Spring Boot mit Kotlin

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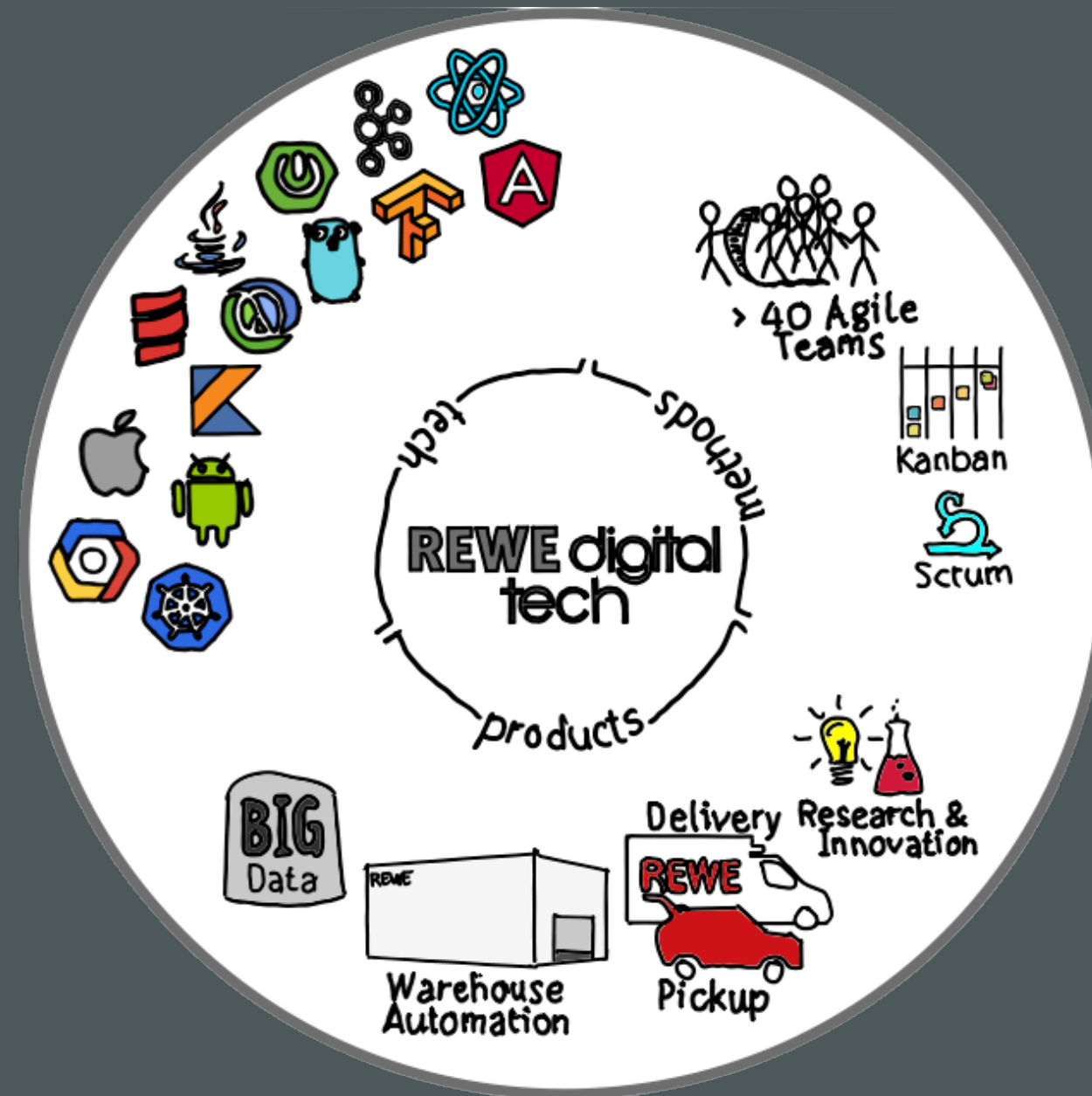
Agenda

- About me & REWE digital

- Spring Framework & Spring Boot

- Kotlin

- Spring Boot & Kotlin

- Experiences

About me

- Software Engineer at REWE digital in Cologne/Germany

- 20+ years of software development in enterprise context

- Current focus: Microservices with Spring Boot and Java/Kotlin

- Twitter/GitHub: `stefanscheidt`

REWE digital

Kotlin @ REWE digital

- Android

  - REWE Angebote & Lieferservice (since 2016!)

