Cloud Projects:

- Project Types on Cloud :
    - Brown field Projects
        - These are already running projects on other environments(on-premices, Hosting Providers)
        - They involve migrations.
    - Green field projects
        - These are absolutly new projects and everything will run on cloud
        - They involve cloud native architectures

## Landing Zones :

- Landing zones define basic
    - infra provisioning templates
    - Security Management
    - audit Management
    - Governance

## Cloud Adoption Frameworks

- These are frameworks established from various customers using cloud which will help in adopting cloud for different types of projects

What is Modrenisation: Modernisation is the process of migrating existing applications to cloud native architectures. like An application runnning on VM moved to Server less. This step comes post migration.

## Migration Activities

- Generally any migration can be classified into two stratagies it might be database or server
    - One time Migration
    - Continous Migration/Iterative Migration/Ongoing Migration.
- Migration types according to Workloads
    - server
    - Database
    - Storage
- When it comes to server Migration, we have two major options
    - p2V (physical to virtual)
    - V2V (Virtual to Virtual)
- When it comes to Database Migration
    - Same Engine
    - Transformation(oracle to mysql, any to any)
- when it comes to storage migration
    - One-time:
        - online
        - Offline (AWS has snow ball, Azure has Databox)
    - Ongoing(Online) :
        - Hardware based (cloud provider will gives you a hardware box which you can connect it and transfer data to it, this syncs your data to cloud)

        - Software based(cloud provider will gives a software/OS image to install on our system then migration starts)

**web site : UPload time calculator** to calculate upload time.

- Modernization in Application
    - Paas
    - Server less
    - Containerization
    - PAAS and Serverless are vendor specific :
        - PAAS(there won't be any problem with code but you have configuration changes)
        - Serverless(if you have written a code for an application that works on AWS Lambda function, you can't run the same code in Azure functions)
    - Containarization:
        - once you containarize any application you can run it on any platform.
- Modernization in Storage * blob Strorage * Data lakes into cloud (indirectly it will also use blob storage)
- Modernization in Database
    - DBaas (Database as a service)
    - NoSql Alternatives

## what is day-0, day-1 and day-2 in terms of migration in organizations.

- Day-0, Day-1 and Day-2 are the stages of software lifecycle in context of cloud migration
- Day-0 : Planning and Preparation
- Day-1 : Deployment or "go-live" phase.
- Day-2 : refers to the ongoing and maintainance phase.
- Azure has `Azure virtual desktop` similarly in AWS `Amazon Workspace Family`.

## Hybrid Network

- site to Site VPN
- Multisite to Multisite VPN (WAN/hub-spoke) click here to see images

## Operations

- Access
    - User access management
    - Network Access Management

    - Permisiion Management

- Backup and Disaster Recoveries

    - Basic Backup plans according to industry best practices.
    - Disaster Recovery
        - Automatic Recovery (Auto Failover)
            - it defines as you are maintaining one more server running as backup for primary server.
        - Manual Recovery (Manual Failover)
            - after failure occurs, within few minutes using backup creating one more vm without any intruptions.

- Automation:

    - Identify all the manual activities and enabling automation
        - CLI
        - Scripting
        - Templating
        - Python
    - Toolings:
        - Common administrative activities

- Troubleshooting

    - Monitorig
    - Logs
    - Audits

- Setups:

    - Hybrid Network setup
    - User import or integrations
    - Policy

## what we learn in Operations:

- Monitoring & logging
    - cloudwatch(AWS)
    - Monitoring(Azure)
- Policy Setups
- BCDR'
- Automation around cli and tooling
- Migration (2 weeks)

## Monitoring and Alereting

## Activity 1: Understanding Metrics for Azure VM and configuring Alerts

- Services :

    - Azure Monitor
    - Alerts

- Lab :

