ILP / 5

Michael Glienecke, PhD

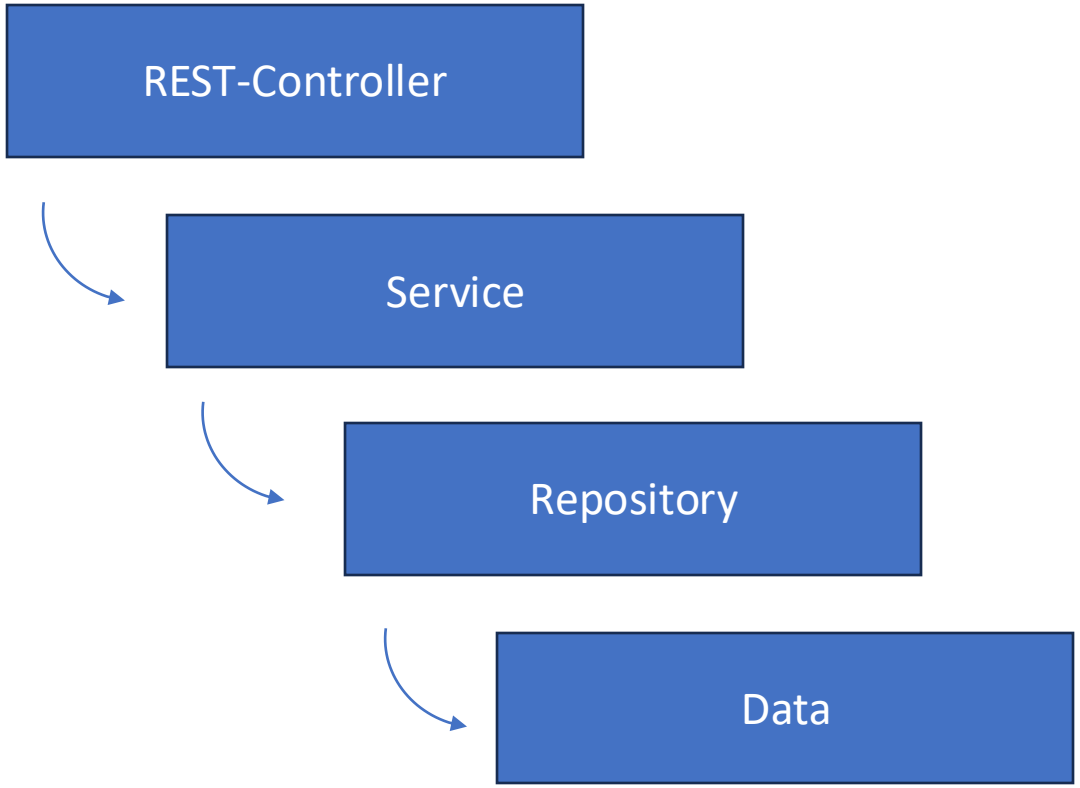
Submission CW1

- Submission deadline is next Monday…

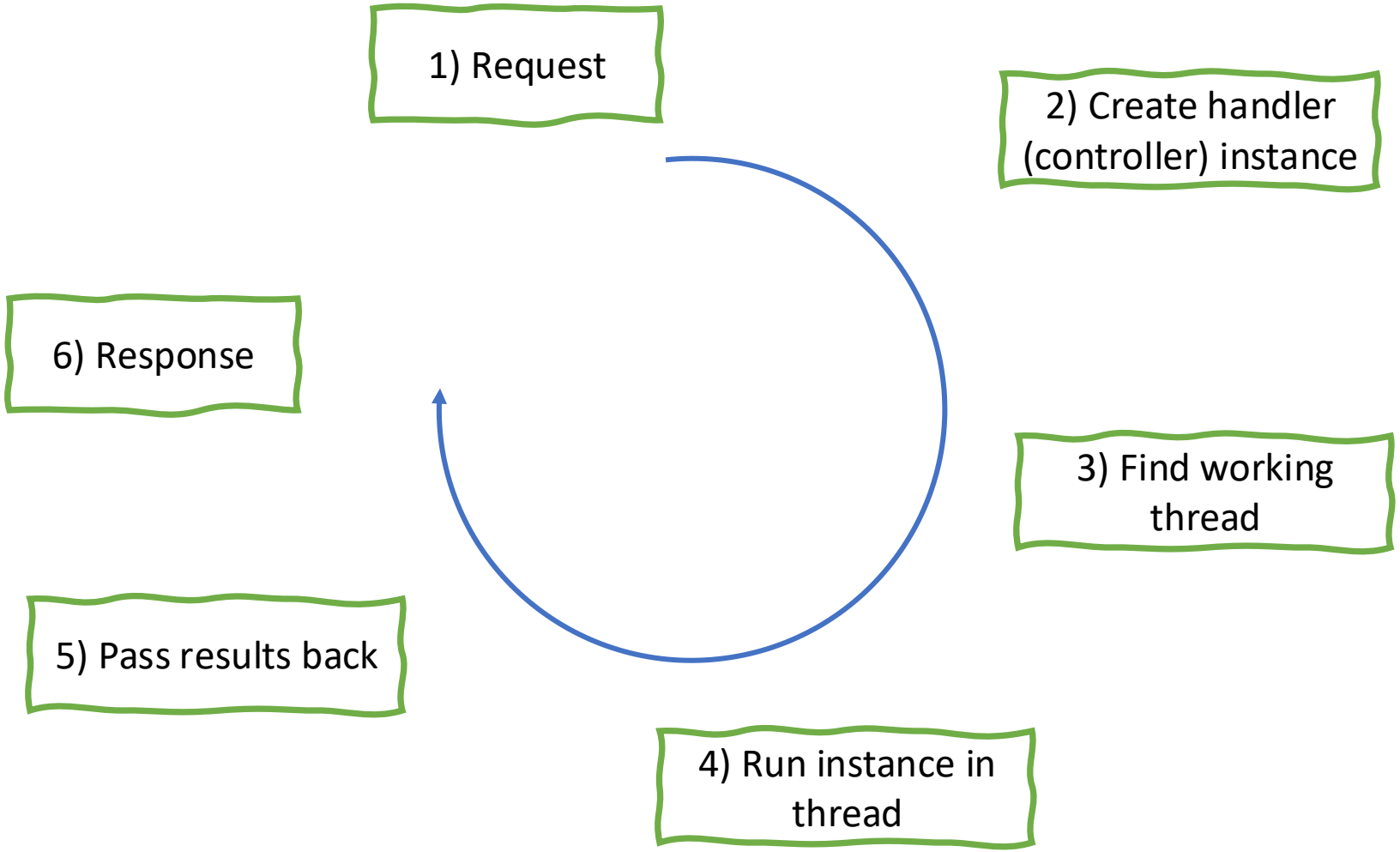
- What is being asked for?
- What has to be submitted?
- Which format?
- What about DTOs, services, repositories, config, etc.
- What about JSON / data validation / formats
- What about http-status codes... (200, 400 and the rest)

Internal structure Spring Boot Web-Service

- Application
- REST-Controller
- Services
- Repositories

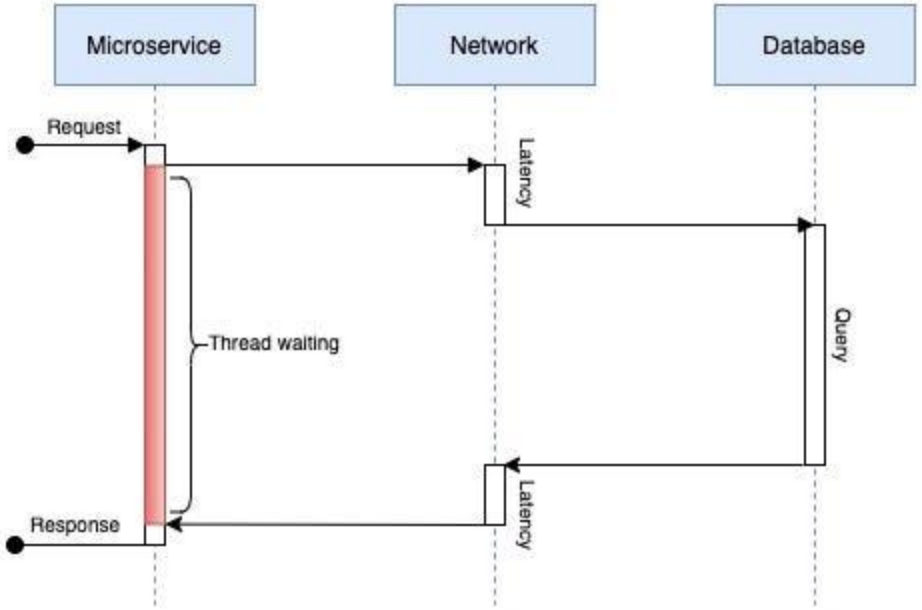


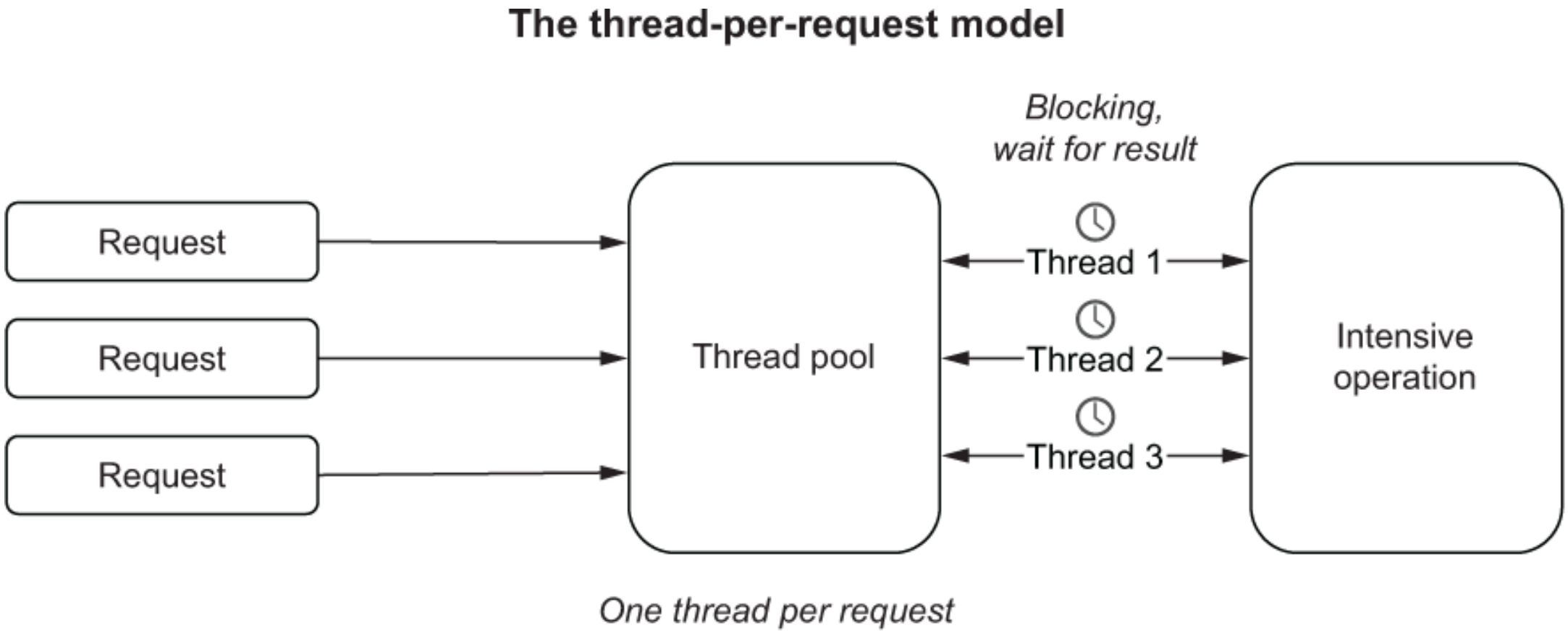
The flow of a microservice



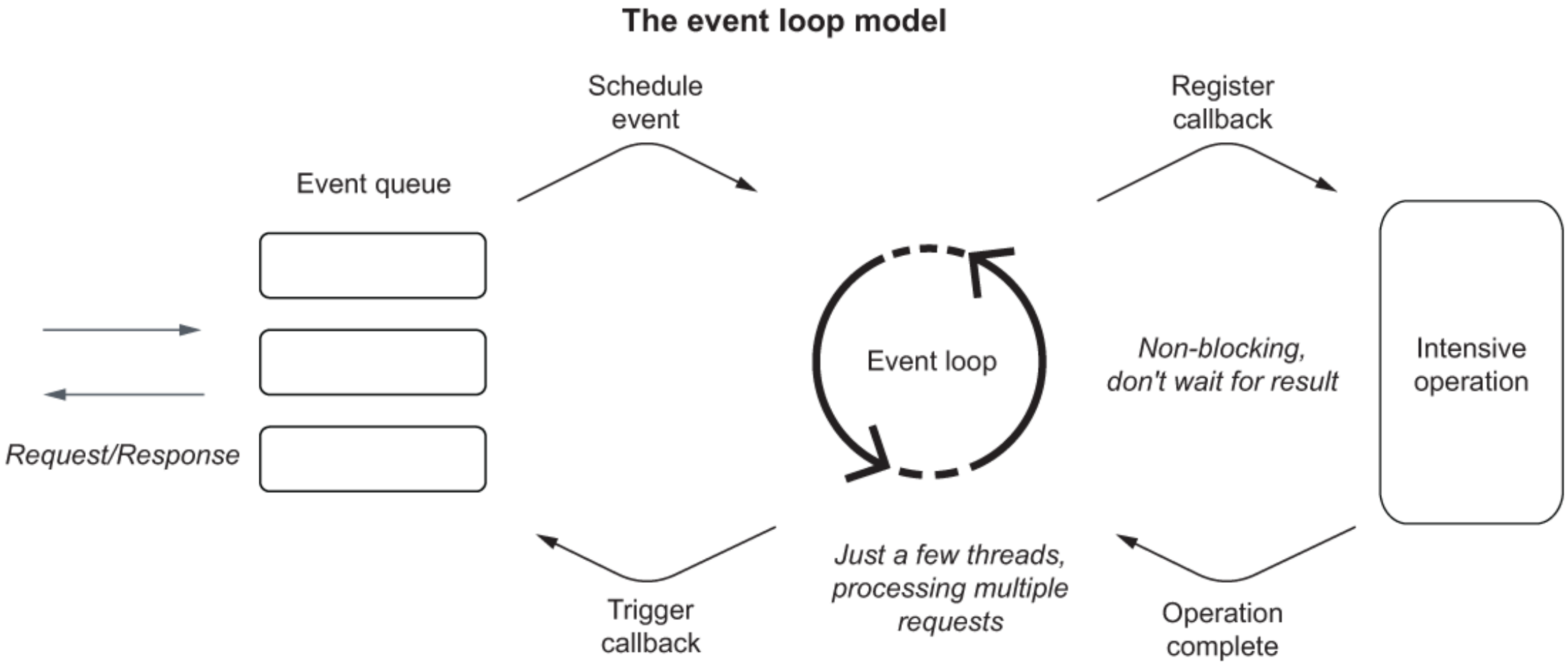
Microservices structure

- Spring Boot uses Tomcat
  - Some limitations (https://oskar-uit-de-bos.medium.com/the-performance-challenge-in-java-microservices-e51cce3977e9)
- Blocking threads and consuming resources





