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Buildpacks – What's That, and How Does It Work?

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The background features a series of concentric, slightly blurred circles in shades of light pink and beige, creating a sense of depth and movement. On the right side, there is a dark, curved, metallic-looking structure that resembles a modern architectural element or a piece of furniture. In the bottom left corner, there is a solid teal-colored rectangular box.

Problem

Source Code

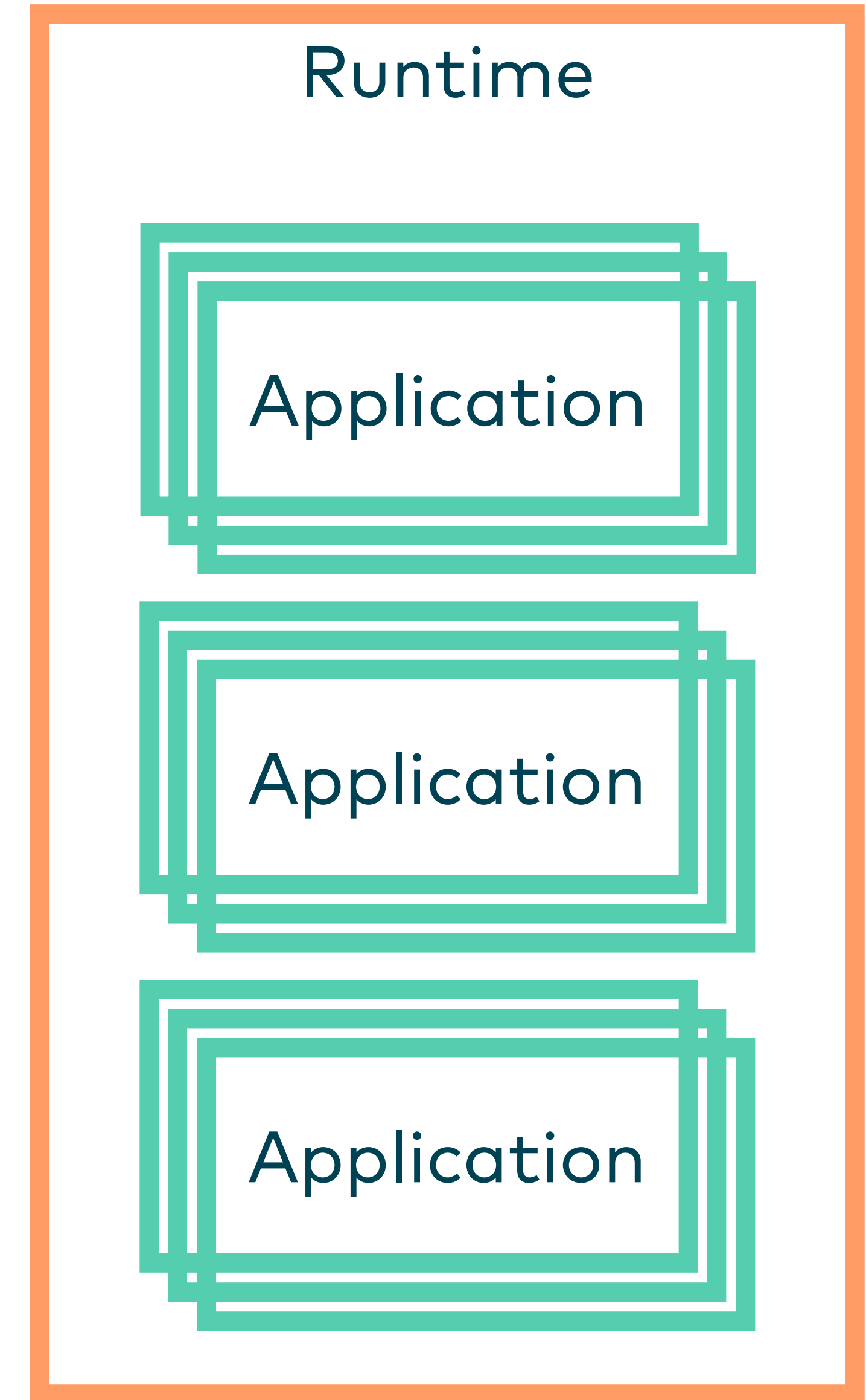
Source Code

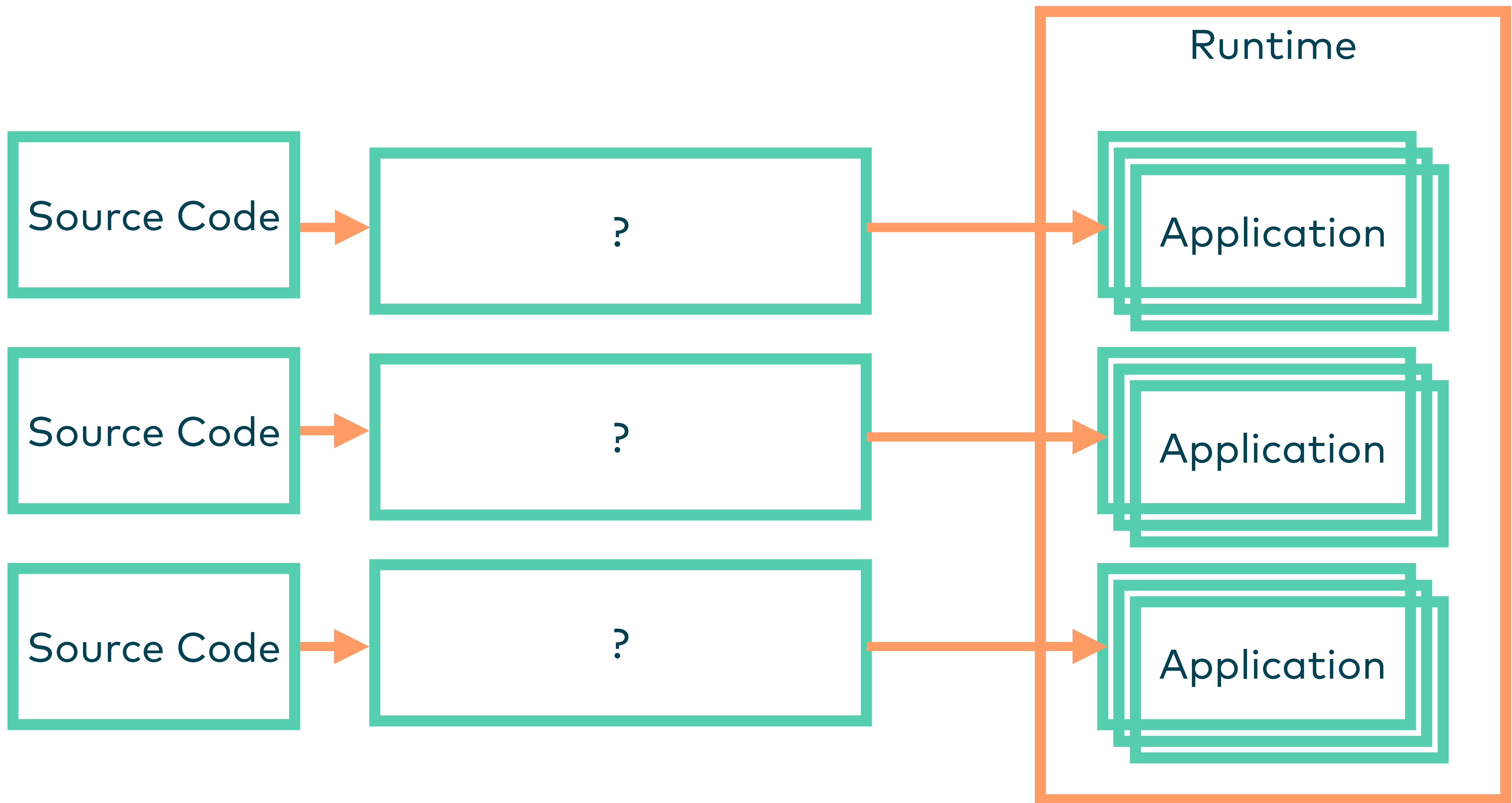
Source Code

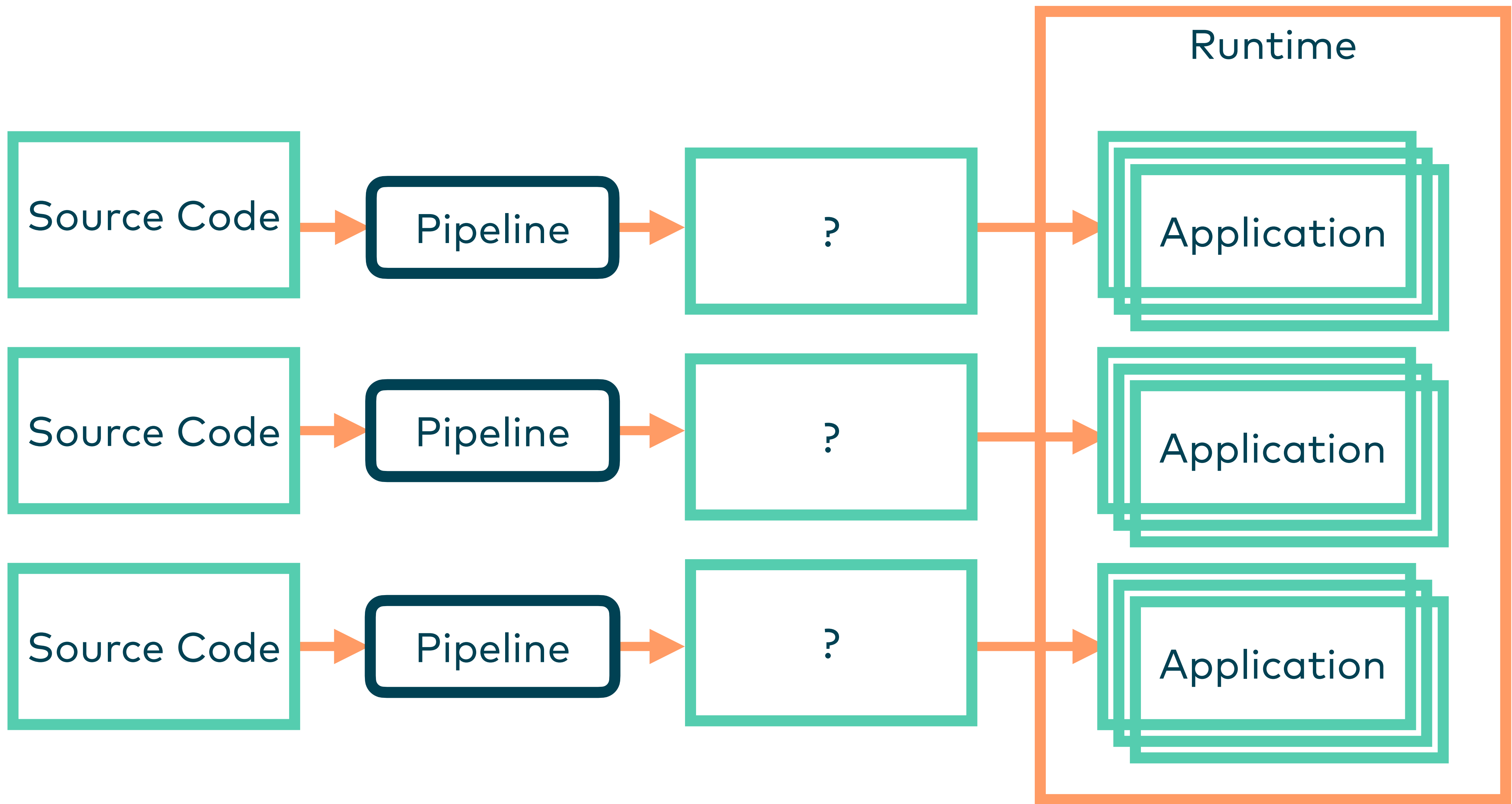
Source Code

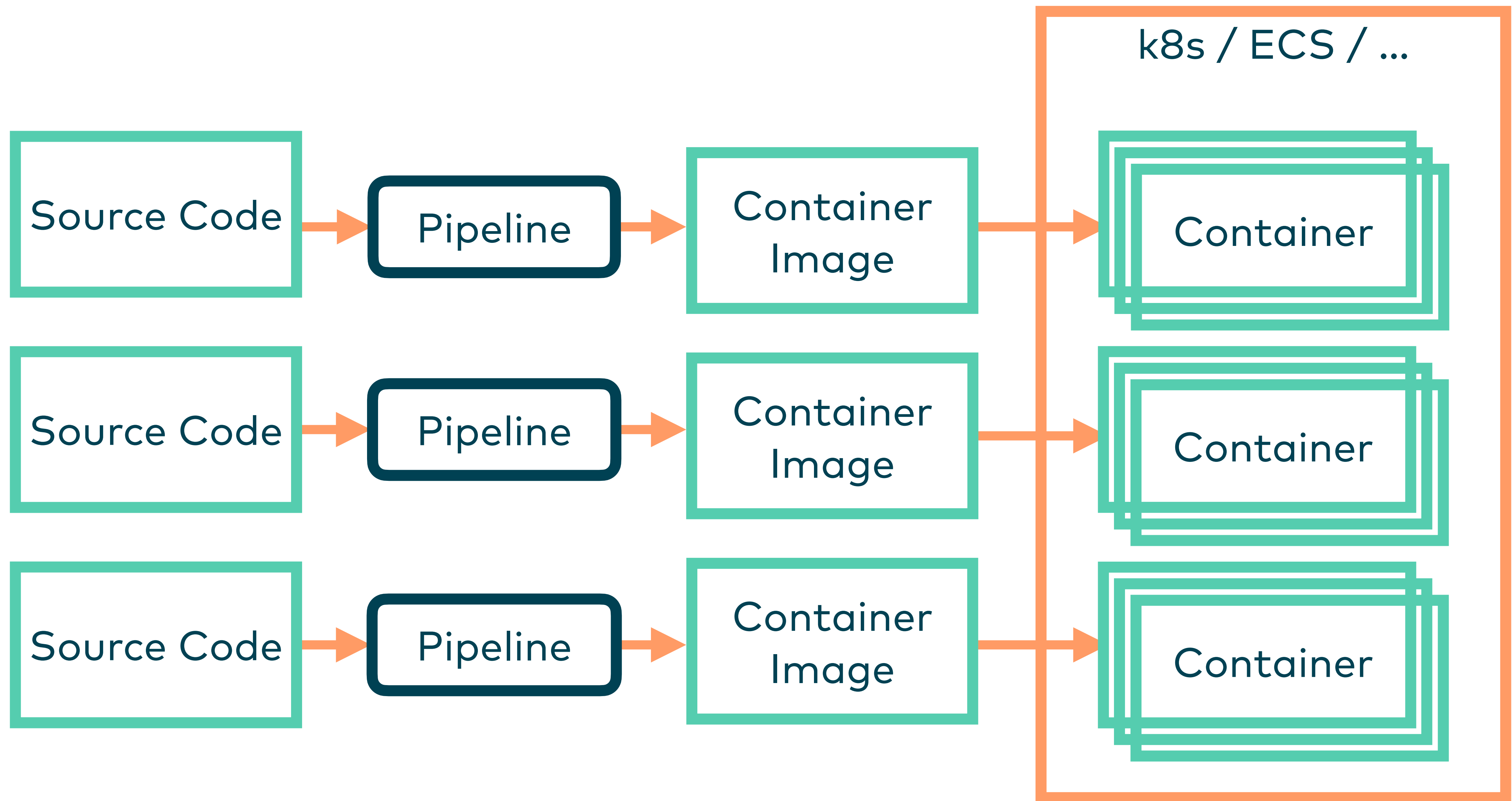
Source Code

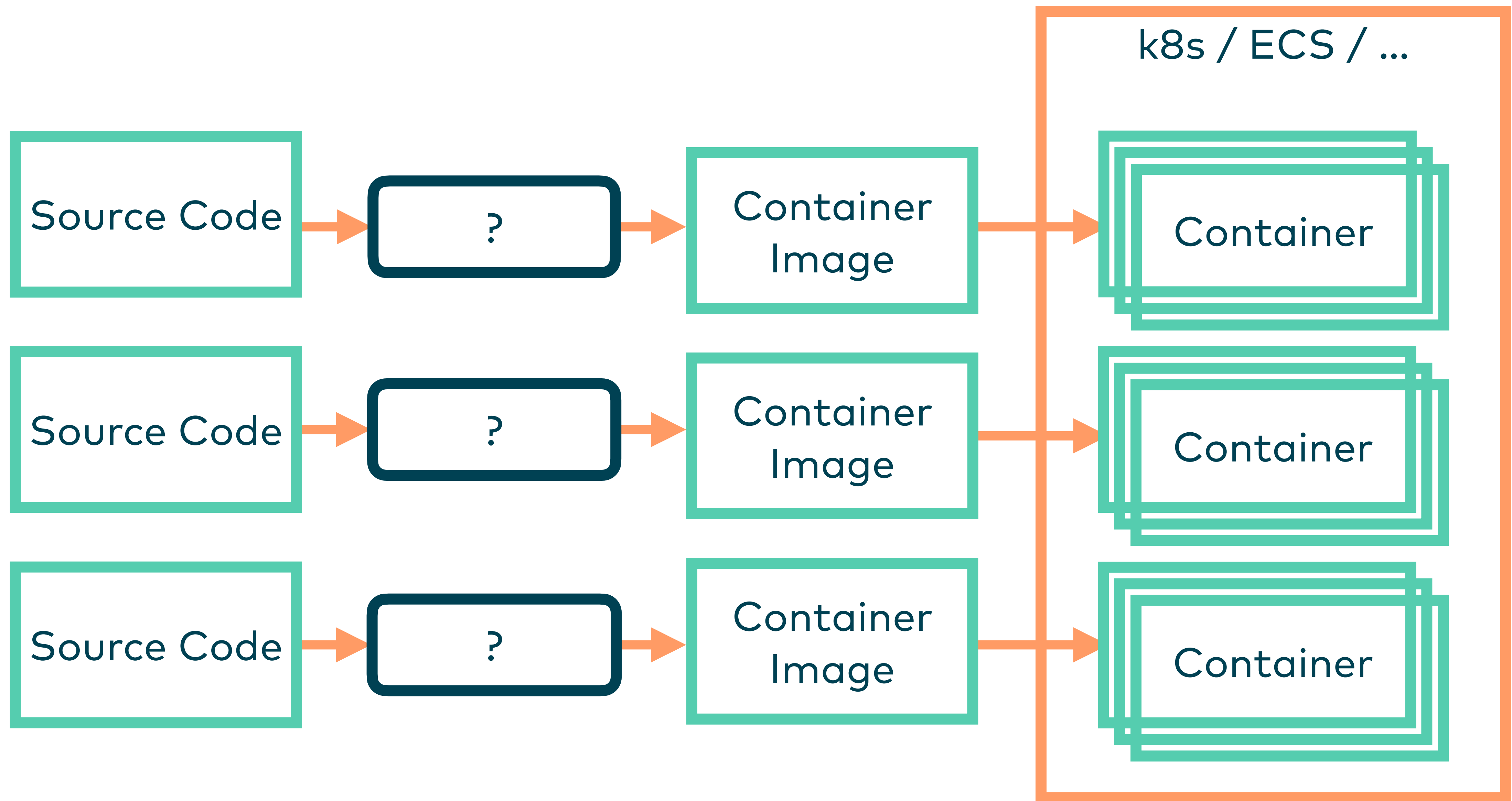
Source Code













Solution



Caching?

```
FROM eclipse-temurin:21.0.1_12-jdk-alpine AS builder
```

```
COPY . /app
```

```
RUN ./mvnw \
    clean verify
```

```
RUN java \
    -Djarmode=layertools \
    -jar target/buildpacks.jar \
