APPOSITE TECHNOLOGIES

CASE STUDY

graphiant

Graphiant Simulates Last-mile Challenges in the Lab to Exceed Customer Expectations

QA Teams Use Netropy Network Emulators to Reduce Time to Market, Complexity, and Resolution Times for Global NaaS

Business keeps evolving but the key to success—high-quality service backed by world-class support—never seems to change. That's why Graphiant, global provider of business-class Network-as-a-Service (NaaS) solutions, uses network emulation from Apposite Technologies to exceed the expectations of modern enterprise customers.

"Half of all workloads now reside in the cloud[1], more remote workers are connecting to centralized resources, and businesses integrate to more partner and customer networks," says Vinay Prabhu, Director of Software Engineering in Test. "And everything happens extremely fast."

The Graphiant Network-as-a-Service (NaaS) edge solution bridges the gap between reliable MPLS performance and agile, Internet-scale SD-WAN technology. Graphiant extends connectivity across multiple geographies and enterprise destinations including office, home, edge, and cloud environments with compelling service level agreements (SLAs) for high quality and resilience.

HIGHLIGHTS

- Feature qualification and delivery times reduced 30-40%

- Internal engineering expenses reduced 20-30%

- 20-25% lower cost for equivalent test capacity

- Tickets and escalations reduced 12%

Meeting SLAs across multiple edge networks and technologies proves challenging, and that's where Apposite comes in. "We work with a wide range of 'last-mile' networks that are beyond our control," Prabhu explains.
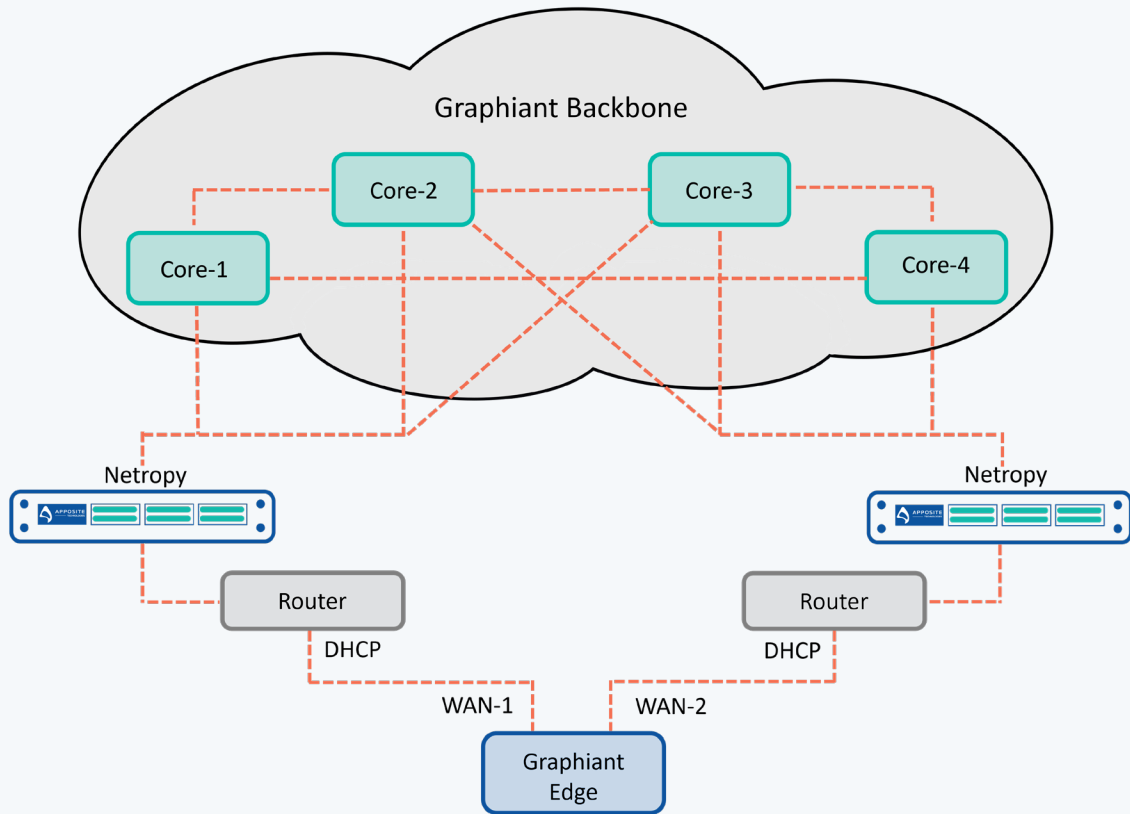
"To make sure we constantly exceed SLAs, we use Netropy to simulate changing conditions across fiber, 5G, 4G/LTE, satellite, and cloud connections in our own lab beforehand."

[1] Flexera 2021 State of the Cloud Report

Graphiant Edge Connectivity to Edge Terminators (Backbone)

After just a few hours of training, Graphiant's Quality Assurance (QA) team started using Netropy to model changing network conditions in its own lab. Testing includes introducing and measuring the impact of fast-changing conditions on network links including packet loss, delay, and jitter across multiple nodes—all without impacting the production network. "Before Netropy, we had to simulate changing network conditions by running traffic over the actual Internet in our labs," Prabhu says.

> "Now that we've used Apposite's RESTful API to completely integrate network emulation into our system test automation framework, we can emulate our entire geographically distributed network in collocated labs with no risk of impacting customers."

