A TRIP BACK TO WHERE I GREW UP

ANDREW MCDONOUGH

@ANDREWMCDONOUGH – A TRIP BACK TO WHERE I GREW UP

FEAR

UNCERTAINTY

PHOTO: ROBERT HICKERSON, UNSPLASH.COM

DOUBT

JAVALAND

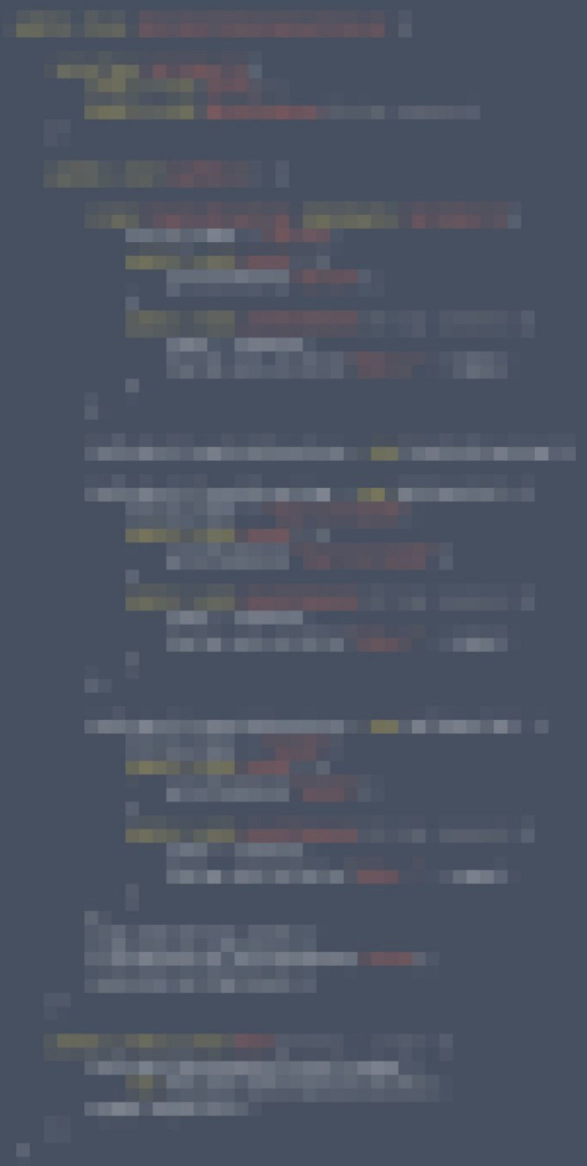
GETTERS AND SETTERS

```
public class Person {
    private String firstName;
    private String lastName;

    public String getFirstName() {
        return this.firstName;
    }

    public void setFirstName(String firstName) {
        this.firstName = firstName;
    }

    public String getLastName() {
        return this.lastName;
    }

    public void setLastName(String lastName) {
        this.lastName = lastName;
    }

    public String greeting() {
      return "Hello " + firstName + " " + lastName;
    }

    public static void main(String[] args) {
        Person person = new Person();
        person.setFirstName("Andrew");
        person.setLastName("McDonough");
        System.out.println(person.greeting());
    }
}
```

ITERATION

```
List<String> resultList = new ArrayList<>();
Iterator it = people.iterator();

while(it.hasNext()) {
    Person next = (Person) it.next();
    if (next.getFirstName().startsWith("A")) {
        resultList.add(next.getFullName());
    }
}
```

CLOSURES



CONFIGURATION

```xml
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping DTD//EN"
 "http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">

<hibernate-mapping>
   <class name="Person" table="people">
      <id name="id" type="int" column="id">
         <generator class="native"/>
      </id>
      <property name="firstName" column="first_name" type="string"/>
      <property name="lastName" column="last_name" type="string"/>
   </class>
</hibernate-mapping>
```

