Microsoft Azure Fundamentals Essential Book

**Chapter 3**

Azure Virtual Machines supports Windows and Linux VM’s. Azure Virtual Machines will refer to the feature, while virtual machine or VM will refer to an instance of an actual compute node.

Azure Cloud Services difference is web and work roles with Azure Virtual Machines (control and persistence)

PaaS Web and worker roles generally are considered stateless (largely due to the lack of persistent disk but Azure VM’s are stateful servers and do feature persistent disks

**OS disk** – operating system housed. Persisted in Azure blob storage (VHD). C drive. Linux VM is /dev/sda1 partition for root directory. Max OS disk for windows is 127 GB drive.

**Temporary Disk** – physical disk located in the chassis of the server. D drive. HDD for A-series. SSD for D-series. Only for temp data or data lost in failure.

**Data disk** – application data resides and optional. (Azure Blob Storage) 1 TB max

* Maximum of 500 IOPS and 60 MB/s for Standard Tiers’.

**Image** – VHD that is a template for the creation of a new Azure VM. No machine name, admin user, etc by default.

**Disk** – VHD that can be booted and used as a mountable disk for a VM, can become a disk by provisioning by the image.

* Can upload a preexisting VHD and an empty disk.
* Upload existing VHD to a blob container.
* Quick format recommended to avoid storing large zeros in page blob
* **Disk Management** – native windows application that allow syou to view the disks and format any unallocated disks.

Blob storage – high availability, durability, georedundancy options. Azure holds an infinite lease on the page blob to prevent accidental deletion

**Life & Shift** – move workloads from one on-premise datacenter to one or more azure regions

**Cloud service** – container for virtual machines. Provides DNS, network connectivity, security and unit of management. Can’t contain web/worker roles and Azure Virtual Machines

VM States:

* **Running** – VM is on and running normally. Billable
* **Stopped** – the VM is stopped but it is still consuming compute resources within Azure
  + Stopping VM’s at the portal level will put it in stopped (deallocated) state
  + To stop the VM but keep it allocated you would have to run a cmdlet: Stop-AzureVM -Name “az-essential” -ServiceName “az-essential” -StayProvisioned
  + Stopping the VM at the OS level will only stop the vm and won’t deallocate it.
  + Billable
* **Stopped (Deallocated)** – The VM is stopped, and it is not consuming compute resources within Azure. Not Billable

VIP’s belong to the cloud service. Each VM has it’s own DIP (Direct IP). If all VM’s are stopped VIP will be released. To preserve the VIP and DIP, you can stop the VM just don’t deallocate it. VM’s are assigned a Dynamic IP address. Using a static IP can be set by Powershell

**Basic Tier** – don’t require load balancing or ability to autoscale

**Standard Tier** – support all Azure Virtual Machines configurations and features.

**A-series** – traditional sizes of VM’s

**D-series** – faster processors, higher memory-to-core ratio, and SSD for temporary physical disk.

VMDepot provides a catalog of preconfigured Linux systems, applications, and development stacks. Not screened for security, compatibility, or performance.

Cache Options:

* OS Disk – Read/Write (Default) & Read
* Data Disk – Read/Write, Read, and None(Default)
  + No more than 4 disks can have caching

Need to read:

<https://docs.microsoft.com/en-us/azure/virtual-machines/windows/sql/virtual-machines-windows-sql-performance>

<https://docs.microsoft.com/en-us/azure/cloud-services/cloud-services-sizes-specs>

https://azure.microsoft.com/en-us/blog/azures-getting-bigger-faster-and-more-open/

https://docs.microsoft.com/en-us/azure/storage/storage-use-azcopy