Virtual Machine Scale Set

The virtual machines are highly flexible such that they can be changed in their size and the performance based on the requirement of the user. The resources which we actually require can be decided by us and then the user can be able to scale up or down the virtual machine. When making changes to the virtual machine size, the cost that is charged for the virtual machine will also vary. Here the size of the virtual machine will include the number of cores, the Random-Access Memory, number of data disks, the IOPS range, SSD size, load balancing feature and premium disk support. The features will vary in between different virtual machine sizes based on their specifications and capabilities. There are different sizes and each of these different sizes have their own features and functionalities and cost. The cost of the virtual machine is actually decided by the size of the virtual machine and the features that virtual machine actually have.

The size of the virtual machines can be broadly classifieds into three different types namely General Purpose, Compute Optimized, Memory Optimized, Storage Optimized, GPU, High Performance Compute. Now let us try understanding all these in a little deeper level and then jump into the concept if changing the size of the virtual machine. The disk can actually be classified into SSD and HDD.

SSD:

An **SSD** does functionally everything a hard drive does, but data is instead stored on interconnected flash memory chips that retain the data even when there's no power present. The chips can either be permanently installed on the system's motherboard (as on some small laptops and ultraportable), on a PCI Express (PCIe) card (in some high-end workstations and an increasing number of bleeding-edge consumer systems), or in a box that's sized, shaped, and wired to slot in for a laptop or desktop's hard drive (common on everything else). These flash memory chips are of a different type than is used in USB thumb drives, and are typically faster and more reliable. SSDs are consequently more expensive than USB thumb drives of the same capacities.

HDD:

A **hard disk drive** (**HDD**), hard disk, **hard drive** or fixed disk is a data storage device that uses magnetic storage to store and retrieve digital information using one or more rigid rapidly rotating disks (platters) coated with magnetic material. These are the same hard disks which we actually use in our machines.

General Purpose:

Under the General-Purpose type of virtual machines, we can find the different models sizes like Dsv3, Dv3, DSv2, Dv2, DS, D, Av2, A0-7. These machines are balanced CPU-to-memory ratio. Ideal for testing and development, small to medium databases, and low to medium traffic web servers.

Compute Optimized:

Under this type we have Fs, F and these machines have High CPU-to-memory ratio. Good for medium traffic web servers, network appliances, batch processes, and application servers.

Memory optimized:

Under the memory optimized we have the following sizes of virtual machines namely Esv3, Ev3, M, GS, G, DSv2, DS, Dv2, D and these machines have high memory-to-CPU ratio. Great for relational database servers, medium to large caches, and in-memory analytics.

Storage optimized:

The storage optimized has only one virtual machine size and it is Ls and it has high disk throughput and IO. Ideal for Big Data, SQL, and NoSQL databases.

GPU:

The GPU has two different sizes namely NV, NC and they are specialized virtual machines targeted for heavy graphic rendering and video editing. Available with single or multiple GPUs.

High Performance Compute:

They have two sizes namely H, A8-11. They are the fastest and most powerful CPU virtual machines with optional high-throughput network interfaces (RDMA).

Cores:

The cores are the total number of processors that are actually going to be found in a VM. The more the number of cores, the more the processing speed will be.

Data Disks:

The data disks are the number of storage disks that will be given to the virtual machine. By default, there will a temporary data disk. The data in this will be deleted each and every time when the virtual machine is restarted. These can be considered as the partitional disks in the machine.

IOPS:

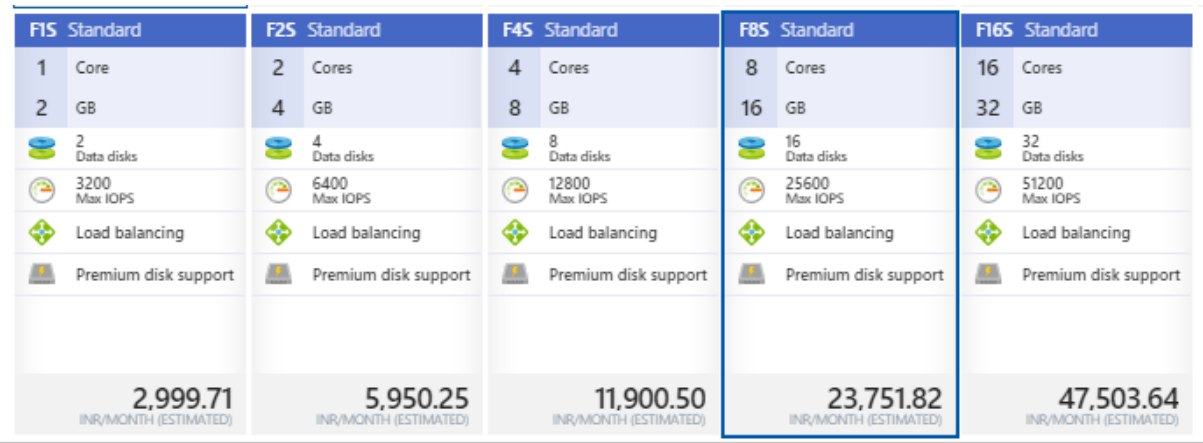
The IOPS are abbreviated as Input Output Operations Per Second. The more the number of IOPS, the more faster the instructions will be processed.

Premium Disk:

The premium disk is faster than the normal disks. They actually have the ability to process and store the data faster than the normal disks.

Different Sizes:

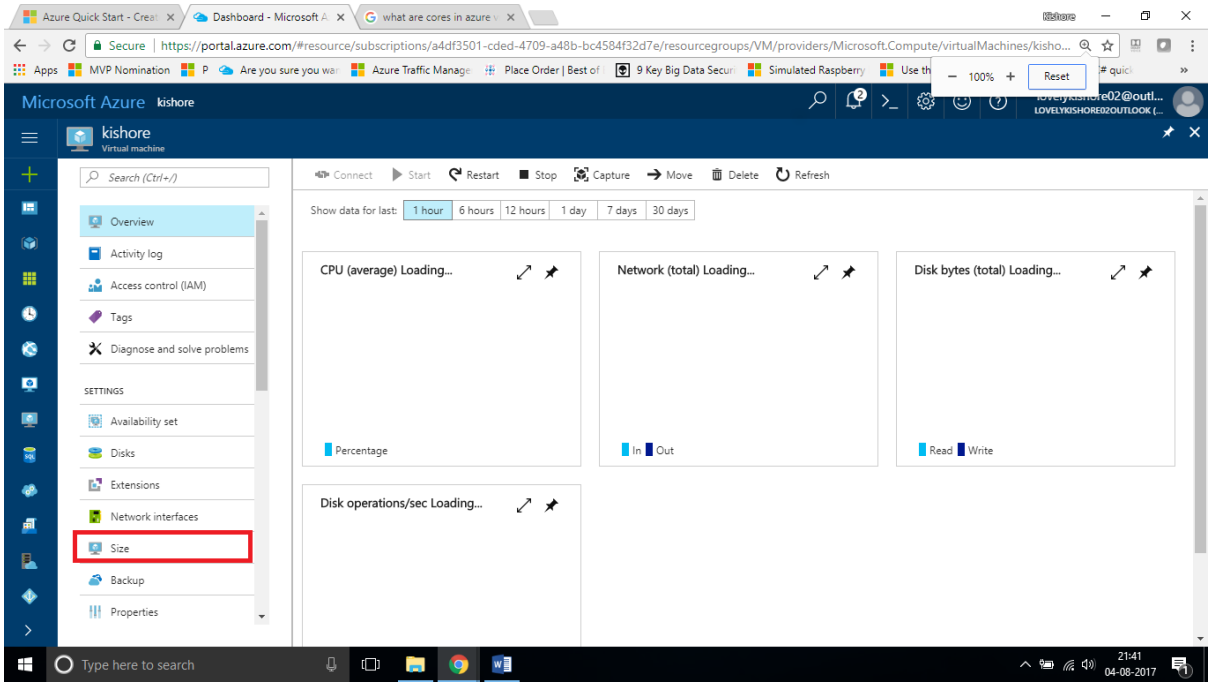
The size of the machine will vary with different features and the cost will be depending on the size of the machine that we actually choose. The below are the different sizes which we can find under the **SSD.**



