

Cloud Computing : AZ-900

Azure Basic Fundamentals

Deployment model - Cloud model:

- Public [available to everyone through internet]
- Private [protected cloud, like your own application]
- Hybrid [public + private]

Cloud Provider

GCP, Azure, IBM, AWS, Digital Ocean.

Implementation of Azure

① App Service :: Compute domain

VM, - APP service - functions
app service used to deploy application automatically.

- For applying website app service will

↳ Blob storage:

store image file.

2 MySQL for Azure

3 Auto Scaling and load Balancing.

Azure certification:-

AZ-900 Basic fundamental.

- Cloud concept ✓
- Azure architecture ✓
- Azure management convergence ✓

DP-900 Data fundamental → DP-201 - DP-203

- Core data concept
- Relational and Non relational data
- Analytic workload on cloud.

⇒ IaaS :-



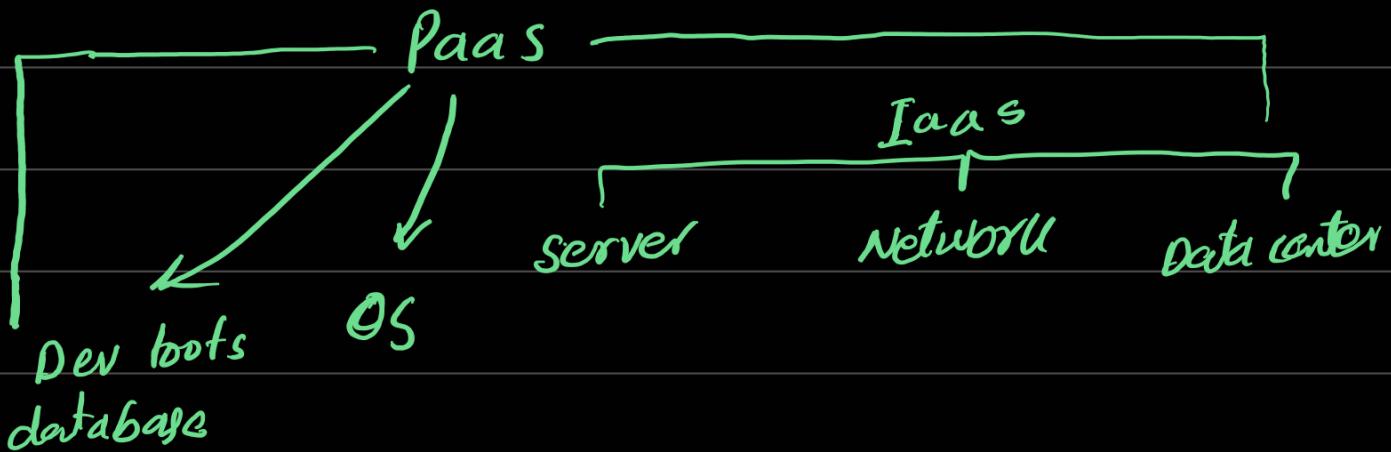
- Work instantly
- Always in control yourself.
- NO Hardware maintenance [no need to change or maintain hardware in company.]
- virtual machine
- you need handle things by own.

CapEx vs OPEX

⇒ PaaS:-

Platform as a service:-

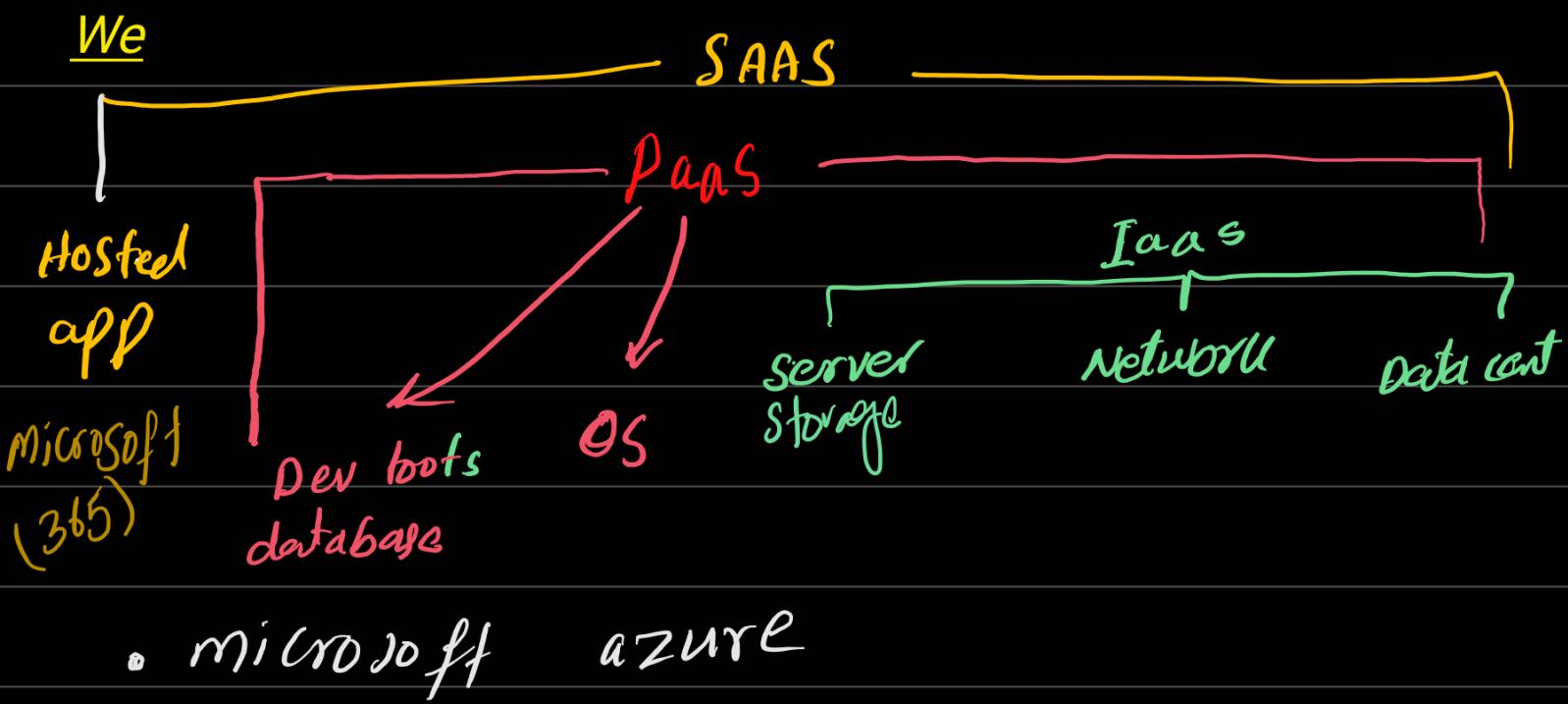
- For developers
- Build develop / test application
- OS deployment is easy.



