Closing the Developer Experience Gap

of Your Container Platforms

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About me

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VMware Tanzu

Software Deployment Process

Traditional

Modern

Collaboration between developer and operation teams to handle the more complex operations of modern apps and to be able to react quickly
→ DevOps culture

Rapid application deployment
→ CI/CD, Containers

Rapid provisioning
→ Containers, Kubernetes

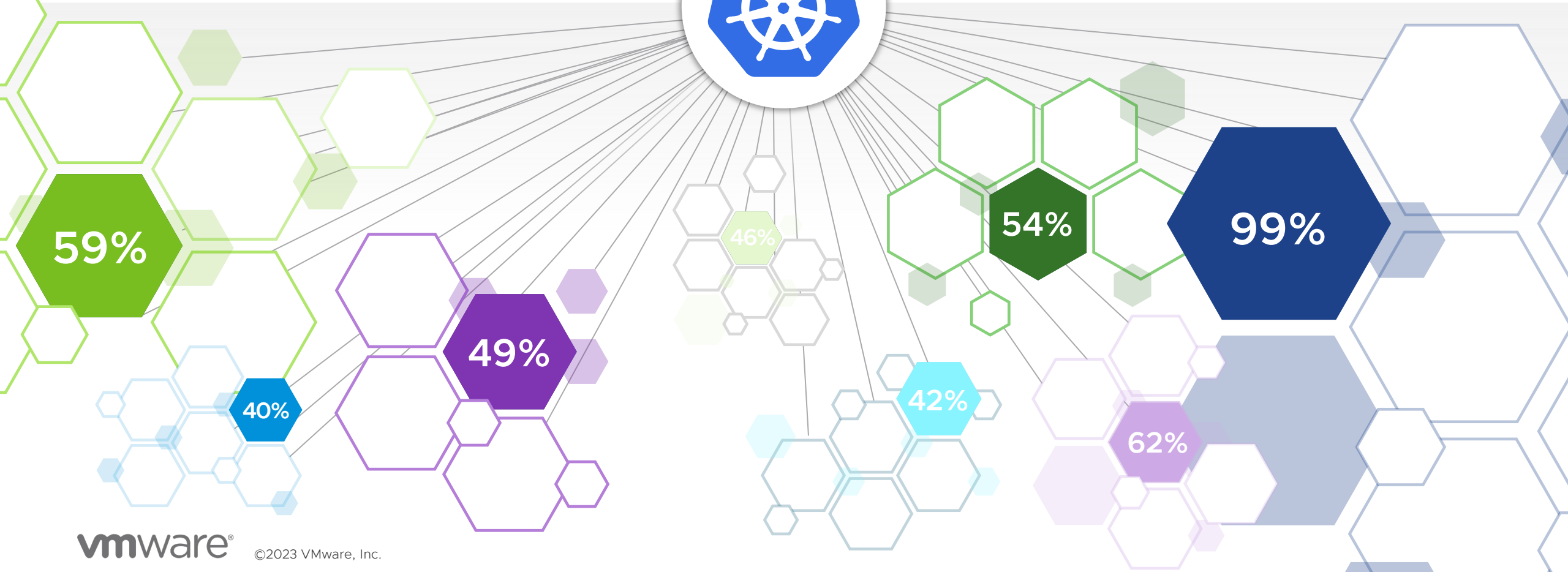
Observability
→ VMware Aria Operations for Applications 😉

Image source: https://www.bestdevops.com/nine-steps-for-developing-a-devops-mindset

Take Advantage of Kubernetes Benefits

What benefits have your organization realized from operating Kubernetes?

