ArchUnit

Testen von Architektur und Design

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ArchUnit

Autor

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zahlreiche
„Contributors“

glücklicher Anwender

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😀

Die Techniker

www.tk.de/it

Was ist Architektur?

Entscheidungen. Technologien …
alles „Wichtige“, was schwer zu ändern ist

Struktur und Konventionen innerhalb eines Artefakts (Services)

Kommunikation zwischen den (Teil-)Systemen

Gemeinsames Verständnis über das System und seine Teile

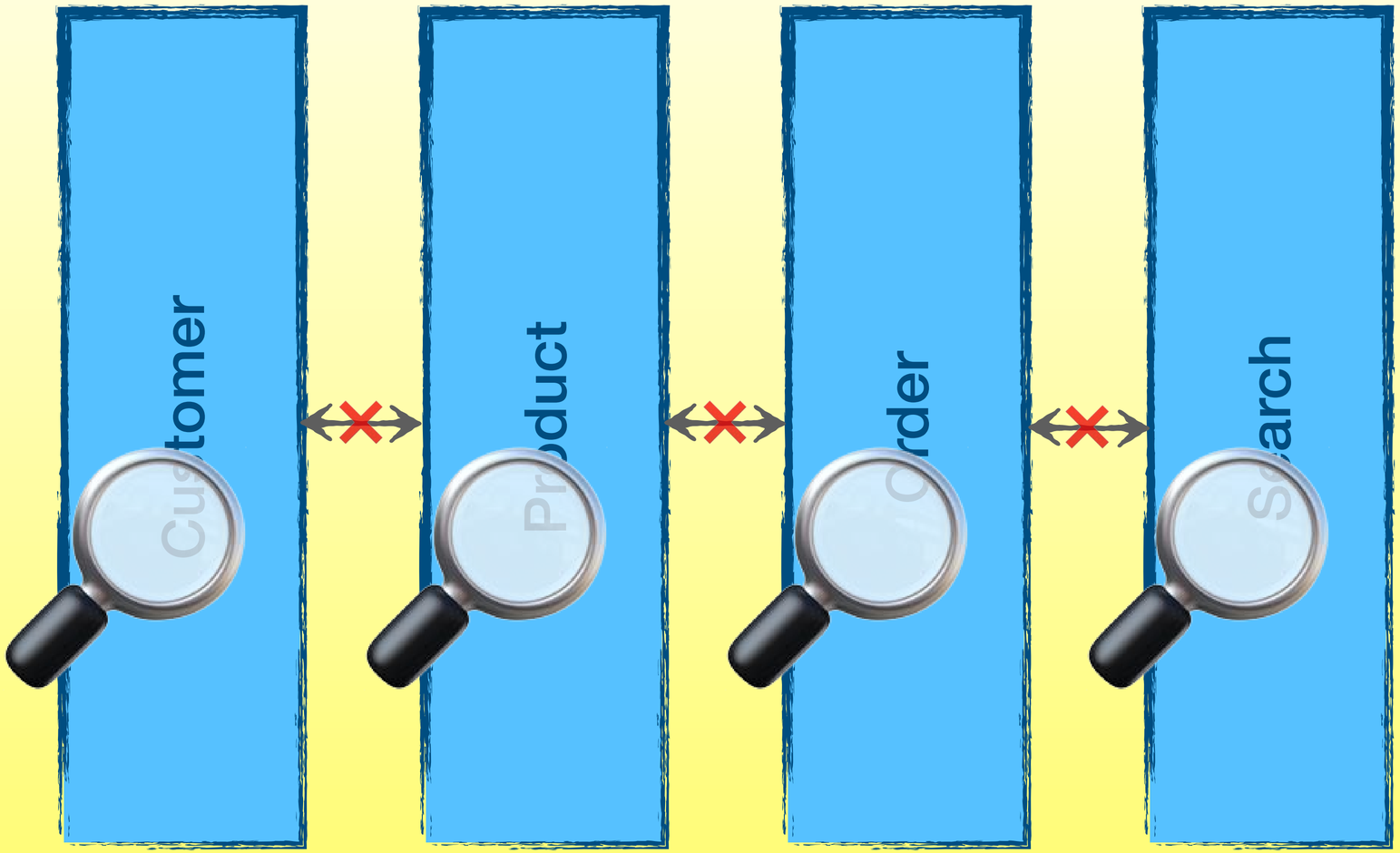
…

Thema heute:
ArchUnit

Architektur und Design automatisiert prüfen –

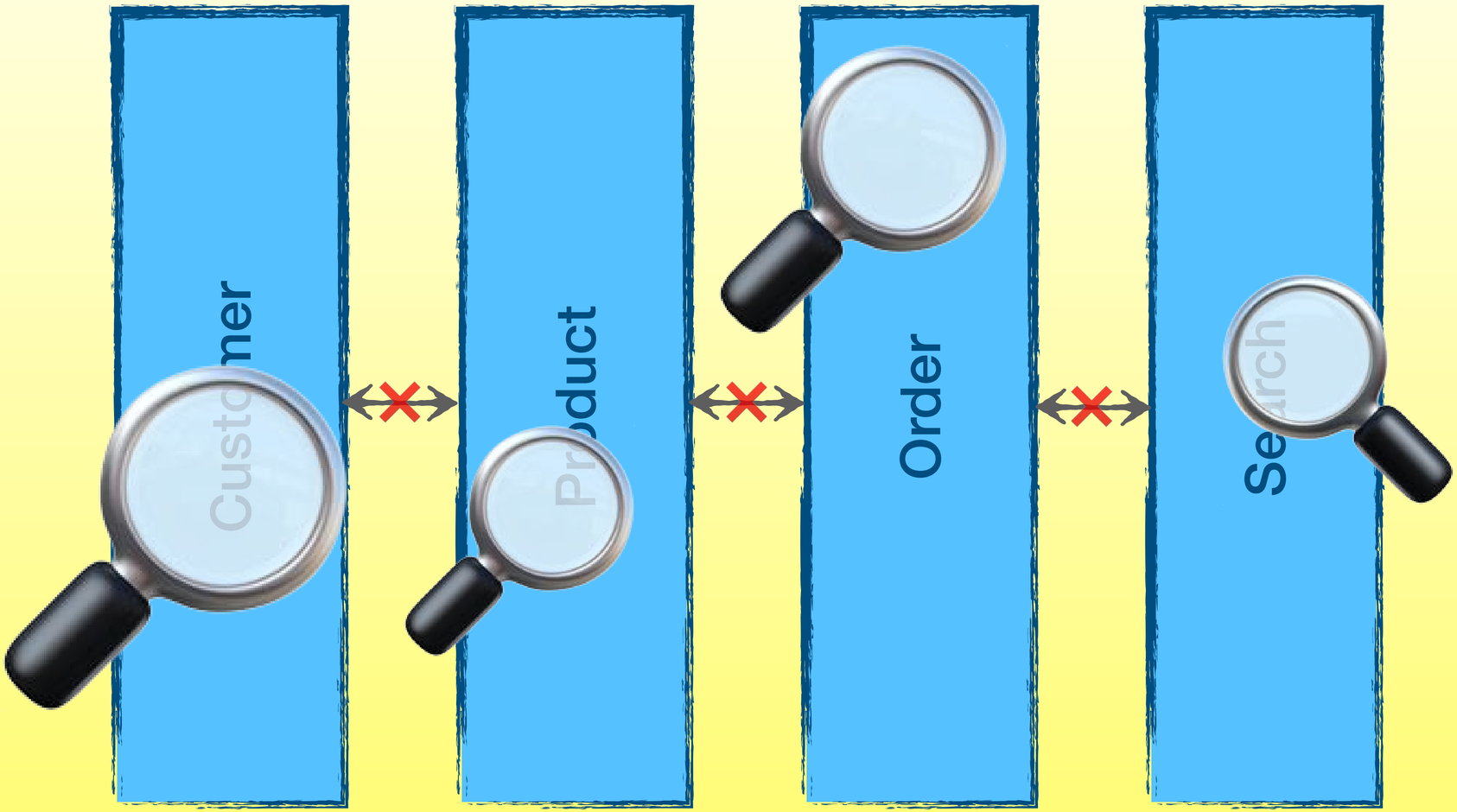
Warum? Was genau?

