

Distributed Operating Systems Project-IV

Twitter Engine Part I using Elixir

Group Members

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Features Implemented

- Registering account
- Sending tweets.
- Subscribe to user's tweets
- Re-tweets
- Allow querying tweets subscribed to, tweets with specific hashtags, tweets in which the user is mentioned
- If the user is connected, delivering the tweets live

Instructions:

- Command to run the program:
run mix escript.build
- To start the server and client simulator :
escript twitter <num_user> <num_password>
- Implementation Details:
The application would comprise of multiple genservers. These genservers would account for following:
 1. A genserver to perform load balancing of request from clients and redirecting the requests to the least occupied server process(also a genserver).
 2. The processing servers (multiple genservers) would have the entire control logic to process the requests
 3. Data Stores:
 - 3.1. Do we need to use persistent storage or the data is in-memory? If yes, could you provide some resource for the same.
 - 3.2. If the data is in memory, are we expected to shard the same in multiple genserveres?
 4. Do we need to manage sessions for users or each request has to carry userid and password along with the data

In genserver the call is blocking and only a single request is served as a time. Cast makes requests asynchronous. Since we want to support multiple parallel requests to engine we have

proposed multiple processing server and a load balancer. Is there any way we can execute multiple call in parallel in genserver so as to get rid of the requirement for multiple servers and load balancer.

- Performance:

No of server	Time
1	162
2	150
4	128
64	94

The performance increases with increase in the number of cores at the server end.

- Example:

Screenshot of all the relevant screens with outputs printed for clients receiving messages:

```
21:21:17.853 [info] Notification Received: New tweet posted by sjjwdbi Tweet: wxc @enzvqsnauale ltqi incd nkntbm #vclbzc @iazlrurksgsfs plz vnjio cojzklfia gnhkvxctmp zuk @hgazuysxtt rxfkujdaubr ybfvrnfb
hr ospdy @bcbmunwyboua leuldgk vcfcfloaaa @hgazuysxtt oxvjyycq ufucily xmspctl mmkzd qwtosrzvak #qdhvik @evwzdhe xci px pii kguqgmaw klaopqk yahobcd

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21:21:17.853 [info] Number of tweets mentions (ID: 49): 56

21:21:17.853 [info] Notification Received: New tweet posted by sjjwdbi Tweet: wxc @enzvqsnauale ltqi incd nkntbm #vclbzc @iazlrurksgsfs plz vnjio cojzklfia gnhkvxctmp zuk @hgazuysxtt rxfkujdaubr ybfvrnfb
hr ospdy @bcbmunwyboua leuldgk vcfcfloaaa @hgazuysxtt oxvjyycq ufucily xmspctl mmkzd qwtosrzvak #qdhvik @evwzdhe xci px pii kguqgmaw klaopqk yahobcd

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hr ospdy @bcbmunwyboua leuldgk vcfcfloaaa @hgazuysxtt oxvjyycq ufucily xmspctl mmkzd qwtosrzvak #qdhvik @evwzdhe xci px pii kguqgmaw klaopqk yahobcd

21:21:17.853 [info] Number of tweets mentions (ID: 12): 69

21:21:17.853 [info] Total number of tweets on wall (ID: 34): 100

21:21:17.853 [info] Total number of tweets on wall (ID: 29): 354

21:21:17.853 [info] Total number of tweets on wall (ID: 24): 464

21:21:17.822 [info] Notification Received: New tweet posted by srckqbyu Tweet: @nmcaw txchelrag ihdt rjcoyya swgextuytw jl #vclbzc @aenxhdopghum bqbntvggds kgvjkhago fanafjo sqclourd tdoml qdm rmzgy #qdhv
ik yhazefrkrm @bsdawo bcvxwqkew exkv wlxoder

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21:21:17.822 [info] Number of tweets mentions (ID: 38): 65

21:21:17.822 [info] Notification Received: New tweet posted by srckqbyu Tweet: @nmcaw txchelrag ihdt rjcoyya swgextuytw jl #vclbzc @aenxhdopghum bqbntvggds kgvjkhago fanafjo sqclourd tdoml qdm rmzgy #qdhv
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