

ArchUnit

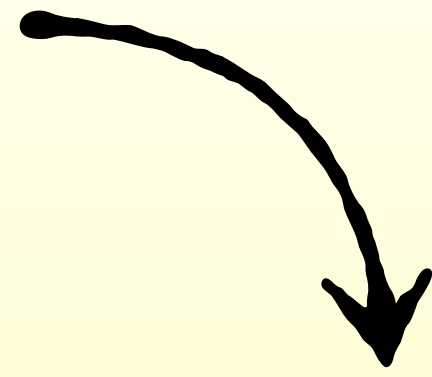
Testen von Architektur und Design

Thomas Much

 @thmuch

20.08.2020

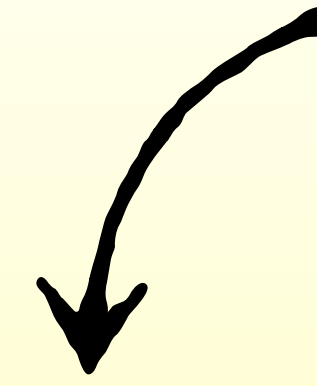
Autor



Peter Gafert
@codecholeric
@archtests

zahlreiche
„Contributors“

glücklicher Anwender



Thomas Much
@thmuch



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?

Microservices & SCS



Customer

Product

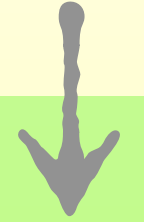
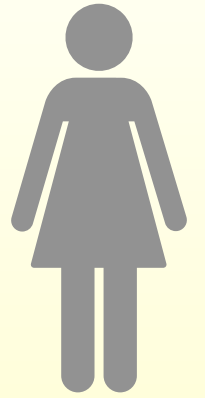
Order

