Capacity test (1000 posts, 120vu)

Test purpose

The purpose of the test was to find the capacity of the BlogEngine application for 2 different scenarios of using the application by clients with Anonymous role. The number of generated blog posts for both scenarios is 1000.

Application Overview

BlogEngine.NET is an open source ASP.NET project that was born out of desire for a better blogging platform. Developers focused on simplicity, ease of use, extendibility and innovative design while taking advantage of the latest .NET features.

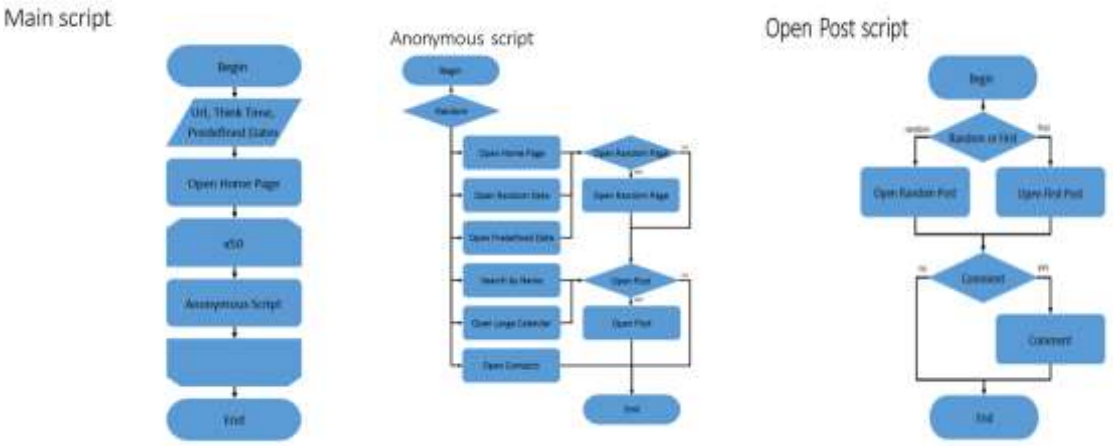
Testing Scope

Performance Testing for the following modules are in Scope of Testing

1. Home page
2. Calendar
3. Post page
4. Create comment
5. Contact page
6. Search by Name

Test scenario

There are considered Main script for Anonymous user scenario for two type of probability usage where



Test Environment & Tools

Environment: Analysis was performed on TEST environment.

General info:

	Host	Type	IP	Hosted Applications	Ports
STAGING	EPUAKIYW1844T2	VM	10.17.175.58	EPUAKIYW1844T2.kyiv.epam.com	80, 443

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	First probabilities usage	Second probabilities usage
1	open home page	random	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%	50%
3	open post	50%	80%
4	open random post	50%	65%
	open first post	50%	35%
5	add comment	50%	20%

Test Setup

number of virtual users	120
ramp-up period	1200
think time between transactions(sec)	3-5
count of posts	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 only for first probabilities usage. For both scenarios it is restricted by the 100% CPU usage. Adding more load leads to the application becomes unresponsive.

2. Saturation point is 27 users and crash point is 51 for the 1st scenario. Crash point is 96 for the 2d scenario.

Issues found

"Comment" transaction showed 2 errors during the test. This may be caused by the concurrency during access to the same resource (post) or this transaction is implemented not correct.

More than 10 percent of "Open Home page" transaction have response time more than 23 seconds in each scenario.

Recommendation

Possibility to increasing CPU power. To fix problem with response time of opening Home page.

