

Webinar

Zero Touch Kubernetes for the Distributed Edge

The logo for ZEDEDA, featuring the word "ZEDEDA" in a bold, orange, sans-serif font. The letters are stylized with horizontal gaps, giving it a modern, digital appearance.

ZEDEDA



Today's Speakers



Jason Shepherd
VP Ecosystem



Tom Callway
Senior Director of Product Marketing

Agenda

- Defining the Edge
- Introduction to ZEDEDATA
- Introduction to SUSE-Rancher
- ZEDEDATA's Kubernetes Integration
- Demo
- Q&A

Rise of the Edge...

By 2022

75%

Data Processed
At the Edge

By 2025

30%

Workloads at
the Edge

Evolution in a Connected World

Internet of Things

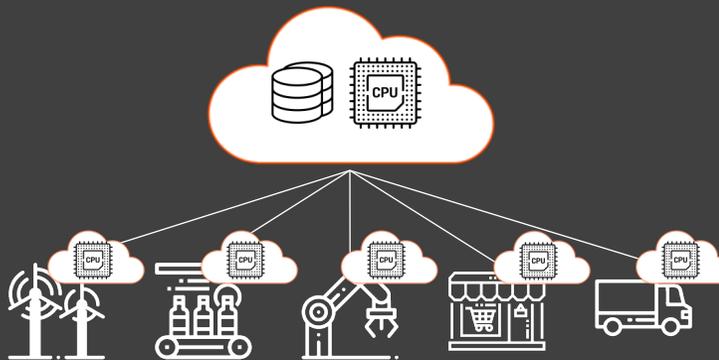
2015



- "Connect" Era
- Trusted Cloud Computing
- Big Data

Edge Computing

Now



- "Compute" Era
- Cloud-Native "Everywhere"
- Artificial Intelligence

Trust Fabrics

Future



- "Confidence" Era
- Interconnected Ecosystems
- Ambient Computing

Focus for Project Alvarium in the Linux Foundation. See the vision at <https://alvarium.org>.

The Edge is the Last Cloud to Build

Field Devices/Assets/Users

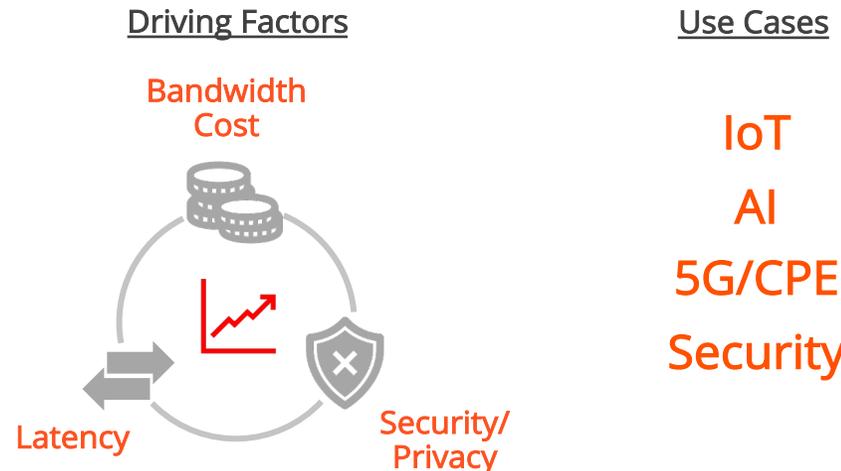
Distributed Edge

Cloud Edge

Centralized Cloud



Source: LF Edge [June 2020 taxonomy white paper](#)



The Distributed Edge Solves Myriad Business Problems

(several are already ZEVEDA customers)

Predictive Analytics



Wireline Analytics



Industrial Network Threat Detection



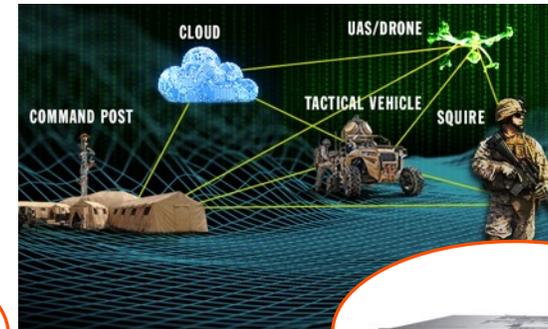
Smart Industrial Machines



AGV & Autonomous Drones



Tactical Edge



Edge Deployment Patterns

Use Cases:

1. IoT Edge Gateways

Data ingestion, normalization and analytics

2. Security Nodes

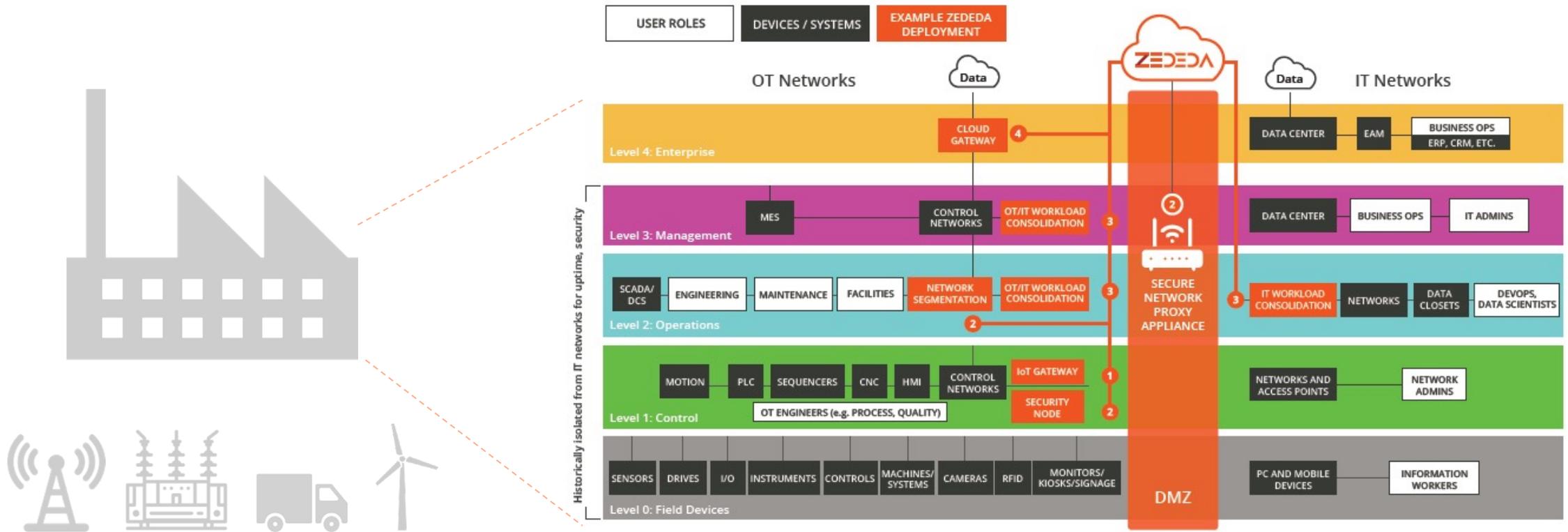
Root of trust, network segmentation, OT/IT protocol inspection, etc.

3. Workload Consolidation

Single and clustered edge compute for SCADA, HMI, Historian, Edge AI, etc.

