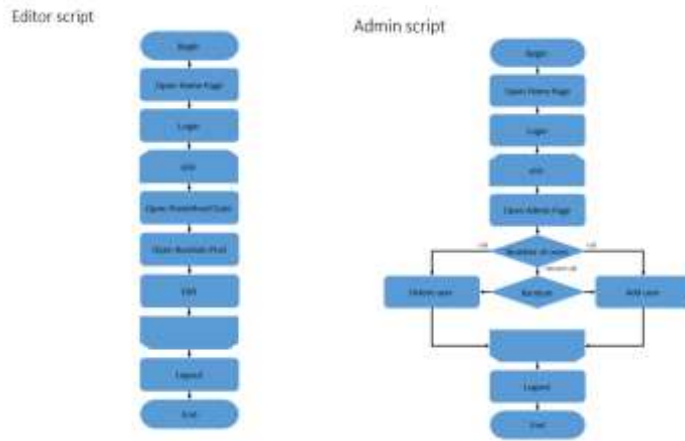


Also there are scenarios for Admin and Editor users where



Test Environment & Tools

Environment: Analysis was performed on TEST environment.

General info:

	Host	Type	IP	Hosted Applications	Ports
STAGING	EPUAKIYW1844T2	VM	10.17.175.4	EPUAKIYW1844T2.kyiv.epam.com	80

System resources (TEST env):

	Operational System	CPU, GHz	Memory, Gb	Disk size, Gb
DGL	Win Server 2010 R2 SP1 64bit	2	4	50

Tools:

Creating and executing tests	Apache JMeter v5.0
Storing test results and application indicators	InfluxDB 1.7.3
Collecting application metrics	Telegraf 1.10
Visualizing metrics, creating dashboards	Grafana 5.4.3

Test conditions

Condition	Transaction	Probabilities usage
1	open home page	15%
	open random date	10%
	open prediction date	30%
	search by name	30%
	open large calendar	10%
	open contacts	5%
2	open random page	50%
3	open post	80%
4	open random post	65%
	open first post	35%
5	add comment	20%

Test Setup

	First test	Second test
number of virtual users	80 Anonymous, 2 Admins, 2 Editors	60 Anonymous, 2 Admins, 2 Editors
ramp-up period	800; 20;20	600; 20;20
think time between transactions(sec)	3-5	3-5
count of posts	1000	1000

Note: here random date is from 2019-02-01 to 2019-02-11.

Test Results

Test Summary

1. The maximum capacity of the application usage by Anonymous clients is found. For scenario it is restricted by the 100% CPU usage. Adding more load leads to the application becomes unresponsive.
2. Crash point is 68 users (2 Admin users, 2 Editor users, 64 Anonymous users). Saturation point is 64 users (2 Admin users, 2 Editor users, 60 Anonymous users).

Issues found

There were Internal Server Errors for Edit post transaction.

Recommendation

Possibility to increasing CPU power. To fix problem with response time of opening Home page and internal server error for Edit post transaction.

Results: graphs and tables

First test

1. Aggregate Reports

Aggregate Report										
transaction	Count	Avg	Min	Max	Median	Pct 75	Pct 90	Pct 95	K0	Error %
Add user	23	60.94 ms	22.00 ms	328.00 ms	338.00 ms	328.00 ms	328.00 ms	338.00 ms	0	0%
Admin Page	51	1.77 s	32.00 ms	1.98 ms	380.00 ms	380.00 ms	858.00 ms	858.00 ms	1	0.00%
Delete user	26	60.28 ms	22.00 ms	391.00 ms	391.00 ms	391.00 ms	391.00 ms	391.00 ms	0	0%
Edit post	77	1.20 s	81.00 ms	1.98 ms	774.00 ms	882.00 ms	2.00 s	2.00 s	4	3.37%
Home page	1 020	1.88 s	33.00 ms	1.43 ms	518.38 ms	1.00 s	1.08 s	1.32 s	21	1.34%
Login	8	137.71 ms	48.00 ms	178.00 ms	179.00 ms	179.00 ms	179.00 ms	179.00 ms	0	0%
Logout	4	38.42 ms	21.00 ms	44.00 ms	38.00 ms	44.00 ms	44.00 ms	44.00 ms	0	0%
Open Contacts	302	792.30 ms	27.00 ms	1.95 ms	471.00 ms	1.34 s	1.34 s	1.24 s	10	1.68%
Open Large Calendar	580	848.80 ms	70.00 ms	1.43 ms	558.72 ms	1.04 s	1.13 s	1.13 s	12	1.80%
Open Predefined Date	1 790	822.58 ms	28.00 ms	1.41 ms	588.38 ms	1.40.85 ms	1.23 s	1.33 s	28	1.62%
Open Random Date	585	704.12 ms	29.00 ms	1.43 ms	578.72 ms	1.04 s	1.16 s	1.16 s	18	3.37%
Open Random Editor Post	74	88.23 ms	47.00 ms	218.00 ms	270.00 ms	270.00 ms	718.00 ms	718.00 ms	1	0.00%
Search By Name	1 697	843.54 ms	34.00 ms	1.44 ms	687.75 ms	778.11 ms	1.08 s	1.31 s	37	2.80%

