Twitter Simulator Report

Group

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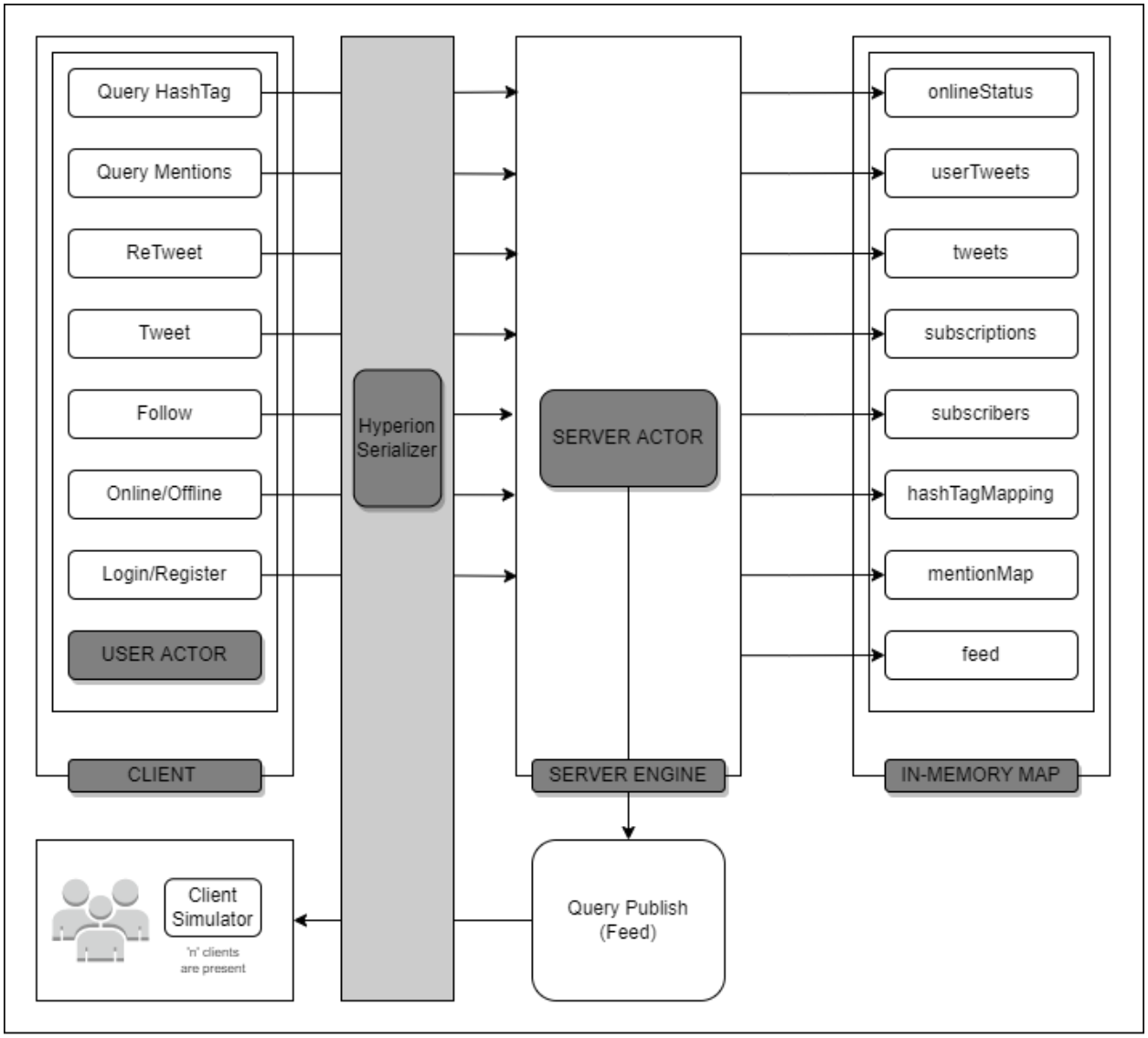
How To Run:

- Run the TwitterServer.fsx file to start Twitter Engine
- Run the TwitterClient.fsx file with input as the number of clients to be spawned. The clients get subscribers automatically in zipf distribution

Architecture:

- Single Server Actor which handles all the requests (Register, Subscribe, Tweet, etc) received from the Clients.
- One Client is represented by 1 Actor. Subscribers of actors are distributed in Zipf format
- Tweets are generated using a sentence of random length generated using random words from a list. Number of hashtags are also chosen randomly from the word list and added to the tweet. Number of mentions in a tweet is decided randomly and then they are picked randomly from the list of all the users.
- Server Actor uses Dictionary as the data stores for Users, Tweets, Subscribers, etc
- The frequency of tweeting of a client is directly proportional to the number of subscribers the client has
- 2 types of messages (Message and Response) are used to communicate between clients and server namely which are serialised and deserialized using the Hyperion serializer
- Handling of Offline and Online using Feed : When a client is offline the new tweets are not published to it. The moment the client comes online the

feed which was stored on the server end is sent to the client to update it with the tweets it had missed while it was offline



Largest Number of Clients Handled

The system was able to handle a max of 10,000 clients

Performance Evaluation

Number of Clients	Tweets/Retweets per Second	Tweets Published to Subscriber per Second
100	1242/sec	67180/sec

1000	3999/sec	504997/sec
5000	2023/sec	1321252/sec
10000	2161/sec	2712345/sec

BottleNeck

Since we are using In Memory Dictionary as the data store we run out of memory pretty quickly and the system crashes. The system should be able to handle a higher volume if we use an external Database.

Sample Output of the Programme Printing performance stats