4. Edge Networking

e.g. CPE, Private 5G, NFV, SD-WAN, Firewall

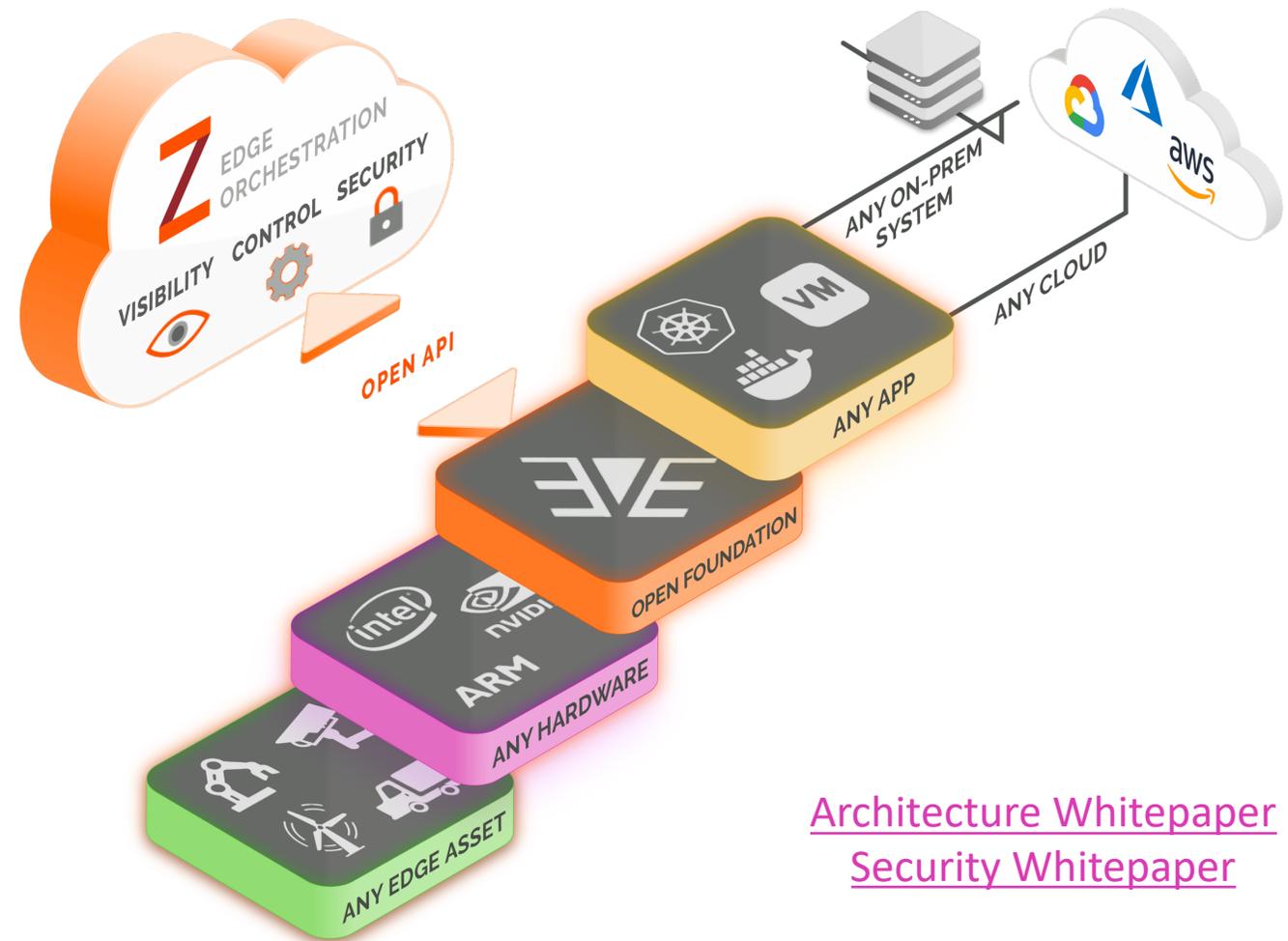


An aerial night photograph of a city, likely San Francisco, showing a dense grid of streets and buildings illuminated by streetlights. A prominent suspension bridge, likely the Golden Gate Bridge, is visible in the lower-left quadrant, crossing a dark body of water. The overall scene is dark, with the city lights providing the primary illumination.

Introduction to ZEDED A

Cloud Agility for the Distributed Edge

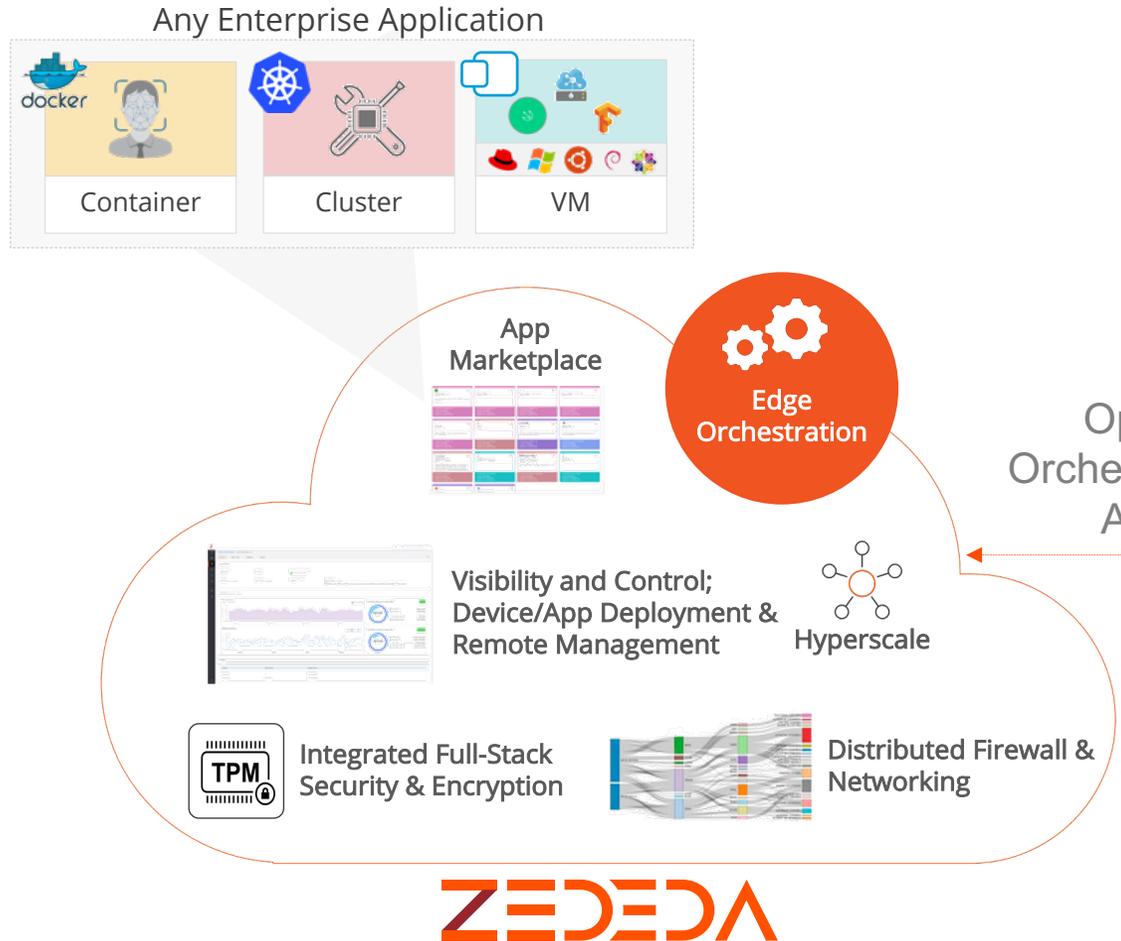
- Flexible, cloud-based orchestration solution for distributed edge computing
- Secure deployment of choice of hardware and app, with any backend
- Leveraging open-source EVE-OS from the Linux Foundation - the “Android of the Edge”
- Sold as a “pay-as-you-grow” subscription
- Open ecosystem of software, hardware and services providers



