

# Break New Ground

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# Como manter a disponibilidade de microservices através do monitoramento de métricas

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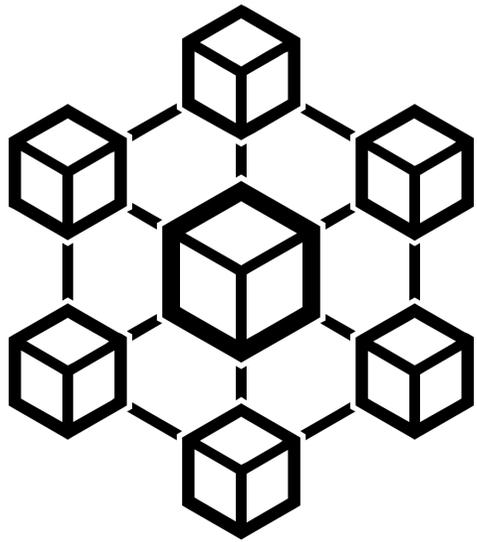
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*“If I could change the world...”*

— Eric Clapton



# Métricas

Métrica é uma medida para avaliar,  
controlar e/ou selecionar  
**quantitativamente:** uma pessoa, um  
processo, um evento ou uma  
instituição

# Métrica vs Health Check

# RockyBalboaService



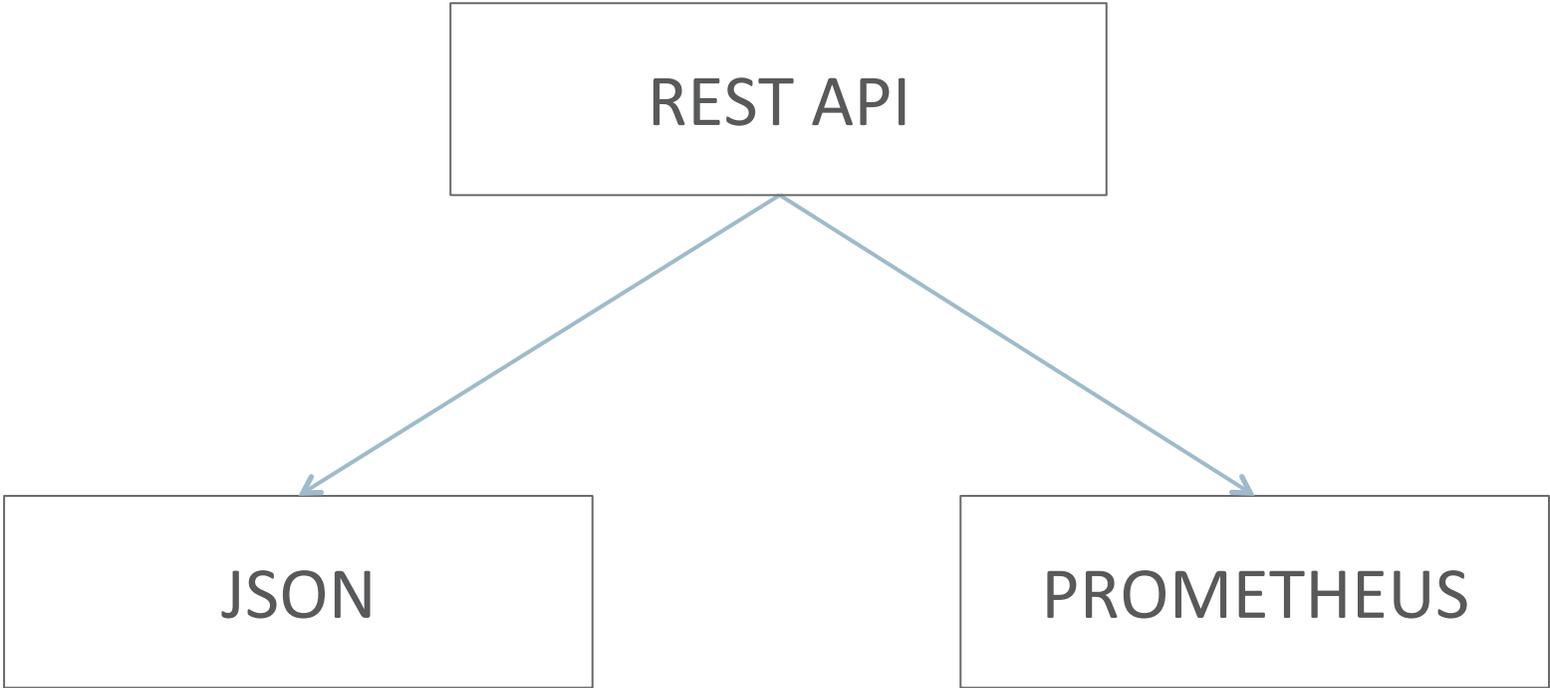
- Força do soco: 100%
- Sangramento: 0 ml/s
- Visão: 100%
- Nível suor: 1 ml/s
- Confiança: 10
- Pronúncia: Adrian!



