



# Presente y futuro de Rancher Kubernetes Engine

OpenNebula OneKE con RKE2 & Longhorn

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# Introducing SUSE & Rancher


# SUSE's portfolio


  
kubernetes


Catalog  
Security


 **RANCHER**  
The platform for managing all Kubernetes distributions


Storage  
Governance


 **RKE/2**  
Datacenter

 **K3S**  
Edge


 **LONGHORN**  
Storage

 NeuVector  
Container Security

 **HARVESTER**  
Hyperconverged Infrastructure

  
Linux

Compliance  
Security

 **SUSE Linux Enterprise**  
The most adaptable Linux operating system

Availability  
Management

SLE Desktop / POS

SLE Server

SLES for SAP Applications

SLES for HPC


SLE Micro


SLE Extensions


Other Linux


SUSE Manager


Hybrid  
Cloud  
Infrastructure

  
Dev

  
Datacenter

  
Cloud

  
Branch

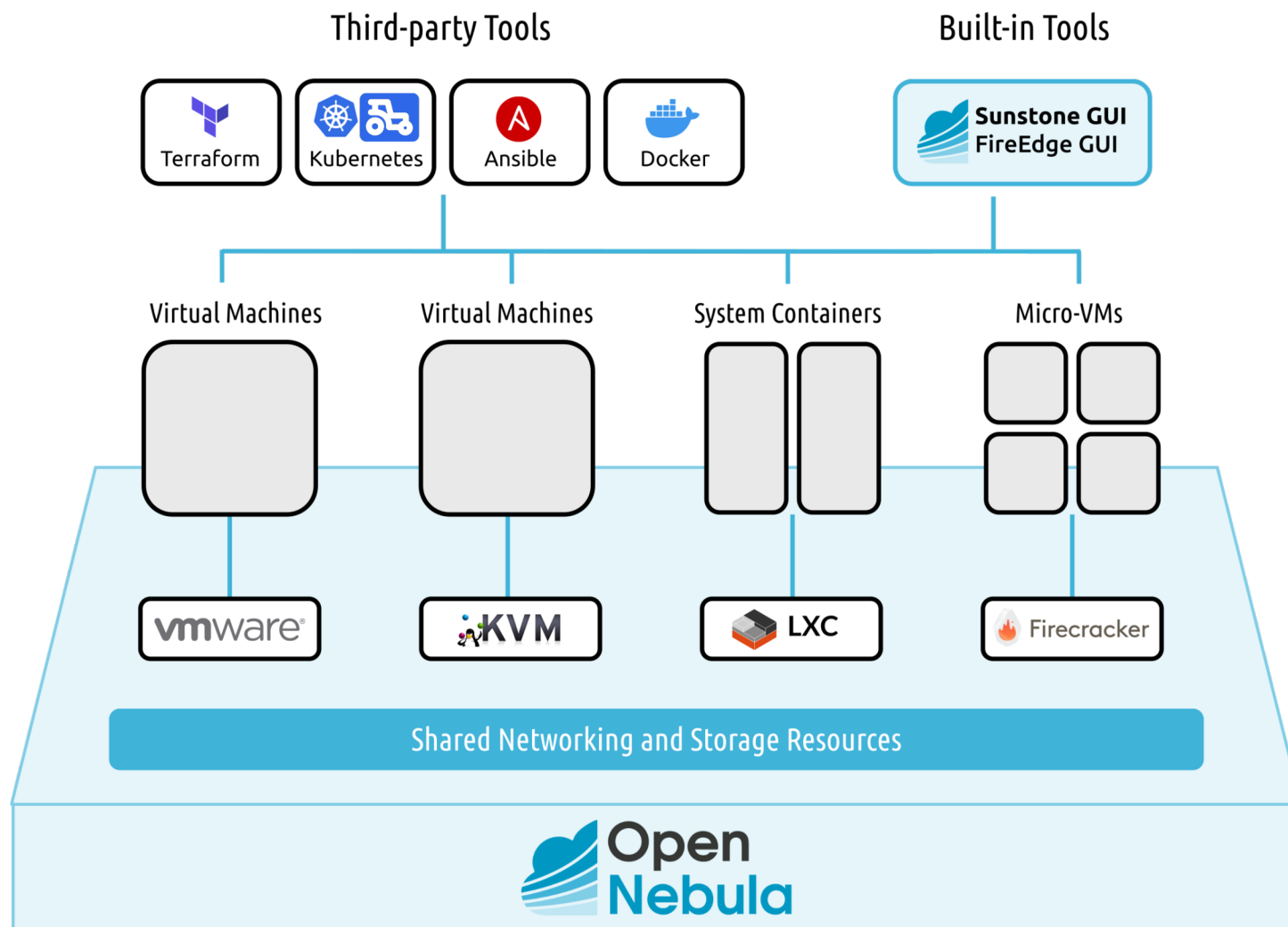
  
Edge

Support & Services



# OpenNebula and Kubernetes

# Building Your Enterprise Cloud



- ✓ **Multi-Tenancy**
- ✓ **Self-Service**
- ✓ **Elasticity**
- ✓ **Multi-Tier Apps**
- ✓ **High Availability**
- ✓ **Federation**
- ✓ **Provisioning**
- ✓ **Multi-Cloud**
- ✓ **VMs + Containers**

# Kubernetes on OpenNebula



## Simplified Lifecycle Management

Offer abstraction from physical hardware, with easy deployment, resize and overprovision if necessary



## Enhanced Security

Enhance security thanks to the additional layer provided by hardware virtualization to isolate resources pools on the same host



## Central Management for All Workloads

Encompass K8s clusters with other virtualized workloads using a single control layer to reduce complexity, consumption and operating costs



## Fast Deployment on any Infrastructure

Automatically deploy and manage multiple K8s clusters across on-premises, edge, and cloud locations.



## Kubernetes as a Service

Build a multi-tenant self-service environment for the execution of K8s clusters on a shared physical infrastructure



## No Provider Lock-in

Deploy K8s anywhere, with the configuration you want and following the same process

# OpenNebula's OneKE Appliance

A minimal out of the box hyperconverged Kubernetes platform in OpenNebula 🚀

## Features:

- ✓ Kubernetes version 1.24
- ✓ Based on **RKE2**
- ✓ Multi-master ready
- ✓ Canal CNI networking
- ✓ CNCF **Longhorn** distributed storage
- ✓ Traefik Ingress Controller
- ✓ MetalLB load balancer



ALL

**OneKE 1.27**

OneKE 1.27 VM template for Master  
and Worker VMs

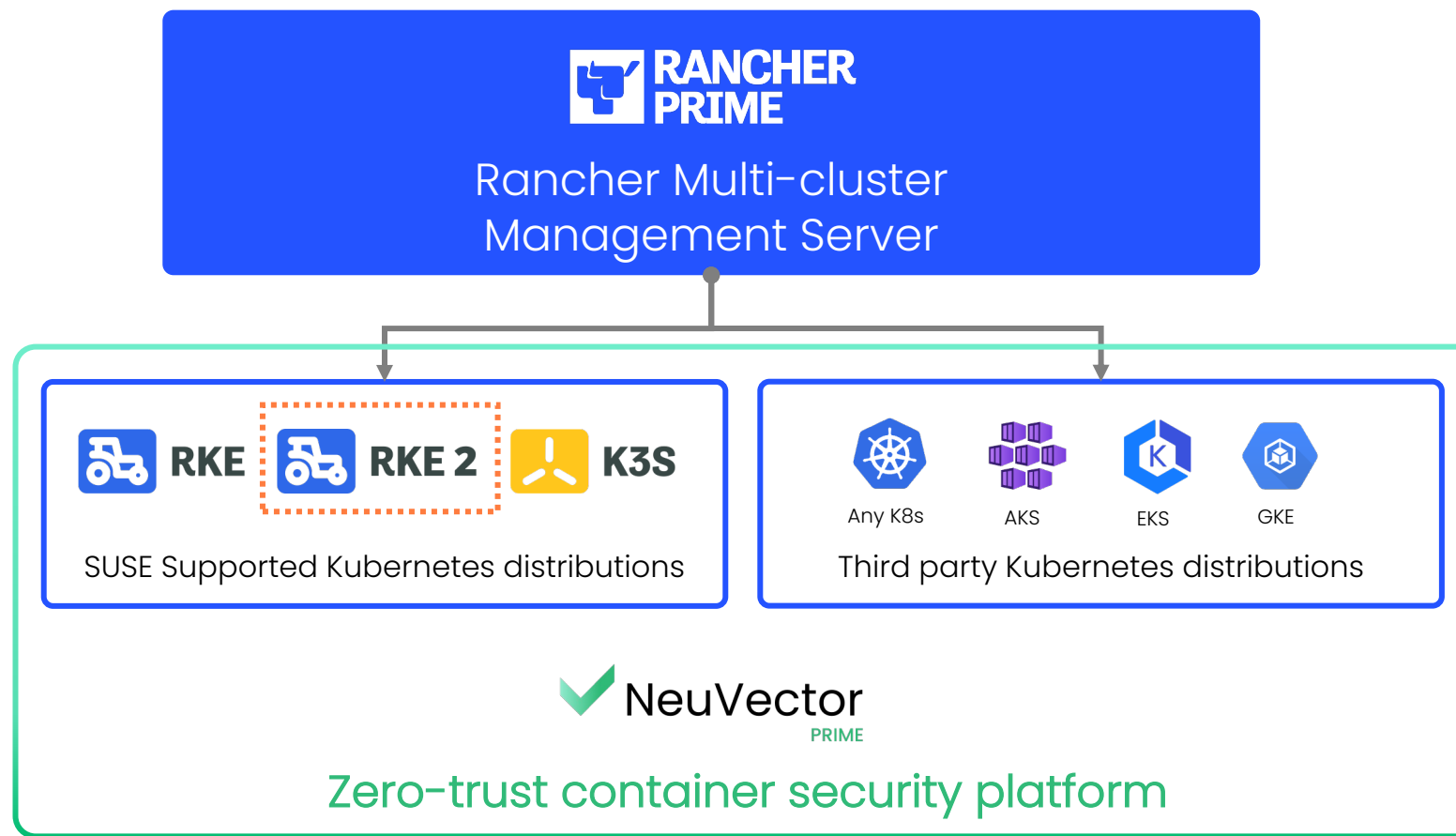
The background features a stylized landscape with rolling green hills and several trees of varying sizes and colors (green and yellow). The sky is a solid teal color, decorated with a few light blue clouds. The title text is centered in the upper half of the image.

