

# VMWARE AND NETROUNDS ACTIVE ASSURANCE SOLUTION FOR COMMUNICATIONS SERVICE PROVIDERS

*Combined solution provides end-to-end service and infrastructure visibility, service monitoring and analytics, and service remediation to drive optimal network performance and deliver higher Quality of Experience for subscribers.*

## Assure Subscriber Quality of Experience

Delivering differentiated services, driving new revenue models, and improving subscriber experience are a few of the key factors communications service providers (CSPs) need in order to succeed as they face competition from OTT providers and nimble cloud providers. Advancements in 5G and IoT will be catalysts for CSPs to foster innovation and deliver the on-demand network, giving subscribers services where they want them and when they want them. Achieving this state of agility requires the modernization of networks by virtue of adopting NFV and transforming to networks that will give them the ability to streamline and automate new service offers and the service lifecycle. At the same time, subscribers expect CSPs to deliver on a superior Quality of Experience; however, with the rapid pace of change in these software-defined networks, CSPs may experience service degradations and require systems in place to mitigate those risks, including the ability to quickly identify and resolve a performance issue before it impacts subscribers.

Service assurance is paramount to the success of CSPs deploying NFV-based services. In an on-demand network, with the frequent instantiation of new services and the spinning up of new VNFs, CSPs need to ensure they are meeting SLA commitments for their subscribers. To deliver this, CSPs require:

### ASSURING AGILE CSP NETWORKS

- Test services from end-customer perspective
- Conduct ongoing real-time monitoring of services
- Adapt automatically to dynamic services and infrastructure changes
- Resolve problems faster
- Reduce manual activities for testing and troubleshooting
- Maintain full picture of end-to-end service, virtualization, infrastructure, and inter-site transport quality with Netrounds and VMware vRealize® Operations™
- Integrated platform – A single pane across hybrid clouds, multivendor, and multitenant environments
- Rapid data collection, correlation, and analysis across infrastructure and applications
- Continuous service performance monitoring – Ability to trigger decisions to proactively manage real-time service optimizations, capacity scale-out or scale-in, SLA violations, configuration compliance, and security vulnerabilities
- Faster issue isolation and remediation – Accelerated issue isolation with faster mean time to understanding; and resolution with prioritized alerting, recommendations, advanced log searching, and remote troubleshooting
- Automation and closed-loop workflows into application management, SDN control, orchestration sub-systems, OSS, and others
- Expansion with new data feeds from virtual network functions (VNFs) and infrastructure
- Interoperability with existing service assurance sub-systems and data lakes
- Isolation of service issues across physical and overlay networks
- Improved service reliability and availability

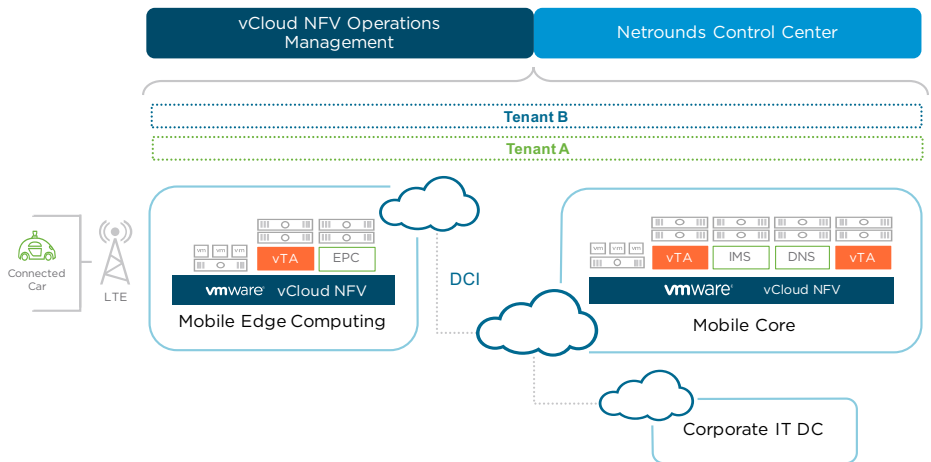
### End-to-End Service Assurance

VMware and Netrounds deliver a combined NFV assurance solution, giving CSPs a framework that provides a blueprint for simplifying operational processes and ensuring service continuity and dynamic service delivery with real-time, end-to-end visibility of the NFV network and services. The solution offers service onboarding, active testing, continuous and scheduled monitoring and assurance for all deployed services, and closed-loop triggering for scaling and healing to minimize service degradations in real-time.