- Força do soco: 0,5%
- Sangramento: 100 ml/s
- Visão: -10%
- Nível suor: 2000 ml/s (baldes)
- Confiança: 0
- Pronúncia: ãnhãããnnnn

# Microprofile: 3 tipos de métricas

- base
  - JVM
  - Threads
  - Thread Pools
  - Classloading
  - SO
- vendor
- application



## REST API

/metrics

/metrics/base

/metrics/vendor

/metrics/application

# Formato Gauge JSON

```
{  
  "responsePercentage": 48.45632  
}
```

# Formato Counter JSON

```
{  
  "hitCount": 45  
}
```

# Formato Meter JSON

```
{  
  "requests": {  
    "count": 29382,  
    "meanRate": 12.223,  
    "oneMinRate": 12.563,  
    "fiveMinRate": 12.364,  
    "fifteenMinRate": 12.126,  
  }  
}
```

# Formato Histogram JSON

```
{  
  "daily_value_changes": {  
    "count":2,  
    "min":-1624,  
    "max":26,  
    "mean":-799.0,  
    "stddev":825.0,  
    "p50":26.0,  
    "p75":26.0,  
    "p95":26.0,  
    "p98":26.0,  
    "p99":26.0,  
    "p999":26.0  
  }  
}
```

# Formato Timer JSON

```
{
  "responseTime": {
    "count": 29382,
    "meanRate": 12.185627192860734,
    "oneMinRate": 12.563,
    "fiveMinRate": 12.364,
    "fifteenMinRate": 12.126,
    "min": 169916,
    "max": 5608694,
    "mean": 415041.00024926325,
    "stddev": 652907.9633011606,
    "p50": 293324.0,
    "p75": 344914.0,
    "p95": 543647.0,
    "p98": 2706543.0,
    "p99": 5608694.0,
    "p999": 5608694.0
  }
}
```

Todos possuem equivalentes no  
formato Prometheus

# Código orientado a métricas

# Annotation

```
@Gauge(name = "queueSize")  
public int getQueueSize() {  
    return queue.size;  
}
```

---

<b>Annotation</b>	<b>Aplica-se a</b>	<b>Descrição</b>
@Counted	M, C, T	Contabiliza a quantidade de invocações do objeto anotado
@Gauge	M	Medidor que exibe o valor do objeto anotado
@Metered	M, C, T	Mede a frequência de invocações do objeto anotado
@Timed	M, C, T	Mede o tempo de duração do objeto anotado

---

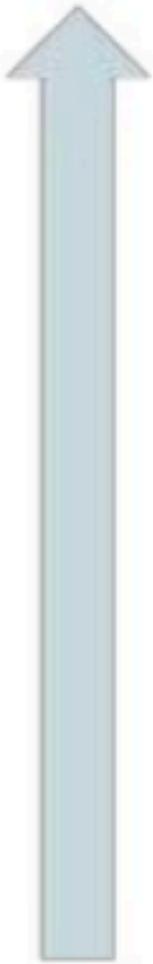
(C=Constructor, M=Method, T=Type)

# Helidon



- É um conjunto de APIs para desenvolvimento de microservices
- Open Source (Apache 2.0)
- Helidon SE: microframework
- Helidon MP: MicroProfile

