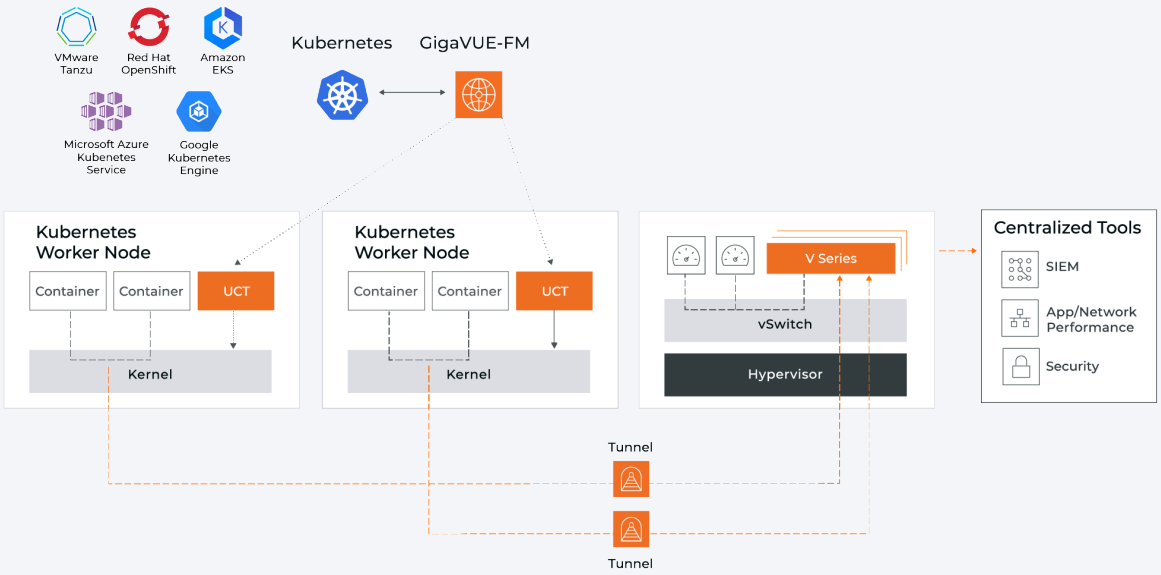
# GigaVUE Cloud Suite for Kubernetes

## Deep Observability into Containerized Applications




GigaVUE Cloud Suite for Kubernetes, consisting of GigaVUE V Series, GigaVUE-FM fabric manager and UCT, gives tools deep observability into containerized applications.

FIPS 140-3

### Key Features

- GigaVUE® Universal Cloud Tap (UCT) automatically deploys within each worker node
- Seamlessly integrates with GigaVUE V Series visibility nodes as part of a whole Cloud Suite solution
- Includes GigaSMART® intelligence – Including Packet De-duplication, Slicing, Masking, and Application Metadata Intelligence
- Integrates with Kubernetes Cluster Manager, regardless of container network interface (CNI)
- GigaVUE-FM provisions and configures UCT instances and sets up traffic mirroring
- Gigamon Precryption™ redefines security for applications running in containerized environments, delivering plaintext visibility before lateral traffic is encrypted

### Key Benefits

- Delivers full visibility into container traffic including lateral traffic on the same worker node
- Automatically discovers new workloads and scales to support any number of pods, nodes, and clusters
- Sends optimized traffic or application metadata to tools, including security, observability, and analytics tools
- Interoperates with Kubernetes-managed environments in public and private clouds
- Enhances the effectiveness of service meshes by simplifying network visibility and traffic management, which mitigates performance challenges often associated with microservices

GigaVUE Cloud Suite™ for Kubernetes, a key element of the Gigamon Deep Observability Pipeline, enables traffic flows of interest from containers managed by Kubernetes to be acquired, aggregated, processed, and delivered to the appropriate security, network, and application performance monitoring tools.

The GigaVUE Cloud Suite for Kubernetes is interoperable with Kubernetes Cluster Manager to enable infrastructure automation.

## Complete Container Visibility

Having visibility into container network traffic becomes critical to avoid blind spots. Yet container deployment presents challenges. Administrators must design systems that ensure workload automation, scale to handle myriad microservices, properly discover new applications, as well as automatically adjust policy configurations, all without manual intervention.

As containers are constantly provisioned, in motion, and removed, GigaVUE-FM works with the container orchestrator to maintain visibility anywhere Kubernetes is deployed, including public and private clouds.

