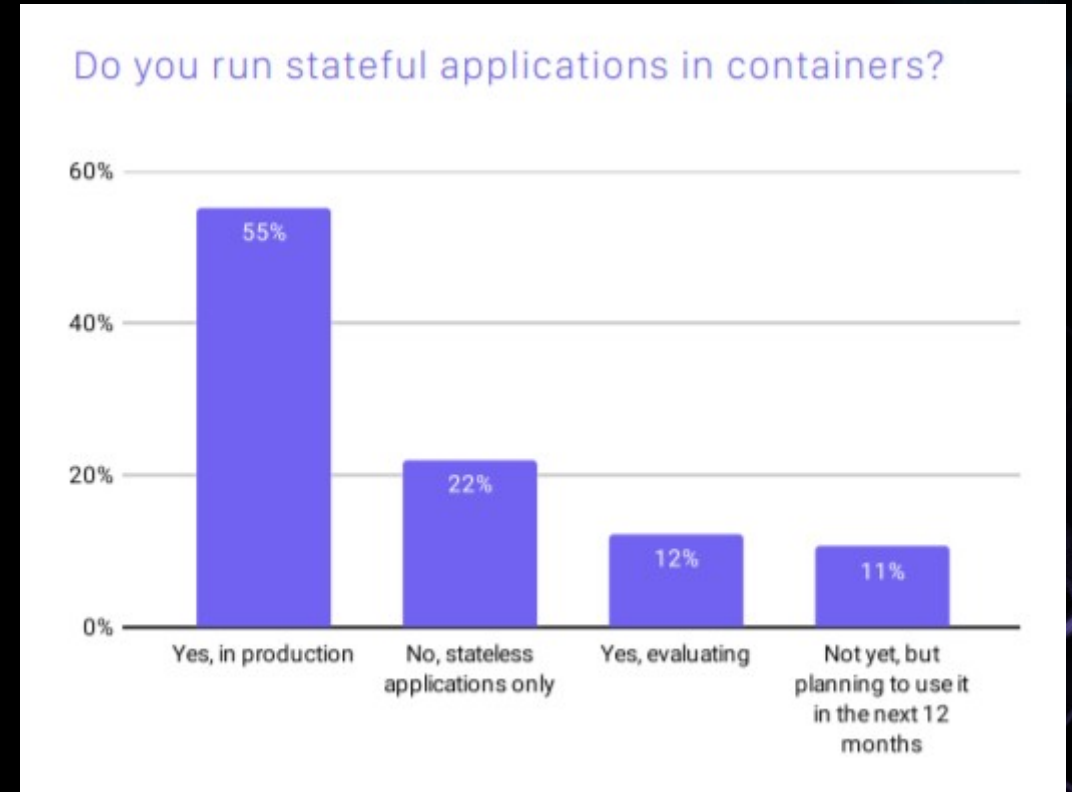# Agenda

- Challenges to protect stateful apps in Kubernetes environment

- Proposed architecture in SODA framework with FKSDR (Futurewei K8s Storage DR)
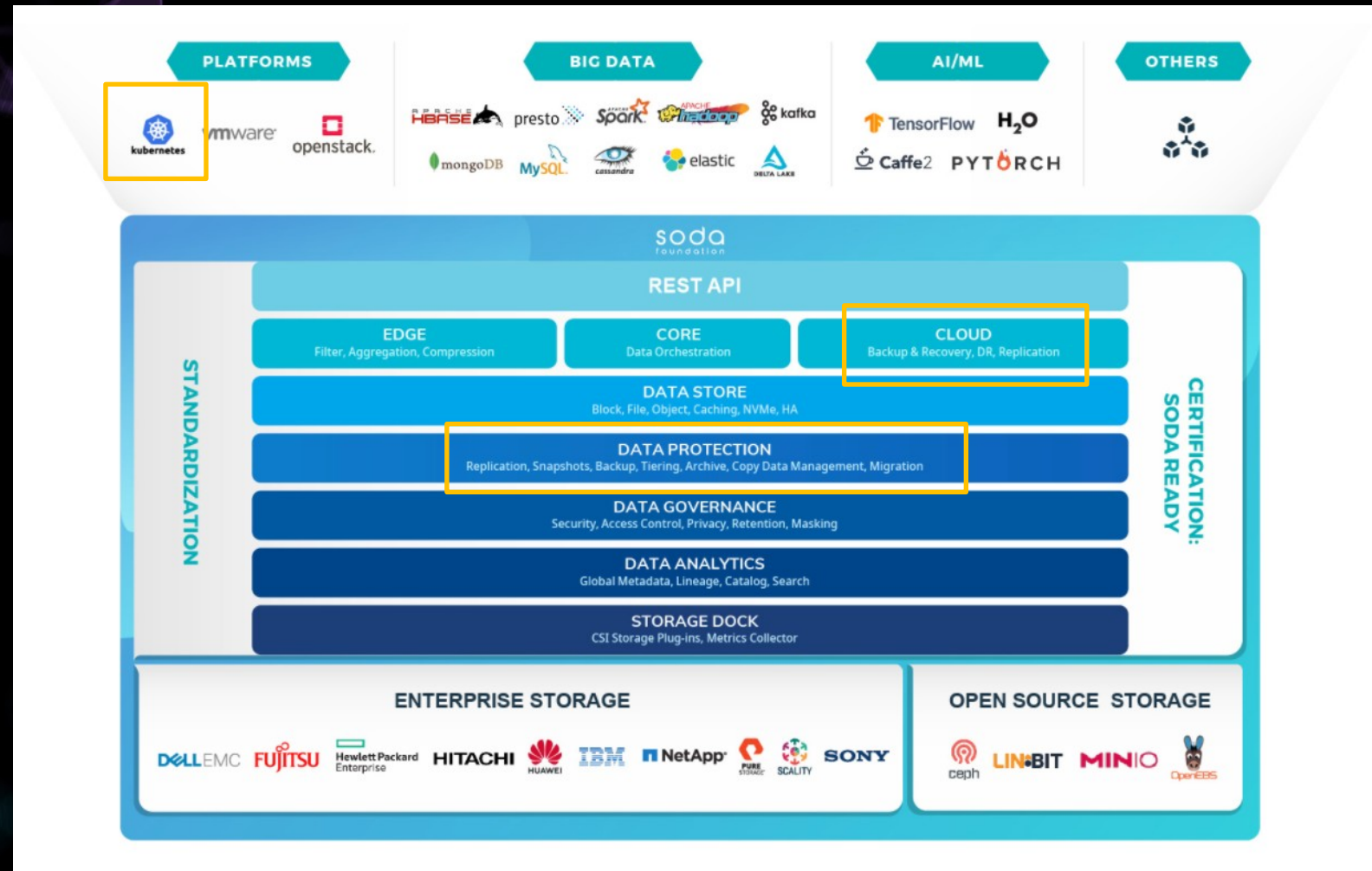
- FKSDR internals

- DR with FKSDR and SODA

Trend and challenges

- Many mission-critical apps are stateful

- Stateful apps are moving to containers

- Data protection is critical.
  - Several vendors are providing standalone solutions.
  - Is it possible to provide data protection with SODA open data framework?

Do you run stateful applications in containers?

Response	Percentage
Yes, in production	55%
No, stateless applications only	22%
Yes, evaluating	12%
Not yet, but planning to use it in the next 12 months	11%