- No need to create (OS) infrastructure separately.

→ SaaS:-

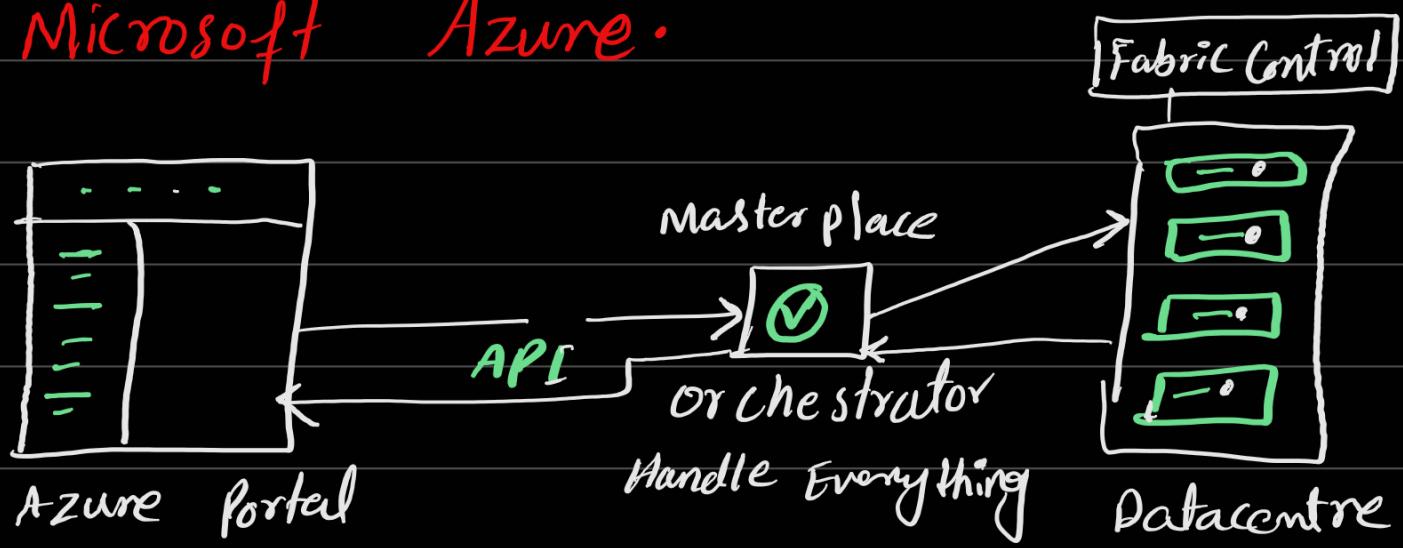
- cloud based hosted application.
- worldwide access.



• Power BI, Word, Excel.

We use Software from companies as service.

Microsoft Azure.



- * Compute (VM)
- * Networking
- * Databases.

Create VM :-

- Create new Virtual machine.
- Add data → Networking
- Inbound and outbound Rule.

Azure Core Service :-

Azure Region: $R_1 \rightarrow R_2$

Geographies: Europe, America, Asia, Africa

Availability zones (AZ) ?

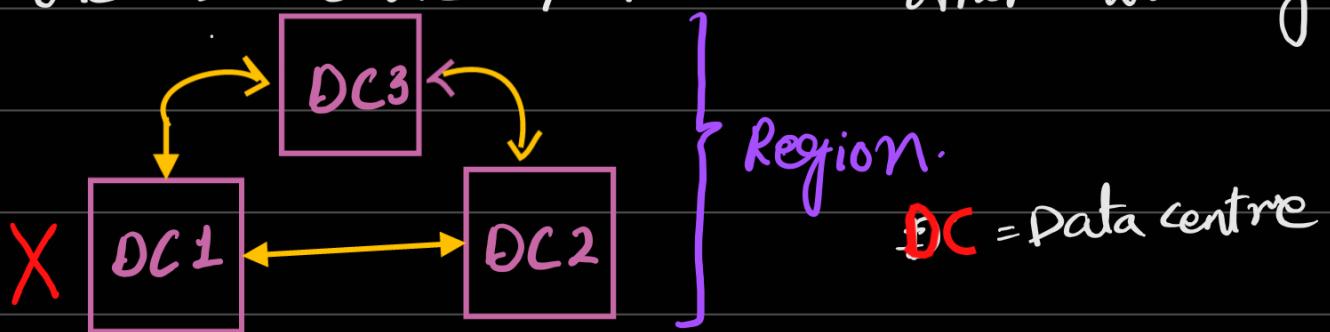
Availability zones are unique physical location

with independent Power and Network.

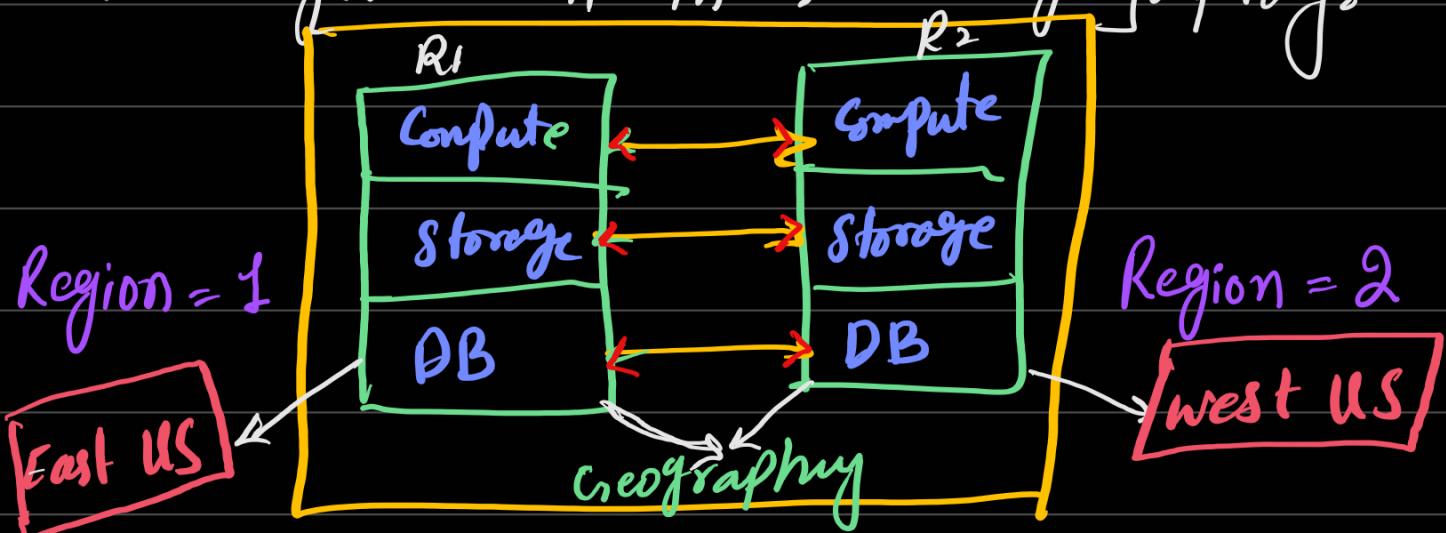


Paired Region:-

If one Data centre fail then other working.

