

## Major Pan-African Mobile Operator Leverages *nGenius*® Solution Visibility into MPLS VRFs to Deliver High Quality 3G Mobile Services

### Problem

This operator architected different VPN Routing & Forwarding (VRF) paths to deliver 3G mobile customer traffic and corporate back office applications over separately routed segments.

### Challenge

The Operations group needed to gain crucial visibility into the customer and service traffic details at the VRF level for both troubleshooting and traffic engineering purposes.

### Solution

The operator deployed the *nGenius* Performance Management Solution with its traffic analysis of VRF paths for real-time views of application-layer activity to resolve customer affecting problems.

### Result

The immediate benefits the data network team recognized include reduced mean time to restore by pinpointing service degradations, optimizing traffic engineering with trended network and service reporting, and protecting against network misuse with application recognition.

### Introduction

A major Pan African mobile network provider offering communications services to more than 20 million customers across multiple countries needed help with assuring quality of their new 3G and 3.5G data services. Their consumer and enterprise customers subscribe to a variety of advanced services including BlackBerry®, prepaid services and multimedia offerings ranging from video calling to mobile TV. While business is booming, customer loyalty and retention are always a concern, thus efficient network utilization and assuring high service quality are of paramount importance.

Since starting operations over a decade ago, the operator's networks and service offerings have evolved from multiple, disparate networks across South Africa, supporting voice and data mobile services as well as back office application such as billing, customer care, and general office automation, to a strategically designed, consolidated data network (CDN) with a prime goal of streamlining operations. The new CDN is an MPLS-based infrastructure that makes use of different VPN Routing & Forwarding (VRF) paths for 3G mobile services and internal back-office applications, as well as customer-facing point-of-sale applications – each with its own prioritized quality of service across the CDN.

### Gaining visibility into 3G Mobile Services across MPLS Cloud

The operator's customer-facing services are transported over the MPLS network which is merged with its back office operations applications, such as Oracle Financials and SAP and in-house developed applications. In an area of the world where bandwidth is both

scarce and pricey, this was an efficient networking approach, but it did present a new challenge – with the migration to MPLS, they employed different VPN Routing & Forwarding (VRFs) paths to deliver customer and corporate traffic over separately routed segments. For both troubleshooting and traffic engineering purposes, the operations team needed to gain visibility into the traffic details by user, customer, service, and application at the VRF level, which had been obscured by the move to the shared MPLS infrastructure.

The operator selected NetScout's *nGenius* Performance Management Solution with its in-depth traffic analysis of VRF paths for real-time views of service and application layer activity to resolve problems affecting customer, network and service assurance. They hosted *nGenius* Performance Manager in the network operations centers in two major cities, to collect network and application statistics from *nGenius* Probes and *nGenius* Flow Recorders co-located at various sites around Africa, between the SGSN and GGSN nodes in the MPLS-based CDN. Additional coverage on the core links and the GI interfaces will let the data network team tackle additional traffic engineering issues with emerging 3G mobile services that involve pulling data from the Internet. Ultimately, customer experience assurance goals are making visibility into the routes traffic is traversing an essential need.

The operator's data network team has recognized immediate benefits from the *nGenius* Solution's network intelligence including reduced MTTR (mean time to restore) by pinpointing service degradations, optimizing traffic engineering with trended network and application/service reporting, and ensuring proper network usage with granular application recognition.

**“NetScout had a definite plan of action for visibility into MPLS VRFs. This was a major plus because the other vendors didn't even have a roadmap to address this.”** -- Manager of Data Networks

## Protecting valuable bandwidth from abuse with performance management

The *nGenius* Solution proved to be a powerful troubleshooting tool for the data network group recently as they were looking at real-time views of link utilization and discovered an unusual spike in traffic on one particular segment. With quick drill downs, they identified the actual end user in one city pulling bandwidth-intensive streaming media from a distant location. As the Manager of Data Networks pointed out, "In Africa, wide-area networking is pretty pricey, and we don't have oodles and oodles of bandwidth available." So when a situation occurs where a particular link is congested to the point of impeding business critical traffic for other customers, it is essential to be able to analyze and identify the source in order to take definitive action and maintain availability levels for all customers and users.

