Visibility Without Borders: Using NETSCOUT to help migrate apps to AWS

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Agenda

Hybrid Cloud Migration Challenges and Solutions

A New Approach to Continuous Monitoring in the Hybrid Cloud

Migration Use Cases

Customer Stories
Who Is NETSCOUT?

Solving the toughest problems for the largest IP networks in the world

**Service Providers**
- Verizon
- AT&T
- Sprint
- Vodafone
- T-Mobile
- Comcast
- Charter

**Financials**
- Bank of America
- Wells Fargo
- Lloyds Bank
- RBC
- Royal Bank of Canada
- Discover Financial Services

**Online Healthcare Systems**
- Kaiser Permanente
- Cerner
- United Healthcare

**Global Enterprises**
- ExxonMobil
- Disney
- DISA
- eBay
- Apple
Digital Transformation
Changes EVERYTHING

- Hybrid cloud is everywhere
- Legacy, co-location, private, and public cloud
- PaaS, IaaS, and FaaS
- Lift and shift vs. refactored microservice applications

Data Center Transformation

- Refactored applications add multiple layers and **dependencies**
- DevOps organizations often use specialized tools for each application

Applications Architecture Evolution

- Assets are more widely distributed and on the move
- Visibility is **fragmented** and often very low fidelity

Businesses Must Blend Cloud and Legacy Technologies

Visibility is critical to empower IT to execute their migration strategy successfully
Growing IT Complexity

93% say IT is equally or more complex compared to two years ago

IT Still Isn’t Getting Easier

- More complex than two years ago, 45%
- Equally complex as two years ago, 27%
- Less complex than two years ago, 5%
- Significantly less complex than two years ago, 1%
- Significantly more complex than two years ago, 21%

Question text: In general, how complex is your organization’s IT environment relative to two years ago? (Percent of respondents, N=600)
Visibility Challenges Due to Workload Migration

Refactored applications run anywhere and everywhere

New challenges in assuring user experience

• Service architectures are more complex
• Need to assure service-level performance
• Multiple dependencies across applications and service delivery infrastructure
• Effective real-time and forensic troubleshooting workflows to reduce MTTR
• IT asset tracking
• Security / cyber assessment
A New Approach to Continuous Monitoring on AWS
Hybrid cloud visibility based on NETSCOUT Smart Data

Visibility across infrastructure and application layers

- Service-level performance management, security assurance, and asset tracking across
  - Networks, applications, enablers, compute, database
- End-to-end continuous L2-7 visibility across all dependencies: load, latency, app errors
- Top-down user friendly troubleshooting and service triage workflows
  - For both real-time and forensic analysis
  - Reduce MTTR by 80+%
What Is Smart Data?

Packet data is ultra HD, universally available, and converted to smart data with ASI

**Acquire Packet Data**
- Data center and co-location
  - VMware NSX data center
  - NSX-T service insertion
  - Port mirroring/span/taps
- AWS
  - Amazon VPC traffic mirroring*
- Flexible deployments
  - Cloud-native
  - VMs, containers, and pods

**Convert to Smart Data**
- Deep packet inspection performance and security KPIs

**Export**
- To data warehouses and data lakes
  - Using industry standard Kafka and REST APIs
  - To destinations like Amazon Redshift and Amazon S3

* NETSCOUT AWS Launch Partner
Smart Data – ASI Metrics

**Rich multi-dimensional metadata**
- KPI, Session, Packet

**Advanced metrics**
- Application Response Time
- Application Success, Failure
- Application Errors
- Network Response Time
- Per Protocol, Per Message Type (i.e., URL)
- Voice and Video QoE Metrics

**Security metrics**
- Weak Security Practices (Ciphers, Protocols)
- Threat Analysis
- Behavior Analysis

Smart Application Troubleshooting and Monitoring
Smart Data Gives Common Situational Awareness

Smart Data
Real-World Use Case #1: Service Triage for Workload Monitoring in Hybrid Environments
Typical NETSCOUT Hybrid Deployment Model

- Management VPC
  - Management Subnet
  - Management Interface
  - vSTREAM AMI
  - Availability Zone
- Workload VPC(s)
  - Availability Zone 1
  - Web/App Tier
  - Multi-AZ Database
  - Gre / UDP / VXLAN Tunnel
  - Availability Zone 2
- AWS Cloud
  - Region
  - PAYG
  - BYOL
  - nGenius License
  - AWS Marketplace
  - AWS CloudFormation
  - CF Template
  - vSTREAM AMI
  - nGeniusONE AMI
- AWS Transit Gateway
- Customer Gateway
- VPN Connection
- AWS Direct Connect
- On Premises / Co-Lo Data Center
- AWS CloudFormation

- Monitoring Subnet
- Monitoring Interface
- SG
- eni-if3
- eni-if4

- Web/App Tier
- Auto Scaling Group
- Elastic Load Balancer
- Route Table
- AWS Route 53
- Amazon VPC
- Route Table
- availability

- On Premises / Co-Lo Data Center
  - On Premises / Co-Lo Data Center
  - nGenius License
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Workload Migration Visibility Best Practices

- **Before migration**
  - Choose workloads to migrate
  - Identify dependencies
  - Establish performance baselines
  - Develop migration strategy

- **During migration**
  - Assure performance

- **After migration**
  - Optimize performance as you elastically scale
  - Compare to baselines
  - Monitor service availability
  - Monitor vulnerabilities and security threats
Gain Visibility into AWS Workloads
vSTREAM Extends the Visibility into AWS