Source: CNCF Survey 2020

sodacon
— Global 2021 — July 13-14

#sodacon2021

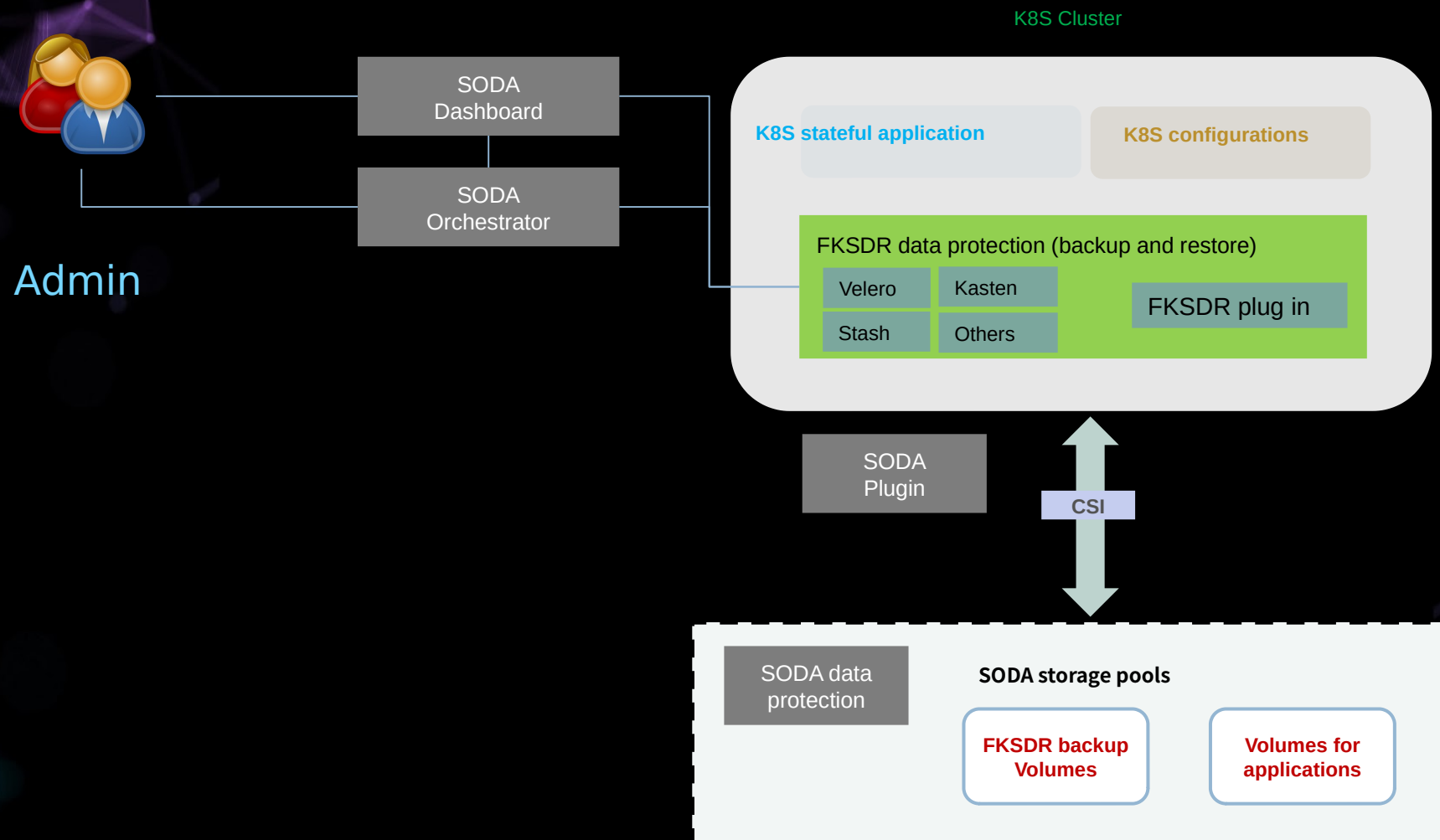# K8s Stateful App Data Protection support in SODA

Source: SODA Foundation

- An integration is needed to present the SODA open data framework capabilities to Kubernetes.

