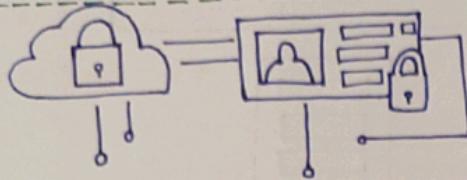


## Cloud Computing Tutorial

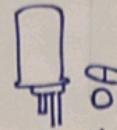
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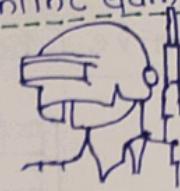
### \* Fraud Detection & Prevention



### \* Personalized Treatments



### \* Online Games

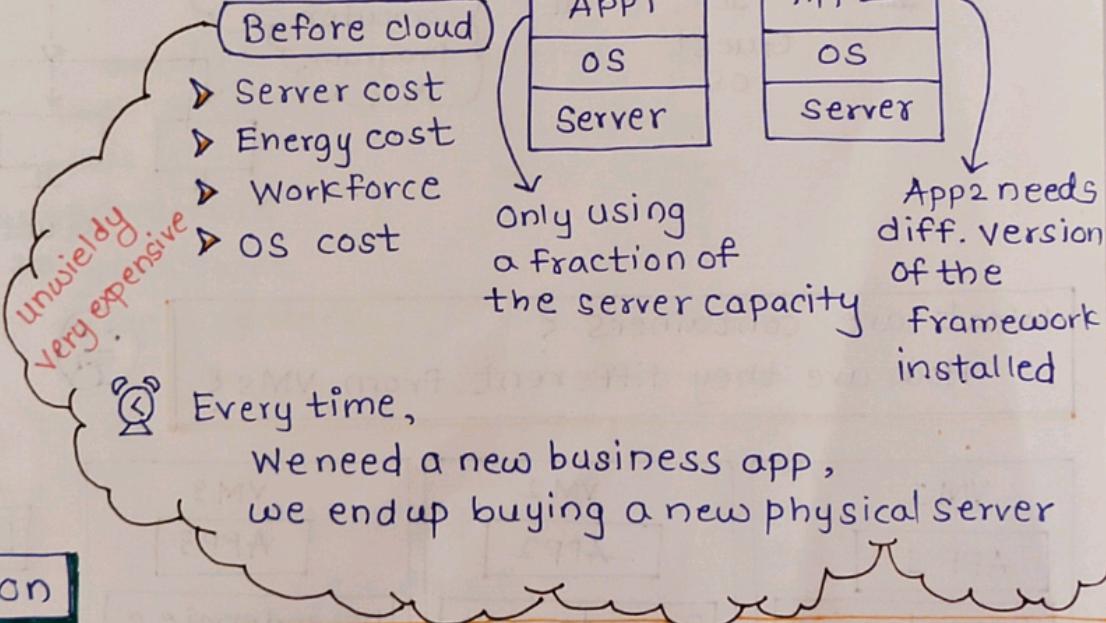
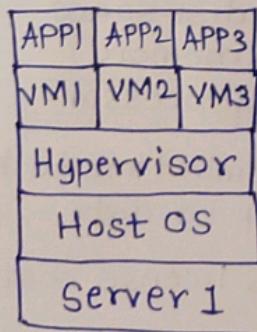


### Cloud related service

- Infrastructure as a service (IaaS)
- Platform as a service (PaaS)
- Software as a service (SaaS)
- Private cloud
- Public cloud
- Hybrid cloud