Netrounds provides Virtual Test Agents (vTA VNFs) that can be deployed strategically throughout an operator’s network – along a service chain, on edge compute, and in the core network, among other deployment locations dependent on network topology. These vTAs validate business-critical services on the user plane by sending actively generated traffic: does the service work as expected? Netrounds also provides a central test controller – the Netrounds Control Center – that manages all tests and collects service KPIs. The Control Center is integrated with VMware vRealize Operations (vROps) via API so that a combined view of the resources, as well as the services, are aggregated and viewable in real-time in the vROps dashboard.

#### VMWARE AND NETROUNDS ACTIVE ASSURANCE SOLUTION

The solution offers service onboarding, active testing, continuous and scheduled monitoring and assurance for all deployed services, and closed-loop triggering for scaling and healing to minimize service degradations in real time.



Netrounds’ active testing solution also reduces the need for costly always-on packet capturing and analysis. The operations workflows leverage programmable flexibility to conduct just-in-time target test executions to carry out enhanced service performance analysis. Take, for example, a case where the virtualization infrastructure is reporting elevated resource demand in media-plane telephony VMs. An on-demand test can be triggered with Netrounds to determine if this is an increase in connections, service failure/retries, voice codec transcoding, and so on.

## Operational Intelligence with VMware vCloud NFV and vRealize Operations

VMware vCloud® NFV™ is a fully compliant ETSI architecture consisting of NFV Infrastructure (NFVI) and virtualized infrastructure manager (VIM). vCloud NFV delivers out-of-the-box data intelligence and integrations for components in the VMware domain. vRealize Operations provides complete visibility into all components responsible for the delivery of the service, from the underlying hardware to the hypervisor, networking, and virtual machines that make up the VNF and the service itself. The engine discovers the topology and continuously collects near real-time data to provide correlated health, performance, capacity, compliance, configuration, and availability metrics along with recommendations. To complete the 360-degree monitoring capabilities, vRealize Operations can be configured to generate prioritized alerts (static, dynamic, and custom-defined) for closed-loop integration into resource and service orchestration workflows.

VMware vCloud NFV and Netrounds solution enables CSPs to deliver:

- Day zero service definition, VNF onboarding, and provisioning are key to CSP success for the introduction of services and ensuring new services are delivered correctly the first time and in a timely manner
- Netrounds' automated activation testing capabilities validate newly provisioned or updated services across multiple network layers and domains, as well as through dynamic service chains, and establish an expected baseline in production
- Netrounds' continuous and scheduled service performance monitoring enhances vRealize Operations' single pane with service-aware KPIs stitched to the virtual machine and underlying infrastructure resource which fuel the services
- Day 2 operations management that is highly optimized, making issue isolation seamless – understanding the characteristics of the service correlated with infrastructure KPIs to evaluate health, risk, and efficiency
- Alerting and triggering workflow that is stitched across infrastructure resources and service-performance symptoms
- Intelligent capacity planning and forecasting scenarios which benefit from service-aware performance KPIs

The VMware vCloud NFV platform supports rapid service and network on-boarding and service catalogs providing automated service delivery and operations in a multitenant environment. This allows tenants and applications to be customized and tailored with differing SLAs based on customer requirements. VMware vCloud NFV continuously monitors KPIs and generates alerts and notifications while proactively scaling-out and scaling-up to avoid performance issues and ensure network elasticity and optimal performance across multivendor services spanning multiple data centers.

