



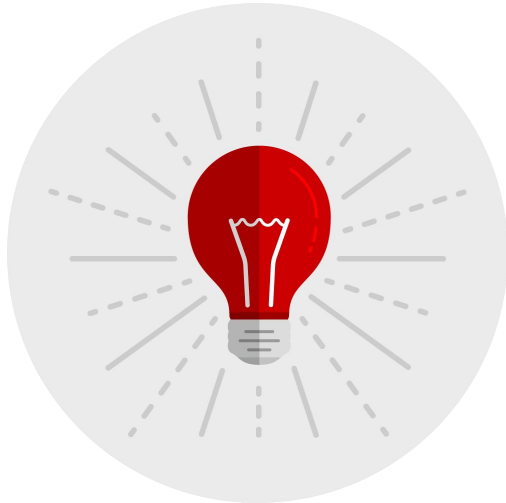
# Was ist das eigentlich? Und was kann es?

Sebastian Dehn  
Solution Architect Partner Enablement  
[sdehn@redhat.com](mailto:sdehn@redhat.com)

# Wer bin ich?



# Worüber reden wir heute?



## Die Idee hinter OpenShift

Wieso, weshalb warum...?

## Lasst uns über Technik reden!

Das wichtigste in Kürze

## Proof it!

Ein kurzer Einblick in die reale OpenShift Welt

## Q&A

Ich beantworte eure Fragen. Habt ihr welche?

Wer kennt es nicht?



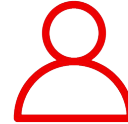
# Parts Unlimited



Bill - VP IT



Chris - VP AppDev



Steve - CEO

## Der Fokus



Steve - die Kosten minimieren/Ressourcen effizient nutzen



Bill - Modernisierung Infrastruktur & Standardisierung der IT Prozesse



Chris - Modern AppDev & Innovative Technologien

# A consistent container application platform

From your data center, to the cloud, to the edge



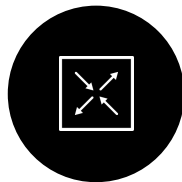
Automated  
operations



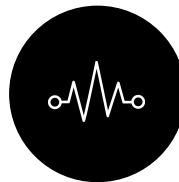
Multi-tenant



Secure by  
default



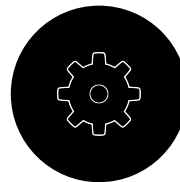
Network  
traffic control



Over-the-air  
updates



Monitoring  
& chargeback



Pluggable  
architecture



Bare metal, VMware vSphere, Red Hat Virtualization, Red Hat OpenStack Platform,  
Amazon Web Services, Microsoft Azure, Google, IBM Cloud

# Zeit für Praxis!



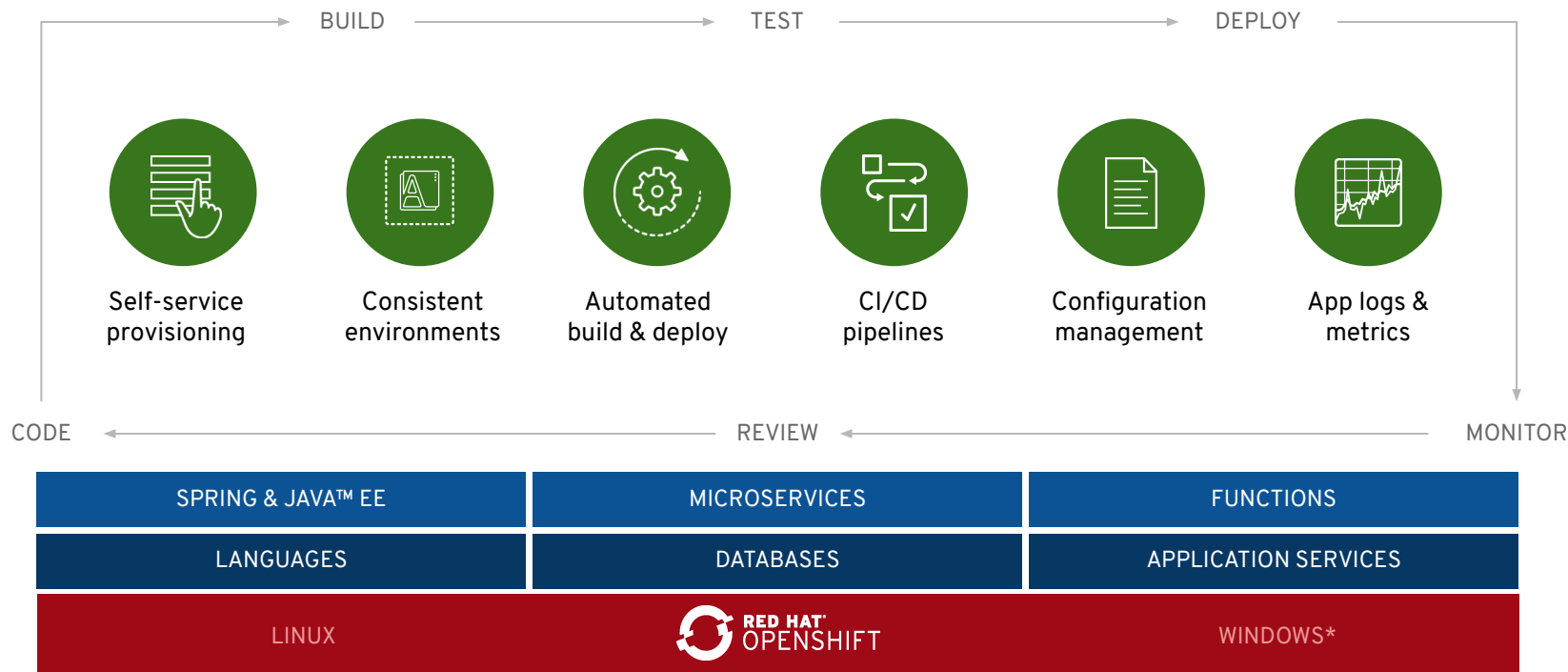
# Die Technik

Was sich unter der Haube versteckt

# Empowering developers to innovate

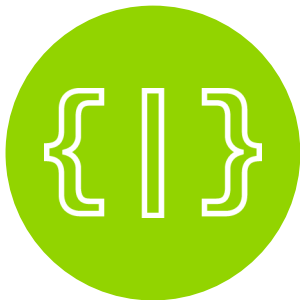
Zeit für Innovationen!

