Video Table of Contents

These are all in the main playlist.

Introduction ○ Introduction -
https://youtu.be/pY0LnKiDwRA [00:07:52]

Describe Cloud Concepts

○ Identify the Benefits of Cloud Computing - https://youtu.be/VaMdHKJQ15c [00:16:16] ○ CapEx, OpEx and Consumption-based - https://youtu.be/WiwV9wb0GMo [00:07:13] ○ Differences Between Cloud Service Categories - https://youtu.be/lqQC1EOQqeU [00:15:16] ○ Identify the Right Service Type - https://youtu.be/KH8NH76h2vc [00:04:01]

○ Differences Between Types of Cloud Computing - https://youtu.be/7dlCrF2wmXU [00:12:41] ○ Reliability and Predictability - https://youtu.be/kD2YqdDaO1w [00:07:16]

Describe Core Azure Services

○ Benefits and Usage of Regions and Region Pairs - https://youtu.be/4RjPOAN54AE [00:13:08] ○ Benefits and Usage of Availability Zones - https://youtu.be/h0enGb17lnw [00:08:41] ○ Benefits and Usage of Resource Groups - https://youtu.be/g6thrYZhPZY [00:09:38] ○ Benefits and Usage of Subscriptions - https://youtu.be/9vKAYW_WkLo [00:08:19] ○ Benefits and Usage of Management Groups - https://youtu.be/bPdDiEtCVhM [00:06:30] ○ Benefits and Usage of Azure Resource Manager - https://youtu.be/g4u0NL2-3XM [00:09:57] ○ Describe the Purpose of Azure Arc - https://youtu.be/cW6_rvDYSHg [00:07:23] ○ Describe the Resources Required for Virtual Machines - https://youtu.be/PP5BWZ0cAJo [00:06:17] ○ Benefits and Usage of Core Compute Resources - https://youtu.be/yKDSAYDLGrI [00:34:32] ○ Benefits and Usage of Core Network Resources - https://youtu.be/aNK0C9Oj2sg [00:22:04] ○ Describe Public and Private Endpoints - https://youtu.be/bPNkXwRFsek [00:07:23] ○ Benefits and Usage of Storage Account Resources - https://youtu.be/b8BrfsxLSx8 [00:18:04] ○ Benefits and Usage of Database Resources - https://youtu.be/4sQOF9fSOAU [00:13:29] ○ Data Movement and Migration Options - https://youtu.be/jNBcXnMTo9s [00:11:47] ○ Benefits and Usage of Azure Marketplace - https://youtu.be/b7RuB4Bymgc [00:03:12]

Describe Core Solutions and Management Tools on Azure

○ Benefits and Usage of Azure IoT Services - https://youtu.be/22z9ARaKlbU [00:21:08] ○ Benefits and Usage of Big Data and Analytics Services - https://youtu.be/LSVewE4mKfE [00:13:26] ○ Benefits and Usage of AI Services - https://youtu.be/lgcpRpV3HPc [00:09:21] ○ Benefits and Usage of Serverless Technologies - https://youtu.be/-xeJGiMw5OE [00:06:54] ○ Benefits and Usage of DevOps Technologies - https://youtu.be/-acpNiCa0qY [00:10:21] ○ Functionality of Azure Management Solutions - https://youtu.be/6xp-K60ChAk [00:09:23] ○ Functionality and Usage of Azure Advisor - https://youtu.be/nqH4NboyEl0 [00:03:22] ○ Functionality and Usage of ARM Templates - https://youtu.be/loxcA5MUf-I [00:06:41] ○ Functionality and Usage of Azure Monitor - https://youtu.be/v68jL-l9Fww [00:10:20] ○ Functionality and Usage of Azure Service Health - https://youtu.be/M1xPK4T4Vls [00:02:58]

Describe General Security and Network Security Features ○ Functionality of
Microsoft Defender for Cloud - https://youtu.be/eWcoMi_nQt4 [00:09:47]

○ Functionality and Usage of Key Vault - https://youtu.be/ZBXVAD4S0Tc [00:07:37] ○ Functionality and Usage of Microsoft Sentinel - https://youtu.be/xaqiPXL6tz0 [00:09:36] ○ Functionality and Usage of Azure Dedicated Hosts - https://youtu.be/RnNqmTH9xok [00:06:49] ○ Concept of Defense in Depth - https://youtu.be/CHKS2FcEMek [00:07:17] ○ Describe the Concept of Zero Trust - https://youtu.be/JX3w4to-qgo [00:08:13] ○ Functionality and Usage of NSGs - https://youtu.be/flCoRc1uv9o [00:08:32] ○ Functionality and Usage of Azure Firewall - https://youtu.be/1-_cqpUISg4 [00:05:02] ○ Functionality and Usage of Azure DDoS Protection - https://youtu.be/6cv-wdo9TJw [00:06:30]

Describe Identity, Governance, Privacy, and Compliance Features ○ Explain
Authentication and Authorization - https://youtu.be/GA-yNu6aFMk [00:03:52] ○ Functionality and Usage of Azure AD - https://youtu.be/3JCxrM_Y4Go [00:08:36] ○ Functionality of Conditional Access, MFA and SSO - https://youtu.be/DFwERh9Xxk0 [00:12:29] ○ Overview of Microsoft Entra - https://youtu.be/bSIF_GjaCmo [00:11:34] ○ Functionality and Usage of RBAC - https://youtu.be/0iVyJBG06fM [00:09:19] ○ Functionality and Usage of Resource Locks - https://youtu.be/eF_KilJRxbE [00:06:16] ○ Functionality and Usage of Tags - https://youtu.be/eaf63hE_6SQ [00:05:06] ○ Functionality and Usage of Azure Policy - https://youtu.be/z7WMqHE3R8g [00:10:50] ○ Purpose of Microsoft Purview - https://youtu.be/mXjXcBr1ajY [00:10:47] ○ Governance Hierarchy Constructs - https://youtu.be/ge8r_Z0LKxM [00:06:13] ○ Functionality and Usage of Azure Blueprints - https://youtu.be/SJbDcvkySCY [00:05:22] ○ Describe Cloud Adoption Framework - https://youtu.be/VHQxbIynlN4 [00:02:03]
○ Describe Microsoft Privacy Statement, OST and DPA - https://youtu.be/5mqroH3E3gw [00:03:28] ○ Purpose of Trust Center and Azure Compliance Documentation - https://youtu.be/QkVlogulVX4 [00:05:42] ○ Purpose of Azure Sovereign Regions - https://youtu.be/PdAEPAnT2uI [00:05:15]

Describe Azure Cost Management and Service Level Agreements
○ Factors That Affect Costs - https://youtu.be/fMShW_RGcxY [00:06:32] ○ Factors to Reduce Cost - https://youtu.be/B5yiKE2DLH8 [00:15:29]
○ Functionality and Usage of Pricing and TCO Calculators - https://youtu.be/pE-bf8i5blU [00:07:26] ○ Functionality and Usage of Azure Cost Management - https://youtu.be/FoBjC9CAF08 [00:05:48] ○ Purpose of Service Level Agreements - https://youtu.be/3QIVbgnNrR0 [00:13:42] ○ Describe Service Lifecycle in Azure - https://youtu.be/NJ9-S7C0pY4 [00:07:00]

Closing Thoughts
○ Closing Thoughts - https://youtu.be/EVRJK1gctJI [00:02:42]

Introduction

Links

- John's YouTube Channel - https://onboardtoazure.com
- Microsoft AZ-900 Certification Page - https://docs.microsoft.com/enus/learn/certifications/exams/az-900
- Microsoft Certification Poster - http://aka.ms/traincertposter
- Free Azure Subscription - https://azure.microsoft.com/en-us/free/
- Curated Azure Learning Path - https://learn.onboardtoazure.com

Describe Cloud Concepts

Identify the Benefits of Cloud Computing

Links

- Azure Regions - https://infrastructuremap.microsoft.com/
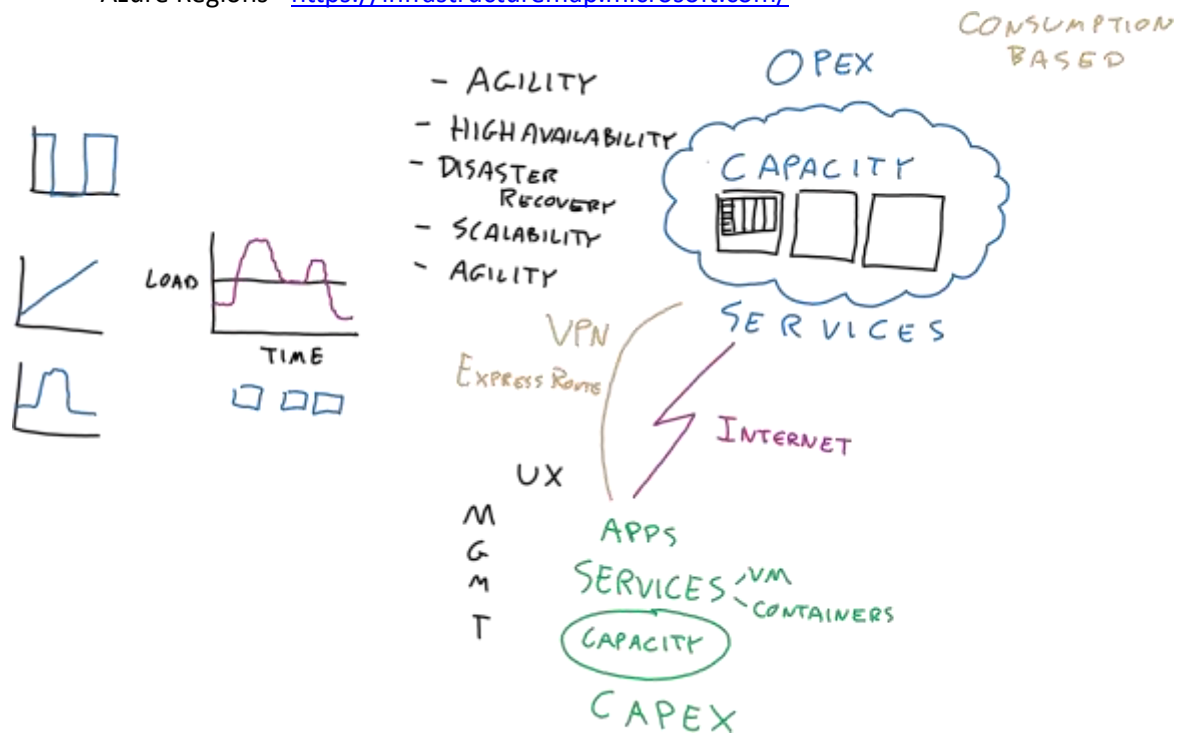
Differences Between Cloud Service Categories
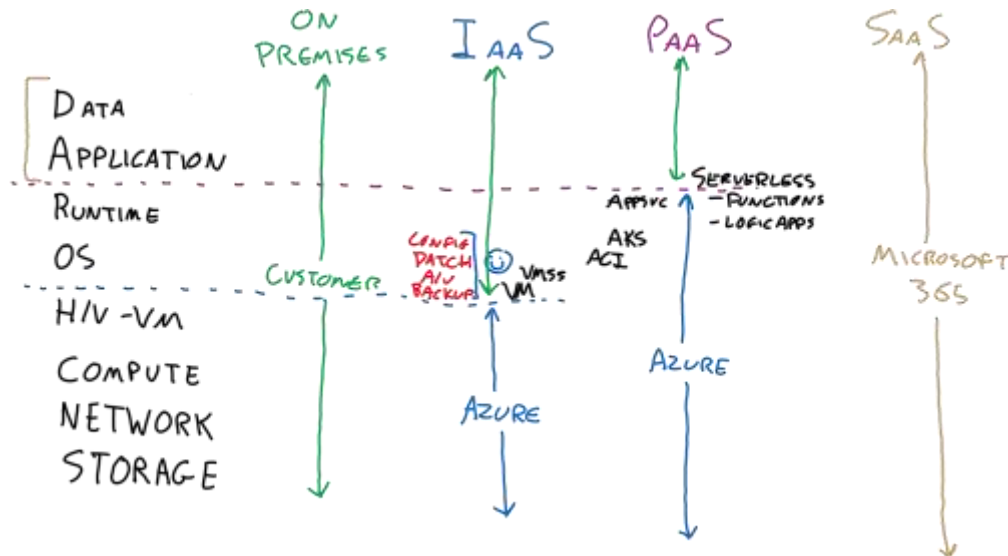
Differences Between Types of Cloud Computing
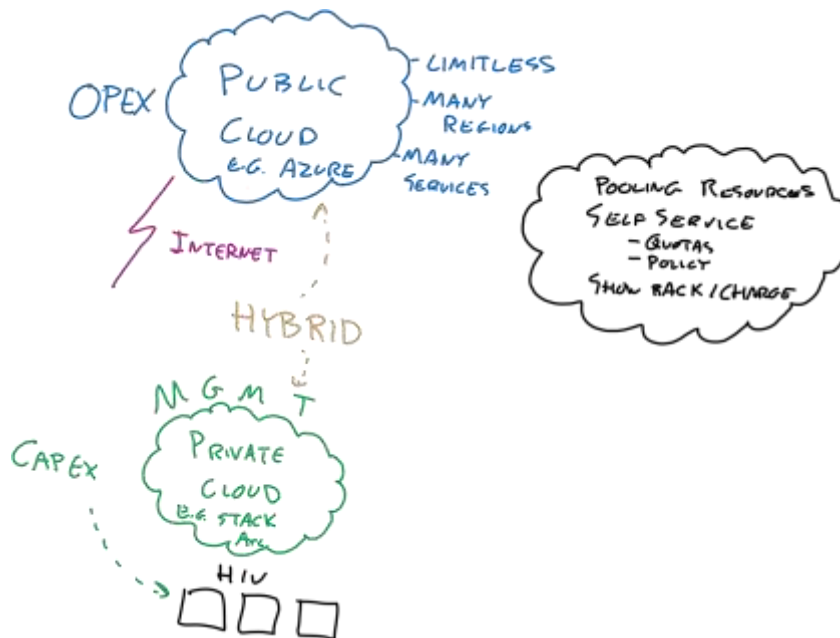
Reliability and Predictability

