ASSIGNMENT 1

RESEARCH PAPER

Different Cloud Deployment Models: Public, Private and Hybrid

1. Public Cloud

The public cloud is a deployment model where services are delivered over the internet by a third-party provider, such as Amazon web services (AWS), Microsoft Azure, or Google cloud platform (GCP) in a public cloud, the infrastructure is shared among multiple tenants or customers and resources are provisioned from the cloud provider data centers.

Characteristics

- Cost Efficiency: users only pay for what they use, making it cost-effective for businesses of all sizes.

- Scalability: Resources can be scaled up or down as needed without the need for physical hardware. it means when there is a surge in demand, you are able to increase the resources you need to reach the demand

- Maintenance: the cloud provider handles maintenance, upgrades, and security patches.

- Reliability: If one fails in a particular country, there is always another data center in another country

- Accessibility: public cloud is accessible over the internet, allowing users to access their data and applications from anywhere.

2. Private Cloud

A private cloud is a dedicated cloud infrastructure designed for a single organization. The organizations are responsible for operating the services they provide. This model provides more control and security as the resources are not shared with other customers.

Characteristics

- Security: since resources are dedicated to one organization, private clouds offer higher levels of security and compliance.

- Cost: private clouds tend to be more expensive than public clouds due to the dedicated hardware and management involved.

- Performance: A private cloud can offer superior performance because the resources are not shared with other tenants

3. Hybrid Cloud

A hybrid cloud combines elements of both public and private clouds, allowing data and applications to be shared between them.
Organizations can run certain applications or workloads on a private cloud for enhanced security while taking advantage of the public cloud's scalability for other tasks.

Characteristics

- Flexibility: Organizations can choose to run specific workloads in the public cloud while keeping sensitive data on the private cloud.

- Cost Optimization: By using the public cloud for non-critical workloads, Organizations can reduce costs while maintaining the private cloud for critical operations.
- Data Integration: Hybrid clouds allow organizations to integrate on-premises infrastructure with public cloud services, enabling seamless data movement and application deployment.

Practical Task

Creation of an Azure account and Exploration of the Azure Portal

1. Created an Azure Account: Go to the Azure website https://portal.azure.com/#home and sign up for a free account

2. Azure Dashboard: After logging in, I was taken to the Azure Portal dashboard. Some key features of the dashboard include:

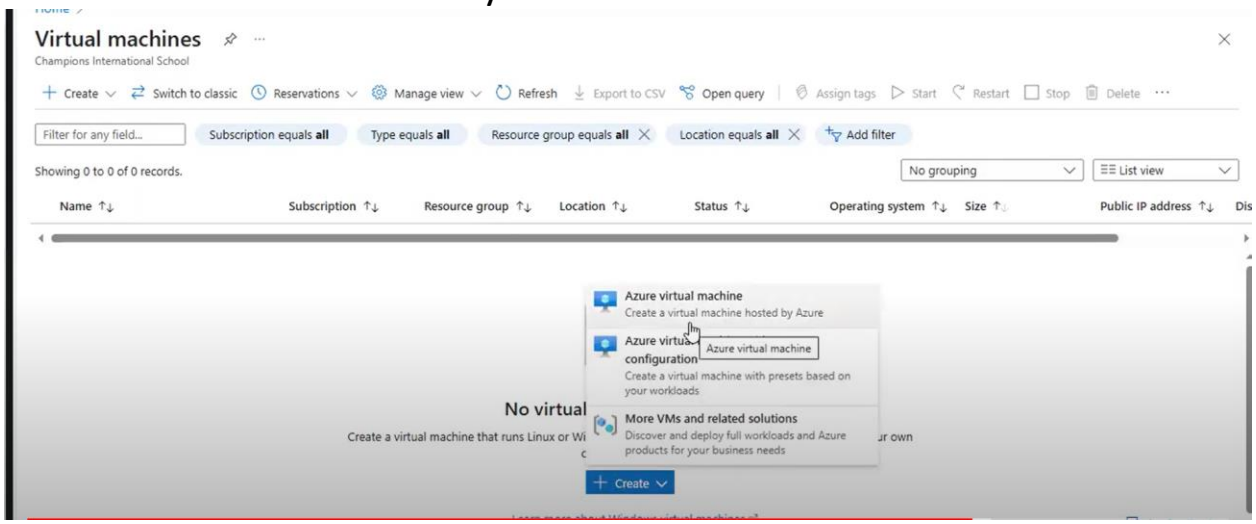
- Resource Groups: this is a container that holds the resources for Azure Solution
- Virtual Machines: A service where you can create and manage virtualized computing environments.
- Storage Accounts
- App Services