Microservices & SCS*



*) „Self-Contained Systems“, siehe z.B. https://scs-architecture.org/

Microservices & SCS*



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Monolithen

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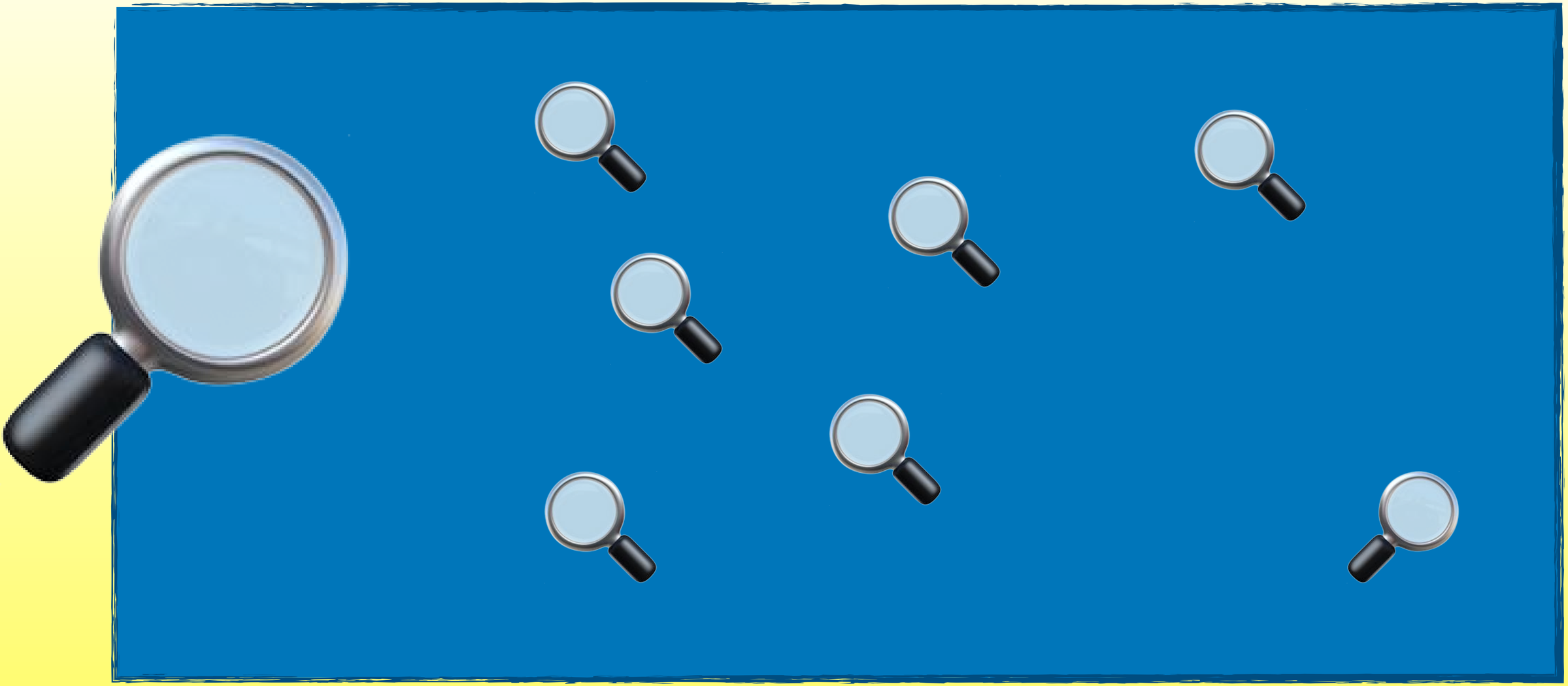
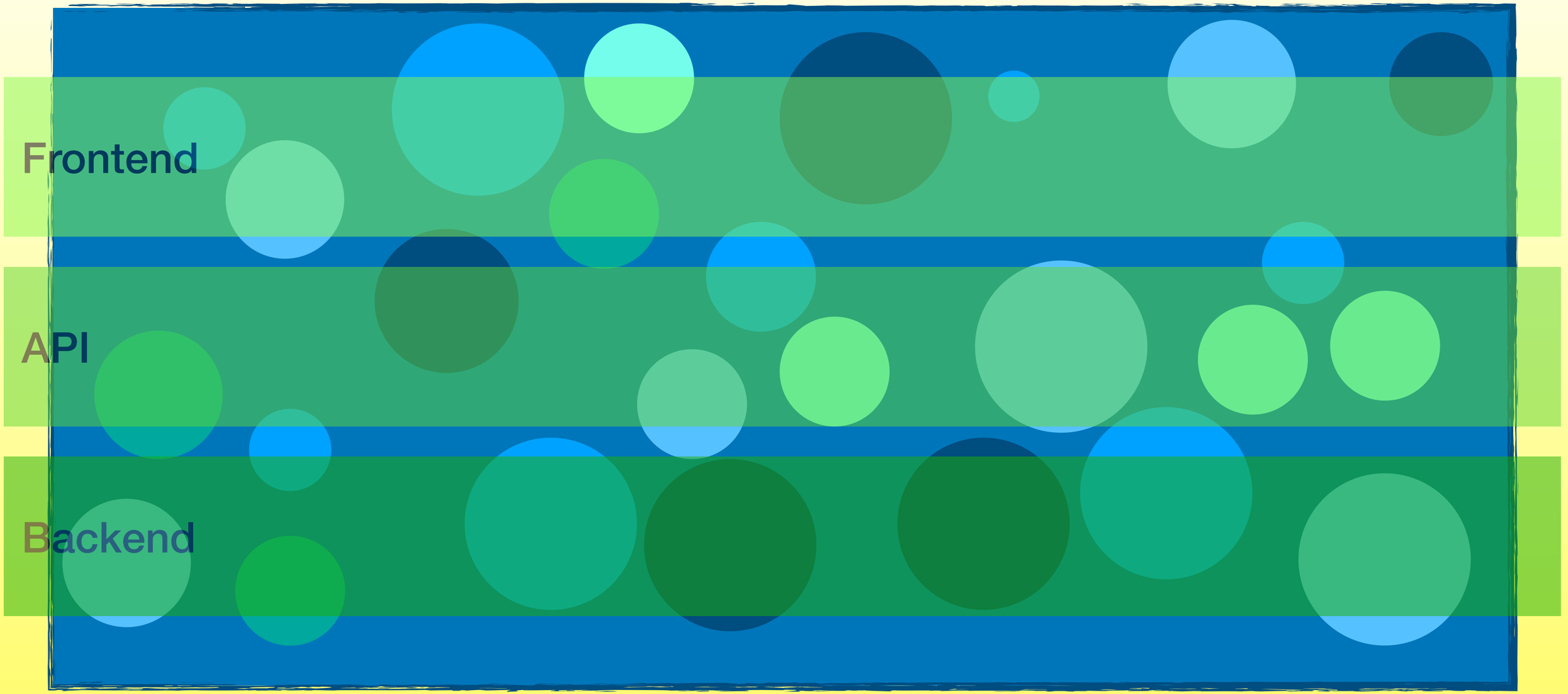
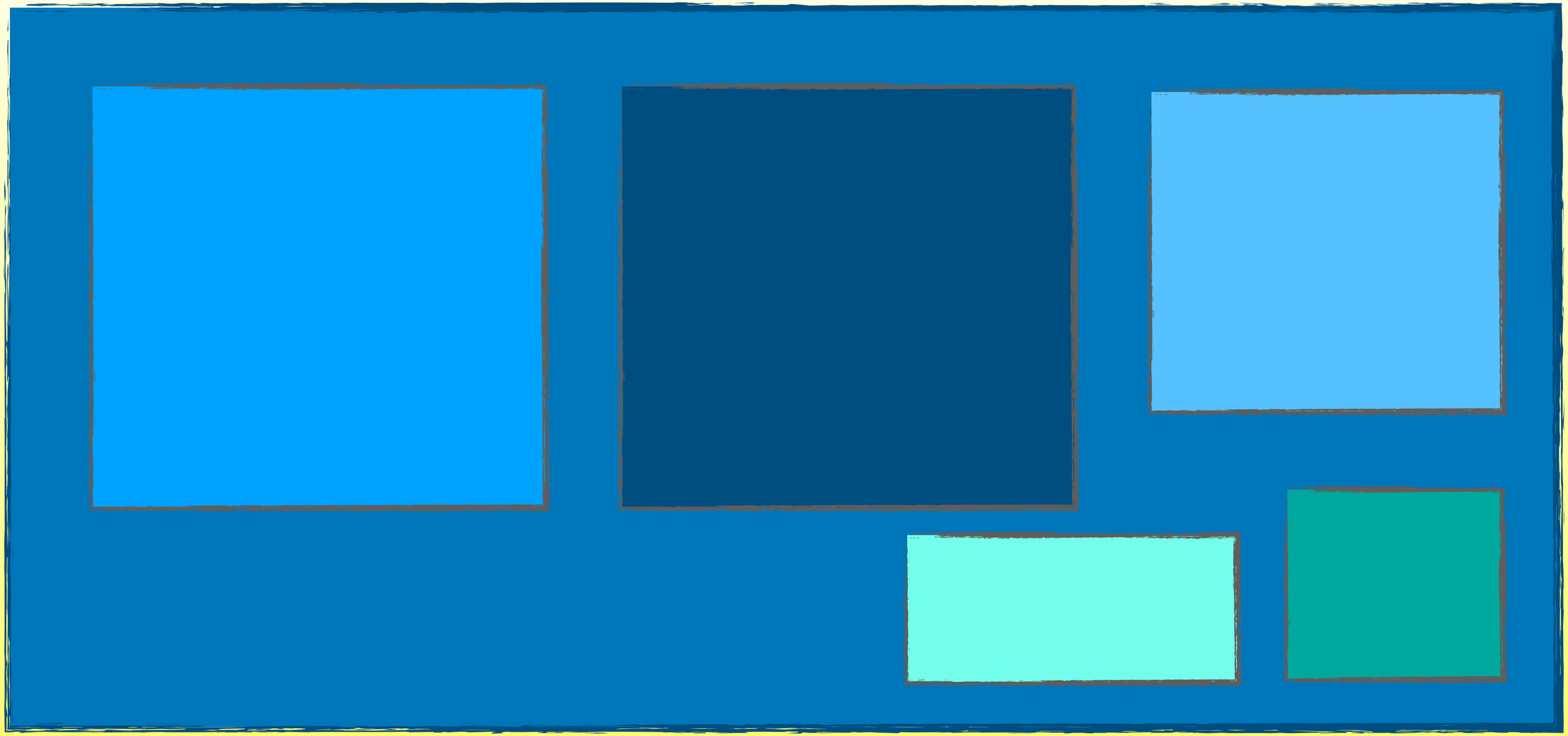


