# Time Stamp Server Design Documentation

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# 1 Introduction

## 1.1 Purpose

Create a distributed synchronization time stamp server that can handle multiple clients request for synchronization.

## 1.2 High Level Design

We have build a time stamp service in java, that connects to multiple clients. The server's time is taken as the correct time that all the other client's should synchronize their clocks with. We have simulated the clients by creating multiple java programs that send request to the server to perform clock synchronization.

# 2 System Architecture

## 2.1 Architectural Design

We have created one time stamp server that will be hosted on AWS and which can connect to multiple clients as shown in the diagram. The messages passed between the server and client are in the form of UDP packets, containing the data structure Message Class. Refer Figure 1.

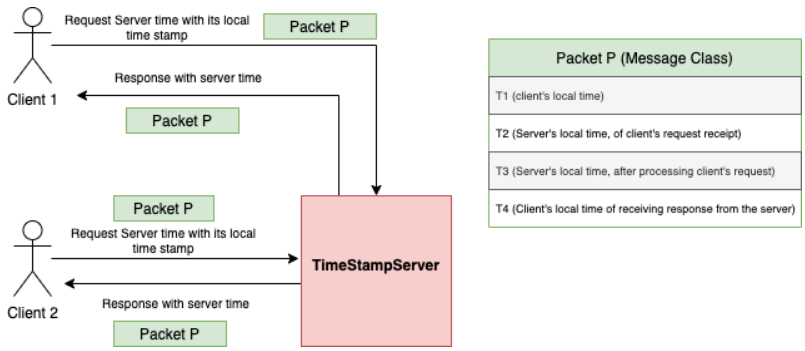


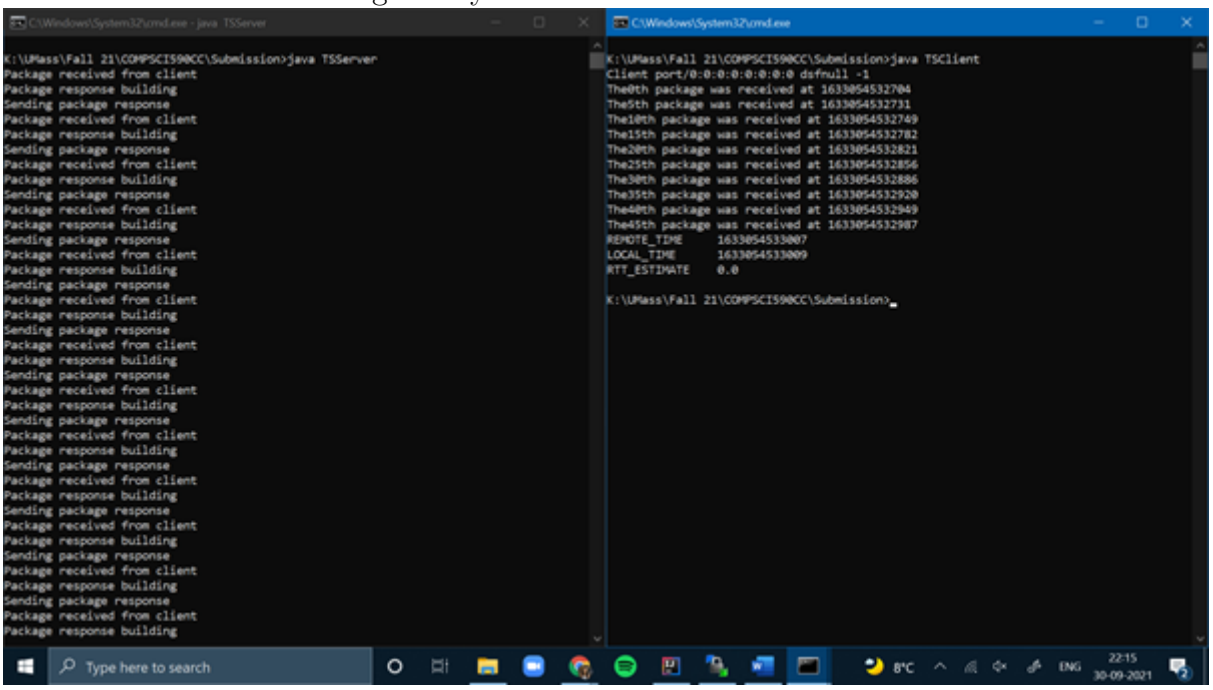

Figure 1: Architectural Design

## 2.2 Synchronization and Connection protocol description

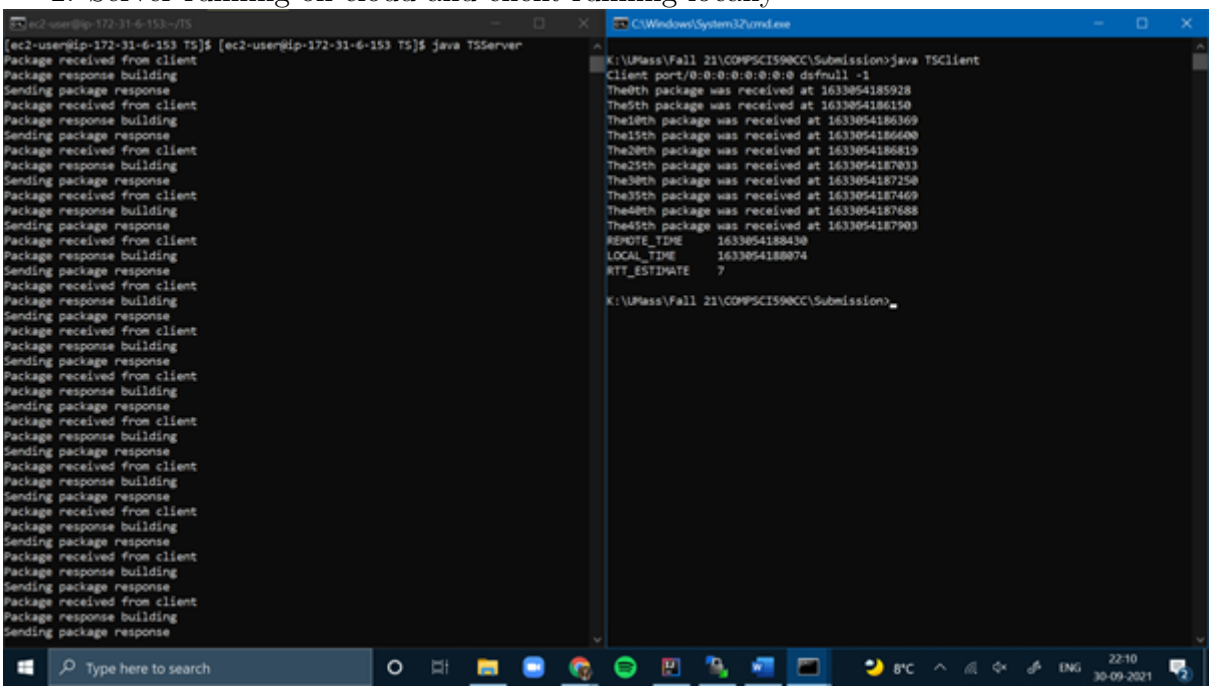
We have used the UDP connection less protocols for the delivery of messages between client and server. This protocol allows the server to handle multiple interleaving client messages. We have implemented the NTP synchronization protocol for the clients to synchronize their clocks with the time stamp server's clock.

## 2.3 Screenshots

1. Server and client running locally




2. Server running on cloud and client running locally



2. Server running on cloud and multiple clients running locally