- Improved resource utilization
- Eased application upgrades and maintenance
- Shortened software development cycles
- Increase flexibility of applications
- Enabled our move to the cloud
- Enabled a hybrid cloud model
- Reduced public cloud costs
- Almost all respondents see clear benefits from Kubernetes



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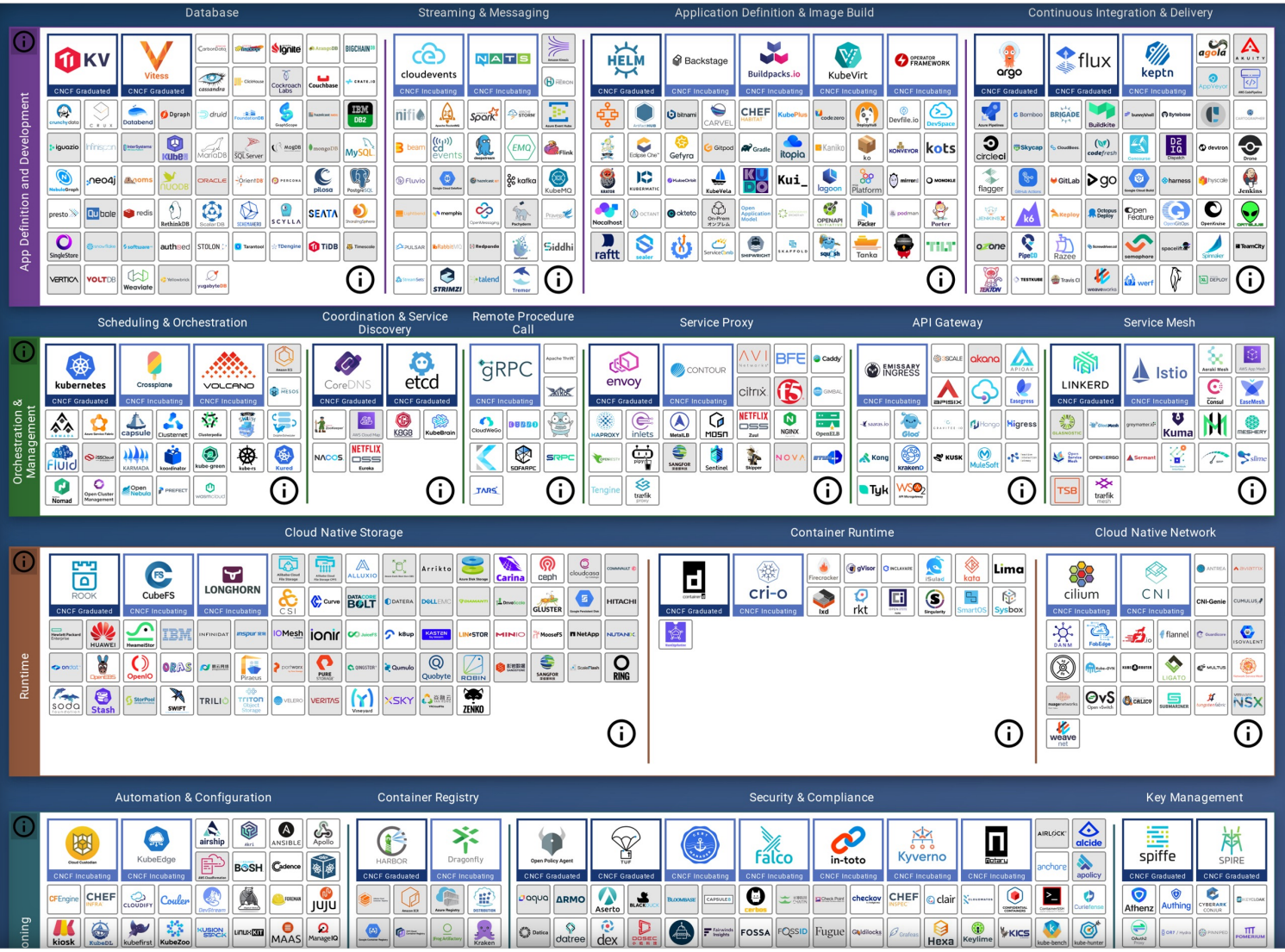
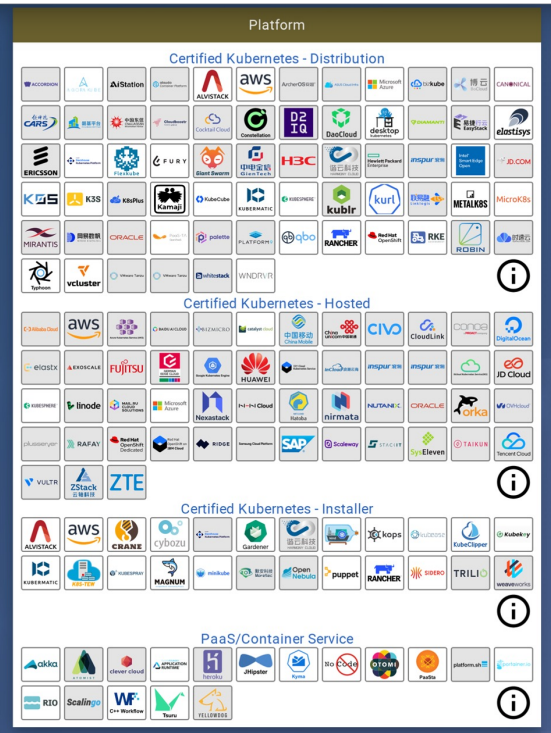
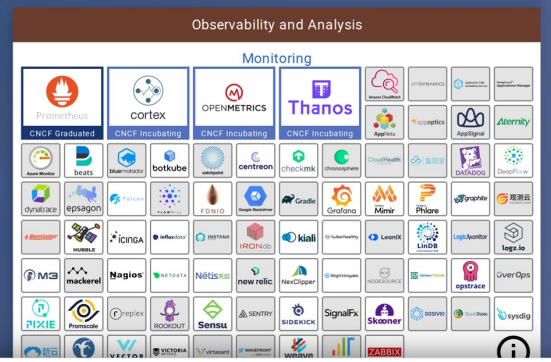
Kubernetes and its Ecosystem are Complex