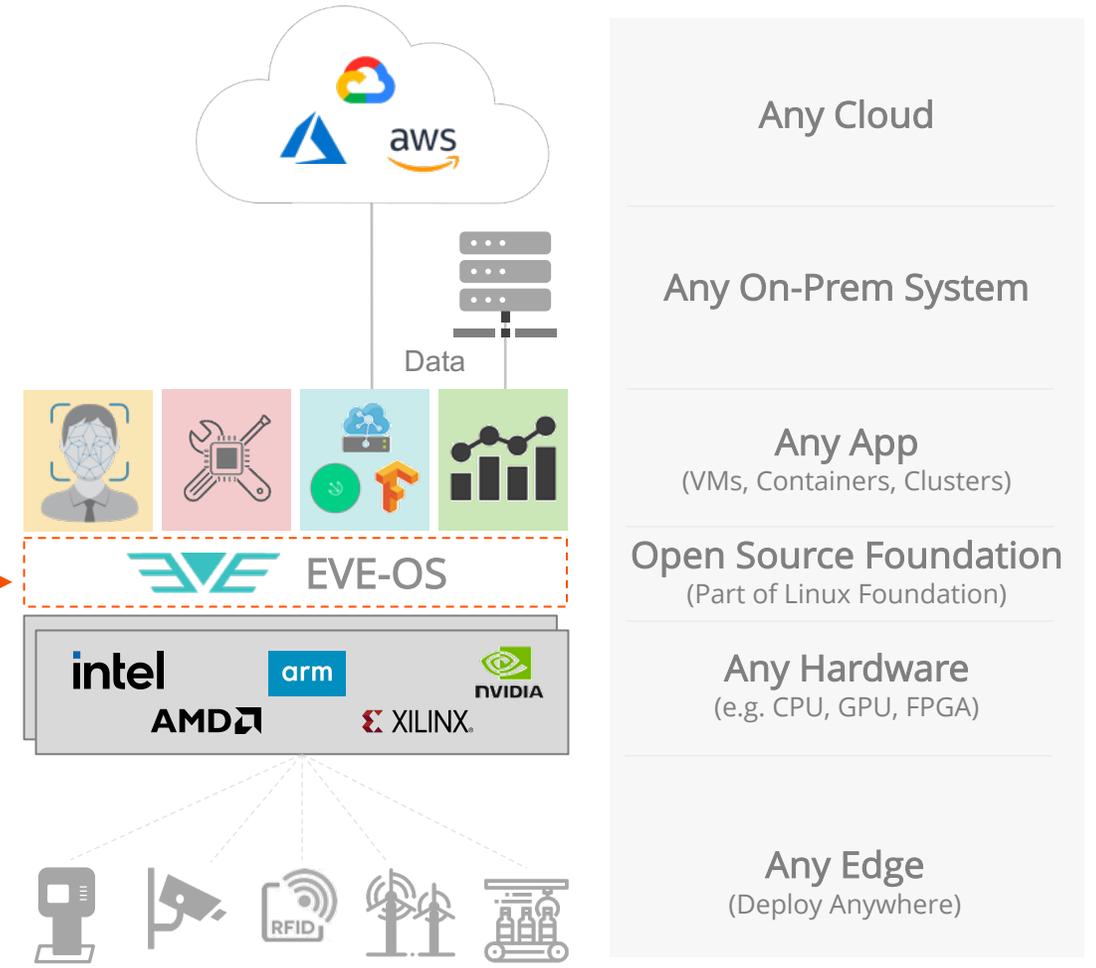
[Architecture Whitepaper](#)
[Security Whitepaper](#)

Solution Detail

ZedCloud Subscription Service



EVE-OS for Edge Nodes (OSS)



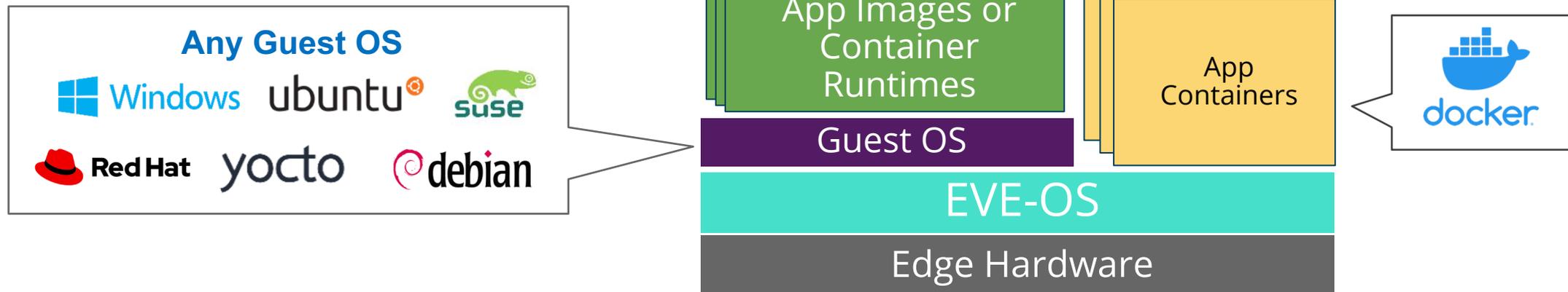
Support for Any Application Deployment Model

Virtual Machines

- Windows-based legacy apps
- Pre-qualified Linux Images
- Deploying full container runtimes (e.g. Kubernetes, Azure IoT Edge, AWS Greengrass)

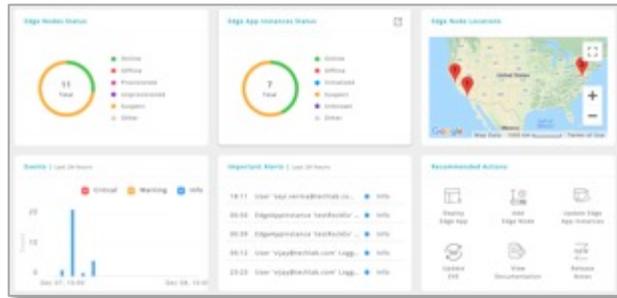
Containers

- Modern greenfield apps (e.g. Edge AI)



Complete Visibility into Your Edge Operations

Birds eye view



Events

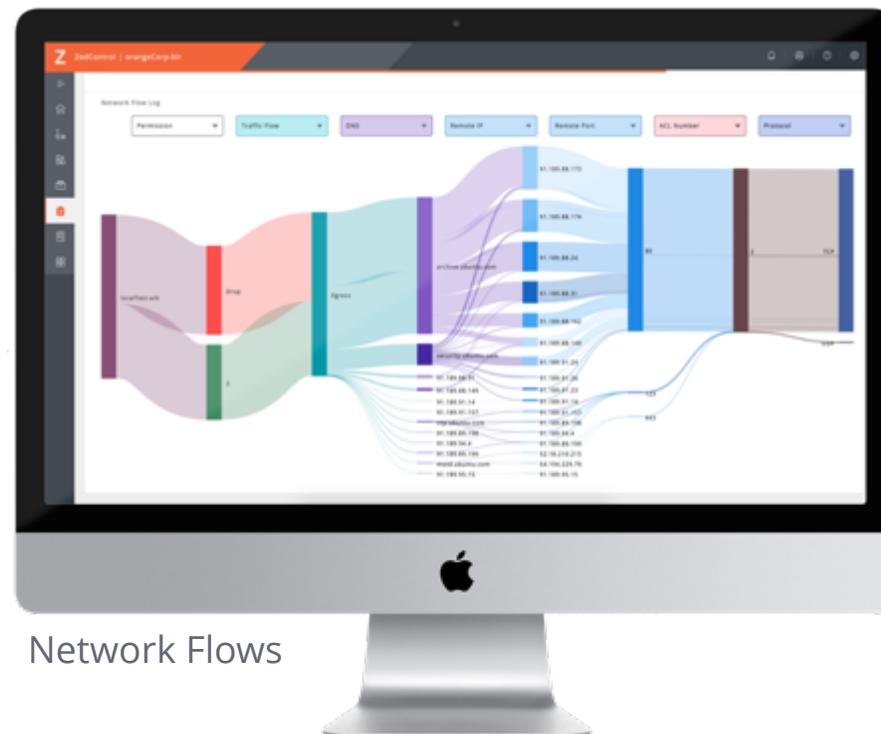


Real time full-stack statistics



Logs and reports

Date & Time	Severity	Source	Summary
Nov 24, 2020 10:47:19	INFO	System	EdgeNode 'info-seg1-gw1' run state changed from 'Support' to 'Online'
Nov 24, 2020 10:47:19	NOTICE	System	EdgeNode 'info-seg1-gw1' run state changed from 'Online' to 'Support'
Nov 18, 2020 1:00:19	INFO	System	EdgeNode 'info-seg1-gw1' run state changed from 'Support' to 'Online'
Nov 18, 2020 1:00:19	NOTICE	System	EdgeNode 'info-seg1-gw1' run state changed from 'Online' to 'Support'
Nov 18, 2020 1:01:19	INFO	System	EdgeNode 'info-seg1-gw1' run state changed from 'Support' to 'Online'
Nov 18, 2020 1:01:19	NOTICE	System	EdgeNode 'info-seg1-gw1' run state changed from 'Online' to 'Support'
Nov 18, 2020 1:02:19	INFO	System	EdgeNode 'info-seg1-gw1' run state changed from 'Support' to 'Online'
Nov 18, 2020 1:02:19	NOTICE	System	EdgeNode 'info-seg1-gw1' run state changed from 'Online' to 'Support'
Nov 18, 2020 1:03:19	INFO	System	EdgeNode 'info-seg1-gw1' run state changed from 'Support' to 'Online'
Nov 18, 2020 1:03:19	NOTICE	System	EdgeNode 'info-seg1-gw1' run state changed from 'Online' to 'Support'
Nov 18, 2020 1:04:19	INFO	System	EdgeNode 'info-seg1-gw1' run state changed from 'Support' to 'Online'
Nov 18, 2020 1:04:19	NOTICE	System	EdgeNode 'info-seg1-gw1' run state changed from 'Online' to 'Support'
Nov 17, 2020 1:00:19	INFO	System	EdgeNode 'info-seg1-gw1' run state changed from 'Support' to 'Online'
Nov 17, 2020 1:00:19	NOTICE	System	EdgeNode 'info-seg1-gw1' run state changed from 'Online' to 'Support'



