ZEDEDA Edge Kubernetes App Flows

SIMPLIFY

Streamline edge operations by delivering consistent app management across distributed locations, minimizing expensive manual intervention or truck rolls at each remote site.

AUTOMATE

Orchestrate large-scale edge infrastructure and application deployment – enforcing desired state for thousands of edge clusters, even with unreliable network connectivity.

GROW

Increase your revenue and efficiency by locating AI processing close to operational data sources, reducing expensive sensor data backhaul to the cloud.

Full-Stack Edge Kubernetes for the AI Era

ZEDEDA Kubernetes App Flows is a full-stack edge Kubernetes-as-a-Service solution that extends a cloud-native deployment experience to distributed edge environments, by automating the entire edge application lifecycle – from packaging and configuration to delivery and observability – and eliminating the need to manually manage edge Kubernetes infrastructure.
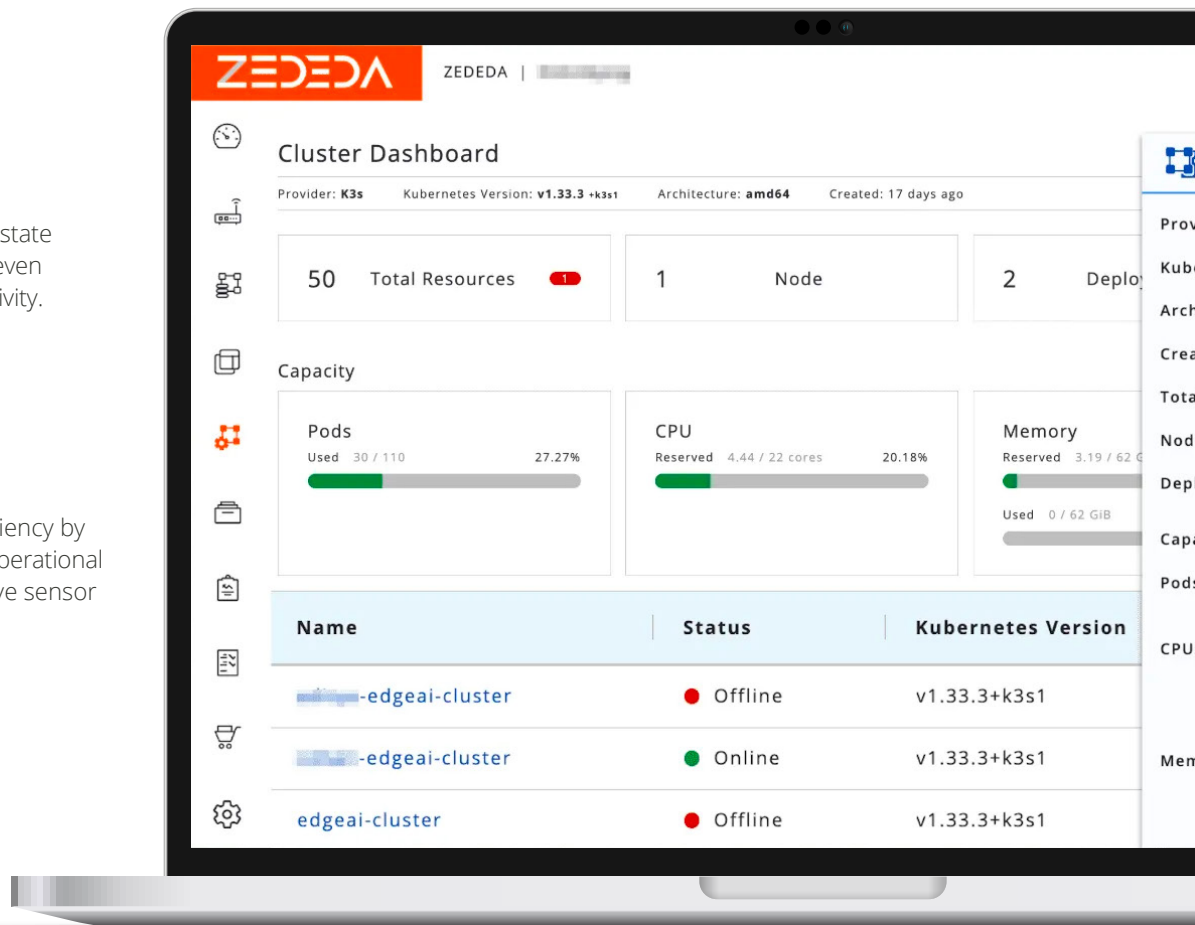
Edge Kubernetes is Different

Kubernetes is a mature, proven technology for cloud deployments, and well-understood by many infrastructure teams. But Kubernetes was originally designed to simplify software deployment to a large number of well-connected servers; it was designed for the cloud. Running Kubernetes at the edge is fundamentally different.