RELIABILITY

- AUTO HEALING
- STORAGE X3
- AUTO SCALE
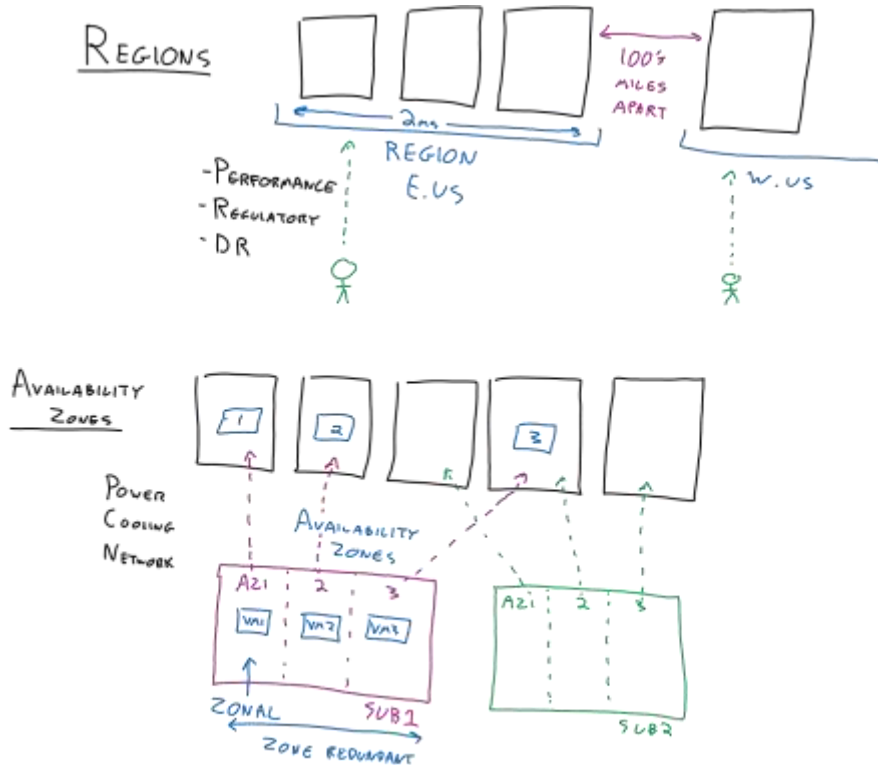- SLA
- DESIGN FOR FAILURE
- MONITOR

PREDICTABILITY

- SKU
  - ACU
- BEHAVIOR
- USE TEMPLATES
- AUTOMATION
- DEVOPS

Describe Core Azure Services

Benefits and Usage of Regions and Region Pairs

Links

- Regional pairings - https://docs.microsoft.com/en-us/azure/availability-zones/cross-regionreplication-azure#azure-cross-region-replication-pairings-for-all-geographies
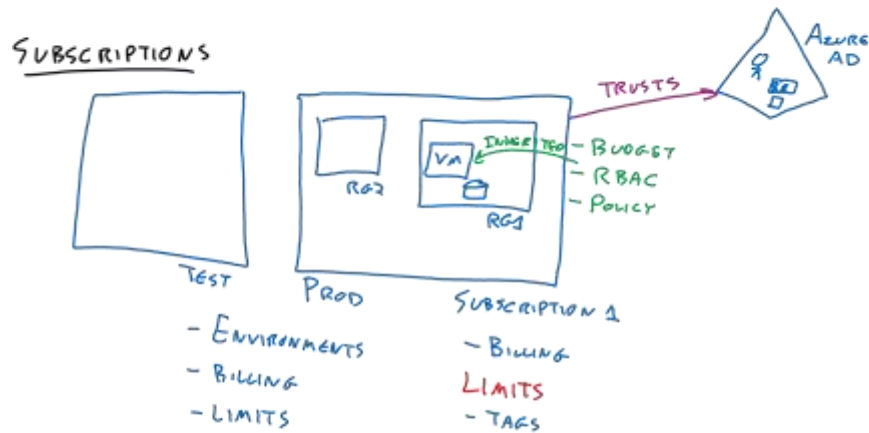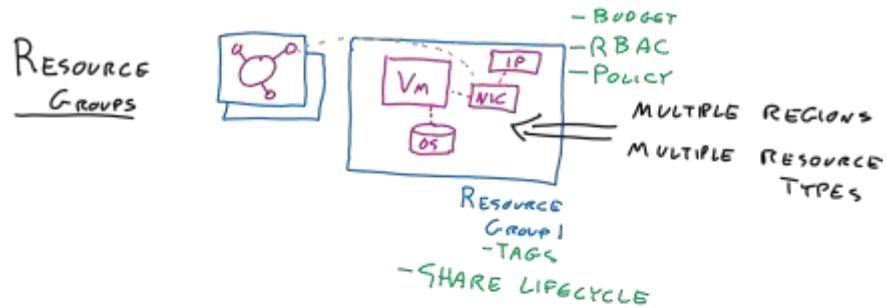
Code

```
Get-AzEnvironment #List environments
Get-AzLocation | ft #get regions in current environment
```

Benefits and Usage of Resource Groups

Links

- Azure Subscription Limits - https://docs.microsoft.com/azure/azure-resourcemanager/management/azure-subscription-service-limits
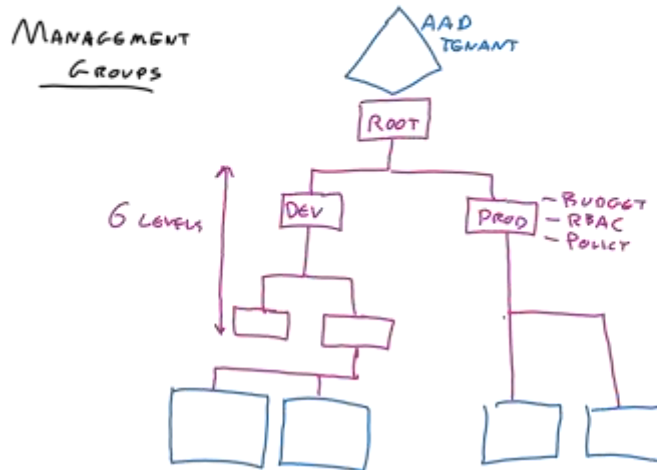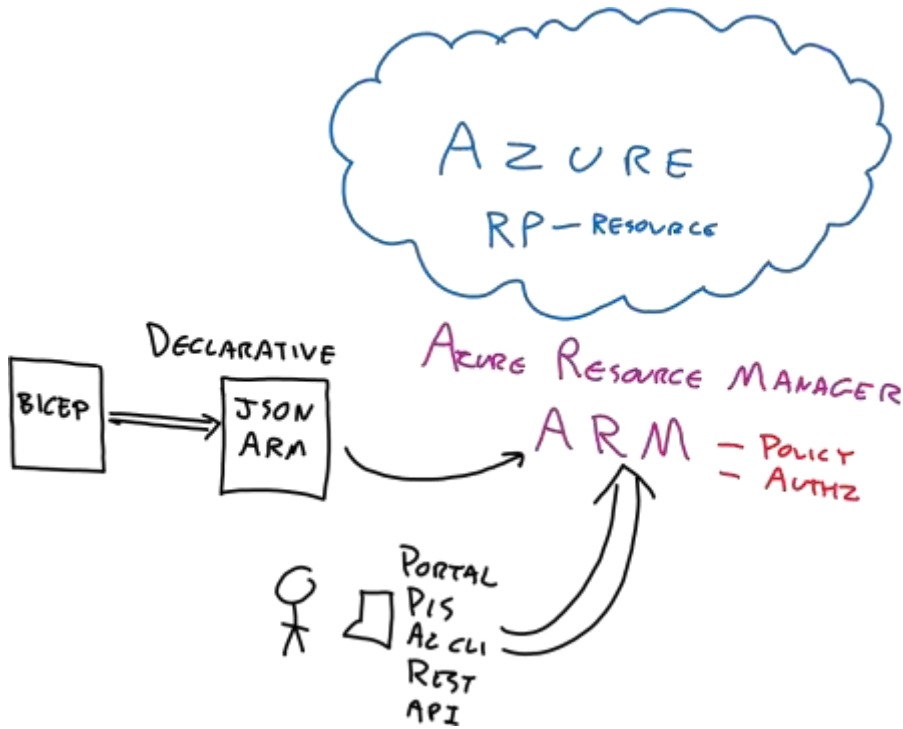
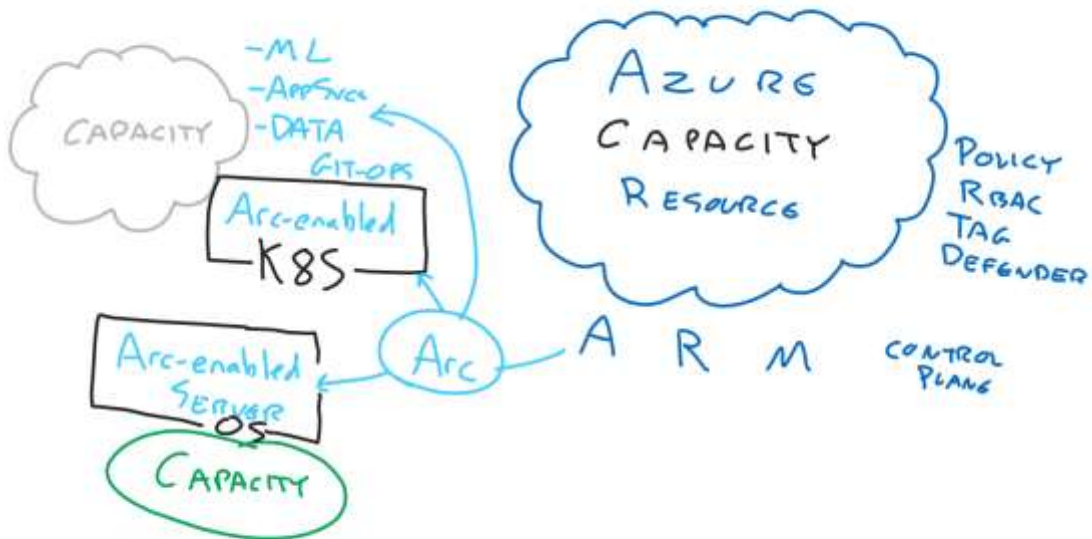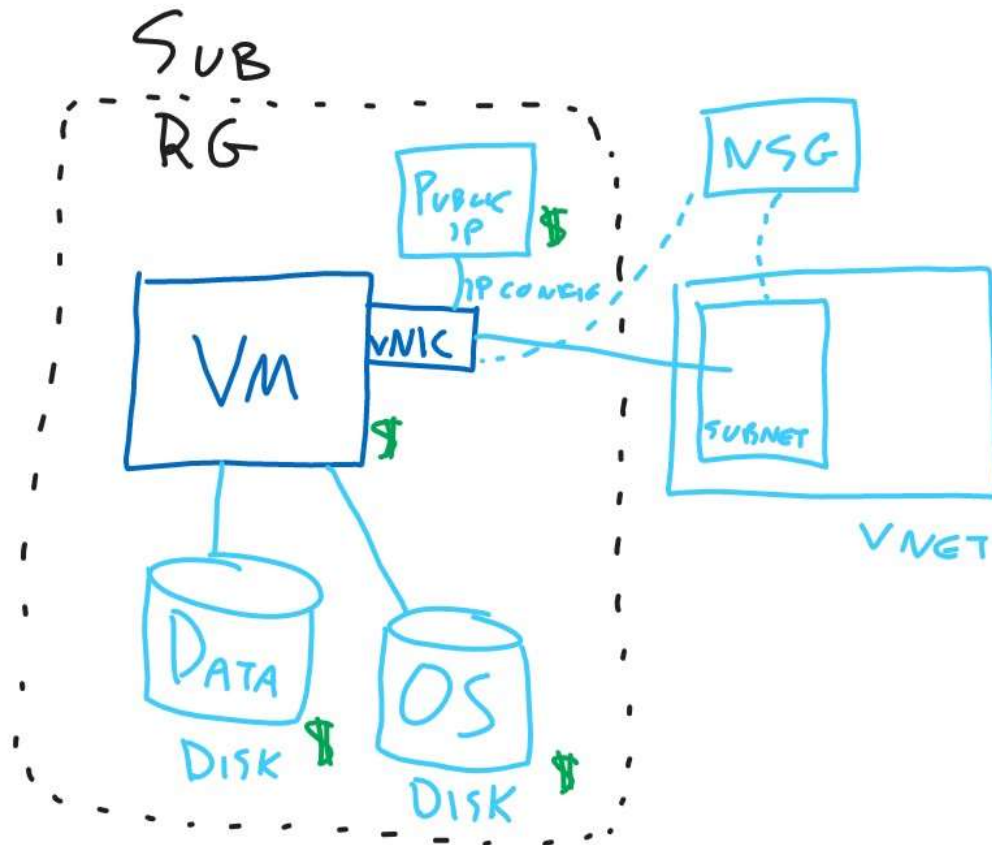## Benefits and Usage of Azure Resource Manager