CLOUD NATIVE LANDSCAPE

CLOUD NATIVE COMPUTING FOUNDATION

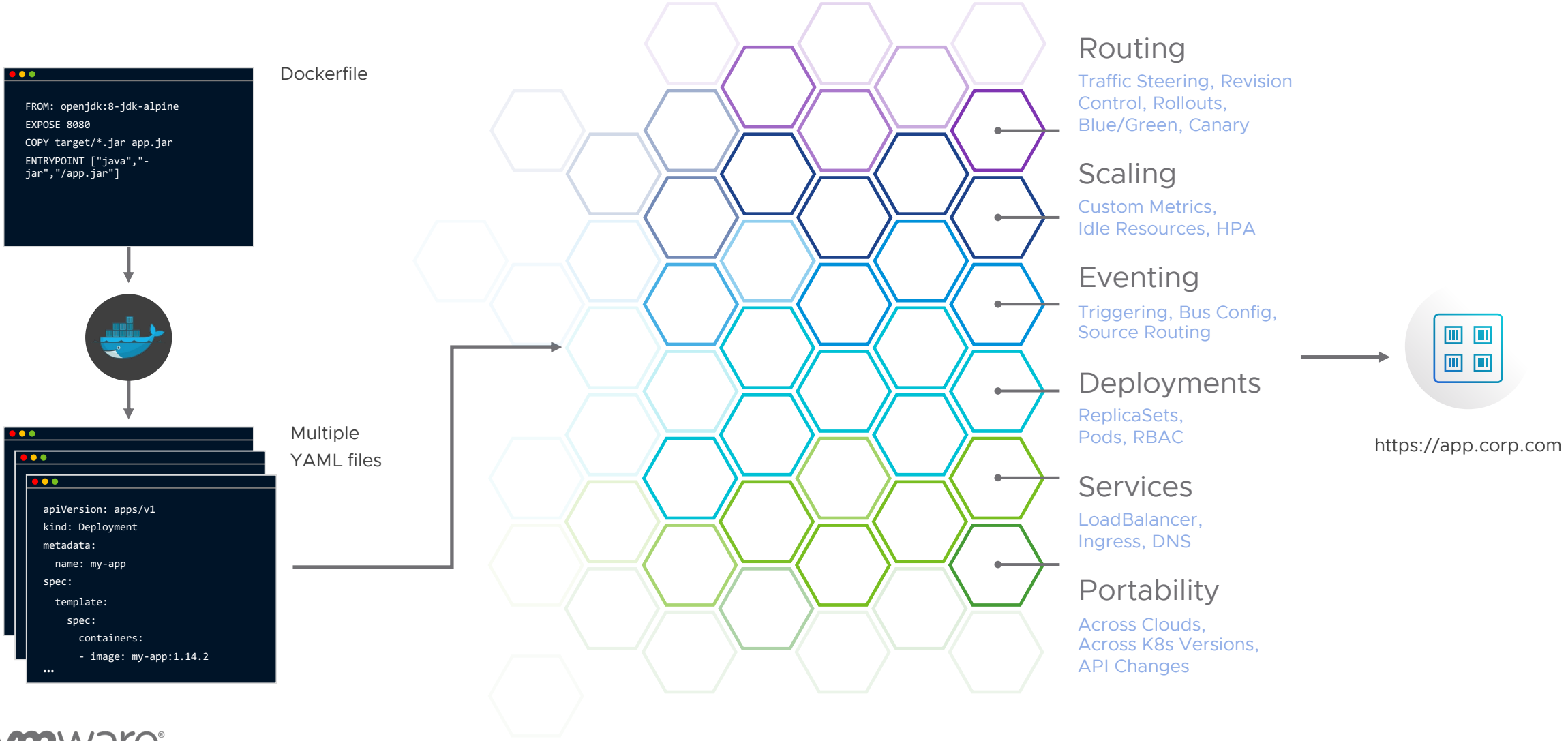
Redpoint Amplify

l.cncf.io

This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path.

