Cloud computing

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Cloud computing stores and runs data and applications on remote servers rather than on your local computer or owned equipment. The "cloud" is essentially a large data center filled with networked servers that provide services like running applications, storing data, and web hosting, all accessed via the internet.

Cloud providers sell access to these computers as a service, allowing individuals and companies to outsource their computing workload. This eliminates the hassle and expense of maintaining personal servers, as seen with email services like Gmail or video platforms like YouTube.

Key reasons for using cloud computing include:

- Cost efficiency: It reduces the expense of buying hardware, software, and maintaining data centers.
- Reliability: Cloud providers are responsible for data backup, disaster recovery, and redundant sites, ensuring minimal downtime.
- Scalability: Users can pay for what they need and easily scale up or down the number of rented computers.

Major cloud providers include Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform, Alibaba, and IBM. AWS is the largest, with Netflix being one of its biggest customers, leveraging AWS for most of its computing and storage needs.

There are three main types of cloud computing:

1. Infrastructure as a Service (IaaS): The cloud provider manages hardware (servers, storage, networking), while the user controls software (applications, data, operating system). Examples include online data backup services.
2. Platform as a Service (PaaS): The provider manages hardware, operating system, middleware, and runtime, with the user only responsible for applications and data.
3. Software as a Service (SaaS): The most common type, where the cloud provider hosts all applications, and users access them via the internet without installing any software. Google Docs is a prime example of SaaS.