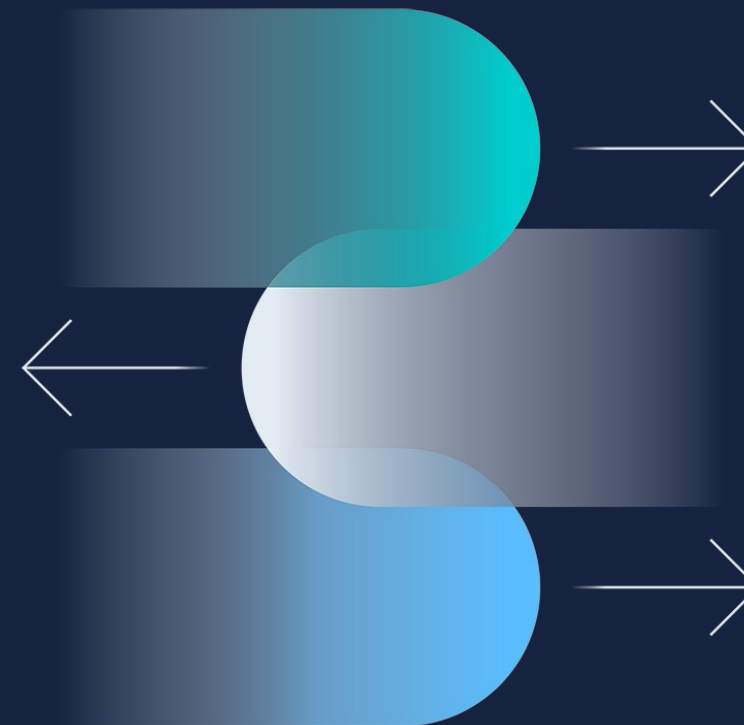


# Load testing with F1

**Adelina Simion & Andy Kuszyk**

Join us to learn about F1, our open-source tool for testing asynchronous systems! 📈



# Our Customers and Partners



# Our People

260 employees  
 51 nationalities  
 22 countries  
 100% remote

# Our Investors

\$220m in investment so far



**01** Performance testing fundamentals (Adelina)

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**02** Common tools (Adelina)

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**03** What is F1? (Andy)

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**04** Live Demo 🚀 (Andy)

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**05** Conclusions

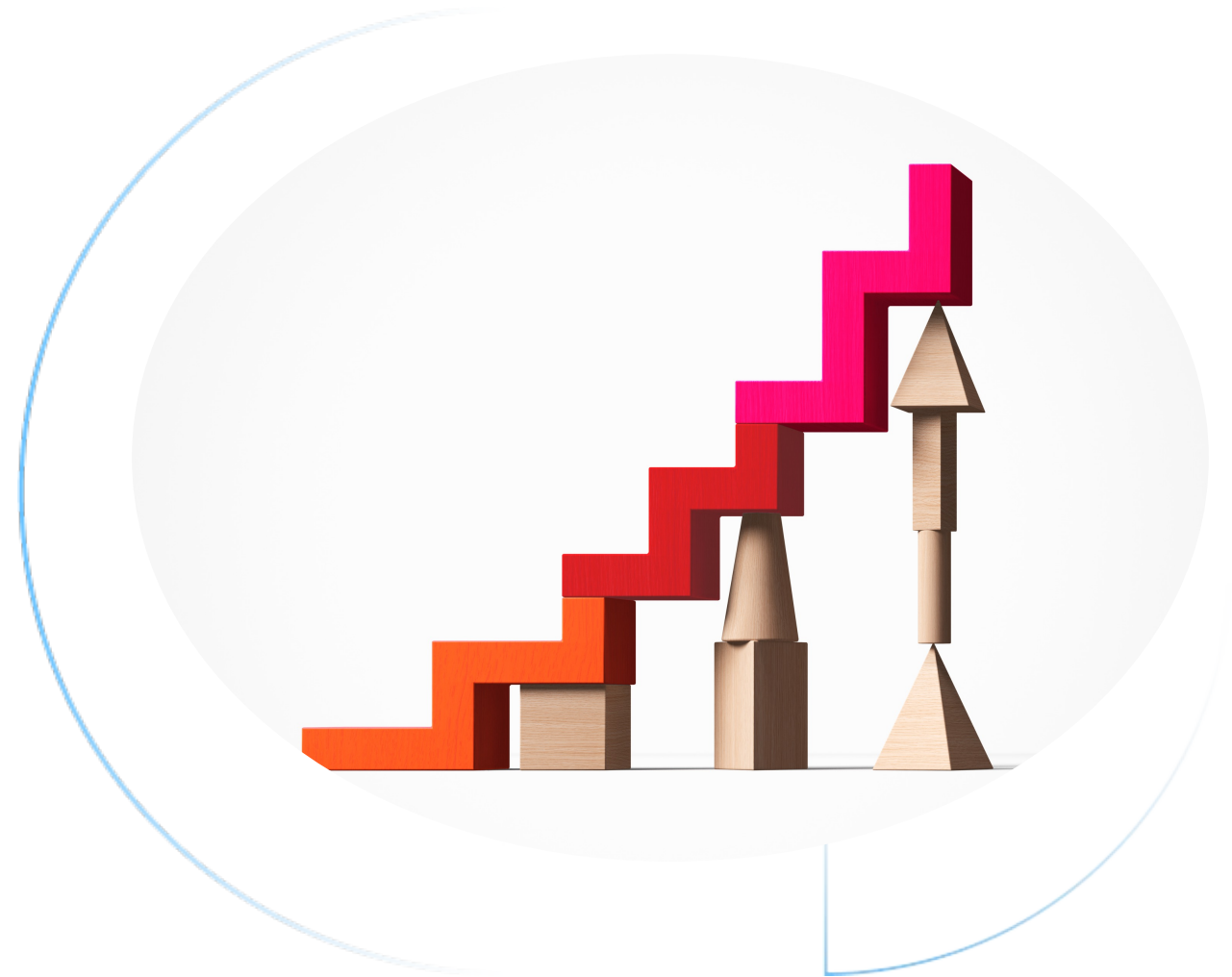
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A stylized white outline of a human head in profile, facing right. Inside the head, several overlapping circles of varying shades of blue and dark blue are arranged to resemble interlocking gears. The background is a solid dark blue.

# Performance testing fundamentals

# Why should you performance test?

- Check the performance of all the parts of your system
- Ensure that your system serves your customer needs
- Assess the growth runway of your system and identify bottlenecks



# Types of performance testing

## Load

Testing software metrics under heavy load for a certain period to see how much systems can handle



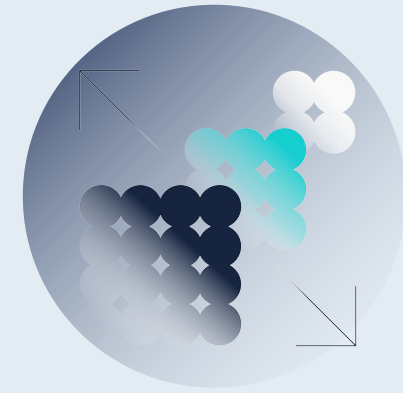
## Spike

Testing software metrics under intense sudden load to see how it scales and recovers after



## Soak

Testing software metrics under slowly ramping up load to see a system's sustainability



## Fundamentals

# Performance testing metrics

What are your indicators that your system is healthy? What are your failure thresholds?

Average response  
time

Peak response  
time

Error rate

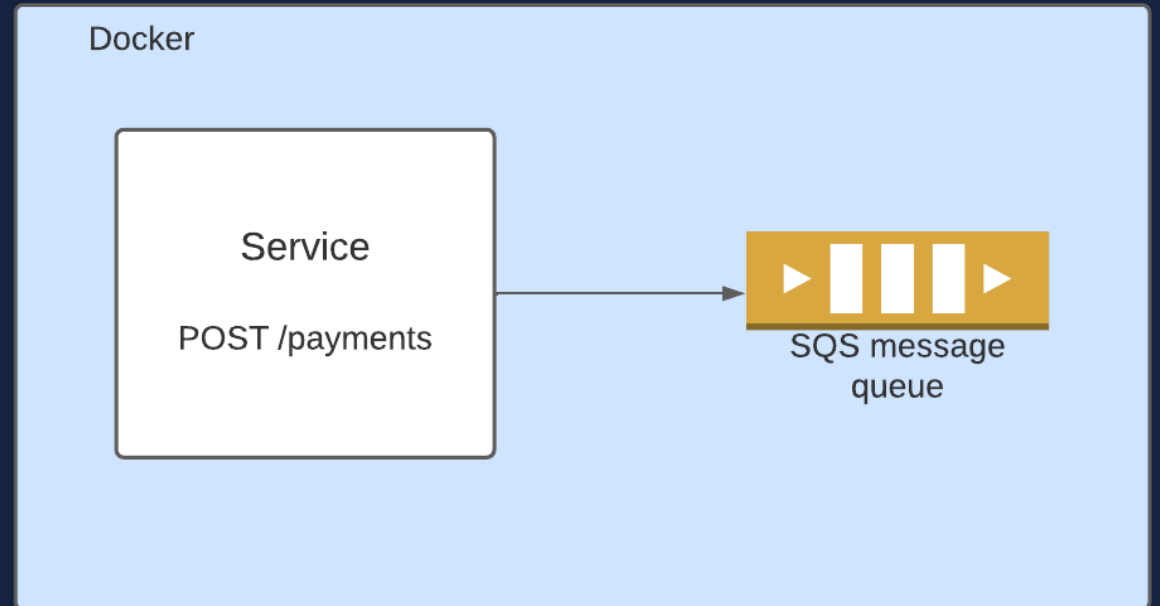
Concurrent users

Data throughput

CPU usage

## Fundamentals

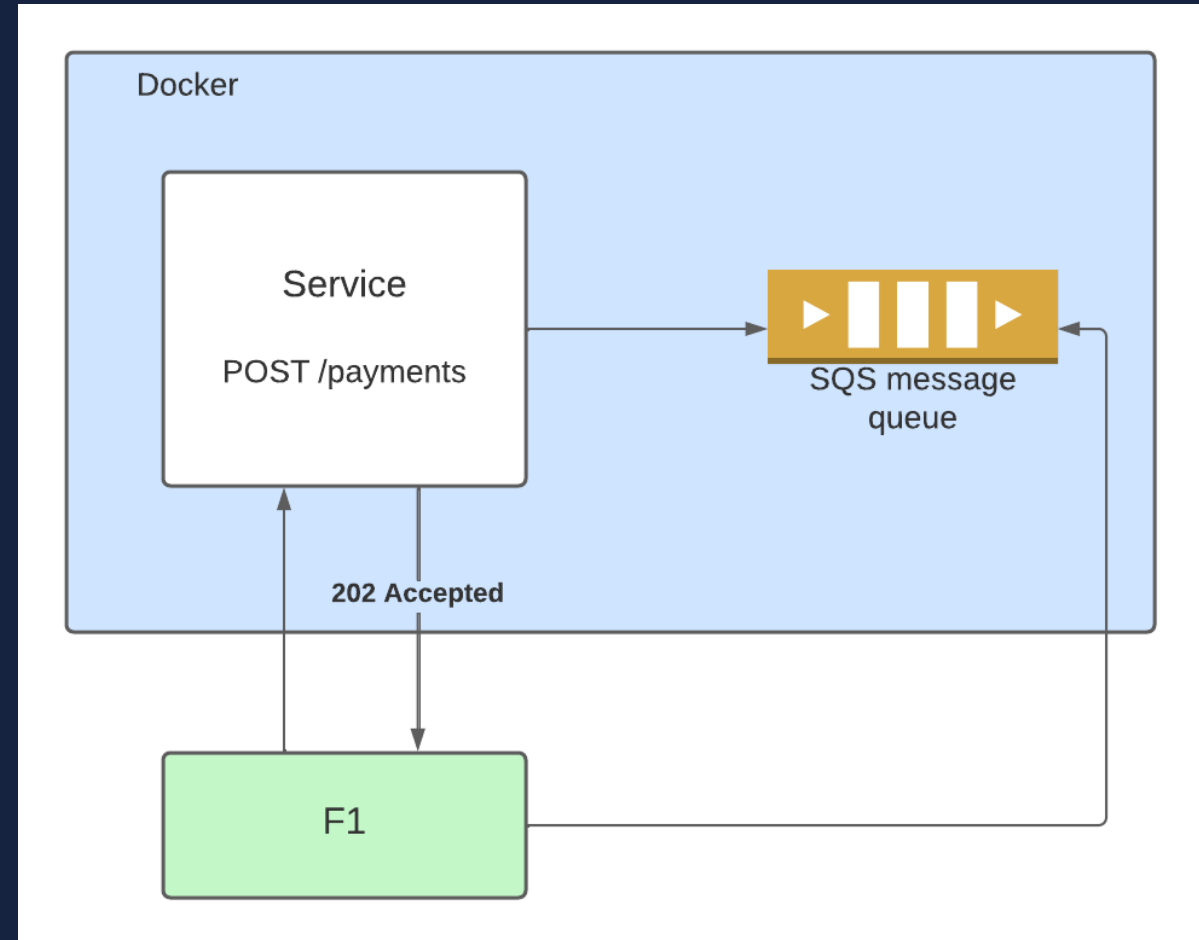
At Form3, our systems make use of events, queues and asynchronous requests, like this example.





