From self-managed Kubernetes to an EKS Shared Services Platform

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#GitOps

aws partner network
Advanced
Technology
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Containers Competency

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CLOUD NATIVE
COMPUTING FOUNDATION

About Weaveworks

Team

- Alexis Richardson, CEO
- Cornelia Davis, CTO
- Steve George, COO
- Global Presence:
  - US East, Central, West
  - Europe
  - India, Japan

Thought Leadership

- Founding chair of the CNCF technical oversight committee (TOC)
- Coined the term GitOps, and created the open source tools that make it work
- **Creator of eksctl**, the most used way to work with AWS EKS
- Invented open source solutions to run Kubernetes at scale for our own Weave Cloud SaaS product

Notable Facts

- Founded in 2014
- **Investors include:** Accel, **AWS**, Deutsche Telekom, Ericsson, Google Ventures, Orange and Redline
- **Top 10 contributor to the CNCF**
- Multiple - thousand plus star open source projects

Weaveworks is a Leader in Open Source & Cloud Native

Kubernetes	We led the creation of the flagship Kubernetes installer Kubeadm
	We created EKSctl – the official EKS CLI enabling GitOps on AWS
	Weave Net - the original container SDN & Firewall LibCNI Kubernetes network model - work with CoreOS (now RH/IBM)
	Weave Ignite - the container VM for secure, fast Kubernetes anywhere
Observability	We made Prometheus scalable with Weave Cortex & launched 1st Prom-aaS, powering EA's global games. Cortex is now a CNCF project.
	Weave Scope is is one of the "top tools for monitoring Kubernetes" providing management and monitoring and visualization for <20,000 users
CD and GitOps tooling	CNCF Flux is a Kubernetes-native CD tool for GitOps - also Flux-Helm. Weave Flagger for progressive delivery JKcfg for templating, policy and actions
	Kubediff - diff alerting for Kubernetes to enable GitOps Kured - Cluster Reboot Tool Grafanalib - GitOps dashboarding for Grafana
Integrations	Weaveworks for: Istio, Kubeflow, OpenFaaS, Cloud Foundry

Selected Customers

Financial Services	Technology	Telecom	Other Industries
DATASCAN		Deutsche Telekom	BOSE
Fidelity INVESTMENTS			CHANGE HEALTHCARE
HSBC	aws	ERICSSON	DREAM11
nab			
NatWest	intel		RIOT GAMES
STATE STREET		orange	Sainsbury's

The Kubernetes Big Bang

Platform Operators

Platform Operators

Cluster Sprawl

Day-2 Operations Overhead

Redundant Services

Cluster Inconsistency

Inefficient utilization

Application Developers

Infrastructure Concerns

Redundant efforts across teams

Reliability and Availability

The Shared Services Platform

~~Cluster Sprawl~~

~~Redundant Services~~

~~Cluster Inconsistency~~

~~Inefficient utilization~~

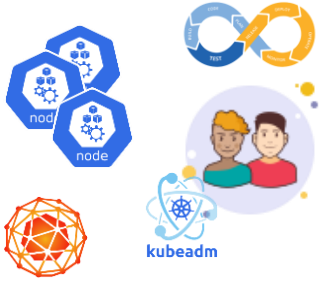
~~Day-2 Operations Overhead~~

SSP abstracts the complexities of cloud-native Kubernetes infrastructure from developers. Workloads are consolidated into large scale, production-ready clusters. Platform operators centrally apply security and monitoring best practices, and services are centrally managed and offered to all teams.

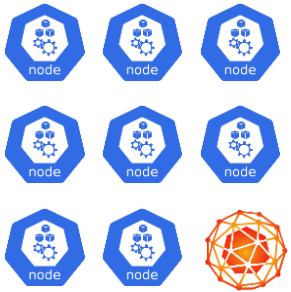
What about Developer Teams?

SSP provides self-service and autonomy for teams, while maintaining workload segregation and reducing operations and infrastructure efforts from dev teams.

Step 1
Switch to managed K8s and consolidate



Amazon **EKS**



Integration

Amazon **EKS**

Amazon **EKS**

Development

K8s is quite complex if you look under the hood

- Networking
- Storage
- Worker Scaling
- Worker Recovery
- Control Plane High Availability
- Upgrades and Patches
- Security and Authentication

Managed K8s abstracts all that away

Amazon Elastic Kubernetes Service (Amazon EKS)

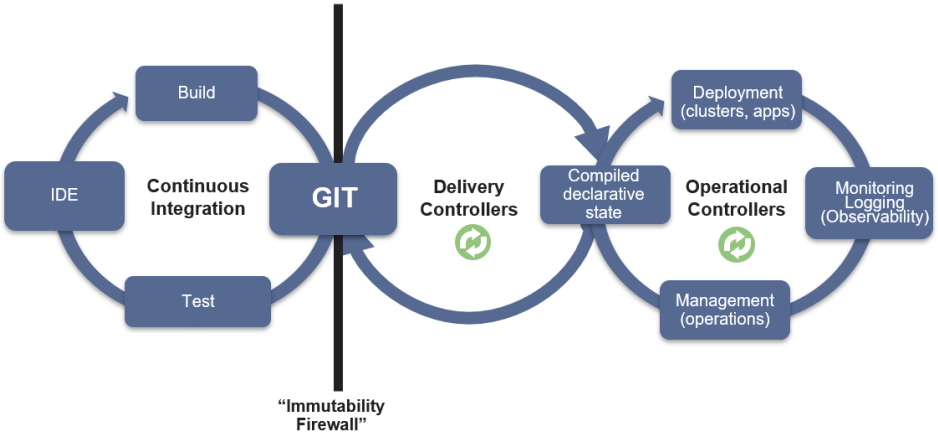
Step 2
Operate using GitOps

How do operate our SSP?

