ArchUnit

Unit Testing Architecture and Design

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#JCON2020

28.10.2020

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Happy user

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😀

What is architecture, anyway?

Decisions, Technologies …
everything "important", what's hard to change later on

Structure and conventions within one artefact (service)

Communication between systems / services

Shared understanding of the system and its parts

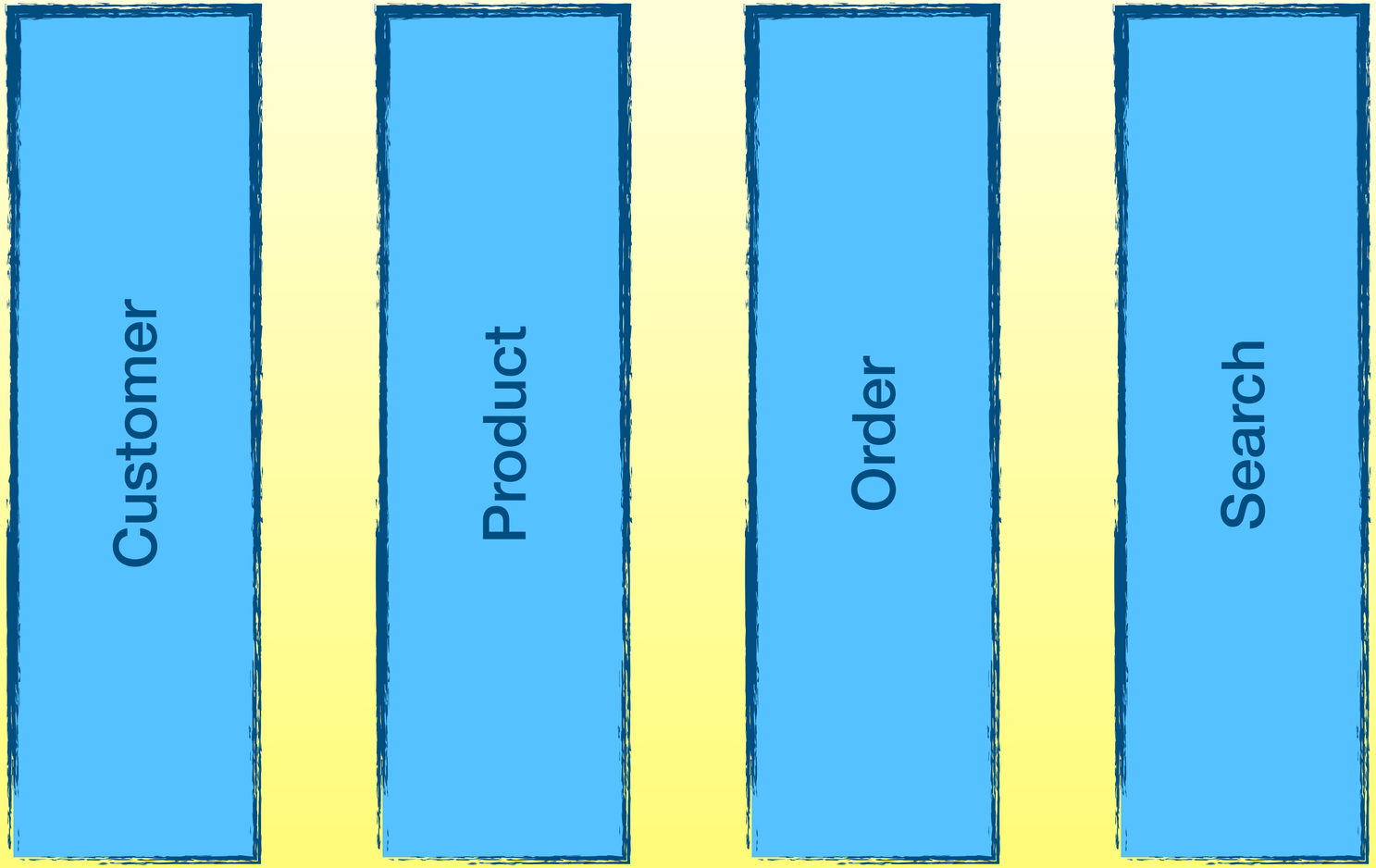
…

Today:
ArchUnit

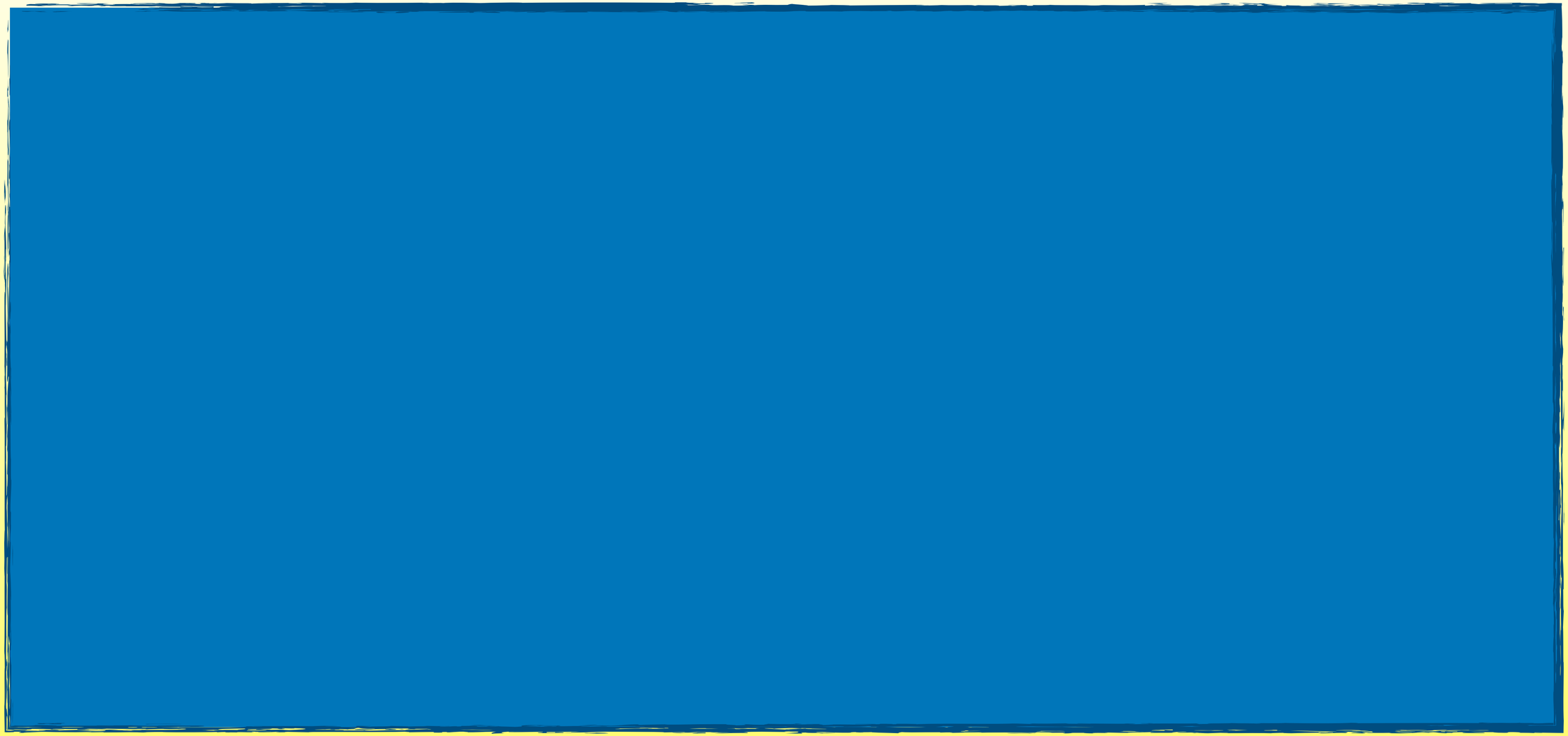
Unit testing architecture and design –

Why?

