

Orchestrating Using Kubernetes



Bogdan Sucaciu

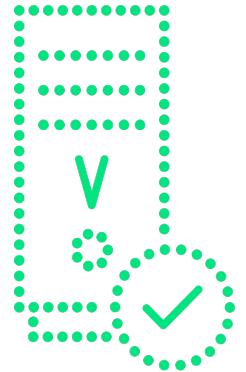
Tech Lead

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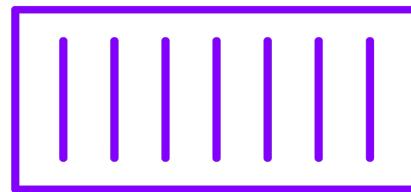
Deploying Spring Framework 6 Applications Playbook



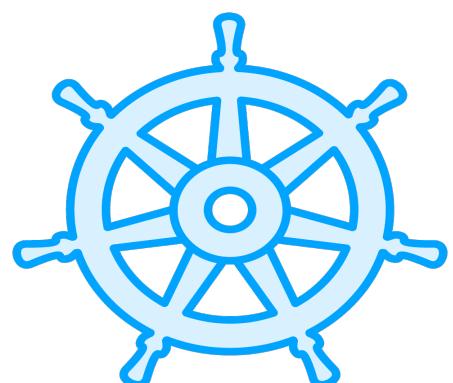
Independent Course Modules



Utilizing Virtual Machines



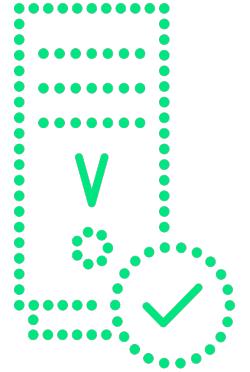
Deploying using Docker



Orchestrating using Kubernetes

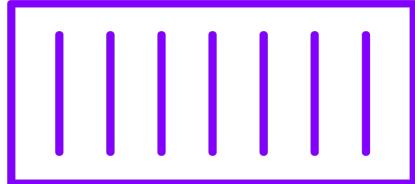


Prerequisites



Java 17

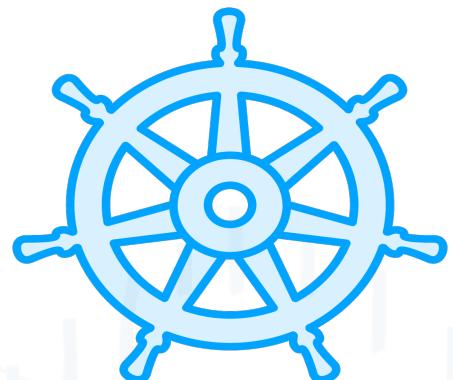
Spring
Framework 6



Java 17

Spring
Framework 6

Docker



Java 17

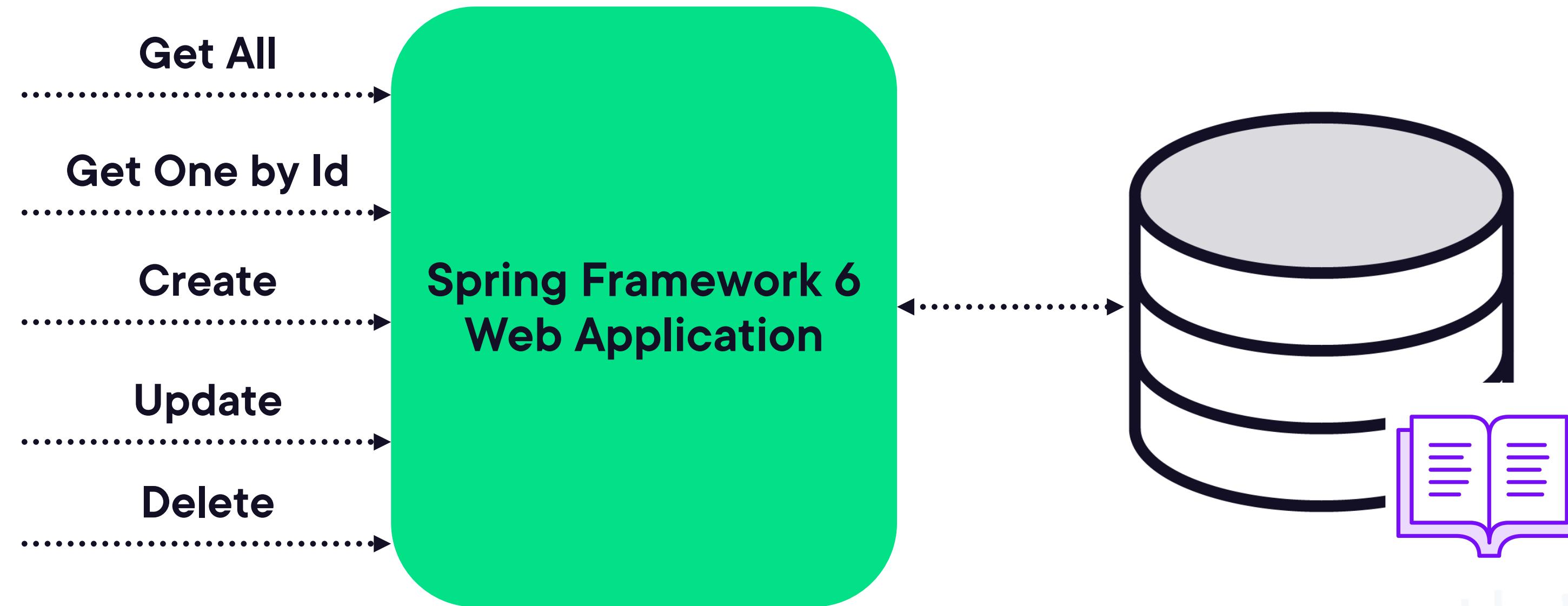
Spring
Framework 6

Docker

Kubernetes