# Rancher Kubernetes Engine (RKE)



# Rancher, RKE, RKE2 and K3s

A quick look at SUSE's solutions for Kubernetes Management and Security



# RKE2 is the best of two worlds

Rancher's next-generation Kubernetes distribution (aka RKE Government)



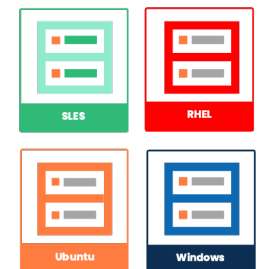
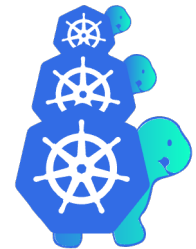
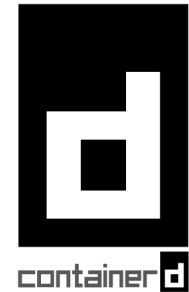
**RKE2**, the **most secure and certified** Kubernetes distribution ready for Data Center and Edge, is derived from:

- **K3s**: inheriting the usability, ease-of-operations, and deployment model.
- **RKE**: bullet proof Kubernetes distribution built on containers for containers.

# RKE2 platform features

Multi-platform, multi-OS, standards compliant Kubernetes

- Fast and simple installation from a single binary. Easy to configure and scale.
- Fully integrated with Rancher Manager Server
- ClusterAPI ready
- containerd as Container runtime
- Supported CNIs:
  - Canal
  - Calico
  - Cilium
  - Multus & DPDK
  - Cisco ACI Support
- Kubernetes 1.26, 1.27 and 1.28 support
- Supported OS:
  - SLES, SLE Micro & openSUSE Leap
  - RHEL & Clones
  - Ubuntu
  - Windows (worker nodes)
- HW architectures:
  - x86\_64
  - ARM
  - s390x



# RKE2 security features

Highly-security Kubernetes built to meet the demanding requirements of the US DoD

- Built using hardened images based on SLE Base Container Image (BCI)
- Compatible with AppArmor, SELinux and Multi-Category Security (MCS)
- FIPS 140-2/3 compliance
- DISA STIG certification
- Provides defaults and configuration options that allow clusters to pass the CIS Kubernetes Benchmark v1.8 or v1.24 with minimal operator intervention
- Signed releases with Cosign (Sigstore)
- Support for SBOM (SLSA Level 3-Q1CY24)



**RKE2 and  
Rancher Management Server:**  
the only Kubernetes solutions  
with DISA STIG Certified  
hardening guides!

The background is a solid orange color. In the top left, there is a large, light orange cloud. To its right, there is a smaller, darker orange cloud and a thin, horizontal, light orange cloud. In the bottom left, there are three green hills of varying sizes. The largest hill on the left has a single tree with a green canopy and a black trunk. The middle hill has two smaller trees, one with a yellow-green canopy and one with a green canopy. The rightmost hill has a single tree with a green canopy. In the bottom right, there is a light orange cloud.

# Longhorn

# Longhorn main features

Highly available, software-defined storage solution for K8s



## Kubernetes PV Support

- Block, FS, **Object Storage** Volume
- RWO, RWX

## Kubernetes CSI Protocol Support

- Volume Provision, Attachment, Snapshot, Clone, Expansion

## Volume Capabilities

- Thin provisioning
- Snapshot, CoW
- Trim
- Live upgrade

## IO Performance

- Data Locality, Local Volume
- **SPDK Data Engine**

## Storage Topology

- Node & Zone replica scheduling anti-affinity
- Storage tag

## Data Protection

- Data replication
- Data encryption in transit and at rest
- Bit-rot protection

## Data Services

- In-cluster/out-of-cluster backup & restore
- Disaster recovery

## Data Reduction

- Space efficiency for Snapshot
- Backup compression



# Thank you!

For more information, contact SUSE at:

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