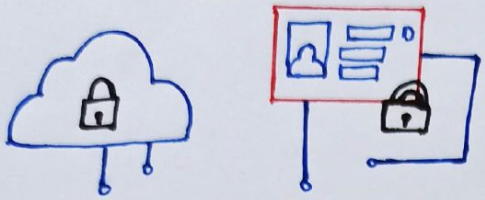
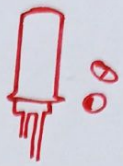
Cloud Computing Tutorial

* 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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TELEGRAM-NOTES GALLERY.

aws 2006

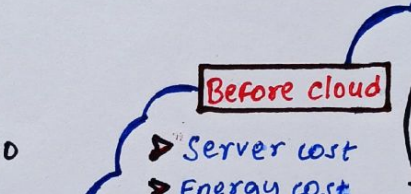
Azure 2010

Cloud 2013

Before cloud

- Server cost
- Energy cost
- Work force
- Os cost

Unwieldy, very expensive

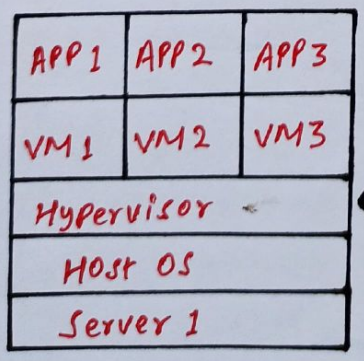


only using a fraction of the server capacity.

APP2 needs diff. version of the framework installed.

Every time,
We need a new business app,
We end up buying a new physical server

Virtualization

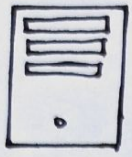


Hypervisors make it possible to use more of a system's available resources and provide greater IT mobility since the guest VMs are independent of the host hardware.
This means they can be easily moved between different servers.
a hypervisor reduces:
- Space
- energy
- Maintenance requirements

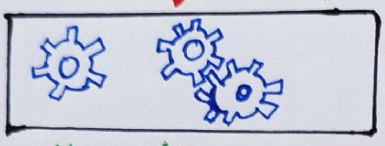
In reality, Apps are running on the same Physical Server but on a dedicated virtual machine.

Hypervisor or Virtual Machine Monitor (VMM)

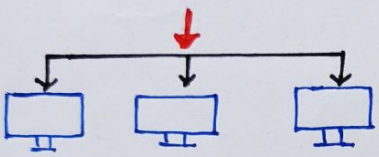
Type 1
Native (bare metal)



Hardware



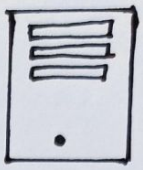
Hypervisor



Guest OS

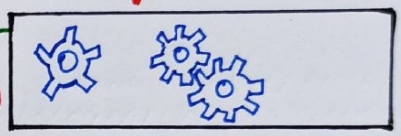
Acts like a light-weight OS & runs directly on the host's hardware

Type 2
Hosted

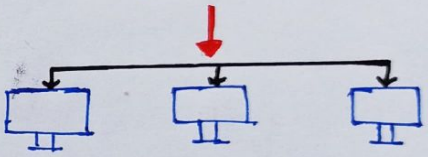


Hardware

Host OS



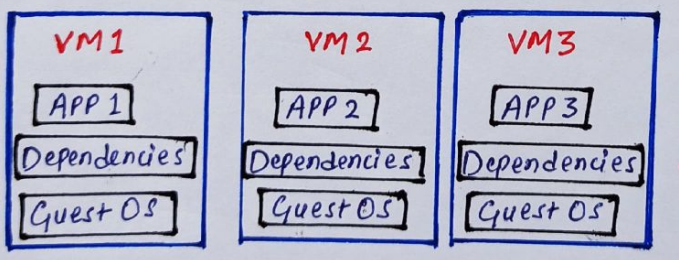
Hypervisor



Guest OS

runs as a software layer on as OS, like other computer Program

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.

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 workforce server rooms or data centers.

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

Pay as you go

You will pay for what you use.

Cloud resources are metered

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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TELEGRAM - NOTES GALLERY.

What is a Public cloud.
Benefits, Limitations & usecases.

- Physical servers, storage, networking etc are procured and owned by the cloud service.
- No setup & maintenance worries
- Anyone can use a public cloud Individuals and Organisations

Most common type of Cloud

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 upfront 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.

Private Cloud

- located on-premise / can be hosted by a third party service provider
- Private to a specific organisation
- resources are used by one 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.

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TELEGRAM - NOTES GALLERY.