Network Flows

ZEDEDA's Open Edge Ecosystem



Cloud and Application Enablement 	Channel (OEMs, SIs and Distis)
DevOps 	Analytics and Data Management
Security 	Networking (e.g. SD-WAN, switching, mesh)
Edge Application Frameworks 	Industrial Connectivity
Edge Compute Hardware 	Silicon

Customer Examples

Machine Builder



- *Connected machines aaS*
- *Production in 5 weeks, saved 6 months of development time*
- *Justified ZEDEDA business case at just 10 machines*

[Case Study](#)

PEOPLEFLO
MANUFACTURING



- *AI-enabled pump optimization*
- *Seamless integration with Azure IoT*
- *Saved years of development time*

[Case Study](#)

Solution OEM

Large Oil and Gas Services Provider



- *“SaaSifying” wireline process monitoring and analytics*
- *Consolidation of SCADA and NFV functions*
- *Deployed on trucks in Kubernetes clusters for uptime*

End User

Global F500 Manufacturer



- *Extracting process data for analytics*
- *Passed extensive IT security audit*
- *Deploying Azure IoT Edge and Defender (CyberX)*



TUESDAY, 18 MAY 2021

Innovate Everywhere

Tom Callway

SUSE – COMPANY SNAPSHOT

SUSE solutions are powering thousands of enterprise customers' mission-critical workloads, including electronic banking systems and enterprise applications, autonomous vehicles, satellite operation centers, and life-saving medical devices.

FAST FACTS

- 13 out of 15 largest FinServ firms
- 13 out of 15 largest pharma firms
- 14 out of 15 largest aerospace firms
- 10 out of 10 largest automotive firms
- 5 out of 5 largest technology firms
- Member of CNCF board and TOC
- Acquired Rancher Labs in 2020

INDUSTRY INITIATIVES & ASSOCIATIONS



PARTNERSHIPS

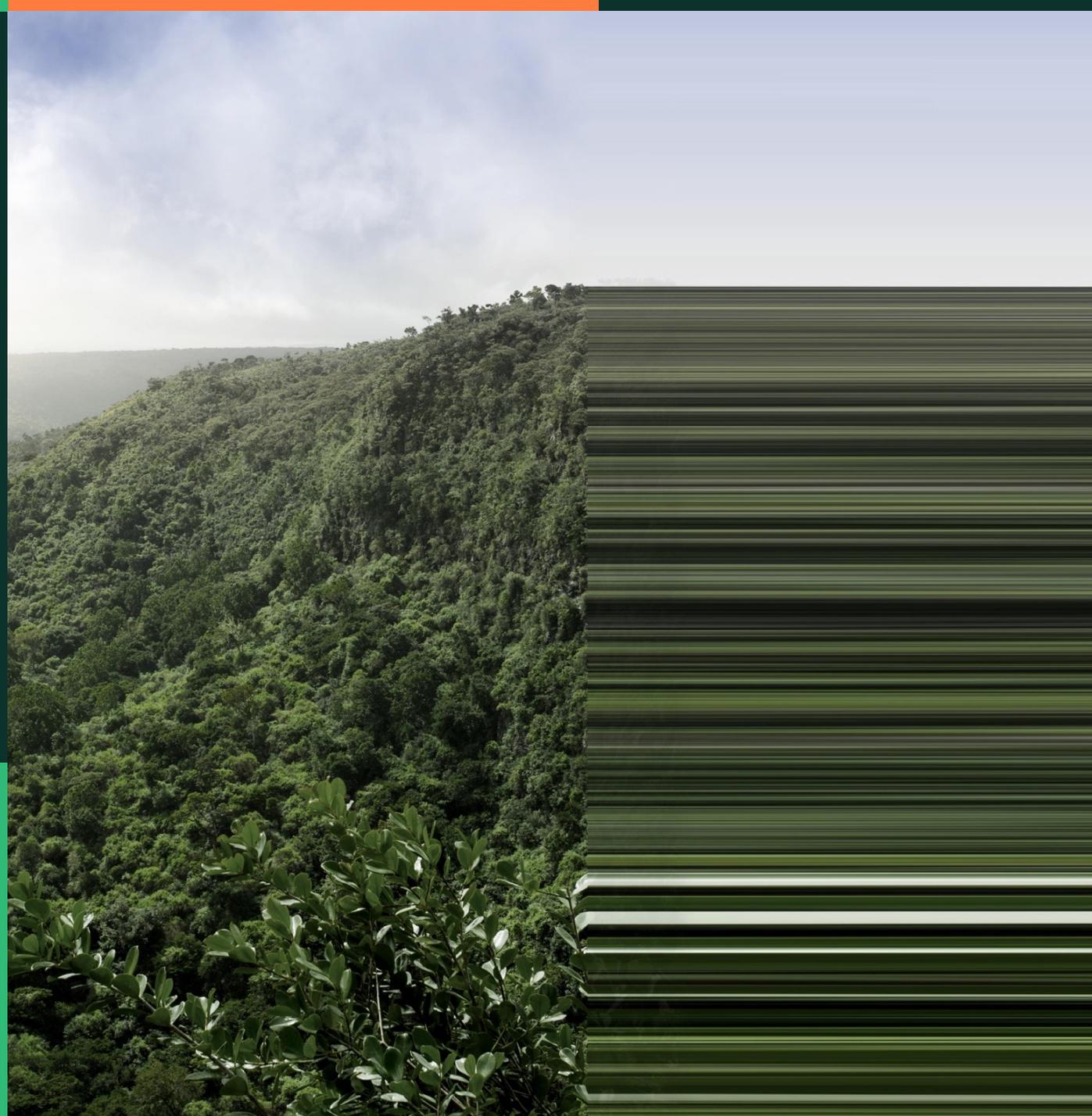


Digital transformation is powered
by innovation.

Innovation is happening
everywhere.

SUSE is here to help you...

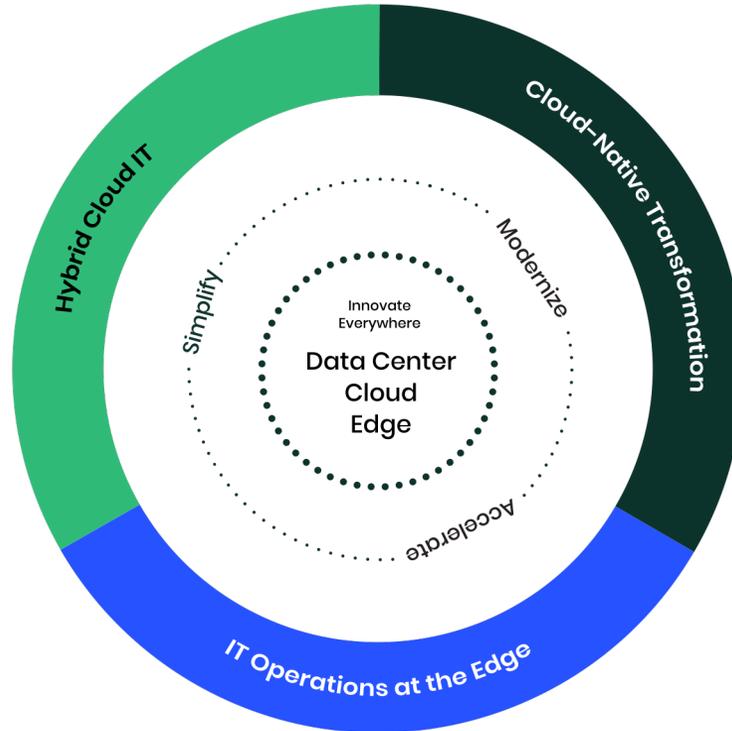
Innovate Everywhere



Tackling Customer Transformation Challenges

Simplify and optimize existing environments

- Complexity of managing hybrid cloud infrastructure and apps
- Run workloads anywhere, containers, VMs, on-premises and across clouds
- Secure operation of all mission-critical workloads
- Need to eliminate downtime



Bring apps and infrastructure into modern cloud computing

- Container and Kubernetes complexity
- Modernizing legacy apps and accelerating time to market
- Reduce technology debt

Accelerate business innovation

- Lack of a consistent platform from core, to cloud, to edge
- Concerns about security, privacy, compliance
- Breadth and complexity of edge use-cases

Powering Innovation With Leadership in Linux & Kubernetes

 **kubernetes**

Catalog
Security

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

Storage
Governance

 **RKE**
Datacenter

 **K3S**
Edge

 **LONGHORN**
Block Storage

 **Linux**

Compliance
Security

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

Availability
Management

Other Linux

SLE Desktop / POS

SLE Server

SLES for SAP Applications

SLES for HPC

SLE Micro

SLE Extensions

SUSE Manager

Hybrid
Cloud
Infrastructure

 Dev

 Datacenter

 Cloud

 Branch

 Edge

Support & Services

SUSE's Open, Interoperable Approach



A blue rectangular box containing the logos for RANCHER (a white cow), RKE (a white tractor), and K3S (a white person icon).



A dark green rectangular box containing the SUSE Linux Enterprise logo (a white chameleon) and the text "SUSE Linux Enterprise". Below it are the logos for SLES, SLES for SAP, and SLE Micro.

Other Kubernetes Distros



A white rectangular box with a blue border containing the logos for Amazon EKS (a blue 'K' in a hexagon), Azure AKS (a purple cube), and Google GKE (a blue hexagon with a white cube).

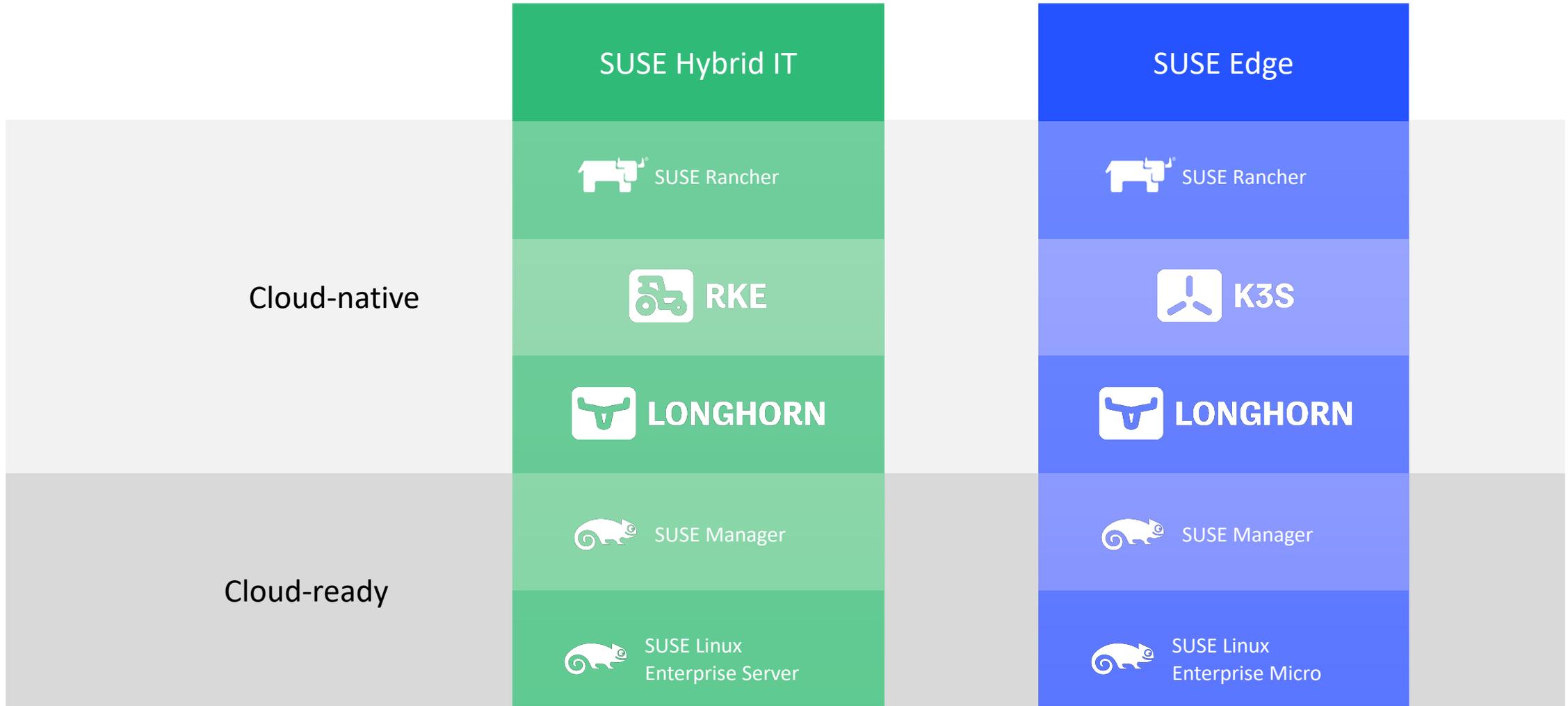
Other Linux Distros



A white rectangular box with a green border containing the logos for ubuntu (an orange circle with a white 'u'), Amazon Linux (the text "Amazon Linux"), ORACLE LINUX (the text "ORACLE" in red above "LINUX" in black), and Red Hat (a red hat icon above the text "Red Hat").

Hybrid Cloud Infrastructure

Open, Interoperable Solution Bundles



CLOUD-NATIVE TRANSFORMATION

SUSE Rancher

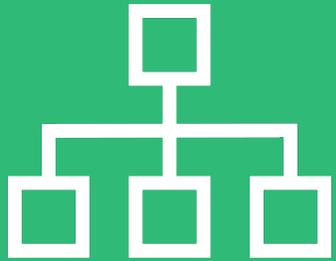
Industry's best platform for
full management of all Kubernetes
distributions



