

Service Assurance for WEB-based Applications with nGeniusONE Platform

Enterprises are leveraging web-based applications to deliver services to customers, partners and employees, not to mention a variety of revenue generating business services. Today's enterprise applications are highly complex N-tier architectures that depend on a collection of many highly distributed components deployed across the enterprise data center and in the cloud. While the customer, partner, or an employee interacting with their browser sees a single application or service, there are multiple moving parts that contribute to the overall success of web transactions.

Within the N-tier architecture, there are logically different layers – a presentation layer, application processing layer, and the database management layer. Additionally, web applications depend on service enablers and network devices such as DNS, Active Directory, firewalls, proxies, load balancers, routers etc., which support and connect different components. With so many moving parts, any single component failure can dramatically impact the company's revenue, customer loyalty, employee productivity as well as overall user experience.

Managing and ensuring that the interrelated service tiers and elements are delivering a good user experience is beyond the capabilities of traditional component specific monitoring tools and approaches. IT operations teams need a robust triage, situation analysis, performance management and service assurance solution that is capable of isolating faults across the different tiers or domains and reduce the Mean Time To Repair (MTTR).

The nGeniusONE® Service Assurance platform provides real-time analysis for visibility of all HTTP and HTTPS traffic flows removing the need to rely on server agents or vendor specific tools. Powered by Adaptive Service Intelligence™ (ASI) technology, the highly scalable and patented deep packet inspection engine, the nGeniusONE platform enables a comprehensive view of service performance across complex multi-tier, multi-vendor, multi-location web-based application environments. ASI leverages rich packet data for extracting key performance metrics from across all the service domains.

nGeniusONE correlates ASI data across different tiers of a web application and

provides a seamless top-down service-oriented workflow based approach to service assurance. This enables IT Operations teams to triage N-tier application issues faster, ultimately reducing mean time to resolution (MTTR).

WEB Application Performance Issues Solved by nGeniusONE

IT Operations may find it very challenging to triage and resolve web application performance problems. Due to the complexities involved in the interaction of different tiers in a WEB application, identifying the root cause impacting the application performance is extremely difficult. The problem could be within the network infrastructure, application architecture, endpoint, or on a dependent application.

While there can be a long list of potential problems, some examples of performance bottlenecks affecting user experience are as follows:

- Web servers and application servers take too long to respond to user requests
- Too many application errors
- Database server takes a long time to process data requests
- Application servers unavailability due to misconfigured DNS servers
- Authentication failures
- Firewall not letting web traffic flow freely in and out of the network
- Proxy server configuration errors
- Load balancing ineffectiveness
- Denial of Service attacks
- Inadequate overall bandwidth
- Security certificate no longer available

Using the nGeniusONE platform, IT Operations teams can:

- **Get Real-Time Visibility And Isolate Specific Tier Contributing to Performance Problems** – nGeniusONE delivers end-to-end visibility into the performance of different tiers within the N-tier web application architecture, including the presentation, application, database, and network domains.

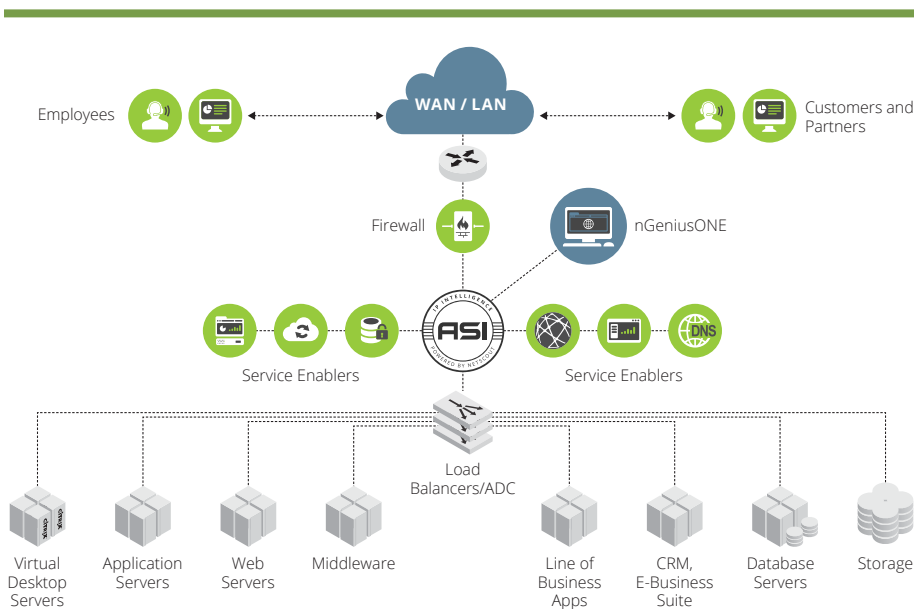


Figure 1: The nGeniusONE platform delivers cross-application tier performance analytics to support end-to-end service delivery management.

- **Quickly Diagnose Connectivity, Authentication, or Other Service Enabler Related Issues** – With visibility into metrics that include response times, DNS errors, Authentication issues, etc, IT teams can quickly identify performance issues caused due to service enablers.
- **Rapidly Triage WEB Application Performance Issues** – With the help of a specialized service monitor, nGeniusONE platform provides detailed performance metrics organized by client locations, host servers, HTTP methods, and URL.
- **Manage WEB Applications Using Single Pane of Glass** – Since HTTP and HTTPS traffic flows are analyzed by ASI, IT teams can monitor WEB applications whether deployed On-Premise or in the Cloud.
- **Monitor Expiration And Validity of SSL Certificates** – IT teams can proactively monitor the validity and expiration of SSL certificates. As a result of this visibility, organizations can be assured that enterprise applications and end-users are protected from security related incidents.

nGeniusONE Support for WEB Applications

nGeniusONE and ASI help IT teams quickly identify root causes for poor user experience. Through continuous monitoring of all application traffic, ASI data enables nGeniusONE to provide a holistic view into the performance of WEB application whether developed using .NET, J2EE, Perl, PHP, Python, or Ruby programming languages.

Furthermore, due to the use of efficient data organization provided by ASI, performance data can be viewed by a range of keys such as location (community of users), servers, applications, etc. This enables the nGeniusONE platform to offer efficient, top-down approach to problem identification, service triage, and resolution.

nGeniusONE provides service-oriented workflows to enable seamless, contextual transitioning across multiple layers of analysis. This allows the nGeniusONE platform to facilitate efficient and informed

hand-off of incident response tasks across different IT groups involved in the delivery of end-to-end service.

As a result of using contextual workflows, nGeniusONE provides operational insights, situational analysis, and visibility into the potential sources for WEB application service degradation to resolve open questions such as which server is delivering which service to which user community; which servers are busy; how fast are servers responding to user requests; which communities of users are impacted most by the issue; what HTTP methods are accessed; and what errors are generated.

nGeniusONE platform streamlines service delivery management by providing the following key analysis layers:

- **Service Dashboard** – Provides real-time, at-a-glance, holistic visibility of the performance status of all services and their dependent network and application components. The dashboard delivers alarms and intelligent early warnings so the IT organization can focus their triage efforts only to those areas that need to be addressed on a priority basis.
- **Service Dependency Map** – Visualizes the current state of the environment by automatically discovering and mapping client - server relationships. This graphical representation of interactions provides visibility into all tiers and the components that are accessed when delivering a WEB service to end-users.
- **Service Monitors** – Service Monitors enable comprehensive analysis of HTTP and HTTPS transactions; latencies; number of requests; and failures. IT teams can also proactively monitor the validity of SSL certificates installed on different servers.
- **Session Analysis** – With the help of ladder diagrams and hop-by-hop transaction analysis, IT teams can view detailed information such as latencies between HTTP methods and their responses; average round trip time; number of TCP retransmissions; timeouts; user agents used; URL path etc.,

- **Packet Analysis** – Enables IT teams to view protocol-level messaging traffic. Using packet decodes, network engineers and application teams can get detailed packet level data for deep-dive application troubleshooting.

A majority of WEB application service issues can be efficiently triaged using dashboard and service monitors. However, when packet level data is needed for deep dive troubleshooting, IT teams can further drill down to the Session and the Packet Analysis layers.

Benefits of the nGeniusONE Platform for WEB Application

- **Triage issues quickly and Decreases MTTR** – nGeniusONE enables IT teams to quickly triage application performance issues by providing visibility into the performance of each component within the N-tier application architecture. IT teams can reduce MTTR by quickly assessing if the issue is related to the network, application and web servers, or at the database layer.
- **Optimize available bandwidth** – Combined service management for voice, video, and data applications helps enterprises optimize the environment with directed capacity upgrades.
- **Improve IT team collaboration** – Using a common ASI dataset, the platform improves time to knowledge by enabling collaboration between different IT Operations such as network, application, and server teams for resolving application service delivery problems.
- **Investment protection** – Protects investment already made in NetScout Intelligent Data Sources. Single solution provides visibility into the performance of voice, video, and data applications.

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