# OpenShift enables developer productivity



\* coming soon

## BUILD AND DEPLOY CONTAINER IMAGES



**DEPLOY YOUR  
SOURCE CODE**

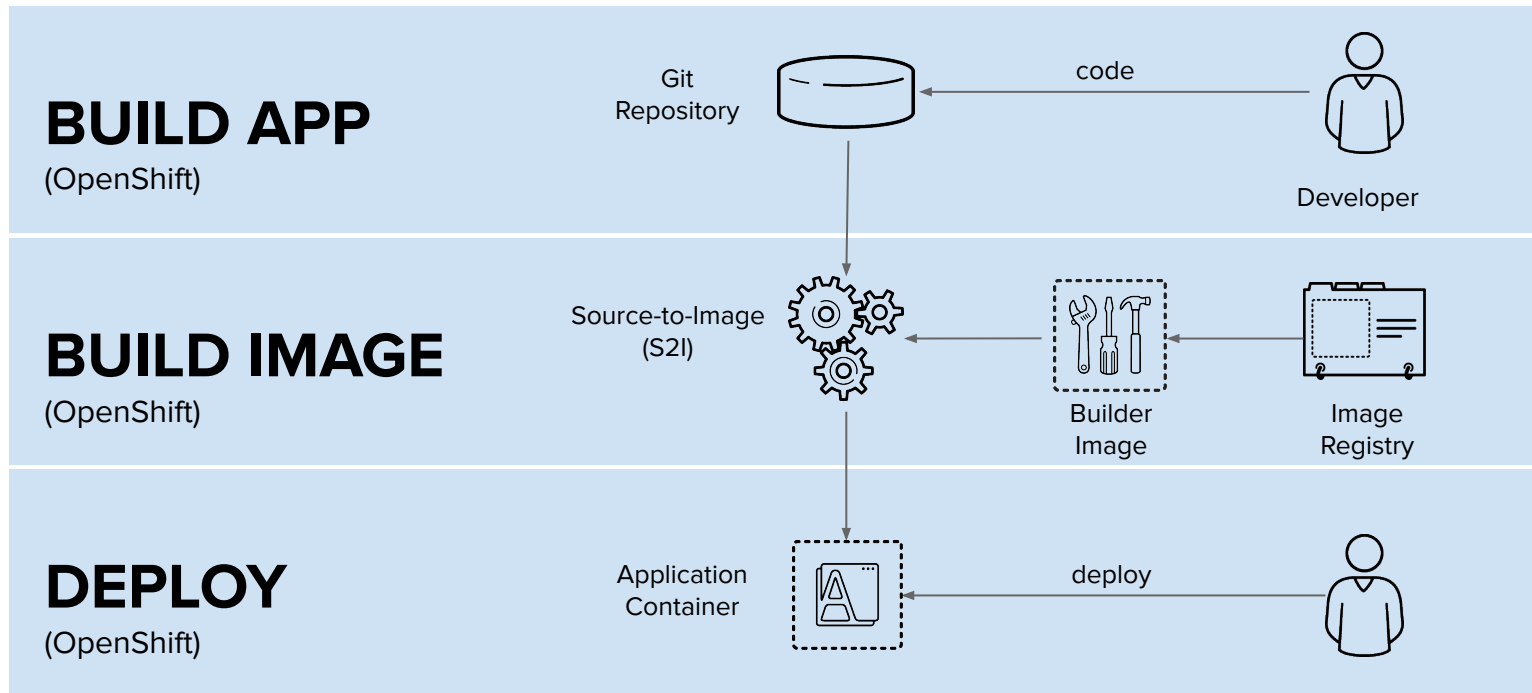


**DEPLOY YOUR  
APP BINARY**

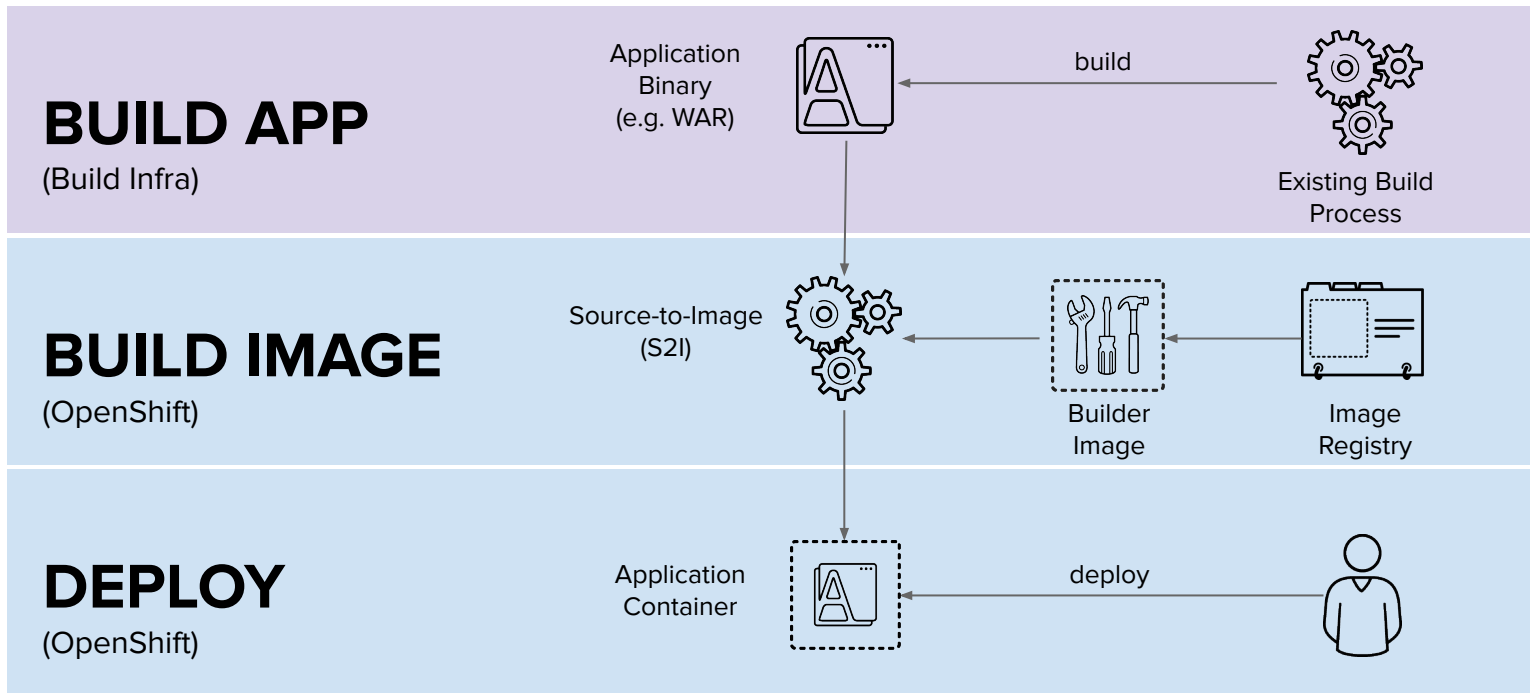


**DEPLOY YOUR  
CONTAINER IMAGE**

# DEPLOY SOURCE CODE WITH SOURCE-TO-IMAGE (S2I)



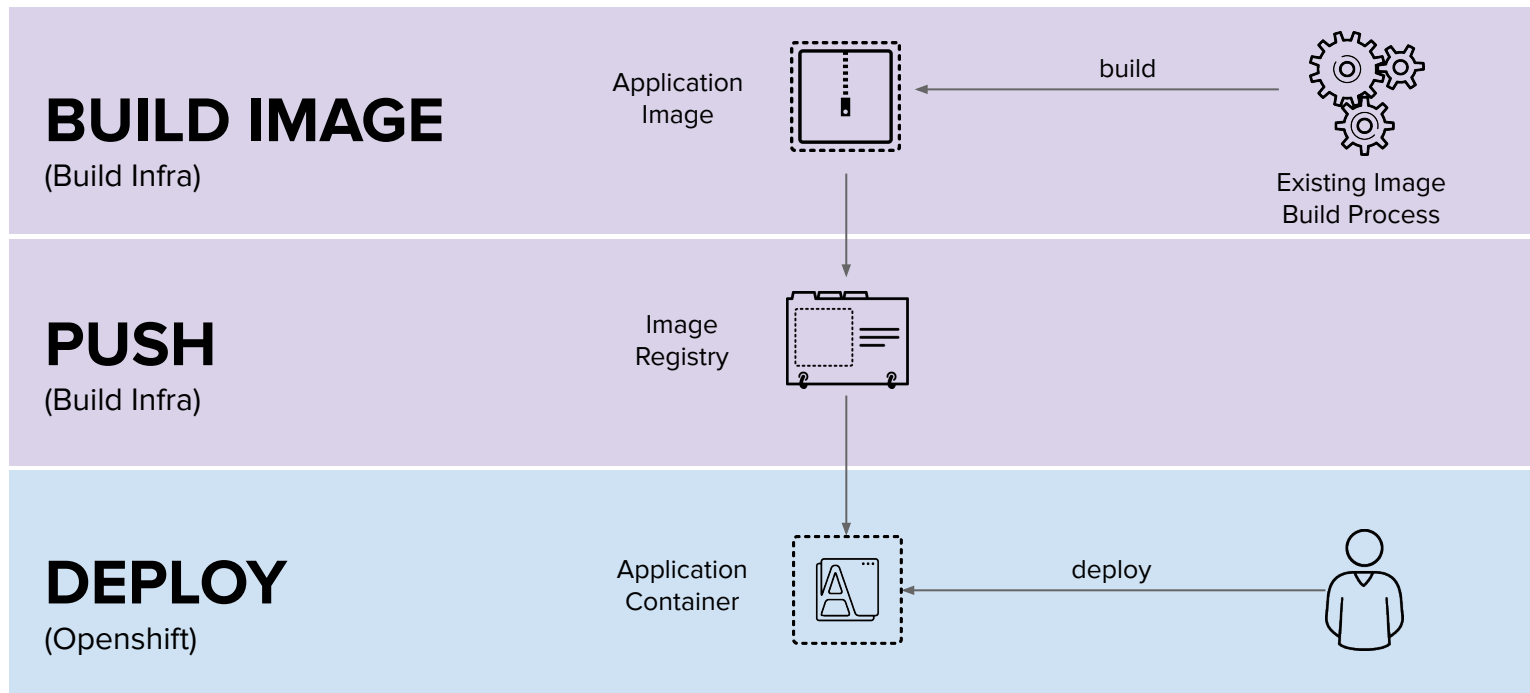
# DEPLOY APP BINARY WITH SOURCE-TO-IMAGE (S2I)



■ User/Tool Does

■ OpenShift Does

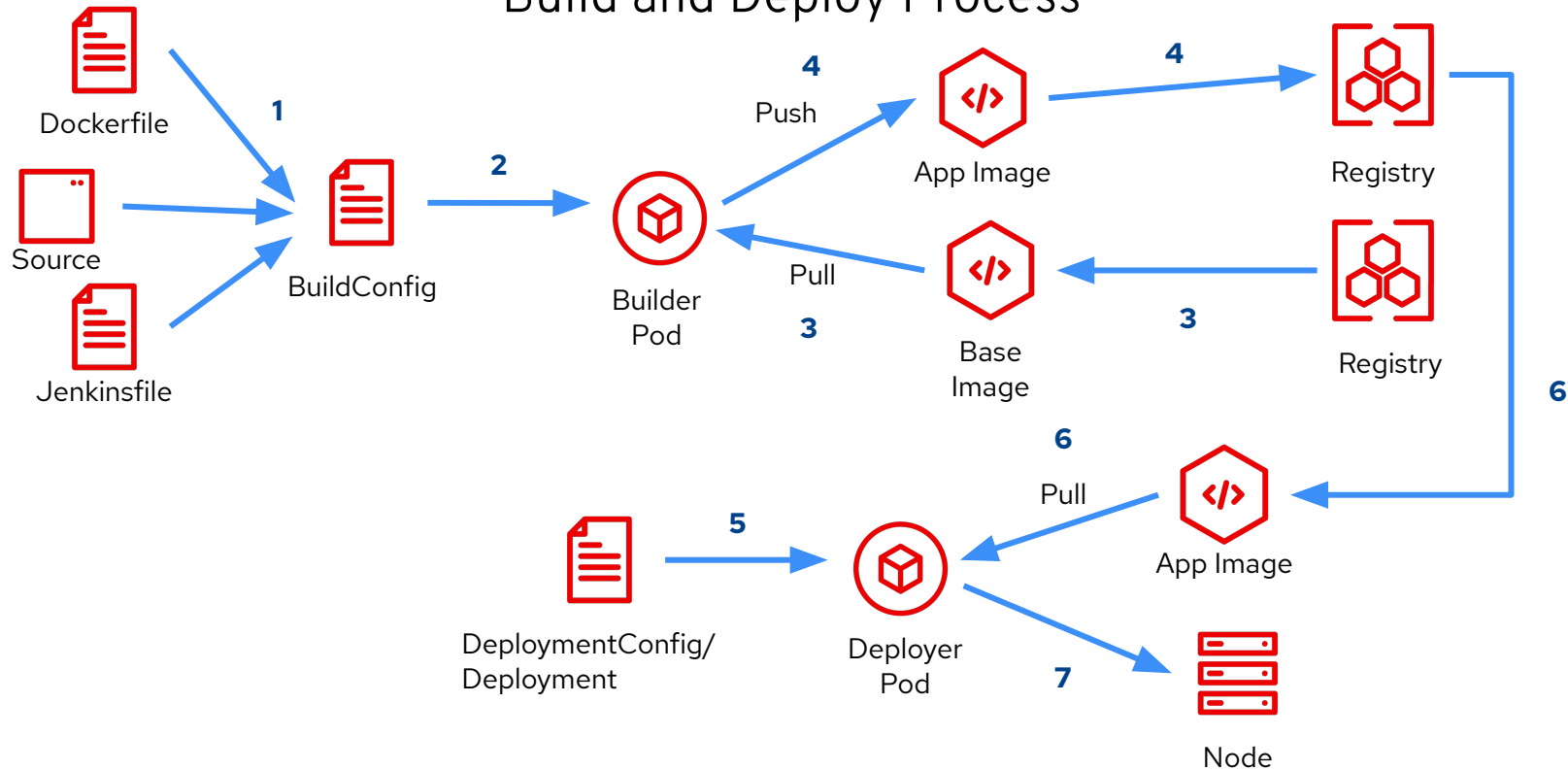
# DEPLOY DOCKER IMAGE



■ User/Tool Does

■ OpenShift Does

## Build and Deploy Process





# OpenShift 4 Architecture

Und so sieht die  
Architektur der Plattform  
aus!

