**Lab 2**

**Data Center Operations with VMWare vSphere**

**Q1 What is a baseline and how would an administrator leverage it?**

Using baselines and baseline groups, we can update the ESXi hosts in our vSphere inventory. Depending on our needs, we can use one of three types of baselines in vSphere Lifecycle Manager: preconfigured, recommended, or a custom baseline. Baselines can be patched, extended, or upgraded based on the type of fixes or additions they contain. The administrator can perform these tasks because the host baselines may contain a collection of one or more patches, extensions, or upgrades. The baseline privilege can be managed by the administrator. They can associate baselines and baseline groups with target inventory items.

**Q2 What is a snapshot and what are the two types of snapshots?**

In a snapshot, the data and state of a virtual machine are frozen in time. The virtual machine's power status is included in the state (for example, powered-on, powered-off, suspended). The data contains all of the files required to run the virtual machine. It includes not only storage media but also RAM and network interface cards (NICs). A virtual machine provides a number of functions for taking and manipulating snapshots as well as managing snapshot chains. Using these methods, snapshots can be created, deleted, and restored at will. There are two kinds of snapshots: -

In Snapshot Manager, the parent VMware snapshot is always the snapshot that appears immediately above the You are here icon. When we restore from a VMware snapshot, it becomes the parent of the You are here current state. A child snapshot is a VMware snapshot of a VM taken after the parent snapshot. A snapshot is made up of the Delta disk file, the flat file, the database file, and the memory file.

**Q3 What is a resource pool?**

A resource pool is a logical abstraction that allows for more nuanced resource management. Structured collections of resources known as "resource pools" can be used to allocate scarce computing and memory resources in a treelike structure. Each host and DRS cluster has a root resource pool (which is invisible) that groups the resources. The root resource pool is never displayed because the host's (or cluster's) resources and the root resource pool are always identical. The root resource pool, or a user-created sub-pool thereof, can have child resource pools. Each resource pool in a hierarchy of resource pools is responsible for managing a portion of the parent pool's resources.

**Q4** **What is a heartbeat?**

vCenter Heartbeat monitors vCenter connectivity, databases, and components, as well as the license server and update manager, in real time. Heartbeat allows vCenter to be replicated and made available even when it is in a remote location. It has little impact on the virtual infrastructure's efficiency. Heartbeat, unlike some other clustering systems, allows us to use a physical server as the primary server and a virtual server as the secondary server, and so on. vCenter Heartbeat can protect from: -

* OS failures on the vCenter server
* Hardware failure of the vCenter server
* Network failures affecting the vCenter server
* Application failures on the vCenter server (like the vCenter services or SQL server failure where the vCenter data is located)

**Q5 In regard to storage with vSAN, what metrics does VMware allow you to monitor?**

We can monitor the capacity of the vSAN datastore, analyze usage, and view the capacity breakdown at the cluster level.

The cluster Summary page includes a summary of vSAN capacity. We can also view more detailed information in the Capacity monitor. The Capacity Overview displays the vSAN datastore's storage capacity in various forms, such as total space, used space, free space, and space that has been written to and physically consumed on the vSAN disks. For clusters with these features enabled, the ratio of saved data and the amount of space saved by deduplication can be seen. What if analysis allows us to estimate the free space while keeping the deduplication ratio at 1. The Usage breakdown before dedup and compression displays the usage breakdown based on categories such as VM usage, user objects, and system usage.[1]

Graphical user interface, text, application, email

Description automatically generated

Reference: -

[1] https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.vsan-monitoring.doc/GUID-6F7F134E-A6F7-4459-8C31-C021FF2B1F54.html