    extract
```

```
FROM eclipse-temurin:21.0.1_12-jdk-alpine
```

```
CMD [ "java", \
    "-XX:MaxRAMPercentage=70", \
    "org.springframework.boot.loader.JarLauncher"]
```

```
RUN mkdir -p /app && \
    chown
```

```
USER daemon
WORKDIR /app
```

```
COPY --from=builder /app/dependencies/ ./
COPY --from=builder /app/spring-boot-loader/ ./
COPY --from=builder /app/snapshot-dependencies/ ./
COPY --from=builder /app/application/ ./
```

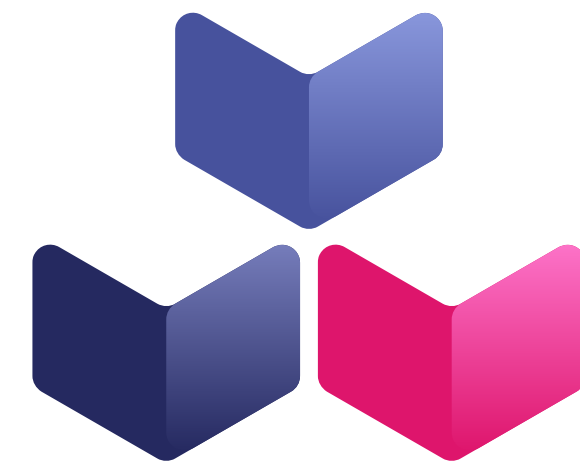
PID 1?

Knowledge?