# your choice of infrastructure

COMPUTE

NETWORK

STORAGE

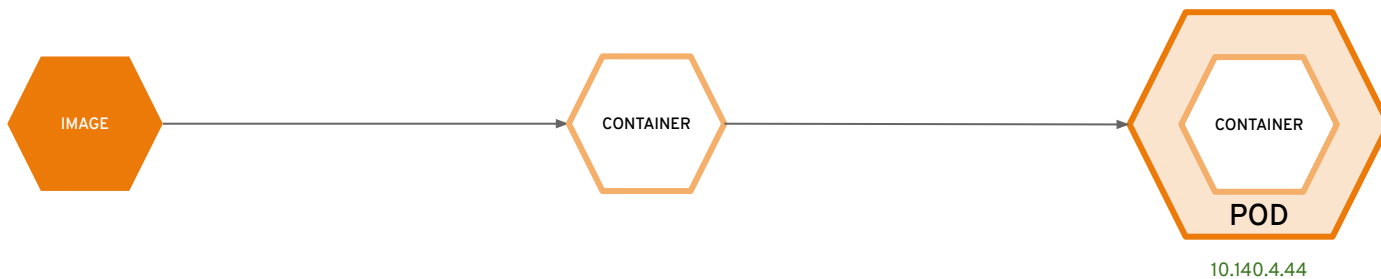
# workers run workloads



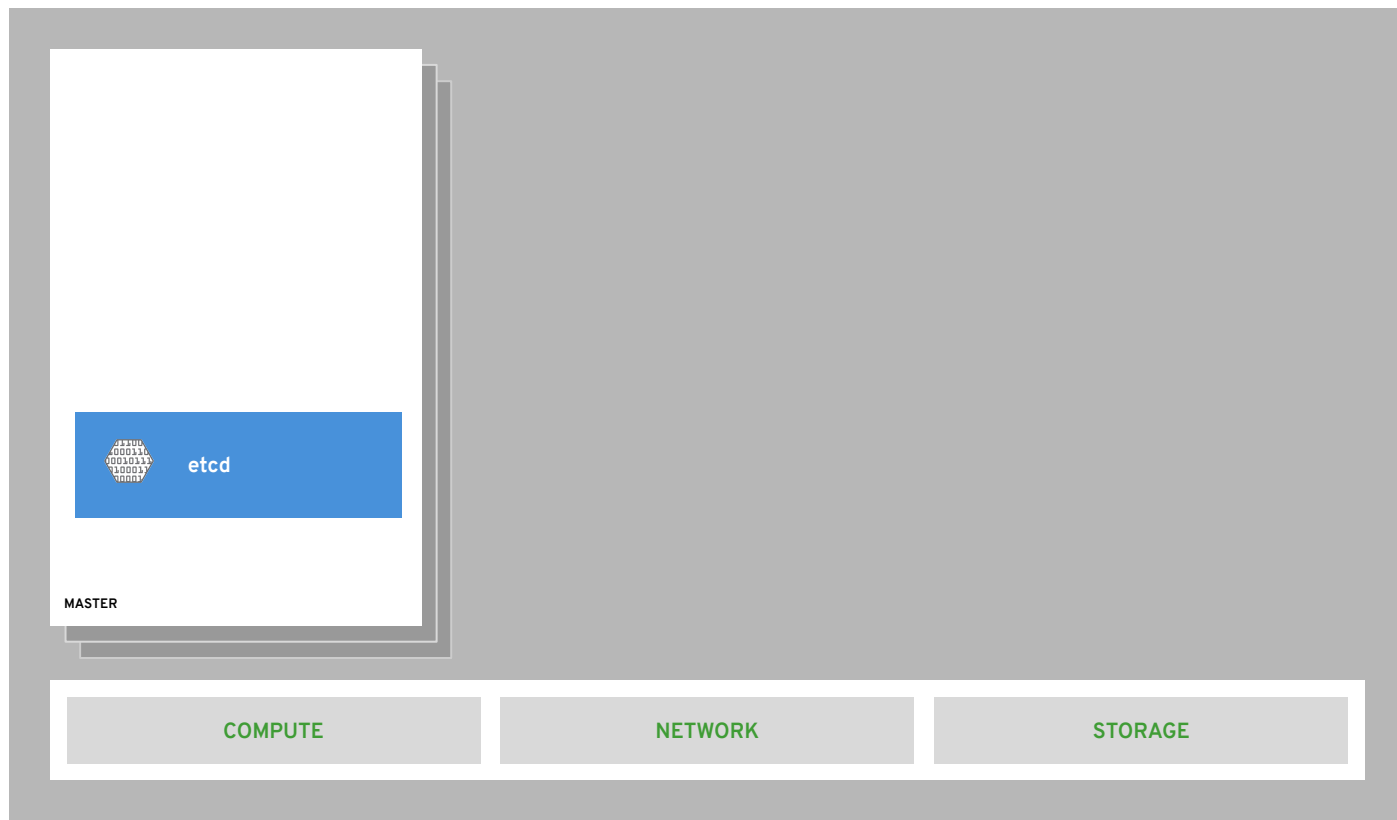
# masters are the control plane



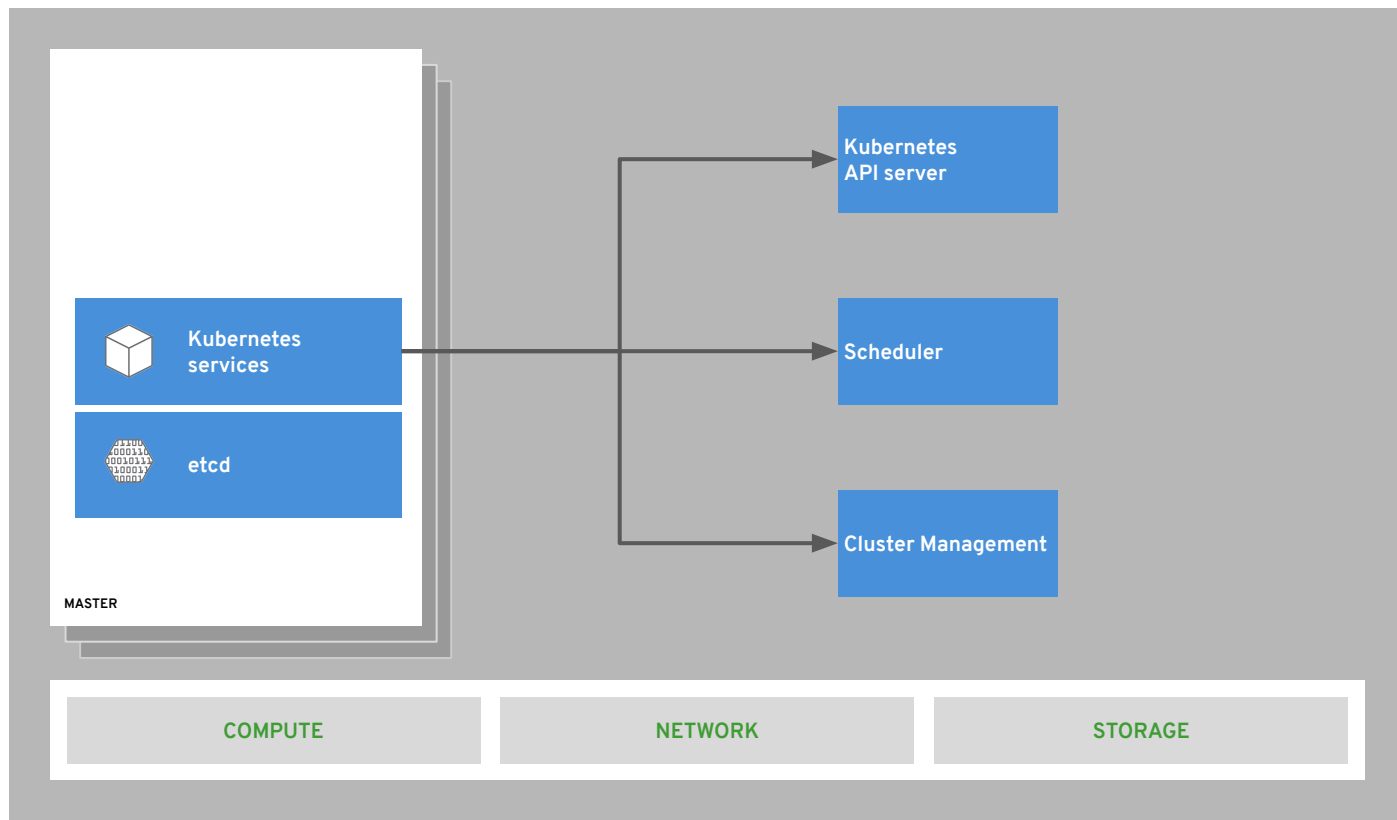
# everything runs in pods



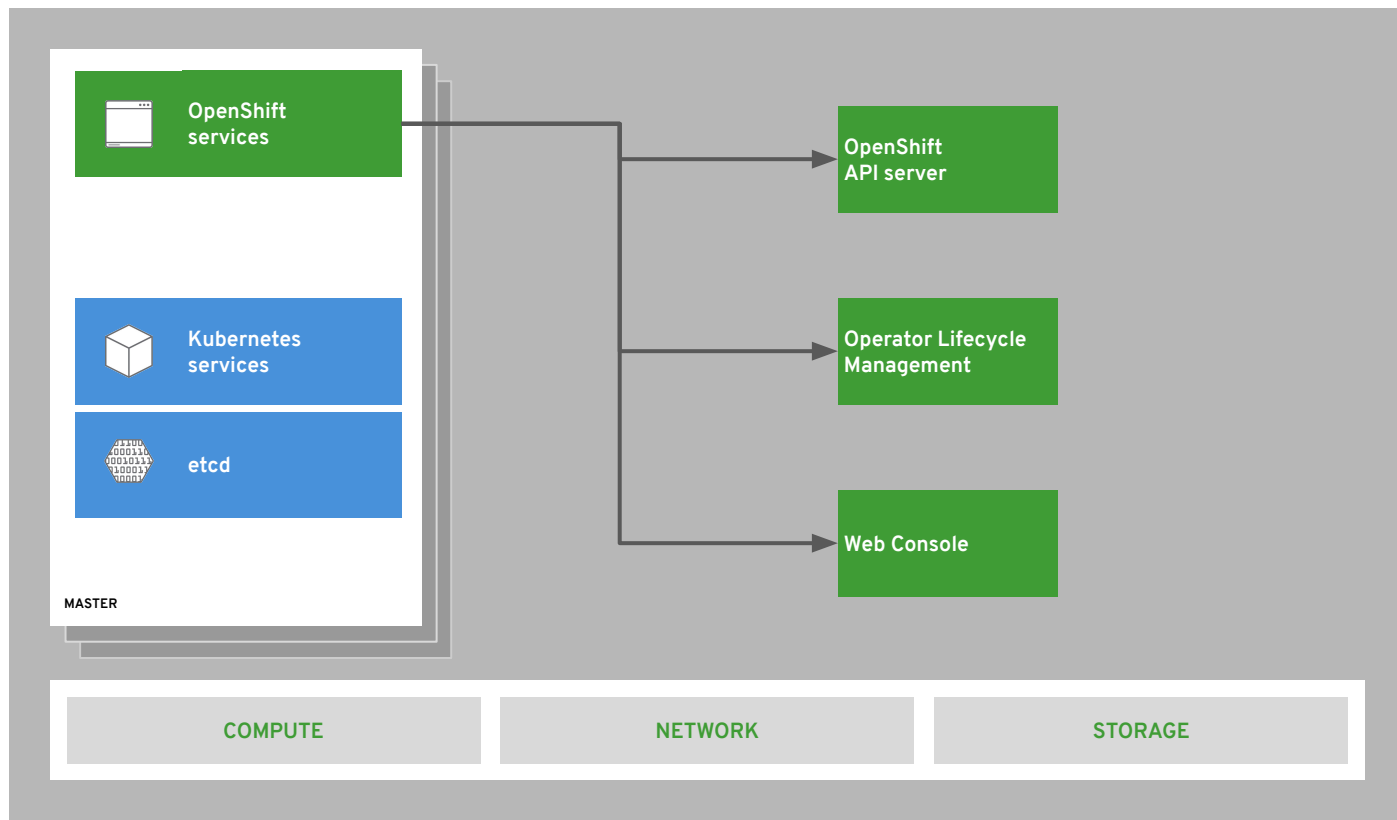
