Network Topology

Streaming observability with cloud-native, always-on, inventory and asset discovery

Why This Matters

The challenges with cloud-native network monitoring:

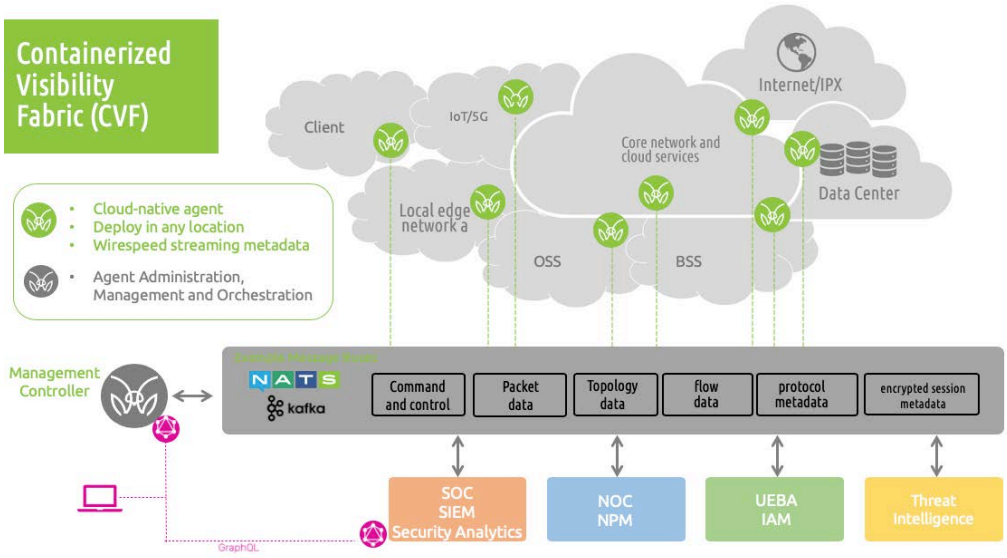
- Topology (virtual and physical) is hidden
- Interfaces (network namespace) are hidden
- Data flows (packets, octets and protocols) are hidden

The MantisNet CVF architecture is an innovative combination of network sensor agents, and cloud-native technologies that efficiently processes and produces all the information necessary for real-time monitoring needs:

- Application Performance Monitoring (APM)
- Network Performance Monitoring (NPM)
- Continuous Discovery/Inventory
- Security Assurance

Containerized Visibility Fabric (CVF) - Topology

The MantisNet CVF agents deployed as containers in the network can identify and monitor network events as they occur at the kernel level. The agents see this activity within its periphery, providing end-to-end observability with a CVF deployment in the network. Observability is more than logs, metrics and traces. This cloud-native, composable solution generates time-series topology information, in real-time, as network resources are provisioned and communicate across the infrastructure. The CVF populates a dynamic visualization; clients can also get time-series machine identification, performance, encrypted and protocol session metadata information. Learn more about the CVF at MantisNet.com

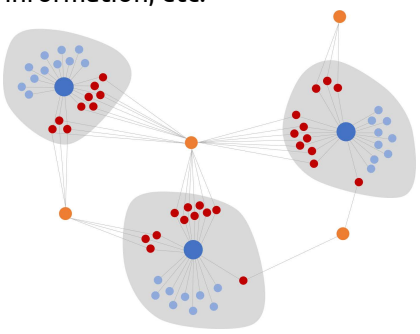


Observability and Control

The MantisNet CVF provides infrastructure observability from the **kernel level**, providing unprecedented **real-time, streaming visibility** to the resources communicating on your network edge or core. The GraphQL management interface enables control of the network resources from the MantisNet CVF Agent.