Code

```
Get-AzResourceProvider
Get-AzResourceProvider -ProviderNamespace microsoft.compute | ft
ResourceTypes
```
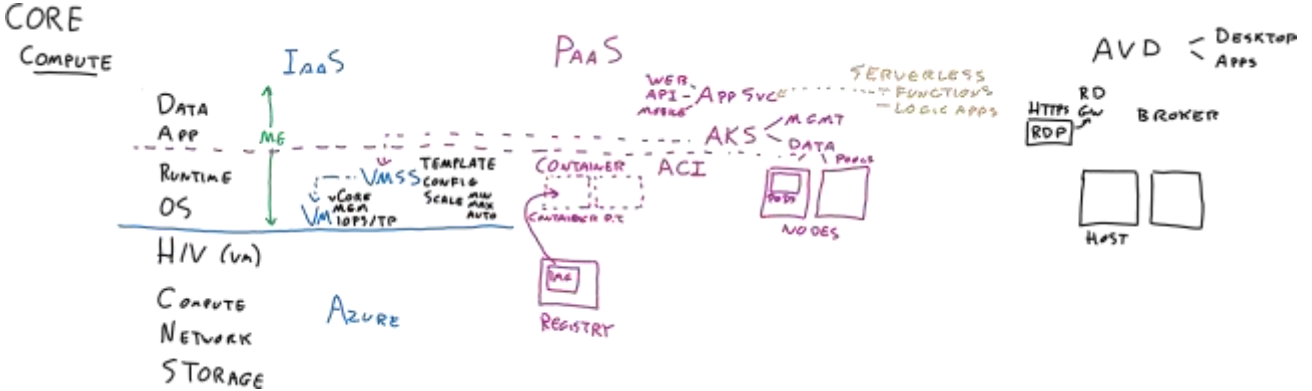
Describe the Purpose of Azure Arc

Describe the Resources Required for Virtual Machines

Benefits and Usage of Core Compute Resources

Links

- VM SKUs - https://docs.microsoft.com/azure/virtual-machines/sizes

CORE
COMPUTE — IaaS — PaaS — AVD ⊂ Desktop Apps
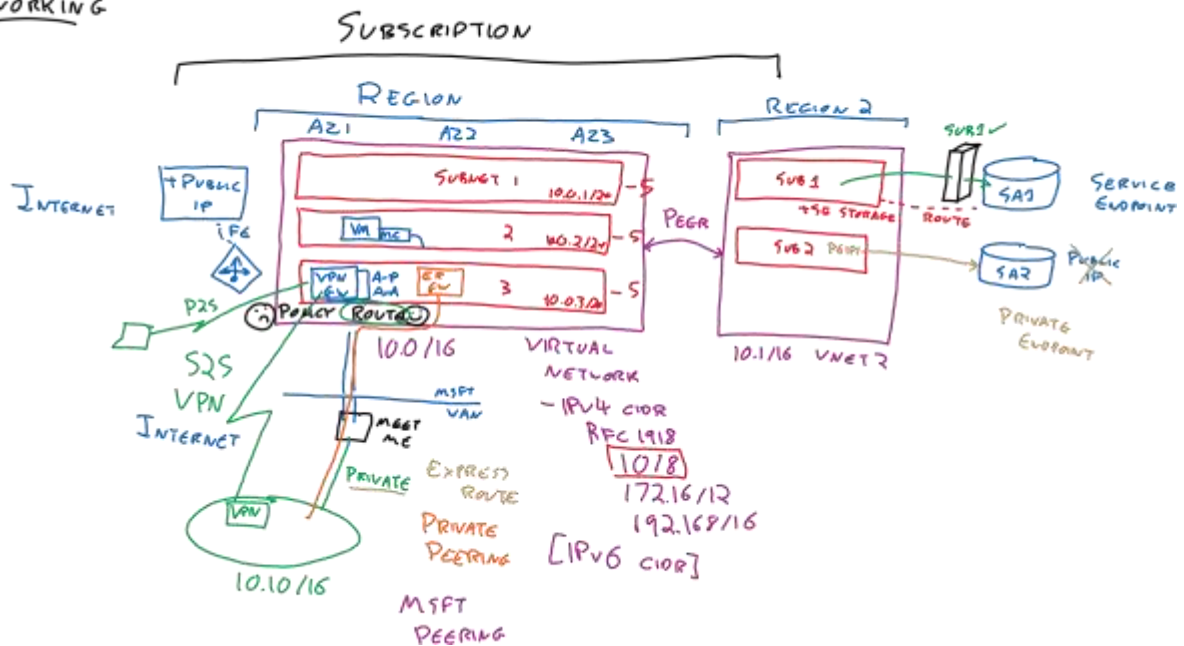
DATA
APP
RUNTIME
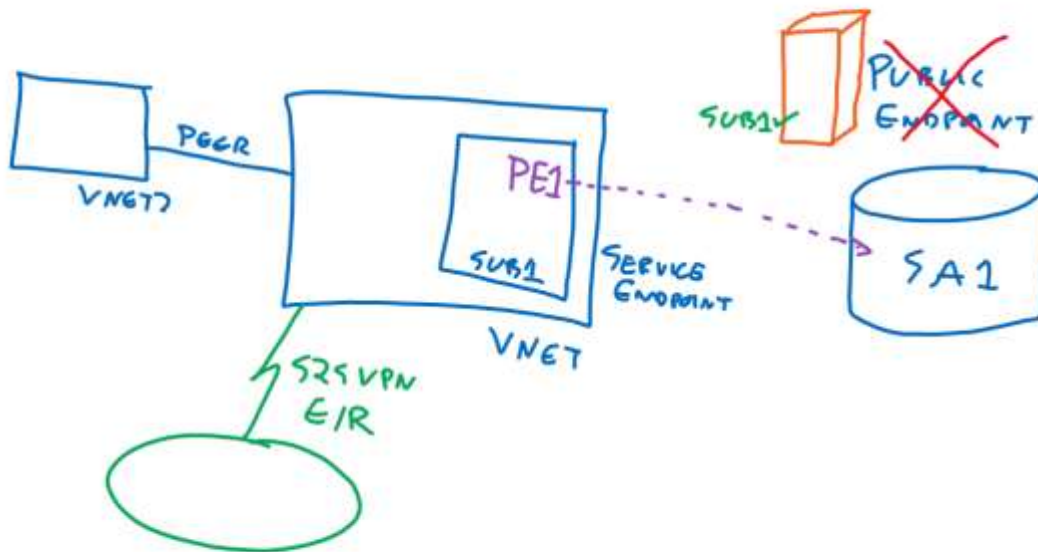OS
H/V (vm)
COMPUTE
NETWORK
STORAGE

Benefits and Usage of Core Network Resources

NETWORKING

Describe Public and Private Endpoints

Benefits and Usage of Storage Account Resources
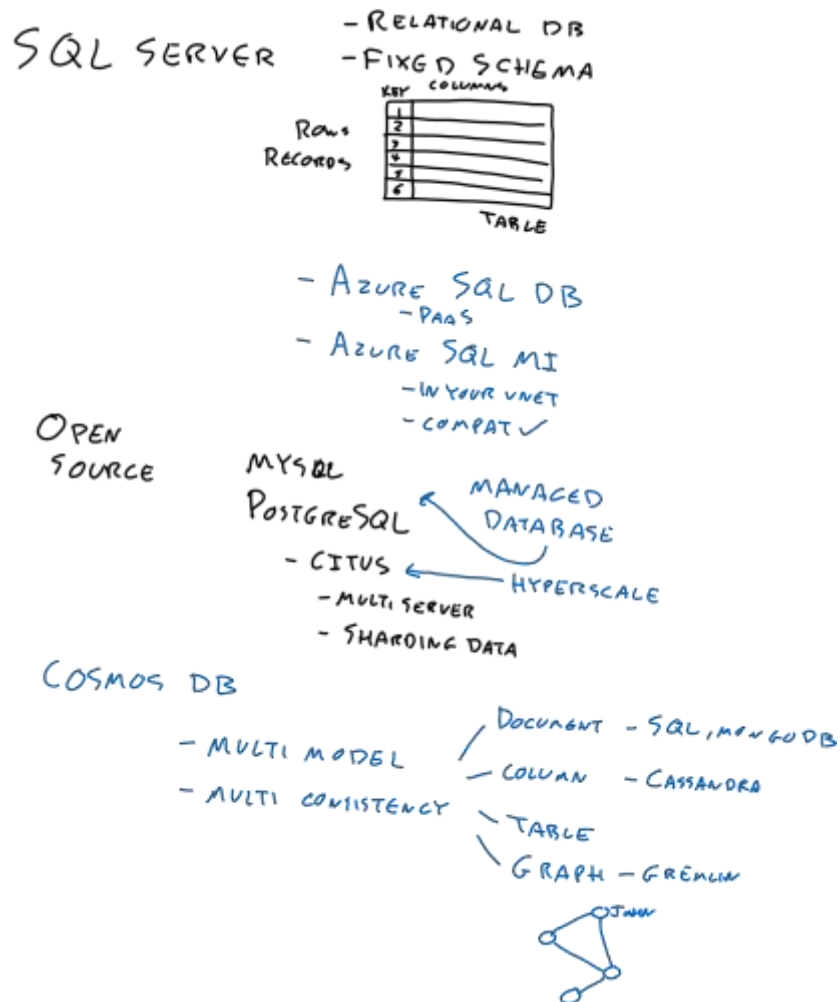
Links

- Managed Disks - https://azure.microsoft.com/pricing/details/managed-disks/
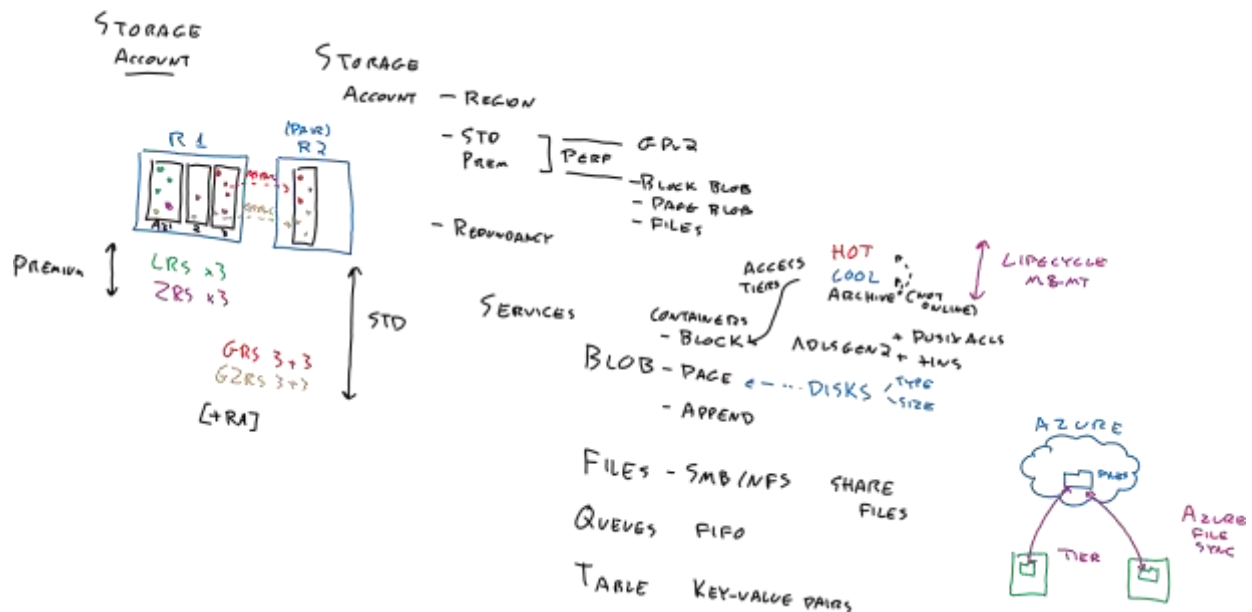
Benefits and Usage of Database Resources

Links

- SQL Feature Comparison - https://docs.microsoft.com/azure/azure-sql/database/featurescomparison

Database

Resources

SQL SERVER
- RELATIONAL DB
- FIXED SCHEMA

KEY   COLUMNS
ROWS
RECORDS

TABLE

- AZURE SQL DB
  - PAAS
- AZURE SQL MI
  - IN YOUR VNET
  - COMPAT ✓

OPEN
SOURCE   MYSQL
PostGreSQL ← MANAGED DATABASE
  - CITUS ← ── HYPERSCALE
    - MULTI SERVER
    - SHARDING DATA

COSMOS DB
  - MULTI MODEL   DOCUMENT - SQL, MONGODB
  - MULTI CONSISTENCY   ─ COLUMN   - CASSANDRA
                          TABLE
                          GRAPH — GREMLIN

Data Movement and Migration Options

OFFLINE | ONLINE

OFFLINE

Azure
Data
Box

- DISK
  - IMPORT

- Box 80TB
  - IMPORT/
    EXPORT

- Box HEAVY 770TB

ONLINE

- STORAGE
  EXPLORER
  - INTERACTIVE

- Az Copy
  - AUTOMATION
  - COPY/SYNC
  - CLOUD→CLOUD
    - AZURE SERVER SIDE

- AZURE MIGRATE
  VMIOS
  DB

CLOUD
TIGRING

Azure
FILE
SYNC
- MOVE
- SYNC

Azure
FILES

SYNC
GROUP

SERVER
ENDPOINTS
(vo)

SMB
WIN

CLOUD
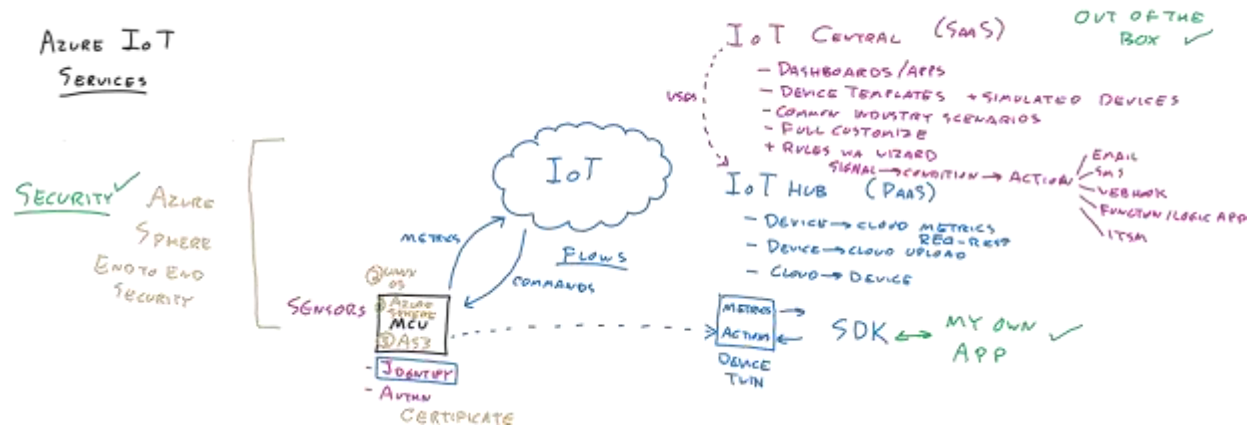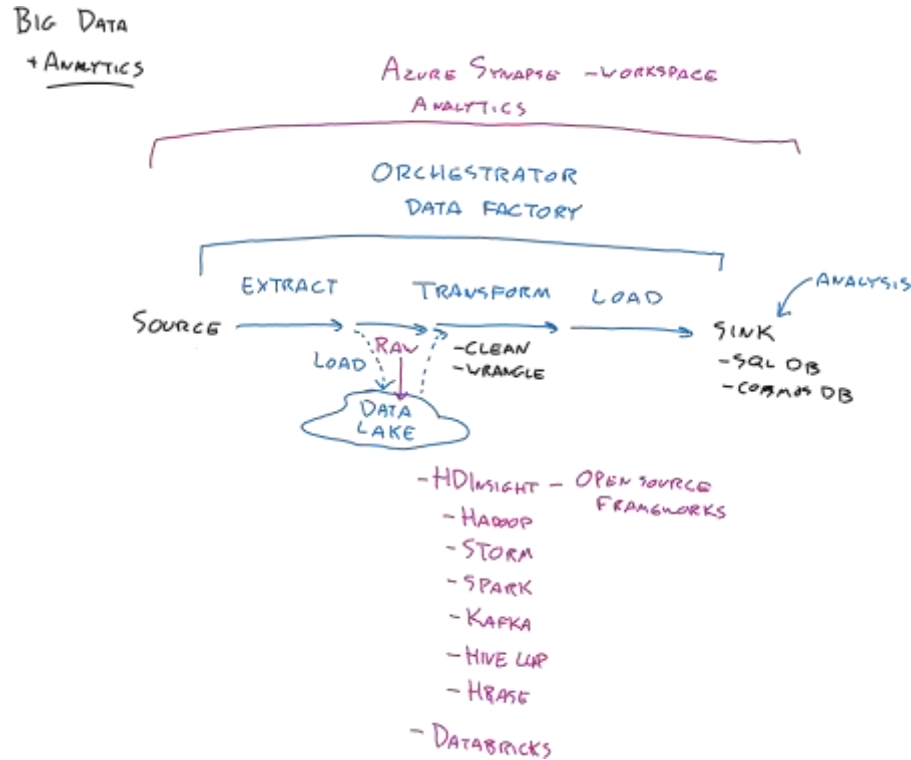ENDPOINT

Describe Core Solutions and Management Tools on Azure
Benefits and Usage of Azure IoT Services

Benefits and Usage of Big Data and Analytics Services

Benefits and Usage of AI Services

AI
SERVICES

AZURE
MACHINE   PLATFORM FOR PREDICTIONS
LEARNING   DATA SCIENTISTS
                      — TOTAL CONTROL
                    - HOW TO GET DATA
                    - TRAIN + EVALUATE MODELS
                    - PIPELINE EXPERIMENTS
                    - DEPLOY ALGORITHM → API → ENDPOINT ← APP

AZURE
COGNITIVE   - PREBUILT MODELS
SERVICES   - LANGUAGE
                    - SPEECH
                    - VISION
                    - DECISION

AZURE
BOT   - CHAT / TEXT
SERVICE   \ SPEECH
                 - VIRTUAL AGENTS

                 ⚇ → UNDERSTAND

                 ← KNOWLEDGE BASE

Benefits and Usage of Serverless Technologies

SERVERLESS   - AZURE
CONSUMPTION   EVENT   FUNCTIONS
  BASED   DRIVEN   [- CODE]
                          - STATELESS
                          [DURABLE]

         REST   - AZURE
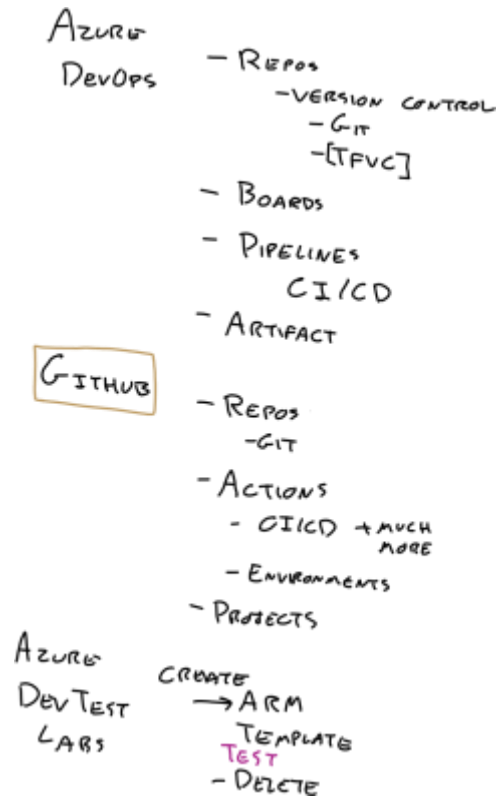   LOGIC APPS
                       [- NO/LOW CODE]
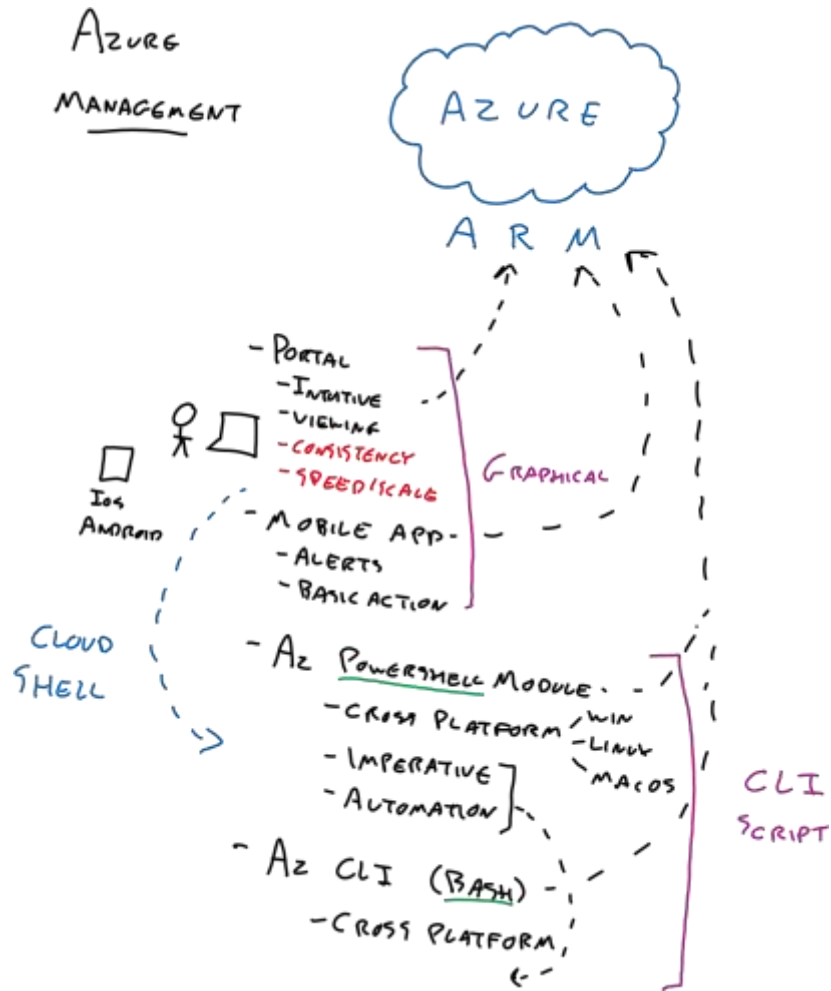   - AUTHORING