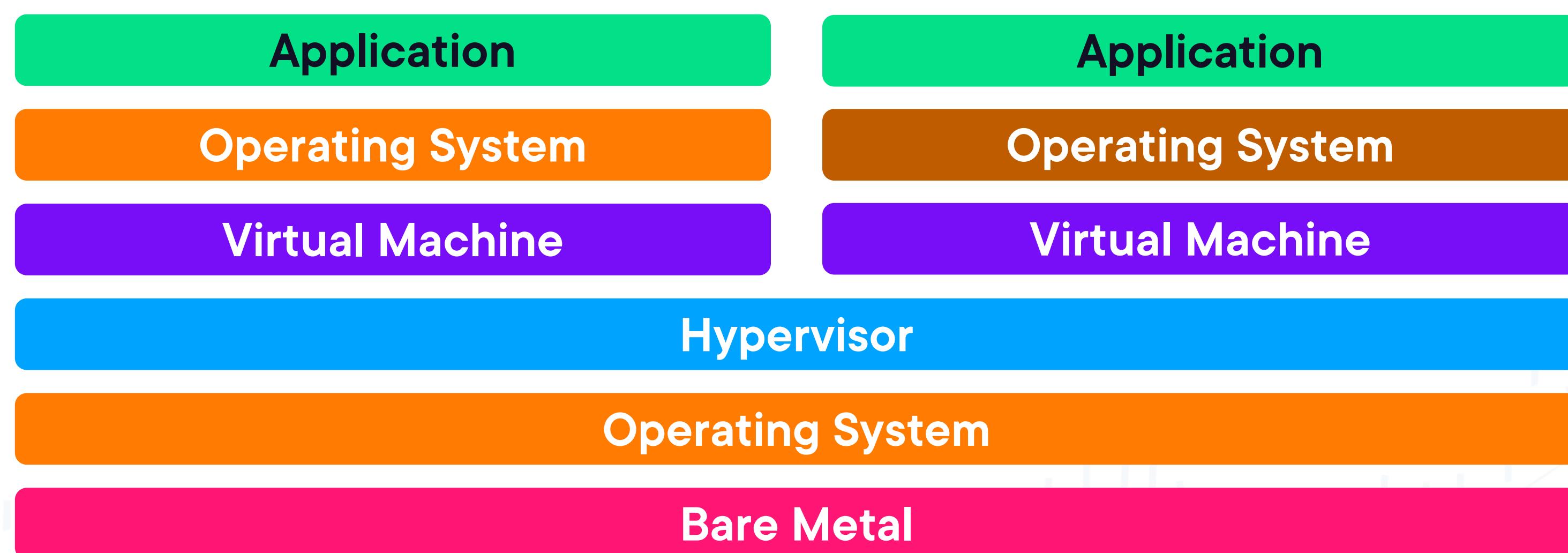
Spring Framework 6 Application



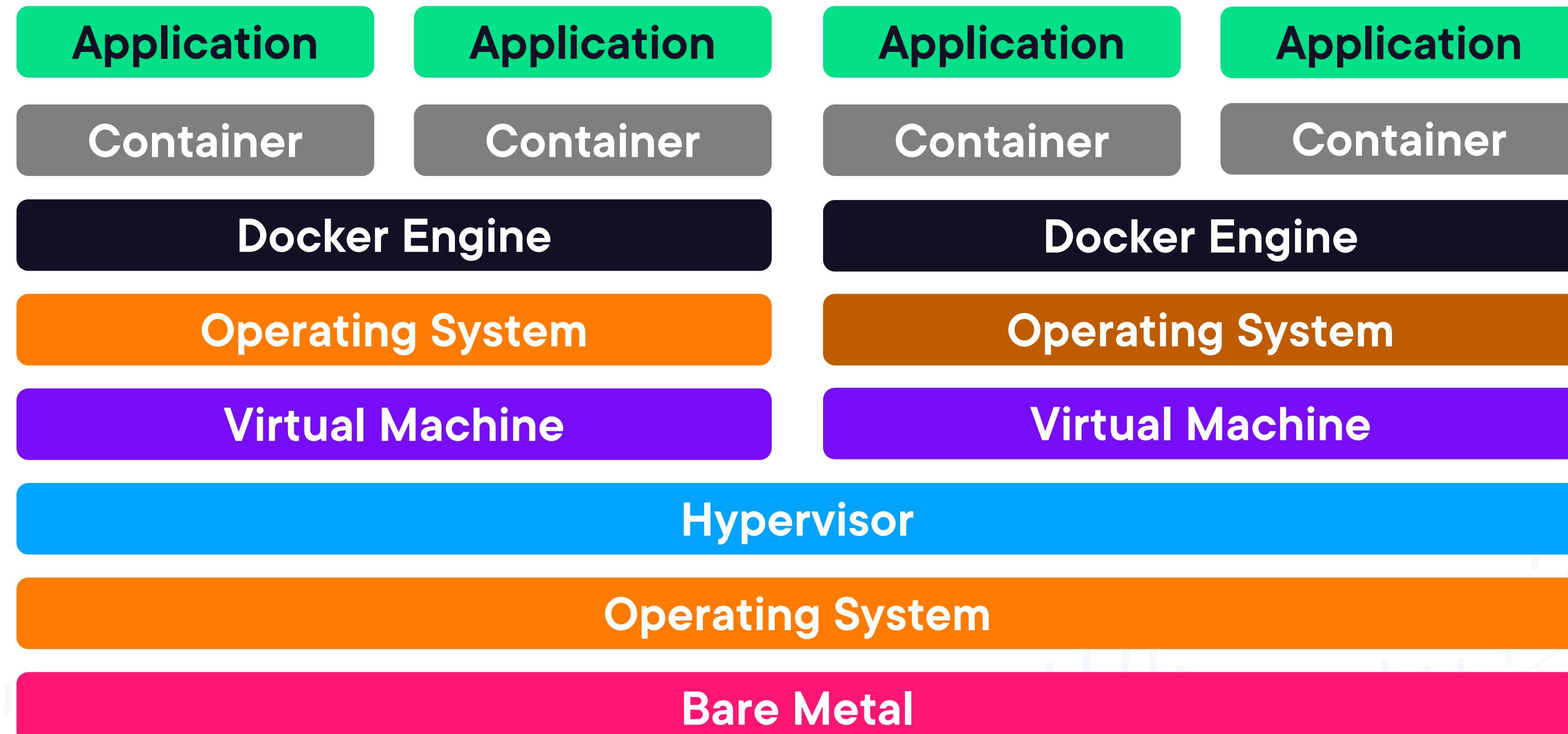
Kubernetes Deployment Model



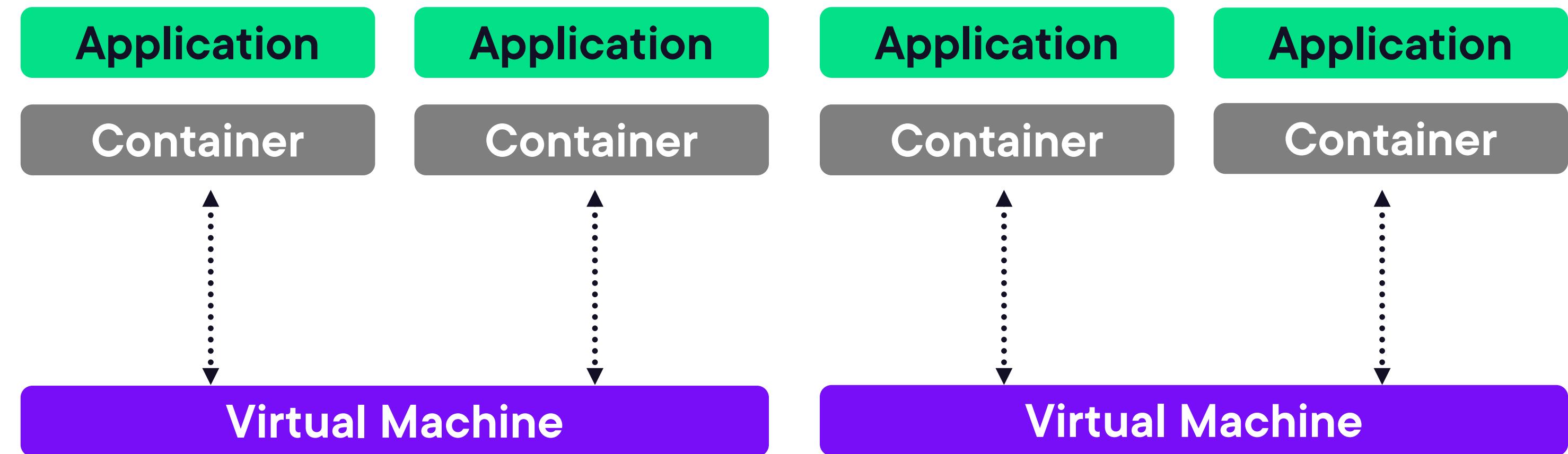
Virtual Machines



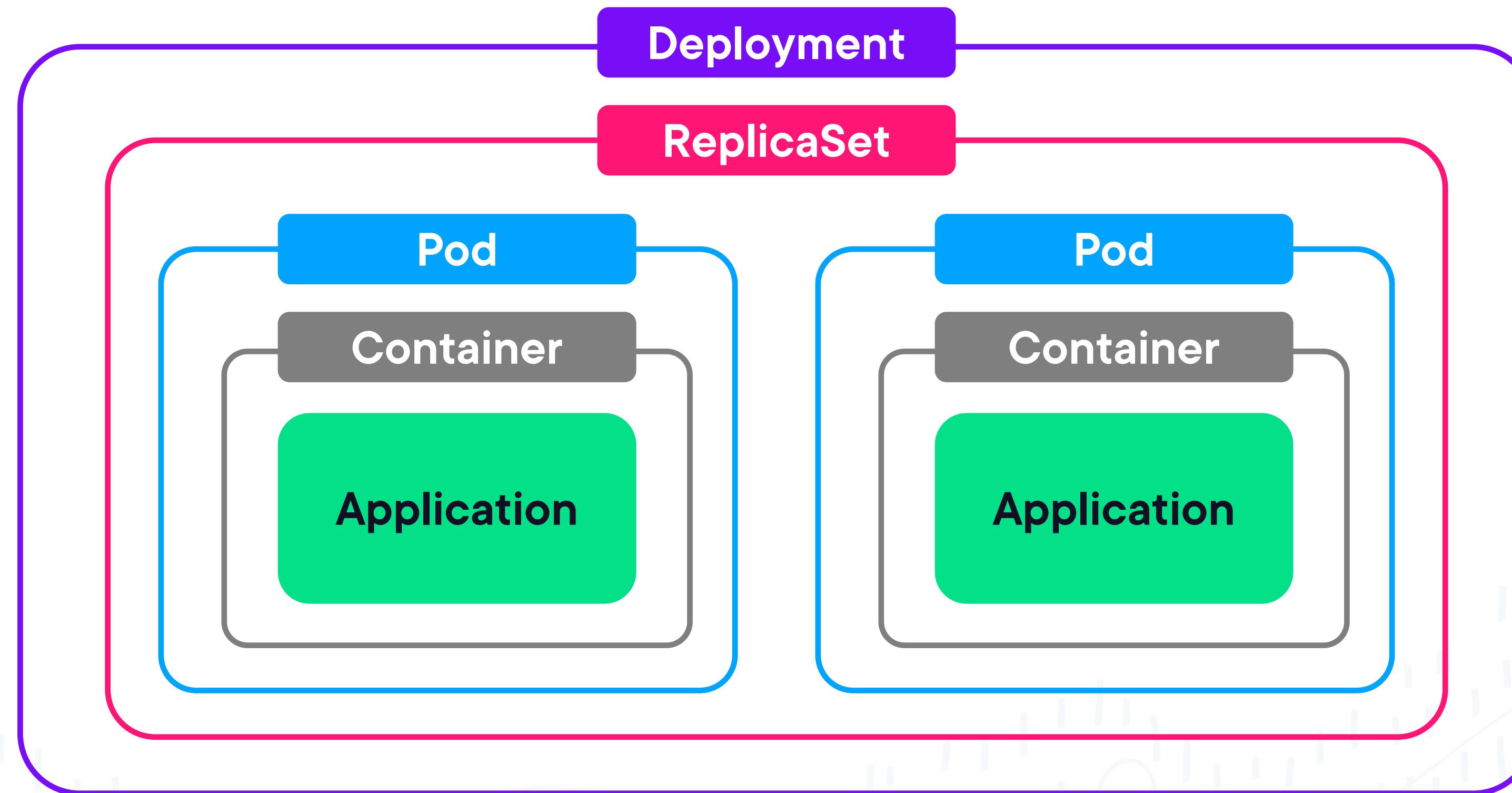
Containerized Applications



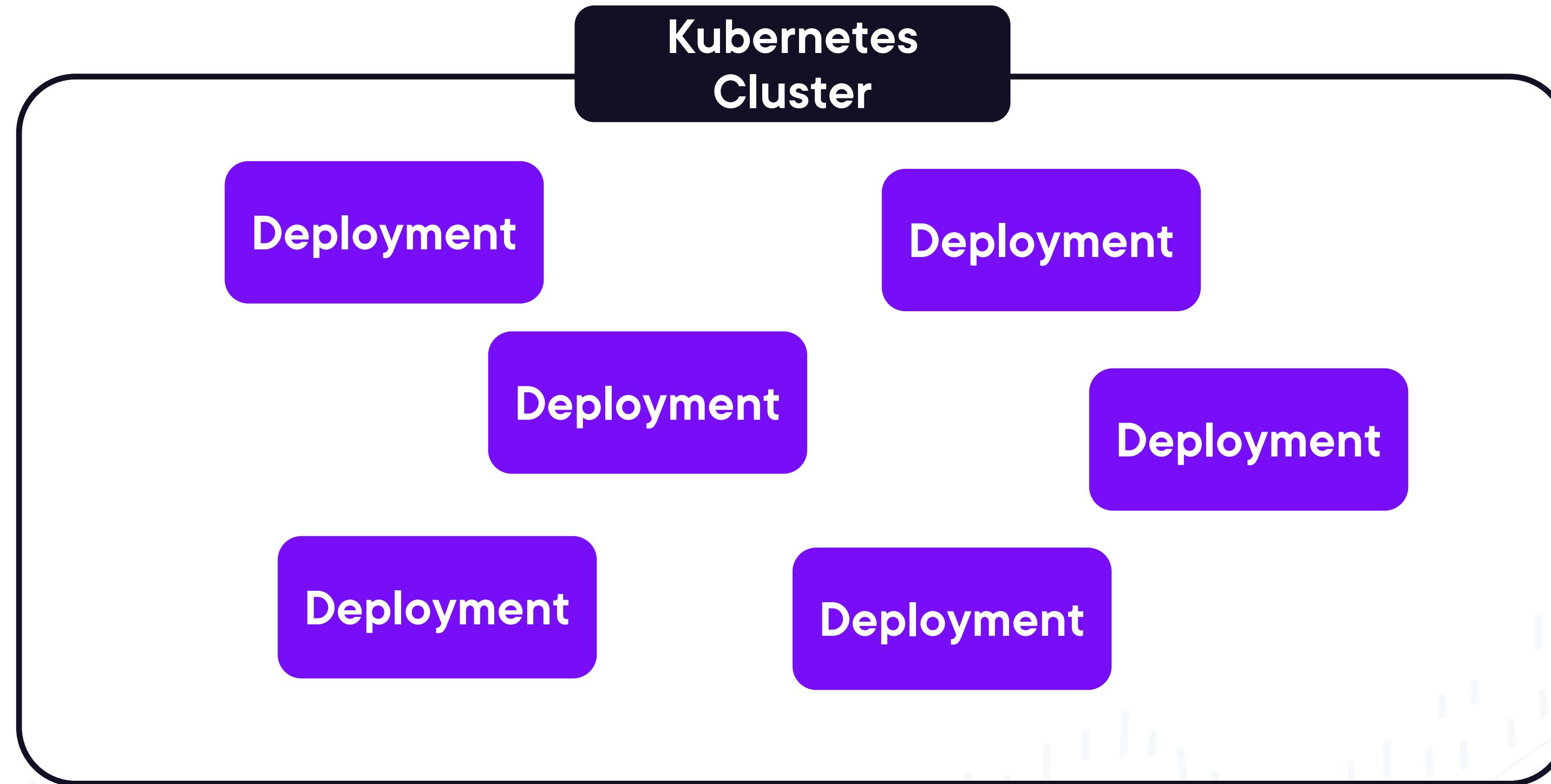
Containerized Applications



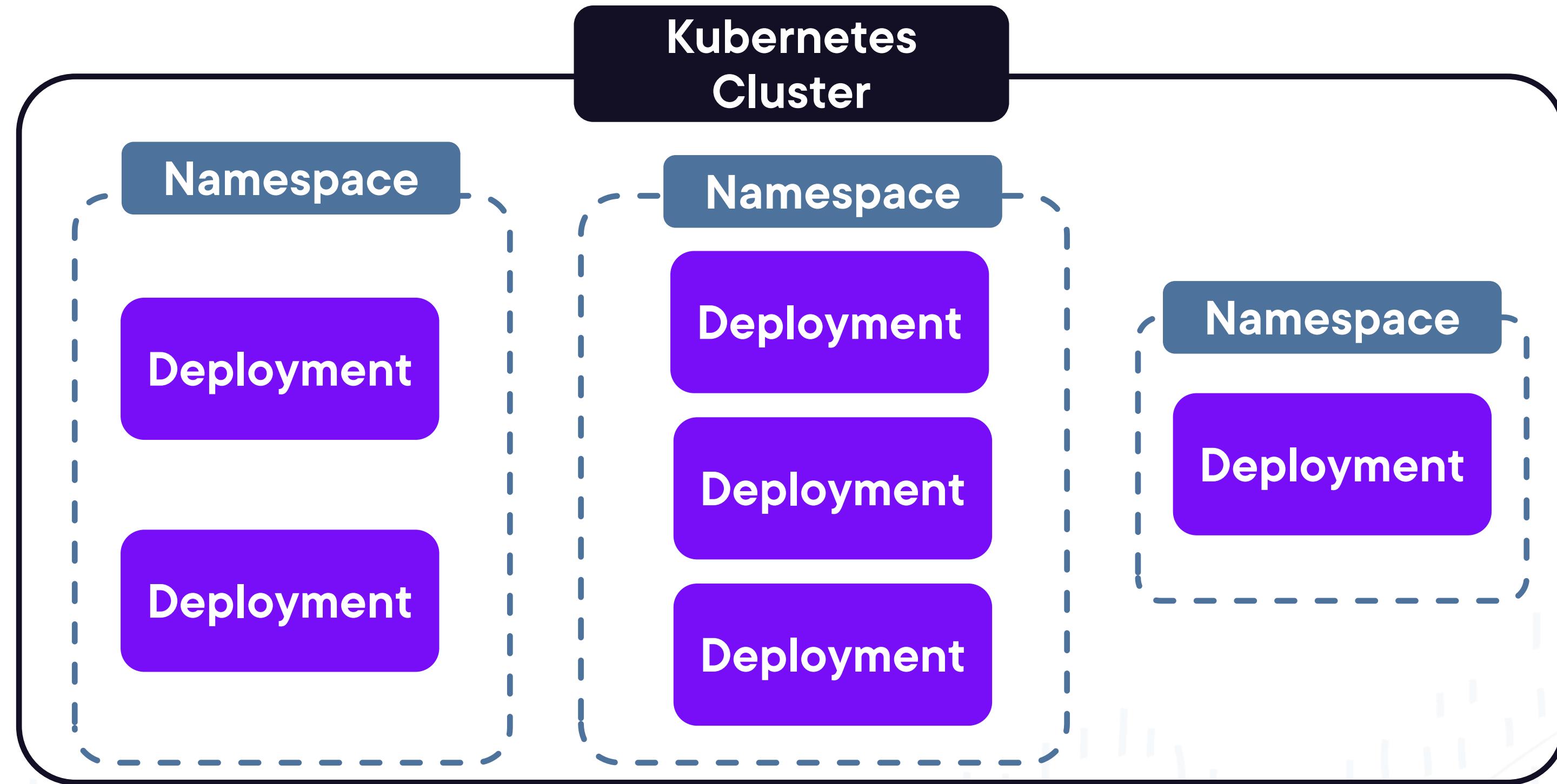
Kubernetes Deployment



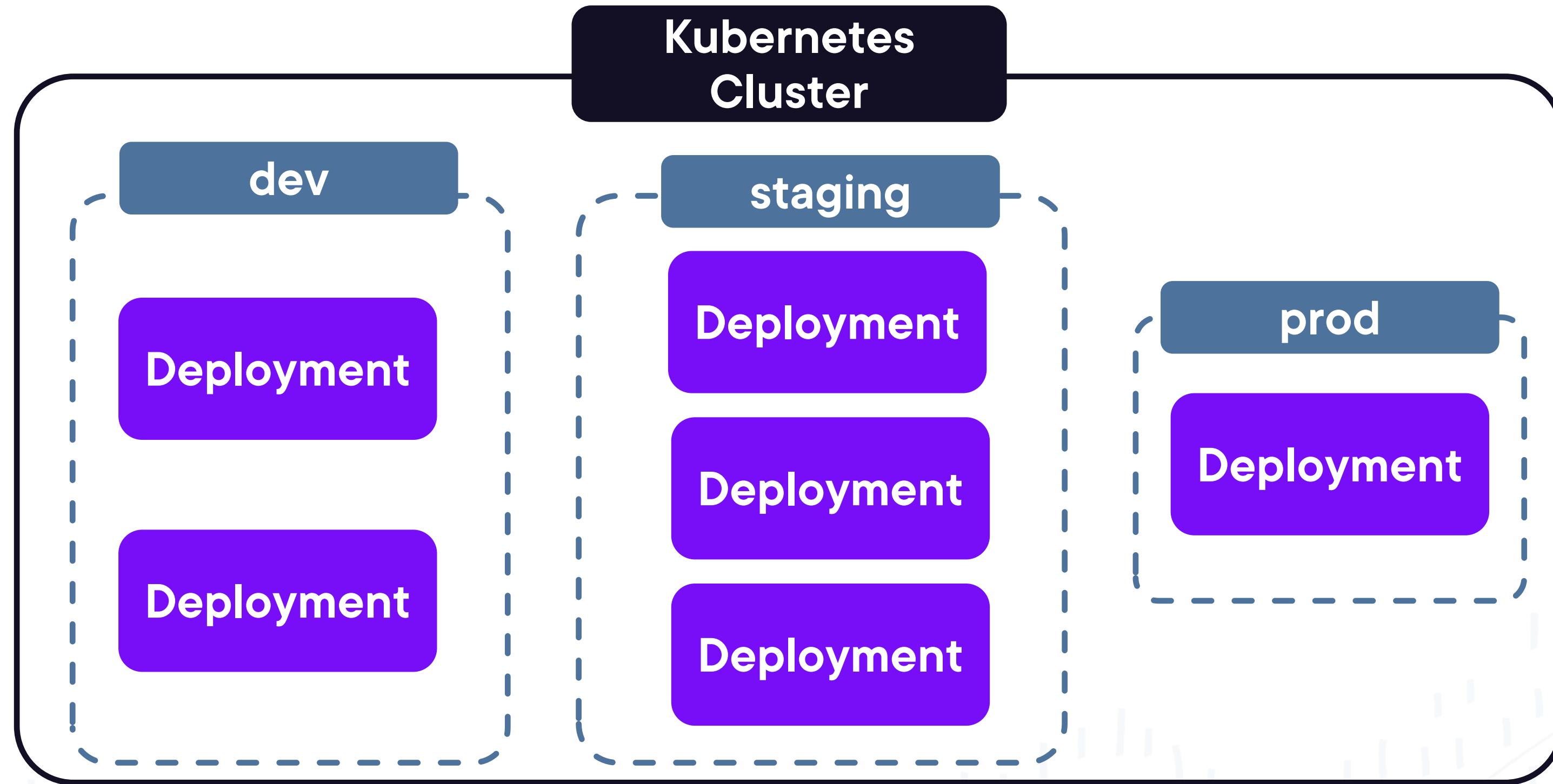
Kubernetes Clusters



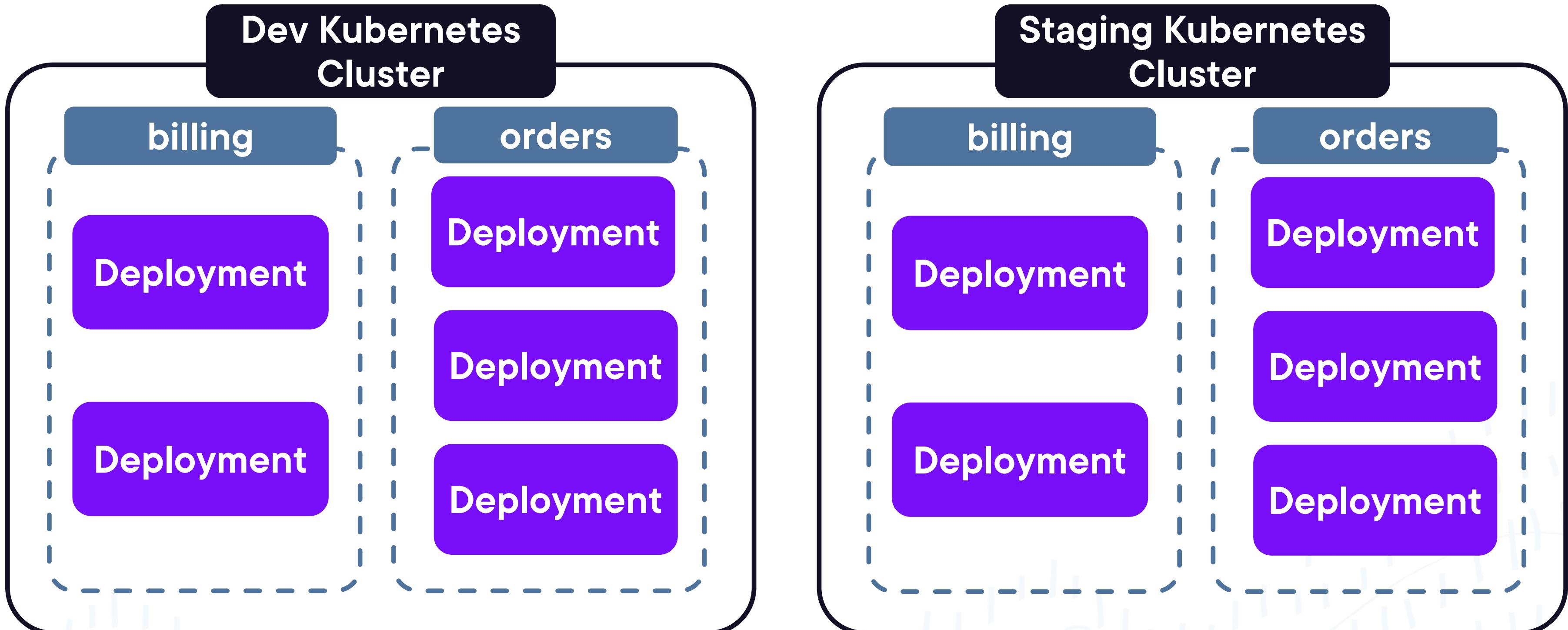
Kubernetes Namespaces



Kubernetes Namespaces



Kubernetes Cluster



Demo



Package to Docker image

Create deployment manifest

Deploy Spring application to Kubernetes

Deploy MySQL DB using Helm

Prerequisites:

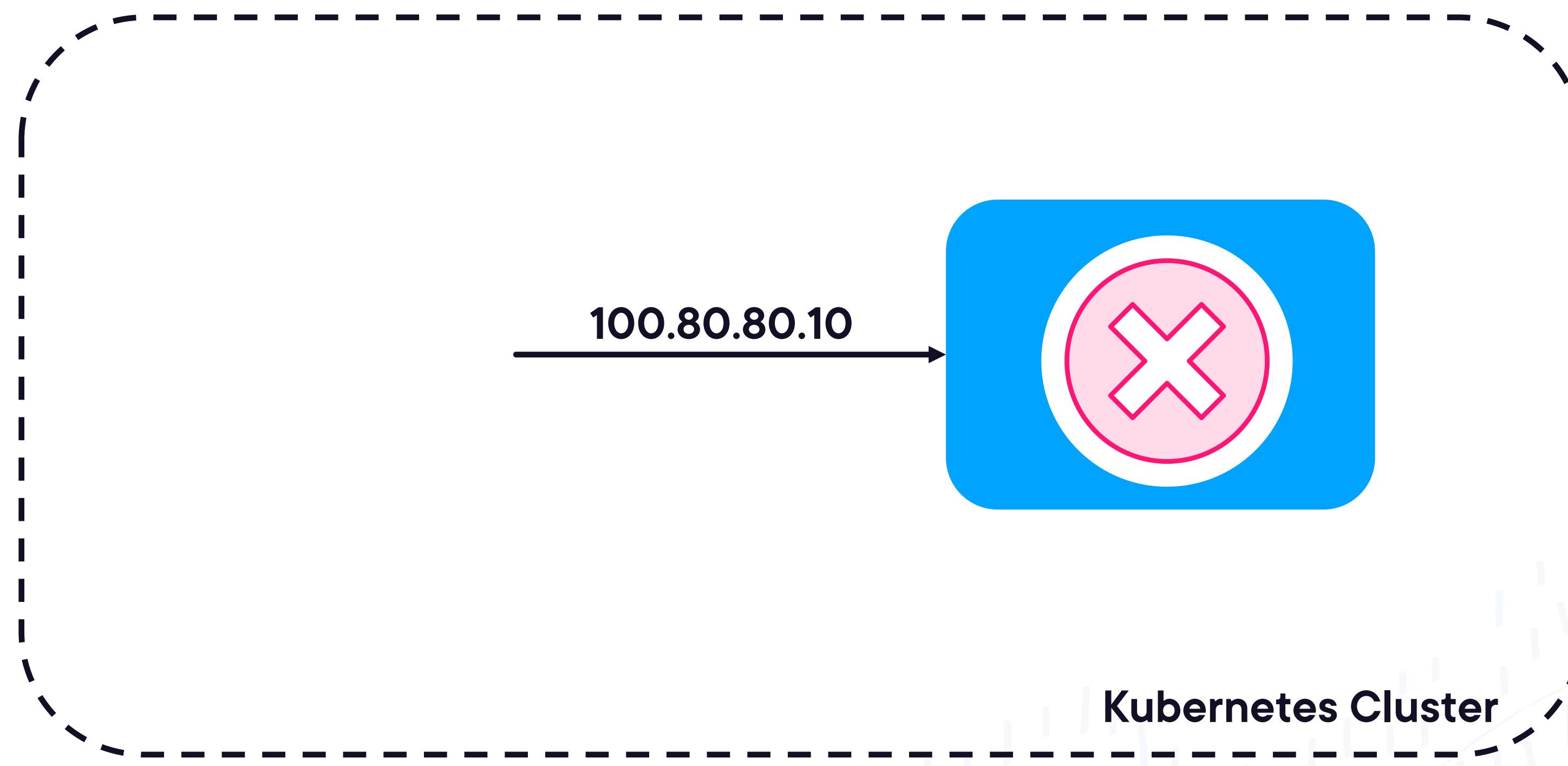
- Docker
- Kubernetes
- Helm



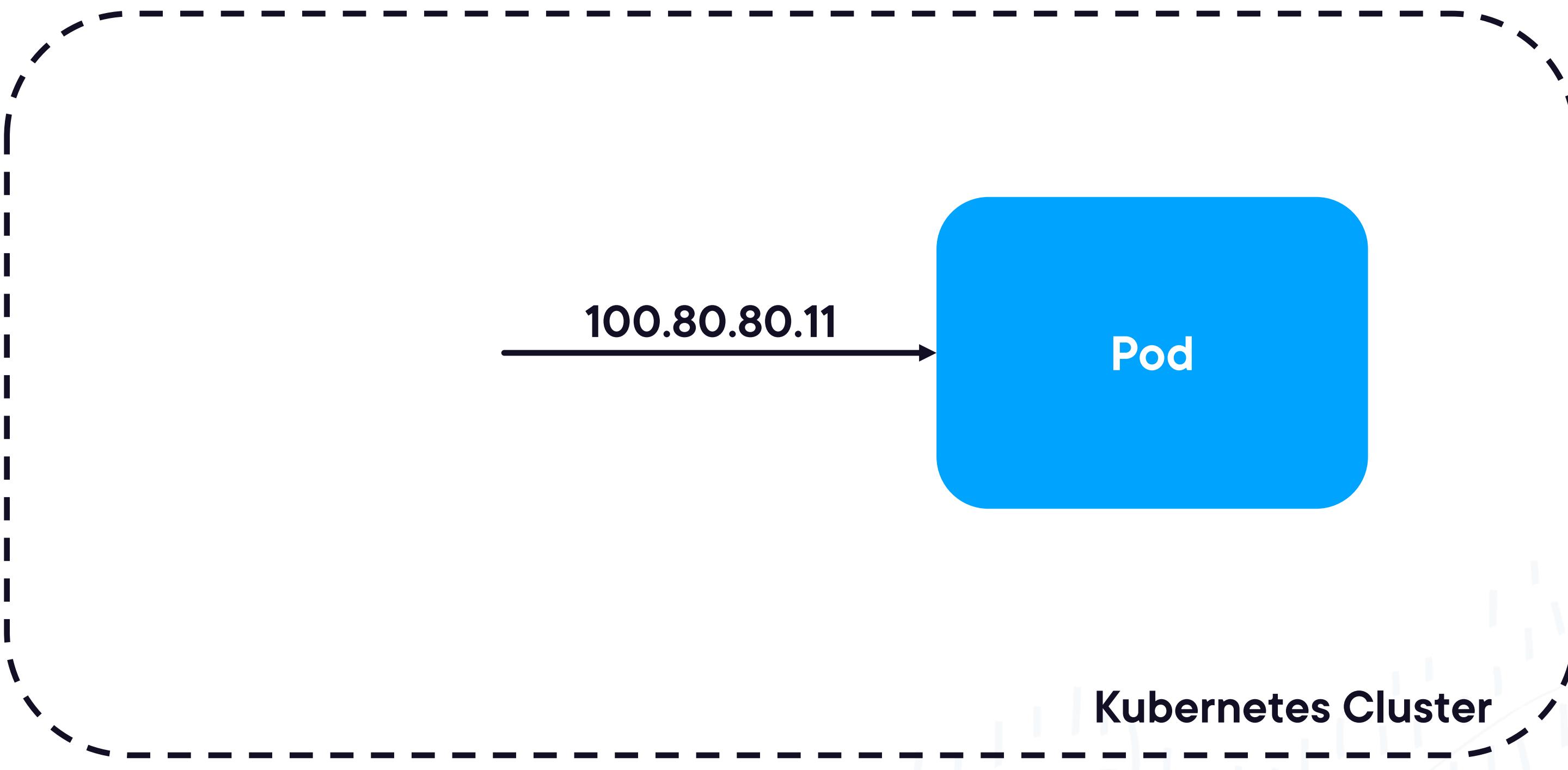
Kubernetes Networking



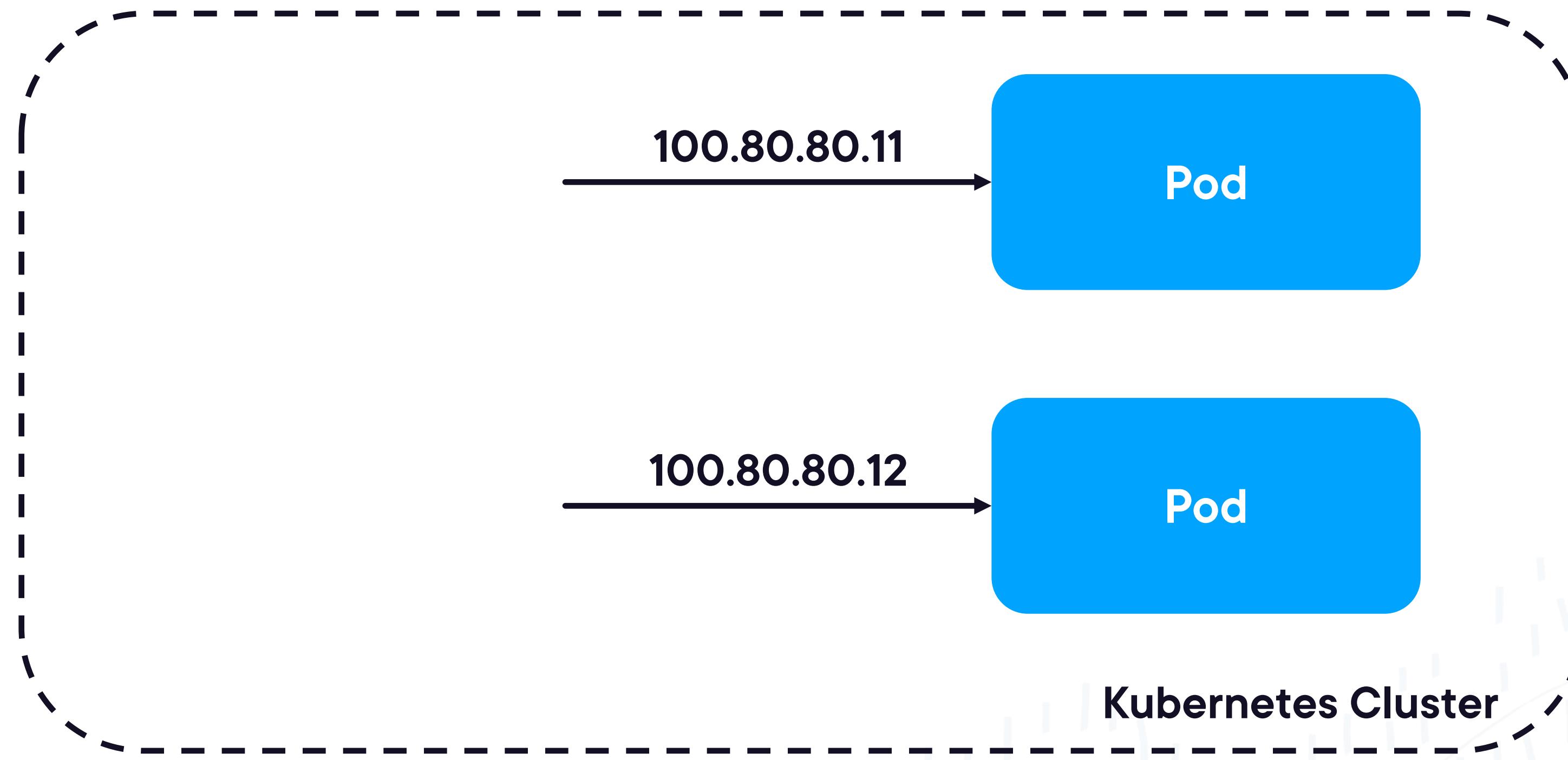
Kubernetes Networking



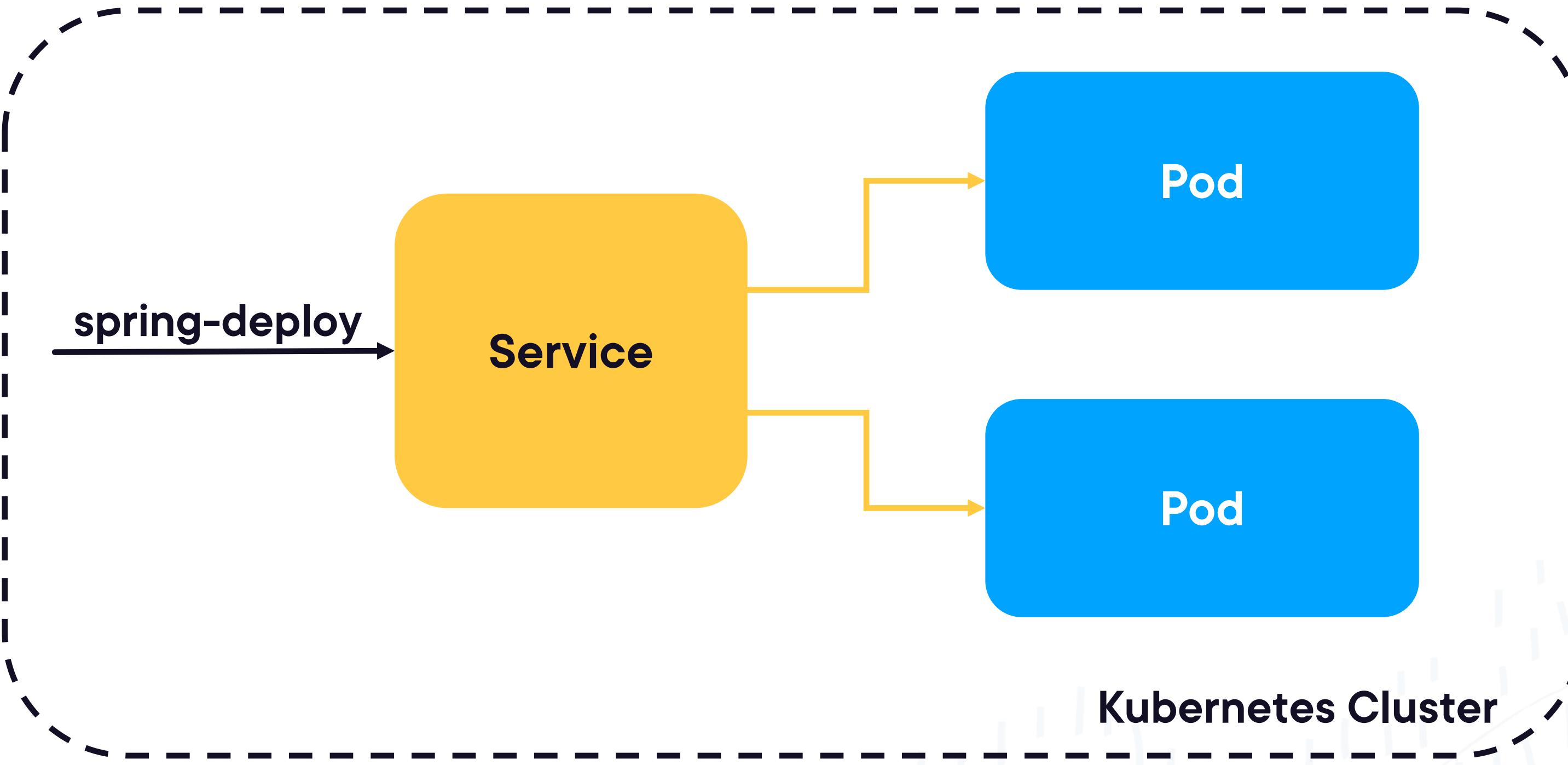
Kubernetes Networking



Kubernetes Networking



Kubernetes Services



Kubernetes Services

ClusterIP

NodePort

LoadBalancer

ExternalName



Demo



**Route traffic to application using
Kubernetes Services**

Explore different Service Types:

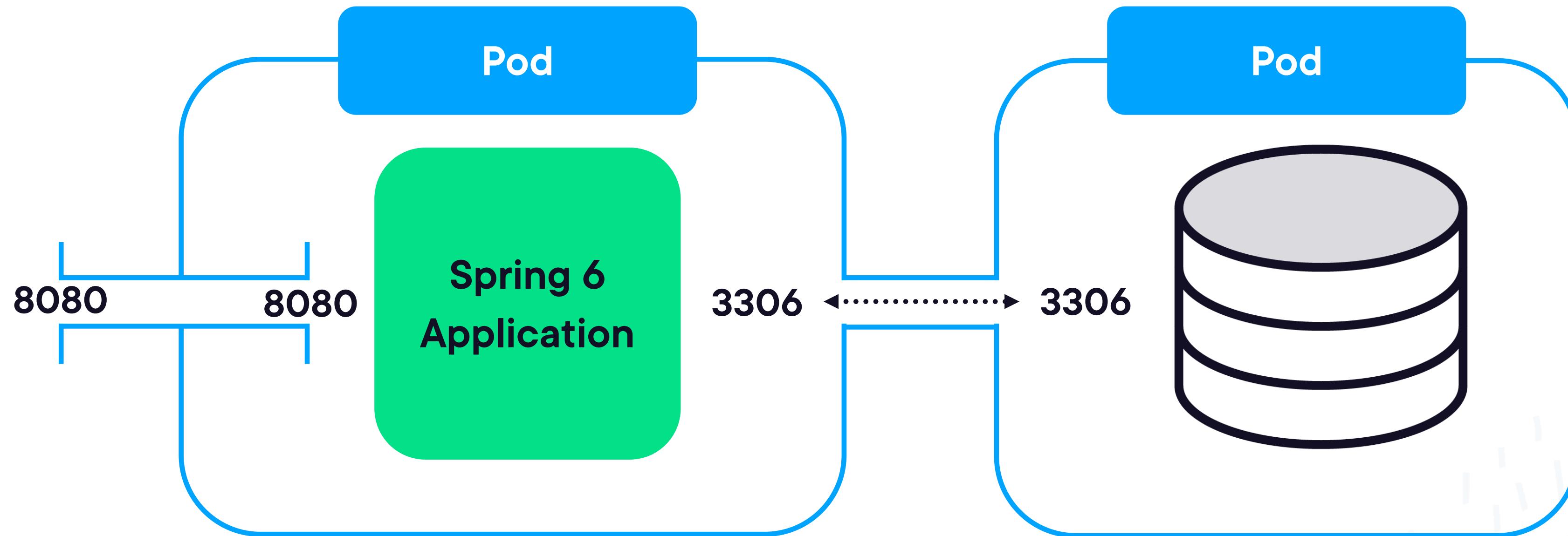
- ClusterIP
- NodePort



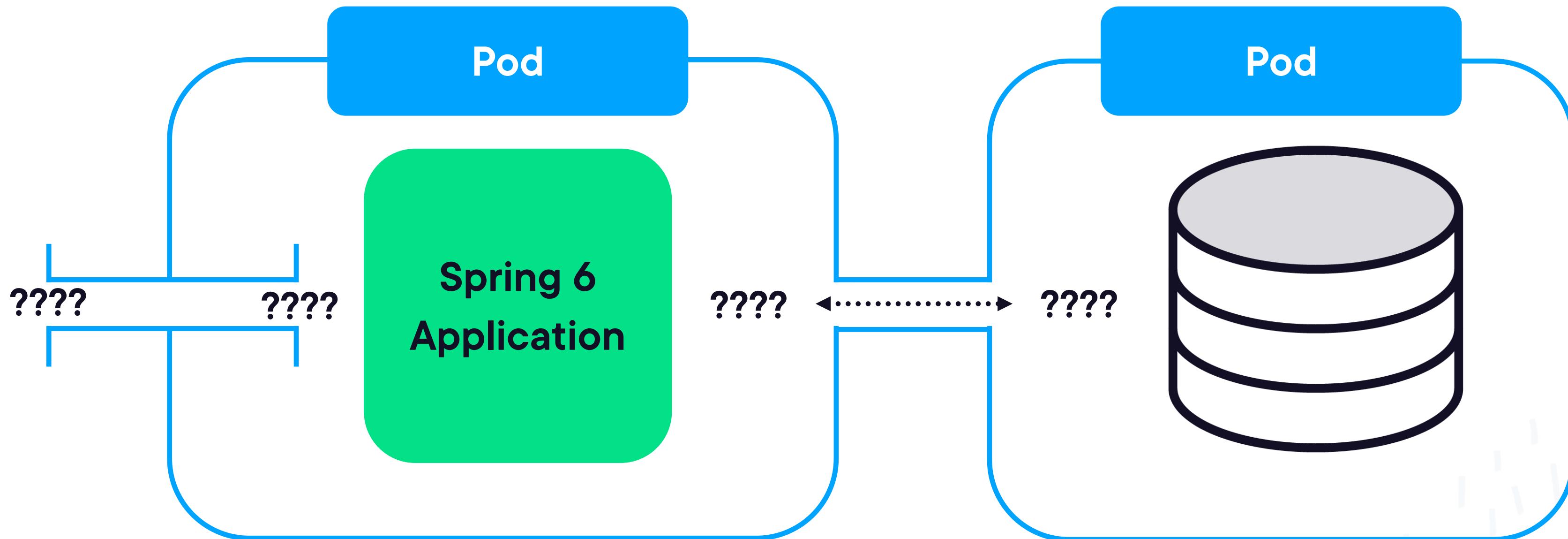
Configure Spring Applications



Environment Variables



Environment Variables



Providing Properties

application.yml

```
server:  
  port: 8080  
  
spring:  
  datasource:  
    url: jdbc:mysql://mysql-server:3306/pluralsight  
    username: root  
    password: password  
    driverClassName: com.mysql.cj.jdbc.Driver
```



Externalized Configuration

Command Line Arguments

Java System properties

OS Environment Variables

Config data (such as application.yml files)

@PropertySource annotations

Default Properties



Externalized Configuration

Command Line Arguments

Java System properties

OS Environment Variables

8082

Config data (such as application.yml files)

8081

@PropertySource annotations

Default Properties

8080



Externalized Configuration

Command Line Arguments

Java System properties

OS Environment Variables

Config data (such as application.yml files)

