

nGeniusONE Platform for Web-Based Applications

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 end-user 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.

nGeniusONE® platform provides real-time visibility into the performance of application services by analyzing packet data across the network, on premises or in the cloud. Powered by Adaptive Service Intelligence™ (ASI) technology, the highly scalable and patented deep-packet inspection engine, the nGeniusONE platform provides IT organizations with a comprehensive view of application service performance across the service delivery environment. nGeniusONE leverages high-value packet data to generate "smart data" for smarter analytics to assure performance, manage risk, and facilitate superior decision-making regarding application and network services. With these smarter analytics, IT teams can quickly triage performance issues even in complex multivendor environments, ultimately reducing Mean Time to Repair (MTTR).

Web-Based Application Performance Issues Solved by nGeniusONE

IT Operations may find it challenging to troubleshoot and resolve web-based application performance problems. Due to the complexities involved in the interaction of different tiers in a web-based application, identifying the root cause impacting the application performance is extremely difficult. The problem could be within the network infrastructure, the application architecture, endpoint, or in 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 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 server unavailable 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 Fault Isolation** – 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.

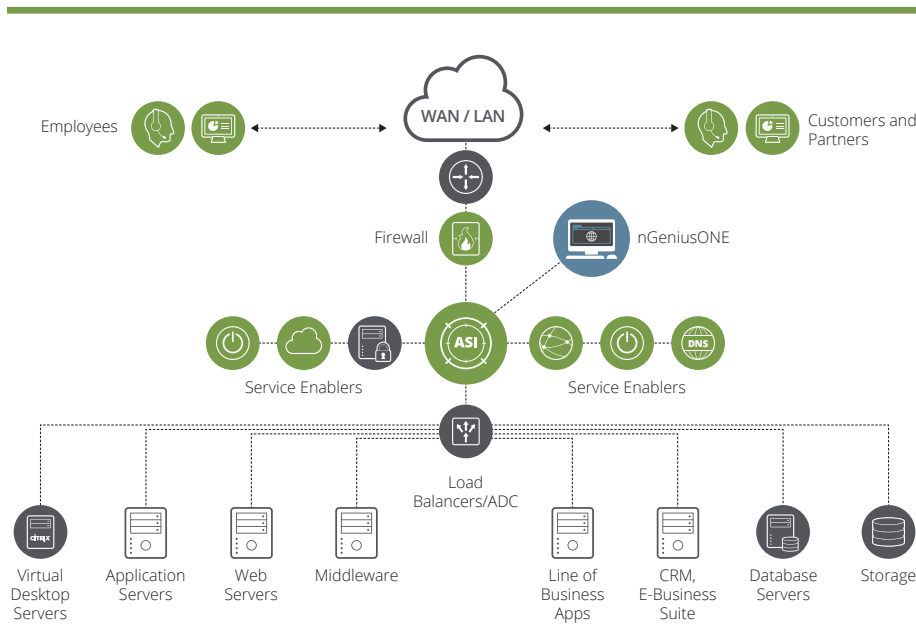


Figure 1: The nGeniusONE platform delivers cross-application tier performance analytics to support end-to-end visibility.



- **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-Based Application Performance Issues** – With the help of a specialized service monitor, the nGeniusONE platform provides detailed performance metrics organized by client locations, host servers, HTTP methods, and URL.
- **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-Based 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-based applications regardless of the specific 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 an efficient, top-down approach to problem identification, troubleshooting, and resolution.

The nGeniusONE platform provides a consistent set of service-oriented workflows and situational analysis 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 the different IT groups involved in delivery

of an application from one end to the other. In order to help IT teams troubleshoot issues related to web-based application performance faster, the nGeniusONE platform provides the following key analysis layers:

- **Service Dashboard** – Delivers real-time health status, metrics, alarms, and intelligent early warning of web-based application performance problems. IT teams can use the dashboard to quickly spot performance issues related to a composite service including the web components, key middleware and service enablers, backend databases, and the load balancers in a single view.
- **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-based service to end-users.
- **Service Monitors** – Service Monitors enable comprehensive analysis of HTTP and HTTPS transactions; latencies; number of requests; and failures. NetOps 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, NetOps 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 perform deep-dive protocol level analysis and forensic evidence collection. Packet analysis provides 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 web-based application performance issues can be efficiently investigated using dashboard, service dependency map, and service monitors alone. However, should deep dive troubleshooting be needed, NetOps can further drill down to the Session and Packet Analysis layers.

Benefits of nGeniusONE for Web-Based Applications

- **Triage issues quickly and Decrease MTTR** – nGeniusONE enables IT teams to quickly investigate 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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