**Report about conducted load test**

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**Application:** BlogEngine.NET version 3.2

**Environment:** Test Environment VirtualBox (Version 6.1.34 r150636 (Qt5.6.2))

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

|  |  |
| --- | --- |
| **Processor** | 11th Gen Intel(R) Core(TM) i7-1185G7 @ 3.00GHz 3.00 GHz (4 core) |
| **RAM** | 8 GB |
| **Hard Disk** | 60 GB |
| **Operating System** | Windows 10 Enterprise (21H2) |

1. **Why such testing was conducted:**

The report is included two methods of testing:

1. Smoke testing - was conducted to verification that the crucial functions of a program can be run and executed in the main workflow

2. Capacity Testing - was conducted to define the number of users that the application a given system will support and still meet performance goals

1. **Test script description:**

The features to be tested have been logically grouped to be covered by 3 threads of users "Admin script", "Editor script" and "Anonymous script". These scenarios were combined in one script followed by load requirement analysis for the modules. The below table captures the features covered by each script. The implement probabilities usage was divided by percentages for all threads (shown below tables):

|  |  |
| --- | --- |
| **Admin script** | **Editor script** |
|  |  |

|  |  |  |
| --- | --- | --- |
|  | **Anonymous script** |  |
|  | |  | | --- | | 1. Home Page: 15%  2. Open Random Date: 10%  3. Open Predefined Date: 30%  4. Search by Name: 30%  5. Open Large Calendar: 10%  6. Open Contacts: 5% | | |  | | --- | | 1. Open Random page (yes/no): 50% / 50%  2. Open post (yes/no): 80% / 20%  3. Random or First (yes/no): 65% / 35%  4. Comment (yes/no): 20% / 80% | |

1. **Tests:**  
   **Test run preconditions:**

* CSV file with Random dates
* Warmup script was running before each test run
* Before each new test script run, the webserver was reloaded, the test executed in NON-GUI mode

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Thread Group** | **Maximum number of simultaneous users** | **Ramp-Up period** | **Test duration** | **Probabilities usage** | **Number of posts quantity** |
| Thread Group (Admin users) | 2 | 200 | 600 (sec.) | Pre-Defined | 1000 |
| Thread Group (Editor users) | 10 | 100 | 600 (sec.) | Pre-Defined | 1000 |
| Thread Group (Anonymous users) | 88 | 600 | 600 (sec.) | Pre-Defined | 1000 |

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

As a result of comparing 3 tests runs the capacity testing results, that throughput (26 max/ops) by pre-define probabilities, and the user's maxed capacity is 100.

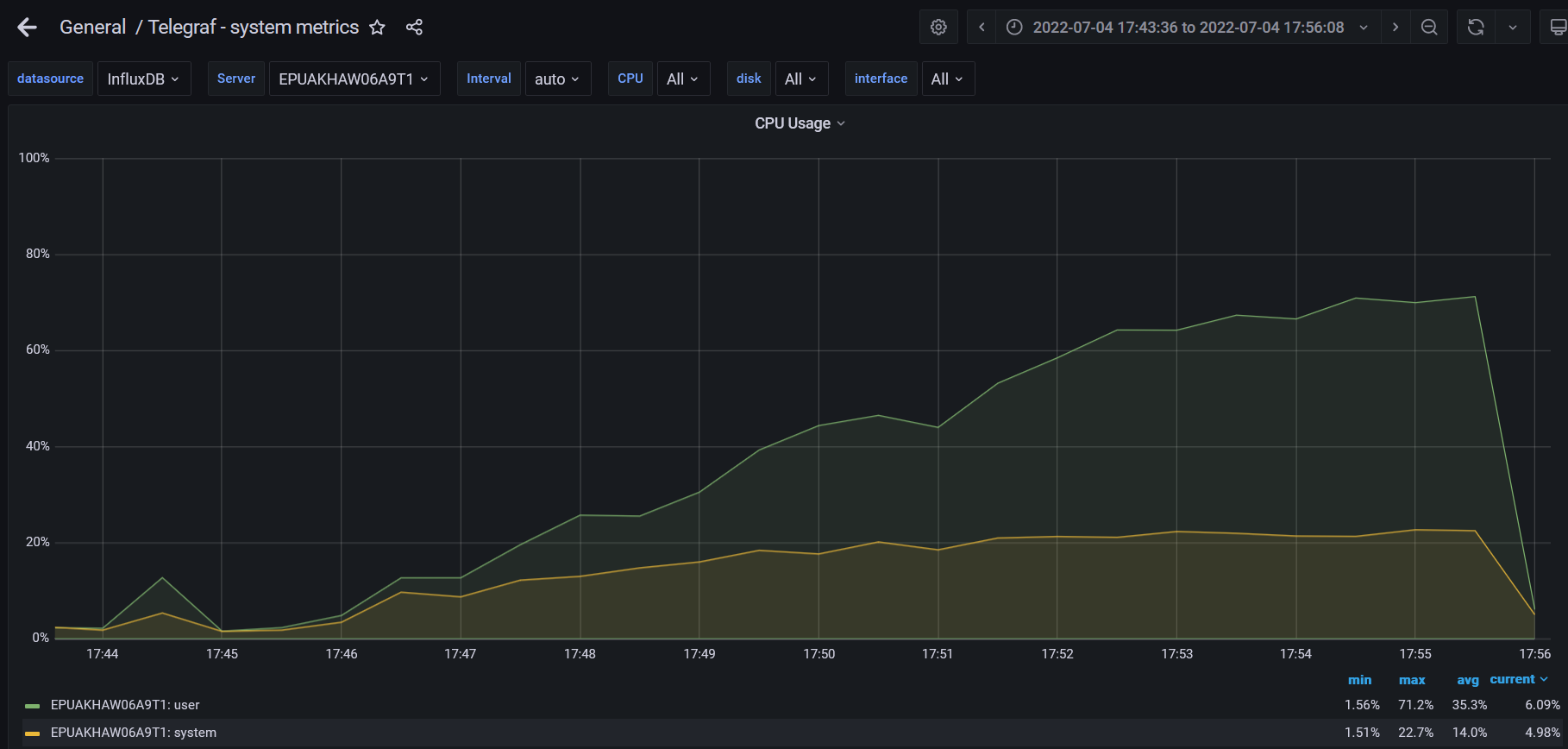
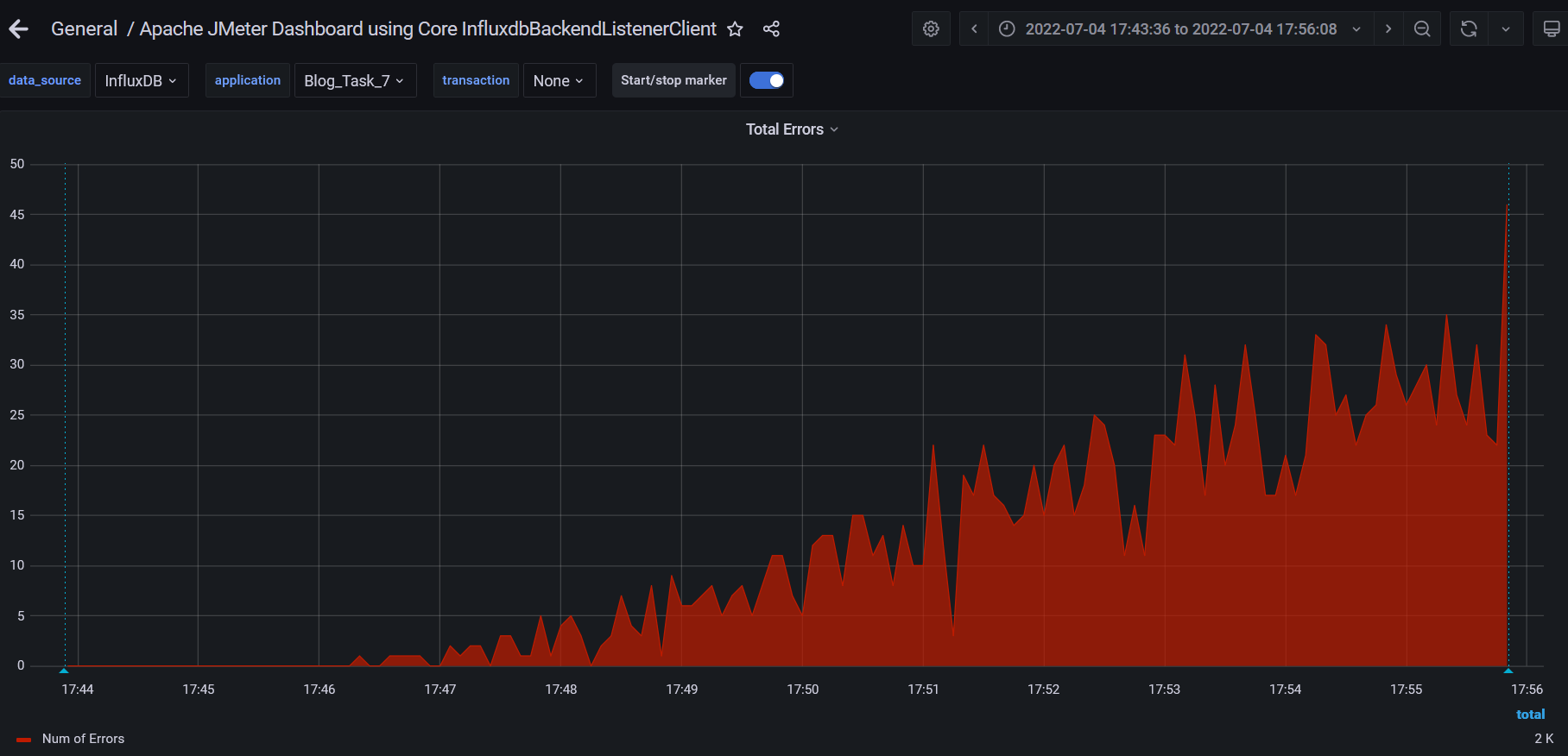
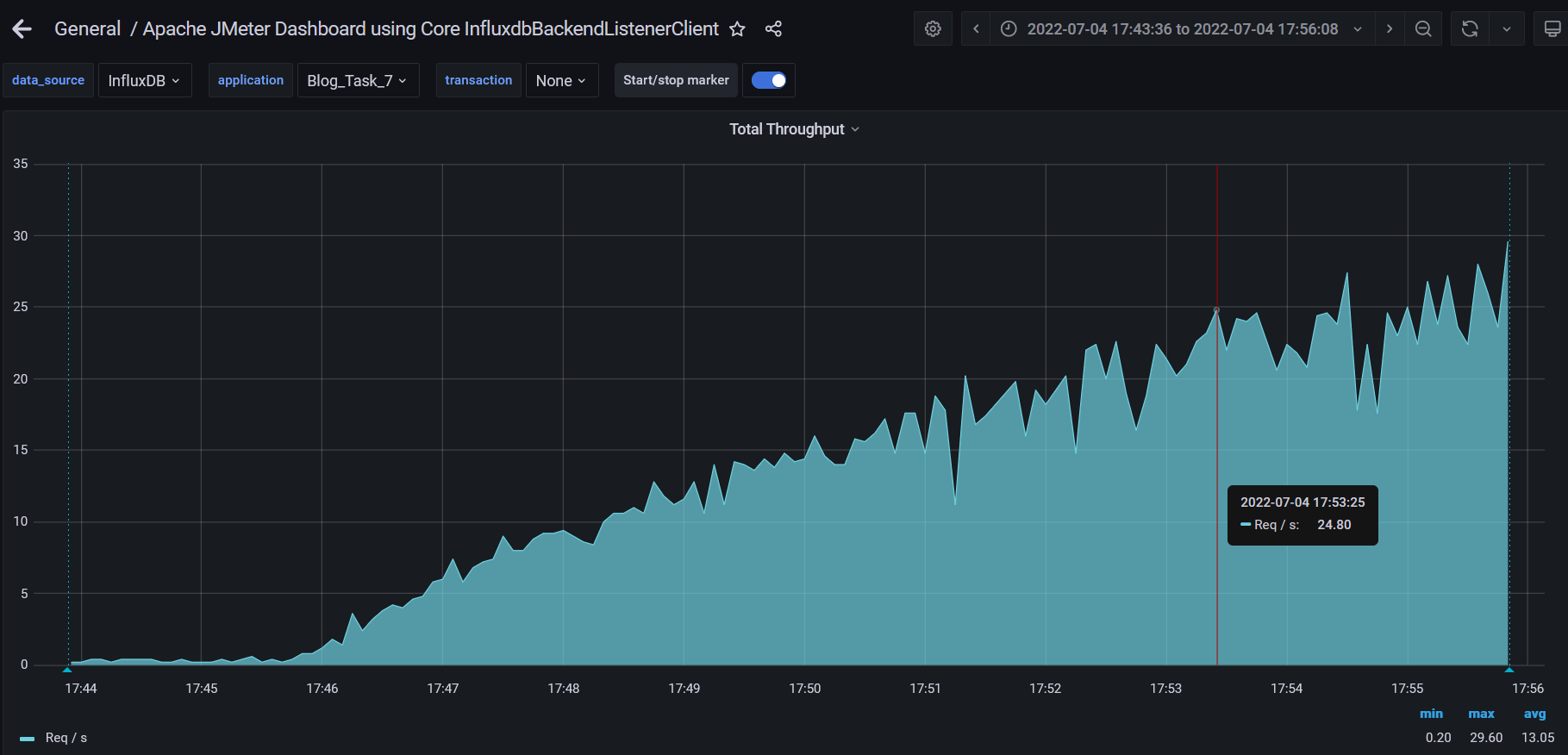
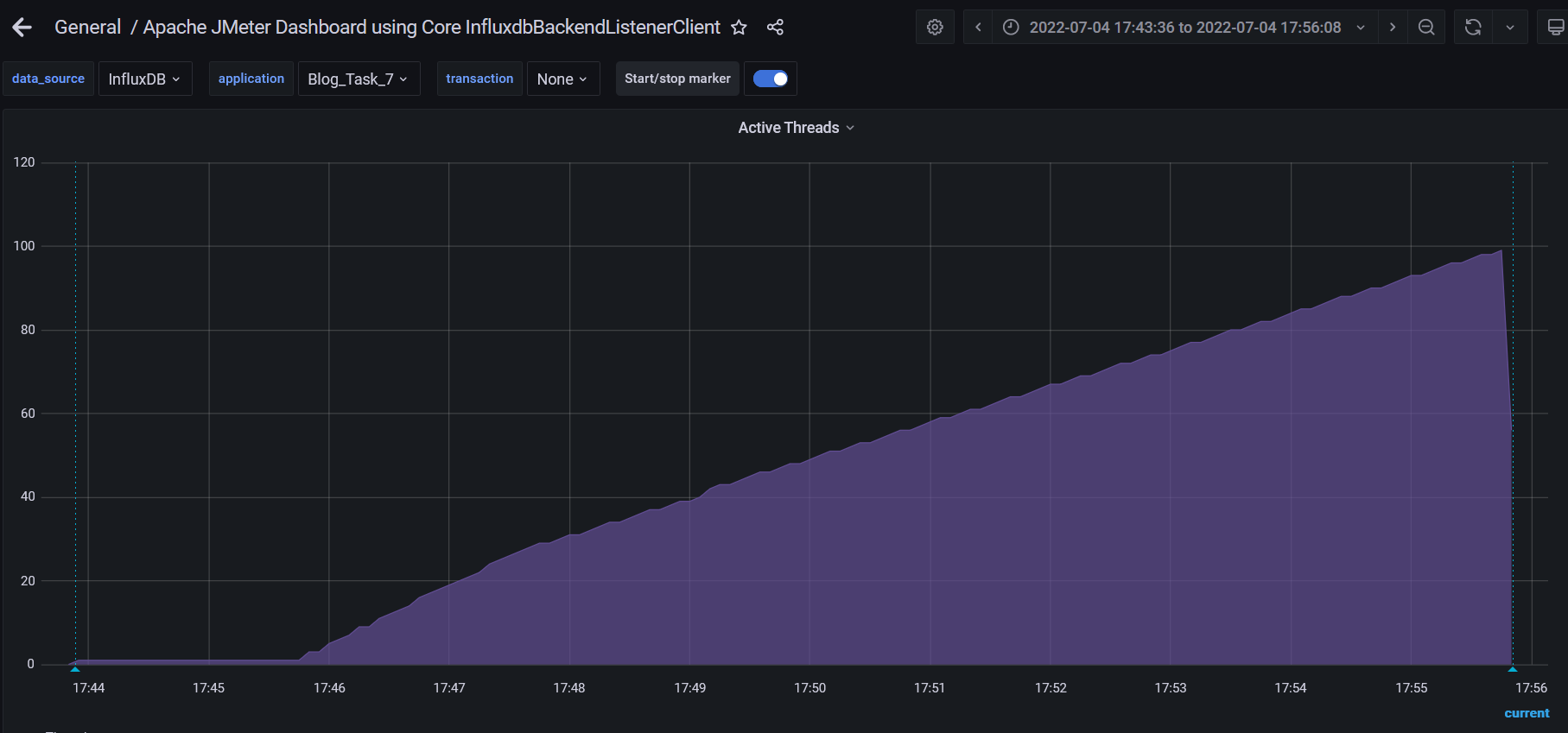
1. **Detailed test results:**

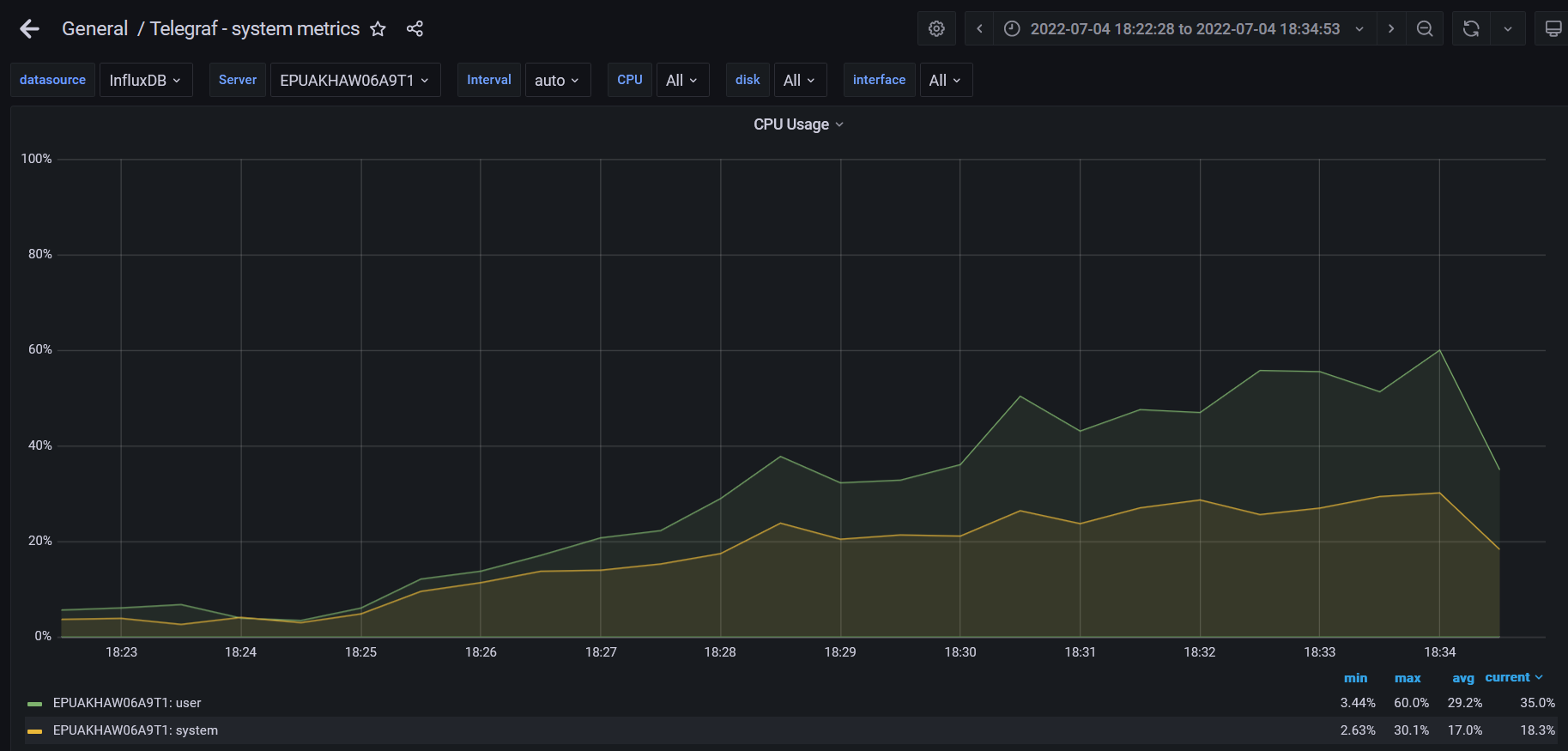
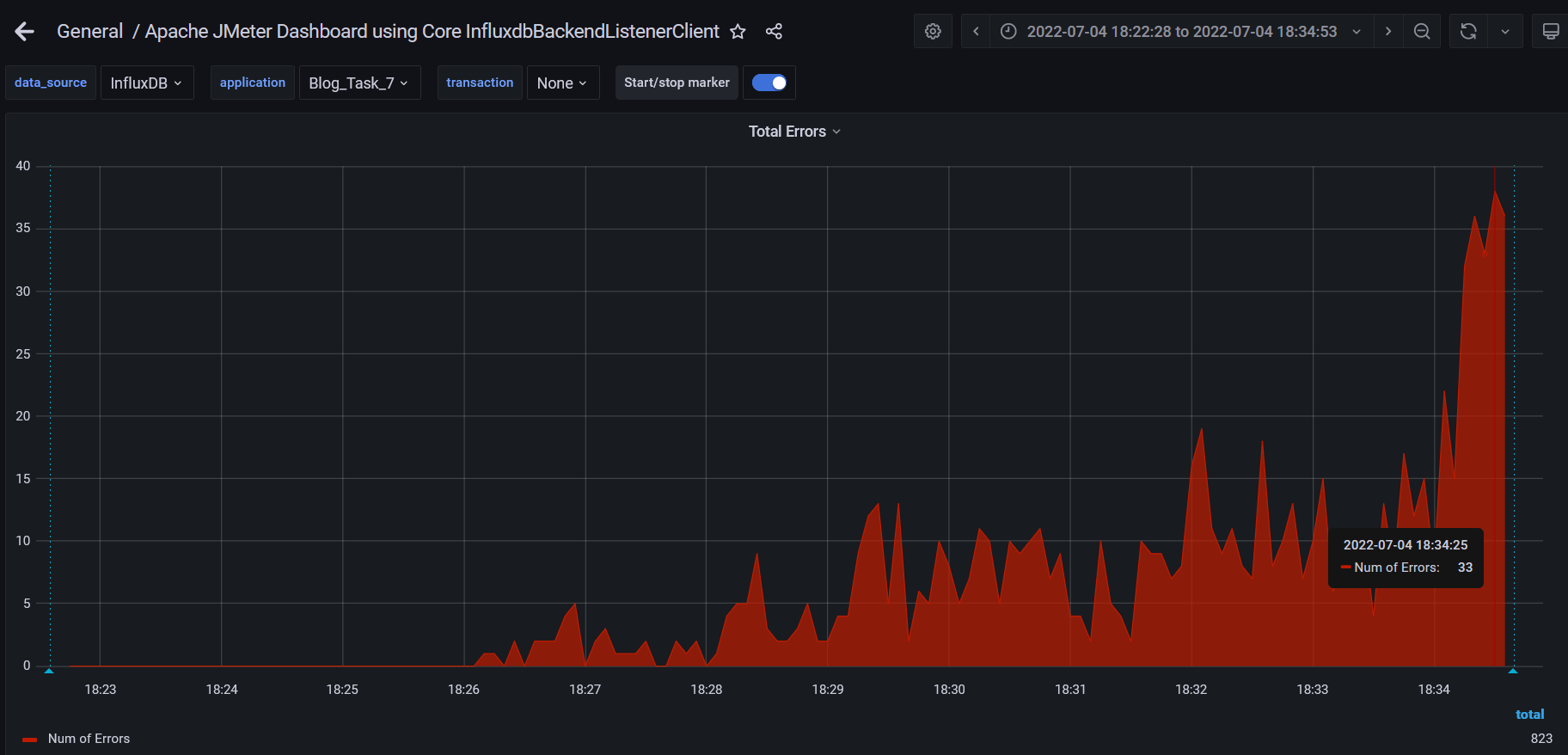
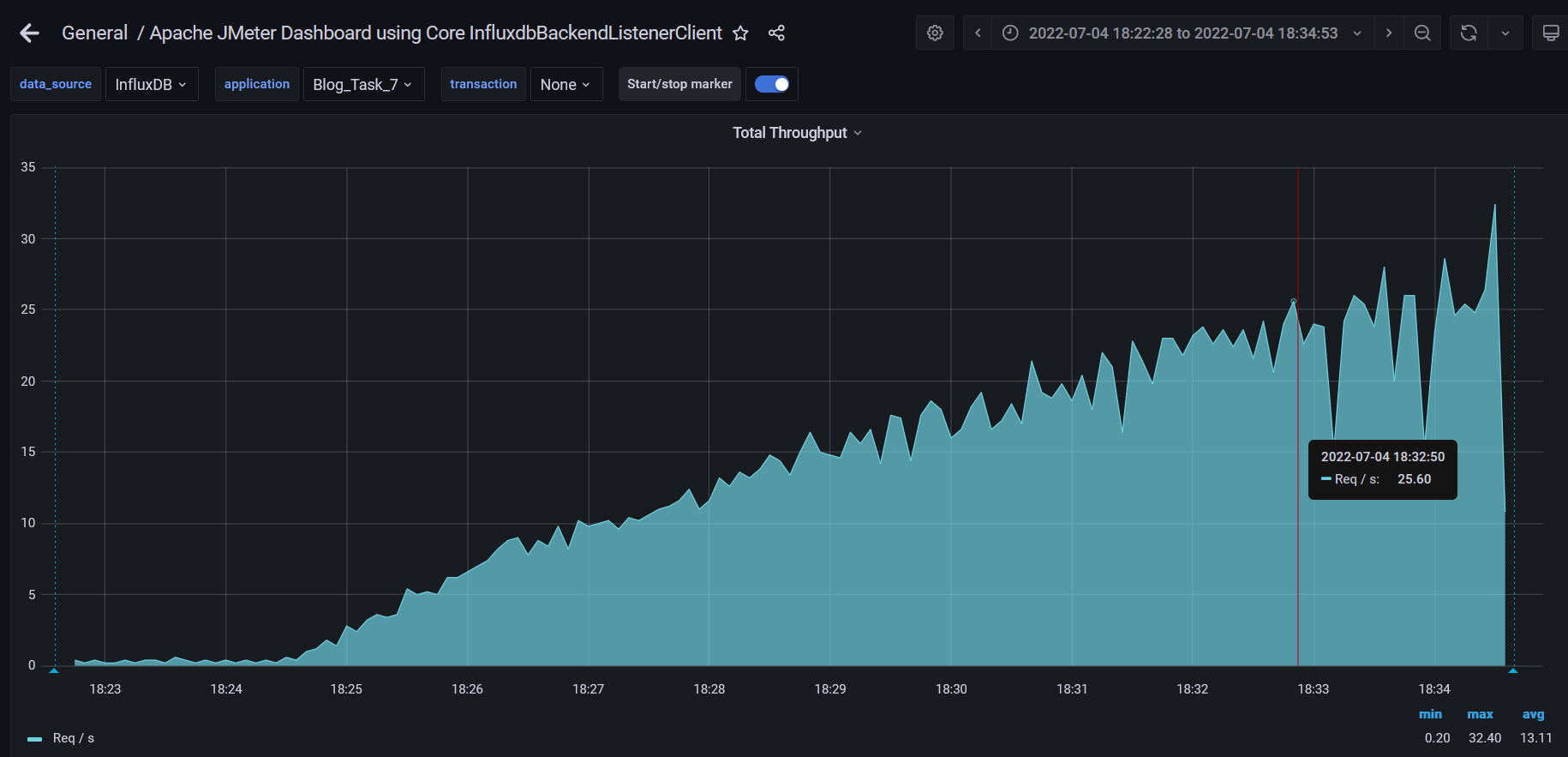
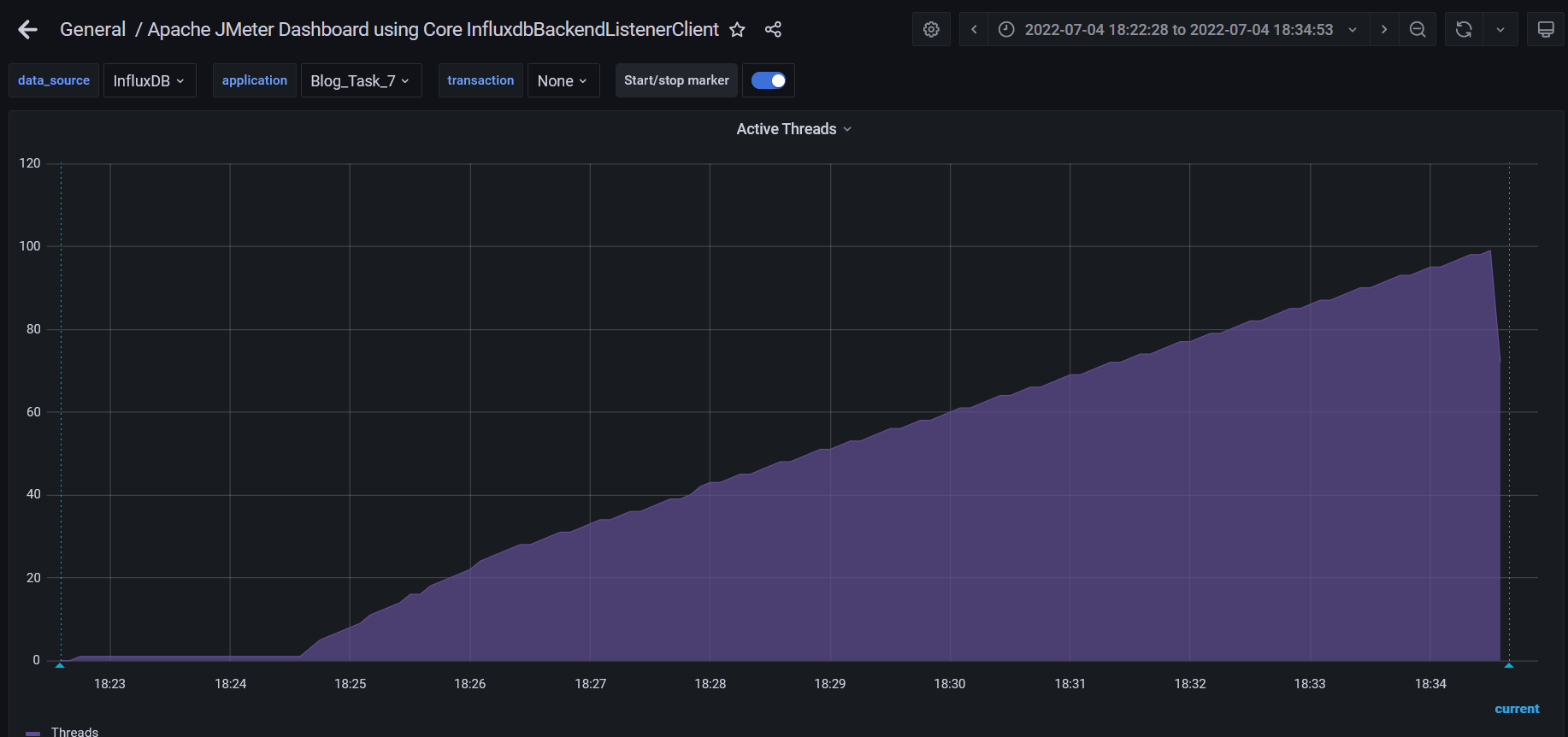
‘Blog\_Post\_Anonimus\_Task3’ and ‘Blog\_Post\_Anonimus\_Task6’ scripts were running 3 times, according to the capacity testing results, the comfort zone and behavior has a different result:

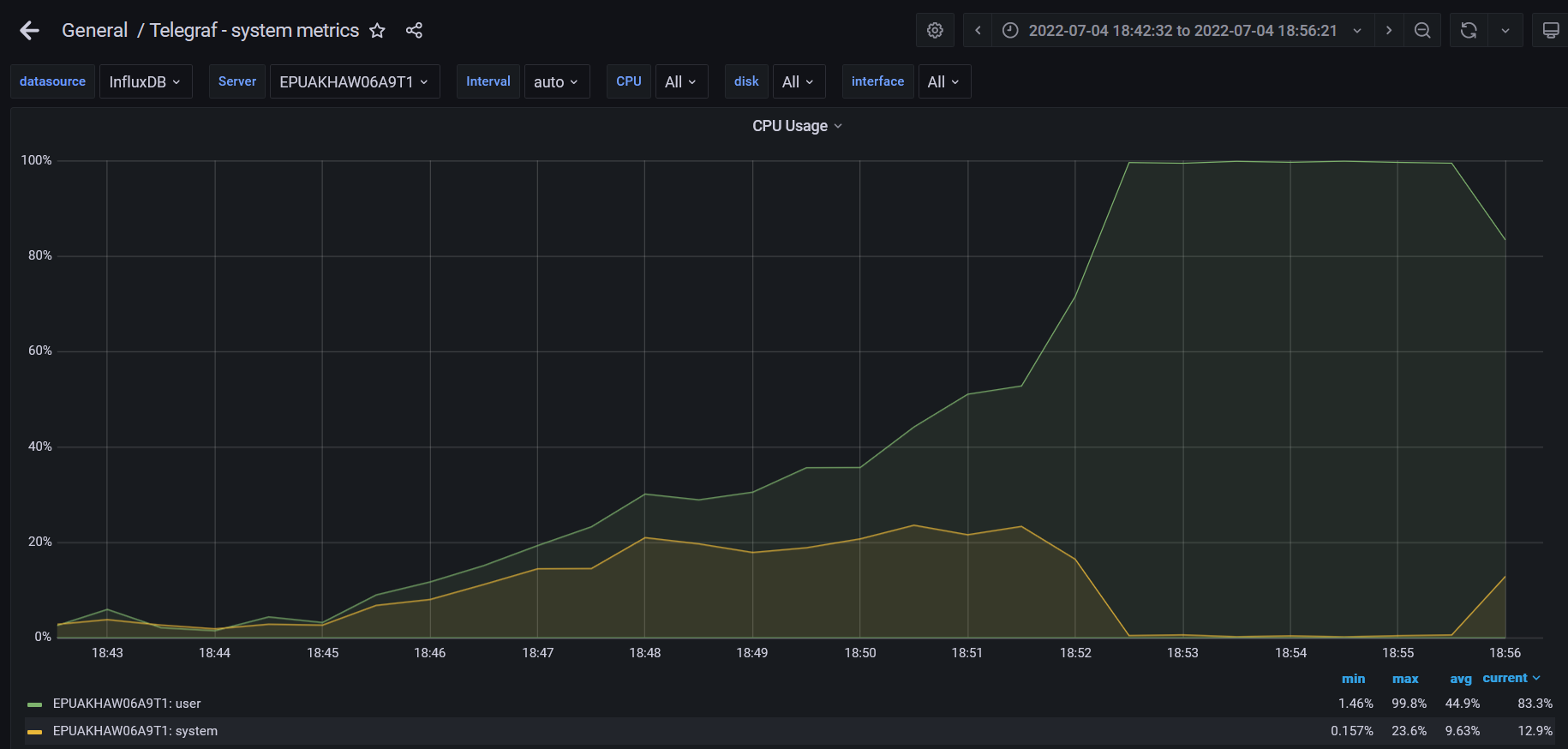
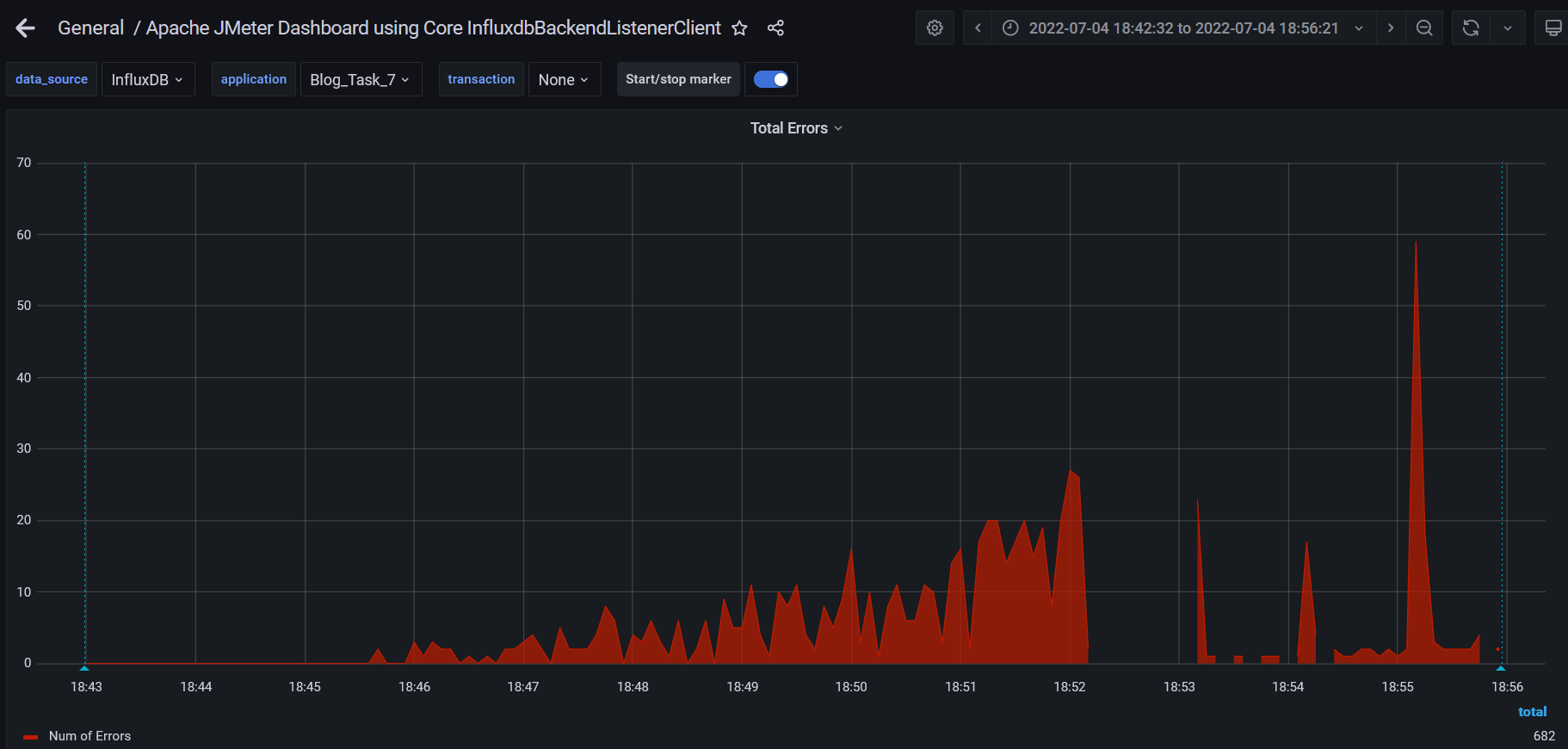
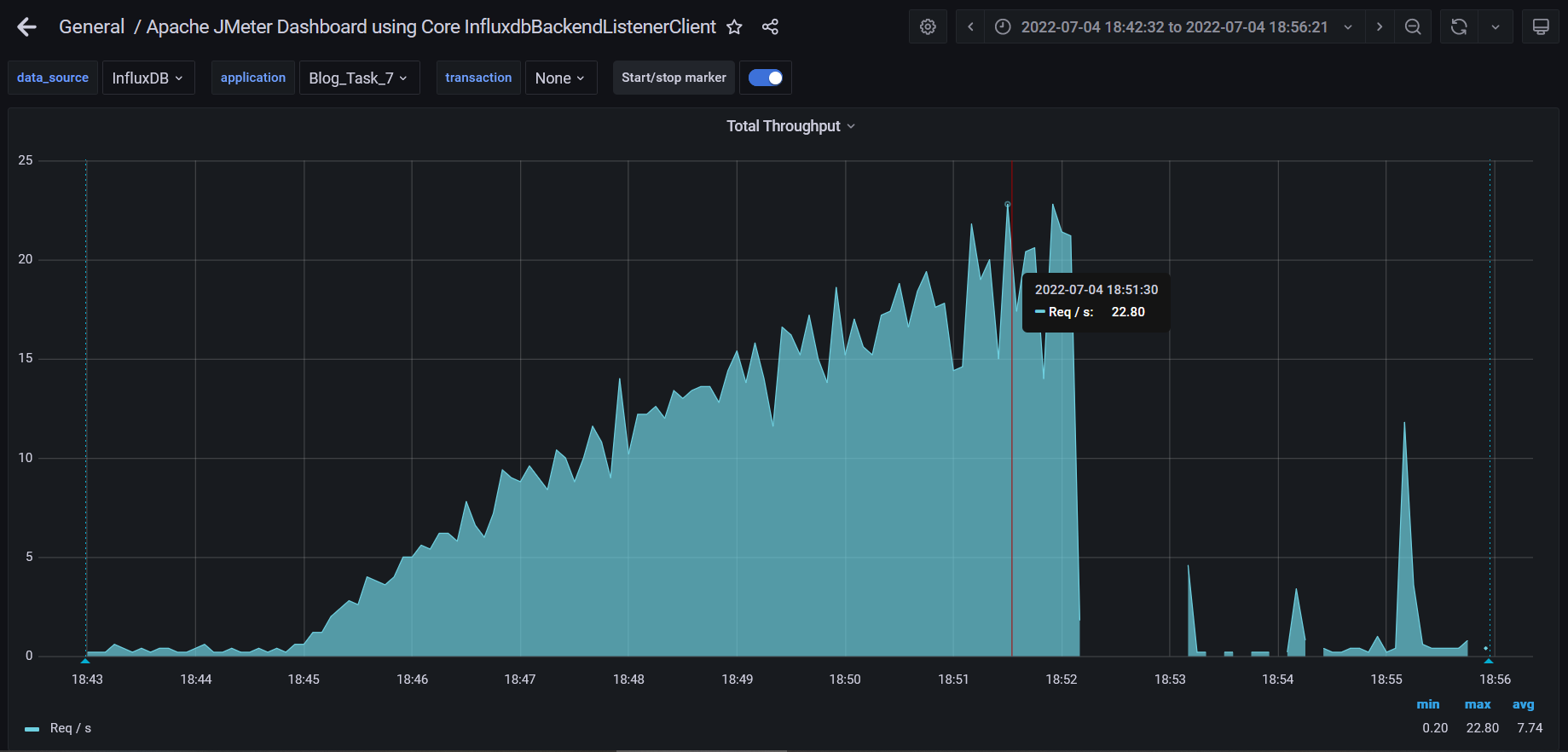
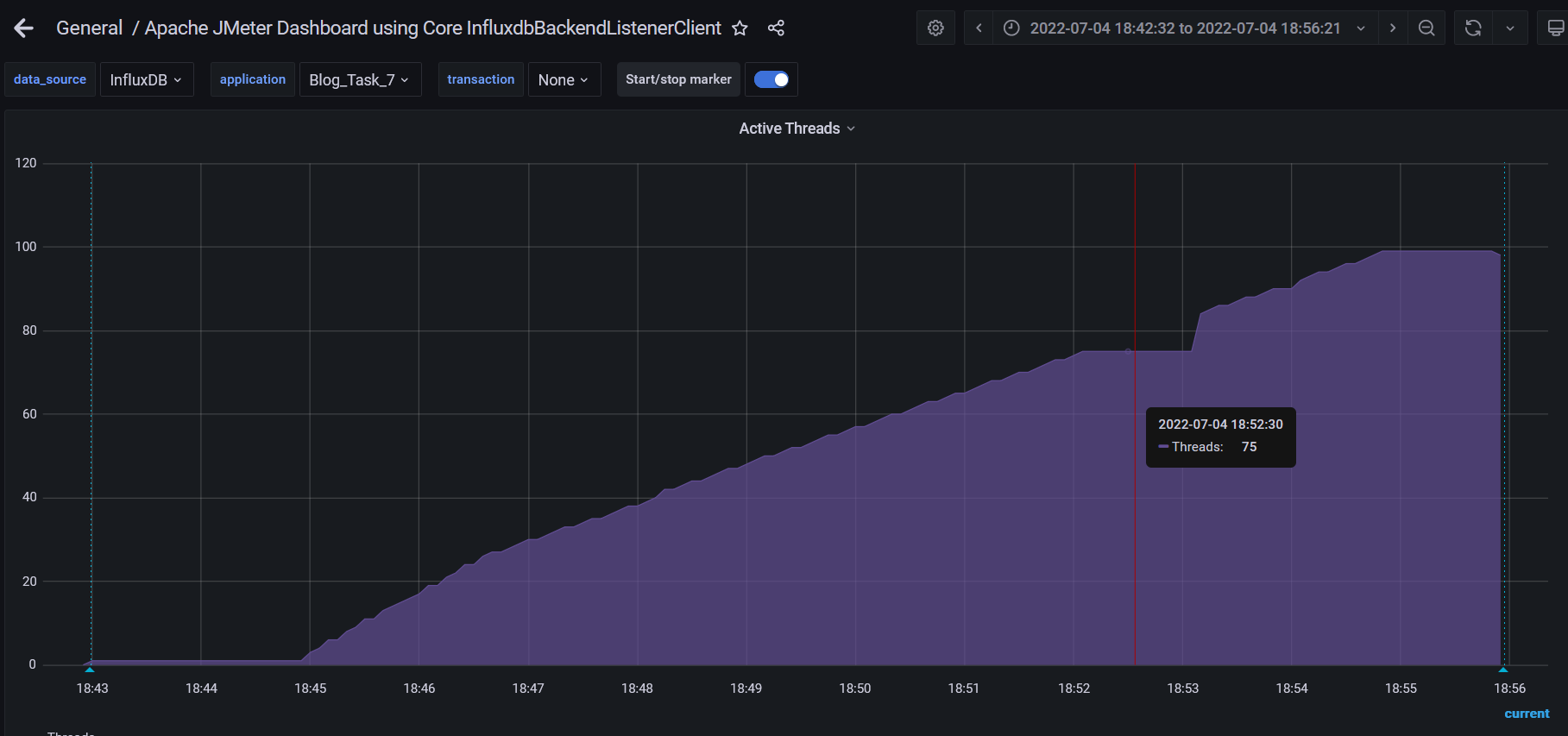
1st run is showing a saturation point is approximately 100 users and the comfort zone is 100 users (the maximum quantity of test users). Degradation of successful queries wasn't viewed. The server CPU wasn't filled to 100% value was approximately 90%.

2nd run is showing a saturation point is approximately 100 users and the comfort zone is 100 users (the maximum quantity of test users). Degradation of successful queries wasn't viewed. The server CPU wasn't filled to 100% value was approximately 85%.

3rd run is showing a saturation point is approximately 75 users and a comfort zone is 74 users. Degradation of successful queries starts from 75 users and the server CPU grows to 100%.

**Test Run #1**

**Test Run #2** 

**Test Run #3**

1. **Conclusion:**

The server worked is unstable, as shown by the different test results according to received data, in some cases CPU was filled on 100% and some cases were finished without filling of CPU on 100%

The 5XX – errors were not found

The 404 - errors are approximately from 12 to 17%

The main error was “Non-HTTP response code: java.net.SocketTimeoutException/Non HTTP response message: Read timed out” which down the user's possibility of sending the new requests on the server. After saturation point, the number of errors was grown, and the CPU has been risen to 100% the consequence response time from the server was growing up too that exceeding 60 seconds.

Recommendation:

Should be created research on memory leak