# NETSCOUT®

# nGeniusONE Platform for Capital Markets

## Service Assurance for Capital Markets

More than any other industry, in Capital Markets it's not just seconds or milliseconds, but rather nanoseconds that truly matter. Every fraction of a second a transaction can be accelerated may be an edge against competitors. Uptime and availability is crucial, particularly considering the cost of downtime could cost the business millions of dollars. In this environment, it is essential to optimize and protect service delivery on the trading floors and across the bank.

Capital markets employees rely on a complex set of interconnected applications both developed in house and off the shelf to help them conduct business, whether they're executing a stock trade, advising a customer on a merger, structuring the initial public offering of a subsidiary, refinancing an outstanding bond or something else. IT staff needs to ensure that all of the underlying applications, servers, networks, and critical service enablers are performing well to support these business activities. With so many possible areas that could contribute to service degradation, IT teams need a robust triage and performance management solution capable of isolating faults across multiple domains very quickly.

The nGeniusONE® Service Assurance platform provides real-time visibility into the performance of capital markets services by analyzing all traffic flows over the network, on premises or in the cloud. nGeniusONE leverages rich wire data by extracting key performance metrics and transforming them into smart data and smarter analytics. Powered by Adaptive Service Intelligence™ (ASI) technology, the highly scalable and patented deep packet inspection engine, the nGeniusONE platform enables IT teams to identify the root cause for performance issues impacting the prompt delivery of application services occurring across the service delivery environment. With this end-to-end view, IT teams can quickly triage performance issues even in complex multi-vendor networks, ultimately reducing Mean Time to Repair (MTTR).

## Performance Issues Solved by the nGeniusONE Platform

nGeniusONE delivers end-to-end visibility into the performance of securities trading, market data feeds, or other elements within the capital markets application environment including end users, proxy servers, load balancers, service enablers, backend database servers, application and web services, as well as the underlying network

infrastructure, whether on premises or in the cloud. As a result, nGeniusONE uncovers service anomalies contributing to slow application response times and poor user experience including:

- **Session latencies** – nGeniusONE tracks application performance by monitoring session response times between clients and servers. For database, middleware, UC&C, market data feeds, securities trading, and other specialized applications, the platform differentiates between different message types, independently reporting on the performance characteristics. With the information provided, IT teams are able to identify the root cause of application slowness, including possibly database connect times, stock trade transaction timeouts, or even backend issues such as DNS failures.
- **Application errors and messages** – Important application errors and messages are automatically discovered, allowing IT teams to proactively investigate root causes of performance issues. Causes could include failures, bottlenecked performance, out of memory conditions, out of resource conditions and more. This is critically important for such things as securities trading, as well as more general services that could include web-based custom applications, Citrix, Exchange, Oracle, or Office 365.
- **Web-based application error codes and messages** – Since HTTP and HTTPS traffic flows are analyzed by ASI, IT teams can monitor web-based wealth management or securities trading applications to pinpoint slowdowns and errors like Error 404 – for page not found. As more and more users shift to online banking or mobile apps to access their accounts, the uptime and availability of these portals is of paramount importance.
- **User impact** – IT teams get visibility into which community of users is affected, or which particular branch office or other location is impacted by the problem. nGeniusONE enables capital markets IT teams to understand quickly which users or locations are affected by a performance degradation and how their service is impaired.
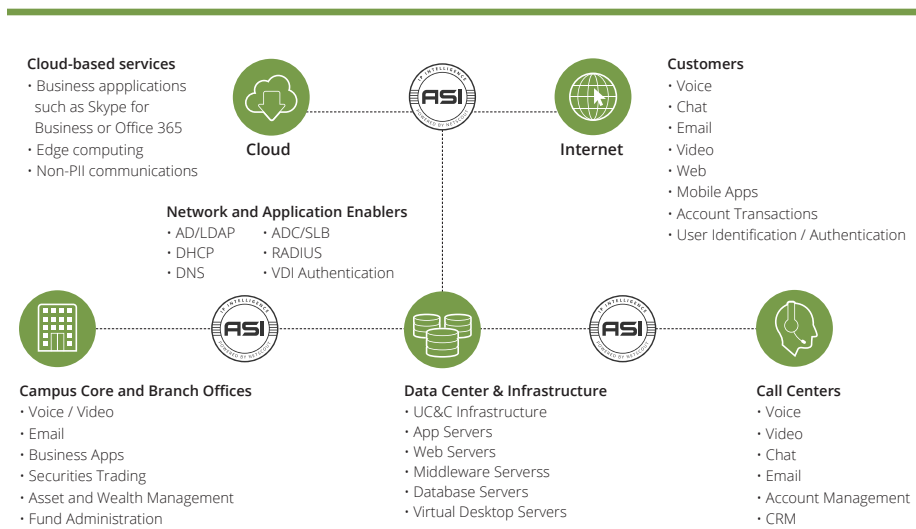


**Cloud-based services**
- Business applications such as Skype for Business or Office 365
- Edge computing
- Non-PII communications