Search

Monolithen



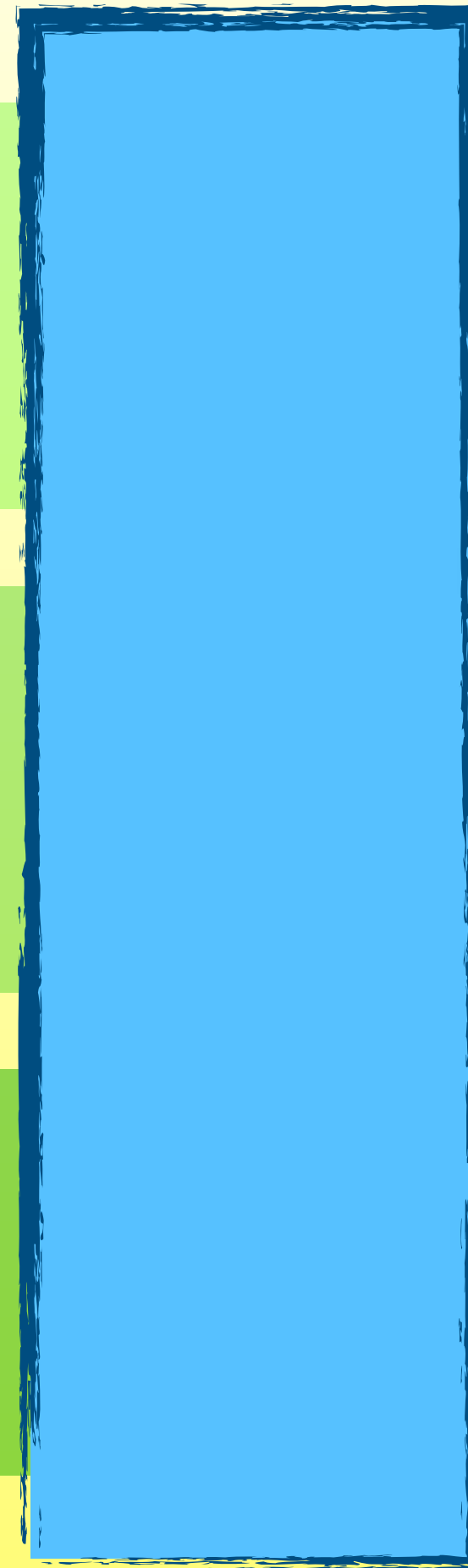
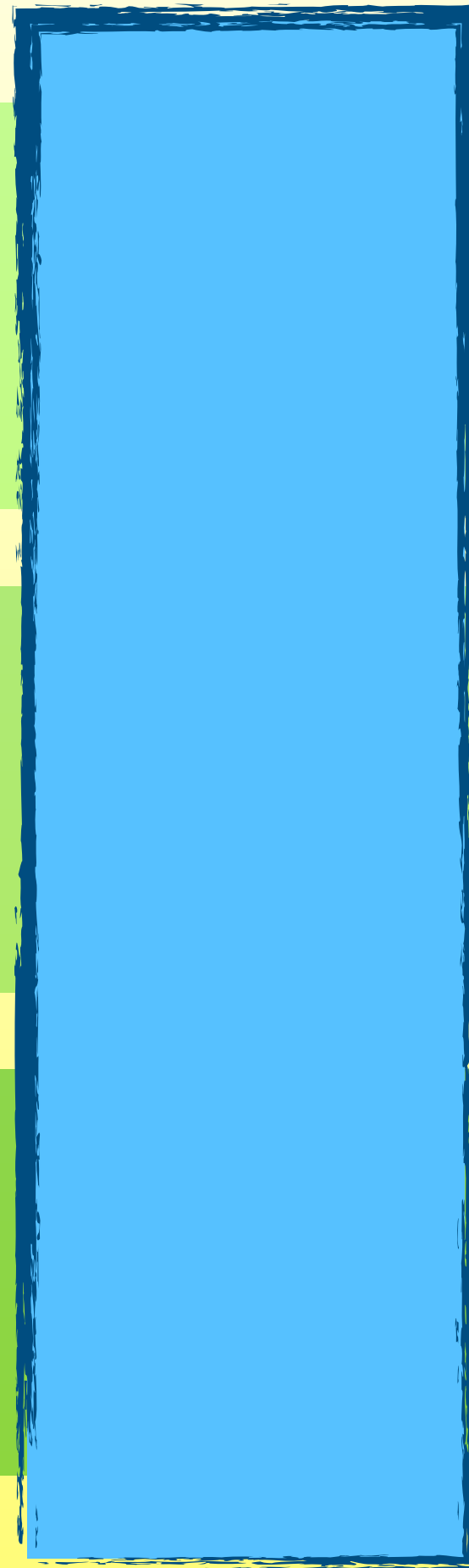
