



Enterprise Grade Deployment



Martin Novák | Product Architect

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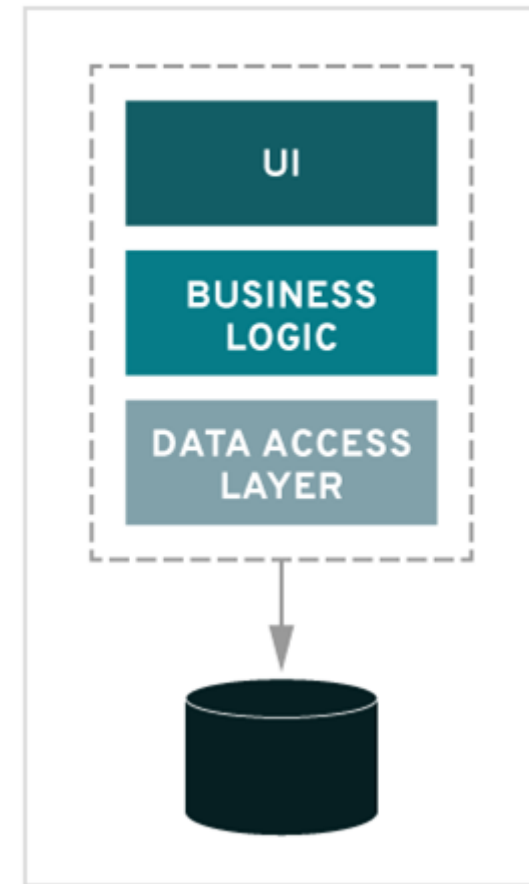
- 1 Deployment transformation
- 2 Kubernetes & OpenShift
- 3 Demo
- 4 Kubernetes operators
- 5 Summary

Monolithic Architecture

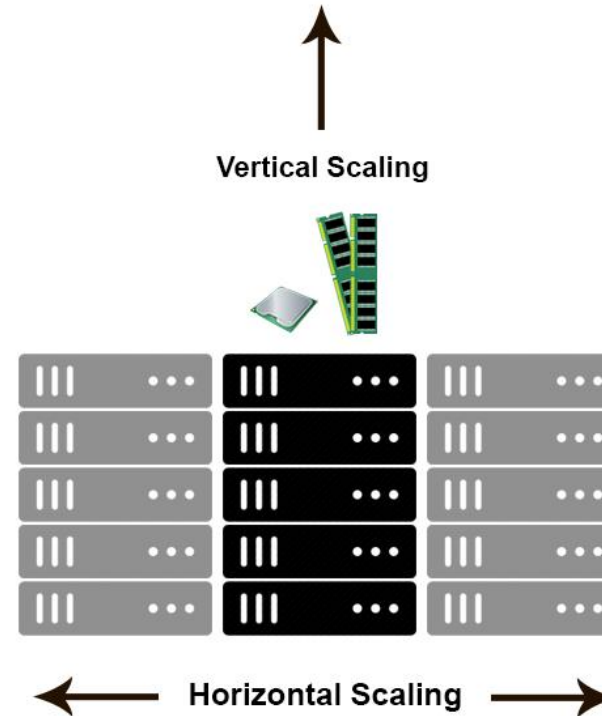


- One big code base
 - Hard maintenance
- One process
 - Single point of failure
 - Shared memory advantage
- Usually one platform supported

MONOLITHIC



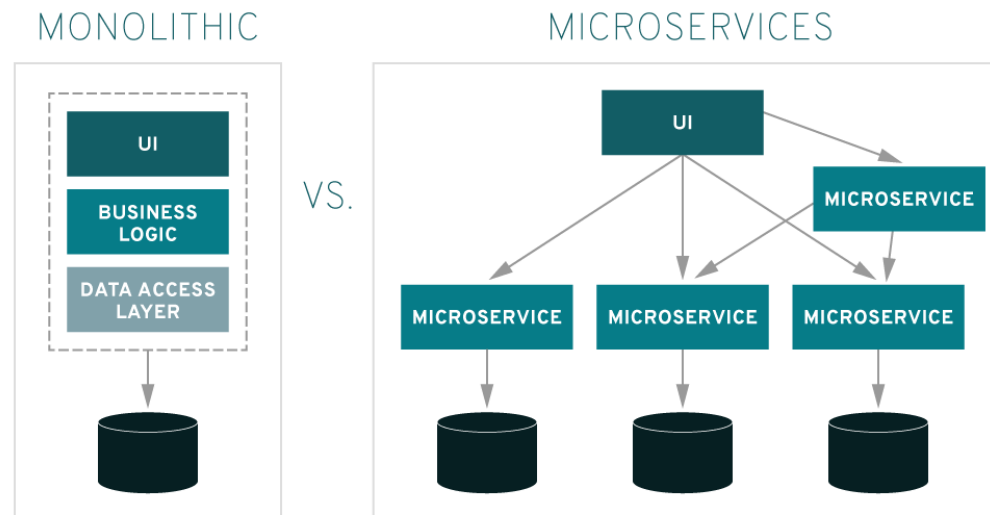
- Required horizontal and vertical scaling
- Complex custom load balancer configuration
- Installer wizard
 - Separate application



Docker



- Containers
- Isolation/Security
- Same kernel as host system
 - Faster than VMs
- Image contains everything for run