Copyright © SUSE 2021



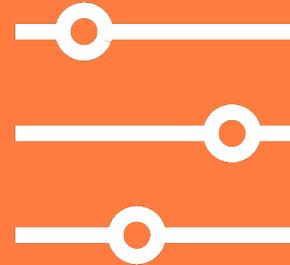
Our Unique Approach



It's a multi-cluster world



Treat all Kubernetes distributions as first class citizens



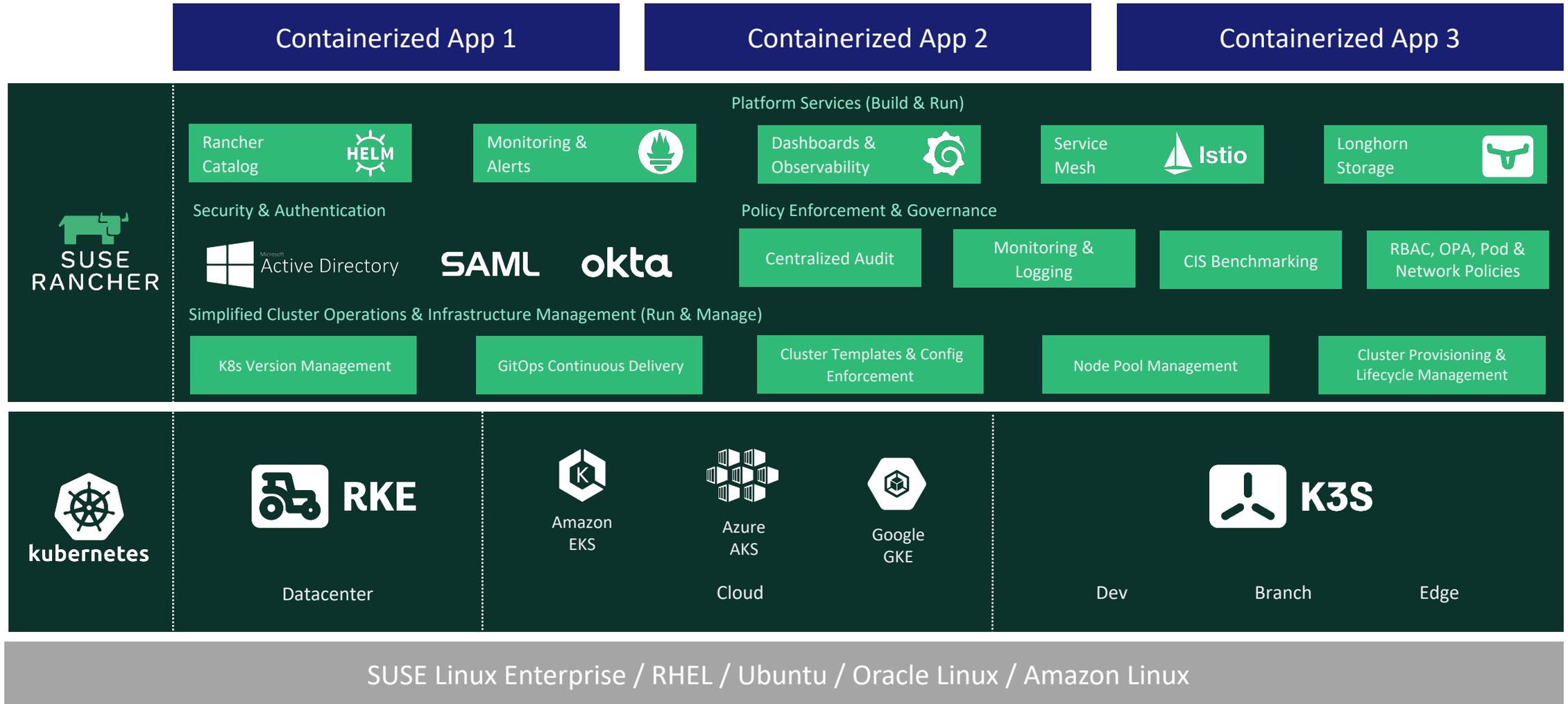
Value is in Kubernetes management



'Open' approach to open source



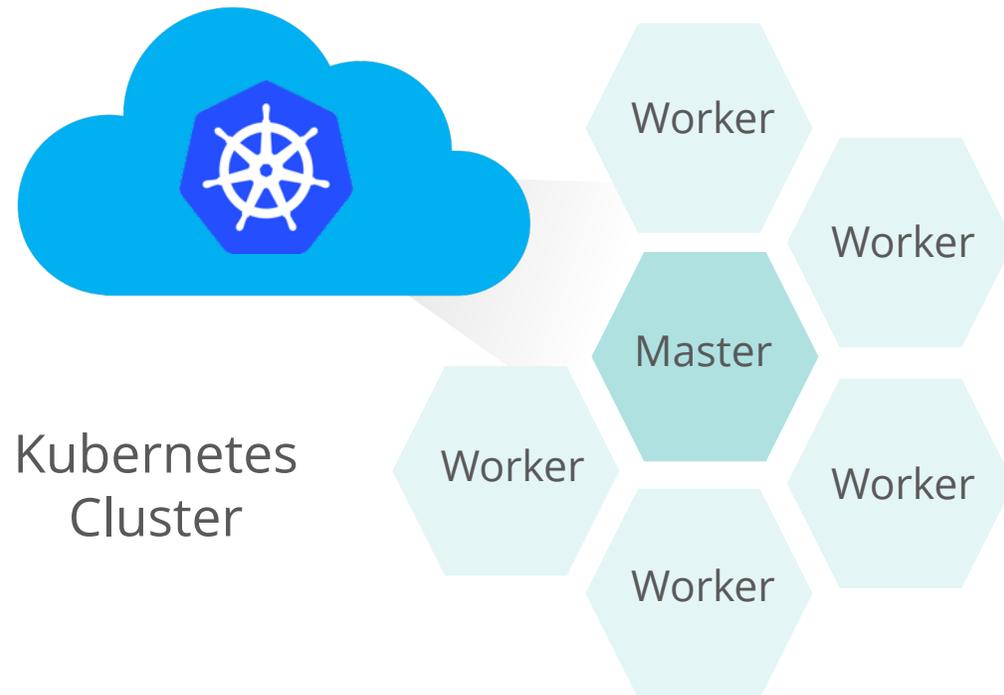
Enables Production-Quality Kubernetes Everywhere





Kubernetes Integration

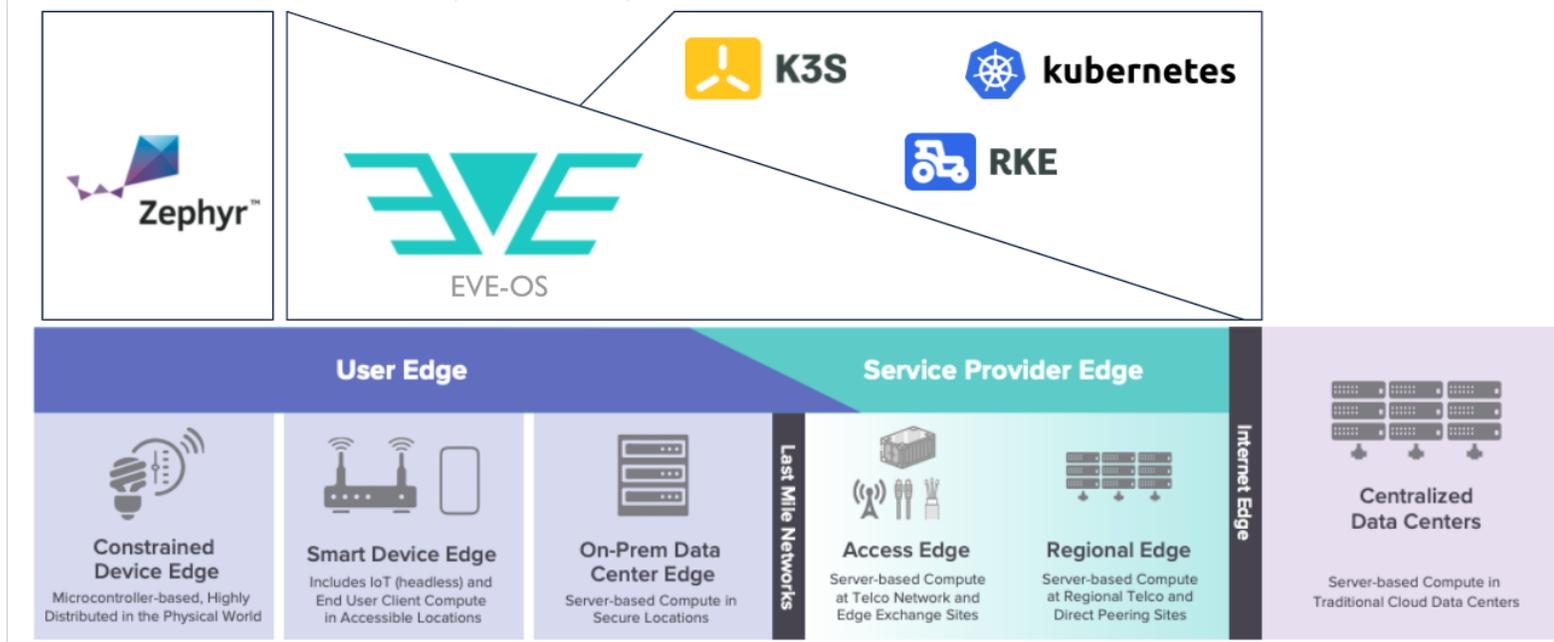
Current Kubernetes Solutions Built for the Cloud Don't Work for the Distributed Edge



- Resource-intensive (CPU, memory and storage)
- Built for more homogeneous server infrastructure
- Assume physical and network security perimeters
- Lack autonomous operations
- Require deep IT expertise to deploy and manage

