As technology continued to improve with each passing days, many applications and games with higher energy consumption and also requires higher computation processes begin to appear. At the same time, thanks to the advancement of Mobile Cloud Computing in current technology, online games which had been exclusive to desktop in the past become possible for mobile devices thanks to Mobile Cloud Computing Technology. In the recent years, most online games require not only high-speed internet connections, but also better image rendering technologies from the user’s mobile device. Both of them, plus several additional features from the device’s embedded sensors (GPS, Camera, and so on), become the basis which will become the basis for the Quality of Experience (QoE) that can be expected by the users when playing the game. With the current cloud technologies, mobile devices only need to render the images and Graphical User Interface (GUI) using its Central Processing Unit (CPU), send the input generated by user’s interaction with the GUI, and receive the output processed by the cloud server to be displayed in the user’s mobile device [1]

However, although the games themselves continued to improve with each passing time, newer and better gaming features will continue to be released, which also placed more burden for the mobile device to compute in return. On the other hand, the game server usually had decided on which services to be offloaded into the server and which ones must be run on the mobile devices. By using this static offloading, the same method is enforced to all mobile devices playing the game, which will put more burden on the older mobile devices with low computation speed compared to new ones with better specifications. It is also possible that the device which was able to run the game when it first come out become incapable of running the same game after a few major game updates. This, combined with the fact that mobile devices aren’t only used to play that one game, further reduced the computation power that could be spared by the mobile device to run the game smoothly, causing lags and other similar things.

In addition, most online mobile games nowadays require high-speed internet connection. With how dependent the game is to the mobile device’s network connection, being disconnected from the server will completely cut off the user from the game and, in most cases, erase the progress the user had done in the time the internet connectivity was out. As a result, the user is forced to redo the whole thing for the second time. This can lower the Quality of Service, increase the user’s dissatisfaction when playing the game, and possibly lower the user’s desire to continue playing the game

In this paper, I will talk about methods of online connectivity and offloading trend in recent online games in Section II, propose several new ideas for a mobile device friendly cloud computation model which may allow older generation phones to run new and upcoming games within acceptable bounds in Section III, and my conclusion in Section IV.

# References

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| [1] | W. Cai, V. C. Leung and M. Chen, "Next Generation Mobile Cloud Computing," in *IEEE Seventh International Symposium on Service-Oriented System Engineering*, Vancouver, 2013. |

Further Information :

<https://www.quora.com/Why-cant-some-online-games-detect-when-someone-is-hacking>

<https://www.cse.cuhk.edu.hk/~cslui/PUBLICATION/detect_cheat.pdf>

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