



Frühling schreibt man mit K

Spring Boot mit Kotlin

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REWE digital

Über mich

- Software Engineer bei REWE digital in Köln
- Passionierter Software Crafter
- > 20 Jahre Software-Entwicklung im Unternehmensumfeld
- Aktuell: Microservices mit Spring Boot und Java/Kotlin
- [Twitter](#)/[GitHub](#): stefanscheidt

Agenda

- Spring Framework
- Spring Boot
- Kotin
- Kotlin vs. Java
- Spring Boot & Kotlin
- Erfahrungen

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
- > 15 years old
- Many **modules** and **side projects**

¹ Wikipedia

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

Kotlin

- Programming Language for JVM, Android, Browser, Native
- Concise, Safe, Interoperable, Tool-friendly
- Developed by [JetBrains](#), Open Source since 2012, v 1.0 in Feb. 2016
- 2017: Google announced first class support for Kotlin on Android
- 2019: Kotlin is the preferred language for Android development

Kotlin by Example

- Hello, World!
- Variables
- Null Safety
- Classes, Data Classes
- Functions, Extension Functions

Kotlin - Extension 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 - Extension Functions

Instead of this

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

```
val list = mutableListOf(1, 2, 3)
```

```
swap(list, 1, 2)
```

Kotlin - Extension functions

... we can write this

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

Kotlin - Reified Type Parameters

```
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
- Initial Project Setup via [Spring Initializr](#)

Dedicated Support for Kotlin in Spring (Boot)

- Extension Functions
- Null Safety
- Bean Definition DSL
- WebFlux Functional DSL

Demo

Spring Boot with Kotlin - upcoming features

Support for Kotlin Coroutines to use the Spring reactive stack

See [WebFlux with coroutines API in Kotlin](#)

REWE digital

The screenshot shows the homepage of the REWE digital website. At the top, there is a red header bar with the text "REWE DEIN MARKT". Below it, a navigation bar includes links for "Dein REWE Markt" (with a REWE logo), "Online bestellen" (with a delivery icon), and "REWE Deine Küche" (with a kitchen icon). The main menu features categories like "Alle Produkte" (with a "NEU" badge), "Meine Produkte", "Angebote", and "Themenwelten". A search bar with a magnifying glass icon is positioned above a large promotional banner. The banner has a green background and features the text "Willkommen im REWE Onlineshop" and "Jetzt beim REWE Liefer- und Paketservice