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IDC

Datasheet

VIETTEL OPEN KUBERNETES SERVICE



Vietnam's Leading Data Center and Cloud Computing Service Provider
Website: https://viettelidc.com.vn/
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OVERVIEW

Viettel Open Kubernetes Service (vOKS) is a platform service developed based on open-source Kubernetes. vOKS is built on modern Cloud Native architecture, allowing enterprises to easily deploy, operate, and scale containerized applications at large scale without managing complex infrastructure.
The service provides full container orchestration features according to CNCF standards, helping customers focus on application development, while Viettel IDC is responsible for operation, monitoring, security, and ensuring system stability.

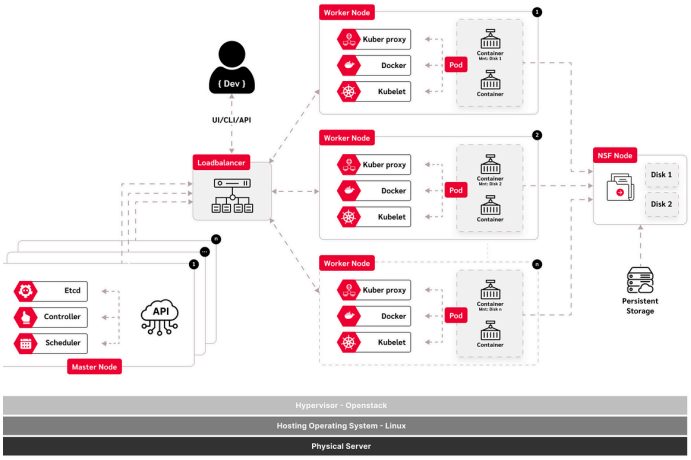

Figure 1: Key components of a Viettel Open Kubernetes Service resource cluster

vOKS targets enterprise customers, government organizations, financial-banking institutions, and technology companies shifting towards Microservices, DevOps, CI/CD, and Cloud Native architectures.

The service meets many standards and certifications for Cloud services in Vietnam serving e-government (G-Cloud), information security level 3, as well as international standards (ISO 9001:2015 - Quality Management System, ISO 27001:2013 - Information Security Management System, ISO 27017:2015 - Information Security Controls for Cloud Services).

KEY HIGHLIGHTS

1. Flexible, Comprehensive Auto-Scaling
- Supports HPA, VPA, and Cluster Autoscaler.
- Applications automatically increase/decrease resources according to actual load.
- Saves costs and ensures stable performance.

2. System Self-Healing Assurance
- Faulty Pods are automatically restarted.
- If a Node fails, workloads are automatically migrated to another node.
- Control Plane always has High Availability (HA) managed by Viettel IDC.
- Minimizes downtime, ensuring continuous application operation.

3. Enterprise-Grade Security
- RBAC by namespace, group, user.
- TLS 1.3 for the entire control plane.
- Network Policy restricts traffic between microservices.

4. Comprehensive Automation & Super Simple Operations
- Create a cluster in minutes.
- Worker node Auto Provisioning.
- Zero-downtime Kubernetes version upgrades.
- Built-in Monitoring and Logging system.
- Customers do not need a dedicated Kubernetes operations team.

KEY FEATURES

Intelligent Infrastructure & Node Group Management

- Flexible Node Group Management: Add/remove nodes on demand; separate Dev/Test/Prod environments clearly.
- Automatic Auto Scale: Users self-configure HPA, VPA, Cluster Autoscaler according to needs.
- Auto Repair (node self-healing): Faulty nodes will automatically reset/replace.
- Zero-downtime Kubernetes version upgrades.
- Diverse Persistent Volumes: Supports Block Storage, NFS, Snapshot/restore via CSI.

Simple – Flexible Application Deployment & Operation

- Zero-downtime Application Deployment: Rolling Update, Blue-Green, Canary.
- Self-healing: Pods auto-restart, Nodes auto-reschedule.
- Auto Health: Monitors Pod/Node/Control Plane health to automatically handle incidents.
- Workload Scan: Checks for security vulnerabilities for applications running in the cluster.
- Proactive Kubeconfig Management: Issue, revoke, reset kubeconfig by user/namespace.

Centralized Monitoring – Observability

- Centralized monitoring of the entire system (Cluster, Node, Pod, CPU, Memory, Network, Storage).
- Integration with Viettel IDC's monitoring ecosystem.
- View user impact history (audit trail) on Cluster, Node, Resources.
- Real-time Events to detect potential issues.

Advanced Kubernetes Security

- RBAC granular permissioning by user, group, namespace.
- Network Policy to isolate and control traffic between microservices.
- TLS 1.3 for Control Plane and API communication.
- Secret Encryption encrypts secrets in etcd.
- K8S Security Benchmark based on CIS Benchmark standards.
- Runtime Security detects abnormal behavior in containers (process, syscall, network).
- Workload Scan detects CVEs in images during deployment.

Powerful Integration with IDC Cloud Ecosystem

- Viettel Database Service: MySQL/MariaDB, PostgreSQL, MongoDB...
- Viettel DevOps Tools: CodeCommit - CodeBuild - CodeDeploy - CodePipeline.
- Viettel Container Registry, supports image scanning.
- Viettel Virtual Private Cloud such as: Load Balancer, Object Storage, Monitoring...
- Synchronous integration within the Viettel IDC ecosystem helps customers build a complete common Microservice Platform on a self-service Portal.

Convenient for Administration & Expanding Multiple Environments

- Create a cluster in minutes, control plane automation.
- Multi-environment (Dev - Staging - Prod).
- Manage versions, backup/restore, and cluster configuration easily.
- Ready for multi-region expansion in Roadmap 2026.

USE CASES

Deploying Microservice Applications

Banks, e-commerce, fintech, telecommunications need:

- Easily decouple applications into multiple microservices.
- Applications auto-scale when there is high traffic volume.
- Update applications without affecting users.

Building Automated DevOps - CI/CD Platforms

Software enterprises, Startups, developers need:

- Automatic Build, Test, Deploy on Kubernetes.
- Manage access rights by team/namespace.
- Easy rollback when incidents occur.

Operating Critical Systems with High Availability

Government, Banking, Healthcare, Education, Finance need:

- Faulty nodes are repaired or replaced automatically.
- Applications are moved to healthy nodes to avoid downtime.
- Upgrade Kubernetes versions without affecting services.
- Ensure applications operate 24/7.

Comprehensive Application Security via Enterprise Standards

Banks, e-wallets, finance – insurance enterprises need:

- Scan CVEs before and after deployment.
- Prevent containers from running abnormal behaviors.
- Isolate microservices to avoid attack propagation.
- Meet strict information security standards.

Service Migration between Cloud Providers

Enterprises wanting to transfer applications, microservices, data from:

- International Cloud -> Viettel IDC Cloud.
- Domestic Cloud -> Viettel IDC Cloud.
- On-premise Kubernetes -> Viettel IDC.
- Hybrid/multi-cloud environments.

Deploying AI/ML Systems, Data Analytics, Streaming *(Coming soon)*

AI startups, AI Cameras, big data enterprises:

- Separate GPU Node Groups.
- Scale workers to process AI when there is large data volume.
- Monitor GPU/CPU/memory resources in real-time.

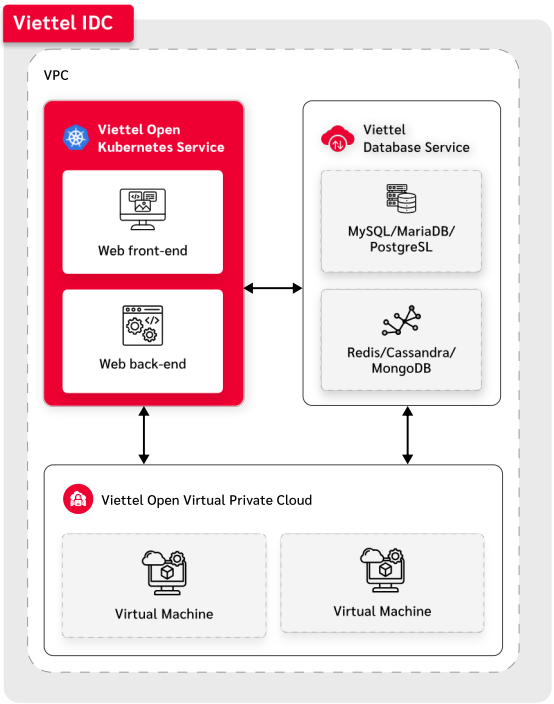

Figure 2: Connectivity model between Viettel Open Kubernetes Service, Viettel Database Service, and Viettel Virtual Private Cloud

SUPPORTED VERSION

Component	Version Number
Version Kubernetes	Supports up to 1.31.x
Operation System	Ubuntu 20.04.5 LTS 6.13.4-x-generic
Kernel	Containerd - v1.7.25
Container Runtime	Calico, Cilium, Nginx
CNI, Ingress	Storage Class
CSI	Supports up to 1.31.x

WHY CHOOSE VIETTEL IDC?

- **Leading unit in the field of cloud computing technology**

Viettel - CHT Co., Ltd. (trading name: Viettel IDC) established in 2008 - the pioneer cloud computing service provider with the most diverse ecosystem in Vietnam with the mission of providing a trusted platform for customers to create, breakthrough, and digitally transform comprehensively.
Viettel IDC's product range includes 50+ services spanning many needs from computing, storage, connectivity to graphics processing, monitoring...

- **International Standard Infrastructure**

Infrastructure located at Viettel IDC Data Centers meets TIA-942 Rated 3 Constructed Level, international certifications ISO 9001: 2015, 50001: 2018, security and information safety certifications: ISO 27001: 2013, 27017:2015 (specialized for Cloud services) and PCI DSS ensuring compliance with the strictest customer criteria regarding infrastructure, service quality, and information safety and security.
Advantages of multi-site infrastructure spanning North Central South of Viettel IDC help customers easily choose suitable regions to conveniently connect with other services in the ecosystem, minimizing transmission latency.



- **Modern technology, suitable for trends**

Viettel IDC commits to applying modern, best technologies for Customers.
With the principle of innovation as the guideline, we select & deploy top quality technologies, continuously updating the latest technology trends and solutions not only for Viettel Open Kubernetes Service but for the entire product and service ecosystem.

- **Experienced team of experts and engineers**

The 24/7 technical support team along with a massive number of engineers and experts with an average of more than 5 years of experience, superior seniority, and deep knowledge spanning many different technology fields will help solve Customer problems in the most comprehensive and effective way.