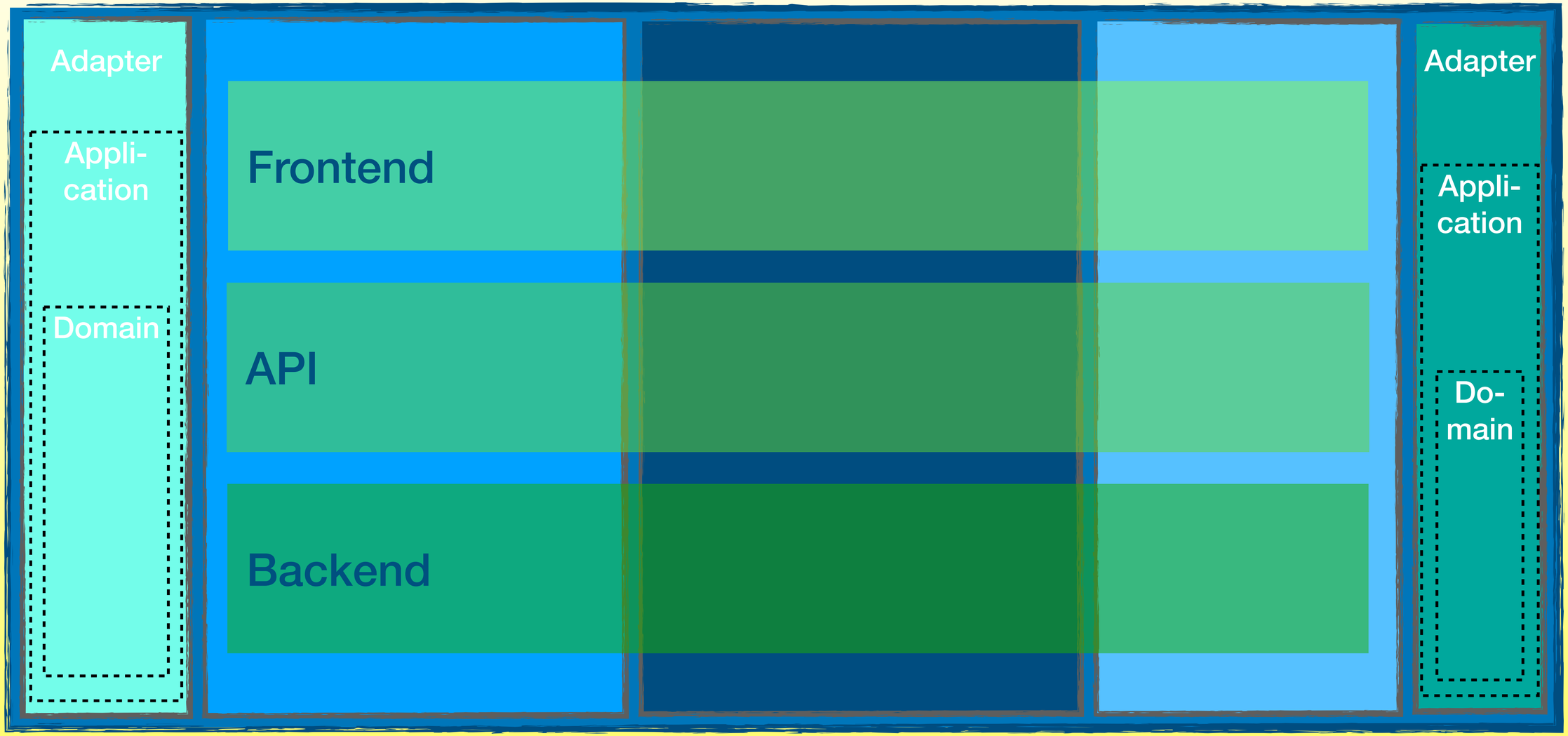
Monolithen



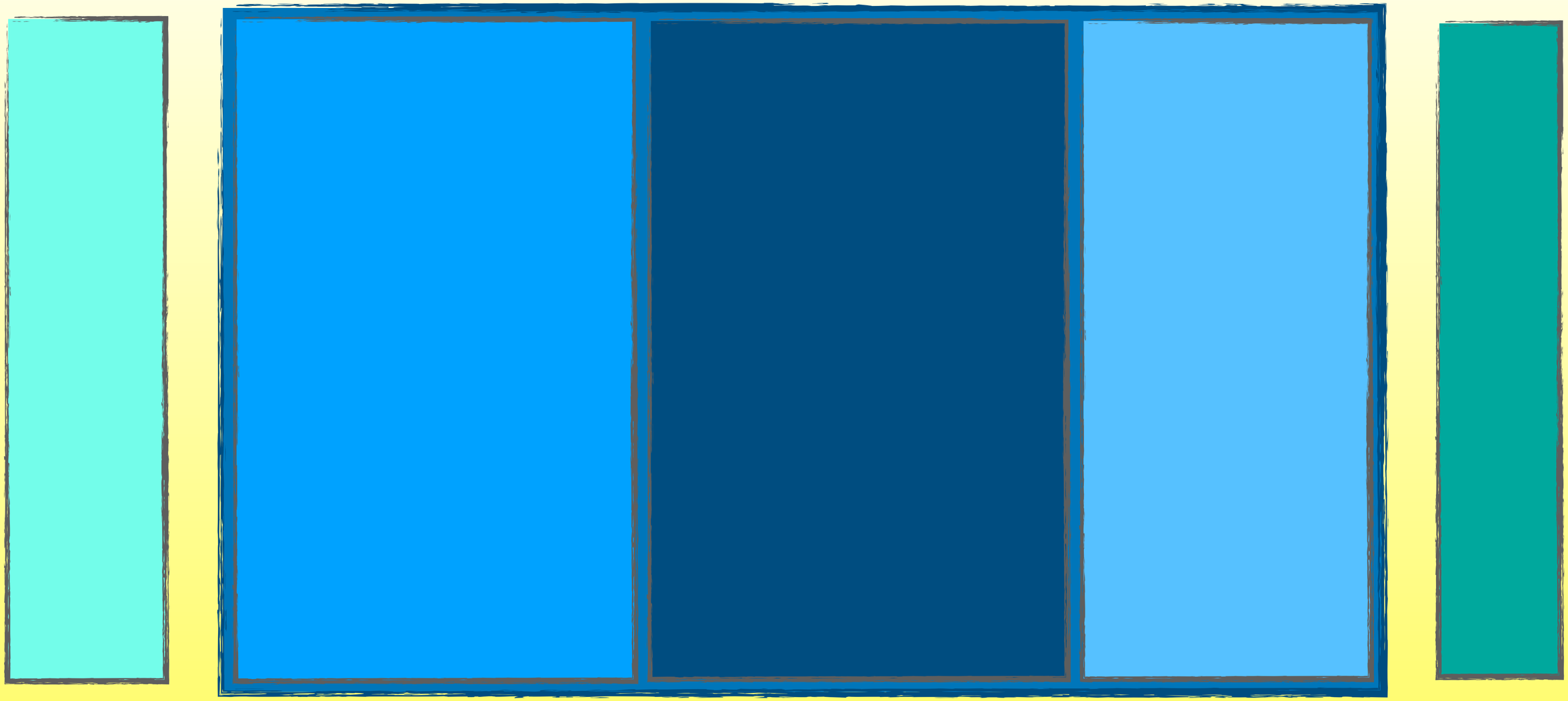
Freundliche Monolithen



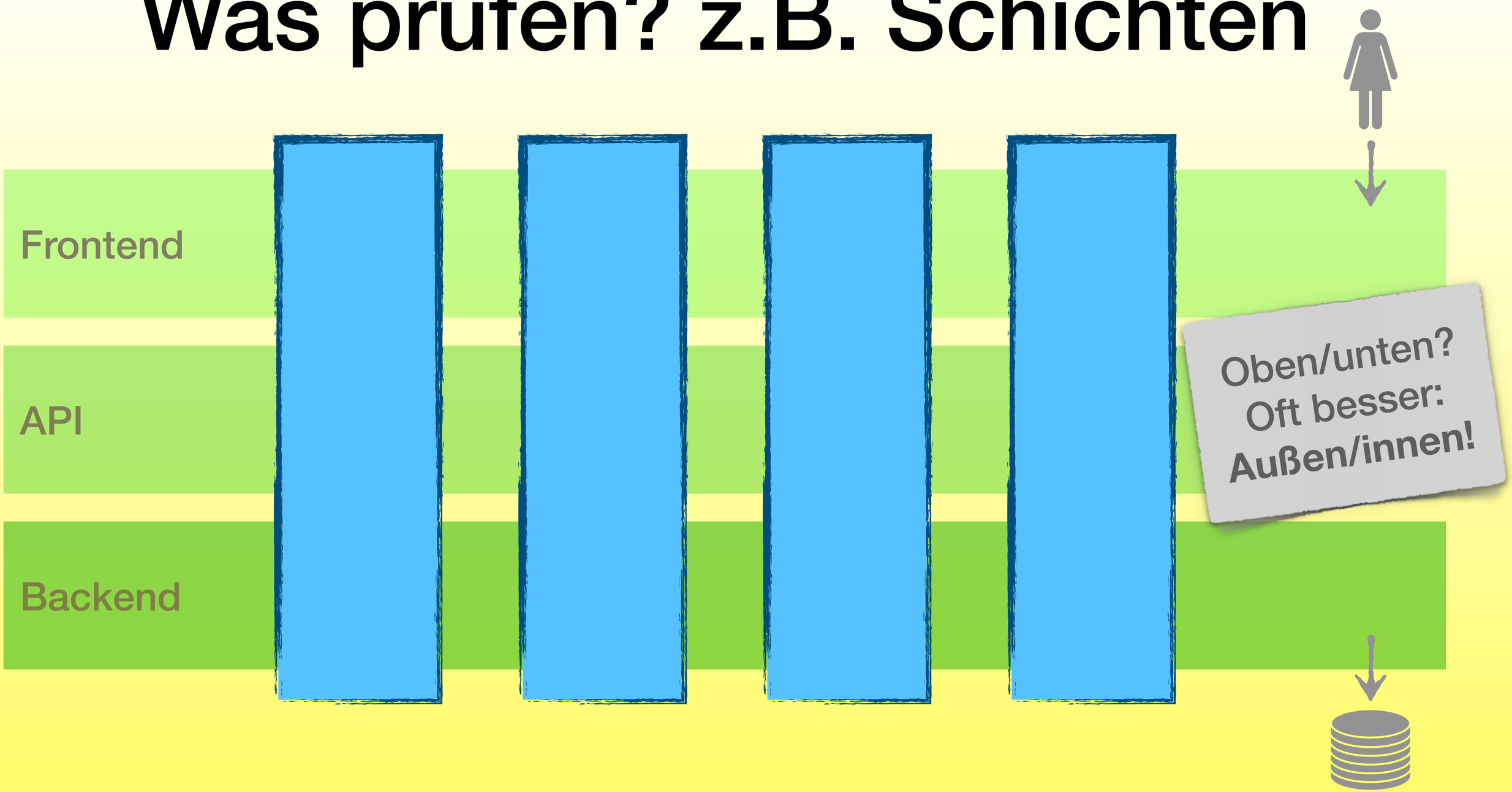
