



OpenShift als Managed Service

Why Red Hat OpenShift?

Robert Baumgartner
Senior Solution Architect
Red Hat Austria



Open source project to orchestrate
containers on multiple hosts

- ▶ Created by Google
- ▶ Influenced by Google's Borg cluster manager
- ▶ Kubernetes 1.0 was released on July 21, 2015

- ▶ Now donated to the Cloud Native Computing Foundation (CNCF) - includes 157 projects

Kubernetes

Google and Red Hat are the top contributors

Provides

- ▶ Container orchestration on multiple hosts
- ▶ Container grouping
- ▶ Self-healing
- ▶ Service discovery

Relies on other projects to provide

- ▶ Operating System, container runtime
- ▶ Networking
- ▶ Security
- ▶ Authentication and authorization
- ▶ Storage
- ▶ Monitoring
- ▶ Logging
- ▶ Registry
- ▶ DNS, ...



Open source project to orchestrate containers on multiple hosts

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An integrated infrastructure platform to run, orchestrate, monitor and scale containers

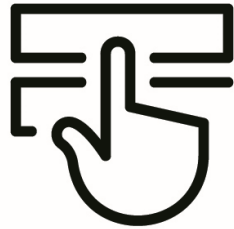
- ▶ OpenShift 3, released June 2015
- ▶ Current OpenShift 4.12, 23 releases (!)

Why OpenShift



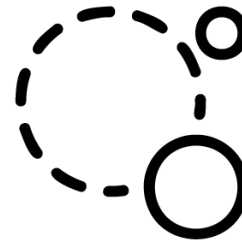
100% Kubernetes

OpenShift is certified as 100% Kubernetes by the CNCF.



Ecosystem of choice

Red Hat partners offer customers a choice of technologies: Networking, Storage etc without lock-in



Open source

OpenShift platform code is 100% open source, developed and collaborated in the upstream community.

