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Unified Life Cycle Management using TF Operator

Integration with Airship

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Agenda

- Introduction
  - Tungsten Fabric Distribution
    - Deployment & Life Cycle Management (LCM)
  - Tungsten Fabric Operator (TF-Operator)
- Multiple Supported Installation Options
  - TF-Operator Role
- Use-Case: Airship
  - Requirements
  - On Boarding TF Operator
  - Reference implementation and validation with Airship in a Bottle

Tungsten Fabric – Distribution

- Tungsten Fabric is packaged and distributed as Container Images

Deployed As:

kubernetes

LCM Requirements for TF Modules:

- Modules deployed in order
- Stateful Infra components reached to required state before roll-out of dependent components (like zookeeper)
- Upgrades are performed ensuring inter-dependency between modules
- Version dependencies between components
- Network Provider – Handling cluster scaling events

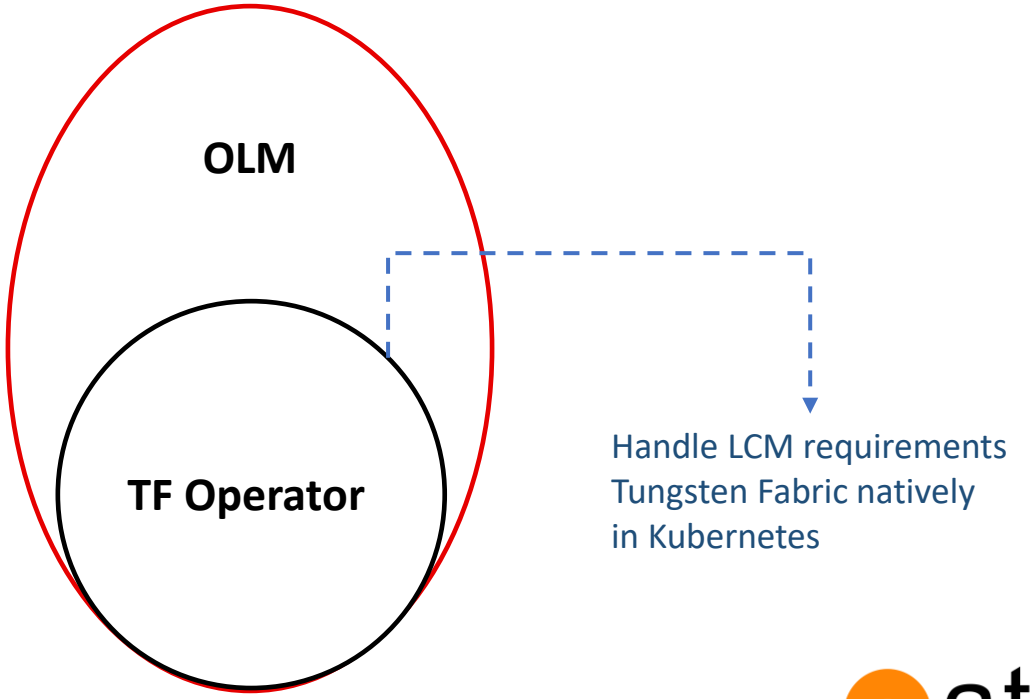
TF Operator

Operators

- Kubernetes Controller
- Framework
  - Operator SDK – Development kit around K8S API
  - Operator Life Cycle Manager – Oversees installation/updates and management of lifecycle of all operators aspect
  - Operator Metering – Enables usage reporting
- Purpose-built, with operational knowledge baked in, usually smarter and more tailored than generic tools
- Enables packing of automated operation logic as part of Operator
  - Allow on boarding complex automations

TF Operator

- Kubernetes Controller built using Operator SDK
- Built-in logic to address Life Cycle Management requirements of Tungsten Fabric



