



# OpenShift Einführung

Enterprise Kubernetes Plattform

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# Mahmuthan Bastug (Basti)

## Solution Architect

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- Von Anfang 2006 bis 2022 bei EMC/Dell
- Seit Juli 2022 SA bei Red Hat Austria GmbH

### Hobbies:

- Sport
- Urlaub
- Zeit verbringen mit meiner Familie

### Wo/Wie kann ich euch helfen:

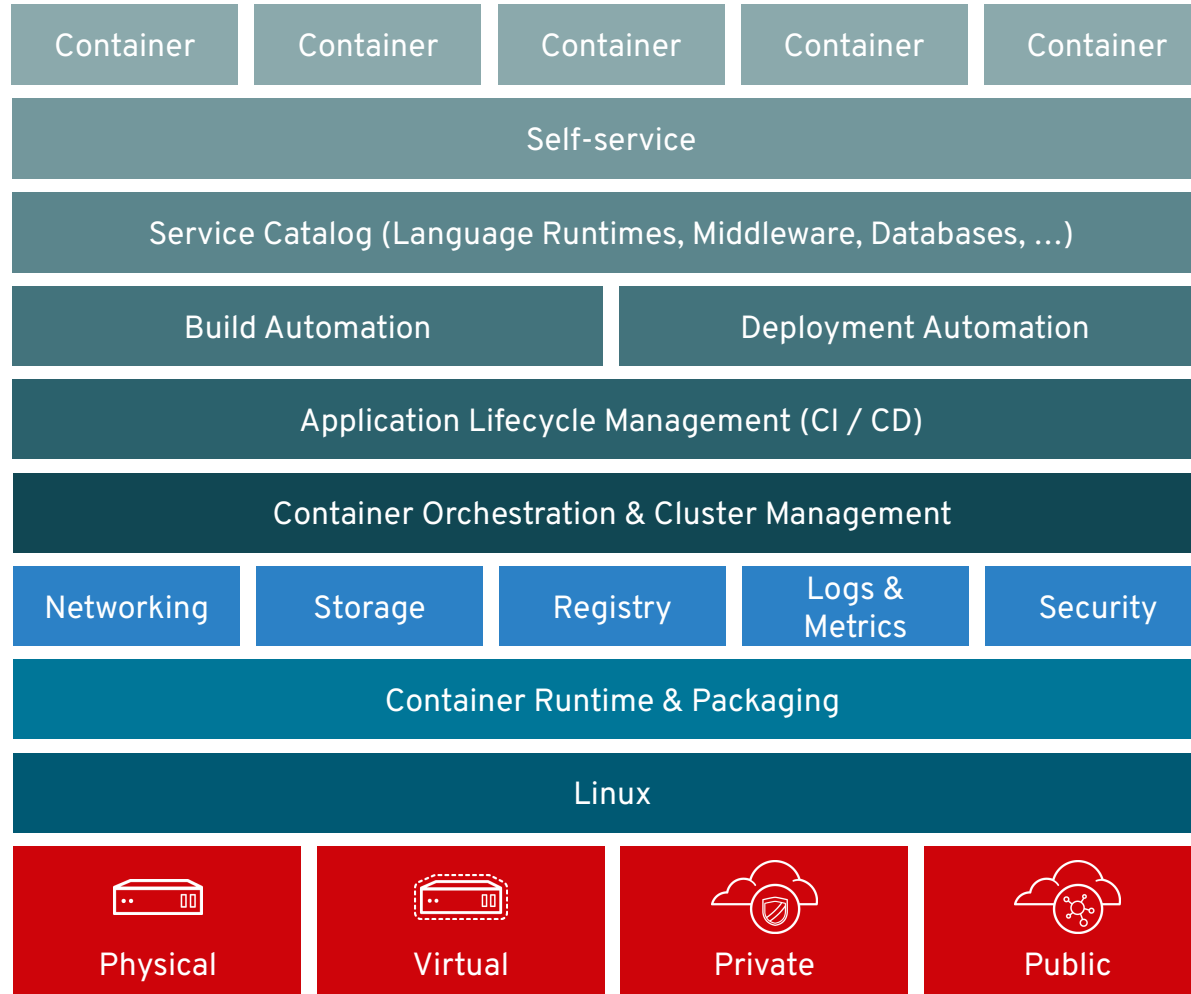
- Technische Unterstützung bei Projekten
- Solution-design mit Red Hat Produkten



# DIY CONTAINER STACK CHALLENGES

Bring your own middleware, data & other services. Build out a service catalog / interface to enable self-service deployment.

Pull Kubernetes or other orchestration (Mesos, Swarm) from rapidly moving upstream & support / maintain yourself. Do all the work required to integrate it into your enterprise IT environment (networking, storage, registry, security, logging, metrics, etc.)

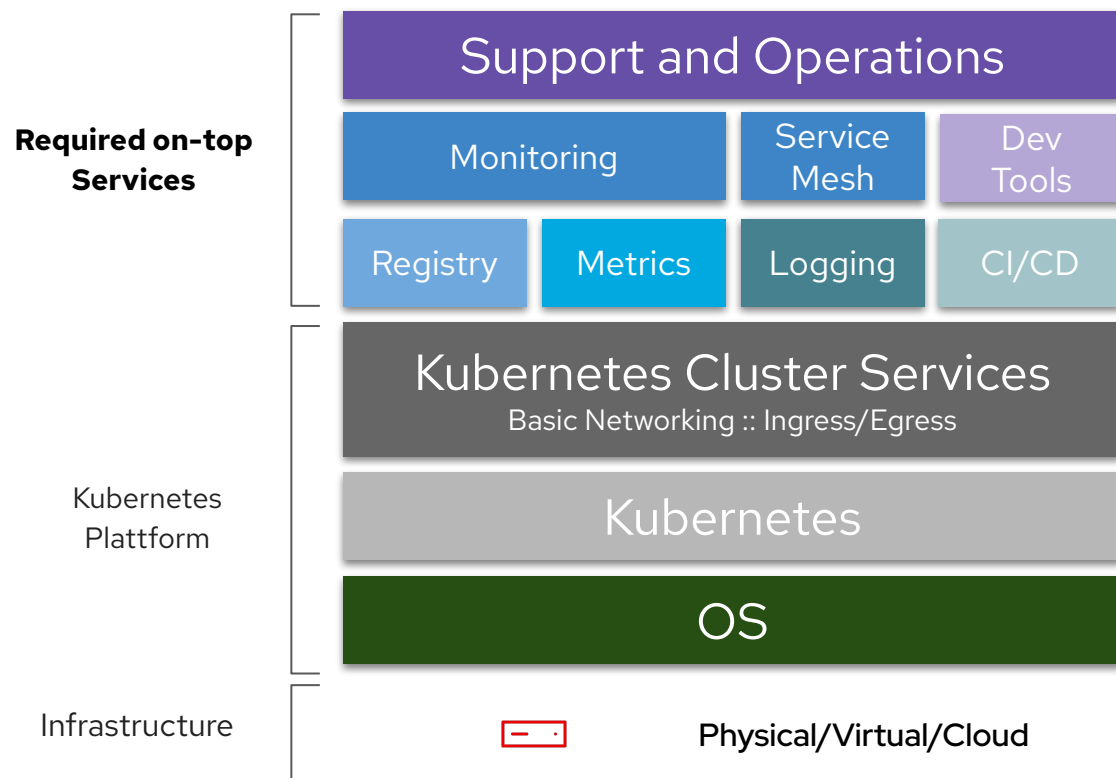


Take existing application build/CI & deployment tools and evolve to add container image build & mgt., continuous deployment, etc.

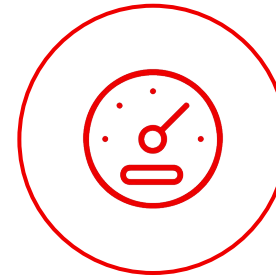
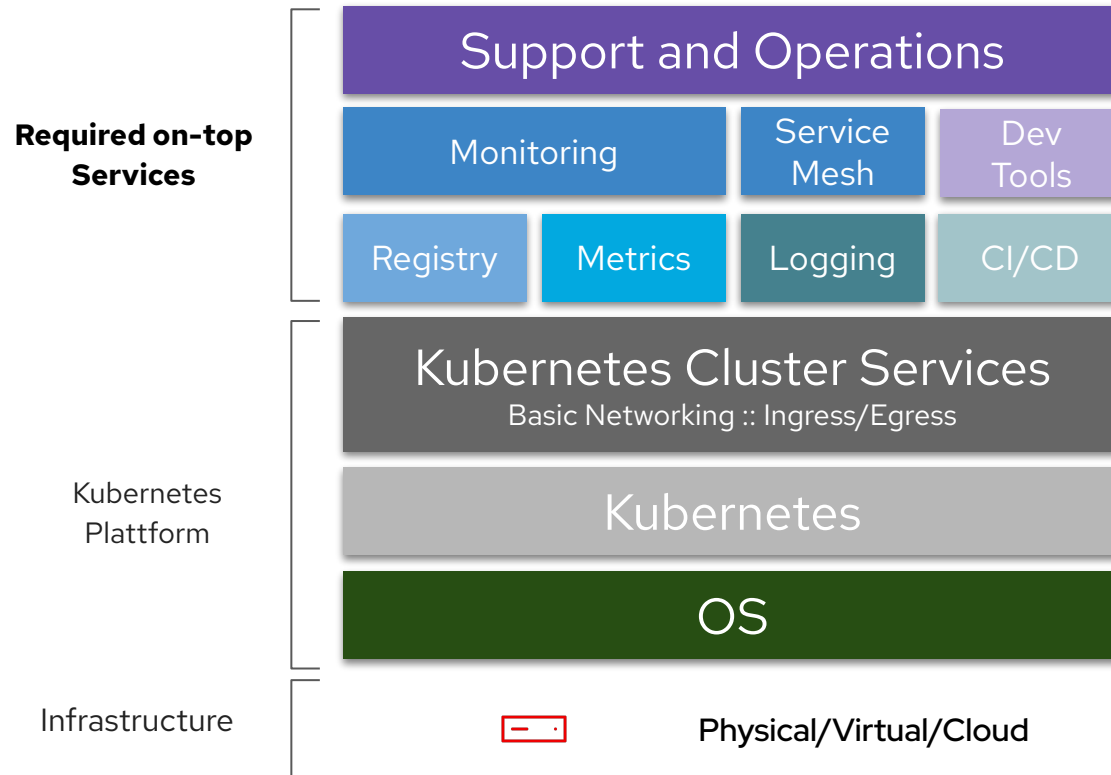
Pull Docker container runtime from rapidly moving upstream and support, secure and maintain it yourself.

Support and manage your own Linux community distro or build on existing RHEL or 3rd party commercial Linux offerings.

## Enterprise Kubernetes Platform



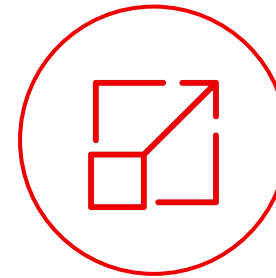
## Enterprise Kubernetes Platform



Agilität

schneller Aufbau der Plattform

Lead Time to Change (App Änderungsrate)

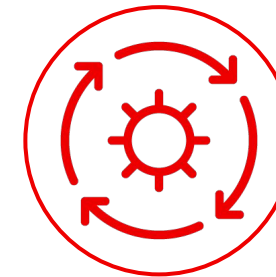


Skalierbarkeit

Scale-Out, Scale-Down

Deployment Frequency (ohne Impact auf Performance)

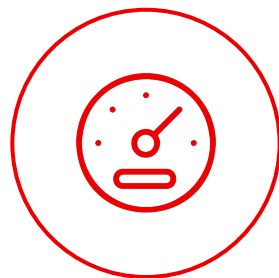
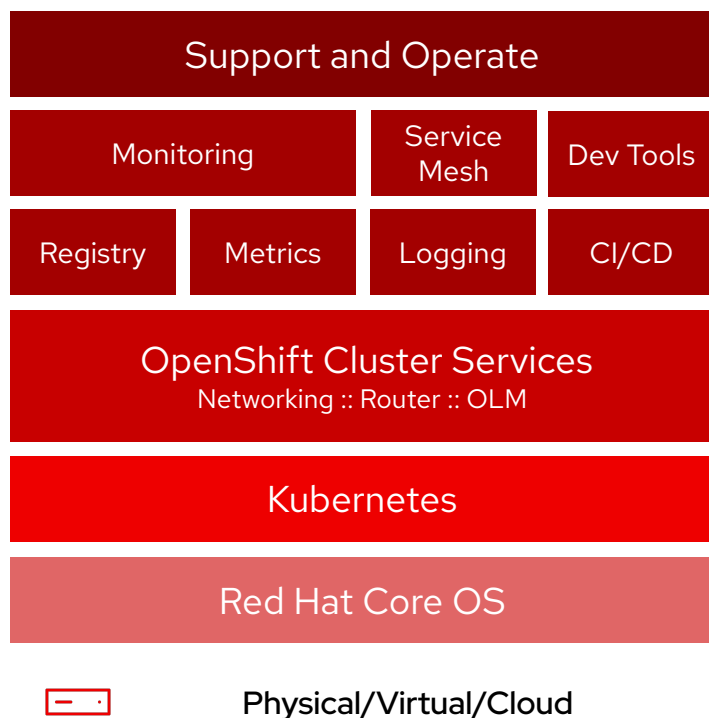
Stabilität



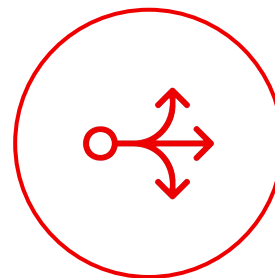
Einfachheit

Automatisches LifeCycle Management

Self-Healing (Liveness/Readiness)

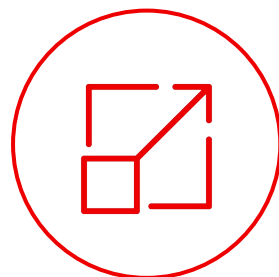


Agilität



Portabilität

Infrastruktur-Agnostisch  
Workload - Placement

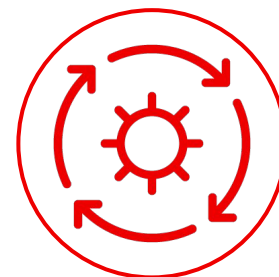


Skalierbarkeit



Flexibilität

User Management  
Zukunftssicherheit  
Anpassungsfähigkeit



Einfachheit

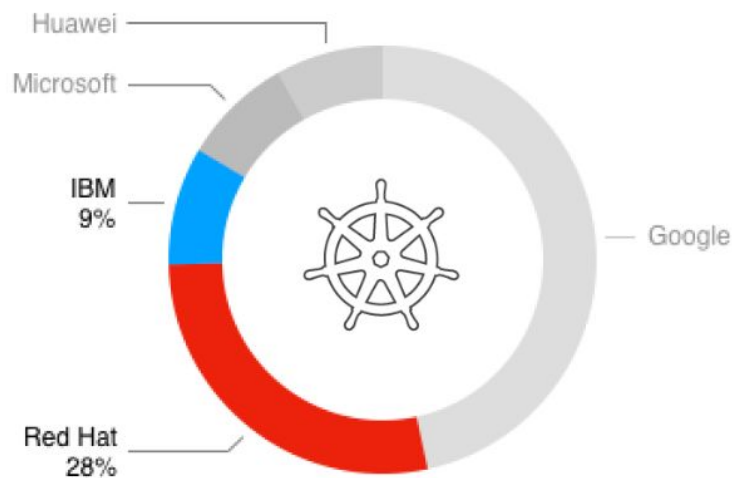


Openness

Choice  
Give-Back to Community  
Deine Stimme in der Community

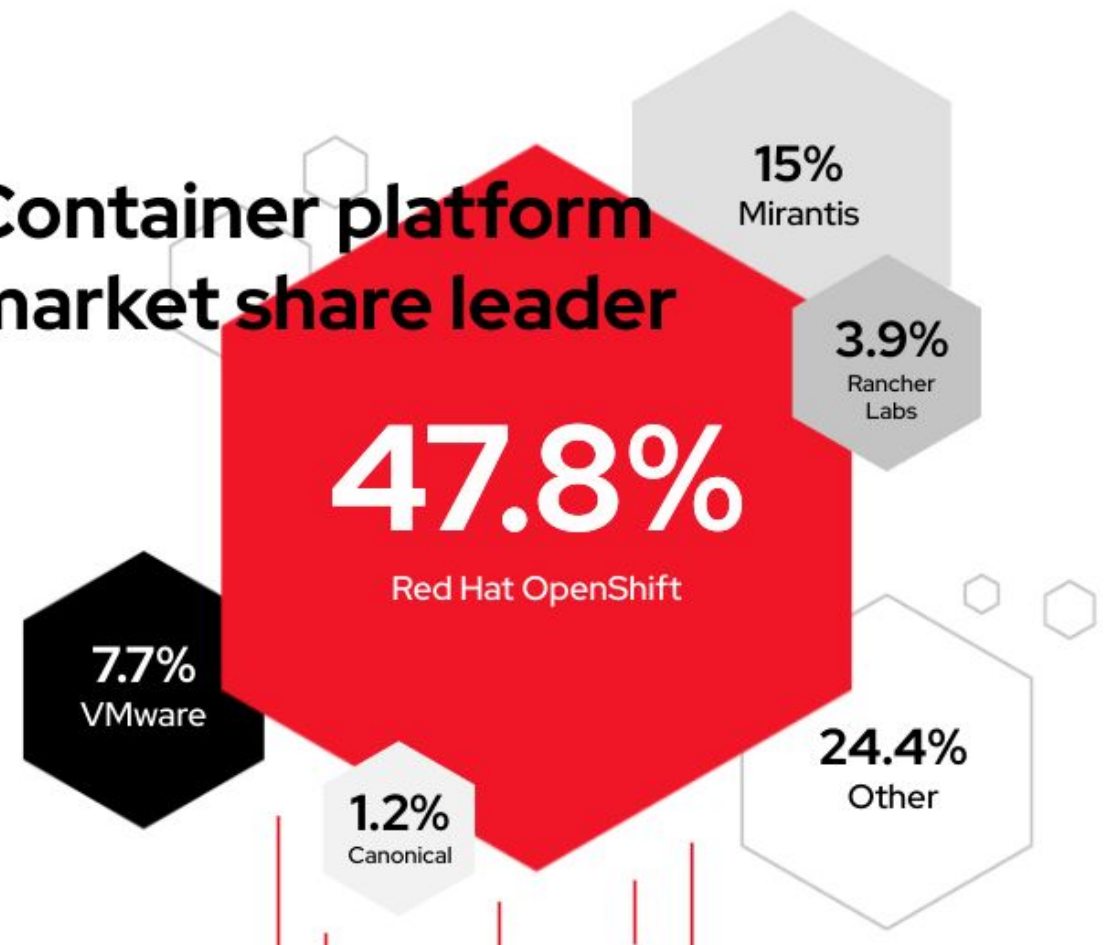
# RED HAT HAS BEEN A **KUBERNETES LEADER** SINCE DAY 1





Top 5 organizations ( apart from independent developers ) who contribute to **Kubernetes** Open Source Projects

## Container platform market share leader





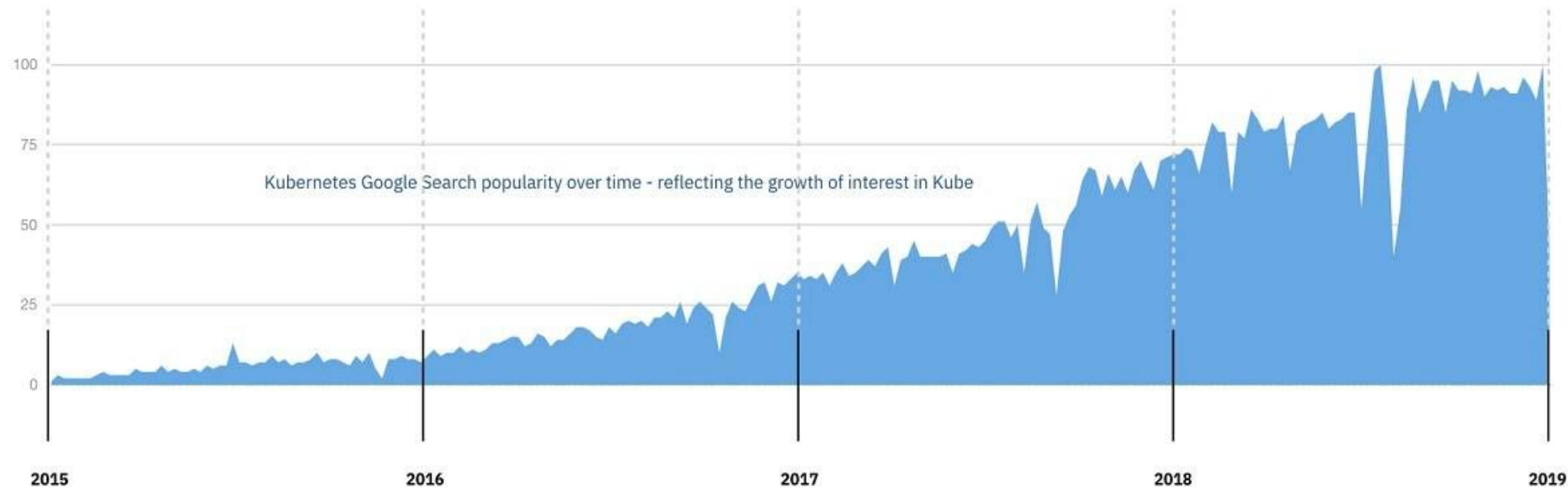
OpenShift 3.0

OpenShift 3.3

OpenShift 3.4

OpenShift 3.11

OpenShift 4.0



Linux, building on Red Hat's heritage and deep expertise in Linux and the reliability of **Red Hat Enterprise Linux** which served as the foundation for OpenShift 3

**Containers**, designed to provide efficient, immutable and standardized application packaging that enables application portability across a hybrid cloud environment

**Kubernetes**, providing powerful container orchestration and management capabilities and becoming one of the **fastest growing** open source projects of the last decade

**User Experience** additions with a new web console for editing YAML files and for the container registry.

**Build automation and app deployment** a beloved feature of OpenShift 3.0 now comes

**Build pipelines and web hooks** - paving the way for integrated GitHub repository deployment.

RedHat second only to Google for **Kubernetes open source commits**

**Filtering, Sorting, Managing Projects:** To make things easier for people with a large number of projects, the project list now has a text filter on name, display name, description, and project creator. It also allows sorting on several of these attributes.

