

Netropy Traffic Generation

L2-L3 & L4-L7 Ease of Use and Features

Executive Summary

Benchmarking is essential if companies are going to deliver on service level agreements (SLA). Validating the traffic handling characteristics of networks, applications and security solutions is the only way to deliver services with confidence. Traffic generators have been available for quite some time. In many cases, though, the complexity and expense of traffic generators has kept them out of all but the larger enterprise labs. Apposite seeks to redefine the traffic generator with its Netropy series. Netropy Traffic Generation delivers a wide range of L2-L3 and L4-L7 functions all using a browser-based GUI and at a price point attractive even to smaller companies.

Apposite Technologies commissioned Tolly to evaluate the ease-of-use features of its Netropy Traffic Generation solution, specifically the Netropy TrafficEngine - one of four applications available. Testing was conducted using the Netropy 10G2 platform that provided four ports capable of 10GbE. In addition to confirming wire throughput capabilities, Tolly exercised a range of throughput testing scenarios.

Tolly tests confirmed that the Netropy 10G2 can send and receive zero-loss, wire-speed 10GbE traffic on both sets of ports simultaneously. Tolly engineers were able to configure both lower-level and upper-level protocol tests without any product training using the browser based GUI. See Figure 1.

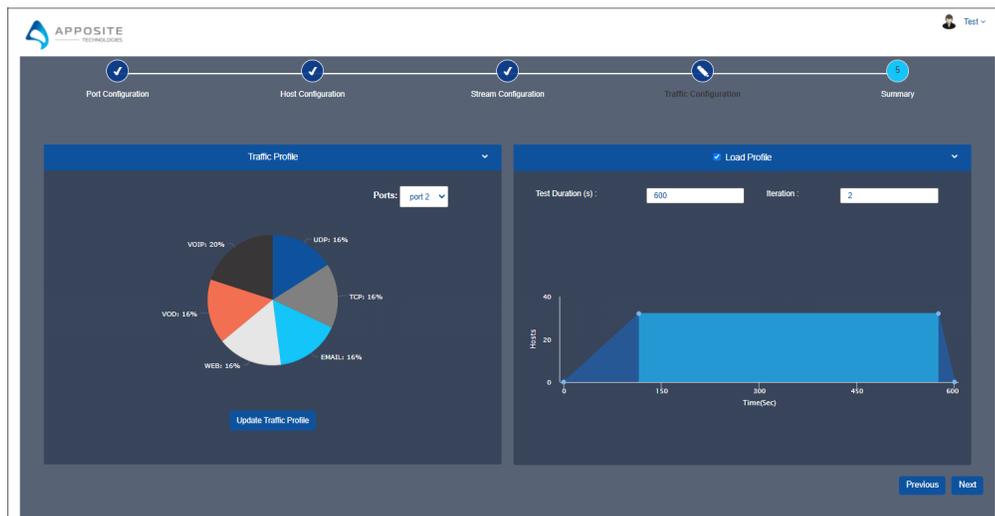
The Bottom Line

Netropy Traffic Generation Solutions provide:

- 1 Browser-based GUI requiring no product training
- 2 Lower-stack L2-L3 and upper-stack L4-L7 protocol tests
- 3 Wizard-drive test configuration
- 4 10GbE zero-loss, wire speed throughput across all ports

Apposite Tech. Netropy Traffic Generation Multi-protocol Traffic & Load Profile Configuration

Customize protocol mix by dragging wedges



Customize run time and repetitions by entering data or dragging image bars

Source: Tolly, October 2021

Figure 1

The Need for Network Traffic Testing

Many network operations teams have become accustomed to deploying network infrastructure without rigorous performance testing. This is typically because the cost and complexity of the equipment required to carry out these tests was prohibitive in the past.

The migration to software-defined networks and SASE¹ has made throughput testing even more critical as security functions are integrated into network switch/router devices. Overhead caused by security processing (e.g., deep packet inspection) can slow down performance especially if the CPU specifications are inadequate.

Similarly, virtualized network functions (VNF) rely on servers for physical resources and without actual benchmarking, performance

can only be guessed at. Only by benchmarking actual performance can data sheet numbers be validated and network elements deployed with confidence.