## The *nGenius* Solution supports many areas of a mobile service provider network

The operator is using the *nGenius* Performance Manager with strategically deployed *nGenius* Probes to help them solve challenging problems throughout many areas of their mobile services network. Some examples of network or application performance problems that have been solved by the operator's data network group using the *nGenius* Solution include:

- *Optimize performance at retail store locations*

Some of the operator's in-house applications are used by their retail shops country-wide. They all communicate back to centralized servers for customer billing information and to update subscriber services. Starting up or changing mobile services can take some time. The data service group is using the *nGenius* Solution to monitor the response time for this mission-critical customer service to ensure that network and application degradations don't lengthen the process.

**"When you have the client sitting in front of the representative at the retail store you don't want them waiting a long time to get confirmation back from a server. And having the representative blaming a slow network isn't going to build customer confidence. The fact is, a lot of the time, it's due to an application issue, so we are using the *nGenius* Solution to assist us with these kinds of queries and pinpoint precisely where the problem is."**

Manager of Data Networks

- *Enhance cross-functional collaboration*

When troubleshooting problems, the *nGenius* Solution provides answers on where the data network team may need to re-route traffic or point to delays in a particular service or application server that should be researched by systems administrators or developers. The ability to create an on-demand pdf report with graphical evidence and email it to application developers, data network staff or third party vendors makes such collaboration very effective, as well as easier to assign responsibility and complete the troubleshooting process.

- *Deep-dive data analysis*

The operations team has used the data capture and decode features in the *nGenius* Solution when trying to decipher unrecognized application traffic or locate specific IP address information to quickly find out who was talking to who for any particular conversation. In-depth, distributed data analysis in combination with ongoing monitoring and trending is a crucial combination in a network as widespread as Vodacom's; hand-held analyzers will not scale for their carrier-grade environment.



**"Reducing the time it takes to resolve problems is a good indication of the benefit of the *nGenius* Solution."**

Manager of Data Networks



## The *nGenius* Performance Management System

The *nGenius* Solution addresses the complex requirements of network and application performance management in today's converged, virtualized environment and is comprised of:

- ***nGenius* Performance Manager:** Software that analyzes the information collected by *nGenius* Probes, Flow Collectors, Application Fabric Monitors, and other intelligent network devices and delivers integrated network and application monitoring, troubleshooting, capacity planning, and reporting in a single product.
- ***nGenius* Probes:** Dedicated hardware monitoring devices that passively identify, collect, and analyze application-level traffic data across the enterprise.
- ***nGenius* Flow Collectors:** Dedicated hardware devices that collect application conversation data via NetFlow records.
- ***nGenius* Application Fabric Monitors:** Appliances that combine *nGenius* Flow Recorder and *nGenius* Probe functionality for high performance, high reliability, high capacity recording and infrastructure monitoring.
- ***nGenius* Analytics:** Appliance-based software that delivers automated, proactive early detection and diagnosis of network and application performance anomalies.



### Corporate Headquarters

NetScout Systems, Inc  
310 Littleton Road  
Westford, MA USA  
Ph: 978.614.4000  
Fax: 978.614.4004  
www.netscout.com

### European Headquarters

100 Pall Mall  
London SW1Y 5HP  
United Kingdom  
SL1 4DX UK  
Ph: +44 20 7321 5660  
Fax: +44 20 7321 5663

### Asia/Pacific Headquarters

Room 105, 17F/B, No. 167  
Tun Hwa N. Road  
Taipei, Taiwan  
Ph: +886 2 2717 1999  
Fax: +886 2 2547 7010

### North American Offices

New York City, NY  
Washington DC  
Chicago, IL  
San Jose, CA  
Toronto, Ontario,  
Montreal, Quebec

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