"Why isn't it as easy as with Heroku?"

```
~/Development/ (styling %|u+5-1) $ git push --force-with-lease heroku styling:main
Enumerating objects: 38, done.
Counting objects: 100% (38/38), done.
Delta compression using up to 16 threads
Compressing objects: 100% (23/23), done.
Writing objects: 100% (24/24), 4.44 KiB | 4.44 MiB/s, done.
Total 24 (delta 14), reused 0 (delta 0), pack-reused 0
remote: Updated 53 paths from 16a4d4f
remote: Compressing source files... done.
remote: Building source:
remote:
remote: —————> Building on the Heroku-22 stack
remote: —————> Using buildpack: heroku/java
remote: —————> Java app detected
remote: —————> Installing OpenJDK 21... done
remote: —————> Executing Maven
remote: $ ./mvnw -DskipTests clean dependency:list install
remote: [INFO] Scanning for projects...
remote: [INFO] BUILD SUCCESS
remote: [INFO] -----
remote: [INFO] Total time: 8.645 s
remote: [INFO] Finished at: 2023-11-07T12:20:16Z
remote: [INFO] -----
remote: —————> Discovering process types
remote: Procfile declares types → (none)
remote: Default types for buildpack → web
remote:
remote: —————> Compressing ...
remote: Done: 107.1M
remote: —————> Launching ...
remote: Released v27
remote: https:// .herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/ .git
+ af4c5b1...a339e31 styling → main (forced update)
```