# state of everything



# core kubernetes components

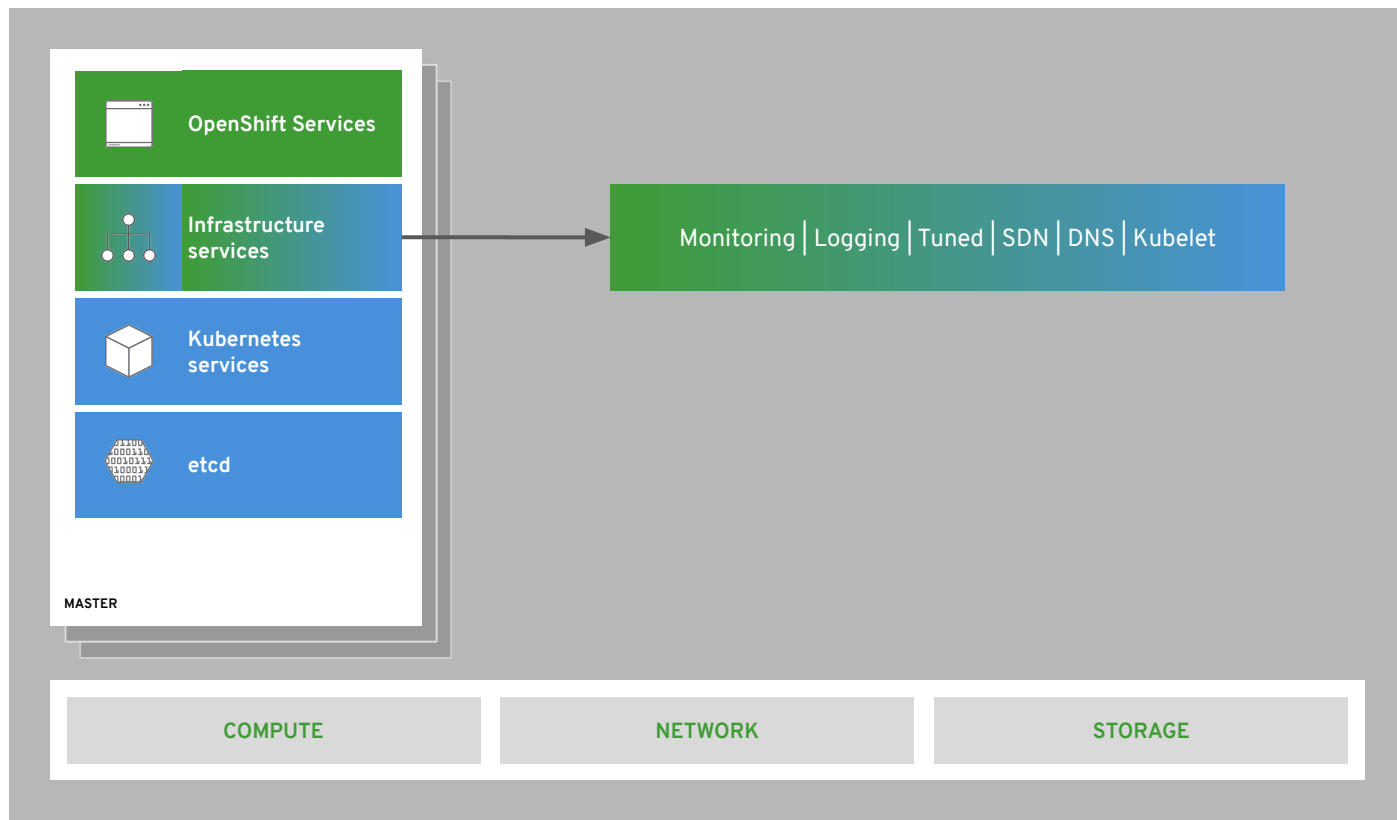


# core OpenShift components

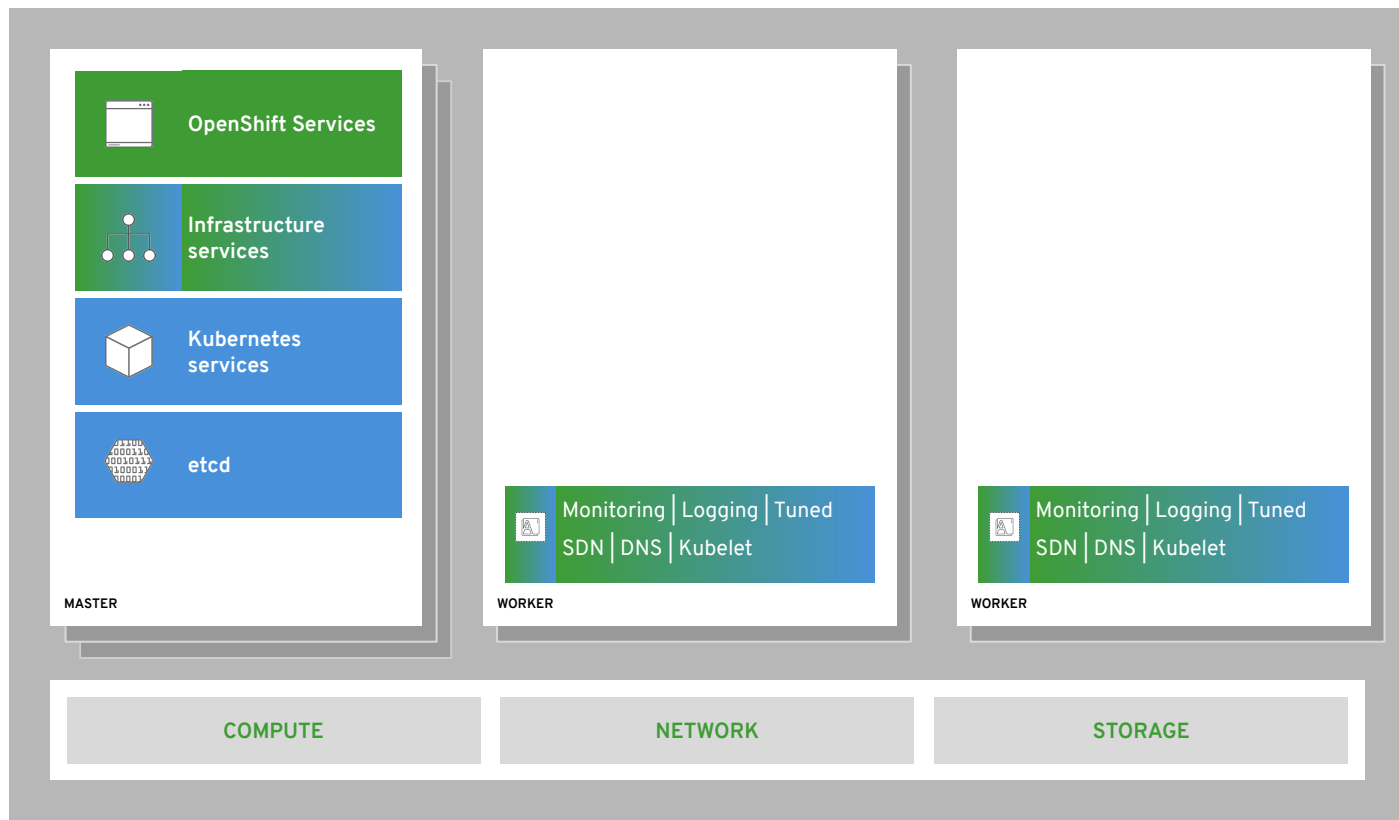




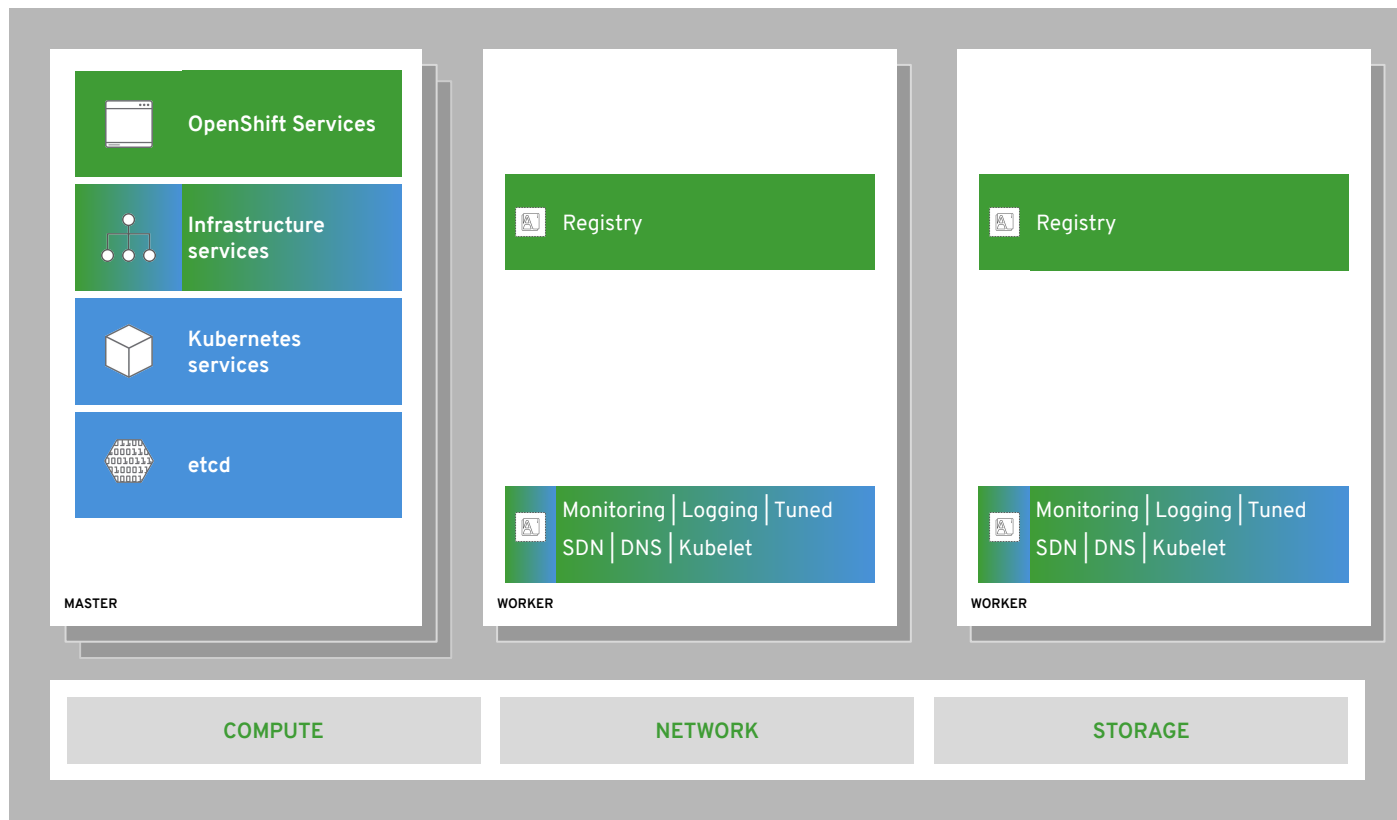
# internal and support infrastructure services