Bridging the Gap to the Kubernetes Cloud Paradigm

Focus areas for example OSS projects

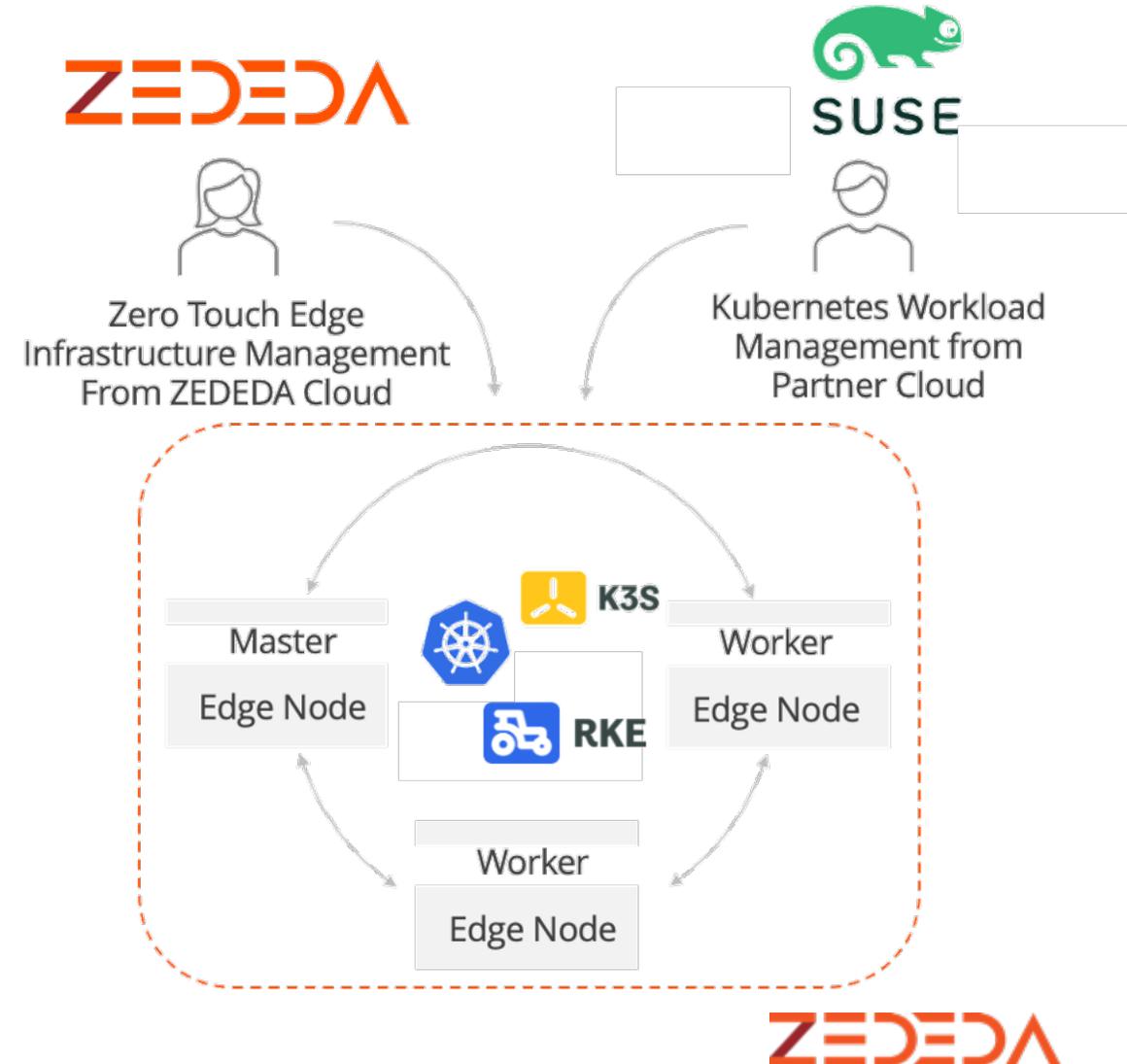


Reasons for Kubernetes at the distributed edge include redundancy, scale out and IT standardization.

EVE-OS serves as a lowest-common denominator foundation that scales up to meet the cloud/data center paradigm.

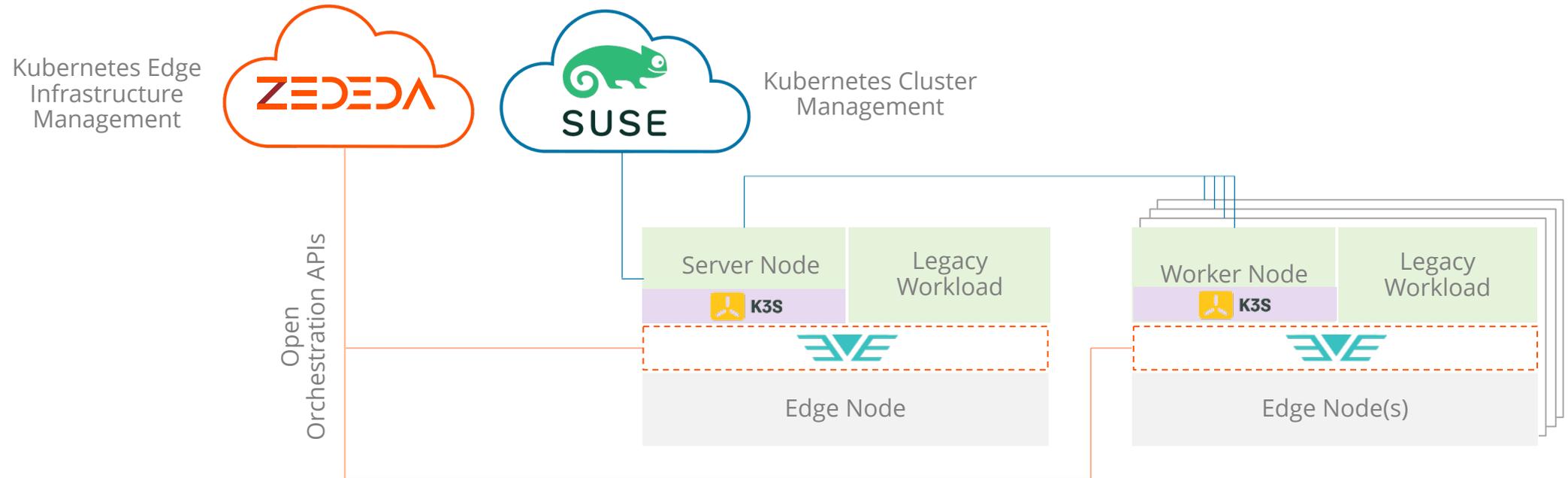
ZEDEDA Simplifies Support for any Kubernetes Distribution at the Distributed Edge

- Flexible
 - Any distribution (e.g., K3s, K8s, RKE)
 - Seamlessly deploy from app marketplace
 - Open foundation fosters ecosystem and prevents lock-in
- Simple
 - No IT skills required for deployment and management
 - Automated
 - Designed for autonomous field operation
- Extensible
 - Built for scale
 - Optimized for distributed edge compute footprint
 - Orchestration for any hardware, app, cloud (brownfield and greenfield)
- Secure
 - Robust zero-trust security model from silicon to cloud
 - E.g., Root of trust, crypto-based ID, measured boot, remote I/O disablement, distributed firewall



Collaboration with SUSE for Supported K3s Distribution

K3s now available in the ZEDED A app marketplace!



Deploy and Manage Kubernetes Clusters within Minutes!