Steep Kubernetes Learning Curve: The Developer Experience GAP

The developer experience on DIY platforms is lacking



Kelsey Hightower
@kelseyhightower

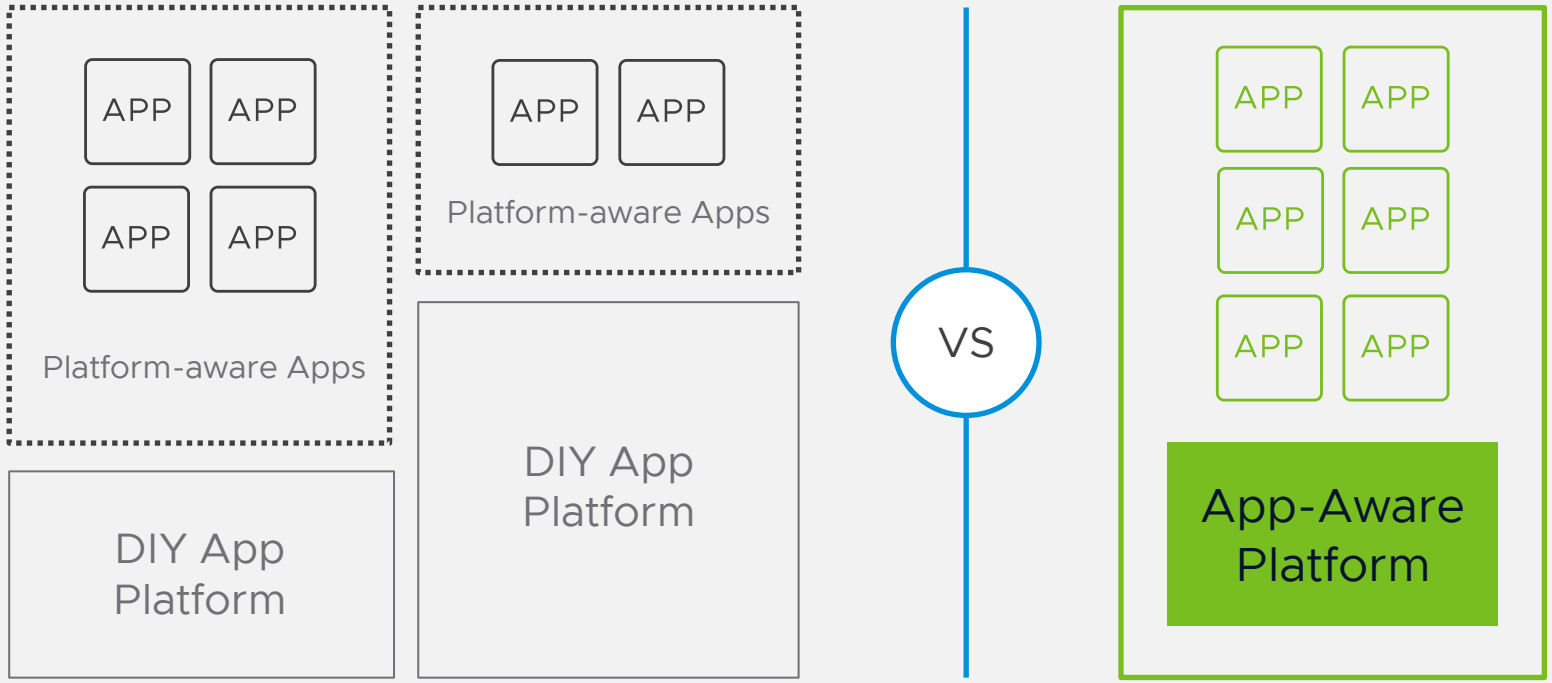
Replying to @kelseyhightower @polotek and 4 others

