SEVONE NFV SERVICE ASSURANCE SOLUTION:

All carriers around the globe are under continued pressure to innovate and differentiate their services to compete. Automating carrier network functions based on reference architectures like those of the ETSI-NFV organization and workgroup are critical aspects to implementing more agile operations and meeting business and market demands. Virtualized network functions (VNFs), the underlying virtual infrastructure (NFVI) of these functions run, along with the management and orchestration of the services (NFV-MANO) and are all required to drive CSP transformation.
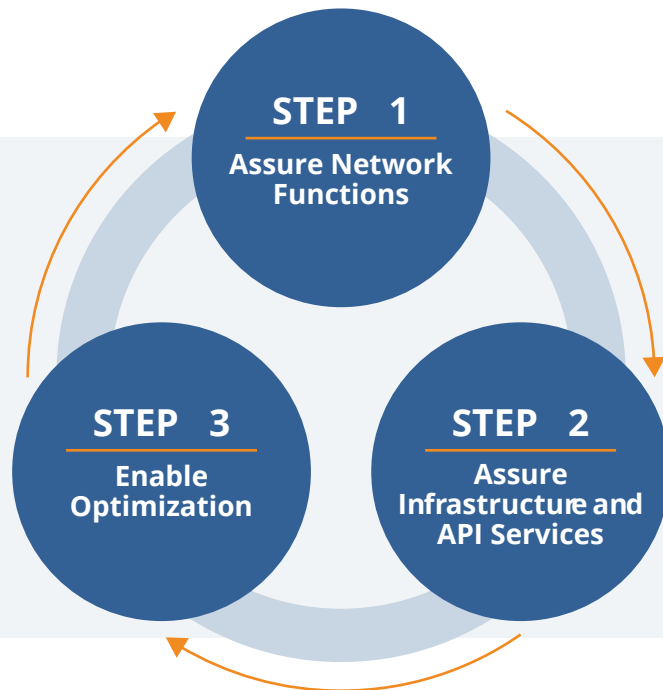
The SevOne NFV Service Assurance Solution v1.5 automates service assurance, performance, and visibility for OpenStack-based NFV infrastructure. This solution is designed to meet the needs of carriers implementing virtual network functions and service models based on open reference architectures like ETSI-NFV, while also supporting today's existing physical network infrastructure in a single management platform.

With integration with each layer of the NFV architecture, this Solution, certified to run on OpenStack by Red Hat, unifies management and awareness across all physical and virtual resources, regardless of vendor or technology. Continuous monitoring detects workloads as they are launched and automatically manages them based on deployment context and location. Real-time collection and analysis of metric data delivers actionable insight at every level of your environment.

NFV Service Assurance Solution

Three Steps to Operational Insight

STEP 1
Assure Network Functions

STEP 2
Assure Infrastructure and API Services

STEP 3
Enable Optimization

ASSURE.

Real-time NFV assurance so operators can identify customer experience performance-affecting behaviors

VISUALIZE.

Visualize traffic flows to identify traffic behaviors that impact their users or applications

AUTOMATE.

Automatically assure NFV infrastructure in the context of how it was provisioned

HOW CAN SEVONE HELP WITH CARRIER NFV ASSURANCE?

As Mobile Carriers transition their infrastructure from physical to virtual using reference architectures like ESTI-NFV for the management and orchestration of their infrastructure, they are faced with a series of pain points:

- **Data collection from NFVI, MANO and VNF footprints spread across multiple systems, creating silos of information**
- **Lack of visibility into OpenStack VIM resulting in extended improbability outages**
- **Closed loop orchestration time to action and analysis workflow takes too long**
- **Legacy device inventory processes introduce delay between environment changes and assurance**
- **Legacy assurance tools lack support for existing physical and new virtual environments in a single system**
- **Legacy assurance tools not stable when run in a cloud hosting environment**

To address these issues, the SevOne NFV Service Assurance Solution enables:

- **Assurance for each of the key layers of ETSI-NFV reference architecture**
- **Lifecycle management of the physical and software resources supporting the virtualization, along with necessary integration of existing OSS/BSS systems external to the NFV system**
- **Access to KPIs across multiple vendor implementations of:**
  - VNF Instances – EPC, IMS, RAN and more
  - VNF Infrastructure Instances: compute, storage, network and virtual machines
  - Context of why these instances are provisioned via meta-data driven integration with VIMs, VNF managers and orchestration systems

PROFESSIONAL SERVICES, SUPPORT AND TRAINING

SevOne offers a complete set of services to help your organization make the most of your Carrier NFV Assurance investment, including:

- **Implementation Services –** Ensure your SevOne Solution is successfully implemented to meet your requirements, including on-boarding of new VNFs
- **Post-Implementation Services –** Engage with SevOne Professional Services for the life cycle of your project with a range of Business and Platform Optimization Services
- **Custom Integration –** Integrate with your existing tools and solutions based on customer specific requirements
- **Gold and Platinum Maintenance –** A full suite of services from eSupport, Software Updates, 7x24 Technical Customer Assistance, 10-Day New Device and Log Certifications and more
- **Customer Training –** Increase your team's effectiveness and on-going success with customer training sessions led by SevOne experts

WHAT KEY PERFORMANCE INDICATORS MATTER AND WHY?

The SevOne Solution collects and analyzes key performance indicators across the ETSI NFV reference architecture: Orchestration, VNF Manager, VNFs & VIM Manager

Orchestration – Collect machine resources and application performance metrics, faults and logs to assure application availability. Using the orchestrator API, collect metadata to drive VNF inventory automation, context enrichment, grouping automation and topology definitions

Supported Orchestrators: Ericsson ECM, HPE NFVD, Rift.io, Heat

VNF Manager – Collect machine resources and application performance metrics, faults and logs to assure application availability. Using the VNF-M API, collect metadata to drive life cycle status awareness, receive VNF based event messaging to trigger SevOne actions

Supported VNF Managers: Nokia Cloudband, Tacker

VNFs – For complete VNF assurance visibility, the SevOne Platform implements a five factor approach:

1. **Performance Metrics –** Data collection polling an agent running on each VNF virtual machine, typically uses SNMP GET commands

2. **Fault Notification –** Faults events sent from a VNF machine, typical via SNMP traps

3. **Remote Syslog –** Application events sent from a logging agent running on each VNF machine, typically via syslog

4. **Bulkstats –** Polling of an application API or EMS interface, typically via SevOne xStats technology

5. **Flow –** Traffic records sent from an agent running on a virtual switching device, typically via NetFlow

VIM Manager – SevOne has developed a two pillar approach for complete OpenStack visibility: OpenStack Assurance and OpenStack Performance

OpenStack Assurance: assures the availability of OpenStack to create workloads, including:

- **API Endpoints: Keystone, Glance, Cinder, Neutron, Swift, Heat, Ceilometer & Nova**

- **OpenStack 3rd Parties: Pacemaker clustering software, MariaDB-Galera database server, Haproxy software load balancer, RabbitMQ messaging server, Mongodb nosql database server and Redis key-value store**

- **Context: including NFVI inventory device automation, device and object grouping automation, report metadata enrichment/associations and custom topology**

- **OpenStack Performance: measures the performance of the workloads created by OpenStack**

- **Ceilometer: bulk metrics, polled metrics, metadata, topology, discovery and events**

The SevOne NFV Service Assurance Solution is the only management platform certified by Red Hat (https://access.redhat.com/ecosystem/software/3013311) for use with OpenStack NFV.