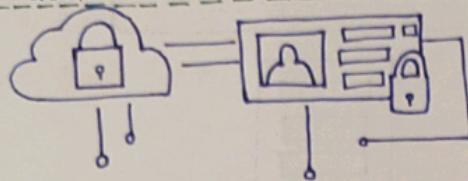
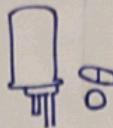


* Fraud Detection & Prevention



* Personalized Treatments

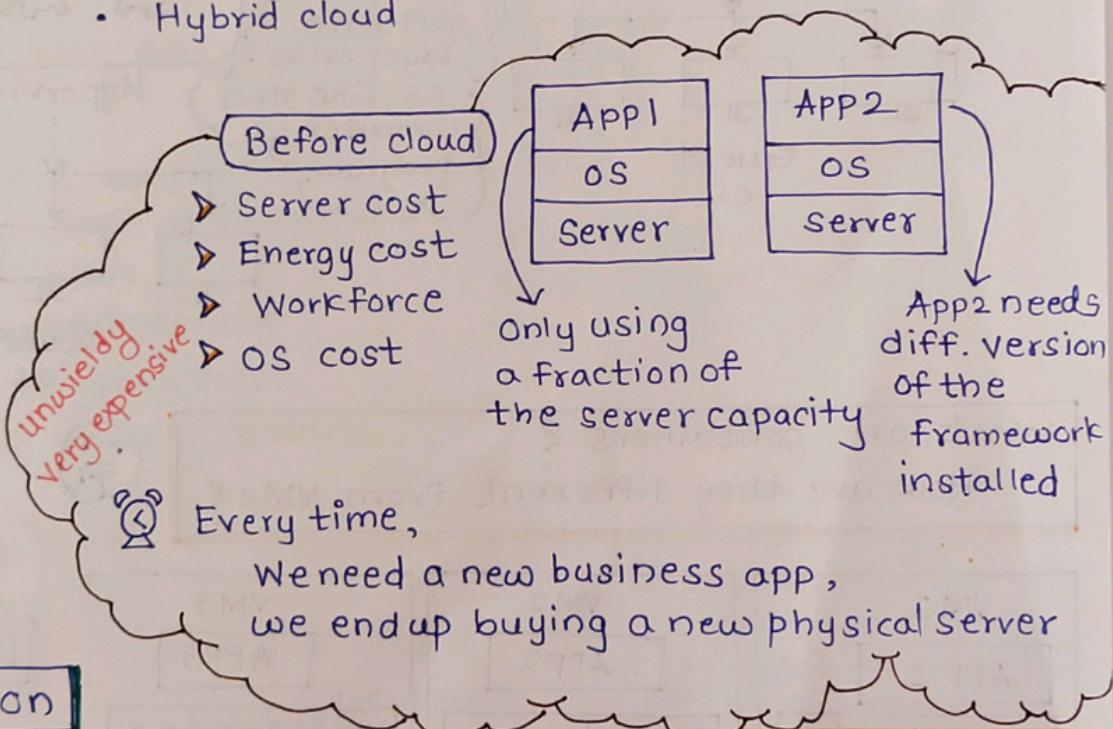
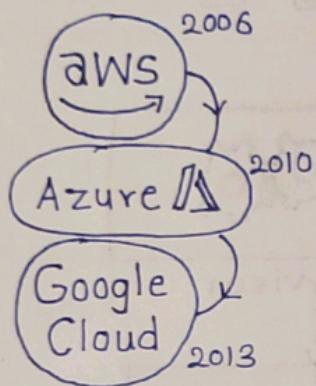


