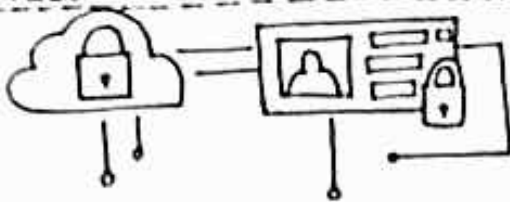


Cloud Computing Tutorial

* Fraud Detection & Prevention



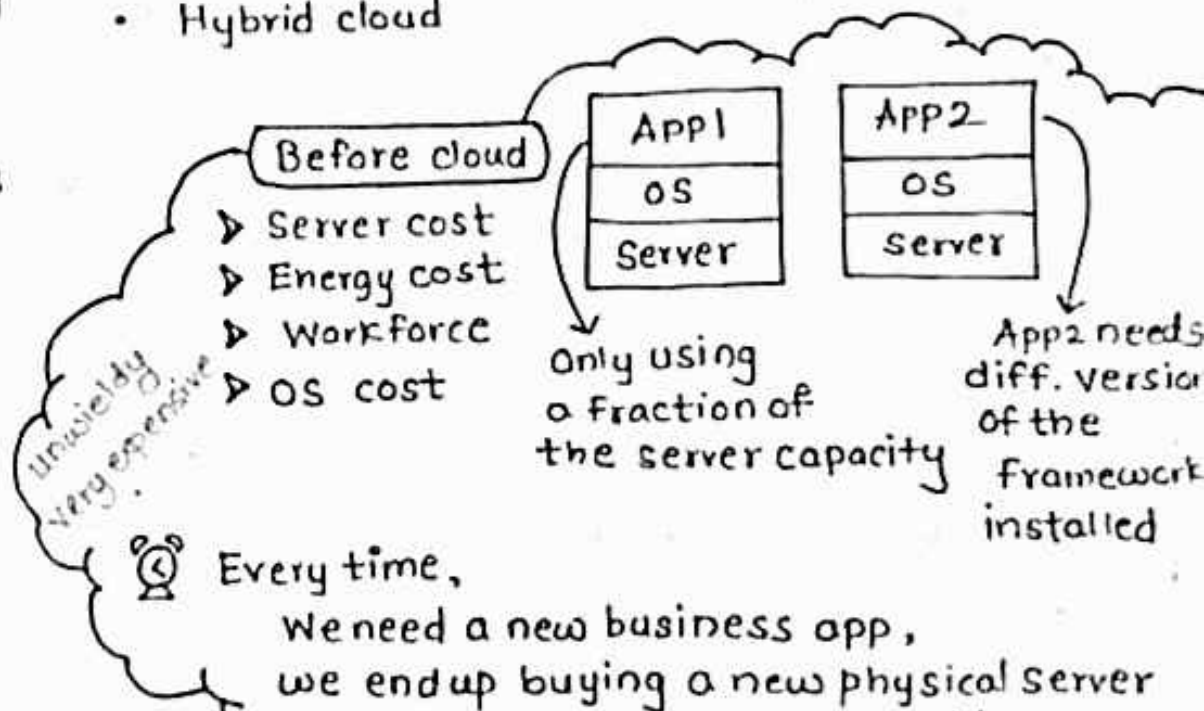
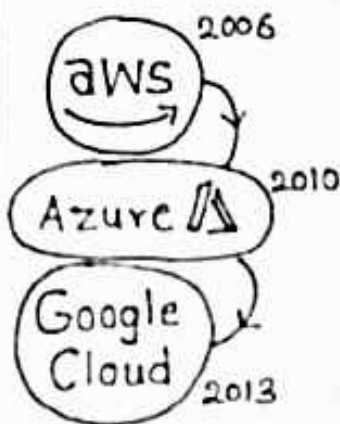
* Personalized Treatments

