traditional hosting can’t.
- Instead of paying for a set amount of space on a server, the user pays for what they actually use.
- With cloud hosting, the load is balanced across a cluster of multiple servers. The information and applications contained on those servers are mirrored across the whole cluster hence no single point of failure, loss of information or downtime.
- If an application or website receives more or less traffic, the cloud servers scale up and down automatically (auto-scaling)

Cloud Providers

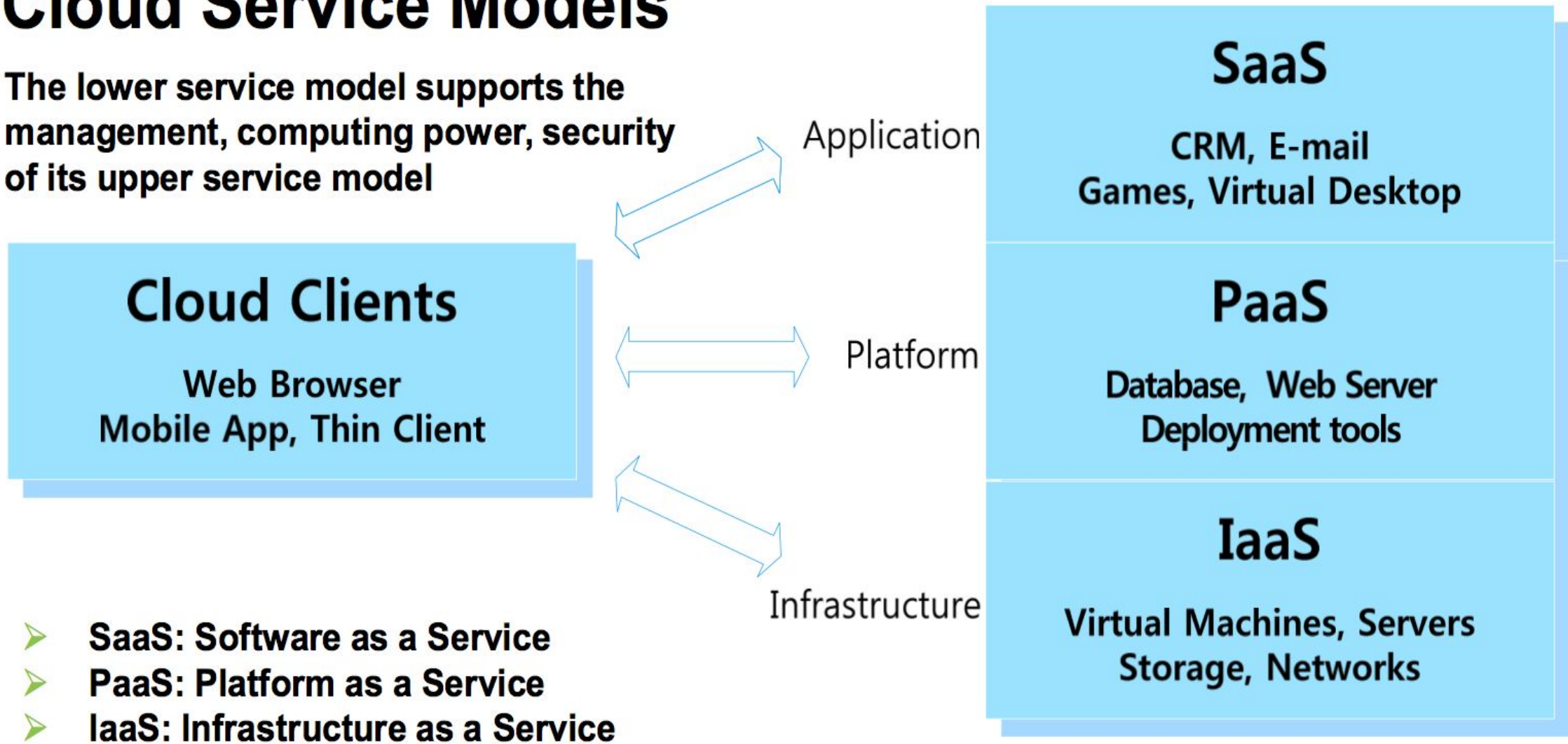
SERVICE MODELS

- SaaS
- PaaS
- IaaS



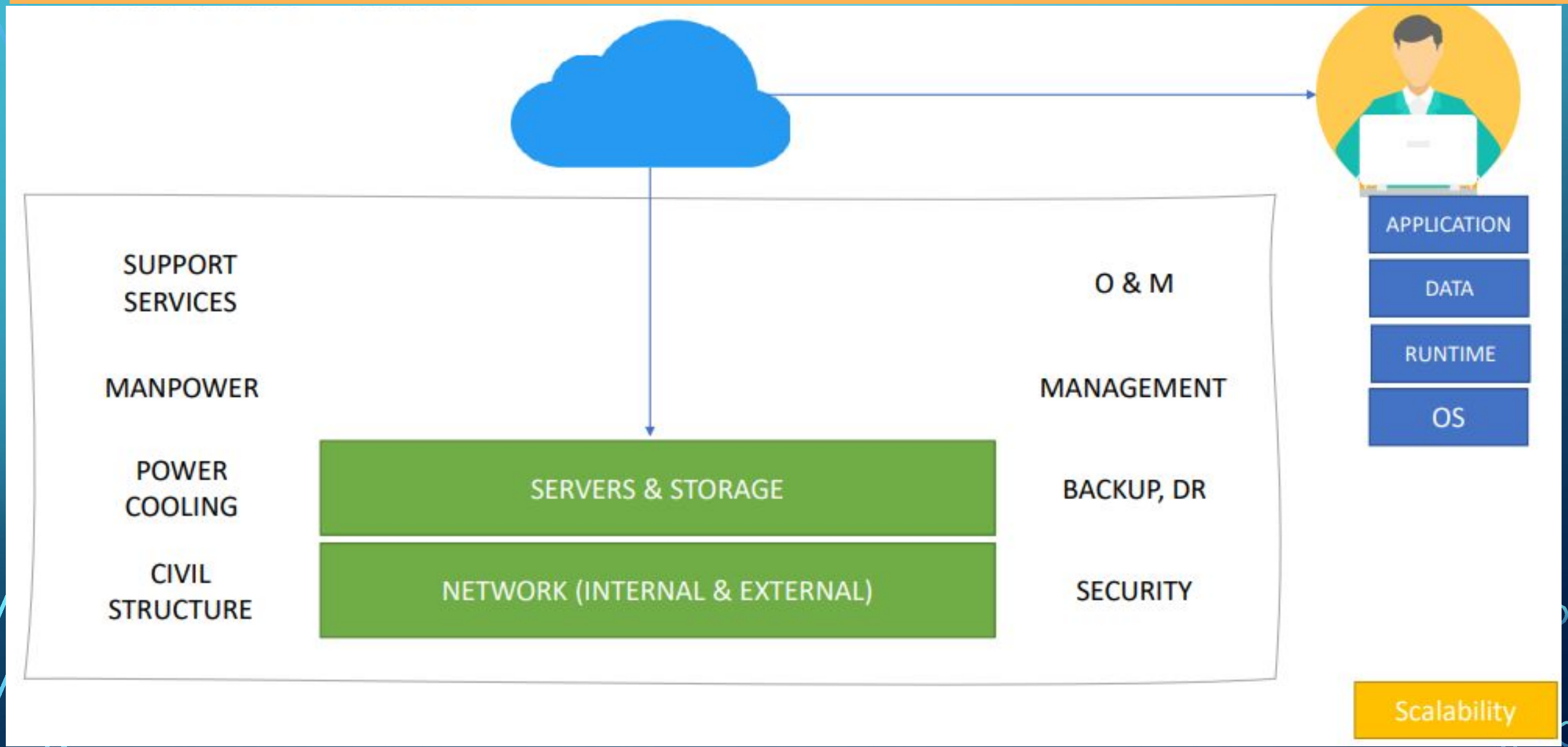
Cloud Service Models

The lower service model supports the management, computing power, security of its upper service model



- **SaaS: Software as a Service**
- **PaaS: Platform as a Service**
- **IaaS: Infrastructure as a Service**

