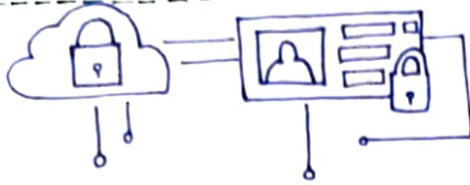


*Fraud Detection & Prevention



*Personalized Treatments

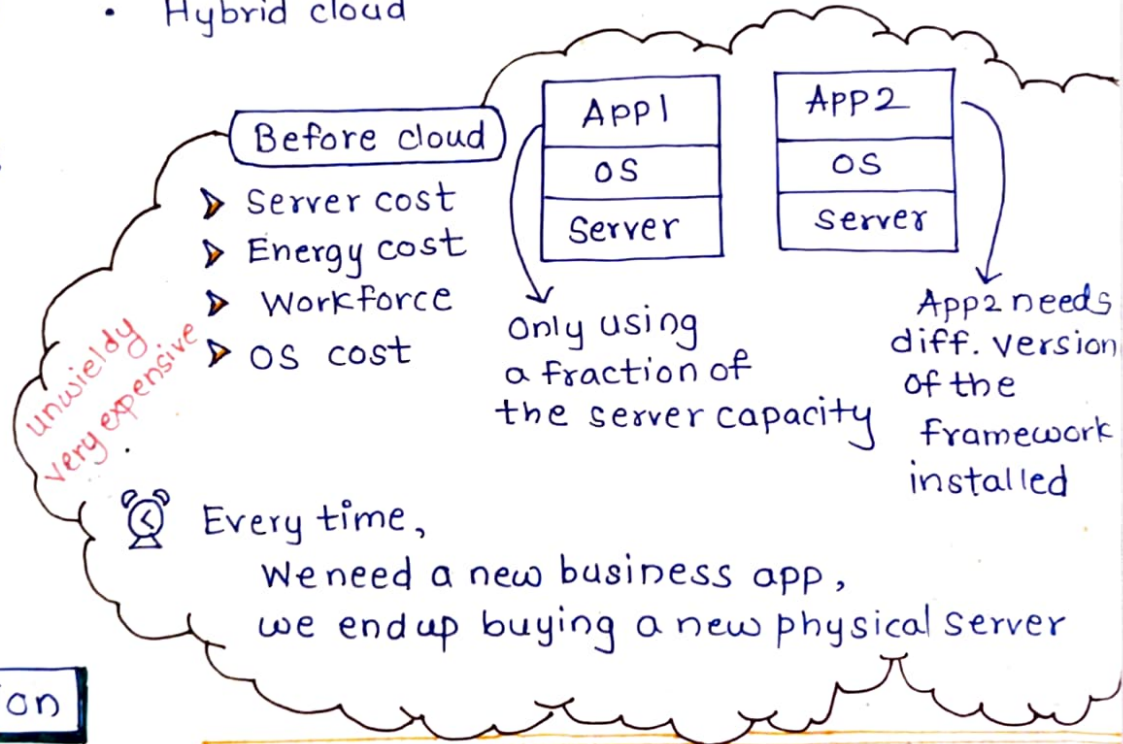


*Online Games

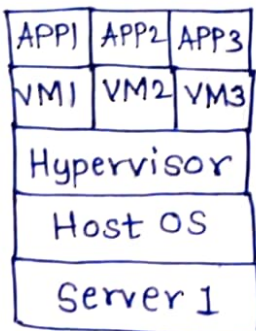


Cloud related Service

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



Virtualization



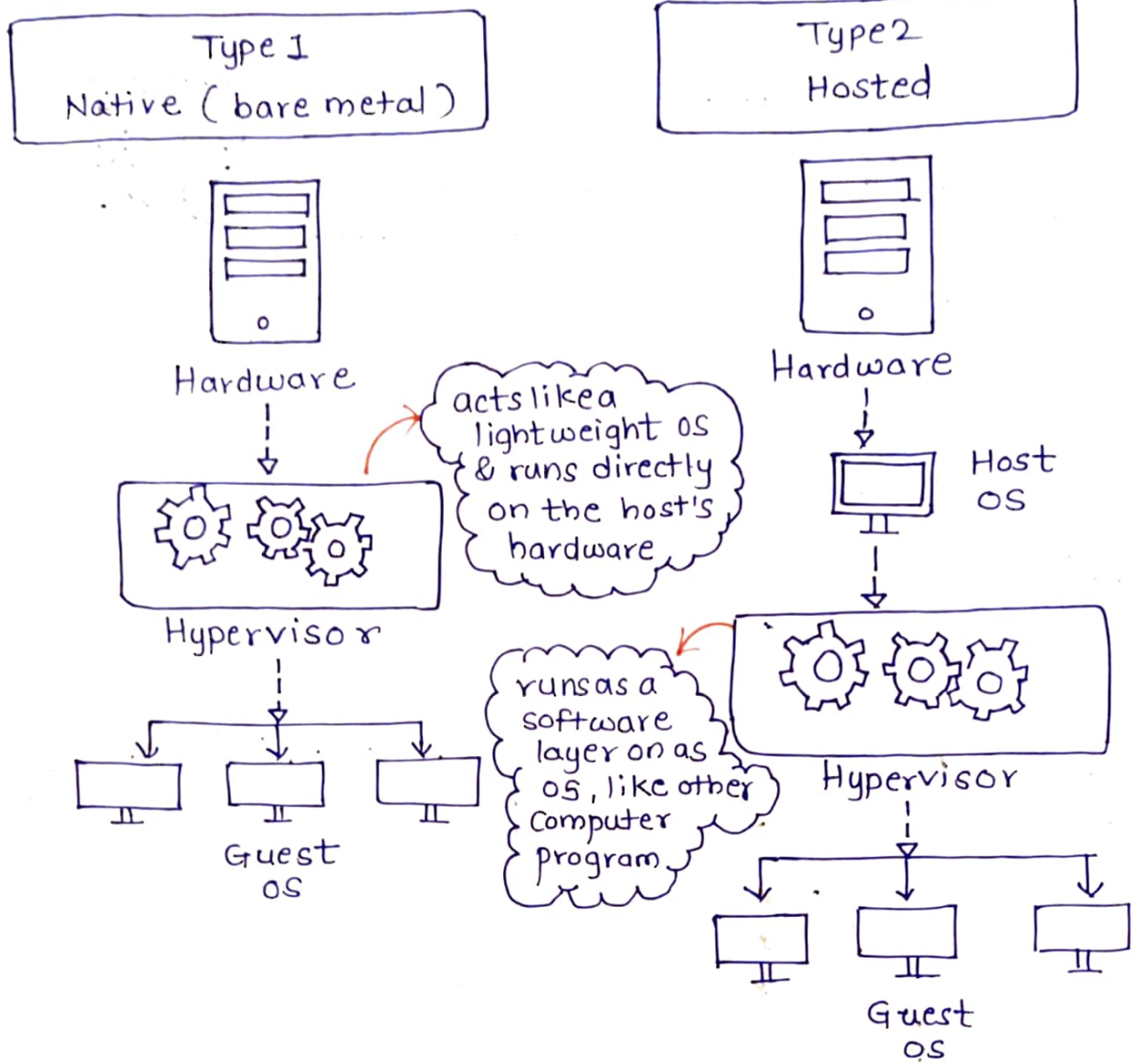
