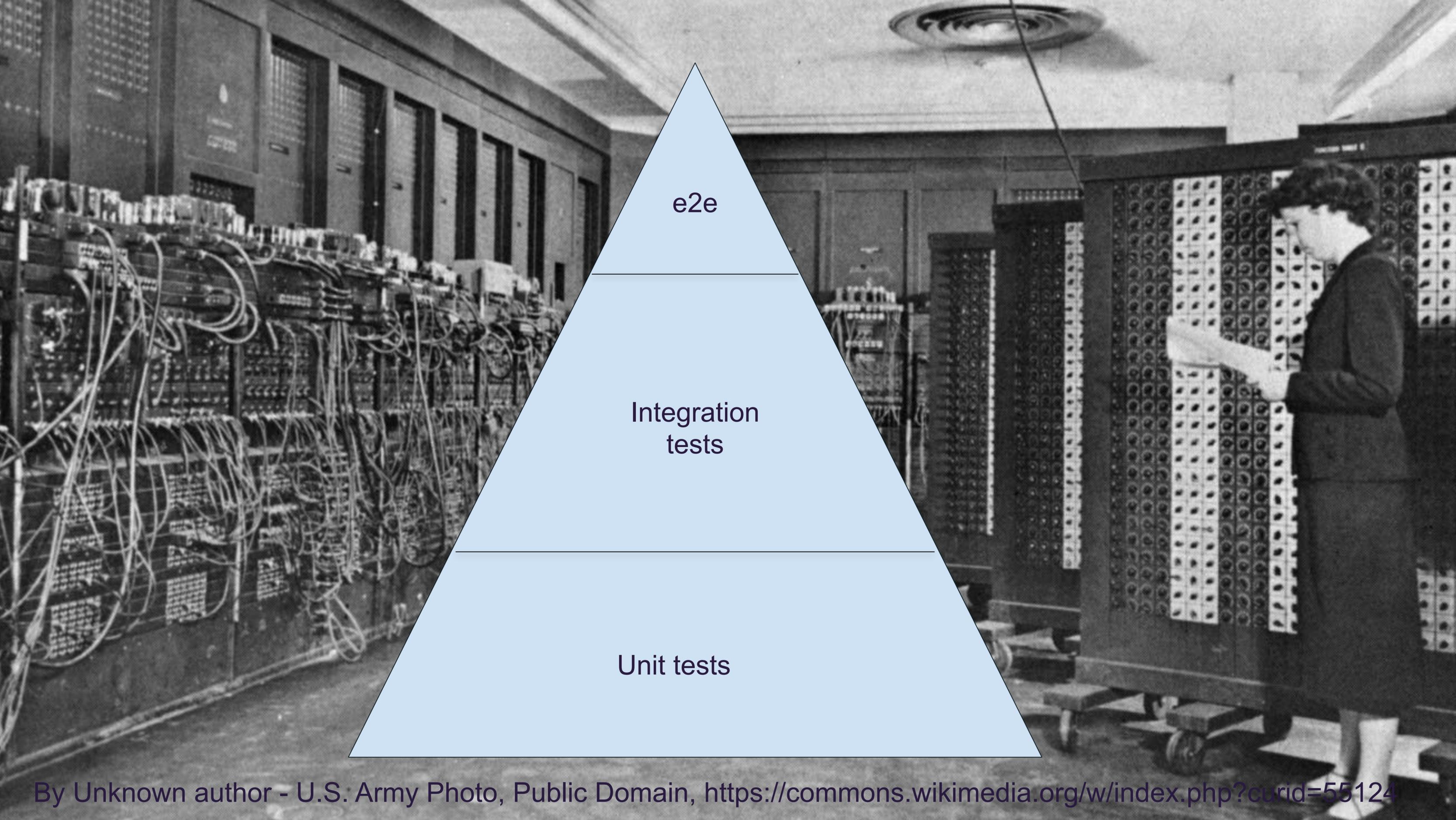


Removing complexity from integration tests

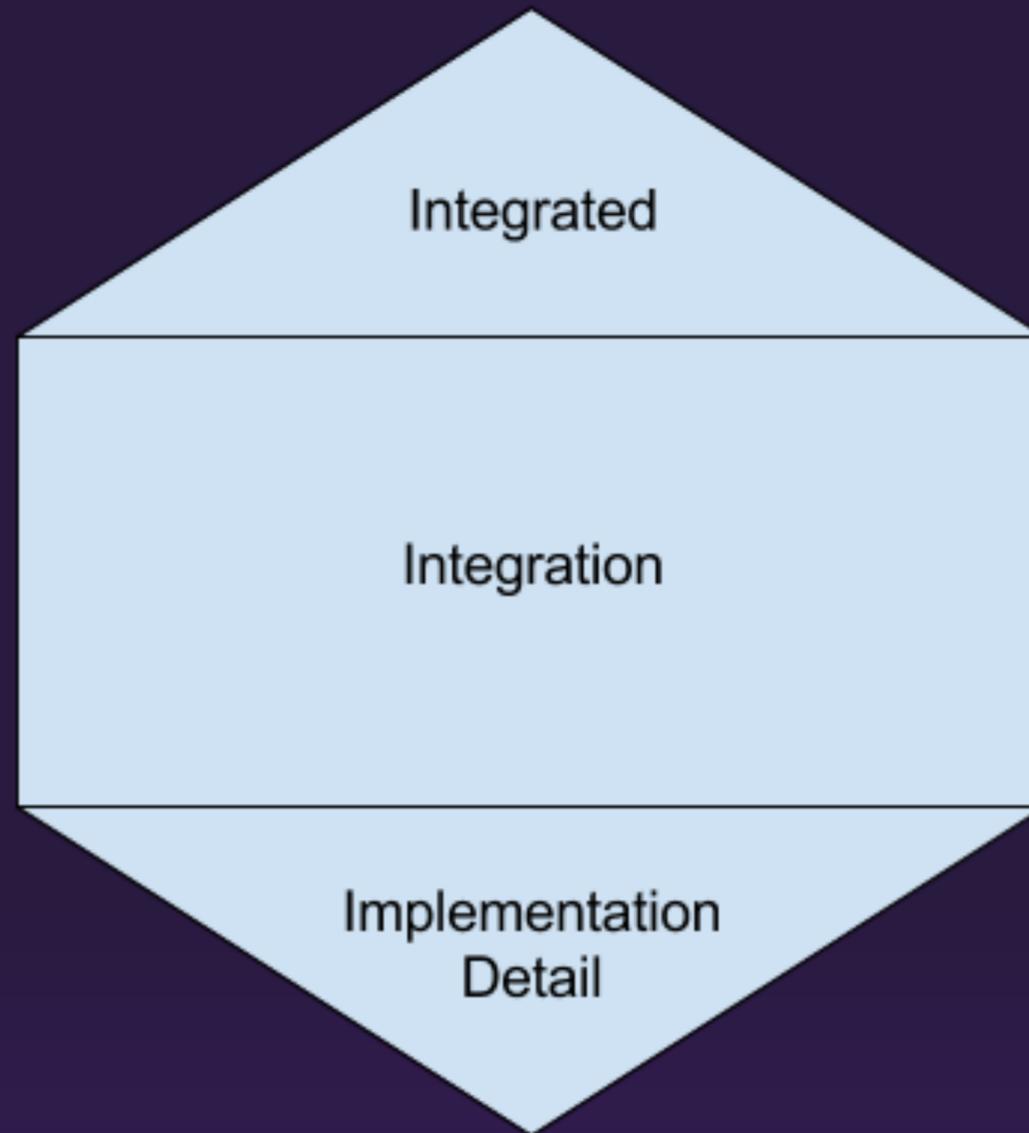


e2e

Integration
tests

Unit tests

Microservices Testing **Honeycomb**





Oleg Šelajev

Developer relations

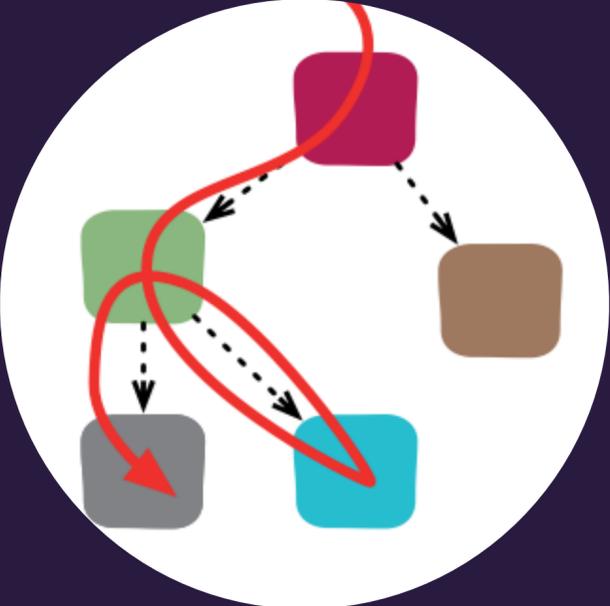
 @shelajev

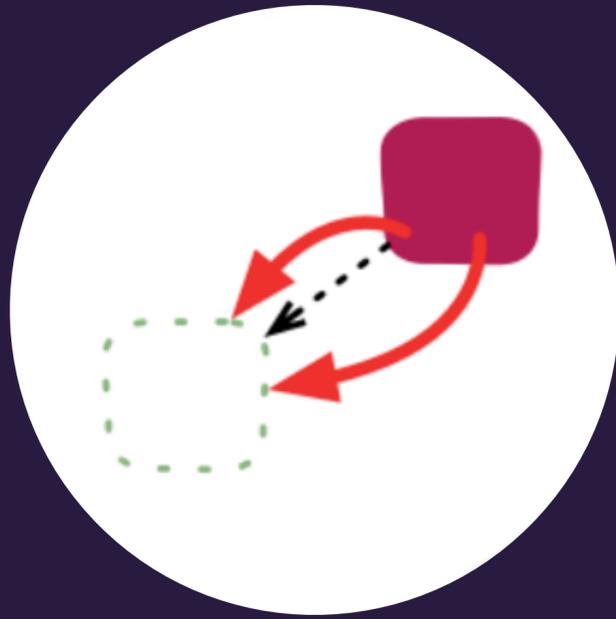
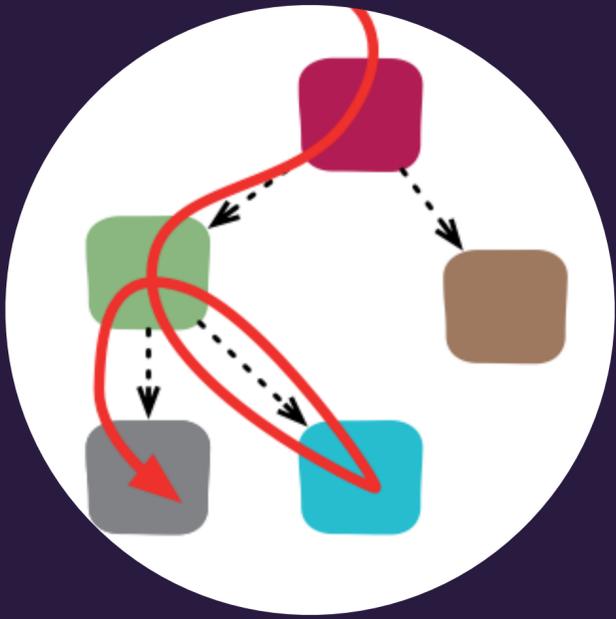
 github.com/shelajev

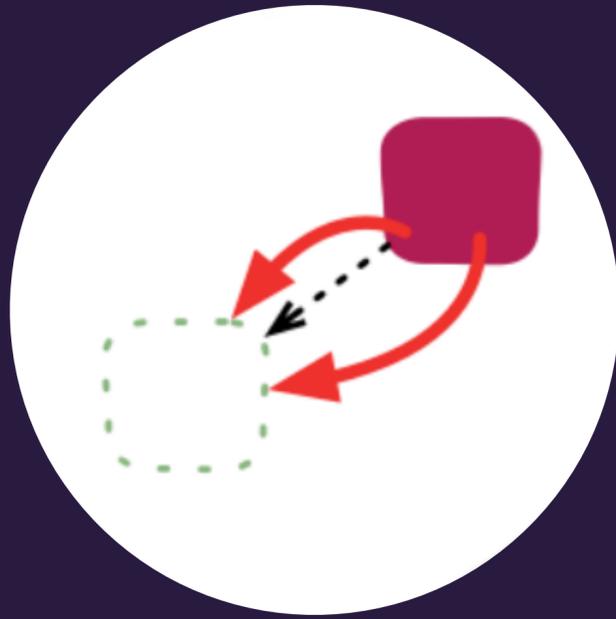
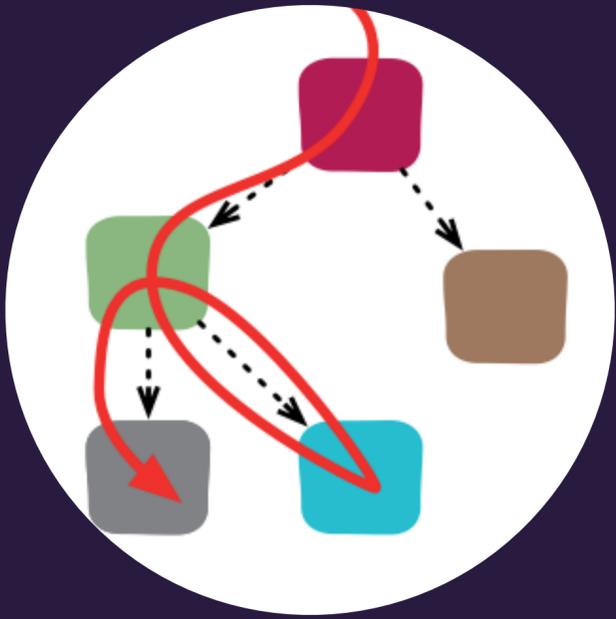
 oleg@atomicjar.com

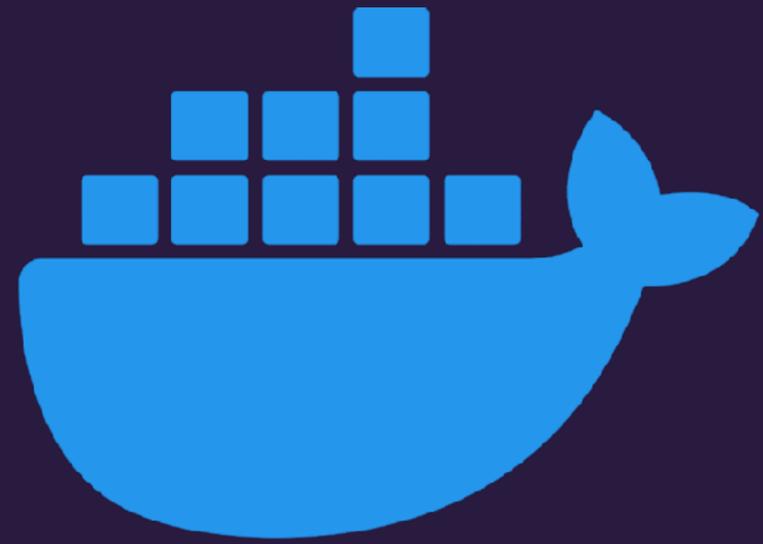


ATOMICJAR









docker®



IT WORKS ON MY MACHINE



THEN WE'LL SHIP YOUR MACHINE



AND THAT IS HOW DOCKER WAS BORN

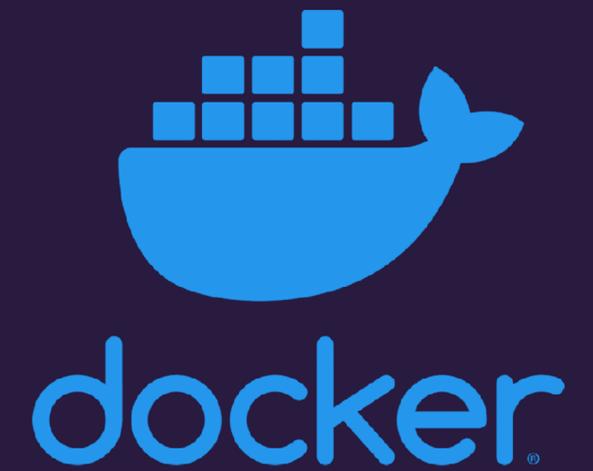


**Installing
apps**

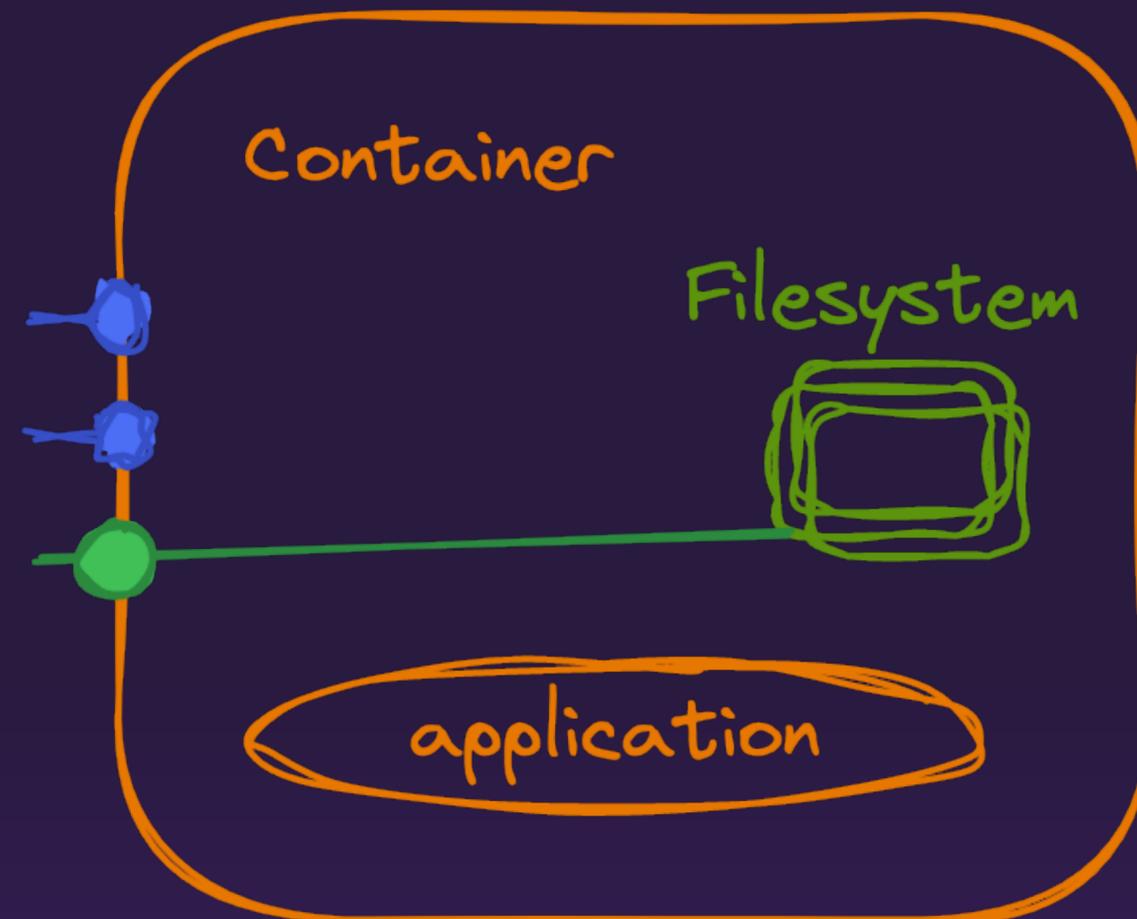


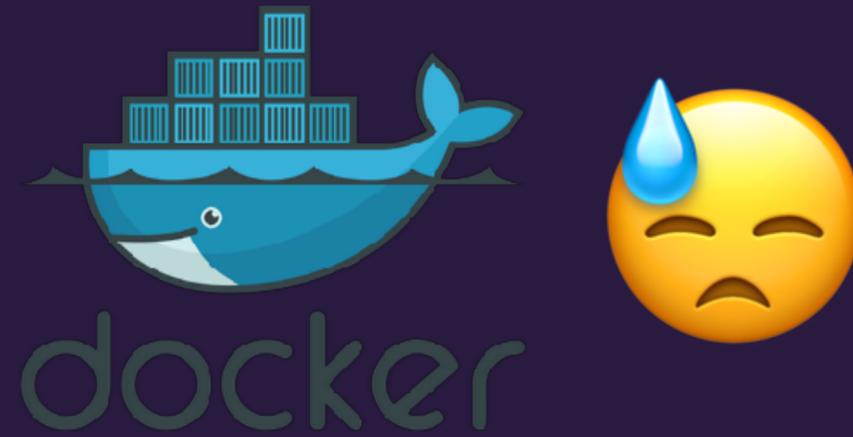
**Running
them
in Docker**

```
docker pull image:tag
docker run -p port:port name:tag
```

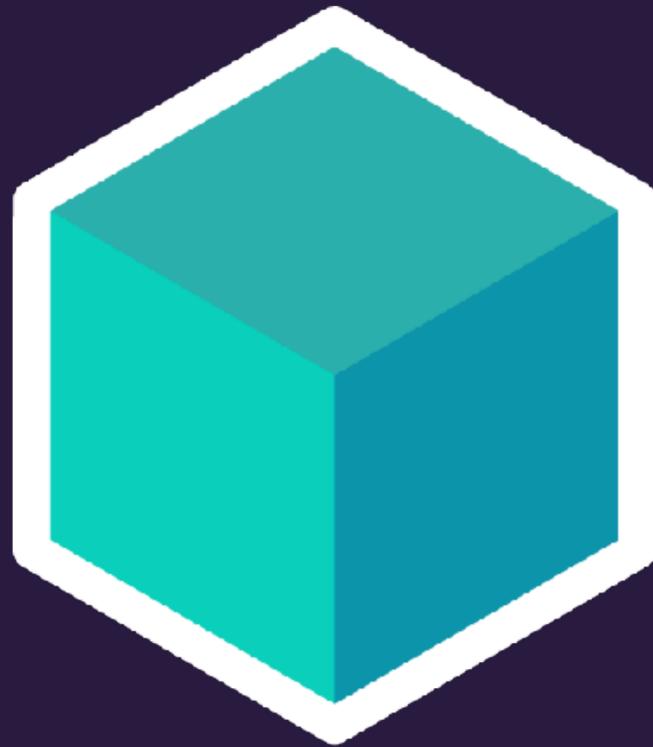


- Process isolation
- Filesystem, Network
- CPU/memory limits





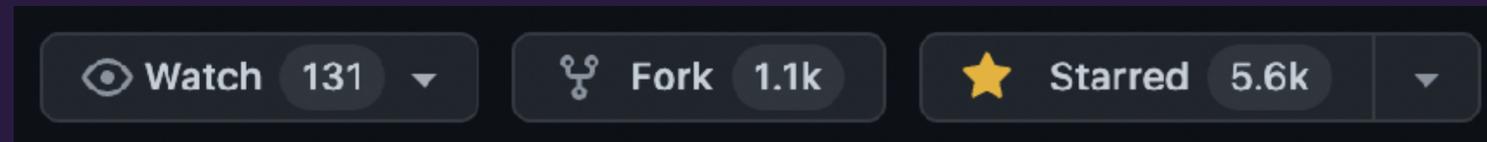
- Configuring **multiple** services simultaneously
- **Flexibility** in creating test data or use-cases
- Separation of production & **test environments**
- **Dynamic configuration** of external mappings
- **Parallel** deployments



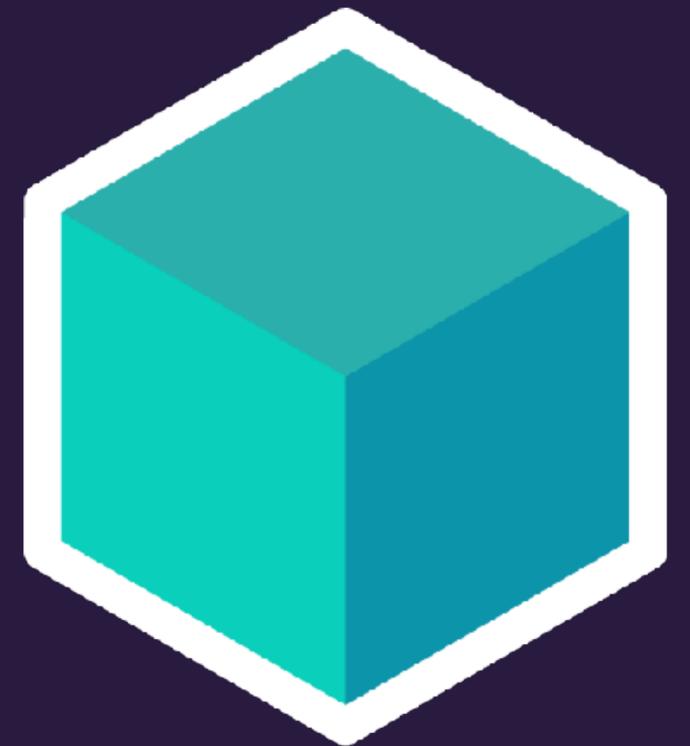
Testcontainers

Testcontainers

- Created 7 years ago
- github.com/testcontainers/testcontainers-java



- Uses **docker-java** API
- Automatic Docker environment **discovery**
- Automatic **cleanup**



testcontainers-rs Public

A library for integration-testing against docker containers from within Rust.

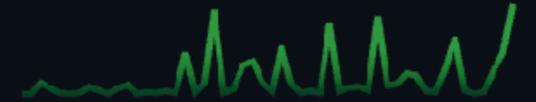
Rust 173 50 23 (5 issues need help) 6 Updated 2 hours ago



testcontainers-java Public

Testcontainers is a Java library that supports JUnit tests, providing lightweight, throwaway instances of common databases, Selenium web browsers, or anything else that can run in a Docker container.

Java 5,580 MIT 1,100 355 (26 issues need help) 106 Updated 2 hours ago



testcontainers-scala Public

Docker containers for testing in scala

Scala 479 MIT 83 16 2 Updated yesterday



testcontainers-go Public

Testcontainers is a Golang library that providing a friendly API to run Docker container. It is designed to create runtime environment to use during your automatic tests.

Go 1,190 MIT 172 51 20 Updated yesterday



testcontainers-python Public

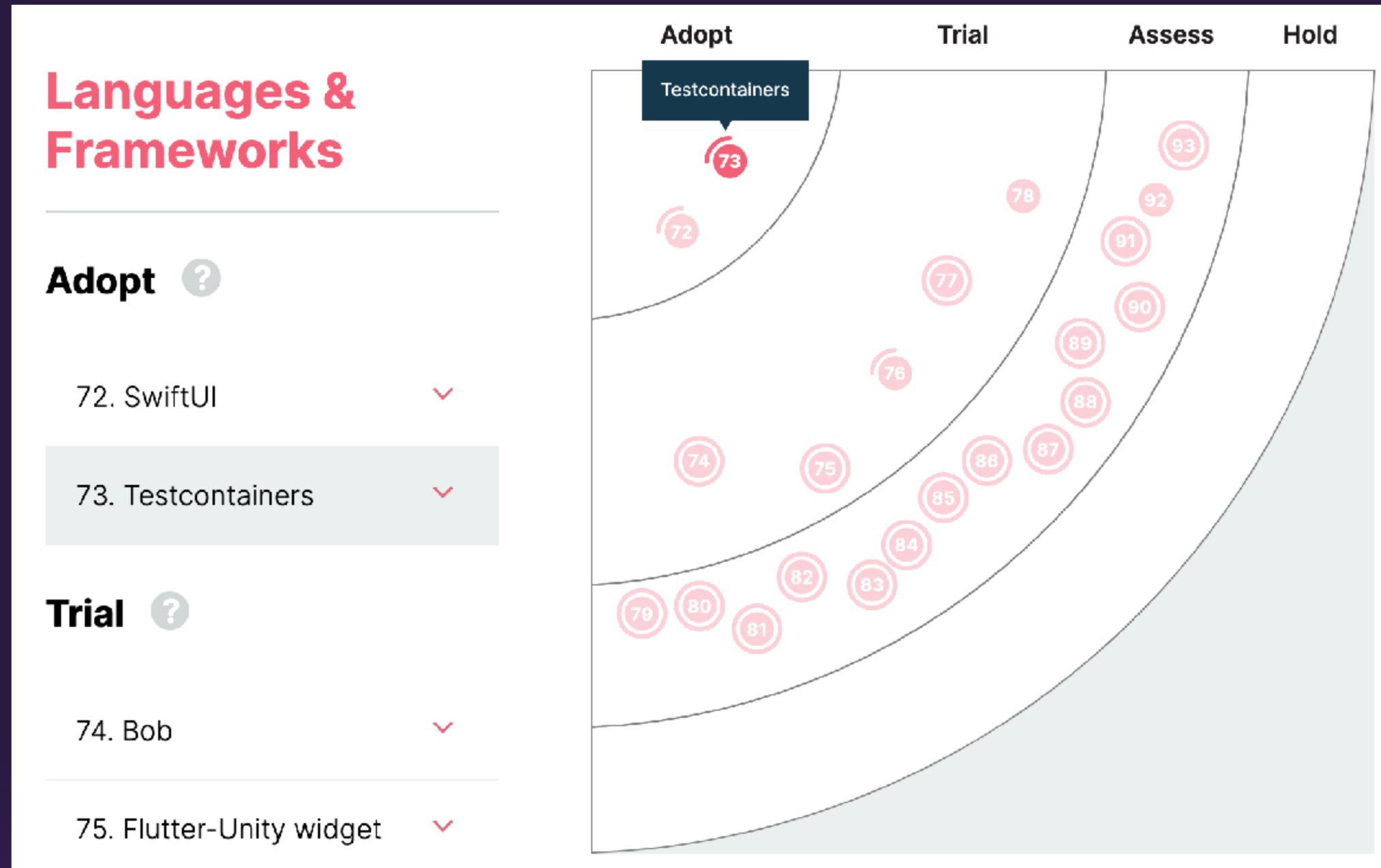
Python 452 Apache-2.0 101 20 (3 issues need help) 22 Updated 3 days ago



We think it's a useful **default option** for creating a **reliable environment** for running tests.

...

Our teams have consistently found this library of **programmable, lightweight** and **disposable** containers to make functional tests more **reliable**.



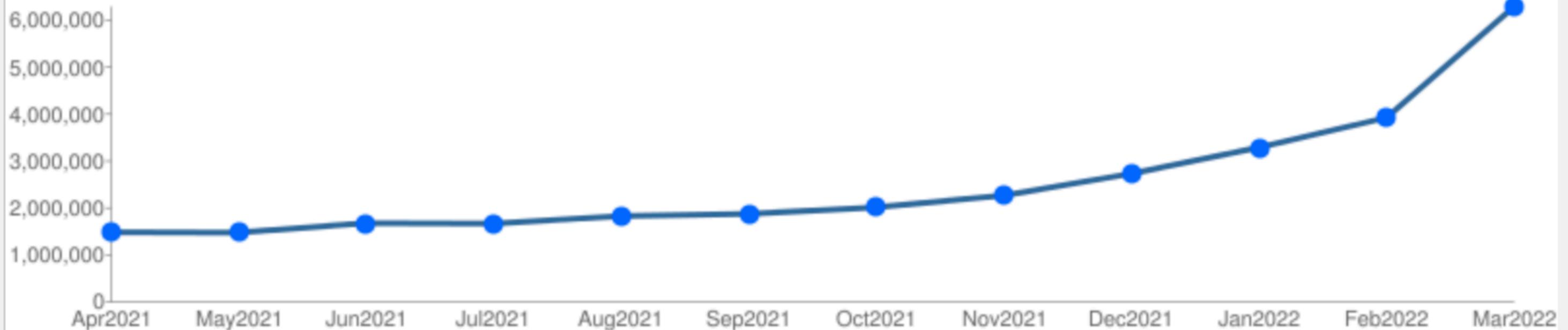
Downloads

Overview

Project: Type:

GroupId: ArtifactId: Version: [Export CSV](#)

Downloads Over the Last 12 Months For org.testcontainers:testcontainers-bom



Unique IPs

Overview

Project: Type:

GroupId: ArtifactId: Version: [Export CSV](#)

Unique IPs Over the Last 12 Months For org.testcontainers:testcontainers-bom

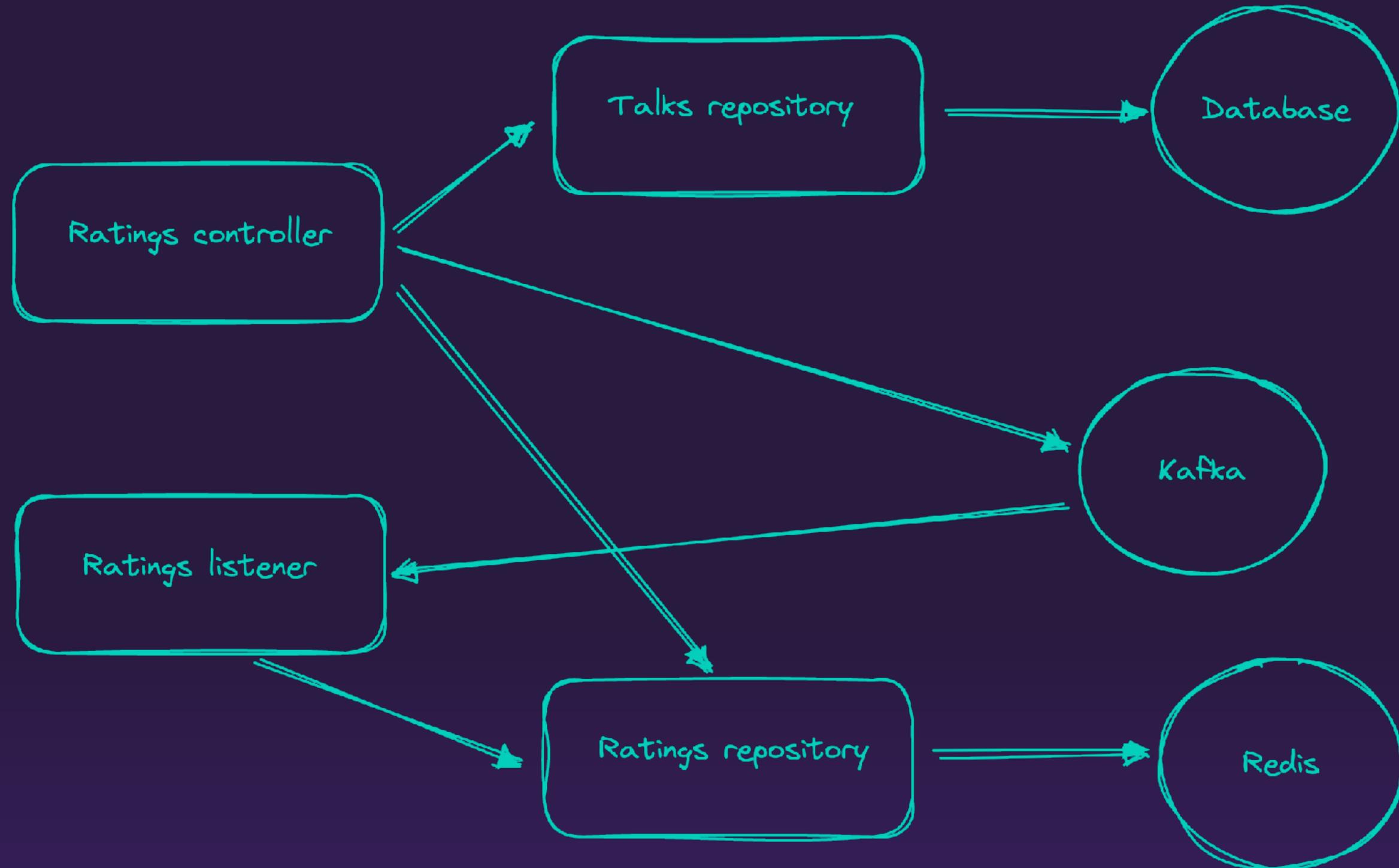




Show me the **code**

Model:

```
record Rating (String talkId, Integer value) {}
```



What's **next?**

Reusable containers

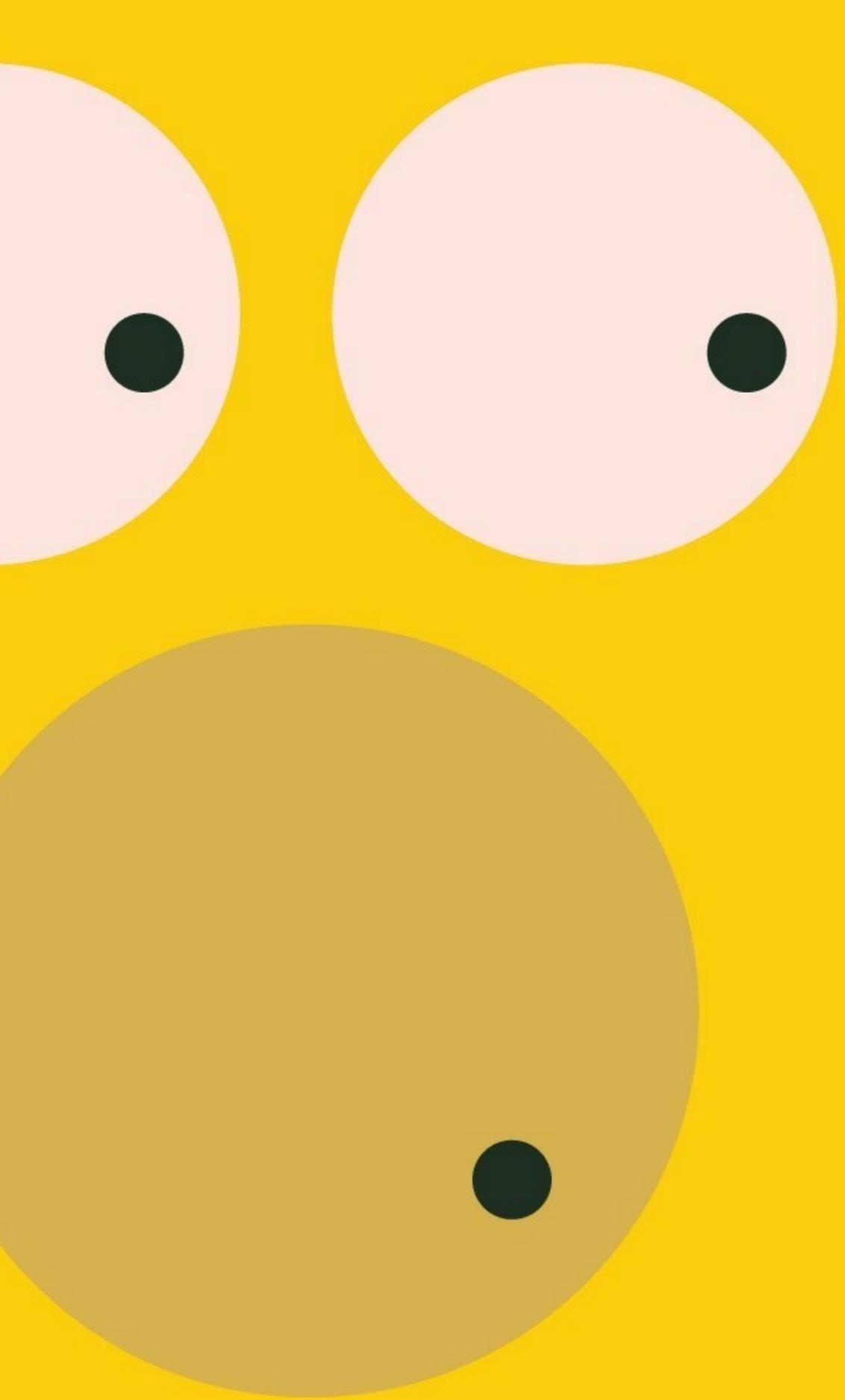
Networks for more complex topologies

Custom **startup & waiting** strategies

Creating images **on-the-fly**

Logs, files, commands, limits...

```
redis.with|
  ◉ withExposedPorts(Integer... ports)
  ◉ withCommand(String... commandParts)
  ◉ withAccessToHost(boolean value)
  ◉ withEnv(Map<String, String> env)
  ◉ withEnv(String key, String value)
  ◉ withClasspathResourceMapping(String res...
  ◉ withClasspathResourceMapping(String res...
  ◉ withCopyFileToContainer(MountableFile m...
  ◉ withCopyToContainer(Transferable transf...
  ◉ withCreateContainerCmdModifier(Consumer...
  ◉ withExtraHost(String hostname, String i...
  ◉ withFileSystemBind(String hostPath, Str...
Press ↵ to insert, → to replace Next Tip
```



**What to do if
you have
no Docker?**

Docker environments

	Docker Desktop	Docker Machine	Minikube	Podman
Compatibility (more is better)	✓✓✓	✓✓	✓✓✓	?
Effort (less is better)	📦	📦	📦📦	📦📦📦
Performance (1 Kafka, in seconds)	3.81	3.69	3.91	-
Risks & comments		Deprecated		

Testcontainers Cloud



Andy Wilkinson
@ankinson



I had the good fortune of being asked to beta test Testcontainers Cloud. It's the real deal. Drop-in replacement for Docker Desktop and containers now start more quickly, both in Spring Boot's own build and tests of various Boot-based apps that I maintain. Impressive start.



Asaf Mesika
@asafmesika



This a game changer for integration and e2e testing ! Awesome idea !



Marouane Trabelsi
@tmarwen

One big step ahead in the Integration Testing space, one that haven't seen much innovation in a long time.

Kudos @testcontainers and @AtomicJarInc



peter royal
@osi



Replying to @NayShins and @testcontainers

you may be interested in what @AtomicJarInc is up to!



Michael Simons
@rotnroll666



I have to say, @QuarkusIO dev-services combined with @testcontainers in the cloud via @AtomicJarInc is brilliant.

No load for the containers on the local machine and config-free setup.



Sébastien Blanc
@sebi2706



Red Hat

Replying to @rotnroll666 @QuarkusIO and 2 others

Is this a real thing or just a (great) idea for now ?



Gerrit Meier
@meistermeier



Friends of Docker wormholes in CI, I have bad news for you: I just threw @AtomicJarInc @testcontainers cloud support into the build config and things(tm) are just working.



Max Rydahl Andersen
@maxandersen



Red Hat

This should be interesting! Ever since @quarkusio introduced devservices that uses @testcontainers I've wondered how we could make it available for users without the machine power or even access to docker. Testcontainer cloud solves that problem.



James Ward
@_JamesWard



Holy amazing wowers! The best improvement to developer productivity since docker has landed. I got hands on with Testcontainers Cloud yesterday and it blew me away. Local dev, test, and CI will never be the same. Forever better. Thank you @AtomicJarInc!



Julien Dubois
@juliendubois

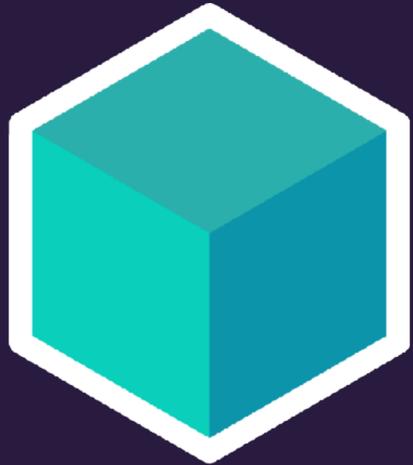


Microsoft

Congrats to the team!! That's a great idea.



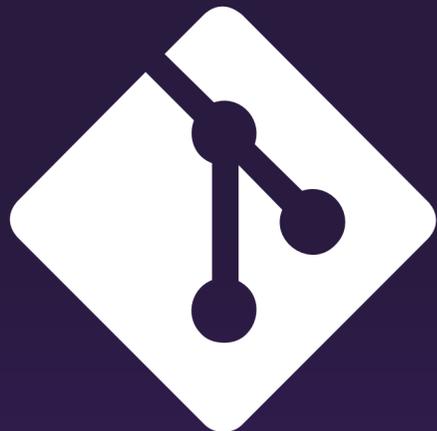
What's next?



— www.testcontainers.org



— github.com/testcontainers/testcontainers-java



— github.com/testcontainers/workshop

Thanks!

testcontainers / testcontainers-java

Public

Code Issues 387 Pull requests 143 Discussions Actions Security Insights

master

meistermeier Enable Neo4j labs plugin definition. (#5035) ✓ yesterday 3,400

.circleci Remove ciMate (#3631) 15 months ago

.github Use collapse-after for dependencies category ... 9 days ago

About

Testcontainers is a Java library that supports JUnit tests, providing lightweight, throwaway instances of common databases, Selenium web browsers, or anything else that can run in a Docker container.

testcontainers / testcontainers-go

Public

Code Issues 55 Pull requests 21 Actions Security Insights

main

mdelapenya Merge pull request #429 fro... ✓ 12 hours ago 637

.github Merge pull request #401 from testco... 16 days ago

docs chore: update branding 23 hours ago

scripts

testresou

About

Testcontainers is a Golang library that providing a friendly API to run Docker container. It is designed to create runtime environment to use during your automatic tests.

testcontainers / testcontainers-node

Public

Code Issues 5 Pull requests 4 Discussions Actions Projects 1

master

github-actions v8.7.1 5 days ago 528

.github Update bug_report.md 13 days ago

.husky Refactor components into smaller m... 9 months ago

fixtures Migrate to official @balena/dockerig... 24 days ago

src Make Kafka containers reusable (#3... 5 days ago

.eslintrc.js Load registry auth information (#179) 16 months ago

About

TestContainers is a NodeJS library that supports tests, providing lightweight, throwaway instances of common databases, Selenium web browsers, or anything else that can run in a Docker container.

docker node testcontainers

Readme

MIT License

testcontainers / testcontainers-python

Public

Code Issues 21 Pull requests 11 Actions Projects Wiki

master

tillahoffmann and naomielst Update do... ✓ 10 days ago 439

.github/workflows General maintenance and tidying to ... 24 days ago

docs Added ClickHouse support (#173) 17 days ago

requirements Update docker version. (#203) 10 days ago

testcontainers Reduce log level to prevent log file p... 12 days ago

tests Add compose exec_in_container me... 17 days ago

About

Testcontainers is a Python library that providing a friendly API to run Docker container. It is designed to create runtime environment to use during your automatic tests.

testcontainers-python.readthed...

python testing database

selenium python3

testcontainers