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FUTURE OF CLOUD GAMING

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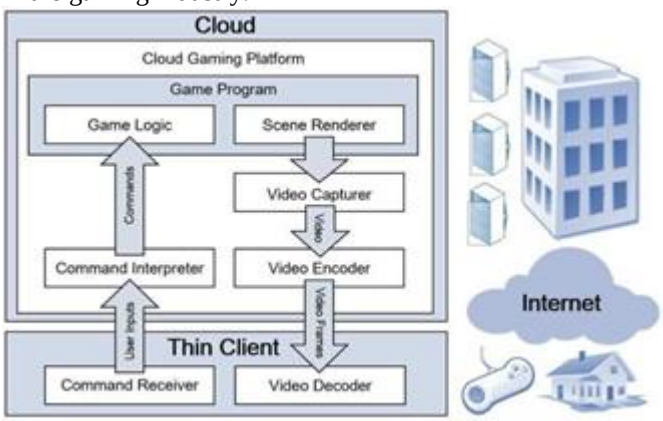
ABSTRACT: Cloud Gaming is a new way to provide users with a high-quality gaming experience anywhere, anytime. It works when complex game software runs on powerful servers in data centers, and the user uses lightweight software on varying devices to interact with the game. Due to the increase in internet speeds around the world, cloud gaming has become a popular genre in the gaming industry in recent years. This article describes some aspects of cloud gaming and its future in the gaming industry.



I. INTRODUCTION

Cloud gaming is a new way to deliver computer games to users anywhere and anytime. All the necessary information and software is processed on powerful cloud servers, and the rendered scenes are then streamed to the user over the internet. Cloud gaming platforms are used in server in data centers and their work can be divided into two parts: (i) A cloud gaming platforms runs complex software that converts gamer's command from the input device into in-game interaction and,
(ii) capture the video using video capturer and compresses it by video encoder. On the user side, programs that require fewer resources are used to perform tasks such as
(i) Command receiver, which is connected to the game console, such as gamepad, joystick, keyboard etc., and
(ii) Video decoder, which uses an inexpensive decoder chip to decode data from servers. The Internet is important for providing a good online experience. Various techniques are used to compress video.

In the late 2000s, Gaikai was acquired by various cloud gaming services such as OnLive, G-Cluster, ubitus, and SONY. The rivalry between Sony's PlayStation and Nvidia's Grid game streaming services has been heating up the cloud gaming market. This competition has led to higher quality, more immersive games being made available, and it is only going to get better.

In 2014 report from Strategy Analytics [1] shows that the number of cloud gaming users increased from 30 million in 2014 to 150 million in 2015.

II. ADVANTAGES OF CLOUD GAMING

The increase in popularity of cloud gaming can be justified by the advantages that it offers over traditional gaming.
Here are some of the benefits of cloud gaming:

- Access to games anywhere and anytime.
- Buy or rent games on-demand.
- Players do not need to upgrade their computer hardware to meet gaming needs.
- The possibility of the game being hacked is significantly reduced because the executables are not stored in the player's system.
- The same game is possible on multiple platforms.
- Players can easily navigate on different devices.
- Game developers can make more profit by bypassing retailers.
- Developers can focus on a single platform and reduce the work of porting and testing code.

III. DISADVANTAGES OF CLOUD GAMING

- Players need a broadband internet connection.
- Players cannot play if the internet connection is unstable
- The final video will not be sharp and detailed due to the compressed video.
- Cloud roaming will always have more latency than powerful local hardware or computers
- Cloud game service requires a large amount of internet bandwidth. 1 hour of gameplay can consume up to 4 GB of data.

IV. CHOOSING THE RIGHT GAME

Computer games are of various genres [2]. Games for cloud gaming are broadly categorized into four types. (i)First-Person [3], games are graphical perspectives rendered from the viewpoint of the player's character, such as in the call of duty. (ii) The Second-Person game is a graphical perspective rendered from behind the characters in the game. B. Look at the dog

(I) Third person, the game modifies the player's view of the 3D scene projected in 2D space. B.Pubg. (Iv) The game is everywhere and the player can control the view of the area of

interest. Games like Dota 2, Age of Emperies are very popular. Fast-paced first-person shooter is the most difficult game for cloud gaming, but third-person shooter is suitable for cloud gaming

V. OPTIMIZING CLOUD GAMING PLATFORMS

A carefully designed cloud server is required to meet the needs of users. Resource allocation must be intelligent so that hardware can be shared among users in a way that does not impact performance and reduces operational costs. Unlike cloud computing, cloud gaming requires a lot of GPU power, and some attempts have been made to efficiently distribute GPUs among users using virtual machines and other methods. Cloud virtualization technology enables on-demand resource allocation by creating different types of VMs on physical servers [4]. The number of possible VM types (virtual machines) is typically defined by the cloud provider, and each VM type consists of different amounts of resources (CPU, memory, disk space, etc.). It's up to the cloud provider to make intelligent decisions about how to allocate heterogeneous resources for physical servers to the required VMs.

FUTURE

Cloud gaming has a promising future and can become a mainstream gaming service if the cloud gaming service provider overcomes the tradeoffs like internet bandwidth consumption, video quality after compression, increased latency, and most important proper allocation of resources to users. Cost of operation will become a major hurdle for companies interested to invest their money in the cloud gaming industry. Cloud gaming can be a serious alternative to mobile and console gaming, causing a major change in the way consumers experience gaming and triggering a wave of implications for the gaming ecosystem.

VI. CONCLUSION

In this article, cloud gaming is described in five categories: (i) advantages, (ii) disadvantages,
(Iii) Game selection, (iv) Optimization, (v) Future of cloud gaming. Cloud gaming is not the perfect solution for the gaming industry, but it is an important approach to delivering games to more people around the world at a reasonable price. To reduce operating costs without sacrificing good games, you need to tweak your system to assign more users to each physical machine.

Without experience, service providers will go out of business when profit margins are low. As cloud gaming services become economically viable, the ecosystem will continue to grow, adding various features to improve the experience and potentially lead to the next generation of cloud gaming services.

VII. ACKNOWLEDGEMENTS

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