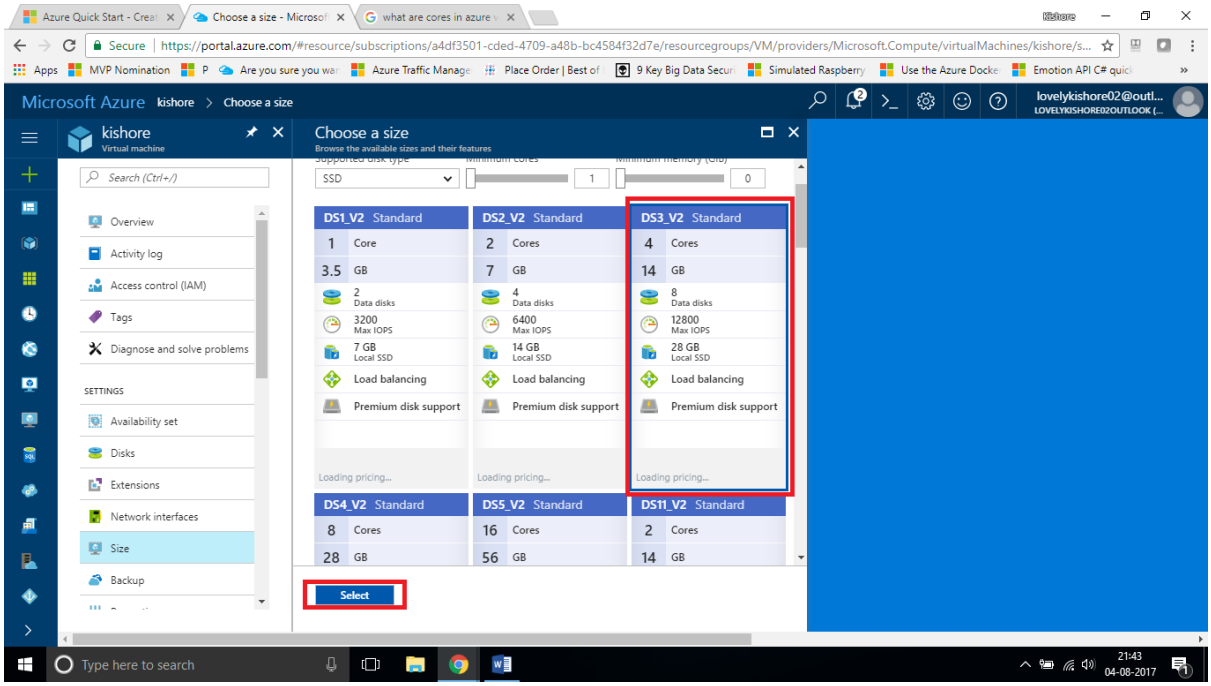
Same way for the **HDD**, the size of the virtual machine and their features will actually differ. The below images are the different sizes with some higher cost for virtual machines with the HDD.

Scaling Up the Virtual Machine:

Hope you have got an idea about the different sizes and cost of the virtual machines. Now let us end this by seeing the method of changing the size of the virtual machine. For that you should have already created a virtual machine. When you actually change the size of your virtual machine, it actually reconfigures and hence it will take some time to restart and process with the new resources. Now get into the azure portal and click on the virtual machine that you have created. Then in the left side menu, find something called **Size.**



When you click on that you will be shown with the different sizes that are actually available. Choose one appropriate size that you actually need and then click on the **Select** button. This will now actually reconfigure your virtual machine and reset it with the new resources by restarting it.



This is how we can scale set the size of our virtual machine based on the requirement that we actually have. We can scale down the size if we actually don't need the allocated resources and some unwanted time. All these are possible with the help of this flexible scale set feature of the virtual machine.