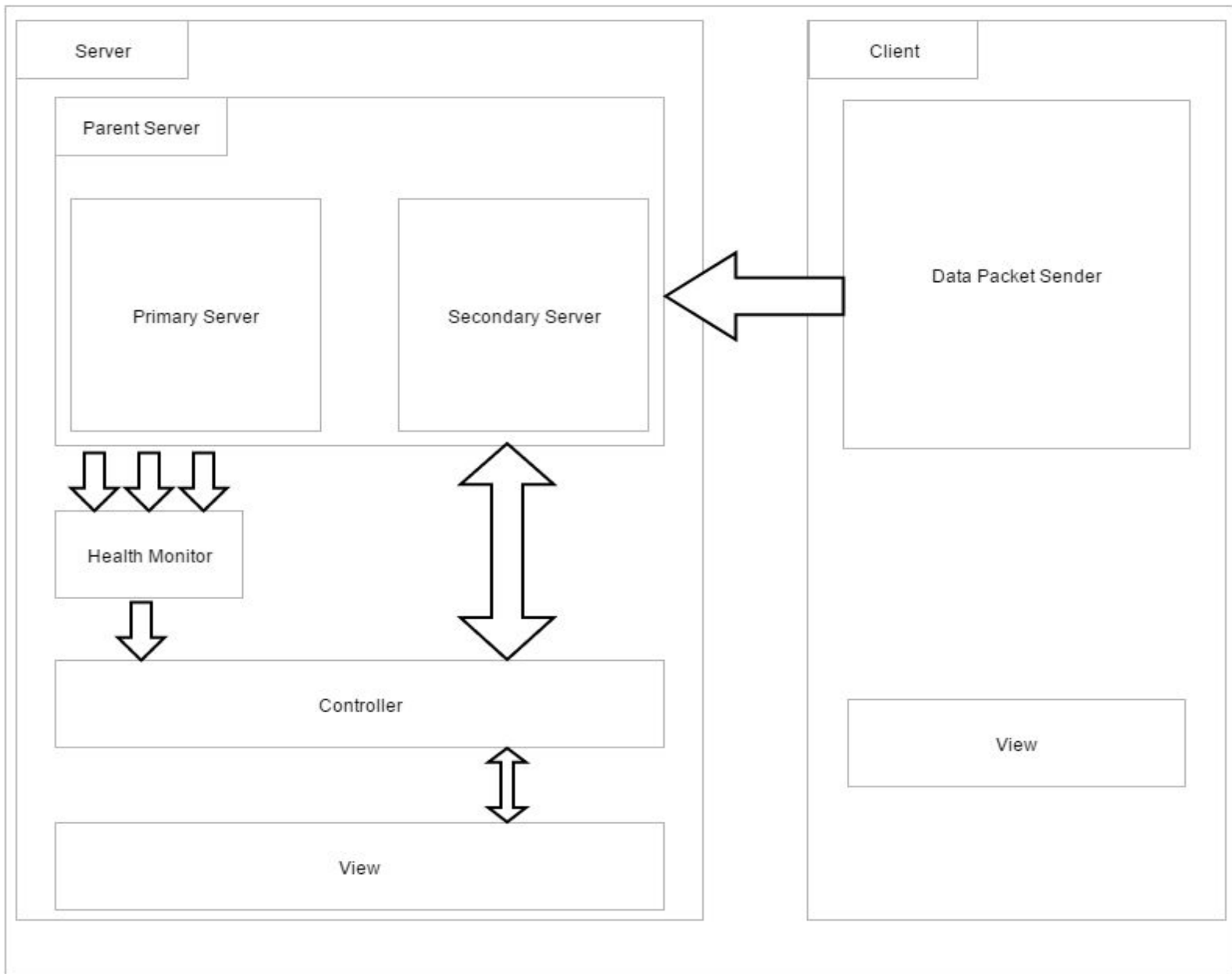# Architecture for Android Peer messaging between Client and Server

DOMAIN: Android peer-to-peer messaging between TCP client and TCP Server.

FUNCTIONALITY: Server will retrieve its IP and port (predefined) and will display on the screen. While this screen is launched the application will also start a background thread (Primary server) to keep the port open be ready to receive messages from the client and also send health pings to HealthMonitor. Primary server will start sending messages (String array) containing the information about its name, the time and a message data (Randomly generated number in range of 0 to 3). Another thread will be launched, at the start of Primary server, to start a background HealthMonitor thread. The monitor thread will start receiving messages from the Primary server and will check the message sent from it the monitor will first check for the message content to see if it contains "0" in it, if "0" is found then the Monitor will stop the server and start the Backup Server. The Backup server will do the same functionality as the Primary server. Again if the backup server sends "0" as the message the HealthMonitor will revert back to new instance of the Primary server.

AVAILABILITY:
- Heartbeat, pings sent from Primary / Backup server to the HealthMonitor and HealthMonitor checks for the proper functionality of the server. In this way the faults and errors are monitored.
- Fault recovery, in case of server failure (Sending "0" as data), which is an incorrect value, so it switches to new instance of either Backup server or Primary server, so that there is no interruption in receiving data from the client

PERFORMANCE:
- Currently the server doesn't accept multiple clients, so it's basically reduced capacity mode, so to increase the performance the system must enhance the level of service, and increase the throughput in terms of number of clients

CONSTRAINTS:
- Heartbeat check in HealthMonitor is done every 1 second
- Heartbeat message is sent from the server every 3 seconds
- Page refresh is done every time HealthMonitor checks for heartbeat

SNAPSHOTS: