VIETTEL SOLUTIONS
CLOUD SERVICES CENTER

UNLOCK THE POWER OF CLOUD NATIVE APPLICATIONS WITH VIETTEL CLOUD ECOSYSTEM

Hanoi – 11/2023

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1 CLOUD NATIVE ARCHITECTURE

2 CONTAINER ORCHESTRATION

3 VIETTEL KUBERNETES ENGINE

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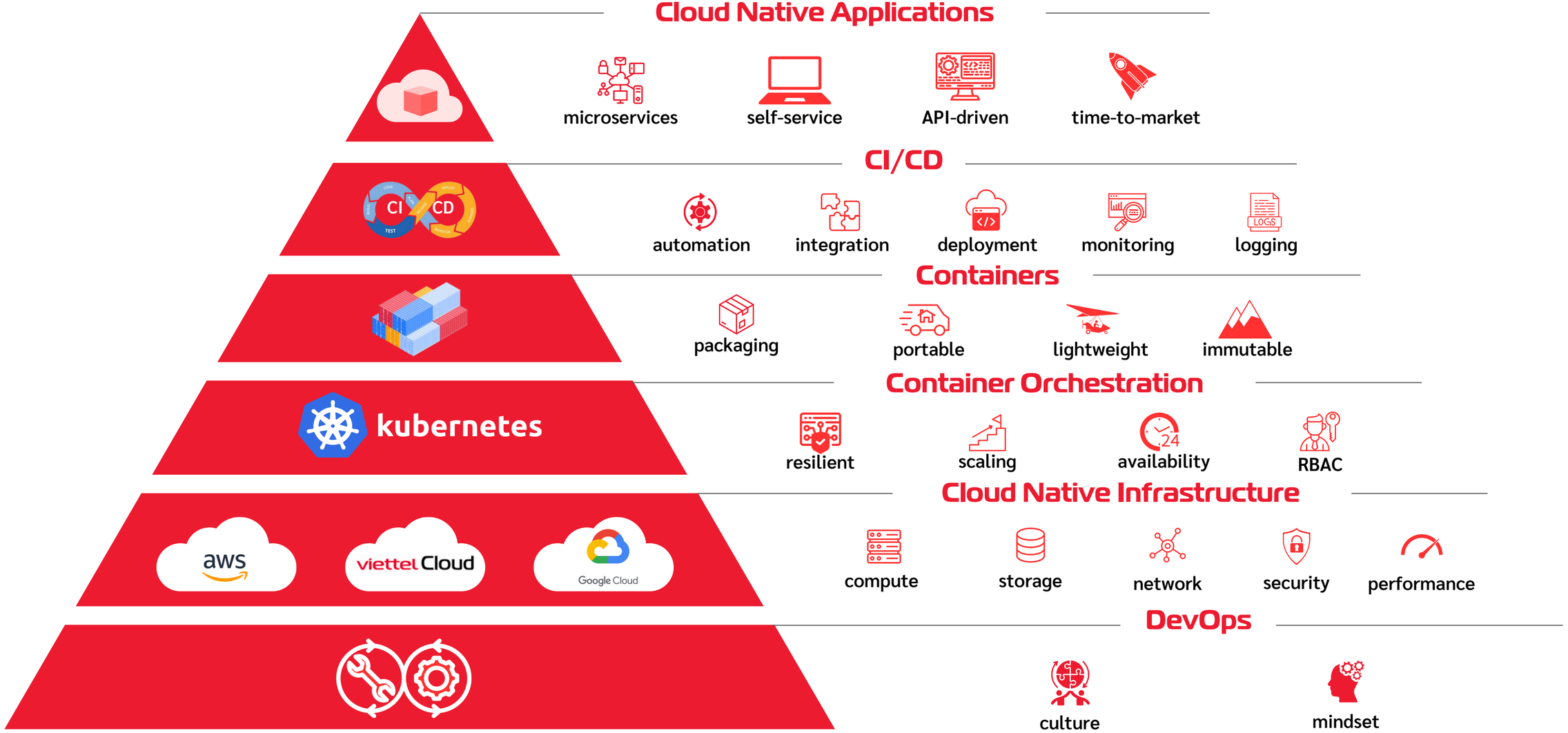
What is Cloud Native?

