

Micronaut Fundamentals

Discovering Micronaut



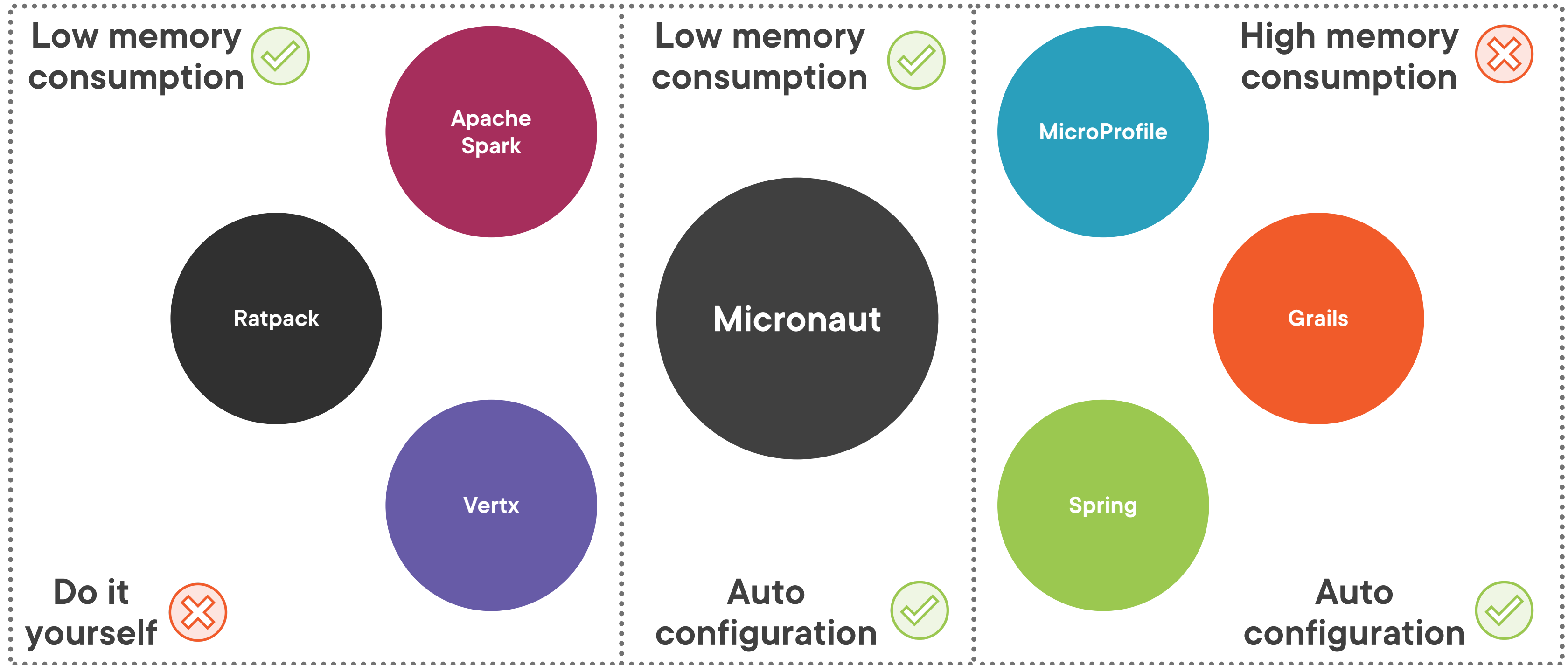
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Frameworks



Cloud-native Evolution



Monolith



Cloud-native Evolution



Monolith



Microservices



Cloud-native Evolution

Monolith

**Service-oriented
Architecture**

Microservices

Serverless Functions



Cloud-native Evolution

Monolith



Service-oriented Architecture



Microservices



Serverless Functions



 Memory consumption

 Startup time



Cloud-native Evolution

Monolith



■ Memory consumption

Microservices



■ Startup time



“Java is slow”



