

AOT & Native

Spring Boot 3 Workshop - Devnexus 2023 - Atlanta

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Create a native image

Add the GraalVM native Maven plugin to dog-service

```
<plugin>  
  <groupId>org.graalvm.buildtools</groupId>  
  <artifactId>native-maven-plugin</artifactId>  
</plugin>
```

Create a native image

Add a hint for the AOT compiler

```
dog-service/src/main/resources/META-INF/  
native-image/reflect-config.json
```

```
[  
  {  
    "name": "org.postgresql.util.PGobject",  
    "allDeclaredConstructors": true  
  }  
]
```

Create a native image

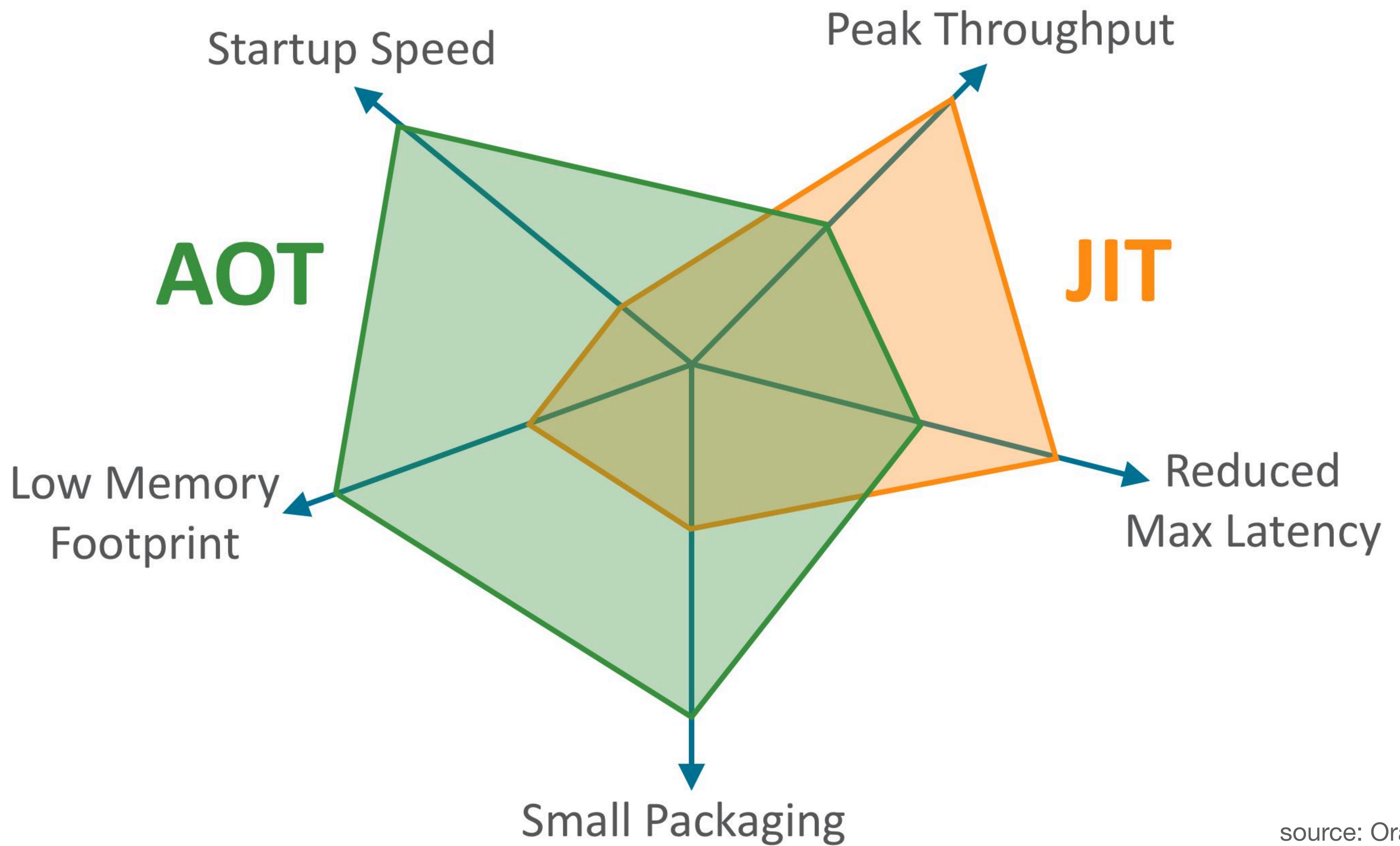
Disable JMX

```
spring:
  jmx:
    enabled: false
```