INFRASTRUCTURE AS A SERVICE - IaaS

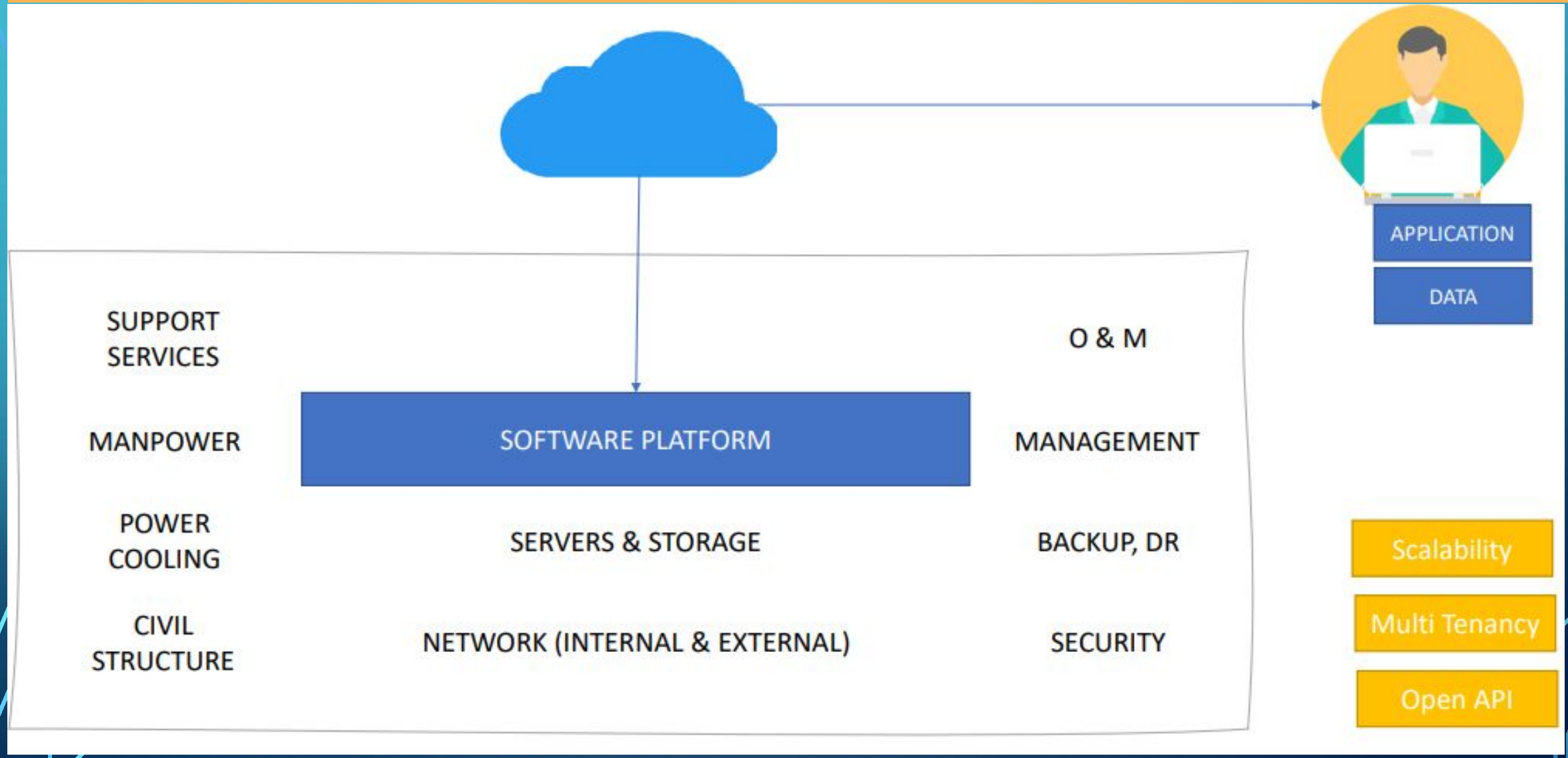


IAAS

- hardware needs can be outsourced.
- IaaS companies provide off-site server, storage, and networking hardware, which you rent and access over the Internet.
- Users are freed from maintenance costs and wasted office space.
- Providers - Google, Amazon, Rackspace, VMWare and OpenStack
- Examples-Google Compute Engine, Amazon EC2