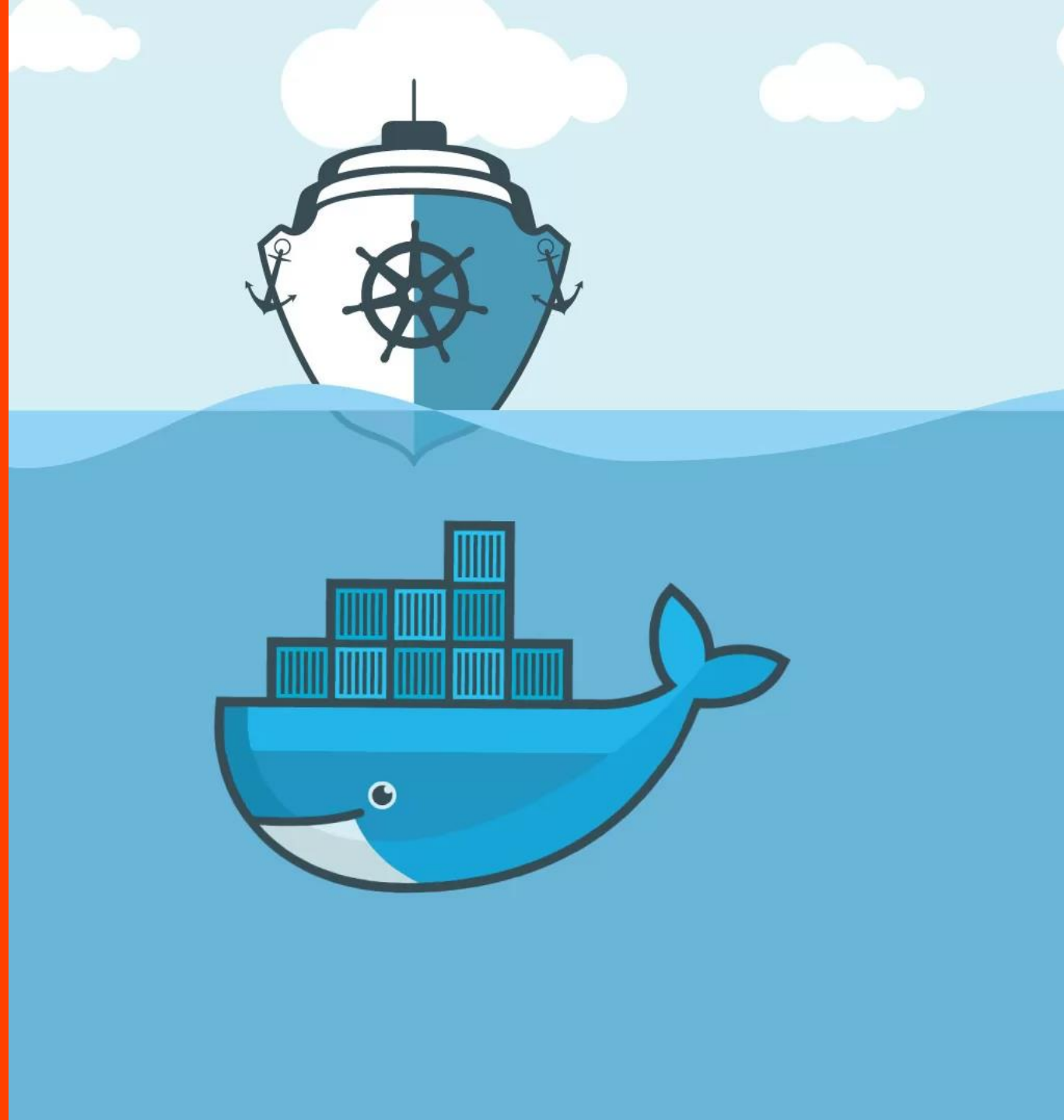


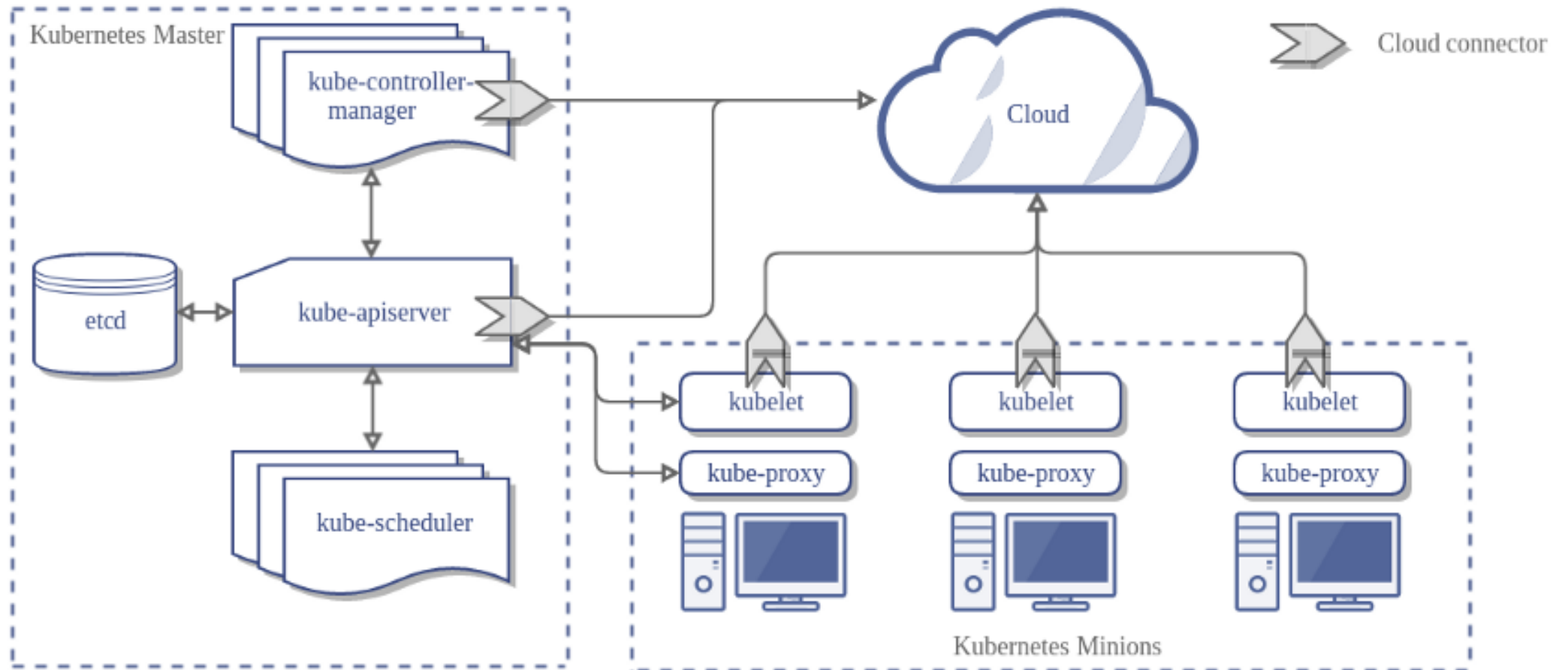
Container Orchestration

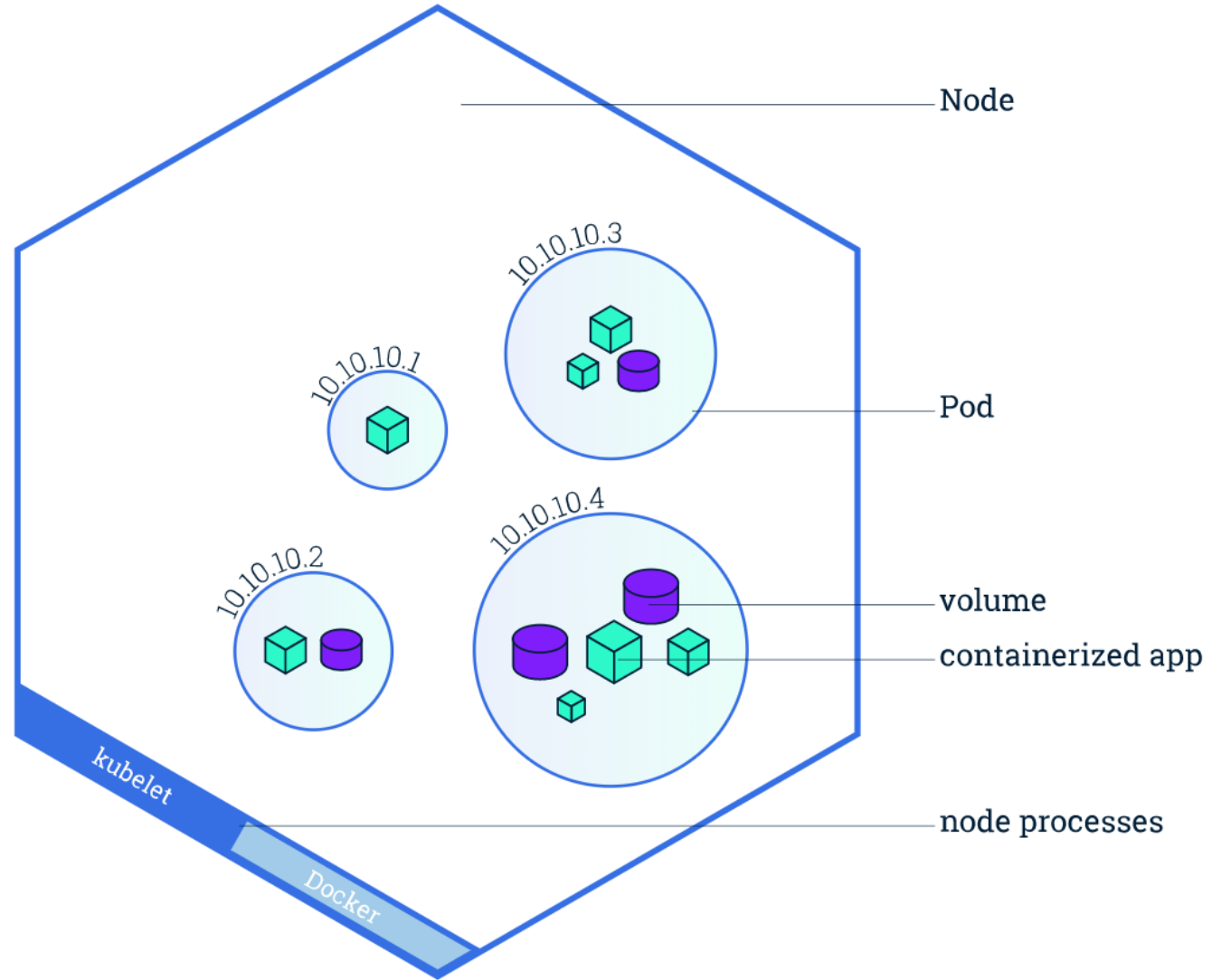


- Run and control more containers simultaneously
- Maintenance of application cluster state
- Examples
 - Docker Compose
 - Docker Swarm
 - Kubernetes/OpenShift

Kubernetes (K8s)







- Local machine
 - Minikube
 - <https://github.com/kubernetes/minikube>
- Cloud
 - Terraform/Ansible scripts
 - Azure Kubernetes Service (AKS)
 - Elastic Kubernetes Service (EKS)

OpenShift



okd Application Console

☰ dass

- Overview
- Applications
- Builds
- Resources
- Storage
- Monitoring
- Catalog

Deployments > dass-operator > #1

dass-operator-864c444bbd created 2 days ago

app dass-operator pod-template-hash 4207000668 project dass

Details Environment Events

Deployment: dass-operator
Selectors: app=dass-operator
pod-template-hash=4207000668
project=dass
Replicas: 1 current / 1 desired

1 pod

Template

i Container dass-operator does not have health checks to ensure your application is running correctly.

Containers

dass-operator

- Image: cloud/dassoperator
- Command: dass-operator

Volumes

[Add Storage](#) | [Add Config Files](#)

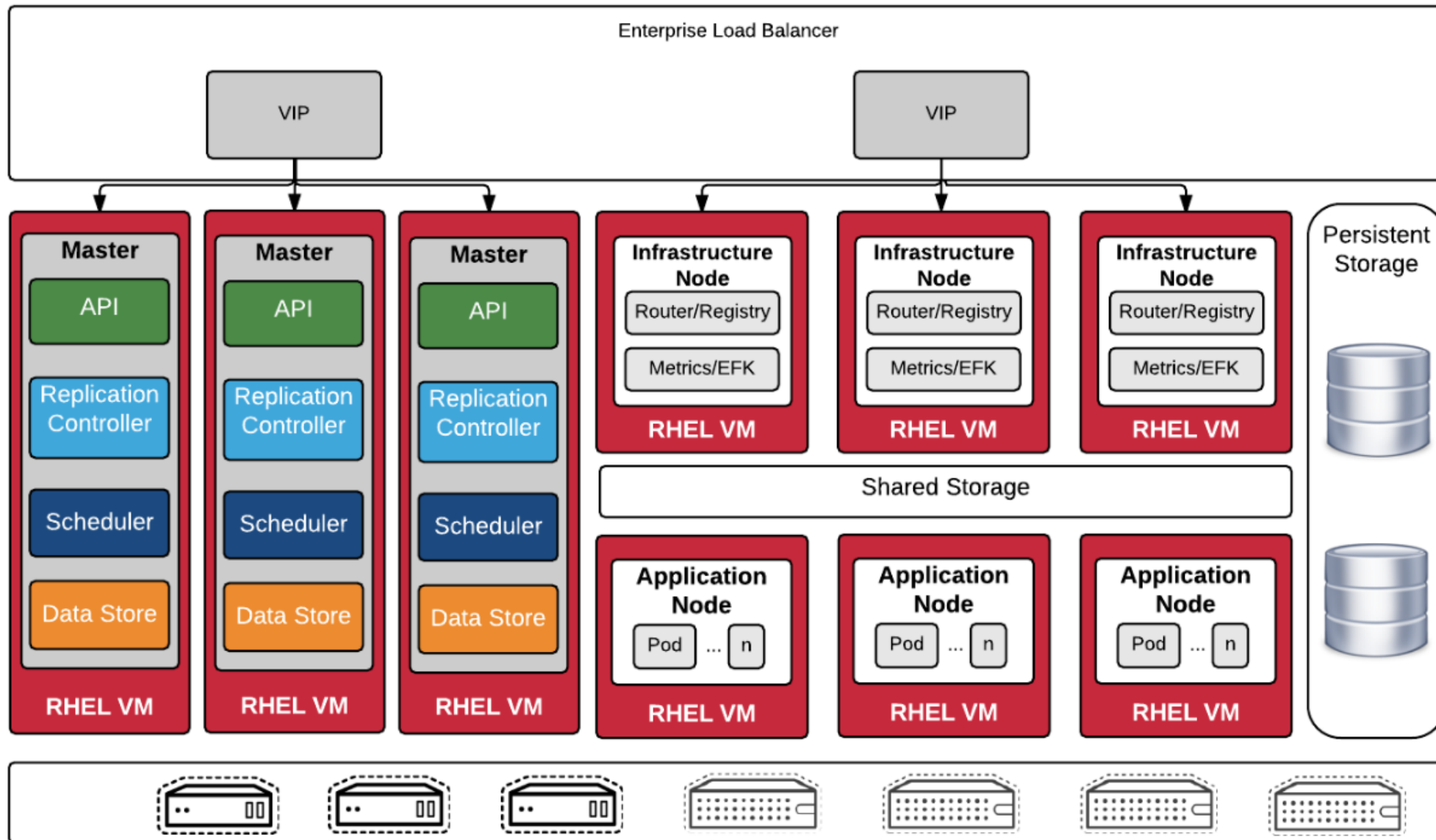
Autoscaling

[Add Autoscaler](#)

Pods

Name	Status
dass-operator-864c444bbd-hjggt	Running

- Enterprise Kubernetes
- Mainly security oriented
- Can be demanded by customers as the required application deployment
- Layer over k8s
- Templates almost the same as in k8s
- GUI



- Local machine
 - Minishift
 - <https://www.okd.io/minishift/>
- Community version
 - <https://www.okd.io>
 - Azure templates 3.9/3.11 fork
- Paid versions on RedHat/Azure/Amazon servers

Demo



Kubernetes Operators



- Extensions of k8s/OpenShift API
- Operator framework
 - <https://github.com/operator-framework/operator-sdk>
 - Go language
 - Testing
- Autopilot of application
 - Installation, upgrades, restore, backups, auto scaling, self repair...

- CustomResource of OpenShift
- Control loop
 - Watch on objects
 - OnChange: analyze difference between actual and desired state
 - Act on changes
- Example
 - <https://github.com/operator-framework/operator-sdk-samples/tree/master/memcached-operator>

- Complex systems moves from monoliths to microservices
- Docker becomes software standard
- Kubernetes or OpenShift as an containers orchestrator
- Complex orchestrating logic via Kubernetes operators

quadi̇ent

Thank you!

Martin Novák,
m.nov4k@gmail.com

- <https://kubernetes.io/>
- <https://medium.com/@adilsonbna/installing-a-highly-available-openshift-origin-cluster-f3493cbdb644>
- <https://pixabay.com/photos/moai-quarry-easter-island-history-3525785/>
- <https://pixabay.com/photos/container-port-loading-stacked-3118783/>
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- <https://pixabay.com/photos/hands-clay-potter-pottery-1139098/>
- <https://www.redhat.com/en/topics/microservices/what-are-microservices>
- <https://github.com/vaquarkhan/vaquarkhan/wiki/Difference-between-scaling-horizontally-and-vertically>
- <https://svitla.com/blog/kubernetes-vs-docker>