https://livebook.manning.com/book/cloud-native-spring-in-action/chapter-8#22



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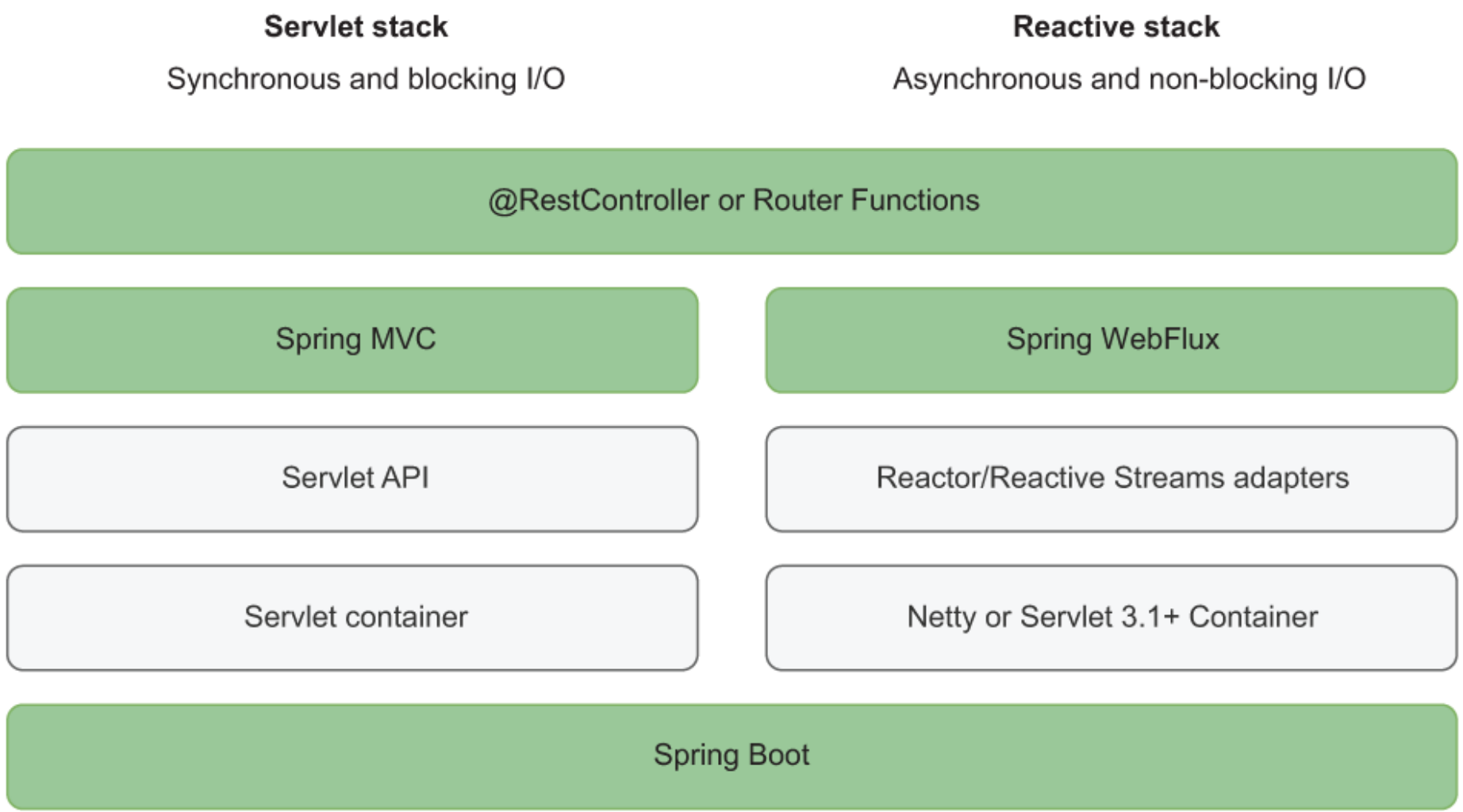
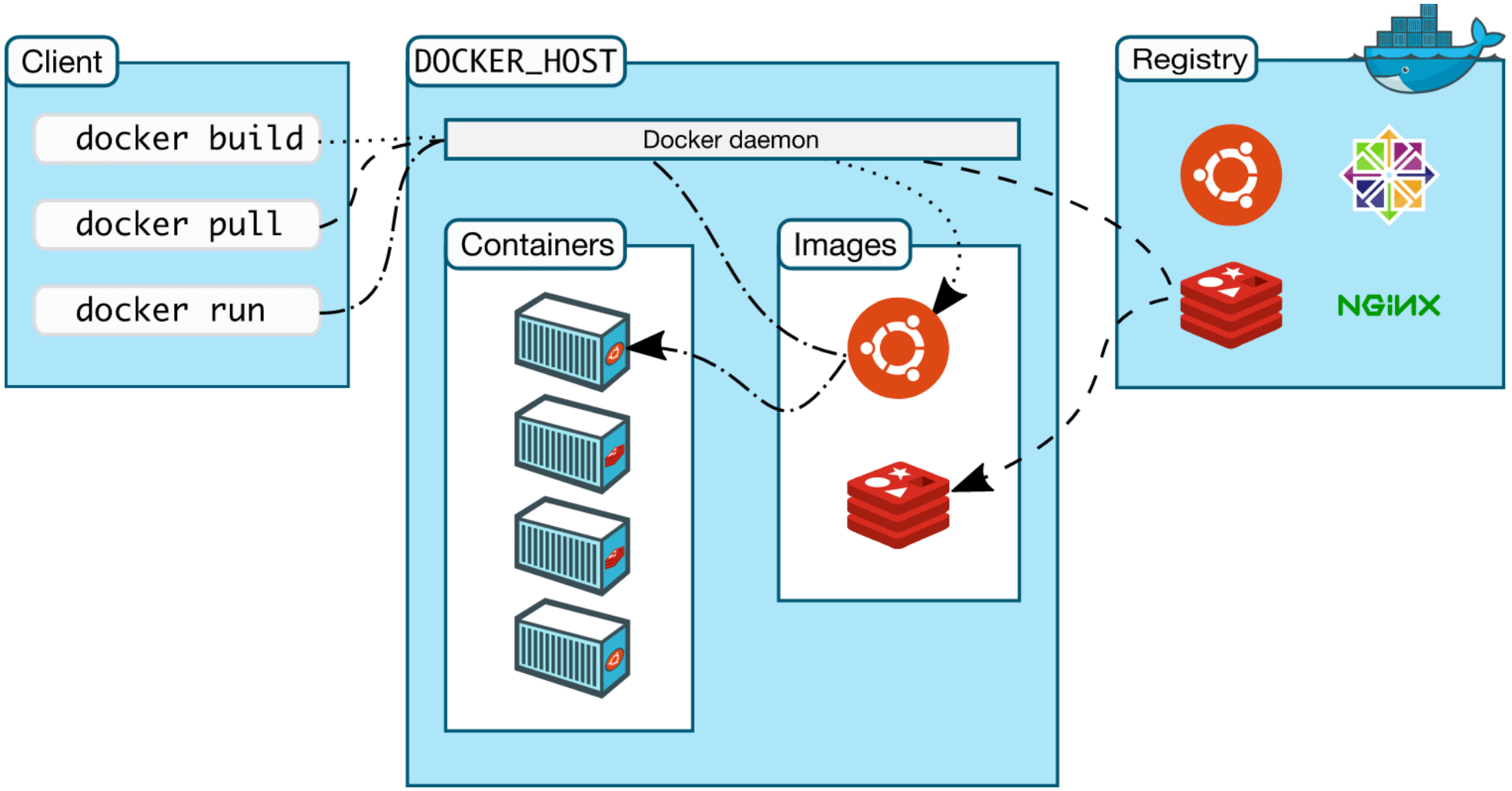