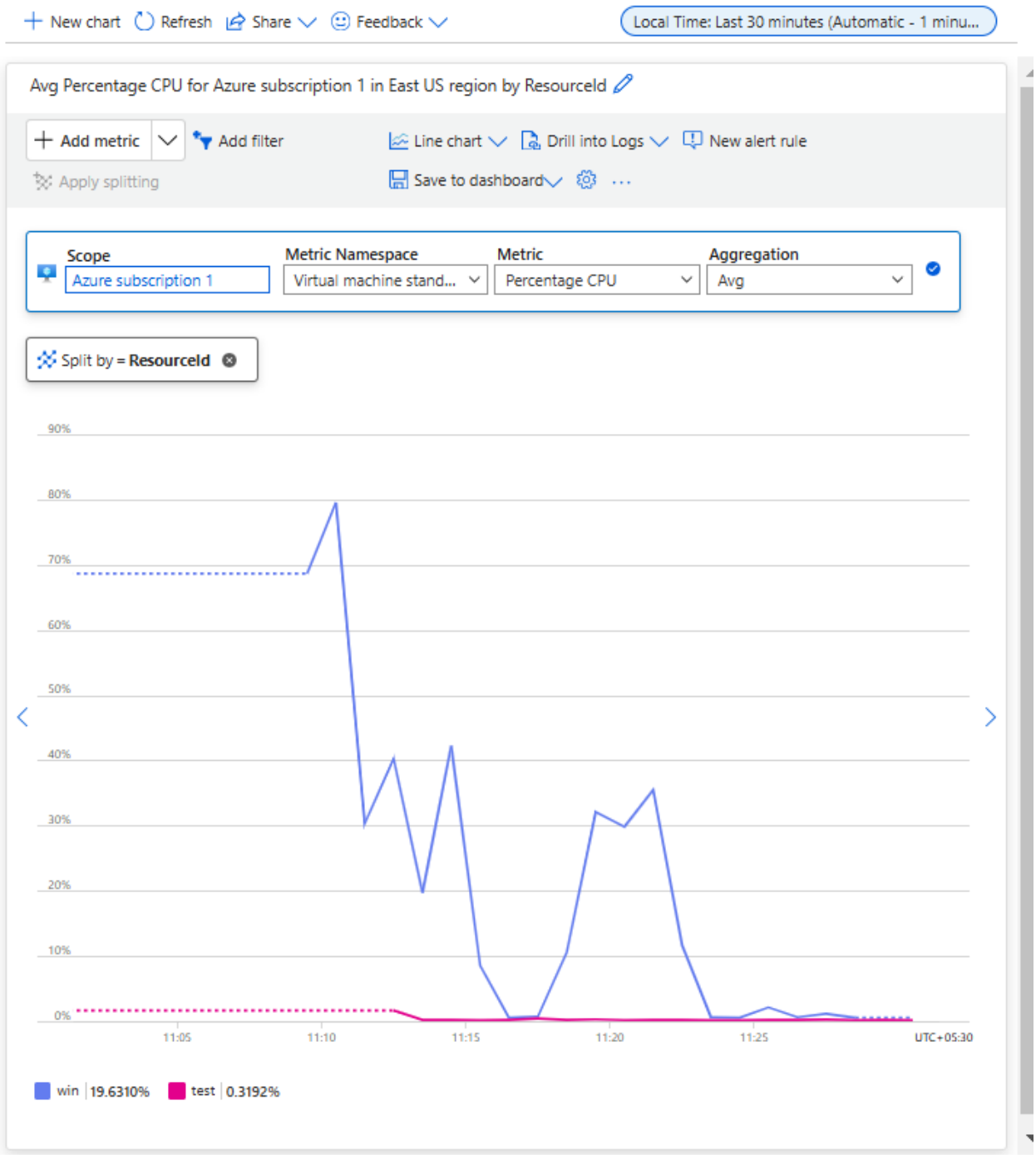
    - we will create two vms
        - Linux Server
        - Windows Server
    - We will explore all
        - Metrics available
        - plotting options
    - We will configure some alert
        - alert destination:
            - email
            - teams/slack channels

- Understading Alerts

    - Alert Rules : when to raise alerts
    - Action Group:
        - Notification: who should be informed
        - Actions: what actions can be taken.