Identity and Access management

**Filtering and Sorting, Managing Projects:** To make things easier for people with a large number of projects, the project list now has a text filter on name, display name, description, and project creator. It also allows sorting on several of these attributes.

Prometheus Monitoring, CoreOS and Quay.

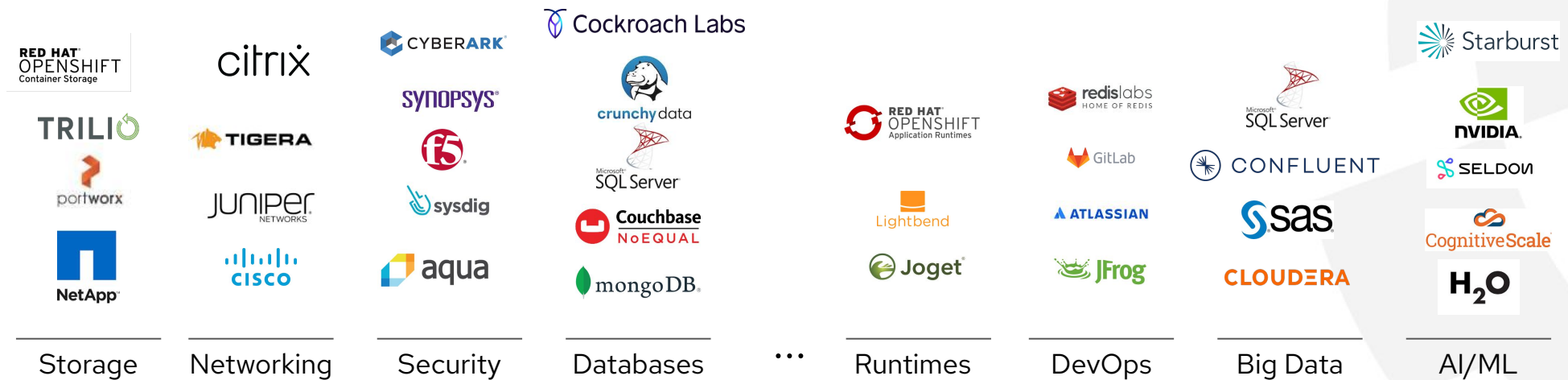
**Operator Framework** single-step installation for Kubernetes applications and services, and automated, over-the-air updates and performance tuning.

**OpenShift Multi-Cluster Manager** allows you to manage multiple clusters, running across multiple clouds or on-premise environments

**OpenShift Service Mesh** - Istio in OpenShift 4 through what's called the OpenShift service mesh

**Knative Framework** - a new developer-friendly serverless framework for building, serving and running event-driven applications.

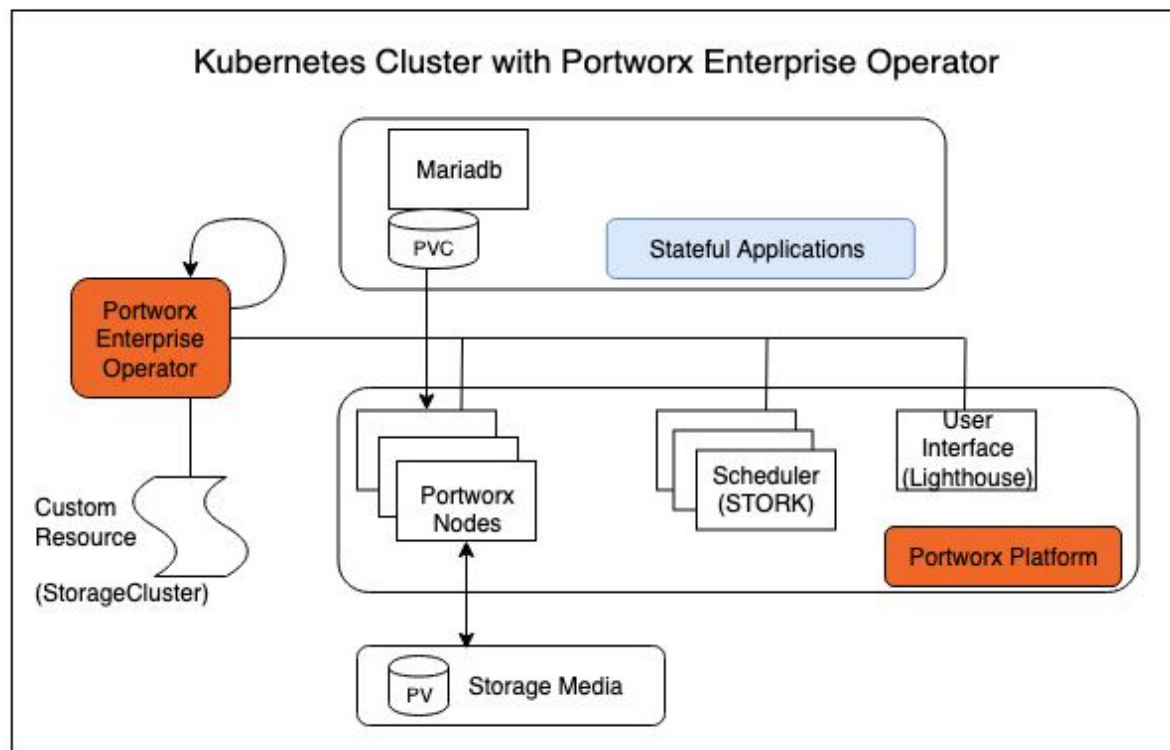
# With a broad partner ecosystem



# With a broad partner ecosystem

The Portworx Operator manages the complete lifecycle of a Portworx cluster. Using the Operator, you can install, configure, and update Portworx.

As shown in the diagram below, the Operator manages the Portworx platform consisting of the Portworx nodes, Stork, and other components that make running stateful applications seamless for the users.



# Wie ist eine Openshift Container Plattform aufgebaut?

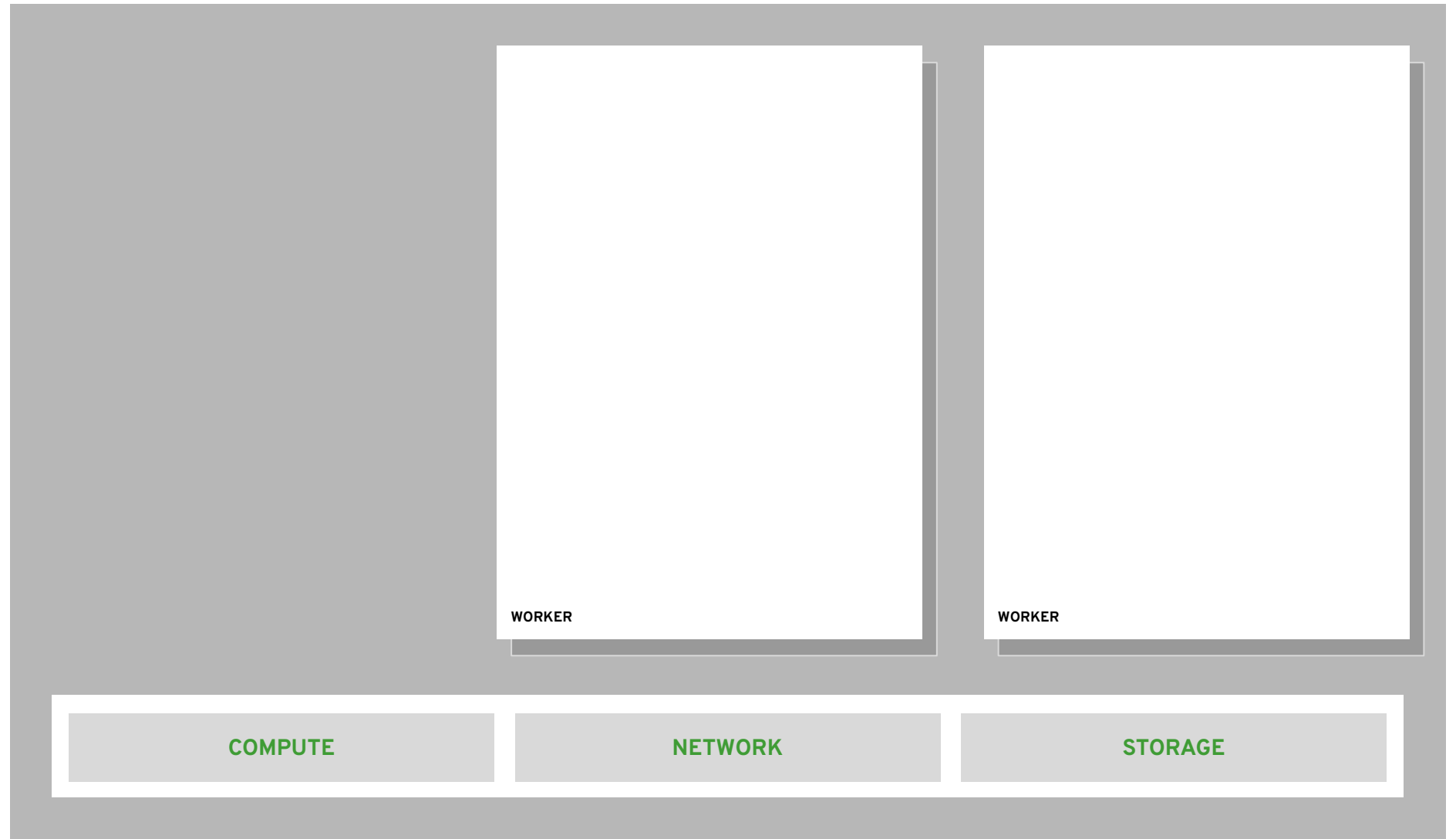
# your choice of infrastructure

COMPUTE

NETWORK

STORAGE

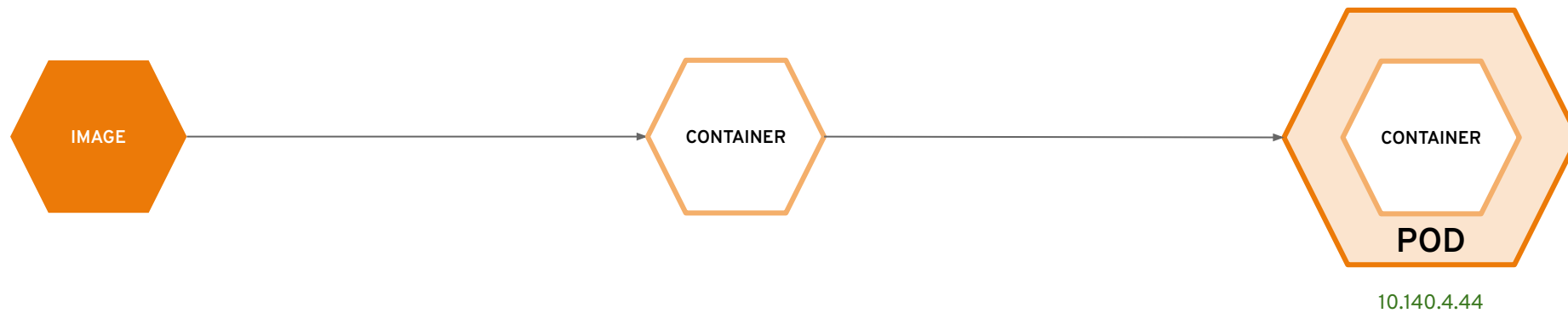