- Service-level assurance of user experience in hybrid environment across...
  - Hybrid networks, applications, enablers, compute, database
  - Service optimization
  - Asset tracking
NETSCOUT Visibility Without Borders

On-Premises, Co-Lo, AWS IaaS, and SaaS Visibility Across Infrastructure and Application Layers

- Service-level assurance of user experience in hybrid environment across
  - Hybrid networks, applications, enablers, compute, database
- Service optimization across the cloud - co-lo - data center interconnectivity
- SaaS service monitoring
- Asset tracking
Visibility Without Borders
Seeing Dependencies Across ALL the Borders and Domains
Quick and Effective Service Triage
Using Proactive Top-Down Methodology

nGeniusONE

- **Service Dashboard**
  Gain visibility into critical service issues

- **Performance Analysis**
  Launch service monitors to verify and correlate service impact

- **Session Analysis**
  Perform granular user session tracing and analysis

- **Deep-Dive Packet Analysis**
  Deep-dive investigation of service delivery issues

**SMART DATA**

- Services
- KPI/Flows
- Sessions
- Packets
nGeniusONE Hybrid Cloud Dashboard
Establishing Common Situational Awareness
Performance Monitoring – Hybrid Cloud
Service Triage – Cloud to Application to Layer

Examine Performance and Errors in Each Tier
Service Triage – Example MYSQL Performance Issues

**Performance**

**Errors**
Service Triage – Sessions Performance

Database Session Ladder Diagram
Packet Forensics

Detailed Packet Analysis

- Services
- KPI/Flows
- Sessions
- Packets
Real-World Use Case #2: Risk Mitigation – Cyber, Security, and Threats
Risk Mitigation with Smart Data

Cyber risk detection based on IoCs
- NETSCOUT IoC – Atlas Information Feed (AIF)
- Third-party IoCs using STIX/TAXII
- Examples – Malware, command and control, campaign and targeted attacks, etc.

Security risk events
- Examples – Certificate expiration, self-signed certificate usage, weak ciphers

Threat indicators
- Examples – Volumetric attacks, state exhaustion, and application layer threats
Cyber Threat Dashboard
Utilizing AIF and Third-Party Feeds
Investigation of a Remote Access Trojan (RAT)
Command and Control Connectivity
Packet Drilldown
Bidirectional SIEM Plug-In

- Extend SIEM visibility and augment investigation
- Enables a single-click packet-level investigation of any security risk even
- Context launch to host and conversations guided investigation workflow
- Reduces time to investigate security risks and threats
The Voice of NETSCOUT Customers
NETSCOUT Customer Benefits

**Improve end-user experience through swift application performance and security problem resolution**

98% of IT organizations surveyed say NETSCOUT helps them solve service assurance challenges by gaining end-to-end visibility across the cloud, data center, and network edge, as well as detect anomalies and then quickly and efficiently investigate the root cause.

**Accelerate cloud migration by transforming wire data into smart data**

96% of surveyed IT organizations gain happier users through actionable insights using NETSCOUT smart data and agree that a high volume of disparate data from siloed tools makes it challenging to manage performance and security issues.

*Based on over 14,000 NPS ratings collected across 171 companies*
NETSCOUT Customers Agree That “What You Can’t See Can Hurt You”

NETSCOUT customers confirm what you can’t see can hurt you

95% of surveyed IT organizations agree:

- high volume of disparate data from siloed tools makes it challenging to manage performance and security issues
- Lack of a common situational awareness between IT teams causes finger-pointing
- Visibility blind spots in the hybrid cloud increase risk

Source: TechValidate survey of 61 users of NETSCOUT solutions
93% of IT professionals say end-to-end visibility needed for timely and precise application performance and security management

Rate the importance of NETSCOUT functionality:

- Extremely important
- Important
- Not important

Ubiquitous visibility with pervasive instrumentation in the cloud and on-premises (vSTREAM™ and InfiniStreamNG™ software and hardware appliances)

Deep application visibility for data centers (Adaptive Service Intelligence™ technology)

Actionable visibility for service performance, threats and vulnerabilities (nGeniusONE® and Arbor Threat Analytics)

Source: TechValidate survey of 58 users of NETSCOUT solutions

Published: Nov. 15, 2019  TVID: F74-647-B64
The Benefits of NETSCOUT’s Visibility

**Quicken Loans**
Cashed in by improving service performance and security visibility by over 50%. Reduced MTTK by 40%–50%.

**DEVCOM**
Invaluable solution to gain insight for network performance, status, anomalies.

**Express Scripts**
Love the products and the network visibility they provide.

**FirstEnergy**
Great partner, great visibility.

**US Government**
Excellent products, technologies, and services. Powerful tools that provide good visibility.
NETSCOUT Smart Data

Smart data derived from packets is the single source of truth

There are many applications and many deployment options

- Consistent TCP/IP communications between components

NETSCOUT technology to converts packets into smart data

- NETSCOUT software-first packet data-based solution offers affordable and actionable intelligence
- Public or private cloud, co-location, modern or legacy infrastructure
- Single source of truth that makes a single pane of glass a reality

Smart data solutions can be deployed anywhere

- Single source of data for cost-effective instrumentation
- Provides common IT and DevSecOps situational awareness
- Ensures excellent and secure user experience

Smart data is used for network, application, and security use cases
Thank you!
Please complete the session survey in the mobile app.