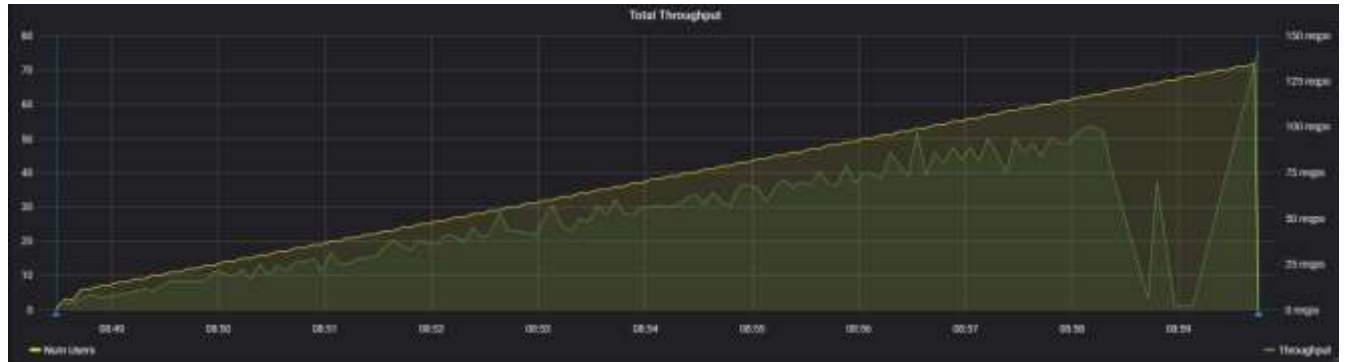
2. Total Response Time vs Threads



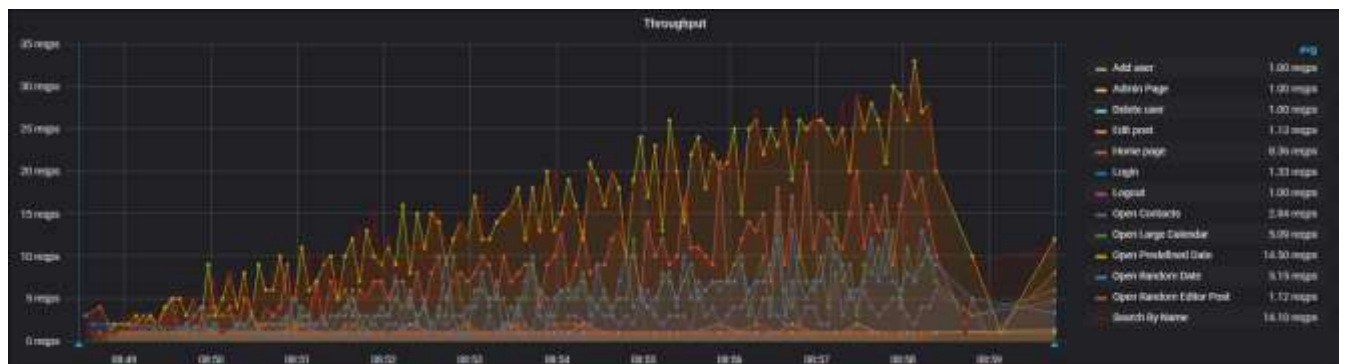
3. Transaction Response Times



4. Total Throughput vs Threads



5. Transaction Throughput

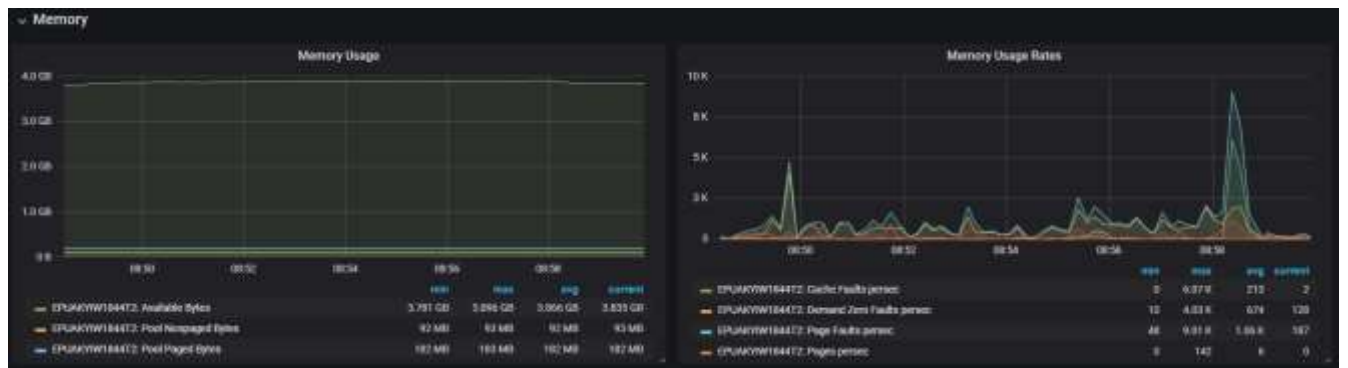


6. CPU

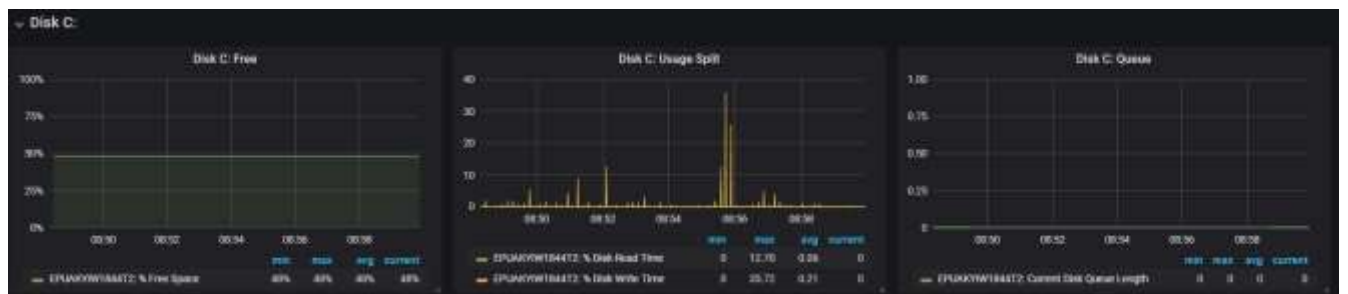


The indicators of CPU increased stability during the test up to crash.

