Mastering Testcontainers

Oleg Šelajev JDConf, 2024



Tests drive productivity

Feedback loops Cognitive load Flow state





Images from https://about.sourcegraph.com/blog/developer-productivity-thoughts





Dev Productivity with No Interruptions Flow State Productivity



Image from https://about.sourcegraph.com/blog/developer-productivity-thoughts



Tests setup transformation

Timeline Mocking

Local DBs

VMs (Vagrant)



Tests setup transformation

Timeline Docker

Docker Compose

Docker API



Test dependencies as code

var redis = new GenericContainer("redis:6-alpine").withExposedPorts(6379)

Testcontainers is an open source library for providing ephemeral, lightweight instances of test dependencies.



Testcontainers Makes Tests Self-Contained





Testcontainers is now popular across all categories of dependencies







Two thirds of the community adopt **3+ testing use** cases

Source: AtomicJar



Testcontainers modules

Test against any database, message broker, browser... or just about anything that runs in a Docker container!







Prod







Why are Testcontainers - YYY

- Flexible lifecycle API: isolation vs convenience
- Capable of abstractions
 - modules
- Waiting strategies
- Complex network topologies
- Randomized ports mapping
- Everything is dynamic allowing parallelisation
- Self-contained tests: feels like a unit, reliable like integration









testcontainers.com/desktop



Testcontainers Desktop v1.9.0

Oleg Šelajev via github

Run containers locally

✓ Testcontainers Cloud

Containers (3)

Freeze containers shutdown

Services

Open terminal... Open dashboard... Preferences

Staging	Production	
CI Platform		
ENCRYPTED TUNNEL		
	🗧 🕸 🖬 R 🗻	
Virtual Machine	Testcontainers	



Resources

- slack.testcontainers.com

- testcontainers.com



testcontainers.com/guides

- https://github.com/testcontainers/java-local-development-workshop



https://testcontainers.cloud