3. Explored Azure Services:

Creation of Virtual Machines

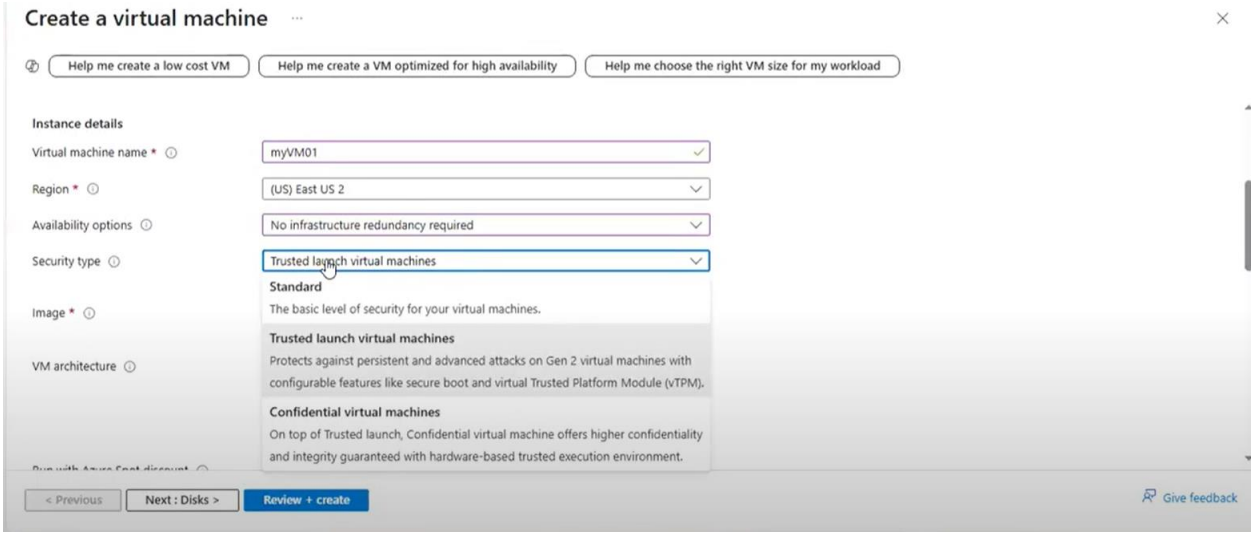
Step1:

- I went to the virtual machine section and clicked create a virtual machine hosted by Azure

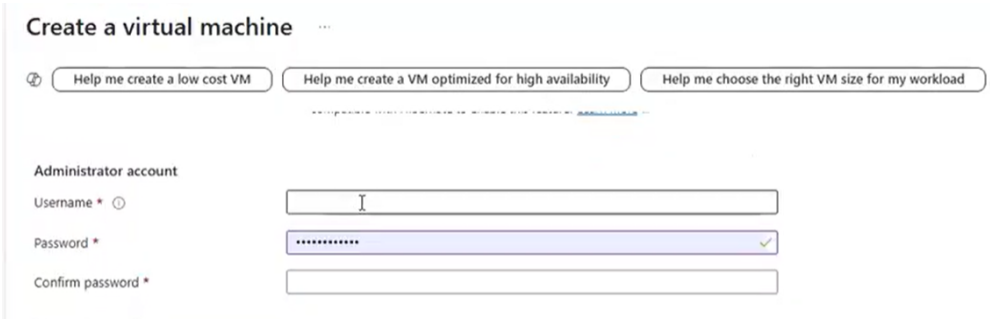


- I was given a subscription

- Created a resource group and gave it a name
- Gave my virtual machine a name
- Chose a region
  (this is where different data centers are stored)
- Availability options: I chose no infrastructure redundancy as my preferred options



- The Virtual machine architecture has been done by Azure, so I proceeded to the size (8g)
- Image (Windows Server)
- Authentication type (SSH Public key)
- Administration: created a username and password



- Selected the Public Inbound ports as none
- Selected Inbound Ports as Remote Desktop Protocol (RDP)

Step2: Disc

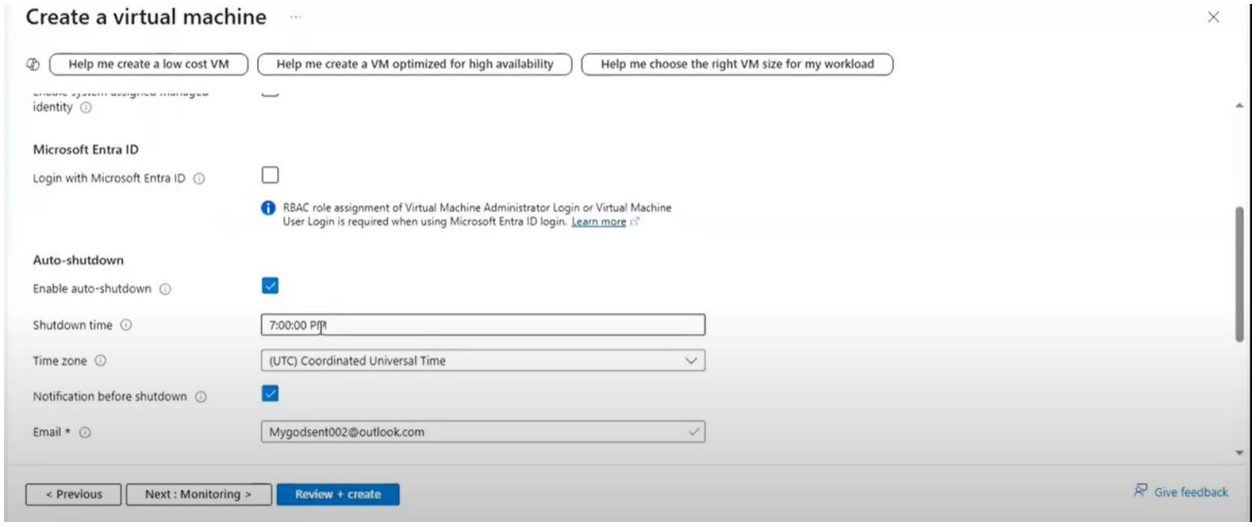
- It has already been pre-set by Azure
- Ignored the encryption host since it was not registered for the subscription I'm using
- Chose my preferred OS disc size and disc type

Step3: Networking

- Network security group: basic
- Public Inbound Ports: allowed selected ports
- RDP (3389) as my inbound ports
- Load balancing option: None

Step3: Management

- Enabled auto-shutdown



Step4: I skipped to Review and Create