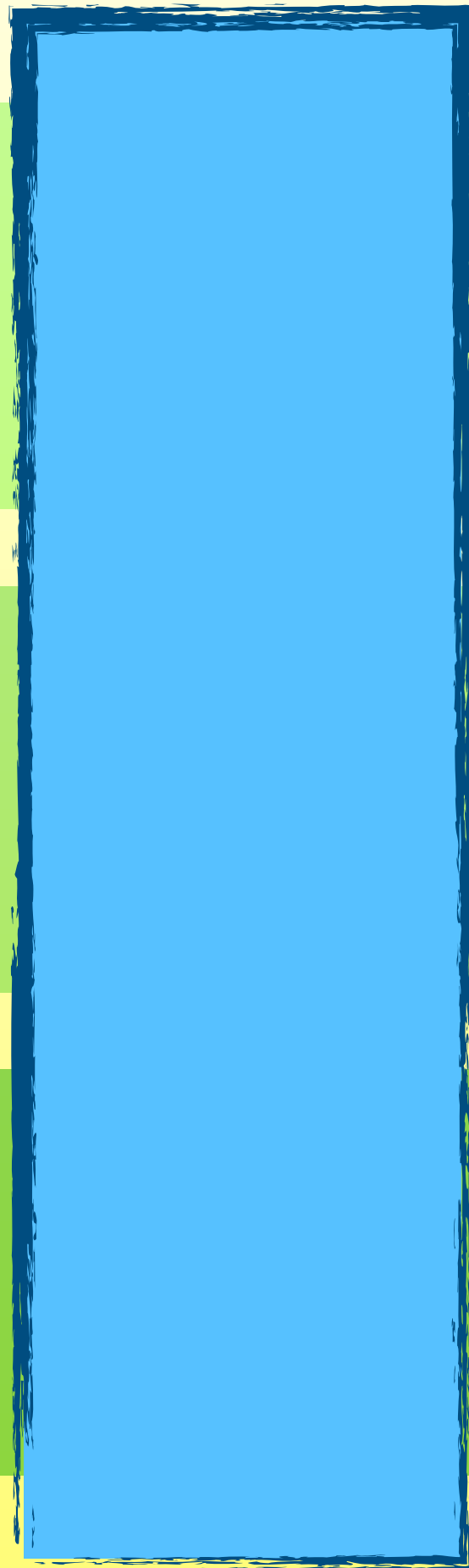
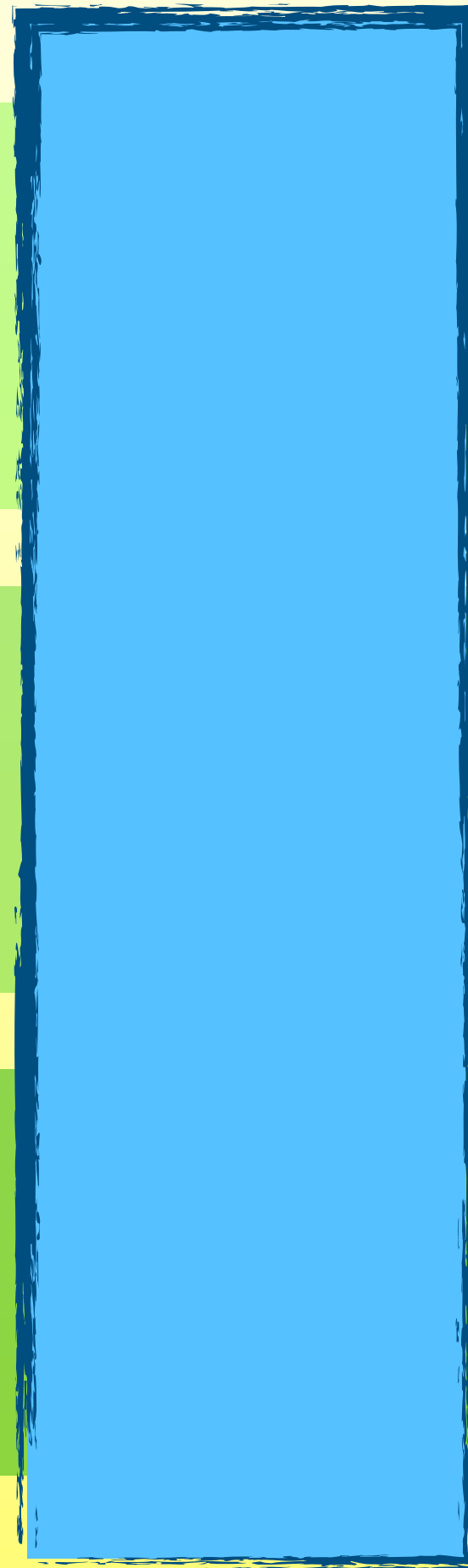
Microservices / Schichten?