### Virtualization

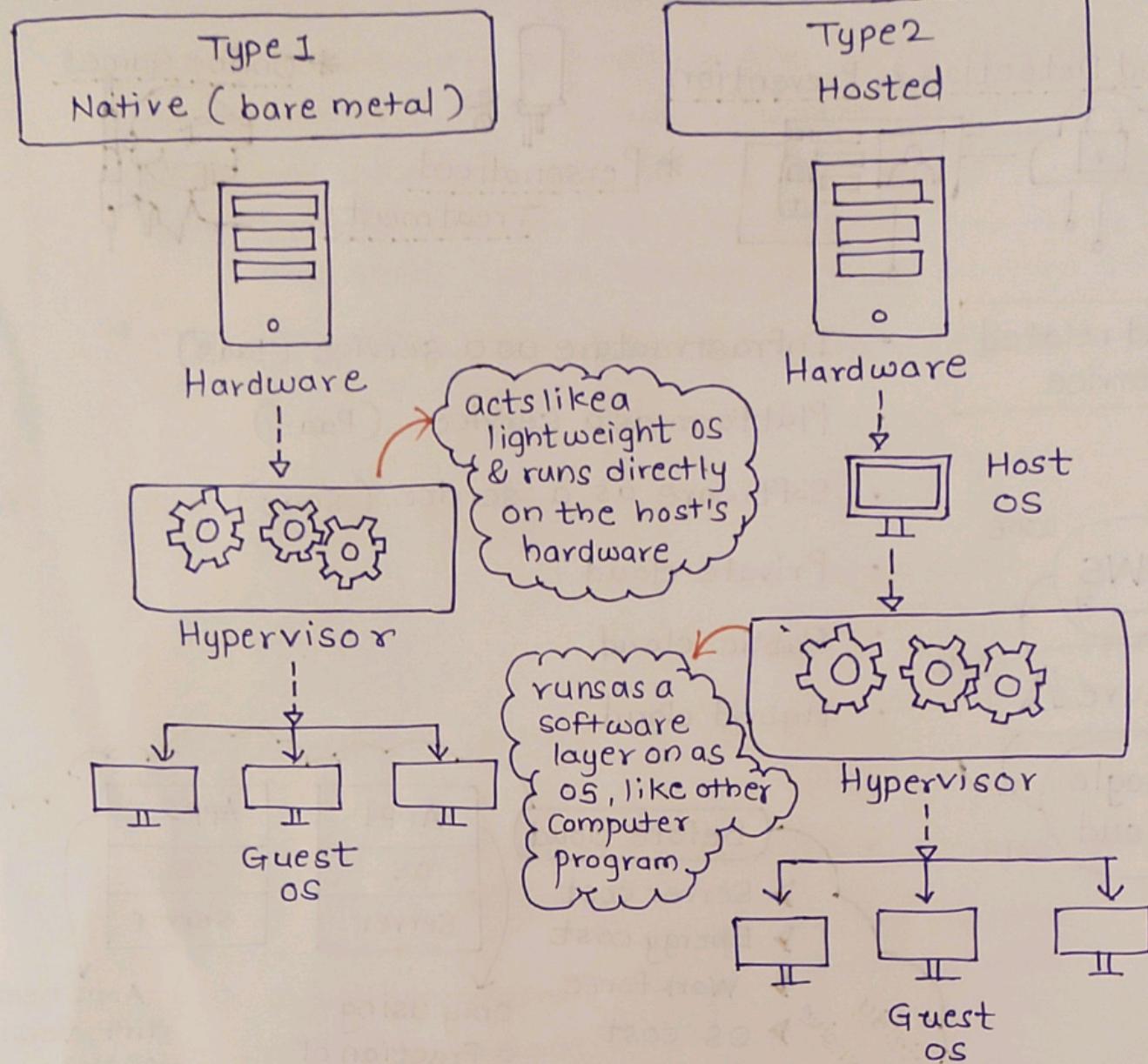


Hypervisors make it possible to use more of a system's available resources and provide greater IT mobility since the guest VMs are independent of the host hardware. This means they can be easily moved between different servers. A hypervisor reduces:

- space
- energy
- maintenance requirements

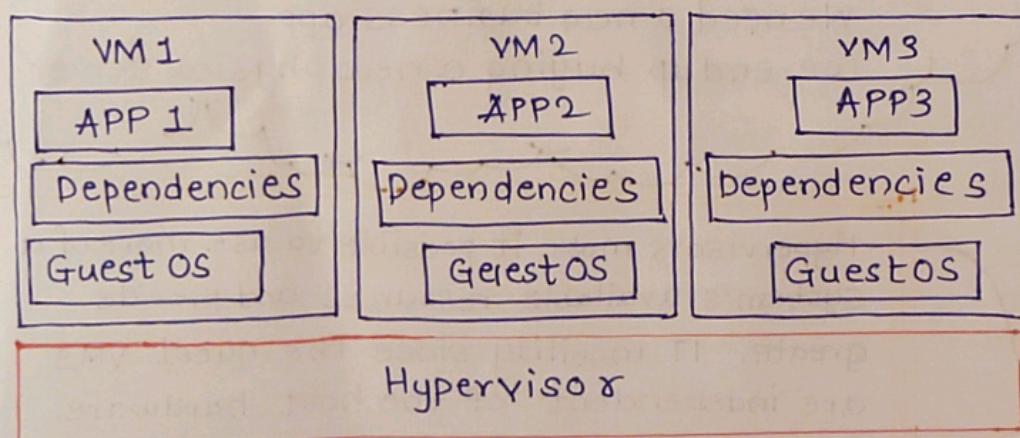
In reality, Apps are running on the same physical server but on a dedicated virtual machine.