7. Memory



8. Disk C



9. Errors



Error Info			
responseCode	errorMessage	transaction	sum
404	Number of samples in transaction : 1, number of failing samples : 1	Open Random Editor Post	1
500	Number of samples in transaction : 3, number of failing samples : 1	Edit post	2
Non HTTP response code: java.net.SocketException	None	Home page	8
Non HTTP response code: java.net.SocketException	None	Open Contacts	2
Non HTTP response code: java.net.SocketException	None	Open Large Calendar	7
Non HTTP response code: java.net.SocketException	None	Open Predifined Date	9
Non HTTP response code: java.net.SocketException	None	Open Random Date	3
Non HTTP response code: java.net.SocketException	None	Search By Name	8
Non HTTP response code: java.net.SocketException	None	Home page	4
Non HTTP response code: java.net.SocketException	Number of samples in transaction : 1, number of failing samples : 1	Open Contacts	5
Non HTTP response code: java.net.SocketException	Number of samples in transaction : 1, number of failing samples : 1	Open Large Calendar	2
Non HTTP response code: java.net.SocketException	Number of samples in transaction : 1, number of failing samples : 1	Open Predifined Date	9
Non HTTP response code: java.net.SocketException	Number of samples in transaction : 1, number of failing samples : 1	Open Random Date	3
Non HTTP response code: java.net.SocketException	Number of samples in transaction : 1, number of failing samples : 1	Search By Name	8
Non HTTP response code: java.net.SocketException	Number of samples in transaction : 3, number of failing samples : 1	Edit post	1
Non HTTP response code: java.net.SocketTimeoutException	Number of samples in transaction : 1, number of failing samples : 1	Home page	2
Non HTTP response code: java.net.SocketTimeoutException	Number of samples in transaction : 1, number of failing samples : 1	Search By Name	1
Non HTTP response code: org.apache.http.conn.HttpHostConnectException	None	Admin Page	1
Non HTTP response code: org.apache.http.conn.HttpHostConnectException	Number of samples in transaction : 1, number of failing samples : 1	Home page	7
Non HTTP response code: org.apache.http.conn.HttpHostConnectException	Number of samples in transaction : 1, number of failing samples : 1	Open Contacts	3

404 error for Open Random Editor Post was probably due some mistake in script. 500 errors for Edit post transaction needs to be investigated. Probably it can relate memory usage.

Other errors relate to server stopped to response.

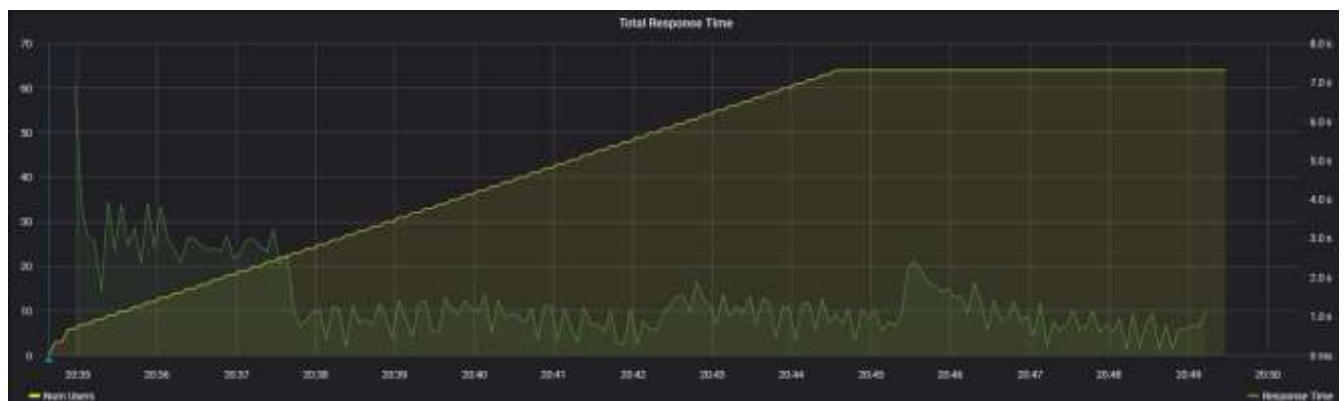
Second test

Second test was for checking saturation point.

1. Aggregate Reports

Aggregate Report										
transaction	Count	Avg	Min	Max	Median	Pct 75	Pct 90	Pct 95	RD	Error %
Admin Page	98	392.51 ms	34.00 ms	4.54 s	4.54 s	4.54 s	4.54 s	4.54 s	0	0%
Edit post	110	711.36 ms	87.00 ms	3.28 s	3.25 s	3.25 s	3.25 s	3.25 s	5	0.34%
Home page	1 897	374.22 ms	36.00 ms	13.76 s	419.00 ms	1.34 s	13.76 s	13.76 s	3	0%
Login	15	195.92 ms	65.00 ms	575.00 ms	575.00 ms	575.00 ms	575.00 ms	575.00 ms	0	0%
Logout	11	23.64 ms	13.00 ms	31.00 ms	31.00 ms	31.00 ms	31.00 ms	31.00 ms	0	0%
Open Contacts	551	88.38 ms	22.00 ms	1.73 s	795.67 ms	1.19 s	1.71 s	1.71 s	0	0%
Open Large Calendar	1 095	123.07 ms	63.00 ms	2.47 s	296.00 ms	404.72 ms	1.37 s	2.46 s	0	0%
Open Predefined Date	3 372	66.13 ms	24.00 ms	2.36 s	166.75 ms	286.83 ms	703.65 ms	853.78 ms	3	0%
Open Random Date	1 103	66.19 ms	27.00 ms	2.26 s	381.98 ms	654.51 ms	1.19 s	2.27 s	6	0%
Open Random Editor Post	110	113.89 ms	29.00 ms	401.00 ms	401.00 ms	401.00 ms	401.00 ms	401.00 ms	4	0.00%
Search By Name	3 251	84.53 ms	22.00 ms	2.47 s	563.89 ms	660.00 ms	743.56 ms	1.14 s	0	0%

