

# **Cloud Computing and Gaming**

Cloud computing is a service that provides computing resources over the Internet without requiring users to purchase and maintain physical infrastructure. As one of the applications of cloud computing, cloud gaming allows the game to run on the server side, and users can enjoy a high-quality game experience on any device. The benefits of cloud gaming include breaking through local device performance limitations, high image quality experience, massive storage capabilities, playing games anytime, anywhere, easy game updates and cost savings. However, it also suffers from latency issues and high dependence on network stability. Cloud gaming provides convenience and experience for players and is expected to play a major role in the future gaming industry.

## **What is cloud Computing**

Cloud computing is an environment that provides computing resources to the public over the Internet. It is owned and operated by third-party companies, and users can access these services over the Internet without purchasing physical infrastructure, while it can be easily scaled up, and users only pay for the resources they use. That is to say, if you use cloud computing, your computer does not need to compute itself, you only need to send the demand to a third-party server, and then the server can help you compute, and finally the server will send the calculation results to your computer, and the user only needs to pay for the computing resources used.

## **Why should cloud computing be associated with gaming**

In this era of rapid development, video games have become an important way for many people to relieve stress and entertainment. Compared to reality, the world in the game seems more appealing. However, the beautiful picture of the game needs to have good hardware to support and run, but not everyone has such good hardware to run the game anytime, anywhere, game manufacturers in order to let people can play fun games anytime, anywhere, cloud games came into being.

## **What is Cloud gaming**

Cloud gaming is an online game based on cloud computing technology. In the running mode of cloud games, all games are run on the server side, and the game screen after rendering is compressed and transmitted to the user through the network. On the client side, the user's gaming device does not need any high-end processor and graphics card, only the basic video decompression ability is fine. In simple terms, cloud gaming allows players to run directly in the game server without having to install the game, and players can start the game just by passing through a portal. In this way, players can enjoy a high quality gaming experience even with low configuration devices. Players only need to pay for these server resources, which is similar to opening an Internet cafe on the network, or remotely renting a set of hardware, players on their own devices to send instructions to a third-party server, the server after calculation and then send the screen back to the player's device

## **Advantages of cloud gaming.**

**Break through the local device performance limits:** the cloud game server has a

strong computing power, can run a variety of games stably, avoid the game lag, dropped lines and other problems, but also can prevent the game cheating and other unfair behavior.

**High quality experience:** Cloud games have strong cloud computing power and can output high quality game content. Cloud hardware upgrade is also easier than local, users do not have to worry about hardware upgrade problems.

**Massive storage capability:** Cloud games provide rich game content, which is not limited by the size of local storage and can theoretically be expanded indefinitely.

**Play games anytime and anywhere:** Cloud games can be played on any device that supports audio and video streaming, such as mobile phones, tablets, TVs, etc., and players can enjoy games anytime and anywhere, no longer limited by the restrictions of gaming devices and venues.

**Convenient game update:** The cloud game server can update game resources at any time, and players do not need to download and install game updates, saving time and traffic.

**Cost savings:** Cloud gaming can reduce the cost of game purchase and hardware maintenance for players, usually with only a small fee through subscription or pay-on-demand.

## **Disadvantages of cloud gaming**

**Delay problem:** Since the cloud game needs to transmit the player's operation to the cloud server for processing, and then send the processing result back to the player side, it may bring a certain delay, which affects the player's real-time reaction and game

experience.

**Network dependency:** Cloud gaming requires a stable Internet connection. If the network is unstable or the bandwidth is low, it may cause the game to stutter, the picture quality is degraded, and even the game cannot be played normally.

## Summary

Cloud computing is a service that provides computing resources over the Internet. Instead of purchasing and maintaining physical infrastructure, users only pay for the resources they use. This model has revolutionized the video game industry with the emergence of cloud gaming. Cloud game uses cloud computing technology to allow the game to run on the server side and transmit the game screen to the user, so as not to be limited by the performance of the local hardware. This allows players to enjoy a high-quality gaming experience even on low-powered devices.

In general, as an emerging way of gaming, cloud gaming provides players with unprecedented convenience and experience, but it also brings new challenges and dependencies. With the advancement of technology, cloud gaming is expected to play a more important role in the gaming industry in the future.

## Reference

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