bestellen und Einkäufe liefern lassen.". Below the banner, several green checkmarks highlight benefits: "Großes Sortiment", "Garantierte Frische", "Kein Schleppen", "Zeit sparen", and a red arrow pointing to "So funktioniert's".



Angebote



Obst & Gemüse



Frische & Kühlung



Tiefkühl



Nahrungsmittel



Süßes & Salziges



Kaffee, Tee & Kakao



Getränke



Wein, Spirituosen
& Tabak



Drogerie &
Kosmetik



Baby & Kind



Küche & Haushalt



Haus, Freizeit &
Mode

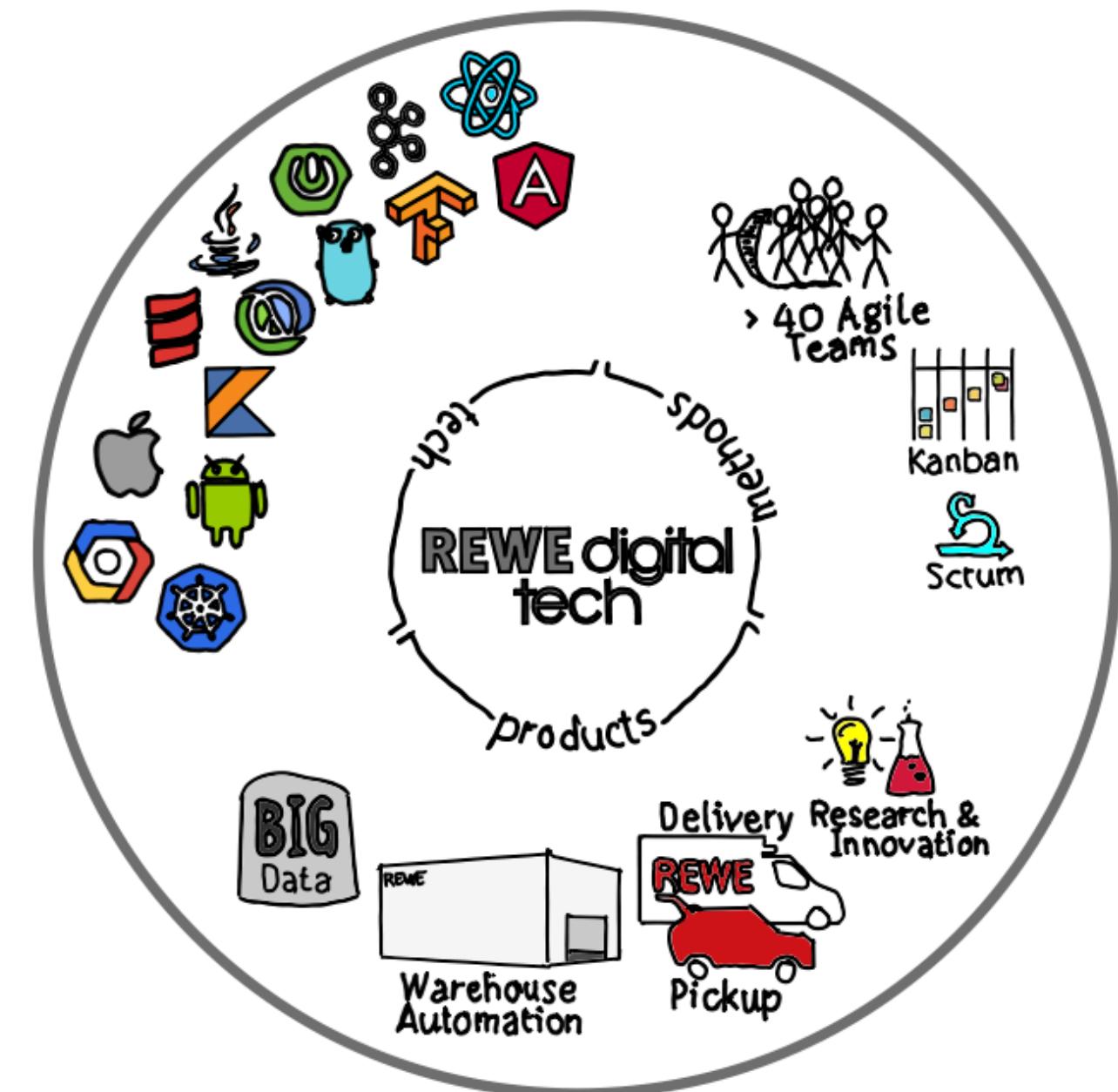


Garten & Outdoor

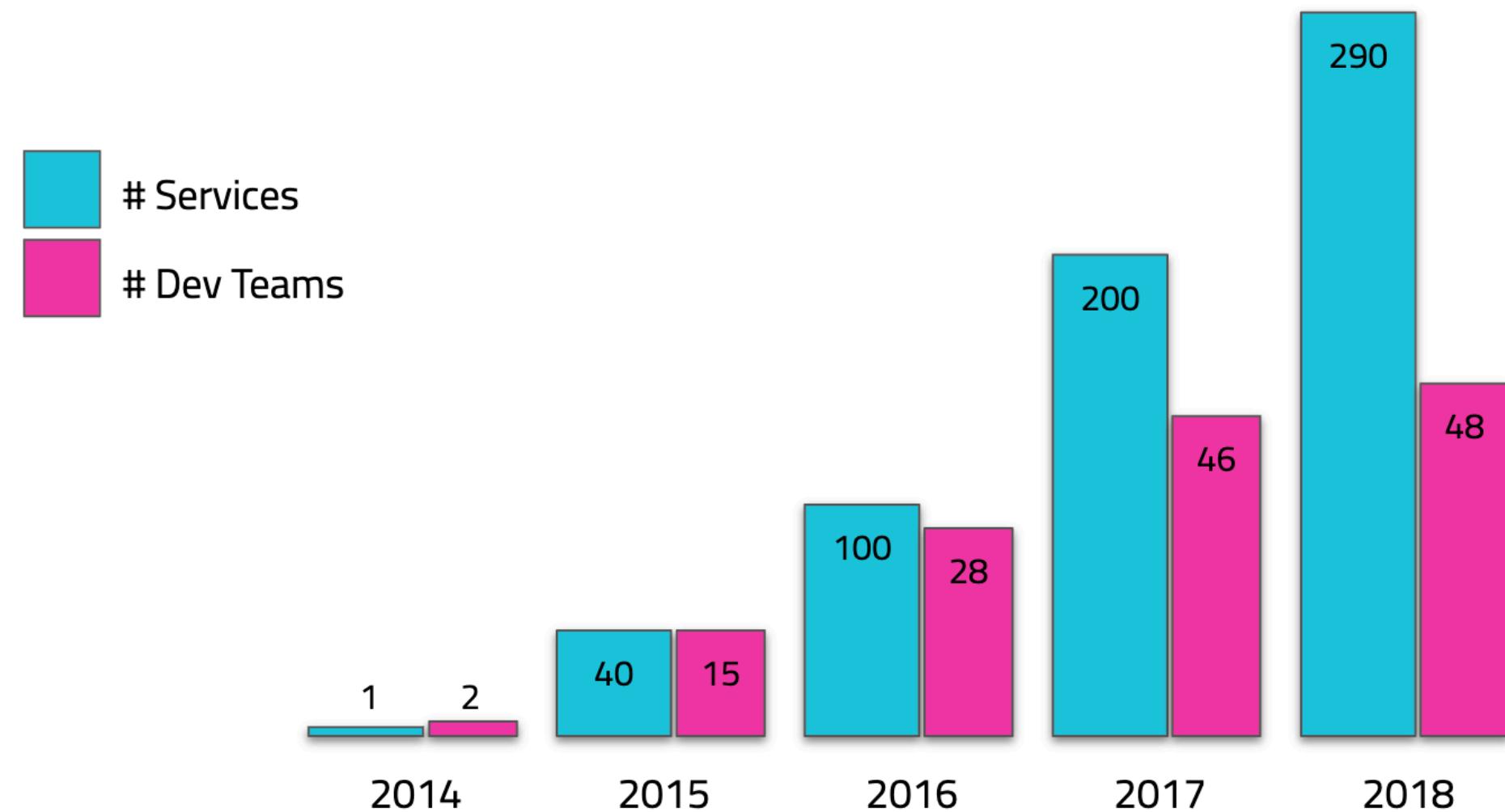


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Kotlin @ REWE digital

- Android
 - REWE Angebote & Lieferservice (seit 2016!)
 - PENNY Coupons & Angebote
 - 5+ Apps in Fulfillment
- Spring Boot
 - 7+ Microservices (eCom, Fulfillment)

Resources - Kotlin

- kotlinlang.org
- [Kotlin Koans](#)
- [Learn Kotlin by Example](#)
- [Kotlin for Java Developers @ Coursera](#)

Resources - Spring Boot with Kotlin

- [Spring Framework Reference](#) since Spring Boot 2
- [spring.io Tutorial](#)
- [Spring I/O 2018 Conference Talk \(YouTube\)](#)
- [Devnexus 2019 Conference Talk \(YouTube\) Part I & Part II](#)
- [Spring Fu](#)

Thank you!

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