Buildpacks.io



CLOUD NATIVE
COMPUTING FOUNDATION



Heroku Buildpacks

<https://elements.heroku.com/buildpacks>

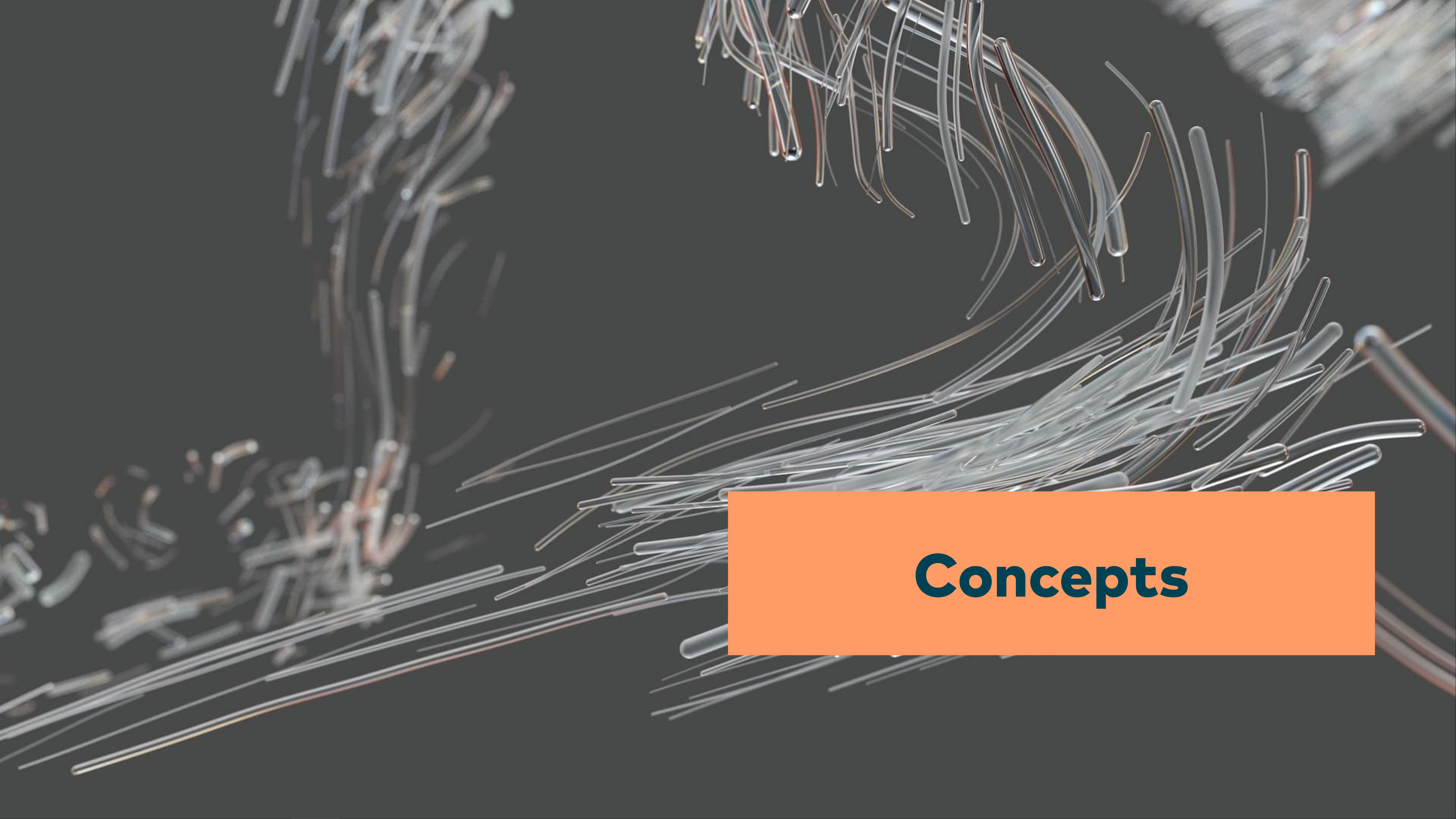


paketo
buildpacks

<https://paketo.io>

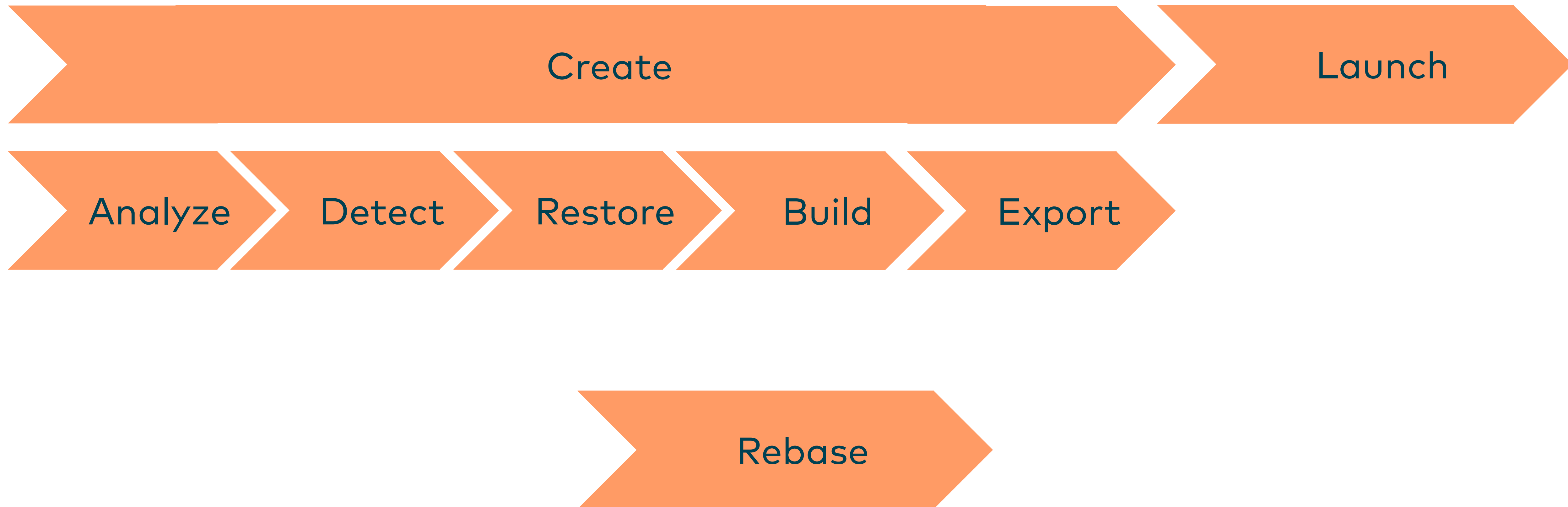
CLOUD FOUNDRY

<https://docs.cloudfoundry.org/buildpacks/>