# workers run workloads



# masters are the control plane

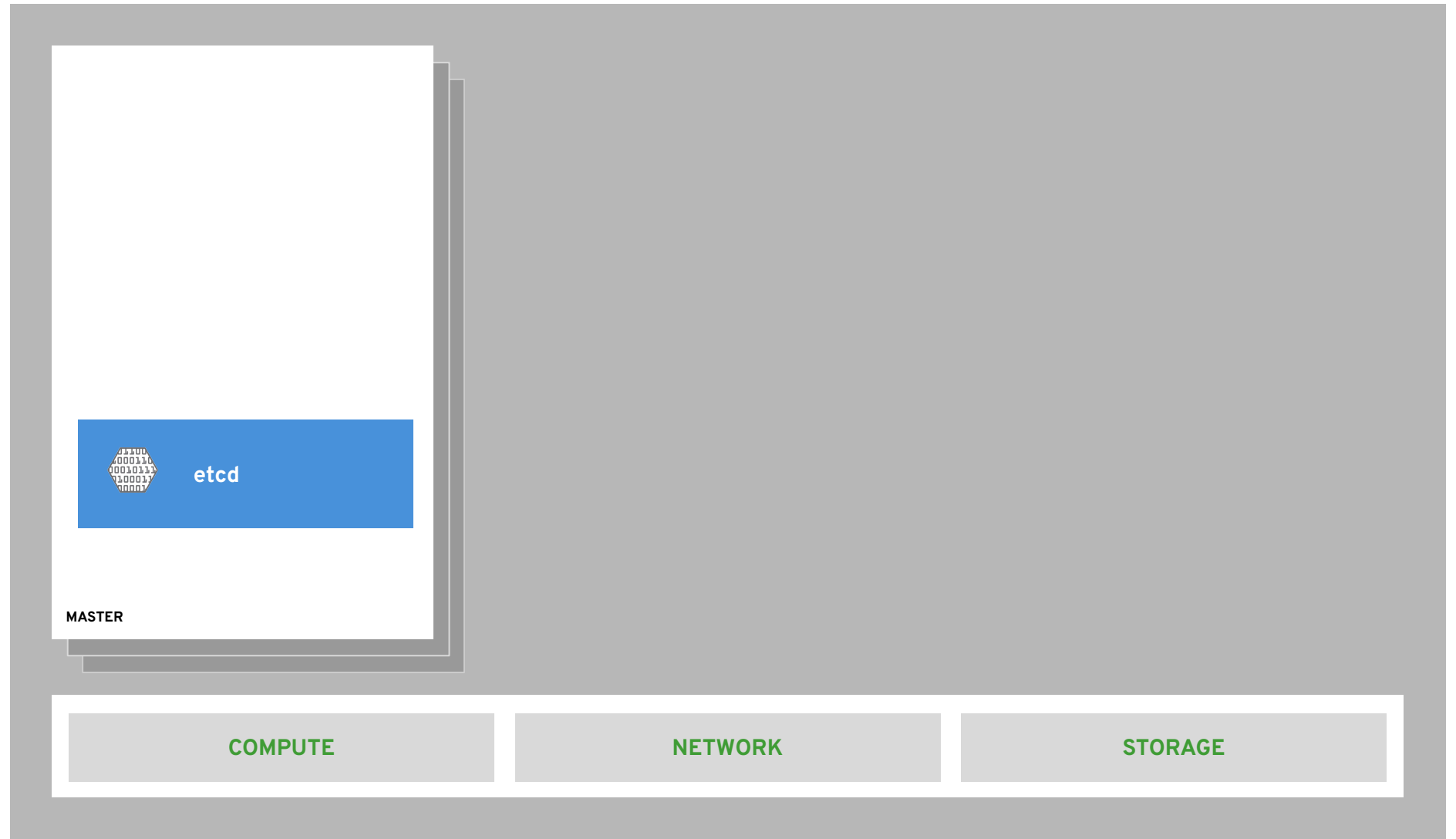


# everything runs in pods

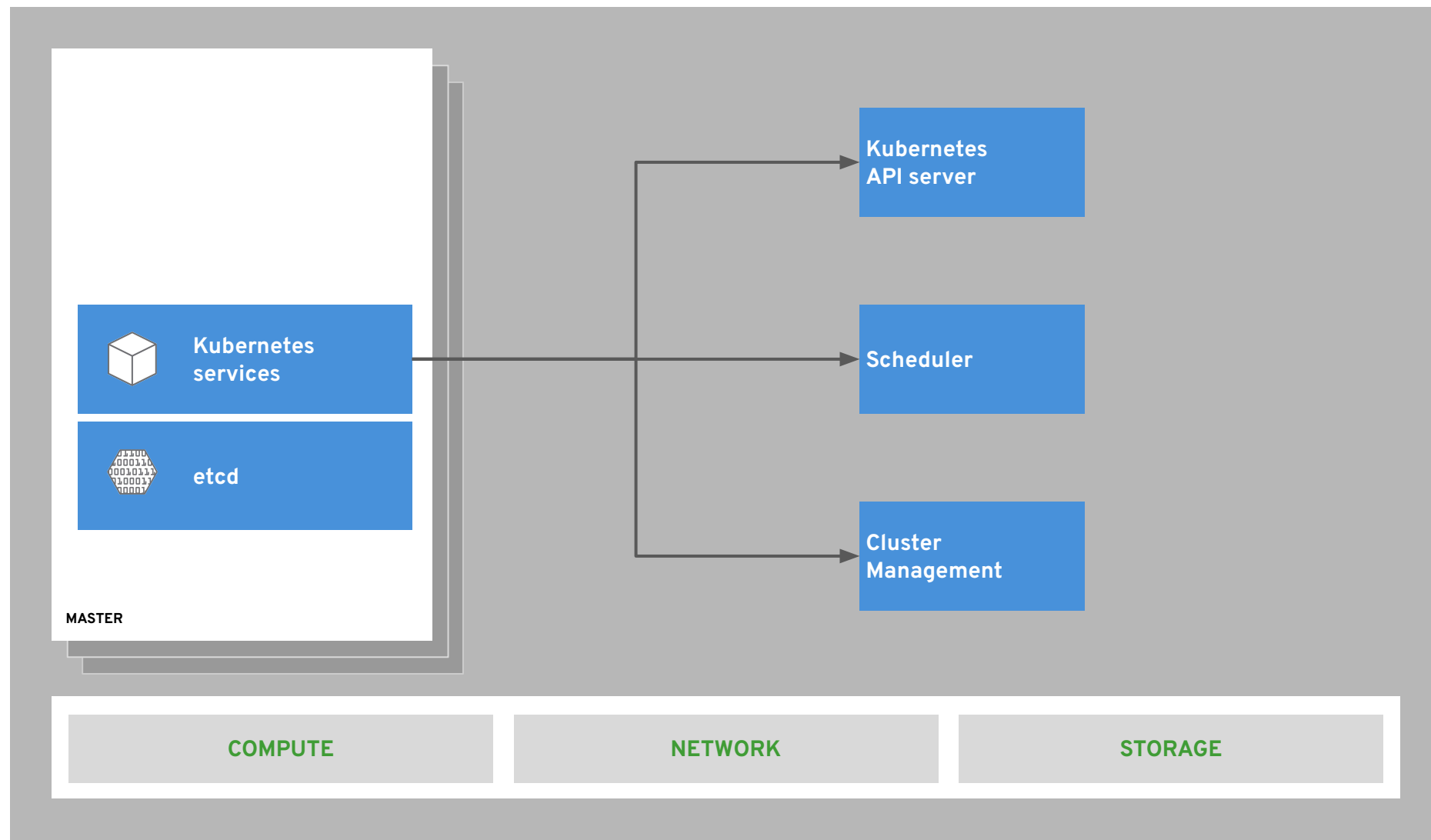




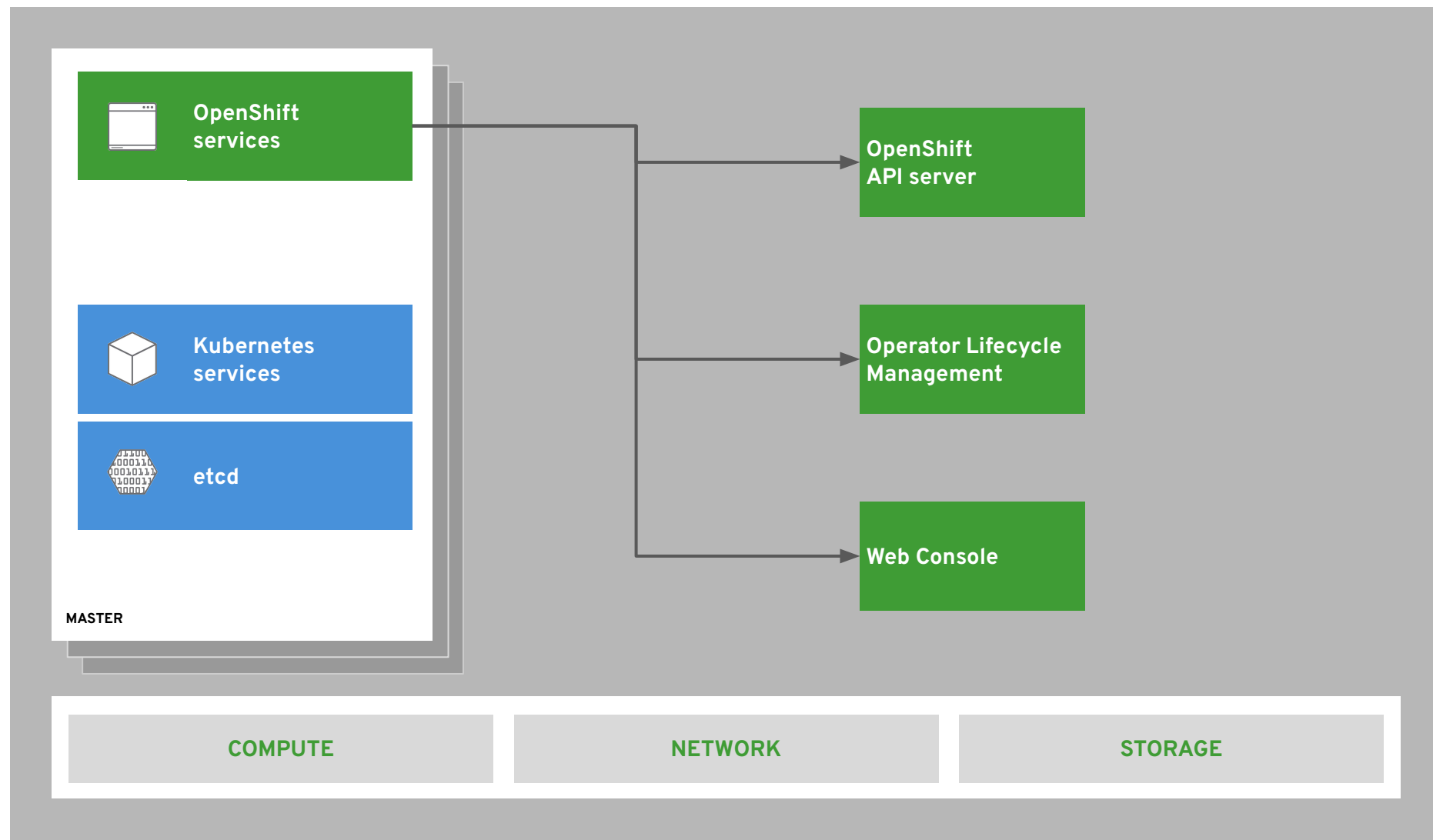
# state of everything



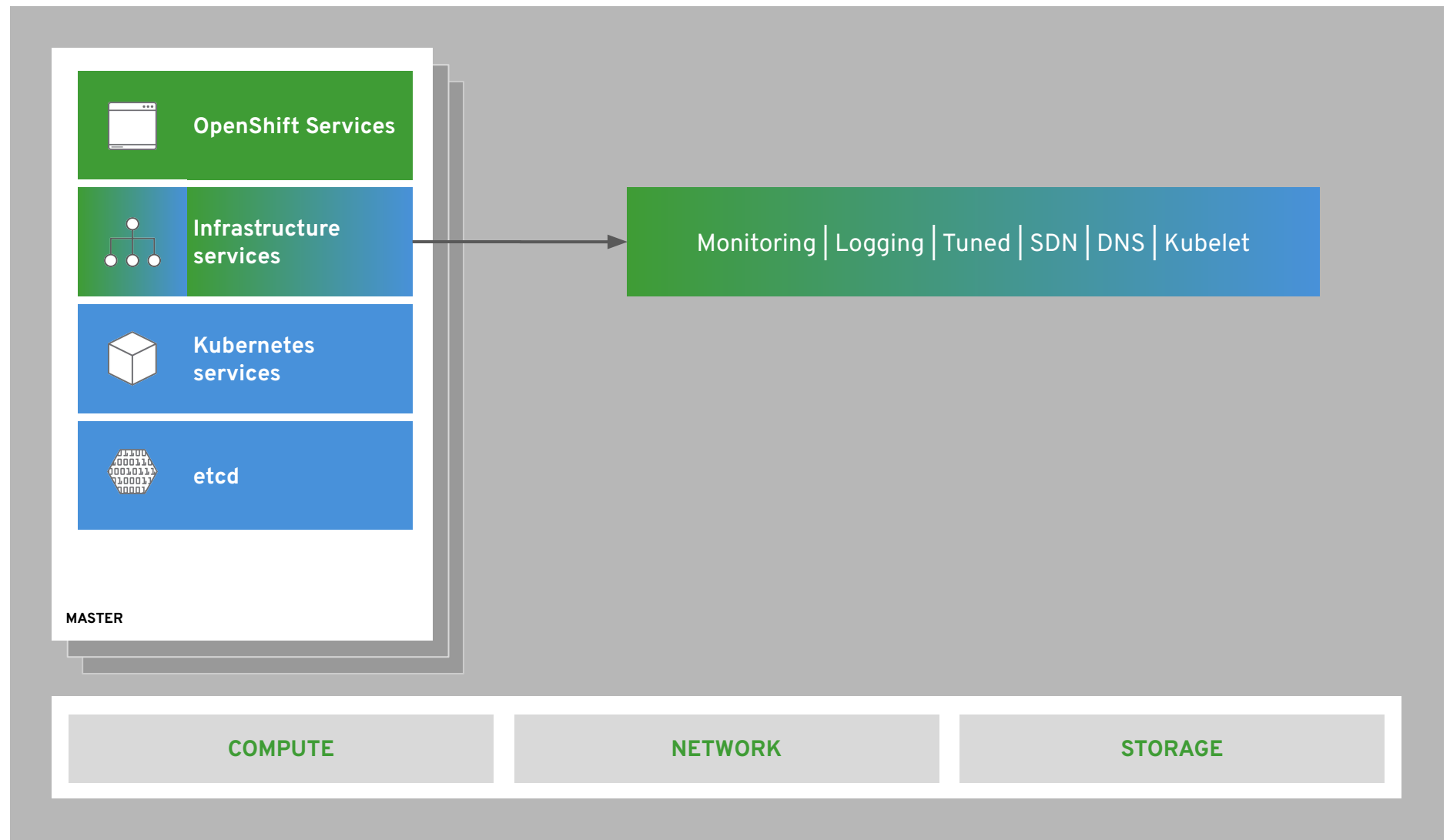