By CNCF Cloud Native Definition v1.0

> Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds.

Cloud Native Pillars



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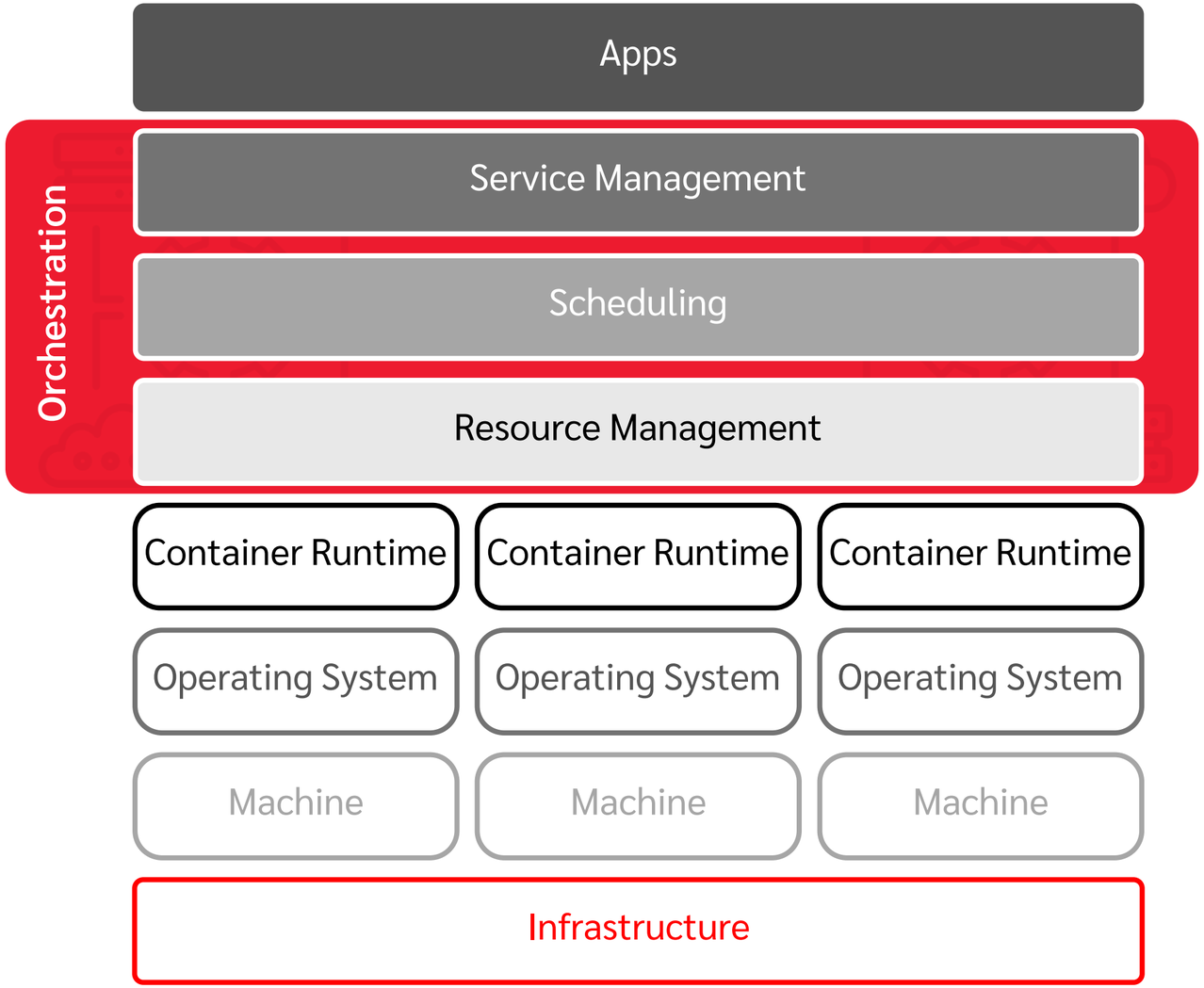
Container Orchestration



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What Kubernetes can do?

Service discovery and load balancing

- load balance and distribute the network traffic so that the deployment is stable

Automatic bin packing

- fit containers onto your nodes with CPU and memory (RAM) predefined to make the best use of your resources.

Storage orchestration

- mount a storage system of your choice automatically, such as local storages, public cloud providers, and more.

Self-healing

- restarts containers that fail, replaces containers, kills containers that don’t respond to your user-defined health check

Automated rollouts and rollbacks

- create new containers automatically
- remove existing containers and adopt all their resource to the new container.

Secret and configuration management

- store and manage sensitive information
- update secrets and application configuration without rebuilding your container images.

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Kubernetes use cases

Cloud Native Network Functions

Managing containers with encapsulated network functions (CNF initiatives)

Lift and Shift

Facilitating the moving of on-prem apps to the cloud

Machine Learning

Managing machine learning workflows to depoly faster AI-based apps

Microservices

Orchestrating complicates apps based on a microservice architecture with many components

Heavy Computing

Enabling computing-heavy tasks

Simple App

Learning how to get your app up and running by deploying it on a Kubernetes cluster

CI/CD

CI/CD tasks are easier to perform with Kubernetes

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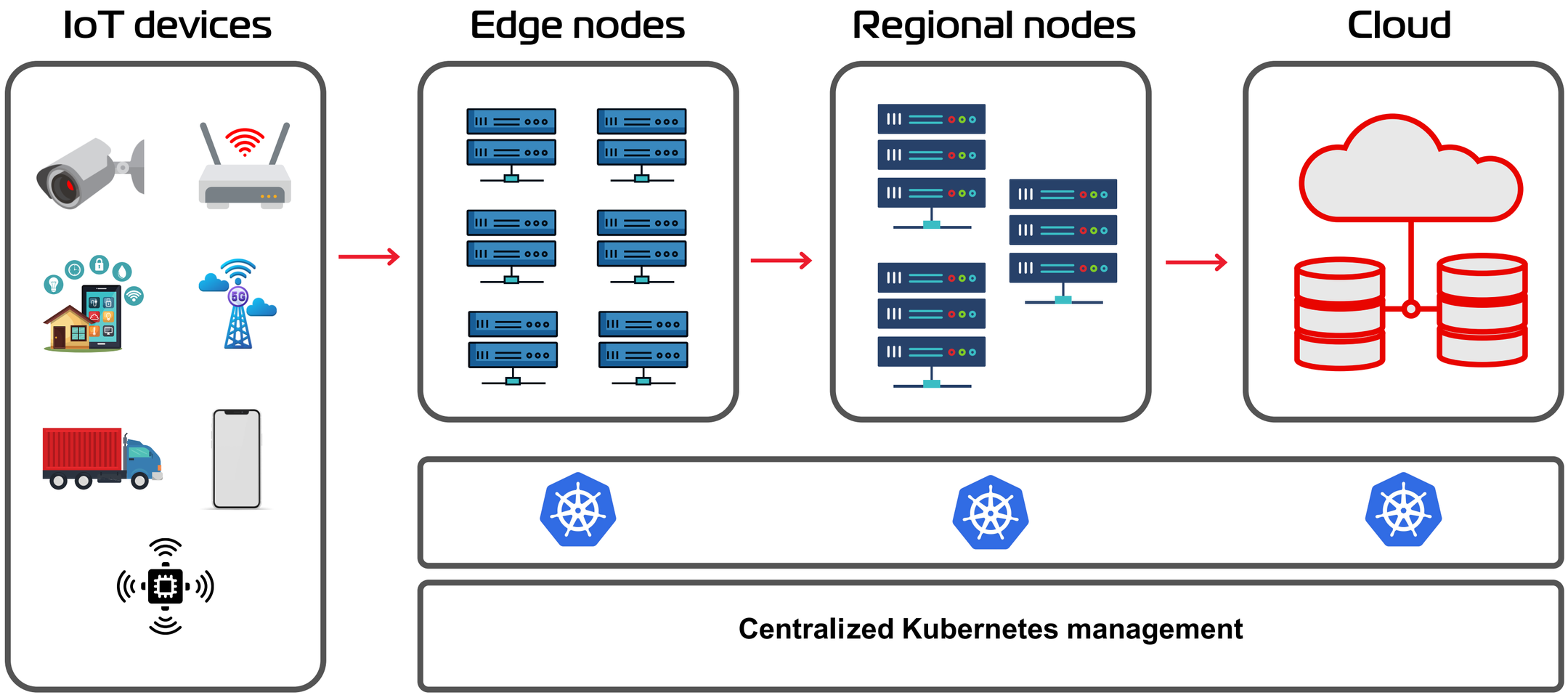
Kubernetes for IoT



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Kubernetes for AI/ML

Data Collection

Ingest, ETL, Query

Accelerated Libraries

Software-In-Loop,
Hardware-In-Loop

Model Training
Simulation

Inferencing

Kubernetes

run:ai

Kubeflow

Life Cycle
Management

NVIDIA Accelerated Compute

Storage

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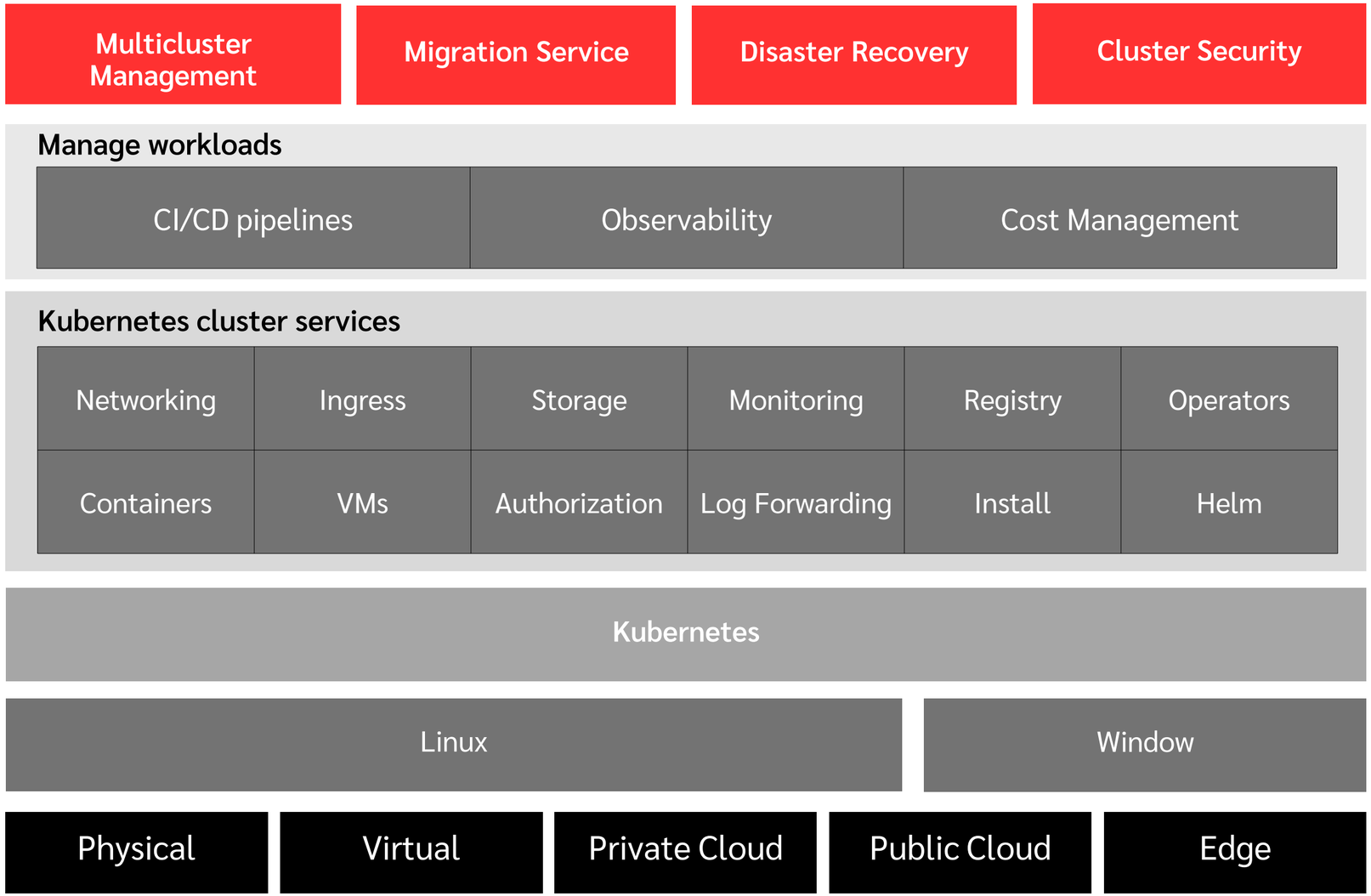
Introduction to Viettel Kubernetes Engine



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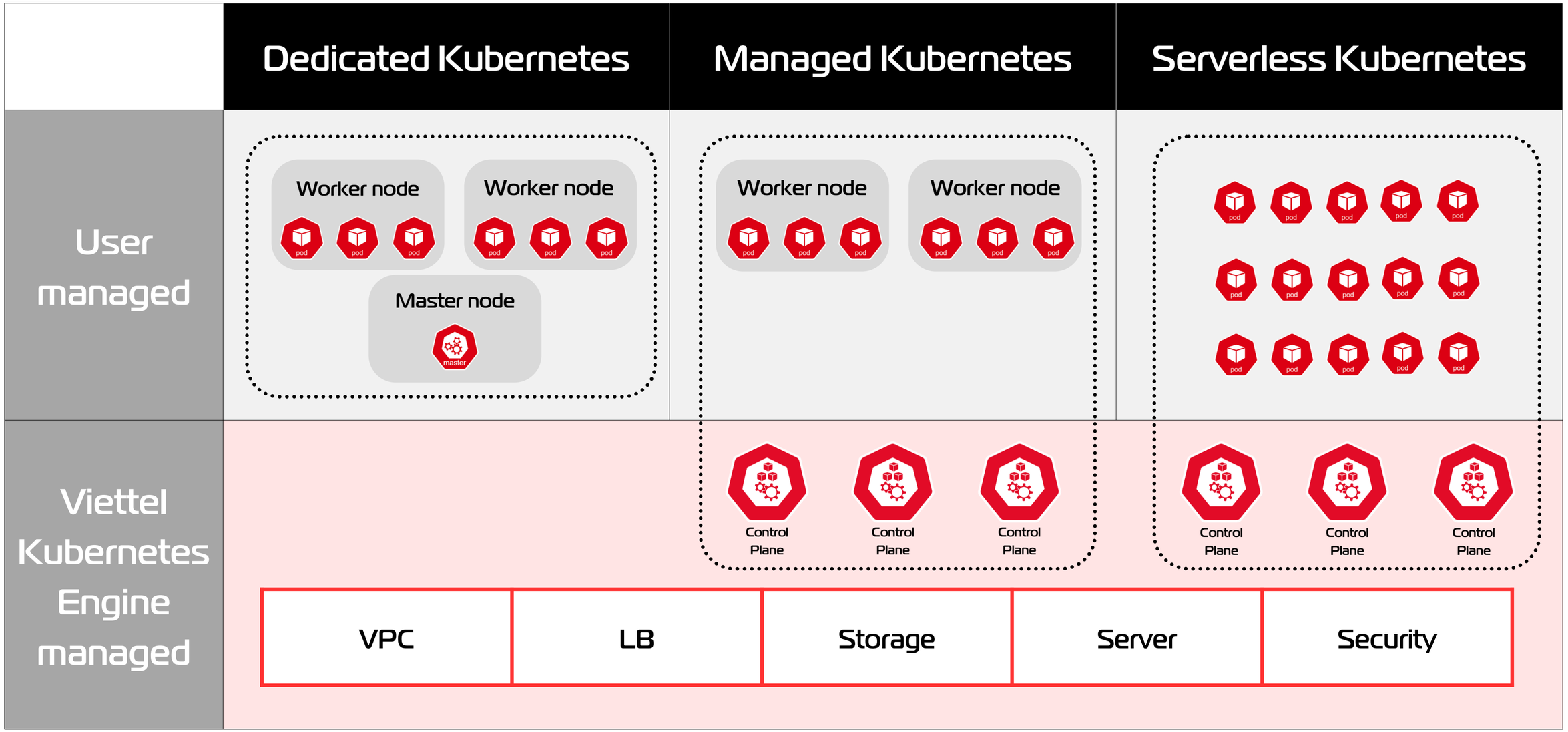
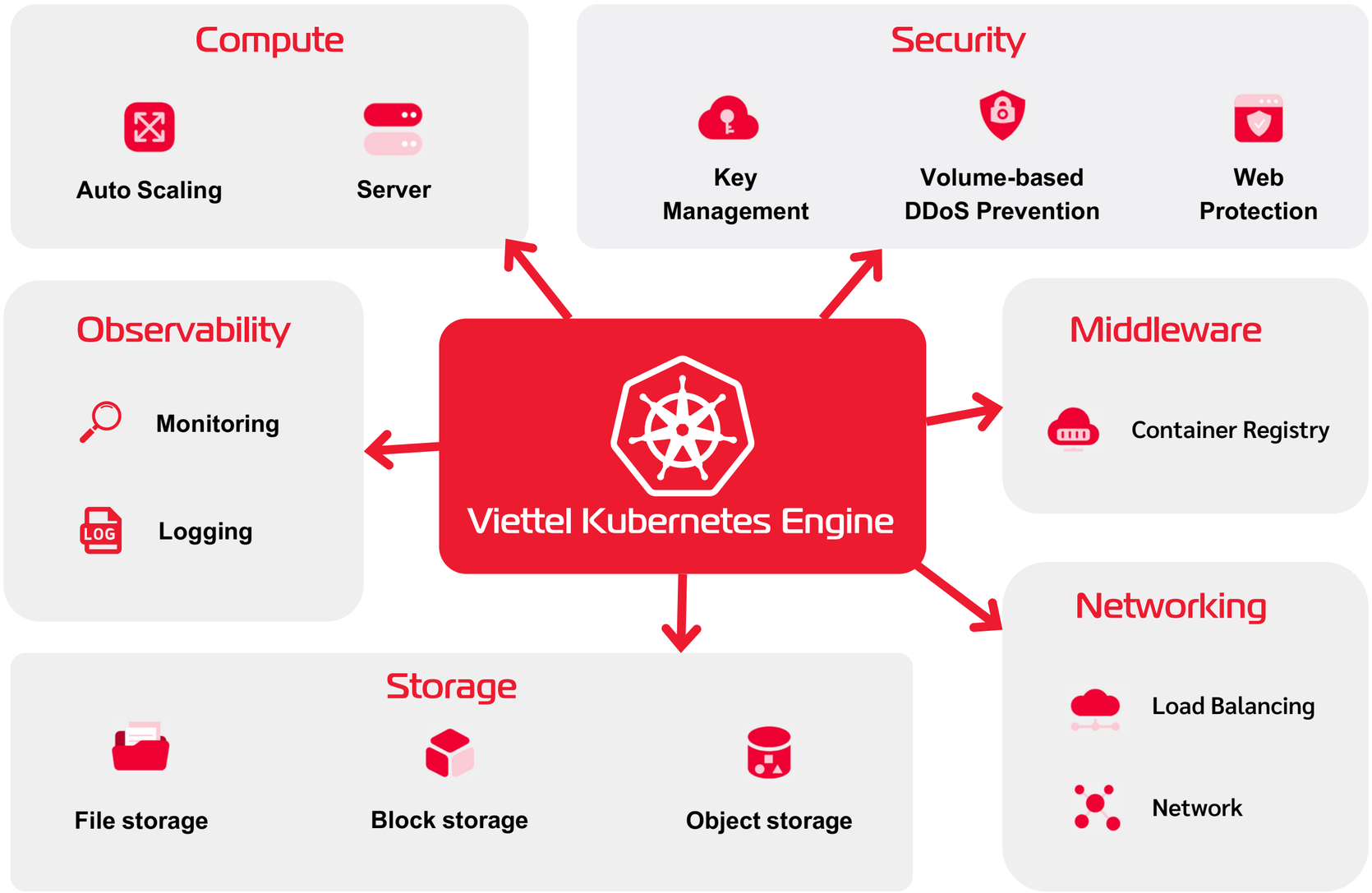
Kubernetes Deployment Models



