Performance Testing:
From Zero to Hero with K6

Performance Testing:
From Zero to Hero with Grafana K6

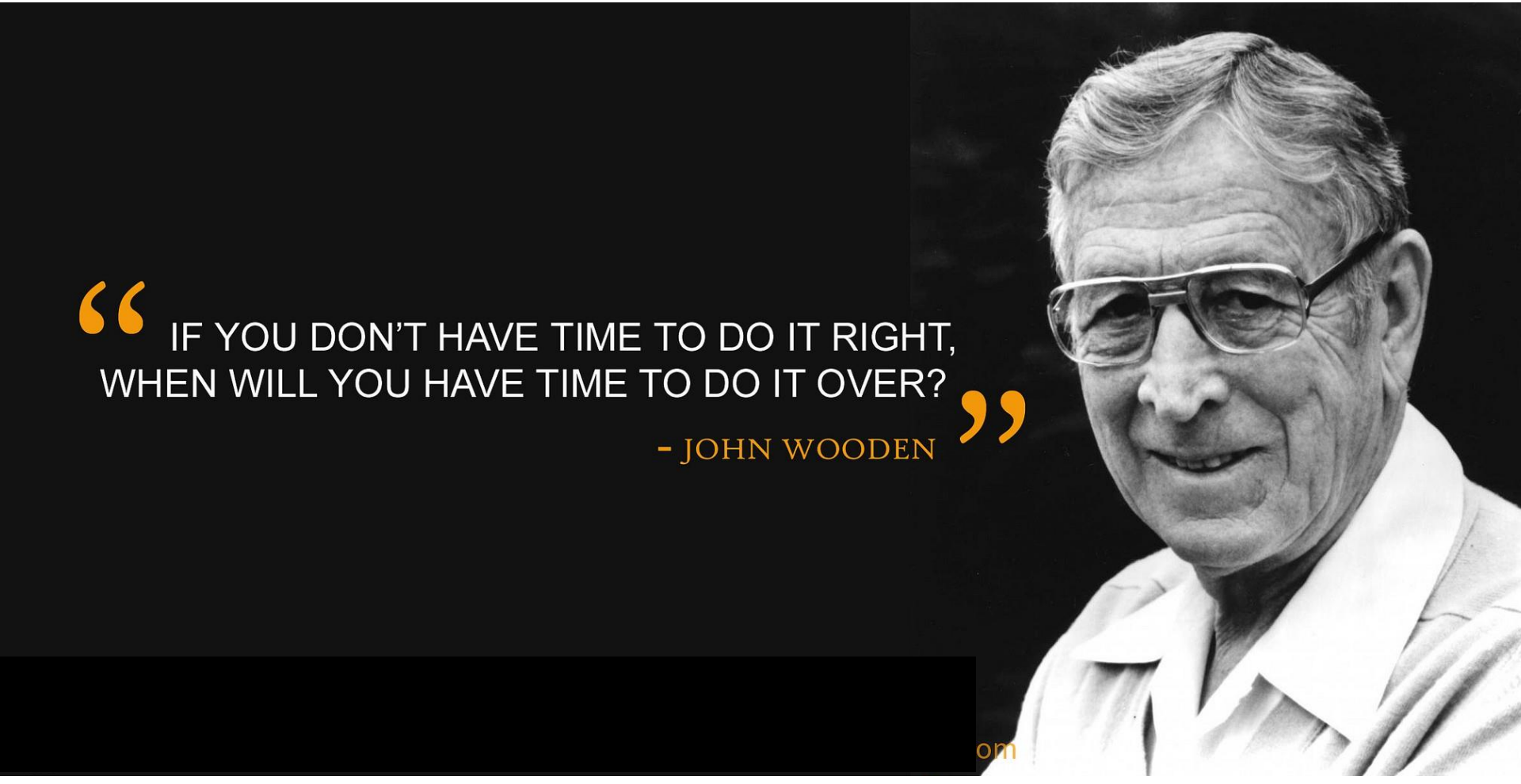
Who?