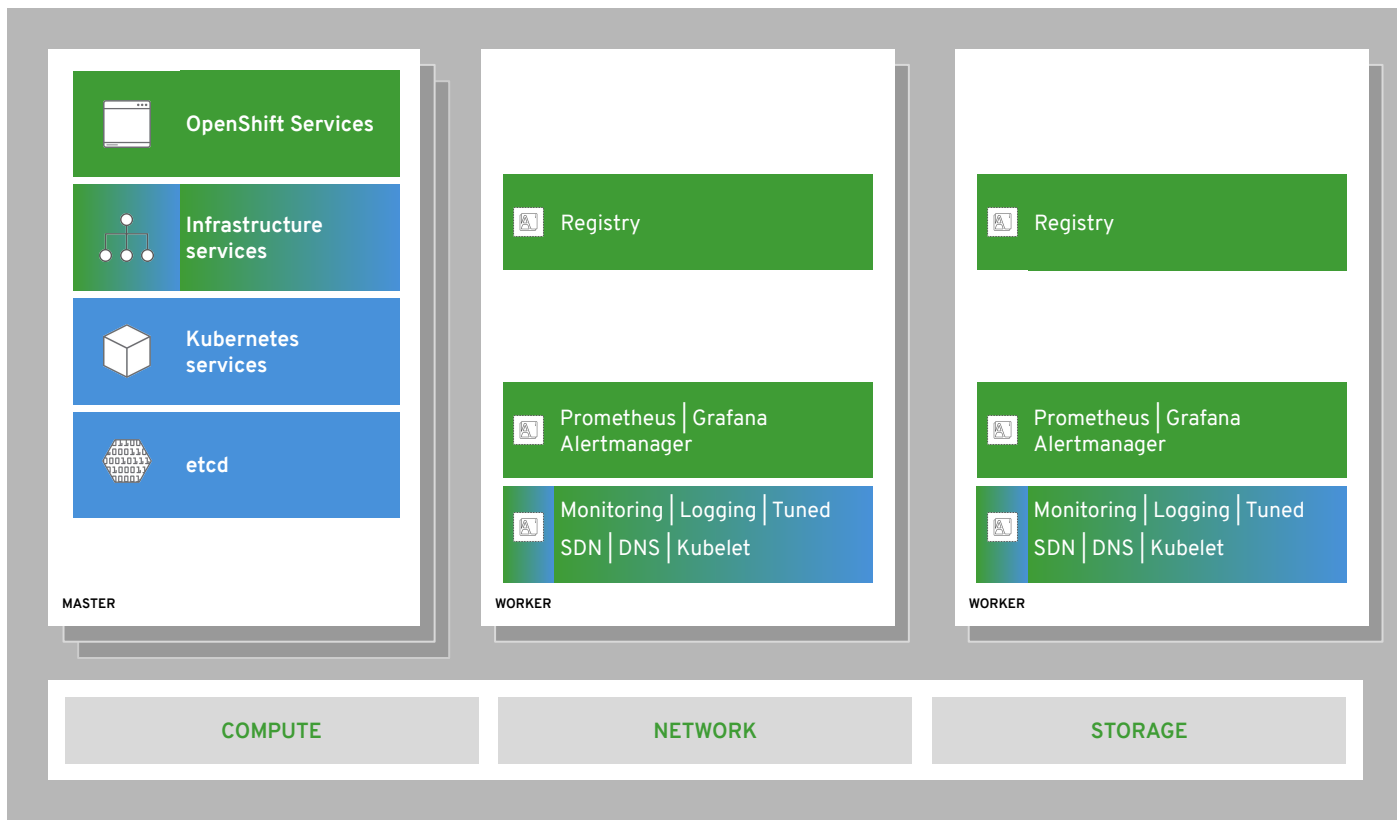
run on all hosts



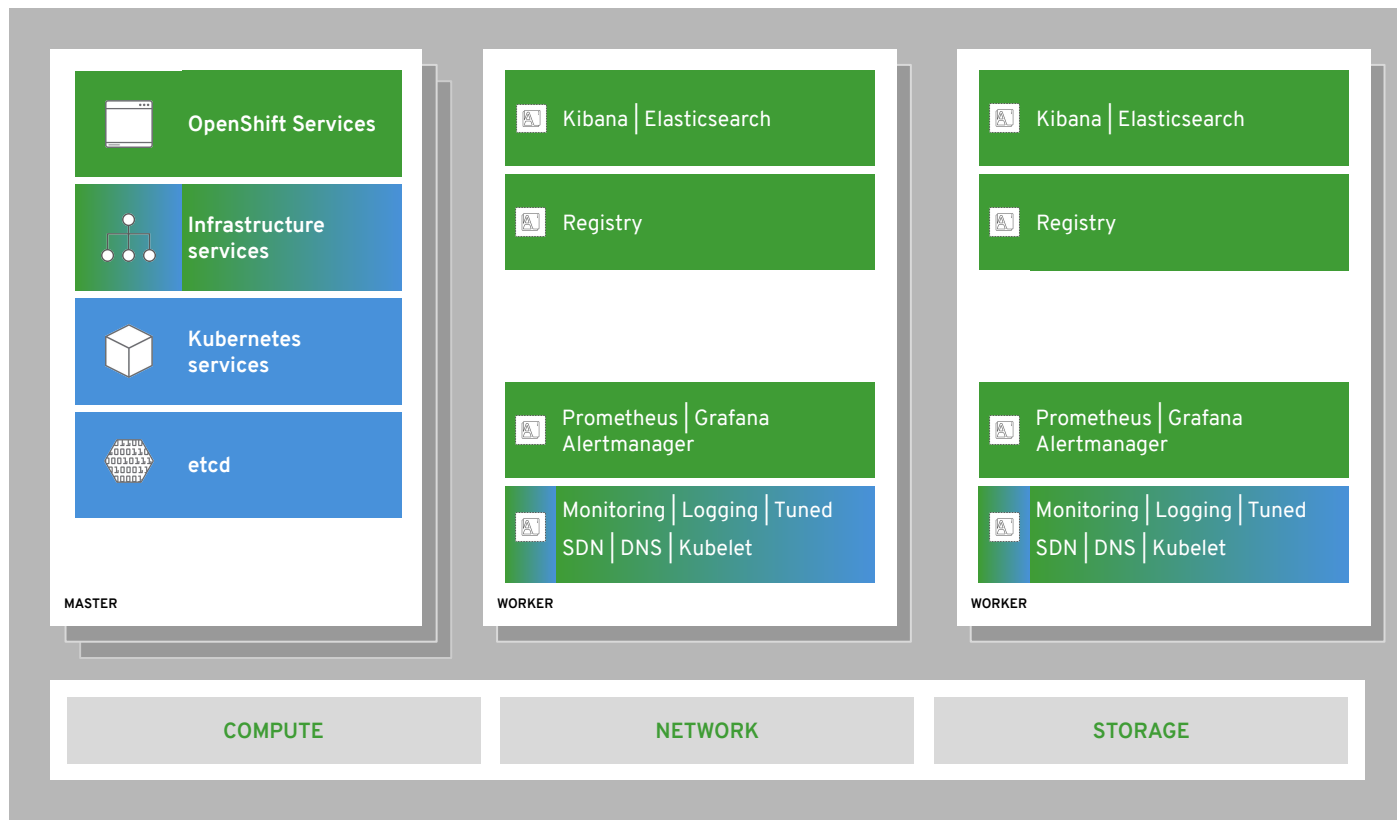
# integrated image registry



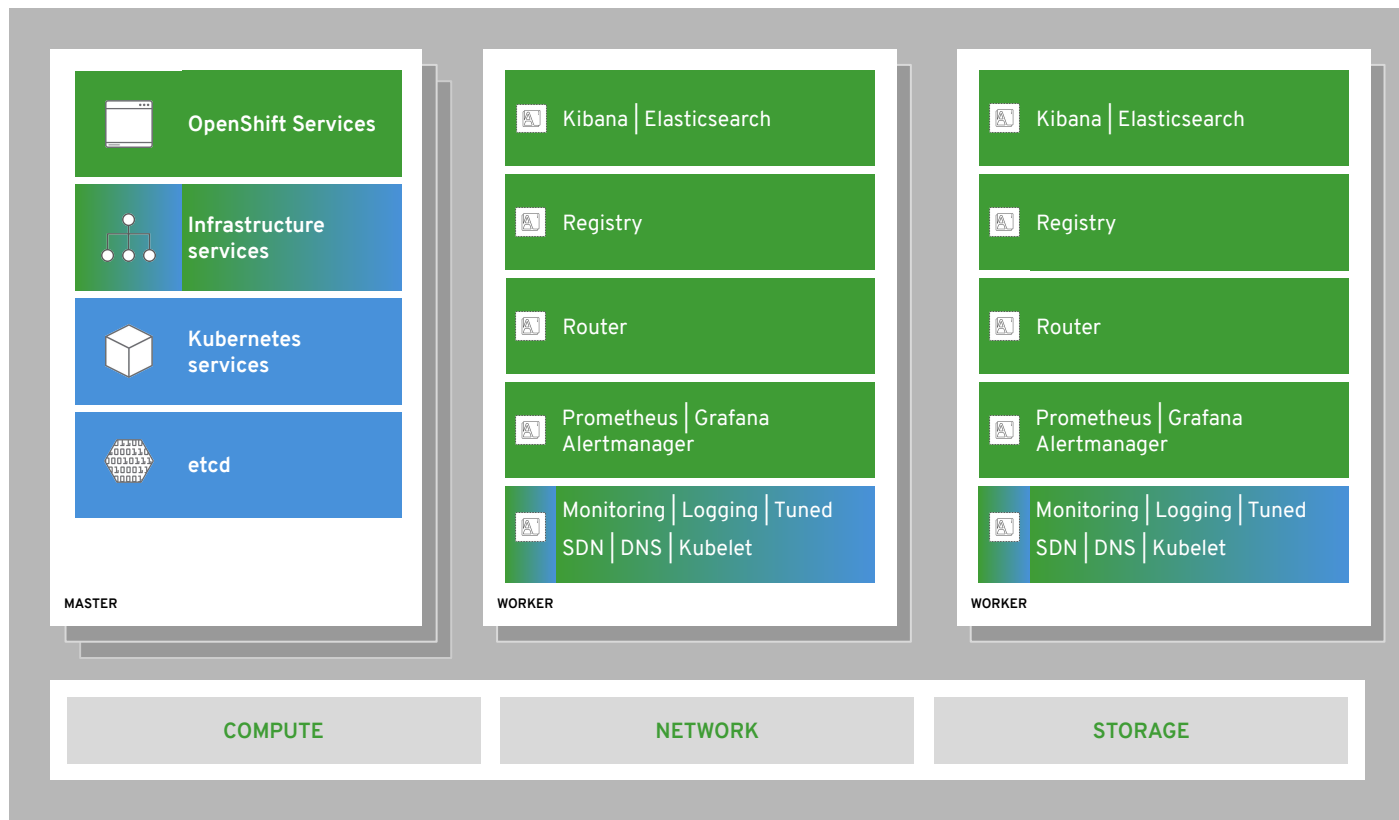
# cluster monitoring



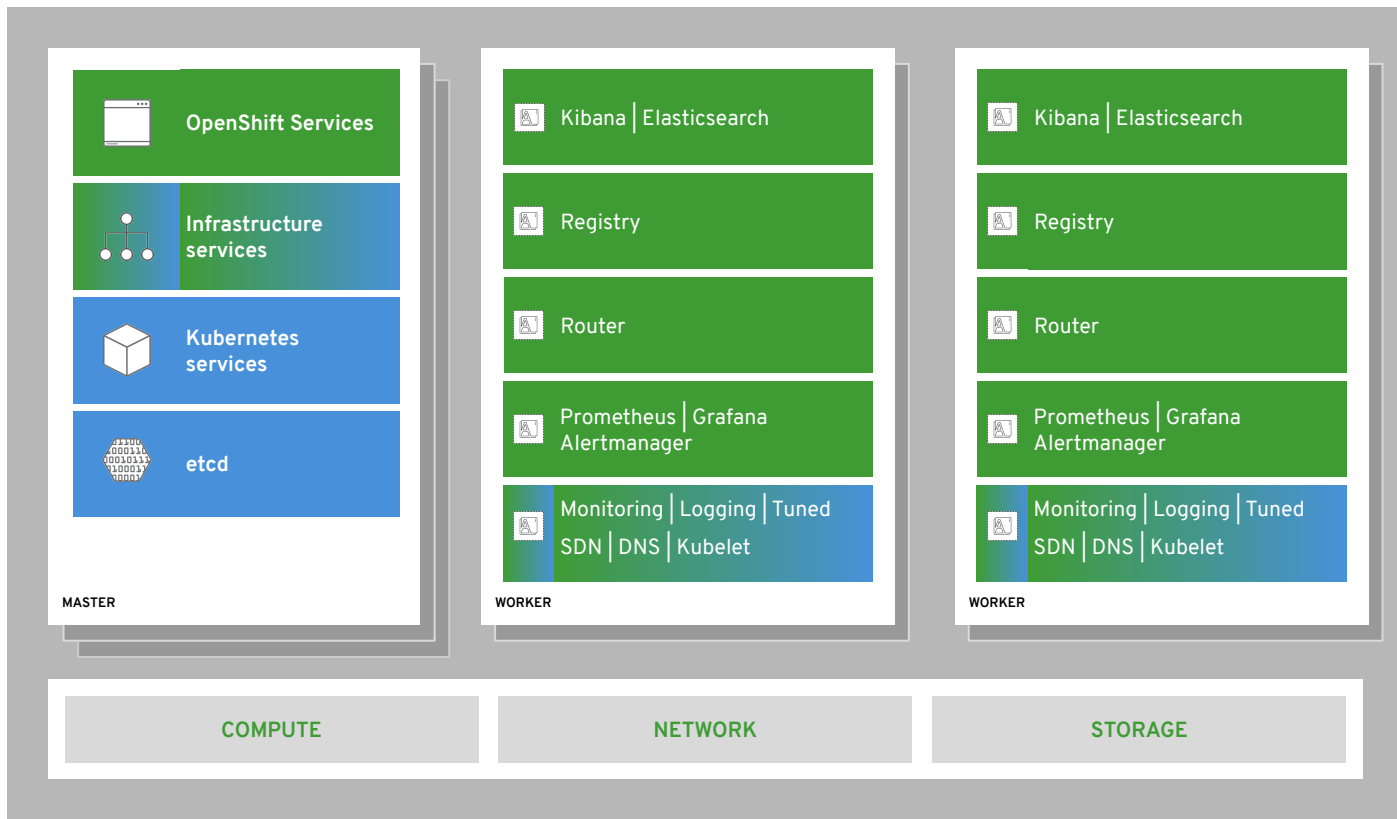
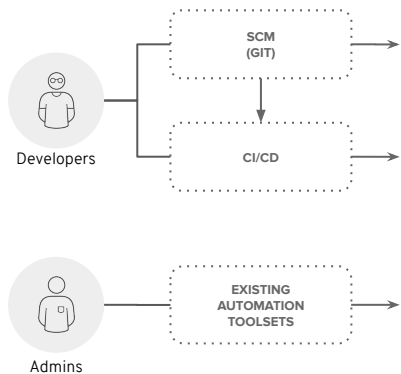
# log aggregation



# integrated routing



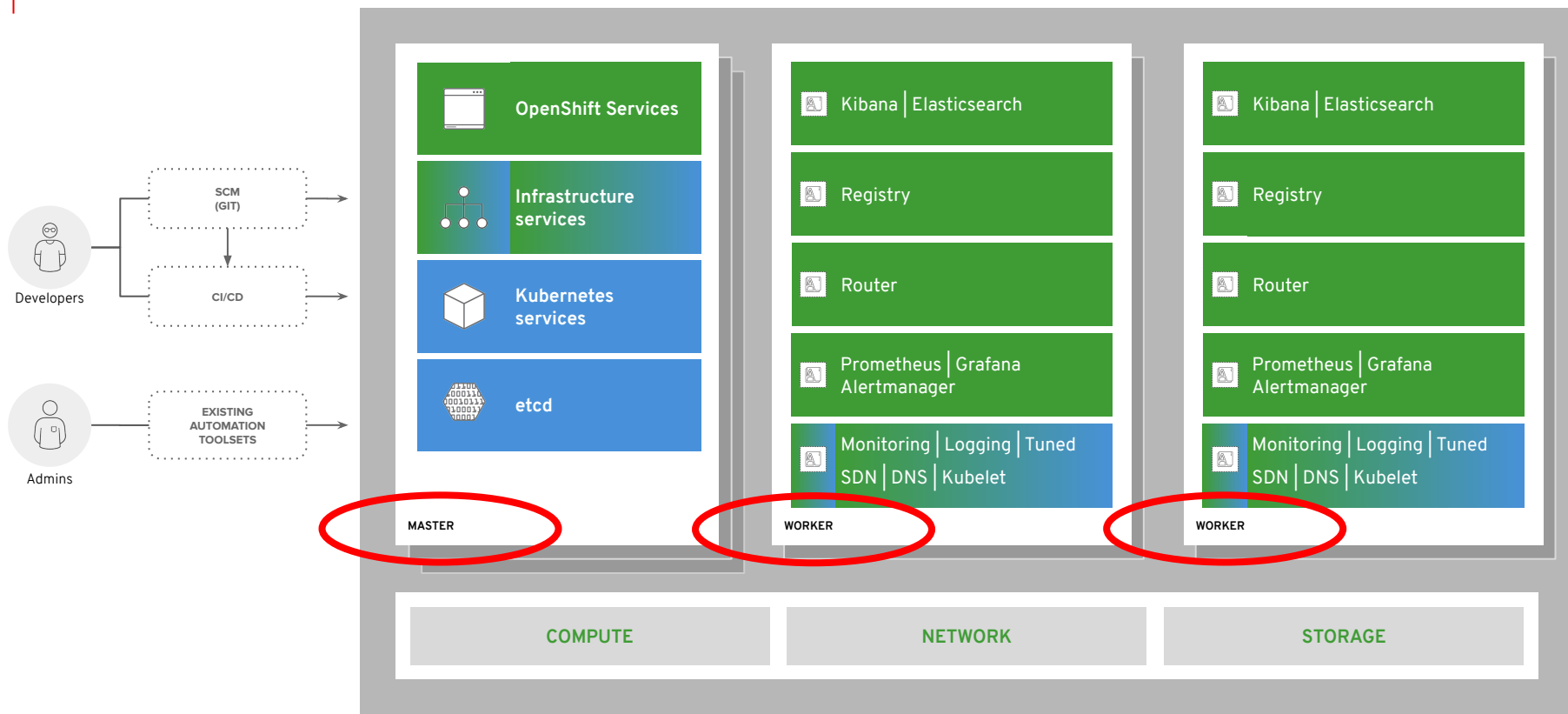
# dev and ops via web, cli, API, and IDE



# Red Hat Enterprise Linux CoreOS

Und was ist die Basis?





# Immutable Operating System

## Red Hat Enterprise Linux CoreOS is versioned with OpenShift

CoreOS is tested and shipped in conjunction with the platform. Red Hat runs thousands of tests against these configurations.

## Red Hat Enterprise Linux CoreOS is managed by the cluster

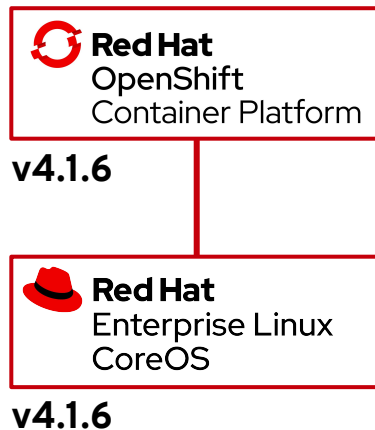
The Operating system is operated as part of the cluster, with the config for components managed by Machine Config

Operator:

- CRI-O config
- Kubelet config
- Authorized registries
- SSH config

RHEL CoreOS admins are responsible for:

Nothing. 😊 🙌





A lightweight, OCI-compliant container runtime

Minimal and Secure  
Architecture

Optimized for  
Kubernetes

Runs any  
OCI-compliant image  
(including docker)

# podman



A docker-compatible CLI  
for containers

- Remote  
management API  
via Varlink
- Image/container  
tagging
- Advanced  
namespace  
isolation