In the future we focus on writing only the product code, a little configuration to express policies, dependencies, and resource requirements, and the platform does the rest.

9:11 PM · Mar 19, 2023

The Benefits of an App-Aware Platform

Removing the burden from the developers



Developer focuses on defining requirements for app

Enables shift-left model with no burden to developer

Full portability from development to production

Platform best-practice are automatically applied

Secure and Up-to-Date Containers

Example for a simple vs an optimized container image

```
FROM: openjdk:8-jdk-alpine

EXPOSE 8080

COPY target/*.jar app.jar

ENTRYPOINT ["java","-jar","/app.jar"]
```

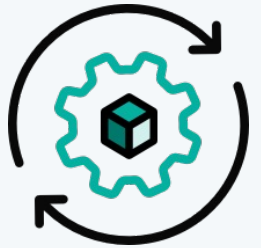
```
FROM eclipse-temurin:17.0.6_10-jdk-alpine as builder

WORKDIR application

ARG JAR_FILE=target/*.jar

COPY ${JAR_FILE} application.jar

RUN java -Djarmode=layertools -jar application.jar extract


FROM eclipse-temurin:17.0.6_10-jre-alpine

WORKDIR application

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

ENTRYPOINT ["java", "org.springframework.boot.loader.JarLauncher"]
```

Secure and Up-to-Date Containers

Buildpacks.io

Cloud Native Buildpacks transform your application source code to images that can run on any cloud