Noch freundlichere Monolithen



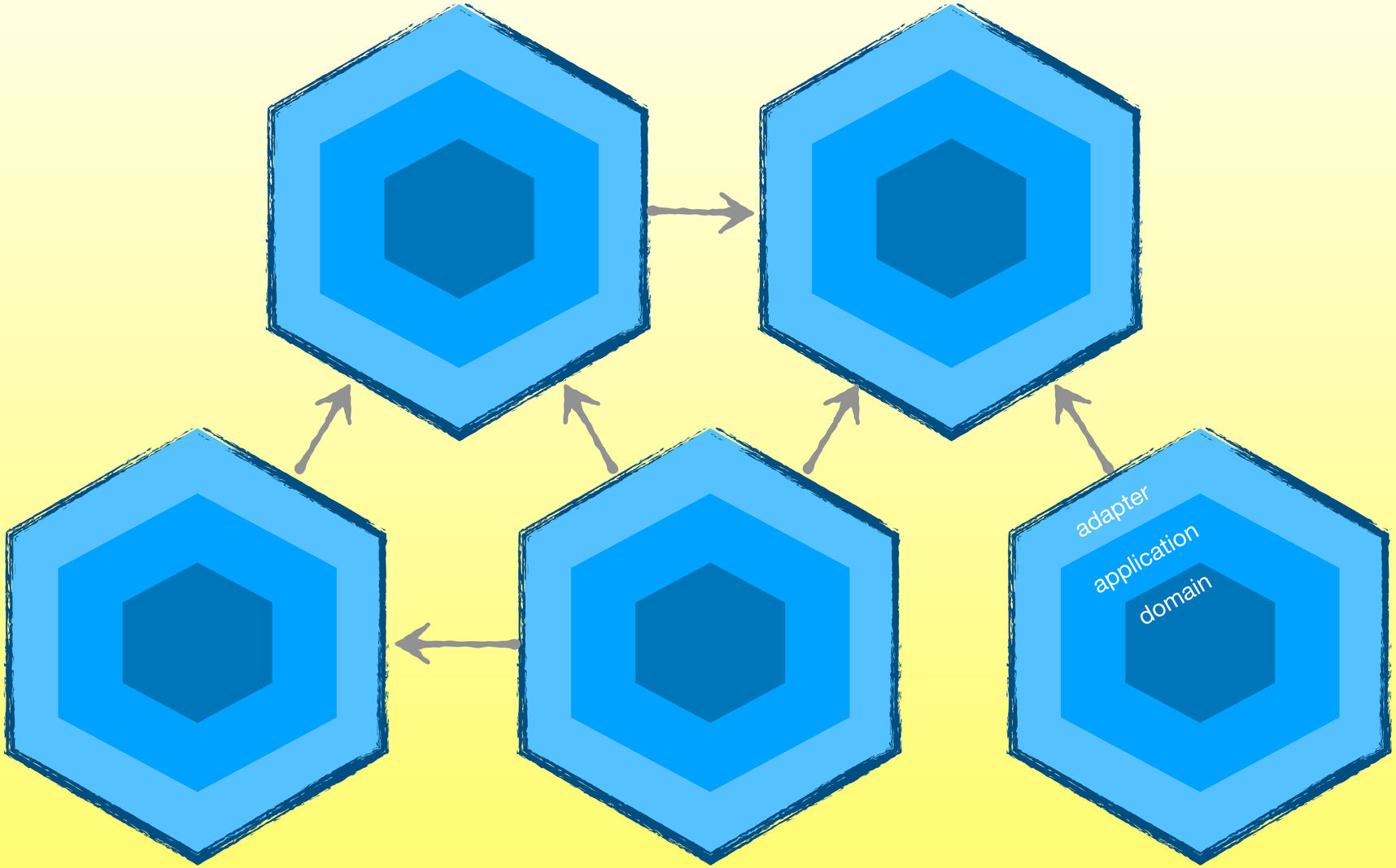
Abgespeckte Monolithen



Was prüfen? z.B. Schichten



Was prüfen? z.B. Ports & Adapters



Architektur testen – warum?