# core kubernetes components



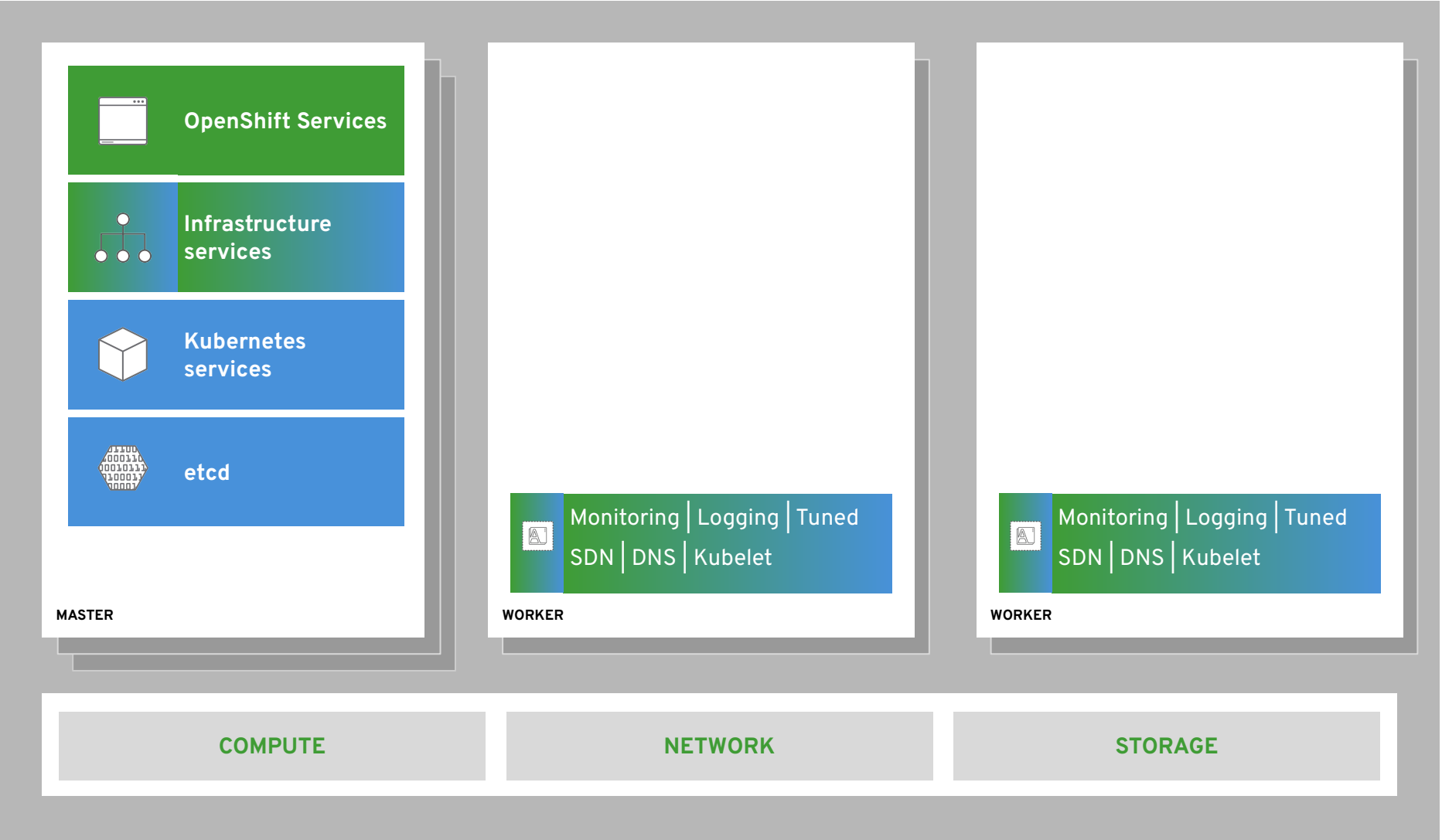
# core OpenShift components



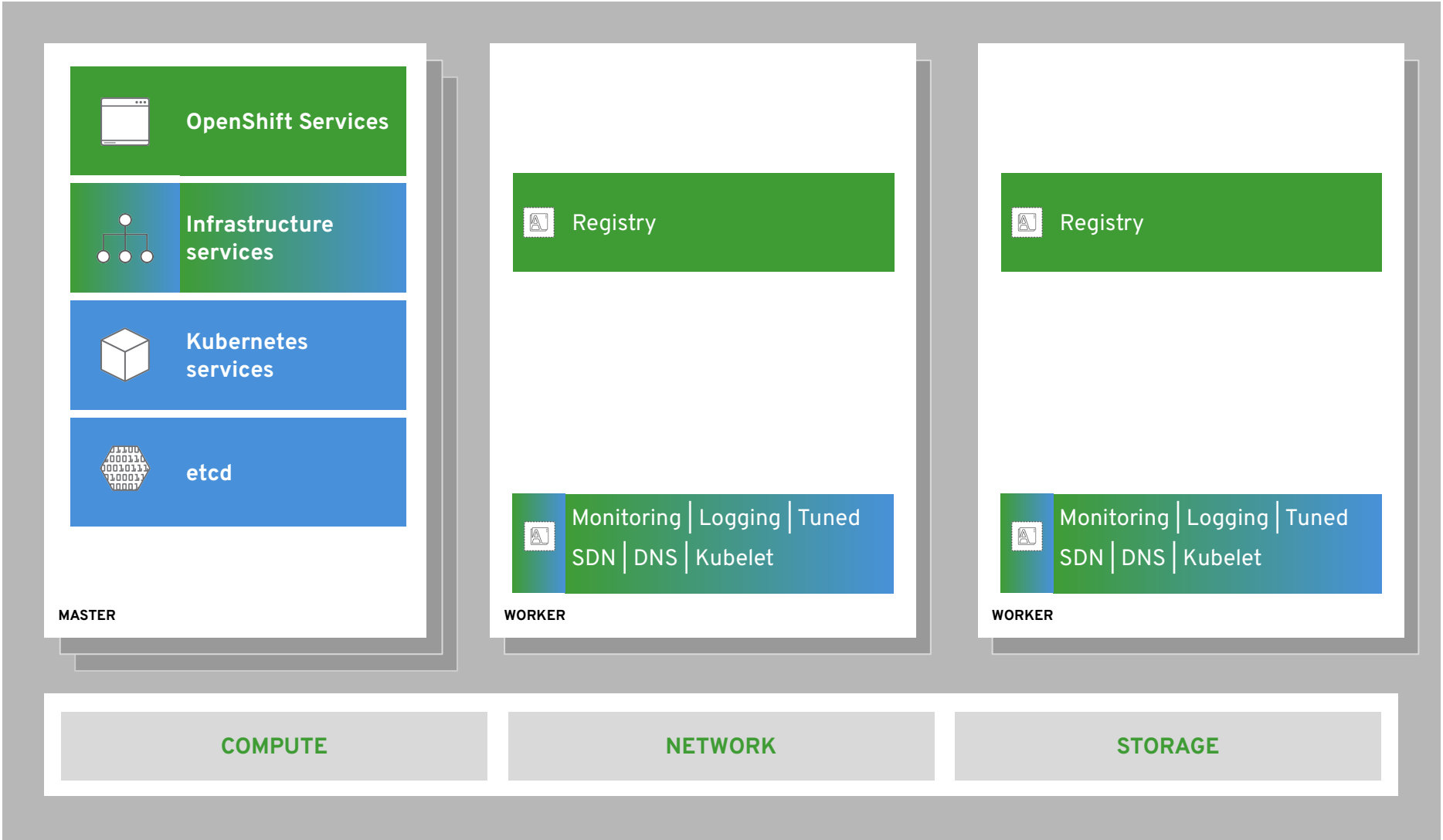
# internal and support infrastructure services