Larger



Smaller

### Full-Stack



Spring Boot



Dropwizard

### MicroProfile Based



Open Liberty



payara

THORNTAIL



helidon MP

### Microframeworks



javalin



Spark



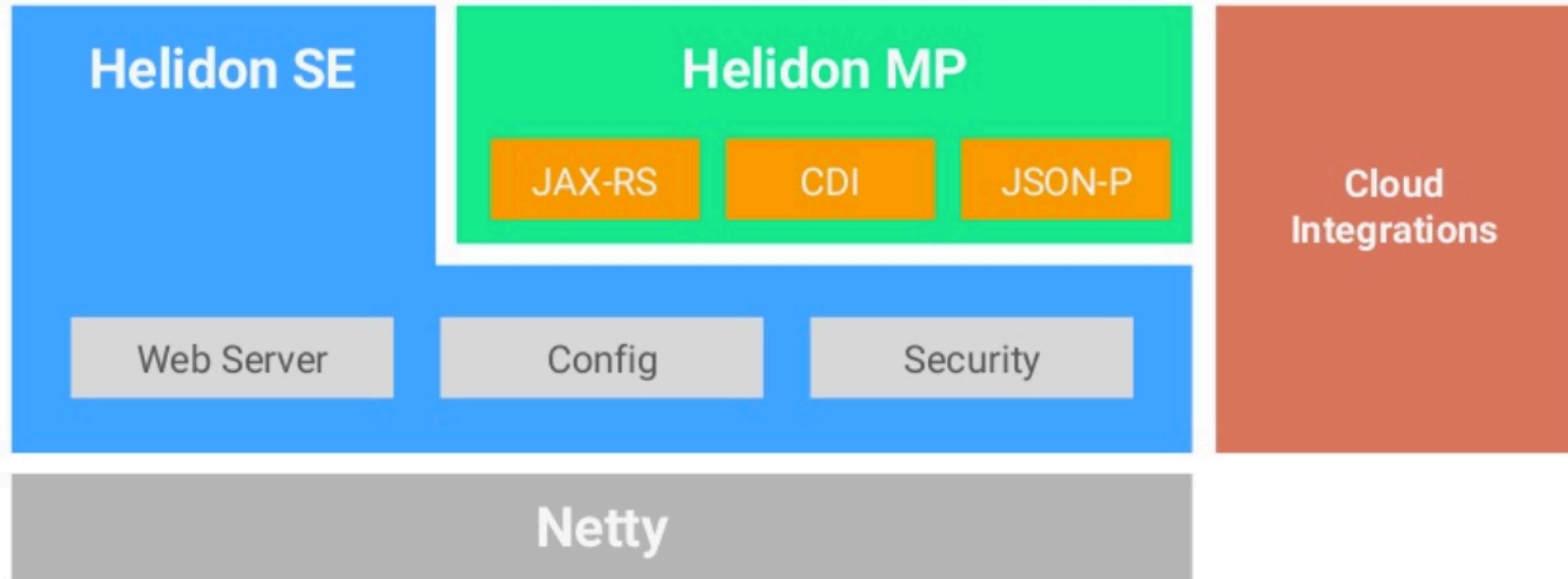
MICRONAUT™



helidon SE



# Arquitetura



# Código Helidon SE

```
Routing routing = Routing.builder()  
    .get("/hello", (req, res) -> res.send("Hello World"))  
    .build();
```

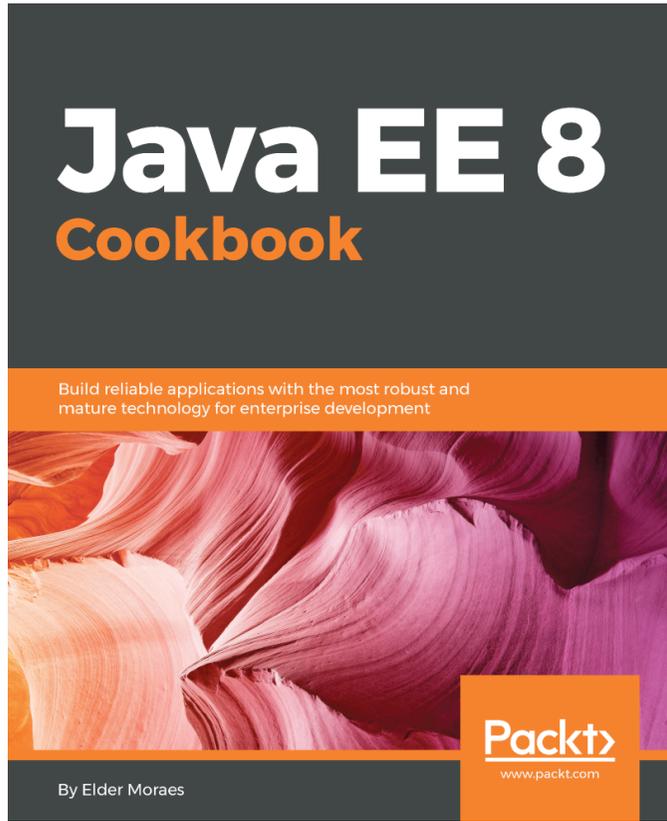
```
WebServer.create(routing)  
    .start();
```

# Código Helidon MP

```
@Path("hello")
public class HelloWorld {
    @GET
    public String hello() {
        return "Hello World";
    }
}

Server.builder()
    .addResourceClass(HelloWorld.class)
    .build()
    .start();
```

DEMO TIME!!!



