

GigaVUE Cloud Suite for Kubernetes

Network Visibility into Containerized Applications

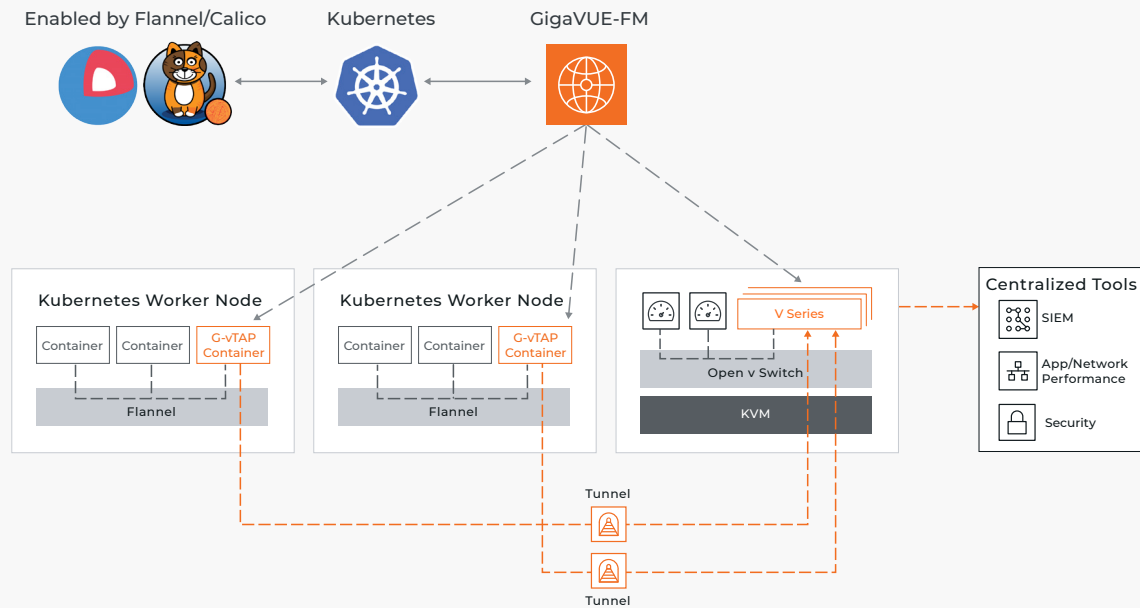


Figure 1. GigaVUE Cloud Suite for Kubernetes is a holistic visibility fabric for Docker containerized applications with full automation support.

Key Features

- G-vTAP™ Containers automatically deployed within each worker node and send traffic to V Series or HC nodes
- GigaSMART® intelligence – Includes packet deduplication, slicing, masking, and for HC nodes, Application Intelligence
- Integration with Kubernetes Cluster Manager with support for Flannel and Calico
- GigaVUE-FM provisions and configures G-vTAP containers and sets up mirrored traffic

Key Benefits

- Visibility into Docker container traffic and scales to support any number of containers and pods
- Automatically discover new workloads and modify the visibility tier
- Delivery of optimized traffic to the proper security and monitoring tools
- Interoperable with Kubernetes native environments and supports public and private clouds

GigaVUE® Cloud Suite™ for Kubernetes provides an industry-leading solution for network visibility and security analytics.

This visibility fabric enables traffic flows of interest from Docker-based 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 proven 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 ensure workload automation, scalability to handle potentially millions of microservices, and proper discovery of new applications as well as adjust policy configurations, all without manual intervention.

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

The suite includes support for Gigamon V Series virtual appliances and physical HC appliances. For HC models, Application Filtering Intelligence with identification and select extraction of over 3,000 applications and Application Metadata Intelligence with 5,000 L4–L7 attributes contextual insights are available.

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?
- What if the underlying network architecture changes with a different virtual switch methodology?
- Is there a way to automate the configured policies across thousands of containers in real time?

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.

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

The Solution

Gigamon CloudVUE Cloud Suite for Kubernetes delivers intelligent network traffic visibility for workloads running in containers and deployed on-premises or in public or private 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 application intelligence 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 G-vTAP Container agents
- Traffic aggregation, intelligence, and distribution using GigaVUE V Series and HC hardware appliances
- Centralized orchestration and management using GigaVUE-FM

G-vTap Containers

Lightweight containerized G-vTAP Containers are deployed within each worker node and receive copied packets from all other containers on the same node via Calico or Flannel network overlay.

