Qosmos NFV Probe

Fully customizable DPI-based probe solution for NFV monitoring, troubleshooting, and subscriber analytics.

Key Facts

Features

▶ Linux application for flow-based monitoring in OpenStack, VMware and Docker environments

▶ Visibility up to Layer 7 thanks to industry-leading Qosmos® DPI software

▶ 3000+ protocols classified and 5000 application metadata extracted

▶ Classification of networking protocols and applications based on flow pattern matching, bi-directional flow correlation, heuristics and statistical analysis

Benefits

▶ High-degree of information granularity for advanced troubleshooting of faults and performance issues

▶ Fully customizable extraction of traffic information and KPIs

▶ Optimized and dynamic configuration: monitoring can be turned on and off to investigate issues only when needed

▶ A single monitoring approach for hybrid environments where network services run across both physical and virtual functions

▶ Data model optimized for correlating network counters (response time, QoE, etc.) with infrastructure elements (VMs, containers, domains)

▶ Provides a view into shadow IT applications and traffic

▶ Follows NFV standards for future proofing

▶ Runs on commodity hardware

Challenges

As operators transition to NFV, monitoring solutions need to adapt to this new environment. The traditional approach using taps, splitters and physical probes does not provide the required visibility into a virtualized infrastructure. Physical probes cannot access the logical interfaces between internal VM-to-VM communication to monitor functions hosted on the same server, or in some cases between VMs located on different servers connected via virtual overlay networks. Moreover, new virtualization techniques, such as containers that rely heavily on distributing traffic between many lightweight, even transient, virtualized resources only exacerbate the visibility problem.

Solution

The Qosmos NFV Probe has been specifically developed to provide visibility into a virtualized infrastructure. At the heart of this technology is Qosmos ixEngine®, the market leading Deep Packet Inspection (DPI) engine providing detailed real-time IP traffic classification and metadata extraction. As shown in the figure below, the probe can be integrated in two ways:

1. Software instance on a hypervisor monitoring the entire NFVI layer (resources and network)

2. VNF running on a virtual machine to monitor specific VNFs
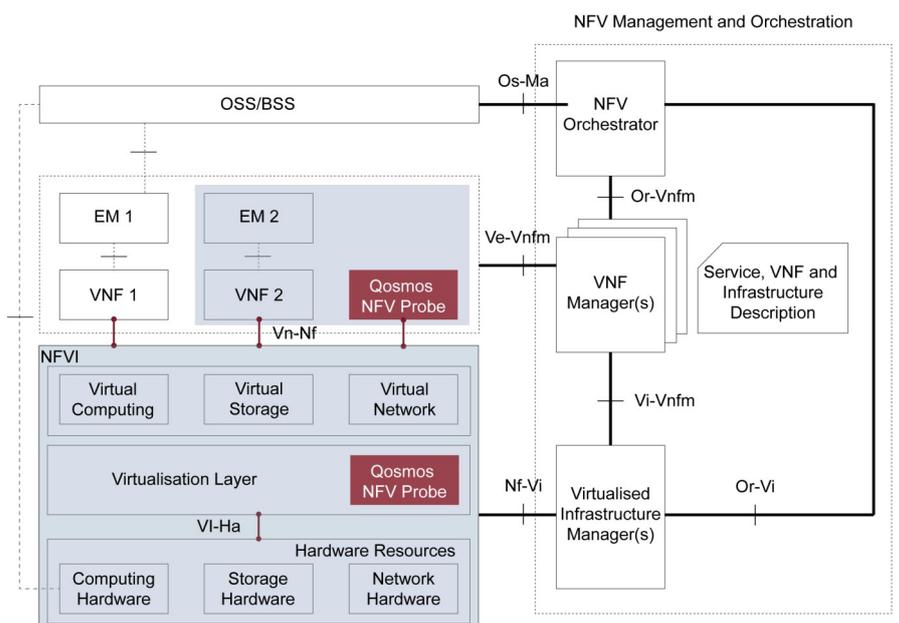
Deep Traffic Visibility

The Qosmos NFV Probe classifies network flows and extracts metadata in any physical or virtualized environment:

- Identification of 3000+ protocols and applications
- Frequent signature updates
- Proactive protocol change detection
- Categorization of protocols and applications
- Extraction of 5000 metadata
- Ability to select the relevant metadata to extract, in order to optimize performance
- Identification of the type of transaction (e.g. login, file upload/download, etc.)
- File metadata (e.g. document author, encryption info, etc.)
- Ability to create custom protocol signatures

KPI Definition Based on Traffic Data

- Correlation with external data
- VM / container names
- DNS resolution
- Data aggregation and filtering
- Volume per minute, IP address, VM, domain name, etc.
- Subscriber information (e.g. IMSI, IMEI, MSISDN, etc.)
- Data anonymization

Data Output

- Formats: Syslog, JSON, CSV
- Transport protocols: HTTP, Kafka, UDP, TCP
- Database connectors: Elastic Search, InfluxDB

Integration

- Packet capture mode: Libpcap, DPDK, netmap (VPP), sFlow
- Captured packets are forwarded by the virtual switch (e.g. OVS, VPP, VMware)
- Leverages standardized Tap as a Service (TaaS) or Smart SPAN Port
- Data is sent to MANO functions to populate a traffic matrix, which is an optimized data model used by OSS & BSS
- Fully manageable via NETCONF protocol

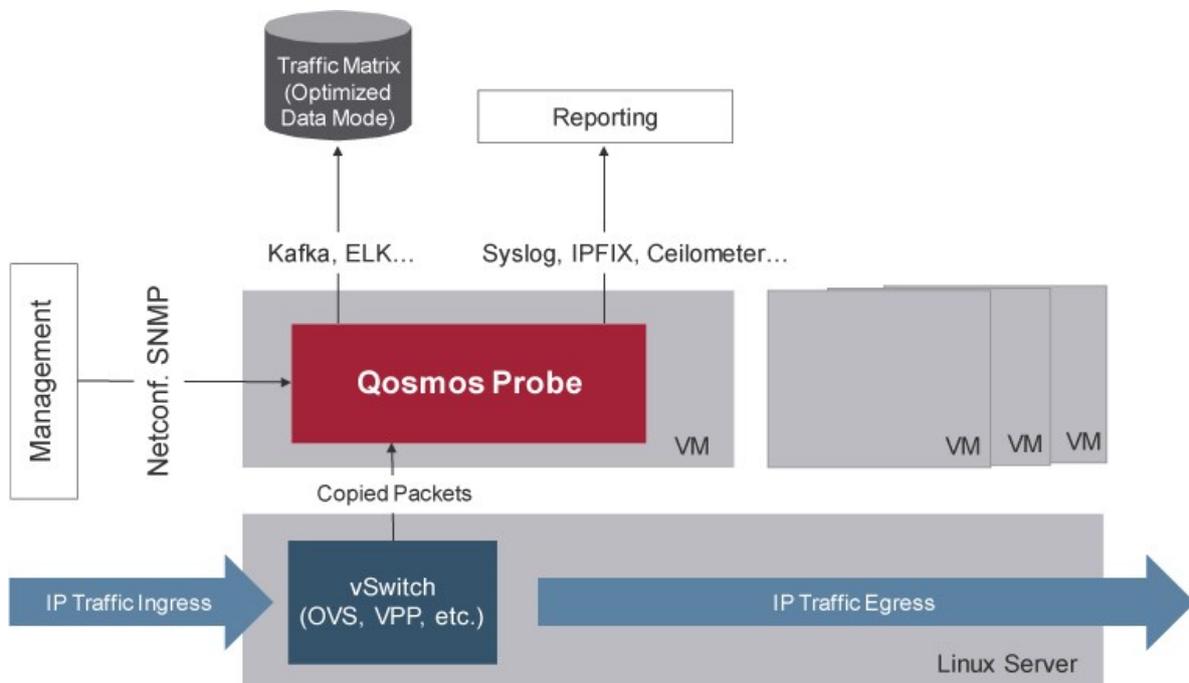## Supported Environments and Standards

- OpenStack
- VMware
- Docker

Performance

- Up to 10 Gbps of traffic, depending on configuration and hardware
- Scalable performance based on pre-allocated CPU and RAM

Deliverables

The Qosmos NFV Probe is delivered as a fully customizable Linux application, complemented by Qosmos professional services

- Probe software package (e.g. VM, container, RPM, etc.)
- Professional services for integration and customization

Find out more on our website