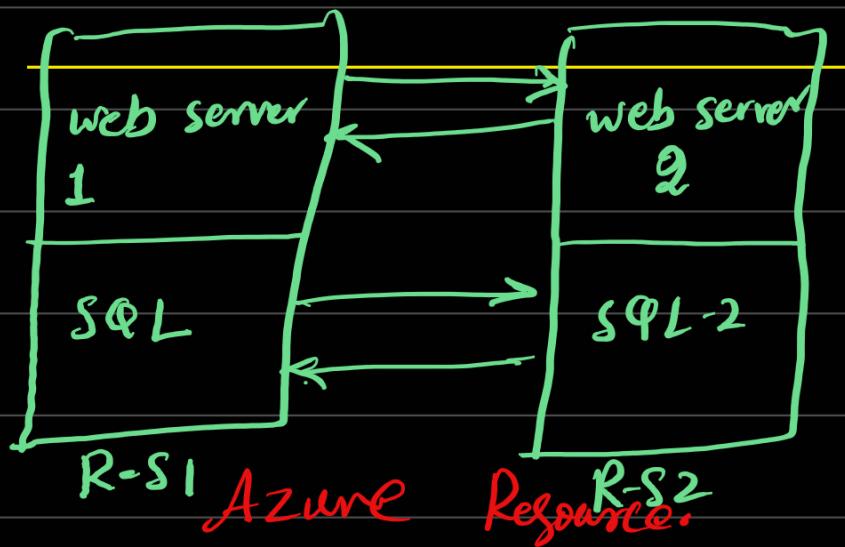


Two region with in same geography:-



- Two VM machine with in some geography like [Asia, Europe] for duplicated data.
- Data Recovery.

Azure Availability set:-



= Azure Shell:-

= window shell (AZ module)

= Download MSI package

= Azure CLI

= mobile App.

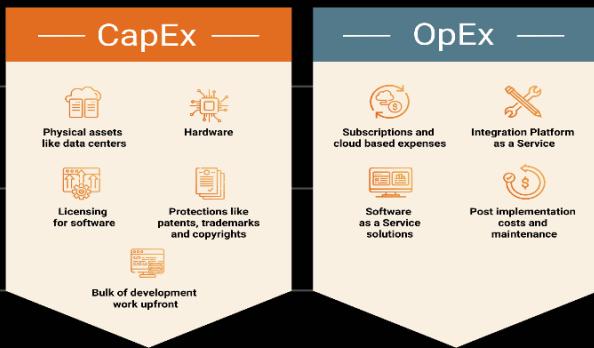
Cloud Computing:-

power, storage and network of other computer
on your own computer called cloud
computing.

CapEx :- buy own machines and all infrastructure

OPEX :- Do not pay for products, Just used
services from other company.

- No upfront cost
- Pay for more resources when they need.
(Pay-as-you Go)



Geography

Region-1 R₂ R₃

Avail-Z1 Z2 Z3

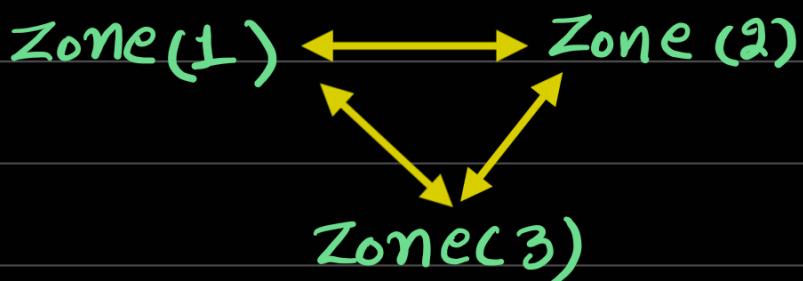
DC₁ DC₂ DC₃ DC₄

IaaS, PaaS, SaaS

| SaaS | PaaS | IaaS | | |
|--|---|---|--|---|
| EXAMPLE COMPANIES Dropbox mailchimp slack Gmail | USED BY Consumers (you & me!), Businesses PROVIDES Final app product LEVEL OF TECHNICAL UNDERSTANDING None! Just use the app. | EXAMPLE COMPANIES HEROKU App Engine OPENSHIFT AWS Lambda | USED BY Businesses, Developers PROVIDES Tools to host, build, and deploy app (infrastructure is abstracted away) LEVEL OF TECHNICAL UNDERSTANDING Medium. Software devs will be able to use. | USED BY Businesses, Developers PROVIDES Tools to manage physical infrastructure (Servers, network, data storage) LEVEL OF TECHNICAL UNDERSTANDING Very high. Senior devs/architects with lots of experience building software |