Reflection

Challenges

Statically-typed
language

Type erasure

Solution

Framework

@Annotations

Side effects

Reflective Cache

Reflective Cache

Reflective Cache

Reflective Cache



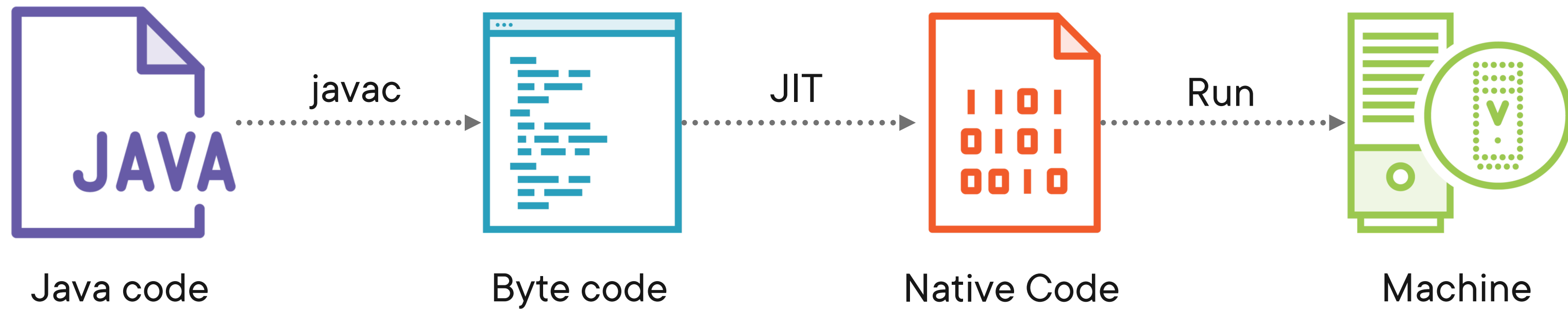
How Micronaut solves this
problem?