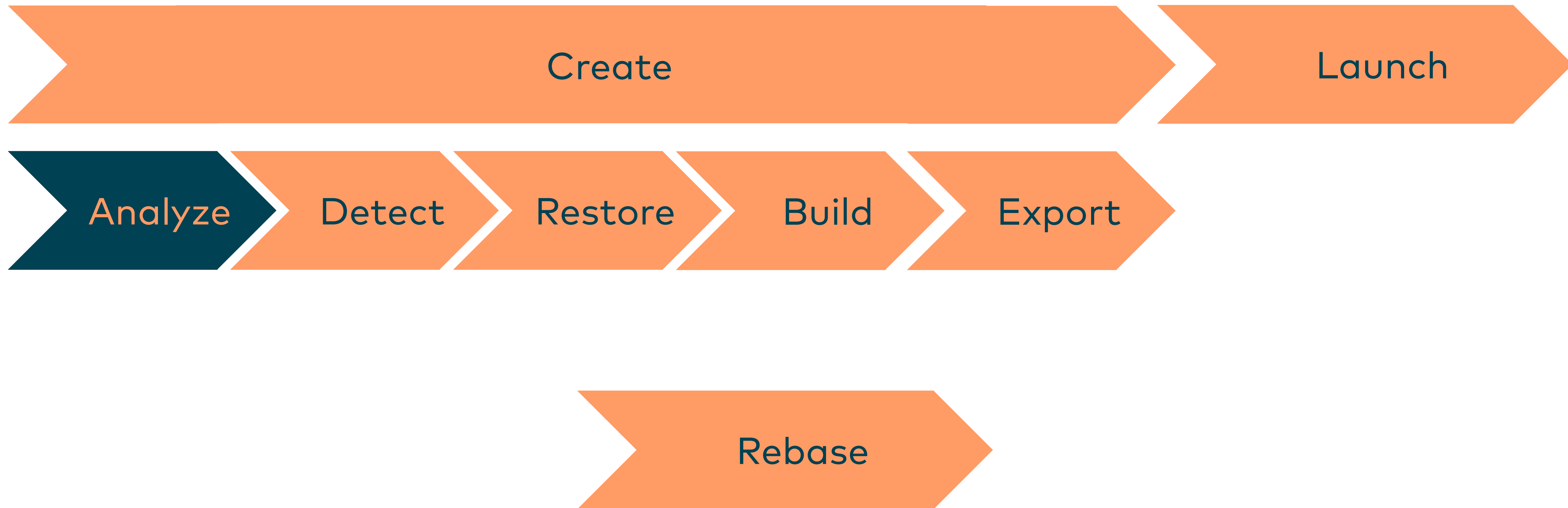


Concepts

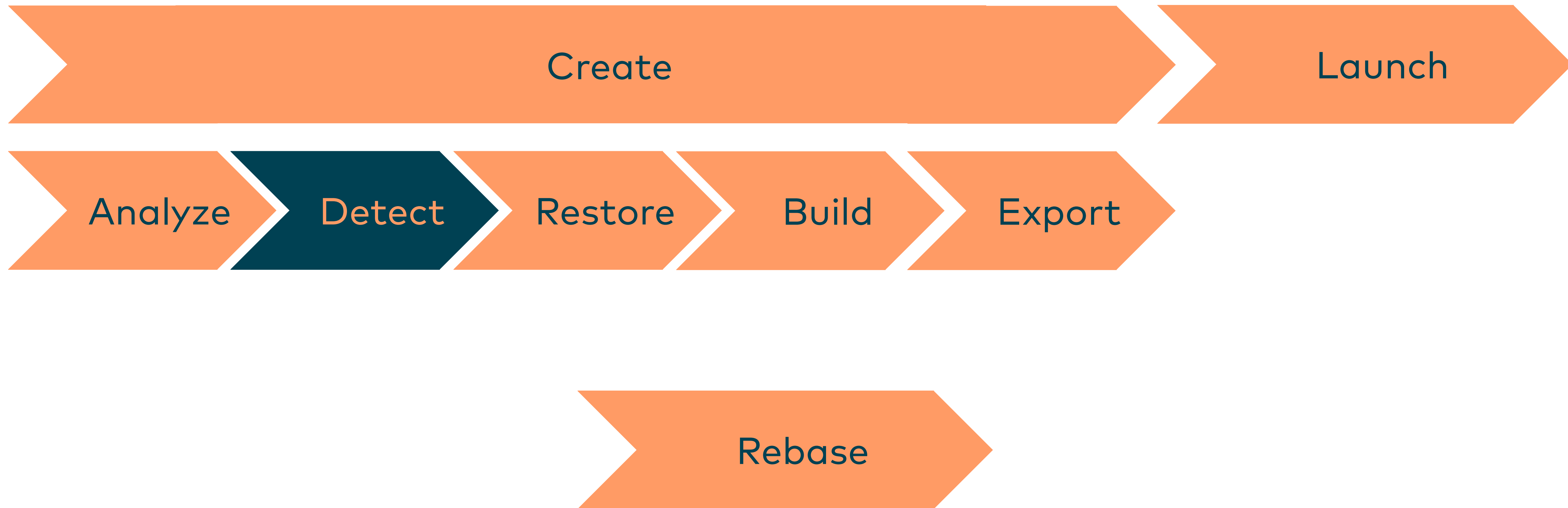
Lifecycle



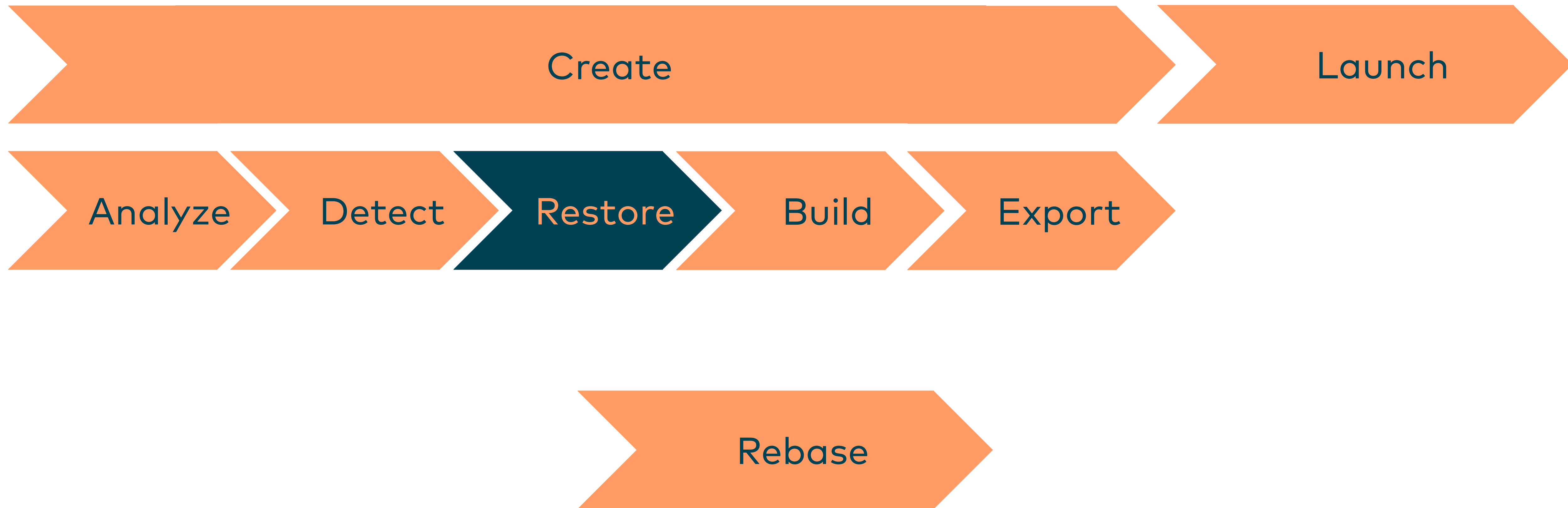
Lifecycle



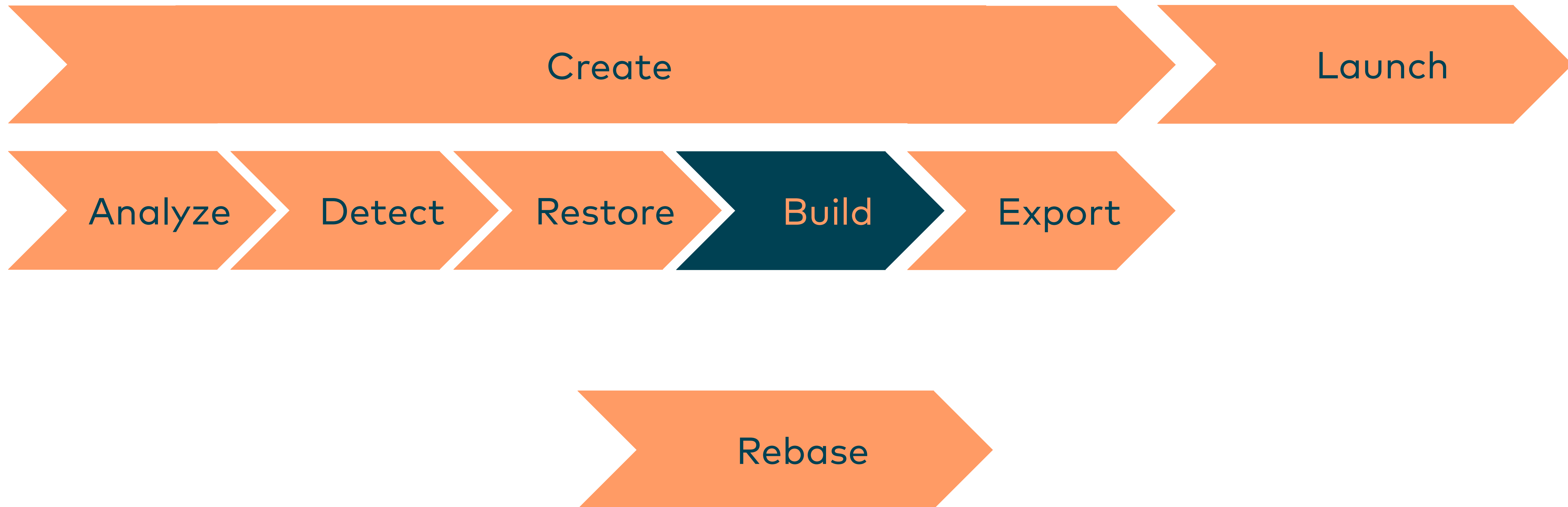
Lifecycle



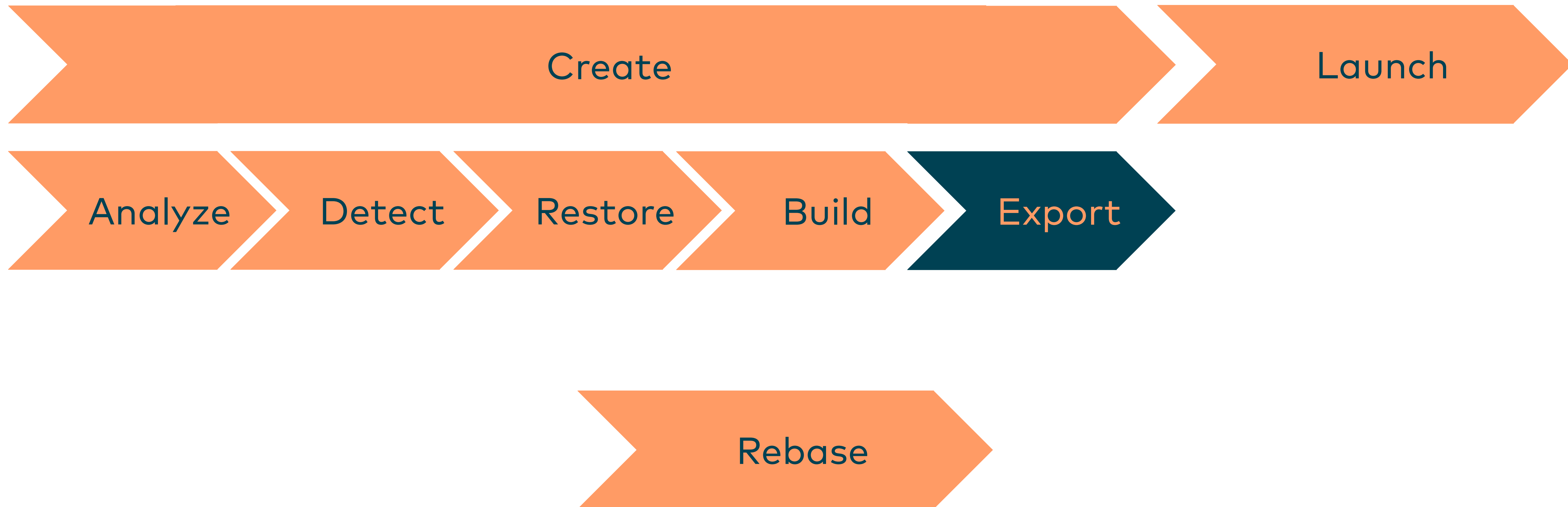
Lifecycle



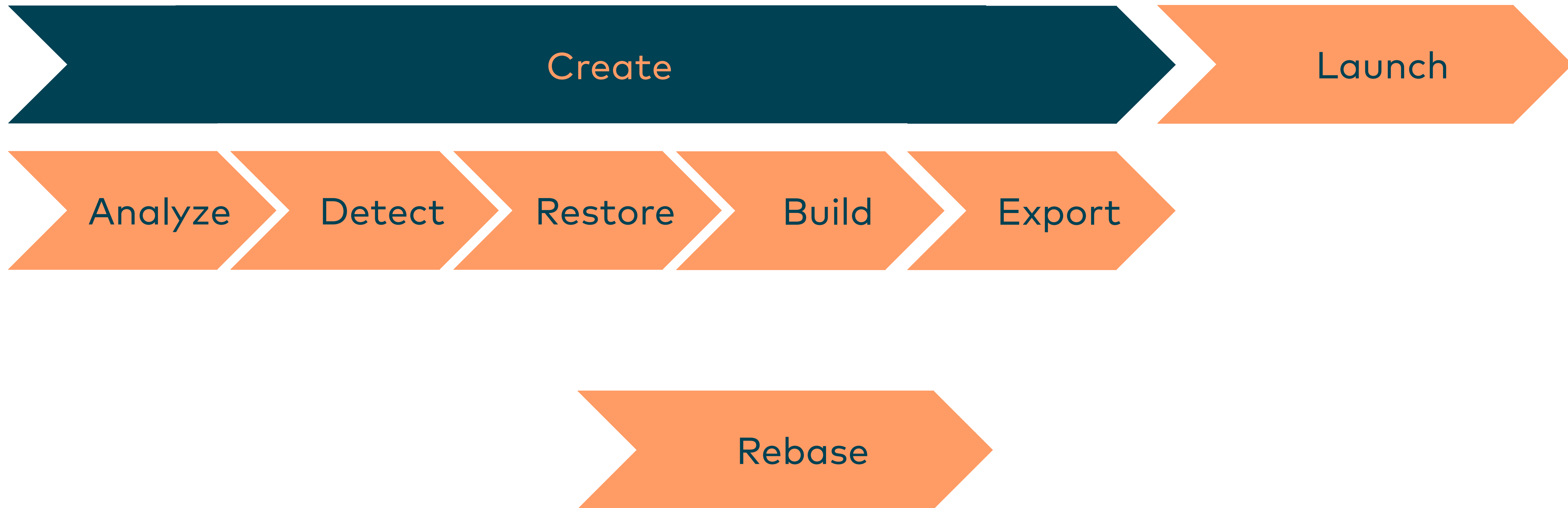
Lifecycle