Create a native image

Let's (start the) compile!

```
$ ./mvnw -Pnative -pl dog-service clean native:compile
```



Create a native image

Reachability Metadata!

<https://github.com/oracle/graalvm-reachability-metadata>

Create a native image

Let's look into the generated code!

```
dog-service/target/spring-aot/main
```


Create a native image

Let's look into the generated code!

```
$ code dog-service/target/spring-aot/main
```

Create a native image

Generated resources

- resources/META-INF/native-image/...
 - native-image.properties (command line args)
 - proxy, reflect, resource, serialization JSON files
 - spring/logback-model
- org.springframework.aot.hint.RuntimeHints
 - org.springframework.aot.hint.RuntimeHintsRegistrar
 - org.springframework.aot.generate.GenerationContext

Create a native image

Generated code

- DogServiceApplication__ApplicationContextInitializer
- DogServiceApplication__BeanFactoryRegistrations
- DogServiceApplication__BeanDefinitions
- DogsController__BeanDefinitions
- WebMvcConfigurationSupport__BeanDefinitions
-

Create a native image

How generated code is contributed

- BeanFactoryInitializationAotContribution
 - BeanRegistrationsAotContribution
- BeanRegistrationAotContribution
 - AutowiredAnnotationBeanPostProcessor.processAheadOfTime

Create a native image

Run the executable

```
. /dog-service/target/dog-service
```

Checkpoint

Native application runs



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Building a REST API with Spring Boot


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In this beginner course, you'll learn how to build a complete REST API from start to finish with Spring Boot. With our interactive labs, you'll get hands-on practice every step of the way — bootstrapping with Spring Initializr, through authenticating & authorizing with Spring Security.

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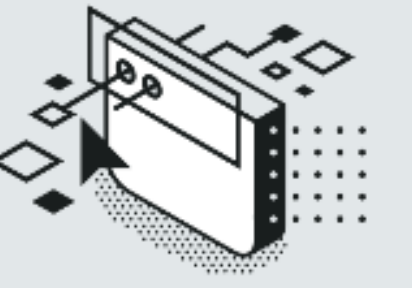
Looking to build a real world REST API using Spring Boot? Ranked as the #1 Java-based development framework for web apps, Spring Boot is an outstanding choice! Here's Spring Developer Advocate, Josh Long, with a quick word on Spring's continuing commitment to education, and why we're so excited to bring you this Spring Boot course.




A Brief Introduction
with Josh Long

In this Course

In this course, you'll build a Family Cash Card service—an app for families to manage allowances in the form of digital debit cards. By building this service from start to finish, you'll learn about REST APIs, Spring Security, data persistence, metrics, and modern application development.




INSTRUCTORS

**Carlton Schuyler**
Staff Solutions Architect, Software Engineer


Carlton is a veteran of product and consulting companies where he's been writing and delivering software for longer than he cares to admit.

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**Joe Moore**
Senior Staff Engineer, Software Consultant, XP nerd

Joe is a passionate software engineer and Agile (XP!) practitioner with a mission to help others achieve amazing outcomes through software.

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**Josh Long**
Spring Developer Advocate, open-source hacker, book/video author and speaker

Josh has been the first Spring Developer Advocate since 2010. Josh is a Java Champion, an author of 6 books, a producer of best-selling video training, an open-source contributor, a podcaster, and a YouTuber.

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Q&A