In addition to UCT, GigaVUE Cloud Suite includes support for GigaVUE V Series virtual visibility nodes. V Series nodes provide a wide range of intelligent traffic processing capabilities, including Application Metadata Intelligence.

## Key Considerations

IT, cloud, and security architects are responsible for addressing the following questions before they can successfully deploy applications in containers with Kubernetes-based orchestration and ensure the resultant traffic is optimally processed and distributed:

- How can I get visibility into inter-container traffic as containers are ephemeral and constantly in motion?
- Can I ensure scalable visibility as deployed apps grow and can span hundreds of microservices each?

Not addressing these considerations slows down the transition to container-based applications, limits the use of datacenter automation, and leaves the organization vulnerable to potential security breaches, with potential impact to reputation and brand.

## The Solution

GigaVUE Cloud Suite for Kubernetes delivers intelligent network traffic visibility for workloads running in containers and deployed in on-premises, private, or public cloud environments.

It enables increased security, operational efficiency, and enhanced network performance, and scales across an unlimited number of containers.

- Optimize traffic processing and distribution with 100 percent visibility into containerized apps and their component microservices
- Leverage GigaSMART intelligent capabilities to deliver optimized traffic to the right tool
- Reduce security risks and track lateral propagation of threats in container environments
- Automatically discover new workloads and modify the visibility tier
- Ensure interoperability with Kubernetes-native environments

**The solution consists of three key components:**

- Traffic acquisition using UCT, deployed as its own workload in a pod, one per node
- Traffic brokering, optimization, and transformation using GigaVUE V Series
- Centralized orchestration and management using GigaVUE-FM

## GigaVUE Universal Cloud Tap

Lightweight containerized UCT instances are deployed within each worker node and direct the worker node to copy packets from other containers on the same worker node via the use of eBPF. In this way, UCT does not directly inspect, copy, nor handle any of the packets, thereby making this the most efficient method of tapping virtualized traffic. This solution works with any CNI, such as in private cloud (Antrea, Calico, Flannel, Multus, etc.) and public cloud (AWS VPC CNI, Azure CNI, Google Kubernetes Engine CNI, etc.) environments.

**Key benefits include:**

- Single, lightweight container per worker node minimizes impact on compute nodes and delivers several gigabits per second of traffic per instance
- No need to run special software or make changes to kernel modules
- Reduction in application downtime — there is no need to redesign applications when adding new tools

A lightweight UCT Controller is also required on a one per Kubernetes cluster ratio between GigaVUE-FM and UCT instances to help with scaling and crossing domains.

## GigaVUE V Series

Traffic aggregation, replication, filtering, optimization, transformation, distribution, and delivery occur within the GigaVUE V Series virtual visibility nodes, which are deployed within the visibility tier.

**Key benefits include:**

- Automatic Target Selection (ATS): Automatically acquire traffic of interest from any containerized workload
- Data masking: Modify or mask content in the Layer 2 to 4 (L2–L4) headers and in the payload to ensure security, segregation, and compliance regarding private and sensitive information
- Traffic optimization: Strip unwanted headers, slice off unnecessary data, sample packets, and identify over 3,200 applications, and target specific applications and traffic types to optimize traffic sent to tools, reducing tool overload
- Transformation: Identify and extract application and protocol metadata, selecting from over 3,200 applications and over 7,000 metadata L3–L7 attributes for granular insights, including L2–L4 NetFlow
- Performance overhead reduction: Gain crucial traffic visibility leveraging Istio Service Mesh for troubleshooting, security analysis, and performance optimization within complex service mesh deployments

A lightweight V Series Proxy is also an option on a one-to-several ratio between GigaVUE-FM and V Series nodes to help with scaling and crossing domains.

GigaVUE HC Series visibility nodes can also be incorporated to optimize, transform, and deliver the traffic to on-prem physical tools.

## GigaVUE-FM

Centralized orchestration and management are handled by GigaVUE-FM. Using its tight coupling to the Kubernetes Cluster Manager, this tool instantiates and configures UCT instances.