@PropertySource annotations

Default Properties



Demo



**Configure Spring application using
Kubernetes Config Maps**

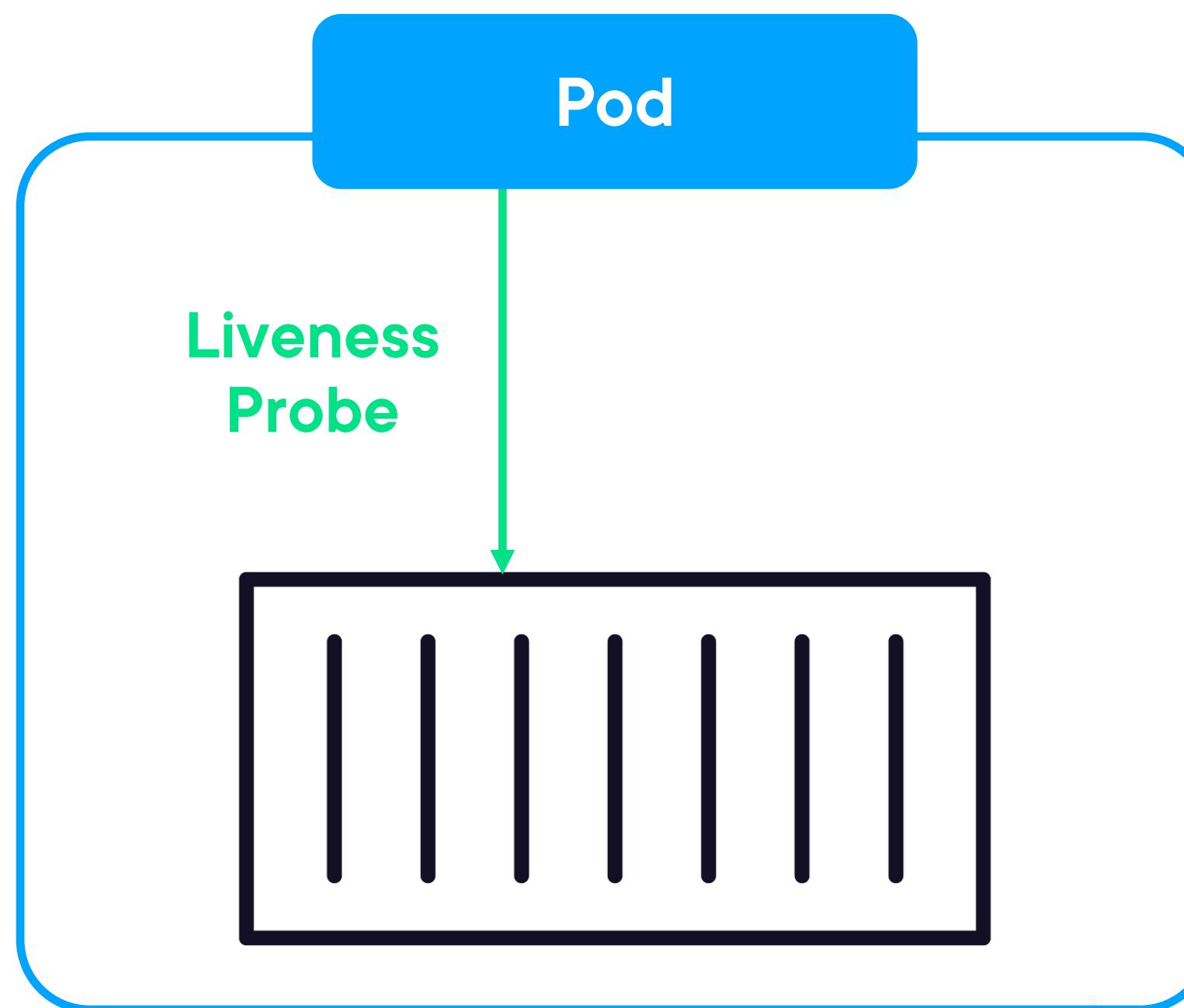




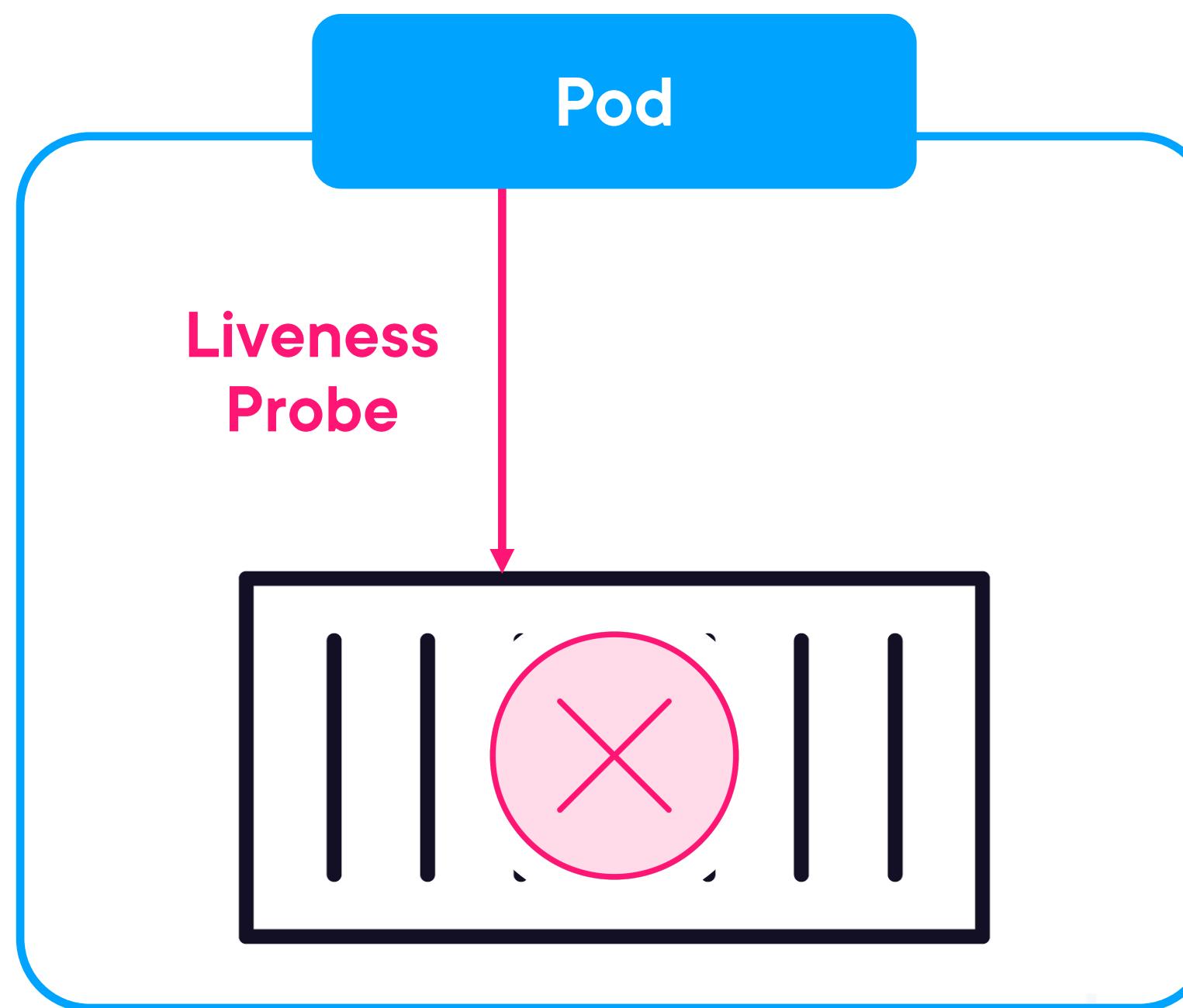
Liveness and Readiness



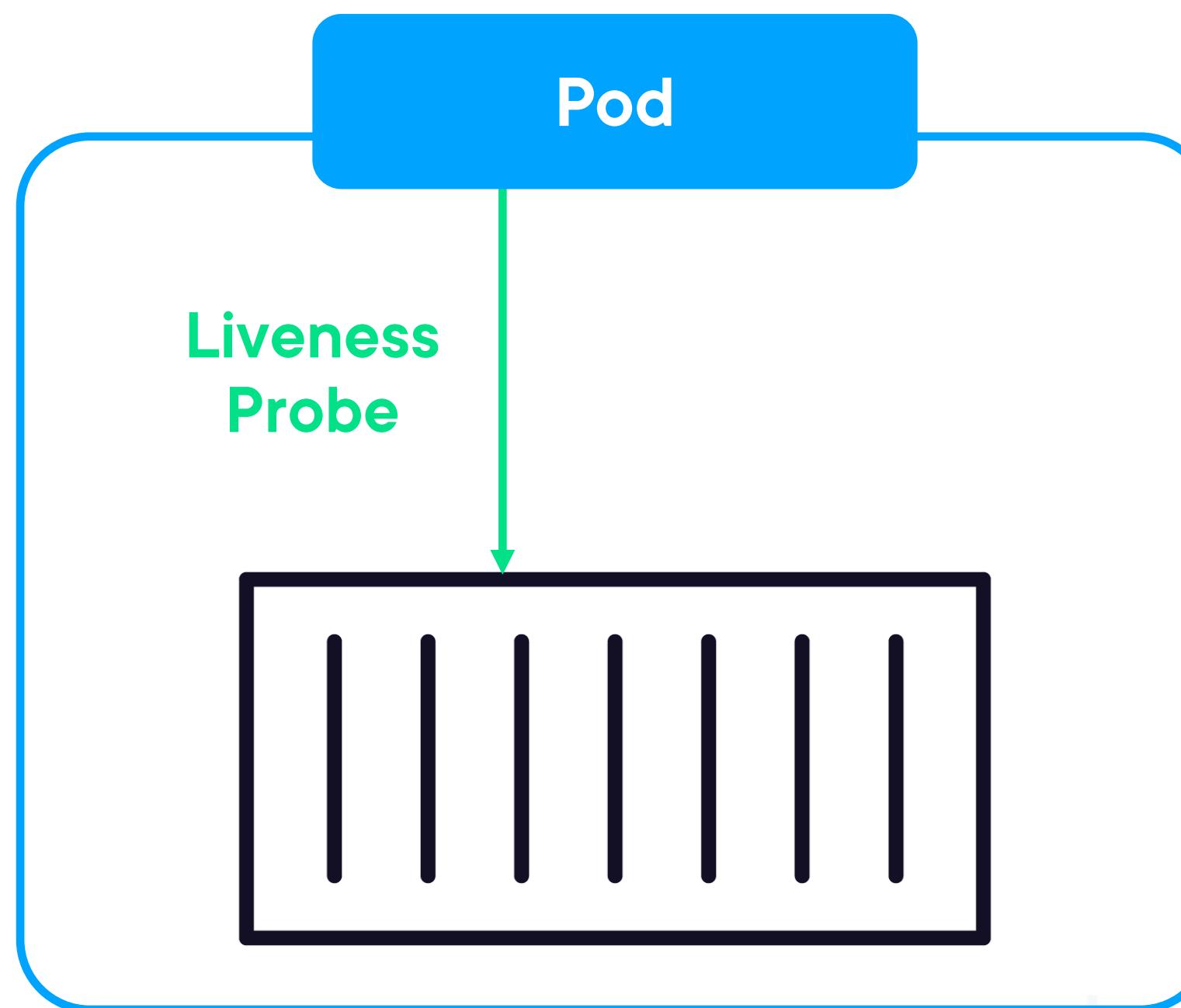
Kubernetes Probes



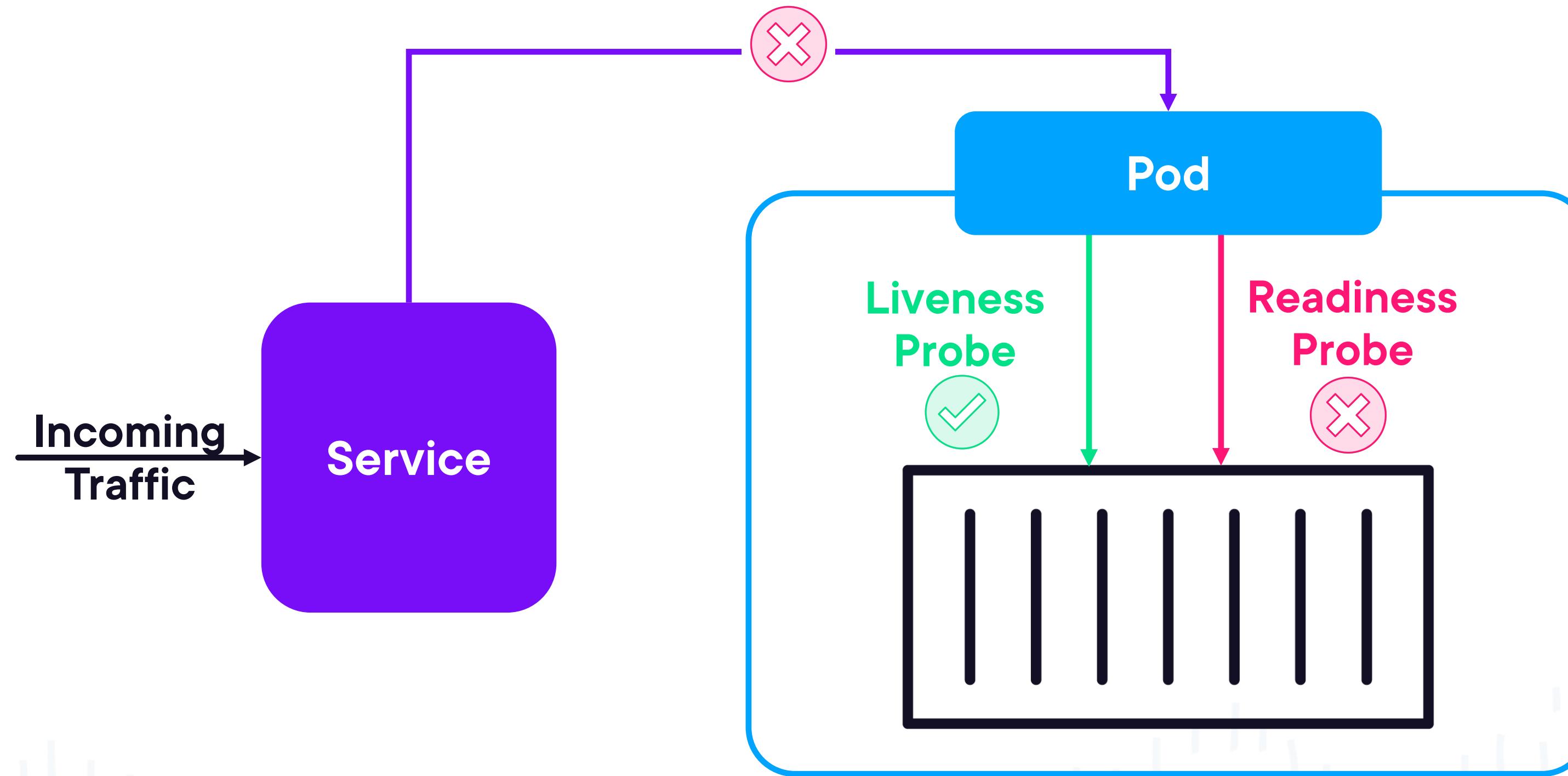
Kubernetes Probes



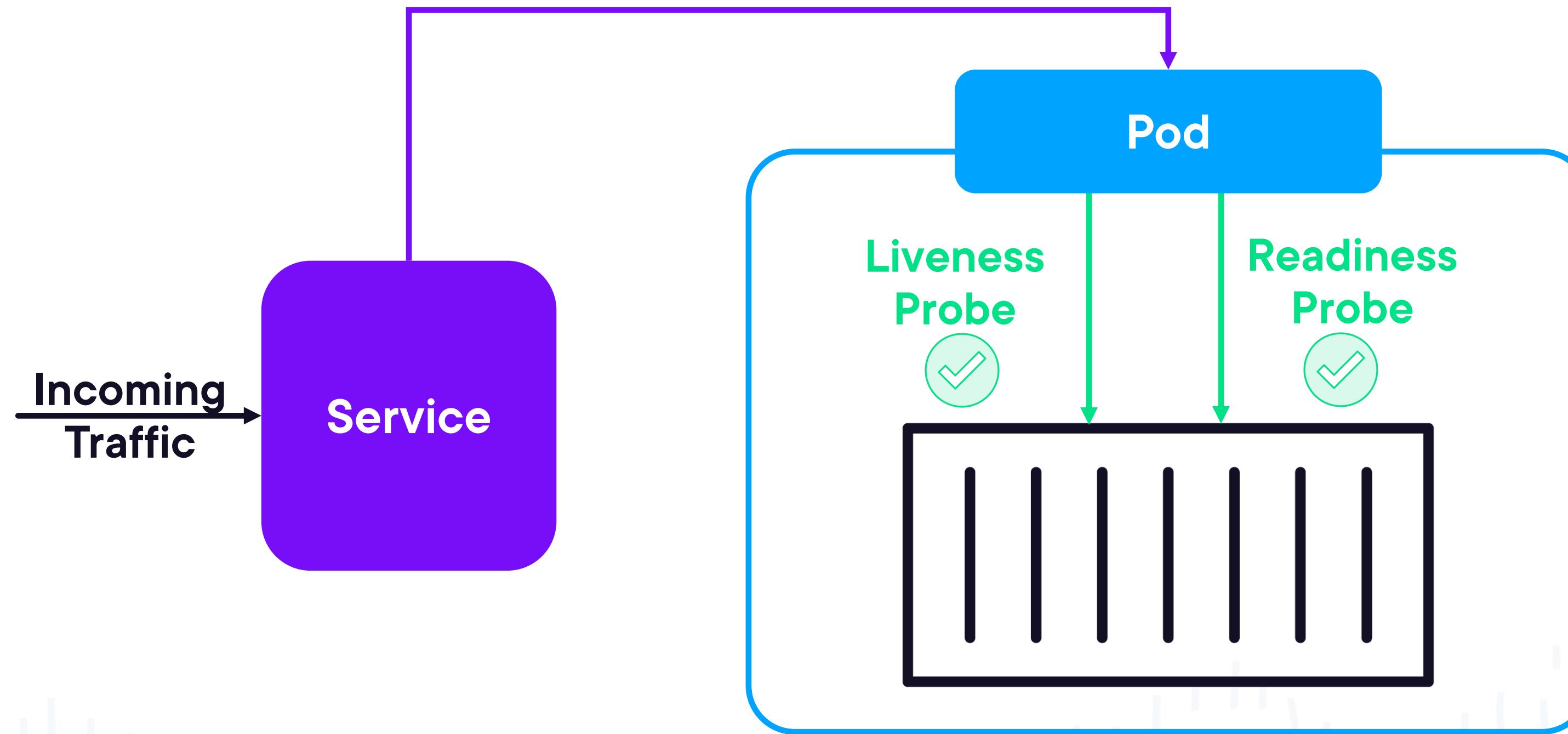
