NETSCOUT

Application Performance Management for Google Cloud Platform

Visibility Without Borders Starts with NETSCOUT Smart Data Solutions for Hybrid Cloud Monitoring

In today's digital world, enterprise organizations turn to Google Cloud Platform to meet users' demands for a fast, seamless, and secure digital experience. Google Cloud Platform uses secure storage, powerful compute, and integrated data analytics to support a new breed of distributed, connected applications, helping businesses cut time to market and improve customer satisfaction.

To reap the full benefits of the Google Cloud Platform in a hybrid cloud world, companies need to optimize application performance and security. Existing tools can't fill the huge monitoring gap as they are domain specific and unable to deliver seamless, uniform visibility and common situational awareness among the different IT teams. What's more, these tools generate loads of uncorrelated data that obscure and bury performance and security insights that's needed to compete at a breakneck pace.

Enterprises running application workloads through hybrid cloud environments, including Google Cloud Platform, need visibility that does not begin and end at each physical boundary – in short, Visibility without Borders. NETSCOUT® solutions deliver actionable visibility to mitigate service performance issues, threats, and vulnerabilities. NETSCOUT has tools and technologies that make it possible to reduce Mean Time to Knowledge (MTTK), increase Continuous Delivery/ Continuous Integration (CD/CI) velocity, and control service performance and security in IT infrastructures comprised of data centers, co-locations and clouds.

Solution Overview

NETSCOUT uses the industry's most scalable, lightweight distributed architecture to generate Smart Data. Through continuous monitoring and by capturing all wire data (traffic flows) traversing the hybrid cloud environment - performing simultaneous deep-packet inspection and real-time analysis - NETSCOUT generates Smart Data at its point of collection. You also gain a centralized view into the performance characteristics of all infrastructure and application components and their dependencies across geographically dispersed data centers and cloud environments. You gain valuable and timely intelligence into application performance and security, enabling you to proactively find and fix errors, latencies, and threats before they become service delivery problems.

NETSCOUT solutions let you migrate workloads to Google Cloud Platform with confidence, providing a foundation for common situational awareness for NetOps, SecOps and other IT groups by monitoring a variety of availability, reliability, responsiveness and threat metrics - making them easily accessible in real time to the right team members with custom views relevant to their function. Actionable visibility from NETSCOUT allows you to take full advantage of Google Cloud Platform (GCP) capabilities.

NETSCOUT SOLUTIONS ALLOW IT TEAMS TO:

- Accelerate deployments of services into GCP while assuring application reliability, availability, responsiveness, and business continuity.

- Achieve end-user experience objectives and swift issue resolution for application services with Smart Data and smart analytics from NETSCOUT.

- Empower collaboration between enterprises and GCP as they work together to achieve business goals.

- Quick time to value with easy to deploy and easy to manage approach of services available on GCP Marketplace.

Generating Smart Data in Hybrid Google Cloud Platform Environments
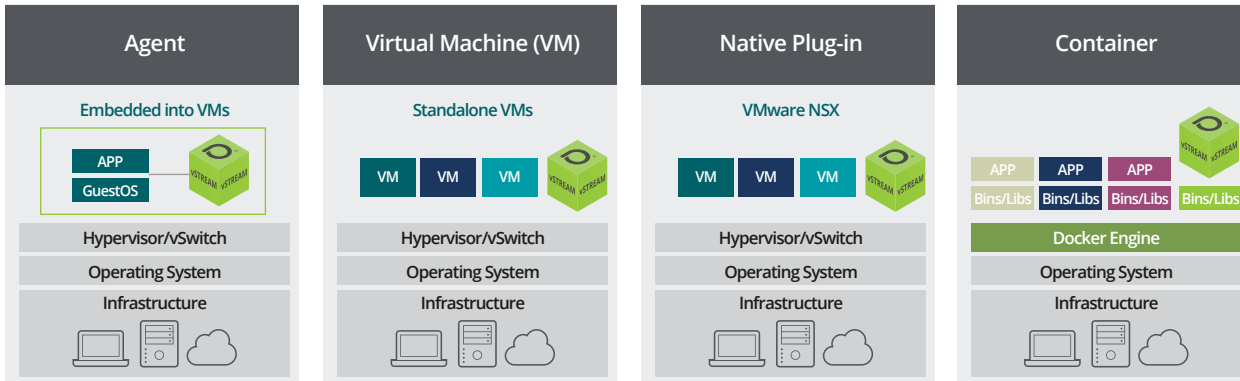
Agent	Virtual Machine (VM)	Native Plug-in	Container
Embedded into VMs	**Standalone VMs**	**VMware NSX**	
APP / GuestOS — vSTREAM	VM VM VM — vSTREAM	VM VM VM — vSTREAM	APP APP APP / Bins/Libs Bins/Libs Bins/Libs Bins/Libs — vSTREAM
Hypervisor/vSwitch	Hypervisor/vSwitch	Hypervisor/vSwitch	Docker Engine
Operating System	Operating System	Operating System	Operating System
Infrastructure	Infrastructure	Infrastructure	Infrastructure

Figure 1: Pervasive visibility with NETSCOUT Smart Data.