buildah

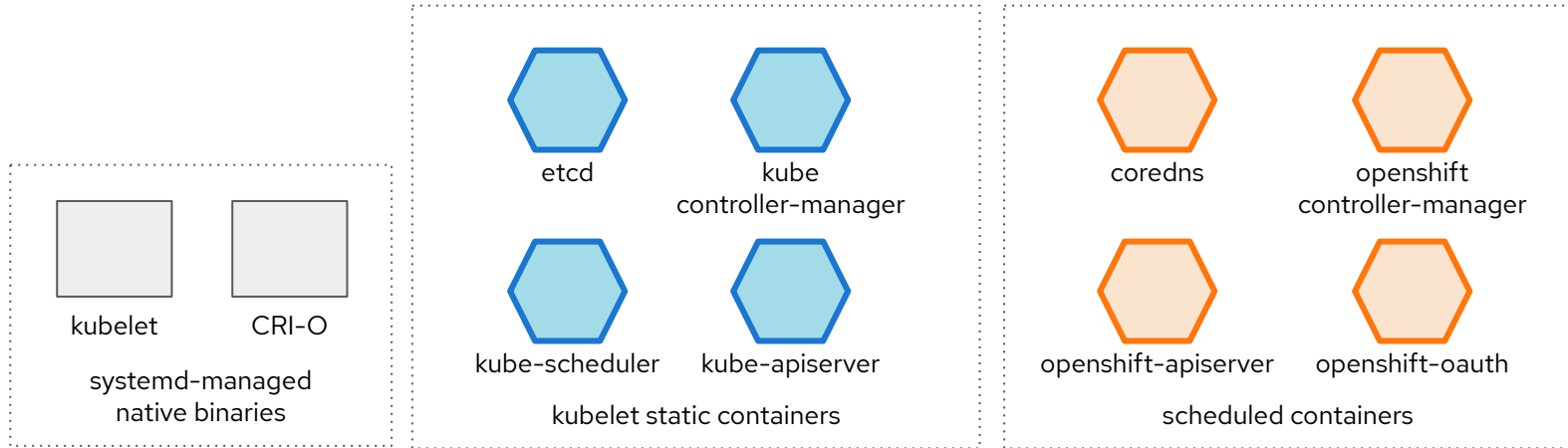


buildah

Secure & flexible OCI container builds

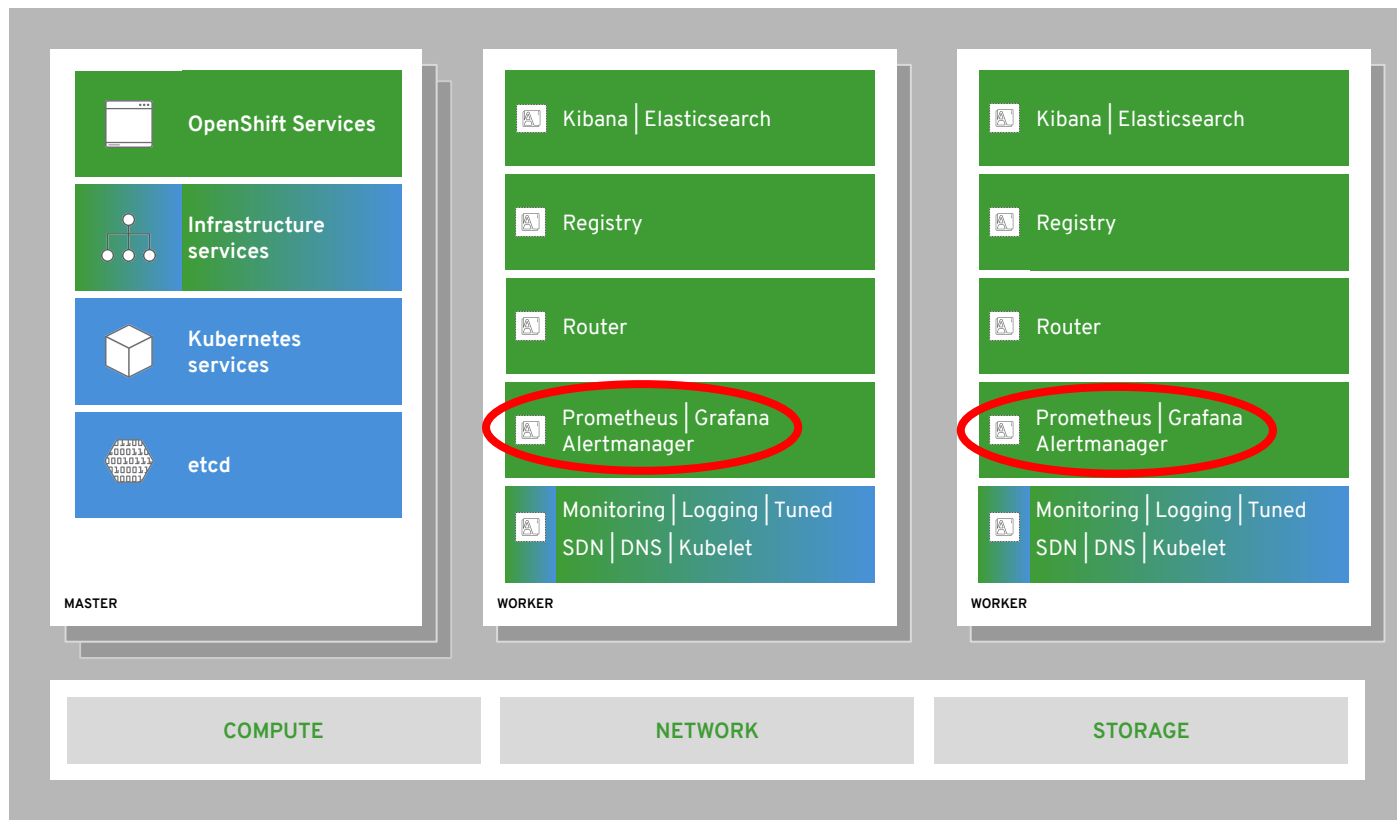
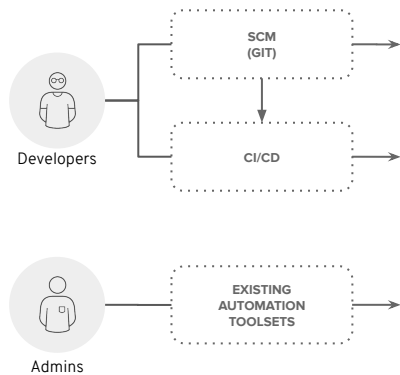
- Integrated into OCP build pods
- Performance improvements for knative enablement
- Image signing improvements

# CoreOS “pod” architecture



# OpenShift Monitoring

Das allsehende Auge!





# OpenShift Cluster Monitoring



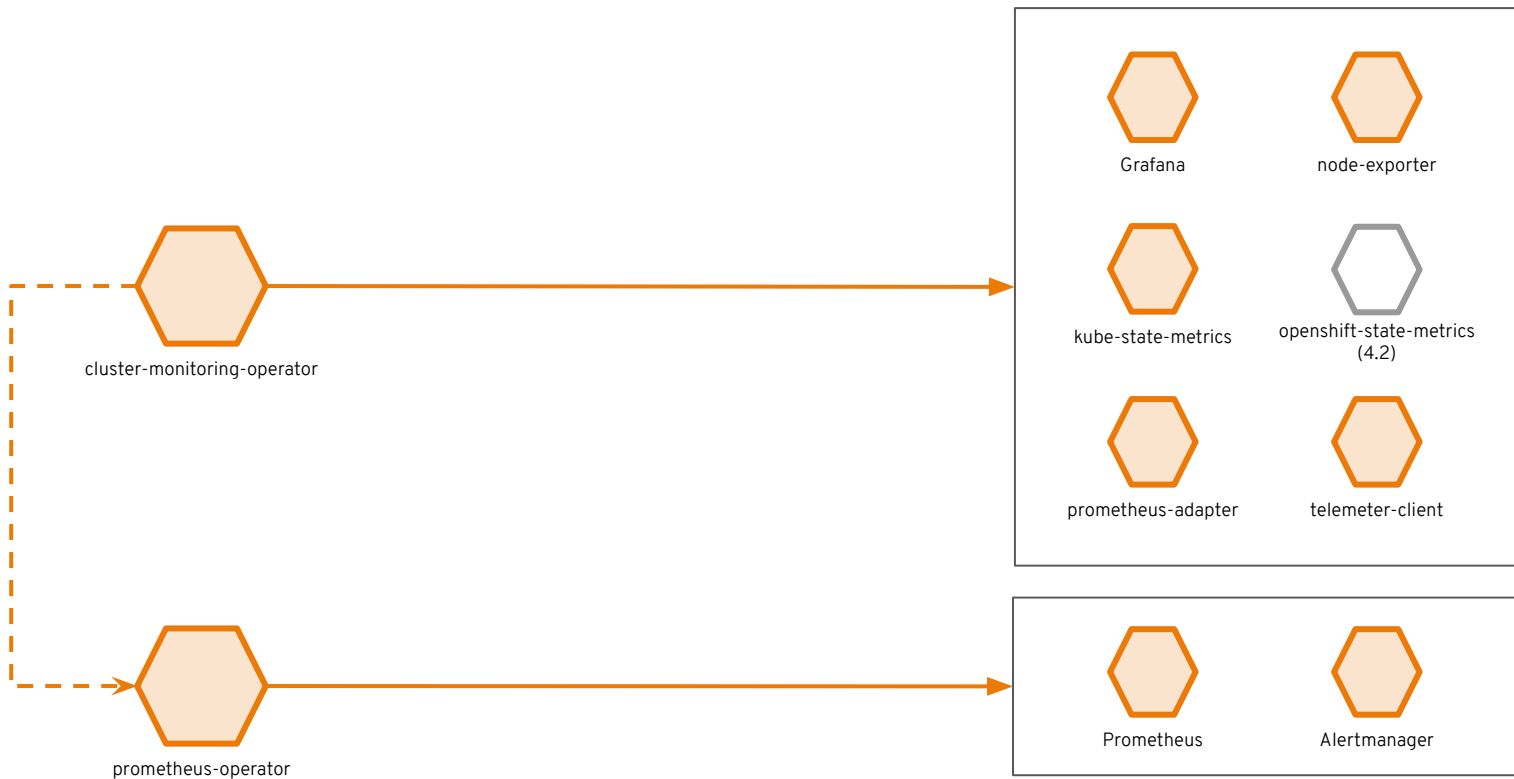
**Metrics collection and storage**  
via Prometheus, an  
open-source monitoring system  
time series database.

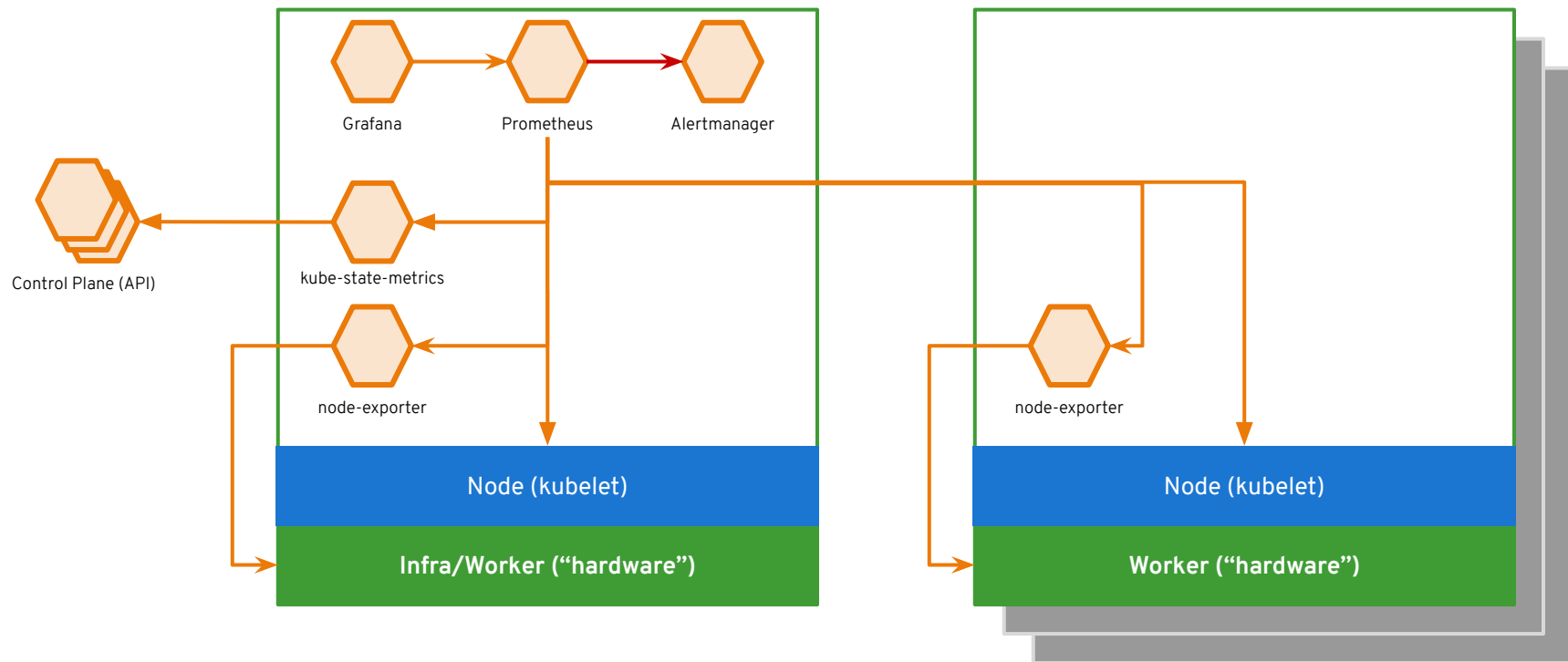


**Alerting/notification** via  
Prometheus' Alertmanager, an  
open-source tool that handles  
alerts send by Prometheus.



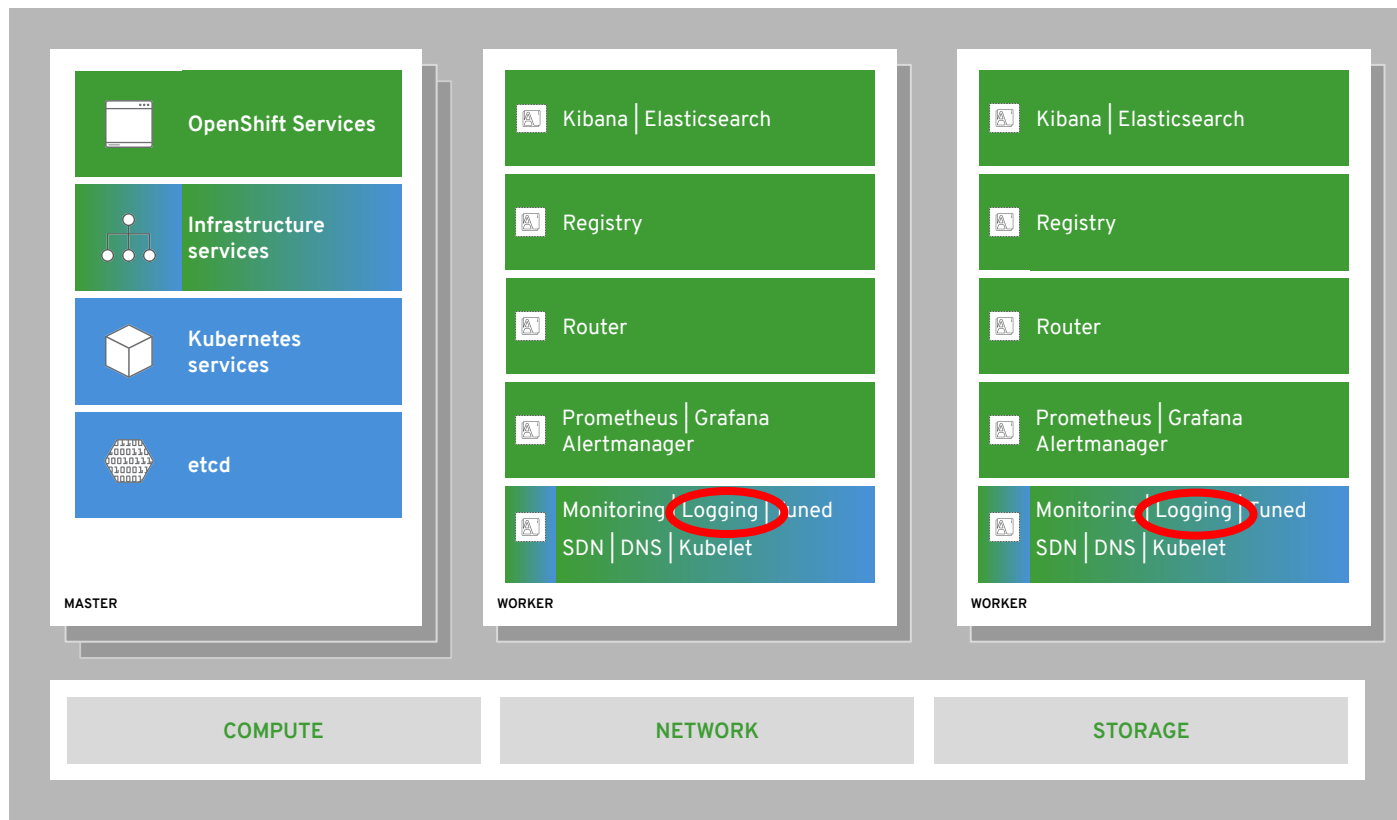
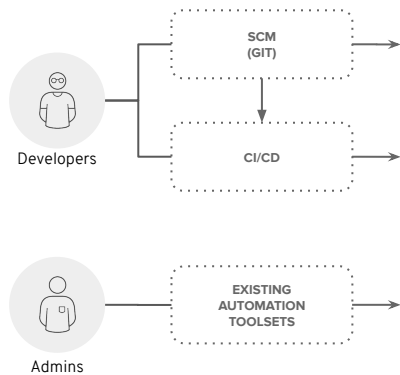
**Metrics visualization** via  
Grafana, the leading metrics  
visualization technology.