Kubernetes Probes



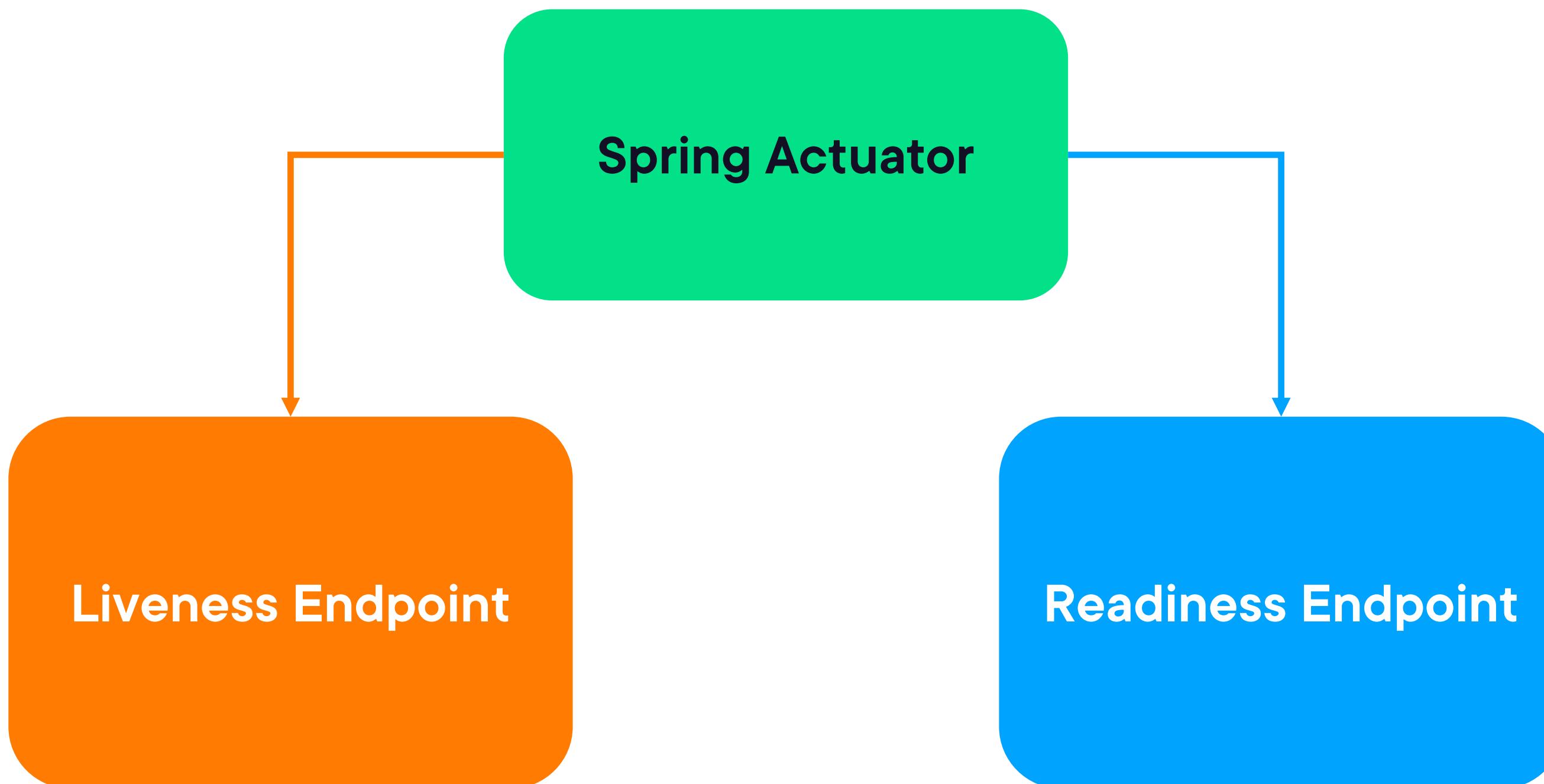
Liveness Probe



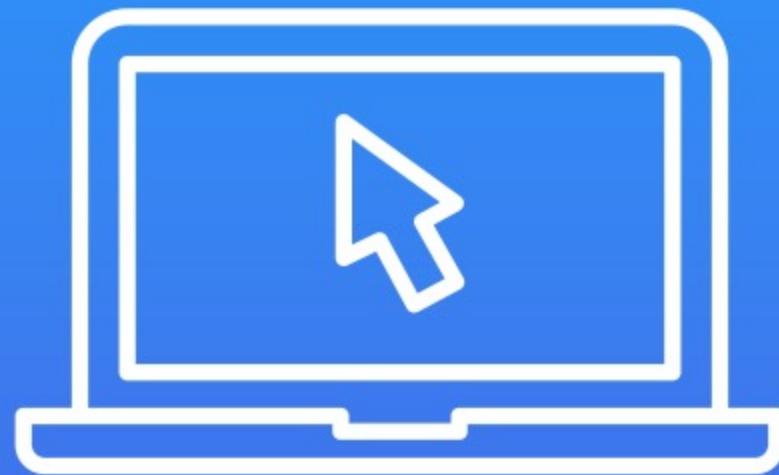
Readiness Probe



Actuator Endpoints



Demo



Configure Actuator endpoints

Set up Liveness Probe

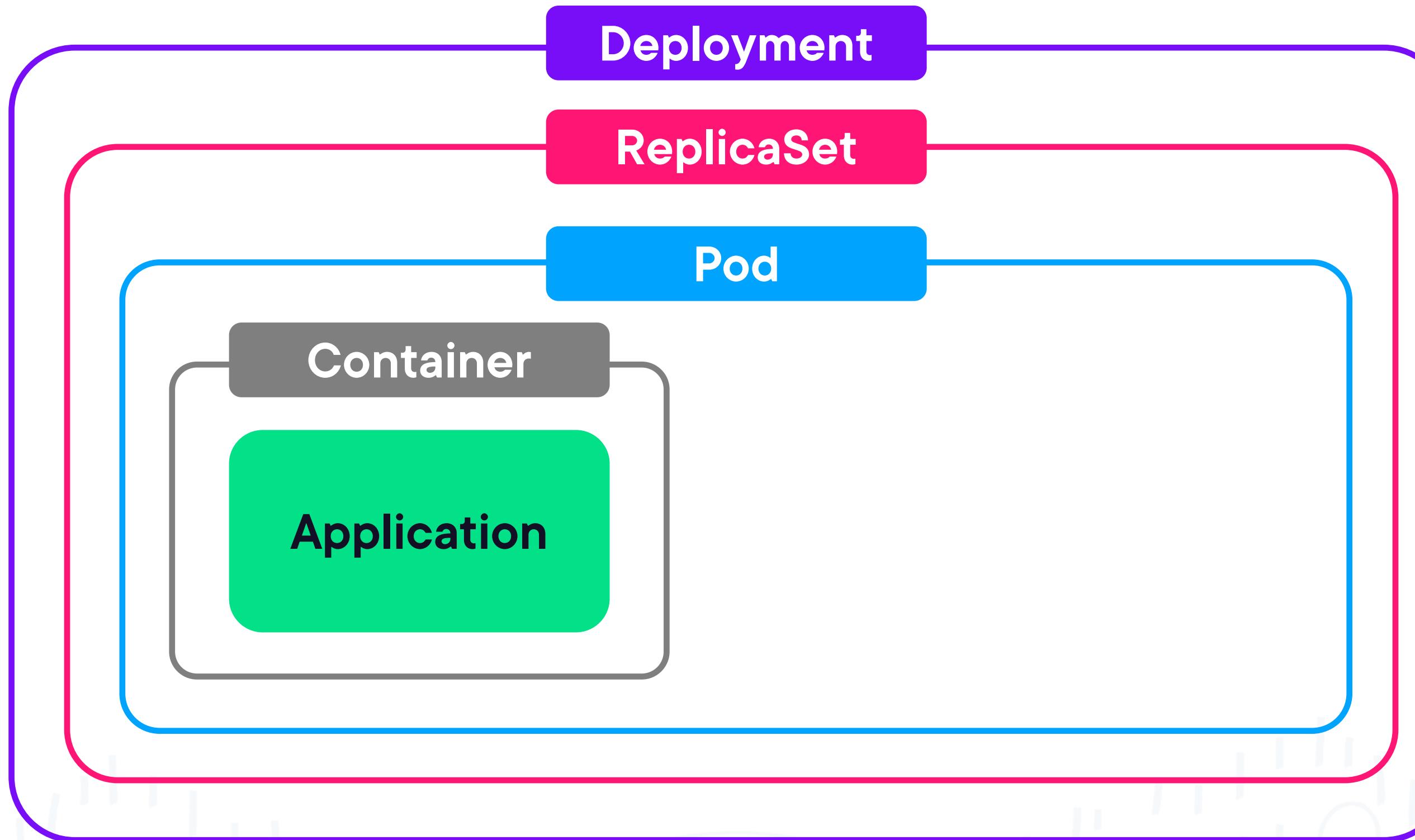
Set up Readiness Probe



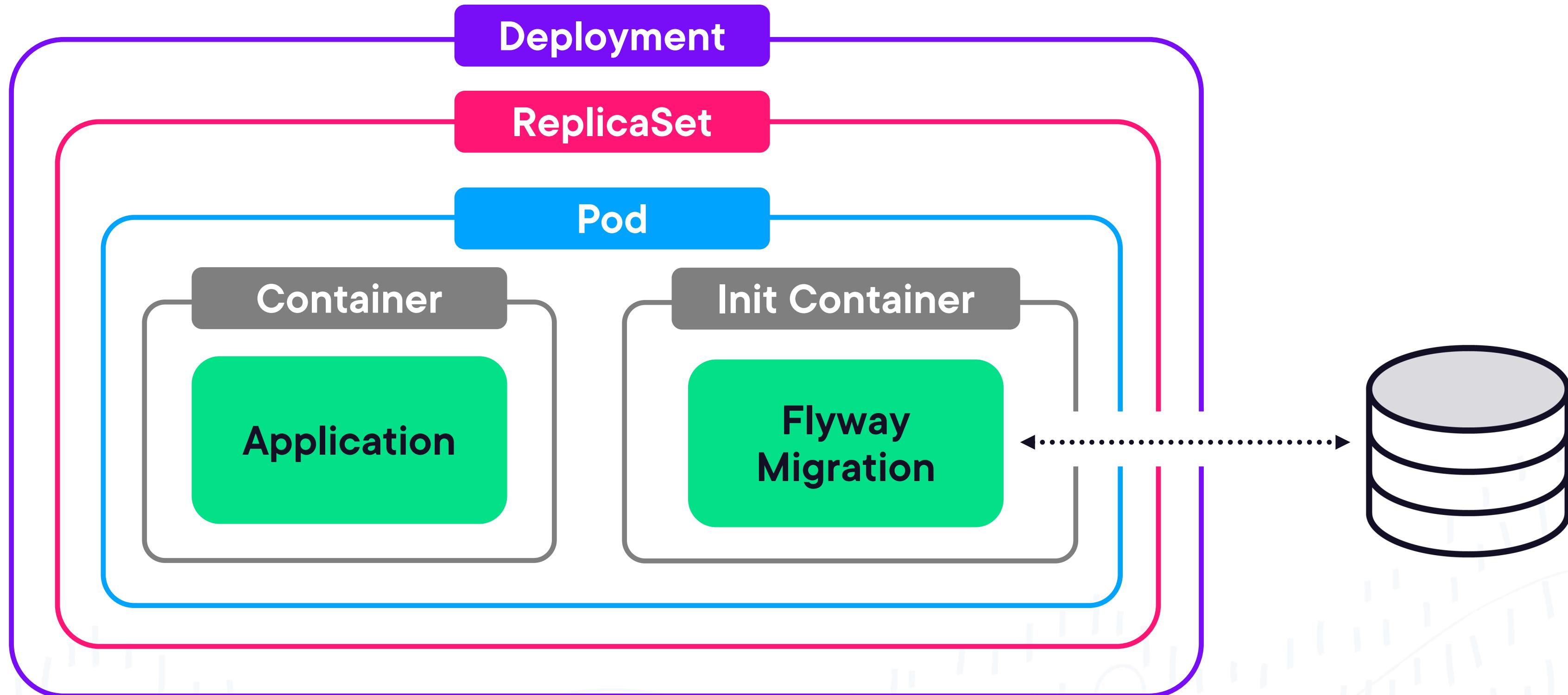
Init Containers



Init Containers