Manage Hybrid Cloud Complexity with Smart Data

NETSCOUT Smart Data is a software-centric technology that can be deployed in any hybrid cloud environment. It offers pervasive visibility in the Google Cloud Platform to monitor East-West and North-South (E/W S/N) traffic environments, as well as in VMware NSX to provide visibility into E/W traffic in micro-segmented clusters. Smart Data technology, see Figure 1, is suitable for monitoring any software architecture and especially microservices, since it continuously monitors and analyzes traffic data exchanges between workloads, indexes it and correlates the information to identify dependencies and actionable intelligence on security threats and vulnerabilities, as well as performance issues.

Smart Data is generated by vSTREAM™ based on monitoring any environment in the hybrid cloud, including virtual machines (VMs), Docker or Kubernetes containers, NSX with NSX manager as a Service Virtual Machine. In the VMware security group, it can efficiently receive traffic from the monitored VMs.

nGeniusONE® Service Assurance platform analyzes and converts the Smart Data into actionable insight with top-down service-oriented workflows that guide the user through the triage process of root-cause analysis. nGeniusONE helps users navigate in context from the service dashboard which offers visibility into critical service issues, to the service monitor, which provides details on load, latency and errors, and finally, to the hop-by-hop session analysis.

Unlimited, Unchained, Unrestricted Application Performance Management

NETSCOUT Smart Data fuels the end-to-end visibility and deep analytics needed to protect the enterprise, gain more control of service quality, and preserve the user experience in hybrid cloud environments.

With the NETSCOUT solution, see Figure 2, information is timely and precise – able to support multiple, diverse stakeholders with data flexibility – to meet specific business requirements.

nGeniusONE provides application performance management for Google Cloud Platform and allows you to:

· Assure service delivery in hybrid cloud environments.
· Migrate application workloads to Google Cloud while reducing business risk.
· Deliver a consistent and high-quality user experience before, during and after cloud migration.

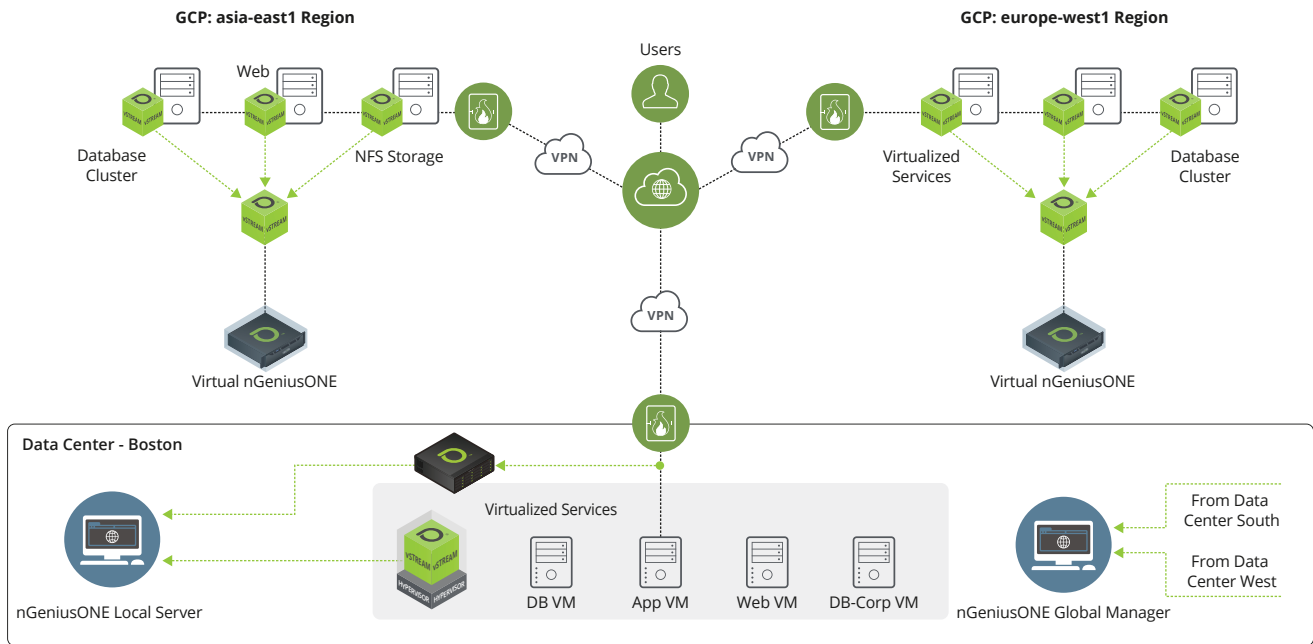## Application Performance Management for Google Cloud Platform

Figure 2: Migrate workloads to Google Cloud Platform with confidence.

Solution Components

In complete alignment with the needs of cloud-centric digital transformation strategies, NETSCOUT provides application performance management for Google Cloud Platform and delivers Visibility without Borders. This means real-time, pervasive visibility and deep analytics by leveraging key capabilities of NETSCOUT's enterprise product portfolio.

Deployed in combination, the following products support the successful migration of workloads to the cloud by providing an effective analytics feedback loop based on real-time and continuous monitoring of wire data.

vSTREAM

With vSTREAM, a common set of metadata is made available to a wide range of analytics stacks for enhanced application performance and security insights. When vSTREAM is used with Google Cloud Platform, wire data is transformed into Smart Data.

Instantiate vSTREAM in the Google Cloud Platform environment as an agent, VM, VMWare NSX plug-in or application in a container.

- Analyzes real-time views of sessions, conversations and end-to-end call traces.
- Assesses application traffic volumes, server response times and throughputs.
- Reports on critical key performance indicators (KPIs).
- Aggregates error counts and error codes specific to the various applications and servers.

Virtual nGeniusONE

Virtual nGeniusONE is used with Google Cloud Platform and delivers an overarching view into the performance characteristics of all infrastructure and application components associated with delivering digital services.

Instantiate Virtual nGeniusONE as a VM in the Google Cloud Platform environment.

- Supports proactive service triage for root cause analysis and application performance troubleshooting in hybrid cloud environments.
- Combines real-time monitoring, historical analysis, and multi-layered analytics capabilities.
- Promotes effective management of the health and availability of diverse applications and infrastructure with business impact analysis.

Packet Mirroring

In addition to forwarding packets from one vSTREAM instance to another, you can also configure GCP Packet Mirroring to help NETSCOUT Smart Data solutions provide visibility on cloud-based traffic. GCP Packet Mirroring lets you acquire packet data from multiple application workloads and mirror it to a vSTREAM instance's monitor port.

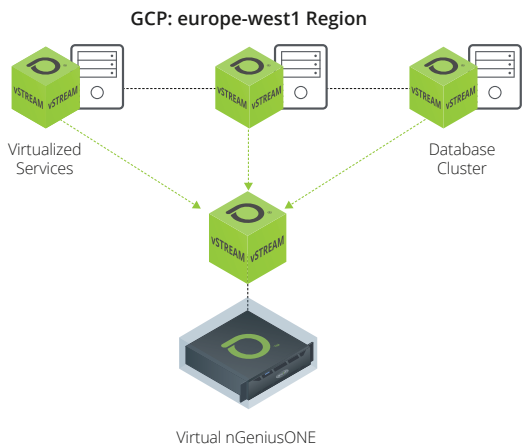Mirroring sessions consist of the following main components:

- **Mirror source.** This is where the traffic will be mirrored from.
- **Mirror destination.** This is where mirrored traffic will be sent – a vSTREAM monitoring port in our case.
- **Mirror filters.** These let you limit which traffic is mirrored to just the packets of interest.

The GCP documentation describes how to set up Packet Mirroring. The NETSCOUT's Getting Started Guide will provide an example specific to a NETSCOUT Smart Data Solution deployment.

LEARN MORE

Visit Google Cloud Platform Marketplace for more information:

https://console.cloud.google.com/marketplace/browse?q=NETSCOUT

GCP: europe-west1 Region

Virtualized Services

Database Cluster

Virtual nGeniusONE

KEY:

- **vSTREAM** used in GCP transforms wire data into smart data.

- **Virtual nGeniusONE** used in GCP provides overarching views into the performance characteristics of all infrastructure and applications components across geographically dispersed data centers, co-locations and cloud.

NETSCOUT®