Compare Kubernetes Models

	Dedicated Kubernetes	Managed Kubernetes	Serverless Kubernetes
User Management	• Cluster • Master node • Worker node • Workload	• Cluster • Worker node • Workload	• Cluster • Workload
User Profile	• Plan for master, worker nodes resource allocation • Customization on the control planes • Manually manage clusters • Expert knowledge of Kubernetes	• Plan for worker node resource allocation • Focus on development • Automate maintenance on control plane • Basic understanding of Kubernetes	• No resource plan needed • Strongly focus on development • Automate maintenance on control plane • Minimum understanding of Kubernetes
Scenarios	• All scenarios	• All scenarios	• Traffic spikes, Cron Jobs, CI/CD Jobs, Data Processing, Cost Optimization,...

Cloud Integration



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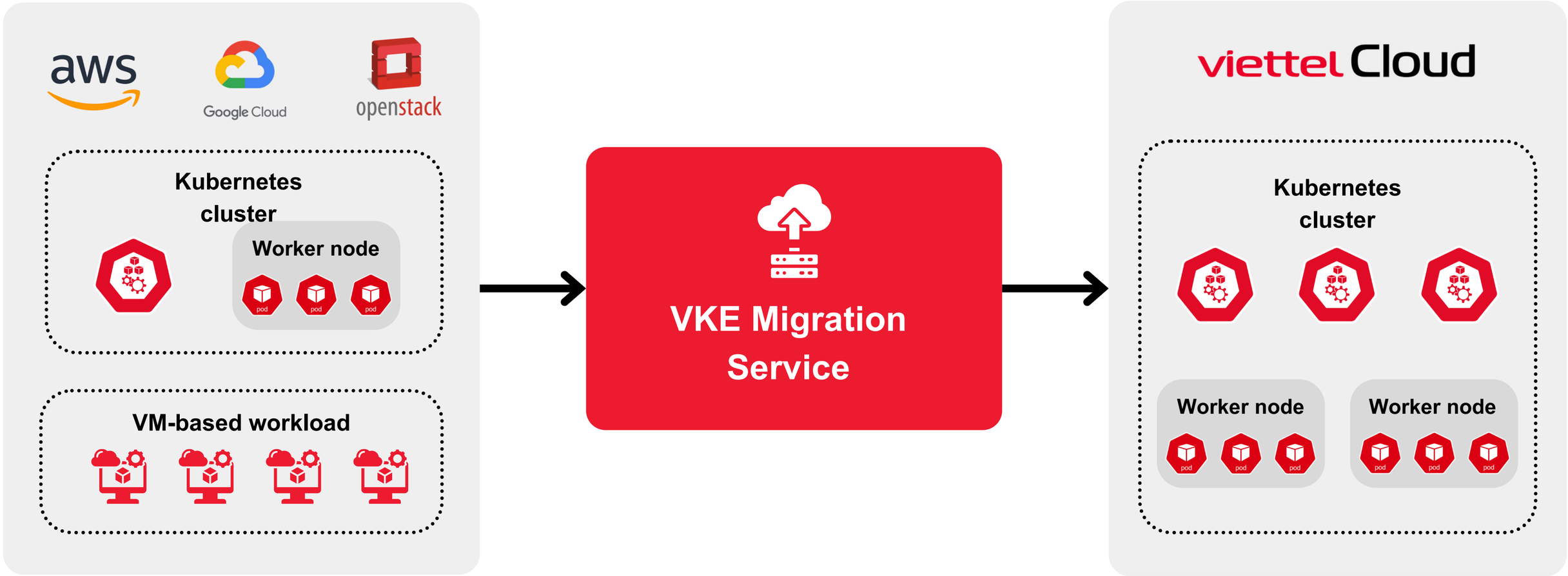
Move to Viettel Kubernetes Engine



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Thank You!