Hybrid cloud

- Cloud Bursting
- Private cloud : Security sensitive & business-critical operation.
- 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 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

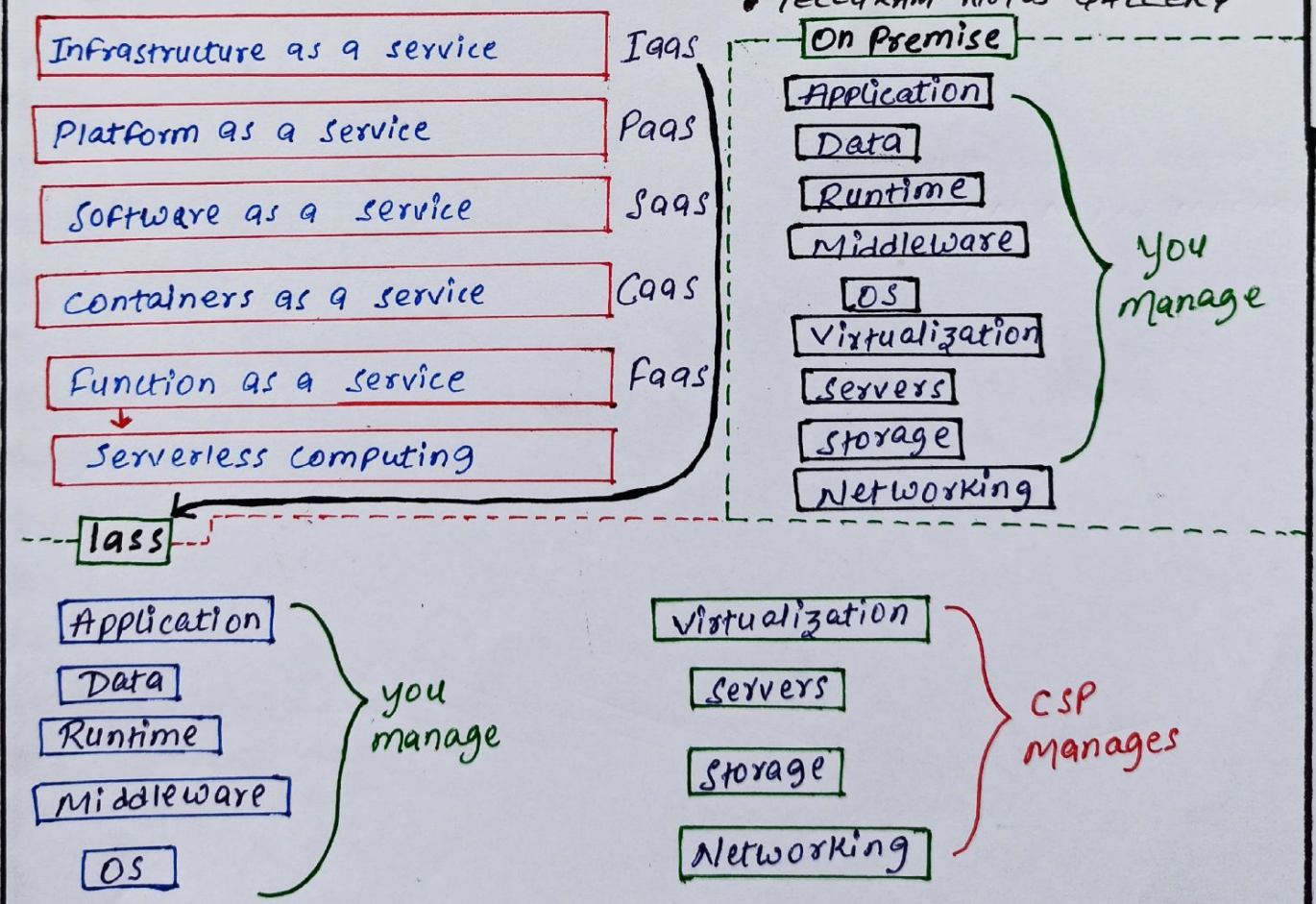
Anywhere on the Internet.

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.



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

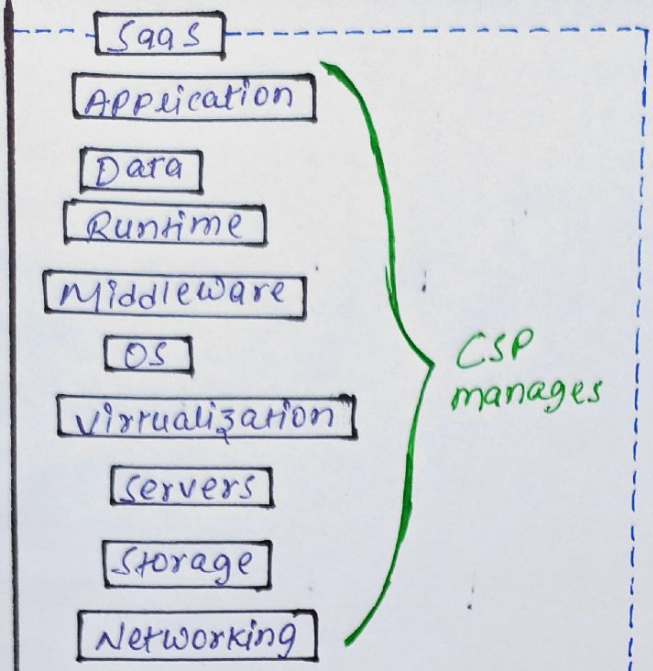
Platform for software Development ------>

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 Organisation

SaaS APPS ⤵

Gmail

prime

Dropbox

NETFLIX

Office 365

Drive

- 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

By moving to cloud, you are improving security