



# Introducing OKD Virtualization

Simone Tiraboschi

Principal Software Engineer

Sandro Bonazzola

Manager, Software Engineering

OKD

Virtualization



okd

# What's OKD?

OKD is a distribution of Kubernetes

OKD embeds Kubernetes and extends it with security and other integrated concepts

OKD adds developer and operations-centric tools

OKD is a sibling Kubernetes distribution to Red Hat OpenShift

Governance:



<https://flickr.com/photos/64711971@N08/6918935136/>  
"OKD & Kubernetes"

# What's OKD?

Automated operations



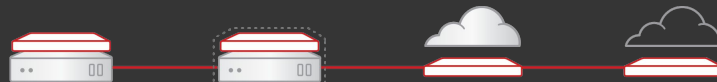
**APPLICATIONS AND SERVICES**  
from Red Hat and community operators



**PLATFORM AND CLUSTER MANAGEMENT**  
Kubernetes, security, monitoring, registry. etc



**LINUX HOST** with Fedora CoreOS



**FOR HYBRID / MULTI-CLOUD DEPLOYMENTS**



# What's KubeVirt?

Kubernetes Virtualization API and runtime in order to define and manage virtual machines:

- Virtual machines
  - Running in containers
  - Using the KVM hypervisor
- Scheduled, deployed, and managed by Kubernetes
- Integrated with container orchestrator resources and services
  - Traditional Pod-like SDN connectivity and/or connectivity to external VLAN and other networks via multus
  - Persistent storage paradigm (PVC, PV, StorageClass)

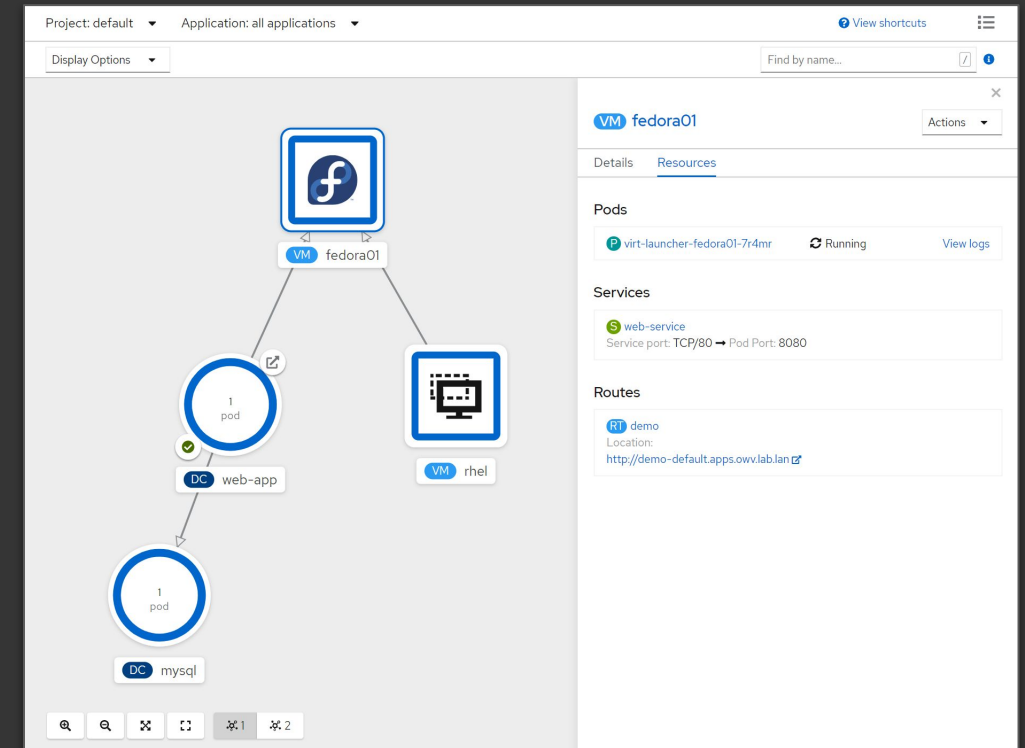


<https://flickr.com/photos/linein/2946303389/>

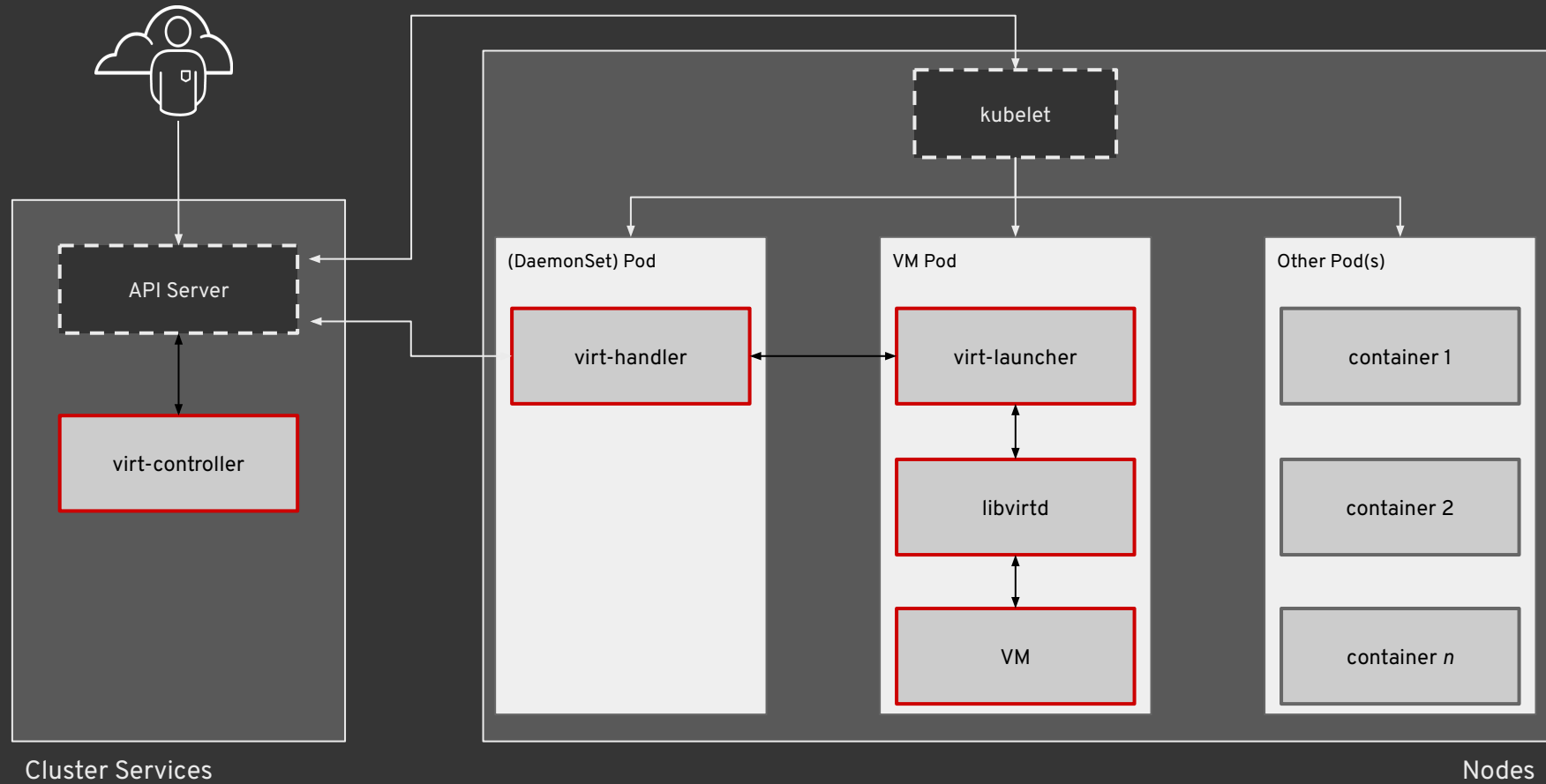
"A Container & VM"

# Why KubeVirt? Using VMs and containers together

- Follows Kubernetes paradigms:
  - Container Networking Interface (CNI)
  - Container Storage Interface (CSI)
  - Custom Resource Definitions (CRD, CR)
- Schedule, connect, and consume VM resources as container-native
- Virtual Machines connected to pod networks are accessible using standard Kubernetes methods:
  - Service
  - Route
  - Ingress
- VM-to-pod, and vice-versa, communication happens over SDN or ingress depending on network connectivity



# KubeVirt: how does it work?



# What's HCO?

## Hyperconverged Cluster Operator

An opinionated set of components to support classic virtualization use-cases, such as:

- Persistent image upload
- Node network configuration
- Common VM Templates

Single entry point for multiple operators  
(virt, storage, network...)

Single installable unit

Single upgrade path

Single user entry point for configure the whole  
virtualization subsystem



<https://flickr.com/photos/altopower/2136807538/>  
"An opinionated cat"

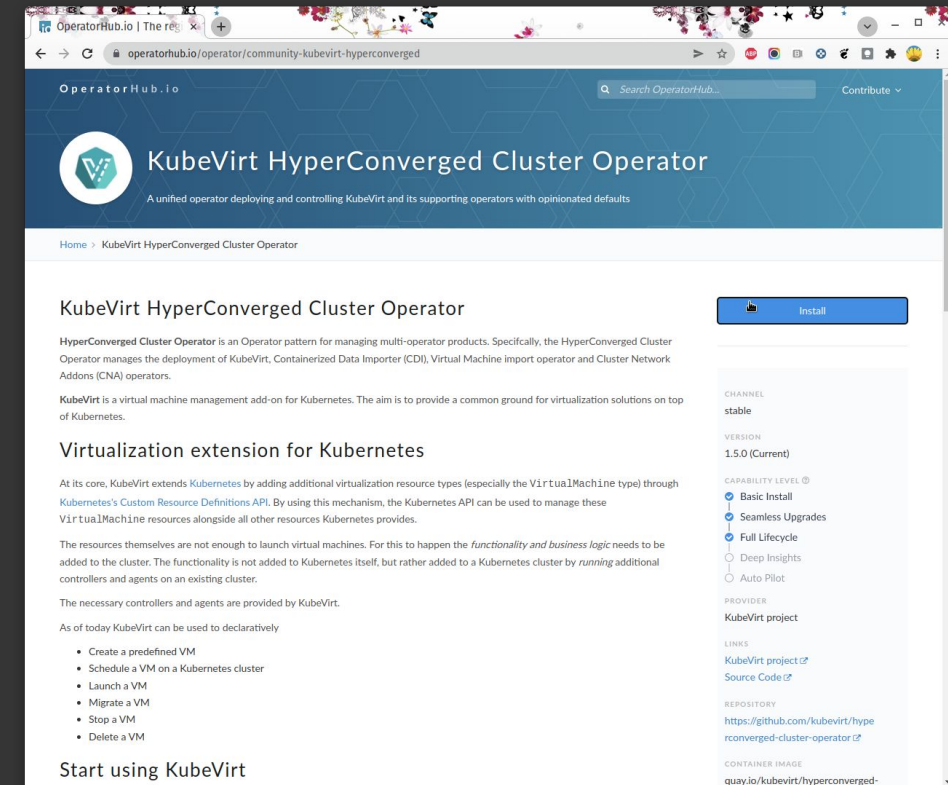


# How can I get it?

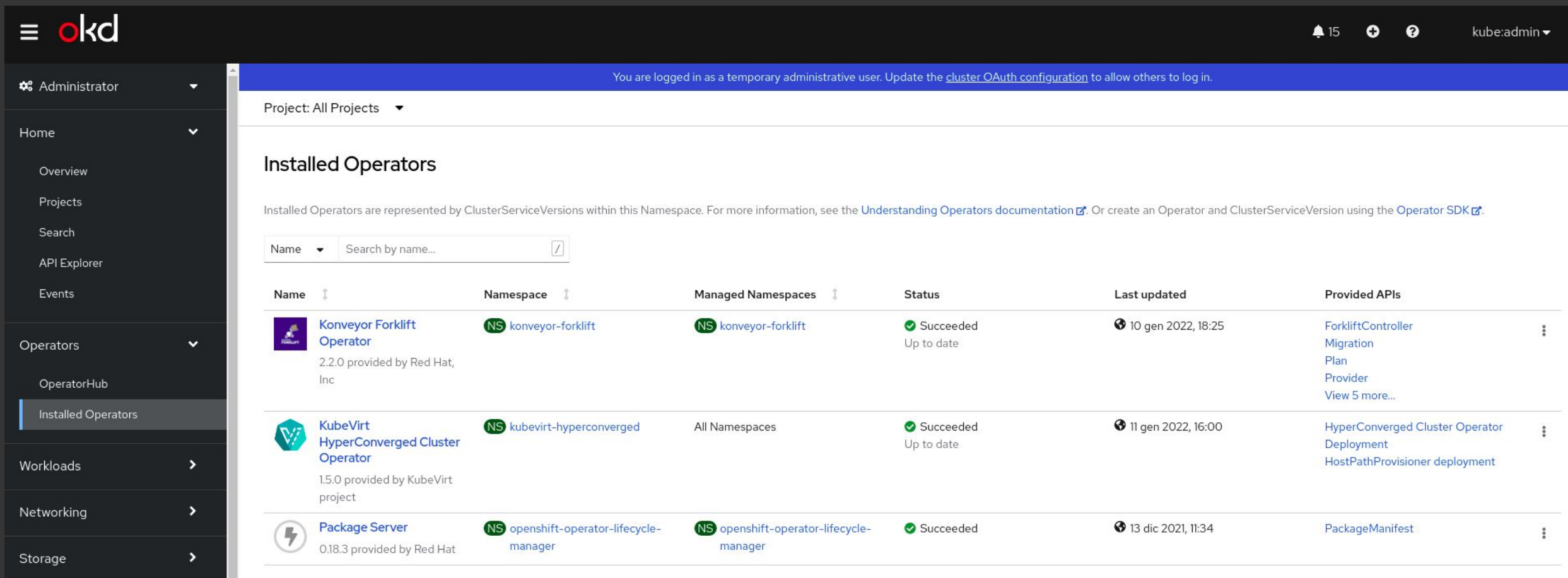
It's a available "out-of-the-box" in:

- ▶ OperatorHub.io
- ▶ OKD Community Operators Catalog

(almost) Single click install !



# How does it look like?



The screenshot shows the OpenShift Kube Dashboard interface. The left sidebar contains navigation links: Administrator, Home, Overview, Projects, Search, API Explorer, Events, Operators (selected), OperatorHub, and Installed Operators. The main content area displays the 'Installed Operators' page. At the top, a blue banner indicates the user is logged in as a temporary administrative user. Below this, a dropdown menu shows 'Project: All Projects'. The page title is 'Installed Operators'. A paragraph explains that installed operators are represented by ClusterServiceVersions and provides links to documentation and the Operator SDK. A search bar is available. The main table lists three installed operators: Konveyor Forklift Operator, KubeVirt HyperConverged Cluster Operator, and Package Server. Each row includes details like namespace, managed namespaces, status, last updated time, and provided APIs.

**Administrator**

**Home**

Overview

Projects

Search

API Explorer

Events

**Operators**

OperatorHub

**Installed Operators**

Workloads

Networking

Storage




You are logged in as a temporary administrative user. Update the [cluster OAuth configuration](#) to allow others to log in.

Project: All Projects

## Installed Operators

Installed Operators are represented by ClusterServiceVersions within this Namespace. For more information, see the [Understanding Operators documentation](#). Or create an Operator and ClusterServiceVersion using the [Operator SDK](#).

Name Search by name...