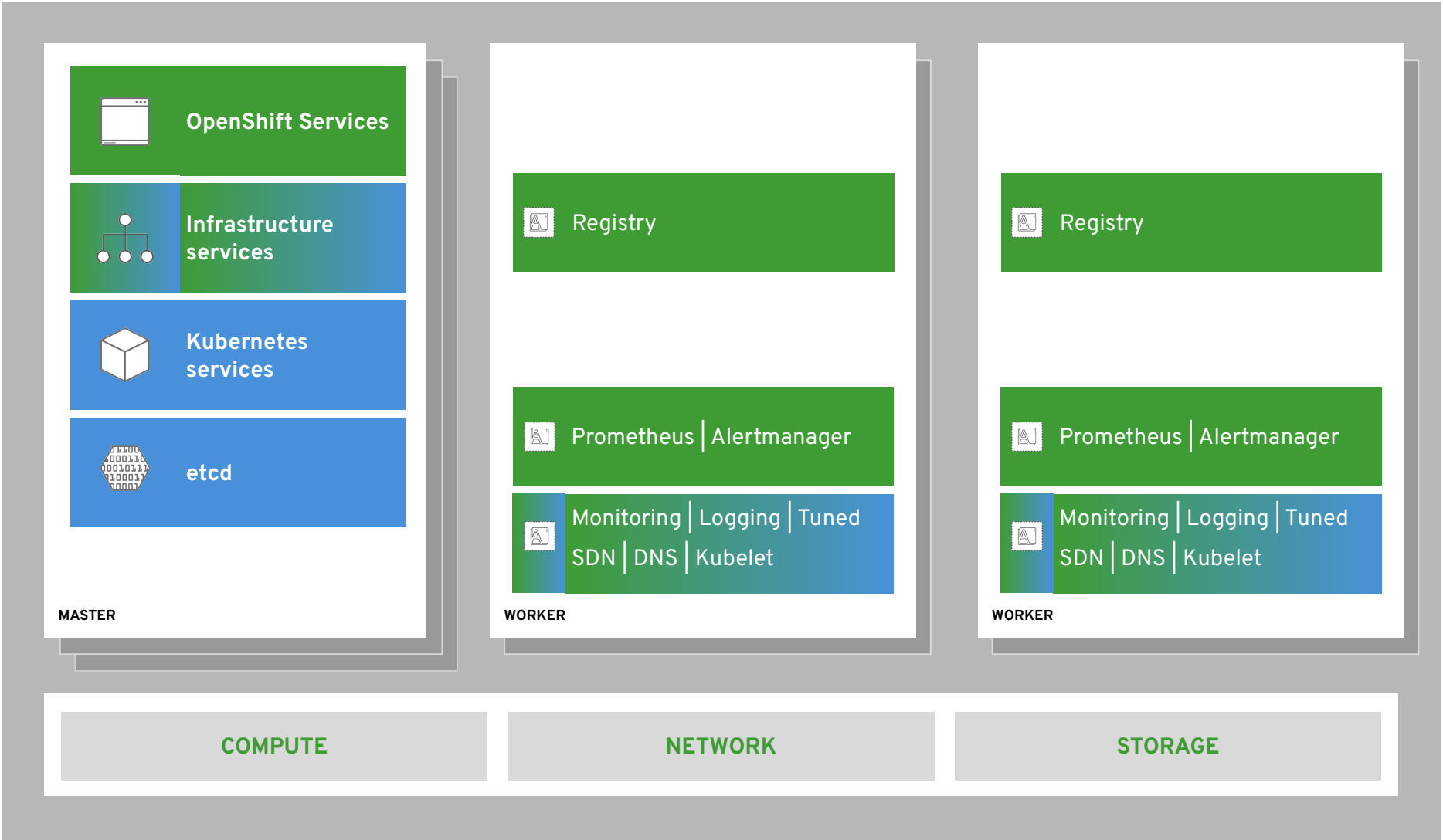
run on all hosts



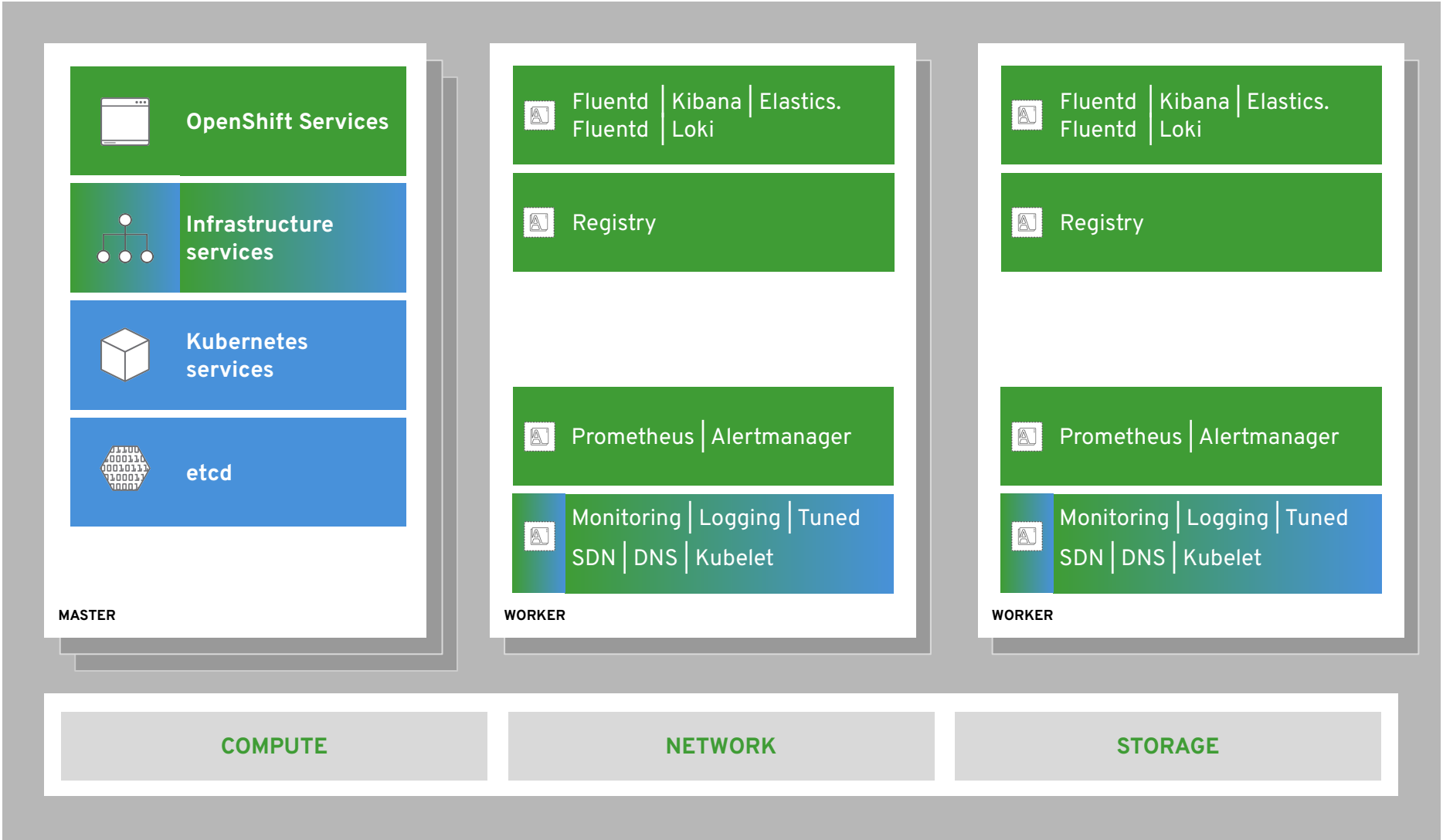
# integrated image registry



# cluster monitoring

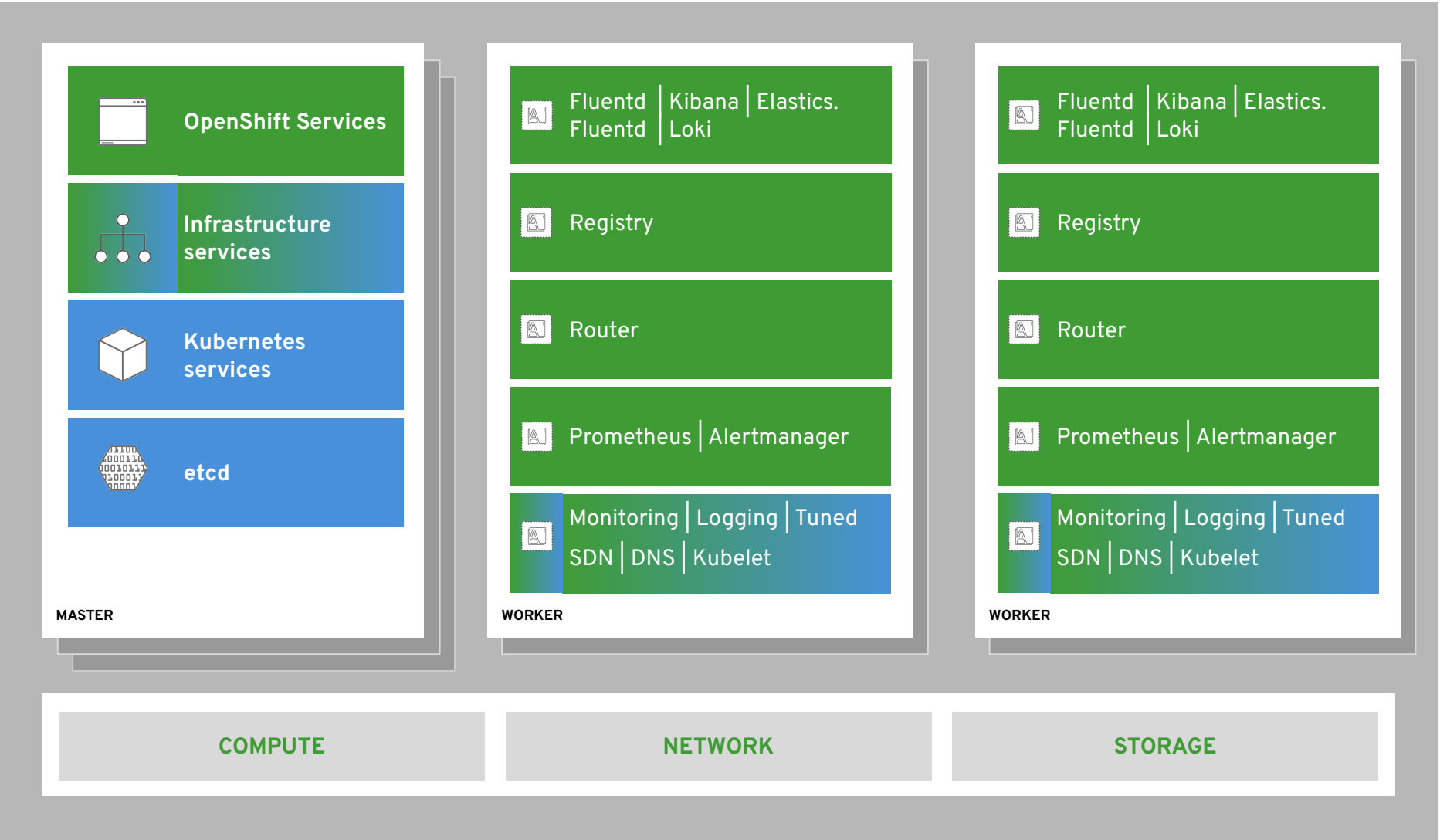


# log aggregation

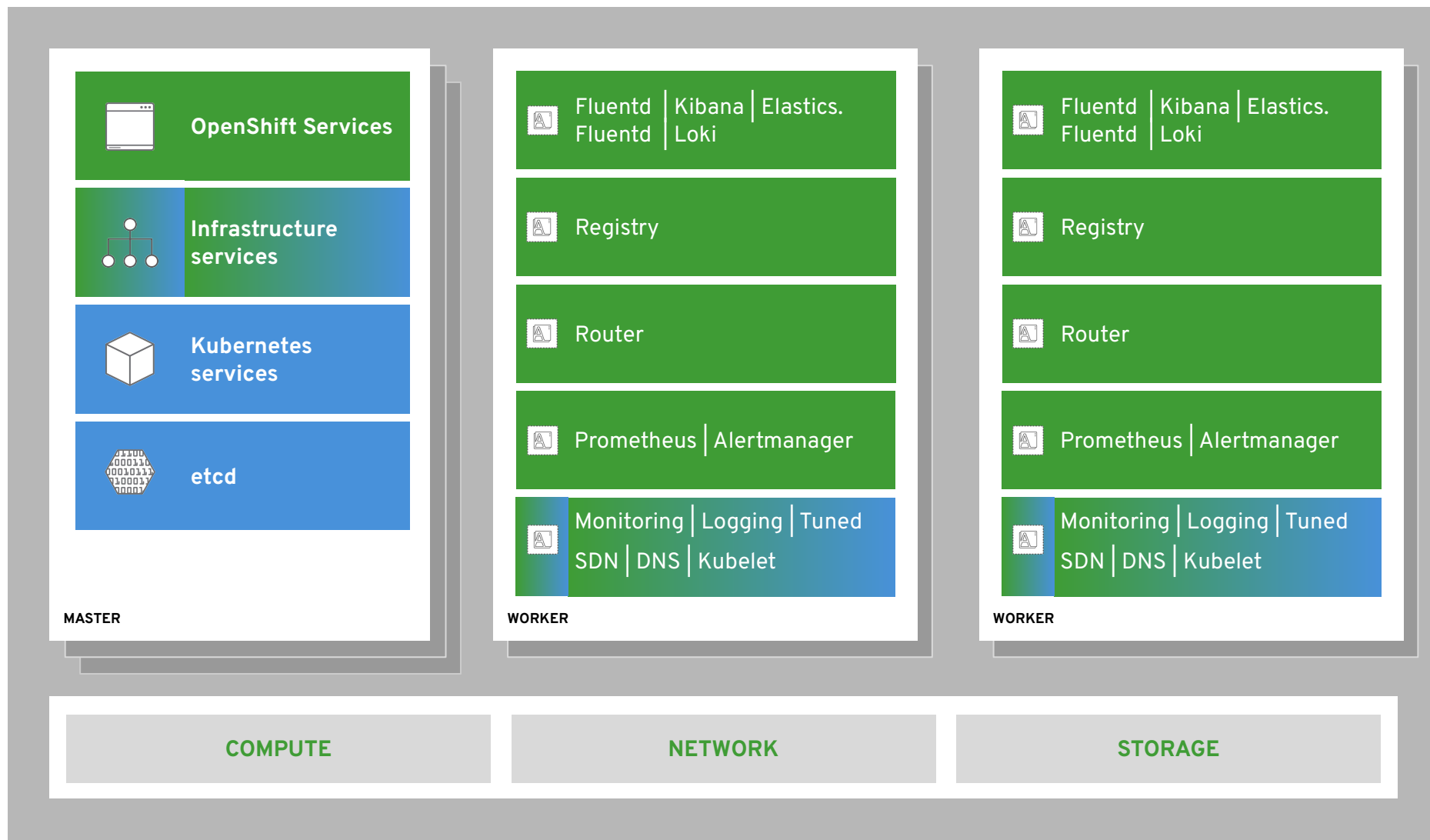
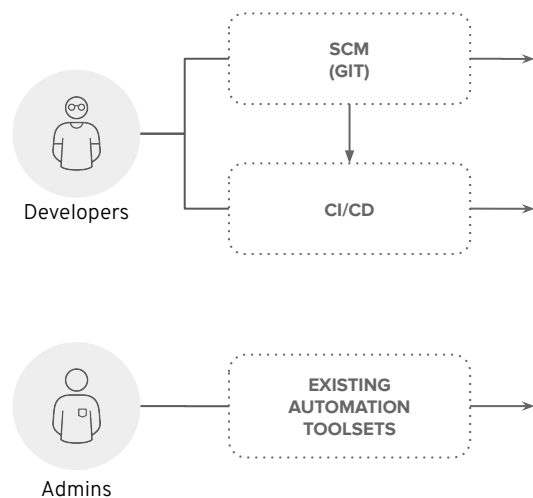


