

Introducing Kotlin in your organization

The easy way

s/Kotlin/*/g



- Julien Lengrand-Lambert
- Developer Advocate @Adyen
- Kotlin GDE
- @jlengrand
- #Meetups #Kotlin #Gardening

@jlengrand





- Hielke de Vries
- Currently Scala Developer
- Former pentester
- When not full-FP -> Kotlin



This talk

- A look at Kotlin today
- Tips on how to convince colleagues and management



How it started

- Team Lead at ING
- No greenfield, existing applications
- Still 'stuck' on Java 8 due to local tooling
- Need to keep learning, experiment, and grow as a team

```
<build>
  <plugins>
    ...
    <plugin>
      <groupId>org.jetbrains.kotlin</groupId>
      <artifactId>kotlin-maven-plugin</artifactId>
      <version>${kotlin.version}</version>
      <executions>
        <execution>
          <id>compile</id>
          <phase>compile</phase>
          <goals>
            <goal>compile</goal>
          </goals>
        </execution>
        <execution>
          <id>test-compile</id>
          <phase>test-compile</phase>
          <goals>
            <goal>test-compile</goal>
          </goals>
        </execution>
      </executions>
    </plugin>
  ...
</plugins>
</build>
```

Introducing Kotlin at ING, a long but rewarding story

Kotlin at BigCorp, from Zero to Hero! Our journey introducing Kotlin at ING, from a technical and organizational perspective.



julien lengrand-lambert

Dec 3, 2019 · 11 min read

@jlengrand

Convincing at many levels

- Security
- Compliancy
- Management
- Colleagues...
- First team (on the backend)

A step back : Kotlin today

Which one of those is the youngest language?

- Kotlin
- Go
- Rust
- Java

How old is Kotlin?

- Kotlin : 10 years old (July 2011)
- Java : 26 years
- Go : 12 years old
- Rust : 11 years

Some numbers

- > 4.8 Million users last year
- 4th most loved programming language
- 2nd most popular language on the JVM
- Taught in 45 of the top 200 universities

Kotlin is here to stay

- 2019 : Google chooses Kotlin first for Android
- 2020 : Creation of the Kotlin Foundation
- 2021 : AWS announces idiomatic Kotlin SDK
- 2021 : Kotlin multiplatform comes out of Beta

A few compelling use cases

Ceremony

```
final class User {  
    private String name;  
    private String lastName;  
  
    public User(String name) {  
        this(name, "");  
    }  
  
    public User(String name, String lastName) {  
        this.name = name;  
        this.lastName = lastName;  
    }  
  
    // And Getters & Setters  
}
```

```
class User(var name: String, var lastName: String = "")
```

Concurrency



```
public static void asyncBatch() throws ExecutionException, InterruptedException {
    CompletableFuture.allOf(
        CompletableFuture.runAsync(
            () -> System.out.println("Maybe this");
        ),
        CompletableFuture.runAsync(
            () -> System.out.println("Or this");
        )
    ).get();
    System.out.println("Printed last");
}
```

```
runBlocking(Dispatchers.Default) {
    launch {
        println("Maybe this")
    }
    launch {
        println("Or this")
    }
}
println("Printed last")
```

Functional programming

```
public List<String> processStrings(List<String> strings){  
    return strings.stream()  
        .filter(s-> s.equals("Hello") || s.equals("World"))  
        .map(s -> s + " processed")  
        .collect(Collectors.toList());  
}
```

```
fun processStrings(strings: List<String>): List<String> {  
    return strings  
        .filter { it == "Hello" || it == "World" }  
        .map { "$it processed" }  
}
```

When expressions



```
import kotlin.math.sqrt

sealed class Shape
data class Circle(val radius : Double) : Shape()
data class Square(val length: Double) : Shape()
data class Rectangle(val length: Double, val breadth: Double) : Shape()

fun Shape.area(): Double {
    return when (this){
        is Circle -> Math.PI * sqrt(this.radius)
        is Square -> sqrt(this.length)
        is Rectangle -> sqrt(this.length * this.breadth)
    }
}
```

Let's do it!