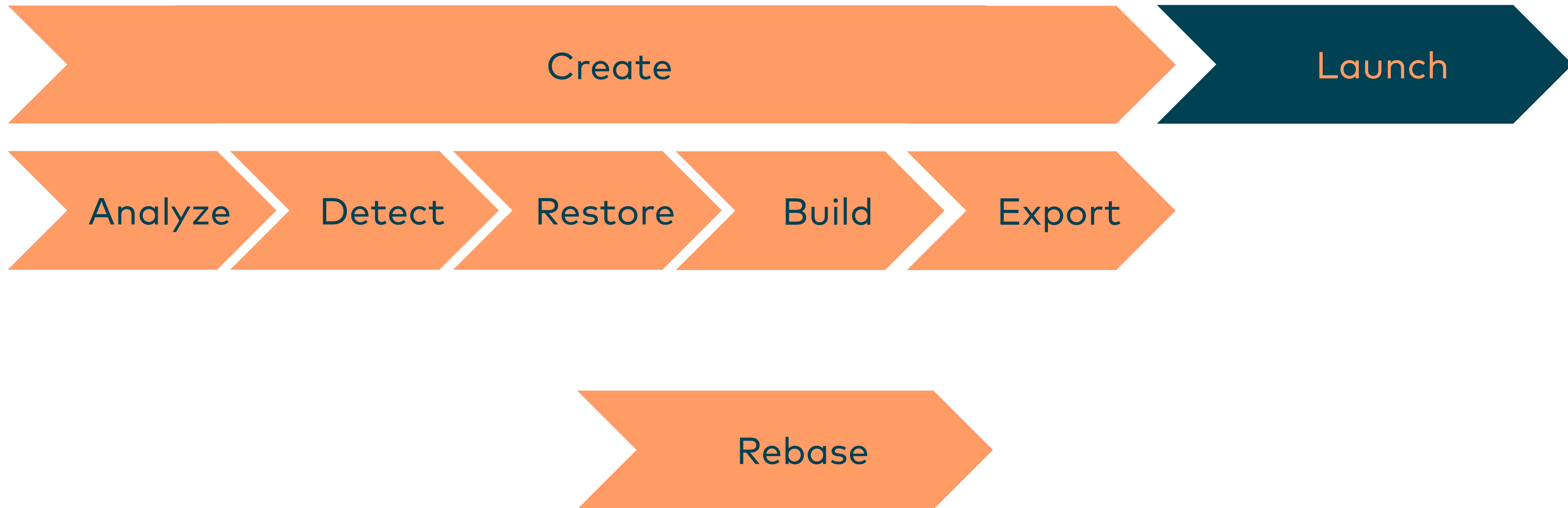
Lifecycle



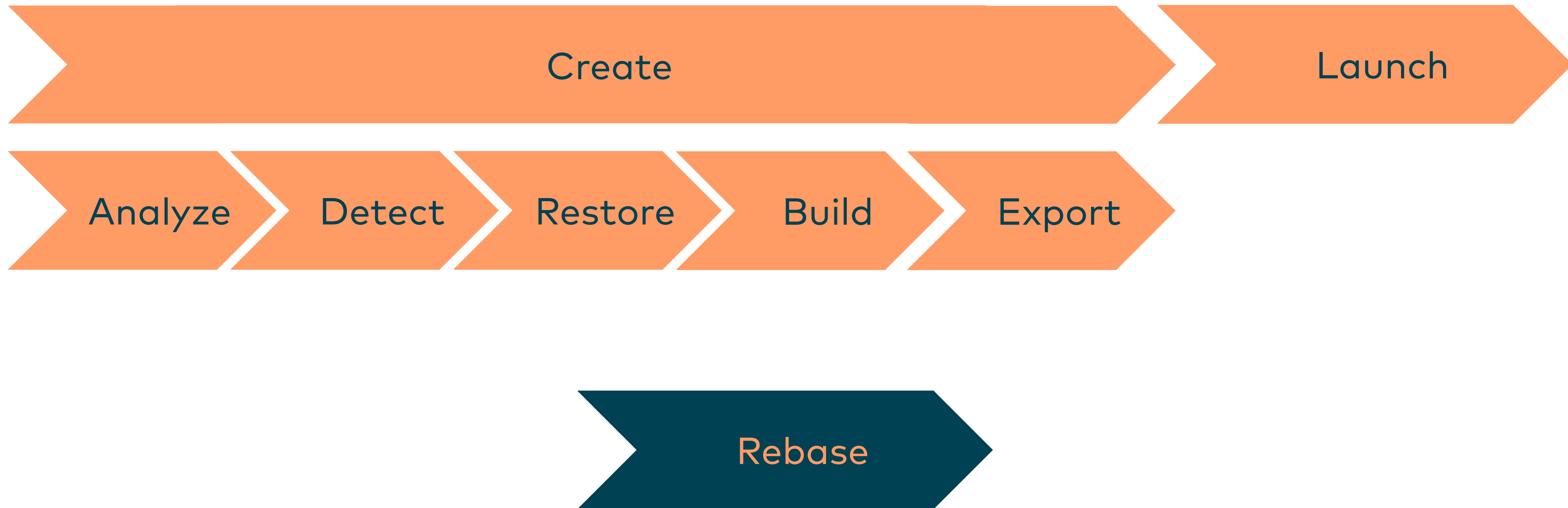
Lifecycle



Lifecycle



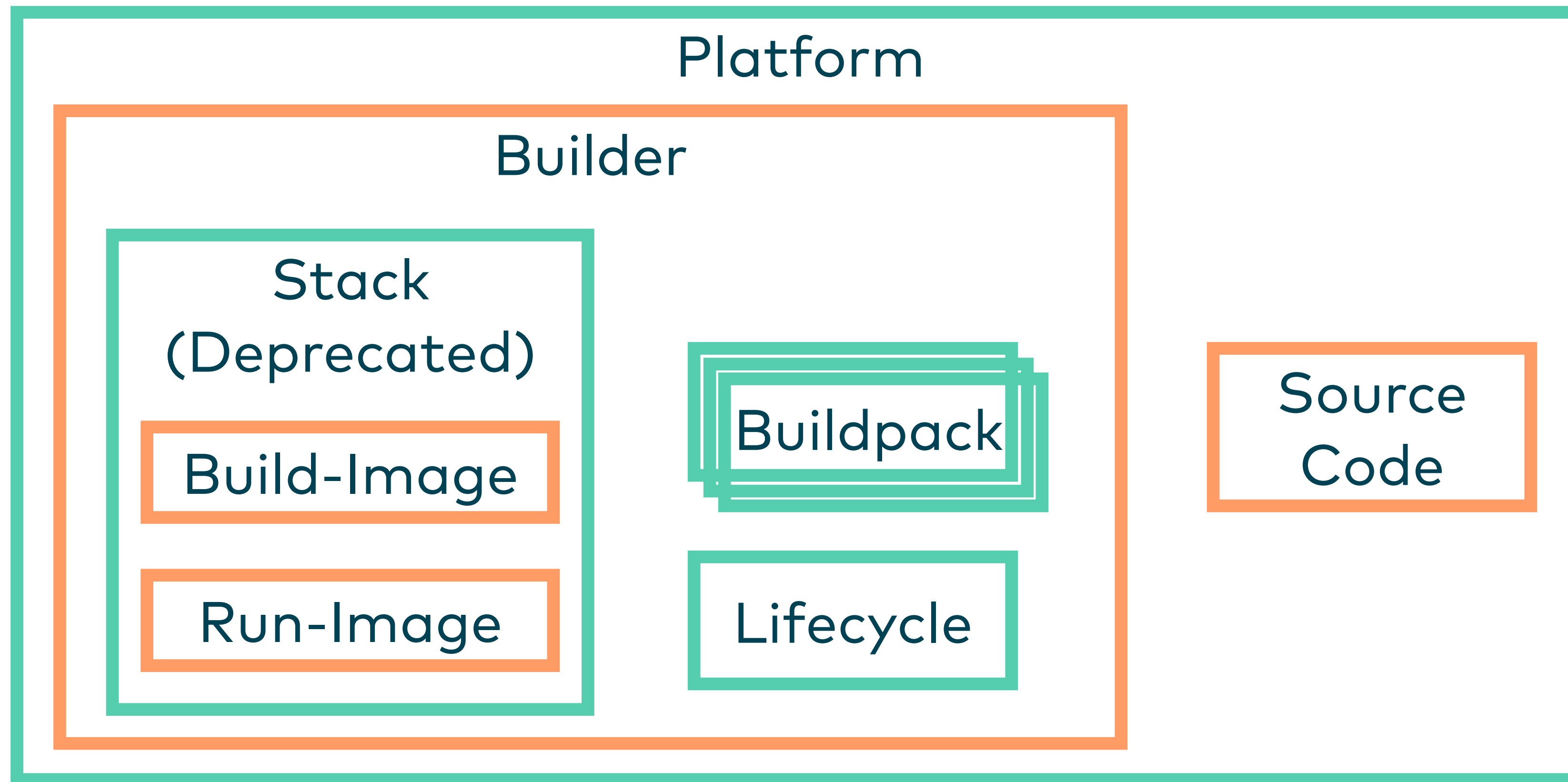
Lifecycle

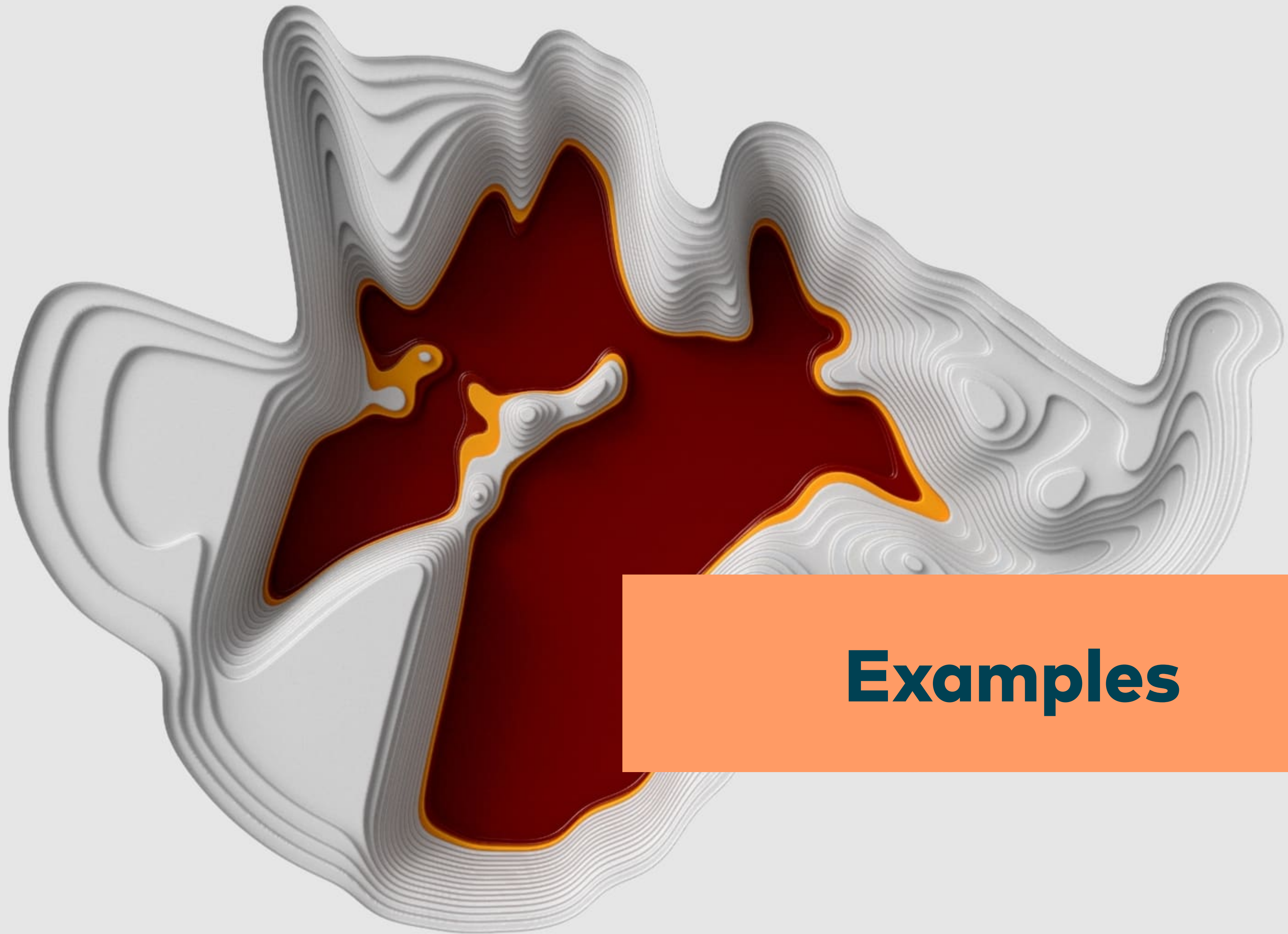


Buildpack

- buildpack.toml
- bin/detect
- bin/build

Stack / Builder / Platform





Examples



<https://spring.io/blog/2023/09/22/paketo-buildpacks-bionic-end-of-support>

Lets build our own buildpacks!

Thanks! Questions?



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<https://www.innoq.com/en/talks/2024/05/buildpacks-jcon-europe-2024/>

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