WEB

- NEED A SERVLET CONTAINER, E.G. TOMCAT
- STRUTS
- JSP

J2EE - JAVA 2 ENTERPRISE EDITION

- J2SE VS J2EE
- "ENTERPRISE" JAVA BEANS

Better, Faster, Lighter Java

O'REILLY

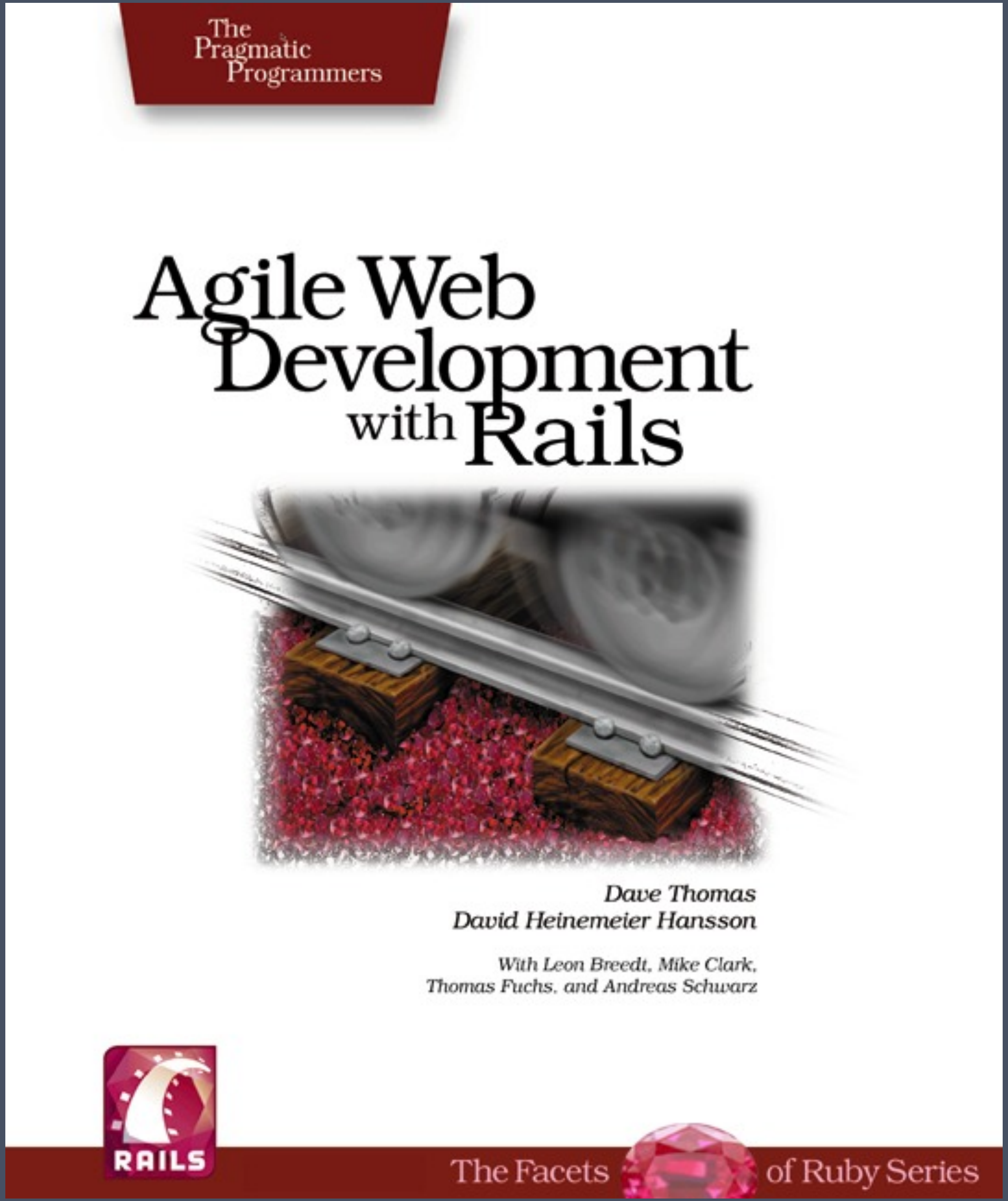
Bruce A. Tate & Justin Gehtland

- POJOS
- DEPENDENCY INJECTION
- ASPECT-ORIENTED PROGRAMMING

SPRING FRAMEWORK

- DEPENDENCY INJECTION CONTAINER
- ASPECT-ORIENTED PROGRAMMING
- NICER PERSISTENCE AND WEB LAYERS

- Smalltalk and Seaside
- Python
- Groovy
- Ruby on Rails


The Pragmatic Programmers

Agile Web Development with Rails

Dave Thomas
David Heinemeier Hansson

With Leon Breedt, Mike Clark, Thomas Fuchs, and Andreas Schwarz

RAILS

The Facets of Ruby Series

RUBY

```ruby
class Person
  attr_accessor :first_name, :last_name, :age

  def greeting
    "Hello #{first_name} #{last_name}"
  end
end

person = Person.new
person.first_name = "Andrew"
person.last_name = "McDonough"
puts person.greeting
```