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Deployment Landscape

Multiple Installation schemes

- Integration with various solutions
- Life Cycle management of software

- Maintenance Cycle
- Engineering Cost

Simplify – Life Cycle Management

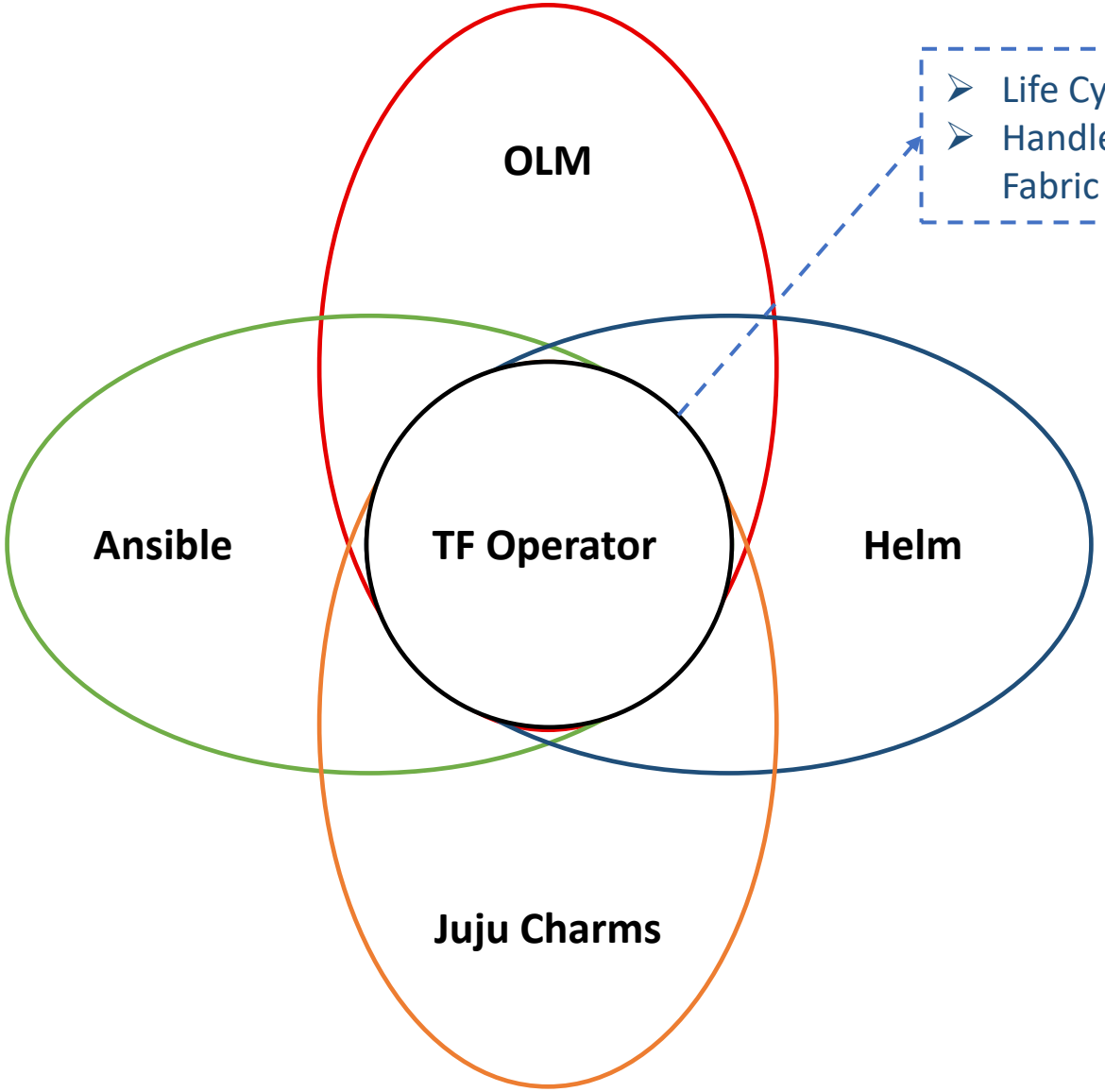
✓ Improve Manageability

✓ Reduce Cost

- Unify LCM handling for Tungsten Fabric
- Simplification of TF integrations into multiple deployments
- Handle seamless version dependency between components
- Cluster Scaling

