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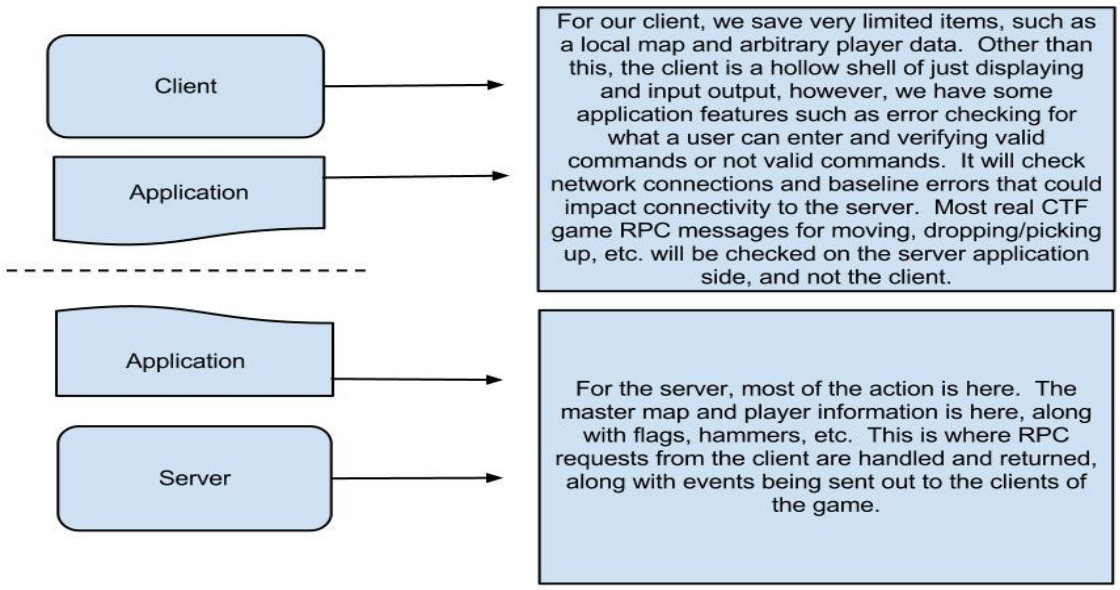
**Architecture for CTF**




**Server:**
The server should serve as the game moderator. It will:

1. Hold the master instance of the map
2. Enforce the game rules and logic
3. Notify clients of events

Initial connection to the server is done from a socket connection from the client, and followed by a hello RPC to let the user into the game and initialize the client's Player. We will not worry about Denial of Service attacks for this project.

Server should handle/accept RPC's defined below in the client section.

**Client:**

Client should be dumb and only enforce game logic/rules as a form of efficiency, but not be required to do so.
We should force all clients to update on event handlers and not RPC replies.

Command Handlers will execute an appropriate RPC, OR fetch some sort of static/local game info from the local client data structures.

Client input commands:
- connect
- disconnect
- quit
- move(arrow keys keybinding)
- drop (drops object like flag or hammer)

**RPC Commands:** (Should be reflected on server and client)
- hello: executed after a connect to the server/port is established) holds you a spot in the server's connect list, hello is executed as a separate RPC to assign the user a color and number, initialize their session and position in home, and push to other players that a new player has joined
- goodbye/disconnect: kills player session and closes their rpc and event channel
- move: sends player type and number, server pushes event upon a valid move
-drop: Sends player and object to drop and updates the map and refreshes it in an event to users.

**Event Handlers:**
- Need to be registered on initialization with the protocol_client.c
- Will be the only functions to update the client data structures (i.e. rpc replies shouldn't.)

The CTF game will need the following events:

- Update Players – This event will send out the server master information of all players to all of the clients. This event will get called for when a jail is freed, a player moves, a player is tagged, a player picks up or drops(depletes hammer) an object.

- Update Walls – This event is called when a hammer is used by a player walking into a wall.

- Update Flag – This event is for when a flag gets dropped or picked up. The position will get updated when dropped, and when picked up it will call update players.

- Update Hammer – This event is much like the flag, where it will get called when a hammer is picked up or dropped/depleted. This will also need to update all players of the status, like the flag.

**Data for client:**
- Client will hold a local copy of the map that will be updated frequently via event handlers
- Player state, i.e. color, number, in jail or not

**Structures:**
The structures for the CTF game are written below: