Spring Boot

The Ripper

@jekaborisov

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Big Data & Java Technical Leader

- Mentoring
- Consulting
- Lecturing
- Writing courses
- Writing code

NAYA TECHNOLOGIES

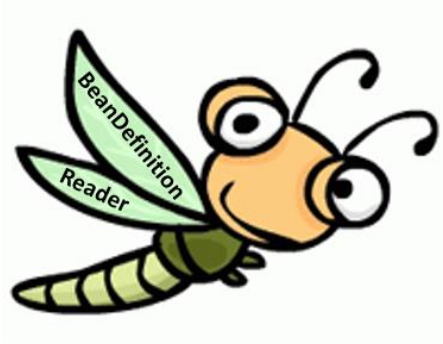
I Never write singletons
I drink them and
I know Spring

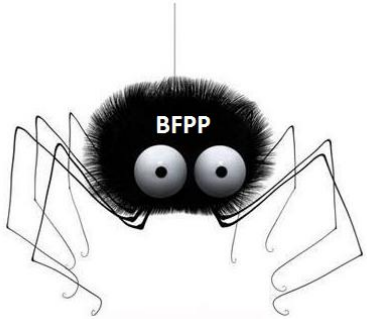
@tolkv

@lavcraft

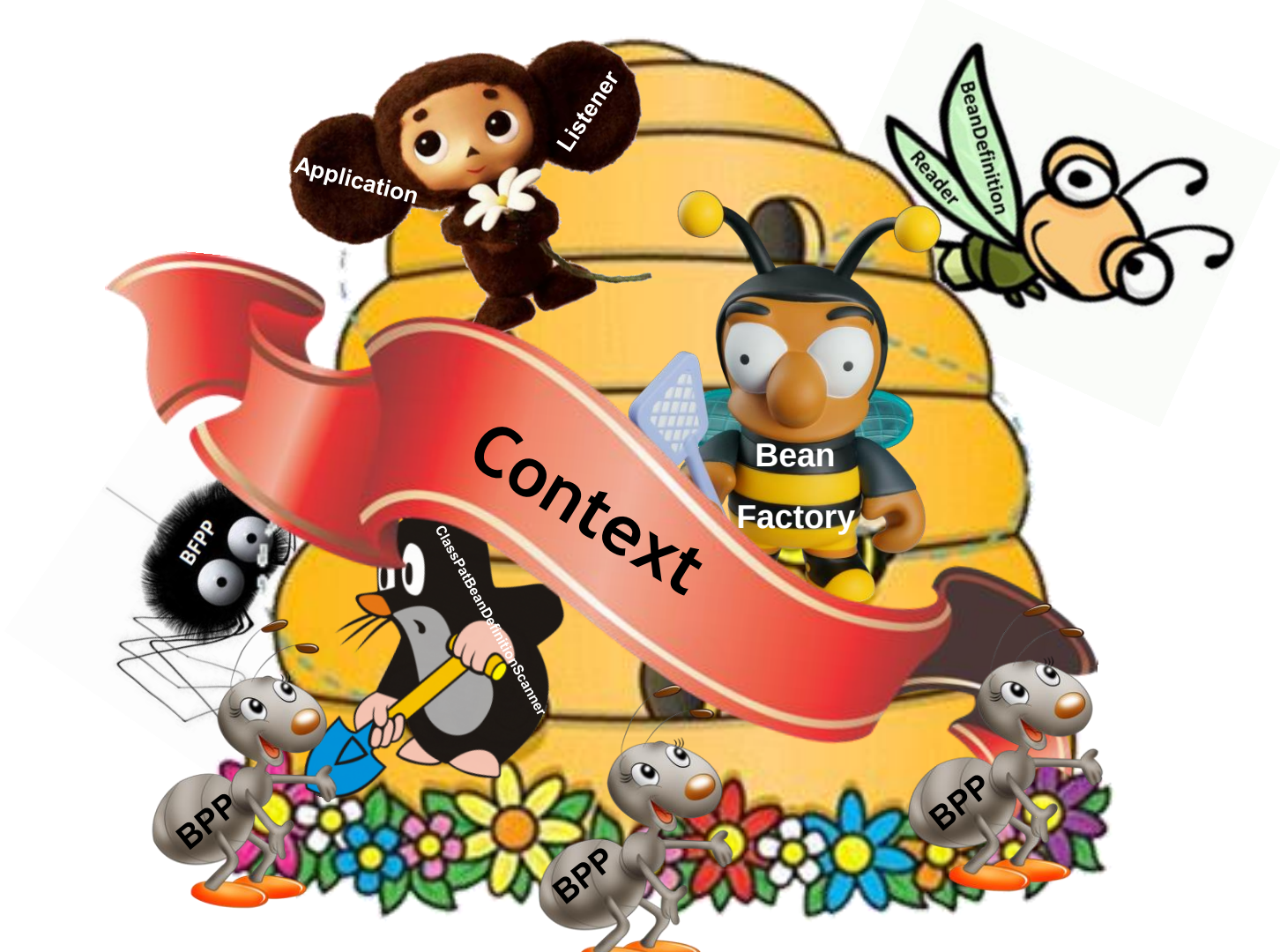
Thanks to Kirill Tolkachev

Spring retrospective






Application
Listener
BeanDefinition
Reader
Bean
Factory
BFPP
ClassPathBeanDefinitionScanner
BPP
BPP
BPP


Application
Listener
BeanDefinition
Reader
Context
Bean
Factory
BFPP
ClassPathBeanDefinitionScanner
BPP
BPP
BPP


Starter
spring.factories
EPP
Application
Listener
BeanDefinition
CFL
SpringFactoriesLoader
Context
Bean
Factory
BFPP
ClassPathBeanDefinitionScanner
WAI
ENV
system
prop
application.
yml
BPP
BPP
BPP
SApp

Spring Boot

The Ripper

Demo application

Demo

Developer doesn’t like

Think about

1. Dependencies...
2. Configurations

Do:

1. Deployment (test/local/prod)

Developer doesn’t like

Think about

1. Dependencies...
2. Configurations

Do:

1. Deployment (test/local/prod)

Dependencies

pom.xml

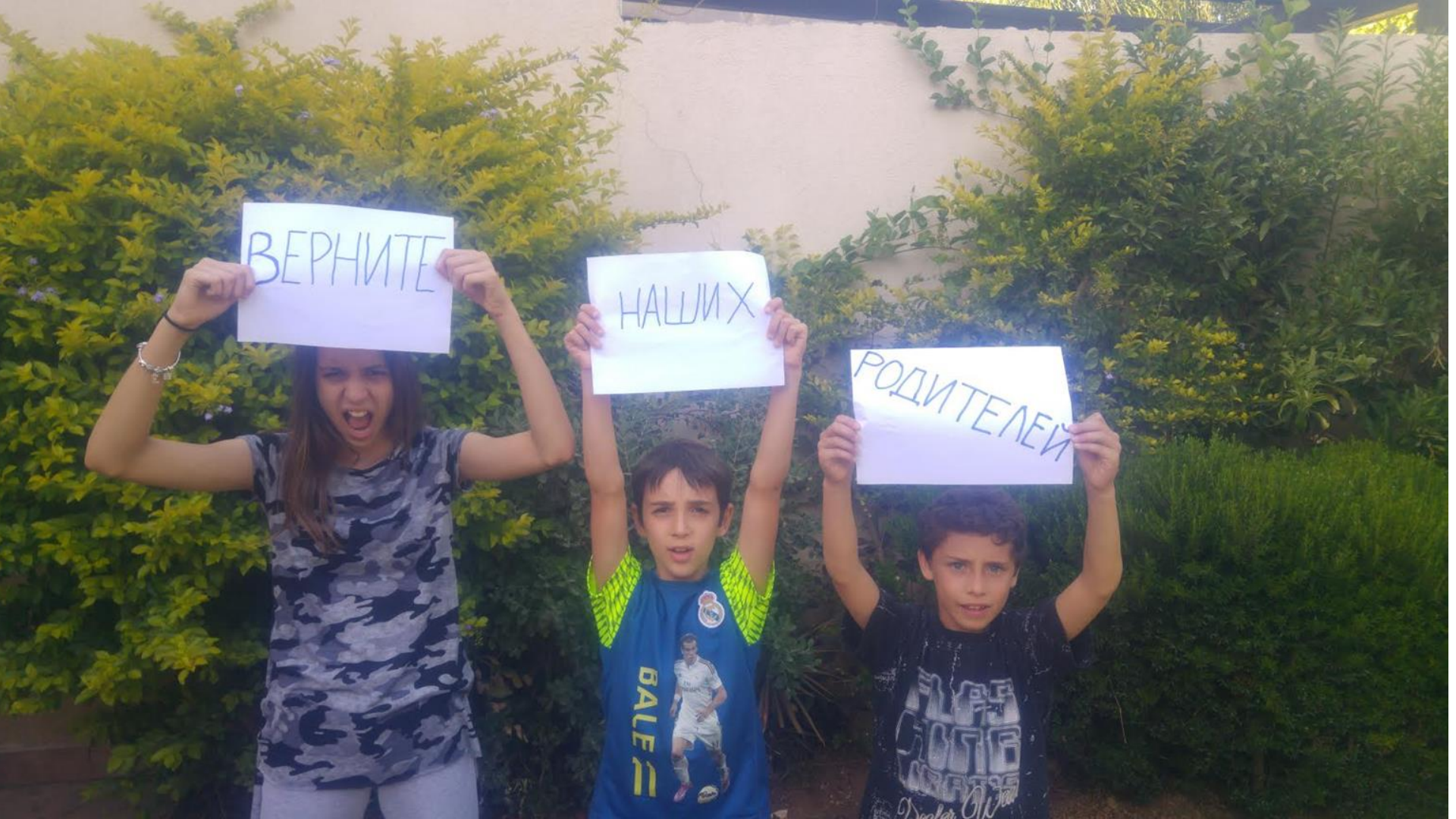
```
<parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>2.1.5.RELEASE</version>
</parent>
```

```
<parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>2.1.5.RELEASE</version>
</parent>
```

```
<parent>
  <groupId>org.springframework.boot</groupId>
  <artifactId>spring-boot-dependencies</artifactId>
  <version>2.1.5.RELEASE</version>
</parent>
```

```
2414                <groupId>org.webjars</groupId>
2415                <artifactId>webjars-locator</artifactId>
2416                <version>${webjars-locator.version}</version>
2417            </dependency>
2418            <dependency>
2419                <groupId>org.yaml</groupId>
2420                <artifactId>snakeyaml</artifactId>
2421                <version>${snakeyaml.version}</version>
2422            </dependency>
2423            <dependency>
2424                <groupId>redis.clients</groupId>
2425                <artifactId>jedis</artifactId>
2426                <version>${jedis.version}</version>
2427            </dependency>
2428            <dependency>
2429                <groupId>wsdl4j</groupId>
2430                <artifactId>wsdl4j</artifactId>
2431                <version>${wsdl4j.version}</version>
2432            </dependency>
2433            <dependency>
2434                <groupId>xml-apis</groupId>
2435                <artifactId>xml-apis</artifactId>
2436                <version>${xml-apis.version}</version>
2437            </dependency>
2438        </dependencies>
2439    </dependencyManagement>
```


Not my **parent**!


ВЕРНИТЕ
НАШИХ
РОДИТЕЛЕЙ
BALE

```
<dependencyManagement>
  <dependencies>
    <dependency>
      <groupId>io.spring.platform</groupId>
      <artifactId>platform-bom</artifactId>
      <version>2.0.8</version>
      <type>pom</type>
      <scope>import</scope>
    </dependency>
  </dependencies>
</dependencyManagement>
```

build.gradle

```
dependencyManagement {
  imports {
    mavenBom 'org.springframework.cloud:spring-cloud-dependencies:Dalston.RELEASE'
  }
}
```

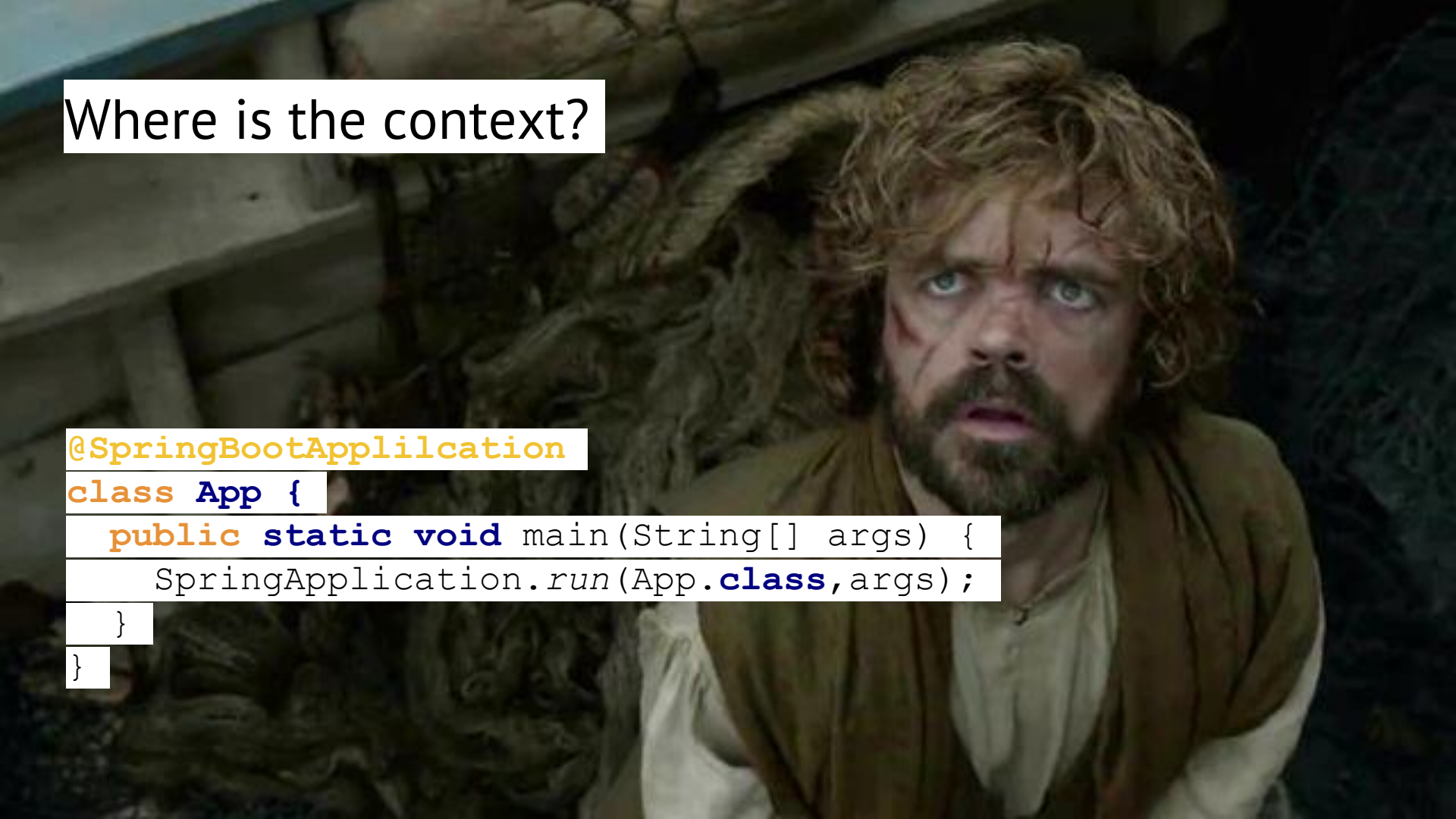
No more versions in out build.gradle...

```
'org.springframework.boot:spring-boot-starter-web'

'org.springframework.boot:spring-boot-starter-data-jpa'

'com.h2database:h2'
```

Spring Context configuration


Where is the context?
@SpringBootApplilcation
class App {
public static void main(String[] args) {
SpringApplication.run(App.class,args);
}
}

The context

```
@SpringBootApplilcation
class App {
  public static void main(String[] args) {
    ApplicationContext context =
            SpringApplication.run(App.class,args);
  }
}
```

Run method arguments

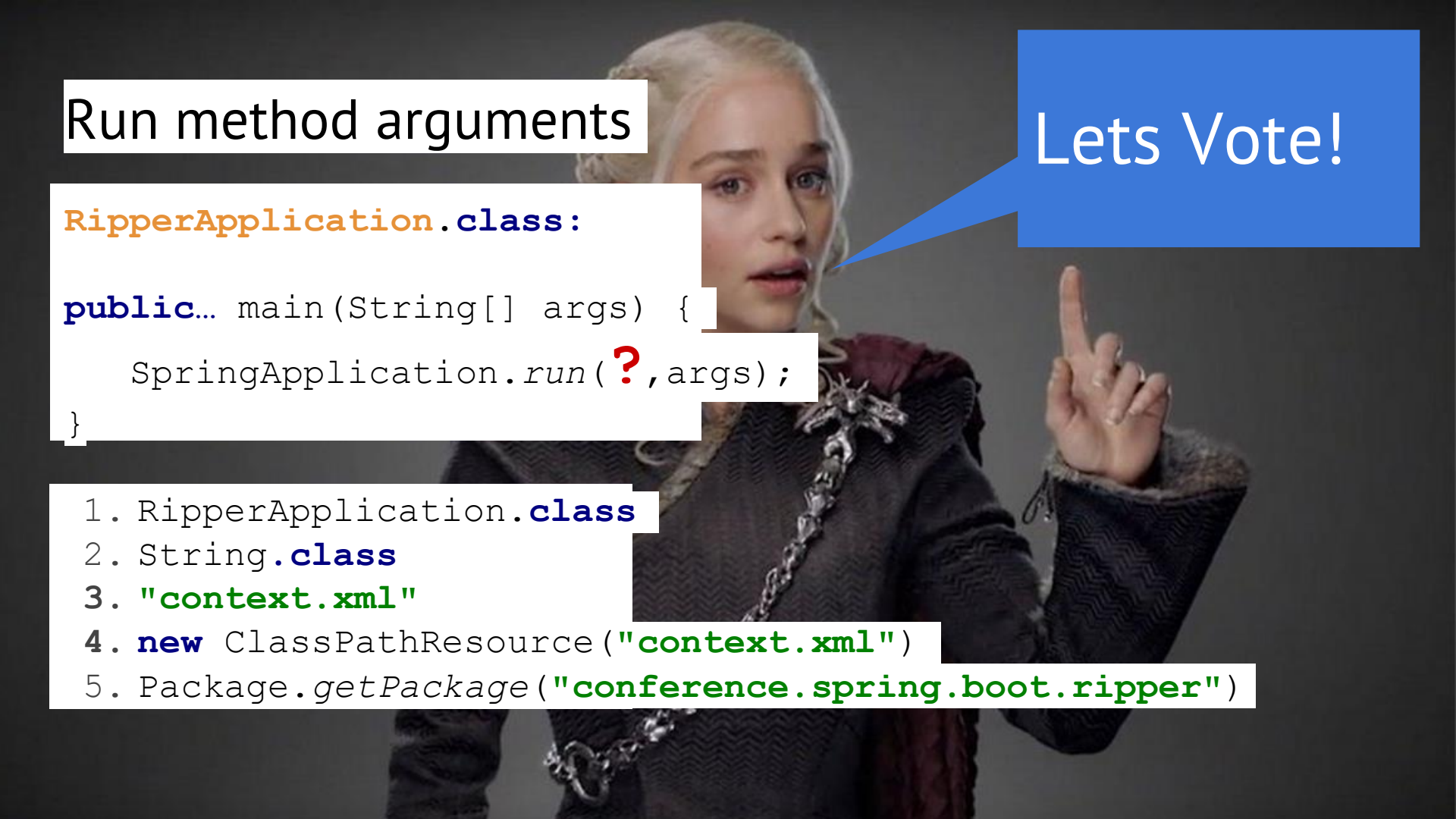
Дано: **RipperApplication.class**

```
public… main(String[] args) {
    SpringApplication.run(?,args);
}
```

1. RipperApplication.class
2. String.class
3. "context.xml"
4. new ClassPathResource("context.xml")
5. Package.getPackage("conference.spring.boot.ripper")

```
SpringApplication.run Object[] sources, String[] args)
```

Run method arguments




```
RipperApplication.class:

public… main(String[] args) {
    SpringApplication.run(?,args);
}
```

1. `RipperApplication.class`
2. `String.class`
3. `"context.xml"`
4. `new ClassPathResource("context.xml")`
5. `Package.getPackage("conference.spring.boot.ripper")`

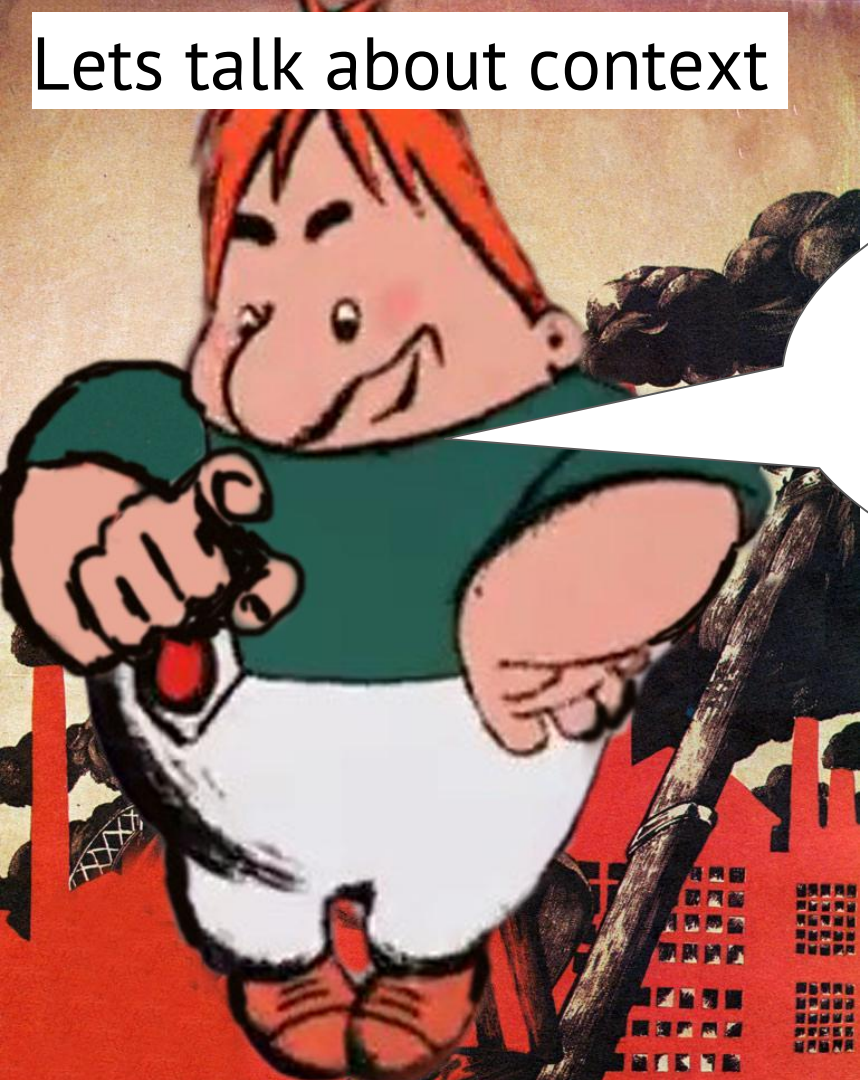

All correct

```
SpringApplication.run(Object[] sources, String[] args)
```

```
# APPLICATION SETTINGS (SpringApplication)
spring.main.sources= # class name, package name, xml location
spring.main.web-environment= # true/false
spring.main.banner-mode=console # log/off
```

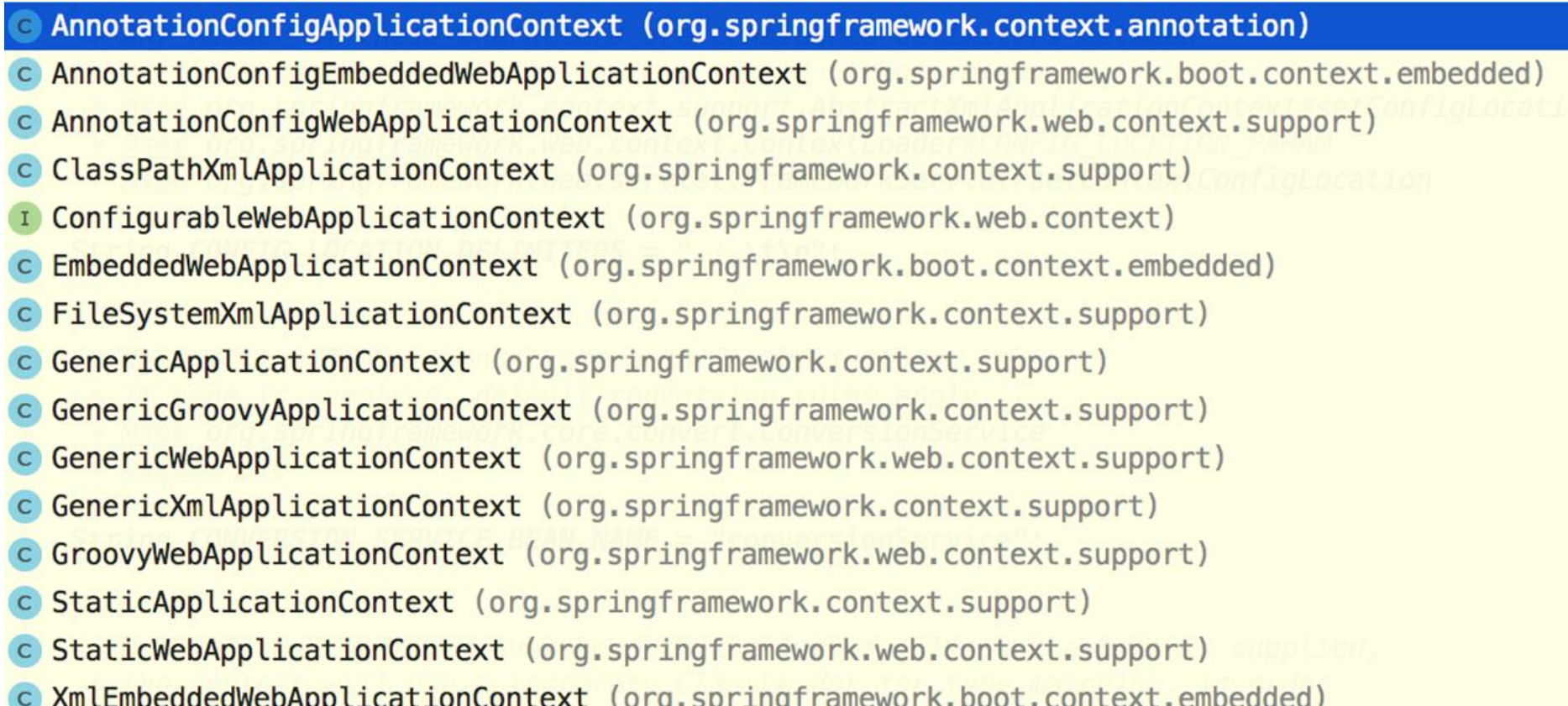

SpringApplication

Lets talk about context

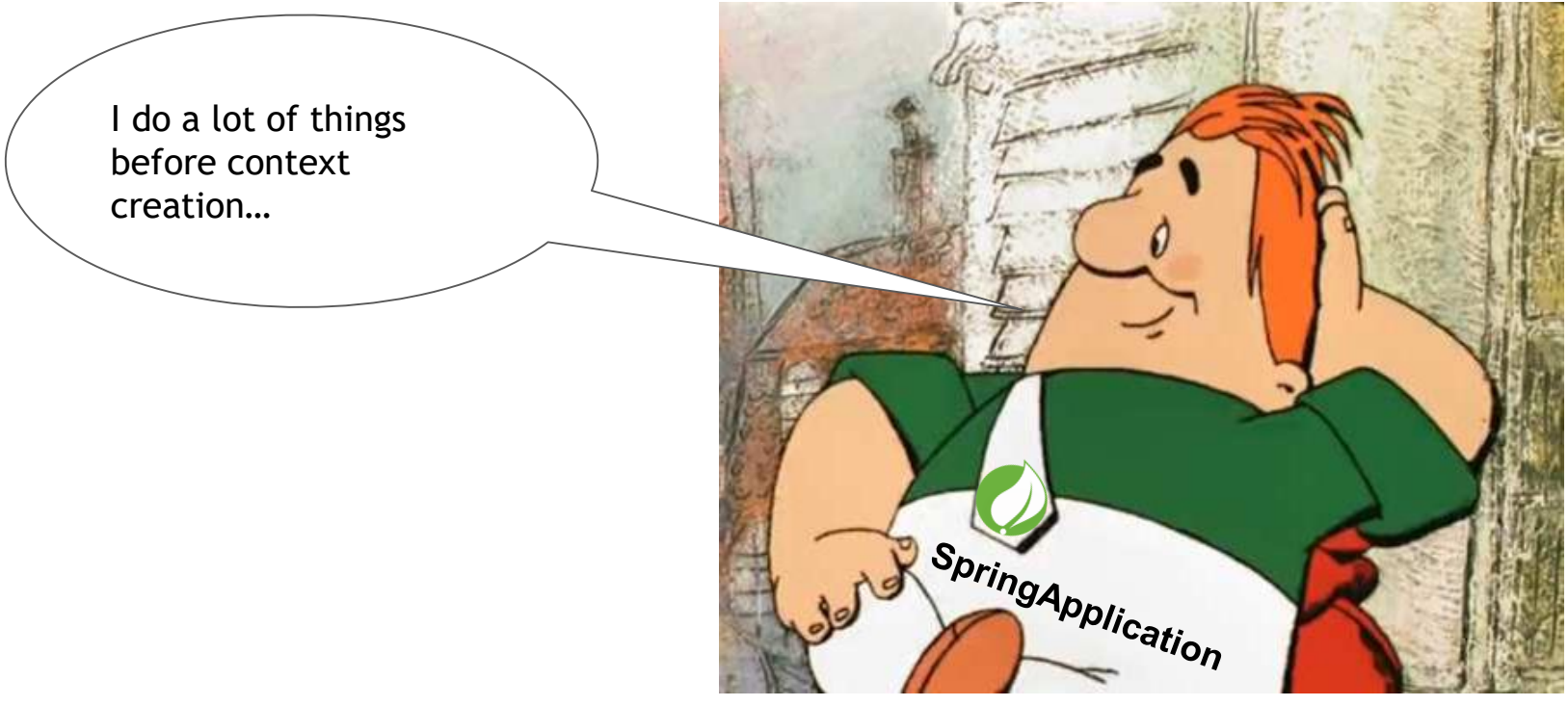


Every child knows about
`ClassPathXmlApplicationContext`
And you?

ConfigurableApplicationContext types



I decide what context should be



Web Context

Generic Context

If

`javax.servlet.Servlet` + `ConfigurableWebApplicationContext`

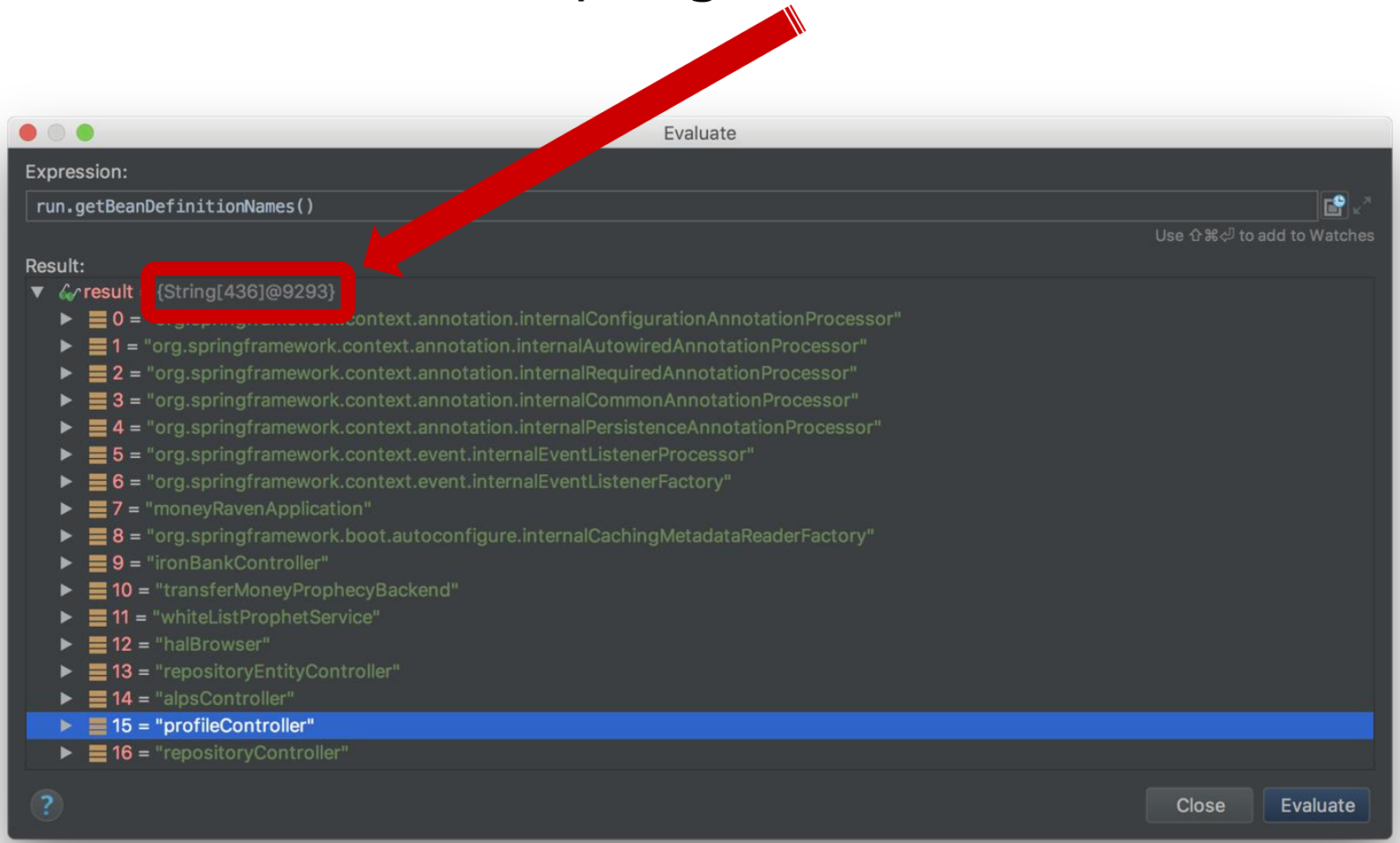
`AnnotationConfigEmbedded`**`WebApplicationContext`**

Else

`AnnotationConfig`**`ApplicationContext`**

How many beans already exists in context?

436 spring beans




Do you know where all this beans came from?

No, but I want to do the same

Why do we need microservices architecture?

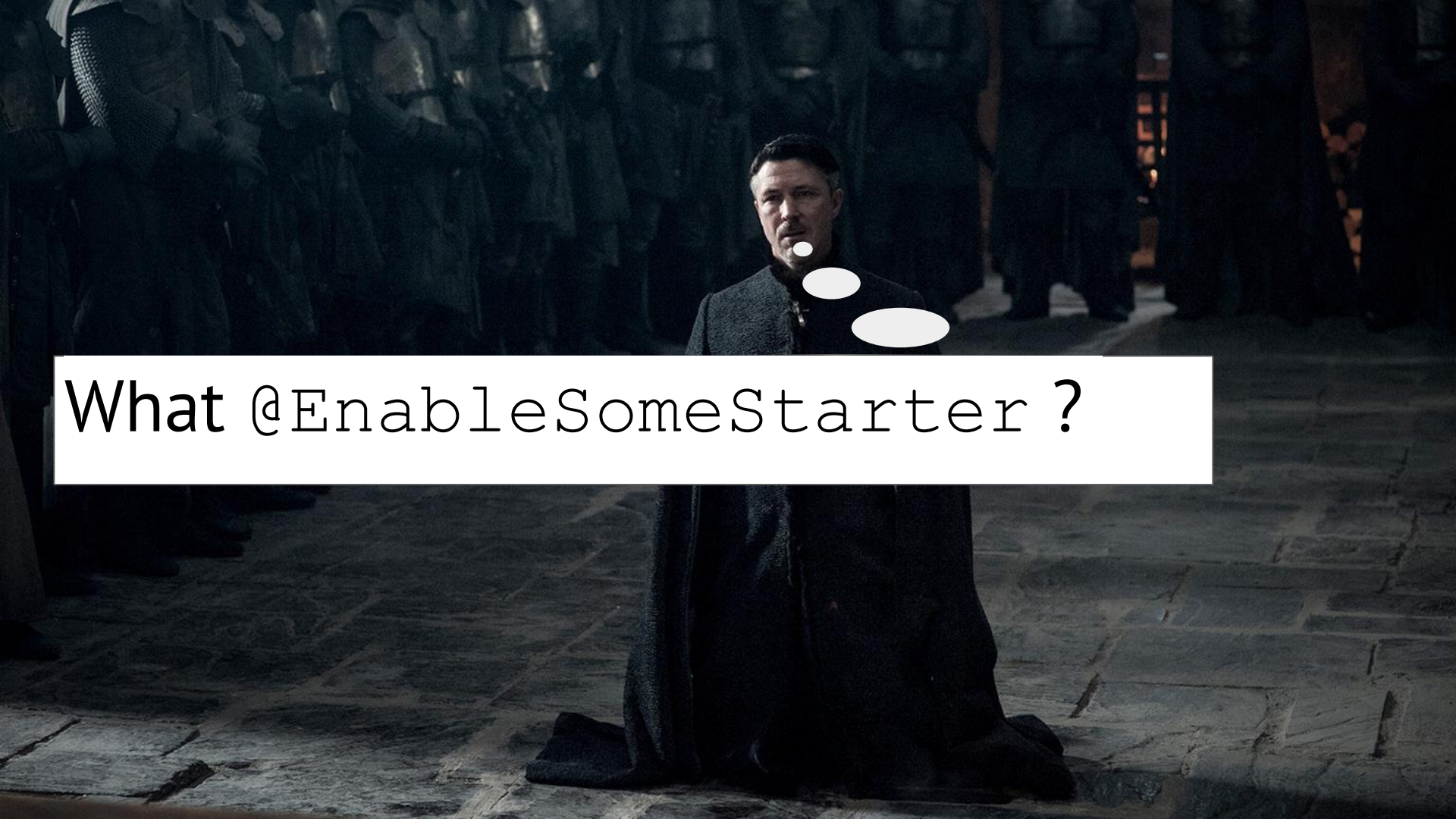
- Dependency hell
- Bootstrap time
- Testability
- Sharding
- Work share

Why do we need starters

- All infrastructure configurations and beans comes from starters

Iron bank law №1

Every time when NotEnoughMoneyException –send the raven


What @EnableSomeStarter ?


Why don’t you offer
@Import(SomeStarterConf.class)


We will use **spring.factories**!

What is `spring.factories` ?

§ 44.1 Understanding auto-configured beans

Under the hood, auto-configuration is implemented with standard `@Configuration` classes. Additional `@Conditional` annotations are used to constrain when the auto-configuration should apply. Usually auto-configuration classes use `@ConditionalOnClass` and `@ConditionalOnMissingBean` annotations. This ensures that auto-configuration only applies when relevant classes are found and when you have not declared your own `@Configuration`.

You can browse the source code of `spring-boot-autoconfigure` to see the `@Configuration` classes that we provide (see the `META-INF/spring.factories` file).


Inversion of control!!!


@SpringBootApplication

@SpringBootApplication

→ @ComponentScan

→ @Configuration

→ @EnableAutoConfiguration

@SpringBootApplication

```
@Target(ElementType.TYPE)
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Inherited
@SpringBootConfiguration
@EnableAutoConfiguration
@ComponentScan(excludeFilters = {
 @Filter(type = FilterType.CUSTOM, classes = TypeExcludeFilter.class),
 @Filter(type = FilterType.CUSTOM, classes =
AutoConfigurationExcludeFilter.class) })
public @interface SpringBootApplication {
   …
```

@SpringBootApplication

```
@Target(ElementType.TYPE)
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Inherited
@SpringBootConfiguration
@EnableAutoConfiguration
@ComponentScan(excludeFilters = {
 @Filter(type = FilterType.CUSTOM, classes = TypeExcludeFilter.class),
 @Filter(type = FilterType.CUSTOM, classes =
AutoConfigurationExcludeFilter.class) })
public @interface SpringBootApplication {
  …
```

@EnableAutoConfiguration

```
@Target({ElementType.TYPE})
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Inherited
@AutoConfigurationPackage
@Import({EnableAutoConfigurationImportSelector.class})
public @interface EnableAutoConfiguration {
   String ENABLED_OVERRIDE_PROPERTY = "spring.boot.enableautoconfiguration";
   Class<?>[] exclude() default {};
   String[] excludeName() default {};
}
```

@EnableAutoConfiguration

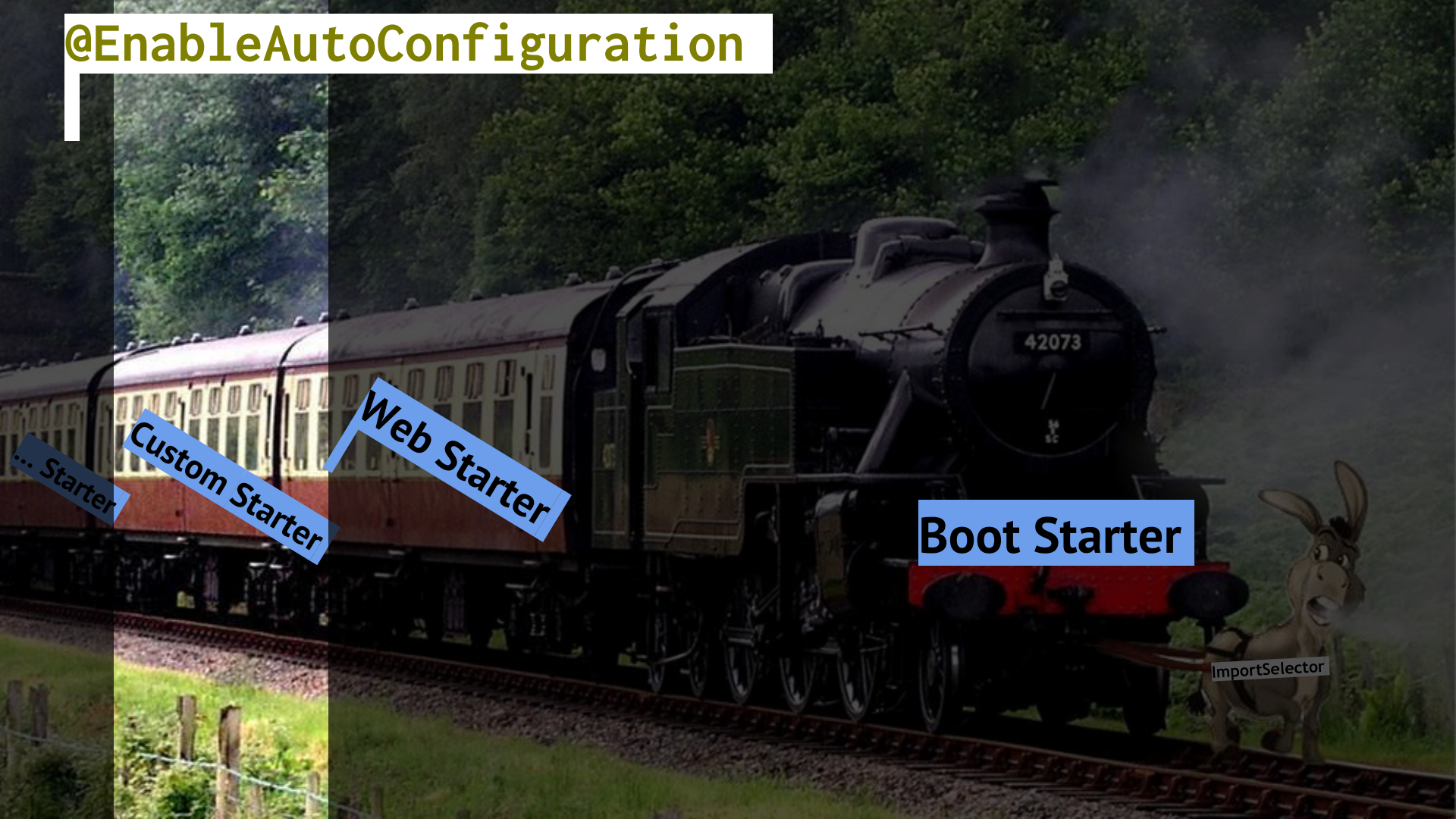
```
@Target({ElementType.TYPE})
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Inherited
@AutoConfigurationPackage
@Import({EnableAutoConfigurationImportSelector.class})
public @interface EnableAutoConfiguration {
    String ENABLED_OVERRIDE_PROPERTY = "spring.boot.enableautoconfiguration";
    Class<?>[] exclude() default {};
    String[] excludeName() default {};
}
```

@EnableAutoConfiguration


```
@Target({ElementType.TYPE})
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Inherited
@AutoConfigurationPackage
@Import({EnableAutoConfigurationImportSelector.class})
public @interface EnableAutoConfiguration {
    String ENABLED_OVERRIDE_PROPERTY = "spring.boot.enableautoconfiguration";
    Class<?>[] exclude() default {};
    String[] excludeName() default {};
}
```

@EnableAutoConfiguration

@EnableAutoConfiguration



Spring Factories Loader

SpringFactoriesLoader

```
static <T> List<T> loadFactories(
    Class<T> factoryClass,
    ClassLoader cl
)

static List<String> loadFactoryNames(
    Class<?> factoryClass,
    ClassLoader cl
)
```


Inversion of control!!!


Not totally

spring-boot-autoconfigure.jar/spring.factories

```
org.springframework.boot.autoconfigure.EnableAutoConfiguration=\
 org.springframework.boot.autoconfigure.cache.CacheAutoConfiguration
 org.springframework.boot.autoconfigure.EnableAutoConfiguration=\
 org.springframework.boot.autoconfigure.aop.AopAutoConfiguration,\
 org.springframework.boot.autoconfigure.amqp.RabbitAutoConfiguration,\
 org.springframework.boot.autoconfigure.batch.BatchAutoConfiguration,\
 org.springframework.boot.autoconfigure.cache.CacheAutoConfiguration.\

...

…
```

spring-boot-autoconfigure.jar/spring.factories

```
org.springframework.boot.autoconfigure.EnableAutoConfiguration=\
 org.springframework.boot.autoconfigure.cache.CacheAutoConfiguration
 org.springframework.boot.autoconfigure.EnableAutoConfiguration=\
 org.springframework.boot.autoconfigure.aop.AopAutoConfiguration,\
 org.springframework.boot.autoconfigure.amqp.RabbitAutoConfiguration,\
 org.springframework.boot.autoconfigure.batch.BatchAutoConfiguration,\
 org.springframework.boot.autoconfigure.cache.CacheAutoConfiguration.\

...

....
```

spring-boot-autoconfigure.jar

```
@Import(CacheConfigurationImportSelector.class)
public class CacheAutoConfiguration {
```

Somewhere deep in CacheAutoConfiguration

```
for (int i = 0; i < types.length; i++) {
 Imports[i] = CacheConfigurations.getConfigurationClass(types[i]);
}
return imports;
```

CacheConfigurations

```
private static final Map<CacheType, Class<?>> MAPPINGS;
static {
  Map<CacheType, Class<?>> mappings = new HashMap<CacheType, Class<?>>();
  mappings.put(CacheType.GENERIC,    GenericCacheConfiguration.class);
  mappings.put(CacheType.EHCACHE,    EhCacheCacheConfiguration.class);
  mappings.put(CacheType.HAZELCAST,  HazelcastCacheConfiguration.class);
  mappings.put(CacheType.INFINISPAN, InfinispanCacheConfiguration.class);
  mappings.put(CacheType.JCACHE,     JCacheCacheConfiguration.class);
  mappings.put(CacheType.COUCHBASE,  CouchbaseCacheConfiguration.class);
  mappings.put(CacheType.REDIS,      RedisCacheConfiguration.class);
  mappings.put(CacheType.CAFFEINE,   CaffeineCacheConfiguration.class);
  addGuavaMapping(mappings);
  mappings.put(CacheType.SIMPLE,     SimpleCacheConfiguration.class);
  mappings.put(CacheType.NONE,       NoOpCacheConfiguration.class);
  MAPPINGS = Collections.unmodifiableMap(mappings);
}
```


Hardcoded

Will all this configuration always be loaded??

Calm down `@Conditional`
Will filter most of them


What conditions?

Iron bank law №1.2

Raven should be sent only in production

`@ConditionalOnProduction` — Demo

Puzzler

```
@Configuration
@ConditionalOnWinter
public class UndeadArmyConfiguration {
  ...
}

@Configuration
public class DragonIslandConfiguration {
  @Bean
  @ConditionalOnWinter
  public DragonGlassFactory dragonGlassFactory() {
   return new DragonGlassFactory();
  }
  ...
}
```

ConditionalOnWinter

1. 100 $
2. 200 $
3. 300 or 400 $
4. between 500 and 1000 $
5. More than 1000 $

Correct answer

1. 100 $
2. 200 $
3. 300 or 400 $
4. between 500 and 1000 $
5. more than 1000 $


How does
it work?


Как то так, через хитро
закрученную жопу
оно и работает

How to cache condition answer?

How to cache condition answer? It’s not working

Use static

Where will the Raven fly?

Iron bank law №1.3

Raven should be sent only if destination is configured

Autocomplete for our properties will be nice...

Autocomplete for properties

Generate file: additional-spring-configuration-metadata.json

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-configuration-processor</artifactId>
    <optional>true</optional>
</dependency>
```

Conditional and friends

```
@ConditionalOnBean
@ConditionalOnClass
@ConditionalOnCloudPlatform
@ConditionalOnExpression
@ConditionalOnJava
@ConditionalOnJndi
@ConditionalOnMissingBean
@ConditionalOnMissingClass
@ConditionalOnNotWebApplication
@ConditionalOnProperty
@ConditionalOnResource
@ConditionalOnSingleCandidate
@ConditionalOnWebApplication
...
```

Iron law №1.4

ExceptionHandler from starter should work only in there is no custom bean: ExceptionHandler

ConditionalOnPuzzler

```
@Configuration
public class ExecutionConfig {

 @Bean
 @ConditionalOnClass({Soap.class, Roap.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory gallows() { return new GallowsFactory("..."); }

}
```

ConditionalOnPuzzler

```
@Configuration
public class ExecutionConfig {

 @Bean
 @ConditionalOnClass({Soap.class, Roap.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory gallows() { return new GallowsFactory("..."); }

 @Bean
 @ConditionalOnClass({Chair.class, Electricity.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory chairs() { return new ChairFactory("zzz zzz"); }

}
```

ConditionalOnPuzzler

```
@Configuration
public class ExecutionConfig {

 @Bean
 @ConditionalOnClass({Soap.class, Roap.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory gallows() { return new GallowsFactory("..."); }

 @Bean
 @ConditionalOnClass({Chair.class, Electricity.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory chairs() { return new ChairFactory("zzz zzz"); }

@Bean
 @ConditionalOnClass({Guillotine.class, GoodMood.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory guillotine() { return new GuillotineFactory ("vjik");
 }
}
```

ConditionalOnPuzzler

1. ClassDefNotFound ?
2. Will not compile
3. Will work
4. Will work perfectly

```
@Configuration
public class ExecutionConfig {

 @Bean
 @ConditionalOnClass({Soap.class, Roap.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory gallows() { return new GallowsFactory("..."); }

 @Bean
 @ConditionalOnClass({Chair.class, Electricity.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory chairs() { return new ChairFactory("zzz zzz"); }

@Bean
 @ConditionalOnClass({Guillotine.class, GoodMood.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory guillotine() { return new GuillotineFactory();
 }
}
```

ConditionalOnPuzzler

1. ClassDefNotFound ?
2. Will not compile
3. Will work 
4. Will work perfectly

```
@Configuration
public class ExecutionConfig {

 @Bean
 @ConditionalOnClass({Soap.class, Roap.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory gallows() { return new GallowsFactory("..."); }

 @Bean
 @ConditionalOnClass({Chair.class, Electricity.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory chairs() { return new ChairFactory("zzz zzz"); }

@Bean
 @ConditionalOnClass({Guillotine.class, GoodMood.class})
 @ConditionalOnMissingBean({ExecutionFactory.class})
 public ExecutionFactory guillotine() { return new GuillotineFactory();
 }
}
```

Because of ASM

Iron bank law №1.5

enable/disable raven

`@ConditionalOnProperty`

OnPropertyCondition

```
@Conditional(OnPropertyCondition.class)
public @interface ConditionalOnProperty {

  String[] value() default {};
  String prefix() default "";
  String[] name() default {};
  String havingValue() default "";

  boolean matchIfMissing() default false;
  boolean relaxedNames() default true;

}
```

OnPropertyCondition

```
@ConditionalOnProduction
@ConditionalOnProperty(
  name = "raven.enabled",
  havingValue = "true"
)
public IronBankApplicationListener applicationListener() {
  ...
}
```

OnPropertyCondition

```
@ConditionalOnProduction
@ConditionalOnProperty(
  name = {
     "raven.enabled",
     "winter.enabled",
     "stark.enabled"
  },
  havingValue = "true"
)
public IronBankApplicationListener applicationListener() {
  ...
}
```

OnPropertyCondition

```
@ConditionalOnProduction
@ConditionalOnProperty(
   name = {
      "raven.enabled",
      "winter.enabled",
      "stark.enabled"
   },
   havingValue = "true"
)
public IronBankApplicationListener applicationListener() {
   ...
}
```

Not a list

OnPropertyCondition

```
@ConditionalOnProduction
@ConditionalOnProperty(name = "raven.enabled", havingValue="true")
@ConditionalOnProperty(name = "winter.enabled",  havingValue="true")
@ConditionalOnProperty(name = "stark.enabled",havingValue="false")
public IronBankApplicationListener applicationListener() {
  ...
}
```

OnPropertyCondition

```
@ConditionalOnProduction
@ConditionalOnProperty(name = "raven.enabled", havingValue="true")
@ConditionalOnProperty(name = "winter.enabled",  havingValue="true")
@ConditionalOnProperty(name = "stark.enabled",havingValue="false")
public IronBankApplicationListener applicationListener() {
   ...
}

@ConditionalOnProperty
```

Not **@Repeatable**


AllNestedConditions
& &
AnyNestedCondition

OnPropertyCondition

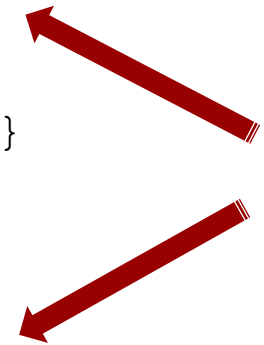
```
@Retention(RetentionPolicy.RUNTIME)
@Target({ ElementType.TYPE, ElementType.METHOD })
@Conditional(CompositeCondition.class)
public @interface ConditionalOnRaven {
}
```

OnPropertyCondition

```
public class OnRavenCondition extends AllNestedConditions {

 @ConditionalOnProperty(
   name = "raven.destination",
   havingValue = "false")
 public static class OnRavenProperty { }

 @ConditionalOnProperty(
   name = "raven.enabled",
   havingValue = "true",
   matchIfMissing = true)
 public static class OnRavenEnabled { }
 ...
}
```



OnPropertyCondition

```
@ConditionalOnRaven
public IronBankApplicationListener applicationListener() {
   ...
}
```


WINTER IS ~~COMING~~
Here


Season 8 – Winter is here


The iron bank credit rules have been changed
— **Demo**

Iron bank law №2

Should fast fail without profile

Demo

`ApplicationContextInitializer`

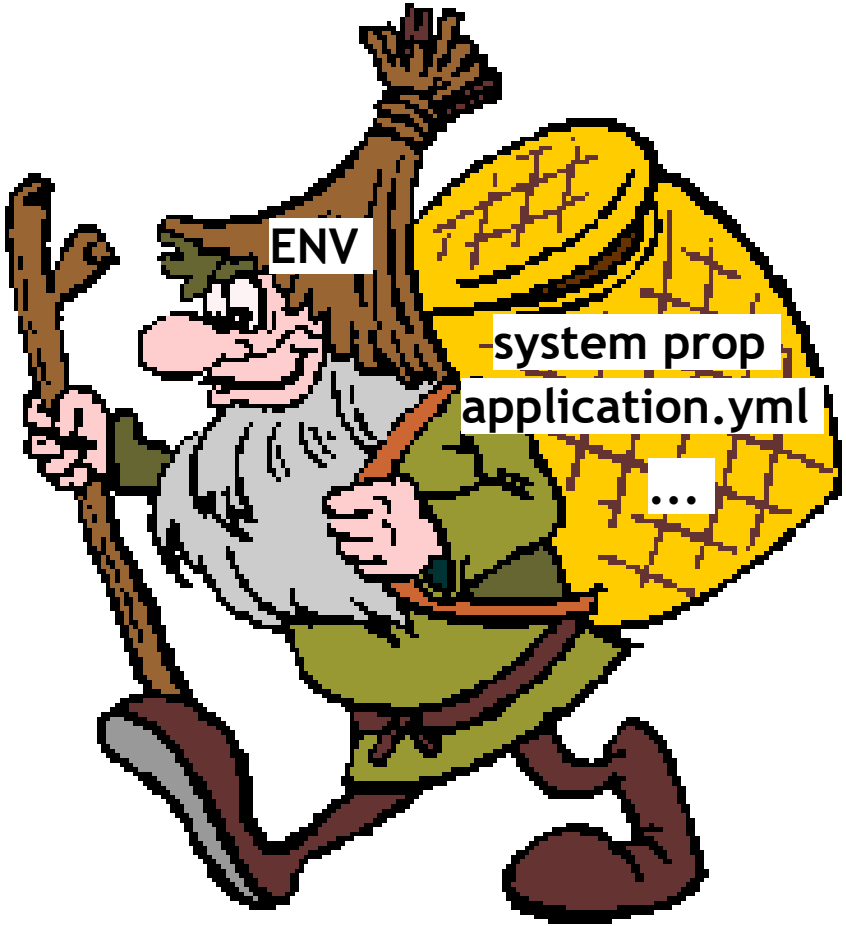
Environment

Property sources:

- systemProperties
- system environment
- random property
- application.properties
- ...

Active Profiles

Default Profiles




Profile auto detection

EnvironmentPostProcessor


demo

`ConfigFileApplicationListener`

First step: Spring application is building environment

Second step: listener receives environment and SpringApplication

`ConfigFileApplicationListener`

As listener, listens for

- `ApplicationPreparedEvent`
- `ApplicationEnvironmentPreparedEvent`

As EnvironmentPostProcessor loads:

- application.yml
- application.properties
- env vars
- cmd args

onApplicationEnvironmentPreparedEvent

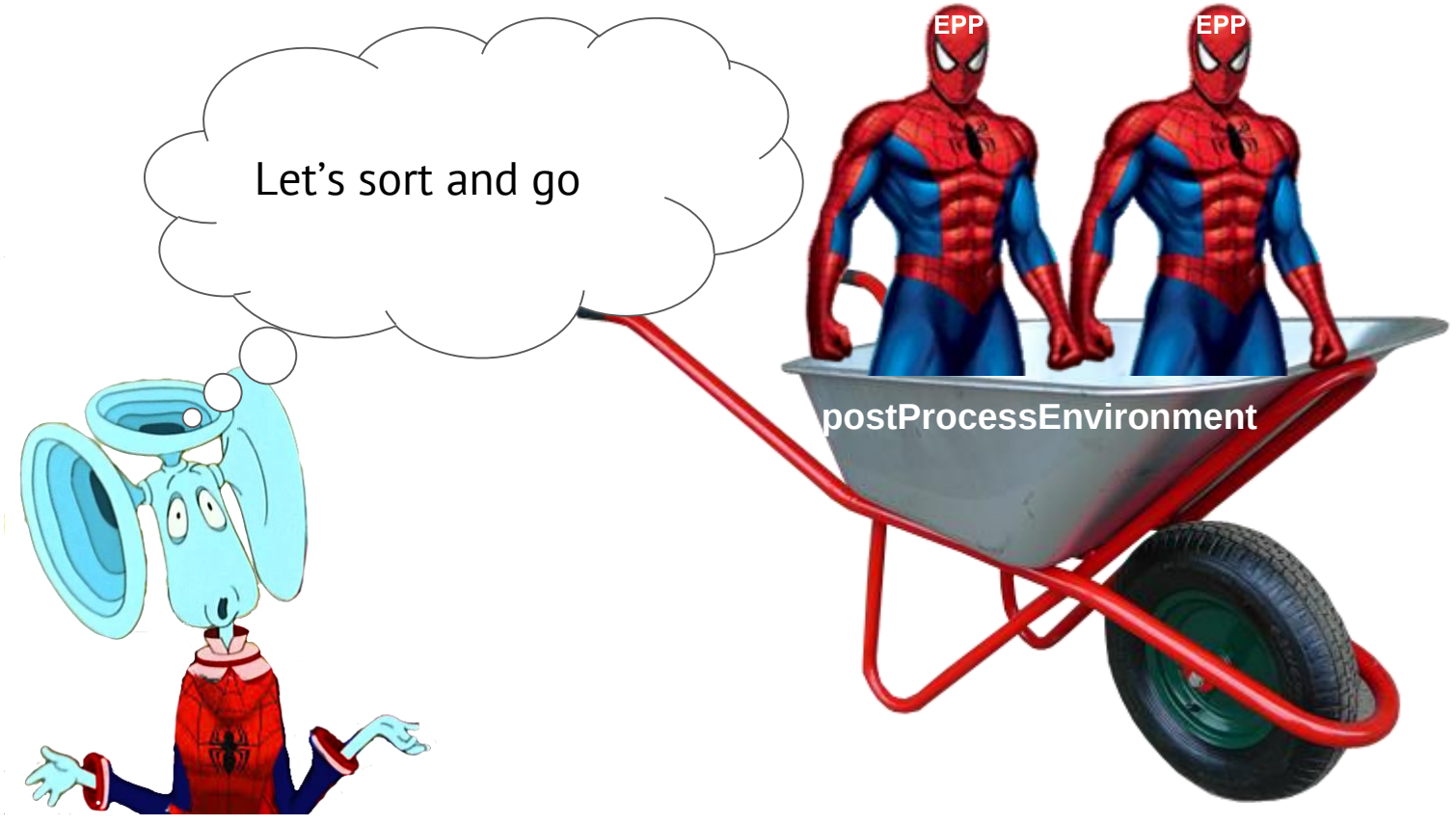
Bring me
EnvironmentPostProcessors

onApplicationEnvironmentPreparedEvent

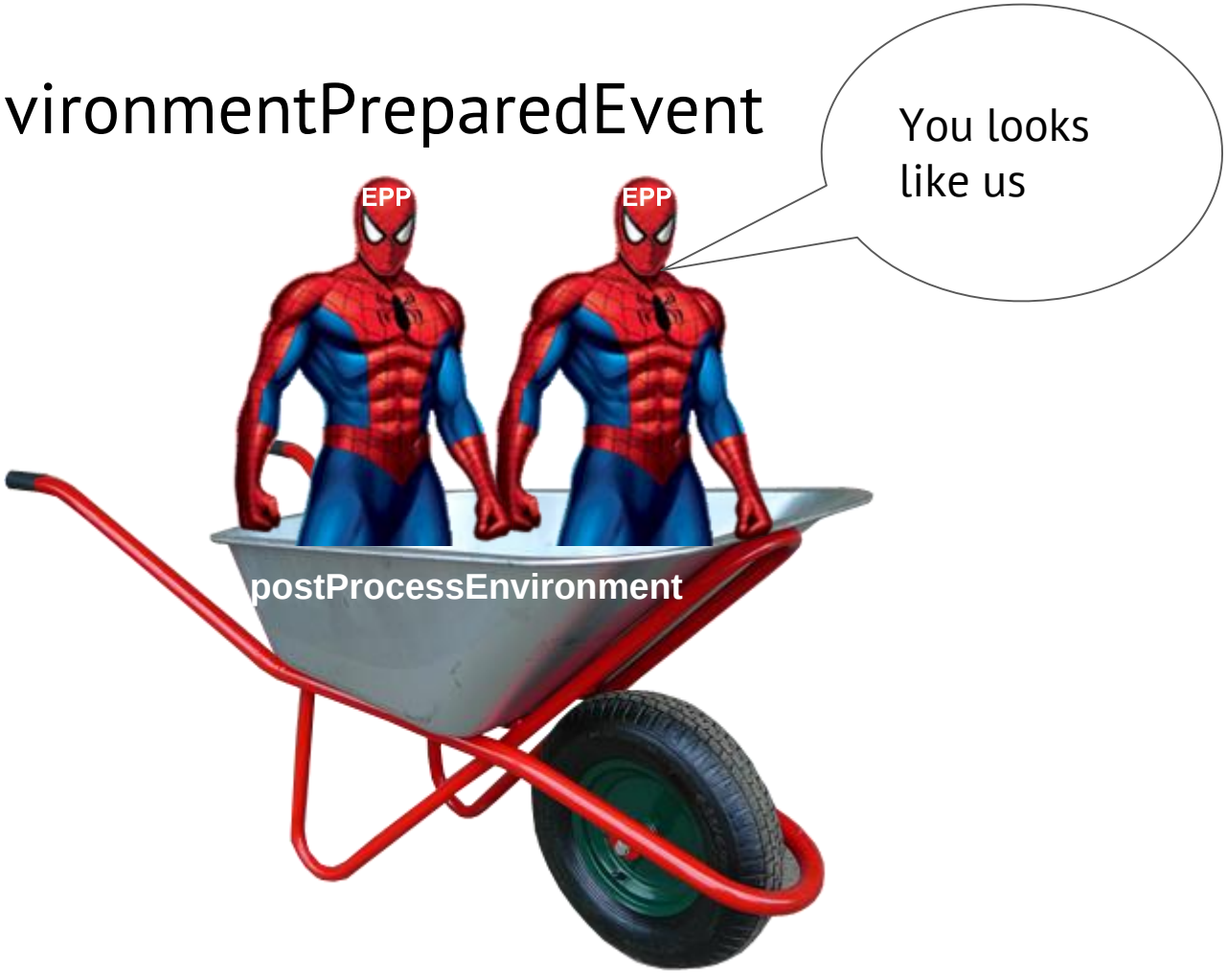
```
SpringFactoriesLoader.
loadFactories(
   EnvironmentPostProcessor.class
…)
```

onApplicationEnvironmentPreparedEvent

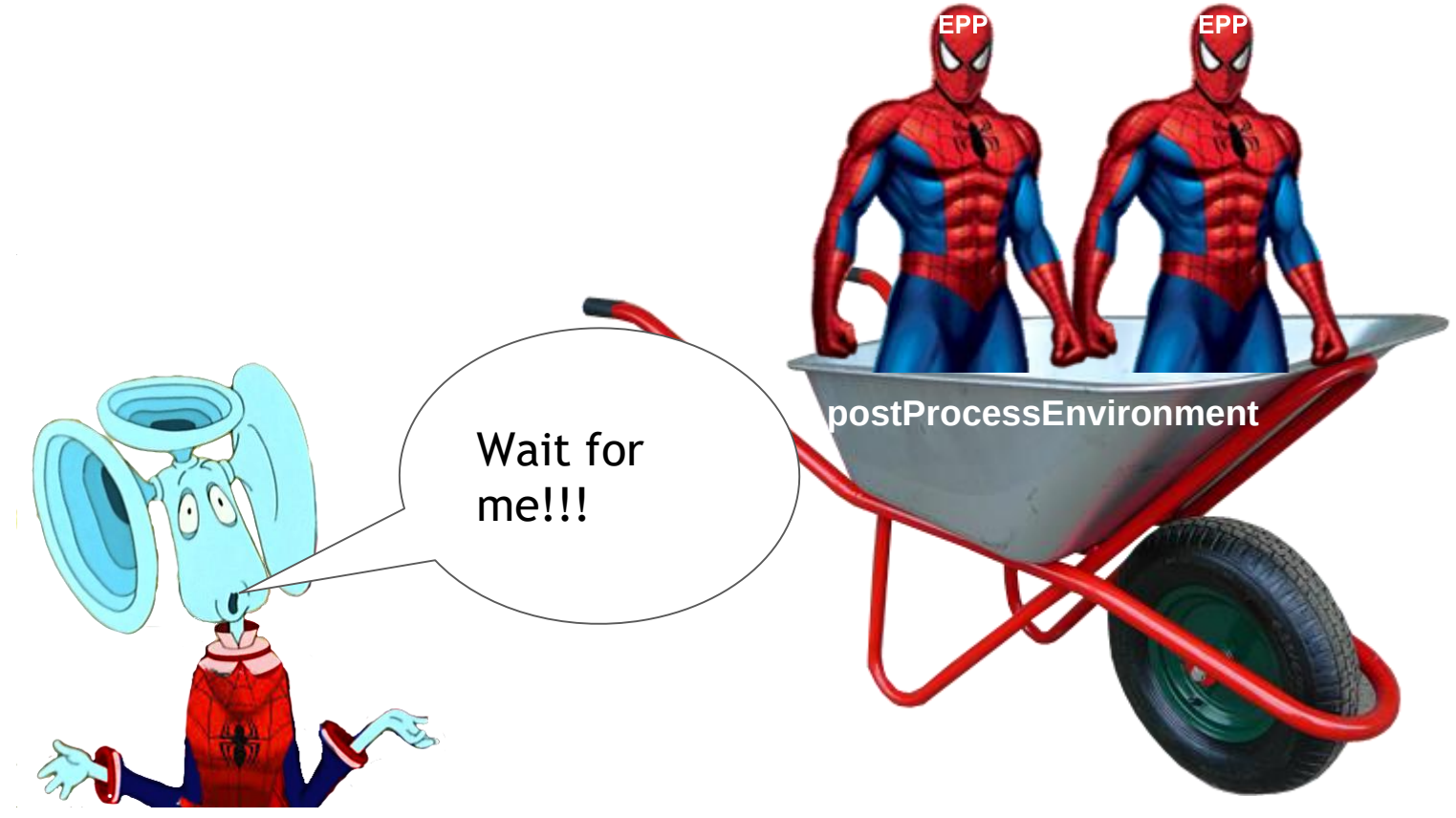
onApplicationEnvironmentPreparedEvent



onApplicationEnvironmentPreparedEvent



onApplicationEnvironmentPreparedEvent



onApplicationEnvironmentPreparedEvent

ConfigFileApplicationListener

Listens

- `ApplicationPreparedEvent`
- `ApplicationEnvironmentPreparedEvent`

Loads

- application.yml
- application.properties
- env vars
- cmd args

ConfigFileApplicationListener

Слушает

- ApplicationPreparedEvent
- **ApplicationEnvironmentPreparedEvent**

Загружает

- application.yml
- application.properties
- env vars
- cmd args

I heard about

Different events

- `ContextStartedEvent`
- `ContextStoppedEvent`
- `ContextClosedEvent`
- `ContextRefreshedEvent`


It’s Spring Boot, baby
Much more events

Application Events

ApplicationStartingEvent

ApplicationEnvironmentPreparedEvent

ApplicationPreparedEvent

ContextRefreshedEvent

EmbeddedServletContainerInitializedEvent

ApplicationReadyEvent

ApplicationFailedEvent

...

Application Events

ApplicationStartingEvent

ApplicationEnvironmentPreparedEvent

ApplicationPreparedEvent

ContextRefreshedEvent

EmbeddedServletContainerInitializedEvent

ApplicationReadyEvent

ApplicationFailedEvent

ContextClosedEvent

Application Events

ApplicationStartingEvent

ApplicationEnvironmentPreparedEvent

ApplicationPreparedEvent

ContextRefreshedEvent

EmbeddedServletContainerInitializedEvent

ApplicationReadyEvent

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ContextClosedEvent

Application Events

ApplicationStartingEvent

ApplicationEnvironmentPreparedEvent

ApplicationPreparedEvent

ContextRefreshedEvent

EmbeddedServletContainerInitializedEvent

ApplicationReadyEvent

ApplicationFailedEvent

ContextClosedEvent

Application Events

ApplicationStartingEvent

ApplicationEnvironmentPreparedEvent

ApplicationPreparedEvent

ContextRefreshedEvent

EmbeddedServletContainerInitializedEvent

ApplicationReadyEvent

ApplicationFailedEvent

ContextClosedEvent

What about:

`ContextStartedEvent`

`ContextStoppedEvent`

Where they should be placed?

ApplicationStartingEvent

ApplicationEnvironmentPreparedEvent

ApplicationPreparedEvent

ContextRefreshedEvent

EmbeddedServletContainerInitializedEvent

ApplicationReadyEvent

ApplicationFailedEvent

ContextClosedEvent

`ContextStartedEvent`

`ContextStoppedEvent`


This events
Never occurs

Did you tried to invoke them?

Did you tried to invoke them?

`ctx.start();` → **`ContextStartedEvent`**

`ctx.stop();` → **`ContextStoppedEvent`**

In what line exception will occur?