* Online Games

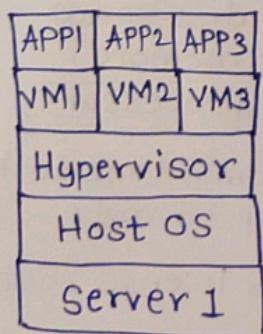


Cloud related Service

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



Virtualization



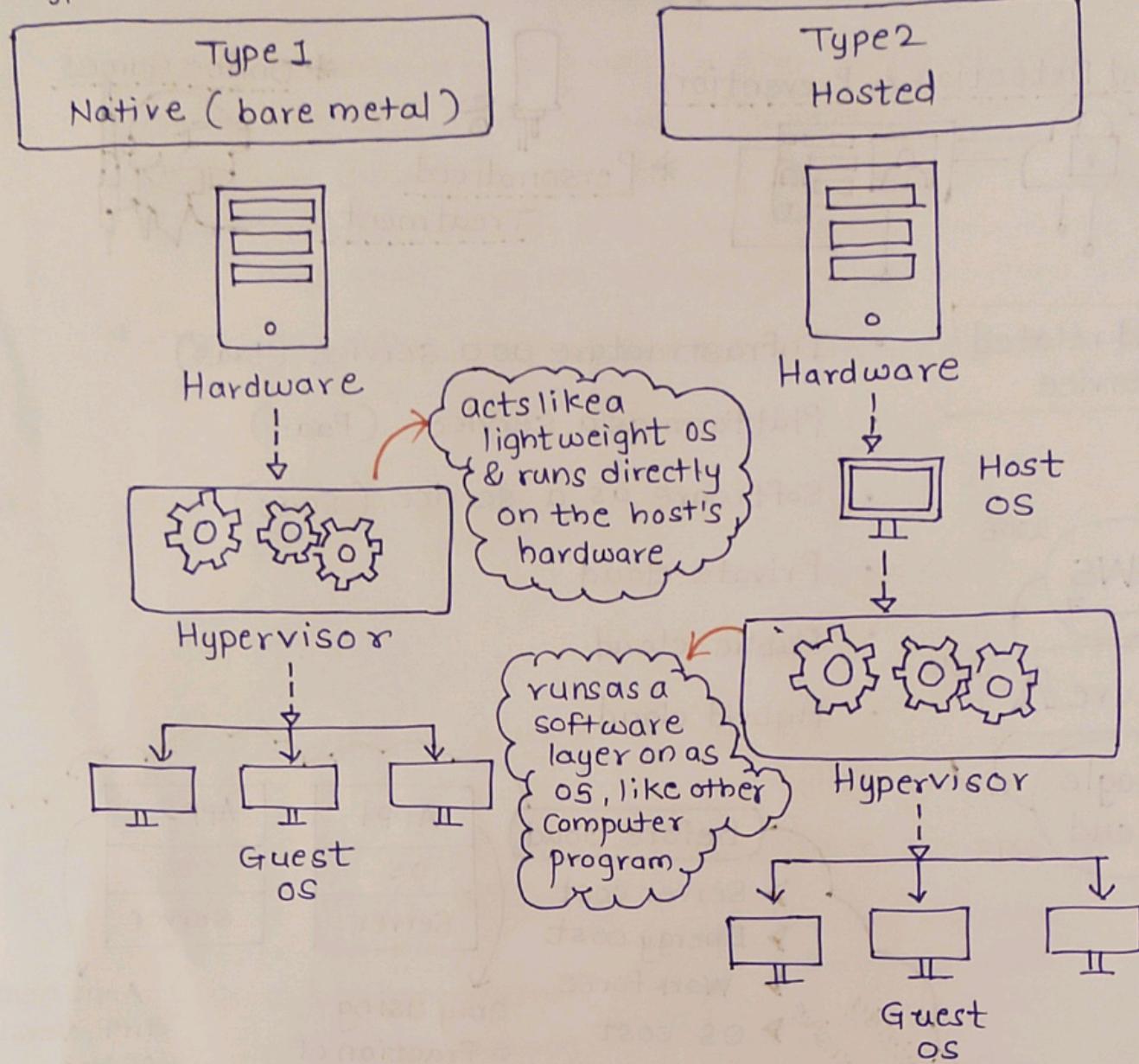
Hypervisors make it possible to use more of a system's available resources and provide greater IT mobility since the guest VMs are independent of the host hardware. This means they can be easily moved between different servers.

a hypervisor reduces :

- space
- energy
- maintenance requirements

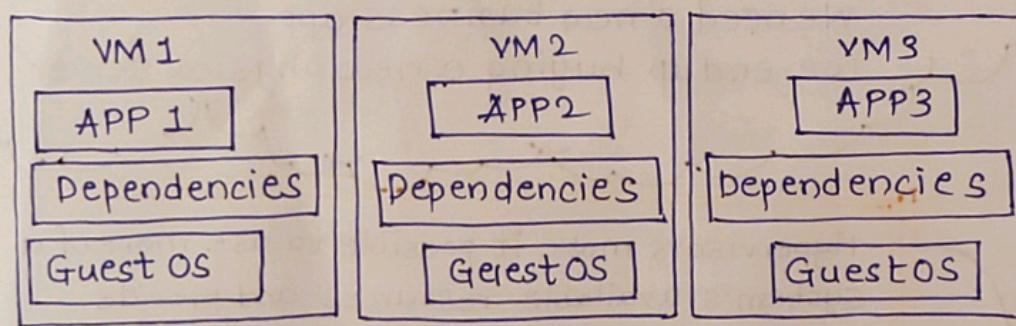
In reality, Apps are running on the same physical server but on a dedicated virtual machine.

Hypervisor or Virtual Machine Monitor (VMM)



What are containers?

How are they different from VMs?



