

intertech

On-Premise Installation



ABOUT INTERTECH

Intertech was established in 1987 to provide Information Technologies services needed by the financial sector. Today, Intertech has taken its place among the leading technology companies in Turkey and the world, with the innovative solutions it has developed for the finance and banking sectors.



More than 100 products of Intertech, produced by more than 30 years of experience and more than 1100 technical staff specialized in their fields, are used in more than 40 financial institutions in 10 different countries in Europe and the MEA region, and primarily in Turkey. In addition, Intertech has been on the Gartner Vendor List since April 2013. All products and services that a financial institution may need can be provided end-to-end by Intertech alone.

WHY LOADIUM?

Intertech wanted to perform test types such as high-capacity stress tests and load tests for the services of its customers. Both our Loadium Cloud servers and publicly accessible servers create loads of large capacities (1 million concurrent users). However, in the financial sector, it is undesirable for the service information to go out of the established servers. All tests to be made to ensure the security of the servers should be carried out through the software on the server.

For our customers with such security concerns, Loadium Enterprise version that can run on their internal servers is used. The Enterprise version of Loadium software can continue to work on completely offline servers without the need for internet access. Loadium Enterprise Installation provides a secure and high-capacity load test service with its ease of installation and system management, advanced report screens, and scalable architecture.



LOAD TESTING WITH LOADIUM

Intertech aimed to perform load tests of 100,000 virtual users per second to its customers. JMeter, the most widely used test tool in the testing industry with its flexibility and ease of use, is suitable for such tests.

However, JMeter can run a maximum of 800 threads (virtual users) in a computer simultaneously. When the targeted load test capacity exceeds 800 threads, it is necessary to run JMeter applications on multiple machines running the same configurations.

As the load increases, the number of machines will increase, and it will be difficult to manage the tests. There are challenging tasks ahead of us in many processes, from initiating the test to generating the reports. Let's take a look at what we will need for load testing at 100,000 virtual user capacity.

- To reach such a large capacity, 125 JMeter or Gatling applications must be run on different machines. (125 x 800 threads = 100,000 threads)
- The same test script files should be uploaded to the JMeter applications on the machines and the script should be replaced with another when desired.
- JMeter tests on all machines should be started at the same time and we should have the option to finish at the same time when requested.
- All machines must be run with the same JMeter configuration.
- JMeter tools on all machines should collect the reports they produce in a single environment and when this process is completed, 1 result report should be created. When the data produced by JMeter on each machine is combined, gigabytes of reports are created. It is not possible to visualize these reports in the JMeter interface.
- The resulting reports should be archived regularly with details such as date, time, name, and description. The report should be accessed quickly when requested.

Results reports should be comparable with other results reports. When we try to perform the essential functions mentioned above manually, it is necessary to complete all the steps for 125 different machines to create a load test of this size.

Managing an operation of this size would be extremely difficult, and many processes will need help, from reporting to synchronization. Loadium product provides the specified substances and more to the user safely.

LOADIUM ENTERPRISE EDITION

Loadium is a scalable software developed with microservice architecture. Services developed for the Enterprise version are Dockerized and run in containers. Docker Containers are run under Kubernetes management for uninterrupted service and easy configuration of Loadium services.

Kubernetes is an open-source platform designed by Google and currently maintained by the Cloud Native Computing Foundation. Preferred by industry-leading companies, Kubernetes helps automate the deployment, scaling and management of large workloads and services. Kubernetes provides great convenience in providing uninterrupted service of Loadium services in on-premise installation and adjusting capacities according to demands.

Many JMeters are run simultaneously in different Docker containers. The generated data is transmitted to our reporting service in real-time and reflected on the web interface in the on-premise installation. Some services used in Loadium were configured in cluster mode so that the data produced with a capacity of 100 thousand virtual users can be processed smoothly. This cluster capacity can be increased according to the requested test size.

LOADIUM CAPACITY

Loadium offers packages for up to 5 thousand virtual users in standard on-premise installations. Elasticsearch service, which is used to process the data produced in the tests as reports, is configured in cluster mode in high-capacity installations. In order to distribute the load that occurs as the capacity increases, we have designed the Loadium services to work scalably.

During the work we did for Intertech, we managed to reach a virtual user capacity of 100 thousand. In order to reach the targeted capacity, bottlenecks were identified and resolved. Even if software solutions are applied, there are hardware factors that determine the capacity. These factors can be listed as CPU, Memory, Network Bandwidth, and Disc Capacity. If sufficient hardware resources are provided, our architecture reaches very high capacities.

On Which Operating Systems Does Enterprise Installation Work?

In line with the demands of our customers, Enterprise installation can run smoothly on Linux, Red Hat, CentOS operating systems. Loadium Enterprise installation is completed with packaged installation files without internet access.



Linux



AT A GLANCE

OBSTACLES

- Security Concerns
- JMeter Thread Limit
- Report Generation

SOLUTIONS

- Microservice Architecture of Loadium
- Dockerized Services for Enterprise Version
- Huge Load Capacity of Loadium



LOADIUM ON-PREMISE INSTALLATION ADVENTURE

Considering our customer's security concerns, we started working to perform high-capacity tests on servers that are closed to outside access. Loadium services and the tools they use are dockerized. By establishing a Kubernetes cluster, these services were provided to provide uninterrupted service, scaling and configuration.

The JMeter test tool, which will perform the specified tests, runs in a docker container under the Load Generator service management. The number of Load Generators that will work simultaneously to meet the requested load amount has been determined. Elasticsearch cluster was configured by calculating the amount of data to be produced. By simulating the amount of data to be produced by 250 thousand users, software bottlenecks were identified and resolved.

The types of tests that can be done with the support of JMeter and Gatling tools are quite diverse. Based on the experience gained, we can say that Loadium offers the opportunity to test in large capacities in a scalable manner in a secure environment.



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