Hypervisors make it possible to use more of a system's available resources and provide greater IT mobility since the guest VMs are independent of the host hardware. This means they can be easily moved between different servers.

a hypervisor reduces:

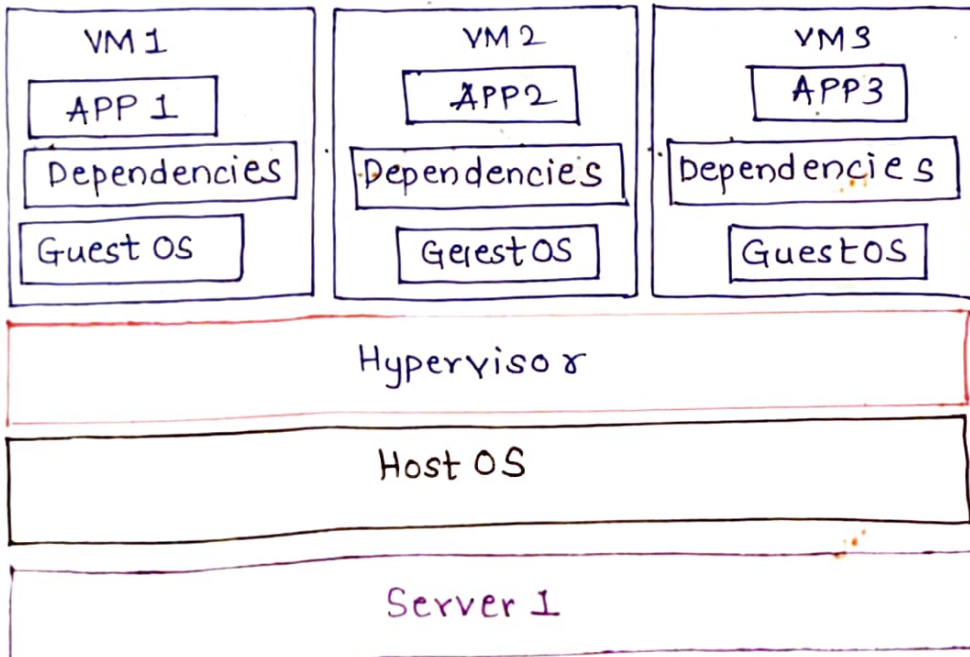
- space
- energy
- Maintenance requirements

