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Developing and Hosting Game Server on Cloud

Subramanian PR[1], M Ganeshan[2]

[1]Master of Computer Application, [2]Associate Professor,
[1,2]Jain Deemed-to-be University, Bengaluru, Karnataka, India

ABSTRACT

A game server has the authoritative distribution of events in a multiplayer online game. The server transmits enough records about its inner state to permit its linked clients to hold their own accurate version of the game world for display to players. They additionally get hold of each player's input.

The main goal of this project is to create a role play server which provide provision to customize almost anything in the game to their preferences. Like shops, landmarks, vehicles, so as to make the environment more realistic.

KEYWORDS: *Fivem, GTAO*

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1. INTRODUCTION:

Here we host GTA V which is a open world game. Now why can't we play the normal GTA online, In GTA online which is a public server where people around the world gather around. There is a lot of racism for the Indian players. If we can host this game on our private server, and give authentication for the players. It will be nice.

So we need to have a hosting environment and a console in order to run the game privately.

We shall be using the Digital Ocean services (Virtual private cloud provider) and Five M (it is server for Grand Theft Auto V which allows you to play GTAO on custom dedicated servers) as our front end where users interact.

So this is how it will work, you need to have the original GTA V game through steam or epic games which are worlds popular game distributors. The user will open five m and type the server ip for connecting, five m will check the steam id and whether the user is white listed for the server.

For white listing we are using discord (Is a popular community where gamers get together and form a large community where they can interact together). Now the basic game will be loaded to the five m but all other resources are stored in the Digital Ocean hosting server.

These resources include player model, y map, Items and all other resources. Now you can share the ip address with your friends and play together on your private server.

2. OVERVIEW OF FIVEM

In the five m software you have your servers or you have a search bar so you can search for servers, you can see all the different servers which are online and see how many players there are the ping etc. Also you can directly connect to your server if you are hosting your own you would enter the IP address or you can know the IP address of other servers as well. So once you get in the game this server has other mods running called essential mode. So it is basically GTA 5 that you can use on multiplayer or any 24 people join and you still have access to the your mods so you can have your custom vehicles. GTA 5 lets you play mode offline but with this you can play mods with other players and use your online mods at the same time.

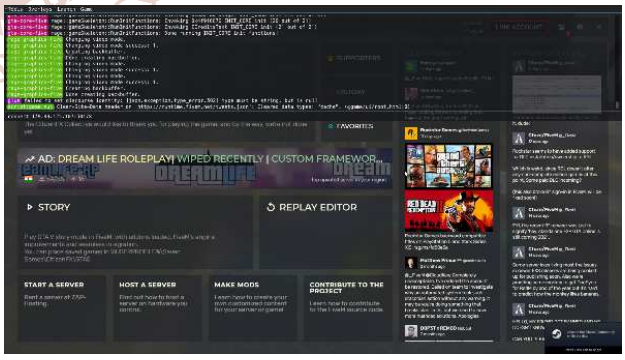

Fig 1: Simple working of Five m

3. PROBLEM STATEMENT

GTAO which is the an open world game were anyone can access. It has many drawbacks, The major problem is Game matchmaking time It will take nearly 30min to just enter the server. Secondly the players are from different parts of the world and all have different perspective. We can't really communicate our thoughts because all are from different background and different country, there is racism happening. Another problem is the latency. Since the players are joining from different region all players latency to the server verry from player to player. This brings the problem of desync.

Desync is a server issue in which some critical real-time movements of the players won't get registered in the server or registers lately. Also there is no one to manage the server, players are using cheats and playing. If it's a private server we can manage all these problems. In the normal server people do different things which is so annoying to other players. Since it's a multiplayer game even other players can ruin your game. GTAO don't have administrator to kick players who play against the rules such as hacking, trolling etc. We need a system to eliminate all these problems.

4. PROPOSED SYSTEM

Using five m which is a modification for GTA V will allow you to play GTAO on cloud servers. Five m has helped in reducing the game load time by half of GTAO. It uses an optimized framework called essential mode. Essential mode is over game platform service. It provides the interface for the meta game functions. It allows players to join server instance, it holds the social graph "friend list" for your game.

It provides lobby, messaging service, management of player inventory, authorization of group, profiles etc.

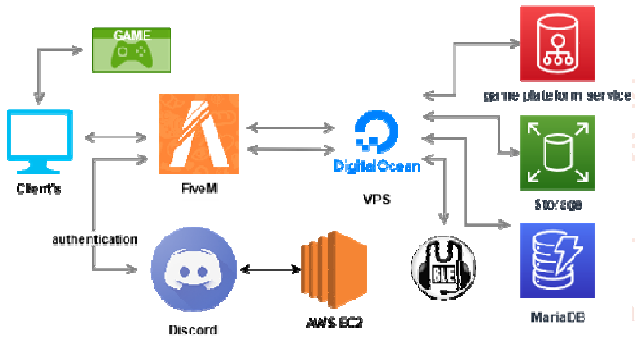

Fig 2: Working of proposed system

Game database is responsible for holding the game world state and progression data of players which is the critical part of the game's infrastructure. Lose of player progress can lead players quit playing your game. This can happen if you have fault in database design.

We need to have the original GTA V game through steam or epic games which are worlds popular game distributors. The user will enter the server IP on Five m, Five m will check the steam id and whether the user is white listed for the server. For white listing we are using discord (is one of the most popular ways gamers communicate each other online. Discord lets users join servers where larger communities can interact together). Now the basic game will be loaded to the Five m but all other resources are stored in the Digital Ocean server. These resources include player model, Y map, Items and all other resources. Now you can share the IP address with your friends and play together on your private server. We are using discord. And the voice communication is through Mumble.

5. RESULTS

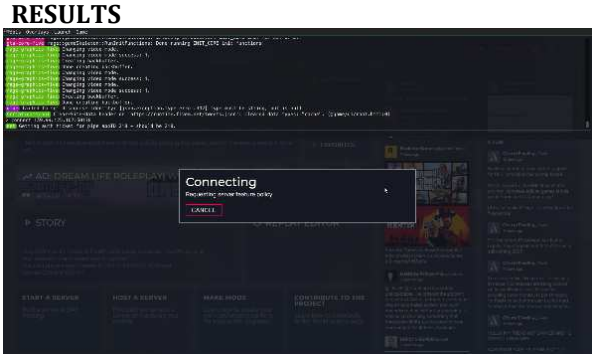

Fig 3[a]: Connecting to server

Fig 3[b]: Game screen

6. CONCLUSION AND FUTURE ENHANCEMENT

To improve the performance of the server we can delete unwanted YMAP and also remove NPC's from the game. We can also split up all the YMAP's to reduce game rendering. For example if a player visit a place it will load all the resources related resources. But we don't have to load other components of that resource. Splitting resources help us to load the game efficiently. The increased demand for computer networks has brought an increase in interest in online gaming. Most commercial games use a client-server architecture and many allow the players to connect their clients to a game server of their choice. Players can also host their own servers, many games provide players with a choice of different game servers. Server selection is crucial not only for the game's player population and the capacity but because the latency between the game client and the server has proven to affect the game play and player satisfaction significantly. The selection of the server is more complicated when a group of players wants to play together or co-locate for a co-op game.

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