```
ctx.stop();   (1)

ctx.start(); (2)

ctx.close(); (3)

ctx.start(); (4)
```

In what line exception will occur?

```
ctx.stop();   (1)

ctx.start(); (2)

ctx.close(); (3)

ctx.start()  (4)
```


Stop before Start

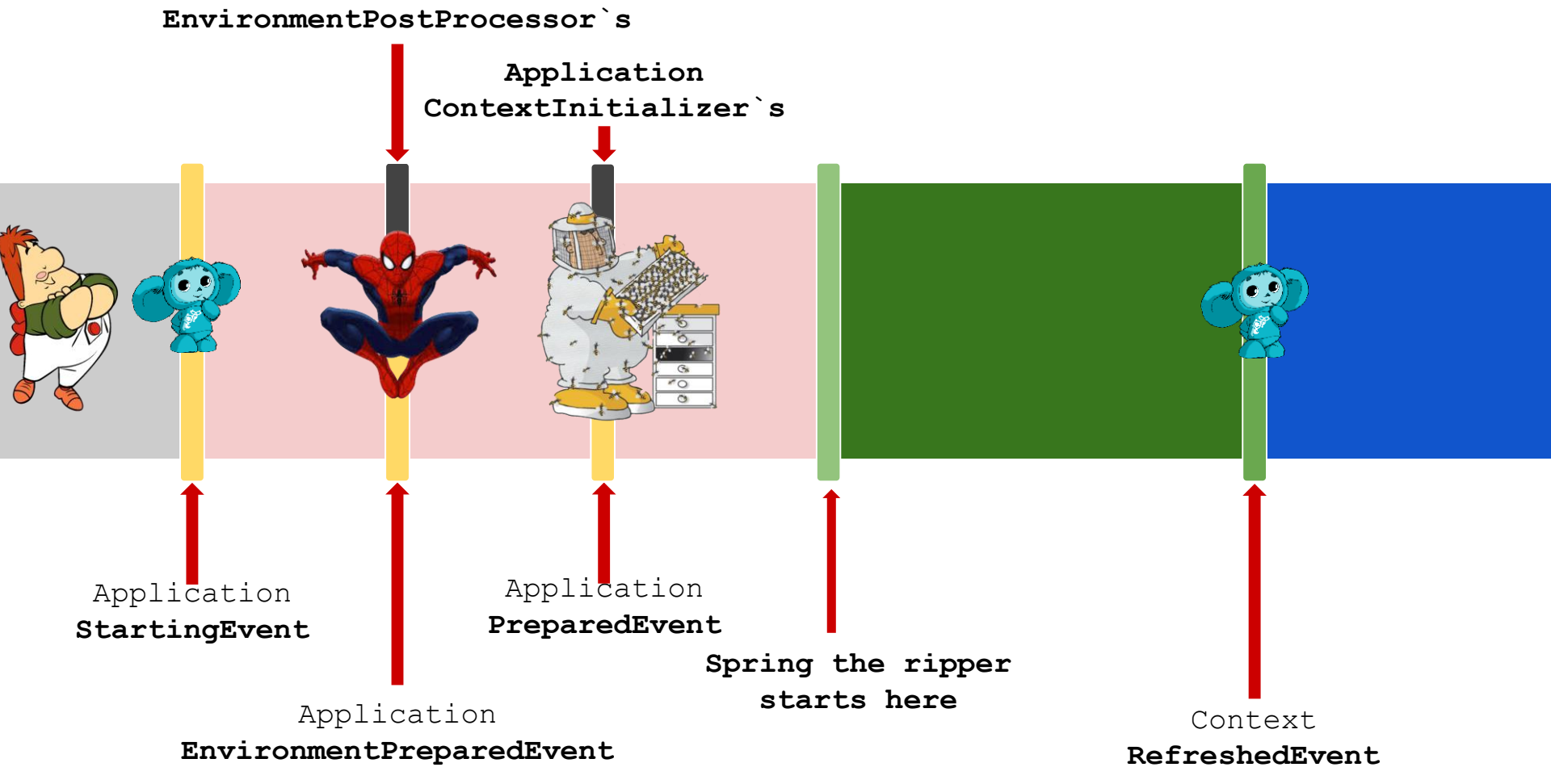
Где вылетит эксепшен

```
ctx.stop();   (1)

ctx.start();  (2)

ctx.close();  (3)

ctx.start()   (4)
```


EnvironmentPostProcessor`s
Application
ContextInitializer`s
Application
StartingEvent
Application
EnvironmentPreparedEvent
Application
PreparedEvent
Spring the ripper
starts here
Context
RefreshedEvent

Launching an application

1. **tomcat war**
2. idea
3. java -jar/war

Who is packing the jar?

```
<build>
  <plugins>
     <plugin>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-maven-plugin</artifactId>
     </plugin>
  </plugins>
</build>
```

It only seems like regular JAR

SpringBoot Jar anathomy

```
jar
  |- META-INF
  |- BOOT-INF
      |- libs
      |- classes
  |- org
      |- springframework
          |- boot
```

SpringBoot Jar anathomy

jar
- |- META-INF
- |- BOOT-INF
  - |- libs
  - |- classes
- |- org
  - |- springframework
    - |- boot

MANIFEST.MF

```
...
Spring-Boot-Version: 1.5.3.RELEASE
Implementation-Vendor: Pivotal Software, Inc.
Main-Class:
org.springframework.boot.loader.JarLauncher
Start-Class:ru….ripper.OurMainClass
Spring-Boot-Classes: BOOT-INF/classes/
Spring-Boot-Lib: BOOT-INF/lib/
...
```

SpringBoot Jar

jar
- |- META-INF
- |- BOOT-INF
  - |- libs
  - |- classes
- |- org
  - |- springframework
    - |- boot

MANIFEST.MF

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Spring-Boot-Classes: BOOT-INF/classes/
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...
```

SpringBoot Jar

jar
- |- META-INF
- |- BOOT-INF
  - |- libs
  - |- classes
- |- org
  - |- springframework
    - |- boot

JarLauncher

MANIFEST.MF

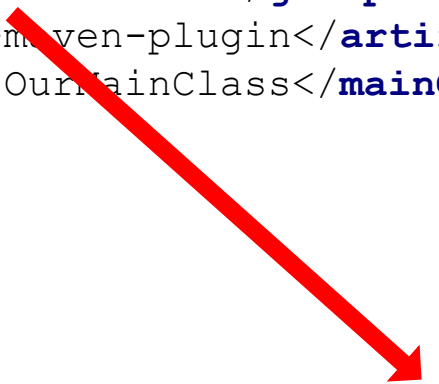
```
...
Spring-Boot-Version: 1.5.3.RELEASE
Implementation-Vendor: Pivotal Software, Inc.
Main-Class:
org.springframework.boot.loader.JarLauncher
Start-Class:ru….ripper.OurMainClass
Spring-Boot-Classes: BOOT-INF/classes/
Spring-Boot-Lib: BOOT-INF/lib/
...
```


Who is writing the manifest for this Jar?

```
<build>
  <plugins>
     <plugin>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-maven-plugin</artifactId>
        <mainClass>conference...OurMainClass</mainClass>
     </plugin>
  </plugins>
</build>
```

MANIFEST.MF

```
...
Start-Class: conference.spring.boot.ripper.OurMainClass
...
```



mainClass resolution strategy

Spring boot plugin scans classpath and looking for main methods

- If there is only one main method, we found it! :)
- In case of more than one main, the one annotated by `@SpringBootApplication` will be choosen
- If there is no `@SpringBootApplication` or >1 – exception


java -jar
– too complicated for us
Click and go!

executable jar: Maven

```
<build>
  <plugins>
     <plugin>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-maven-plugin</artifactId>
        <configuration>
           <executable>true</executable>
        </configuration>
     </plugin>
  </plugins>
</build>
```

Gradle

```
springBoot {
 executable = true
}
```

Demo. Executable jar structure

Jar content

Script

0xf4ra -> а это ZIP!
jar archive

Jar content

File beginning

SpringBoot Jar?

Conclusions

1. **Spring Boot** is much more than `Spring Context`
2. Starters have a lot of naming conventions
    1. It is not always good
3. Spring Boot is not a magic, but it is entire world


Я вижу, это Ваш первый визит к стоматологу ?

@tolkv

@lavcraft

@jekaborisov

@jeka1978

alfalab

РАЗБОР ПОЛЁТОВ #RAZBORPOLETOV ПОДКАСТ Добрый день добрый вечер доброе утро доброй ночи

NAYA TECHNOLOGIES

Вопросы?