**Checking Metrics of Resources**

- create two VM's after creation is done open Azure Monitor.
- select Metrics from the blade
- it will ask for scope give scope as 'virtual machines'
- locations let it be All locations or we can sort basded on requirement
- below there will be displayed structured format of subscription and and resource group
- select the two vm's under resource group and apply
- Metrics will load select `Percentage CPU` for now and select any aggrigation `avg` your graph will loaded below.

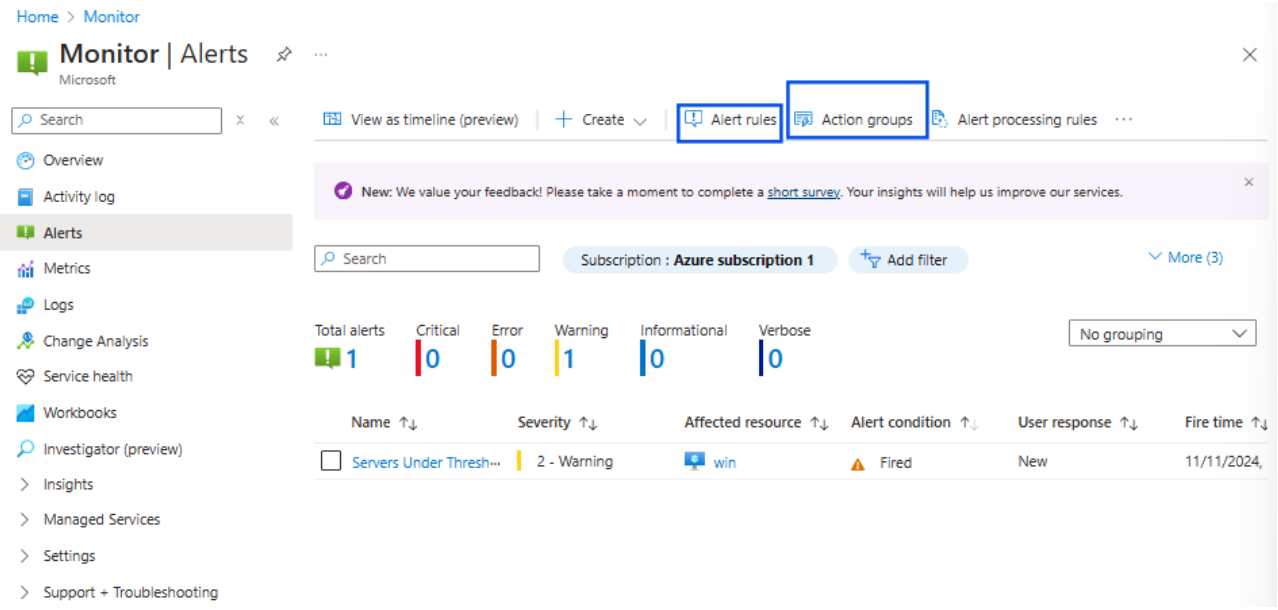



- from image top right side there is a local time , using that you can select the time rage.
- as of now select last 30 min.
- next below you have a horizantal blade inside you can see chart types `Line chart` you select drop down you can see the available charts you can make.

**Creating Alerts**

- Open Azure Monitor

- from the left side blade select `Alerts`




- select `Action Groups` from the horizantal options, check above image.
- Create New
  - provide Name for it
  - Give Display Name
  - Notifications:
    - select Notification `Email/SMS message/Push/Voice`
    - Select `Email` and provide Gmail
    - select Azure Mobile App Notification.
  - Give `ok`.
  - Provide a Name for Notification.
  - Select the `Action Type` if required
    - Automation runbook = if you want to automate for the scenario you can use this
    - Azure Function = you can write a code for vm restart and you can use it.
    - ITSM = for raising incident if you are using any ticketing tool
  - as of now skip it.
  - Review and create it.
- Now come back to Alert and select `Alert Rules`
  - Create a new rule
    - select resource type = virtual machines
    - Locations = all locations
    - from below select the vm's and `Apply`
  - Conditions:
    - select signal = `Percentage CPU`.
  - Actions:(select `Use Action Groups`)
    - from the pop-up select the action group we have created earlier.
  - Detais:
    - Severity:
      - give `warning`.
    - provide rule name.
    - rule description.
  - Review and create it.