Servlet stack
Synchronous and blocking I/O
Reactive stack
Asynchronous and non-blocking I/O
@RestController or Router Functions
Spring MVC
Spring WebFlux
Servlet API
Reactor/Reactive Streams adapters
Servlet container
Netty or Servlet 3.1+ Container
Spring Boot

Services in other programming languages

- Java "nature"
- Go
- Rust

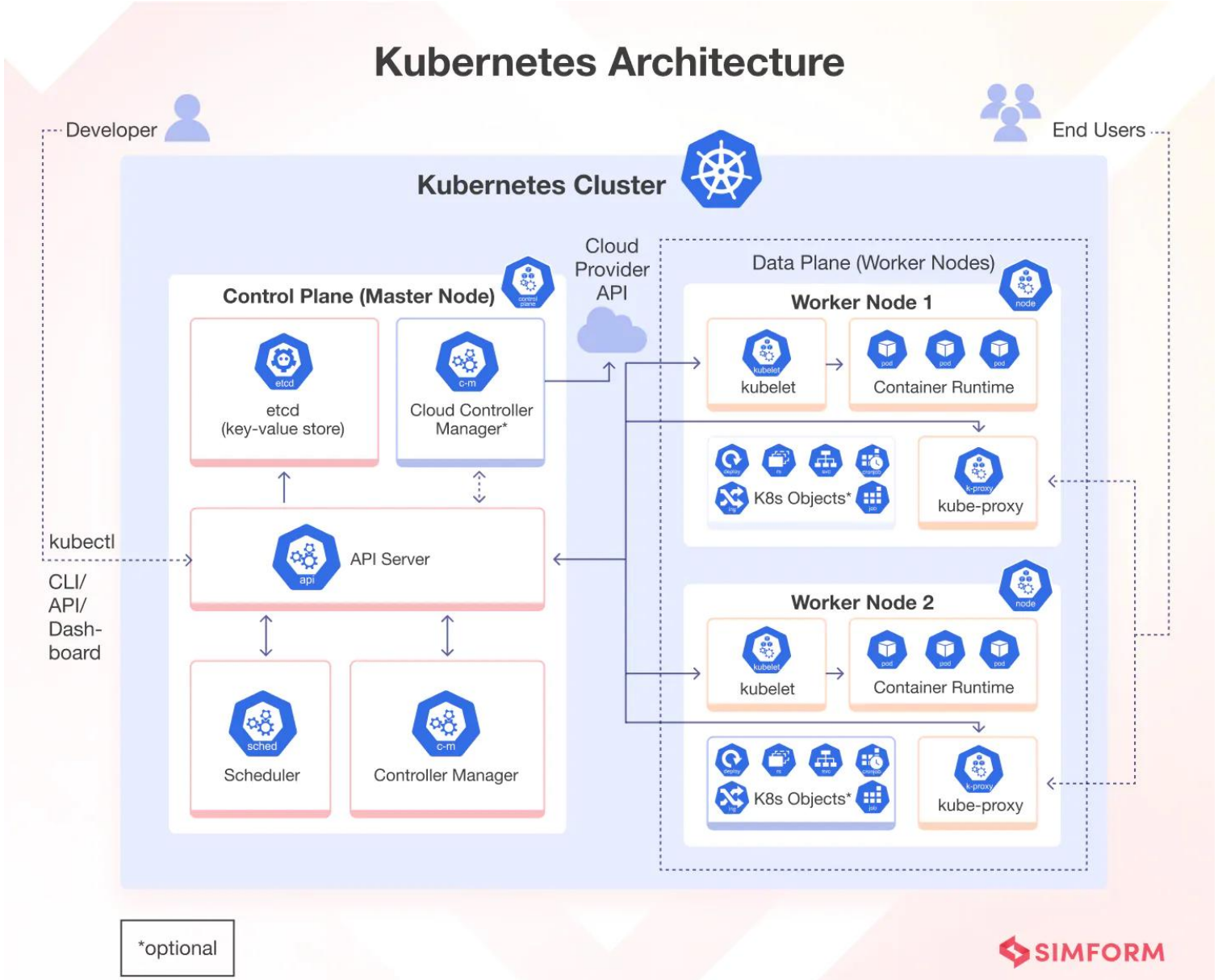
- Python – you can do that yourself ;-)