Wartbarkeit

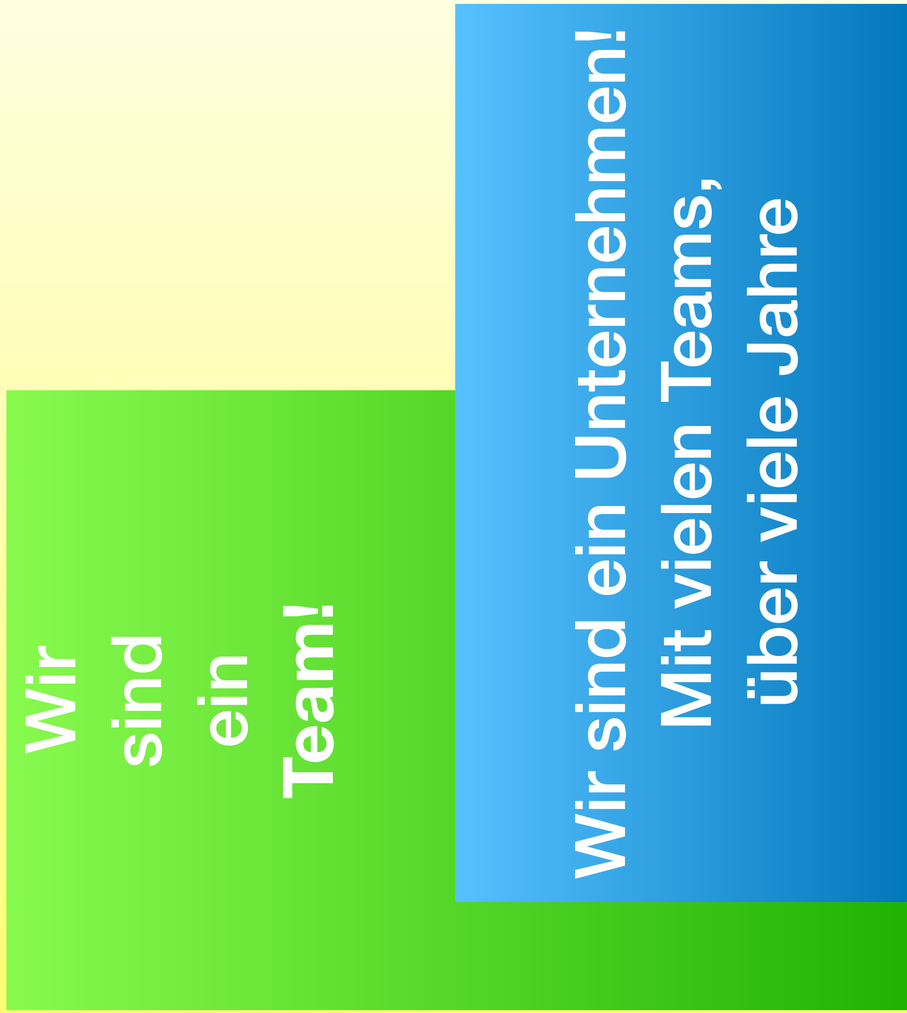
Ersetzbarkeit

Dokumentation

Kommunikation

Verständlichkeit

Code-Conventions



Architektur testen

Abhängigkeiten, Kohäsion & Kopplung

Konventionen & Patterns

Mein Weg zu ArchUnit

Ende 2017
„ArchUnit 0.4“

Classycle

Checkstyle

möglichst einfach

kommerziell

Architektur-Prüfungen als **Unit-Tests**

Normaler **Java-Code**!

Flexibel erweiterbar – auch Design-Prüfungen realisierbar

Prüfung auf **Bytecode**-Ebene

ArchUnit einbinden

Group ID	Artifact ID	Latest Version		Updated
com.tngtech.archunit	archunit-junit	0.8.3	(6)	20-Jul-2018
com.tngtech.archunit	archunit-junit5-engine-api	0.22.0	(23)	29-Oct-2021
com.tngtech.archunit	archunit-junit5-engine	0.22.0	(23)	29-Oct-2021
com.tngtech.archunit	archunit-junit5-api	0.22.0	(23)	29-Oct-2021
com.tngtech.archunit	archunit-junit5	0.22.0	(14)	29-Oct-2021
com.tngtech.archunit	archunit-junit4	0.22.0	(23)	29-Oct-2021
com.tngtech.archunit	archunit	0.22.0	(29)	29-Oct-2021

```
<dependency>
    <groupId>com.tngtech.archunit</groupId>
    <artifactId>archunit-junit5</artifactId>
    <version>0.22.0</version>
    <scope>test</scope>
</dependency>
```

