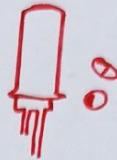
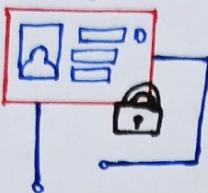


Cloud Computing Tutorial

* Fraud Detection & Prevention

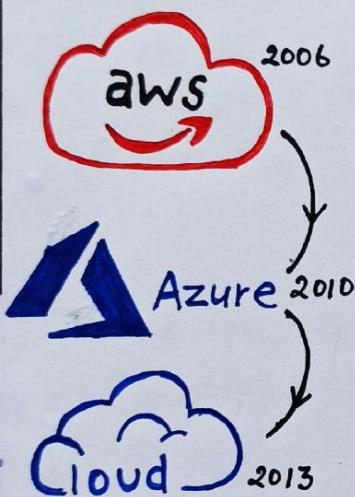


* Personalized Treatments

* Online Games

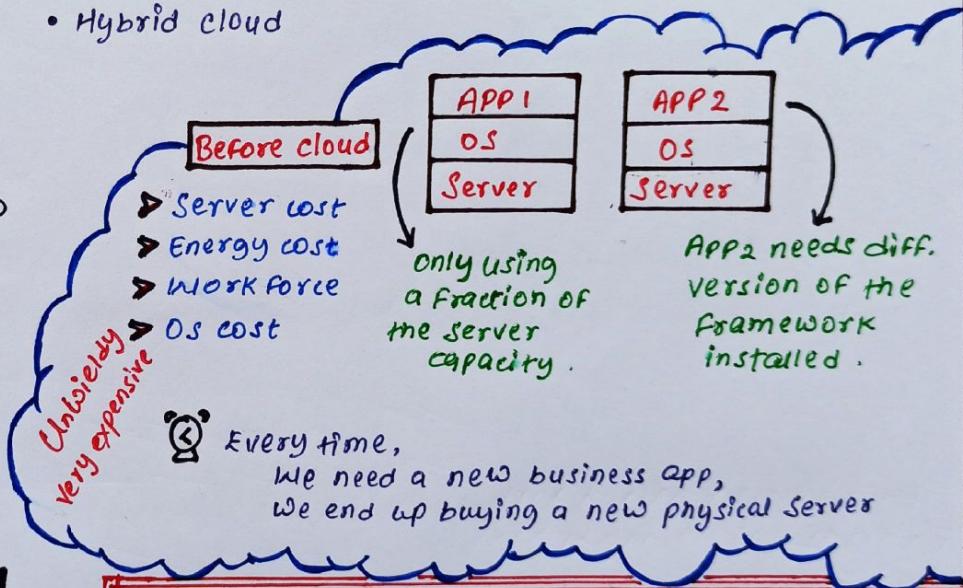


Cloud related Service



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

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Virtualization

APP 1	APP 2	APP 3
VM 1	VM 2	VM 3
Hypervisor		
Host OS		
Server 1		

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.