The first 80%

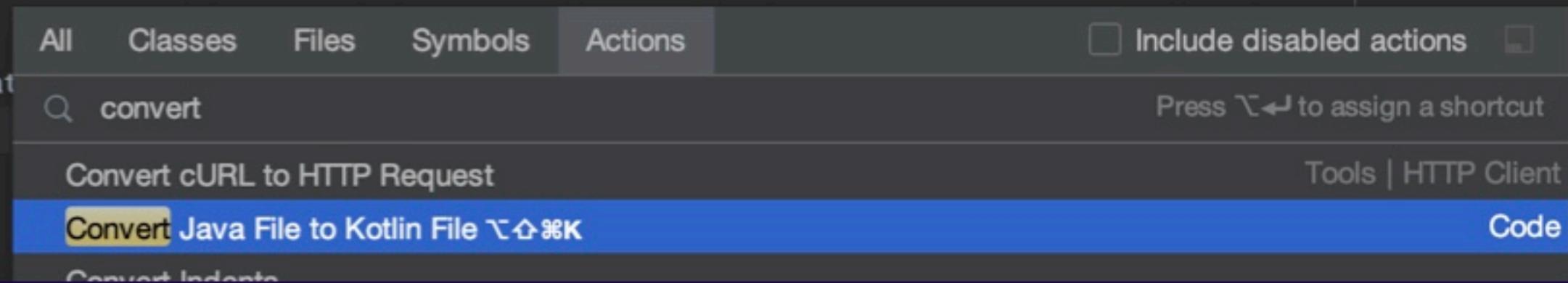
```
package nl.ing.api.batchordersapi.endpoints.json;

import ...

@Getter
public class BatchResult {

    private Batch batch;

    public BatchResult(final Batch bat
}
```



Configure Kotlin with Java with Maven

All modules

All modules containing Kotlin files: batchorders-api (1) (nl.ing.api)

Single module:

batchorders-api (2) (nl.ing.nolio.apps) ▾

Kotlin compiler and runtime version:

1.0.0



Cancel

OK



Kotlin

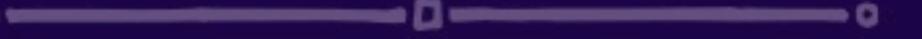
A new version 1.3.60-release-IJ2019.2-1 of the
Kotlin plugin is available. [Install](#)

STAND BACK



WE'RE TRYING THIS IN PRODUCTION-

Now the real work begins



The last 80%

We have much convincing to do

- Convincing colleagues
- Convincing security / compliance
- Convincing management

Convincing colleagues

Invest in your own knowledge

- Be the Subject expert in the company (as a team)
- Help solve other people's questions
- Don't minimize potential issues (I don't know)

Browse > Computer Science > Software Development

Kotlin for Java Developers

★★★★★ 4.7 1,680 ratings



Svetlana Isakova [+1 more instructor](#)

[Enroll for Free](#)
Starts Jan 16

Financial aid available

81,582 already enrolled

Get others onboard!

- Objectively better in many cases - easy sell?
- Many colleagues are fine with Java
- Find a way to bring Kotlin under attention

Get others onboard!

- Advent of Code - invite all engineers
- Why don't you try a new language?
- Promote Kotlin during AoC
- Workfloor chat about AoC puzzles



Convincing Security / Compliance

Convincing Security / Compliance

- All about being safe, not losing money
- Scary - new programming language
- Convincing Scala took ages

Convincing Security / Compliance

- Does it run in Fortify? No
- Is it supported by any of our tools? No
- How do you expect us to support it?

Convincing Security / Compliance

- Prove that Kotlin is safe
- Using less well-known tools; FindSecBugs
- Bring out the AoC contenders
- Facts
- Lobby
- Be helpful, give solutions

Convincing management

The small experiment

- Make it contained
- Make it risk free
- Make it reversible
- Make it cheap

Our team, one application, No overhead

Report!

- Communicate about progress
- Verbalize next steps
- Improve in public

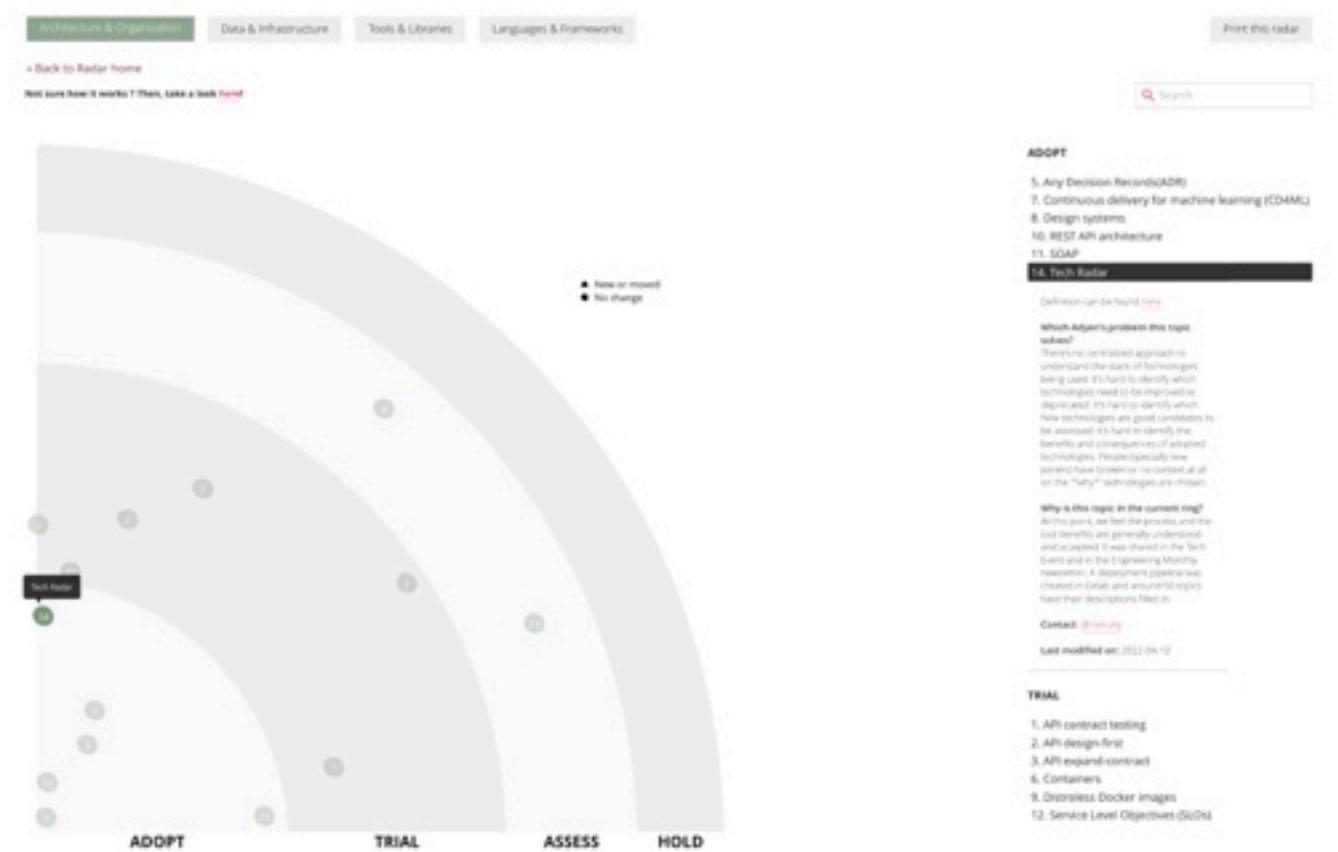


ARISE, GO FORTH,

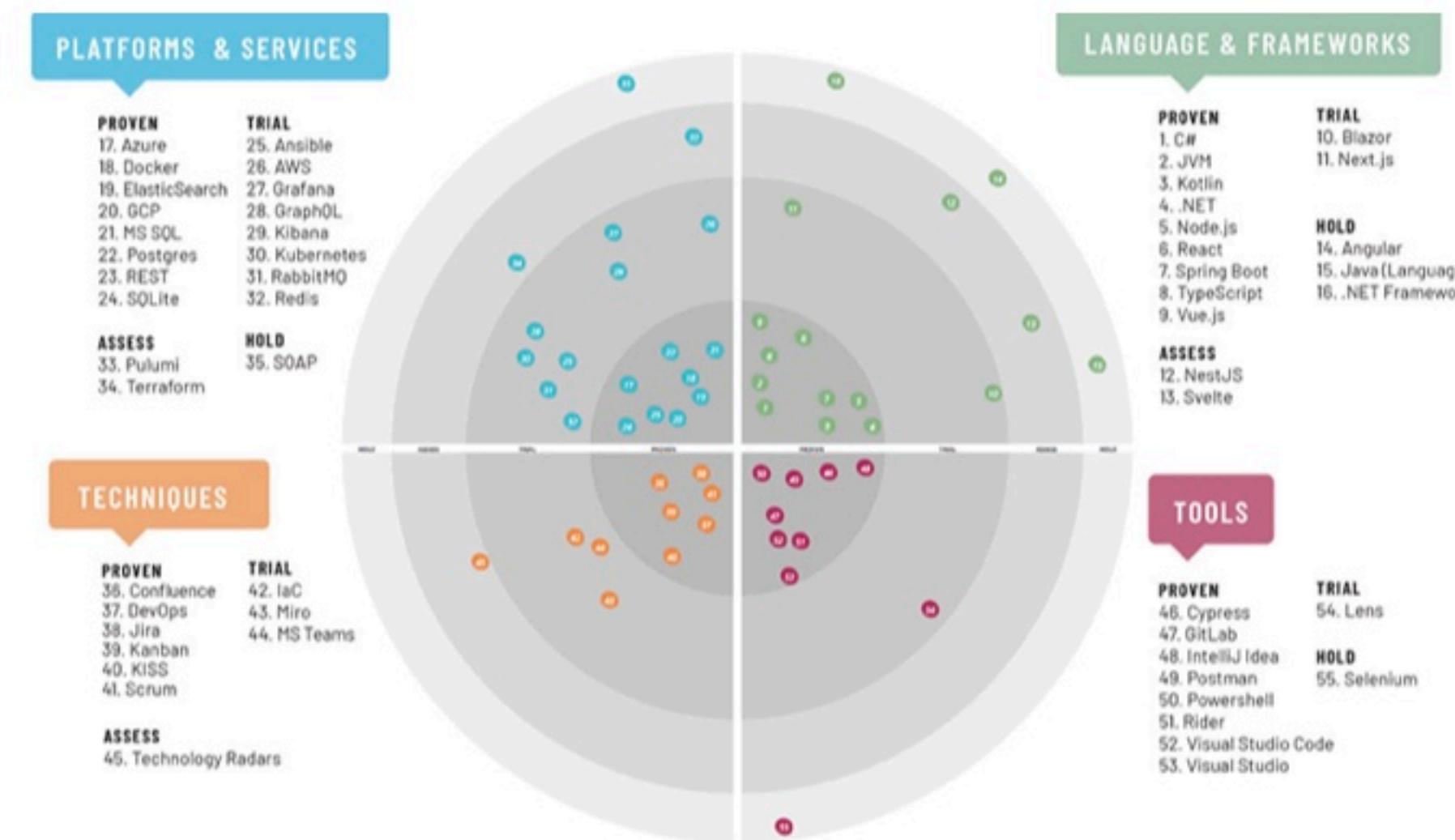
AND CONQUER!

Use the system : Tech Radar!

- Which problems does it solve?
- Why is it in the current ring?
- Clear definition and scope



Use the system : Tech Radar!



Use the system : ADRs!

→ Architecture Decision Records!

28 lines (14 sloc) | 805 Bytes

Raw Blame History

1. Use Elastic Search for exposing enterprise wide search API.

Date: 2018-05-20

Status

Accepted

Context

There is a need of having an API exposed which can be used to search enterprise wide common data model.

The data currently resides in a RDBMS database, it is difficult to expose micro-services directly querying out of RDBMS databases since the application runs out the same environment.

There are options like ElasticSearch or Solr where data can be replicated.

Decision

Use ElasticSearch for data indexing

Consequences

Data needs to be replicated across the ElasticSearch cluster. This separate cluster needs proper maintenance.

- Near-real time data replication is required.
- Additional cost of maintaining the ElasticSearch environments