  - PENNY Coupons & Angebote

  - 5+ Apps in Fulfillment

- Spring Boot

  - 10+ Microservices (eCom, Fulfillment)

Spring Framework

"The Spring Framework provides a comprehensive programming and configuration model for modern Java-based enterprise applications - on any kind of deployment platform."

— *spring.io*

Spring Framework

- "An inversion of control container and an application framework for the Java Platform"[1]

- 16+ years old

- Many modules and side projects

Spring Boot

"Spring Boot makes it easy to create stand-alone, production-grade Spring based Applications that you can 'just run'."

— *spring.io*

Spring Boot - Features

- Create stand-alone Spring applications

- Embed Tomcat, Jetty or Undertow directly

- Provide opinionated 'starter' dependencies to simplify build configuration

- Automatically configure Spring and 3rd party libraries whenever possible

- Provide production-ready features such as metrics, health checks and externalized configuration

Kotlin

- Programming language for JVM, Android, Browser, Native

- Concise, safe, interoperable, tool-friendly

- Developed by JetBrains

- Open source since 2012

- Version 1.0 in Feb. 2016

- 2017: Google announced first class support for Kotlin on Android

- 2019: Kotlin is preferred language for Android development

Kotlin by Example

- Hello, World!

- Variables

- Null Safety

- Classes, Data Classes

- Functions, Extention Functions

Kotlin - Extention Functions

"Kotlin provides the ability to extend a class with new functionality without having to inherit from the class or use any type of design pattern such as Decorator."

— *Kotlin Reference*

Kotlin - Extention Functions

Instead of this

```kotlin
fun <T> swap(list: MutableList<T>, index1: Int, index2: Int) {
    // implementation omitted ...
}


val list = mutableListOf(1, 2, 3)


swap(list, 1, 2)
```

Kotlin - Extention functions

... we can write this

```kotlin
fun <T> MutableList<T>.swap(index1: Int, index2: Int) {
    // same implementation as before ...
}


val list = mutableListOf(1, 2, 3)


list.swap(1,2)
```

Kotlin - Reified Type Parameters

- Functions marked with `inline` will be inlined by the compiler

- In inlined generic functions, type parameters can be marked with `reified` and passed in at call side

Kotlin - Reified Type Parameters

```kotlin
inline fun <reified T> TreeNode.findParentOfType(): T? {
    var p = parent
    while (p != null && p !is T) { // no reflection!
        p = p.parent
    }
    return p as T?
}

// usage:
treeNode.findParentOfType<MyTreeNode>()
```

Spring Boot with Kotlin

- Official Support since Spring Boot 2.x

  - Spring Boot 2.3.x supports Kotlin 1.3.x

  - Spring Boot 2.4.x will support Kotlin 1.4.x

- Initial Project Setup via Spring Initializr

Dedicated Support for Kotlin in Spring (Boot)

- Null Safety

- Extention Functions

- Bean Definition DSL

- Web Router DSL

- Mock Web MVC DSL

- Coroutines

Demo

Spring Fu

Incubator for Java and Kotlin Configuration DSL

"designed to configure Spring Boot explicitly with code in a declarative way with great discoverability thanks to auto-completion"

— *Spring Fu*

Resources - Kotlin

- kotlinlang.org

- Learn Kotlin by Example

- Kotlin for Java Developers (Coursera)

- Kotlin in Action (Manning)

Resources - Spring Boot with Kotlin

- Spring Framework Reference

- spring.io Tutorial

- The State of Kotlin Support in Spring (YouTube)

Slides

https://speakerdeck.com/stefanscheidt/spring-boot-with-kotlin

Sources

https://github.com/stefanscheidt/spring-boot-kotlin

Thank you!

Contact: `stefanscheidt` on Twitter and GitHub