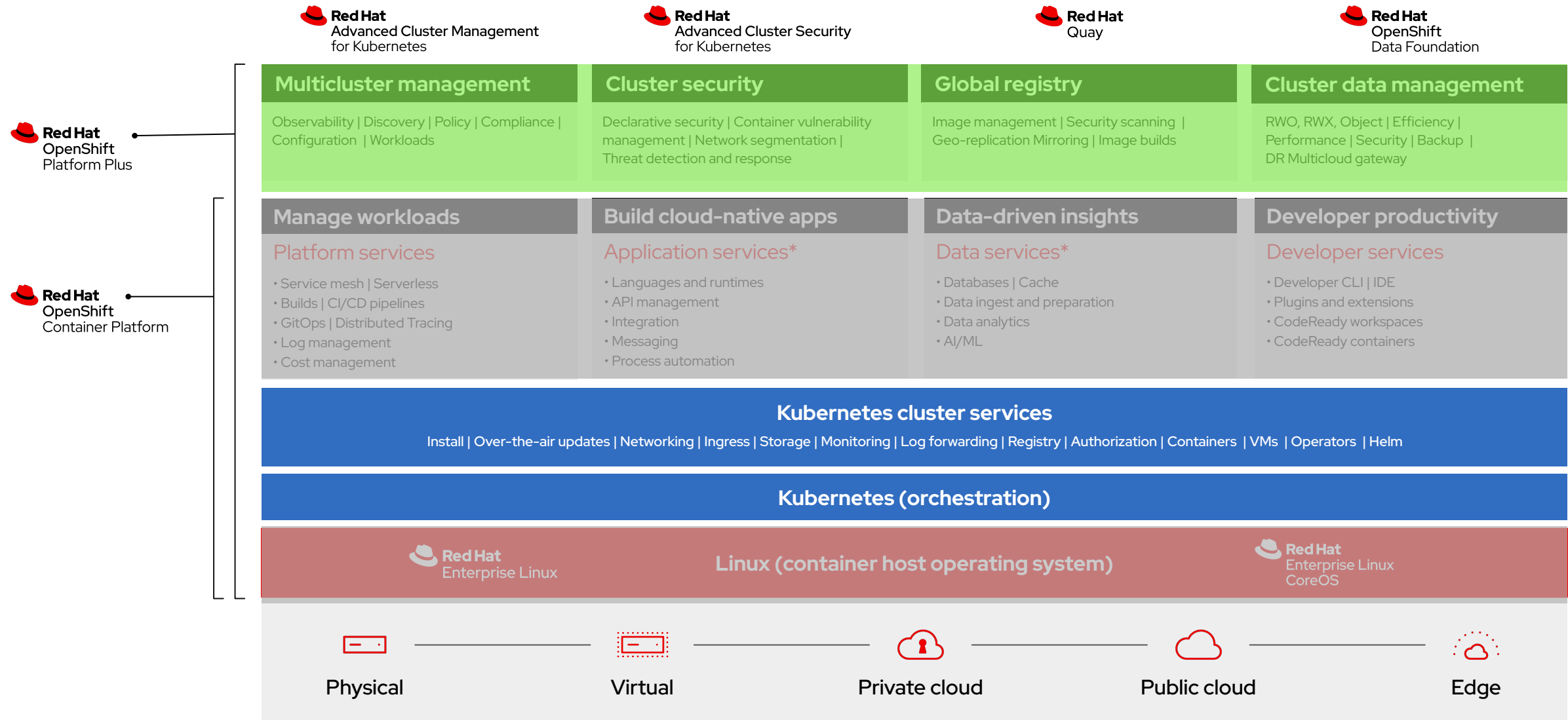


# integrated routing



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





\* Red Hat OpenShift® includes supported runtimes for popular languages/frameworks/databases. Additional capabilities listed are from the Red Hat Application Services and Red Hat Data Services portfolios.  
\*\* Disaster recovery, volume and multicloud encryption, key management service, and support for multiple clusters and off-cluster workloads requires OpenShift Data Foundation Advanced

# You have the choice – which car is for you?



*The Engine*



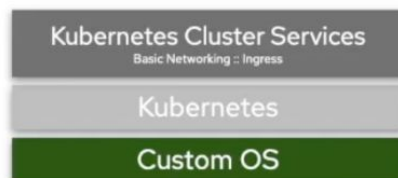
*The Parts*



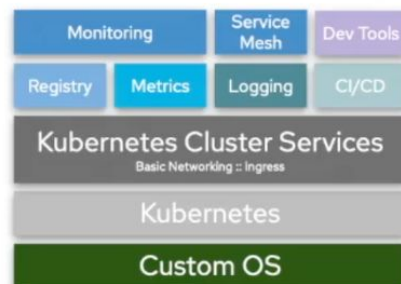
*The Assembled Car*



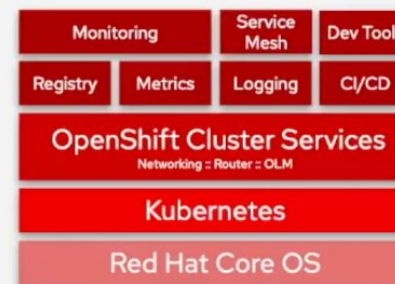
*The Full Service*



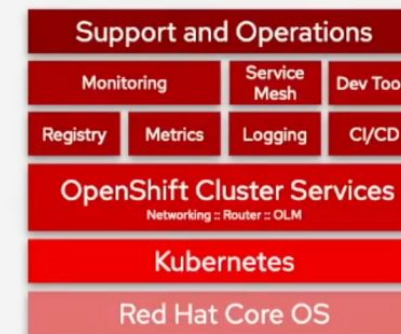
xKS



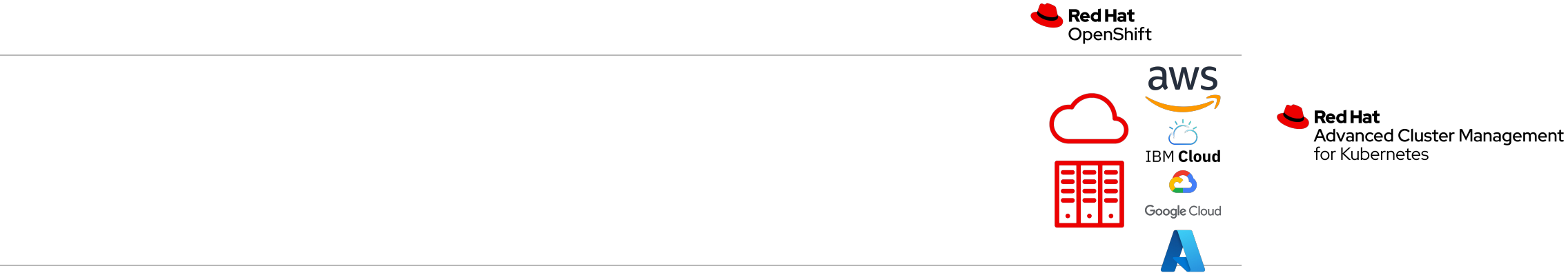
xKS plus 'native'  
services



RH OpenShift App  
Platform



RH OpenShift  
Services



 Cluster management and application deployment

 Kubernetes node control

Central data center

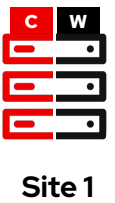
**Legend:**  
C: Control nodes  
W: Worker nodes



3 Node Clusters

Small footprint with high availability

Red Hat OpenShift



Red Hat Advanced Cluster Management for Kubernetes

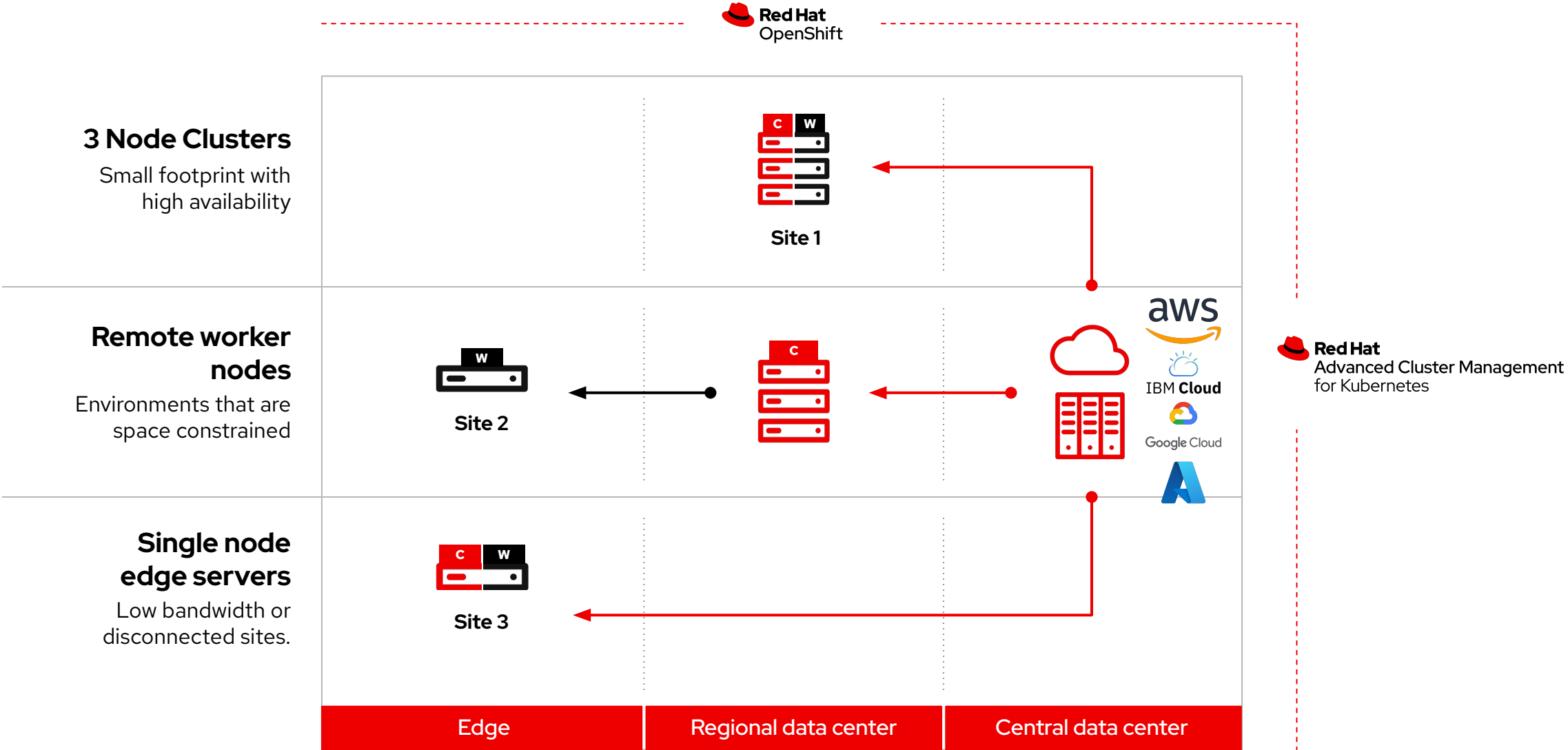


Cluster management and application deployment

Kubernetes node control

Legend:  
C: Control nodes  
W: Worker nodes





31

← Cluster management and application deployment

← Kubernetes node control

**Legend:**  
C: Control nodes  
W: Worker nodes



# Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



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