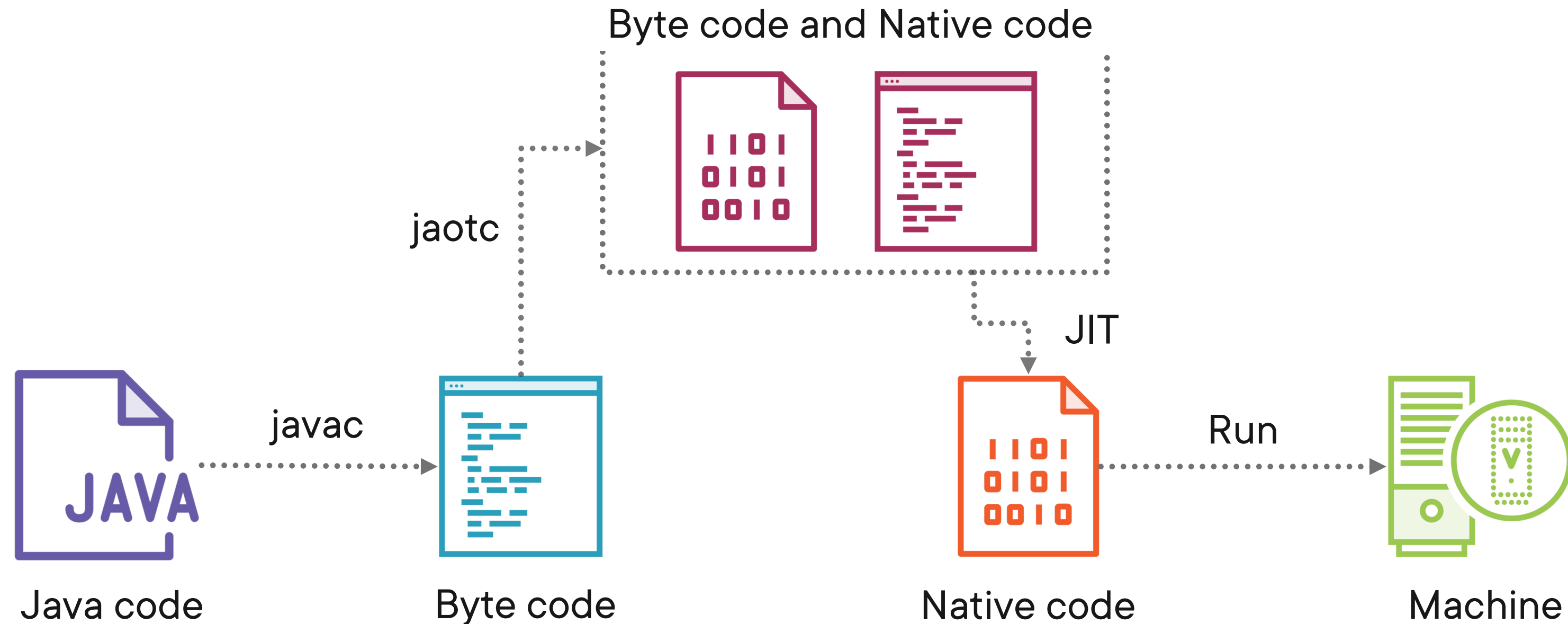
Low memory consumption



JIT Compilation



AOT Compilation



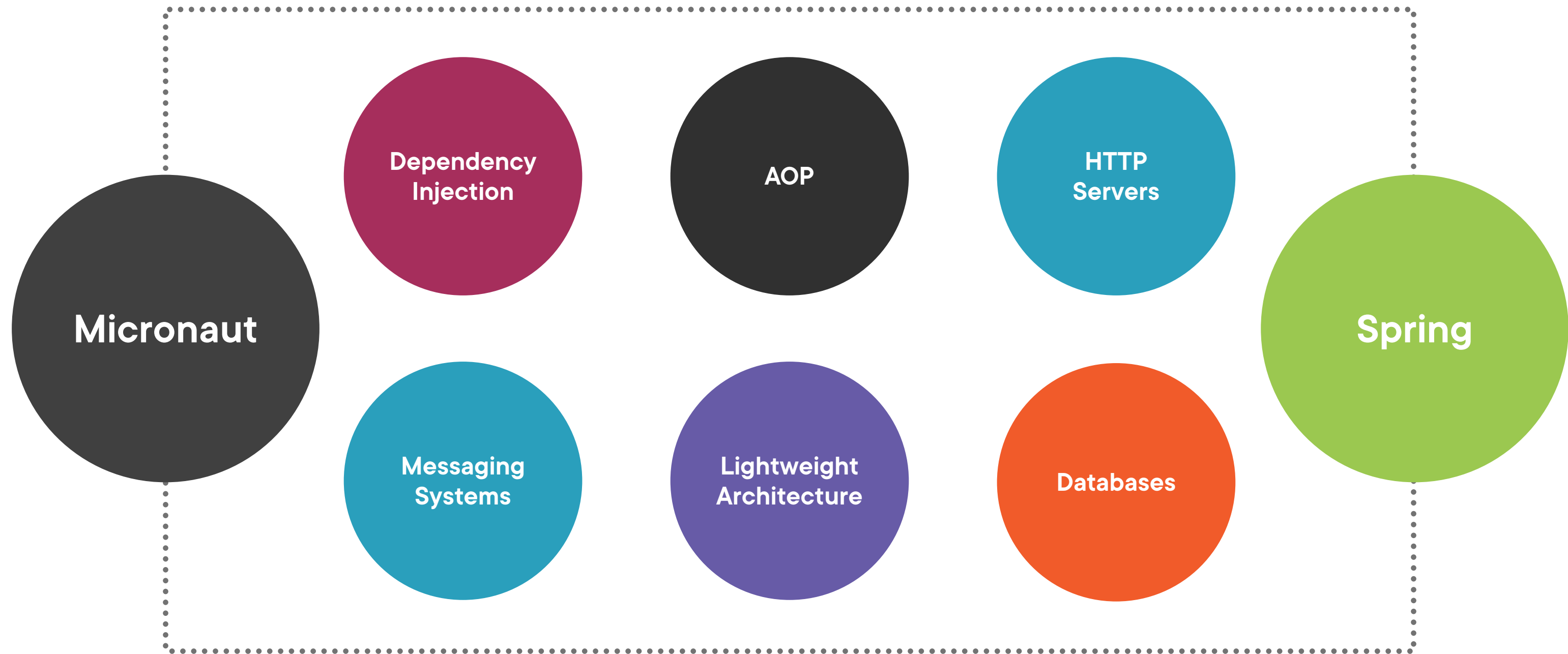
GraalVM



Micronaut vs. Spring



Micronaut vs Spring



Micronaut vs Spring

Spring Boot

2.4.5

2014

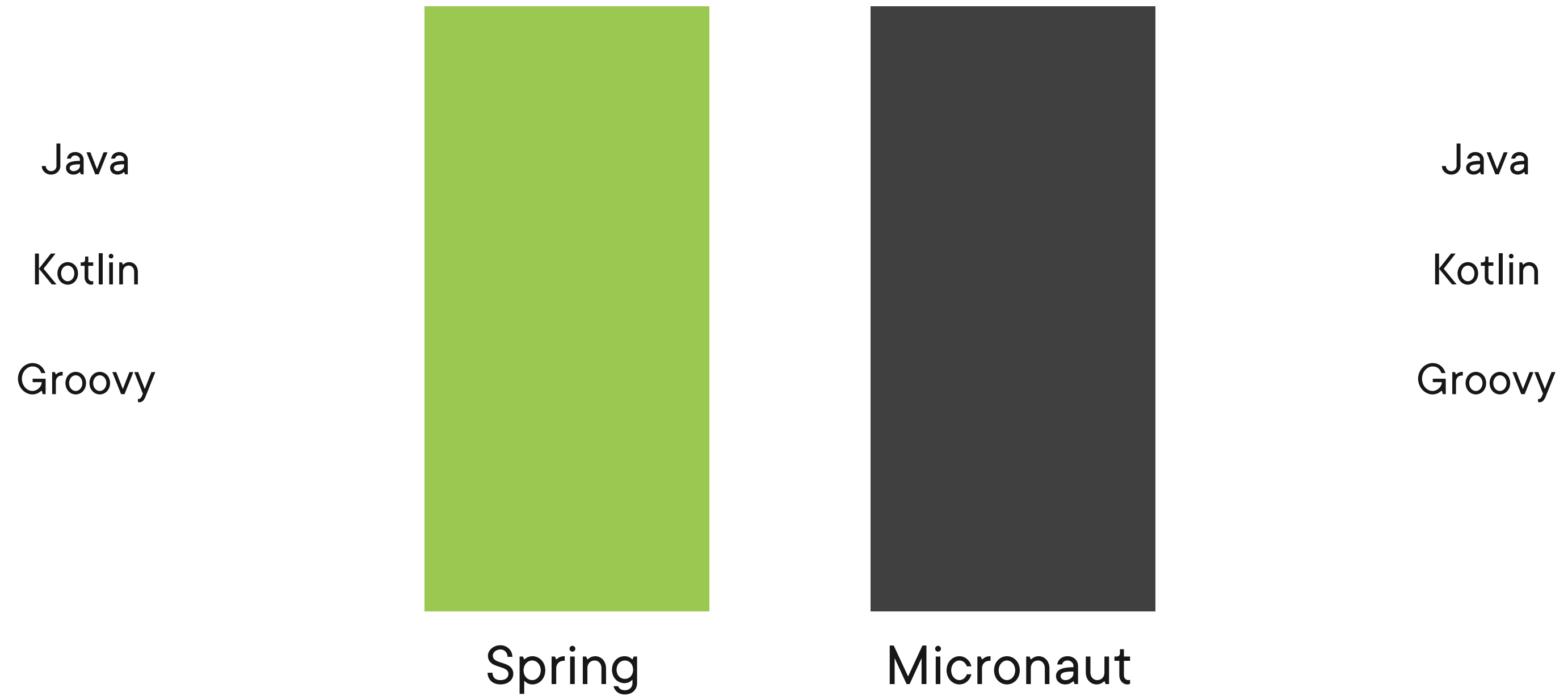
Micronaut

2.5.3

2018



Language Support



Application Configuration

CLI Arguments
Java System Properties
OS Env Variables
application-{env}.{extension}
application.{extension}
@PropertySource
@TestPropertySource
DevTools



