Making Big Data Smart

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11/15/2017
NETSCOUT at a glance

- $1B+ Revenue
- 3500 Employees – 35% in R&D
- 3 Major design centers
- Security
  - For Enterprise, Service Provider, Government
  - Market leader in DDoS
- Enterprise
  - Solutions for SME to the largest businesses
- Government & Defense
  - Federal, Civilian, State, Local, DOD
- Service Provider
  - Scaling to the worlds largest and busiest networks
nGenius Adaptive Service Intelligence (ASI)

Continuously converts large volumes of wire data into structured multi-dimensional metadata that is optimized to provide real-time and actionable insight into Service Assurance and Security Assurance.
nGenius ASI
From Wire Data to Smart Data

• Key Performance indicators
• Session Records
• Packet Capture
Adaptive Service Intelligence – ASI+

Pervasive and Scalable Technology
- Software-centric, designed for both physical and virtual environments
- Tier-1 scale
- Technology innovator

Smart Data
- Multi-dimensional meta-data
- KPI, FLOW, SESSION, PACKET
- Entire Service Stack – applications, DB, enablers, serves, dependencies…

Open API
- KAFKA – streaming
- REST – on-demand
- Export to third parties

Greener Deployment
- Process then store model
- Uses least amount of hardware
- Smaller footprint, less power

Scalable, Real-Time Actionable Intelligence
Collecting, Organizing and Analyzing Smart Data

Machine Data
(Logs, MIBs, Agents)

Wire Data
(Pervasive Instrumentation of Traffic Flows)

nGeniusONE
Smart Data Platform

Seamless Integration of Multiple Assets for Lowest Total Cost

Core technology

Lower TCO & Highest ROI

Unified Communications
Advanced Threats
Big Data Analytics
Advanced NPB plug in
IPM & Synthetic Test
USING SMART DATA FOR SERVICE ASSURANCE
Digital Transformation Driven by The Hybrid Cloud

Originally driven by lines of business – quickly becoming a strategic asset

Emerging technology to provide elasticity in the enterprise infrastructure

IT Must Provide a Complete and Common Management Approach

Still a critical part of the enterprise service offerings
Managing The Hybrid Cloud Environment

Too Many People Using Too Many Tools with Little Automation

- Server Management Tools
  - Physical Servers
  - Virtual Servers

- Network Management Tools
  - Legacy Network
  - Software Defined Network

- Application Management Tools
  - Legacy Applications
  - Cloud Applications
NETSCOUT’s Service Assurance Solution

Ensuring successful and cost effective application rollouts and ongoing service performance for Public Cloud, Private Cloud and Legacy Infrastructure
nGenius Service Assurance Solution
Smarter Analytics from Smart Data

- nGeniusONE
- InfiniStreamNG
- ASI

Network Assurance
Application Assurance
Infrastructure Assurance

vNG1
vSCOUT & vSTREAM
ASI
nGeniusPULSE

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Network Assurance

• An application oriented view of network services supporting the delivery of business services

• Network team visibility for capacity needs and to ensure availability, reliability and responsiveness of applications

• NETSCOUT is the leader and inventor of wire data based network assurance

• ASI is the core technology that allows us to scale wire data and transform it into Smart Data
Network Assurance / Deployment Readiness

North-South (VXLAN) Traffic Analysis

- Host to Host Traffic, by Application
- Virtual Network (VNI) Tracking by Host, VM and Application
- Traffic to Cloud
- Application Analysis
- Service Dependency
Physical Infrastructure
Data Centers / Cloud etc.

Why is the host to host traffic increasing?

Why are these applications consuming so much bandwidth?

North-South (VXLAN) Traffic Analysis

Traffic Distribution by Location

Client Site - ESX5 - Top 10 Applications and Link Usage Over Time

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Application Assurance

- Application teams require visibility into increasingly complex and distributed applications

- Custom applications are increasingly likely to use a micro-service architecture distributing services over many servers

- vSCOUT has made monitoring throughout this environment possible and affordable

- ASI-X is deployed alongside the application providing a smart data approach to the performance and quality of applications
Existing Apps on the move
New Apps run in Multi Cloud Environments

Outsourced Private Cloud

On-Prem Private Cloud
SDDC-NSX, ACI

SaaS

On-Prem Traditional
ESXi, Hyper V, KVM...