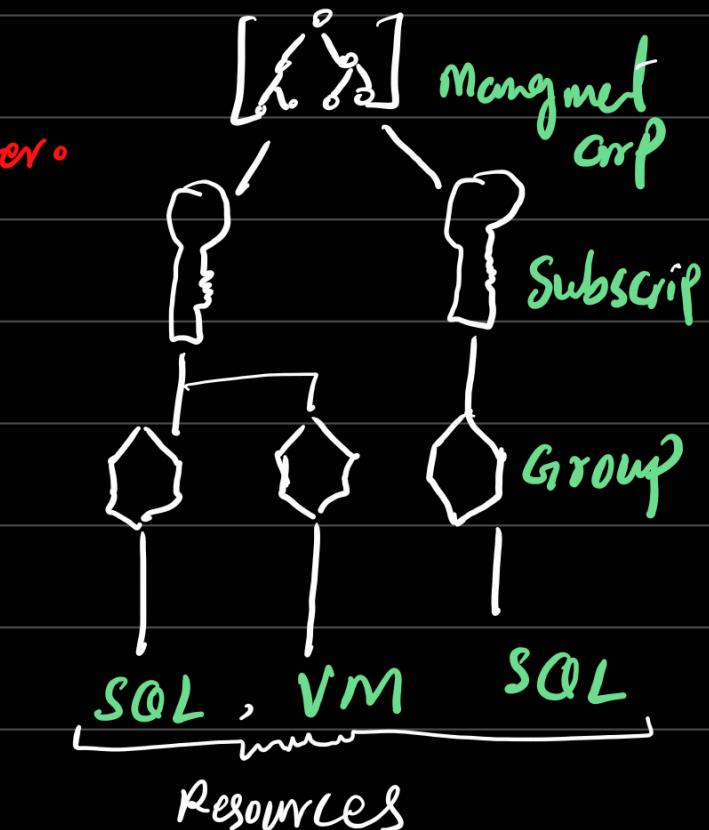
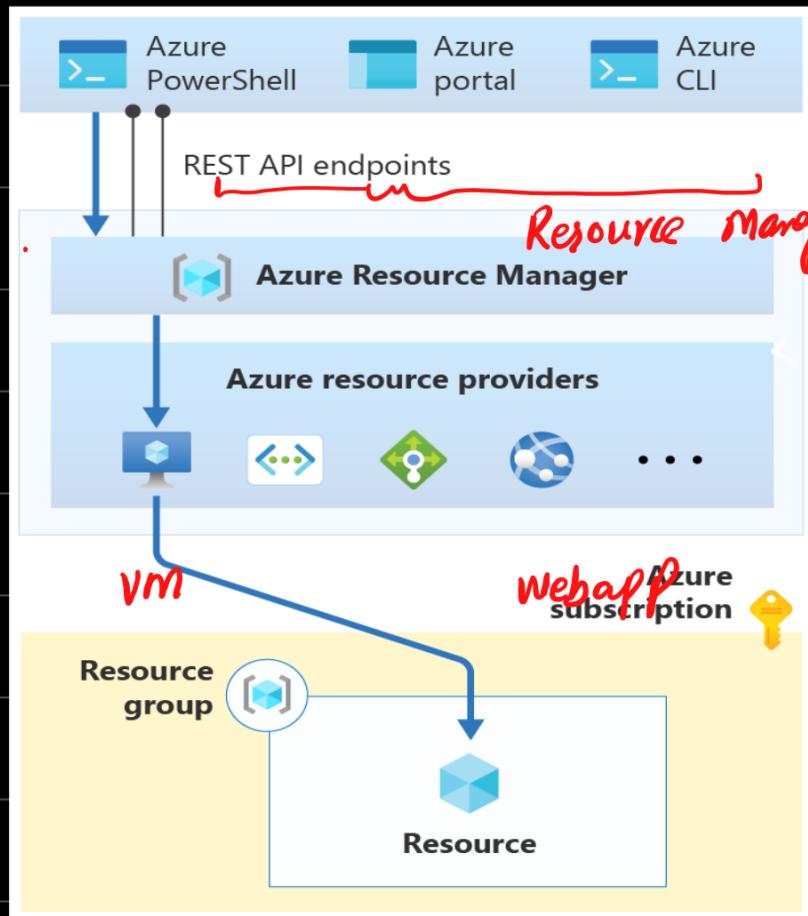
Microsoft Azure Architecture Component.

- Region Pairs [South Korea → North Korea] in same geography - 300 miles distance.



* Resource Group :-

- organize resource [management layer]
- control access.



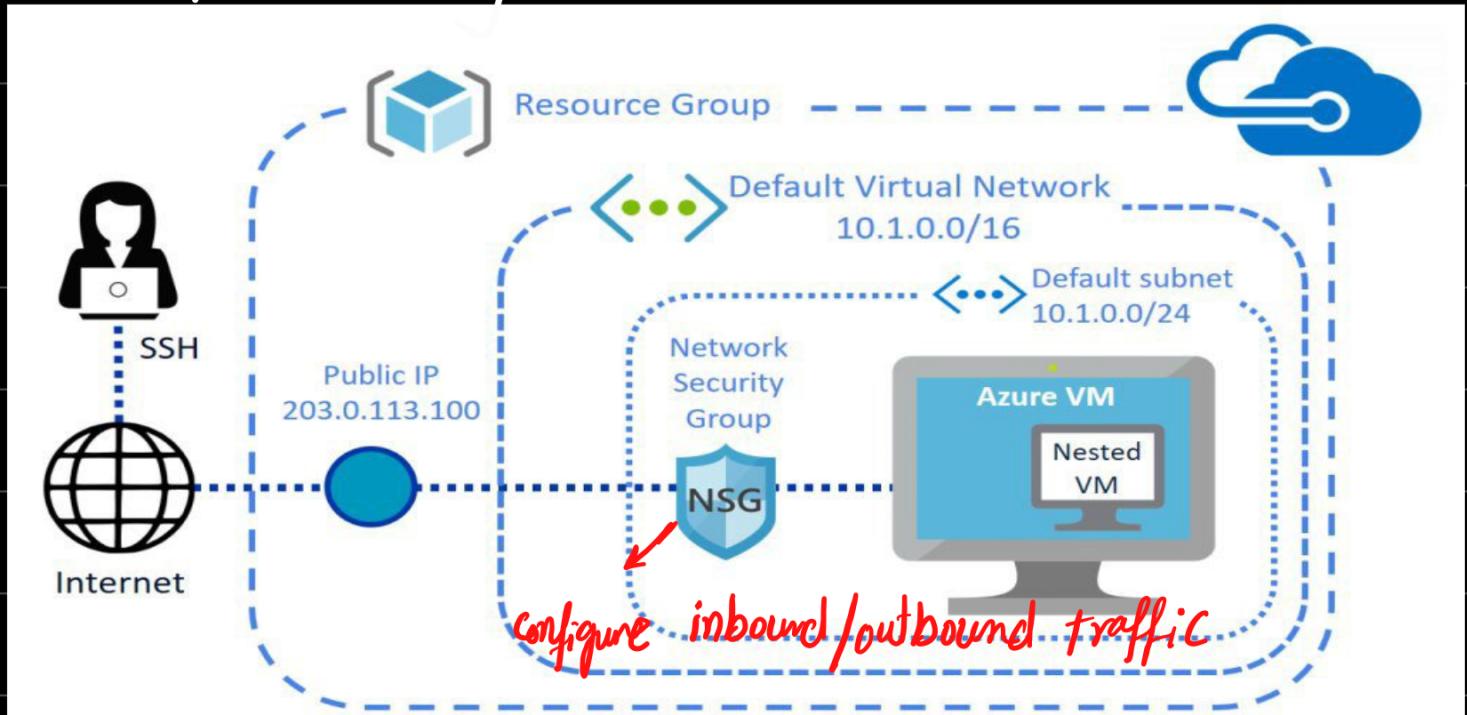
- add and delete resource from Resource group.
- each resource stay in one resource group.

* Computing Service

- Azure VM (IaaS)
- VM scale sets (automatically scaling)
more VM - for big data.

- App Service (PaaS), build and deploy
- Azure Function.

perform compute actions based on events.
use for running core service.



NSG = apply security limit on traffic.

*Azure container:

- Azure Container Instances.
- Azure Kubernetes Service.

Kubernetes is **orchestrator** handle large number of container.



- Kubernetes do scaling, load balancing and handle many container.