ENUMERATION

```
people = [
  Person.new("Andrew", "Howell", 38),
  Person.new("Jennifer", "Scott", 37),
  Person.new("Helen", "Norton", 23),
  Person.new("Alice", "Holt",  43),
  Person.new("Jenny", "Whittaker", 27)
]

puts people
  .select {|p| p.first_name[0] == "A"}
  .map {|p| p.full_name}
  .join(", ")

---

Andrew Howell, Alice Holt
```

LAMBDAS

```
sort_function = lambda {|p| p.last_name}

sorted = people.sort_by(&sort_function)

puts "Sorted:"
puts sorted.map(&:to_s).join(", ")
```

CONVENTION OVER CONFIGURATION

```ruby
class Person < ActiveRecord::Base
end

person = Person.new
person.first_name = "Andrew"
person.last_name = "McDonough"
person.save
```

WHAT HAPPENED TO?

- OBJECT-ORIENTED DESIGN
- DEPENDENCY INJECTION
- PLAIN OLD WHATEVER OBJECTS
- LOOSE COUPLING OF CLASSES

10 YEARS OF REDISCOVERY

- DEPENDENCY INJECTION, ESP. FOR TESTING
- SOLID PRINCIPLES
- POROS - PLAIN OLD RUBY OBJECTS

CURRENT STATE

- BLOATED RAILS APPS
- BACKEND AS AN API
- WAS RAILS THE RIGHT TOOL?
- SPLITTING THEM INTO 'MICROSERVICES'
- MOVING TO GO, ELIXIR, NODE, CRYSTAL?

ARMAKUNI

BANK = JAVA

JAVA 8 - STREAMS

```
List<Person> people =
    Arrays.asList(
        new Person("Andrew", "Howell", 38),
        new Person("Jennifer", "Scott", 37),
        new Person("Helen", "Norton", 23),
        new Person("Alice", "Holt",  43),
        new Person("Lily", "Whittaker", 27));

String result =
    people
      .stream()
      .filter(p -> p.getFirstName().startsWith("A"))
      .map(p -> p.getFullName())
      .collect(Collectors.joining(", "));

System.out.println(result);
---
Andrew Howell, Alice Holt
```

JAVA 8 - LAMBDAS

```
Collections.sort(names, (a, b) -> b.compareTo(a));
```

LOMBOK

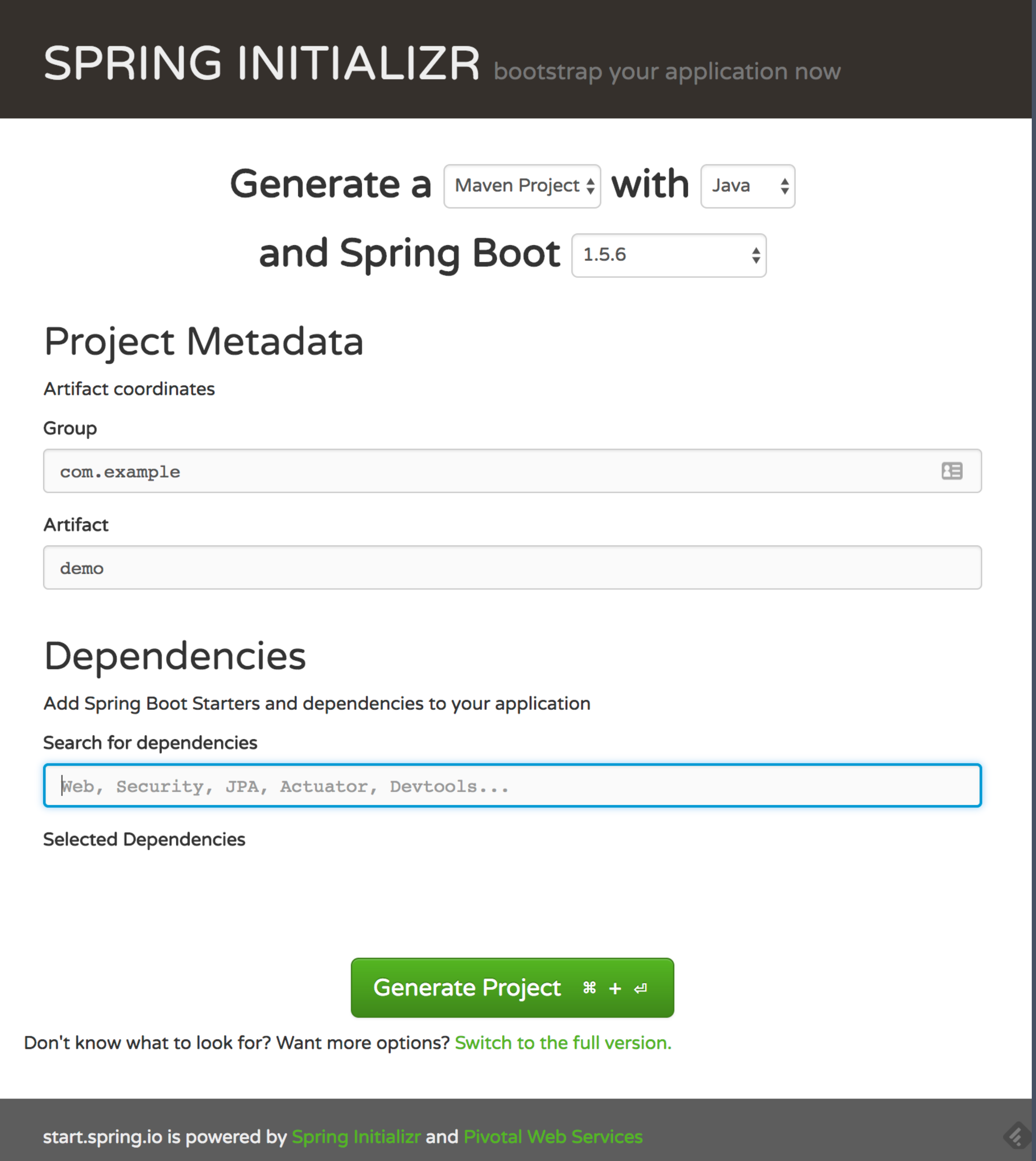
```
public class Person {
  @Getter @Setter private String firstName;
  @Getter @Setter private String lastName;
}
```