# Hypervisor or Virtual Machine Monitor (VMM)



What are containers?

How are they different from VMs?



## Downsides

- Wasted server resources
  - disk space
  - memory
  - processor
- Admin time to keep OS up to date
- OS license cost
- VM bootup consumes time

Containers Virtualizes the operating system

- abstraction at the operating system level
- Multiple containers can run on the same machine
- can share the host operating system kernel.
- Container does not require its own operating system.
  - The amount of disk space, RAM, processor time and other server resources that are saved.
- Container packages your application code and its dependencies together.

## \* Benefits of cloud computing

### Reduce costs

- ✓ Cloud reduces both capex and opex.
- ✓ Organization no longer have to spend huge amount of money on physical servers, related IT infrastructure, specialized IT workforce, server rooms or data centers.

### pay as you go

You will pay for what you use.

Cloud resources are metered

### Business continuity

any crisis do not result in data loss

Setup & configure the server

server room secured!

Servers

connect it to UPS & n/w

organizations faced with a large initial capital expenditure (Capex)

antivirus software

dB server

paper cooling system

Maintenance any other dependencies

- disaster recovery
- failover system

### Scalability

scale up ↑

scale down ↓

Never run out of resources.

### Accessibility

accessed from virtually anywhere and anytime.

### Automatic Updates

### Self service

### Increased collaboration

## Risk of cloud computing

Loss of cloud data and services

Data security

Compliance and legal risks

Cost concerns

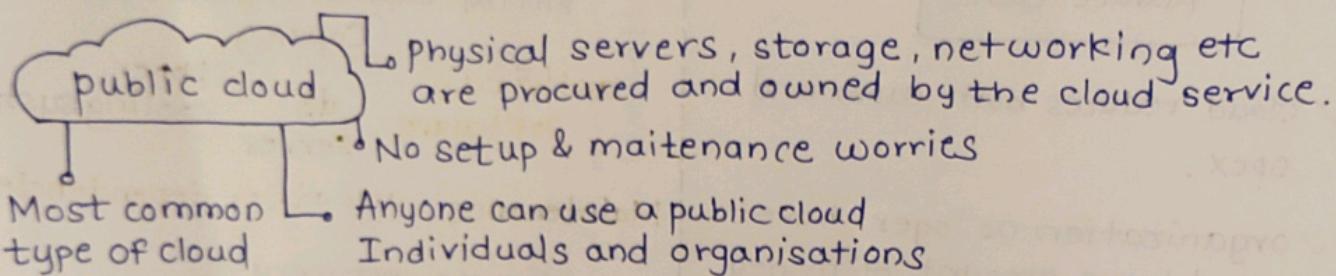
→ SLA's  
Service Level Agreement



Local and international regulations  
GDPR, HIPAA

## What is a Public Cloud.

Benefits, Limitations & Usecases.



examples → Microsoft Azure  
Amazon AWS

Multi-tenancy

Manage the cloud services and resources using cloud provider web portal.

Multi organisations share cloud resources.

pay-as-you-go

like water or electricity bills



Benefits

- No upfront capex
- pay as you go
- No maintenance
- Highly scalable
- Highly reliable

Limitations

Low visibility and control  
compliance and legal risks  
cost concerns

usecase

Unlimited scalability  
varying peak demands  
Fast growing businesses  
Backup and disaster recovery solutions.

## Private Cloud

located on-premise | can be hosted by a third party service provider.

resources are used by one business or organisations.

private to a specific organisation

- easy to customise a private cloud
- used by government agencies financial institutions

### Benefits

- Better security
- Better control
- Predictable costs
- Legal compliances

### Limitations

- Limited scalability
- Huge initial capex
- Limited access

### use case

Highly regulated business  
Tech companies that require complete control  
large companies that require custom solutions.