ArchUnit ausführen

Mit jedem Unit-Test-Framework nutzbar

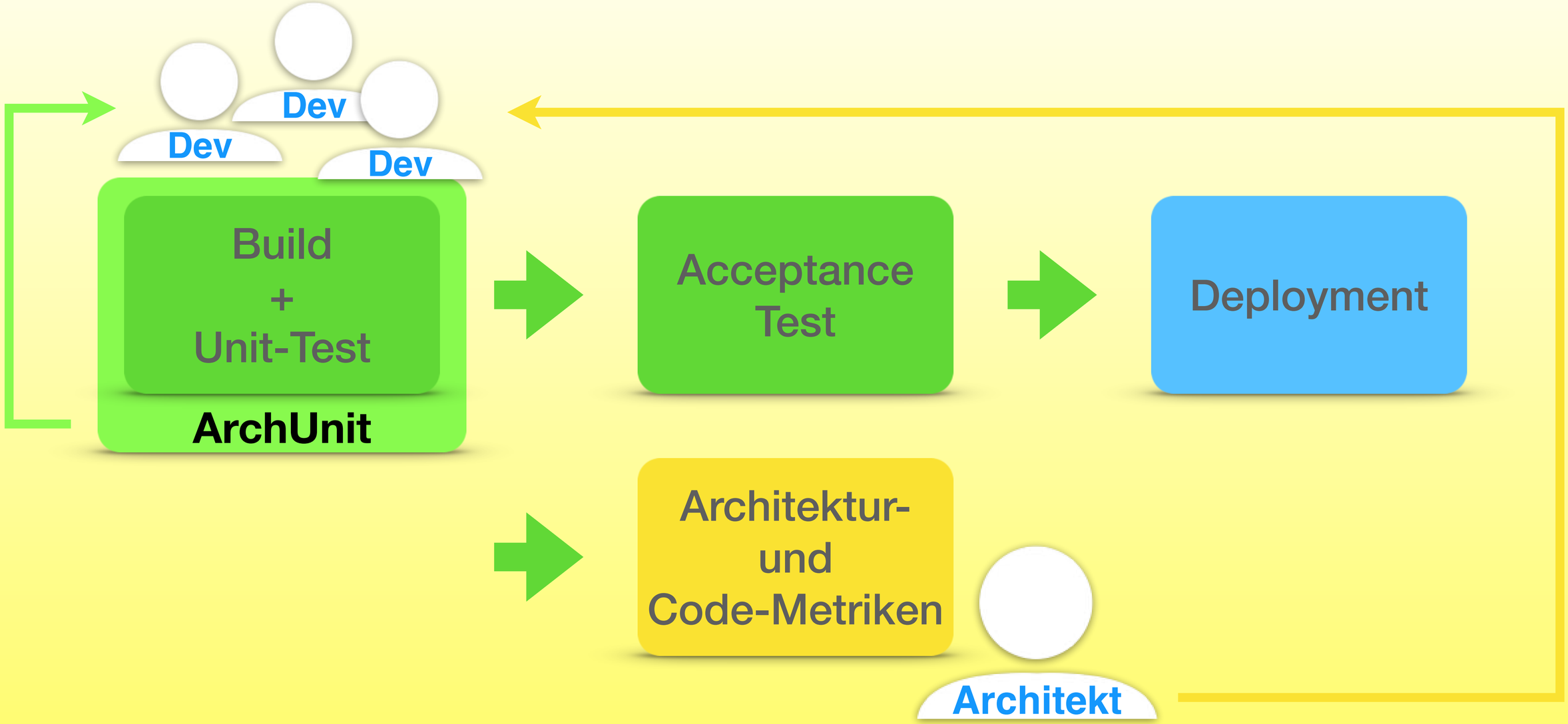
Spezielle Unterstützung für JUnit 4 / 5

Java & Kotlin

Maven- & Gradle-Plugin

Live-Demo

Warum ArchUnit?



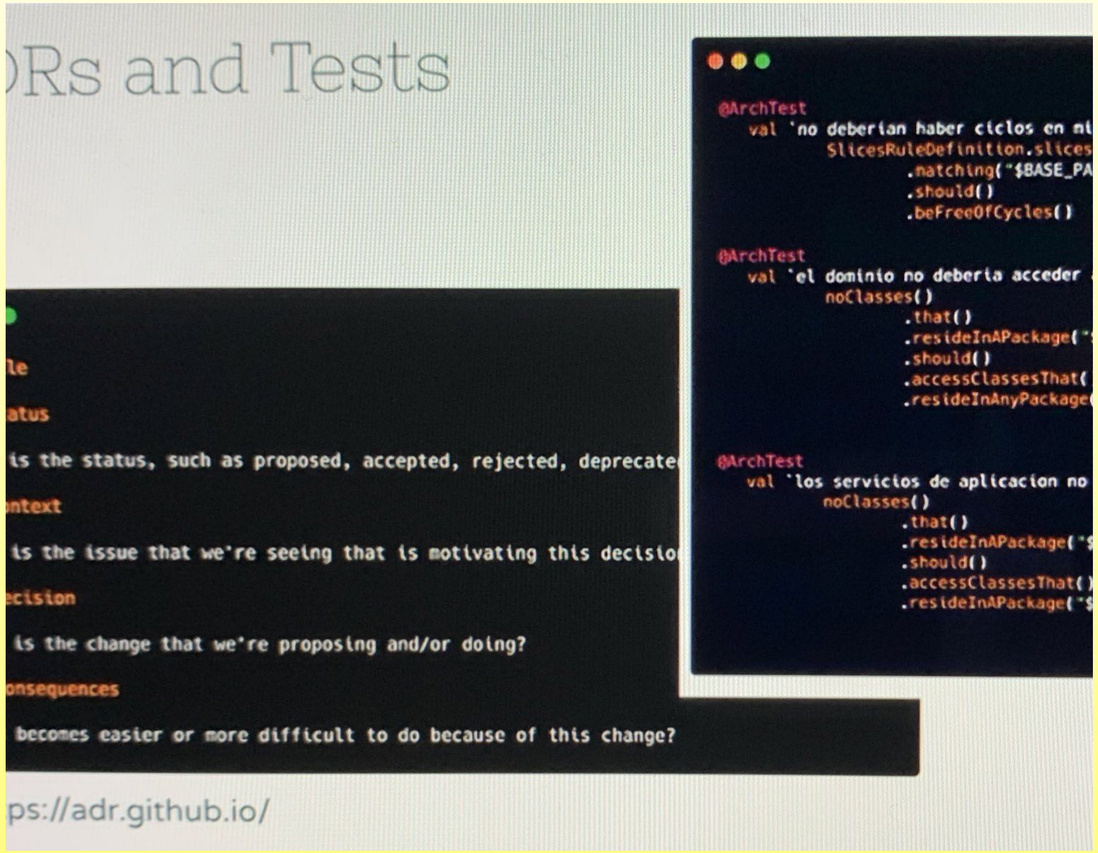
Architektur-Entscheidungen als Team

adr.github.io

Homepage of the ADR GitHub organization

Architectural Decision Records

An Architectural Decision (AD) is a software design choice that addresses a functional or non-functional requirement that is architecturally significant. An Architecturally Significant Requirement (ASR) is a requirement that has a measurable effect on a software system's architecture and quality. An *Architectural Decision Record (ADR)* captures a single AD, such as often done when writing personal notes or meeting minutes; the collection of ADRs created and maintained in a project constitute its *decision log*. All these are within the topic of Architectural Knowledge Management (AKM).