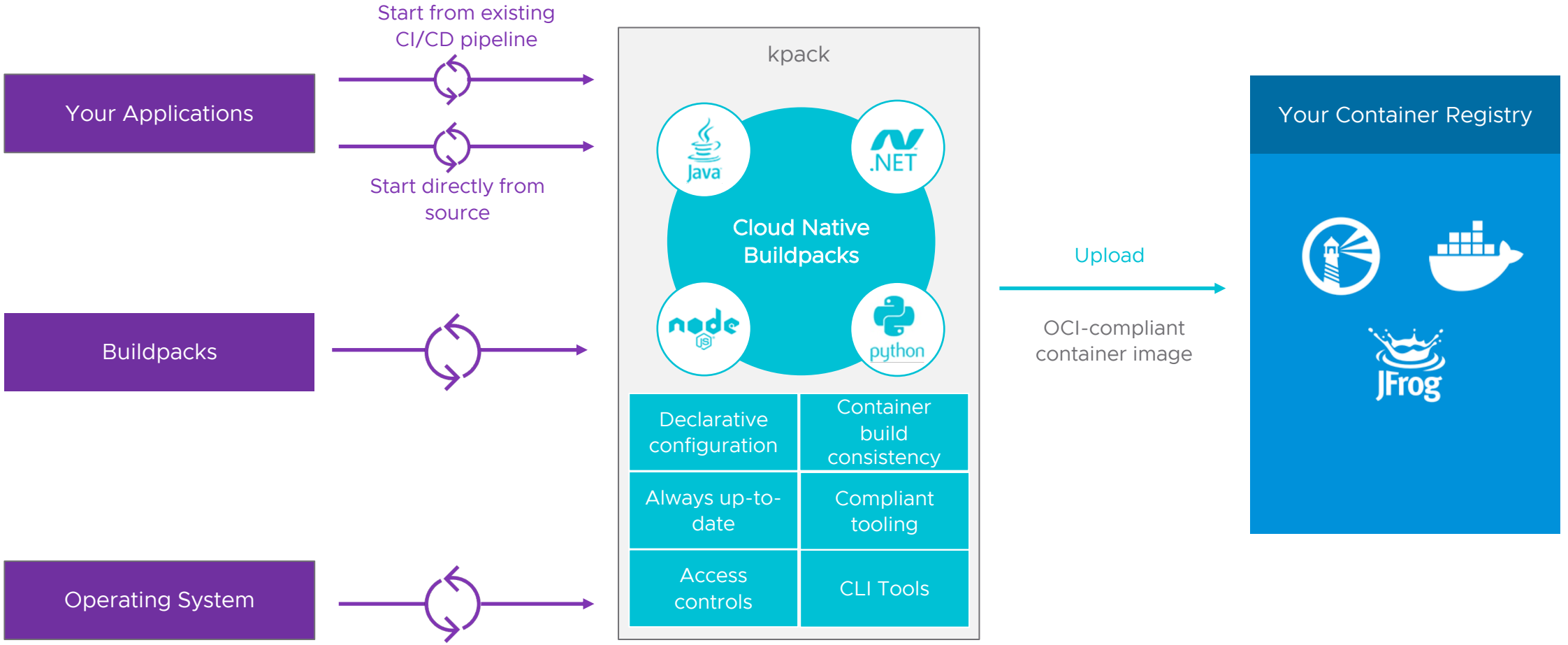
- Portability via the OCI standard
- Greater modularity
- Faster builds
- Reproducible image builds
- CNCF Incubation



kpack – a Kubernetes native approach to building OCI images using Cloud Native Buildpacks from source code

- Simplifying incumbent code-to-container workflows
- Adhering to strict compliance requirements
- Rapid CVE mitigation
- Greater control over app dependencies

Secure and Up-to-Date Containers



Reduce Kubernetes Complexity With a Serverless Runtime

Serverless can be grouped into two areas:

- Backend as a Service (BaaS) Replacing server-side, self-managed components with off-the-shelf services
- Functions as a Service (FaaS) A new way of building and deploying server-side software, oriented around deploying individual functions

The key is that with both, you don't have to manage your own server hosts or server processes and can focus on business value!

Knative adds components for deploying, running, and managing applications on any Kubernetes in a Serverless way.

To primary components:

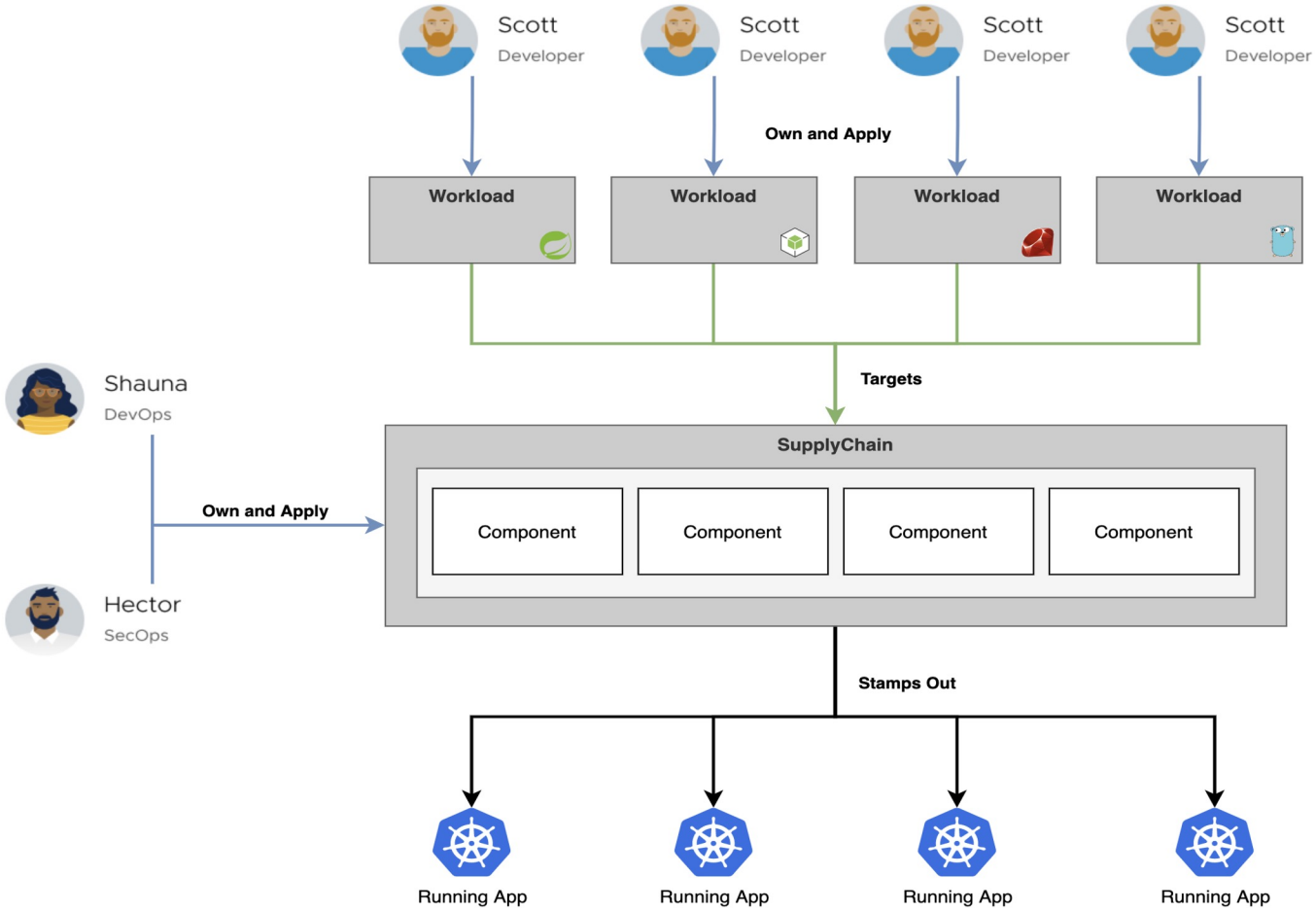
- Serving: Supports deploying and serving of serverless applications and functions
- Eventing: Enables developers to use an event-driven architecture with serverless applications

The State of the CI/CD Tools Universe

Challenges of Most of the Current CI/CD Tools

- Orchestration (synchronous)
- No Separation of Concerns
- Different path to production for each of the applications
- Developer experience is lacking