Testing With Netropy 10G2

This report will be simple and visual - which reflects the nature of the Netropy 10G2. It is both simple and visual.

The solution is wizard-based and steps the user through five straightforward steps: 1) Port Configuration, 2) Host Configuration, 3) Stream Configuration, 4) Traffic Configuration, and 5) Summary/Run. The steps are displayed at the top of Figure 1.

Port Configuration. The user selects which of the units ports will be used for a specific test. Multiple users can share the device with each reserving the ports it requires. The 10G2 unit tested has four ports thus allowing

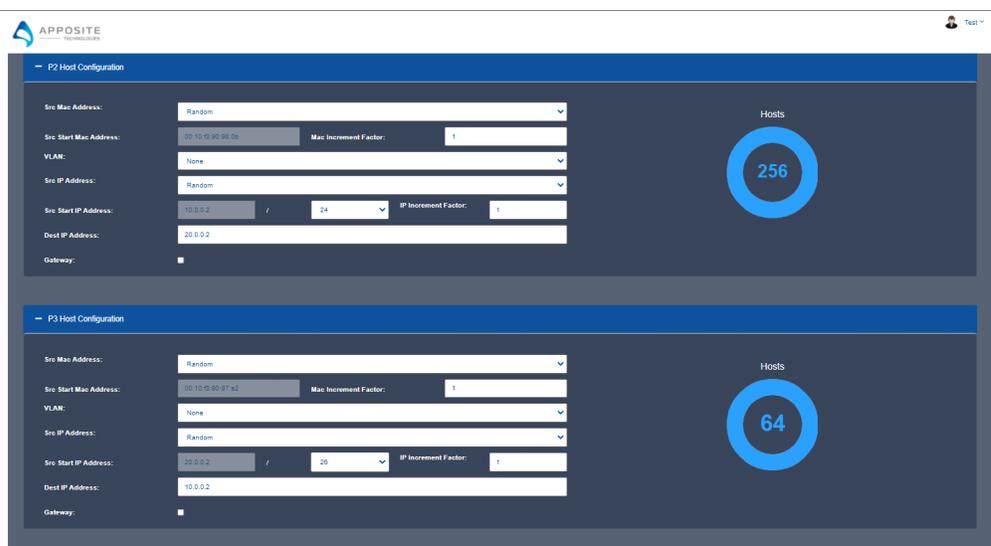


two users each to reserve a pair of ports. (Screen not shown.)

2) Host Configuration. The user can choose simple or sophisticated host parameters. The user can also choose the number of host addresses, up to 1 million addresses, to be generated. See Figure 2.

Apposite Tech. Netropy Traffic Generation Host Configuration

Configure source and destination Host information. Full configurability for number of hosts, random or specific MAC, IP addresses or ranges. Support for VLANs



Source: Tolly, October 2021 Figure 2

¹ Secure Access Service Edge, a term coined by industry analyst group Gartner, Inc.



The user can select random or custom MAC and/or IP addresses along with specifying IP gateway information.

3) Traffic Configuration. Here, the user provides details of the protocol mix required for the test. For basic L2 tests, the traffic mix is not relevant but it is very important for higher level, L4-L7 test scenarios.

Users can generate complex mixes of traffic including application profiles such as email, VoIP, and video streaming that mimic actual traffic found in production networks.

The user can also specify transmission rates for traffic. In some instances, that might mean full line rate. In other instances, the traffic levels might be customized to lower rates to match the actual bandwidth or specifications of the system under test. Furthermore, users can automate test configuration and execution via the RESTful API. See Figure 3.

Apposite Netropy



Netropy Traffic Generation Solutions offer a modern way to test networks, applications, and security performance with four applications on one consistent user interface.

- Benchmark the raw packet level performance of networks and devices with classical performance measurements like latency throughput and loss with TrafficEngine.
- Capture, reproduce, and amplify production traffic to a tremendous scale in a controlled lab environment with AppPlayback
- Generate a high volume or application traffic and security attacks to optimize performance of application aware devices and systems with AppStorm
- Evaluate the session holding capabilities of stateful network devices and servers with SessionStrike

Netropy Traffic Generation is often 1/3 to 1/2 the price of older, legacy solutions.

