

ABSTRACT

In modern times, cloud servers are generally used for data storage, and remote office activities, but cloud servers can be applied for cloud gaming purposes, where cloud servers can be combined with virtual machines and gaming platforms that can be accessed by users via an internet connection. This makes the device used by the user no longer needs to process a lot of resources because the workload is carried out by virtual machines on the cloud server.

The author design a cloud gaming system using Google Cloud Platform as a cloud server and parsec as an optimizer that is attached to a virtual machine for computing in gaming purposes. By using this cloud gaming system, the resources from the user's device will continue to run stably even though they are running a game that is said to consume a lot of resources to play it.

Measurements made to see the performance provided by the cloud gaming system used on the user's device. The author takes measurements of the cloud gaming system using 2 test games varying from low to middle specifications which require a minimum of Intel i5 CPU and RAM 6 and middle to high specifications with Intel i7 CPU and 8 RAM which requires a dedicated GPU to run. The results of resource usage testing on CPU and RAM usage on the user side are below 40% when running game 1 and below 44% when running game 2, while the system reaches a capacity above 40% for CPU and RAM and 99% maximum on GPU. Quality of Service testing of the system was carried out at 5, 10 and 30 bandwidths with the minimum bandwidth obtained at 10 mbps with an average network delay of 267.6 ms, jitter of 20.76 ms and throughput of 2326.5 kbps.

Keywords: Cloud Gaming, Google Cloud Platform, Resource Usage, QoS, Virtual Machine