TF Operator – Unification

kubernetes
Based Deployments



- Life Cycle Manager for Tungsten Fabric
- Handle LCM requirements of Tungsten Fabric natively in Kubernetes

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Addressed TF integrated Deployments

kubernetes

airship

kubeadm

tungstenfabric
Operator

OPENSHIFT

CANONICAL

OpenStack

HELM

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Use Case: Integration with Airship

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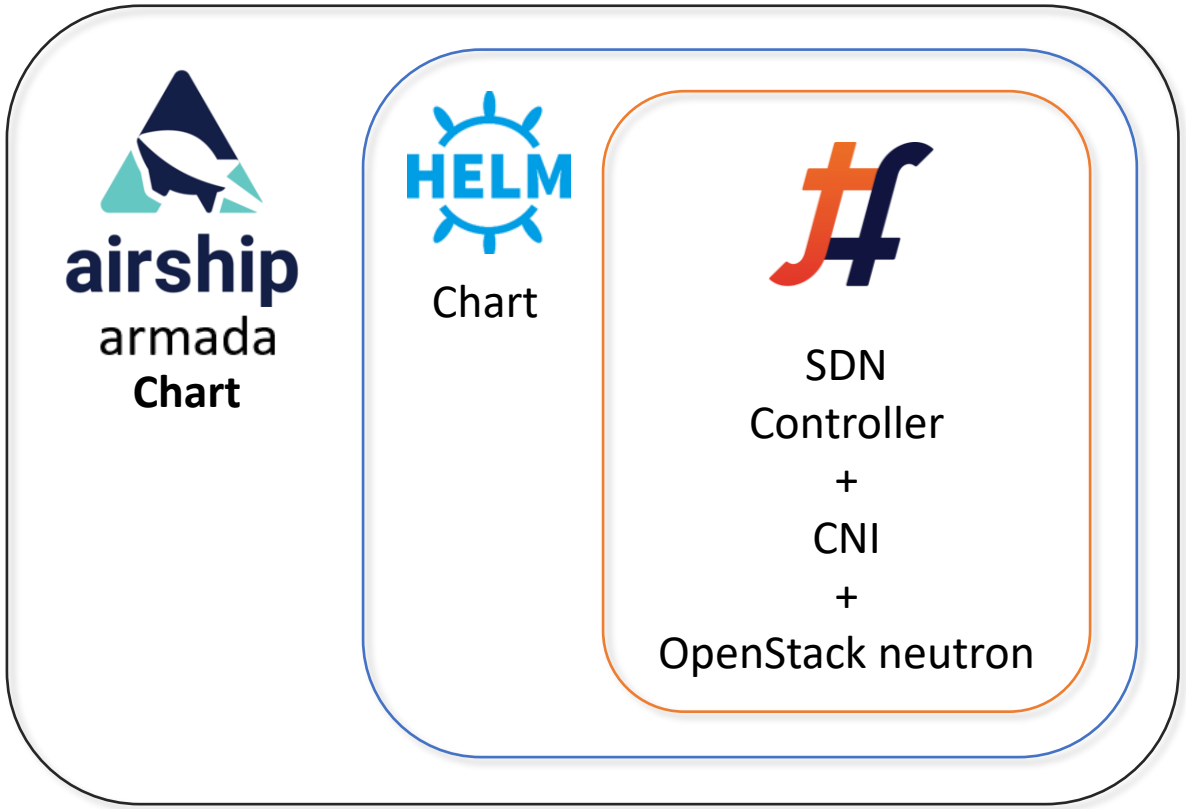