Prior to incorporating Netropy, the Graphiant team had to run through a comprehensive set of traffic profiles manually, including high-latency and lossy links, East-to-West Coast cross-continental links, and modern home and business Internet profiles. Now QA engineers use Netropy to validate new software updates on a weekly basis before releasing them to the field.

The team also runs test scenarios daily as part of nightly regression testing for 24/7 performance enhancements. And last but not least, Graphiant uses Apposite appliances to recreate real-world network events such as traffic outages, sluggish connections, and random bursts of packets.

> "Emulation has definitely helped us improve our service monitoring and troubleshooting capabilities," Prabhu explains. "We're able to replicate customer issues quickly and easily to identify and resolve, or even predict performance issues before they happen."

Innovative Test Solution for Innovative Services

Before selecting Netropy, Graphiant evaluated network emulation solutions from other leading providers, including vendors whose equipment they already used in the lab. "There were several things we liked better about the Apposite solution beginning with the form factor," Prabhu says. "Rack space in the lab is always at a premium. Netropy gives us twice as many engines and test ports at 20-25% lower cost than alternative approaches that take up twice as much space in the lab."

Apposite's modern feature set, automation, and integration capabilities combined to set the solution apart from the rest. The QA team likes Netropy's flow-based control that lets engineers introduce multiple conditions and impairments independent of each other, and the ability to create up to 30 simulated paths using just one emulation appliance.

Deciding factors included Netropy's ease of use and fast time to results throughout the test life cycle:

- **Granular control with rapid results:** The Graphiant team easily simulates complex real-world traffic scenarios and replicates customer escalations to pinpoint the root cause—and remedy—as issues arise

- **Immediate validation:** Engineers can repeat the same tests before and after tweaking configurations to verify the intended results have been achieved

- **Market-leading reputation:** NaaS providers worldwide select Netropy based on its agile and proven performance and Apposite's reputation for world-class client support.
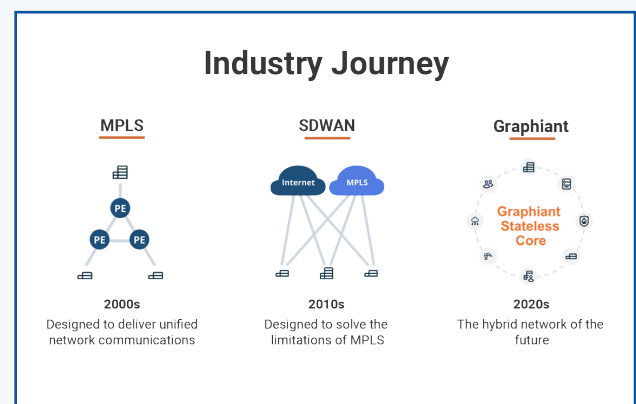
Simulating Challenges Creates a Real-world Advantage

In just two months, Graphiant achieved significant operational efficiencies using Netropy network emulation. "We've been able to reduce our feature qualification and delivery times by 30-40%," says Prabhu, noting that running new releases through the QA cycle used to consume all of an engineer's time to simulate the necessary conditions and edge traffic profiles.

Graphiant's internal engineering expenses also dropped 20-30%. Prabhu explains, "With Netropy in our lab, we don't need to pay for multiple internet service providers and geo-distributed labs or other expensive equipment to qualify our distributed network."

Impressive as the operational gains may be, the team leader places the greatest importance on the value that emulating last-mile networks and other changing scenarios brings to the customer experience.

"Within weeks, we realized significant improvements in the resilience and redundancy of our service," he says. "Since we've gained more visibility into the last mile, we're seeing fewer Support calls coming in and a much quicker turnaround on resolving customer issues."

Industry Journey

MPLS	SDWAN	Graphiant
2000s	**2010s**	**2020s**
Designed to deliver unified network communications	Designed to solve the limitations of MPLS	The hybrid network of the future

Keeping Customers at the Forefront

Its progressive approach to testing equips Graphiant to continue raising the bar on quality as data moves from traditional office environments across a more fluid hybrid network edge. "With Netropy as part of our automation framework for mimicking customer environments and changing scenarios, we'll continue to take the lead on bringing customers a reliable, affordable 'best of both worlds' foundation for running their business," Prabhu says. "Our plan is to use Apposite's network emulators as the de facto tool for our event-based stress and solution testing. They're an excellent partner we've come to count on to respond very quickly and keep our company and our customers ahead of the innovation curve."

ABOUT APPOSITE

Apposite Technologies provides world-class network, application and security test solutions to enterprises, service providers, and government agencies worldwide. Offering both network emulation and Traffic Generation solutions, Apposite enables users to generate realistic application traffic and replicate accurate simulations of any wide-area network for a fast, easy way to optimize network and device performance.

Apposite's modern testing solutions help businesses deploy new technology with confidence while increasing automation and lowering costs associated with performance testing.

ABOUT GRAPHIANT

Graphiant is a Silicon Valley-based provider of next-generation Edge services. Led by Khalid Raza, the co-founder of SD-WAN pioneer Viptela, Graphiant has developed the Graphiant Network Edge, an "as-a-Service" solution that provides connectivity between the enterprise WAN, hybrid cloud, network edge, customers and partners.

Graphiant's Network Edge combines MPLS-like performance (guaranteed delivery and privacy) and Internet-class agility to enable network architects to build enterprise-grade networks at the speed of business.