Jose Luis Latorre @joslat
DEV Community Lead & Software architect
https://github.com/joslat
https://www.linkedin.com/in/joslat/
https://x.com/joslat

k6 CHAMPIONS

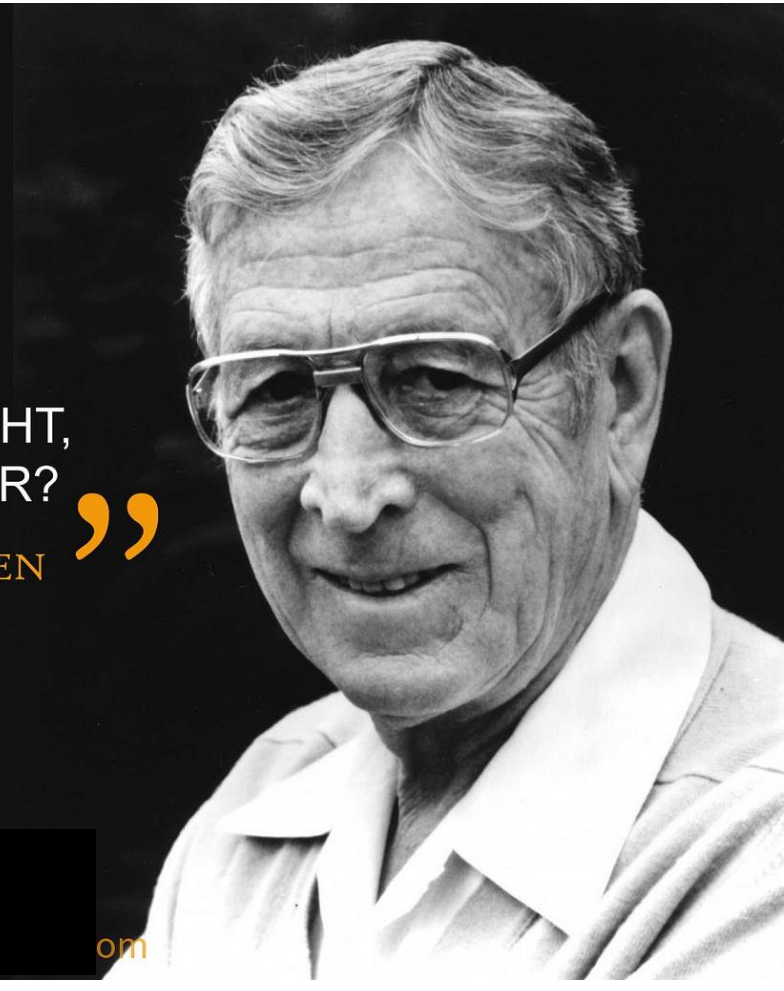
MVP Microsoft Most Valuable Professional

.NET User Group Zürich Lead


“IF YOU DON’T HAVE TIME TO DO IT RIGHT, WHEN WILL YOU HAVE TIME TO DO IT OVER?”
- JOHN WOODEN

Success isn’t getting it right the first time, it’s not getting it wrong until you get tired.

Murphy's Law:
"If anything can go wrong, it will.
…and at the worst possible moment"




IF YOU'RE GOING
TO DO SOMETHING,
DO IT RIGHT
THE FIRST TIME

Agenda

- Let’s begin!
- Why Performance testing
- Why K6
- Hands-on introduction to K6
- The template
- Ende

Reduces flaws!

Identifies defects!