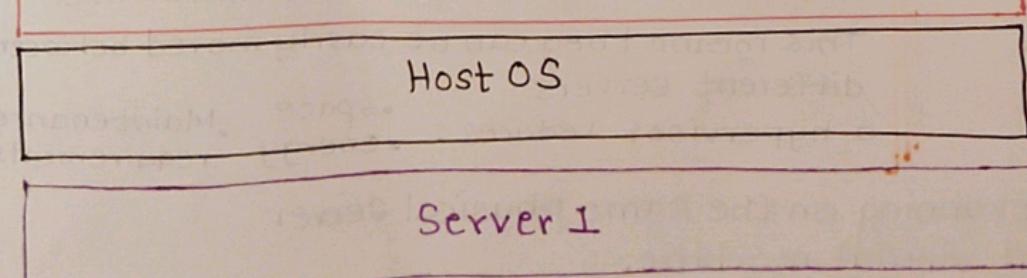
Downsides

➤ 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
Servers connect it to UPS & n/w
server room secured!

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

→ SLA's
Service Level Agreement

Loss of cloud data and services

Data security

Compliance and legal risks

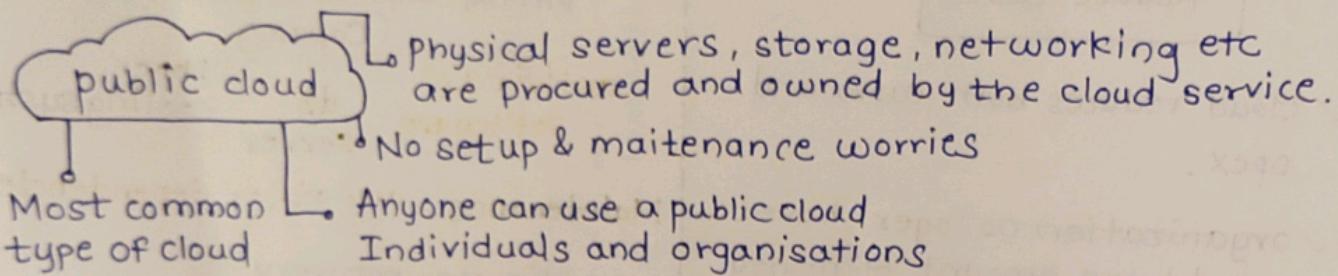
cost concerns



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

Cloud Bursting

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

Benefits

Best of both the worlds
Better Control
Cost-effective

Limitations

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

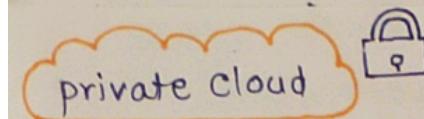
Regular Demand

App continue to run in your own private cloud.

Spike in Demand

Burst through to the public cloud.

use case



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

Inside organization's corporate n/w



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

Anywhere on the Internet



private cloud - Your organisation provides the hardware

Hybrid cloud
Inside corporate n/w
or

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

Anywhere on the internet

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

IaaS

On Premise

Application

Data

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

You manage

Application

Data

Runtime

Middleware

OS

You manage

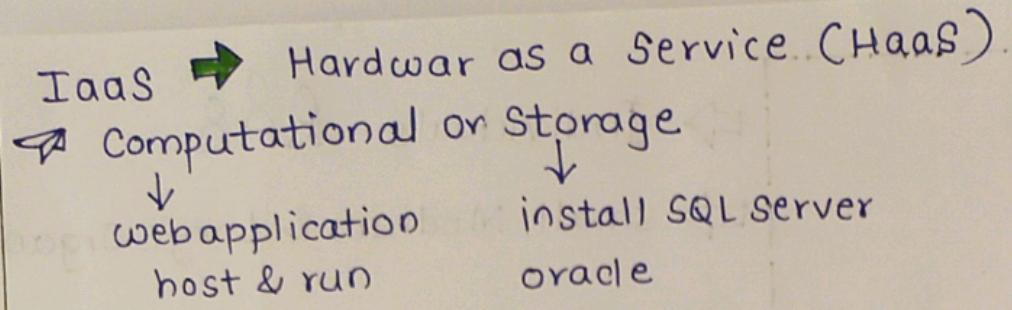
Virtualization

Servers

Storage

Networking

CSP Manages



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

SaaS

Application

Data

Runtime

Middleware

OS

Virtualization

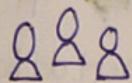
servers

storage

Networking

CSP
manages

→ Individuals



→ Small, Medium & Large Organisat?

SaaS Apps →

M NETFLIX prime

Dropbox



Office 365

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

Encryption



Auditing

Two-factor authentication



Reviewing and rotating
access keys and
credentials