Review on Availability services

**Availability Sets**

When you host your virtual machines in Azure, you sometimes need to cater to the following

1. An unplanned event wherein the underlying infrastructure fails unexpectedly. The failures could be attributed to network failures , local disk failures or even rack failures.
2. Planned maintenance events , wherein Microsoft needs to make planned updates to the underlying physical environment. In such cases , a reboot might be required on your virtual machine.

You can increase the availability of your application by making use of availability sets. Each virtual machine that is assigned to the availability set is assigned a separate fault and update domain.

**Fault domains** are used to define the group of virtual machines that share a common source and network switch. You can have up to 3 fault domains.

**Update domains** are used to group virtual machines and physical hardware that can be rebooted at the same time. You can have up to 20 update domains.

**Availability Zones**

* This features help provides better availability for your application by protecting them from datacenter failures.
* Each Availability zone is a unique physical location in an Azure region.
* Each zone comprises of one or more data centers that has independent power, cooling, and networking
* Hence the physical separation of the Availability Zones helps protect applications against data center failures
* Using Availability Zones, you can be guaranteed an availability of 99.99% for your virtual machines. You need to ensure that you have 2 or more virtual machines running across multiple availability zones