



VAADIN ON KOTLIN



@SVENRUPPERT

vaadin}>



SVEN RUPPERT
Developer Advocate @ Vaadin

CODING JAVA SINCE 1996

DISTRIBUTED SYSTEMS SINCE 2002

CONSULTING WORLD WIDE

JOINED VAADIN 2017

KOTLIN USERGROUP MUNICH -> 500 MEMBERS

Private Sector: Automotive / Aerospace / SMB /

Public Sector: Military / Government

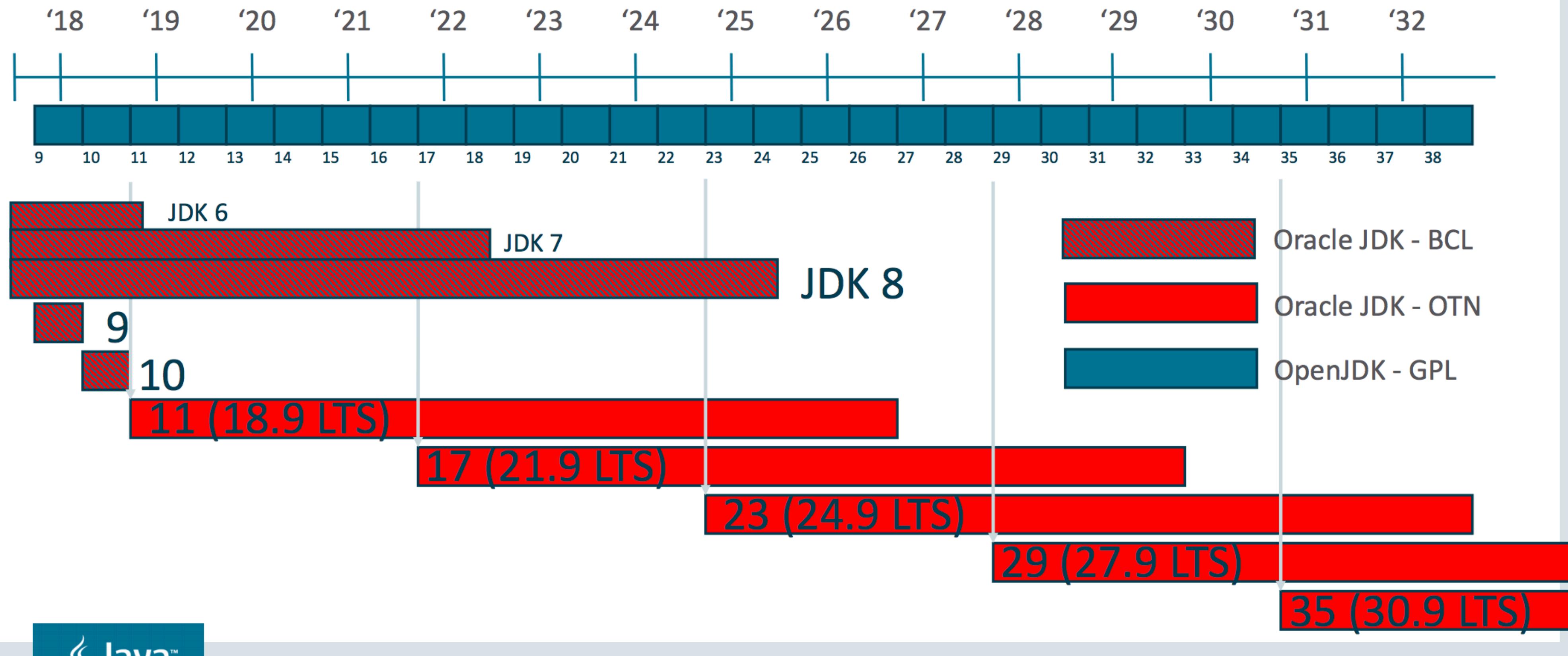
NonProfit / NonGov: World Bank / UN / YPARD / CGIAR