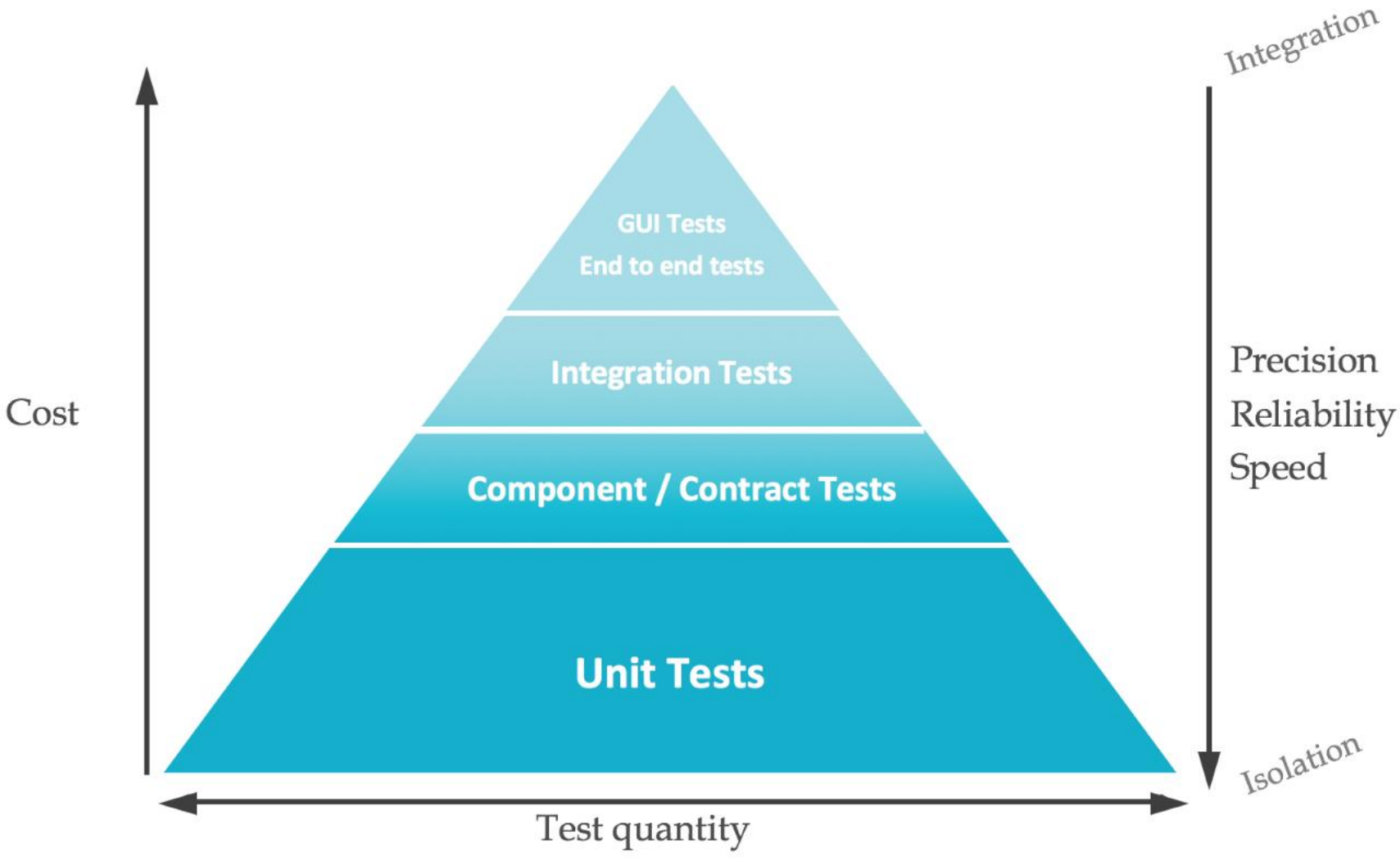
Increases the overall quality!

Why testing? At all?

Still there are some people that do not see value on “Testing”…

Mandatory in some cases

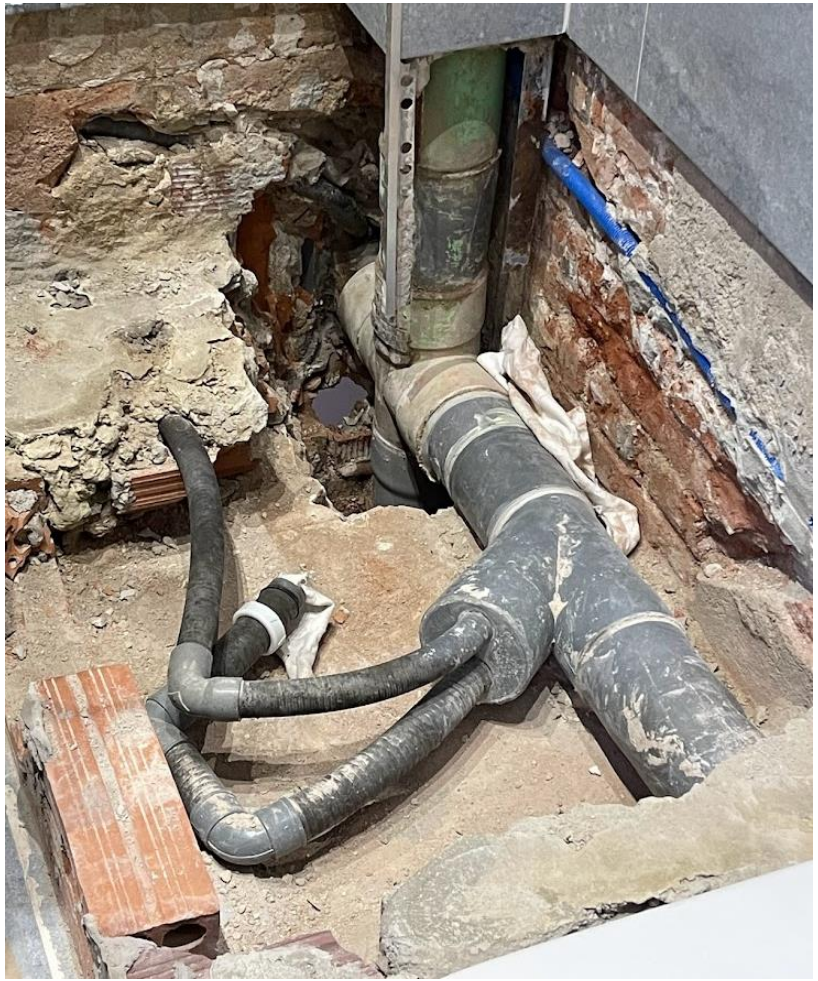
Fully automated


Integration
GUI Tests
End to end tests
Integration Tests
Component / Contract Tests
Unit Tests
Cost
Precision
Reliability
Speed
Isolation
Test quantity

Because we all know ☺ - Murphy lives!!

- ***Performance Tests are key*** to identify real-life, production problems…
- Once upon a time, there was a system under development...
  … the mitigation costed a bit more than 2M $
- The Samsung Note 7
  “issue” costed 17M $

or close to production)



There are many reasons…

Our “Test Pyramid seems complete”…

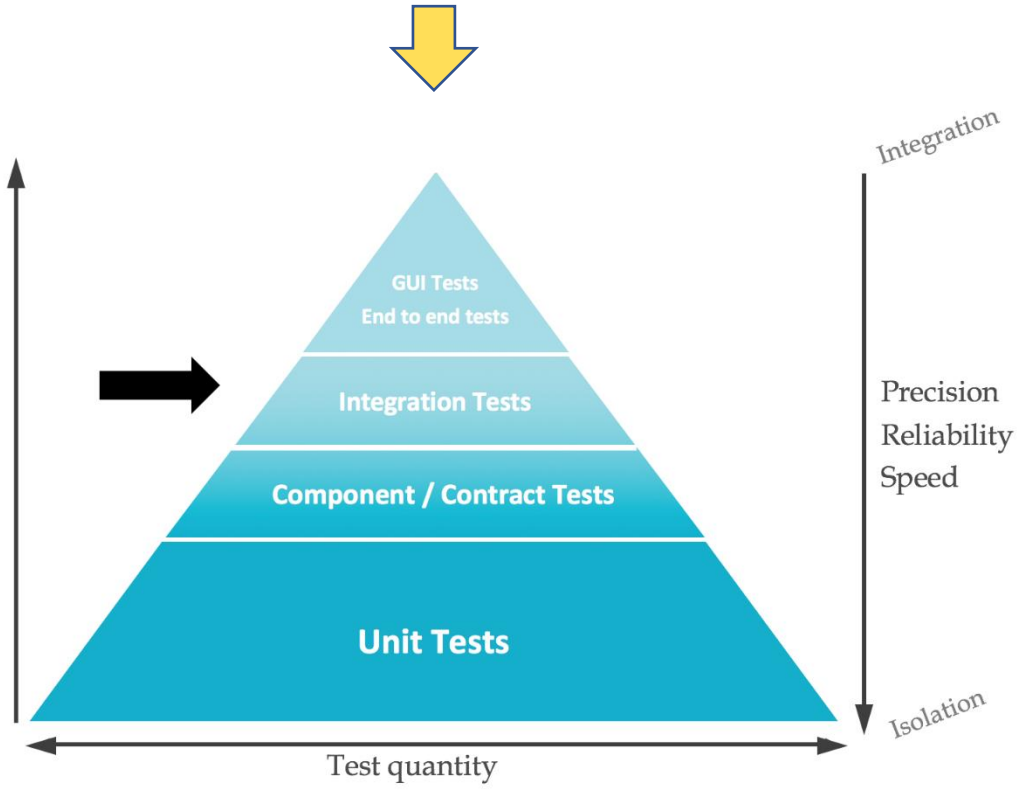
And almost nobody does performance tests…

Everybody believes the “pyramid” is enough

No more money, it’s expensive…

…until it happens

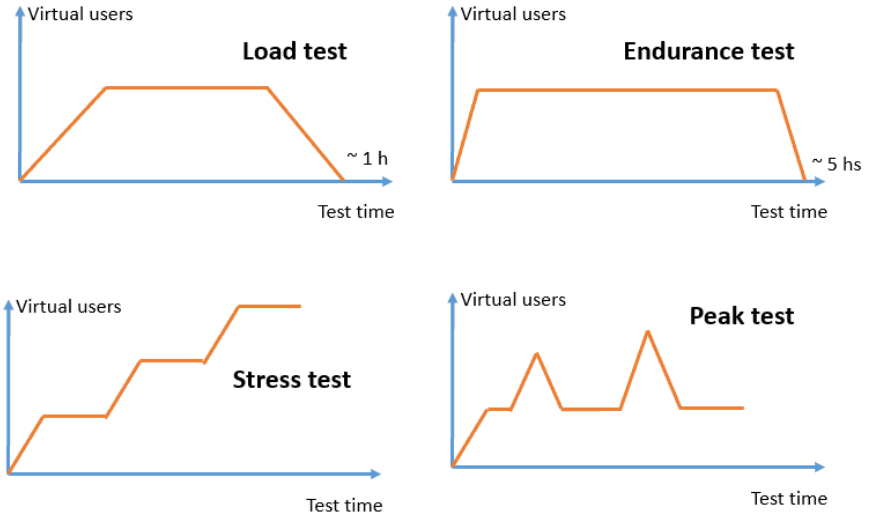
No Performance here…



Would you dare put a project in production having done just a single test?

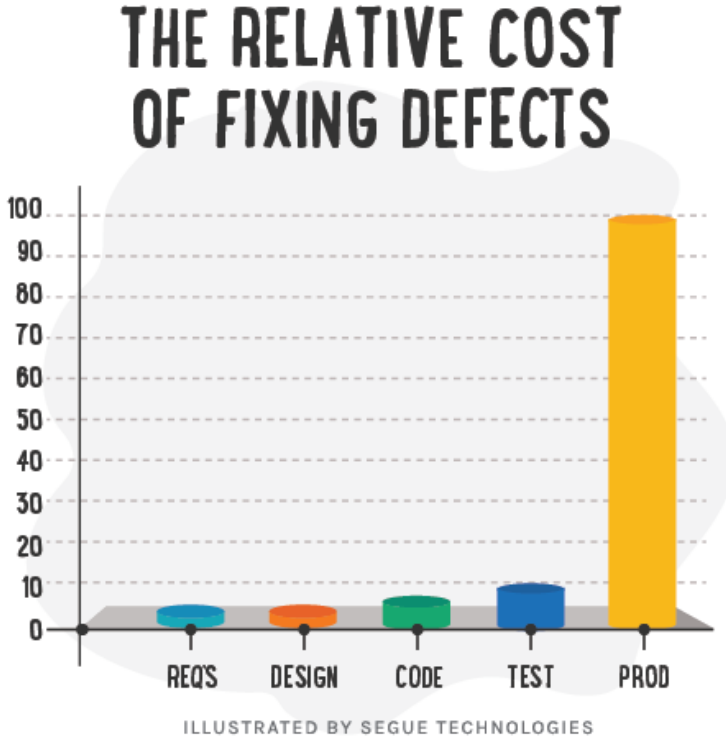
But what's Performance testing?

- Some say "testing a system in real-life conditions" in usage and load…
- Essentially testing a system in terms of stability, responsiveness under a particular load, to validate performance-related Quality attributes such Scalability, reliability, etc…
- To detect common performance problems such as load time, response time, scalability, bottlenecks, etc..
- Usually done with some testing types: Load, Stress, Soak, Spike and "some more"…



It is worth it!

- **Ensures reliability & Project success**
- **Shows the brittleness of your app from day Zero!**
- **Verifies SLA requirements**
- **Saves Money due to fixing issues as closer as they are produced…**
- **Saves developers from stressful deployments**
- **Can save lives, safeguard your physical integrity and your money**



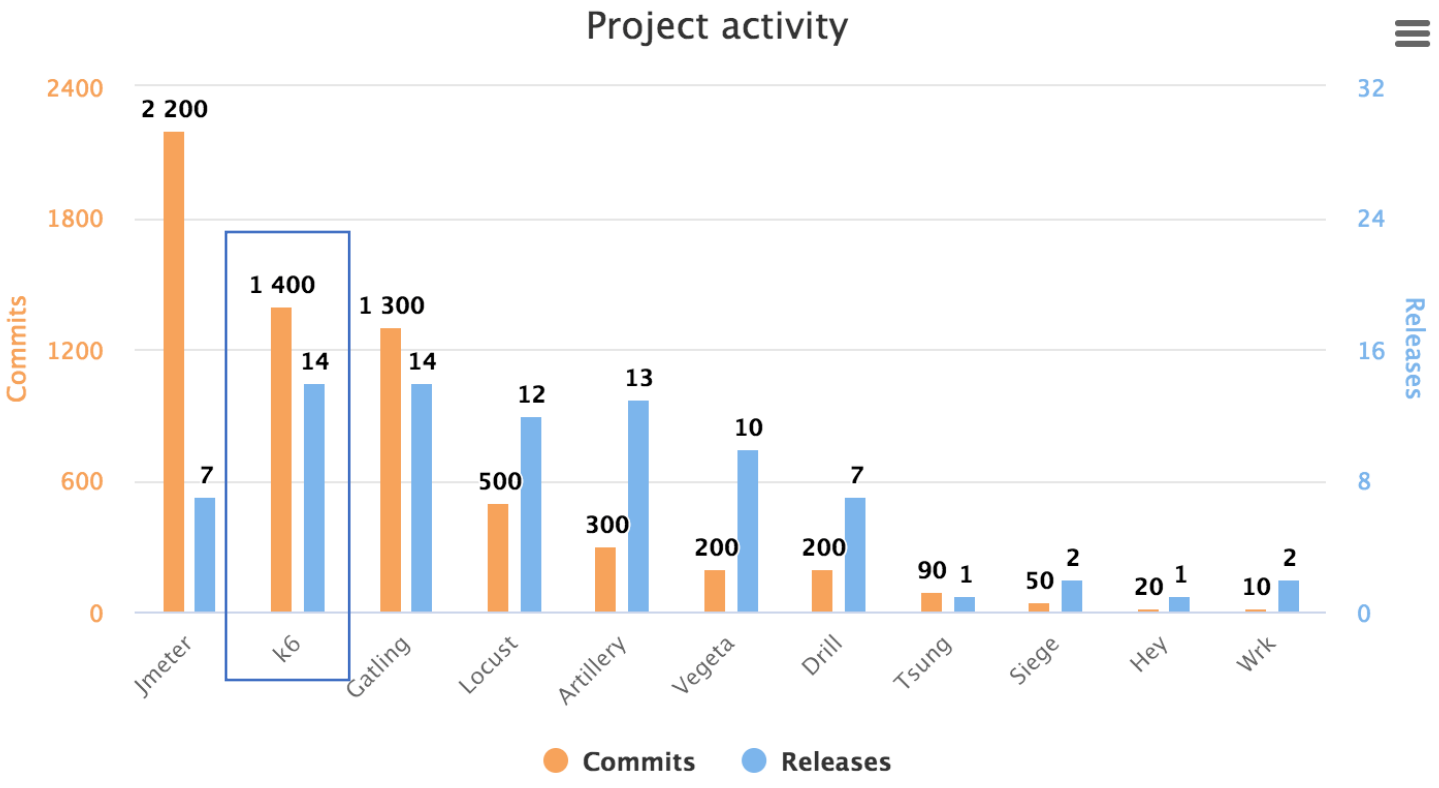
Why K6?

- Decision points:
  - Performance comparisons put it pretty high
  - It is Open-Source, with good activity
  - Code based => Developer friendly (not GUI driven)
  - Ease of use in DevOps pipelines
  - Many outputs & integrations
  - Vibrant community
  - And many more!

It’s modern…

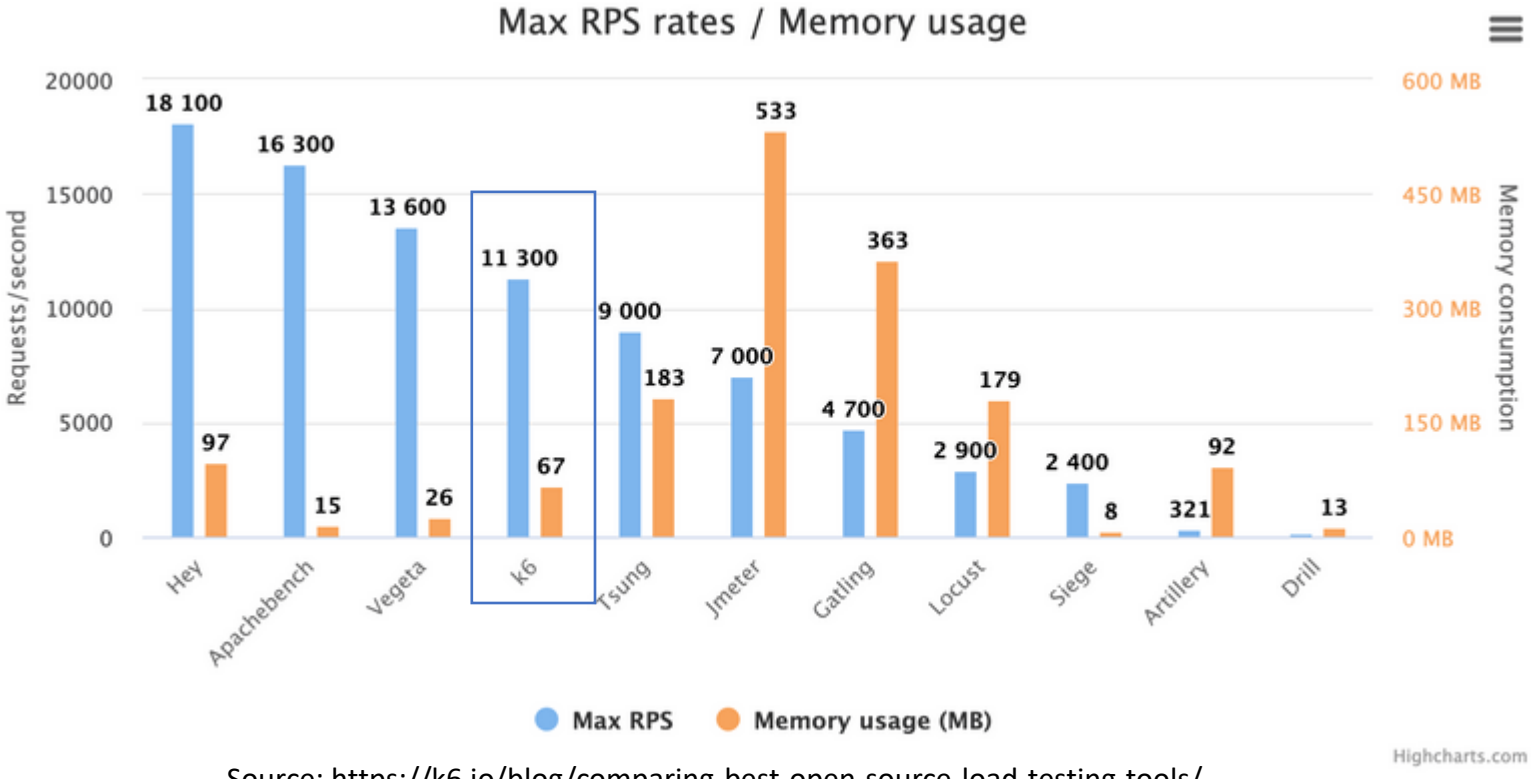

16+ years ago
15 years ago
10 years ago
5 years ago
Akamai
Gatling
Puppeteer
APACHE JMeter™
TRICENTIS Tosca
cypress
k6
A distributed Load Testing Tool
TSUNG
ApacheBench
HEY
Element
LOCUST
ARTILLERY.IO
NeoLoad

It’s active…



Source: https://k6.io/blog/comparing-best-open-source-load-testing-tools/

With pretty good performance too



Source: https://k6.io/blog/comparing-best-open-source-load-testing-tools/

A ~~gentle~~ accelerated introduction into K6

- How do I…
  - Begin?
  - How does it work?
  - Simulate a user, verify..
  - Make a pass/fail test?
  - Simulate real world load?

Where to start?

Hello world!

How does it work?

Lifetime!

https://k6.io/docs/using-k6/test-life-cycle/

And simulate a user, verify…

VUs, Duration,
Checks & Options

https://k6.io/docs/using-k6/checks/

Make a pass/fail test?

Thresholds

https://k6.io/docs/using-k6/thresholds/

Simulate real world load?

Stages

https://k6.io/docs/using-k6/options/#stages

Simulate real world load?

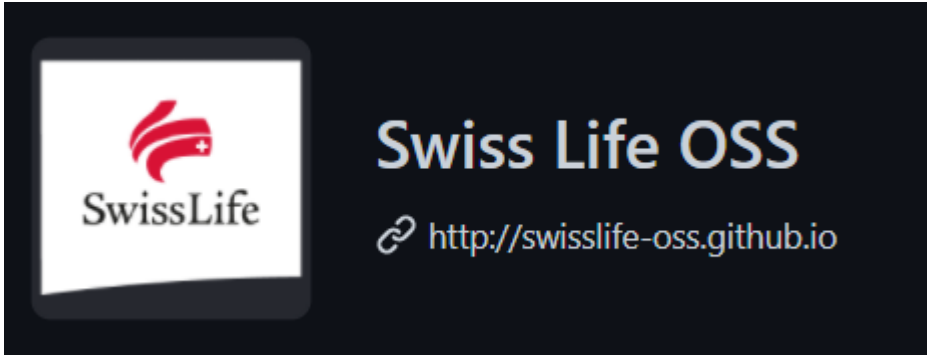
Scenarios

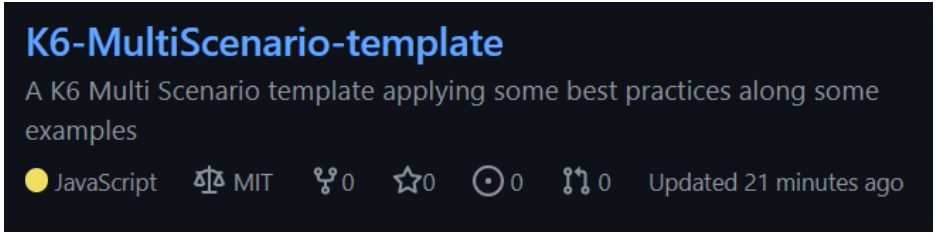
https://k6.io/docs/using-k6/scenarios/

Scenarios allow us to map real life usage together with advanced configuration. We can group several scenarios together, each one bound to its own executor and a custom function.

A multiple Scenario, multiple test template

Published as one of the Swiss Life OSS projects.
Has the goal of accelerating performance testing adoption, learning and reuse of this template.





https://github.com/SwissLife-OSS/K6-MultiScenario-template

Take aways

- Do Performance testing, unless you want:
  - Costly surprises discovered upon launch that can ruin your business image
  - Stress upon deploying into production (and the weeks after)
- K6 is good, use K6.
- Apply Performance testing since the beginning of the project, let there be quality since the start!
- Use the “K6 template” and if you feel like it, contribute back to improve it
- Try out Swiss Life OSS

“Do performance testing, from the start, to avoid any chance of anything going wrong. Because if it can, it will.”

Me ;)

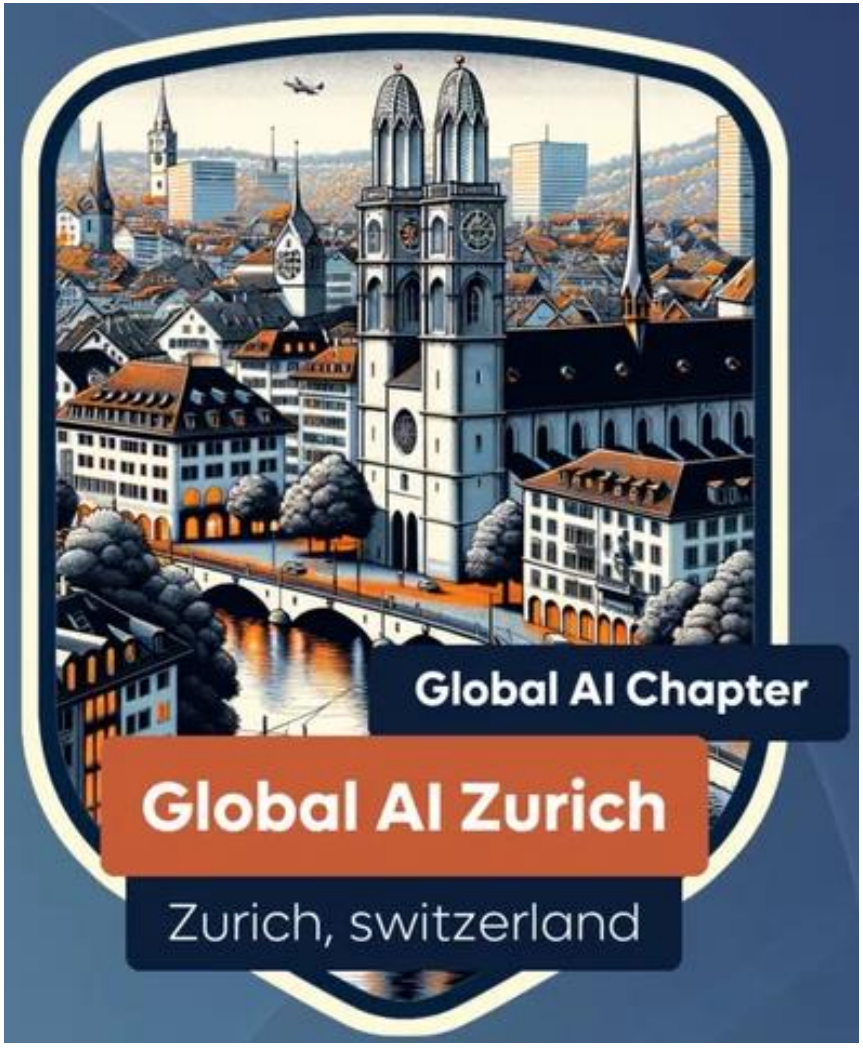
Oh, and use K6, it Works pretty well!

And one more thing…

LinkedIn Trainer focused on Gen AI & Agentic AI
linkedin.com/learning/instructors/jose-Latorre

- Semantic Kernel in Action
- Azure AI Engineer Associate (AI-102) Cert Prep
- Soon more ;)

https://www.meetup.com/global-ai-zurich/
https://www.meetup.com/dotnet-zurich/



Questions?