DNS :-

Domain Name Service :-

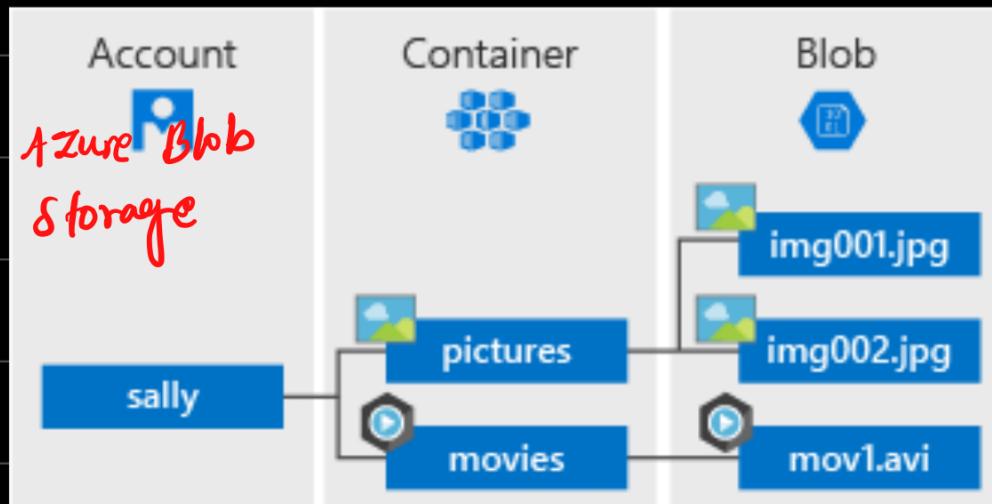
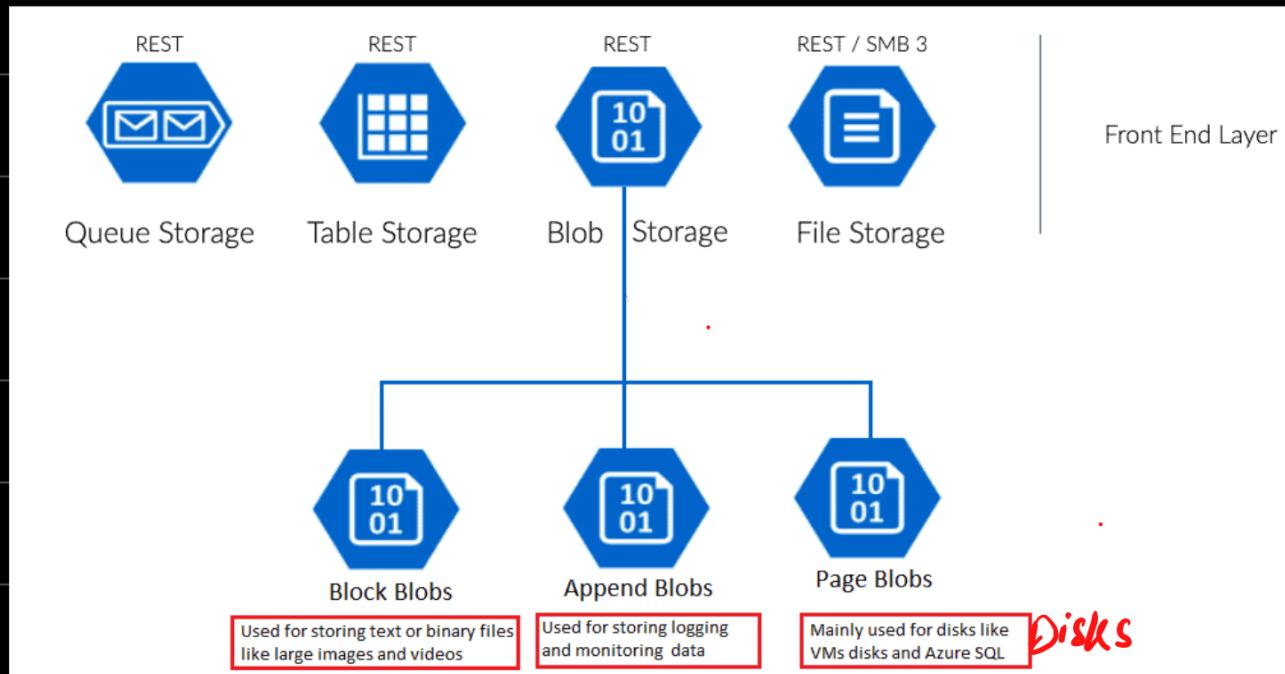
A Azure Network Service

- <...> Az. Virtual Network.
 - load balancer -(handle traffic)
 - VPN gateway
 - Content Delivery Network.
 - Azure app gateway [management of traffic to gateway]
- => Connect two VM with network service.

Azure data Storage.

Azure Blob storage

- Create Container
- file share .
- Table , Queue storage



* Azure db service:-

- Cosmos DB (distributed, Scalable - graph, key val, globally)
- Azure SQL (databases)
- Azure DB Migration (Fully managed)

(1) Create SQL DB

(2) Create SQL Server

(3) Set firewall settings

(4) add IP to login

(5) open Query editor.

* IOT

Create IOT hub

Create IOT device

get data from Sensor.

* Azure Big data Explore

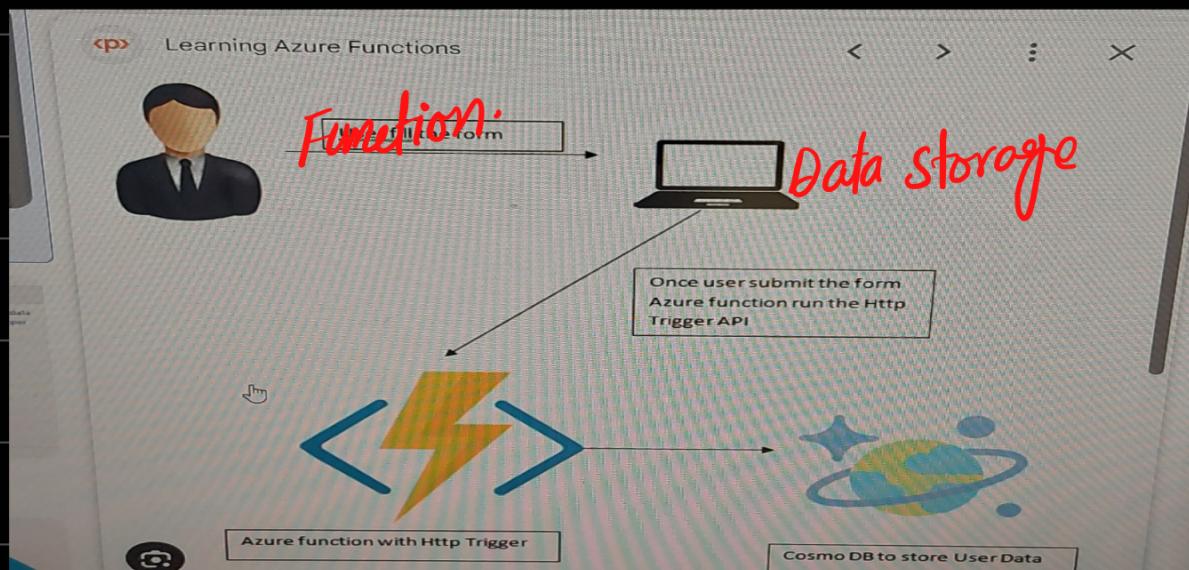
Hadoop ecosystem

Spark , Sqoop

Azure logic app → SAP , Fileshare.

= Create Azure Function

- select program language
- work trigger. to create infrastructure.
- HTTP



* DevOps

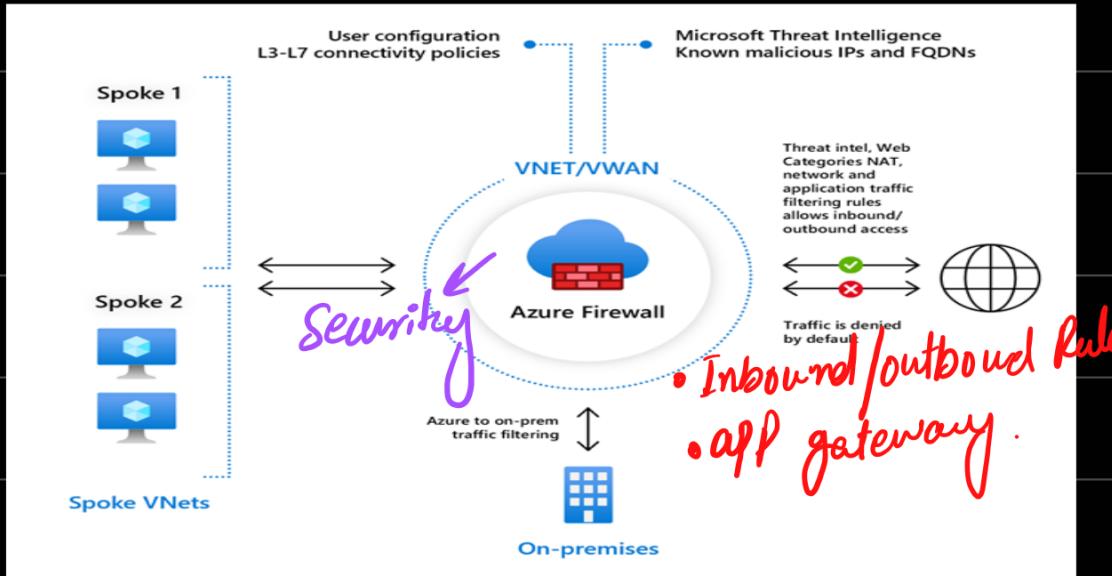
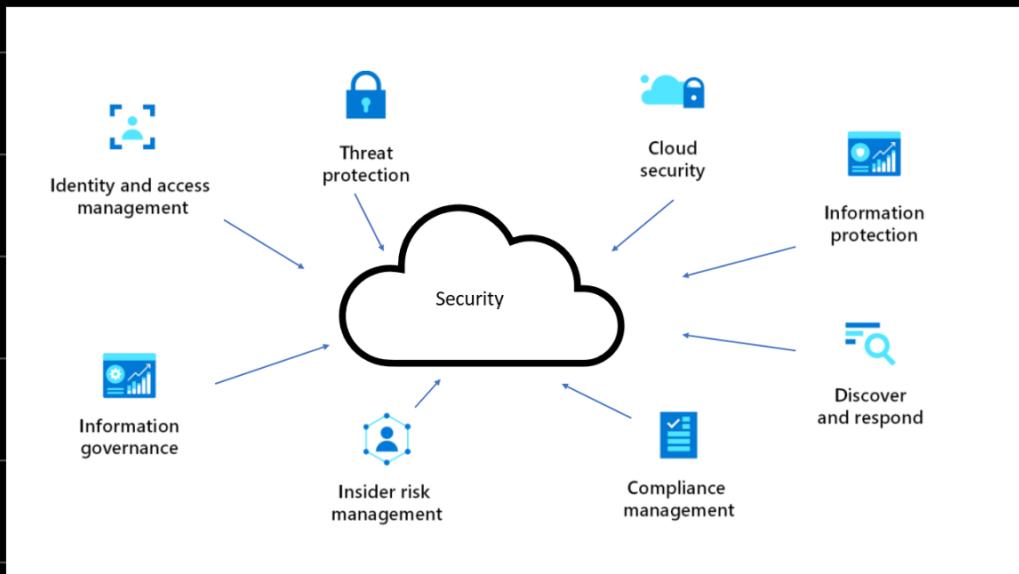
Provide development collaboration tools
including pipelines, Git repositories
. cloud base load testing.