Google Compute Engine

PLATFORM AS A SERVICE - PaaS

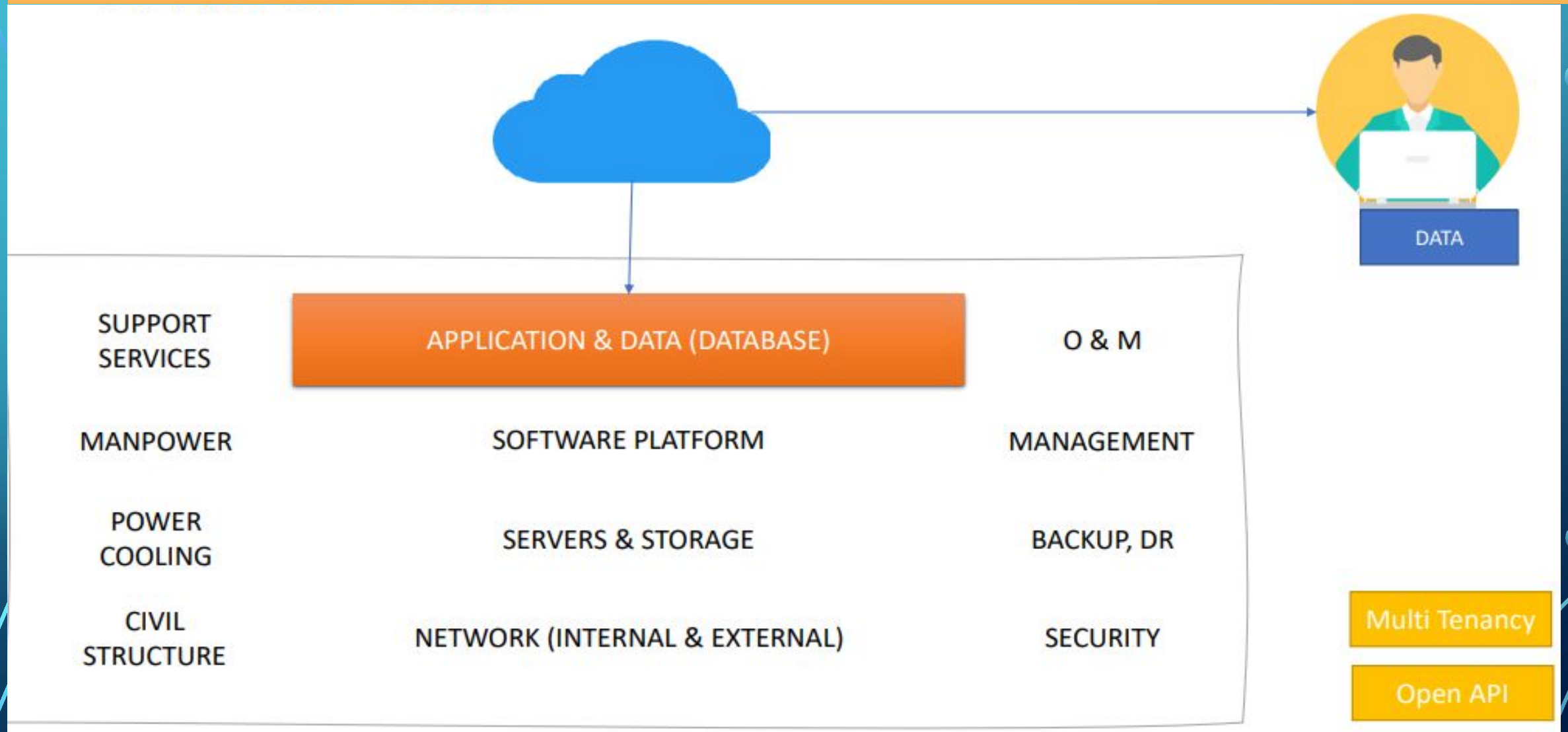


PaaS

- In PaaS, vendors offer everything necessary for building an application, including development tools, infrastructure, and operating systems, over the Internet.
- User needs to pay for the things they need to build their own applications.
- Web application management, application design, app hosting, storage, security, and app development collaboration tools all fa this category.
- Providers - Google, Amazon, Micros
- Examples-Google App Engine, Amaz