@elderjava

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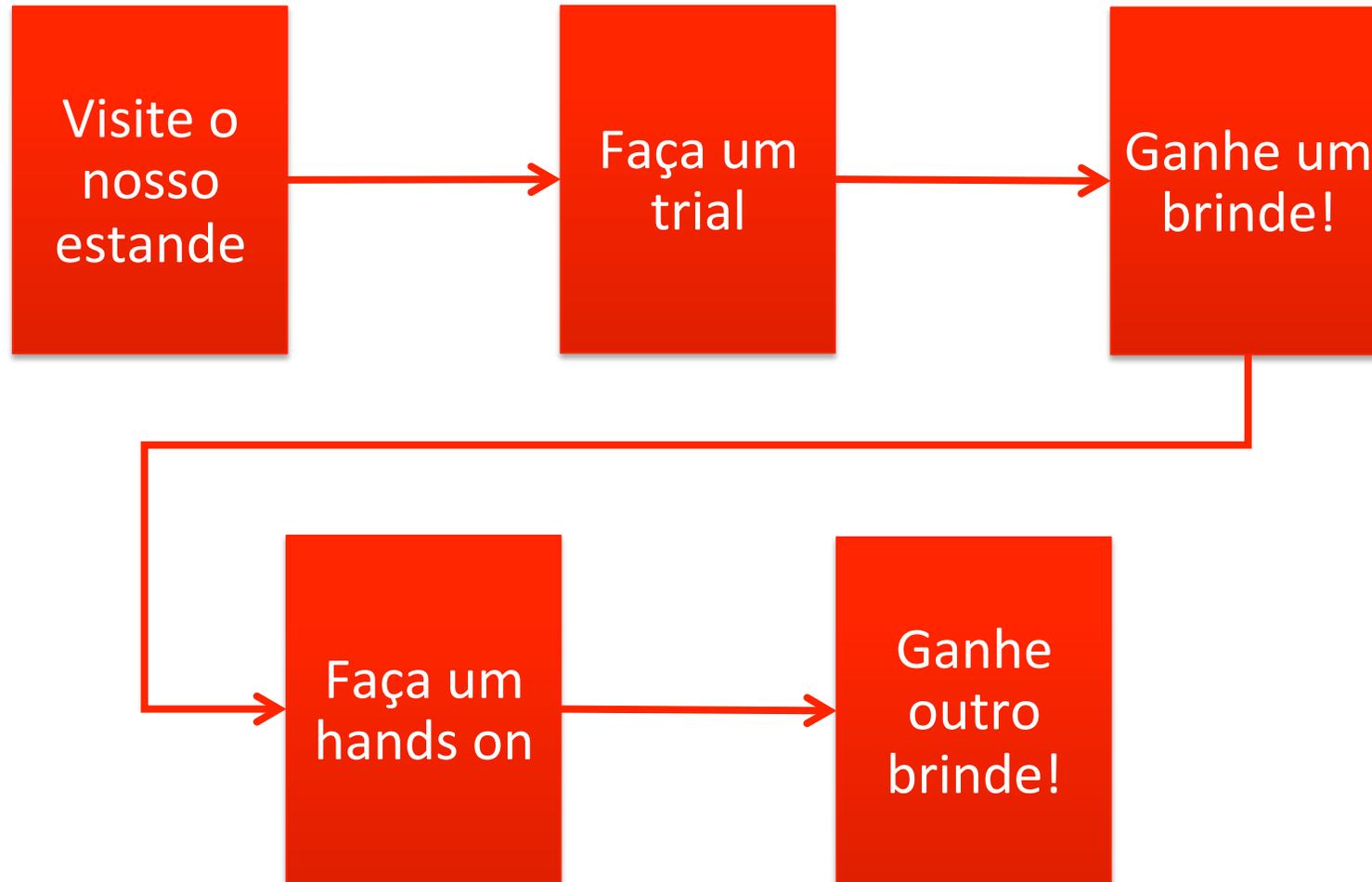
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