

Chapter 5

EAC–MPCG: Efficient Access Control for Multi–Player Cloud Games

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ABSTRACT

Online gaming allows players from different location to play synchronously together for entertainment. Generally multimedia applications which is highly latency sensitive and it requires specific hardware, such as Graphic Processing Units (GPUs) and fast memory. Since recent advances in cloud computing makes it suitable for moving the gaming application to the cloud and streams the video sequence back to the player over the Internet. This is more beneficial for less powerful computational devices that are otherwise incapable of running high-quality games. In addition to this cloud gaming is platform independence means it allow you to play on your android or IOS powered devices. There are several cloud providers like On-Live, G-Cluster and GFACE are provides active game services. However, providing proper access control for games which require license to play various levels is one of the important requirements to play the online games. This paper proposes the suitable access control mechanism to provide the access to cloud gaming applications.

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INTRODUCTION

Cloud gaming is one way of online game distribution. The most general way to implement cloud gaming are either by using video streaming or by file streaming. The clients for availing the gaming services are using the computers, consoles or mobile devices or any other thin clients. The games are executed and the results are stored at the cloud server side and finally the graphical results are shown at the users end using any clients. This enables the client system can access and play the game without using large storage devices only by using the internet connection. This will fulfil the user's need who wants to play the games without downloading it and loading it in their system. The user button pressing actions are directly passed to the cloud server, then it will be recorded and finally the response are send back to the cloud users about their gaming score. There are several industries are offering this type of gaming services such as Onlive, PlayKey, G-Cluster and Ubitus. (Shea et al. 2013).

The gaming service utilizes the internet connection, cluster servers and cryptographic technique and compression method to stream the game information to a user's device. At present, MMOGs works as client-server paradigm, where the cloud servers used in game service simulate the game environment and receive the request from users and execute it and distribute the response through the internet. The billing and accounting system are integrated with this game server. Generally, the game servers are introduced by specific companies called as Hosters that rent their computational and network capabilities for executing game servers with assured Quality of Service (QoS). Most cloud online gaming platforms are proprietary.

The file streaming (Cloud Gaming, June 2015) based cloud gaming technique that require the game downloading at the client in which only the small percentage of game is downloaded so that the player can start playing immediately. The rest of the game information is downloaded to the client device while they are playing. This enables the prompt access to games with less bandwidth broadband connections. This type of cloud gaming requires the necessity processor capabilities to play the game. Organization that use this type of cloud gaming comprise Kalydo, Appoxy, and SpawnApps.

The multiplayer online game can be played by game server through the internet connection with other game players all over the world. Some known examples of this involve fighting games, sports games and first-person shooters. These games are different from massively multiplayer online game (MMOGs), which do not simulate the persistent world, but create a playing environment for the drive of a single game or round. In other way, they depend on a game listening server which is used for that round, and like that more enormous servers all around the world. Alternatively, MMOGs depend on dedicated servers, since these games must be running constantly. (Hampel et al. 2006; Fiedler et al. 2002).

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