Chapter 3
Emerging Technologies and Applications for Cloud-Based Gaming: Review on Cloud Gaming Architectures

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ABSTRACT

Cloud computing technology has revolutionized the field of networks and the way of utilizing the resources remotely. In the gaming field this has changed the way of playing traditional games in relation to online on-demand available games which reduces the hassle at the clients' end. In order to play a game online, the game content is processed at the server end and rendered images are transmitted to the client's end. This makes the way of accessing easier and the game can be played even without the hardware or software required for the game. We review the cloud gaming architecture and the different types of streaming used by various cloud gaming platforms. Also, the issues and challenges with the service provider technologies used in the cloud gaming are discussed briefly.

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INTRODUCTION

Advancement of technology in cloud computing in the past few decades has shown tremendous results in all the fields, where accessing the resources globally via internet is involved. Cloud Gaming is one of the popular concepts (Shea et al., 2013). Enterprises invest large amount of funds to develop the games that can be played online which is now a popular way of playing games. Cloud gaming systems are providing the services to end clients through internet that makes the gaming job simpler and the client needs to pay some amount to the service provider for the service provided based on some conditions (Hong et al., 2015a). Cloud computing has several opportunities for existing and new applications. Synchronized sharing of files with streaming media files in terms of efficiency of system and usability is an advantage of the cloud computing platform. Based on a research of the market (Huang et al., 2013), gaming platform can be classified into three categories

1. On-solid games,
2. Boxed games, and
3. Cloud games.

One of the major three mainstream architectures, the client server architecture which runs from a centralized server manages the game world peer to peer (P2P) and shares the management load of computational power and resources, and hybrid (Mishra et al., 2014). Mobile online games are the most developing field in the gaming industry while cloud gaming offers several advantages for both the developers and the gamers (Semsarzadeh et al., 2014). Cloud gaming is made possible for a group of clients which is to experience online gaming with groups called cloud federation (Mashayekhy et al., 2015; Chuah et al., 2014). Cost is one of the factors that require to be considered in gaming. The physical hardware for lower graphics game costs US $500 and for higher graphics, game hardware equipment costs US$1200 in order to setup and play the game natively.

Numerous societies, as well as NIST and other government organizations, have suggested different Cloud architectures. For big display place enterprises the architectures scale with traditional large platform IT solutions. However, they might not effectively scale with rapidly evolving computing requirements of corporations and organizations, such as real-time video communication service offerings. Cloud architecture requirements for huge stages intended or varied service types tend to be very diverse from supplies for application specific platforms, such as cloud security platforms. In general, a given cloud architecture model would daze the set of distinctive features.