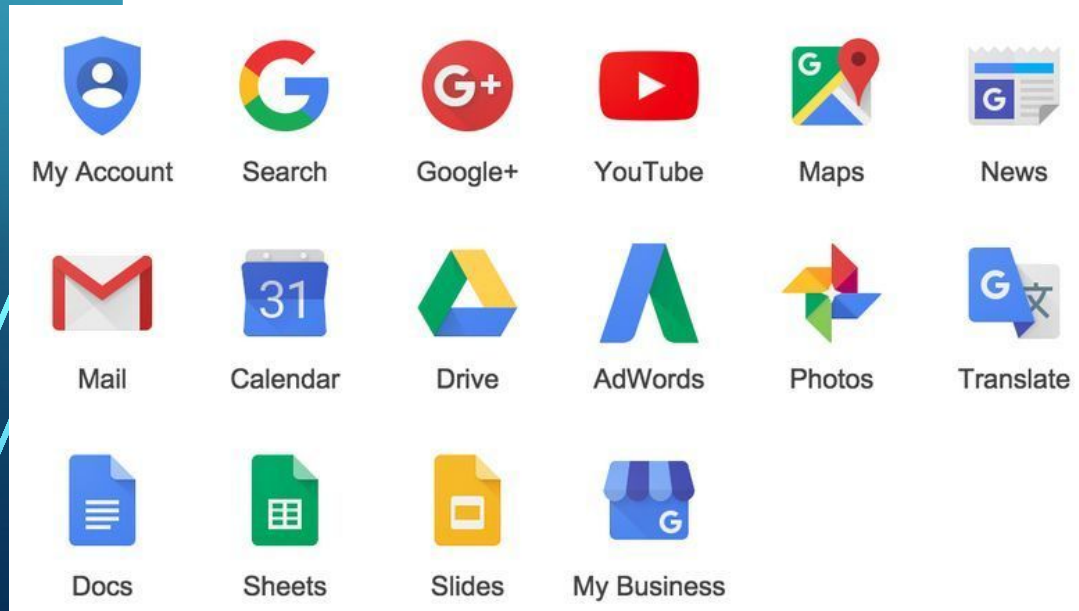
App Engine

SOFTWARE AS A SERVICE - SaaS



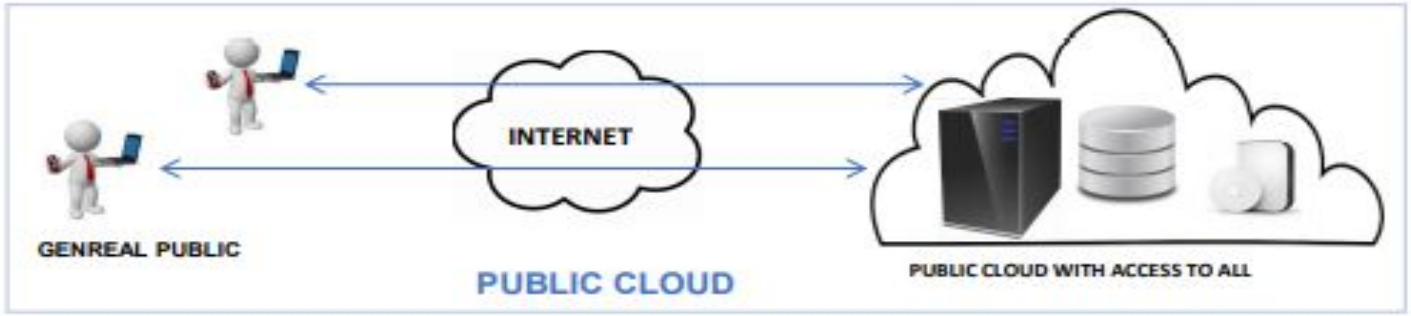
SaaS

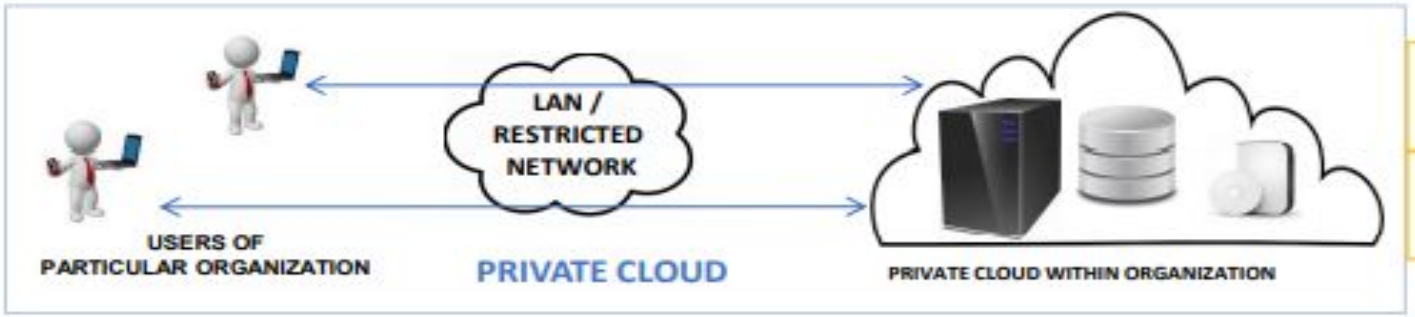
- Any application hosted on a remote server that can be accessed ov
  the Internet is considered a SaaS.
- User subscribes to an application and accesses it over the internet.
- Example -Netflix, Google Apps, Dropbox, Cisco's WebEx, facebook.



DEPLOYMENT MODELS

COMMUNITY CLOUD





ON PREMISES

OFF PREMISES

DEPLOYMENT MODELS

CLOUD USE CASES

Cloud use cases

- Application Hosting
- Backup and Storage
- Content Delivery
- Databases
- e-Commerce, e-Governance Applications
- Enterprise IT
- High Performance Computing
- Media Hosting
- On-Demand Workforce
- Search Engine Applications
- Web Hosting
- Social Media & Mobile Apps

Already on Cloud

- Gmail services
- Facebook
- Twitter
- LinkedIn

THANK YOU