

nGeniusONE Platform for Citrix in Retail Organizations

Citrix solutions are used in retail environments to deploy essential retail and business services, including virtualization and anytime / anywhere access to workforce management, customer loyalty programs, inventory management, and other business applications. These additional layers in the service delivery chain increase complexity in troubleshooting problems when they occur. With Citrix-based services as part of a broader retail infrastructure, IT teams find it more difficult to distinguish the true root cause of performance issues.

Citrix service elements such as StoreFront™, Virtual Apps and Desktops, and Application Delivery Controller (ADC), are critical components of the infrastructure that enables sales associates to look up customer records in their database, or stockers to inventory product on shelves, or distribution to print manifests for shipping. Citrix services are deployed as part of a broader IT environment that includes network infrastructure, ERP or E-Commerce application servers, backend databases, and service enablers such as DNS, DHCP,

RADIUS and Active Directory®. The impact of degradations or outages in access to customer data can mean delays in processing sales orders or shipping finished products. With so many possible areas contributing to performance degradations, IT teams need a robust service assurance solution capable of isolating faults rapidly across multiple domains.

The 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 Citrix-based 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).

Citrix Issues Solved by nGeniusONE in Retail

Many large retail organizations rely on nGeniusONE to deliver end-to-end visibility into the performance of their Citrix-enabled application environments typically including Storefront, Virtual Apps and Desktops, and ADC. nGeniusONE uncovers the full context of service anomalies across all application layers which may be contributing to poor performance and user experience with retail and business services including:

- **Rapidly pinpoint source of slow logins** – By providing metrics on response times, bandwidth availability, DNS activity and user authentication, sales associates’ connections between the store and resources in the data center can be optimized for best performance.
- **Troubleshoot disconnected sessions** – Through analysis of network connectivity between users and servers, root cause of issues can be quickly isolated to the Citrix service, a network component or specific application server causing the problem.
- **Improve analysis of ERP, e-commerce, or contact center application slowness** – Tracking session details and response times for application servers, XenApp resources, and storage enables rapid root cause identification for quick service restoral.
- **Speed identification of login and access issues** – Rapidly isolate the causes of login or access issues interfering with the ability of sales associates to access critical applications or services with breakdowns and views into poorly performing DNS, LDAP, or RADIUS servers including associated error codes and responsiveness metrics.

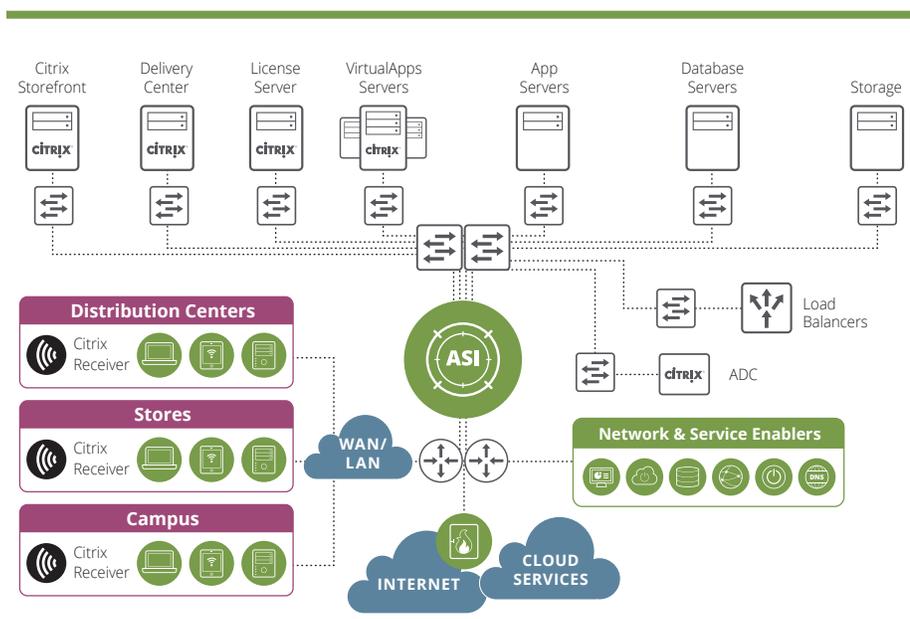


Figure 1: The nGeniusONE platform supports retail services that depend on Citrix ADC, Storefront, Virtual Apps, database, service enablers, and network tier performance analytics for end-to-end service delivery, assurance, and management.

