

HPE OpenNFV Partner Program VNF testing with Netrounds

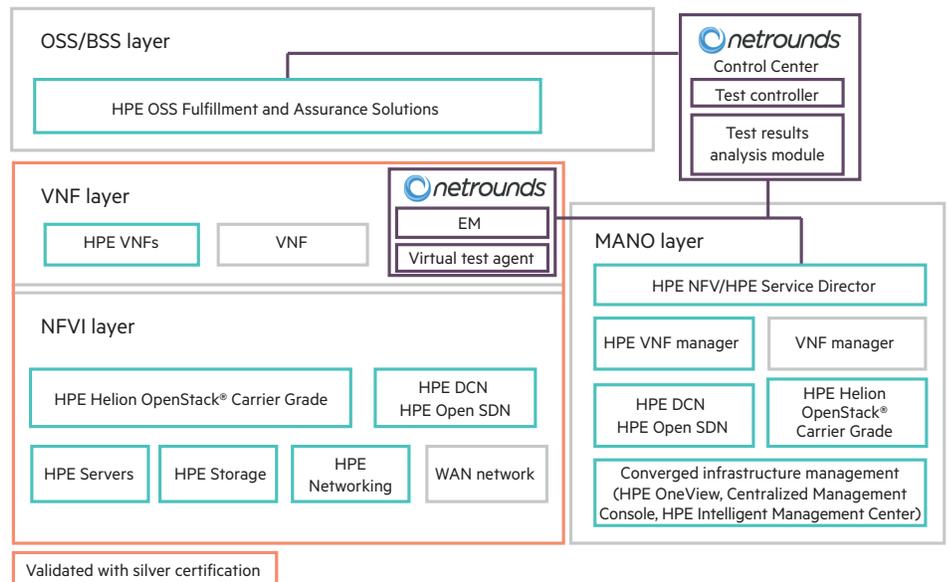


Figure 1: Netrounds in the HPE OpenNFV Reference Architecture

HPE OpenNFV Partner Program

With the right **network functions virtualization** (NFV) platform, communication service providers (CSPs) enjoy the freedom to build a custom end-to-end solution based on individual IT and customer needs. This approach facilitates collaboration with third parties based on open standards, regardless of vendor. The **HPE OpenNFV Partner Program** supports this degree of flexibility and openness by including emerging independent software vendors (ISVs) along with leading network equipment providers (NEPs), technology vendors, and service providers. The result—CSPs can transition to NFV in a way that best suits the business and IT.

The HPE OpenNFV Partner Program includes:

Technology partners—top-performing technology companies and vendors that collaborate on technology innovation, integration, and support

Application partners—ISVs are self-tested in a remote HPE OpenNFV virtual environment (referred to as “HPE OpenNFV tested”) and joint-tested in physical HPE OpenNFV labs (referred to as “HPE OpenNFV ready”)

Services partners—systems integrators

Testing in the HPE OpenNFV labs

HPE OpenNFV labs provide a one-stop center where integration, collaboration, and testing occur in a safe environment ahead of deployment to carrier networks. With HPE OpenNFV labs, CSPs gain access to software development kits (SDKs), application program interfaces (APIs), training, and integration resources to get applications tested and ready for CSPs, advancing innovation while reducing risks. There are currently five HPE OpenNFV labs locations: Fort Collins, CO, US; Houston, TX, US; Grenoble, France; Tel Aviv, Israel; and Seoul, South Korea.

Partner solutions are tested in the HPE OpenNFV labs leveraging our reference architecture and HPE NFV System. The

HPE OpenNFV Reference Architecture

supplements existing systems by identifying the HPE products that readily integrate with scalable, high-performing, and robust NFV solutions. HPE NFV System offers a fully integrated, turnkey solution.

The labs validate partner solutions in three tiers—silver, gold, and platinum—which tests onboarding and basic functionality, performance and scalability, and continued functionality through software updates and changes.

Partner introduction

Netrounds is an active network analytics solution provider for physical, hybrid, and virtual networks. Netrounds' programmable, software-based test and service assurance capabilities enable telecom operators and service providers to enhance the end-user experience of IP-based services such as Internet, TV, voice, and other

quality-demanding business services. Its extensive feature set covers all network and service layers for assurance and visibility of the full service lifecycle—service activation testing, ongoing quality monitoring, and remote troubleshooting. More than 270 network operators, service providers, and enterprises worldwide use Netrounds solutions. It is headquartered in Lulea, Sweden, with offices in Boston, Massachusetts, and Stockholm (Sweden).

