

Not a Kubernetes fan? The state of PaaS in 2025

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Your presenter for this session

Paketo and CloudFoundry Java buildpacks maintainer based in Montréal



But also community leader!



Montreal JUG co-lead



DevOxx4kids QC co-lead



CNCF Eastern Canada co-organizer



AVERTISSEMENT

This is an opiniated presentation!

- I will NOT cover
 - Pricing and comparison in detail
 - Frontend Dev. Platforms (I'll focus on Java Spring backend)
 - All PaaS that exist in the world (but some though 🥵)
- I am biased
 - Towards CloudFoundry and Paketo Buildpacks ❤️🏆

Agenda

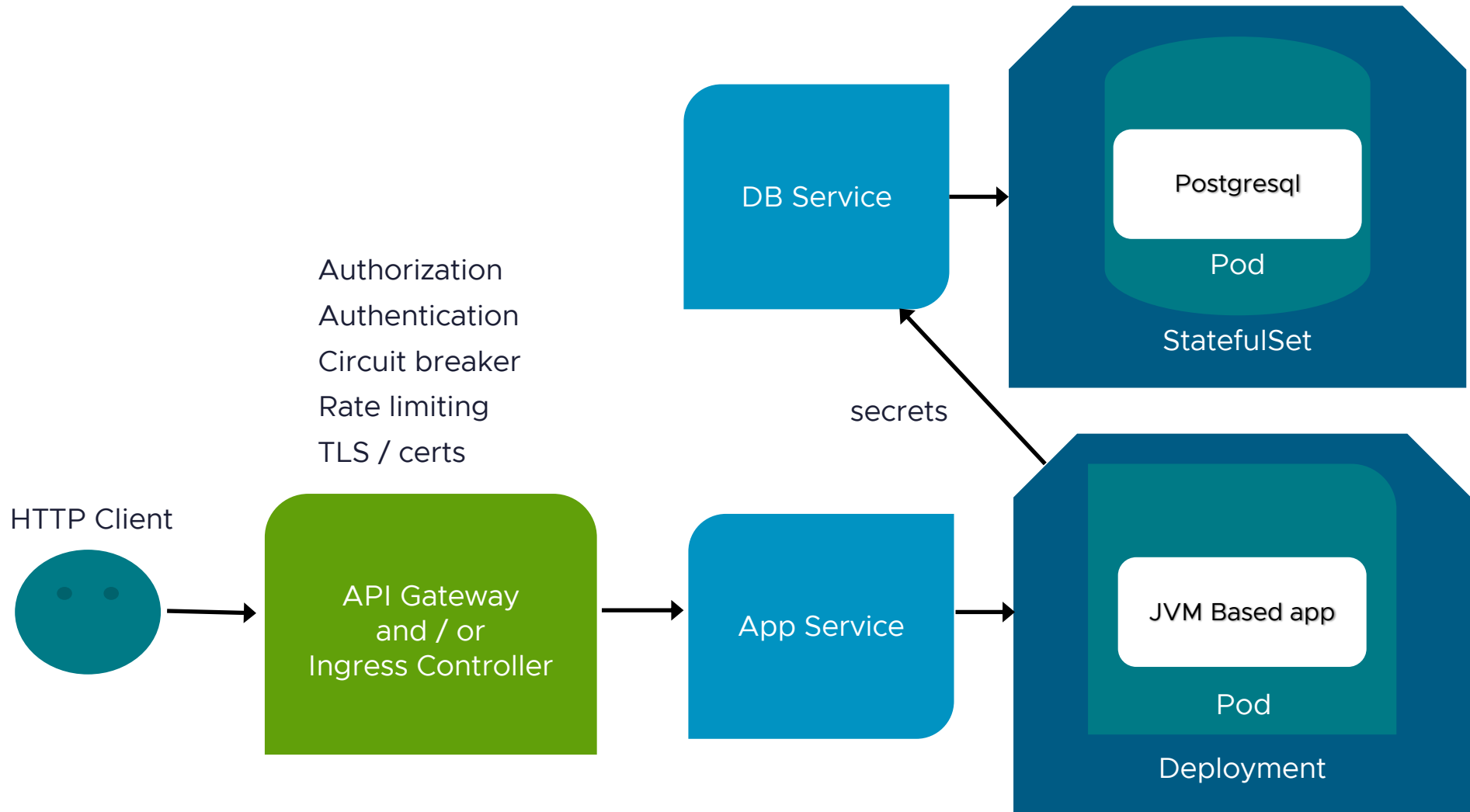
- Deploying applications on Kubernetes...
- PaaS: the (demo) app and the technologies used
 - CloudFoundry buildpacks
 - Cloud Native (CNCF) buildpacks and Paketo
 - NixOS and NixPacks
 - Others?
- Take aways