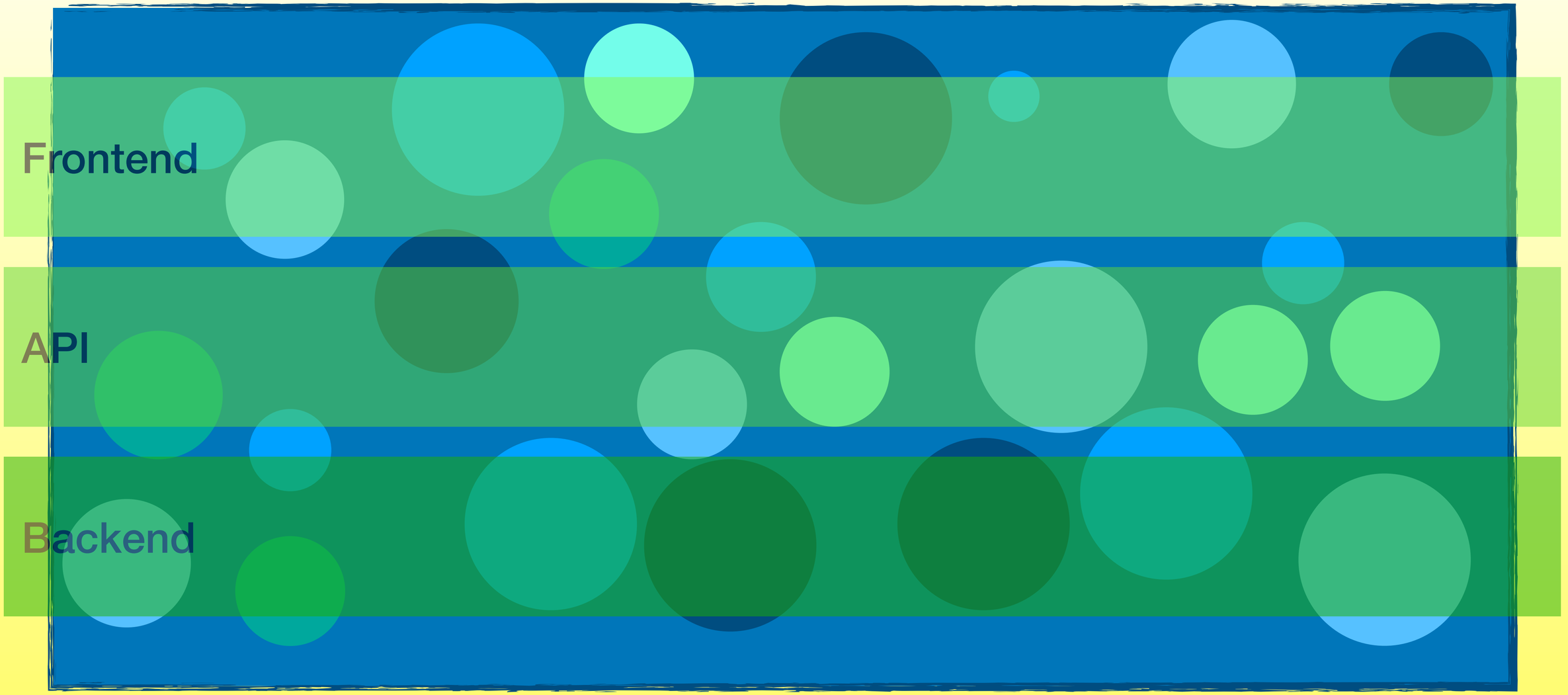
Microservices & SCS



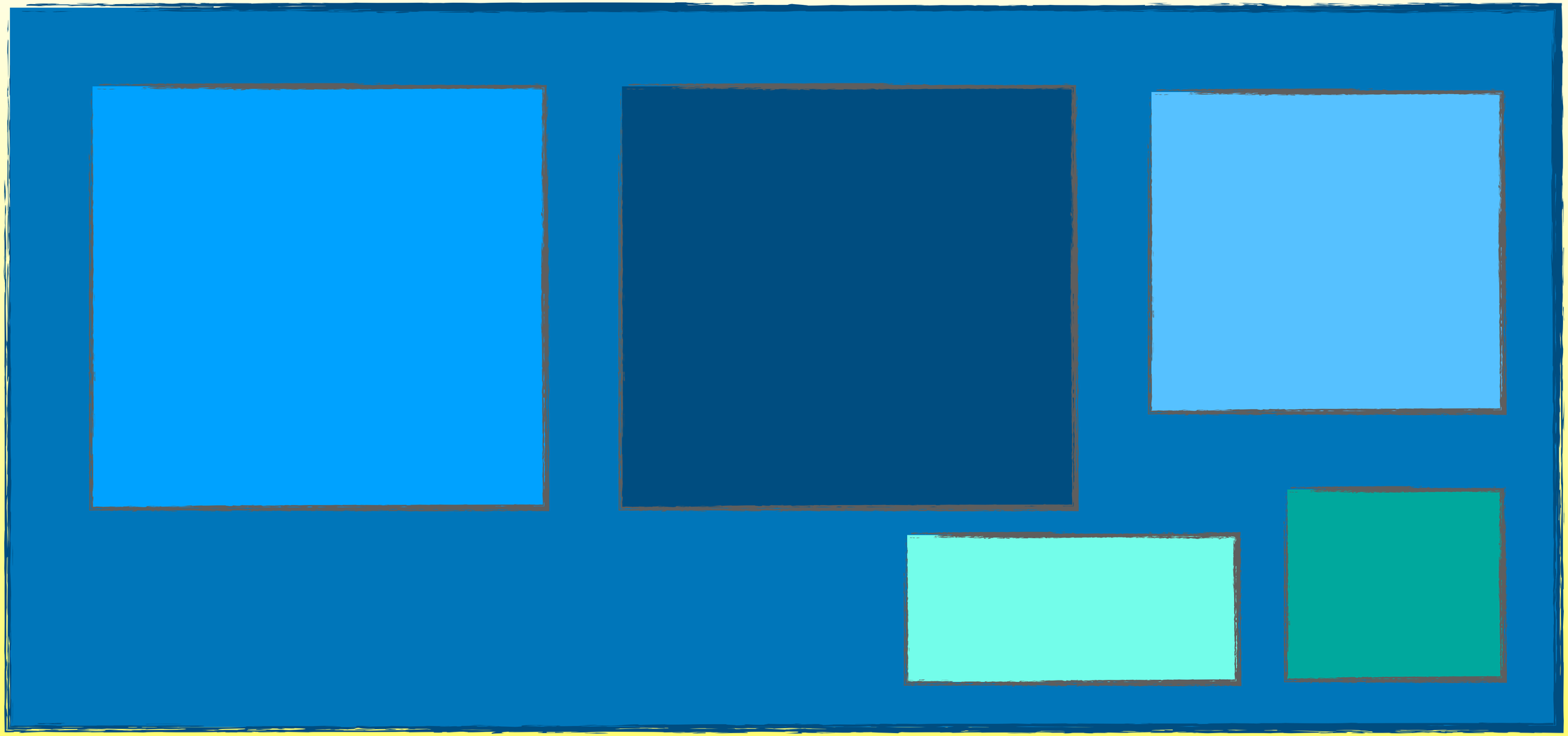
Monoliths



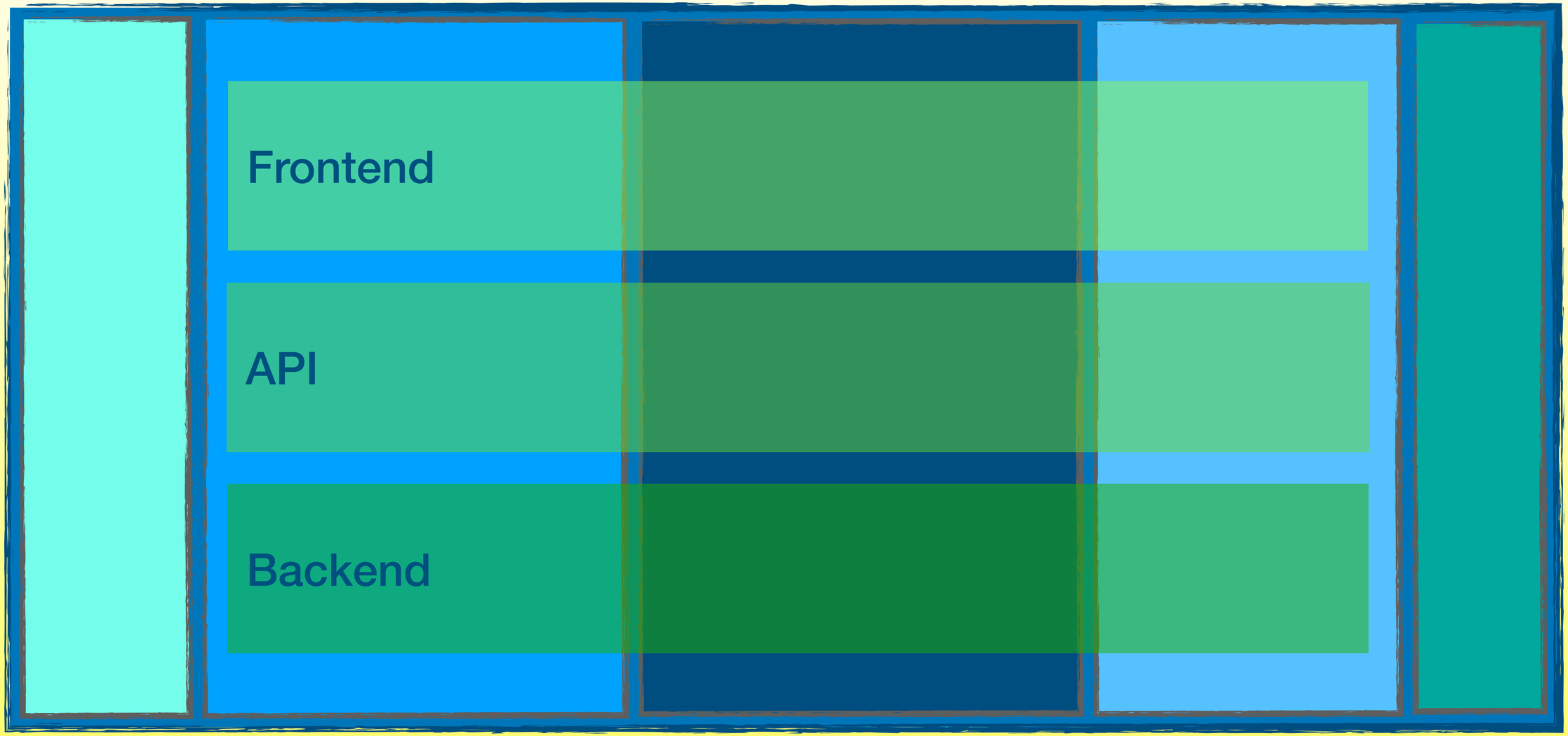
Monoliths