JAVA MICROSERVICES

- NETFLIX OSS
- CLOUD NATIVE
- RESILIENT
- SECURE
- HORIZONTAL SCALING

SPRING BOOT

- AN OPINIONATED SET OF DEPENDENCIES
- OMAKASE
- EMBEDS TOMCAT
- CREATE NEW SERVICES QUICKLY
- DEPLOY TO PRODUCTION FAST (ESP. WITH CLOUD FOUNDRY)


SPRING INITIALIZR bootstrap your application now

Generate a Maven Project with Java

and Spring Boot 1.5.6

Project Metadata

Artifact coordinates

Group

com.example

Artifact

demo

Dependencies

Add Spring Boot Starters and dependencies to your application

Search for dependencies

Web, Security, JPA, Actuator, Devtools...

Selected Dependencies

Generate Project ⌘ + ⏎

Don't know what to look for? Want more options? Switch to the full version.

start.spring.io is powered by Spring Initializr and Pivotal Web Services

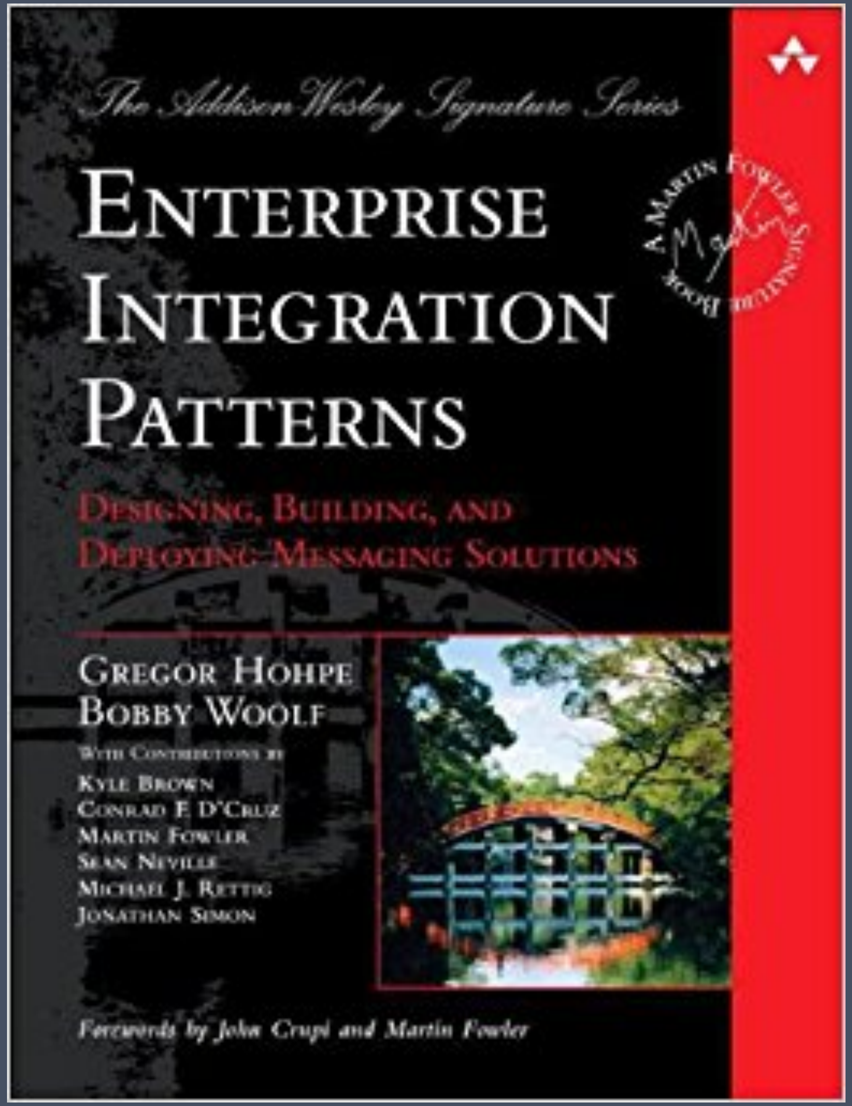
SPRING INITIALIZER

- EXTEMELY FAST TO GET STARTED
- SECURITY, OBSERVABILITY, CONSISTENCY
- HTTP://START.SPRING.IO

DEPENDENCIES

- REST AND HATEOAS
- SPRING ACTUATOR
- CONFIG SERVER
- CIRCUIT BREAKERS
- SERVICE DISCOVERY
- MICROPROXIES

SPRING INTEGRATION



The Addison Wesley Signature Series

ENTERPRISE INTEGRATION PATTERNS

DESIGNING, BUILDING, AND DEPLOYING MESSAGING SOLUTIONS

A MARTIN FOWLER SIGNATURE BOOK

GREGOR HOHPE
BOBBY WOOLF

WITH CONTRIBUTIONS BY
KYLE BROWN
CONRAD F. D'CRUZ
MARTIN FOWLER
SEAN NEVILLE
MICHAEL J. RETTIG
JONATHAN SIMON

Forewords by John Crupi and Martin Fowler