## Fundamentals

We need to write test scenarios that can send HTTP requests and process asynchronous responses.



A stylized profile of a human head facing right, outlined in white. Inside the head, several overlapping gears of various shades of blue are visible, symbolizing thought, technology, or tools. The background is a dark blue gradient.

# Common tools

## Common tools

# JMeter

### Overview

Open-source Java testing tool which can be used for load testing API endpoints



### Usage

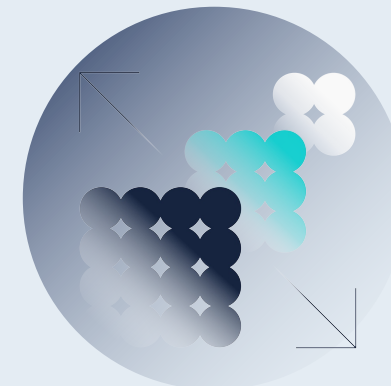
Test plans are configured with the JMeter recording GUI using templates.

Result graphs & dashboards can be generated



### Async testing support

Multiple requests implemented using Parallel Controllers. Linear, Stepping and Spike ramp up possible to be configured



## Common tools

# k6

### Overview

Open-source Go project run by Grafana used to test API endpoints.



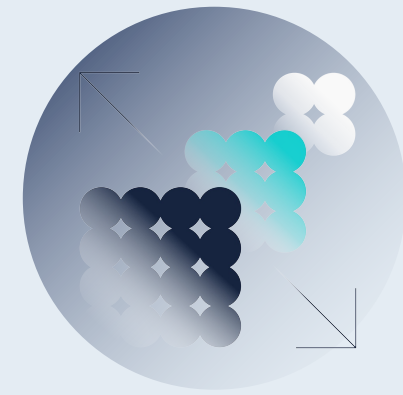
### Usage

Tests are written in a scripting language like JavaScript. Results output at the end of the test, sending metrics to other external outputs is supported.



### Async testing support

Script execution is synchronous, but can test using virtual users. Options object describes the load configuration.



## Common tools

# Our ideal load testing tool

Easy to write asynchronous tests which integrate with our queues and services

Allows our engineers to write tests in Go, which is the language our platform was written in

Provides support for different modes for running load



**What is F1?**

## What is F1?

# We created our own load testing framework – F1

- Open source at [form3tech-oss/f1](https://github.com/form3tech-oss/f1)
- Write tests in Go
- Configure different kinds of loads easily
- Use all the Go concurrency mechanisms to run and configure tests



Live Demo 

[form3tech-oss/f1-example](https://form3tech-oss/f1-example)



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# Conclusions

## Conclusions

Load testing is important and should not be an after thought.

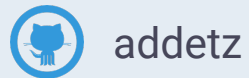
We make use of F1 every day and you can too - [form3tech-oss/f1](https://github.com/form3tech-oss/f1)



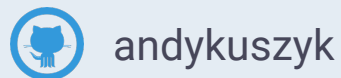
Thanks for listening! 🎙️👊📄



Adelina Simion



Andy Kuszyk



Check out our careers site,  
podcast and  
our engineering site!

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