# ABSTRACT

The application of cloud computing is now often used on modern network devices and is generally used as a storage medium or access computing power on demand. The application of cloud computing can enable devices that have low specifications to carry out activities that require large computing power which generally require high-spec computers, such as running high-end games, only with virtualization methods and internet connections.

This final project will utilize the GPU Passthrough method on a Hyper-V Virtual machine on a high-end Personal Computer (PC) which will be simulated as a *host* server, and then clien*t* 1 using a medium laptop and client 2 using a low end laptop will run online and offline games with utilizing the parsec platform as a streaming medium. Measurements taken include Resource usage on the client, Framerate on the VM *host*, and QoS on the client.

In this final project, it was found that the average CPU Usage on client 1 got the highest value of 10.38% at 720p resolution and 15.23% at 1080p resolution. RAM usage does not affect the performance of stream parsec where client 2 which has 2GB RAM can run stream parsec without memory constraints with the highest RAM usage value of 156MB. The GPU Passthrough method worked well on the VM, with an average framerate of 93 FPS at 720p and 72 FPS at 1080p. In this study, it was found that if the CPU usage allocation is high, the framerate can affect the performance of the stream in the form of input lag.

For QoS measurement, the largest average throughput is 6493 Kbps and the smallest average delay is 1.1 ms at the largest bandwidth of 30 Mbps. Game connection mode can also affect the throughput value where the highest average throughput can be found in games with multiplayer options with an average throughput of 5987.3 kbps.

**Kata Kunci: Cloud Computing, *Game*, Cloud Gaming, Parsec, *Resource usage*, GPU-Passthrough, Virtual Machine, Hyper-V, QoS.**