

Project Hellknöw

Group 3

Henrik Sandström

Jonas Lindmark

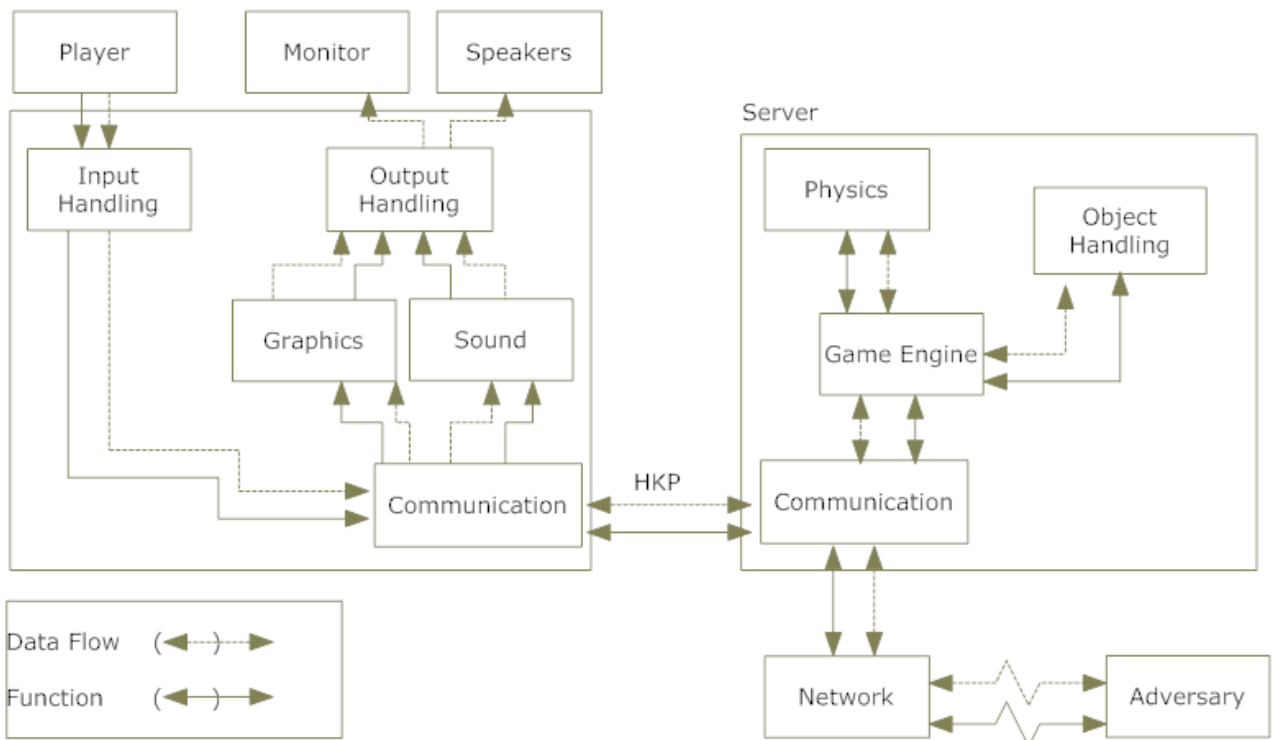
Carl-Fredrik Sundlöf

Tim Hao Li

2.2 Overall Architecture Description

Game Architecture

Client



In the basic architecture we have two subsystems interacting with each other. One is the client side which the user is going to interact directly with. The other will be the server side which handles most of the processes in mathematics and physics.

The server is not actually connected to the Internet or network in the Single Player mode. Implementing this part is actually to make the system more "homogeneous," meaning that the Single Player mode would not differ too much from the Multiplayer because we will have the Multiplayer on different machines so we will have to have servers communicating with each other. In other words, the server component will show its significance in the Multiplayer mode.

Within the client system it consists of 2 major parts that will be visible to the user. One is the Input Handling component and the other one is the Output Handling component. The Input Handling takes in raw inputs from the user and the Output Handling communicates between the Graphics, Sounds Components and the media to the user. In addition, there is the Communication component which takes in directly from the user inputs and sends the inputs to the server side and also retrieves information from the server side then sends it to the output.

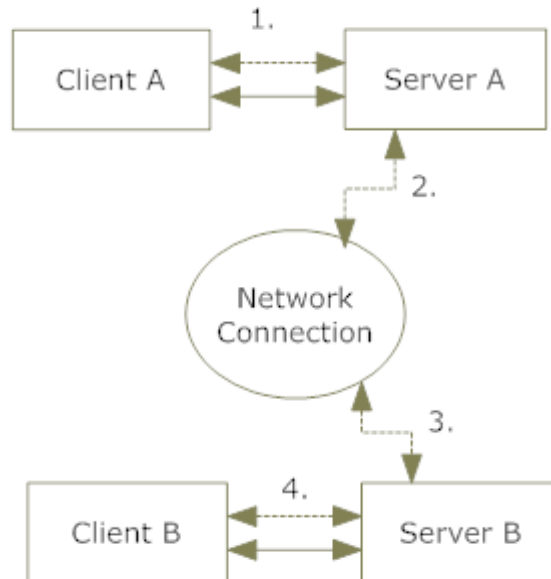
On the other hand, the server takes care of the physics and calculations in the game from the Communication retrieval. After all the calculations it sends the processed back to the Communication component.