	CLOUD KUBERNETES	EDGE KUBERNETES
Distribution	Servers concentrated in data centers	Edge devices geographically dispersed
Topology	Small number of large clusters of servers	Large number of small clusters of devices
Connectivity	Reliable, fast network connectivity	Connectivity often slow or unreliable
Resources	Compute resources available on demand	Compute constrained by small devices

Architected for Edge Kubernetes

ZEDEDA Kubernetes App Flows keeps everything good about Kubernetes, while adapting it for the realities of the edge.

App Definition and Marketplace

Deploy customizable application definitions consistently across distributed edge locations.

Adaptive Observability

Monitors deployment and performance, even with intermittent connectivity and limited bandwidth.

Zero-Touch Deployment

No onsite expertise required for remote management of Kubernetes deployments. No more expensive truck rolls.

Offline Resilience

Graceful handling of intermittent connectivity and disconnected operations.

Edge Scale

Support for tens of thousands of clusters and unattended edge devices.

Zero-Trust Security

Continuous validation of edge devices, applications, and communications.

App Packaging and Distribution

Builds and distributes manifests tailored for edge requirements.

GitOps-Based Continuous Delivery

Automates deployments through approved Git workflows for full auditability.

Edge AI Ready

Support for bare metal and GPU compute required for edge AI applications, such as automated detection of manufacturing flaws and predictive maintenance.

APPLICATION LIFECYCLE MANAGEMENT	**ZEDEDA Edge Kubernetes App Flows** GitOps workflow for continuous delivery Helm/Manifest app respiratory access to Kubernetes API's
APP INFRASTRUCTURE LIFECYCLE MANAGEMENT	**ZEDEDA Edge Kubernetes Service** Kubernetes infrastructure lifecycle access to Kubernetes API's bare-metal & GPU support for edge AI
EDGE COMPUTE LIFECYCLE MANAGEMENT	**ZEDEDA Edge Device Management** Open, secure API terraform

Unify Your Edge Kubernetes Stack

ZEDEDA Edge Kubernetes App Flows takes an edge-native perspective, unifying the three crucial layers of the edge compute stack into a single solution for seamless, secure lifecycle management.

Edge Application Layer (GitOps Automation)

ZEDEDA Edge Kubernetes App Flows delivers true cloud-native agility to the edge. It replaces manual, per-site operations with centralized, automated control.

- **GitOps-Based Continuous Delivery:** Applications are deployed and updated automatically using Git workflows. This provides full auditability and allows architects and DevOps teams to enforce the desired state across the entire distributed fleet by simply committing a manifest.

- **Customizable Deployment:** ZEDEDA Edge Kubernetes App Flows provides an integrated application marketplace and supports custom application definitions, simplifying the consistent deployment of workloads across geographically dispersed locations.

- **Adaptive Observability:** It ensures you maintain crucial visibility into application deployment and performance, even across environments with intermittent connectivity and limited bandwidth.

Edge Kubernetes Infrastructure Layer

ZEDEDA Edge Kubernetes Service handles the Kubernetes cluster lifecycle itself, providing:

- **AI Performance:** By supporting bare-metal Kubernetes hosting and enabling direct GPU access, we eliminate virtualization overhead, delivering the high-performance inference you need for automated manufacturing flaw detection or real-time logistics tracking.

- **Modernization:** It provides a stress-free modernization path by supporting the concurrent deployment of modern containers and legacy VM applications on the same constrained hardware.