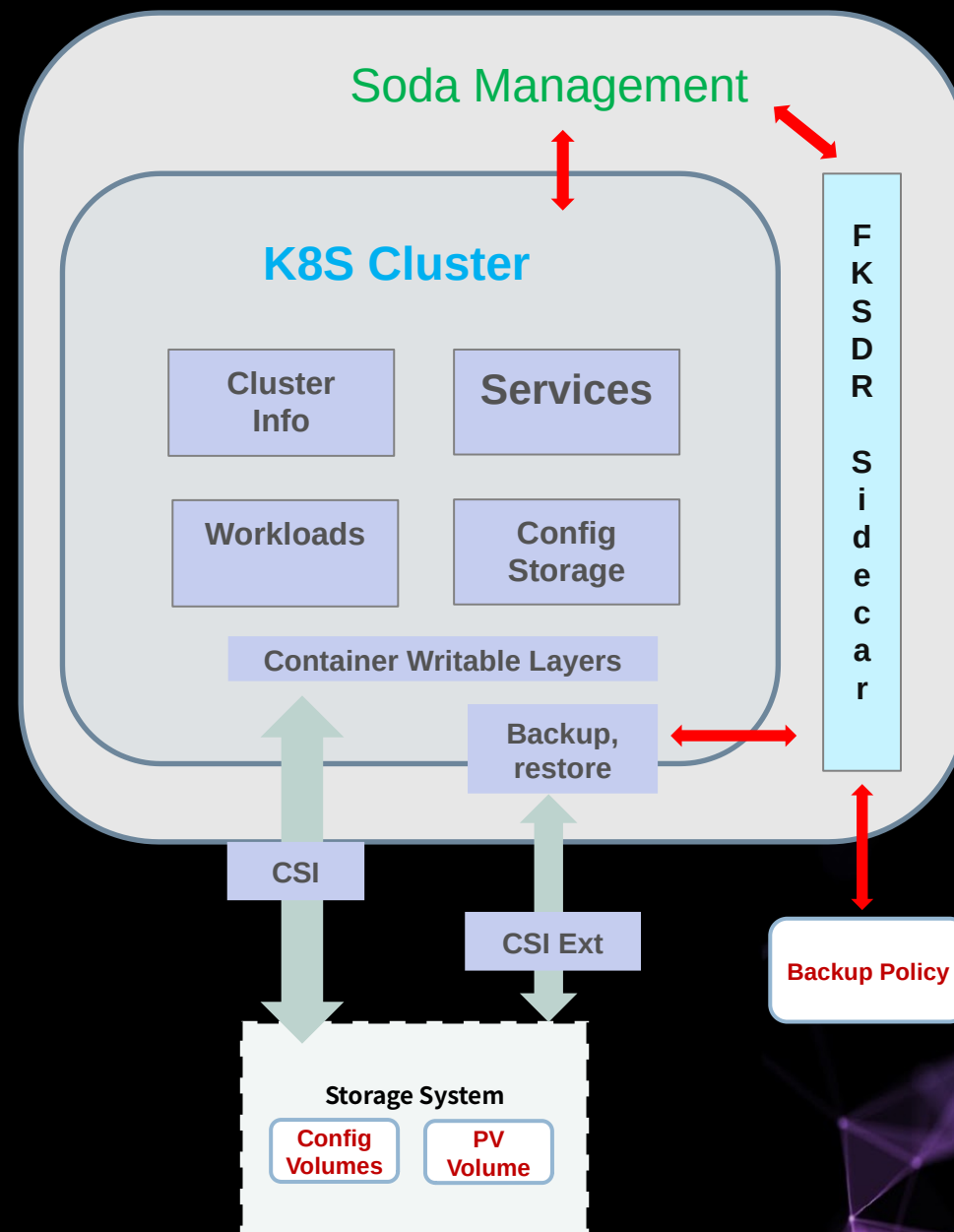- We explored this integration with the Futurewei Kubernetes Storage DR (FKSDR) project.