Azure app service use to creat mob
apps, web,

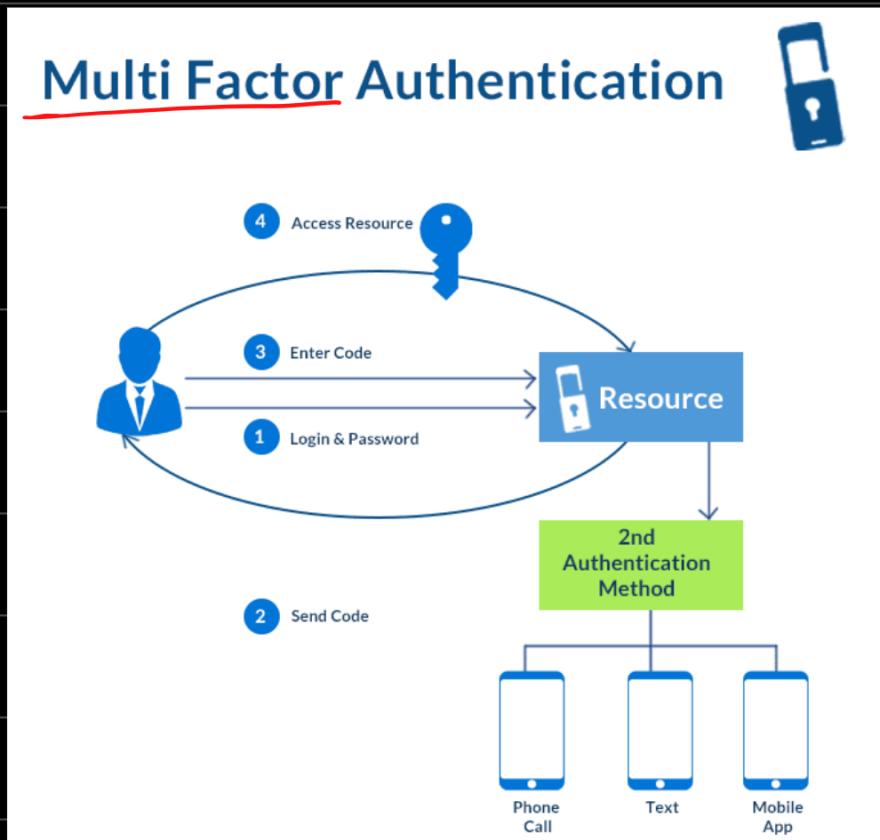
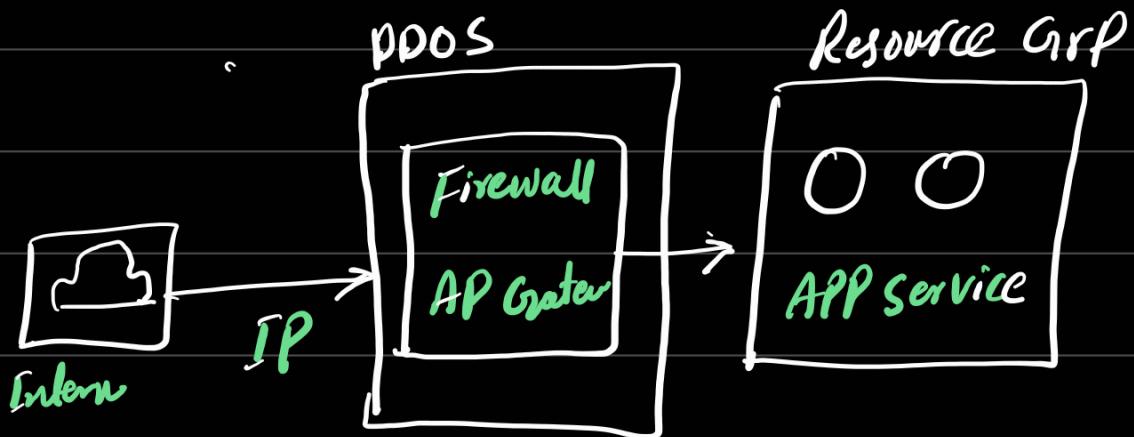
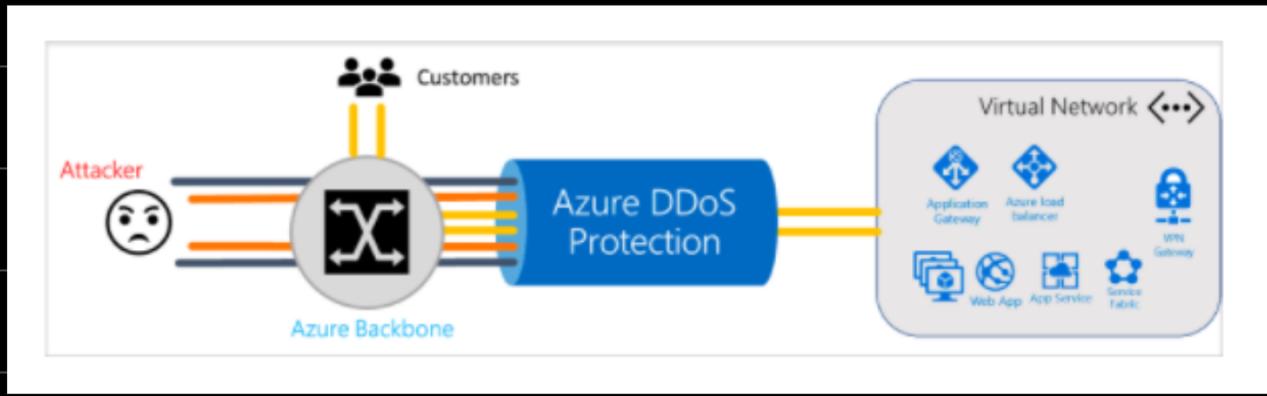
Azure , Bash Powershell

