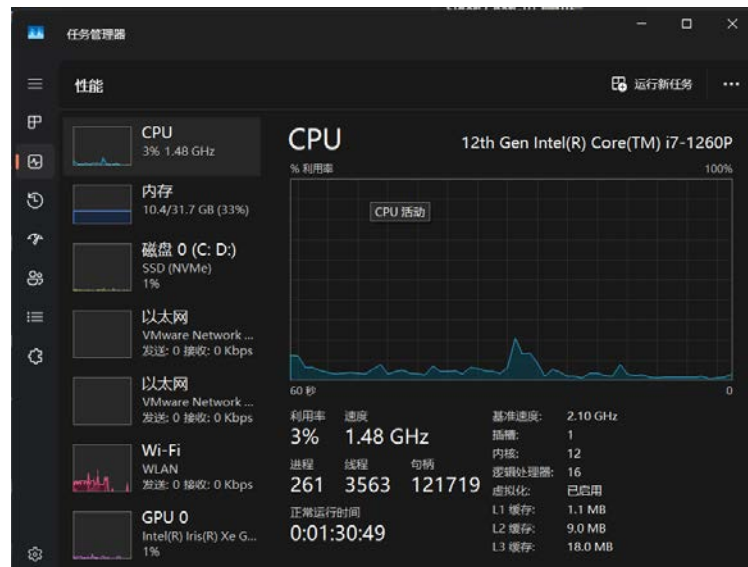1. My processor supports virtualization technology

2. The fundamental reasons behind the cloud's success can be attributed to its ability to offer scalable, on-demand computing resources over the internet. This shifts the burden of infrastructure management from individual users and businesses to cloud providers.

Three Pros of Cloud Computing:

- **Scalability and Elasticity:** Easily scale resources (compute, storage, network) up or down based on demand, avoiding over-provisioning or under-provisioning.

- **Cost-Effectiveness:** Reduces capital expenditure on hardware and infrastructure, converting it into operational expenditure, often with a pay-as-you-go model.

- **Accessibility and Collaboration:** Access data and applications from anywhere with an internet connection, facilitating remote work and collaboration.

Three Cons of Cloud Computing:

- **Security Concerns:** Relinquishing control of data to a third-party provider can raise concerns about data breaches, compliance, and privacy.

- **Vendor Lock-in:** Migrating data and applications between different cloud providers can be complex and costly.

- **Dependency on Internet Connectivity:** Cloud services are reliant on a stable internet connection; downtime can disrupt operations.

3. The primary function of a hypervisor in virtualization is to create and manage virtual machines (VMs). It acts as a layer between the physical hardware and the virtual machines, allowing multiple operating systems to run concurrently on a single physical machine. The hypervisor allocates physical resources (CPU, memory, storage, network) to each VM and ensures their isolation.

4. A virtual machine (VM) is a software-based emulation of a physical computer. It includes its own operating system (guest OS), applications, and configurations, functioning as an independent computing environment within a host physical machine.

5. The benefits of using virtual machines include:

Resource Utilization: Efficiently utilizes the hardware resources of a single physical machine by running multiple VMs on it.

Isolation: Each VM is isolated from others and the host, preventing issues in one VM from affecting others.

Portability: VMs can be easily moved between different physical hosts or cloud environments.

Disaster Recovery and Business Continuity: Facilitates quick recovery from failures by allowing easy backup and restoration of VM images.

Testing and Development: Provides isolated environments for testing new software, operating systems, or configurations without affecting the host system.

Legacy Application Support: Allows older applications that require specific operating systems to run on modern hardware.

6. Five use cases of virtual machines:

Server Consolidation: Running multiple server workloads on fewer physical machines to save space, power, and cooling costs.

Development and Testing Environments: Creating isolated environments for developers to test code, applications, and patches without impacting production systems.

Disaster Recovery: Replicating VMs to a secondary site for quick failover in case of a primary site failure.

Running Multiple Operating Systems: Allowing users to run different operating systems (e.g., Windows and Linux) concurrently on a single physical machine.

Security Sandboxing: Providing a secure, isolated environment to run untrusted applications or browse suspicious websites without risking the host system.

7. b)

8. c)

9. c)

10. The purpose of cloning a virtual machine is to create an exact duplicate or copy of an existing virtual machine. This cloned VM will have the same operating system, applications, data, and configurations as the original.