**Report about conducted load test**

**Date:** 29th of May 2022

**Author:** Oleksandr Maksymenko

**Application:** BlogEngine.NET version 3.2

**Environment:** Host machine where script was run + Virtual Machine where blog is deployed

**Test Environment configuration(RAM, CPU etc.):**

|  |  |
| --- | --- |
| **RAM** | 4096 MB |
| **CPU** | 1 Core CPU (Intel(R) Core(TM) i7-8665U CPU @ 1.90GHz 2.11 GHz) |
| **System Type** | Windows 10 64-bit |

1. **Why such testing was conducted:** To determine general capacity of BlogEngine application for Admin flow, find saturation point
2. **Test script description:** Script contains actions for Admin flow. Firstly “user” opens Home page, Logs In, after that starts loop which executes 10 times: Open Admin Page -> Open Users Page -> depending on current number of users -> Create User OR Delete User. After loop ends “user” will be logged off.

Diagram

Description automatically generated

1. **Tests:** 2 test runs.  
     
   **Test run preconditions:**

* 2 Admin users
* CSV file with user credentials
* Warmup actions before each test run (open Blog, navigate via its pages, anonymously)

**Load Model 1:**

|  |  |
| --- | --- |
| **Users** | 200 |
| **Rump up time (s)** | 600 |
| **Duration (s)** | 600 |

**Load Model 2:**

|  |  |
| --- | --- |
| **Users** | 240 |
| **Rump up time** | 600 |
| **Duration** | 600 |

1. **Short summary on conducted tests:**

* During test execution #1 throughput was growing until test reached 75 active threads, at that moment response time started to grow up. Maximum number of active threads (200) was not reached, it stopped at ~180. Errors happened in Create User and Open Users Page transactions.
* For test execution #2 maximum number of active threads was increased to 240, but that number also was not reached, max number of concurrent users during the test was ~160, which is lower then in previous run. Point where throughput stopped to grow up and response time started its increasing remained the same as in execution #1, ~73-76 users.

1. **Detailed test results:**

**5.1)** Run with **Load Model 1**

Chart, histogram

Description automatically generated

**A screenshot of a computer

Description automatically generated with medium confidence**

Active threads are growing linearly until ~180 concurrent users, Total Throughput is growing linearly until it reaches ~20 requests per second.

Chart, histogram

Description automatically generated

Response time was not growing until we reached saturation point (~75 users, ~20 req/s), slowest transactions during whole test execution is Open Admin Page, which contains a lot of embedded resources.

**Graphical user interface

Description automatically generated with medium confidence**

Transactions with most errors were Create User and Open Users Page. Those errors were observed during whole test run.

Problematic transactions:

Graphical user interface

Description automatically generated

Graphical user interface

Description automatically generated

Server metrics:

Chart, histogram

Description automatically generated

Graphical user interface

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

**5.2)** Run with **load model 2**

A picture containing chart

Description automatically generated

For test run #2 we can see similar picture as for run #1, number of active threads didn’t reach its desired point of 240 users, stopping at ~160. Throughput stopped its linear increasing at ~20 req/s and ~75 users.

Chart

Description automatically generated

Chart, line chart

Description automatically generated

Text

Description automatically generated with medium confidence

Problematic transactions:

Graphical user interface

Description automatically generated

Graphical user interface

Description automatically generated

A screenshot of a video game

Description automatically generated with medium confidence

Server metrics:

Chart, histogram

Description automatically generated

Graphical user interface

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a video game

Description automatically generated  
Server’s current connections number was growing linearly until 23:06, at that time our test execution reached 160 active threads, point where it stopped to grow up

1. **Conclusion:**

* System reaches saturation point at ~70-75 concurrent users and ~20 requests per second.
* Break point was not reached during the test executions.
* In both cases desired number of active threads was not reached, it stopped at ~180 users for run #1, and at ~160 users for run #2. As it is shown on graph from server’s metric with Current Connections (in test run #2), Active Threads increasing stopped at the same time server reached ~810 concurrent connections and after that moment its number was not growing linearly as before, which can signalize that those parameters are linked. Increasing number of possible concurrent connections to the server can resolve issue with Active Threads.
* Once server’s CPU reaches 100% - response time starts to grow up and total throughput’s behavior becomes inconsistent for the whole remaining test execution.
* Open Admin Page is the slowest transaction of our script.