* Online Games

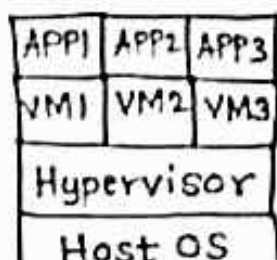


Cloud related Service

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



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

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

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 & network

organizations faced with a large initial capital expenditure (Capex)

antivirus software

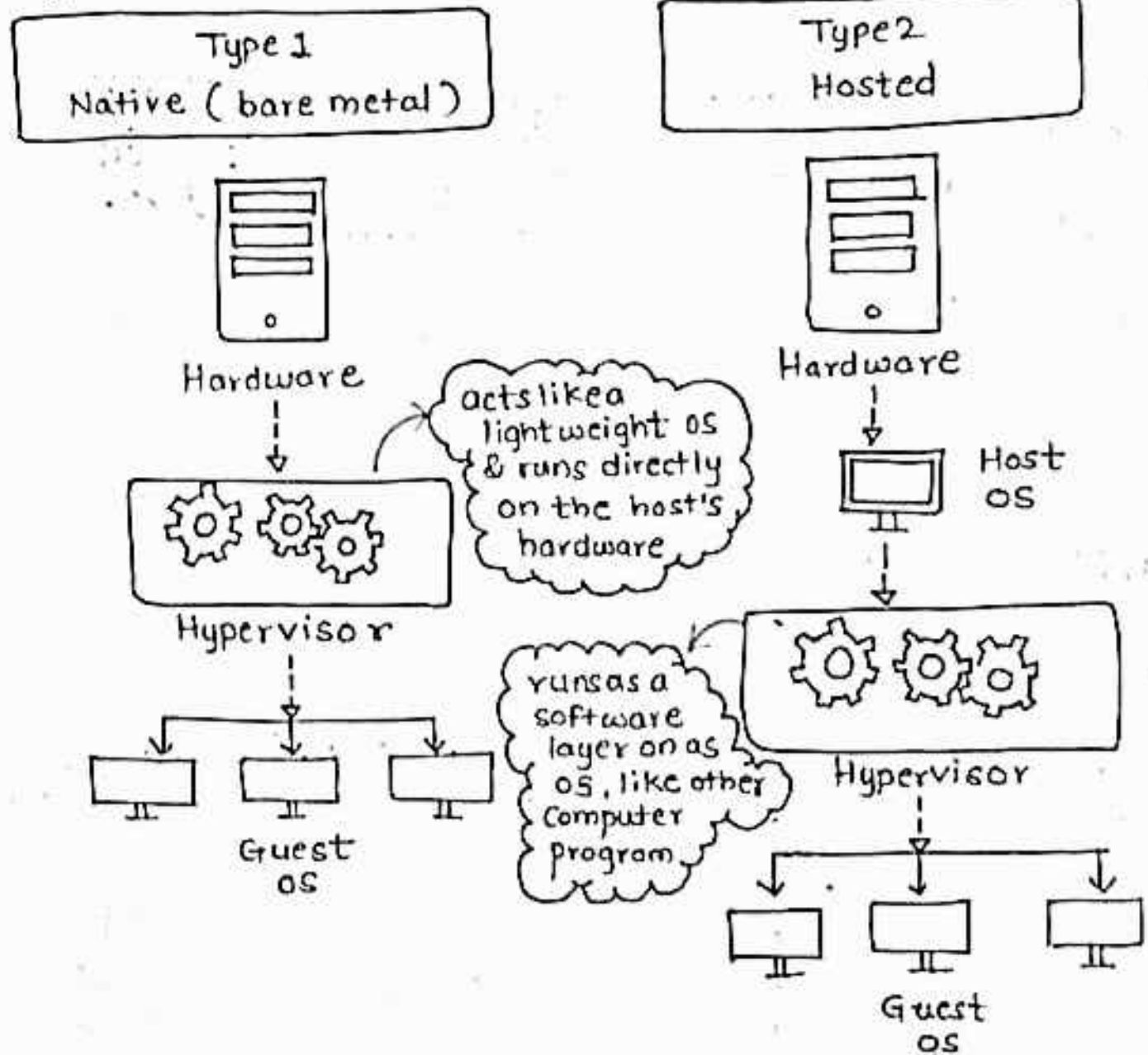
db server

paper cooling system

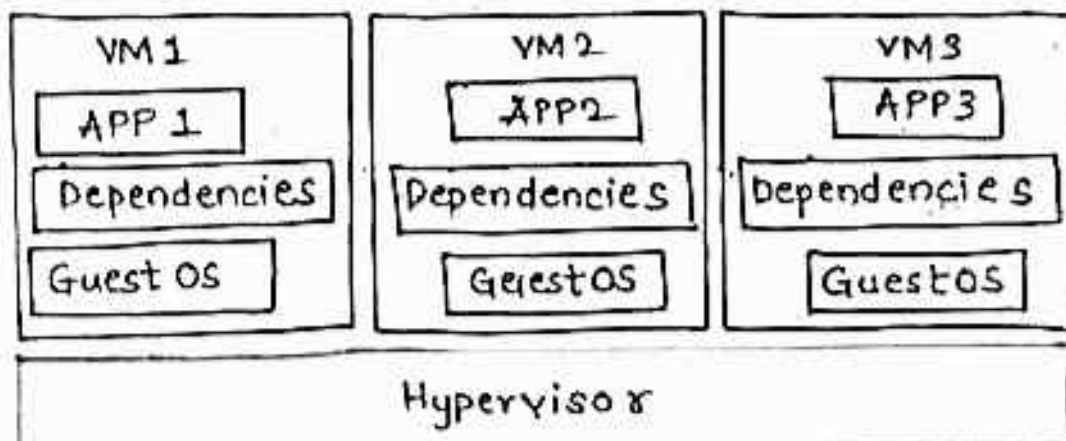
Maintenance any other dependencies

- disaster recovery
- failover system

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 o

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

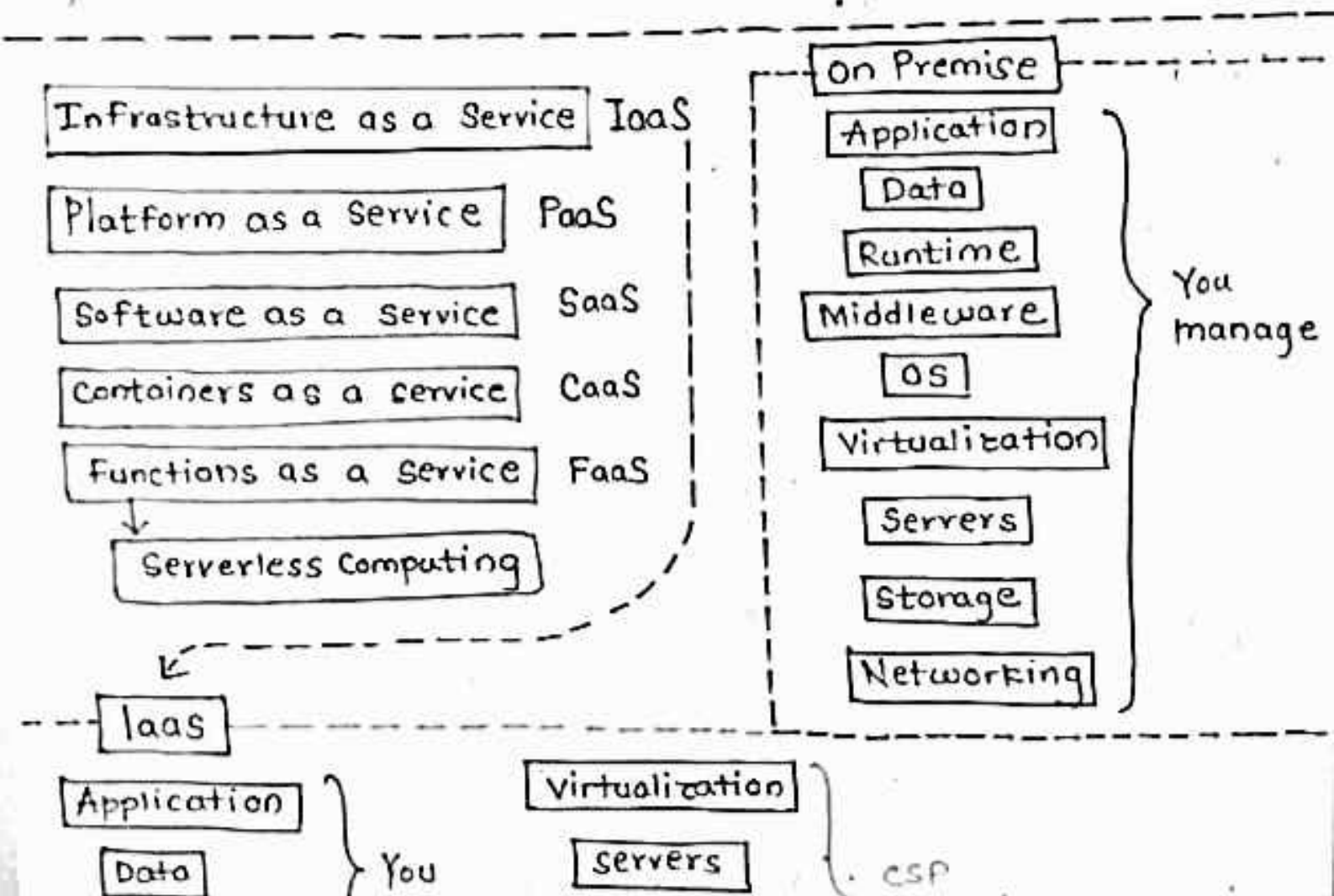
Hybrid cloud 

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.