So the key medium of the two is the Communication component on each side. It does not process the input other than breaking it down into packets using the HKP(Hellknöw Protocol). Other than that, it also puts the packets together to be interpretable by the system.

To be specific, in the Multiplayer mode we connect the server to the network. One server will be the host and the other will be the one who connects to the host.

2.3 Detailed Architecture

2.3.1 Program flow



1. Interaction between Client A and Server A

Client sends raw data information to server which the server interprets and responds to.

2. Connection between Server A and the network

Server sends update information to the network. The server receives information from the network and interprets it.

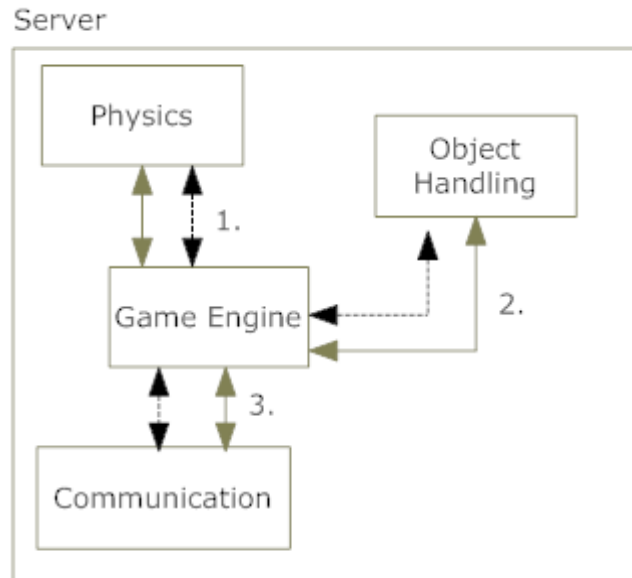
3 Connection between the network and Server B

The server receives information from the network and interprets it. Server sends update information to the network.

4 Interaction between Client B and Server B

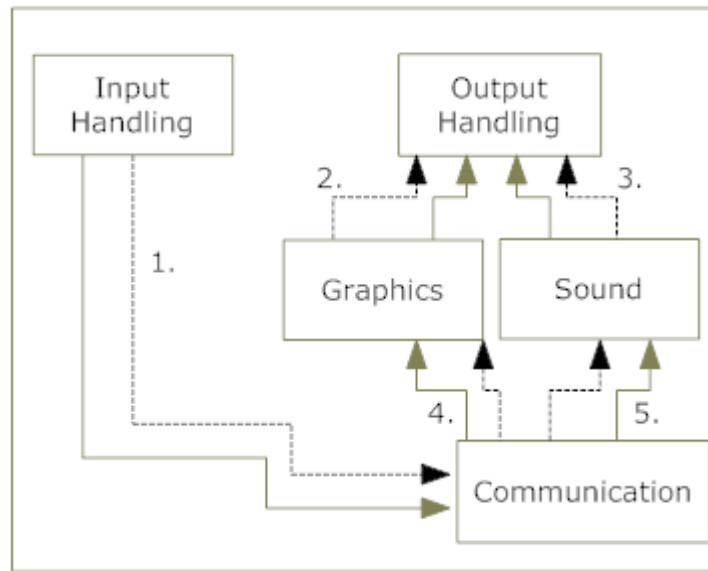
Client sends raw data information to server which the server interprets and responds to.

2.3.2 Server flow



1. Interaction between Game Engine and Physics
The game engine uses physics to determine how to update all objects in the game.
2. Interaction between Game Engine and Object Handling
The game engine uses object handling to handle all objects in the game and keep track of their position and other statuses.
3. Interaction between Game Engine and Communication.
When the Game Engine is done with all the calculations it sends the information to Communication which forwards it to the appropriate place.

2.3.4 Client Flow



1. Interaction between Input Handling and Communication
Input Handling takes information from the User and sends it to Communication for evaluation and further distribution.
2. Interaction between Graphics and Output Handling
Graphics generates the frames that are sent to Output handling so that it can reach the user.
3. Interaction between Sound and Output Handling
Graphics generates the sound effects that are sent to Output handling so that it can reach the user.
4. Interaction between Communication and Graphics
Communication sends the coordinates of all objects to graphics so that it can generate the frames.
5. Interaction between Communication and Sound
Communication tells Sound what sounds to play for the user.