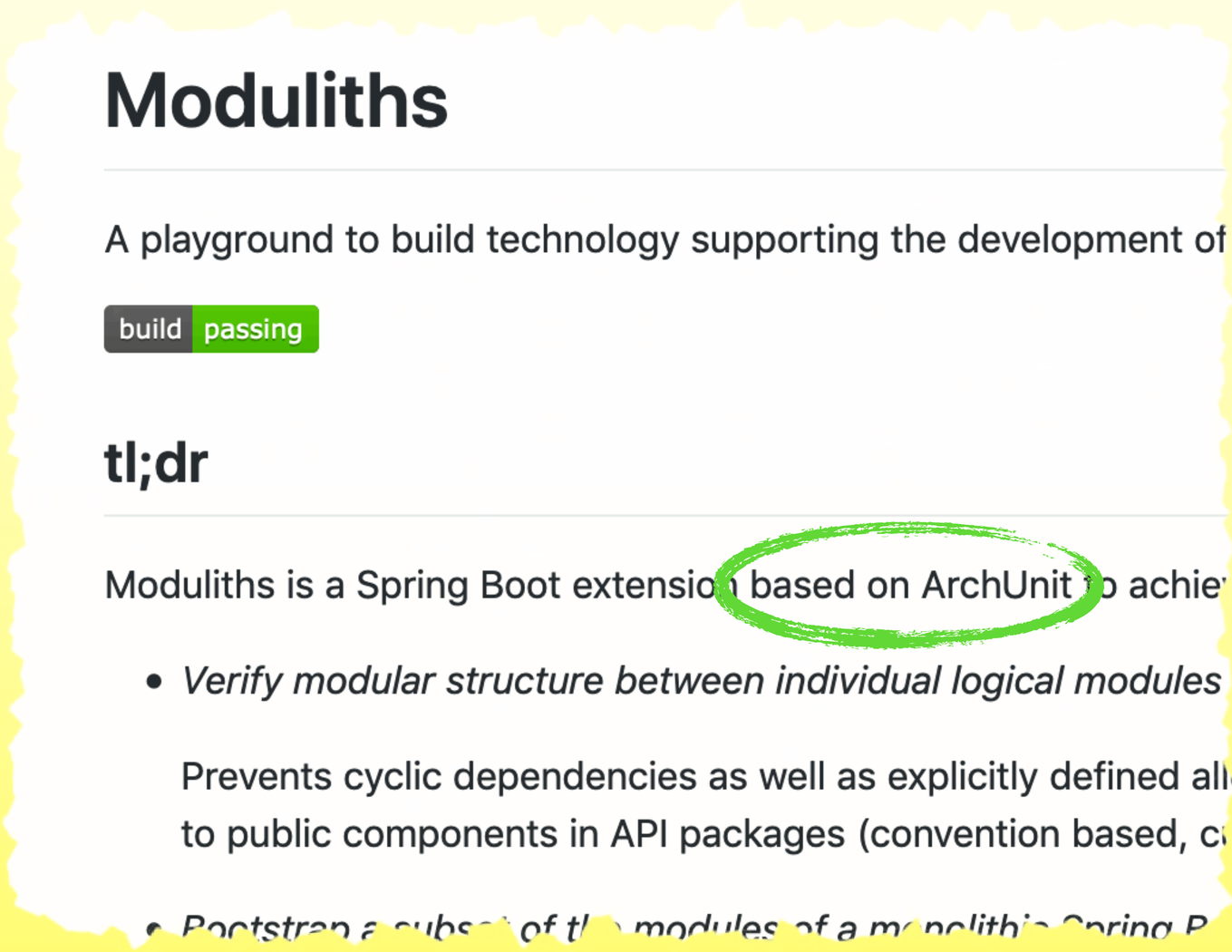


@JavitaLaso beim @ddd_eu: https://twitter.com/gtielsch/status/1357716900084674562

Alternativen & Ergänzungen

u.v.a.m.

Modulithen mit Spring Boot



Moduliths

A playground to build technology supporting the development of

build passing

tl;dr

Moduliths is a Spring Boot extensio based on ArchUnit o achie

- *Verify modular structure between individual logical modules*

  Prevents cyclic dependencies as well as explicitly defined all
  to public components in API packages (convention based, c

- *Bootstrap a subset of the modules of a monolithic Spring B*

https://github.com/odrotbohm/moduliths

jMolecules

Use Case: Verify and Document Architecture

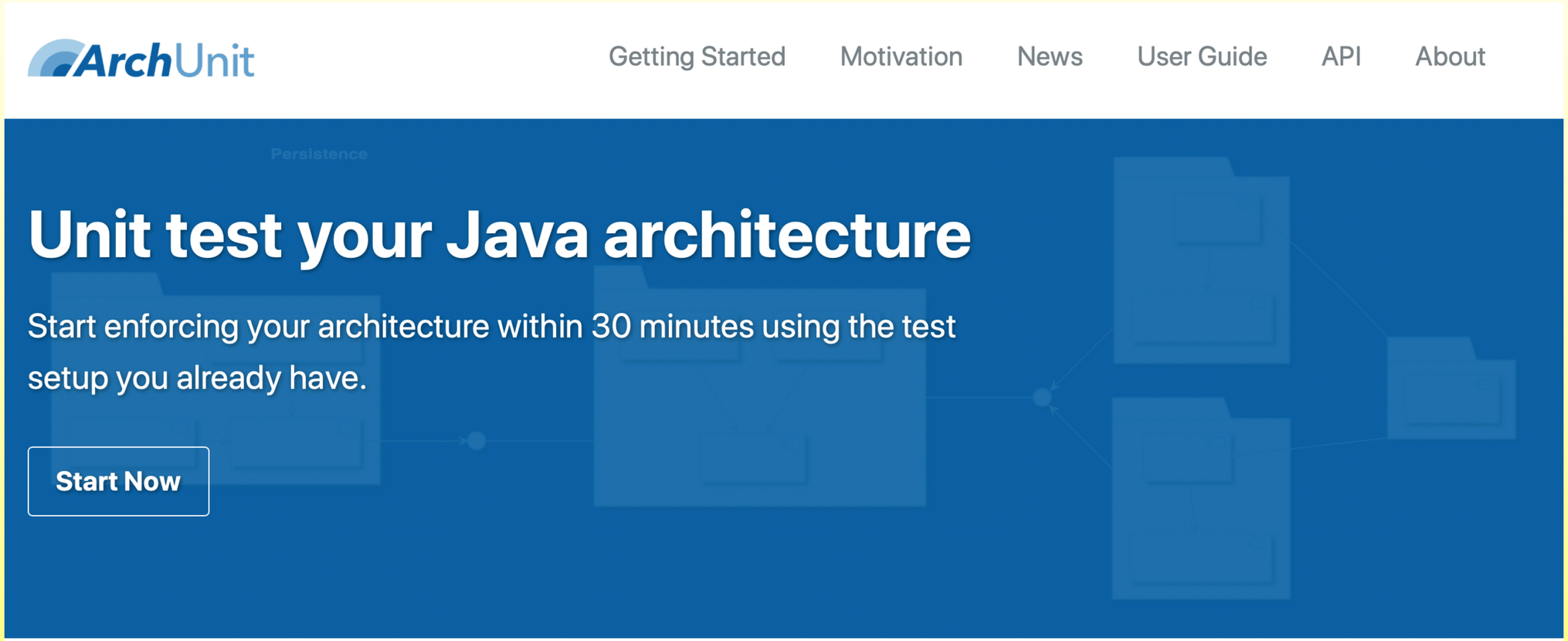
The jMolecules concepts expressed in code can be used to verify rules that stem from the concepts' definitions and generate documentation.

Available Libraries

- jQAssistant plugin—to verify rules applying to the different architectural styles, DDD building blocks, CQRS and events. Also creates PlantUML diagrams from the information available in the codebase.
- ArchUnit rules—allow to verify relationships between DDD building blocks.
- Moduliths—supports detection of jMolecules components, DDD building blocks and events for module model and documentation purposes (see blog post for more information).

https://github.com/xmolecules/jmolecules

https://www.archunit.org



https://github.com/TNG/ArchUnit-Examples

https://github.com/thmuch/archunit-demos

Schichten

Architektur

Slices

Design

Konventionen

Vertikalen

Fragen?

Monolithen

Module

SCS

Abhängigkeiten

Microservices

Kopplung

Kohäsion

Danke!

😊

Thomas Much
@thmuch

https://www.tk.de/it

Die Techniker