Visibility



Control



Security



Demo

<https://youtu.be/yxGkqluYCFQ>



Unlock Value

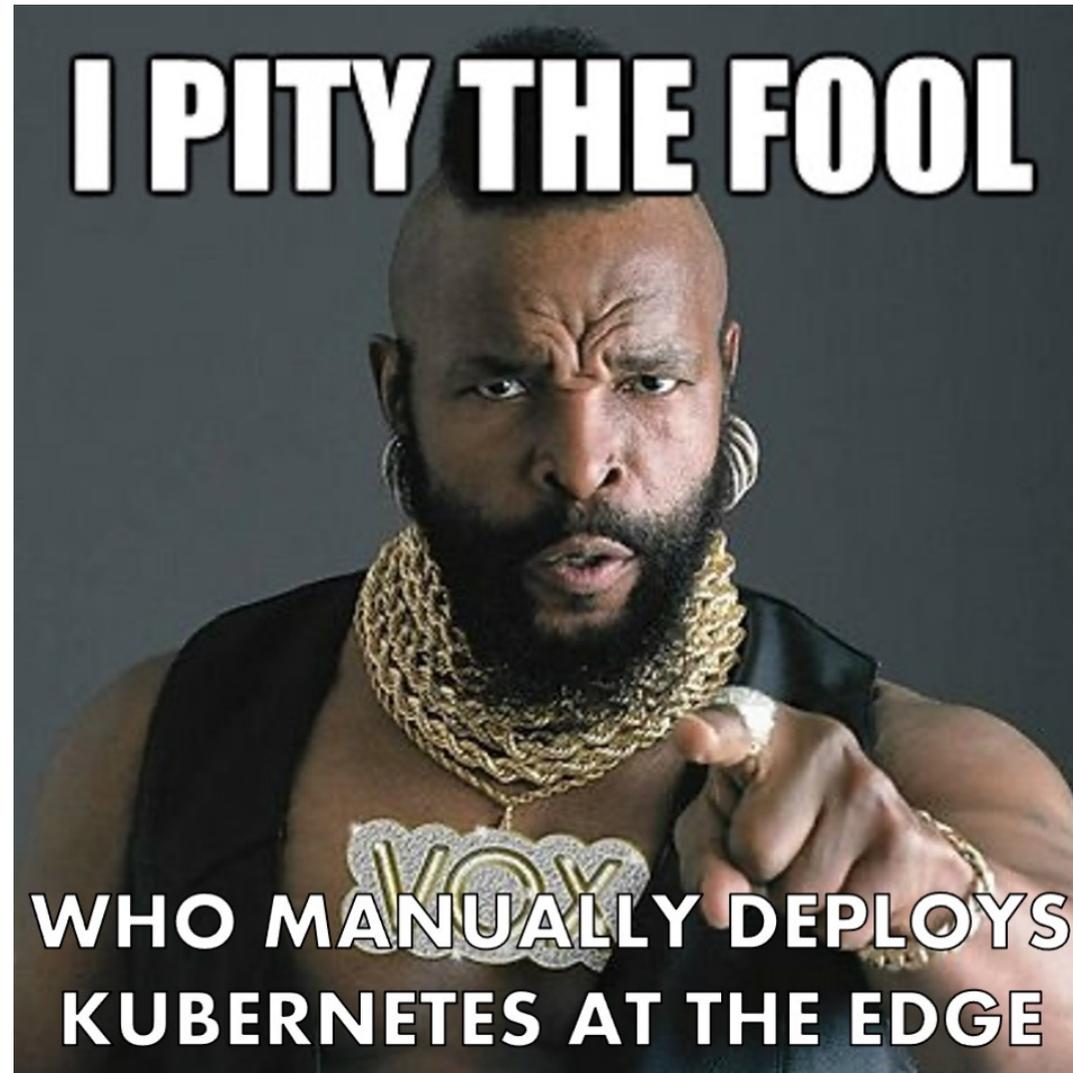


Make Decisions



Maximize Efficiency

Mrs. T Approved!

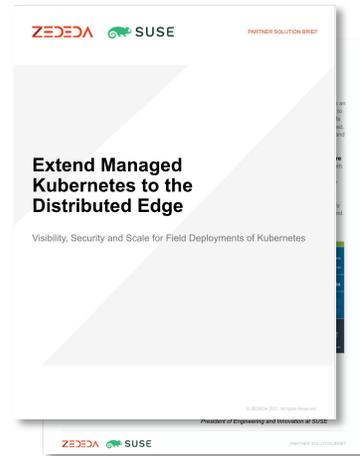


Summary

- Backed by industry leaders in DevOps, orchestration, and open source development
- Simple and automated Kubernetes orchestration for the distributed edge
- Robust zero-trust security model from silicon to cloud
- Extensible to any hardware, app and cloud
- Support for any Kubernetes distribution (e.g., K3s, K8s, RKE)
- Backed by an open ecosystem



Learn More and Get Engaged!



ZEDEDA



Download the Solution Brief

www.zededa.com/ecosystem

Contact Us

jason@zededa.com
tom.callway@suse.com

Join our Developer Program

Email community@zededa.com to learn more



Visibility



Control



Security



Unlock Value



Make Decisions



Maximize Efficiency

An aerial night photograph of a city, likely San Francisco, showing a dense grid of streets and buildings illuminated by streetlights. A prominent river or bay is visible on the left side, with a suspension bridge crossing it. The overall scene is dark, with the city lights providing the primary illumination.

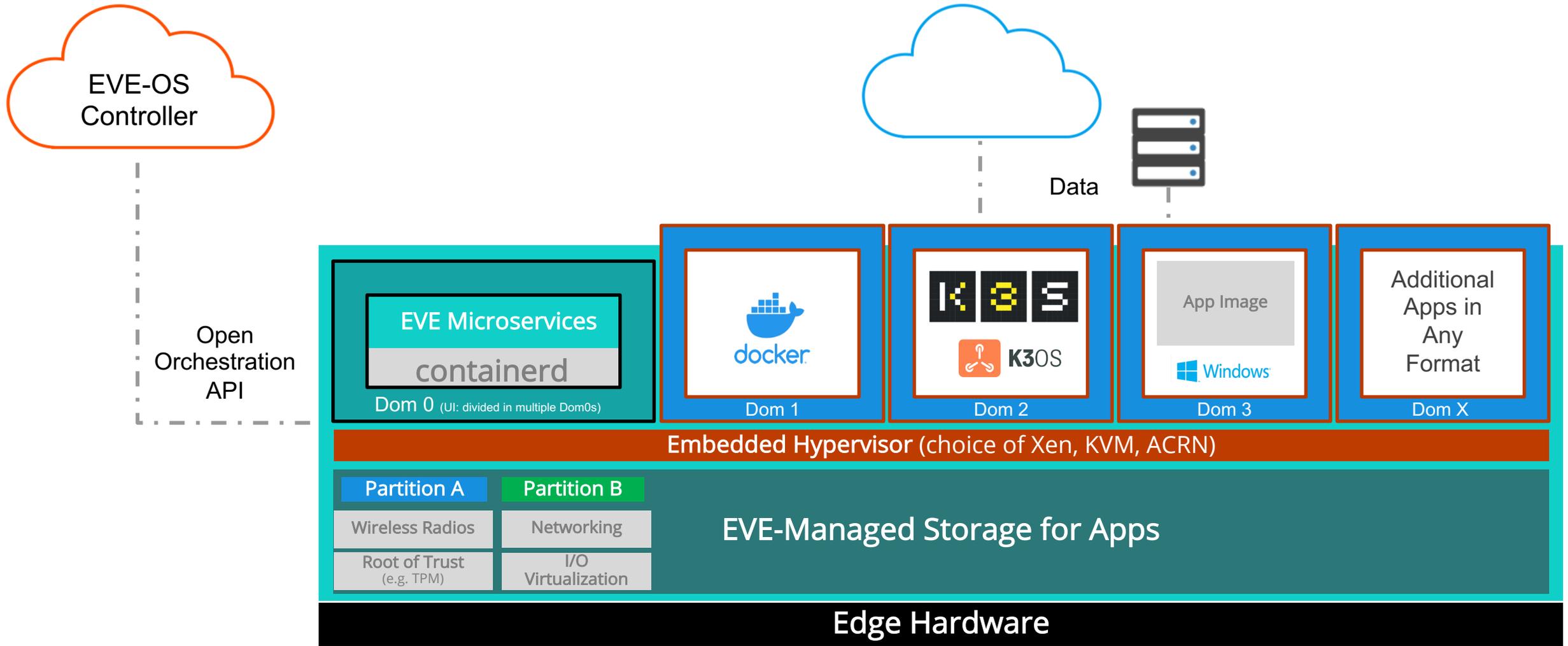
Thank You!

www.zededa.com

www.suse.com



EVE-OS Architecture



EVE-OS Overhead
CPU: 1 Core
RAM: 512 MB
Disk: 512 MB

Remaining hardware resources
available for applications and data