**Cloud**

**ASI**

**Internet**

**Customers**
- Voice
- Chat
- Email
- Video
- Web
- Mobile Apps
- Account Transactions
- User Identification / Authentication

**Network and Application Enablers**
- AD/LDAP
- ADC/SLB
- DHCP
- RADIUS
- DNS
- VDI Authentication

**ASI**

**ASI**

**Campus Core and Branch Offices**
- Voice / Video
- Email
- Business Apps
- Securities Trading
- Asset and Wealth Management
- Fund Administration

**Data Center & Infrastructure**
- UC&C Infrastructure
- App Servers
- Web Servers
- Middleware Serverss
- Database Servers
- Virtual Desktop Servers

**Call Centers**
- Voice
- Video
- Chat
- Email
- Account Management
- CRM

**Figure 1: nGeniusONE provides end-to-end visibility into all of the critical systems required to support a successful capital markets environment.**

## nGeniusONE Platform Offers Seamless Top-Down Workflows

The nGeniusONE platform relies on the power of ASI and smart data to help capital markets IT teams quickly troubleshoot application performance impacting issues. Through continuous monitoring of all application traffic, ASI data enables the nGeniusONE solution to provide a holistic view across every component that could potentially degrade an application's performance. This highly structured data enables nGeniusONE to provide financial services organizations with operational insights and visibility into the status of critical application performance issues commonly found in capital markets environments including: network and application server latencies, especially around stock trading or market data feeds; generated application errors; data transmission and traffic distribution bottlenecks; and the branch office, campus core, or data center locations experiencing service degradation.

The nGeniusONE platform provides capital markets IT teams with an efficient top-down approach to situational analysis, problem identification, service triage, and resolution. Using a consistent set of service-oriented workflows, the nGeniusONE enables seamless, contextual transitioning across multiple layers of analysis. These workflows allow the nGeniusONE platform to facilitate efficient and informed hand-off of incident response tasks across different IT groups which fosters IT team collaboration, improving the ability of IT teams to quickly identify service quality issues and reduce MTTR.

In order to help IT staff troubleshoot issues related to application performance faster, the nGeniusONE platform provides the following key analysis layers:

- **Service Dashboard** – The dashboard delivers real-time health status, metrics, alarms, and intelligent early warning of application performance problems. IT teams can use the dashboard to quickly spot performance issues related to a composite service such as financial transaction processing, Citrix, or business services such as e-mail, including the web components, key middleware and service enablers, backend databases, and load balancers in a single view.

- **Service Dependency Map** – The service dependency map provides visibility into all the dependencies among various components. This feature enables IT teams to analyze the service delivery environment and discover the client-server relationships and their performance.

- **Specialized Service Monitors** – Specialized service monitors of critical importance to capital markets organizations include the Web Services monitor, DNS monitor, Database monitor, MQ monitor, and others. Each of these break out performance metrics by specific message types, to enable IT teams to dig deep into the application and really identify the scope and root cause of performance degradations.

- **Universal Monitor** – Enables IT teams to quickly triage and isolate the sources contributing to application performance degradation. Using this monitor view, IT teams get a consolidated view of application request workloads, number of new and existing sessions for each server, application and network latencies, and network errors, providing holistic visibility into the performance of all servers supporting the service. This universal monitor can be used to investigate any application, whether off the shelf or custom.

- **Session Analysis** –Session analysis helps IT teams analyze transaction latencies, network statistics such as average round trip time, number of TCP retransmissions, timeouts; as well as detailed session and flow information such as the client IP addresses receiving service from the load balancer, error codes, and server host and client information. Session analysis delivers application details in a ladder diagram with hop-by-hop message exchanges between clients, load balancers, and application servers.

- **Packet Analysis** – Packet analysis enables IT teams to perform deep-dive protocol level analysis and forensic evidence collection. Expert decodes provide application-specific details as well as a list of IP addresses pertaining to the clients and any proxy servers through which the application request has passed including the load balancing server.

Most performance issues can be efficiently triaged by using the Dashboard, Service Dependency Maps, and/or any Specialized or Universal Monitor screens alone. However, should deep dive troubleshooting be needed, IT teams can contextually drill down to the Session and the Packet Analysis layers.

## Benefits of nGeniusONE Solution

For capital markets organizations, NETSCOUT® solutions are designed to provide insights into critical applications and services the business depends on. With NETSCOUT, IT organizations can:

- **Optimize market data feed and stock transactions** by monitoring transaction processing applications and generating alerts to detect when the transaction rate is slow or errors occur.

- **Improve customer experience** with the financial services company based on end-to-end visibility across the Enterprise, in branch, via mobile app or online.

- **Reduce MTTR** by proactively responding to service degradations impacting critical services such as securities trading, fund administration, asset and wealth management, or business services such as voice, Office 365, or Citrix.

- **Rapid root cause identification** by revealing the interrelationships and interdependencies between different backend applications such as database, web, DNS, or DHCP.

- **Improve IT team collaboration** with a single unified view into voice, network and application services providing end-to-end visibility into session-level details.

## NETSCOUT®