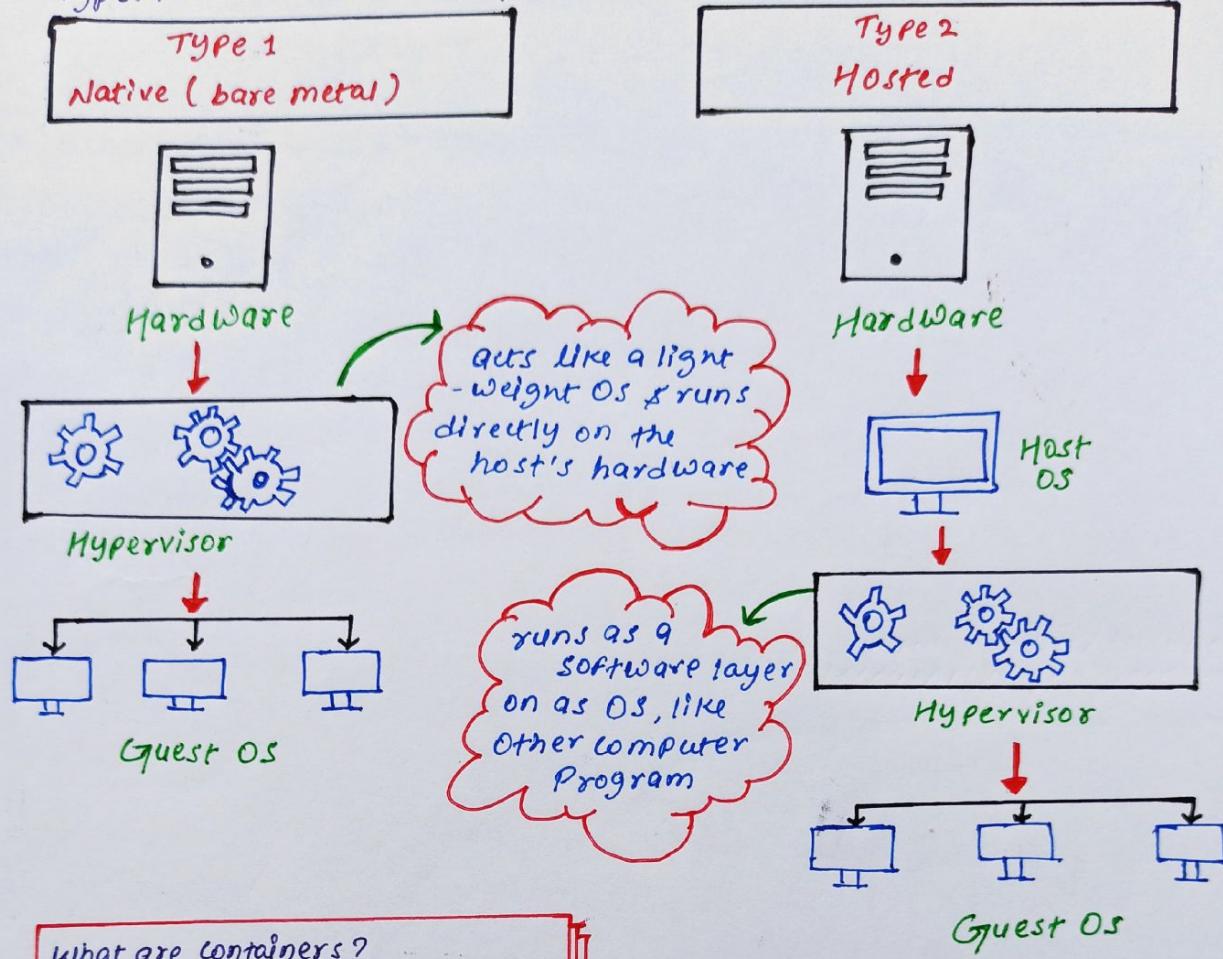
This means they can be easily moved between different servers.

a hypervisor reduces:

- Space
- energy
- Maintenance requirements

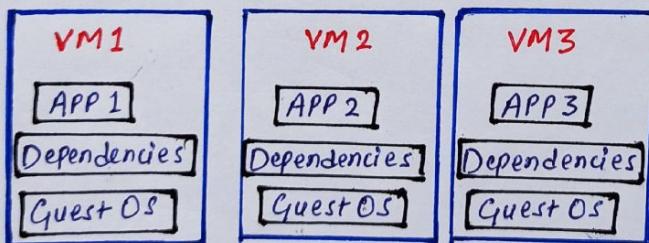
In reality, Apps are running on the same Physical Server but on a dedicated Virtual machine.

Hypervisor or Virtual Machine Monitor (VMM)



What are containers?

How are they different from VMs?



Downsides

✓ Wasted server resource

- disk space
- memory
- processor

✓ Admin time to keep OS up to date.

✓ Os licence cost

✓ VM bootup consumes time.

Hypervisor

HOST OS

Server 1

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 workforce server rooms or data centers.

Pay as you go



You will pay for what you use.

Cloud resources are metered

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Setup & Server room secured!
configure the server **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



Scalability

Scale up ↑
Scale down ↓
Never run out of resources.



Accessibility

accessed from virtually anywhere and anytime.

Business continuity

any crisis do not result in data loss.



Automatic Updates



Increased collaboration



Self Services

Risk of Cloud Computing

Loss of cloud data services

Data Security

Compliance and legal risks

Cost concerns

⇒ SLA's
Service Level Agreement



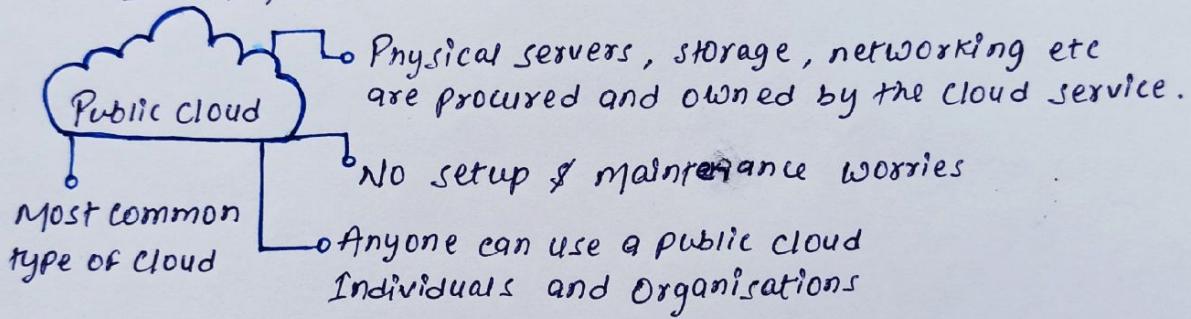
Local and International regulations GDPR, HIPAA

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What is a Public cloud.