# OpenShift Logging

Ihr sucht, ihr findet!



# Observability via log exploration and corroboration with EFK

## Components

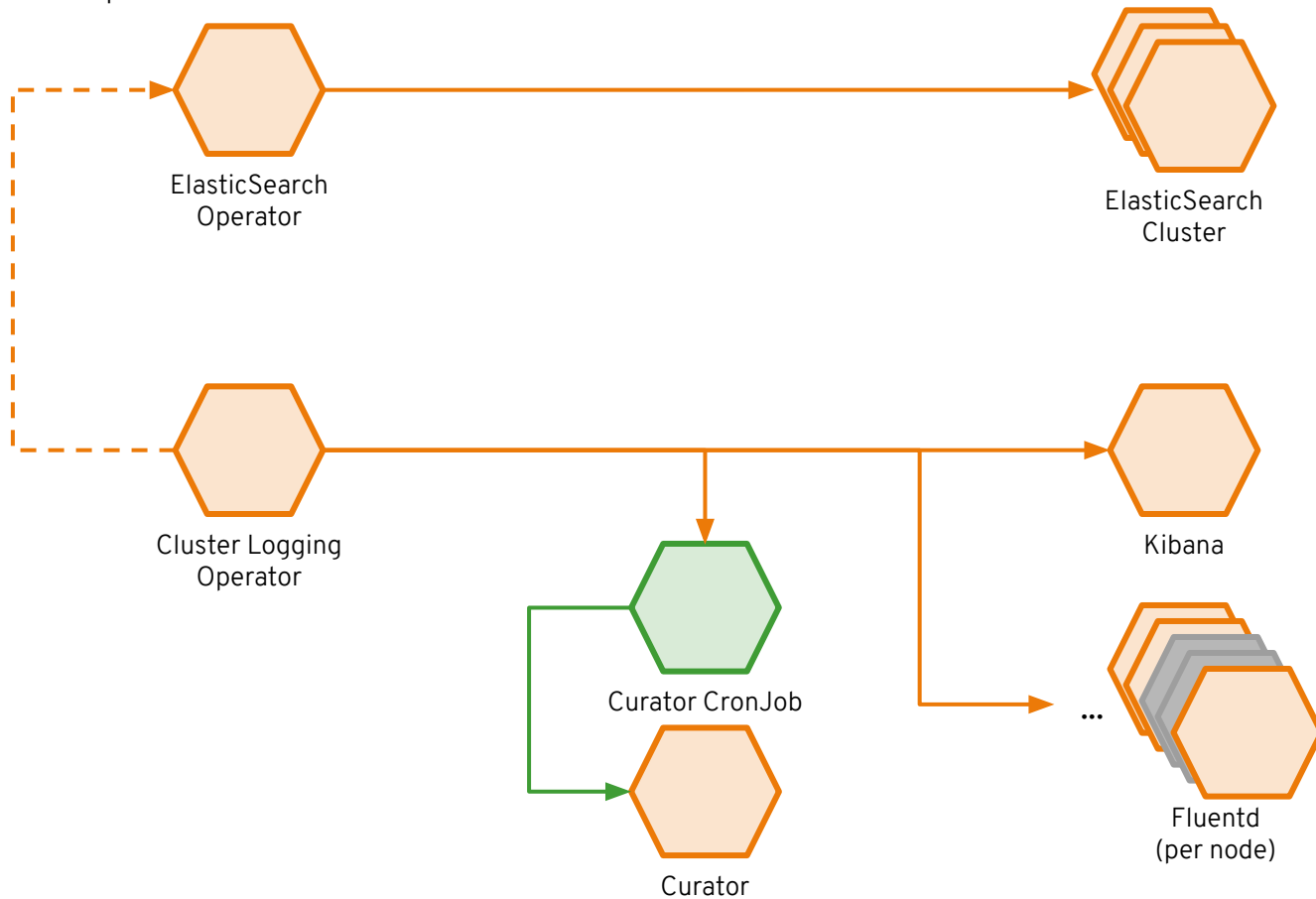
- **Elasticsearch:** a search and analytics engine to store logs
- **Fluentd:** gathers logs and sends to Elasticsearch.
- **Kibana:** A web UI for Elasticsearch.

## Access control

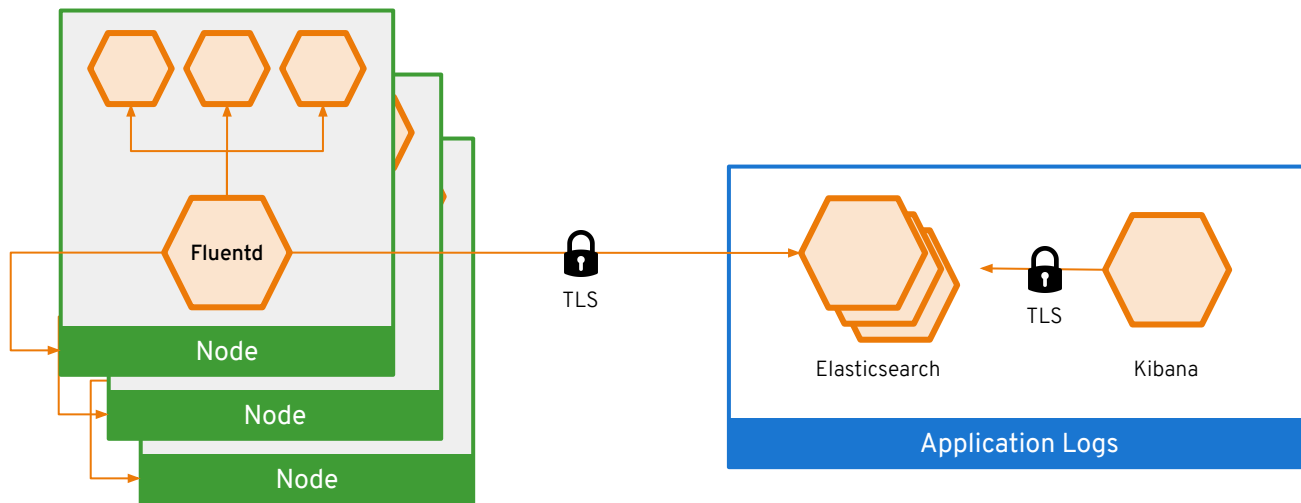
- Cluster administrators can view all logs
- Users can only view logs for their projects

## Ability to forward logs elsewhere

- External elasticsearch, Splunk, etc

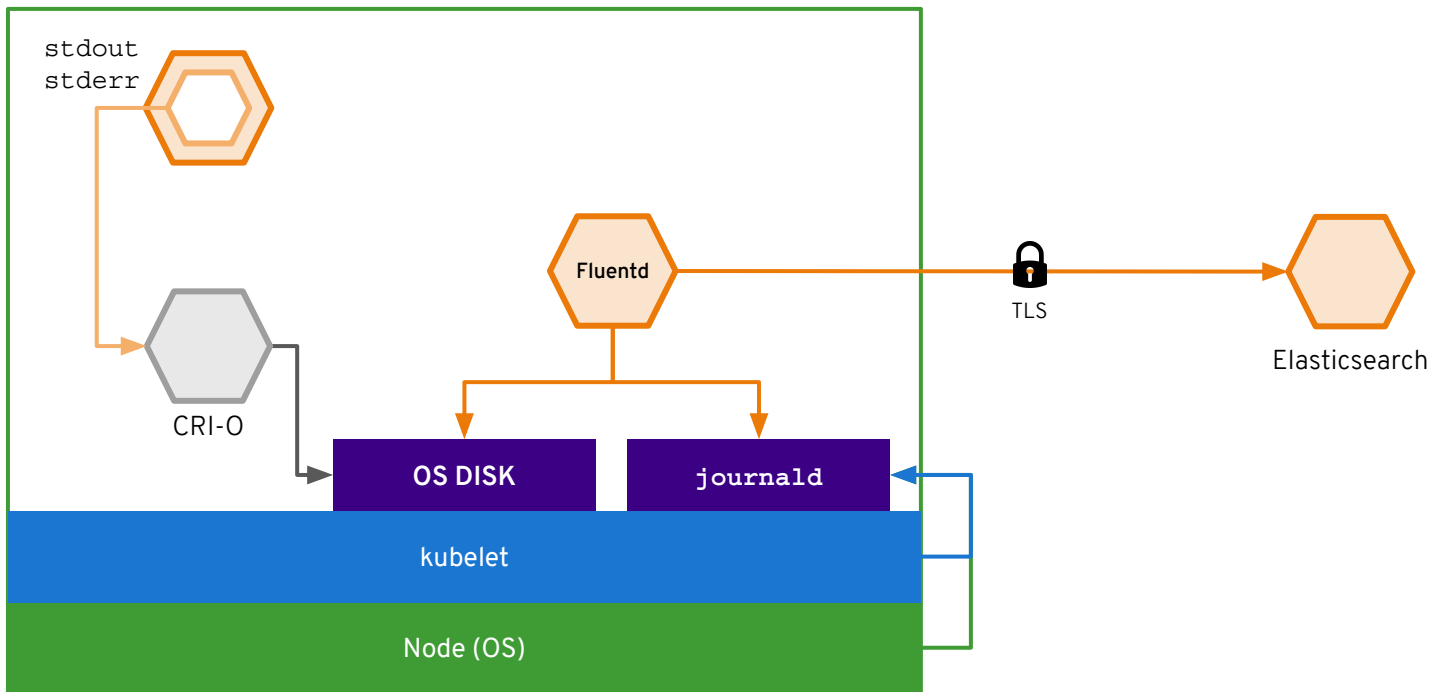


## Log data flow in OpenShift



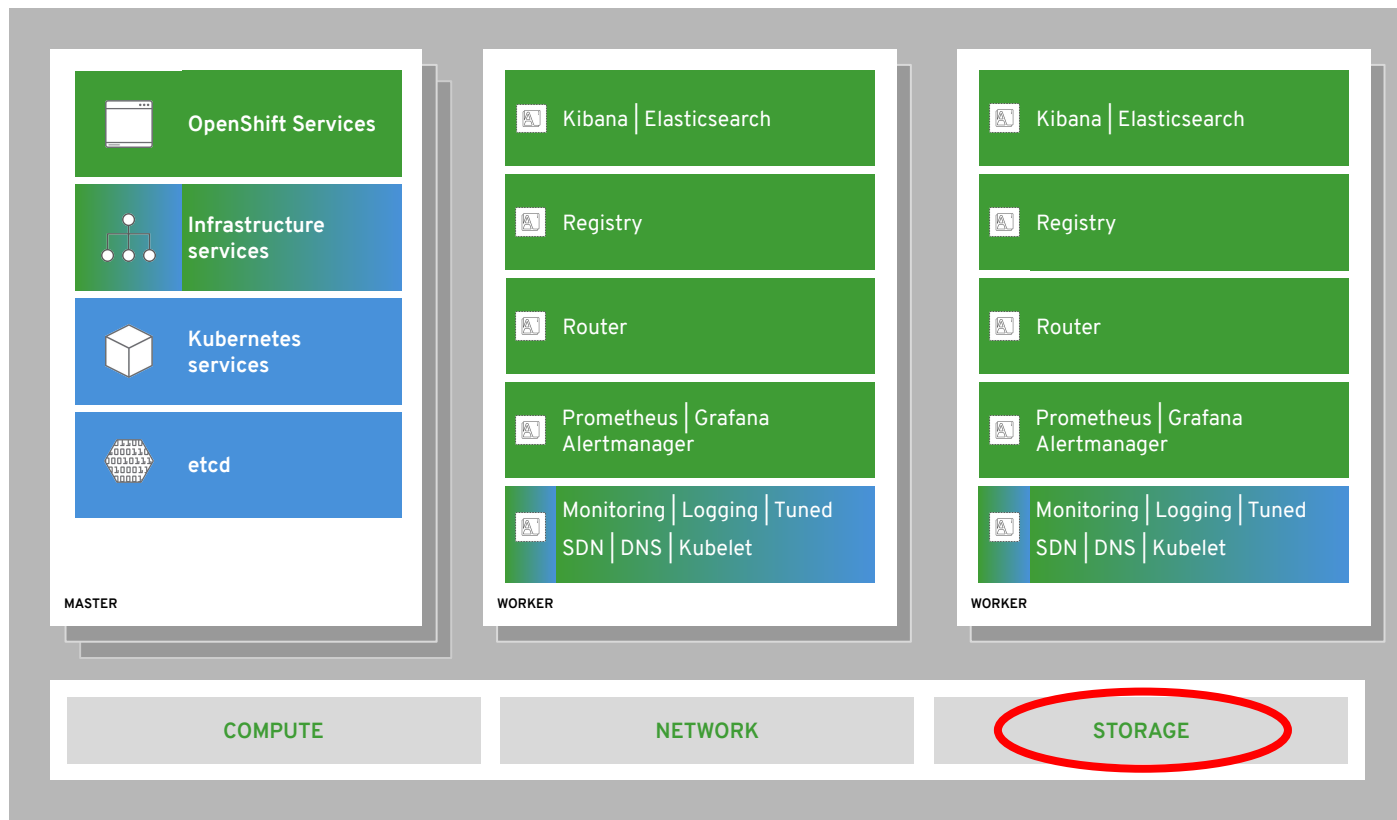
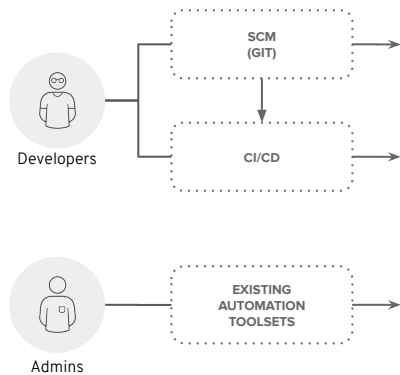


## Log data flow in OpenShift

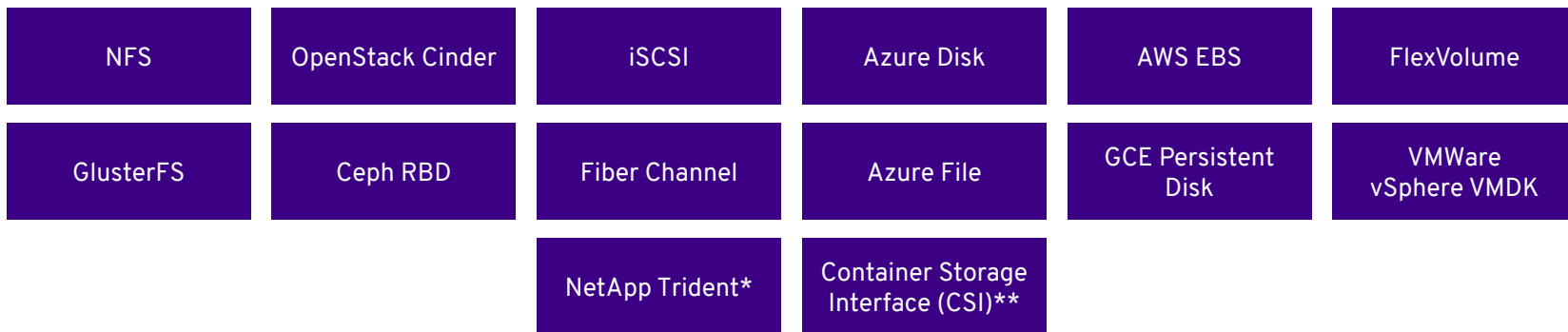


# Persistent Storage

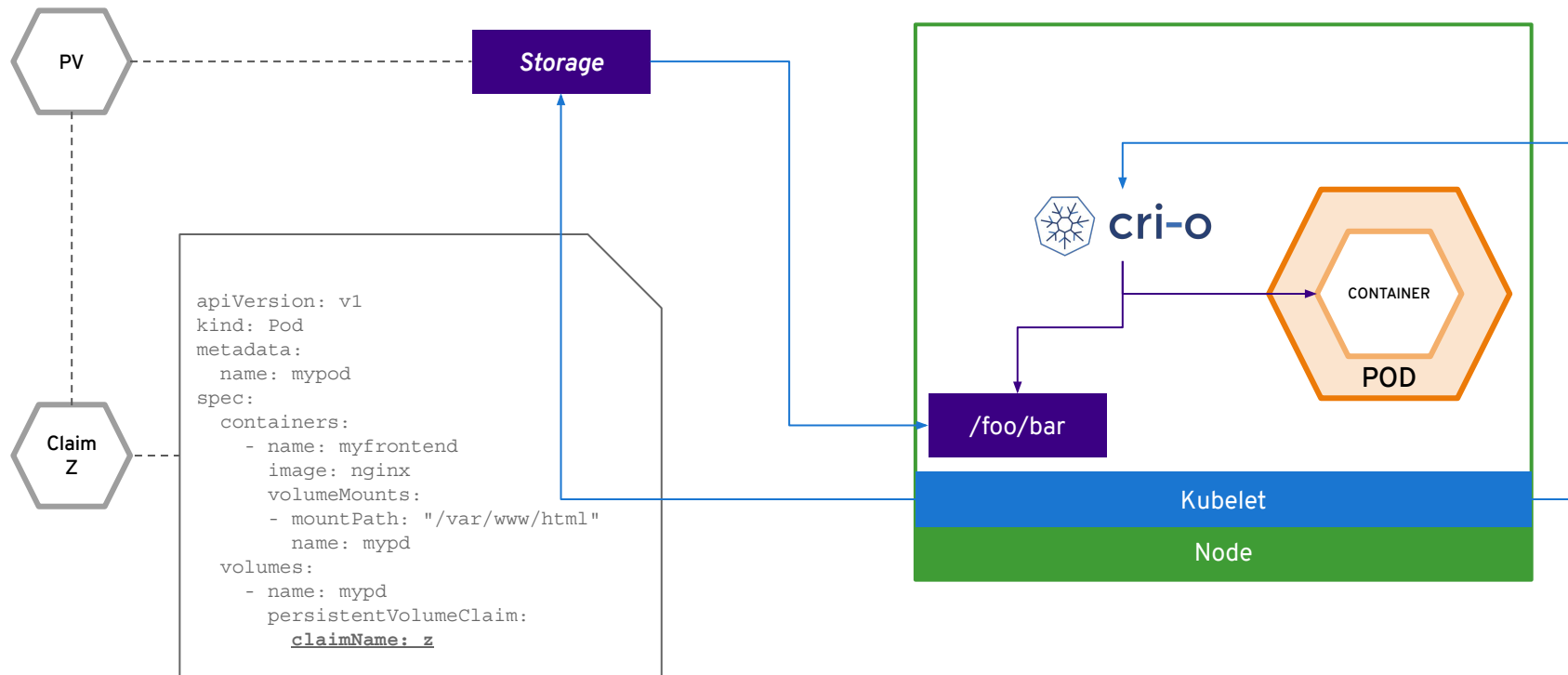
Connecting real-world  
storage to your  
containers to enable  
stateful applications



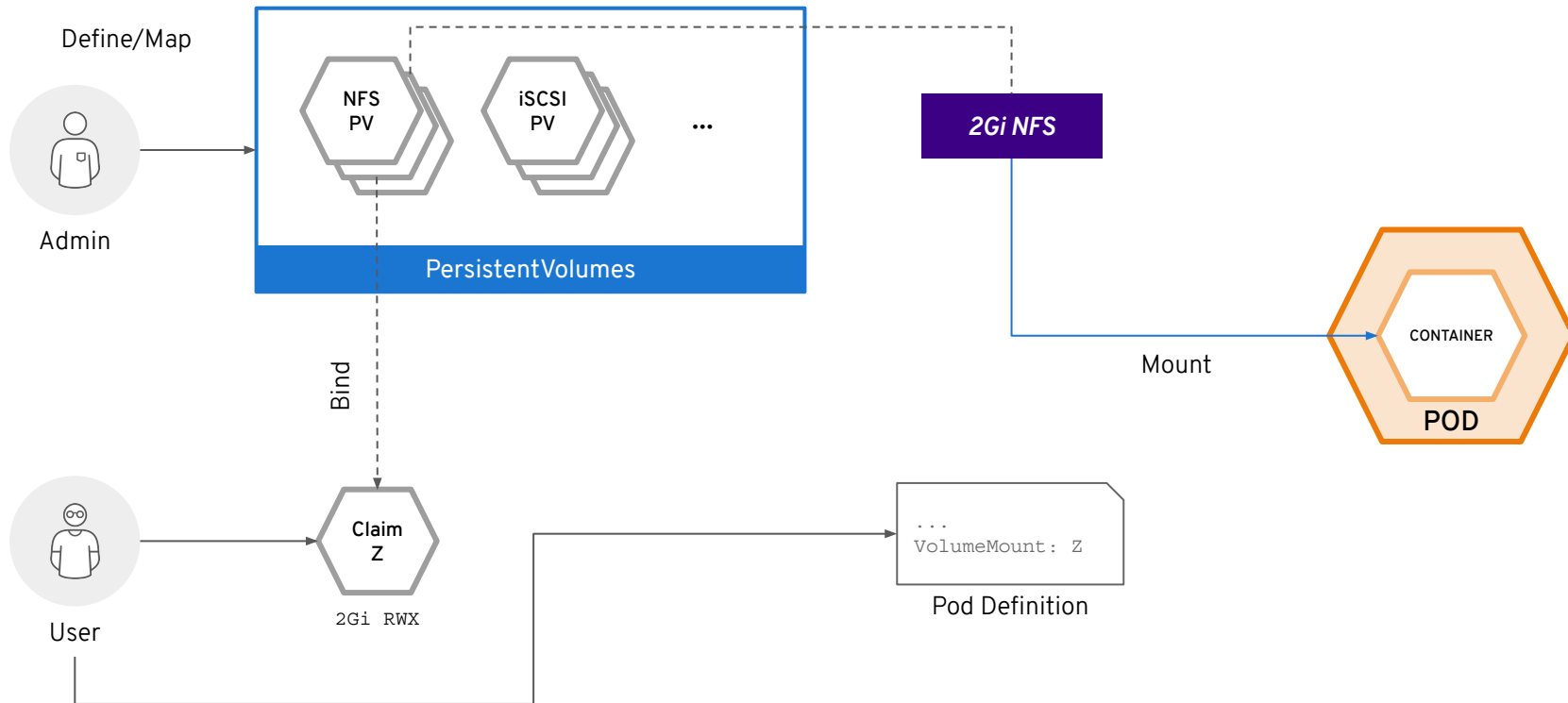
## A broad spectrum of static and dynamic storage endpoints



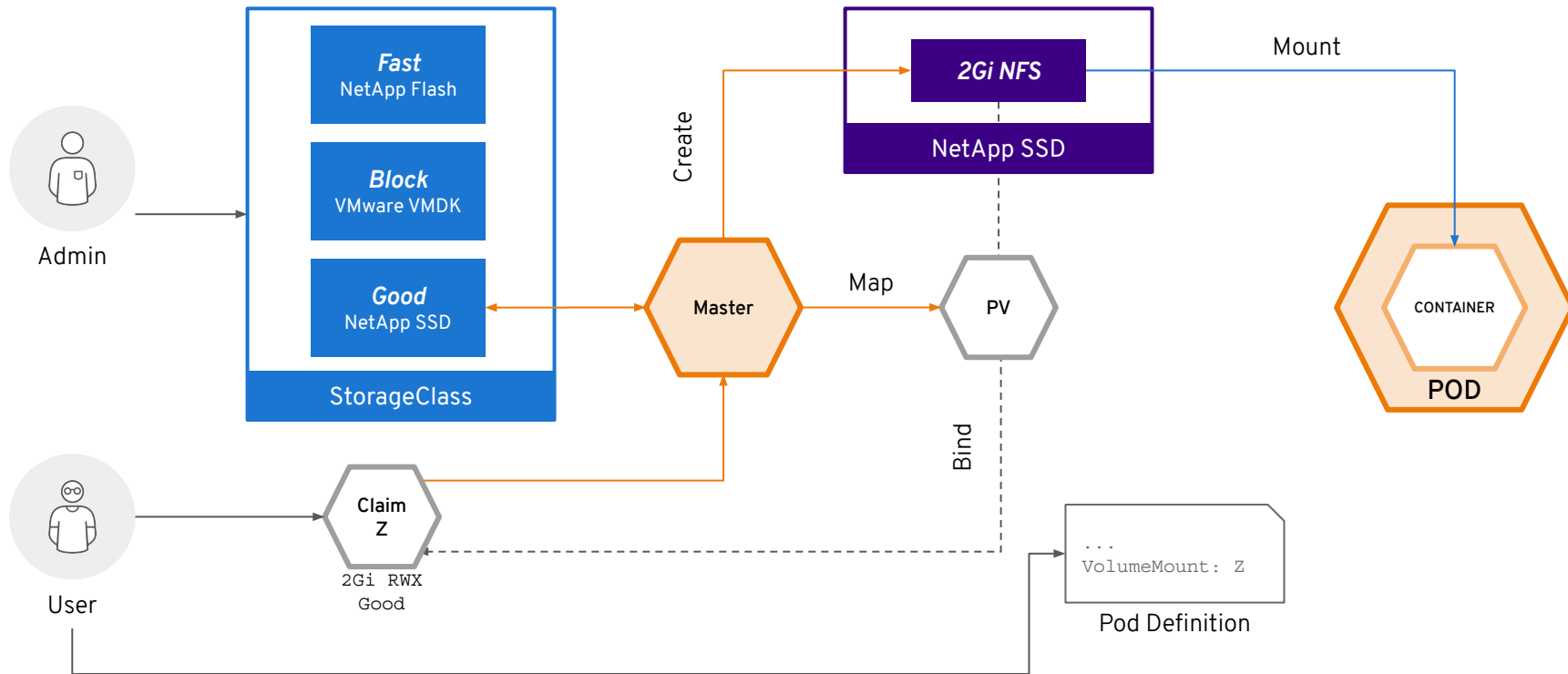
## PV Consumption



# Static Storage Provisioning



# Dynamic Storage Provisioning



# Eure Fragen!




## Nützliches


[OpenShift Blog](#)

[Lerne OpenShift](#)

[Mein YouTube Channel](#)

# Danke!

 [linkedin.com/company/red-hat](https://linkedin.com/company/red-hat)

 [youtube.com/user/RedHatVideos](https://youtube.com/user/RedHatVideos)

 [facebook.com/redhatinc](https://facebook.com/redhatinc)

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