GitOps! An Operating Model for Cloud Native

Principles

1. Desired state of the full system is **declared** in code
2. Desired state is **versioned**, versions are **immutable**
3. **Agents reconcile** the running state with the desired state
4. Reconciliation happens **continuously**



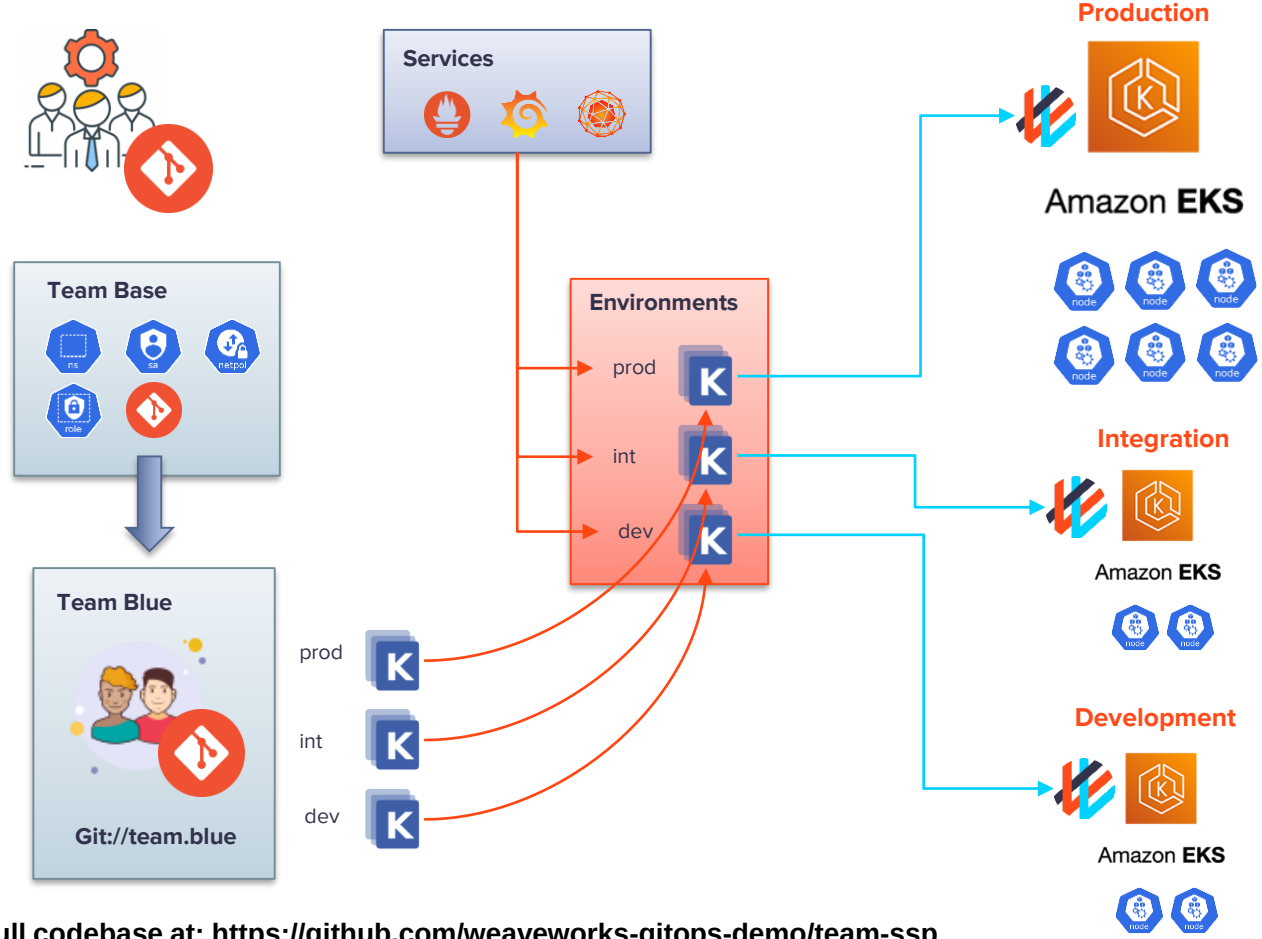
```
./platform/services
├── ingress.yaml
├── kustomization.yaml
├── observability.yaml
└── servicemesh.yaml

./platform/team
├── applications.yaml
├── kustomization.yaml
├── namespace.yaml
├── repository.yaml
├── role.yaml
├── rolebinding.yaml
└── serviceaccount.yaml
```

```yaml
apiVersion: kustomize.config.k8s.io/v1beta1
kind: Kustomization
namespace: blue-ns
namePrefix: blue
commonLabels:
  team: blue
bases:
  - ../../platform/team
patchesStrategicMerge:
  - patches.yaml
```

```
./teams
├── team-blue
└── team-green

./environments
├── dev
├── int
└── prod
```



Full codebase at: https://github.com/weaveworks-gitops-demo/team-ssp

Success

Let’s look at the benefits

Benefits

Kubernetes without the management complexity

Secured, compliant developer autonomy

Multi-stage deployment off the shelf

DRY Reproducibility

Faster recovery (< MTTR)

Common Tooling and Lifecycle

Auditability and Traceability

Thank you!

Contact us to discuss how to get your customers operating EKS at scale quickly!

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