Source: Apposite Technologies, October 2021

Apposite Tech. Netropy Traffic Generation Multi-protocol Configuration

The screenshot shows a web interface with a navigation bar and a main configuration area. The main area has five tabs: Port Configuration, Host Configuration, Stream Configuration, Traffic Configuration, and Summary. Below the tabs is a table with columns for Clone, Stream name, Port, Stream, State, Traffic rate configuration (IPG(us), IBG(us), Size type, Min, Max), and Delete. The table lists protocols like UDP, TCP, EMAIL, WEB, VOD, and VOIP.

Left: Configure specifics for each protocol

Below: Configure traffic rates for each port

This inset screenshot shows a table for port configuration with columns: Port ID, Link, MAC Address, Bandwidth Utilization, Mode, Port Mapping, and Port State. It lists two ports with their respective configurations.

Source: Tolly, October 2021

Figure 3



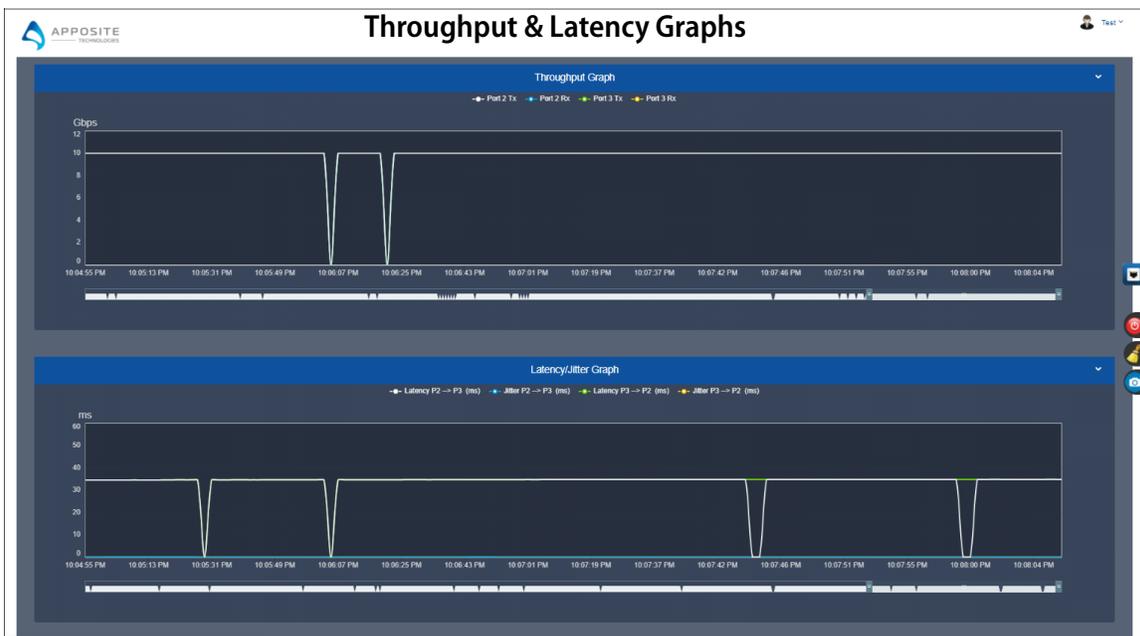
Test Results

Upon test completion, the user has immediate access to results and statistics. Reports can also be saved for offline analysis. Figure 4 provides two examples of results

analysis. The upper example shows a stream-by-stream detail of transmitted and received traffic. The results also include average, minimum and maximum latency along with jitter and any lost traffic counts.

The lower example shows a graph of throughput and latency over the course of the test making it easy to see where anomalies occurred during the test run.

Apposite Tech. Netropy Traffic Generation



Source: Tolly, October 2021

Figure 4



About Tolly

The Tolly Group companies have been delivering world-class information technology services for over 30 years. Tolly is a leading global provider of third-party validation services for vendors of information technology products, components and services.

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