- **Hyperscale Management:** It is designed to centrally manage and orchestrate thousands of small, distributed one-to-three-node clusters at the edge.
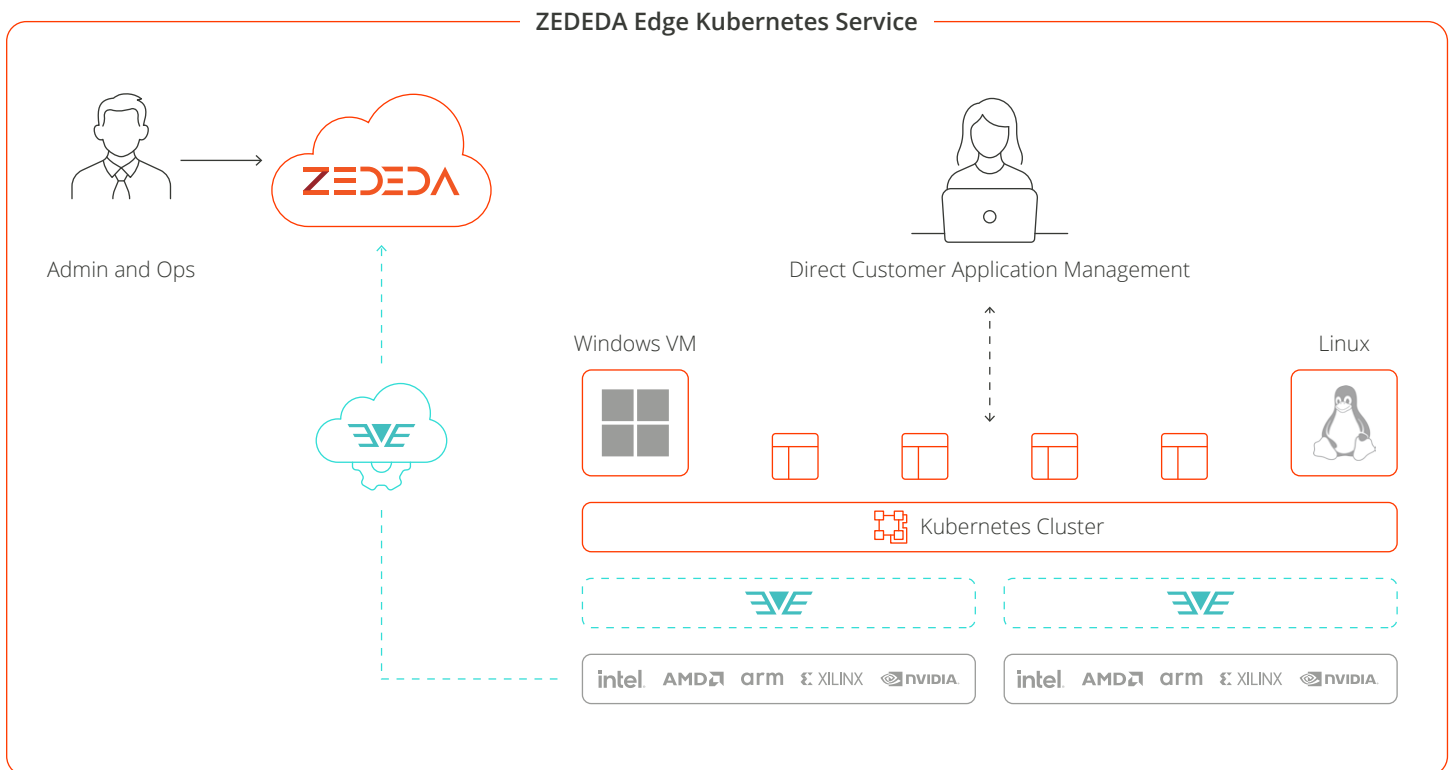
Edge Device Layer (Zero-Trust Foundation)

This layer is about security and physical integrity, enabled by ZEDEDA Edge Device Management.

- **Lightweight:** Utilizes open source EVE-OS running on bare metal on an edge device to maximize performance and minimize footprint.

- **Zero-touch:** When EVE-OS is installed on a device, it is pre-registered with ZEDEDA, so a non-technical user simply plugs it in, and the device phones home to automatically provision itself.

- **Hardware-backed Identity:** Every edge node can use a Trusted Platform Module (TPM). This enables measured boot and remote attestation, ensuring that if a device is stolen or tampered with, the system cannot be compromised.

ZEDEDA

Centralized Management

These offerings – Edge Device Management, Edge Kubernetes Service, Edge Kubernetes App Flows – are part of ZEDEDA Edge Platform, which integrates multiple layers of your edge stack, including user interfaces for centralized management, allowing your edge devices to work across multiple network technologies and sensors used by a range of business assets.

ZEDEDA Edge Kubernetes Service

Admin and Ops

Direct Customer Application Management

Windows VM

Linux

Kubernetes Cluster

intel. AMD arm XILINX nvidia.

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About ZEDEDA

ZEDEDA makes edge computing effortless, open, and intrinsically secure – extending the cloud experience to the edge. ZEDEDA reduces the cost of managing and orchestrating distributed edge infrastructure, while increasing visibility, security and control.

ZEDEDA ensures extensibility and flexibility by leveraging a partner ecosystem, and EVE-OS, open-source Linux-based edge operating system.

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