docker



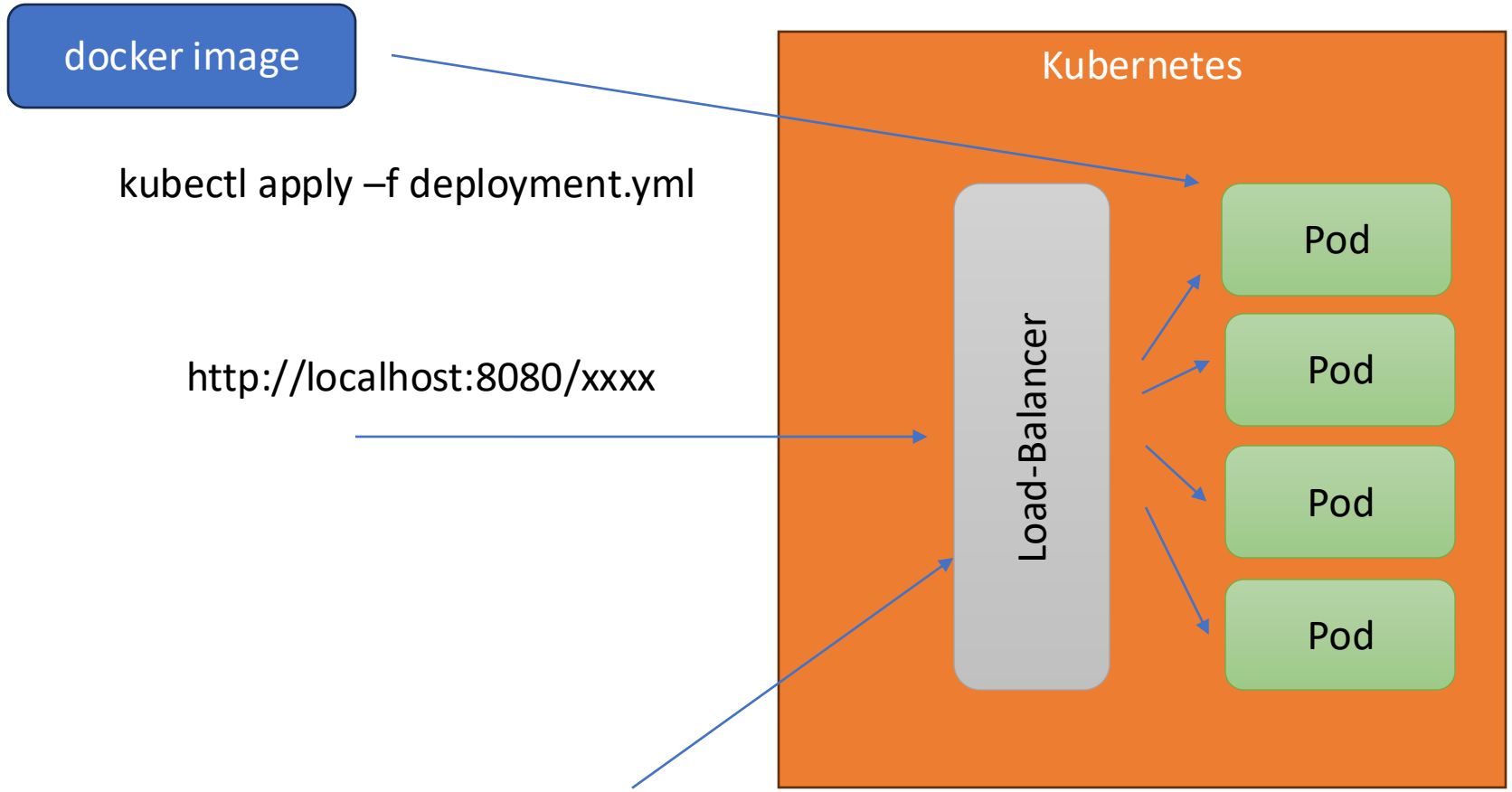
https://www.cherryservers.com/blog/a-complete-overview-of-docker-architecture

Kubernetes



https://www.simform.com/blog/kubernetes-architecture/

Kubernetes (demo)



kubectl expose deployment *simple-kube* –type=LoadBalancer –port=8080

Requires **minikube tunnel** on a local system

Kubernetes local install

- docker desktop -> activate Kubernetes

- Rancher
  https://www.rancher.com/products/rancher-platform

- kind (kubernetes in docker)
- k3d
- Minikube
- MicroK8s