

Report of

First Part of Twitter

1. Result

In the testing, we mainly pay attention to the user number and the message dealing ability of the server. The machines we use are from of CISE department. The result is showed in the chart below.

We simulate users' behavior by set five parameters:

(1)followerNum: the followers each user have.

(2)twitterRequestNum: the twitter number a user request from server when he refresh his homepage.

(3)postTwitterInterval: control the frequency of users posting twitters.

(4)flushTwitterInterval: control the frequency of users refreshing homepage.

1.1 User Number

With no more than 5 client machines(each machine may simulate thousands of users) running at the same time, we increase the user number from 10000 gradually. The server and clients are able to work pretty well when the user number is below 1,000,000. With user number above one million, although not very stable, the server can handle up to 1,650,000 users on average. The maximum user number we managed to make was 2.5 million.

1.2 Maximum Sending Number

In order to push the server, we tried to simulate the users' behavior by changing the post_twitter_frequency and refresh_homepage_frequency. As the chart shows, the maximum number of twitters the server sends to the users is around 450,000 per second, and it's usually between 200,000 and 400,000 per second. And it is related to the user number.

1.3 Maximum Receiving Number

The number of twitters the server receives per second is much smaller than the number of sending. It's usually around thousands. As for rush hours, it can be over 20,000 twitters per second.

1.4 Number of Twitters Posted by Users

The number of total posts is related to the user numbers and the time the server runs. We tried several times to wait until the server shuts down itself, and the maximum number of the twitters posted is over 5 million.

1.5 Client

In the testing, since each client machine can only simulate no more than 500,000 users(with 500,000 actors), and we can't start too many client machines, the total user number we can simulate is limited(the maximum number is 2,500,000).

Testing Result

	Server	Client1	Client2	Client3	Client4	Client5	Statistic user post: in total max: per second	Run Time of Server(min)
1	clientNum = 10000	clientNum = 2000 followerNum = 10 twitterRequestedNum = 10 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 4000 followerNum = 10 twitterRequestedNum = 10 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 4000 followerNum = 10 twitterRequestedNum = 10 postTwitterInterval = 5 flushTwitterInterval = 10			10000(10000) user post: 288000 max server sent: 12900 max rec: 1431	8
2	clientNum = 100000	clientNum = 10000 followerNum = 20 twitterRequestedNum = 10 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 50000 followerNum = 20 twitterRequestedNum = 10 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 40000 followerNum = 20 twitterRequestedNum = 10 postTwitterInterval = 5 flushTwitterInterval = 10			100000(100000) user post: 81696 max server sent: 50200 max rec: 5334	5
3	clientNum = 500000	clientNum = 150000 followerNum = 20 twitterRequestedNum = 10 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 350000 followerNum = 20 twitterRequestedNum = 10 postTwitterInterval = 5 flushTwitterInterval = 10				500000(500000) user post: 5130846 max server sent: 73400 max rec: 9426	15
4	clientNum = 1000000	clientNum = 250000 followerNum = 50 twitterRequestedNum = 50 postTwitterInterval = 10 flushTwitterInterval = 20	clientNum = 350000 followerNum = 50 twitterRequestedNum = 50 postTwitterInterval = 10 flushTwitterInterval = 20	clientNum = 400000 followerNum = 50 twitterRequestedNum = 50 postTwitterInterval = 10 flushTwitterInterval = 20			600000(600000) user post: 2799989 max server sent: 162500 max rec: 16431	7
5	clientNum = 1000000	clientNum = 400000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 400000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 200000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10			1000000(1000000) user post: 5985821 max server sent: 282100 max rec: 18340	12
7	clientNum = 1200000	clientNum = 300000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 300000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 300000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 300000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30		900000(1200000) user post: 371252 max server sent: 310900 max rec: 14602	5
8	clientNum = 1100000	clientNum = 350000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 350000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 350000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30			1050000(1050000) user post: 403963 max server sent: 264760 max rec: 13137	5
9	clientNum = 1100000	clientNum = 350000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 350000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 350000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10			1050000(1050000) user post: 551059 max server sent: 388360 max rec: 19525	5
10	clientNum = 1200000	clientNum = 400000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 400000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 400000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30			1083740(1200000) user post: 408093 max server sent: 184960 max rec: 9327	5
11	clientNum = 1200000	clientNum = 400000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 400000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 400000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10			1200000(1200000) user post: 627438 max server sent: 419719 max rec: 21288	5
12	clientNum = 1500000	clientNum = 450000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 450000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30	clientNum = 450000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 30 flushTwitterInterval = 30			1350000(1350000) user post: 315232 max server sent: 374835 max rec: 18436	5
13	clientNum = 1500000	clientNum = 500000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 500000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 500000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10			1500000(1500000) user post: 326340 max server sent: 343667 max rec: 17275	5
14	clientNum = 1800000	clientNum = 550000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 550000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10	clientNum = 550000 followerNum = 200 twitterRequestedNum = 20 postTwitterInterval = 10 flushTwitterInterval = 10			1550000(1550000) user post: 356550 max server sent: 432232 max rec: 22709	5
15 best result	clientNum = 2500000	clientNum = 500000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 500000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 500000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 500000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10	clientNum = 500000 followerNum = 20 twitterRequestedNum = 20 postTwitterInterval = 5 flushTwitterInterval = 10	2500000(2500000) user post: 387640 max server sent: 435786 max rec: 23812	5