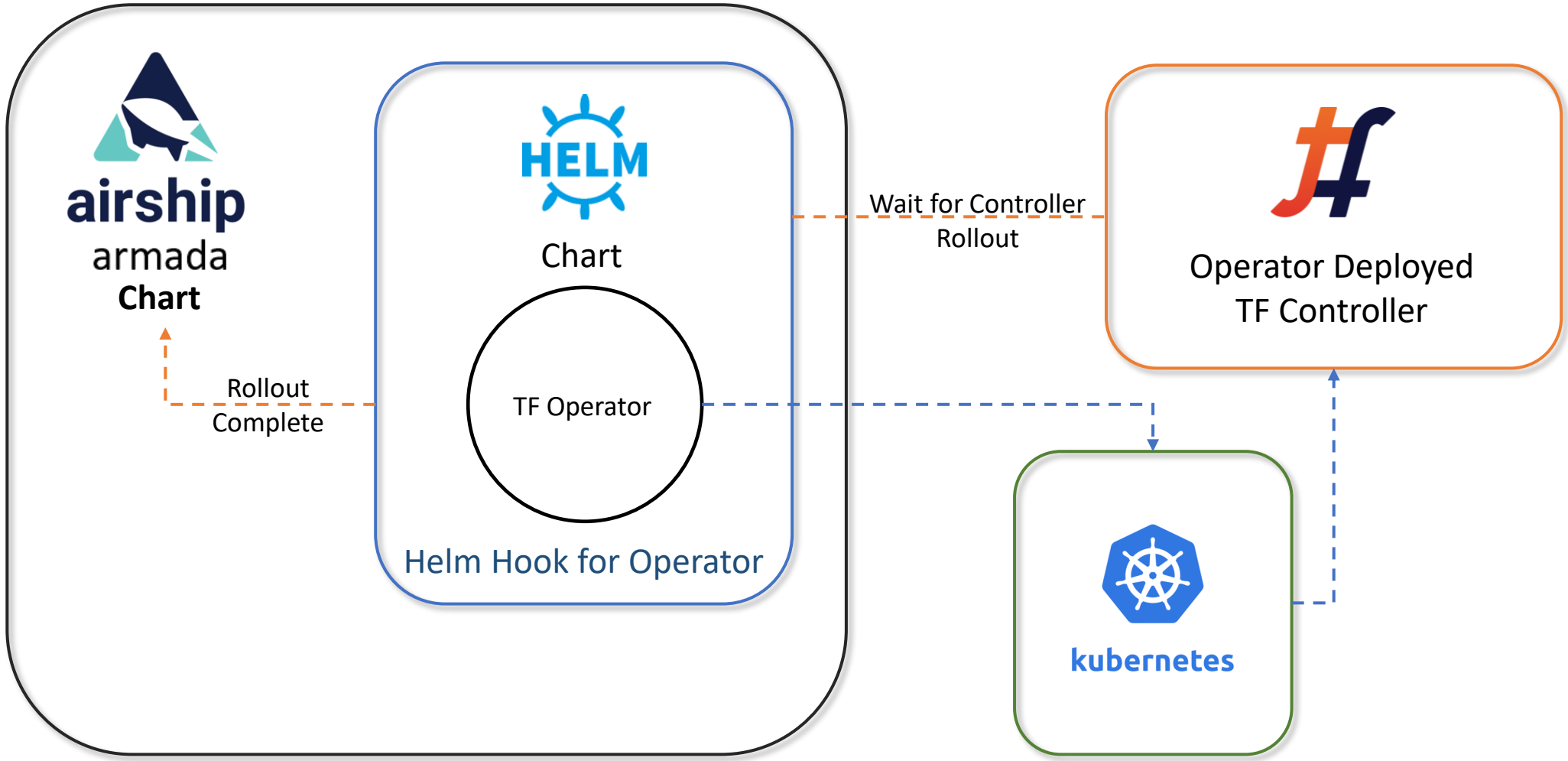
Airship – Requirements

- Define corresponding Airship armada chart
- Added to airship site definition
- Roll out using shipyard



Airship – On Boarding TF Operator



Reference Implementation

https://github.com/atsgen/tf-operator-helm-hook

https://github.com/atsgen/treasuremap

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Open For Discussion

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