Frontend

API

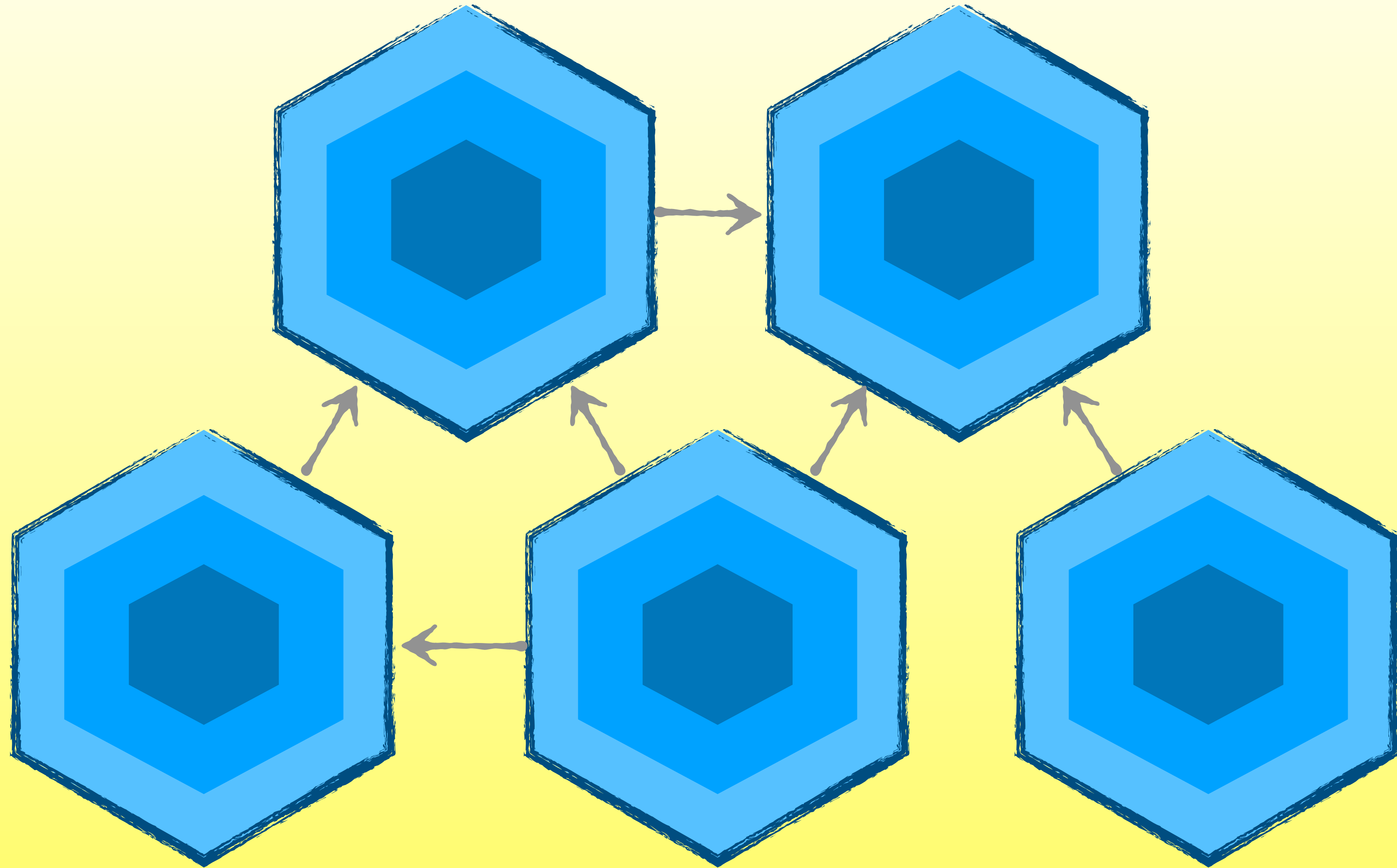
Backend



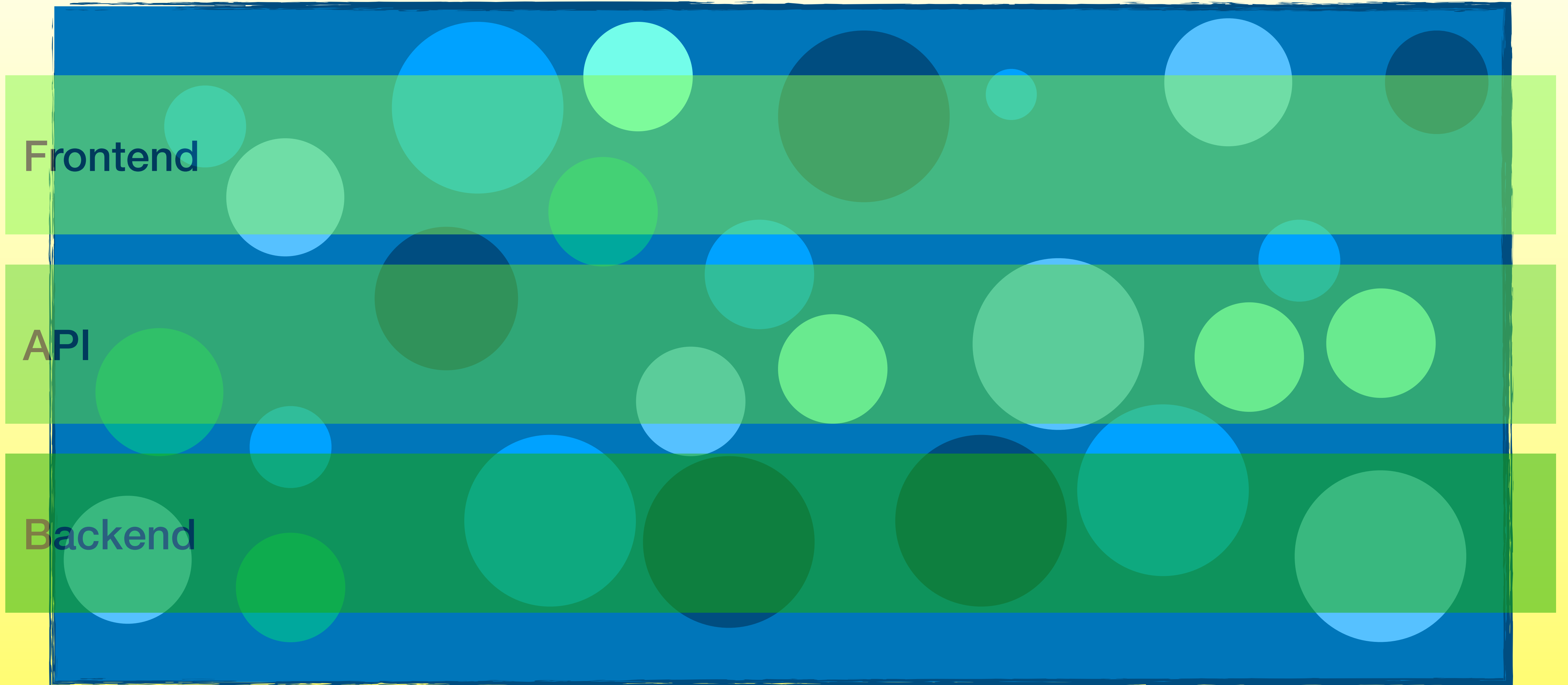
oben/unten?
besser
außen/innen!