Microsoft Azure datacenter are organized and made available by Region. ✓

Security



* Azure DDoS Protection:-



* AIP & ATP

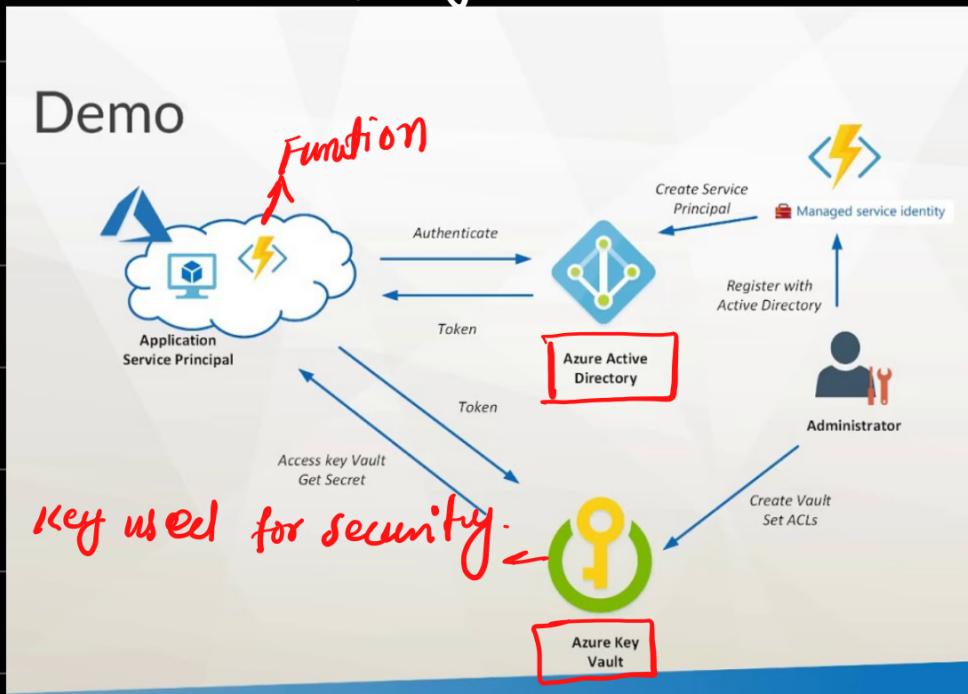
ALP information protection

ATP Thread protection

* Key Vault

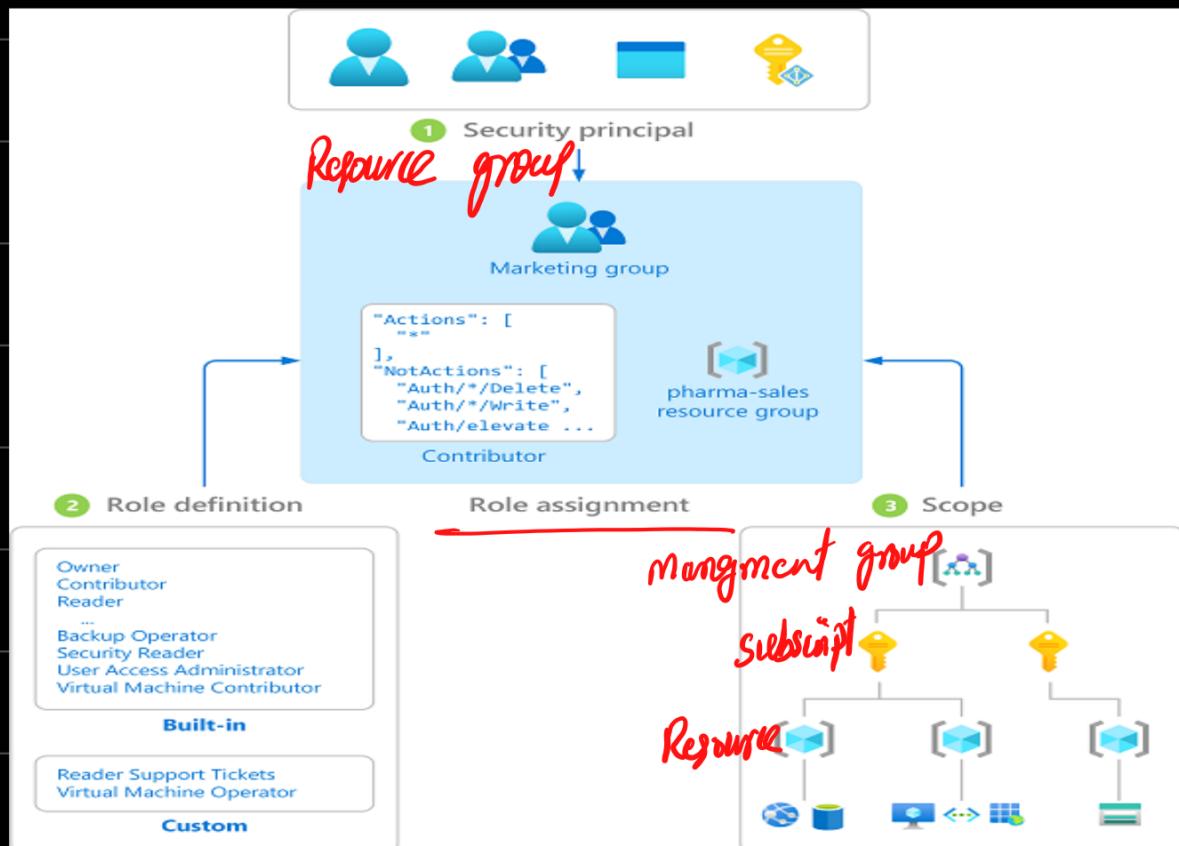
- secret Management
- Key management

Secure control access permissions and
access logging. (Encryption/decrypt data)



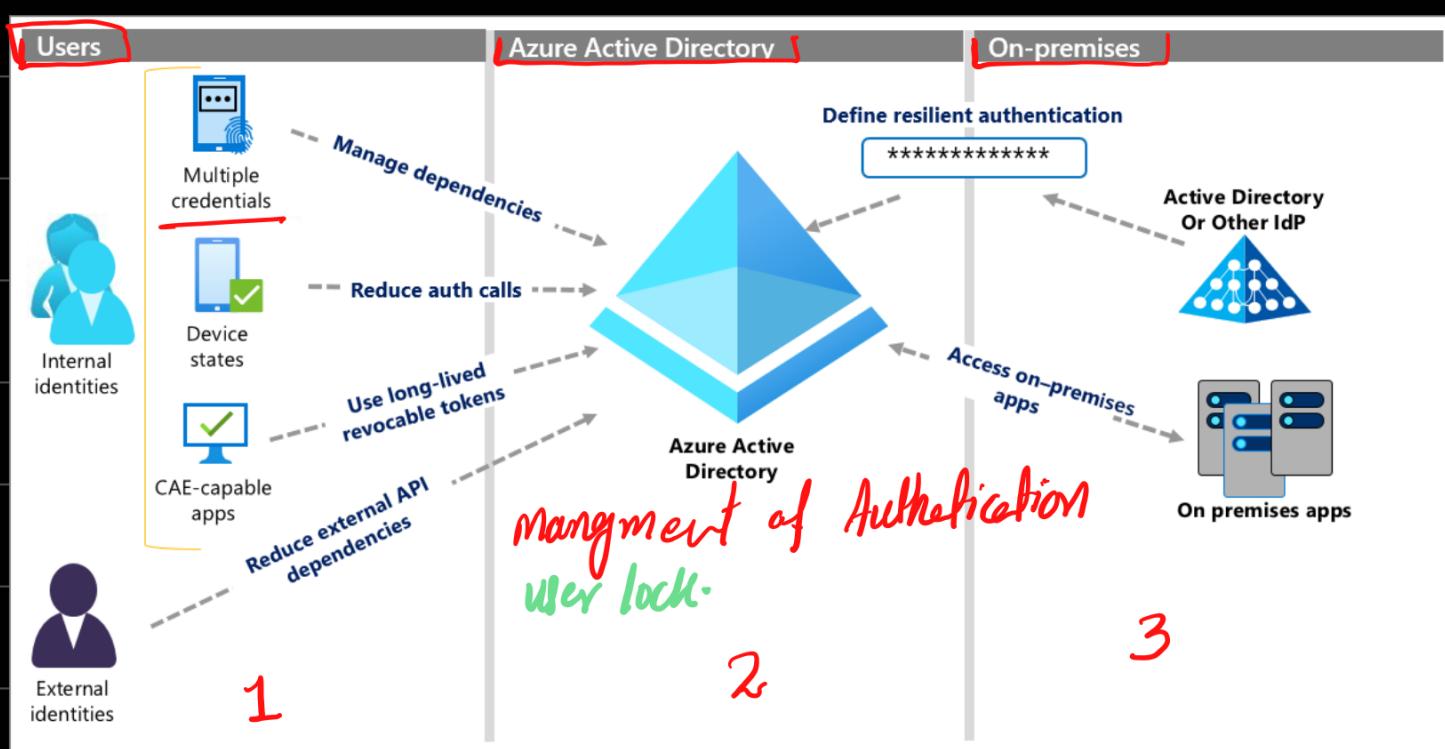
* Access control:- IAM

Role assignment in resource groups.
different role apply to user , view
read , write etc .



* AD

To manage authentication user and access.
External/internal source.



* Tags:-

- name - Value Pair.
- provide metadata for Azure resource.
- apply at resource , resource group & subscription.
- Name + value

Reference:

<https://youtu.be/j26eNpUU0zM?si=14a3mlfd6PF3MmcP>

<https://www.passnexam.com/microsoft/az-900/1>