Partner solution overview

Netrounds' automation capabilities enable CSPs to reduce manual efforts required for network testing and assurance, which significantly decreases operational costs and improves operating margins, as well as decreasing capital expenditures associated with using traditional hardware test and measurement equipment.

The Netrounds solution comprises of two components. The core component of Netrounds is a powerful multi-tenant control center that utilizes an API for dynamic control of Netrounds test infrastructure and for retrieving real-time key performance indicators (KPIs). External operational support systems (OSS) and NFV orchestrators such as HPE NFV and HPE Service Director use the API to automate processes related to service activation testing, quality monitoring, and troubleshooting.

The control center also provides developers with a web-based environment for creating test sequences and monitoring scenarios to be triggered by automation loops. In addition, the web GUI provides features for interactive testing, consolidated KPI views with drilldown capabilities, functionality for system and user management, and an inventory of all active test agents, among other features.

The control center remotely controls Netrounds' software-based, traffic-generating active test agents—the virtual Test Agent (vTA) virtualized network functions (VNFs). It also provides detailed, real-time results and statistics captured by these vTAs and reflector streams across numerous application and services types. vTAs may be placed in strategic locations in the network for continuous service monitoring and installed on demand for the activation testing of newly deployed services and for troubleshooting.

As an active test and service assurance solution, Netrounds can be complementary and additive to existing passive, classical assurance solutions. Netrounds' active test and assurance solutions add a granular, fine toolset that ensures services are delivered right the first time. The solution performs ongoing, service-specific tests from the customer perspective to find issues before they occur and can pinpoint individual customer concerns quickly when troubleshooting. Operators need both types of systems in order to maintain high-quality services that deliver the quality of experience that customers demand.

Solution benefits

Netrounds vTA deployed on HPE Helion OpenStack Carrier Grade (validated with silver certification)

- Netrounds and Hewlett Packard Enterprise can now offer automated testing of the full-service lifecycle as part of the network on-demand services—covering service activation testing, quality monitoring, and remote troubleshooting.

- Deployment of vTAs on HPE OpenNFV platform will allow operators to improve operational efficiency and reduce OPEX through automation. The solution can also deploy test agents remotely and reduce truck rolls and field visits for the faster resolution of network issues.
- vTA capabilities include measurement of Internet and network performance, Internet Protocol television (IPTV) and over-the-top (OTT) video, voice over Internet Protocol (VoIP) telephony and session initiation protocol (SIP), mobile radio, and remote packet inspection. This allows operators to reduce capital expenditure for proprietary test equipment, which is only suitable for specific applications, services, or interfaces.

Netrounds active analytics in the OSS landscape

Provides

- End-to-end network service KPIs based on active measurements
- Service-level agreement (SLA) insights
- Instant SNMP traps to fault management system, in case of threshold violation

Capabilities

- Telco-grade multi-layer activation tests
- Active measurements—real-time assurance
- Network service troubleshooting

HPE contact information

Jeff Kibodeaux
Partner Program Manager
opennfvpartners@hpe.com

Partner contact information

Kaela Loffler
Director, Marketing, and Industry Alliances
kaela.loffler@netrounds.com

Application functionality within HPE OpenNFV Reference Architecture

Netrounds' active traffic-generating vTAs provide distributed measurement metrics for service activation testing, quality monitoring, and troubleshooting. Netrounds' vTAs provide real-time metrics across several application and service types, including voice, IPTV and OTT video, mobile radio, Internet performance, network performance, remote packet inspection, and various interfaces.

Conclusion

Netrounds vTA was tested and now can be successfully deployed on HPE Helion OpenStack Carrier Grade. It can also

be deployed and booted on HPE NFV Infrastructure (HPE NFVI). Upgrades, performance testing, stability, and such activities require network access.

Netrounds has successfully completed silver validation as a VNF on the HPE NFV platform. And, testing scenarios desired to finish in the future would include integration with HPE OSS Fulfillment, assurance solutions, HPE NFVI, and HPE Service Director.

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