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.



Physical servers, storage, networking etc
are procured and owned by the cloud service.

• No setup & maintenance worries

Most common
type of cloud

• Anyone can use a public cloud
Individuals and organisations

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

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.

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

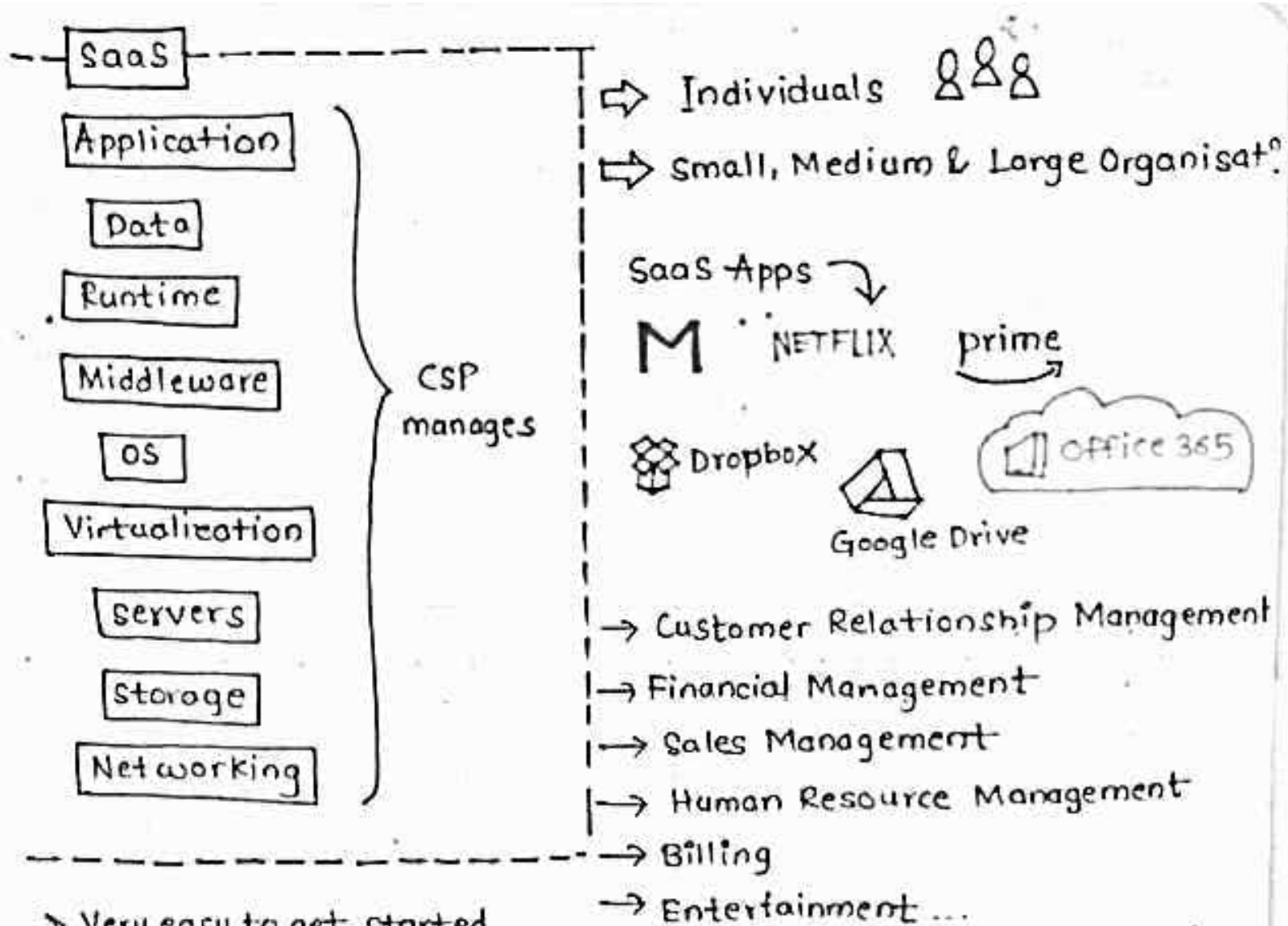
Windows Azure

AWS Elastic Beanstalk

Google App Engine

Data driven web app

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



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

By moving to cloud, you are improving Security