Deploying apps to Kubernetes...

Are “app-batteries” included?

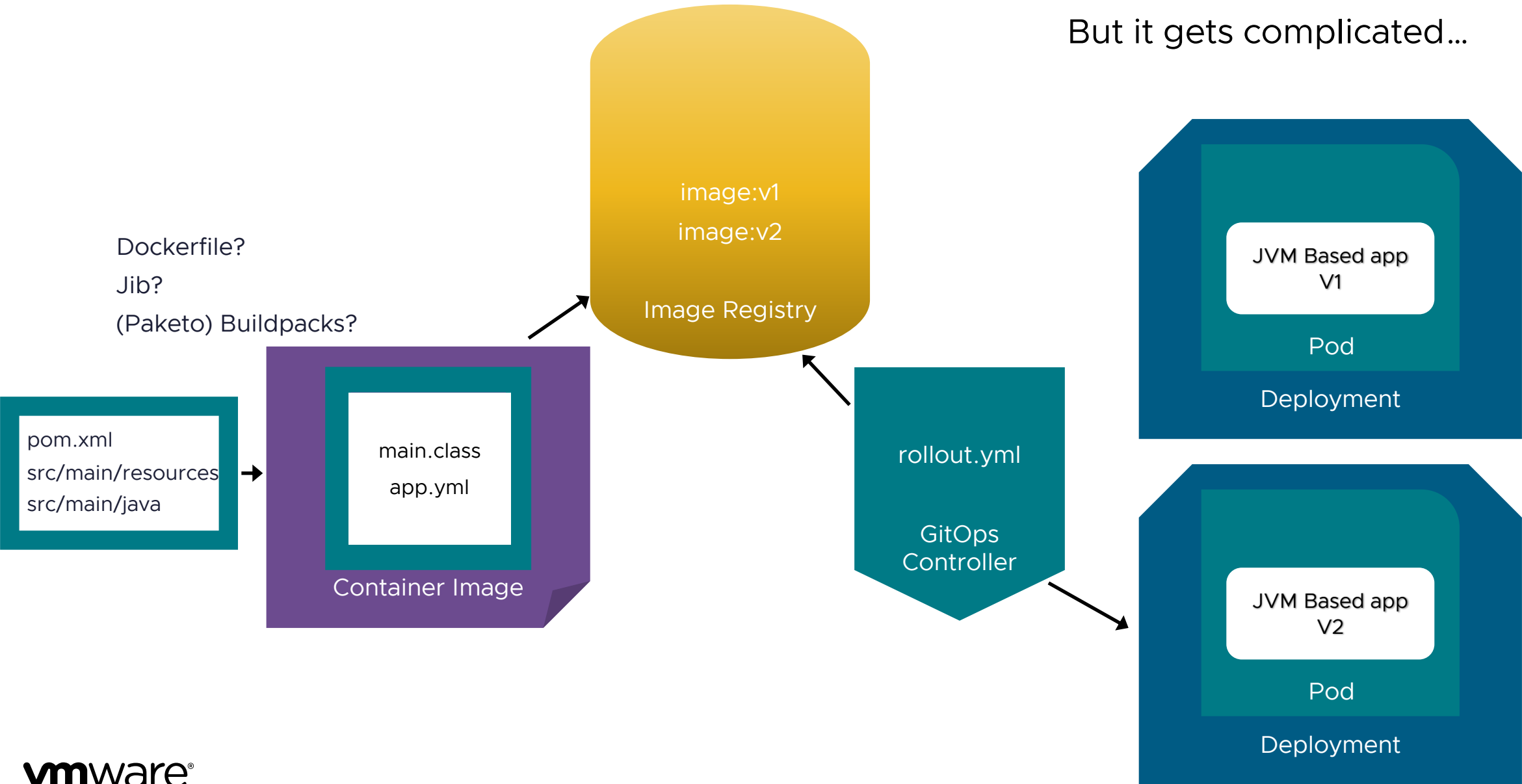
It all starts with a pod...

But it gets complicated...



Or did that start with the source code?

But it gets complicated...



There are some developers' tools to help...

- Tools to trigger build and redeploy after source code is changed
 - [Scaffold](#)
 - [Tilt.dev](#) (now part of Docker)
 - [DevSpace.sh](#)
- Tool to run a local process into a (remote) K8s cluster
 - [Telepresence](#)

Platform as a Service

Deploy apps without complexity

- Higher-level abstraction for deploying applications
- Abstraction of the cloud provider / infrastructure
- Tooling (buildpacks) to “magically” turn your code into a running process (in a pod or not)
- Connectors to “magically” bind your app to services

The app we'll use for the deployment demos

Hello meetups-calendar !



<https://start.spring.io>



Project

☒ Gradle - Groovy

☐ Gradle - Kotlin

☐ Maven

Language

☒ Java

☐ Kotlin

☐ Groovy

Spring Boot

☐ 3.3.0 (SNAPSHOT)

☐ 3.3.0 (M3)

☐ 3.2.5 (SNAPSHOT)

☒ 3.2.4

☐ 3.1.11 (SNAPSHOT)

☐ 3.1.10

Project Metadata

Group com.example

Artifact demo

Name demo

Description Demo project for Spring Boot

Package name com.example.demo

Packaging ☒ Jar ☐ War

Java ☐ 22 ☐ 21 ☒ 17

Dependencies

ADD DEPENDENCIES... ⌘ + B

Spring Boot Actuator

OPS

Supports built in (or custom) endpoints that let you monitor and manage your application - such as application health, metrics, sessions, etc.

Rest Repositories

WEB

Exposing Spring Data repositories over REST via Spring Data REST.