                          [CONNECTORS]

Benefits and Usage of DevOps Technologies

DevOps

Azure
DevOps
— Repos
—Version Control
—Git
—[TFVC]
— Boards
— Pipelines
CI/CD
— Artifact

GitHub
— Repos
—Git
— Actions
— CI/CD + much more
— Environments
— Projects

Azure
Dev Test
Labs
Create
→ ARM
Template
Test
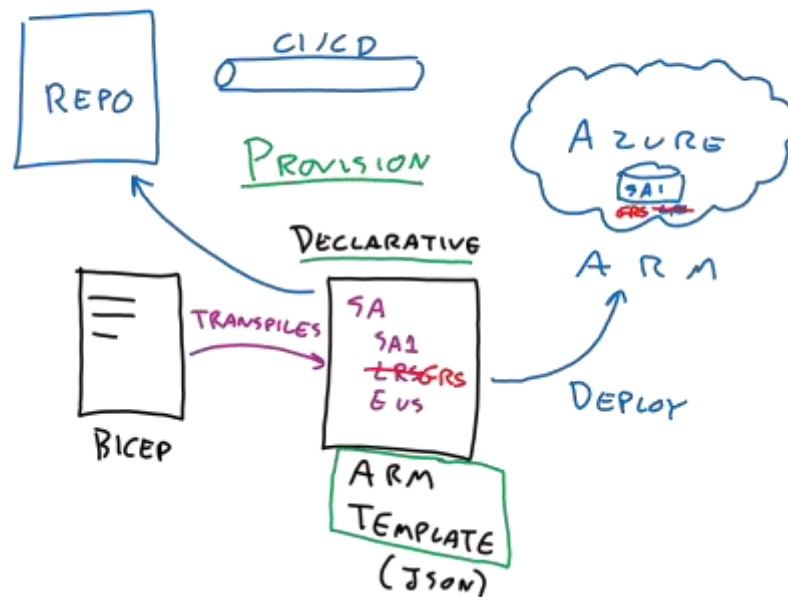— Delete

Functionality of Azure Management Solutions
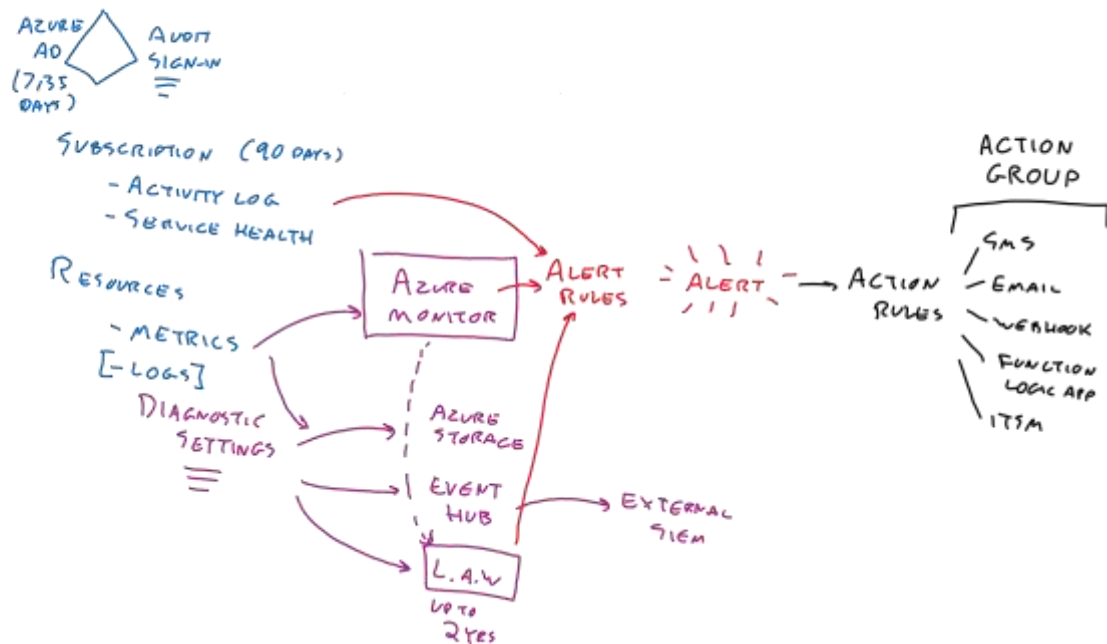
Functionality and Usage of ARM Templates

Links

- Sample ARM template - https://github.com/johnthebrit/AzureMasterClass/blob/master/Part11IaCandDevOps/StorageRepo/ARMTemplates/StorageAccount.json
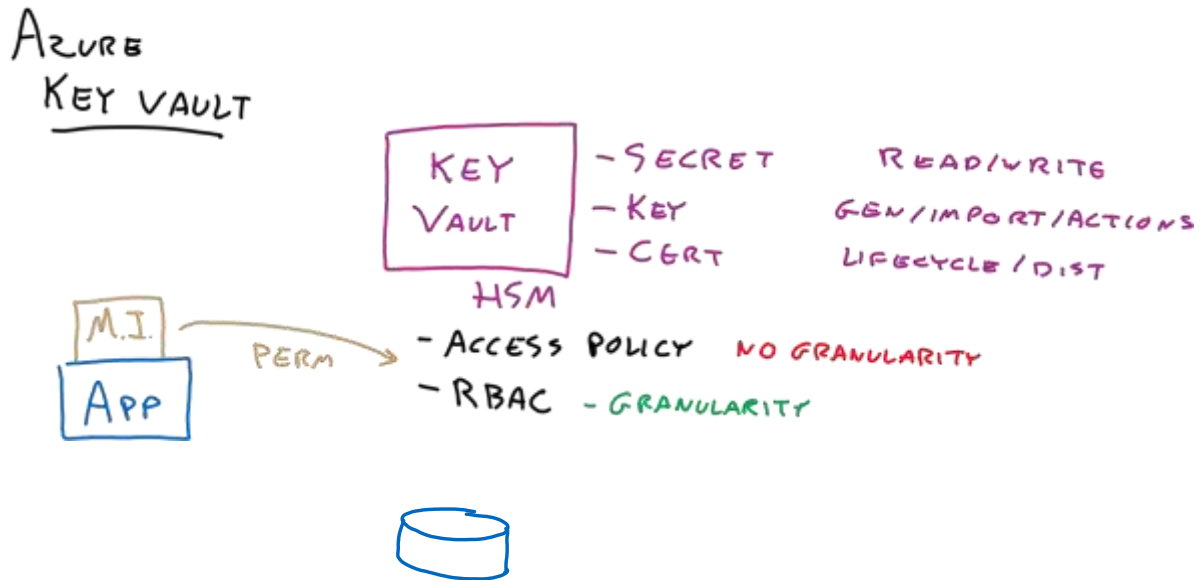
ARM
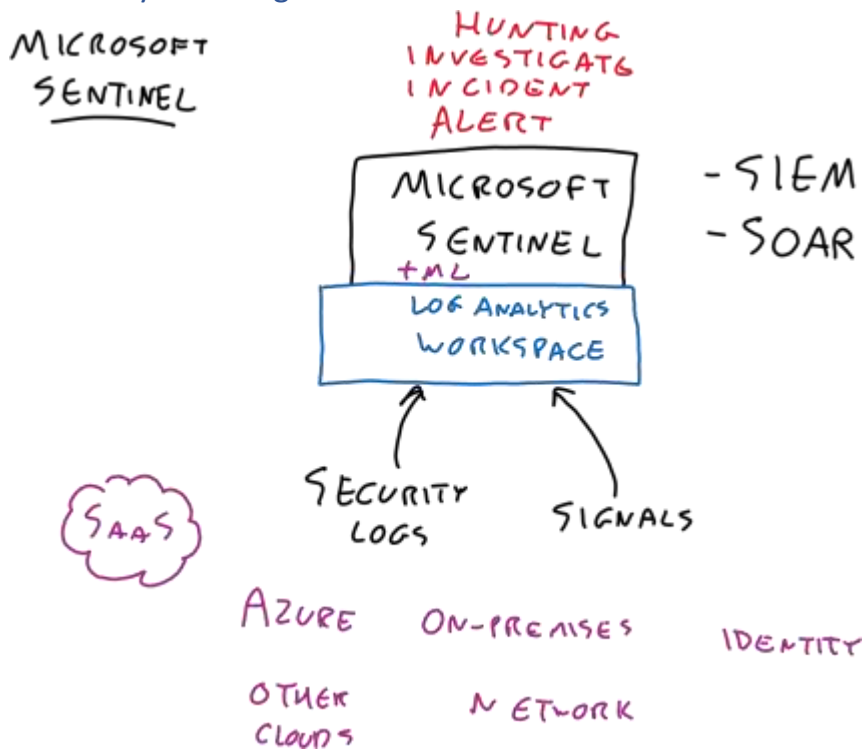TEMPLATES

Functionality and Usage of Azure Monitor

Describe General Security and Network Security Features
Functionality and Usage of Key Vault

AZURE
KEY VAULT

KEY VAULT
- SECRET   READ/WRITE
- KEY   GEN/IMPORT/ACTIONS
- CERT   LIFECYCLE/DIST
HSM

M.I.
App
PERM →
- ACCESS POLICY   NO GRANULARITY
- RBAC - GRANULARITY

Functionality and Usage of Microsoft Sentinel

MICROSOFT
SENTINEL

HUNTING
INVESTIGATE
INCIDENT
ALERT

MICROSOFT
SENTINEL
+ML
LOG ANALYTICS
WORKSPACE

- SIEM
- SOAR

SaaS

SECURITY LOGS   SIGNALS

AZURE   ON-PREMISES   IDENTITY
OTHER   NETWORK
CLOUDS

Functionality and Usage of Azure Dedicated Hosts

Links

- Azure Dedicated Host - https://azure.microsoft.com/pricing/details/virtual-machines/dedicatedhost/
- Azure Isolated VMs - https://docs.microsoft.com/azure/virtual-machines/isolation

AZURE DEDICATED HOST

VM VM VM

HOST

REGION E.US
[Az1   Az2   Az3]

VMBIG

FD0   FD1

HOST
GROUP
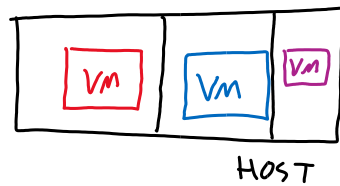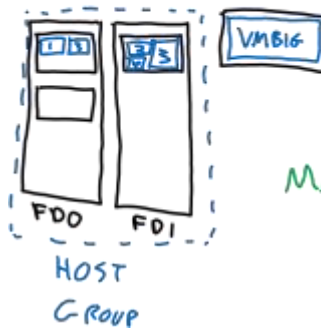
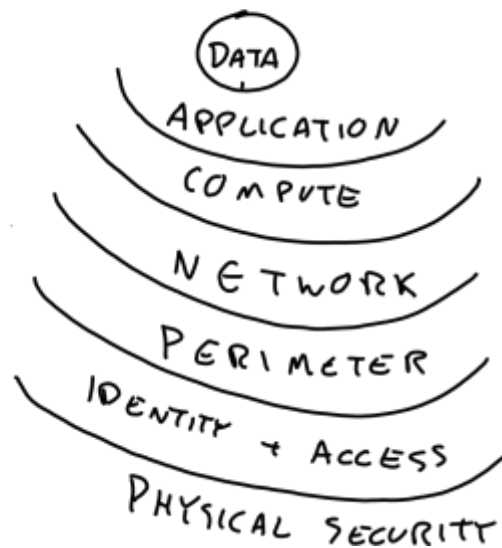MAINTENANCE ✓
WINDOW
35 DAY