Provide Your Developers a Prepaved Path to Production



CARTOGRAPHER

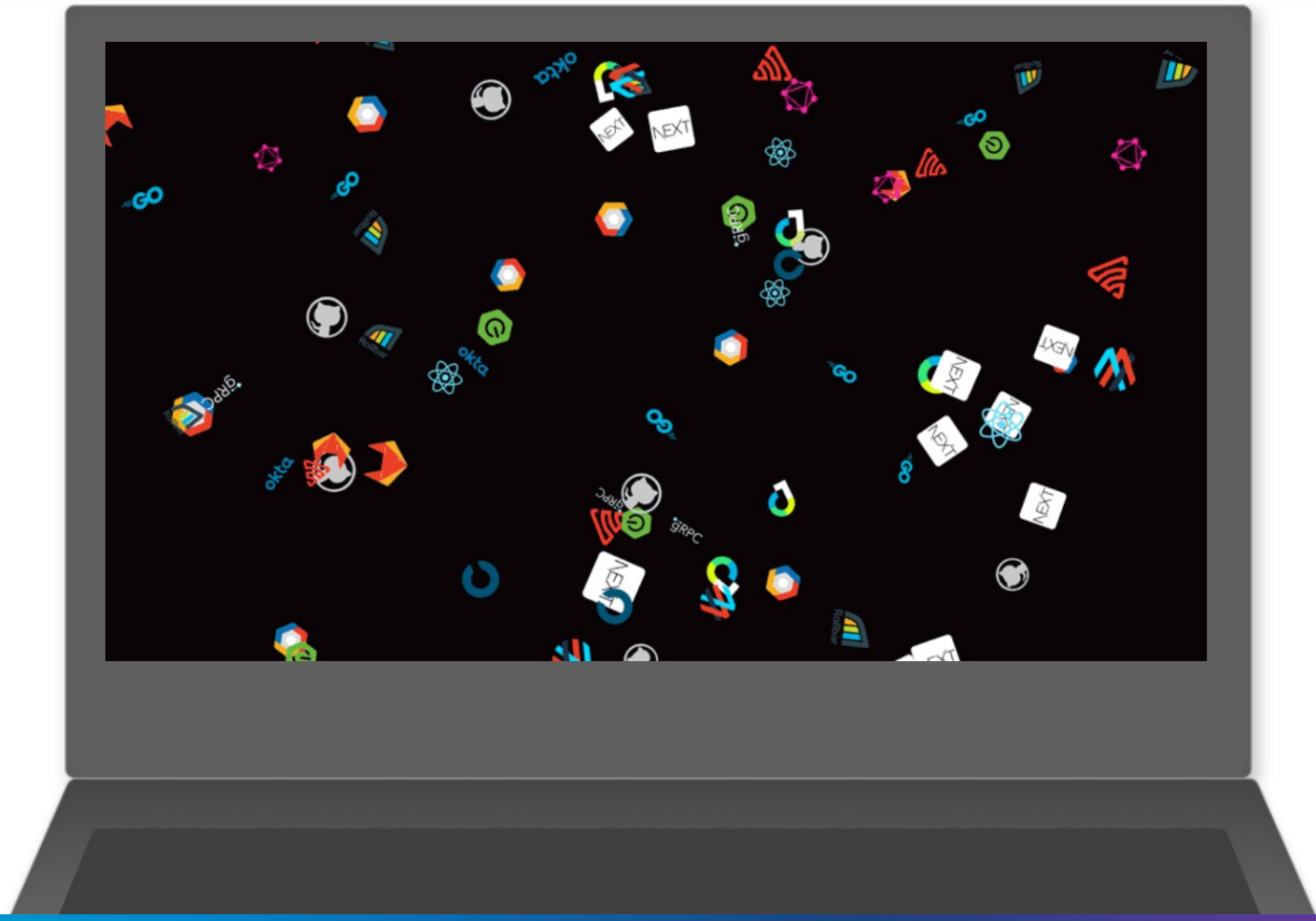
- Choreography as a natural choice of a Workflow Engine (asynchronous)
- Reusable CI/CD
- Separation of Concerns
- Works with Existing Tools
- Kubernetes Resource Interoperability

A Centralized Developer Portal for Productivity and Collaboration

Backstage

Backstage is an open platform for building developer portals. It unifies all your infrastructure tooling, services, and documentation via a thriving ecosystem of plugins.

- Project bootstrapping
- CRD-based plugin ecosystem
- Unified service catalog and APIs
- CI/CD and security status in one place
- Common documentation and system topologies



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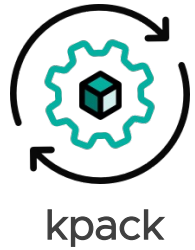
Our Selection of Open Source Tools to Build an App-Aware Platform



Thank You

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