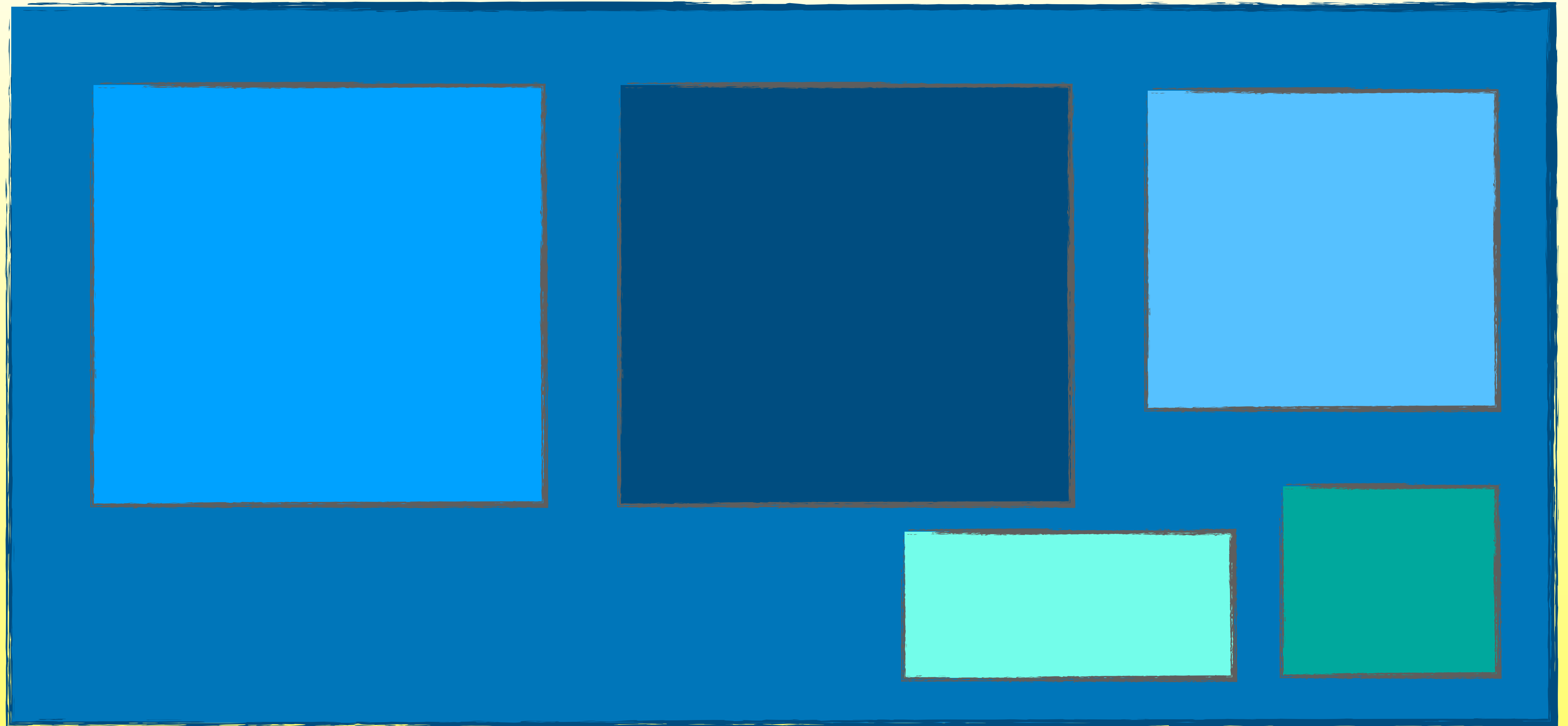
Microservices / DDD



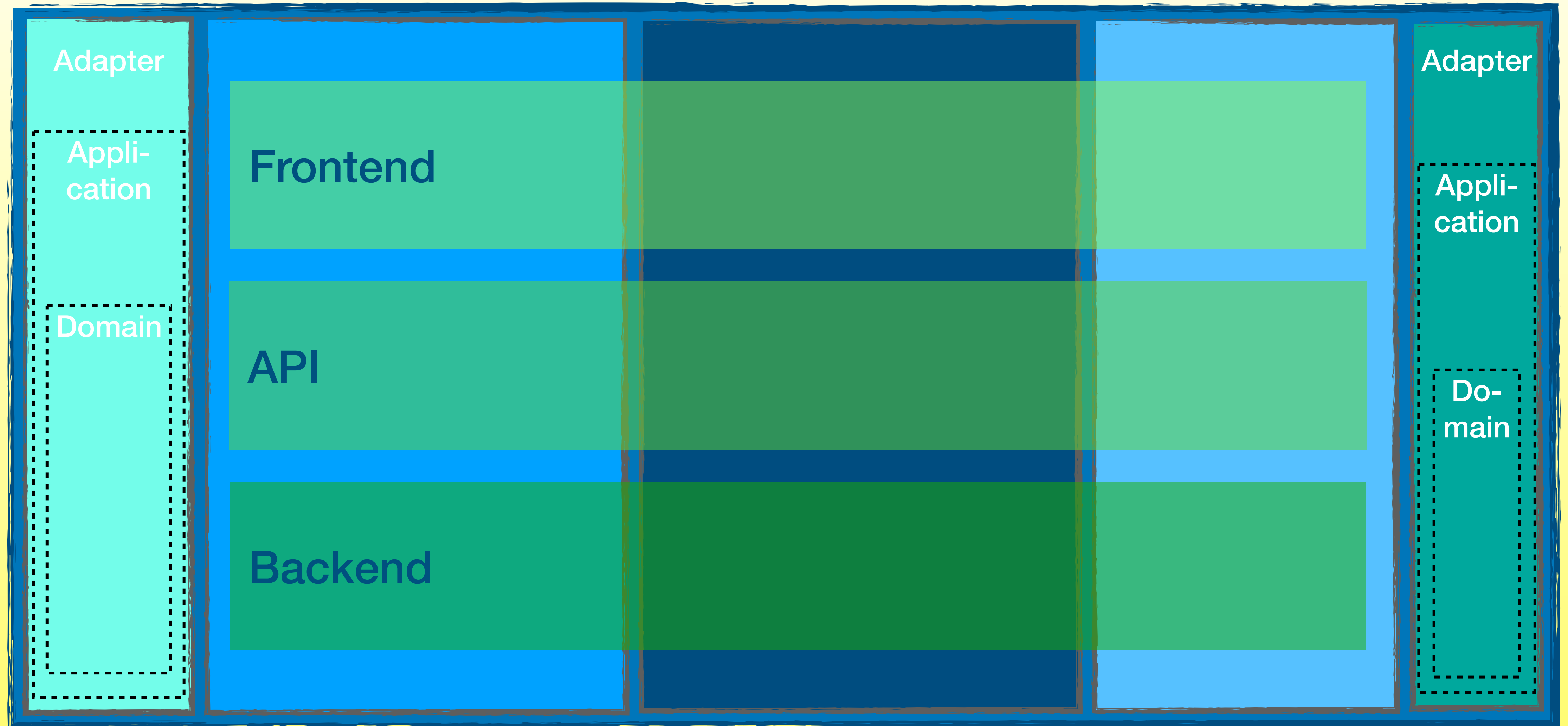
Monolithen



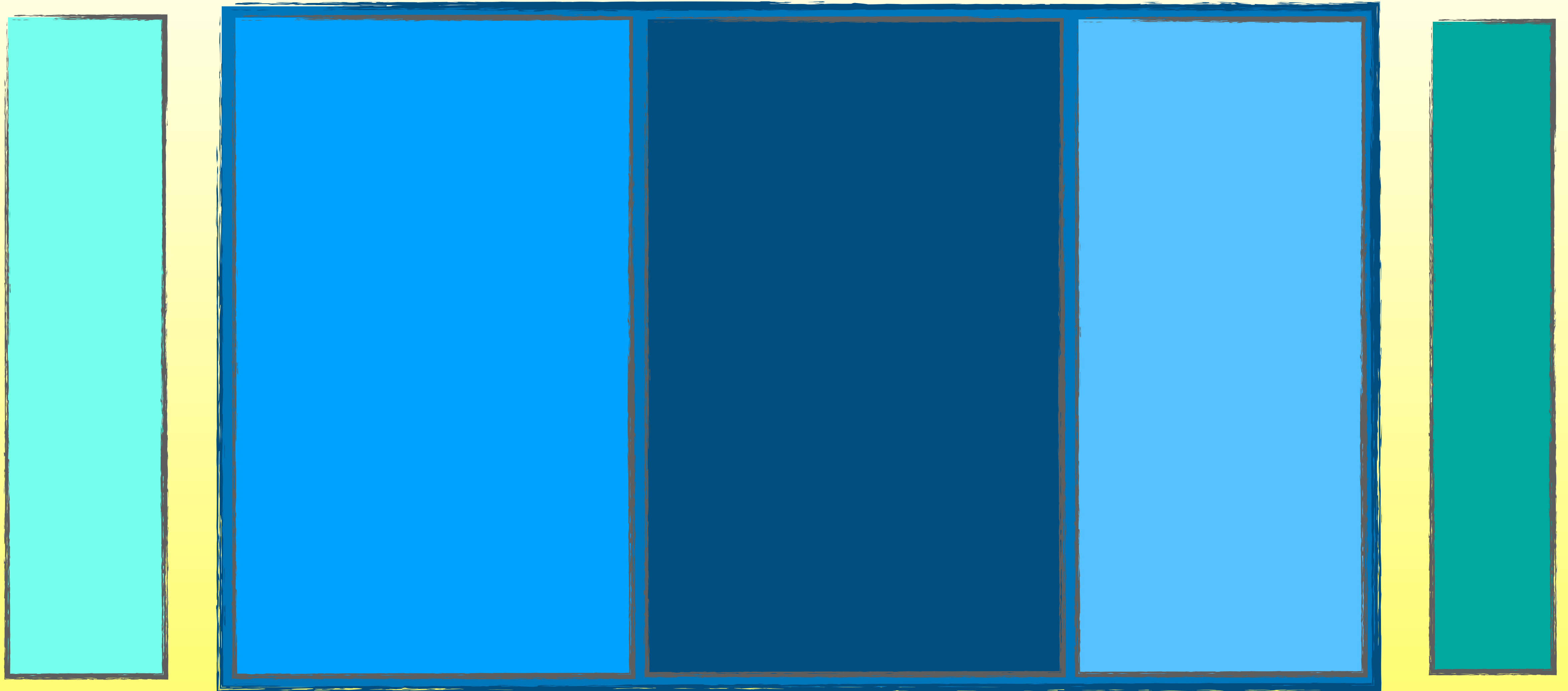
Freundliche Monolithen



Noch freundlichere Monolithen



Abgespeckte Monolithen



Architektur testen – warum?

Wartbarkeit

Ersetzbarkeit

Code-Conventions

Verständlichkeit

Dokumentation

Kommunikation

Wir
sind
ein
Team!

Architektur testen

Abhängigkeiten, Kohäsion & Kopplung

Konventionen & Patterns

Unser Weg zu ArchUnit

JDepend

Degrath

jQAssistant

Classycle
Checkstyle

~~kommerziell~~

veraltet
oder
nicht flexibel genug
oder
eigene (Konfigurations-)Sprache



Ende 2017
„ArchUnit 0.4“



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	0.14.1	(13)	24-May-2020
com.tngtech.archunit	archunit-junit5-engine	0.14.1	(13)	24-May-2020
com.tngtech.archunit	archunit-junit5-api	0.14.1	(13)	24-May-2020
com.tngtech.archunit	archunit-junit5	0.14.1	(4)	24-May-2020
com.tngtech.archunit	archunit-junit4	0.14.1	(13)	24-May-2020
com.tngtech.archunit	archunit	0.14.1	(19)	24-May-2020

```
<dependency>  
  <groupId>com.tngtech.archunit</groupId>  
  <artifactId>archunit</artifactId>  
  <version>0.14.1</version>  
  <scope>test</scope>  
</dependency>
```