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 it's 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

Scalability



scale up ↑
scale down ↓

Never run out of resources.

Automatic Updates



Self service



Accessibility



accessed from virtually anywhere and anytime.



Increased collaboration

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

proper cooling system

Maintenance any other dependencies

- disaster recovery
- failover system

Risk of cloud computing

Loss of cloud data and services

Data security

Compliance and legal risks

cost concerns

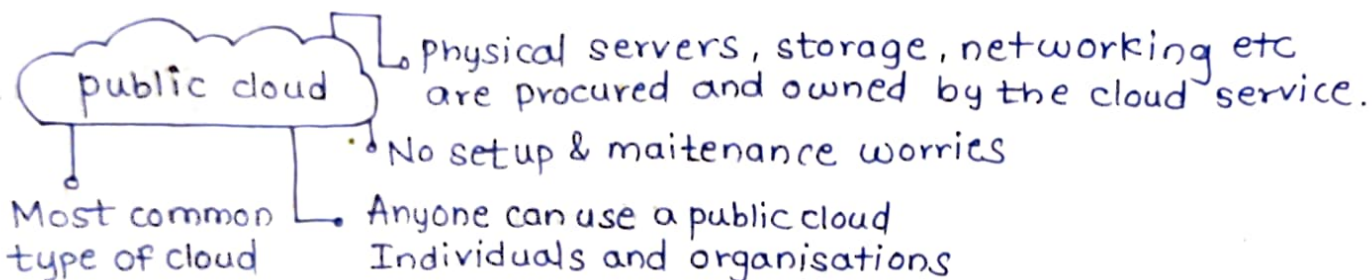
⇒ SLA's
Service Level Agreement



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.

Multiorganisations 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 private to a specific organisation business or organisations.

→ 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

cloud Bursting

private cloud : security sensitive & business-critical operations

public cloud : High-volume & lower security needs.

combination of private + public

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

private cloud



Inside organization's corporate n/w

The organisation that owns the private cloud must purchase the cloud hardware
single-tenancy

public cloud



Anywhere on the Internet

cloud service provider (Amazon or Microsoft) provides the infrastructure.
Multi-tenancy

Hybrid cloud



Inside corporate n/w or

Anywhere on the internet

private cloud - Your organisation provides the hardware

cloud service provider provides for the public cloud.
single-tenancy + Multi-tenancy.

Infrastructure as a Service IaaS

Platform as a Service PaaS

Software as a Service SaaS

Containers as a service CaaS

Functions as a Service FaaS

Serverless Computing

On Premise

Application

Data

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

You manage

IaaS

Application

Data

Runtime

Middleware

OS

You manage

Virtualization

servers

storage

Networking

CSP Manages

IaaS → Hardware as a Service (HaaS)

→ Computational or Storage

↓
web application
host & run

↓
install SQL Server
oracle

Infrastructure
Teams

Software Development
Teams

Benefits

- Reduce financial risk
- Deployment speed
- Geographical advantages
- Unlimited scalability.

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

PaaS

Applications

Data

You
manage

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

CSP (cloud service
providers)
Manages

→ platform for software
Development

Windows Azure

AWS Elastic Beanstalk

Google App Engine

Data driven web app

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

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

SaaS

Application

Data

Runtime

Middleware

OS


Virtualization

servers

Storage

Networking

CSP
manages

⇒ Individuals 

⇒ Small, Medium & Large Organisatⁿ

SaaS Apps →

M

NETFLIX

prime



Dropbox



Google Drive



Office 365

→ 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/)

Encryption

Auditing

Two-Factor
authenticatⁿ

Reviewing and rotating
access Keys and
credentials