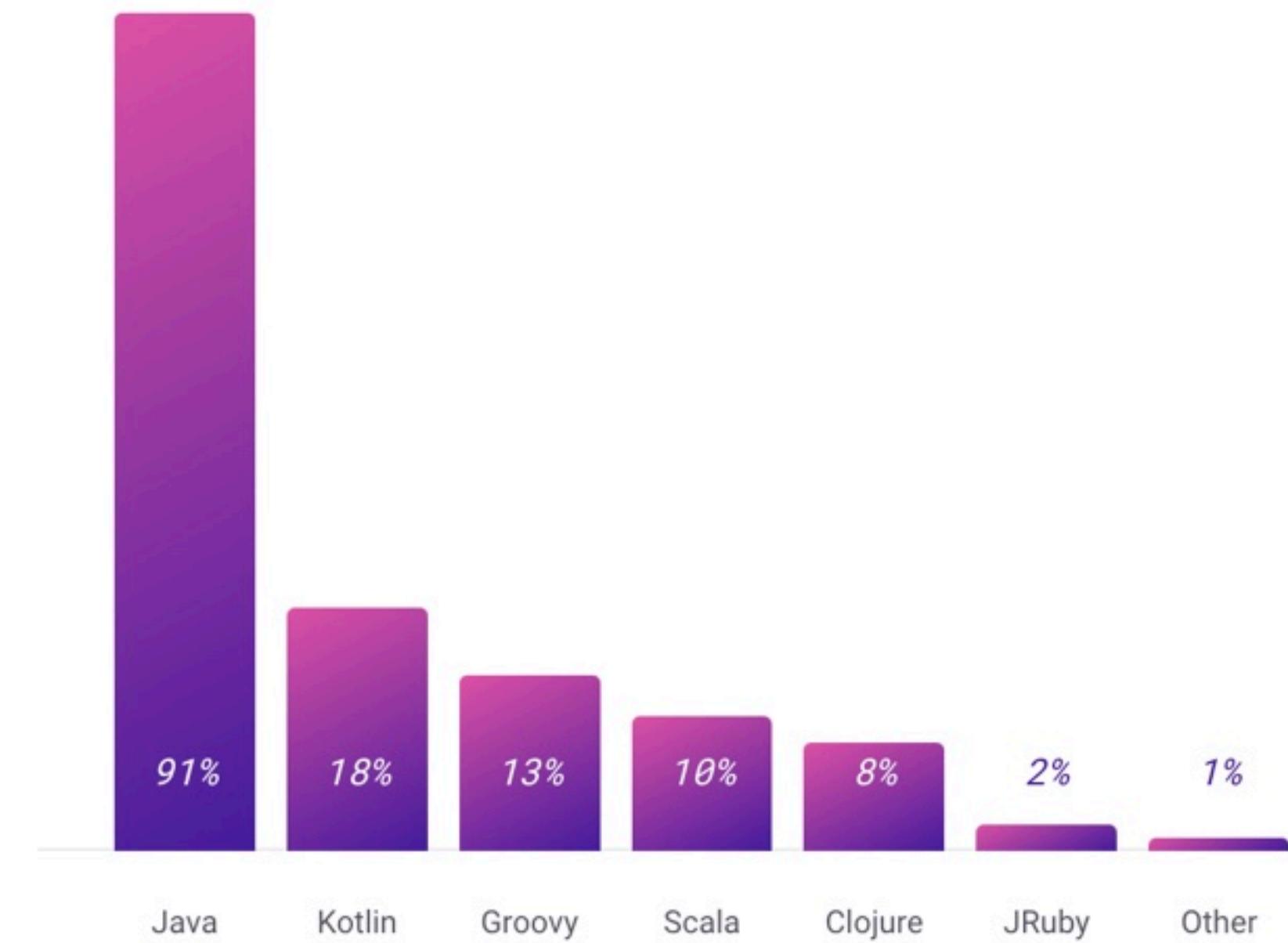
What is the second most used JVM language in the world?

- Scala
- Java
- Kotlin
- Groovy

Use numbers

- Show success
- But make it real and relevant
- Internal numbers count!
 - > Adapt your language and objectives!
 - > There is no wrong question!

JVM languages used for applications in production



Find your heroes inside

- Who is a big fan of the language?
- Who can benefit from it?
- Who is excited about trying new things?



Bring heroes from outside

- Make your choice a reality
- Make it visible !



Julien Lengrand-Lambert
@jlengrand

This month **#lunchspiration** @ing : [@trisha_gee](#) rocked with not one, but three talks in two different locations! Full house, and lots of positive energy! I love when people get out of those sessions with more knowledge, and more energy. Thanks [@jetbrains](#) and [@trisha_gee](#) .



