

1. Check if your processor supports Intel/AMD virtualization technology. Enable Intel virtualization technology in BIOS if possible.

Open Task Manager (Ctrl+Shift+Esc) → Performance → CPU → look for "Virtualization".
Mine has been able.

2. The cloud is almost everywhere in our lives now. What do you think are the fundamental reasons behind its success? Name three pros and three cons of cloud.

Fundamental reasons for cloud computing's success:

1. Cost efficiency
2. Scalability and flexibility
3. Accessibility and collaboration

Three pros:

1. Reduced IT costs
2. Business agility
3. Disaster recovery and backup

Three cons:

1. Security and privacy risks
2. Dependence on internet connectivity
3. Potential vendor lock-in

3. What is the primary function of a hypervisor in virtualization?

The primary function of a hypervisor is to create, run, and manage virtual machines (VMs) by abstracting and partitioning the physical hardware (like CPU, memory, and storage) so that multiple guest operating systems can share the same hardware resources simultaneously and in isolation.

4. What is a virtual machine (VM)?

A virtual machine (VM) is a software-based emulation of a physical computer that runs an operating system and applications just like a real machine. It shares the underlying physical hardware with other VMs but operates in an isolated environment, managed by a hypervisor.

5. What are the benefits of using virtual machines?

Consolidation and Cost Savings: Multiple VMs can run on a single physical server, maximizing hardware utilization and reducing the number of required physical machines.

Isolation and Security: Each VM is self-contained, so issues (like crashes or malware) in one VM do not affect others or the host system.

Agility and Portability: VMs are easy to create, copy, snapshot, and migrate between different physical hosts, simplifying deployment, testing, and disaster recovery.

6. List five use cases of virtual machines.

Server Consolidation: Running multiple isolated server instances (e.g., web, database) on a single physical machine to improve hardware utilization.

Software Development and Testing: Creating safe, disposable environments to test applications on different operating systems without affecting the main system.

Legacy Application Support: Hosting older applications that require outdated or unsupported operating systems on modern hardware.

Disaster Recovery and Backup: Using easily portable VM snapshots or replicas to quickly restore services after a failure.

Desktop Virtualization (VDI): Hosting individual user desktop environments on centralized servers, allowing secure remote access from various devices.

7. In virtualization, what is the guest operating system?

- a) The main operating system running on the physical machine
- b) The operating system installed on a virtual machine**
- c) The operating system running on a remote server
- d) The operating system running on a mobile device

8. What does virtual machine isolation mean?

- a) Virtual machines can communicate directly with the physical hardware.
- b) Virtual machines share the same resources and cannot be isolated.
- c) Virtual machines run independently and are isolated from each other and the host system.**
- d) Virtual machines can only be accessed locally.

9. What is the benefit of virtual machine portability?

- a) It allows virtual machines to communicate with each other easily.
- b) It ensures faster boot times for virtual machines.
- c) It allows virtual machines to be moved between different physical machines with compatible hypervisors.**
- d) It reduces the need for hardware virtualization.

10. What is the purpose of cloning a virtual machine?

The purpose of cloning a virtual machine is to quickly and easily create an identical copy of an existing VM, which is useful for tasks like deploying multiple identical environments, creating backups, or replicating a configured system for testing.