Spring



Micronaut

CLI Arguments
Java System Properties
OS Env Variables
application-{env}.{extension}
application.{extension}



Security

Authentication

Authorization

Encryption



Spring



Micronaut

Authentication

Authorization

Encryption



Caching

Caffeine
Redis
Ehcache
Hazelcast
Infinispan
Couchbase



Spring



Micronaut

Caffeine
Redis
Ehcache
Hazelcast
Infinispan



Logging

Log4j
Logback



Spring



Micronaut

Log4j
Logback



Management and Monitoring

In-built endpoints
Customizable endpoints
JMX



Spring



Micronaut

In-built endpoints
Customizable endpoints
JMX



Messaging Systems Integration

Apache Kafka

RabbitMQ

ActiveMQ



Spring



Micronaut

Apache Kafka

RabbitMQ

Nats.io



Cloud-nativeness

Distributed configuration

Service discovery

Client-side
load balancing

Distributed tracing



Spring



Micronaut

Distributed configuration

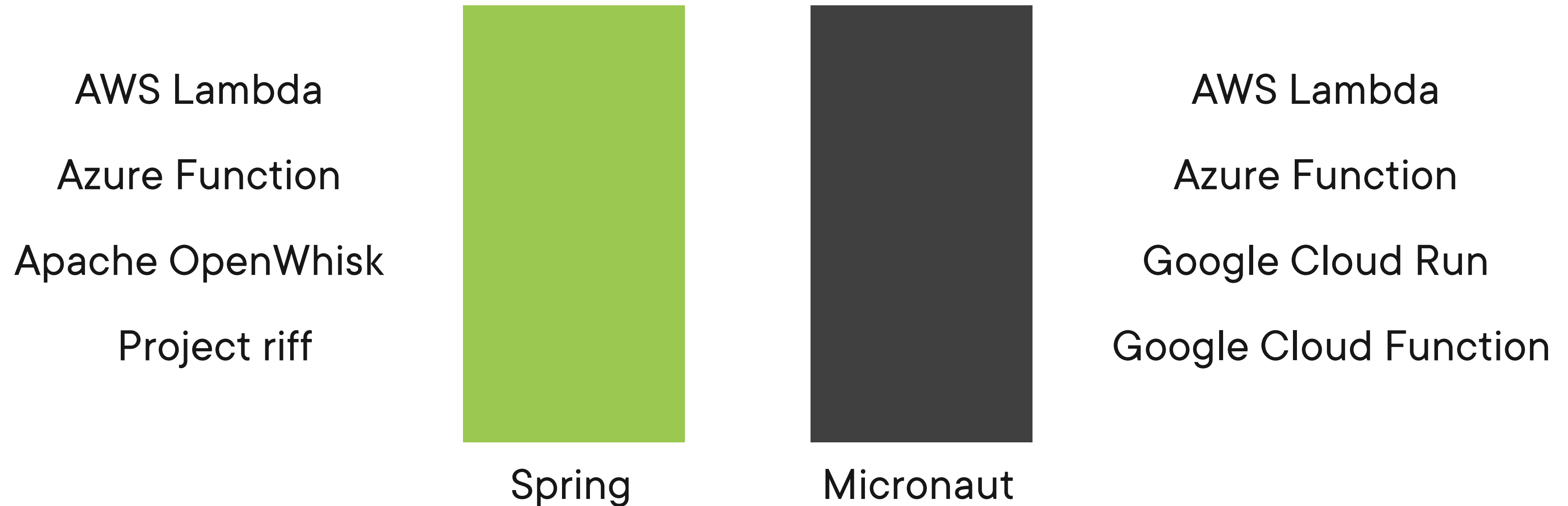
Service discovery

Client-side
load balancing

Distributed tracing



Serverless Applications



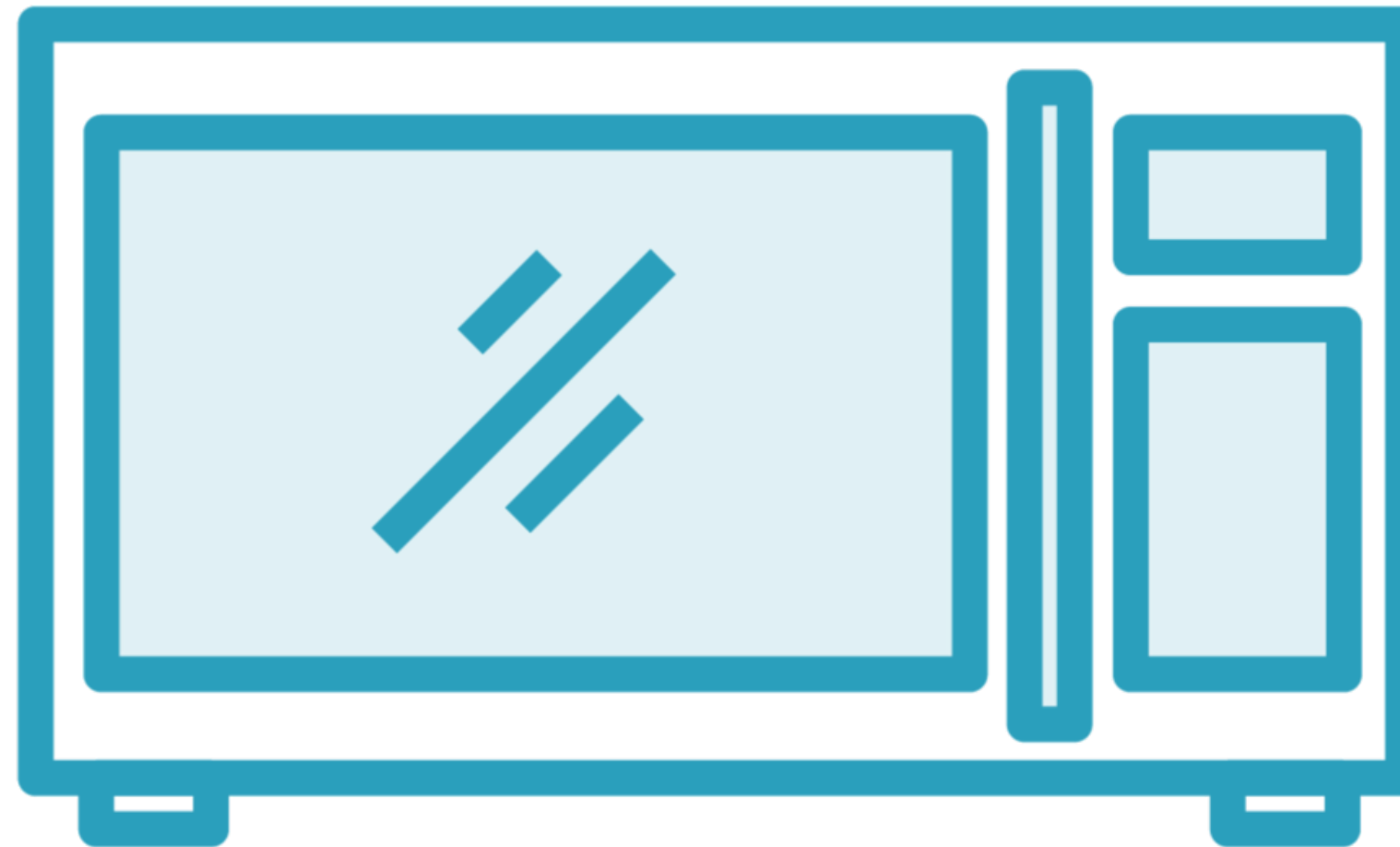
Choosing a Framework

Spring

Micronaut



Smart Oven



Demo



Micronaut CLI

AOT

Prerequisites:

- Java 11
- Gradle 7



Up Next:

Understanding Dependency Injection