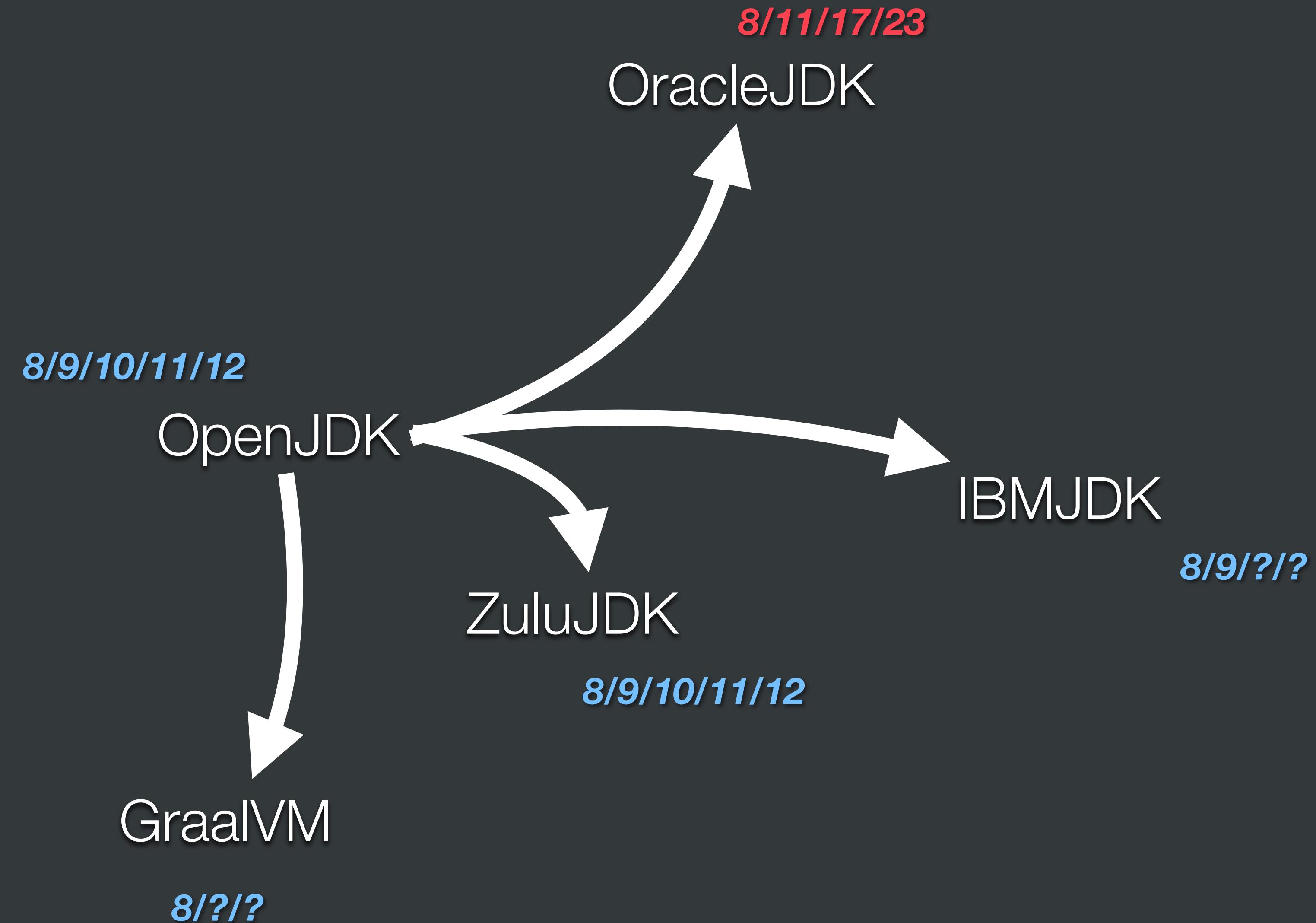


JDK RELEASE TRAIN

CHALLENGES FROM ORACLE

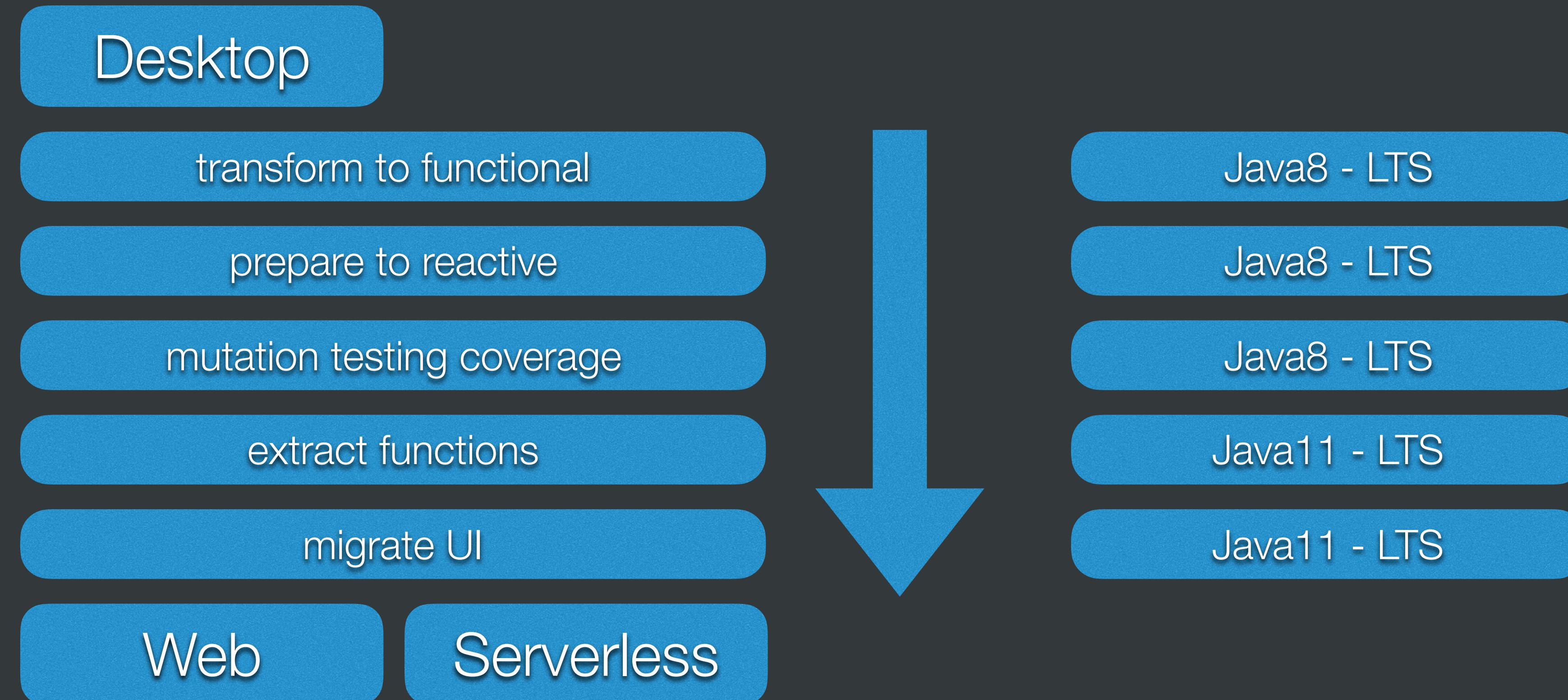
New JDK Release model





The way to go

@SvenRuppert



VAADIN NANO APP

SORRY IN JAVA ;-)

Vaadin Nano App

@SvenRuppert

VAADIN NANO APP
NOW IN KOTLIN

VAADIN MICRO APP

SORRY IN JAVA ;-)

VAADIN MICRO APP

NOW IN KOTLIN

KARIBUDSL

NOW IN KOTLIN

vaadin-on-kotlin

Writing full-stack
statically-typed web
apps on JVM can't get
any simpler

 View On GitHub

This project is
maintained by [mvsny](#).

Vaadin-on-Kotlin

Vaadin-on-Kotlin (or VoK for short) is a web-application framework that includes everything necessary to create database-backed web applications in server-side Kotlin:

```
button("Create") {  
    onLeftClick { db { person.save() } }  
}
```

No JavaEE nor Spring needed; all complex features are deliberately left out, which makes Vaadin-on-Kotlin a perfect starting point for beginner programmers.

With VoK you only write server-side Kotlin code - no JavaScript and no CSS is necessary until much later on, when you decide to style up your application and/or write your own custom rich component.

Index

Getting Started

Guides

Vaadin Nano App

@SvenRuppert

```
class KaribuUI : UI() {
    @Override
    override fun init(vaadinRequest: VaadinRequest?) {
        lateinit var layout: VerticalLayout
        layout = verticalLayout { this: VerticalLayout
            val name = textField { this: TextField
                caption = "Type your name here:"
            }
            button( caption: "Click Me" ) { this: Button
                onLeftClick { it: Button.ClickEvent
                    println("Thanks ${name.value}, it works!")
                    layout.label( content: "Thanks ${name.value}, it works!" )
                }
            }
        }
    }
}
```

TESTING THE WEB-APPS AND THE TOOLING

MUTATION - TESTING

ADD ON TO JUNIT

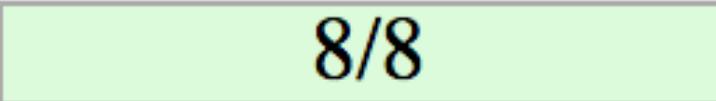
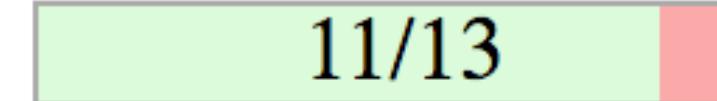
```
public class MainJava {  
  
    public int add(int a, int b) {  
        if (a < 2) {  
            return a + b * -1;  
        } else {  
            return a + b;  
        }  
    }  
}
```

```
class MainKotlin {  
  
    fun add(a: Int, b: Int): Int {  
        return if (a < 2) {  
            a + b * -1  
        } else {  
            a + b  
        }  
    }  
}
```

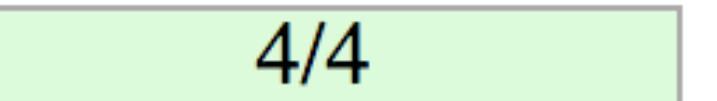
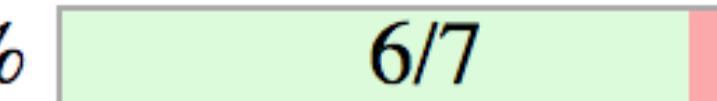
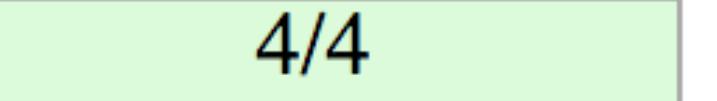
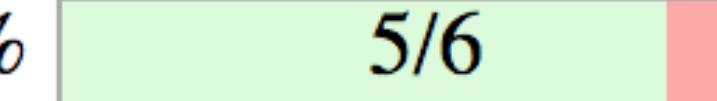
Pit Test Coverage Report

Package Summary

org.rapidpm.kotlin

Number of Classes	Line Coverage	Mutation Coverage
2	100%  8/8	85%  11/13

Breakdown by Class

Name	Line Coverage	Mutation Coverage
MainJava.java	100%  4/4	86%  6/7
MainKotlin.kt	100%  4/4	83%  5/6

Report generated by [PIT](#) 1.4.0

Mutation Testing - Java v Kotlin

@SvenRuppert

```
public class MainJava {  
  
    public int add(int a, int b) {  
        if (a < 2) {  
            return a + b * -1;  
        } else {  
            return a + b;  
        }  
    }  
  
    class MainKotlin {  
        fun add(a: Int, b: Int): Int {  
            return if (a < 2) {  
                a + b * -1  
            } else {  
                a + b  
            }  
        }  
    }  
}
```

MainJava.java

```
1 package org.rapidpm.kotlin;  
2  
3 public class MainJava {  
4  
5     public int add(int a, int b) {  
6         2 if (a < 2) {  
7             3 return a + b * -1;  
8         } else {  
9             2 return a + b;  
10        }  
11    }  
12 }
```

Mutations

- 6**
 - 1. changed conditional boundary → KILLED
 - 2. negated conditional → KILLED
- 7**
 - 1. Replaced integer multiplication with division → SURVIVED
 - 2. Replaced integer addition with subtraction → KILLED
 - 3. replaced return of integer sized value with `(x == 0 ? 1 : 0)` → KILLED
- 9**
 - 1. Replaced integer addition with subtraction → KILLED
 - 2. replaced return of integer sized value with `(x == 0 ? 1 : 0)` → KILLED

Mutation Testing - Java v Kotlin

@SvenRuppert

```
public class MainJava {  
  
    public int add(int a, int b) {  
        if (a < 2) {  
            return a + b * -1;  
        } else {  
            return a + b;  
        }  
    }  
  
    class MainKotlin {  
        fun add(a: Int, b: Int): Int {  
            return if (a < 2) {  
                a + b * -1  
            } else {  
                a + b  
            }  
        }  
    }  
}
```