Concept of Defense in Depth

DEFENSE
IN DEPTH

CONFIDENTIALITY
INTEGRITY
AVAILABILITY

DATA
APPLICATION
COMPUTE
NETWORK
PERIMETER
IDENTITY + ACCESS
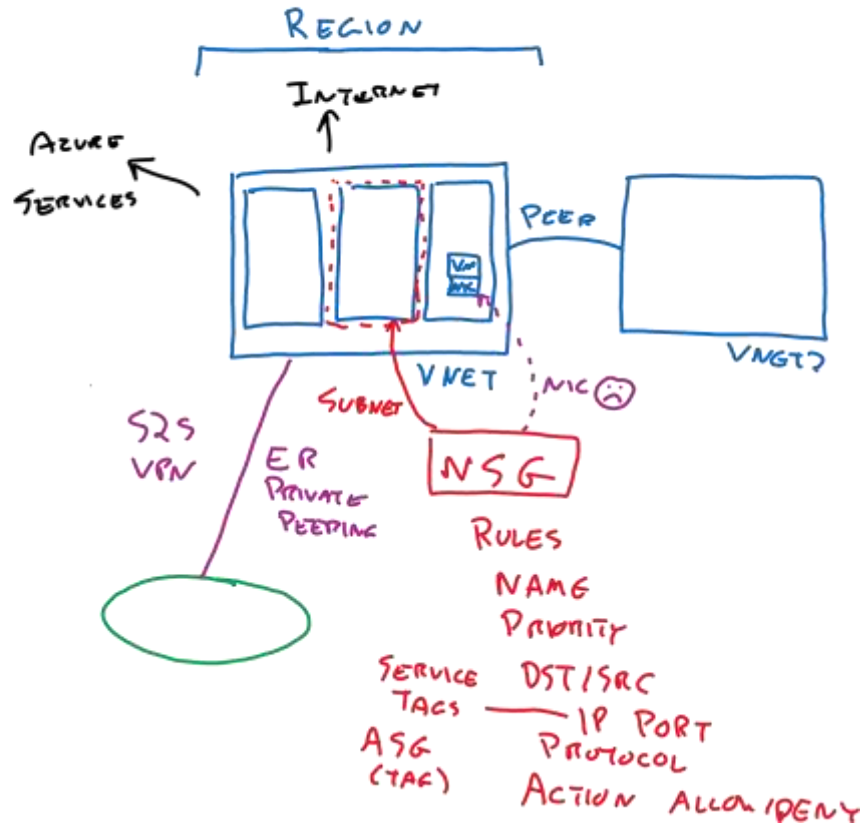PHYSICAL SECURITY

Describe the Concept of Zero Trust

1, VERIFY
    EXPLICITLY

2, LEAST
    PRIVILEGE

3, ASSUME
    BREACH

IDENTITY   ENDPOINT   NETWORK   INFRA   DATA
                                        +
                                        APP

CONTEXT
-RISK   CONDITIONAL   CONTROL
           ACCESS
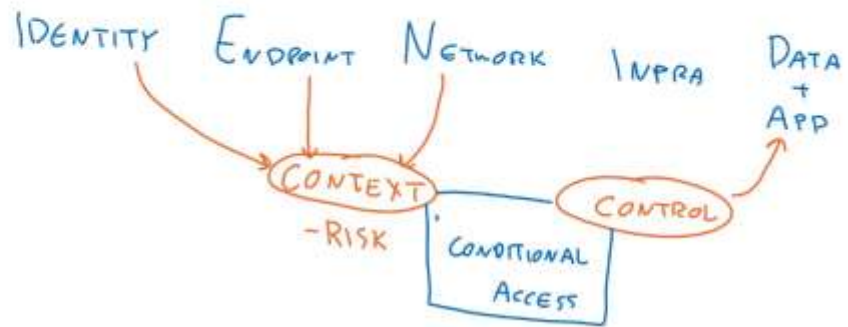
Functionality and Usage of NSGs

NETWORK
SECURITY
GROUPS

REGION

INTERNET

AZURE
SERVICES

PEER

VNGT?

VNET · NIC ☹

S2S
VPN

ER
PRIVATE
PEERING

SUBNET

NSG

RULES

NAME

PRIORITY

SERVICE   DST/SRC
TAGS ———— IP PORT
ASG   PROTOCOL
(TAG)   ACTION ALLOW/DENY

Functionality and Usage of Azure Firewall
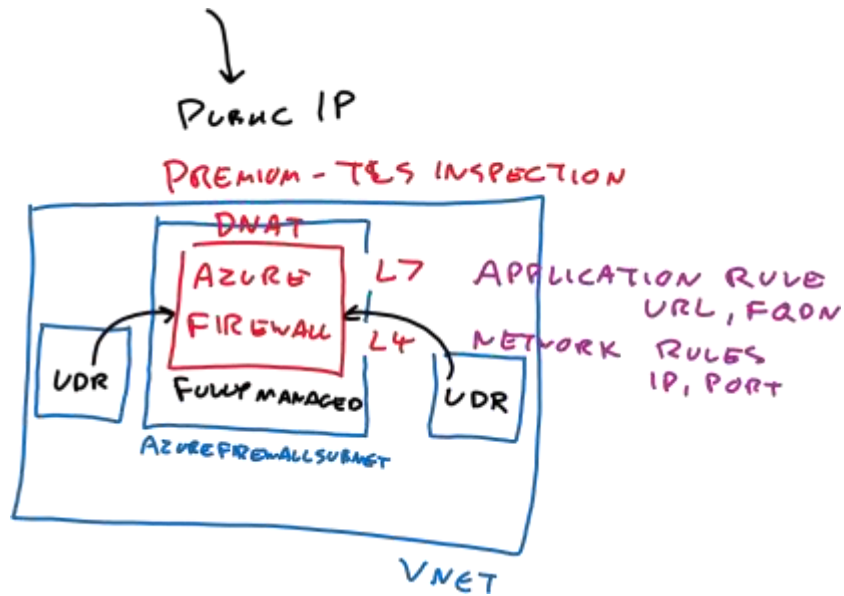
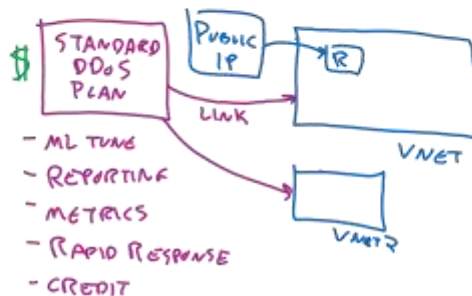## Functionality and Usage of Azure DDoS Protection

Links

- DDoS Overview - https://docs.microsoft.com/azure/ddos-protection/ddos-protection-overview

Describe Identity, Governance, Privacy, and Compliance Features
Explain Authentication and Authorization

AUTHENTICATION (AUTHN)
  VALIDATING IDENTITY
    WE KNOW (PASSWORD)
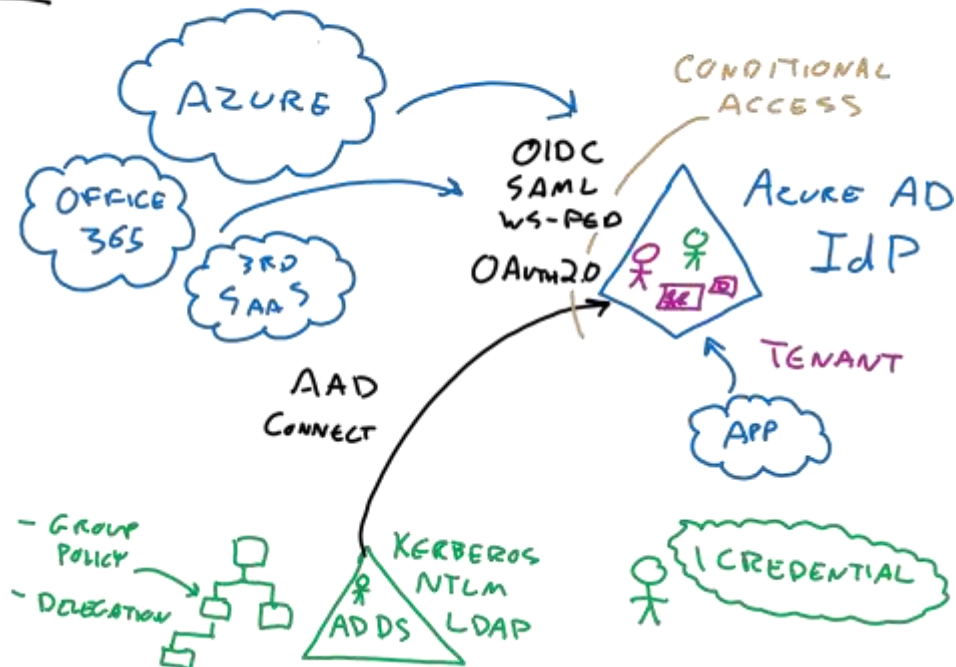   WE ARE (BIOMETRIC)
    WE HAVE (TOKEN, PC)