Spring Web

WEB

Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

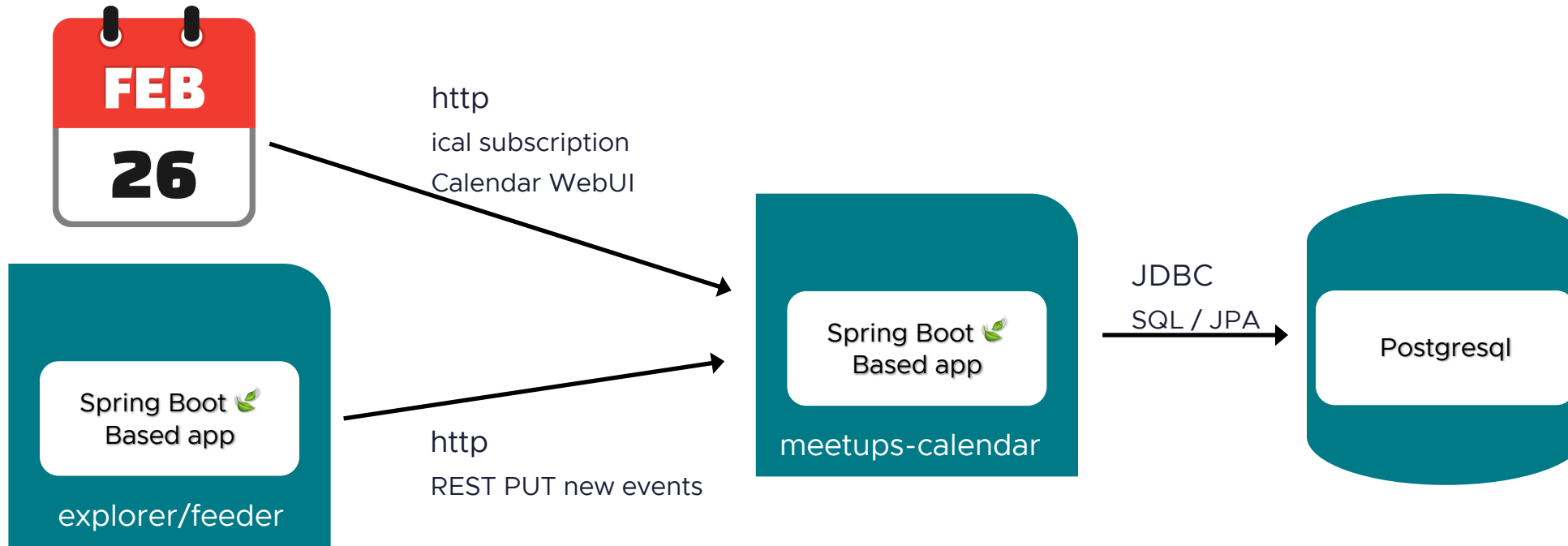
PostgreSQL Driver

SQL

A JDBC and R2DBC driver that allows Java programs to connect to a PostgreSQL database using standard, database independent Java code.

The app we'll use for the deployment demos

Hello meetups-calendar !



The challengers!

Specialized PaaS providers



Build	Easy Binding to DB
CloudFoundry Buildpack (OSS) <i>Does NOT package java app.</i>	Yes, via VCAP_SERVICES
Cloud Native Buildpacks (OSS spec) Heroku flavor <i>packages java app. on their infra</i>	Yes via auto env. variable
Cloud Native Buildpacks (OSS spec) Paketo flavor (OSS) <i>packages java app. on their infra</i>	Manual env. var.
Cloud Native Buildpacks (OSS spec) Paketo flavor (OSS) <i>packages java app. on their infra</i>	Manual env. var.

The challengers!

Specialized PaaS providers



Railway



Render

platform.sh



clever cloud

Build

Easy Binding to DB

NixPacks (OSS)
packages java app. on their infra

Manual env. var.

Own solution, does not support Java
Only supports Java via Dockerfile

Manual env. var.

NixPacks (OSS)
packages java app. on their infra

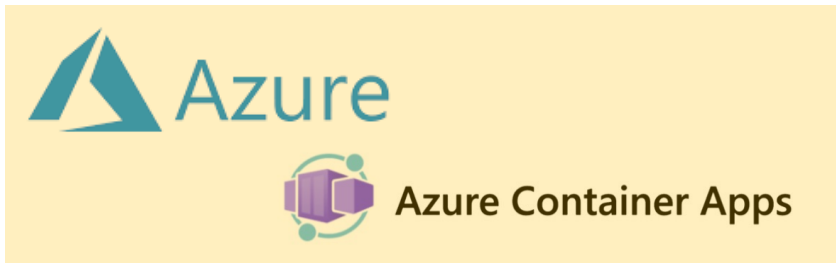
Manual env. var.

Own solution, supports Java via
Cargo and custom startup command
Does NOT package java app.

Yes via linked app

The challengers!

Cloud Providers PaaS



Build

Easy Binding to DB

Many options to choose from, but no real PaaS for Java
App Runner: Java 11 (deprecated)
Elastic Beanstalk uses Procfile to point to built artifact, no PaaS support

Cloud Native Buildpacks (OSS spec)
Gcloud Flavor
packages java app. on their infra, using Cloud Builds

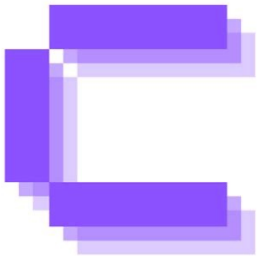
Needs a spring-boot jar and manually set env. vars

Cloud Native Buildpacks (OSS spec)
Azure + Paketo Flavor
packages java app. on their infra, using Github Actions

Manually set or via Dapr

The challengers!

Running on your own infra.