Init Containers



Demo



Init containers

Wrap Flyway Migration in an Init Container



Summary



Kubernetes Deployment

Access deployments using Services

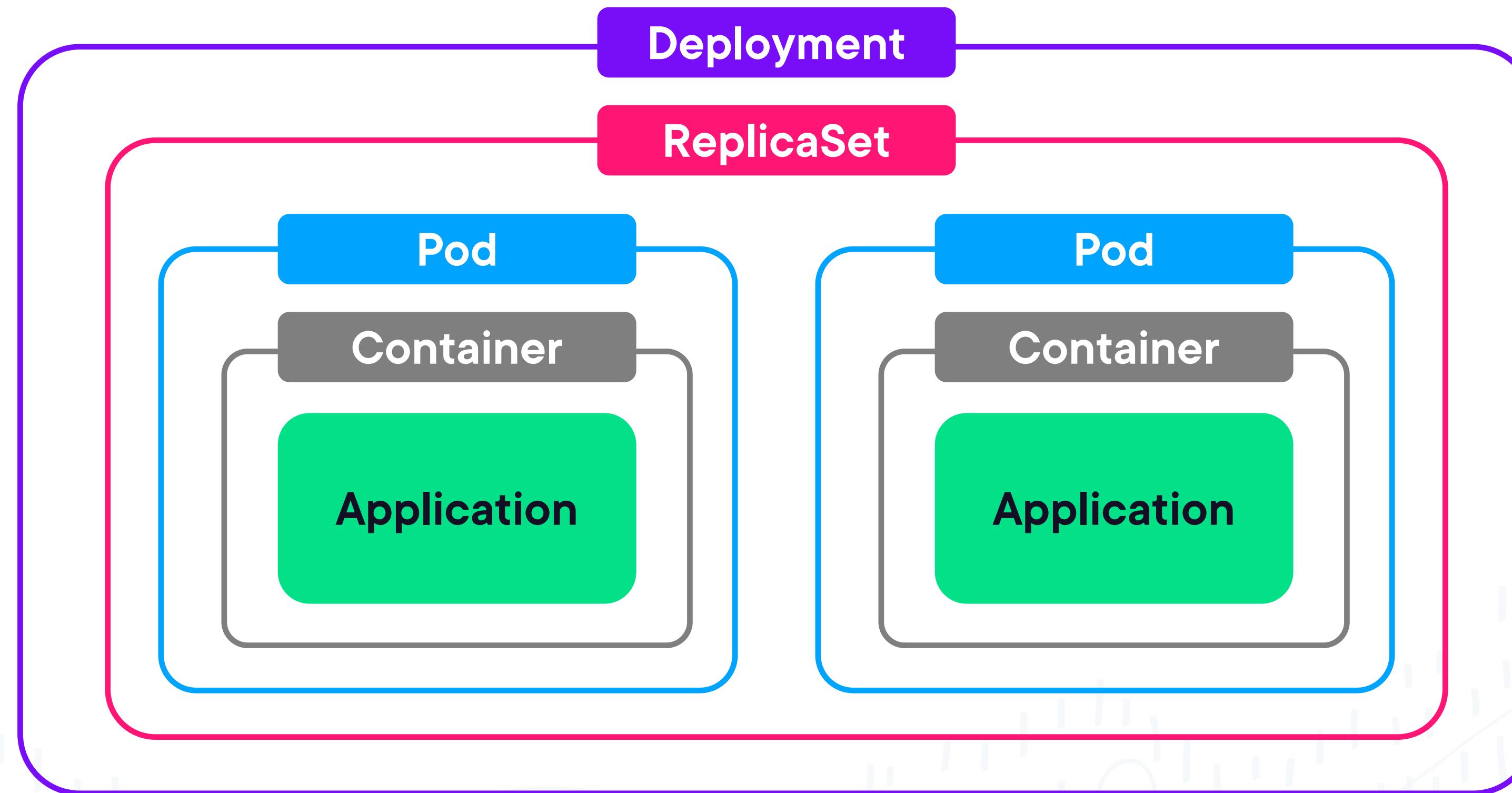
Configure using Config Maps

Liveness and readiness

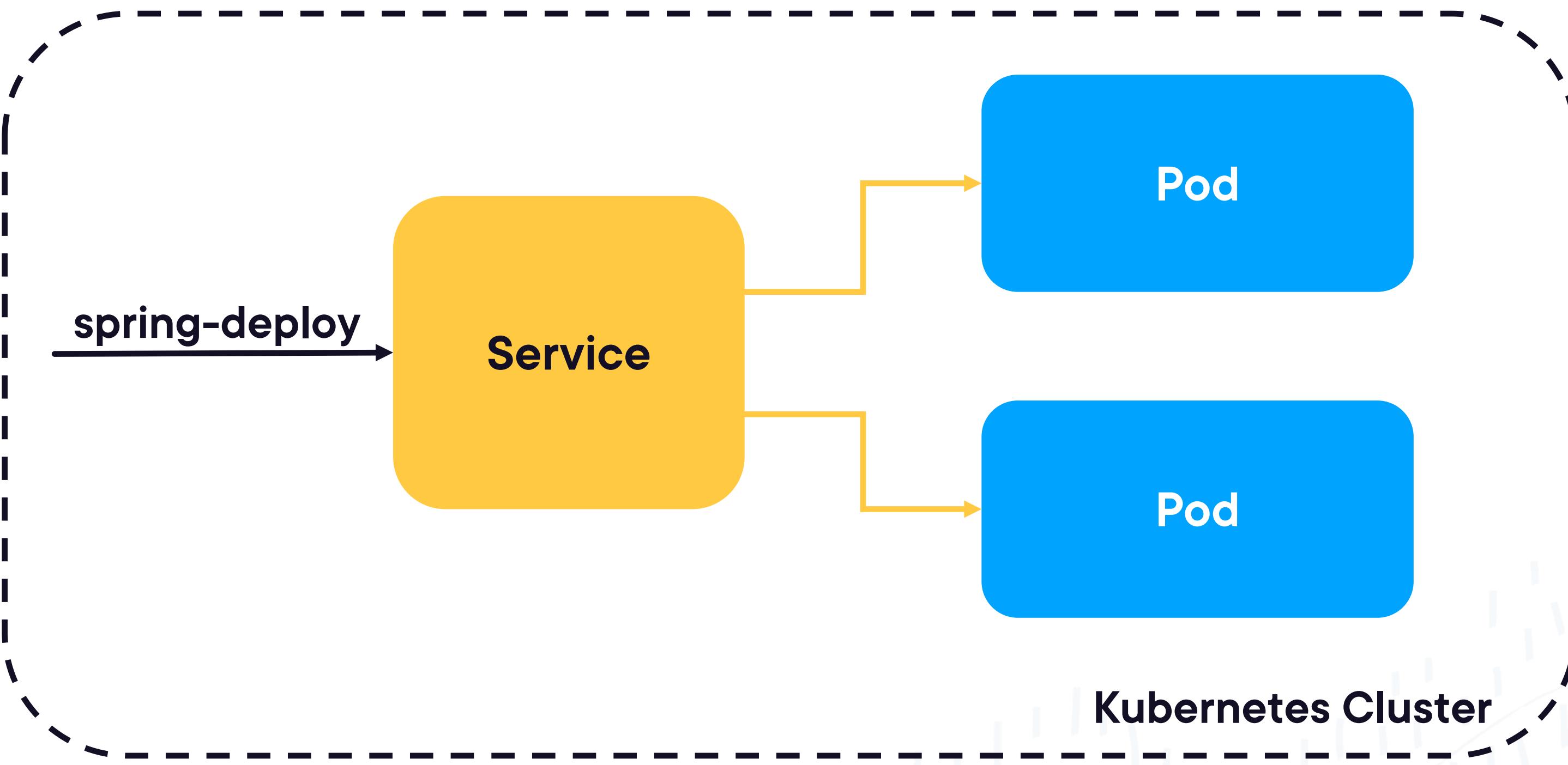
Init containers



Kubernetes Deployment



Kubernetes Services



Externalized Configuration