**Key benefits include:**

- Detect changes in container location or scale and automatically provision UCT and adjust the visibility tier
- Integration with third-party tools to dynamically process traffic or orchestrate new policies
- Auto-discover and visualize end-to-end network topology, including container workloads, by using a drag-and-drop user interface

## Easy-to-Deploy Automated Container Deep Observability Pipeline

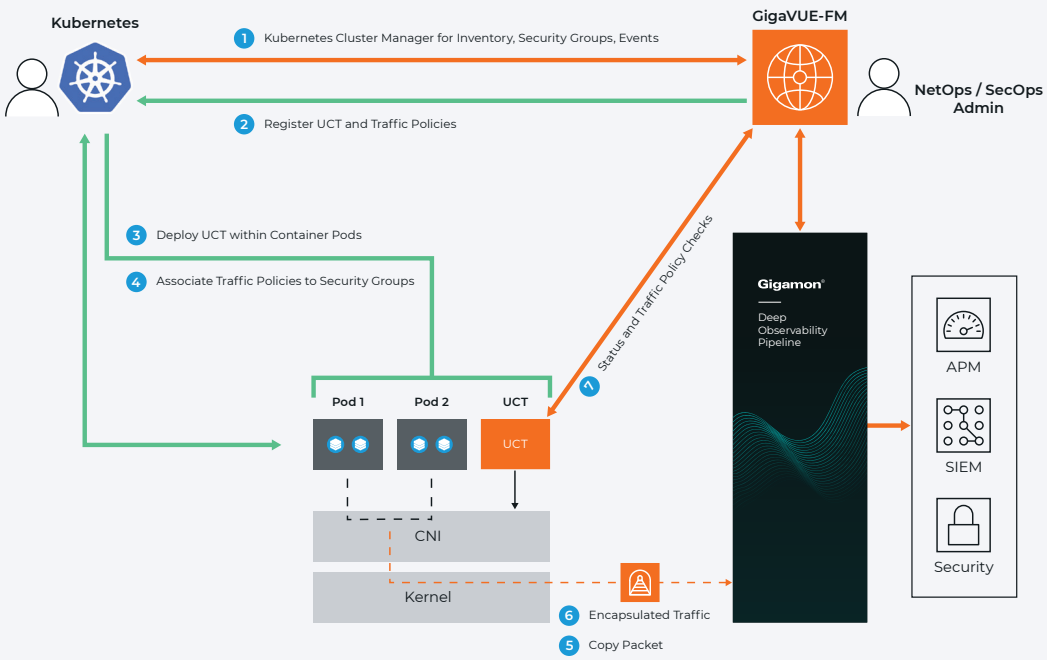
For containers with Kubernetes, the Kubernetes Controller works with GigaVUE-FM fabric manager via APIs to deploy a lightweight, agentless Docker container UCT without the need for special software, kernel modules, or application redesigns.

These pods reside on monitored servers and selectively mirror traffic based on containerized workloads, leveraging eBPF. They partially process traffic and send to a central aggregation GigaVUE V Series (or GigaVUE HC Series) visibility node, which performs any necessary GigaSMART optimizations or transformations, then subsequently forwards to security and monitoring tools.

GigaVUE V Series nodes are provisioned on VMs, hosted within AWS, Azure, Google Cloud, Nutanix, OpenStack, or VMware environments. These virtualized visibility nodes use Gigamon Flow Mapping® technology to direct traffic to the various user-designated tools and GigaSMART processing technology to mask, optimize, and/or transform the traffic.

**Over all of this, GigaVUE-FM:**

- Communicates with the Kubernetes Controller to obtain inventory, security groups, and events
- Instructs Kubernetes Controller to instantiate UCT for traffic acquisition and monitors and controls operations
- Auto-discovers and visualizes end-to-end network topology, including container workloads, by using a drag-and-drop user interface
- Integrates with third-party tools to dynamically process traffic or orchestrate new policies



## Minimum Compute Requirements

| Compute Instances | vCPU | Memory | Disk Space |
|---|---|---|---|
| GigaVUE UCT | 1 vCPU | 256MB | – |
| UCT Controller | 1 vCPU | 256MB | – |
| GigaVUE V Series Node | 4 vCPUs | 8GB | 20GB |
| GigaVUE V Series Proxy | 1 vCPU | 1GB | 2GB |
| GigaVUE-FM | 4 vCPUs | 16GB | 41GB |

## Ordering Information

GigaVUE Cloud Suite for Kubernetes is included with any purchase of a Volume-based GigaVUE Cloud Suite license, including UCT, V Series, and GigaVUE-FM fabric manager software.