Results: graphs and tables

Test result dashboard:

First probabilities usage: https://snapshot.raintank.io/dashboard/snapshot/yIa4dnamDt6rSF1wQ6MrD4Cie9L9EIdb

Second probabilities usage:
https://snapshot.raintank.io/dashboard/snapshot/VmLTevq3riaZJZvOMdt4FApHRo1dtx1E

Host monitoring dashboard:

First probabilities usage:
https://snapshot.raintank.io/dashboard/snapshot/ktLBAUBWAhNqobEguYe1NdHwnnqHV83l

Second probabilities usage:
https://snapshot.raintank.io/dashboard/snapshot/n2mfx4433TsejAkquLGx4P3Q4rPruy4m

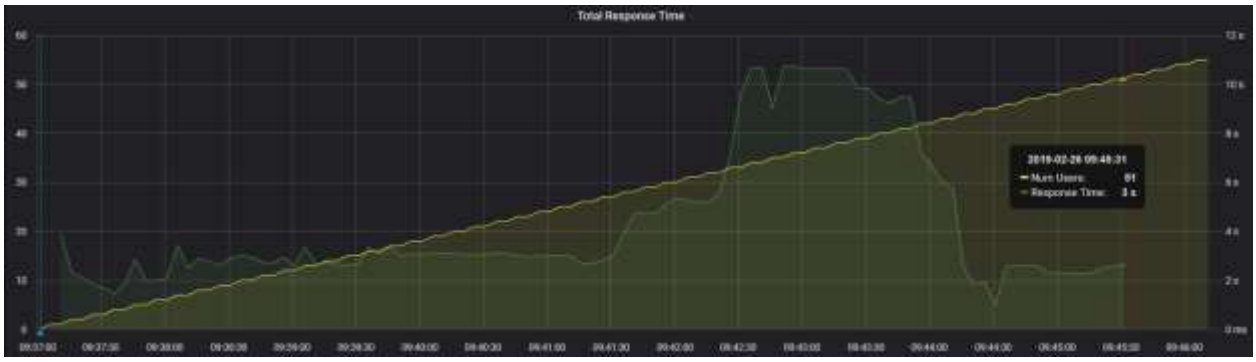
1. Aggregate Reports

First probabilities usage:

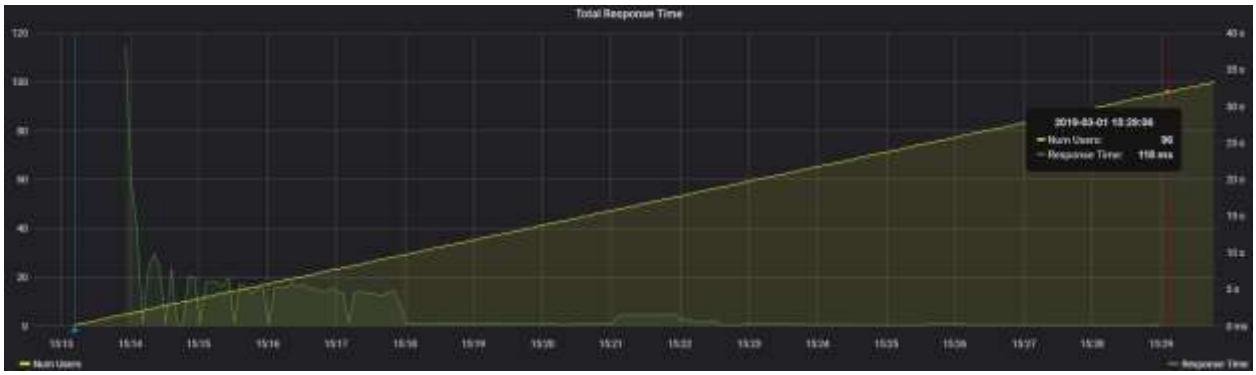
Second probabilities usage:

2. Total Response Time vs Threads

First probabilities usage:

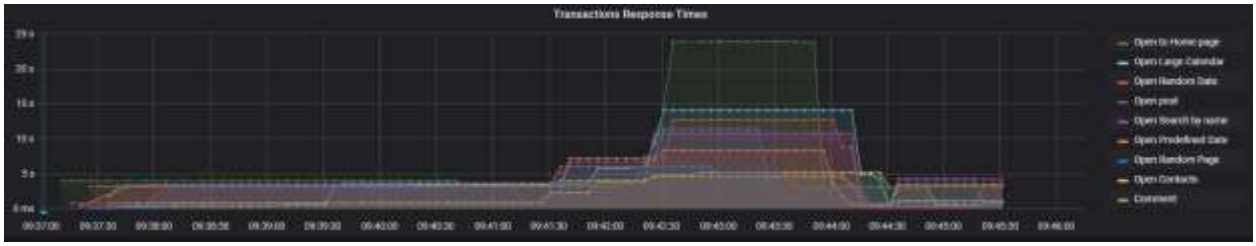


Second probabilities usage:

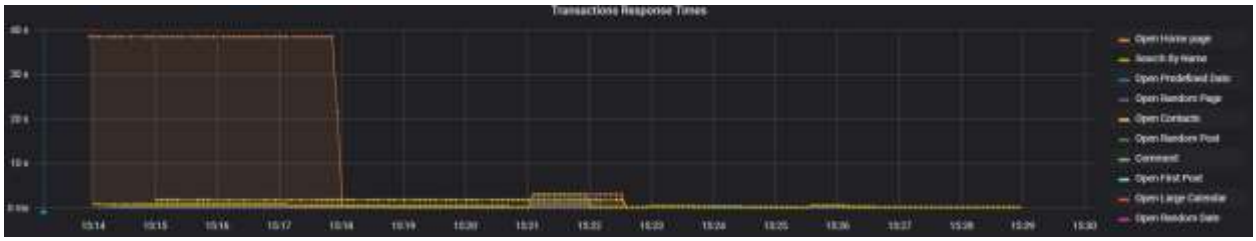


3. Transaction Response Times

First probabilities usage:



Second probabilities usage:

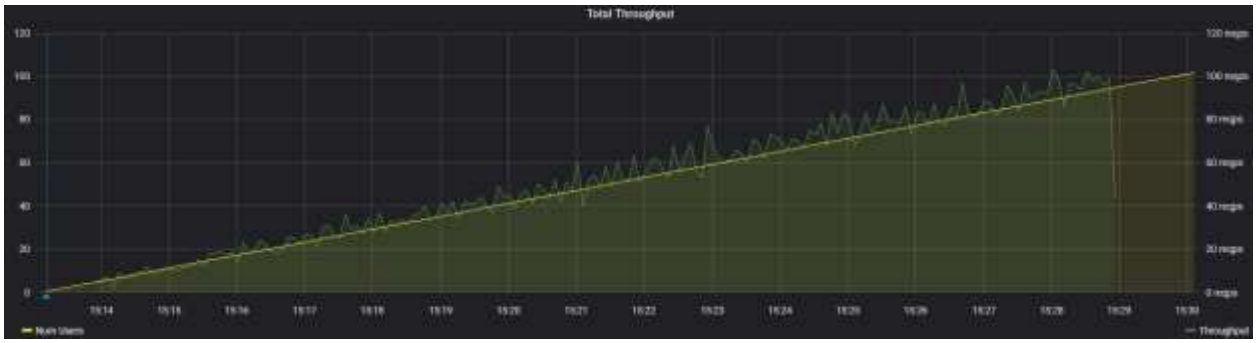


The average of response time in second case was much less than in first one. The only exception is Home page.

4. Total Throughput vs Threads

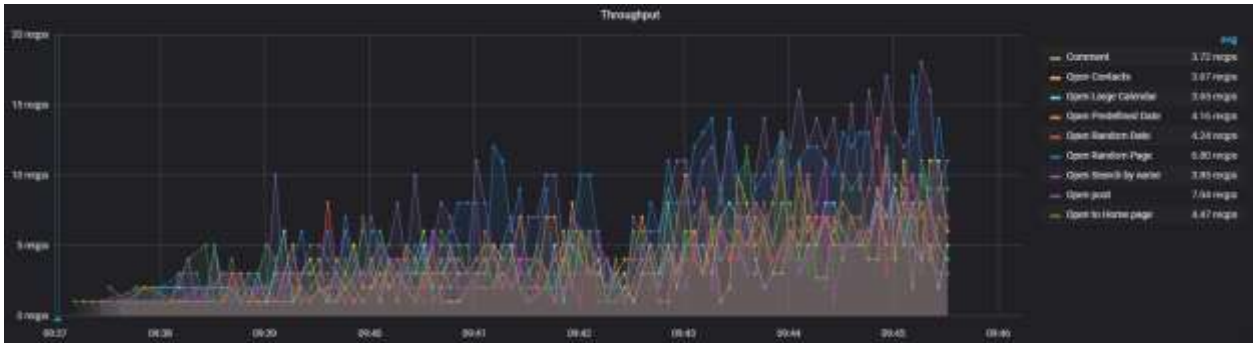
First probabilities usage:

Second probabilities usage:

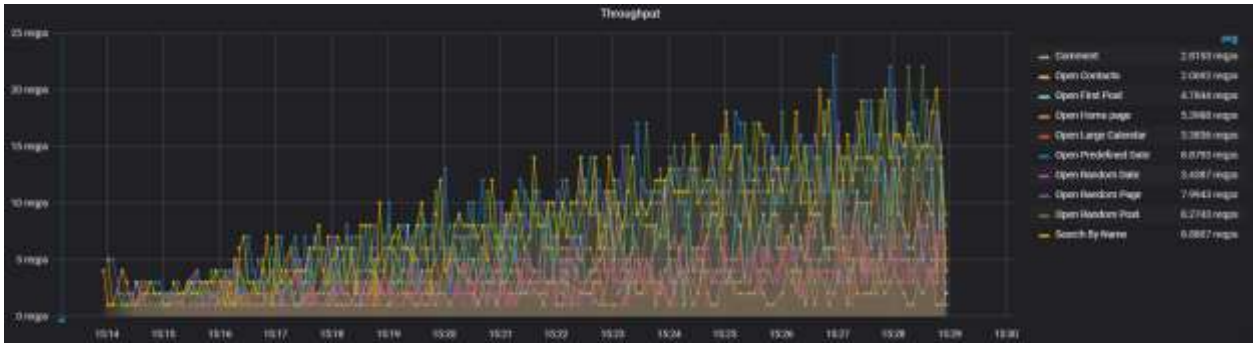


5. Transaction Throughput

First probabilities usage:



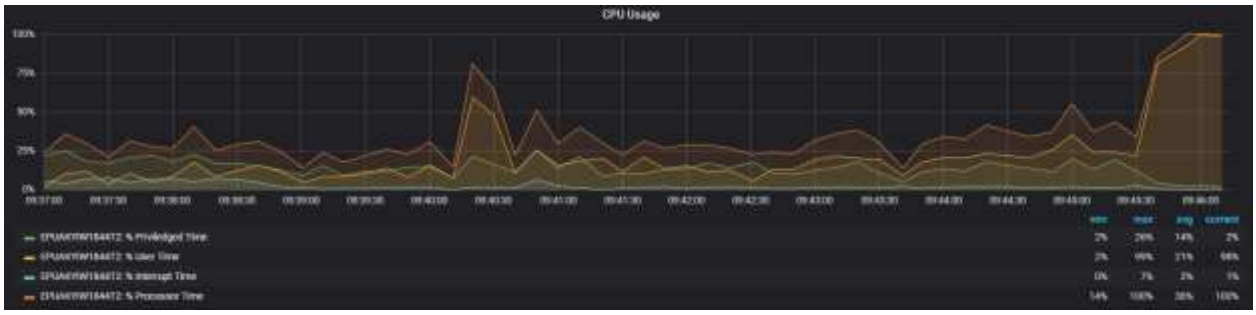
Second probabilities usage:



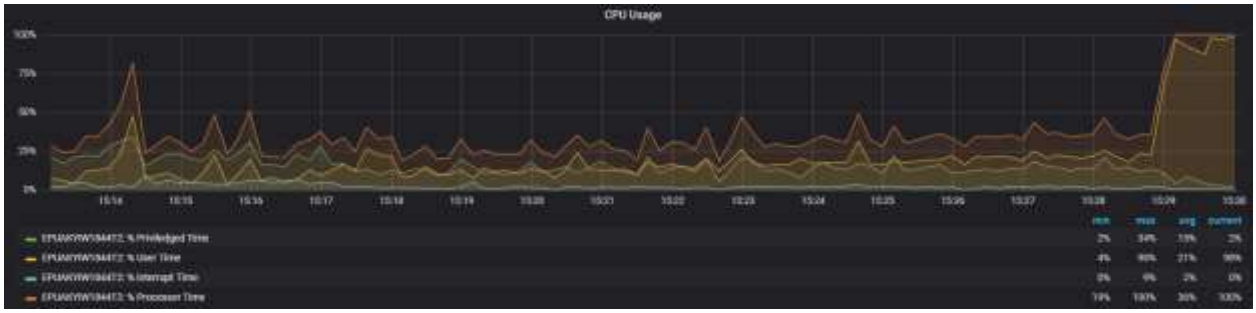
In first case throughput increased not linear because in interval 9:42:00-9:43:00 response time of transaction was longer than 5 seconds.

6. CPU

First probabilities usage:



Second probabilities usage:

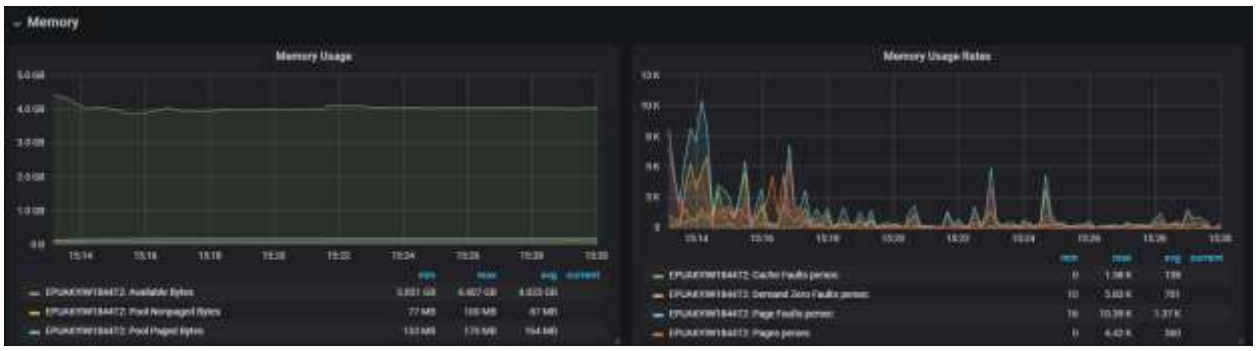


In each case indicators of CPU were stable during the test.

7. Memory

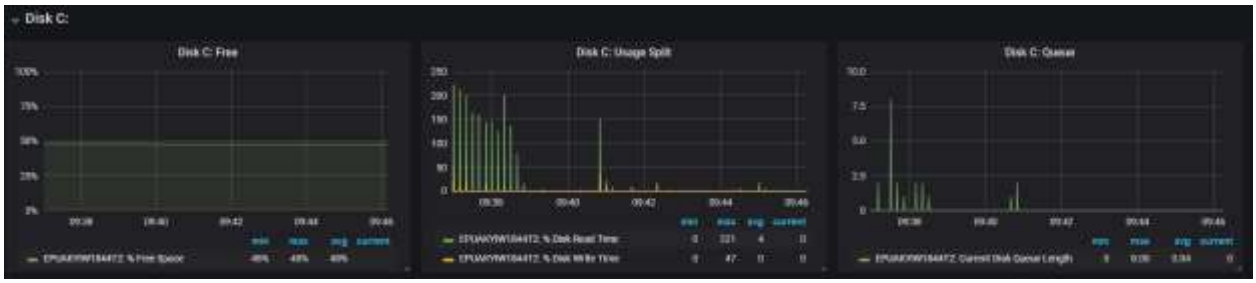
First probabilities usage:

Second probabilities usage:



8. Disk C

First probabilities usage:



Second probabilities usage:

9. Errors

First probabilities usage:

Second probabilities usage:

In second case errors appeared because probably there are mistakes in test script.

In first case test “Comment” failed two times because comments were not created .