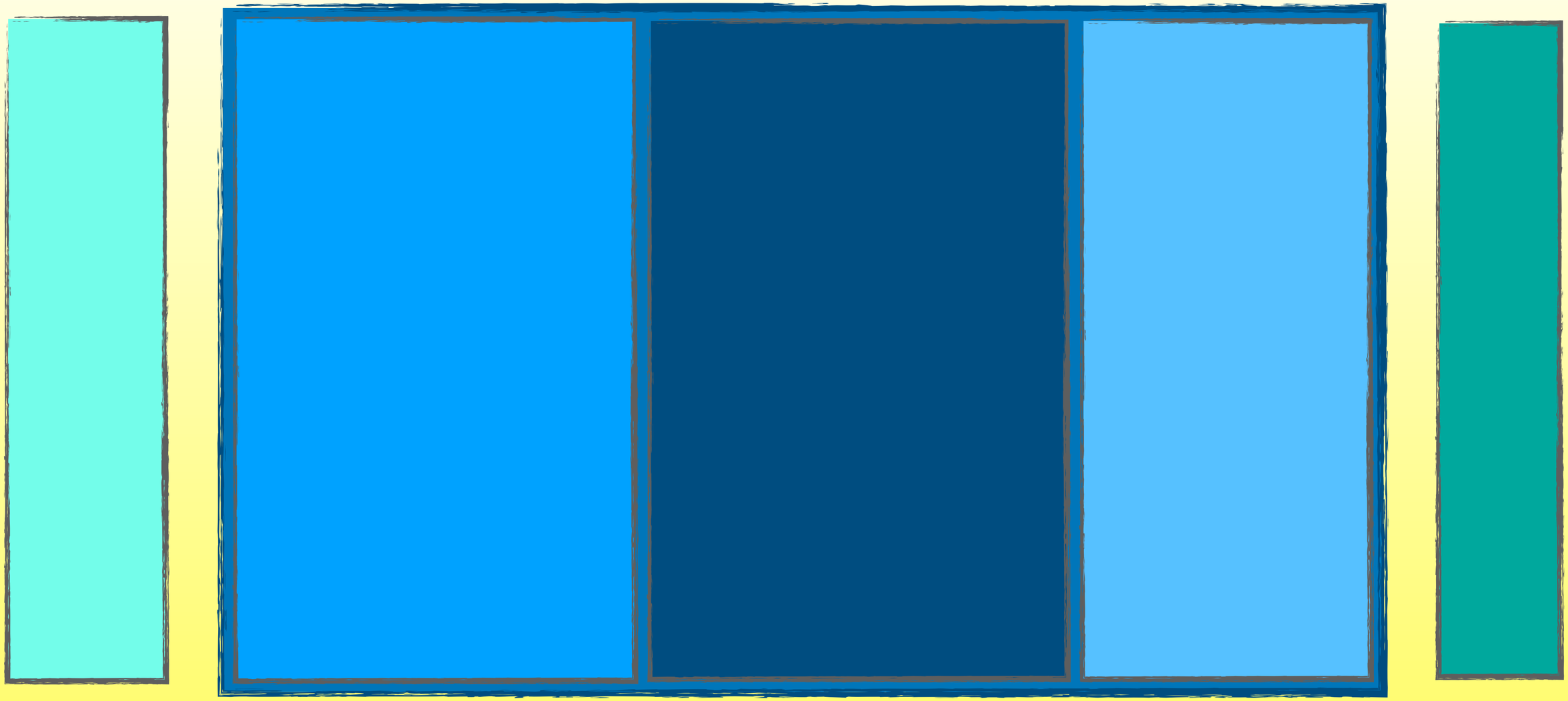
Friendly monoliths



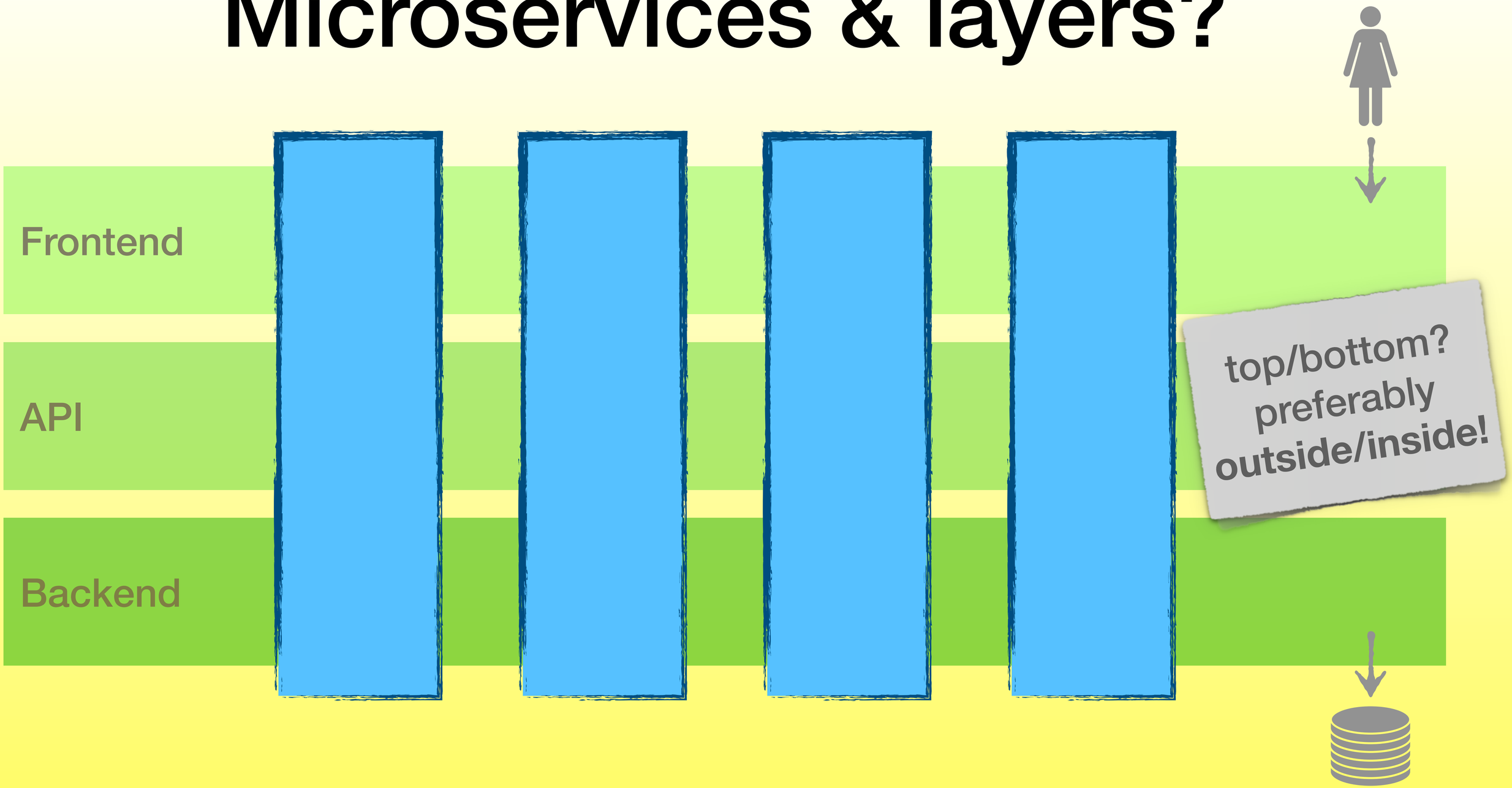
Even more friendly monoliths



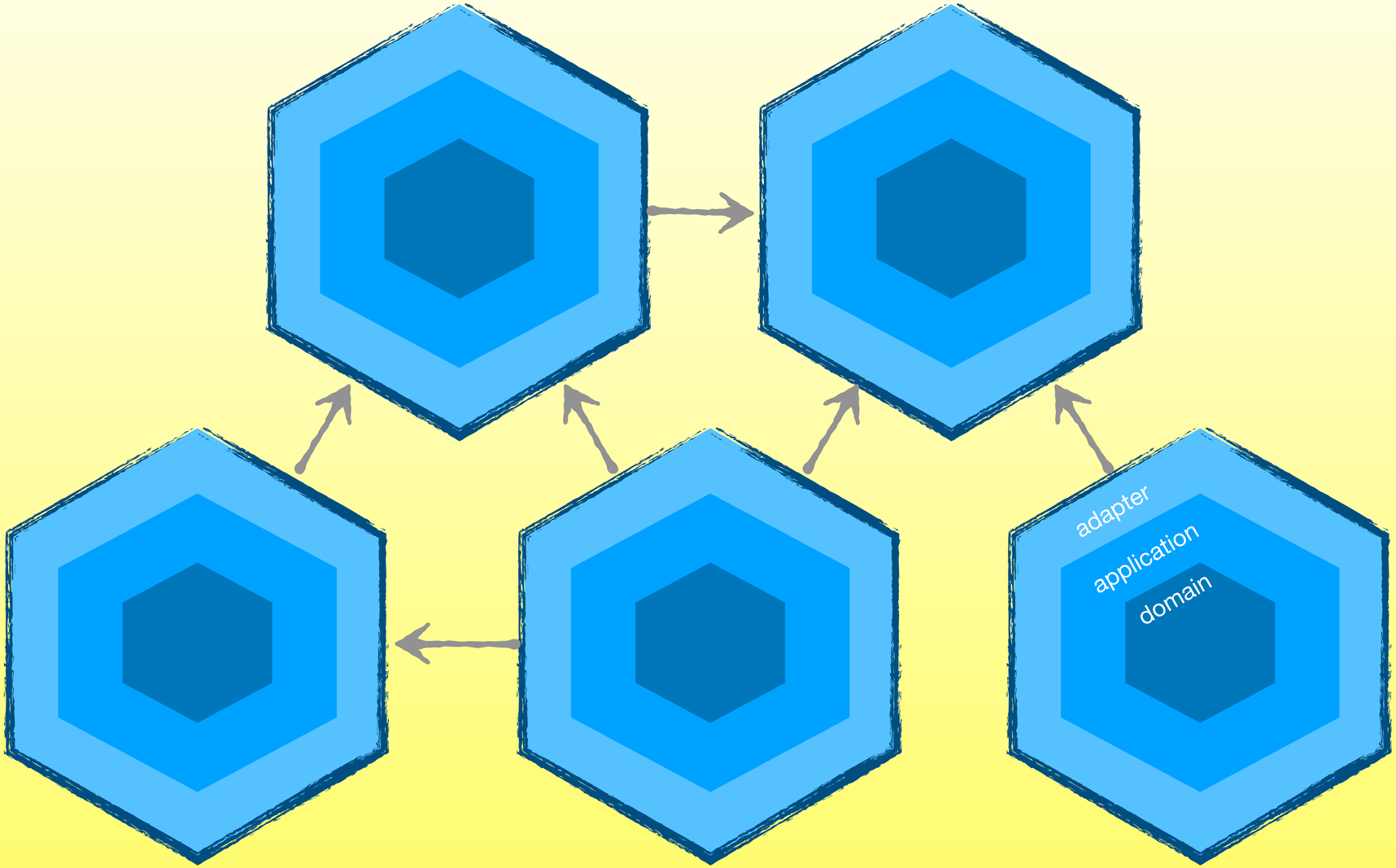
Trimmed monoliths



Microservices & layers?



Microservices / DDD



Testing architecture – what?

Dependencies, cohesion & coupling

Conventions & patterns

Our way to ArchUnit

JDepend

Degraph

jQAssistant

Classycle

Checkstyle

paid license

outdated
or
not customisable enough
or
proprietary (configuration) language

End of 2017
"ArchUnit 0.4"

Architecture checks as unit tests

Plain Java code!

