

No More SDN Blind Spots: Assuring Cisco ACI Rollout Success With NETSCOUT

IT Project Lifecycle Activities Augmented by NETSCOUT Smart Visibility

OVERVIEW

The Challenge

- Multi-phase Cisco ACI SDN project involved VMware ESX servers and 100GB network speeds required visibility
- Needed technology-neutral service assurance partnership to succeed

The Solution

- nGeniusONE® Service Assurance platform
- Software-based InfiniStreamNG® & Packet Flow Switch appliances and virtual vSTREAM® appliances

The Results

- Successful IT project implementation across an extended lifecycle
 - Reduced network overhead, enhanced IT agility, accelerated railway application deployment
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Customer Profile

This leading transportation company dispatched the challenges of assuring reliable freight deliveries amid a particularly disruptive period for the global supply chain across the pandemic timeline. In addition to the increased revenues realized by the sustained business operations, the company continued their railway technology innovation efforts.

For years, the company has successfully advanced their digital transformation activities through the assistance of NETSCOUT smart visibility and real-time network, application, and Internet of Things (IoT) monitoring and analysis.

The Challenge

The company has long been “ahead of the curve” in the railway innovation discussion, with their information technology (IT) team leading successful project rollouts for Train Yard Execution System (TYES), Positive Train Control (PTC), and Unified Train Controls System (UTCS) solutions – all of which are assured by NETSCOUT’s service edge visibility and nGeniusONE real-time analysis.

Motivated by the dual promises of reduced configuration cycles and increased flexibility that would be provided to Network Operations, the company’s IT leadership team had strategically planned the company’s transition to a Software-Defined Network (SDN) using a phased approach based on the recommended practices defined by their technology provider for this project, Cisco®. The IT team had earlier selected Cisco’s Application Centric Infrastructure (ACI) technology as the solution best-suited to their SDN requirements.

Understanding the significance of this project's success, IT's phased rollout specified design of a next-generation leaf-and-spine architecture supporting 100GB network speeds. This project also involved use of Cisco Equal-Cost Multi-path Routing (ECMP), offering increased bandwidth by load-balancing traffic over multiple paths, as well as new VMware ESX virtual servers, providing additional scalability as the IP fabric underlay.

Based on their understanding of Cisco ACI transition nuances and experiences acquired through comparable project rollouts, the IT team knew they needed a technology-neutral partner to assist their efforts in the following areas:

- Recommendations on how to best close any blind spots that surfaced in the transformed SDN environment, including both east-west and north-south traffic paths.
- "Over-time" trend analysis and reporting into business service performance before, during, and after the move to SDN to determine whether network responsiveness and end-user experience had been adversely altered.
- Business communications continuity and coordination across a multi-phase SDN implementation, regardless of the company's project completion timeline.

Solution in Action

The IT team assured their SDN migration by leveraging NETSCOUT's next-generation performance analytics, smart visibility, and advanced subject matter expertise across the full project timeline. With this solution, the IT team supplemented the installed nGeniusONE platform to include:

- NETSCOUT Certified InfiniStreamNG (ISNG) software appliances supporting 100GB network speeds that provided needed smart visibility for the Cisco ACI SDN architecture, including both their primary data center and additional Co-located (Co-lo) environments. In the primary data

center, the NETSCOUT solution supports a Cisco ACI architecture with two network spines and nearly 40 network leaves.

- Packet Flow Operating System (PFOS) software for Certified Packet Flow Switch 7120 appliances, which supports high performance in the ACI SDN environment by monitoring both logical and physical connections. Network packet traffic in this environment is aggregated through several 100GB PFS software appliances to feed 100GB ISNG software appliances. In addition, this NETSCOUT packet broker solution complements the Cisco spine-and-leaf design's scalability, reliability, and high performance by load balancing traffic flow in the data center, as well as dynamically managing packet forwarding at scale. The IT team also used NETSCOUT's Fabric Manager technology to pre-stage packet broker changes without disrupting the current configuration.
- vSTREAM virtual appliances, which provided VMware ESX service assurance by monitoring server-to-server traffic in the virtual server environment comprising the IP fabric underlay.

The Results

Cisco ACI SDN project rollouts are significant undertakings for any IT organization, never mind one already managing other transformative technology projects and ongoing hybrid workforce support activities. The company successfully advanced this business-critical ACI SDN transformation by accessing NETSCOUT subject matter expertise and technology across the entire IT project timeline. In functioning as a trusted advisor during this project, NETSCOUT account management resources supported IT's phased rollout and identified efficiencies provided by the deployed nGeniusONE and smart visibility solution, as well as areas that required additional software ISNG instrumentation and PFOS packet brokers to support visibility requirements, network speeds, and the demand for network packets for forensic analysis and downstream security tools.

Envisioning the number of technology innovations their corporate network would implement was likely unforeseen when the IT staff originally selected NETSCOUT as their service assurance partner several years ago. However, the company now regards NETSCOUT's vendor-agnostic approach for monitoring any infrastructure, any application, anywhere as a strategic advantage in assuring availability and reliability of their IT services. The NETSCOUT solution makes technology upgrades and migrations, like Cisco ACI and VMware ESX, more successful. Additionally, the IT team benefits from the ability to use nGeniusONE metrics to make evidence-based decisions for new implementations and ensure their projects have the best chance for success.

LEARN MORE

For more information about NETSCOUT's Software-Defined Networking solutions, visit:

www.netscout.com/solutions/software-defined-networking

NETSCOUT

Corporate Headquarters

NETSCOUT Systems, Inc.
Westford, MA 01886-4105
Phone: +1 978-614-4000
www.netscout.com

Sales Information

Toll Free US: 800-309-4804
(International numbers below)

Product Support

Toll Free US: 888-357-7667
(International numbers below)

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