Name	Namespace	Managed Namespaces	Status	Last updated	Provided APIs
 <b>Konveyor Forklift Operator</b> 2.2.0 provided by Red Hat, Inc	NS konveyor-forklift	NS konveyor-forklift	✓ Succeeded Up to date	🕒 10 gen 2022, 18:25	<a href="#">ForkliftController</a> <a href="#">Migration Plan</a> <a href="#">Provider</a> <a href="#">View 5 more...</a>
 <b>KubeVirt HyperConverged Cluster Operator</b> 1.5.0 provided by KubeVirt project	NS kubevirt-hyperconverged	All Namespaces	✓ Succeeded Up to date	🕒 11 gen 2022, 16:00	<a href="#">HyperConverged Cluster Operator Deployment</a> <a href="#">HostPathProvisioner deployment</a>
 <b>Package Server</b> 0.18.3 provided by Red Hat	NS openshift-operator-lifecycle-manager	NS openshift-operator-lifecycle-manager	✓ Succeeded	🕒 13 dic 2021, 11:34	<a href="#">PackageManifest</a>

# OKD Virtualization UI



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kube:admin

You are logged in as a temporary administrative user. Update the [cluster OAuth configuration](#) to allow others to log in.

Project: All Projects

## Virtualization

[Launch Migration Tool](#)

Create

Virtual Machines Templates

Filter

Name

Search by name...

Name	Namespace	Status	Conditions	Created	Node	IP Address
centos8-complex-guan	default	Running	-	10 gen 2022, 18:59		
cirros	default	Provisioning	Stopped	10 gen 2022, 18:49		
f34fork	default	Stopped	-	10 gen 2022, 19:14		
fedora-flexible-squirrel	default	Stopped	-	10 gen 2022, 18:54		

- Start Virtual Machine
- Pause Virtual Machine
- Clone Virtual Machine
- Open Console
- Copy SSH Command  
Requires SSH Service
- Edit labels
- Edit annotations
- Delete Virtual Machine

# Konveyor Forklift integration

Importing VMs from VMware vSphere, oVirt, and OpenStack to KubeVirt



## Welcome to Forklift

Migrating workloads to KubeVirt is a multi-step process.

1. Add source and target providers for the migration.
2. Map source datastores or storage domains and networks to target storage classes and networks.
3. Create a migration plan and select VMs from the source provider for migration.
4. Run the migration plan.

[Get started](#)

# How to **get** and **use** OKD Virtualization

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## DEMO TIME

# OKD Working Group



## Website

[okd.io](https://okd.io)

## Twitter

[twitter.com/okd\\_io](https://twitter.com/okd_io)

## Slack

#openshift-dev on [kubernetes.slack.com](https://kubernetes.slack.com)

## Google Group

[groups.google.com/forum/#!forum/okd-wg](https://groups.google.com/forum/#!forum/okd-wg)

## Bi-weekly Video Conference Meetings

[apps.fedoraproject.org/calendar/okd](https://apps.fedoraproject.org/calendar/okd)

## Repositories

[github.com/openshift/community](https://github.com/openshift/community)

[github.com/openshift/okd](https://github.com/openshift/okd)

# OKD Virtualization SIG



## Reddit

[www.reddit.com/r/OKD\\_Virtualization](https://www.reddit.com/r/OKD_Virtualization)

## Twitter

[twitter.com/OKD\\_Virt\\_SIG](https://twitter.com/OKD_Virt_SIG)

## Website

[okd-virtualization.github.io](https://okd-virtualization.github.io)

## GitHub

[github.com/okd-virtualization](https://github.com/okd-virtualization)

# Thank you



<https://www.youtube.com/playlist?list=PLaR6Rq6Z4lqc3WjZB-rUTPrU8RKyOCnBo>



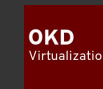
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[https://twitter.com/OKD\\_Virt\\_SIG](https://twitter.com/OKD_Virt_SIG)



<https://www.okd.io>



<https://okd-virtualization.github.io/>