**DATE: 8th June 2022**

Database Administrator (DBA):

* Information technician responsible for directing or performing all activities related to maintaining a successful database environment.
* Responsible for understanding and managing the overall database environment
* Ensures an organization’s database and it’s related applications operate functionally and efficiently.

Roles and Responsibilities of DBA:

* Designing and Creating new databases and DB objects
* Securing Database and tuning it’s performance
* Checking backup job status and planning DB capacity
* Working closely with IT staff and application developers
* Performing ETL activities
* Troubleshooting

DBA the Data guardian:

* First priority is protecting data
* Restrict access to the data as much as possible
* Ensuring that only legitimate business need are able to access the data
* Should have knowledge of multiplatform work

Virtual Machine

* Compute resource that uses software instead of a physical computer to run programs and deploy apps.
* Allows to run an OS that behaves like a completely separate computer in an app window or desktop
* Runs as a process in an application window, similar to any other application, on the OS of the physical machine.
* Virtual Machine key files include log file, NVRAM setting file, virtual disk file and configuration file.

Types of VM

* **Process virtual machine:** allows a single process to run as an application on a host machine, providing platform independent programming environment. For e.g.: Java Virtual Machine (JVM) which enables any OS to run Java applications as if they were native to that system.
* **System virtual machine:** a fully virtualized machine/program to substitute for a physical machine. Supports sharing of host computer’s physical resource between multiple VMs, each running it’s own copy of OS. It’s process Relies on hypervisor. It’s examples: Oracle VirtualBox, VMware, etc.

Types of virtualization:

* **Hardware Virtualization:** also known as server virtualization allows hardware resources to be utilized more efficiently and for one machine to simultaneously run different OS.
* **Software Virtualization:** creates a computer system complete with hardware that allows one or more guest operating OS to run on a physical host machine. For e.g.: Android OS running on a host machine natively using Windows OS utilizing same hardware as host machine.
* **Storage Virtualization:** can be virtualized by consolidating multiple physical storage devices to appear as a single storage device. Merits – increased performance and speed, load balancing and reduced costs.
* **Network Virtualization:** multiple subnetworks created on the same physical network by combining equipment into a single, software-based virtual network resource. Merits – increased reliability, network speed, security and better monitoring of data usage.
* **Desktop Virtualization:** common type of virtualization that separates desktop environment from the physical device and stores a desktop on a remote server allowing users to access their desktops from anywhere on any device.

**Date: 9th June 2022**