MainKotlin.kt

```
1 package org.rapidpm.kotlin  
2  
3 class MainKotlin {  
4     fun add(a: Int, b: Int): Int {  
5         3 return if (a < 2) {  
6             2 a + b * -1  
7         } else {  
8             1 a + b  
9         }  
10    }  
11 }
```

Mutations

- 1. changed conditional boundary → KILLED
- 5 2. negated conditional → KILLED
- 3. replaced return of integer sized value with `(x == 0 ? 1 : 0)` → KILLED
- 6 1. Replaced integer multiplication with division → SURVIVED
- 6 2. Replaced integer addition with subtraction → KILLED
- 8 1. Replaced integer addition with subtraction → KILLED

DEVELOPMENT ENVIRONMENT

VAADIN-DEVELOPER_

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Requirements

fast ramp-up for a small project

available locally and in the cloud

as less as possible config

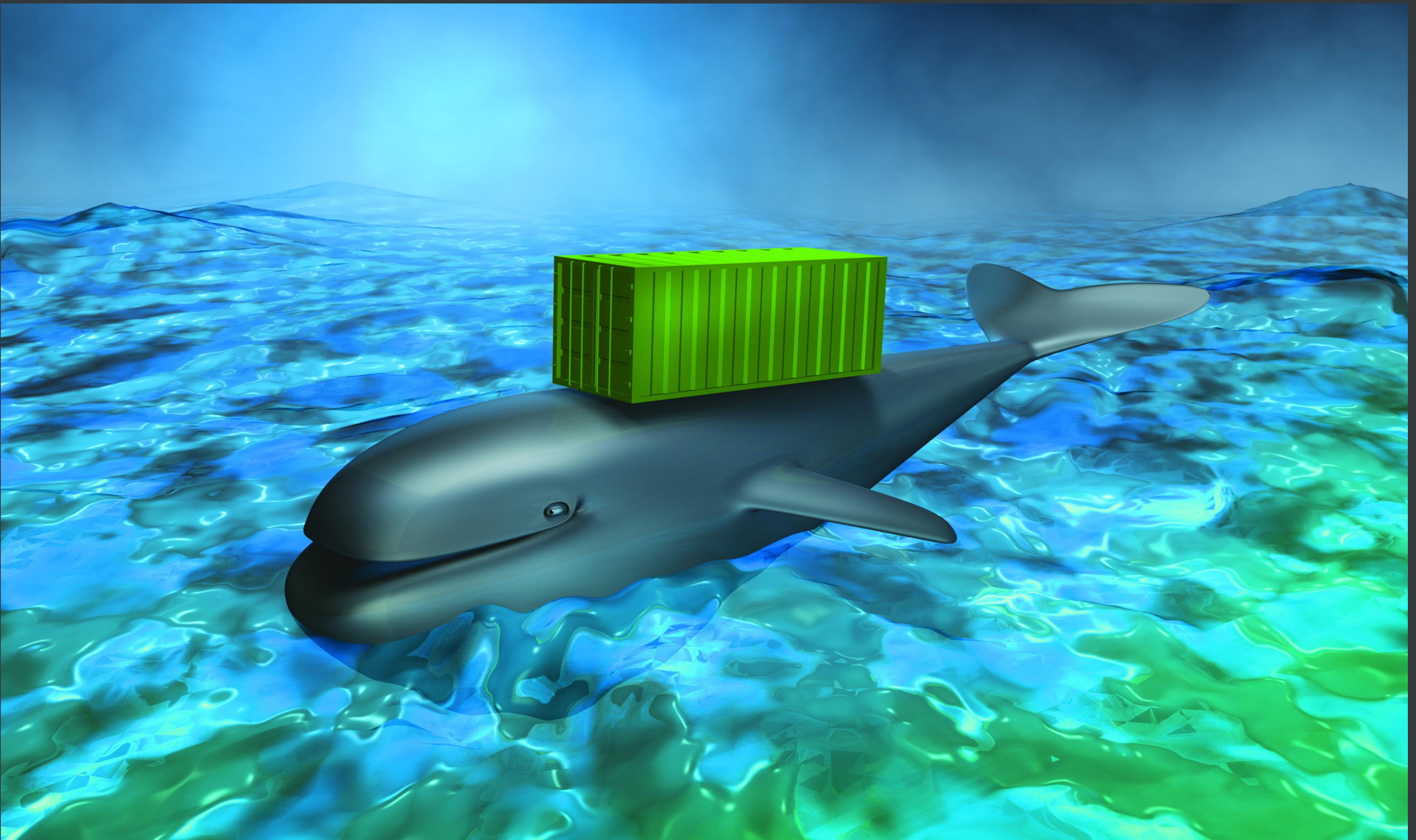
industrial core technologies

as less as possible maintenance

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Docker

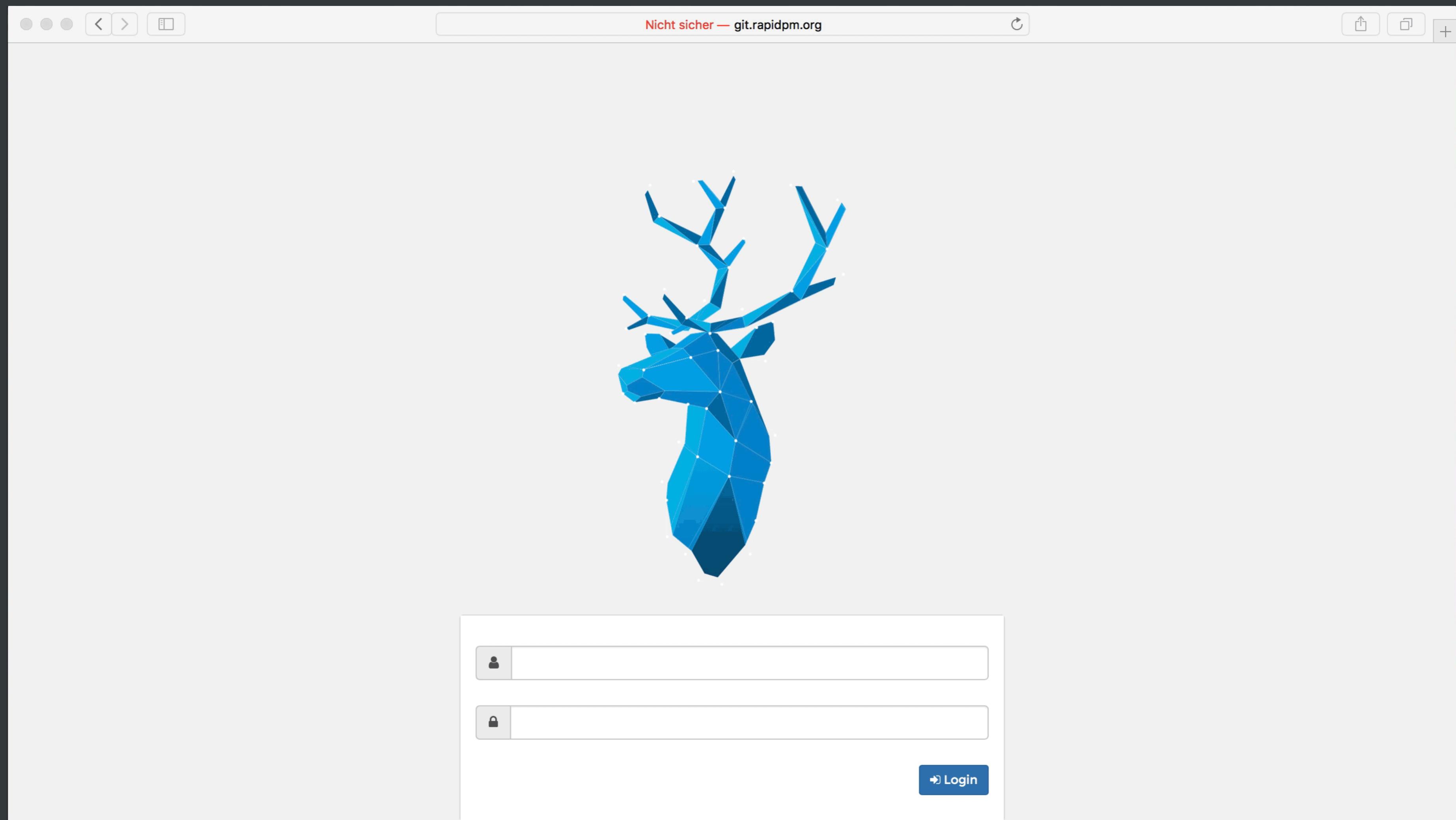


vaadin}>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Portainer



<https://portainer.io/>

vaadin}>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Portainer

```
portainer:  
  container_name: portainer  
  hostname: portainer  
  image: portainer/portainer:latest  
  ports:  
    - 9090:9000  
  restart: always  
  volumes:  
    - $PWD/portainer/data:/data  
    - /var/run/docker.sock:/var/run/docker.sock
```