2. Total Response Time vs Threads



3. Transaction Response Times

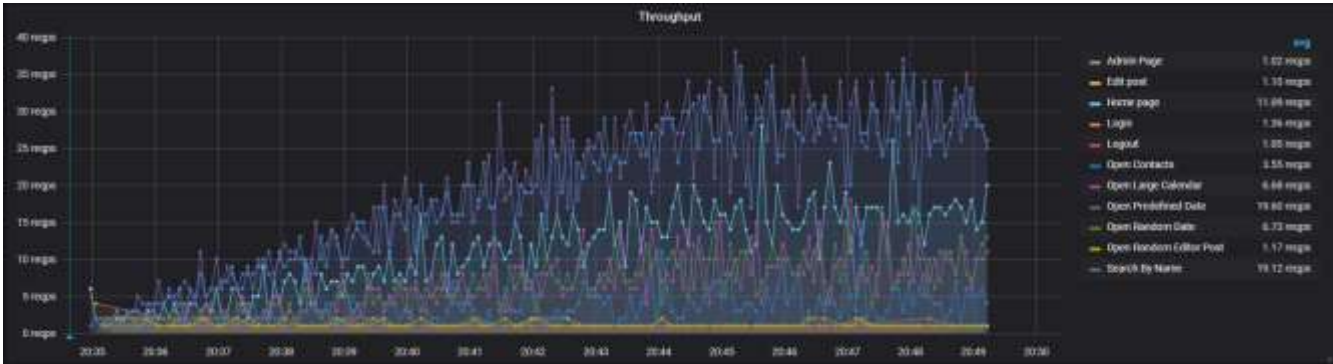


The average of response time in second test was more than in first one. First 3 minutes of test Home page transaction had response time 13.76 sec. Also, Admin page and Edit post transactions had higher response time than in first test. For 4.5 min after 64 users were logged server stopped to response.

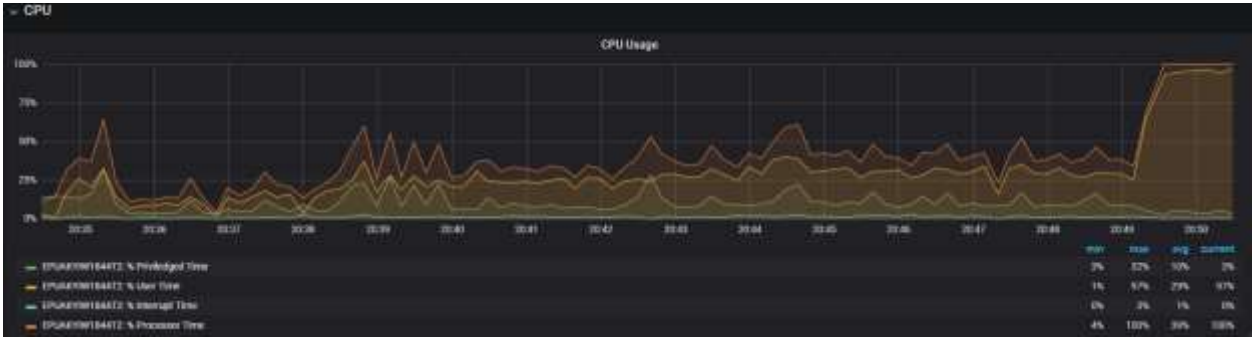
4. Total Throughput vs Threads



5. Transaction Throughput



6. CPU



The indicators of CPU were stable during the test up to crash.

7. Memory



8. Disk C



9. Errors



Almost the same situation was for errors like in first test.