On-Prem Public Cloud

Public Cloud
AWS, GCP, Azure

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Introducing vSCOUT, vSTREAM and vNG1

vSCOUT runs in the Virtual Machine

vSCOUT can be configured to deliver ASI-X that can be leveraged by nGeniusONE

vNG1 can be deployed in the cloud and use Global Manager to connect to nGeniusONE in the data center

Wire Data from the Cloud

vNG1
Introducing vSCOUT, vSTREAM and vNG1

vSCOUT runs in the Virtual Machine

vSCOUT tunnels traffic to vSTREAMs virtualized in the cloud or to on premise InfiniStreams

vNG1 can be deployed in the cloud and use Global Manager to connect to nGeniusONE in the data center

vSCOUT can be configured to deliver ASI-X that can be leveraged by nGeniusONE
Application Assurance
East West Visibility in the Virtual Environment

1. vSCOUT runs in the Virtual Machine
2. vSCOUT delivers ASI that can be leveraged by nGeniusONE
   - KPI’s and Application Analysis
   - Latency
   - Transactions
   - Errors
   - Service Dependency

Why is my application performance suffering?

How are my VMs performing?
Infrastructure Assurance

SERVER INFRASTRUCTURE MONITORING

Server Availability and Health

NETWORK INFRASTRUCTURE MONITORING

Network Device Availability and Health

SERVICE AVAILABILITY MONITORING

Service Availability of SaaS, Public and Private Cloud, VoIP, and Networks
How are my VMs performing?

How is my SaaS performing?

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<th>Service Tests</th>
<th>Servers</th>
<th>Network Devices</th>
<th>Sites</th>
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Extending Visibility in the On-Prem Data Center
Illuminate the Application from the Data Center to the Cloud
Illuminate the Application from the Data Center to the Cloud or Multi-Cloud
Illuminate the Application from the Data Center to the Cloud or Multi-Cloud
Proactive Service Triage
with nGeniusONE & nGeniusPULSE
- Isolate Problems to Network, Application or Server -

Service Dashboard
High-level visibility into critical services and performance issues

Service Monitors
Service Monitors identify key performance metrics to verify and correlate service impact

Session Analysis
Perform granular user session tracing and analysis with hop-by-hop transaction and latency

Deep-Dive Packet Analysis
Expert packet-level analysis and decode for deep-dive investigation of service performance issues

Contextual Drill-Down to Infrastructure Health
Quickly identify the status of network and computing equipment and run proactive synthetic tests
ASI+ SMART DATA FOR BUSINESS ANALYTICS
Architecture: 3-Tier Model

nGenius Business Analytics (nBA)

Applications
- SUBSCRIBER INSIGHTS
- EXPLORER
- SELF SERVICE ANALYTICS

Middleware
- Access
- App & Network
- Subscriber

Data Collection, Enrichment, Correlation, and Aggregation

InfiniStreamNG
Physical & Virtual (NFV)

Operator Data Lake

Data Enablement

Export

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Industry Standard KAFKA Interface

CONSUMER

BROKER

PRODUCER

Operator Data Lake

Published Topics
Access-Core, Service, Application, Subscriber, OTT

ASI+
Edmonton

ASI+
Calgary

ASI+
Vancouver

ASI+
Winnipeg
Build Custom KPIs with Explorer

Example
Build a Custom KPI for a high volume of errors for HTTP/HTTPS applications on iPhone handsets only
Custom Analytics

Flexible Reporting and Analytics

- Rich ASI+ data set
- Executive reporting and dashboards
- Point-and-click pivoting on any data set
- Combine with external data sets from web interface
- Built-in trend reporting, integrates with “R”
- Integrated with web, mobile and Microsoft Office
- Geo-mapping of ASI dimensions and metrics
Potential Use Cases

• Business Performance
  – Define and monitor business KPIs for DX
    • E.g. service cost as function of performance

• Improve customer satisfaction
  – Proactive approach based on predictive performance

• Risk Management
  – Anomaly detection
    • Use machine learning to minimize false positives and false negatives
The NETSCOUT Difference

- **Service Assurance**: Patented ASI technology
  Market leader in both SP & Enterprise segment

- **Packet Broker**: Only major player in both the NPB and SA/Security tools it connects to

- **Cyber Security**: Leading security player that also has a dominant position in service assurance

- **Big Data Analytics**: Real time IP intelligence
  Smart data
  Thin middleware
  Open interface
Thank You!

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