Lab 1

By Qadeer Hussain

Student ID: C00270632

1. AMD Virtualisation Technology already enabled.
2. Cloud success can be attributed to many reasons such as
    - Scalability: Cloud services can be scaled up or down quickly based on demand, this allows business and individuals to use resources efficiently.
    - Cost Efficiency: Business can save money by avoiding the need for physical hardware.
    - Accessibility: Users of the cloud can access their data and applications from any device with an internet connection.

    Pros of Cloud
    - Flexibility: Users can access services and data from anywhere and anytime.
    - Maintenance and Updates: Service providers handle system maintenance, updates, and upgrades, reducing the workload for IT team.
    - Recovery: Cloud services often include data backup recovery plans, enhancing data security and continuity.

    Cons of Cloud
    - Dependent on Internet connection: A stable internet connection is required, which can be limiting in areas which have poor internet connection.
    - Security concerns: Cloud providers do offer robust security measures, but there are still risks associated with data breaches and unauthorized access.
    - Limited Control: Users have less control over the hardware and software managing their service.
3. The primary function of a hypervisor is to create and manage VM by separating the operating system and resources from the physical hardware, allowing the allocation of these resource to other VM's.
4. A VM is a software based emulation of a computer which runs its own operating system and applications. This is managed by hypervisor.
5. Benefits of using VM's
    - Isolation: Each VM is independent, enhancing security by isolating processes and applications.
    - Resource Efficiency: Multiple VM's can run on a single server, maximizing hardware use and reducing costs.
    - Flexibility and Testing: VM's are easy to create, modify, and move, ideal for testing without risking physical computer.
    - Recovery: VM's can be quickly backed up and restored.
    - Legacy Support: VM's enable running older software on new hardware, preserving access to legacy applications.
6. 5 use cases
    - Cloud Services: VM's provide scalable computing resources like virtual servers in the cloud.
    - Legacy Systems: VMs allow older software and operating systems to run on modern hardware.

- Software Testing: VM's offer safe, isolated spaces for testing software without causing any problems on the main system.
- Remote Access: VM's enable remote access to a centralized set of resources, improving flexibility for users.
- Cybersecurity: Security professionals use VMs for safe malware analysis and cyberattack simulations.

7. b) The operating system installed on a virtual machine
8. c) Virtual machines run independently and are isolated from each other and the host system.
9. c) It allows virtual machines to be moved between different physical machines with compatible hypervisors.
10. Creating a clone of a VM allows for rapid deployment and scaling by creating identical copies of a VM setup for development, testing, or backup purposes.