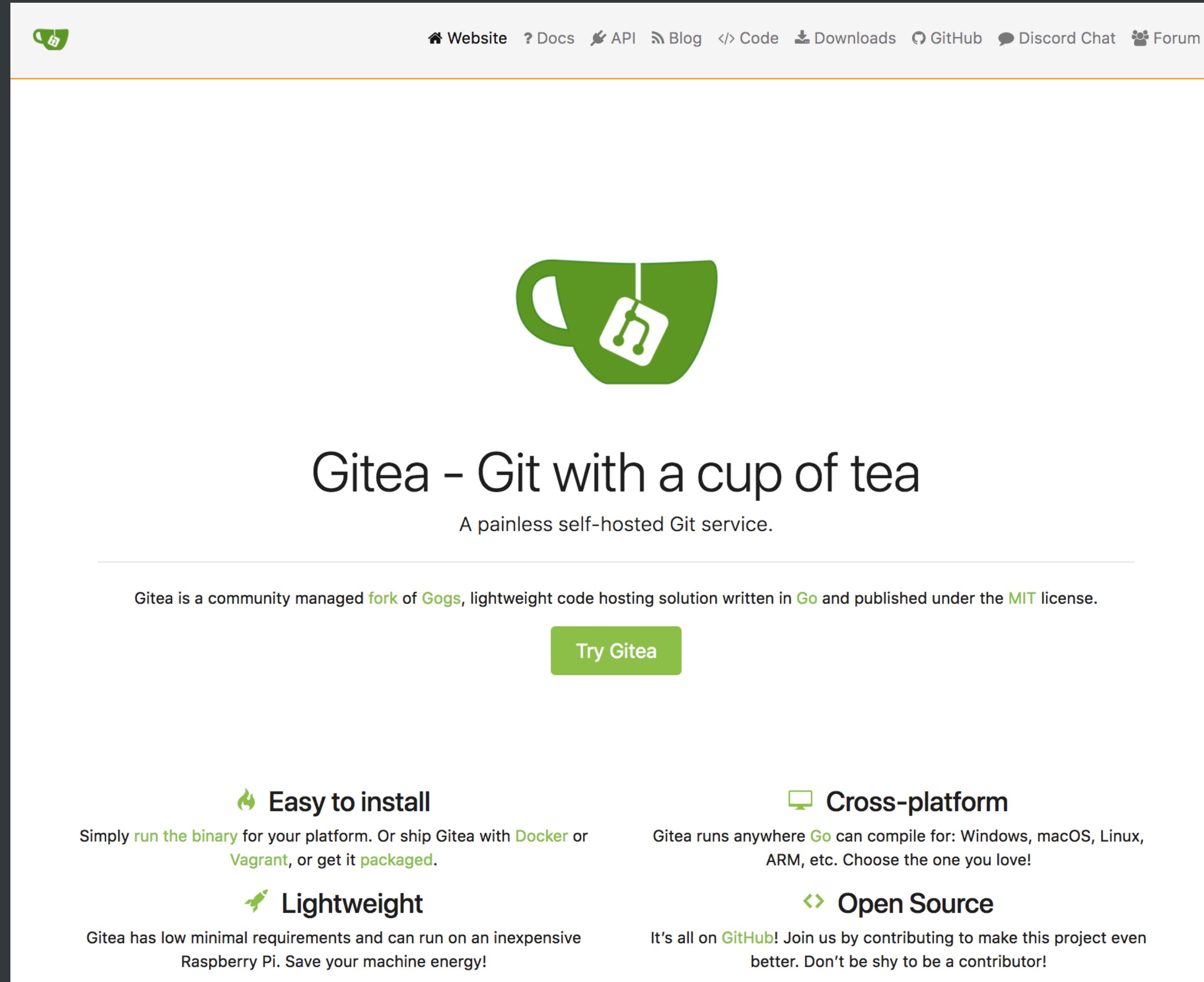
<https://portainer.io/>

vaadin}>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Gitea



The screenshot shows the official Gitea website. At the top, there's a navigation bar with links to 'Website', 'Docs', 'API', 'Blog', 'Code', 'Downloads', 'GitHub', 'Discord Chat', and 'Forum'. Below the navigation is a large green icon of a teacup with a tea bag. The main heading reads 'Gitea - Git with a cup of tea' followed by the subtitle 'A painless self-hosted Git service.' A green button labeled 'Try Gitea' is visible. The page also features several sections with icons and descriptions: 'Easy to install' (with Docker, Vagrant, and packaging options), 'Cross-platform' (running on Windows, macOS, Linux, ARM, etc.), 'Lightweight' (running on Raspberry Pi), and 'Open Source' (on GitHub). A note at the bottom encourages contributing to the project.

<https://gitea.io/>

vaadin}>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Gitea

```
git-server:  
  container_name: git-server  
  hostname: git-server  
  image: gitea/gitea:${GIT_VERSION}  
  privileged: true  
  ports:  
    - 1022:1022  
    - 3300:3300 #stagemonitor is using the port 3000 as well  
    - 3000:3000 #stagemonitor is using the port 3000 as well  
  volumes:  
    - $PWD/gitea/data:/data  
    - $PWD/gitea/app.ini:/data/gitea/conf/app.ini  
  restart: always
```

<https://gitea.io/>

vaadin}>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Drone-CI



Pricing

Enterprise

Faq

Documentation

Login →

Continuous Delivery From Push to Production.

Drone is an open source Continuous Delivery platform that automates your testing and release workflows.

CREATE ACCOUNT

LOGIN

<https://drone.io/>

vaadin}]>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Drone-CI

```
drone-server:  
  container_name: drone-server  
  hostname: drone-server  
  image: drone/drone:${DRONE_VERSION}  
  privileged: true  
  ports:  
    - 8000:8000  
    - 9000:9000  
  volumes:  
    - ./droneio/drone:/var/lib/drone/  
  restart: always  
  depends_on:  
    - git-server  
environment:  
  - DRONE_DEBUG=true  
  - DRONE_HOST=http://${DRONE_DOCKER_EXTERNAL_IP}:8000  
  - DRONE_OPEN=true  
  - DRONE_SECRET=ok  
  - DRONE_PLUGIN_PULL=true  
  - DRONE_GOGS=true  
  - DRONE_GOGS_URL=http://${GIT_DOCKER_EXTERNAL_IP}:3300  
  - DRONE_GOGS_PRIVATE_MODE=true  
  - DRONE_GOGS_SKIP_VERIFY=false
```

<https://drone.io/>

vaadin}>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Drone-Cl

```
drone-agent-01:  
  container_name: drone-agent-01  
  hostname: drone-agent-01  
  image: drone/agent:${DRONE_VERSION}  
  privileged: true  
  command: agent  
  restart: always  
  depends_on:  
    - drone-server  
  volumes:  
    - /var/run/docker.sock:/var/run/docker.sock  
  environment:  
    - DRONE_SERVER=${DRONE_DOCKER_EXTERNAL_IP}:9000  
    - DRONE_SECRET=ok
```

<https://drone.io/>

vaadin}>

POSSIBLE SOLUTION

VAADIN-DEVELOPER

Nexus

```
nexus-server:  
  container_name: nexus-server  
  hostname: nexus-server  
  image: sonatype/nexus3:${NEXUS_VERSION}  
  network_mode: bridge  
  ports:  
    - 8081:8081  
    - 8082:8082  
    - 8083:8083  
  volumes:  
    - $PWD/nexus/data:/nexus-data  
  restart: always
```