Command Line Arguments

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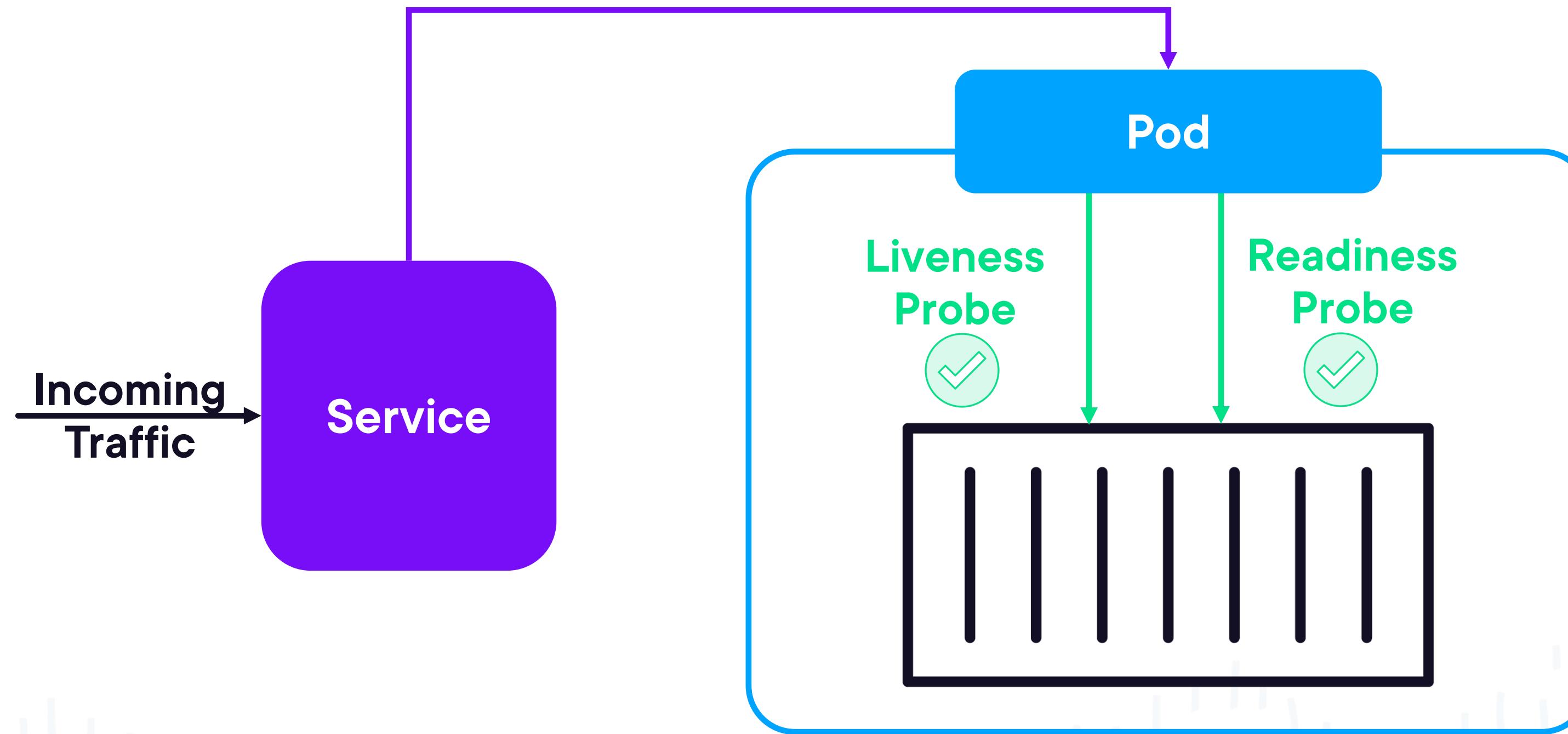
Config data (such as application.yml files)

@PropertySource annotations

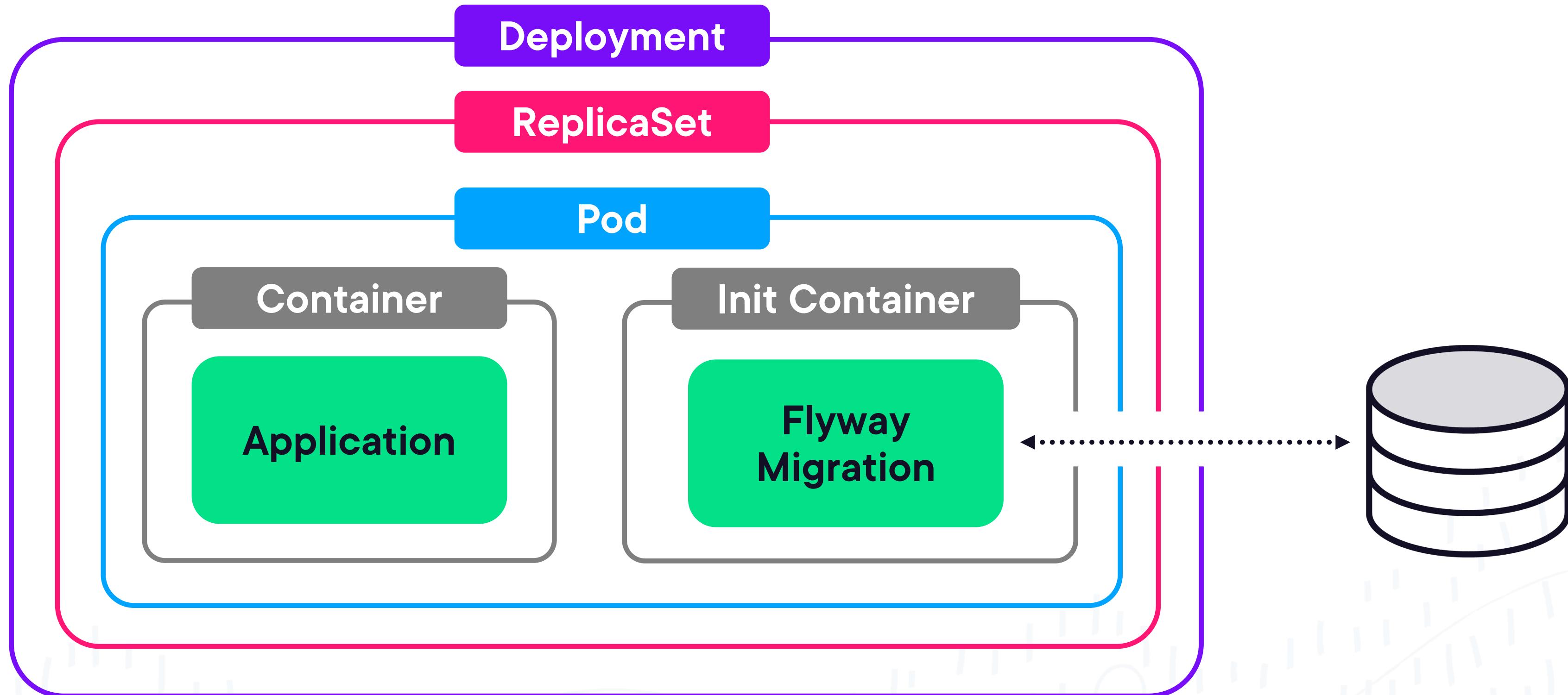
Default Properties



Readiness Probe



Init Containers



Get in Touch with Me



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