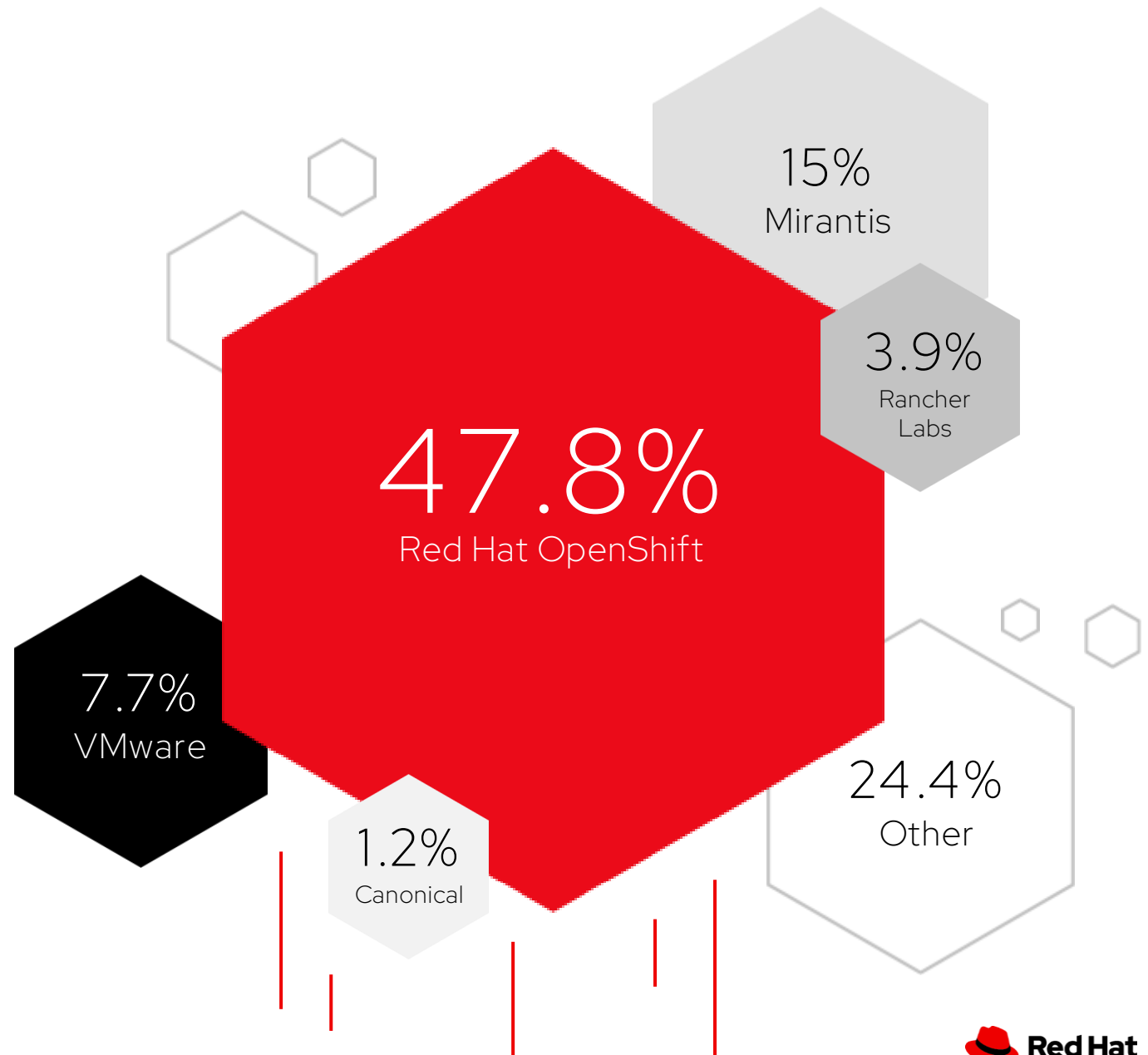


Open Hybrid Cloud

OpenShift provides a consistent operator and developer experience on-prem and in public cloud

RED HAT OPENSIFT

Container platform market share leader



The Fortune Global 500 are achieving real business outcomes with Red Hat® OpenShift®

80% of Fortune Global 500
commercial banks

100% of Fortune Global 500 government
and military companies

80% of Fortune Global 500 media
and technology companies

61% of Fortune Global 500
services companies

80% of Fortune Global 500
telecom companies

Red Hat preemptively secures against vulnerabilities



Red Hat
Customer Portal

CVE-2021-30465

Public on May 19, 2021

"Customers of ROSA, ARO or OpenShift Dedicated have SELinux enabled in enforcing mode in every host across all clusters. Therefore, It is expected that customers have a reduced impact from this issue..."



Red Hat
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CVE-2020-8554

Public on December 6, 2020

"OpenShift Container Platform (OCP) includes a builtin externalIP admission plugin, which restricts the use of Service externalIPs to those configured by a cluster-admin. In OCP4 all externalIP ranges are disabled by default."



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CVE-2020-14386

Public on September 2, 2020

"CAP_NET_RAW capability disabled by default (*which is true for Red Hat Enterprise Linux*), then only a privileged user can trigger this bug.."

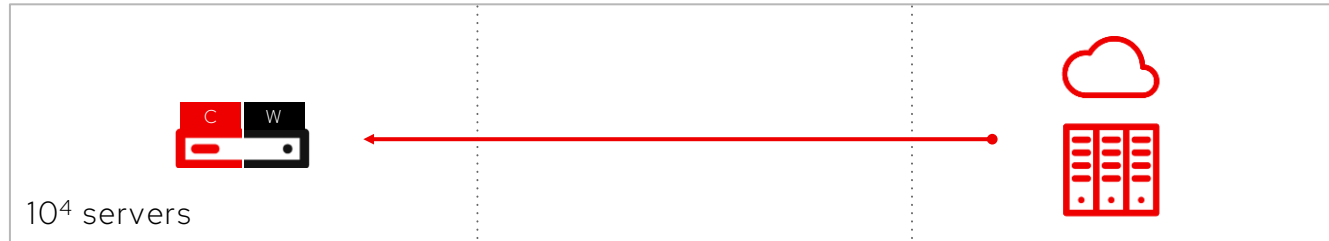
Device Edge platform

RHEL minimal profile and tooling for Edge devices + MicroShift



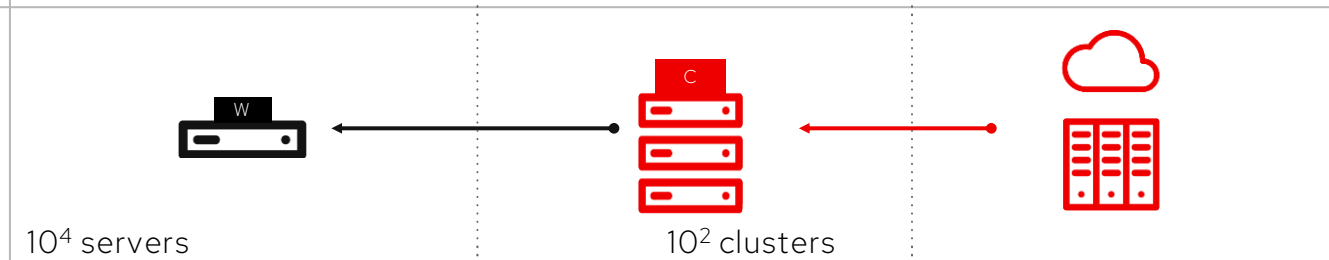
Single-node edge servers

Low bandwidth or disconnected sites



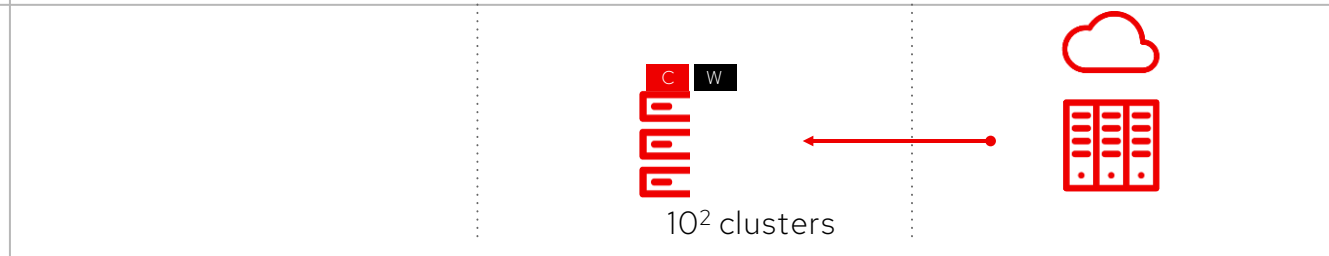
(Remote) worker nodes

Space-constrained environments



3 node Clusters

Low footprint clusters with high availability



Edge(s)

de-centralized DC

Cloud(s) or DC

Minimum System Requirements (per node):

w/o k8s:
1 Core
2 GB RAM

with k8s:
2 Core
2GB RAM

Red Hat
Management

4 Cores
16GB RAM

Worker:
1 Core
8 GB RAM

Control:
2 Core
16GB RAM

6 Cores
24GB RAM

Red Hat OpenShift Self-Managed Editions



Red Hat OpenShift Kubernetes Engine

Essential enterprise Kubernetes infrastructure

Includes:

- Enterprise Kubernetes runtime
- RHEL CoreOS immutable container OS
- Administrator console
- OpenShift Virtualization



Red Hat OpenShift Container Platform

Complete application development platform

Adds:

- Developer Console
- Logging & Monitoring
- Serverless (Knative)
- Service Mesh (Istio)
- Pipelines & GitOps (Tekton, ArgoCD)
- Insights for OpenShift (Cost, Subscription, Advisor)