## Hybrid Cloud

combination of private + public

private cloud : security sensitive & business-critical operations  
public cloud : high-volume & lower security needs.

### Regular Demand

App continue to run in your own private cloud.

### Spike in Demand

Burst through to the public cloud.

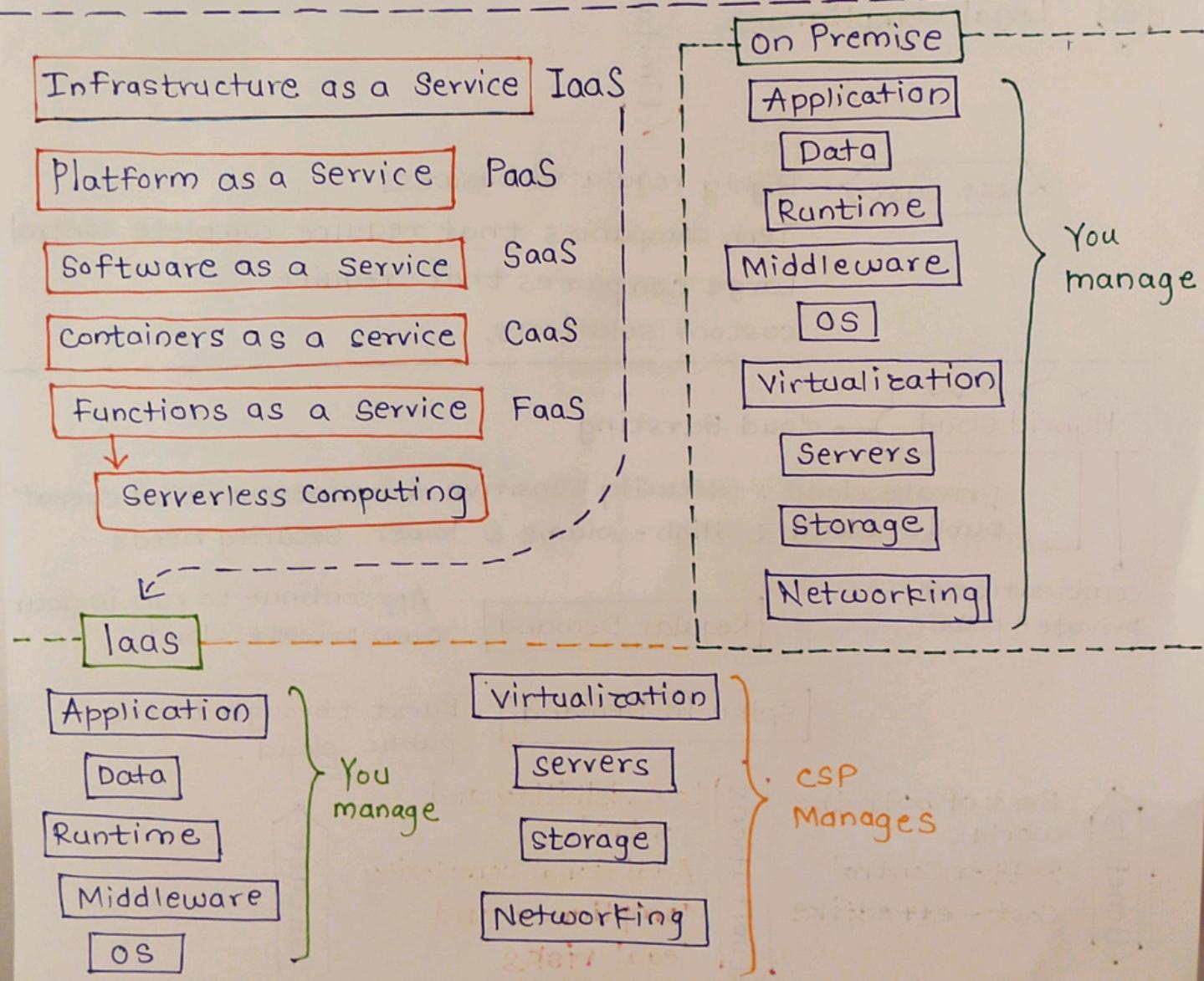
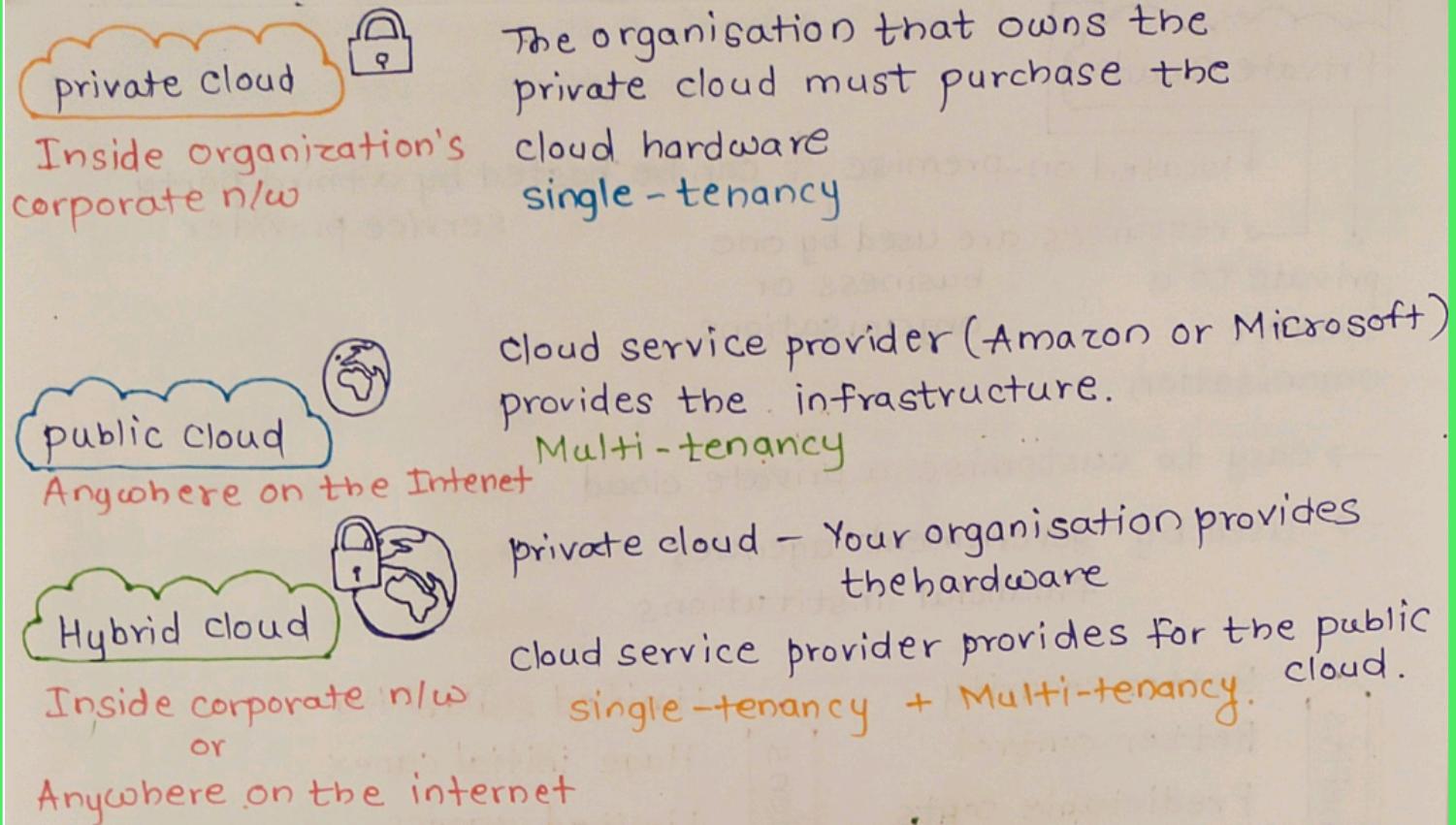
### Benefits