Architecture Proposal
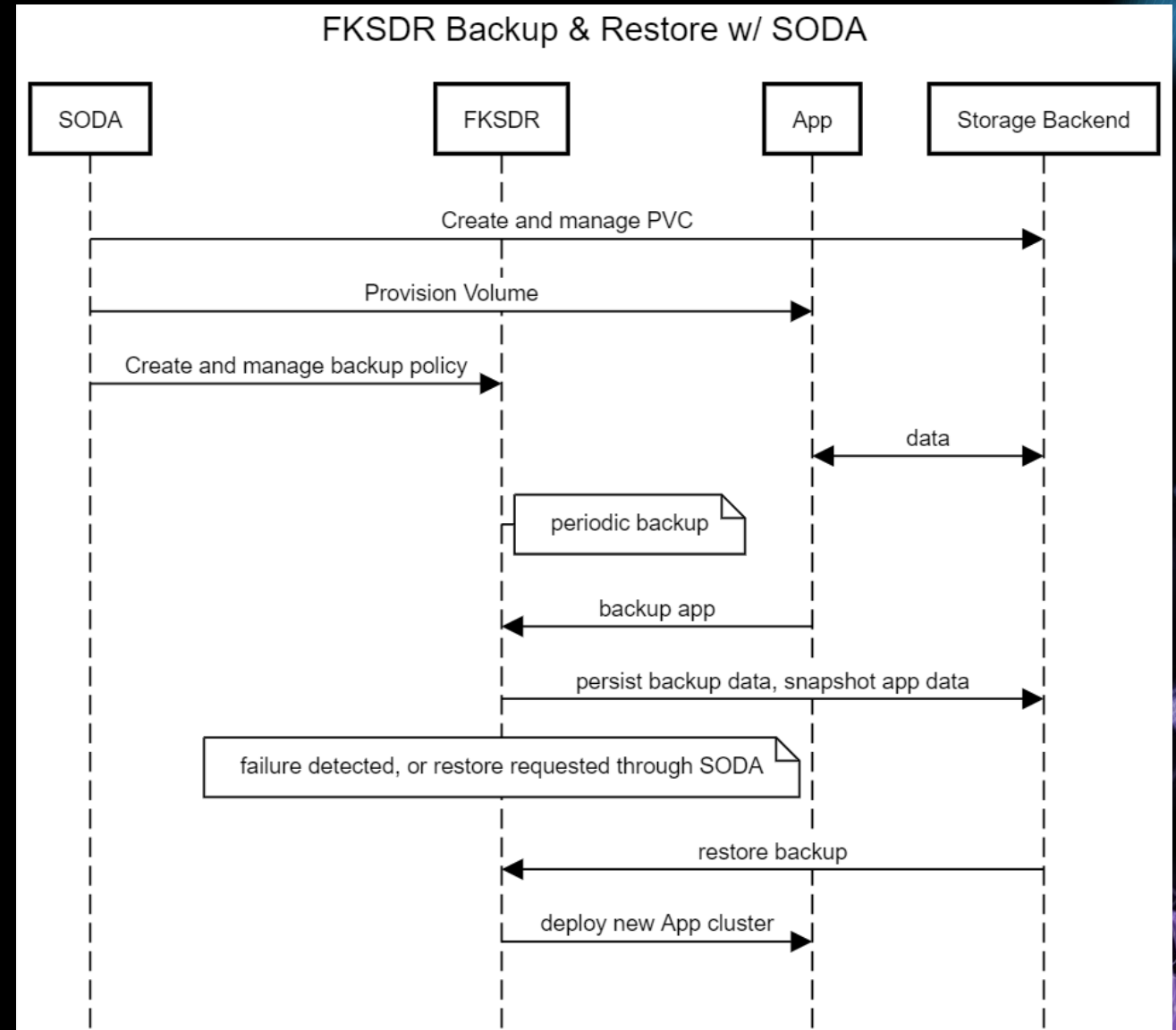
sodacon
— Global 2021 — July 13-14

#sodacon2021

FKSDR Internals

- Mapping from SODA provision to PVC on storage systems
- FKSDR plugin interaction with PVC
- FKSDR policy engine for automated backup

Soda Management

K8S Cluster

Cluster Info

Services

Workloads

Config Storage

Container Writable Layers

Backup, restore

FKSDR Sidecar

CSI

CSI Ext

Backup Policy

Storage System

Config Volumes

PV Volume

DR with FKSDR & SODA

- With the integration of SODA and FKSDR sidecar, K8S application cluster deploy, management, and backup can be highly automated, and managed from one place.

- As shown in the sequence diagram, administrator manage the cluster and provision PVC to kick off business, then automatic backup policy can be provisioned on FKSDR through SODA panel. After that, periodic backups will be handled by the sidecar.

- When disaster is detected, or manual recovery is requested, full configuration and data can be restored to the application cluster in

FKSDR Backup & Restore w/ SODA

Thank you.