GigaVUE Cloud Suite licenses give you the ultimate flexibility, with unlimited instance counts and no pay-per-CPU. Volume licenses are 100% poolable across instances, locations, and even cloud platforms, provided they can all connect to the same instance of Fabric Manager. Moreover, traffic volume is metered based on average daily traffic volume, not peak traffic, so traffic spikes are more easily absorbed.

Each of the volume licenses below includes GigaVUE Cloud Suite for Kubernetes; they only differ based upon the included GigaSMART functionality as well as the traffic volume size, as automatic discounts are included for higher volume licenses.

### Volume-Based UCT Model

| Part Number | Description |
|---|---|
| VBL-50T-BN-CORE | Monthly Term license for CoreVUE software up to 50TB per day in V Series for cloud and virtual environments. Capabilities included: Advanced Tunneling, Slicing, Masking, Advanced Load Balancing. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-250T-BN-CORE | Monthly Term license for CoreVUE software up to 250TB per day in V Series for cloud and virtual environments. Capabilities included: Advanced Tunneling, Slicing, Masking, Advanced Load Balancing. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-2500T-BN-CORE | Monthly Term license for CoreVUE software up to 2,500TB per day in V Series for cloud and virtual environments. Capabilities included: Advanced Tunneling, Slicing, Masking, Advanced Load Balancing. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-25KT-BN-CORE | Monthly Term license for CoreVUE software up to 25,000TB per day in V Series for cloud and virtual environments. Capabilities included: Advanced Tunneling, Slicing, Masking, Advanced Load Balancing. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-50T-BN-NV | Monthly Term license for NetVUE software up to 50TB per day in V Series for cloud and virtual environments. Capabilities included: CoreVUE for V Series, De-duplication, NetFlow. Min Term is 12 months. Includes bundled Elite-Plus Support. |

## Volume-Based UCT Model, cont'd

| Part Number | Description |
|---|---|
| VBL-250T-BN-NV | Monthly Term license for NetVUE software up to 250TB per day in V Series for cloud and virtual environments. Capabilities included: CoreVUE for V Series, De-duplication, NetFlow. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-2500T-BN-NV | Monthly Term license for NetVUE software up to 2,500TB per day in V Series for cloud and virtual environments. Capabilities included: CoreVUE for V Series, De-duplication, NetFlow. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-25KT-BN-NV | Monthly Term license for NetVUE software up to 25,000TB per day in V Series for cloud and virtual environments. Capabilities included: CoreVUE for V Series, De-duplication, NetFlow. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-50T-BN-SVP | Monthly Term license for SecureVUE Plus software up to 50TB per day in V Series for cloud and virtual environments. Capabilities included: NetVUE for V Series, App Metadata Intelligence, App Filter Intelligence. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-250T-BN-SVP | Monthly Term license for SecureVUE Plus software up to 250TB per day in V Series for cloud and virtual environments. Capabilities included: NetVUE for V Series, App Metadata Intelligence, App Filter Intelligence. Min Term is 12 months. Includes bundled Elite-Plus Support. |
| VBL-2500T-BN-SVP | Monthly Term license for SecureVUE Plus software up to 2,500TB per day in V Series for cloud and virtual environments. Capabilities included: NetVUE for V Series, App Metadata Intelligence, App Filter Intelligence. Min Term is 12 months. Includes bundled Elite-Plus Support. |
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Note: Licenses are managed and activated from GigaVUE-FM.

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|---|---|
| **Certifications**[1] | **FIPS 140-3**<br>• GigaVUE Cloud Suite: FIPS 140-3 Inside #5046<br>• GigaVUE-FM: FIPS 140-3 Inside #4912 |

## Support and Services

Gigamon offers a range of support and maintenance services. For details regarding the Gigamon Limited Warranty and our Product Support and Software Maintenance Programs, visit gigamon.com/support-and-services/overview-and-benefits.

## About Gigamon

Gigamon® offers a deep observability pipeline that efficiently delivers network-derived telemetry to cloud, security, and observability tools. This helps eliminate security blind spots and reduce tool costs, enabling you to better secure and manage your hybrid cloud infrastructure. Gigamon has served more than 4,000 customers worldwide, including over 80 percent of Fortune 100 enterprises, 9 of the 10 largest mobile network providers, and hundreds of governments and educational organizations. To learn more, please visit gigamon.com.

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