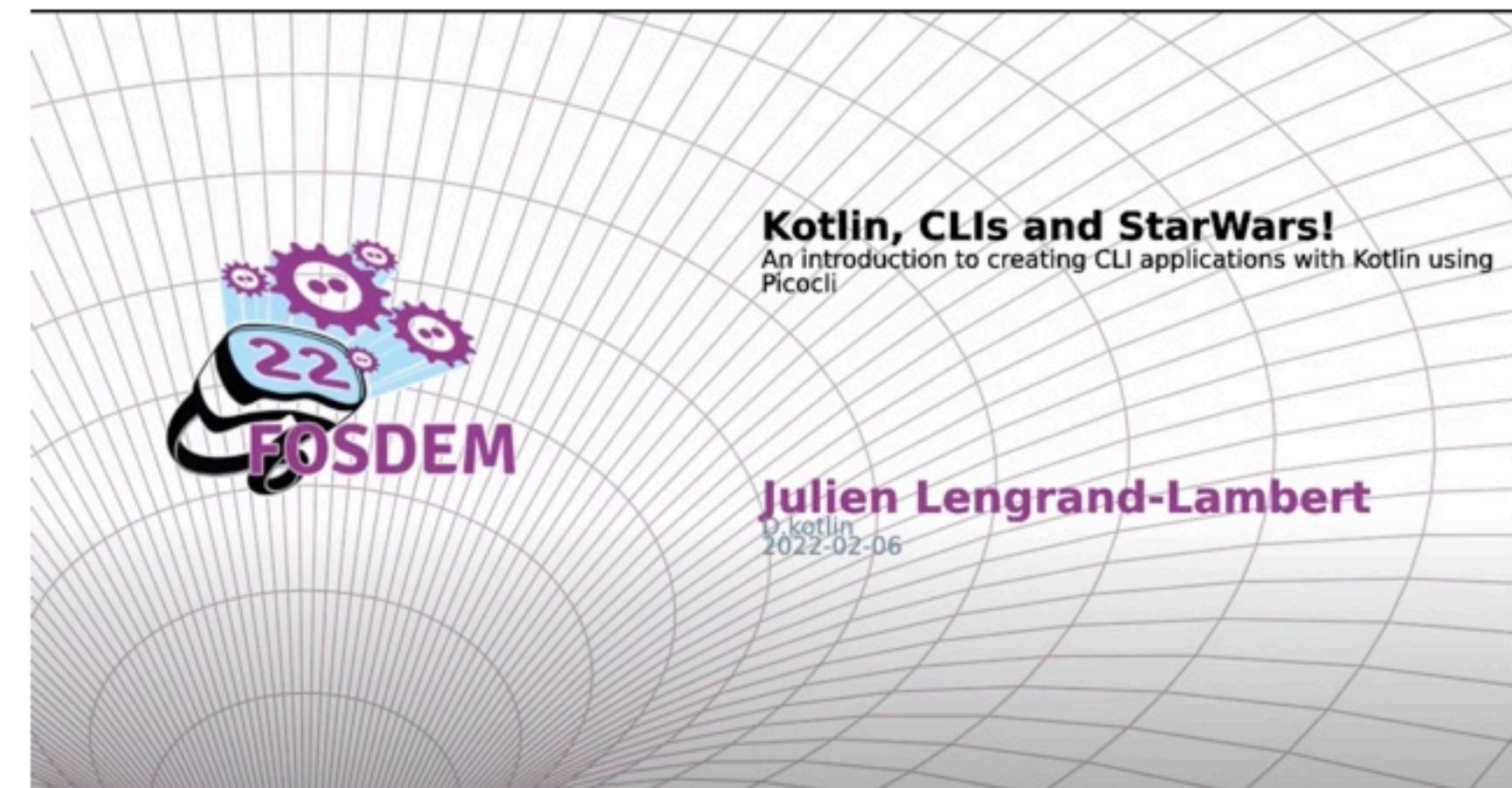
Find authority

- Certification
- Course
- Titles,



Be visible

- Speak
- Write
- Shout ...



Create your own reality

For Ximedes, Kotlin is now the default language of choice for new client projects. We feel the language is mature enough, well-supported, and allows developers to deliver better, cleaner code in less time. We will of course provide continuing support for Java now and in the future - Kotlin is just a new shiny tool in the box!

And don't forget! Don't be a Zealot <3

There will be another fight tomorrow

Some fun questions I've had

If we allow Kotlin today, why not
Haskell tomorrow?

**How can we hire people that know
Kotlin? Won't it be hard to find them
on the market?**

**Can't Kotlin die tomorrow, look what
happened to ...?**

**So Kotlin, is it like replacing
AngularJs?**

**Why don't you just use Scala? We
already have processes in place?**

Thank you!

Sources :

- <https://github.com/jlengrand/introducing-kotlin-in-your-org>
- <https://snyk.io/jvm-ecosystem-report-2021/>