# Chapter 11
# Enhancing Quality of Service in Cloud Gaming System:
## An Active Implementation Framework for Enhancing Quality of Service in Multi-Player Cloud Gaming

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## ABSTRACT

*In multi-player cloud gaming two or more people from different locations may actively participate in gaming as like they were in a similar geographical location. In such cases handling massive user inputs, performance rendering, bandwidth fluctuations, load balancing, data capturing, data transmission in real time still remains a cumbersome in cloud gaming. In this chapter, we propose a framework that overcomes the major issues associated with quality of service in cloud gaming. The cloud platform consists of two environments namely workbench and runtime environment, where the work bench environment comprises of tools like end user*

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*tools, data parsing tools and data integrity tools through which the user input is analyzed and sent to the run time environment for further processing. Each tool present at the cloud platform helps in achieving the quality factors through its functionalities. The user request is processed and the results will be sent to the clients through the runtime environment.*

## INTRODUCTION

Computer gaming plays a major role in internet, since all type of users (adults, children, teenagers, etc.) play games online for relaxation, fun and entertainment. In recent years, computer program i.e. a adaption of non-computer game is called traditional game. But traditional games do not contain any modern technologies, hence people does not get attracted more. To overcome this cloud gaming was introduced. Cloud gaming as the name indicates, it allows many users to play game online without any problem. It sometimes called as "gaming on demand". Cloud gaming differs from traditional online gaming as it (cloud gaming) provides better network load and less traffic problems when compared with traditional gaming. Cloud gaming is classified into two types they are,

- Cloud gaming on VIDEO streaming, and
- Cloud gaming on FILE streaming.

Cloud gaming on video streaming provides less friction and it also allows direct play ability to users on various devices. As discussed earlier, cloud gaming provides video streaming on users' computers based on demand. The original game is actually stored, executed and implemented on remote server or on that company server, the operations that is performed on cloud is not displayed or known to users only the output of that requested video is displayed on the user's computer with the help of internet. This cloud gaming can be accessed on consoles, computer and also on mobile devices. The controls or the actions performed by user are directed to the server from where the input controls are sent.

Cloud gaming on file streaming will reduce the internet bandwidth level by downloading the small part of the game initially, which will be less than 5% of the total game size. Later the remaining game will be downloaded in the user's device. This will require very less internet bandwidth. Hence it is also called as progressive downloading. This usually deploys a thin client in end user's device. Since it is deployed in cloud it reduces a scalability problem. This type of streaming will have a cache copy of the downloaded game. To operate the file streaming game, the device should have the hardware capabilities.