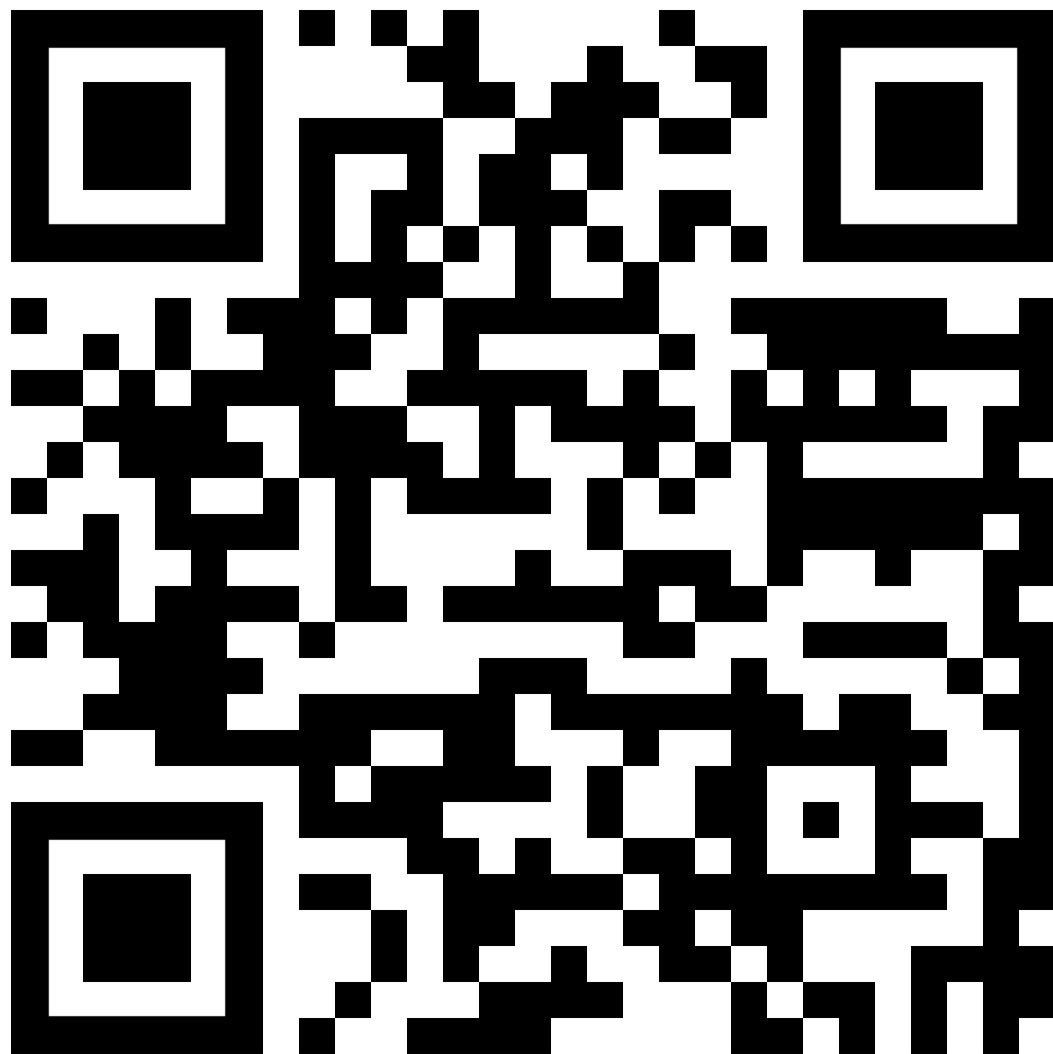
EPINIO

Build	Easy Binding to DB
CloudFoundry Buildpack (OSS) <i>Does NOT package java app.</i>	Yes, via VCAP_SERVICES
NixPacks (OSS) <i>packages java app. on your infra</i>	Needs a spring-boot jar and manually set env. vars
Cloud Native Buildpacks (OSS spec) Paketo flavor (OSS) <i>packages java app. on their infra</i>	Manual env. var.

Take aways

Trends are forming for PaaS in 2025

- Modern PaaS are not trying to compete with Cloud Providers
 - They embrace them (Tanzu, Porter)
- Modern PaaS “magically” build your app –with OSS xPacks!
 - Allow them to inject specific libraries for your needs (agents, auto configurers)
- Modern PaaS “magically” bind services to your app
 - With either environment variables or mounted configuration files



Thank You

Time for 🍴 Enjoy ConFoo! 🎉