Easily customisable – even for design checks

Checking at byte code level

ArchUnit artefacts

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>
```

Using ArchUnit

Possible with every unit test framework

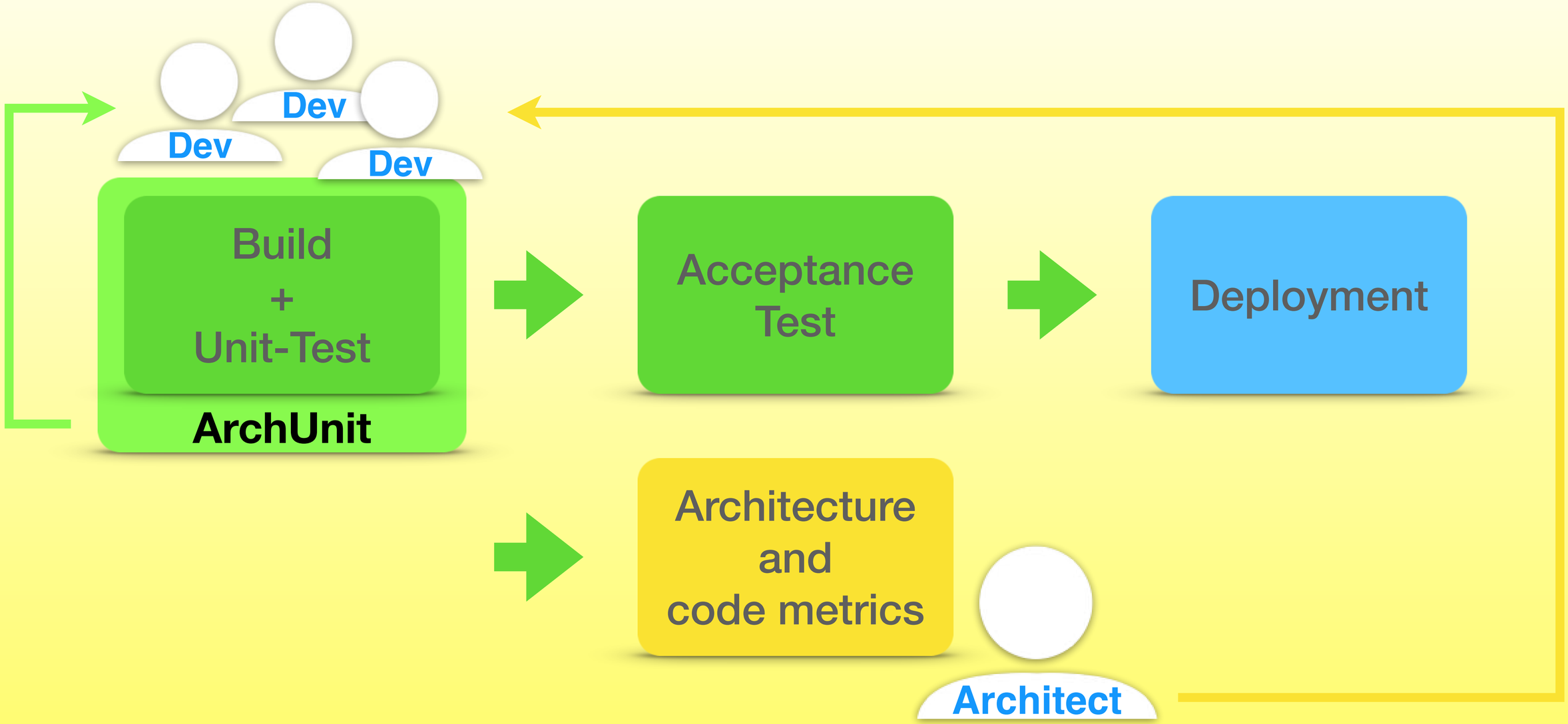
Built-in support for JUnit 4 / 5

Java & Kotlin

Maven & Gradle plugins

Live demo

Why ArchUnit?



Alternatives & complements

jQAssistant

structure101

sonarqube

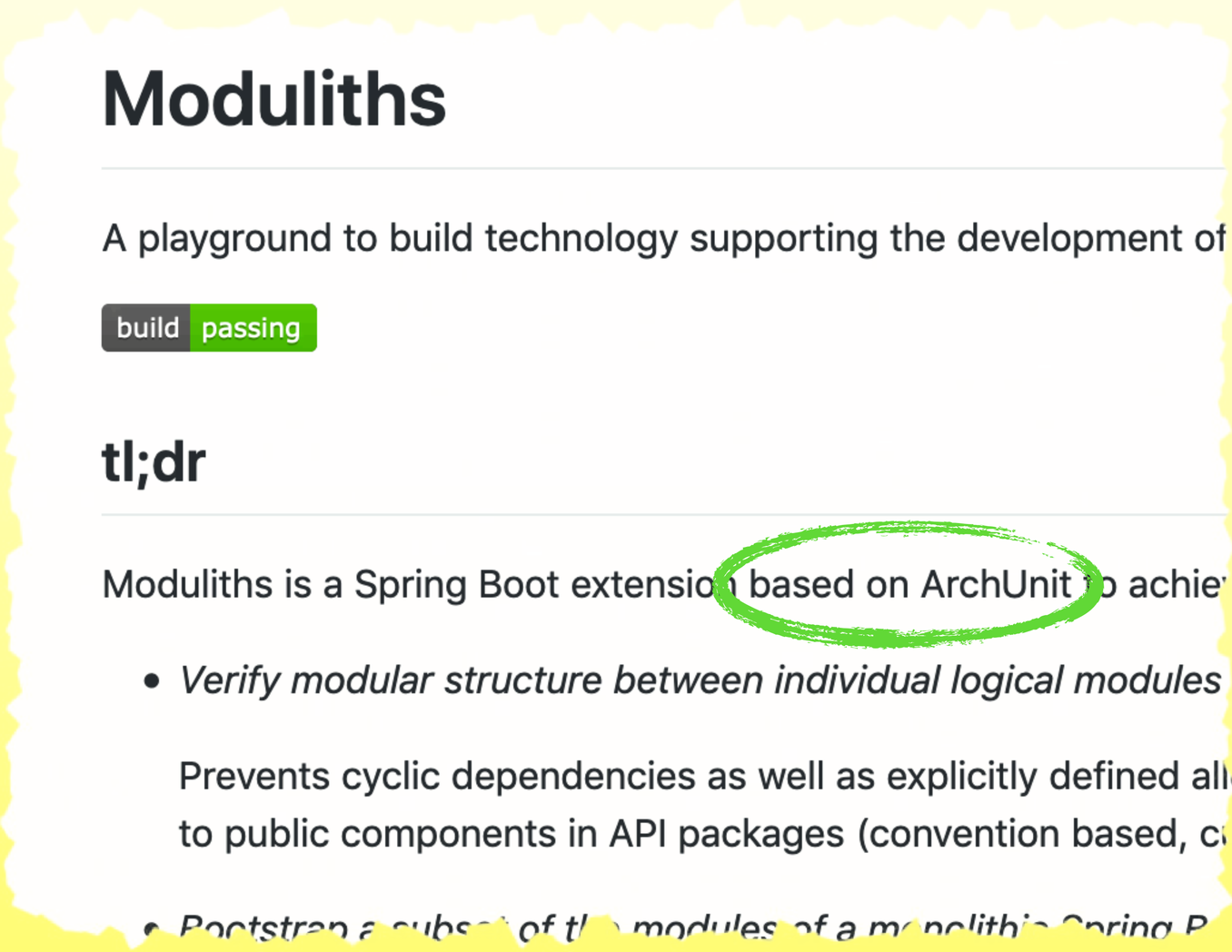
Deptective

SONARGRAPH

embold

… and more …

Moduliths w/ 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

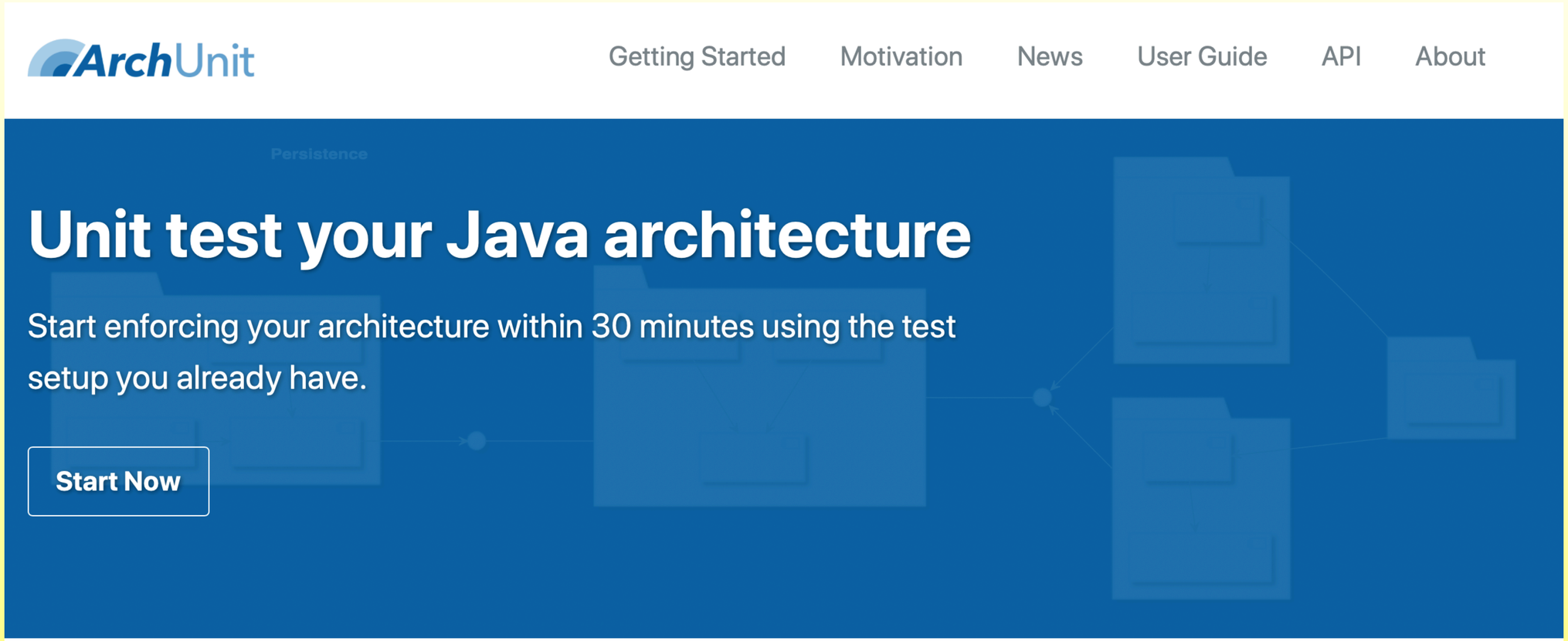
- *Verify modular structure between individual logical modules*

  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

https://www.archunit.org



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

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

https://github.com/TNG/ArchUnit

https://github.com/TNG/ArchUnitNET

Layers

Architecture

Slices

Design

Conventions

Verticals

Questions?

Monoliths

Modules

SCS

Dependencies

Microservices

Coupling

Cohesion

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Thank you!

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