<https://www.sonatype.com/nexus-repository-sonatype>

vaadin}>

POSSIBLE SOLUTION

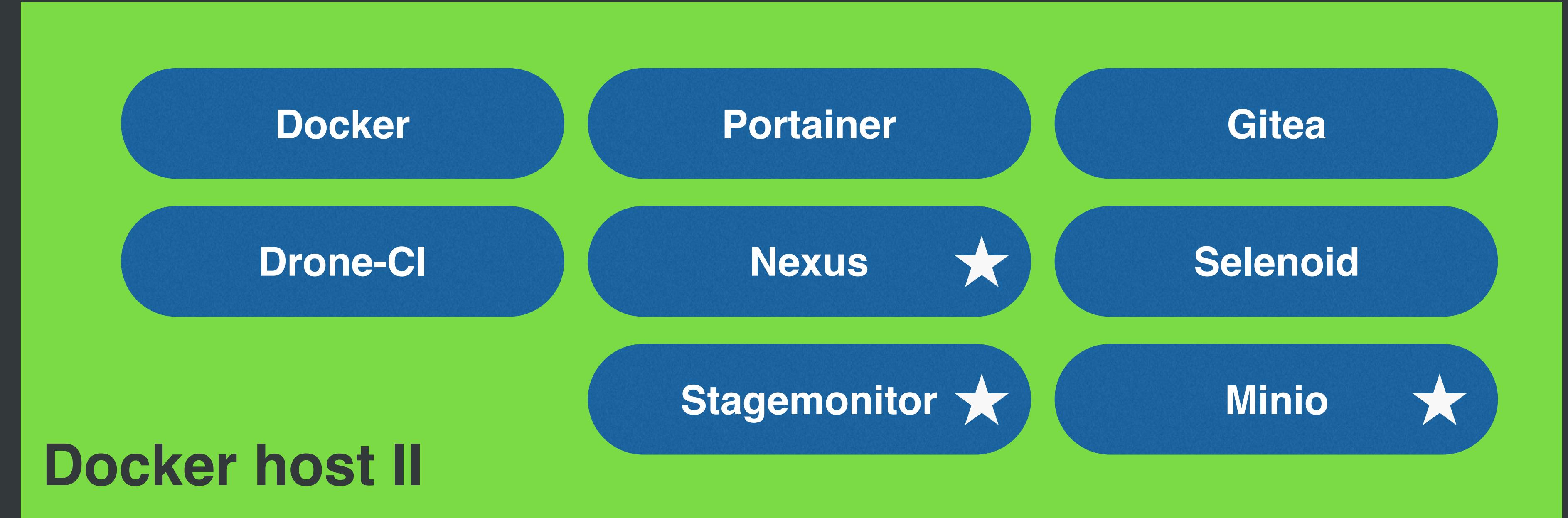
VAADIN-DEVELOPER

Selenoid

```
selenoid-server:  
  container_name: selenoid-server  
  hostname: selenoid-server  
  image: aerokube/selenoid:${SELENOID_VER}  
  privileged: true  
  network_mode: bridge  
  ports:  
    - 4444:4444  
  restart: always  
  volumes:  
    - $PWD/selenoid/browsers.json:/etc/selenoid/browsers.json  
    - $PWD/selenoid/video:/opt/selenoid/video/  
    - /var/run/docker.sock:/var/run/docker.sock  
  command: [--conf,          "/etc/selenoid/browsers.json",  
           --video-output-dir, "/opt/selenoid/video",  
           --limit ,           "10" ,  
           --mem,              "128m"]
```

POSSIBLE SOLUTION

VAADIN-DEVELOPER



Docker host I

Docker-Registry

* maybe separate host as well

vaadin}>

TESTBENCH JUMPSTART

SHOW THE CODE

URL'S TO KNOW

VAADIN-DEVELOPER_

URL'S TO KNOW

VAADIN-DEVELOPER

<https://github.com/vaadin-developer>

The screenshot shows the GitHub organization page for 'Vaadin Developer'. The page features a dark header with the GitHub logo, navigation links for 'This organization' and 'Search', and tabs for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. The main content area displays the organization's logo, a blue geometric deer head, and the name 'Vaadin Developer' in large text. Below the name is a subtitle: 'Jumpstarts and HowTos for Vaadin based projects'. A navigation bar at the bottom includes links for 'Repositories 11', 'People 2', 'Teams 1', 'Projects 1', and 'Settings'. There are also search and filter options: 'Search repositories...', 'Type: All ▾', and 'Language: All ▾'. The overall theme is dark with light-colored text and icons.

vaadin}]>

URL'S TO KNOW

VAADIN-DEVELOPER

<https://github.com/vaadin-developer/vaadin-dev-environment>

The screenshot shows the GitHub repository page for 'vaadin-developer / vaadin-dev-environment'. The page has a dark theme. At the top, there's a navigation bar with links for 'This repository', 'Search', 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below the navigation bar, the repository name 'vaadin-developer / vaadin-dev-environment' is displayed, along with 'View Repository' and 'Unwatch' buttons. A tab bar below the repository name includes 'Code' (which is selected), 'Issues 1', 'Pull requests 0', 'Projects 0', 'Wiki', 'Insights', and 'Settings'. The main content area contains a brief description: 'A solution for a Vaadin developer environment, based on Docker, Gitea, Drone.io, Selenoid,...'. At the bottom, there are topic tags: 'selenoid', 'docker', 'docker-compose', 'drone-ci', 'nexus', 'sven', 'ruppert', and 'Manage topics'. The GitHub logo 'vaadin}>' is located in the bottom right corner.