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

GigaVUE V Series and HC Nodes

Traffic aggregation, intelligence, and distribution occurs within the GigaVUE virtual or hardware nodes, which are deployed within the visibility tier. Key benefits include:

- Automatic Target Selection (ATS): Automatically extract traffic of interest from any containerized workload
- Header Transformation: Modify content in the header (L2–L4) to ensure security and segregation of sensitive information
- GigaSMART intelligence: Slice, sample and mask packets to optimize traffic sent to tools, reducing tool overload
- For HC appliances, leverage Application Intelligence to identify thousands of applications and extract traffic as appropriate as well as utilize over 5,000 application metadata L4–L7 attributes for granular insights unavailable from NetFlow

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 G-vTAP Containers. Key benefits include:

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

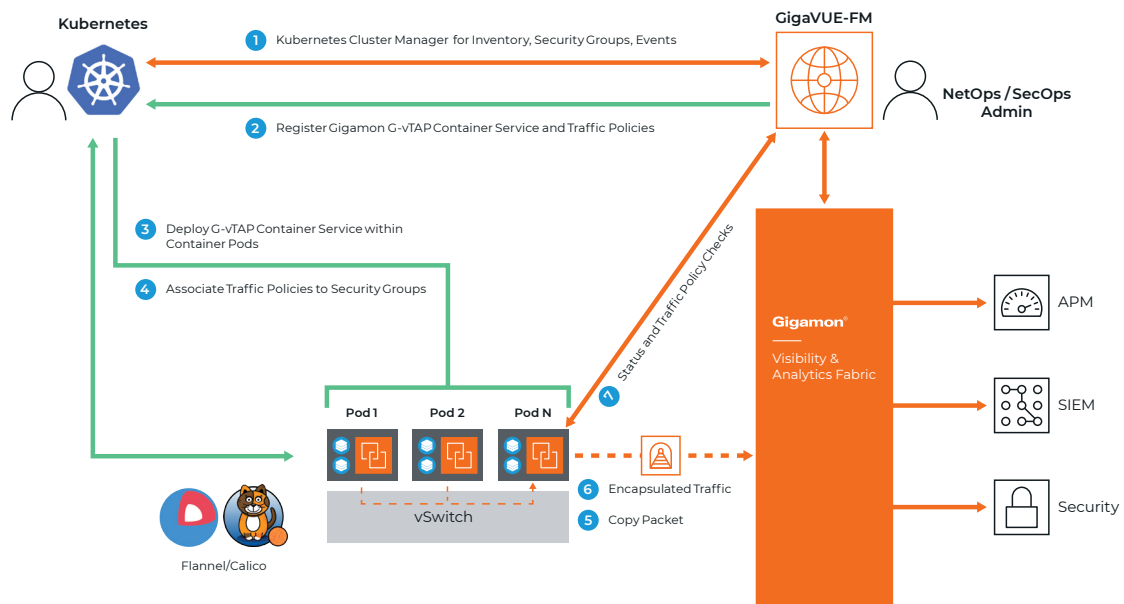
Easy-to-Deploy Automated Container Visibility Platform

For Docker containers with Kubernetes, the Kubernetes Controller works with GigaVUE-FM fabric manager via APIs to deploy a lightweight, agentless Docker container (G-vTAP Container) 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 either Flannel or Calico as the network overlay within the worker nodes. They partially process traffic and send to a central aggregation GigaVUE V Series (or GigaVUE HC Series appliance) and subsequently to security and monitoring tools.

Aggregation GigaVUE V Series are provisioned on VMs, leveraging Open vSwitch to communicate within the same server, and apply GigaSMART processing. These virtualized visibility nodes use Gigamon Flow Mapping® technology to direct traffic to the various user-designated tools. Gigamon-FM:

- Communicates with the Kubernetes Controller to obtain inventory, security groups, and events
- Instructs Kubernetes Controller to instantiate G-vTAP Container instances 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 to orchestrate new policies
- Minimum Requirements for GigaVUE Cloud Suite for Kubernetes Software Components



Minimum Compute Requirements

COMPUTE INSTANCES	vCPU	MEMORY	DISK SPACE
GigaVUE® V Series Node	2 vCPUs	75GB	20GB
GigaVUE® V Series Controller	1 vCPU	4GB	8GB
GigaVUE-FM	4 vCPU	16GB	41GB

Ordering Information

GigaVUE Cloud Suite for Kubernetes can be purchased based on the number of G-vTAP Containers being monitored from Gigamon. The table below lists the SKUs for procurement. For deployments with V Series, these visibility nodes and the software-based Fabric Manager are included at no extra charge. If hardware-based HC Series visibility nodes are deployed, these along with any GigaSMART options and Application Intelligence licenses are purchased separately.

PART NUMBER	DESCRIPTION
GFM-CONT-100	Monthly term license for traffic visibility for up to 100 containers. Minimum term is 12 months. Includes bundled Elite support
GFM-CONT-1000	Monthly term license for traffic visibility for up to 1000 containers. Minimum term is 12 months. Includes bundled Elite support

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](https://www.gigamon.com/support-and-services/overview-and-benefits).

For More Information

For more information about the Gigamon Visibility and Analytics Fabric or to contact your local representative, please visit [gigamon.com](https://www.gigamon.com).

For more information on GigaVUE Cloud Suite for Kubernetes, visit our website at [gigamon.com/products](https://www.gigamon.com/products)