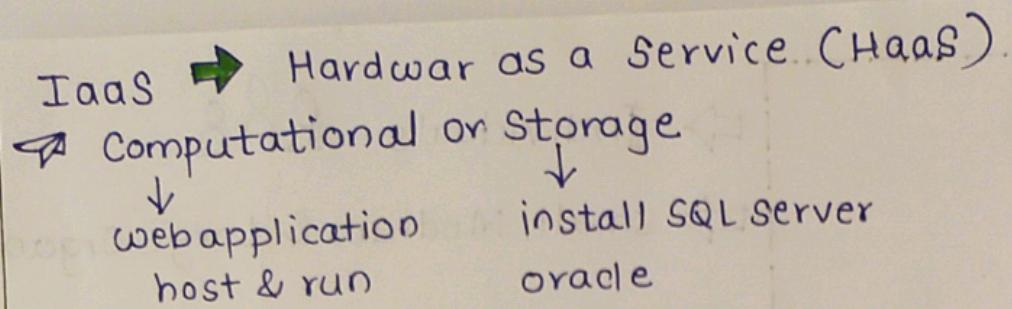
- Best of both the worlds
- Better Control
- Cost-effective

### Limitations

- Low visibility and control
- Additional complexity
- Compliance and legal risks
- cost concerns

### use case





Infrastructure Teams  
Software Development Teams

### Benefits

→ Reduce financial risk

If your new product launch, well and good.  
If it doesn't shut things down and stop paying.

→ Deployment speed

→ Geographical advantages

→ Unlimited scalability.

### PaaS

Applications

Data

You manage

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

CSP (cloud service providers)

Manages

→ platform for software development

Data driven web app

- ASP.NET Core or Java
- SQL Server or Oracle
- Web Server

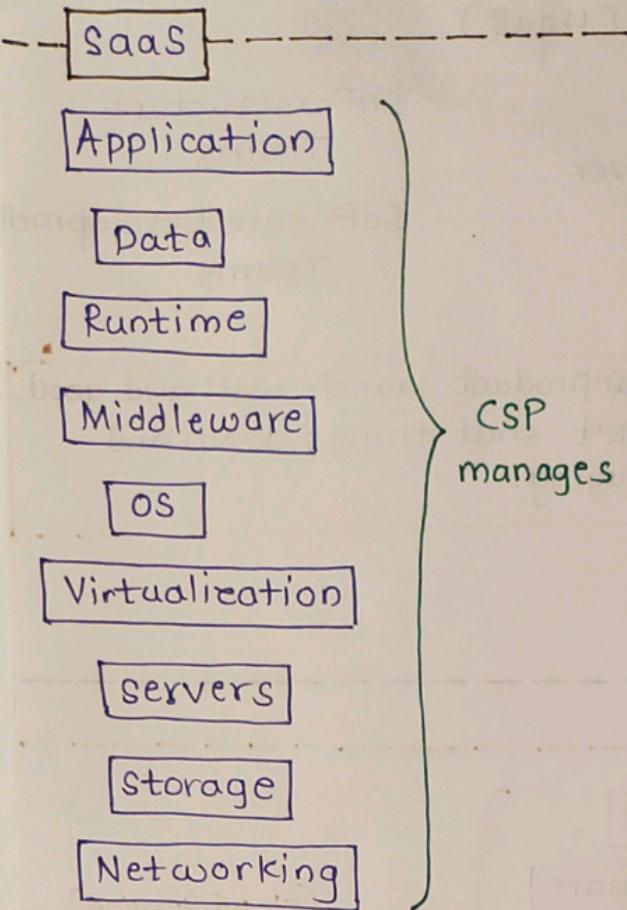
Windows Azure

AWS Elastic Beanstalk

Google App Engine

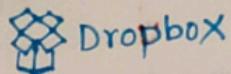
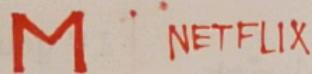
PaaS Benefits = IaaS + PaaS Benefits

- Reduce financial Risk
- Deployment speed
- Geographic location adv.
- Auto scaling
- Reduce development time
- Support global team
- Develop for multiplatform
- Affordability



- Individuals
- Small, Medium & Large Organisat<sup>n</sup>

SaaS Apps ↗



prime



Google Drive

- Customer Relationship Management
- Financial Management
- Sales Management
- Human Resource Management
- Billing
- Entertainment ...

- Very easy to get started
- Accessibility
- Automatic updates
- Flexible usage-based pricing
- Reduced financial risk
- Affordability



By moving to cloud, you are improving  
Security

[pragimtech.com/courses/  
learn-cloud-computing-from-  
scratch/](https://pragimtech.com/courses/learn-cloud-computing-from-scratch/)