AUTHORIZATION (AUTHZ)
  WHAT WE CAN DO
    RBAC

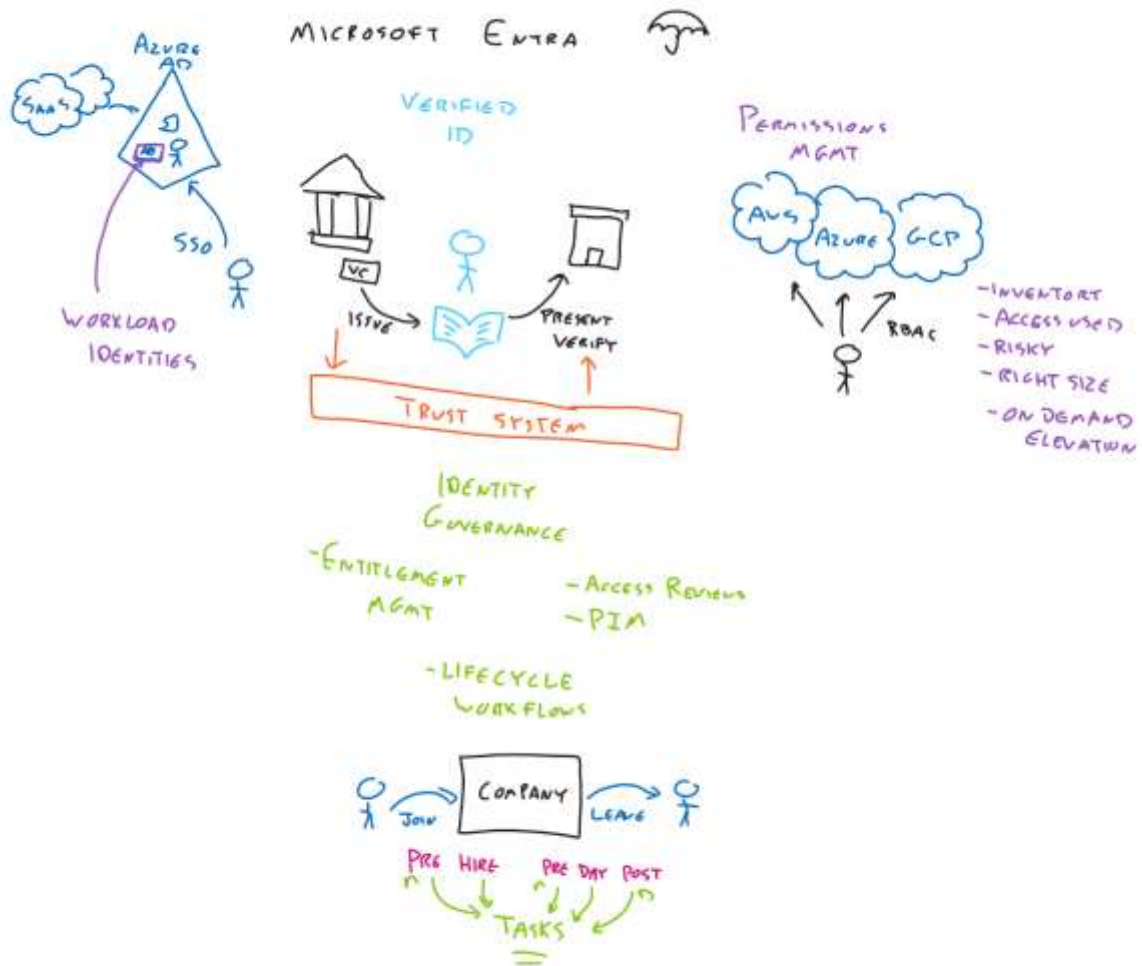## Functionality and Usage of Azure AD

AZURE AD

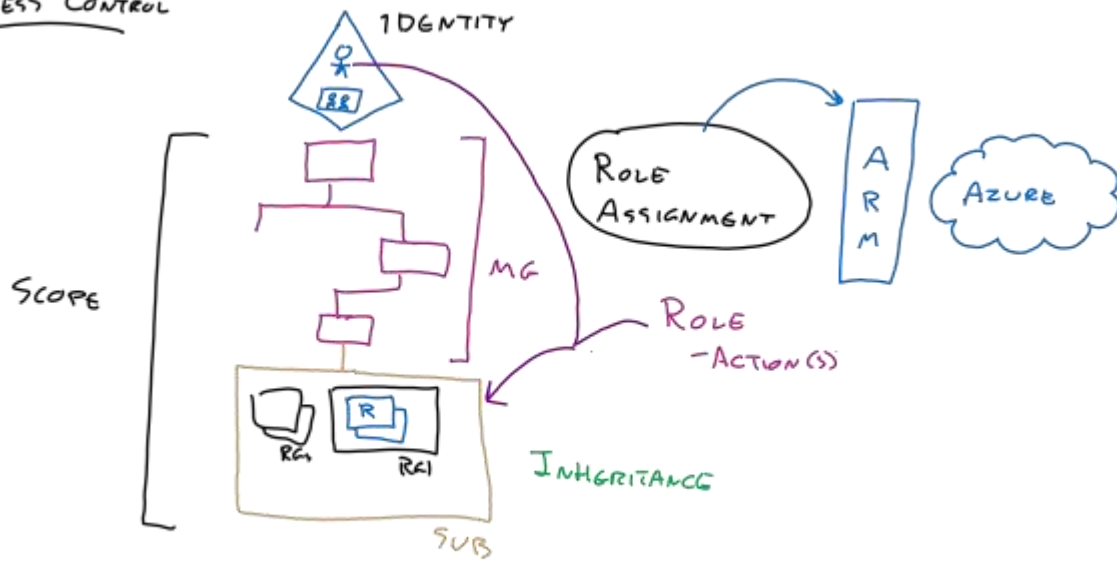## Functionality of Conditional Access, MFA and SSO

CONDITIONAL ACCESS,
MFA + SSO

APPS
TRUST

SSO

AUTH

CONDITIONAL
ACCESS
- POLICIES
  - CONDITIONS
    - DEVICE
    - MFA   2+
- AAD P1+   - WE KNOW   PASSWORD. PIN
 OR GA   - WE ARE   BIOMETRIC
  + AUTH APP   - WE HAVE   TOKEN, PHONE, PC
  + SMS, CALL
  + TOKEN
- SECURITY DEFAULTS (FREE)
  MFA - AUTHAPP

Overview of Microsoft Entra

Functionality and Usage of RBAC

Role Based
Access Control

Identity

Scope

Role
Assignment

A R M

Azure

MG

Role
- Action (s)

R RG₁ R RG₁

Inheritance

SUB

Functionality and Usage of Resource Locks

Resource
Locks

R
RG
SUB

- Owner
- User Access Administrator
Resource
Lock
- Cannot Delete
- Read Only

Azure
A R M

Control
Plane

Data Plane
DB - CRUD
Blob - Delete

Functionality and Usage of Tags

RESOURCE
LOCKS
+ TAGS

ENFORCE
—AZURE POLICY
TAG
KEY-VALUE

NOT
INHERITED

R
RG
SUB

- OWNER
- USER ACCESS ADMINISTRATOR
RESOURCE
LOCK

—CANNOTDELETE
—READONLY

AZURE
A R M   CONTROL
                PLANE

DATA PLANE
DB—CRUD
BLOB—DELETE
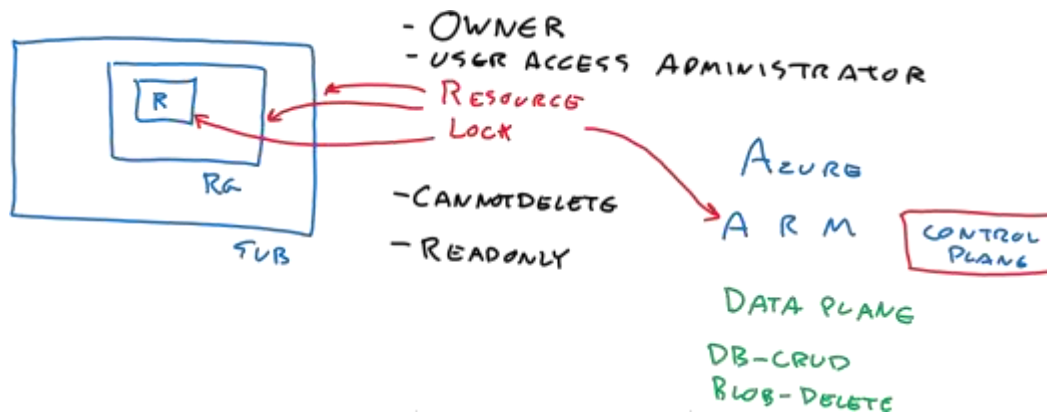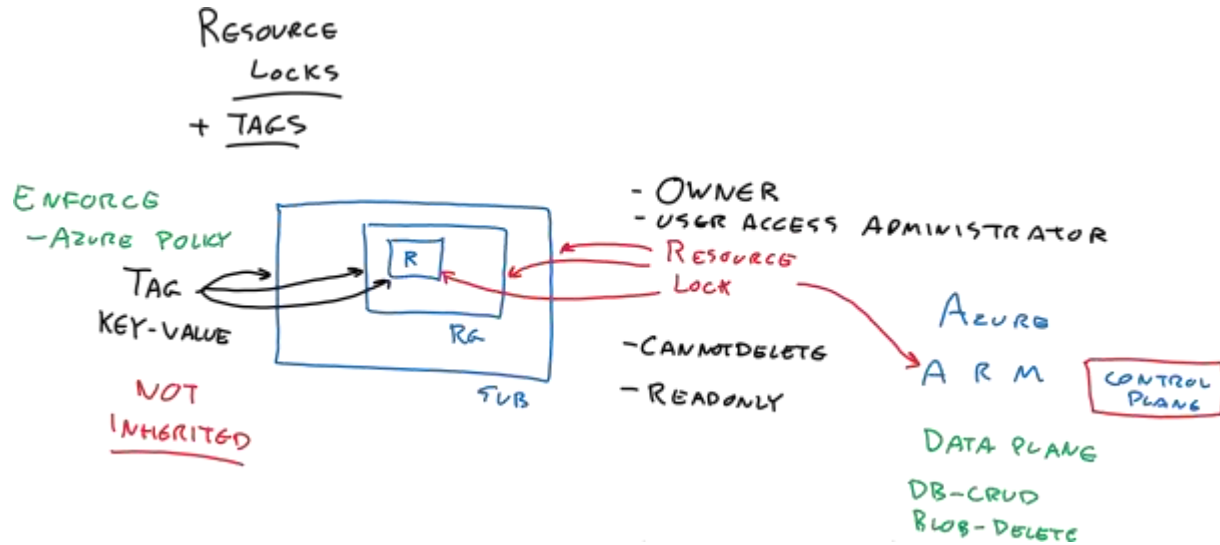
Functionality and Usage of Azure Policy

AZURE
POLICY

AZURE

A R M

PROVISION

EFFECT
—AUDIT
—DENY
—APPEND/
    MODIFY
—IFNOTEXISTS
GUARDRAILS
AZURE
POLICY
INITIATIVE INHERITED

MGS

R
RG
SUB

?   PROVISION
REQ
CHECKS
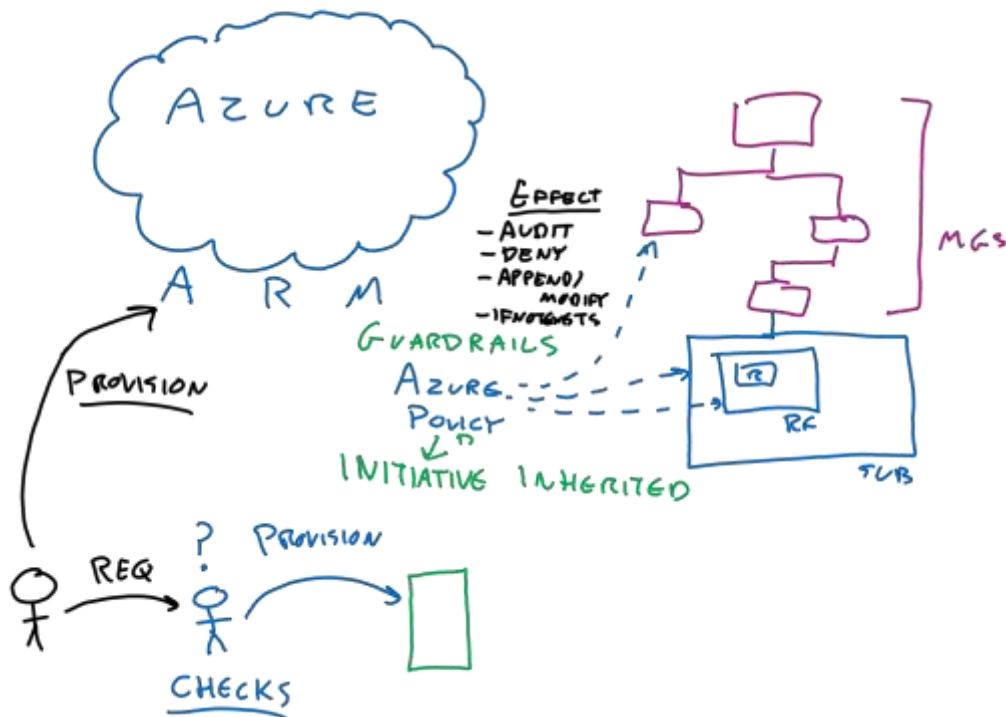
Purpose of Microsoft Purview
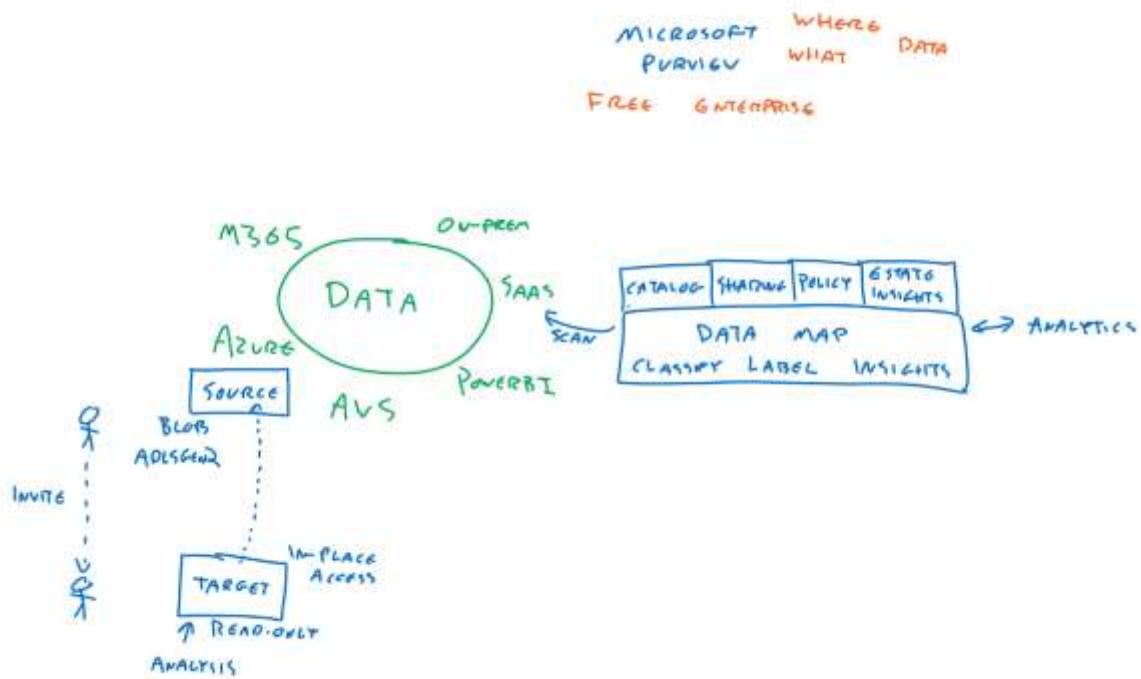
Governance Hierarchy Constructs

Functionality and Usage of Azure Blueprints

BLUEPRINT

ASSIGN

— RG

- DON'T LOCK
- DO NOT DELETE
- READ ONLY

— ARM TEMPLATES

— RBAC

— POLICY

SUB
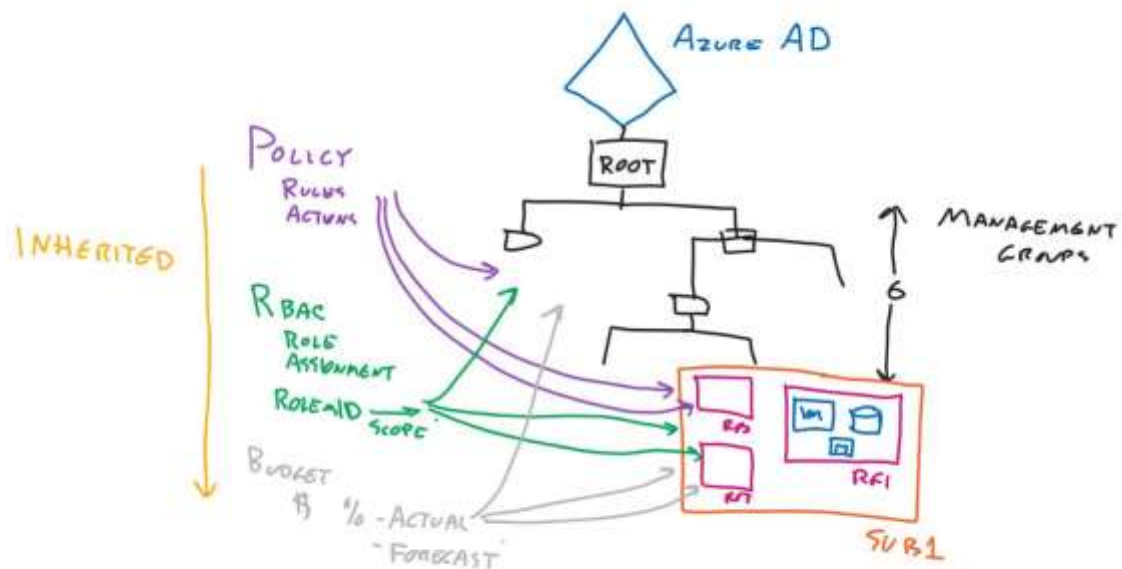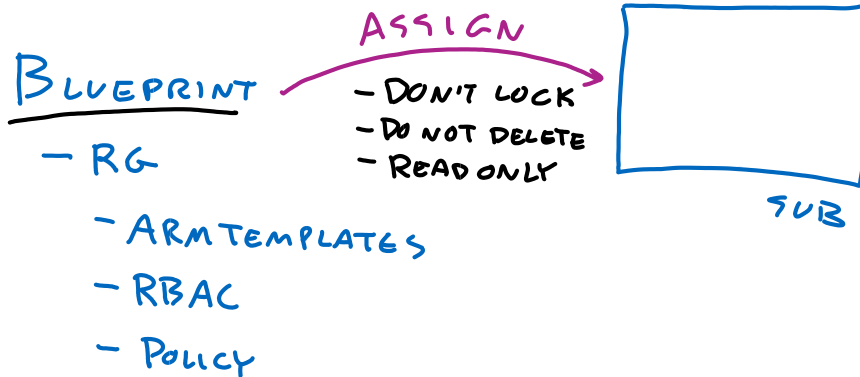
Describe Cloud Adoption Framework

Links

- CAF Overview - https://docs.microsoft.com/azure/cloud-adoption-framework/overview

Describe Microsoft Privacy Statement, Online Services Terms (OST) and Data Protection Amendment (DPA)

Links

- Microsoft Privacy Statement - https://privacy.microsoft.com/privacystatement
- OST - https://www.microsoft.com/licensing/terms/product/ForallOnlineServices?azureportal=true
- DPA - https://www.microsoft.com/licensing/docs/view/Microsoft-Products-and-Services-DataProtection-Addendum-DPA

Purpose of Trust Center and Azure Compliance Documentation
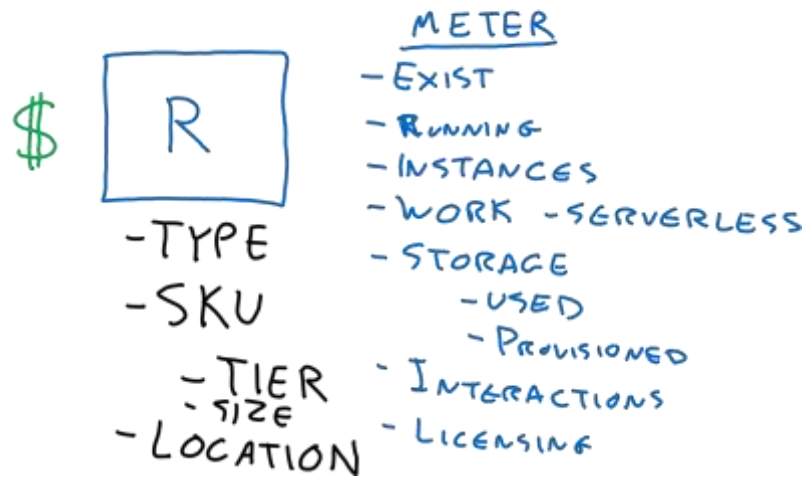
Links

- Trust Center - https://www.microsoft.com/trust-center

Purpose of Azure Sovereign Regions

Links

- Gov CIJS - https://docs.microsoft.com/compliance/regulatory/offering-cjis

Describe Azure Cost Management and Service Level Agreements

Factors That Affect Costs

Factors to Reduce Cost

Links

- https://azure.microsoft.com/pricing/calculator/
- Pricing Calculator Deep Dive - https://youtu.be/rMKmbZ1SYQg
- Azure Reservations Deep Dive - https://youtu.be/vpTDXenagcM

Functionality and Usage of Pricing and TCO Calculators

Links

- Azure Pricing Calculator - https://azure.microsoft.com/pricing/calculator/
- Azure TCO Calculator - https://azure.microsoft.com/pricing/tco/calculator/

Purpose of Service Level Agreements

- Azure SLAs - https://azure.microsoft.com/support/legal/sla/
- Azure Status - https://status.azure.com/status
- Composite SLA documentation - https://docs.microsoft.com/azure/architecture/framework/resiliency/businessmetrics#understand-service-level-agreements
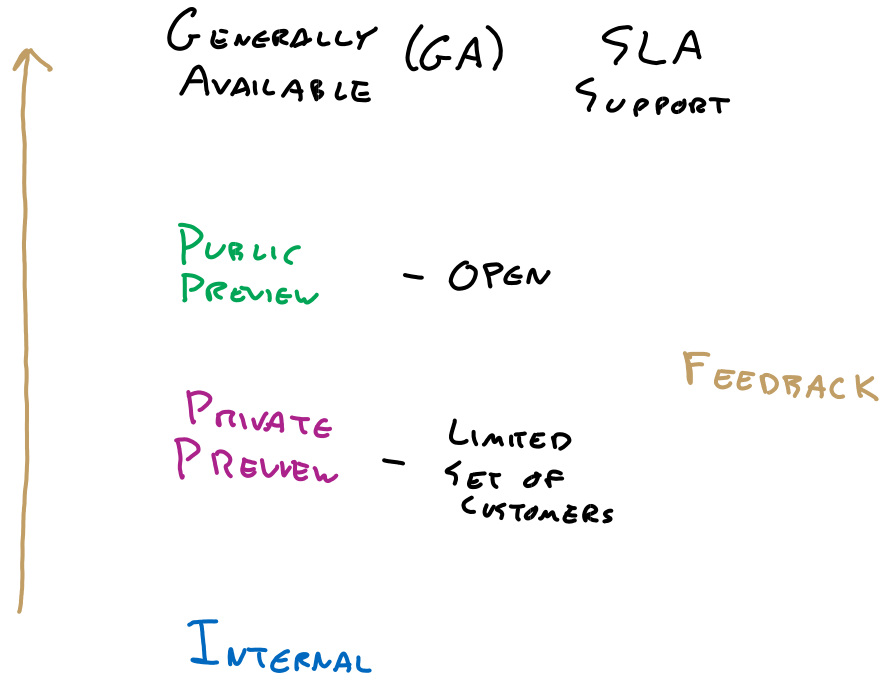- Composite SLA Deep Dive - https://youtu.be/_a3LPSZmkqY
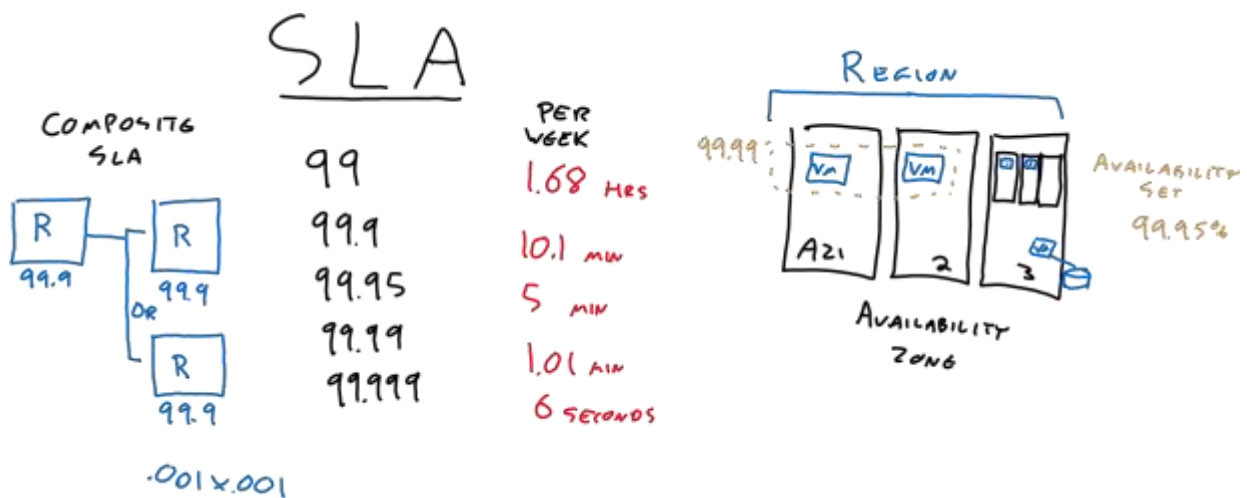
Describe Service Lifecycle in Azure

Links

- Azure preview portal - https://preview.portal.azure.com
- Azure updates - https://azure.microsoft.com/updates/
- Azure weekly update playlist channel - https://onboardtoazure.com

GENERALLY (GA)   SLA
AVAILABLE   SUPPORT

PUBLIC   — OPEN
PREVIEW

                              FEEDBACK

PRIVATE   — LIMITED
PREVIEW   SET OF
              CUSTOMERS

INTERNAL

Closing Thoughts

Appreciate you watching this course.