**KEY BENEFITS**

- Agile service innovation with automated activation testing and continuous assurance
- Centralized and fully automated management, from services to infrastructure
- Enhanced issue isolation and proactive problem resolution with instant user experience problem alerting
- Closed-loop orchestration for scaling and healing to minimize problems in real time
- Dynamically assure differentiated traffic profiles for massive bandwidth, machine type communications, and low-latency real-time applications
- Operations with 360-degree visibility and analytics of both infrastructure and services
- Predictive analytics driving proactive detection and automatic remediation of issues and anomalies

**Complete end-to-end network visibility**

Active ongoing monitoring from Netrounds complements vRealize Operations with multilayer and multidomain synthetic data injection capabilities to validate end-to-end network quality and performance of the user plane. VMware vCloud NFV provides an integrated and continuous service monitoring solution that is fully integrated into the NFVI layers and provides predictive analytics and remediation of any performance, capacity, and configuration issues. This results in a combined view of infrastructure, resource, and service metrics for the complete service lifecycle.

**Rapid problem resolution through automated issue isolation**

The integration of vRealize Operations and Netrounds provides correlation of end-to-end network service performance metrics, including L2-L7 network service data collection with NFV infrastructure characteristics. vRealize Operations continuously computes and monitors performance KPIs and presents a scoring model which summarizes the performance condition of the environments and provides operational “badges” that can drill down to isolate root-cause, assess complex symptoms and alerts, and provide actionable recommendations. This allows CSPs to pinpoint network issues and faults for quicker root-cause analysis and improved mean time to repair (MTTR) for all business-critical services.

**Dynamic service delivery**

CSPs continue to innovate and deliver new services to subscribers. The programmatic capabilities of Netrounds and VMware deliver an automatic feedback loop of validation testing and ongoing monitoring, ensuring that every change and update is delivered seamlessly and correctly.

**VMware and Netrounds Active Assurance Solution Overview**

Netrounds active testing and monitoring complements vRealize Operations running on vCloud NFV with multilayer and service-aware data. Netrounds injects synthetic Layer 2 to Layer 7 traffic for automated network service validation, ongoing active quality monitoring, enhanced issue isolation, and remote troubleshooting. This integration provides service providers with:

- Day 1 activation testing and blue-printing operational baselines
- Day 2 continuous test and assurance for all business-critical services
- Improved proactive issue avoidance
- Timely issue isolation across services, resources, transports, and network segments
- Instantaneous user experience and quality problem alarming
- Closed-loop feedback for real-time, proactive network scaling, and healing based on end-to-end customer service experience

VMware vCloud NFV includes VMware vRealize® Operations Manager™ and provides complete visibility into all components responsible for the delivery of the service. vRealize Operations is pre-integrated with VMware core products with a set of pre-defined dashboards. Custom adapters can be plugged into the framework to consume data for metrics, events, and alerts, and analytical data exposed in custom dashboards and rich northbound APIs. The solution offers:

- **Structured data collection and cross-tier correlation** across service, network, virtual, and infrastructure domains
- **Single pane of glass** for service and resource infrastructure correlated contexts across multisite, multi-instance, multitenancy
- **Comprehensive visibility and scoring** for health, risk, and efficiency across distributed NFV environments and tenants
- **NFVI resource demand management** for capacity planning and optimization with service-awareness
- **Proactive analysis** of service, infrastructure, VMs, and applications to identify and alert performance risks for issue avoidance
- **Smart alerts and super metrics** that are based on self-learning performance analytics, which virtually eliminate alert storms and false positives
- **Fast RCA** (root cause analysis) and prioritized troubleshooting based on applications and services impacted
- **Actionable recommendations** and self-healing integrated, policy-based operations for semi/automated capacity management, workload placement, and high availability
- **vRealize Operations** integrates with vRealize® Log Insight™ to provide in-context, object-level alerting and log analysis for issue isolation.
- **KPIs and alerts** from vRealize® Network Insight™ can be integrated into the single pane operational intelligence tool

### vCloud NFV: Removing Key Barriers for Business Transformation

VMware vCloud NFV is a fully integrated, modular, and extensible NFV infrastructure platform. It allows multivendor VNFs to share a pooled capacity of resources that can be intelligently orchestrated and automated for the provisioning and delivery of services in a cross-cloud environment. This enables service providers to support an elastic business model of multicloud services and personalized offerings while simplifying and automating networks, accelerating time to market, and reducing TCO.



GET STARTED TODAY

New Opportunities  
with vCloud NFV

[LEARN MORE >](#)

Join Us Online:

