

Enterprise Container Management mit OpenShift

Tobias Derksen



Über mich ...



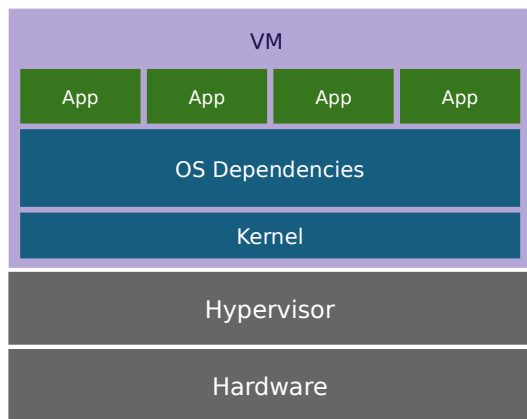
Tobias Derksen

- IT Consultant @codecentric
- DevOps Specialist
- OpenShift Trainer
- RedHat Certified Engineer

Übersicht Container

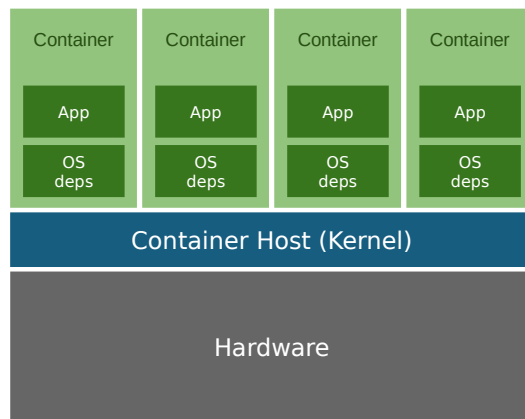
Virtuelle Maschine <-> Container

Virtuelle Maschinen



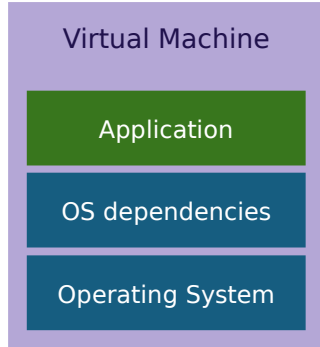
Virtuelle Maschine sind isoliert
Applikationen sind nicht isoliert

Container

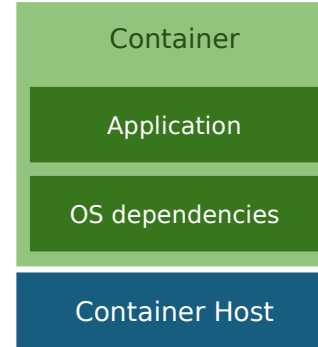


Container sind isoliert
Applikationen auch

Virtuelle Maschine <-> Container

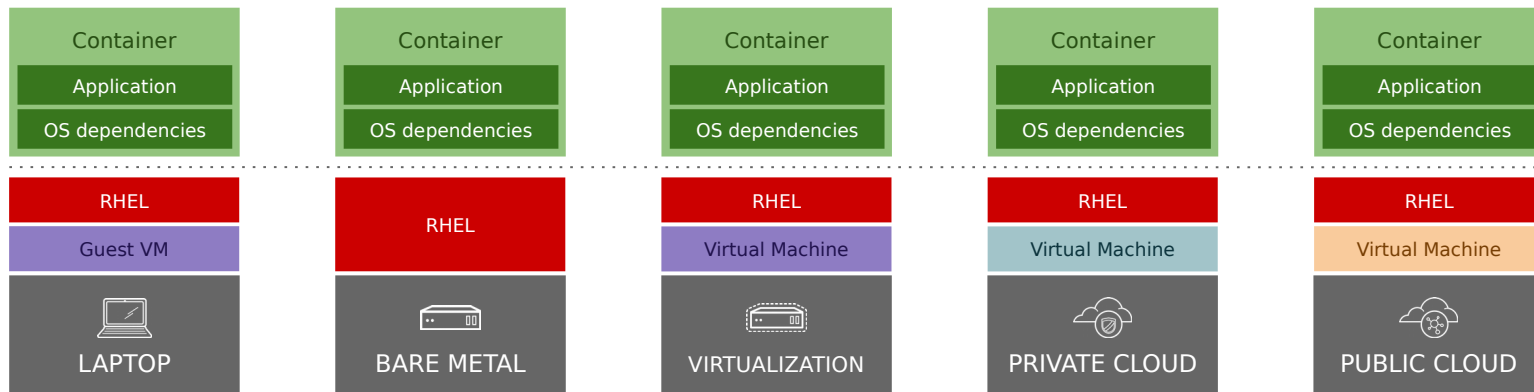


- + VM Isolation
- Complete OS
- Static Compute
- Static Memory
- High Resource Usage



- + Container Isolation
- + Shared Kernel
- + Burstable Compute
- + Burstable Memory
- + Low Resource Usage

Build once, run everywhere



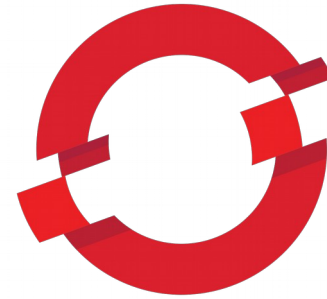
Container Runtime



Container Management

Container Orchestrierung

- Container starten
 - Container stoppen
 - Container überwachen
 - Container auf Nodes verteilen
-
- Networking
 - DNS
 - Speicherverwaltung
 - Interaktionen
 - Service Discovery



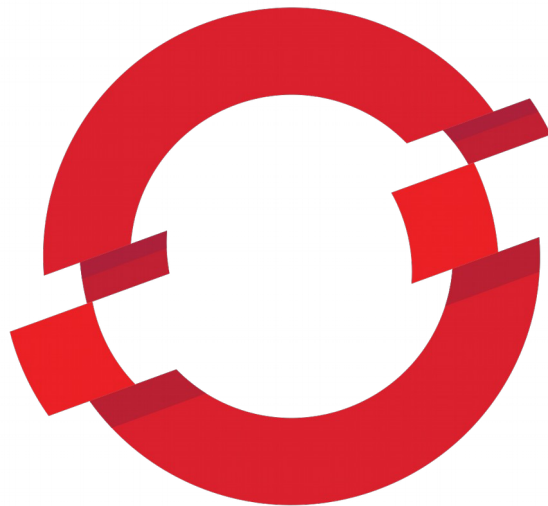
OPENSIFT



kubernetes



redhat



OPENSIFT

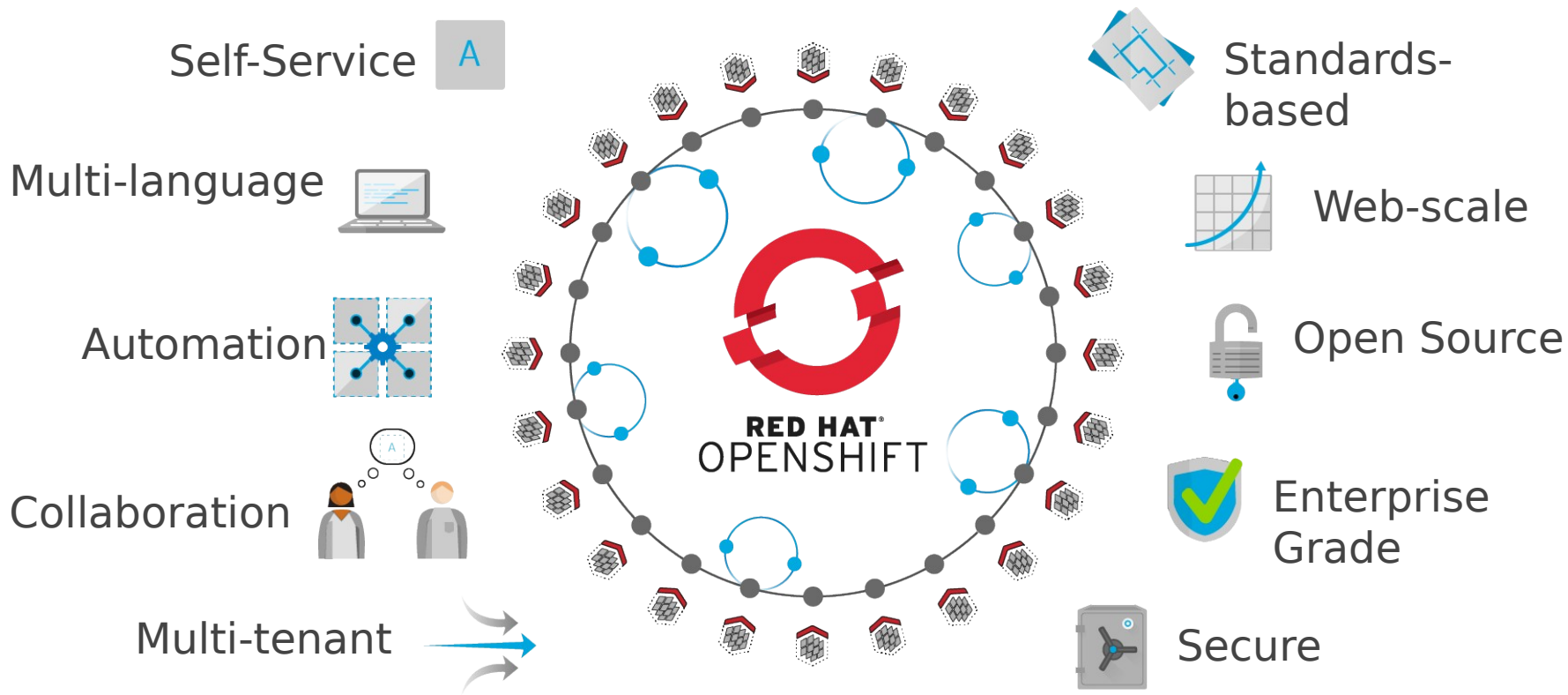
OPENSIFT
origin

OpenShift ist ... kubernetes plus

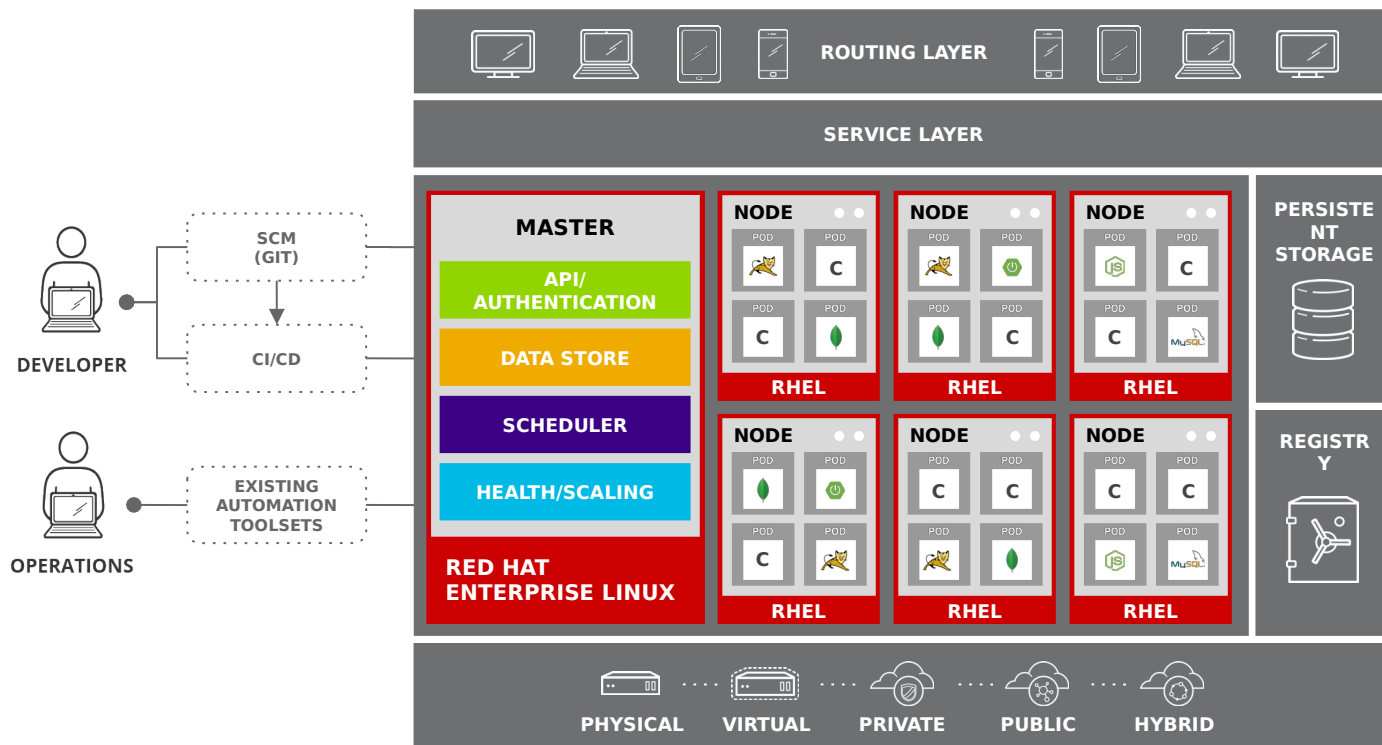
- Routing
- Metriken
- Logging
- Web Oberfläche
- Builds
- Image Registry
- Sicherheitsmaßnahmen
- Templates

Mit Redhat Subscription:

- Trusted Registry
- Security Newsletter
- Support

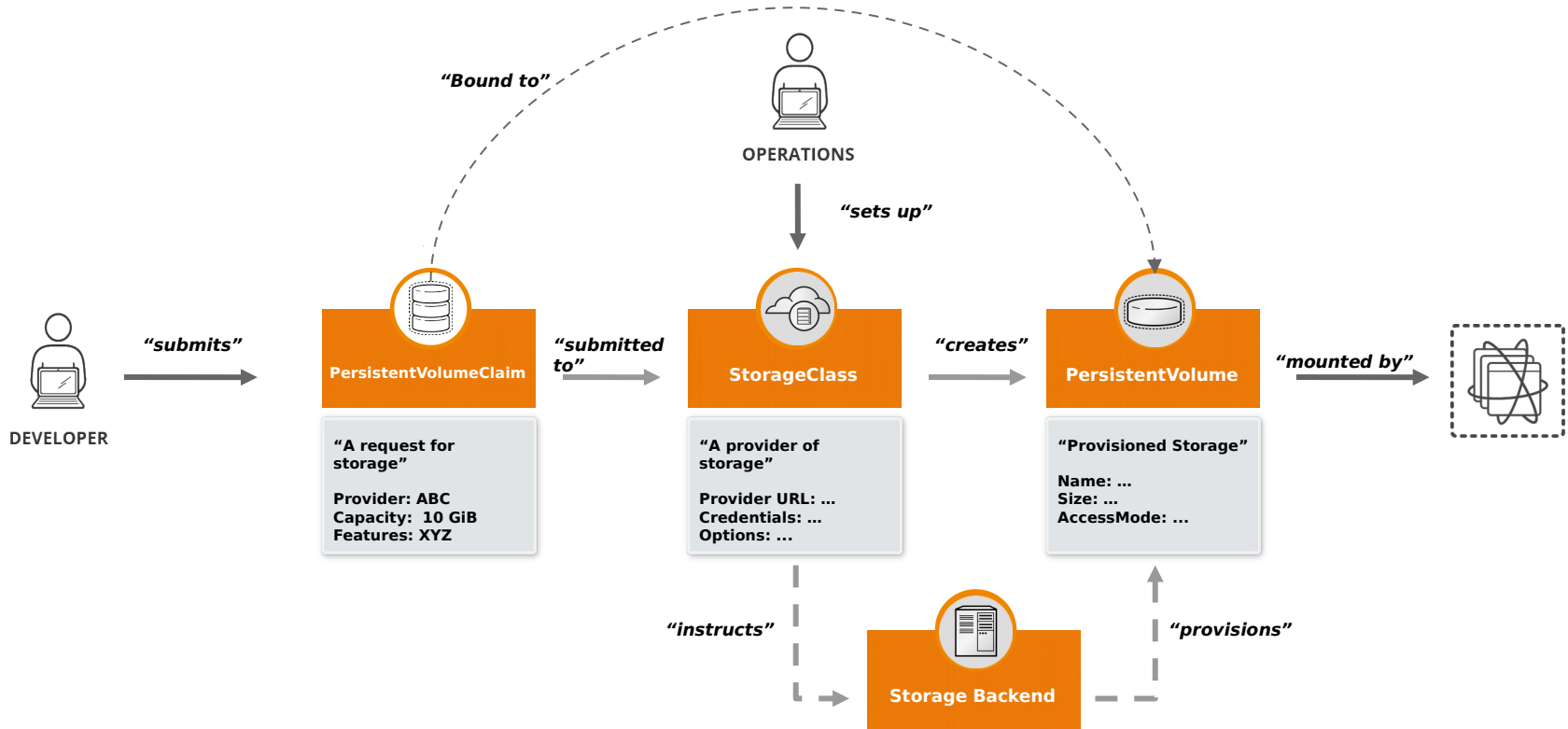


Architektur



Persistent Storage Provider

- HostPath
- EmptyDir (Ephemeral Storage)
- GlusterFS / OpenShift Container Storage
- NFS (unsupported)
- Ceph
- Diverse Cloud Mechanismen (AWS, GCE, Azure, etc)
- Dynamic Provisioning



Authentication

- Htpasswd
- LDAP inkl. Gruppen Sync
- GitHub + GitHub Enterprise
- GitLab
- Google
- Generic OpenID Connect

App Entwicklung

Features

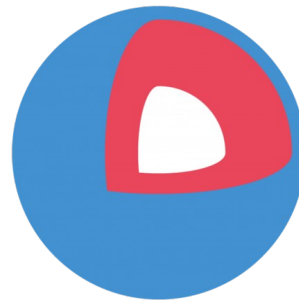
- Source-to-image
 - Builds
 - (Jenkins) Pipelines
 - Webhook-Trigger
-
- Self-Service provisioning
 - Auto Scaling inkl. Load Balancing
 - Service Discovery
 - Health Checks

Demo

Ausblick

OpenShift 4+

- Neuer Unterbau: CoreOS
- Neue Container Runtime: cri-o
- Neuer Installer
- Over-the-air Updates
- Istio
- CodeReady Workspaces
- Cluster Operators
- Operator Hub
- Quay Container Registry



RED HAT®
CODEREADY



Istio



Stay connected

Slides & Beispiele

<https://github.com/lukeelten/openshift-slac>



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Hello, World!