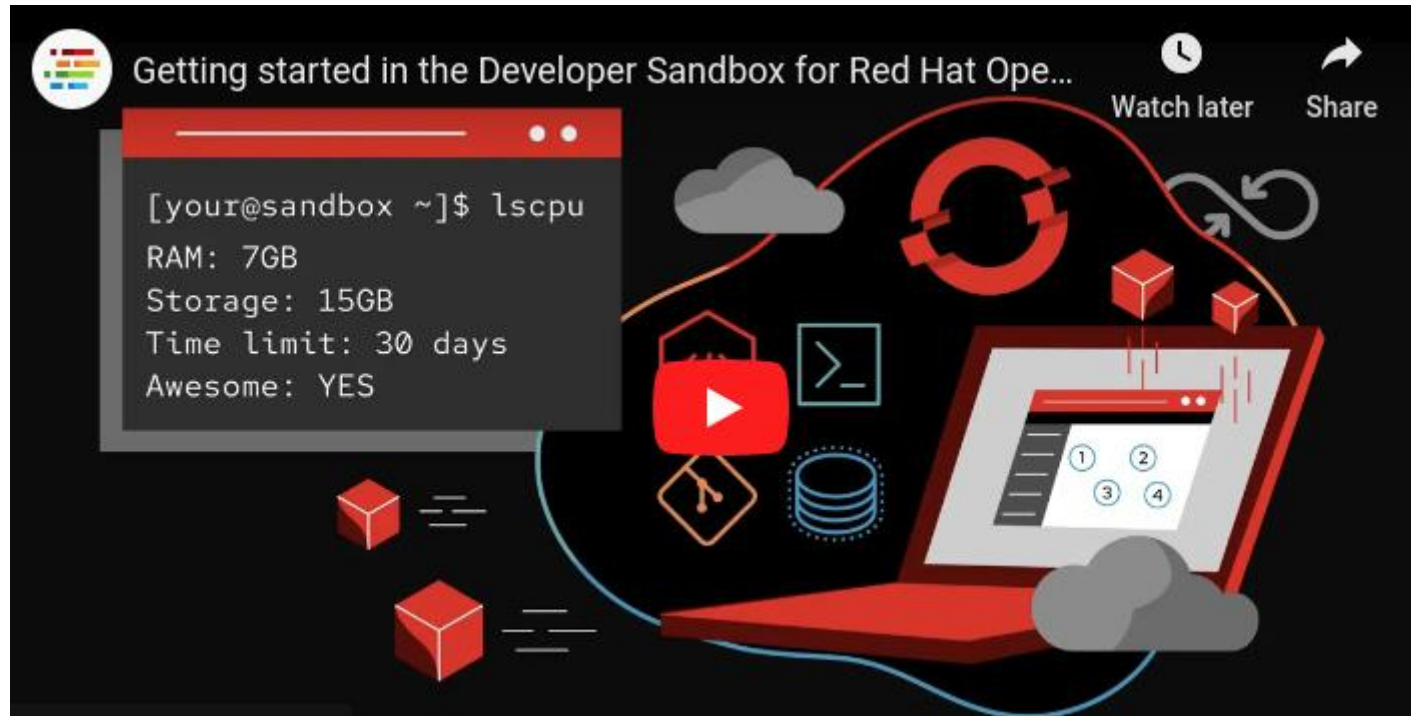
Red Hat OpenShift Platform Plus

Manageability and consistency across hybrid and multi cloud with advanced security for DevSecOps

Adds:

- Multicloud management
- Advanced observability and policy compliance
- Declarative security
- Threat detection and response
- Scalable global container registry

Developer Sandbox and more

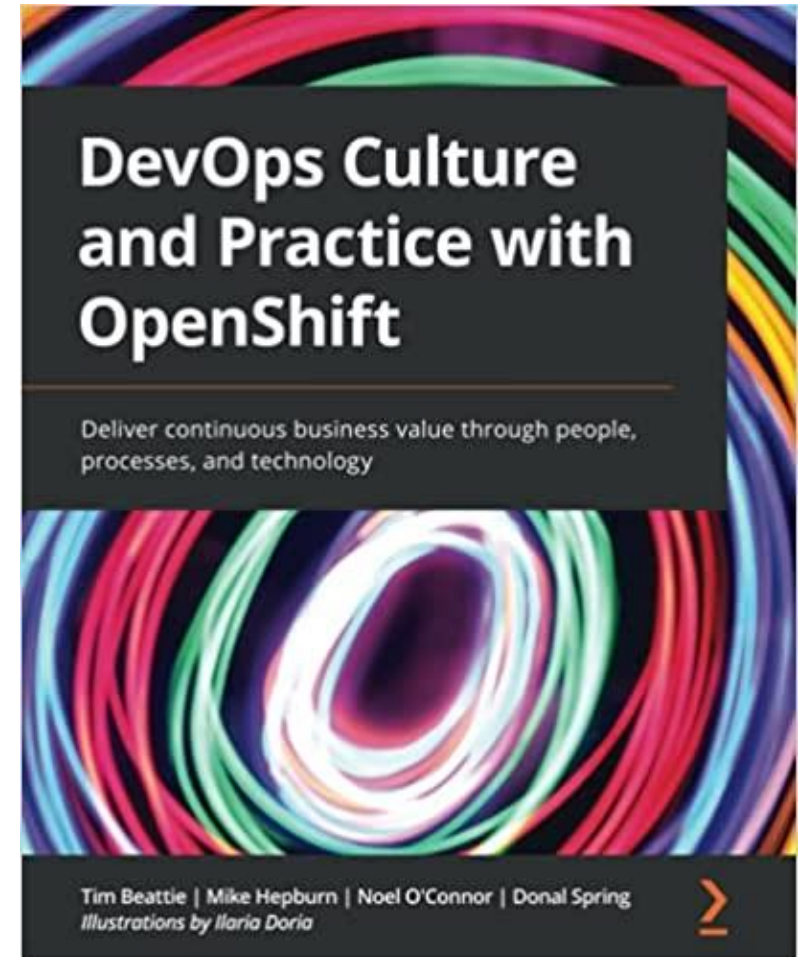
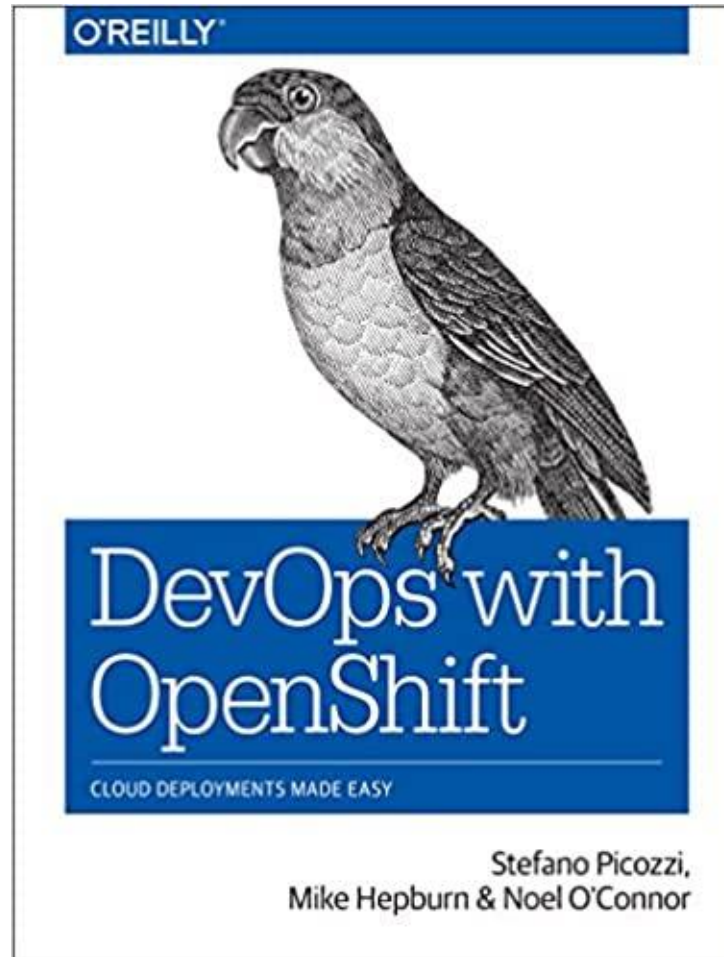
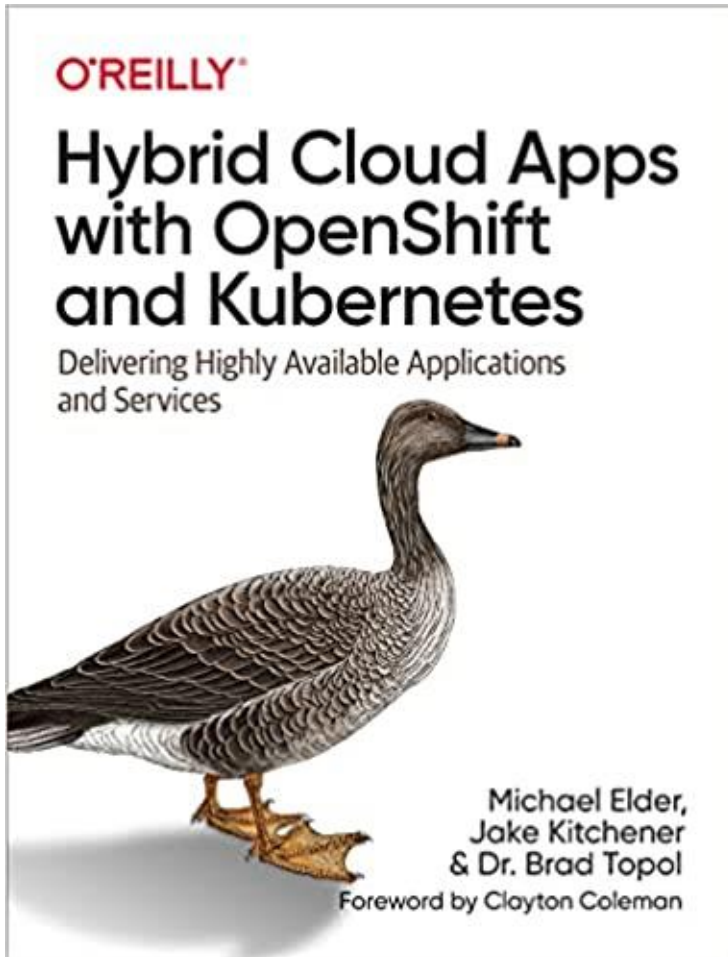


Sandbox: <https://developers.redhat.com/developer-sandbox>

Learn: <https://developers.redhat.com/learn>

Kube by Example: <https://kubernetesbyexample.com/>

e-Books





15. Juni 2023 | Wien

Das 21. OpenShift Anwendertreffen

Jetzt registrieren



Powered by  Red Hat



gepardec



<https://www.openshift-anwender.de/>



OpenShift als Managed Service

Von der Vorbereitung bis zur Betriebsführung

Matthias Vierthaler
Senior Systems Engineer
conova communications

Es war einmal eine Applikation ...

- ▶ Applikation → Umstieg auf OpenShift / TopContainer
- ▶ 4 Stufen
 - Vorbereitung (Machbarkeit)
 - Planung (Umsetzungsschritte)
 - Umsetzung (Konfiguration, Setup)
 - Betriebsführung
- ▶ Inklusive OpenShift-Besonderheiten

Fokus auf Kernkompetenzen

Der Kunde soll OpenShift bedienen aber nicht betreiben müssen!

conova

- ▶ OpenShift Konfiguration
- ▶ Betriebsführung/Wartung
- ▶ Verknüpfung mit conova Managed Services
- ▶ Ggf. Consulting

Kunde

- ▶ Applikationsentwicklung
- ▶ Applikationssupport

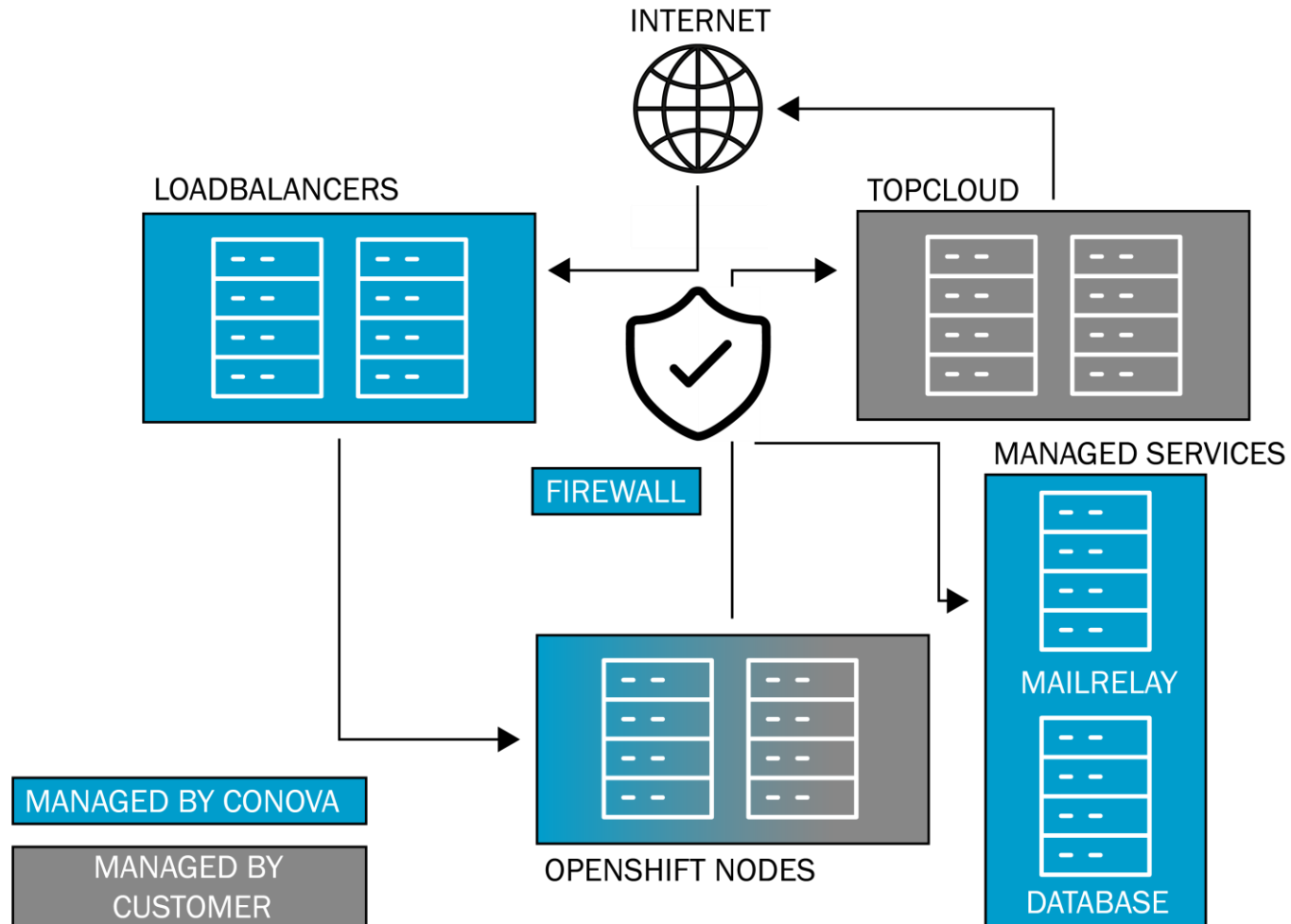
Vorbereitung

- ▶ Applikation kompatibel mit OpenShift?
 - z.B.: Architektur
 - Monolithische Architektur (ein einzelner Service) ☹
 - Microservices Architektur (mehrere kleine Services) ☺
- ▶ Mehrere Kunden auf einer OpenShift-Instanz (ähnlich zu Virtualisierung)
 - Management-Teil wird geteilt
 - Applikationsspezifische Arbeit wird exklusiv auf "Worker Nodes" ausgeführt
- ▶ Werden zusätzliche Managed Services benötigt?
- ▶ Spezielle Anforderungen an Netzwerk?

Planung

- ▶ Alle Vorbereitungsfragen geklärt → Projekt wird umgesetzt
- ▶ conova → Dienstleister/Kunde
- ▶ OpenShift Konfiguration
- ▶ Detailfragen der Managed Services, z.B.:
 - Datenbank, Mailrelay, Loadbalancer

Beispielsetup



Umsetzung

- ▶ „Applikation auf die Straße bringen“
- ▶ Entwickler hat hier deutlich mehr Möglichkeiten
 - Softwarerollouts ohne Downtime/Ausfall
- ▶ Unterstützung bei Ausrollen von Applikation
 - Bestehendes container-Image muss evtl. angepasst werden → Sicherheitsstandards
 - Externe Repositories sollen eingebunden werden

Betriebsführung

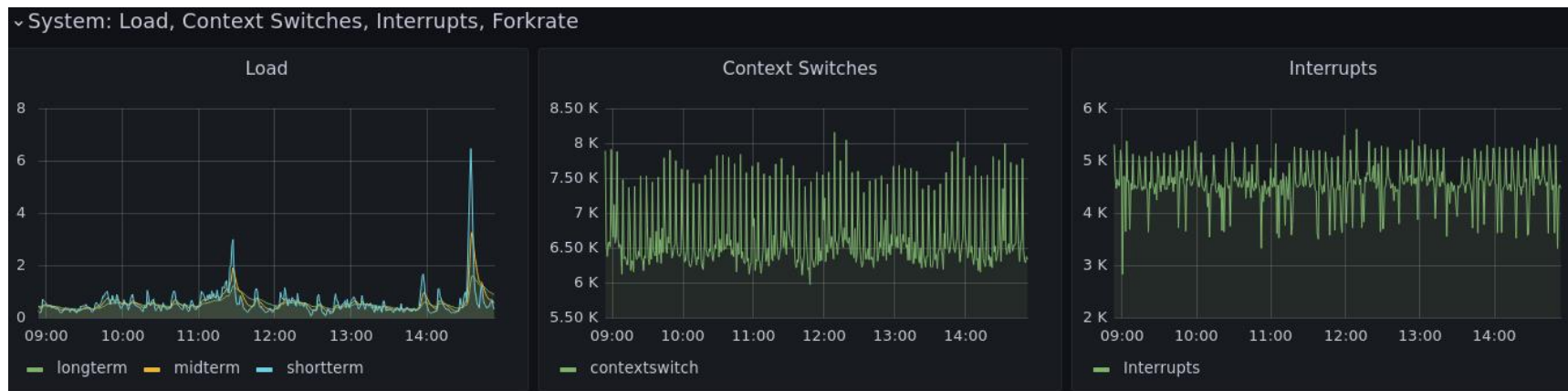
- ▶ Projekt ist abgeschlossen – Applikation läuft in OpenShift
- ▶ Updates
 - Regelmäßige Updates halten System aktuell, ausgeführt durch conova
- ▶ Monitoring / Performanceanalyse

Monitoring

- ▶ Überwachung des gesamten Clusterbetriebs
- ▶ Applikationsspezifisches Monitoring passiert durch den Kunden
 - OpenShift probes → application health
- ▶ Zusätzliche individuelle Checks mit Kundenalarmierung möglich

Performanceanalysen

- ▶ Neben in OpenShift integrierten Möglichkeiten stellt conova auch eine eigene Oberfläche zur Verfügung: <https://metrics.conova.com>
- ▶ Neben managed VMs liefern hier auch OpenShift worker Nodes ein – ein Tool für beide Welten



Und das Ende der Geschichte...

... Die Applikation und OpenShift lebten glücklich
bis ans Ende ihres Produktzyklus'