Logically dividing physical server into multiple CPU is called virtualisation. This makes a physical to be used by multiple users. What azure does is it buys physical servers from vendor in a specific zone and installs hyperwiser which then divides those bought servers into multiple servers. These virtual servers are assigned according to the request received.

In azure interface, search for virtual machine in the search bar. You can see the option to create one. You will see project details –

Subscription – Free trial or paid

Resource group – create one from resource group service in azure, you only need to give name of the group

VM name – name accordingly

Region – choose a region

Availability zone and option – choose any of the 3 zones

Image – choose the free image or according to the user specification

VM architecture – x64

Size – for demo purposes use the free services

Authentication type – SSH method -> username -> generate key pair -> name the key pair.

Click on review and create

You will get an option to download the private key

Now go to home -> virtual machine and you will see your VM. Copy the public IP address.

2 methods to access the VM – Azure shell (Not recommended) and terminal

Install Git Bash on Windows to access the VM

Commands –

Ssh -I private key download folders/name.pem azureuser@IP address

You will get error saying the pem file has all the access and can be easily accessible. We need to change the permissions.

Chmod 600 private key folder

It will work

You’re inside ubuntu VM

Installing Jenkins – go to abhishek veramalla github Jenkins page and copy the linux commands to install Jenkins

To check all the running processes in the VM

Ps – ef | grep Jenkins

You can see the port number where the Jenkins is running. By default the ports are blocked in azure. To open go to network settings – network security group – create new inbound port rule

Virtual Machine Scale Set

Whenever there is a dynamic traffic in the machines the VMSS creates VMs automatically and install all the resources to maintain the application running.

To know which VM to choose there is a page from MS called VM series where all the VM specifications are given.

**Types of Virtual Machines on Azure**

Azure provides a variety of virtual machine (VM) offerings to cater to different workload requirements. Each VM type is designed with specific hardware configurations to meet diverse performance and scalability needs.

**General Purpose VMs**

**Example: Standard\_D2s\_v3**

* **Description:** General-purpose VMs are well-balanced machines suitable for a variety of workloads. They offer a good balance of CPU-to-memory ratio and are suitable for development, testing, and small to medium-sized databases.
* **Use Case:** Hosting websites, lightweight applications, or development and testing environments.

**Compute Optimized VMs**

**Example: Standard\_F2s\_v2**

* **Description:** Compute optimized VMs are designed for compute-intensive workloads that require high CPU power. They provide a high CPU-to-memory ratio, making them suitable for data analytics and computational tasks.
* **Use Case:** Batch processing, gaming applications, and other CPU-intensive workloads.

**Memory Optimized VMs**

**Example: Standard\_E16s\_v3**

* **Description:** Memory optimized VMs are tailored for memory-intensive applications. They provide a high memory-to-CPU ratio, making them suitable for databases, in-memory caching, and analytics.
* **Use Case:** Running large databases, in-memory caching, and analytics applications.

**Storage Optimized VMs**

**Example: Standard\_L8s\_v2**

* **Description:** Storage optimized VMs are designed for workloads that require high storage throughput and I/O performance. They provide high local disk throughput, making them suitable for big data and large databases.
* **Use Case:** Big data applications, data warehousing, and large-scale databases.

**GPU VMs**

**Example: Standard\_NC6s\_v3**

* **Description:** GPU (Graphics Processing Unit) VMs are equipped with powerful graphics processors, suitable for graphics-intensive applications and parallel processing tasks.
* **Use Case:** Machine learning, graphics rendering, and simulations that require GPU acceleration.

**High-Performance Compute VMs**

**Example: Standard\_H16r**

* **Description:** High-Performance Compute VMs are designed for demanding, parallel processing and high-performance computing (HPC) applications.
* **Use Case:** Simulations, modeling, and scenarios that require massive parallel processing.

**Burstable VMs**

**Example: B1s**

* **Description:** Burstable VMs provide a baseline level of CPU performance with the ability to burst above the baseline for a certain period. They are cost-effective for workloads with varying CPU usage.
* **Use Case:** Development and testing environments, small websites, and applications with variable workloads.