Support for Citrix Services in a Retail Environment

To help NetOps resolve poor user experience, nGeniusONE relies on the power of ASI. Through continuous monitoring of



application traffic in the retail environment, including the protocols used by Citrix such as ICA/CGP, SSL/TLS, and HTTP, ASi data enables nGeniusONE to provide a holistic view into traffic performance between components. This highly structured data provides operational insights and visibility into the potential causes of degradations impacting Citrix-based services, including which servers are delivering services to which users; if servers are over-burdened; the responsiveness for each server; which retail locations are most impacted by an issue; any errors being generated; and the behavior of other applications and protocols running over the same infrastructure which may be affecting network performance.

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

- Identify the cause of failed logins due to Active Directory misconfiguration.
- Isolate a widespread slowdown in Citrix-based services caused by problems with the ADC or incorrect DNS configuration.
- Investigate the source of keyboard lag and application freezes due to underpowered Virtual Apps servers.
- Pinpoint if a Citrix service degradation in a store or distribution center is the result of network congestion over remote WAN links or incorrect QoS Settings.
- Discover if the source of a slow Citrix application is due to a component in the back-end tier such as slow database or application server vs. a Citrix problem.

With a consistent set of service-oriented workflows, the nGeniusONE platform enables seamless, contextual transitioning across multiple layers of analysis. This facilitates efficient and informed hand-off of incident response tasks across the different IT groups involved in end-to-end application delivery.

The nGeniusONE platform streamlines performance management for Citrix-enabled retail services with the following key analysis layers:

- **Service dashboard** – The dashboard delivers health status, metrics, alarms, and intelligent early warning of activity

and issues impacting Citrix-based ERP, workforce management, and other retail services. IT teams can use this view to quickly spot performance issues related to a variety of elements necessary to service delivery in a single view for the front end (client to ADC and Storefront), and back end (including Virtual Apps, licensing, database servers), as well as other elements throughout the retail network.

- **Service dependency map** – The service dependency map visualizes the current state of the Citrix service and application environment with dynamic discovery and mapping of client - server relationships, providing visibility into dependencies among various components throughout the retail network.
- **Service monitor** – Comprehensive analysis of Citrix transactions is provided through service monitors that track and display successes and failures, latency, retransmissions, and response times to identify the root cause of performance issues. Retail IT teams can leverage universal and application-specific service monitors for visibility into traffic to Citrix Virtual Apps, Storefront, and license servers, as well as the ability to focus analysis on affected user communities such as individual store locations. This view enables IT teams to triage and isolate the sources contributing to performance degradation issues.
- **Session analysis** – Session-level analysis provides ladder diagrams with hop-by-hop analysis of message exchanges between clients and Citrix servers. This helps IT teams evaluate transaction latencies, network statistics, average round trip time, the number of TCP retransmissions and timeouts, as well as detailed session and traffic-flow information.
- **Packet analysis** – Using packet analysis, IT teams gain deep-dive visibility into Citrix-based services for protocol level analysis and forensic evidence collection.

For many retail organizations, most Citrix-impacting performance issues can be efficiently triaged using the dashboard and service monitor screens specifically.

However, should deep dive troubleshooting be required, IT teams can drill down further to session and packet analysis layers.

Benefits of nGeniusONE for Citrix in Retail Environments

- **Quickly and efficiently triage Citrix-based retail service degradations** – Comprehensive service delivery platform covers the multi-layer Citrix environment including the hardware, access, resource and control layers enabling IT teams to efficiently pinpoint root cause of performance issues and reduce MTTR.
- **Protect customer experience** – The passive traffic-flow monitoring methodology helps retail IT teams rapidly troubleshoot problems with Citrix-based applications to quickly restore customer facing service performance.
- **Optimize available bandwidth** – nGeniusONE's visibility of network bandwidth usage between the datacenter and stores or distribution centers provides valuable information to attribute slowdowns to the network capacity available versus network component problems e.g. issues with ADC performance or configurations.
- **Improve IT team collaboration** – Using the common nGeniusONE workflows across all application tiers, the platform improves mean time to knowledge across all aspects of the retail service delivery chain including the Citrix layer. The Citrix team can quickly visualize if it is their issue, or better still, if it is another aspect of the service, and can provide the evidence to the other teams (network, server, application) to help resolve the problem.
- **Reduce monitoring and vendor management complexities and costs** – Combined visibility of data, voice, and video for service assurance in the single nGeniusONE platform helps retail organizations optimize the performance of a converged IP network while simultaneously reducing OPEX and CAPEX costs with a complete solution.



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