Benefits, Limitations & usecases.



examples →

Microsoft Azure
Amazon AWS

Multi-tenancy

Multi organisations share cloud resources.

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

Pay-as-you-go

like water or Electricity bills



Benefits

- No up front capex
- Pay as you go
- No maintenance
- Highly scalable
- Highly reliable

Limitations

- Low visibility and control
- Compliance and legal risks
- Cost concerns

Use case

- Unlimited scalability
- Varying peak demands
- Fast growing businesses
- Backup and disaster recovery solutions

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Private to a specific Organisation

resources are used by one business or organisations.

located on-premise / can be hosted by a third Party service provider

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

Benefits

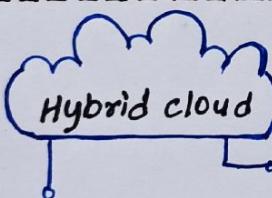
- Better security
- Better control
- Predictable costs
- Legal compliances

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.



Combination of Private + Public

CLOUD Bursting

Private cloud: Security sensitive & business-critical operation.

Public cloud: High volume & lower security needs.

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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 concern

use case

- Best of both the worlds
- Switch between diff. delivery models based on security & scalability requirements.

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 - 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

Function as a service

FaaS

Serverless computing

IaaS

Application

Data

Runtime

Middleware

OS

you
manage

On Premise

Application

Data

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

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

APPLICATION
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

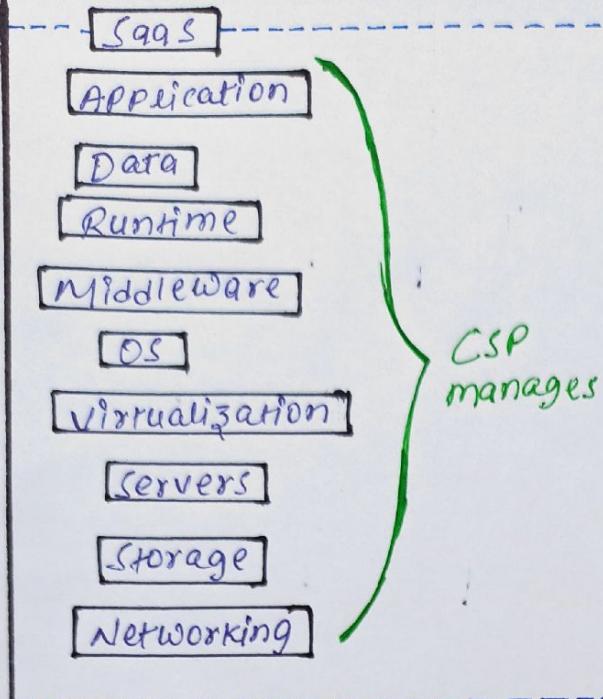
Data driven web app

- ◆ 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 multiplatfrom.
- Affordability.



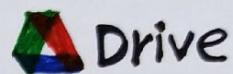
⇒ Individuals & **B2B**
⇒ Small, Medium & Large Organisation

SaaS APPS

Gmail



NETFLIX



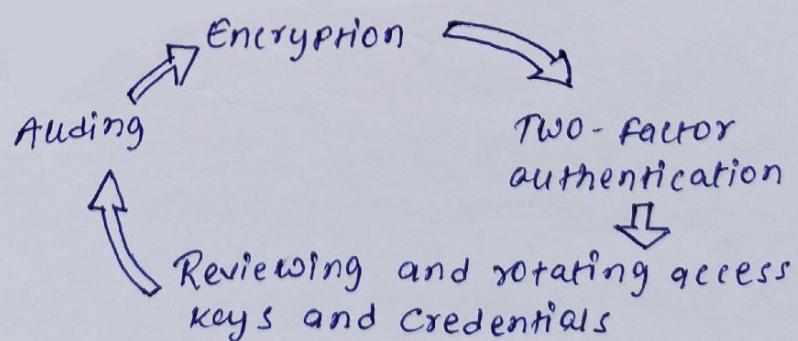
- Very easy to get started
- Accessibility
- Automatic updates
- Flexible usage-based Pricing
- Reduced financial risk
- Affordability

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

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By moving to cloud, you are improving security



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