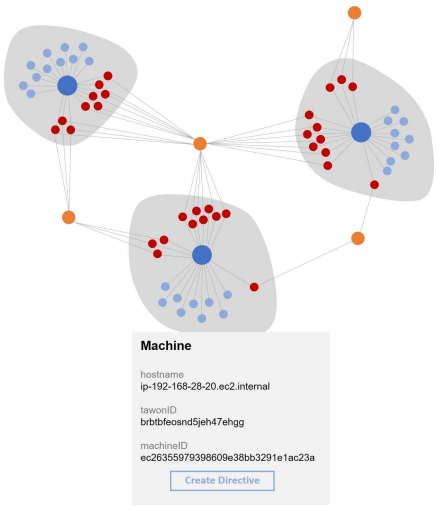
Topology and Inventory with the CVF

The Topology and Inventory function of the MantisNet CVF identifies and visualizes the resources and connections the agents "see" from their deployment on the network. The CVF, comprised of agents, controller and GraphQL for management, work together to stream network data to a Message Bus for consumption to follow-on analytic programs. Deployed MantisNet Agents performing the topology function can connect to other agents to produce an aggregate mapping visualization of the network resources. The topology output can include a lot of items, but it fundamentally provides output based on a schema (see next section) to produce the topology information that includes information about the resources under control- Flow data, machine info, processes running, process IDs, container information, etc.



Once you have the visualization of the network metadata you can then manage via the GraphQL API to perform a variety of other functions, with the output streamed to the message bus for ingestion by analytic and management tools. These other functions include - publishing protocol metadata, generate encrypted session metadata, plaintext and keys, flow statistics, etc.

Topology Schema



Parameter Name	Description	Data
Machine	Defines the machine / node / server	ID, Name, Timestamp
Container	Description of the Container	Name, Namespace, Label, Image
Process	Process(es) running on a machine, in that namespace	PID, Name, Namespace, CMD
Link / Interface	Network interfaces on that machine / node / server	Name, Address, State, MTU
Subnet	Active subnet connections	IP Address, Mask,
Flow	Information transmitted and received over a specific link	Source, Destination, Packets, Bytes
I/O Statistics	Raw packet counts and statistics for that specific link	Rx, Tx, Errors, Drops

Benefits of a Containerized Visibility Fabric

Cloud-native

- Flexible architecture that can be deployed anywhere and scale, on-demand, with cloud-native infrastructure

Flexible, Intelligent and Extensible

- Sensor agents publish telemetry, PCAP and metadata formats (JSON, Avro, Protobuf) into distributed message buses (NATS, Kafka) optimized for streaming analytic workflows or data-at-rest (block, file, or object) storage
- Capable of identifying common crypto libraries (OpenSSL, TLS, GNU, NSS)
- Additional plug-ins and worker applications can be used to provide a wide-variety of functions; indexing and correlation for enrichment and time-series analysis providing deeper contextual and situational awareness.

High-resolution, precise and accurate

- Lossless, reliable and continuous inspection of data flows and infrastructure. Capture, filter and analyze traffic of interest, resulting in situational awareness, simplified operations and fewer false positives
- Deep machine-level visibility and the ability to dynamically extract and generate telemetry

Efficient, highly scalable and performant

- Real-time and continuous
- Extremely lightweight, in-memory, microservices-based architecture- designed for minimal resource utilization
- Scalable, fast and efficient - delivering predictable, deterministic performance

ABOUT MANTISNET

MantisNet solutions provide organizations the real-time network monitoring and processing solutions they need. MantisNet's advanced technology enables organizations to better monitor and manage network traffic as compared to legacy hardware and software solutions.
MantisNet combines end-to-end visibility, monitoring and control (from L2 to L7) with the ability to perform real-time processing and remediation to detect and respond to potential operational issues, security threats, fraud, and malicious activities with advanced interfaces and machine-to-machine controls. Our solutions are deployed at leading telecom, service providers, NEM labs and government installations. We work to make network intelligence actionable for a broad range of DevOps, network and application performance testing, streaming analytics, and cyber security applications.

For more information, visit www.MantisNet.com

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