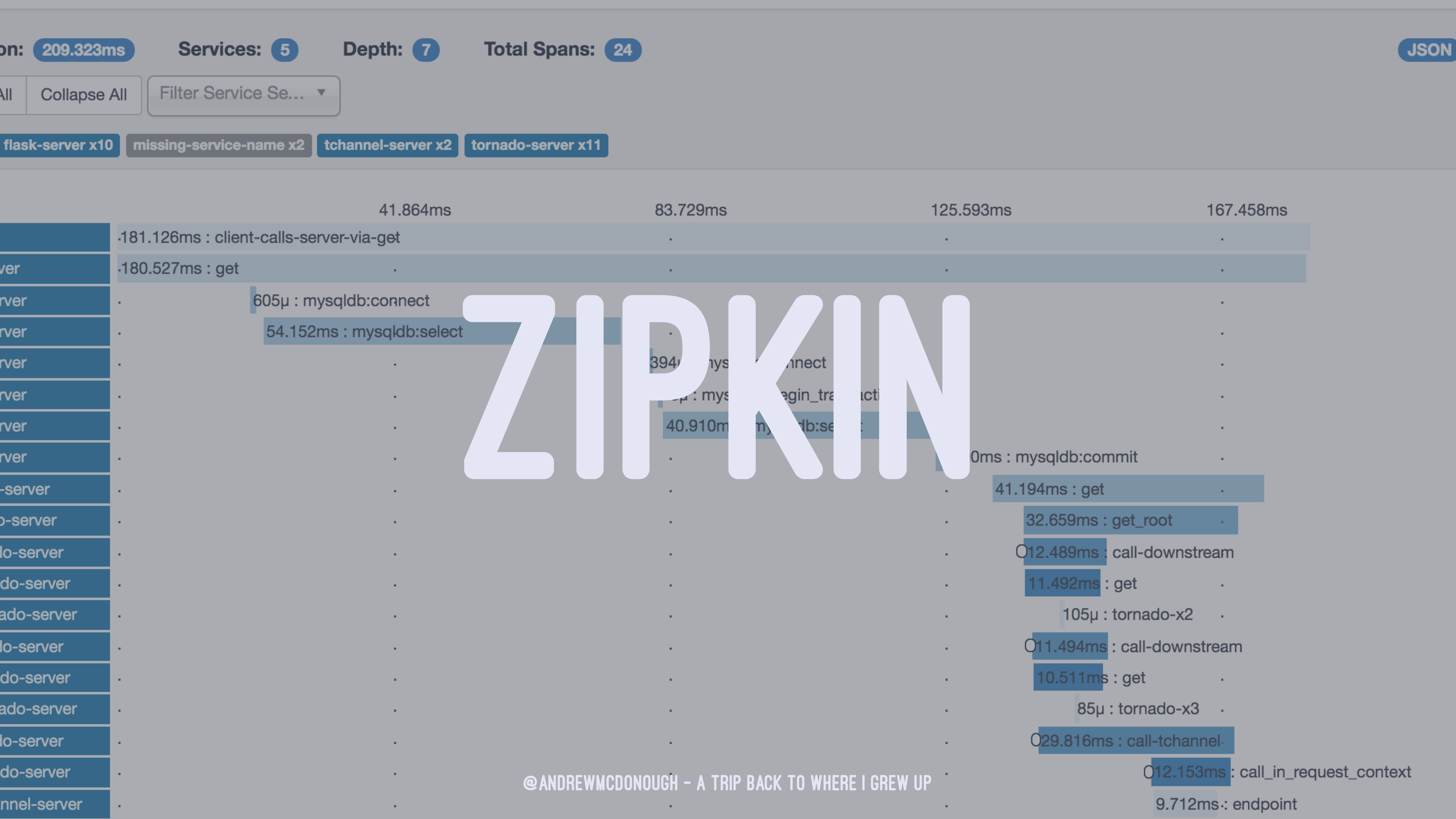
- IMPLEMENTATAIONS OF ENTERPRISE INTEGRATION PATTERNS
- MESSAGE BROKER INTERFACE - RABBITMQ, KAFKA, ETC

JAVA PERSISTENCE FRAMEWORK

```java
@Entity
public class Person {
    @Id
    @GeneratedValue(strategy=GenerationType.AUTO)
    private Long id;
    private String firstName;
    private String lastName;
    private int age;

    protected Person() {}

    Person(String firstName, String lastName, int age) {
        this.firstName = firstName;
        this.lastName = lastName;
        this.age = age;
    }

    public String getFullName() {
      return this.firstName + " " + this.lastName;
    }

    @Override
    public String toString() {
        return getFullName();
    }
}
```

HYSTRIX

- WHAT HAPPENS IF ONE OF YOUR SERVICES IS DOWN?
- CIRCUIT BREAKING
- DON'T CALL A SYSTEM THAT IS UNHEALTHY. FAIL IMMEDIATELY



ZIPKIN

```
on: 209.323ms    Services: 5    Depth: 7    Total Spans: 24                                   JSON

All | Collapse All | Filter Service Se... ▾

flask-server x10   missing-service-name x2   tchannel-server x2   tornado-server x11

                    41.864ms            83.729ms            125.593ms           167.458ms
            181.126ms : client-calls-server-via-get
ver         180.527ms : get
rver              605µ : mysqldb:connect
rver               54.152ms : mysqldb:select
rver                               394  mys    nnect
rver                                   µ : mys    egin_tra  acti
rver                                40.910m   my   db:se   :
rver                                                         0ms : mysqldb:commit
-server                                                        41.194ms : get
o-server                                                        32.659ms : get_root
lo-server                                                      O12.489ms : call-downstream
do-server                                                        11.492ms : get
ado-server                                                          105µ : tornado-x2
lo-server                                                        O11.494ms : call-downstream
do-server                                                         10.511ms : get
ado-server                                                           85µ : tornado-x3
lo-server                                                         O29.816ms : call-tchannel
do-server                                                              O12.153ms : call_in_request_context
nnel-server                                                             9.712ms : endpoint
```

WHY?

FURTHER WATCHING/READING

- JOSH LONG - CLOUD NATIVE JAVA
- HTTP://BIT.LY/CLOUDNATIVEJAVA

THANKS

- TWEET ME: @ANDREWMCDONOUGH
- EMAIL ME: ANDREW@ANDREWMCDONOUGH.COM
- RUN WITH ME: HTTP://BIT.LY/TECHRUNNERS