vaadin}>

URL'S TO KNOW

VAADIN-DEVELOPER

<https://github.com/vaadin-developer/vaadin-addons>

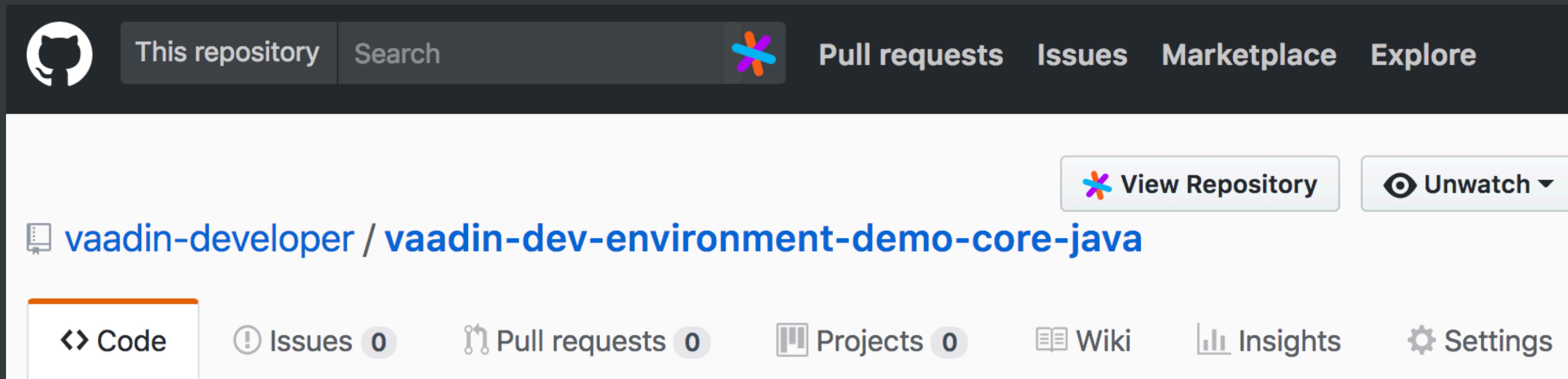
The screenshot shows the GitHub repository page for 'vaadin-developer / vaadin-addons'. The repository name is displayed prominently at the top left. On the right side of the header, there are buttons for 'View Repository' and 'Unwatch'. Below the header, there are several navigation links: 'Code' (which is highlighted with an orange border), 'Issues 0', 'Pull requests 0', 'Projects 0', 'Wiki', 'Insights', and 'Settings'. A descriptive text 'A bunch of Vaadin Add Ons..' is visible at the bottom of the page.

vaadin}]>

URL'S TO KNOW

VAADIN-DEVELOPER

<https://github.com/vaadin-developer/vaadin-dev-environment-demo-core-java>



[/vaadin-dev-environment-demo-vaadin-selenium](#)

[/vaadin-dev-environment-demo-vaadin-testbench](#) (not final now)

vaadin}>

FIGHT FOR FSSI MPLICITY

vaadin}>

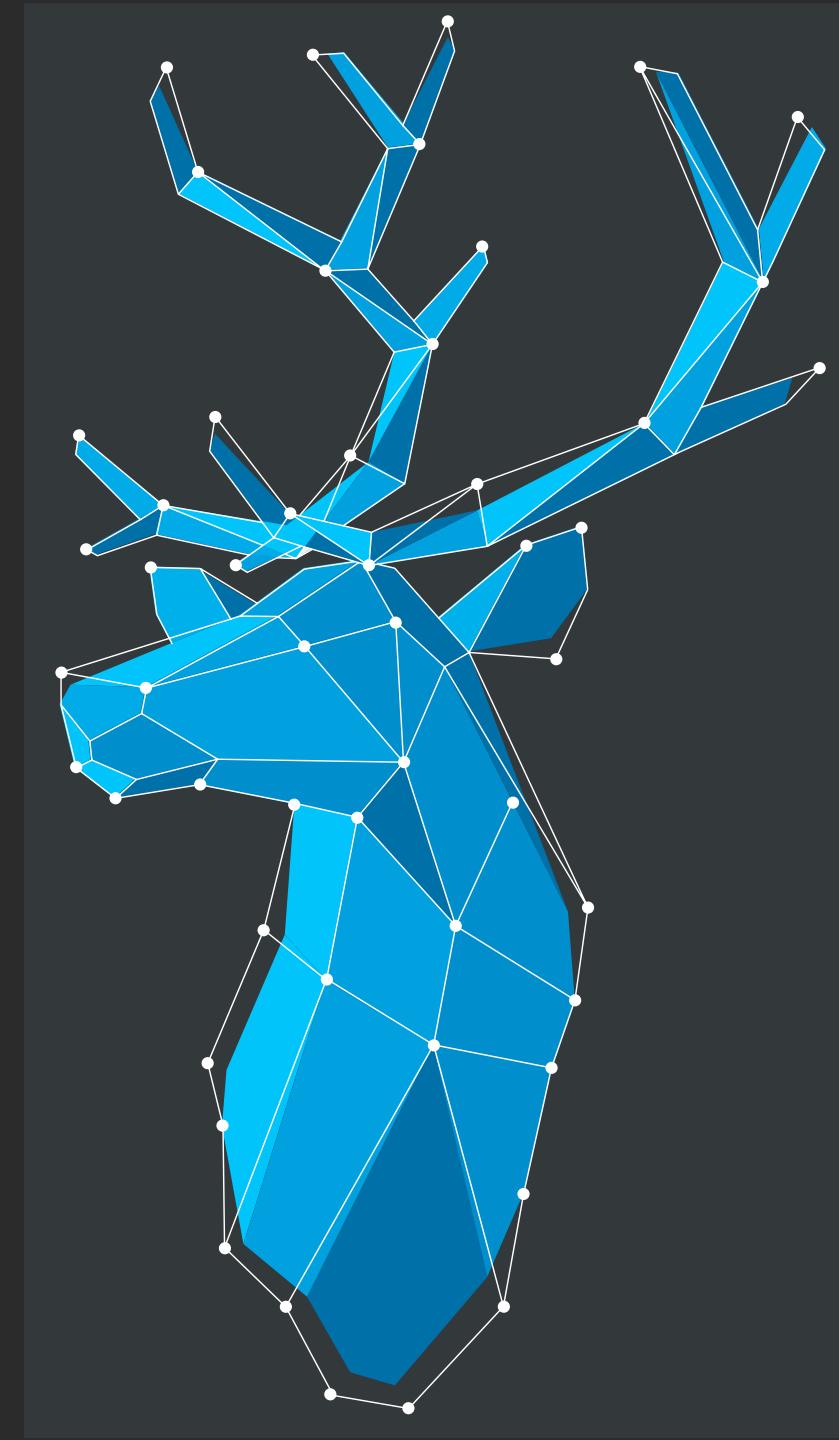


THANK YOU



@SVENRUPPERT

vaadin}>



T-SHIRT!

[PAGES.VAADIN.COM/GET-TSHIRT](https://pages.vaadin.com/get-tshirt)

vaadin}>