ArchUnit ausführen

Mit jedem Unit-Test-Framework nutzbar

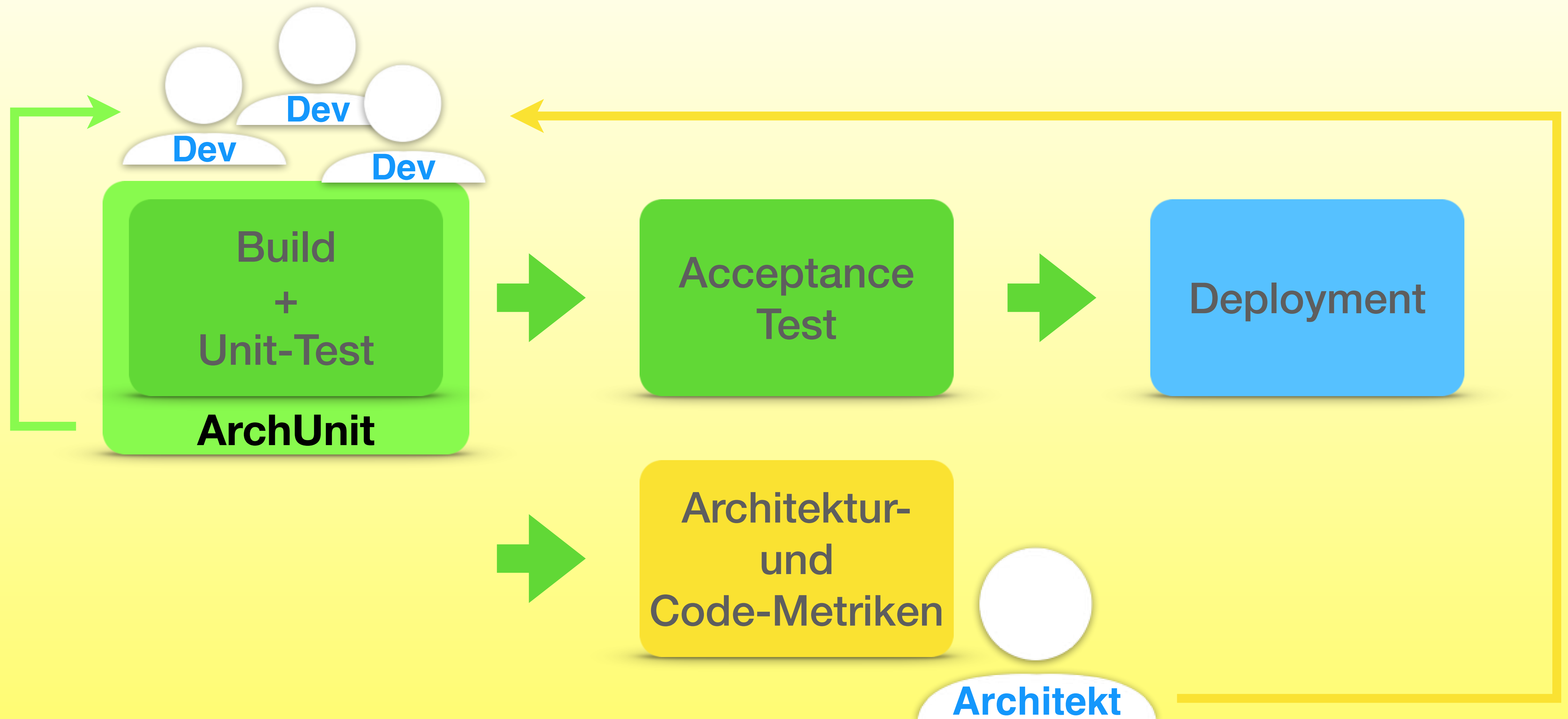
Spezielle Unterstützung für JUnit 4 / 5

Java & Kotlin

Maven- & Gradle-Plugin

Live-Demo

Warum ArchUnit?



Alternativen & Ergänzungen

The logo for jQAAssistant features the text "jQAAssistant" in a dark grey font. A green checkmark is superimposed over the "j" and "Q" characters.

The logo for structure101 consists of the text "structure101" in a bold, dark blue, sans-serif font.

The logo for sonarqube features the text "sonarqube" in a dark grey font. To the right of the text are three blue curved lines that resemble a sonar wave.

The logo for Deptective features a yellow emoji of a detective wearing a hat and holding a magnifying glass, followed by the text "Deptective" in a dark grey font.

The logo for SONARGRAPH features the text "SONARGRAPH" in a dark grey font. A red triangle is positioned between the "N" and "R". The entire text is underlined with a thin black line.

The logo for embold features a stylized icon of a grid of blue dots to the left of the text "embold" in a bold, dark blue, sans-serif font.

u.a.

Modulithen mit Spring Boot

Moduliths

A playground to build technology supporting the development of

build passing

tl;dr

Moduliths is a Spring Boot extension based on ArchUnit to achieve

- *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 P*

<https://github.com/odrotbohm/moduliths>

https://www.archunit.org

[Getting Started](#)[Motivation](#)[News](#)[User Guide](#)[API](#)[About](#)

Persistence

Unit test your Java architecture

Start enforcing your architecture within 30 minutes using the test setup you already have.

[Start Now](#)

ArchUnit is a free, simple and extensible library for checking the architecture of your Java code using any plain Java unit test framework. That is, ArchUnit can check dependencies between packages and classes, layers and slices, check for cyclic dependencies and more. It does so by analyzing given Java bytecode, importing all classes into a Java code structure. You can find examples for the current release at [ArchUnit Examples](#) and the sources on [GitHub](#).



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

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



Schichten

Architektur

Slices

Design

Vertikalen

Konventionen

Fragen?

Monolithen

Module

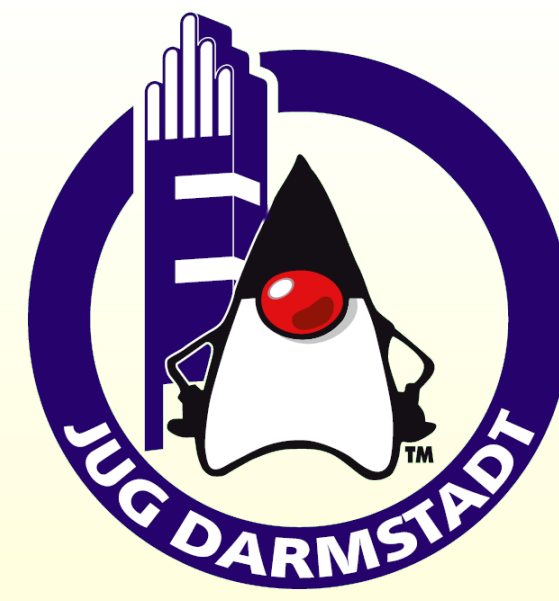
SCS

Abhängigkeiten

Microservices

Kopplung

Kohäsion



ArchUnit

Danke!



Thomas Much

 @thmuch