

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.

The cloud's success comes from its economic model and agility. It converts large capital expenses for hardware into smaller, manageable operational subscriptions. Key advantages include rapid scalability to meet demand, reduced IT maintenance overhead, and high availability across global data centers. Significant drawbacks involve potential dependency on a single provider, recurring security concerns over data ownership, and the risk of unexpected downtime being outside a company's direct control.

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

The hypervisor's core function is to abstract the physical server's hardware resources, such as CPU, memory, and storage. It then allocates these pooled resources to create and manage multiple virtual machines. This allows each VM to run its own operating system independently on the same physical host.

4. What is a virtual machine (VM)?

A virtual machine is a software-based emulation of a physical computer system. It operates like a physical computer by running its own operating system and applications within an isolated environment. The VM is managed by a hypervisor, which separates it from the underlying physical hardware.

5. What are the benefits of using virtual machines?

VMs enable server consolidation, allowing multiple systems to run on a single physical server, which improves hardware utilization and reduces costs. They provide strong isolation, enhancing security and stability by containing application crashes or security breaches within a single VM. Furthermore, they offer excellent portability and ease of management for tasks like backup, recovery, and testing.

6. List five use cases of virtual machines.

A primary use case is consolidating multiple servers onto one physical machine to improve efficiency. Developers heavily use VMs to create isolated sandboxes for building and testing applications safely. They are also ideal for running legacy software that requires older operating systems. Additionally, VMs are used for sandboxing to analyze malware securely. Finally, they are fundamental to disaster recovery strategies, as they can be easily moved or restored.

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

B

8. What does virtual machine isolation mean?

C

9. What is the benefit of virtual machine portability?

C

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

Cloning creates an exact, ready-to-run duplicate of an original VM. This is primarily done to rapidly deploy multiple identical systems, such as for scaling an application or setting up a cluster. It is also extremely useful for creating perfect copies for backup or testing purposes without altering the original source VM.

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