



## NETROPY® NETWORK EMULATORS

Apposite Technologies makes it easy to test the performance of applications over the wide-area network by offering high-precision network emulation appliances that combine unmatched ease-of-use with unbeatable prices.

Apposite's Netropy network emulators offer advanced capabilities to benchmark, troubleshoot, and optimize the performance of critical applications. Netropy's unique, high-performance Emulation Engine enables high-precision emulation of up to 15 separate WAN links to model complex network topologies or run multiple concurrent tests.

Each link is configured with its own bandwidth, latency, loss and other properties. Packets can be assigned to the appropriate link by IP address range, VLAN, application port number, or any other packet identifier.

Netropy models are available with up to 4 separate Emulation Engines per unit, and capacities up to 40 Gbps.

The Netropy network emulator is configured and managed through an intuitive, browser-based interface for easy operation, or through a comprehensive command line interface for integration with test automation tools.



— SIMULATE • BANDWIDTH • LATENCY & JITTER • LOSS —

# FEATURES

**Easy to Use:** Netropy network emulators are quick to install, intuitive to configure, and easy to operate. The Netropy GUI provides the responsiveness of an application with the convenience of a standard web browser.

**Multiple Links:** Simulate up to 15 separate WAN links through each Emulation Engine.

**Multiple Engines:** Take advantage of multiple Emulation Engines in the N91 and 10G2 models for concurrent testing or multi-user environments.

**Packet filtering:** Assign packets to different links by IP address, VLAN, or any other packet identifier.

**Bandwidths up to 40 Gbps:** Accurately simulate links from 100 bits per second up to 40 Gbps.

**Flexible capacity:** Pay only for the bandwidth that you need to emulate now, and upgrade later if you ever need to emulate higher speed links.

**Latency up to 10 sec.:** Emulate delay and jitter up to 10 seconds, in increments of 0.01 ms, with a constant, normal, or uniform distribution.

**Flexible interfaces:** The N61 and N91 are available with copper or SFP ports. The 10G1 and 10G2 offer 1/10 Gbps dual rate SFP+ ports for easy integration into 1 or 10 Gbps networks.

**Loss & Corruption:** Set random, burst, or periodic packet loss. Test the effect of corruption on voice and video applications.

**Capture & Replay:** Record the delay and loss characteristics of the production network as they vary second-by-second and replay them through the Netropy emulator.

**Background Utilization:** Test how applications run over a congested network without costly traffic generators or a rack full of client machines using Netropy's unique background utilization and PCAP replay features.

**Traffic Monitor:** View and download up to 24 hours of throughput graphs and link statistics.

**Automated Testing:** Automate testing using the comprehensive command line interface.

**Unsurpassed Precision:** Test with confidence — the high-precision Netropy Emulation Engine ensures accurate and reproducible results.

**Priced Right:** Get the functionality and performance you need at a price you can afford.

**Everything You Need:** Everything is included. No additional hardware, software, or training required.



TERRESTRIAL



WIRELESS



SATELLITE



INTERNET

## Application Lifecycle Testing

**Network design:** Build “what-if” scenarios to choose between private lines, internet VPNs, and wireless and satellite networks to connect offices across the globe, then determine how much bandwidth to purchase to ensure critical applications perform as needed.

**Application validation:** See how applications perform prior to roll-out and avoid unpleasant surprises and panic fixes later.

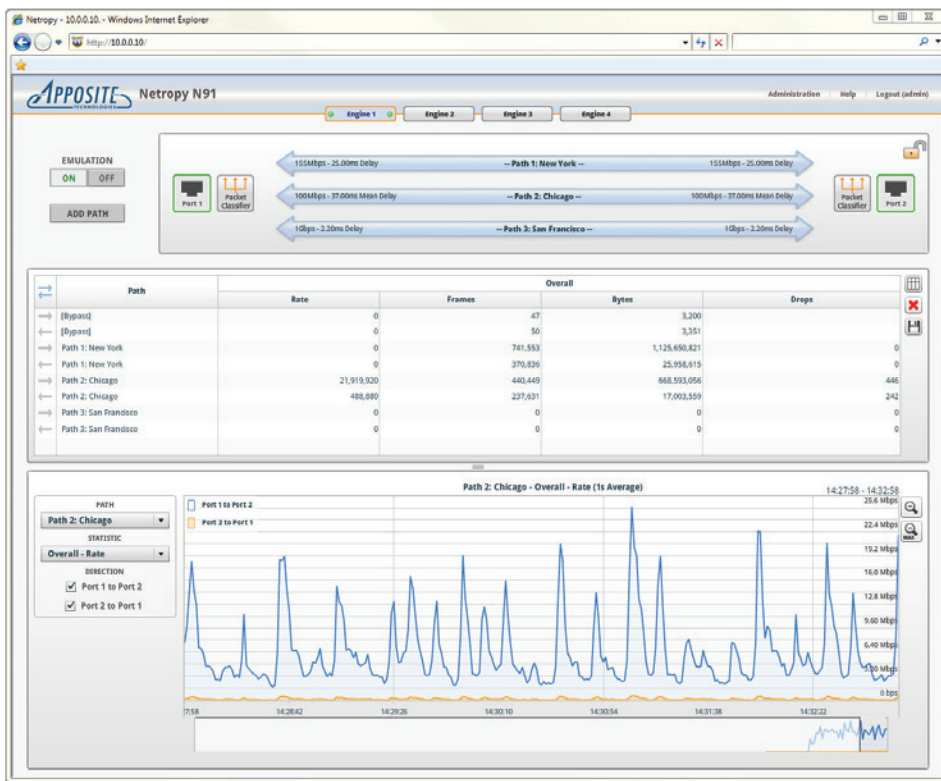
**Vendor selection:** Compare products from different vendors to select the one that works best on your network.

**Tuning:** Adjust application settings to optimize performance for different end users.

**Optimization:** Analyze the benefits of WAN acceleration products to optimize the existing infrastructure.

**Troubleshooting:** Pinpoint the cause of reported problems and complaints, then validate potential solutions without disrupting the production network.

# USER INTERFACE





## NETROPY N61

Emulate complex networks up to 1 Gbps

## NETROPY N91

Four separate 1 Gbps emulation engines  
ideal for concurrent testing or multiple users



## NETROPY 10G1

Emulate links up to 10 Gbps

## NETROPY 10G2

Two separate 10 Gbps emulation engines



## NETROPY 40G

World's first 40 Gbps WAN Emulator

### Multi-Link Emulations

Each Emulation Engine can simulate up to 15 separate WAN links. Each Netropy unit contains up to 4 independent Emulation Engines, depending on the model.

**Emulate multi-site networks:** Model a full enterprise network of regional, branch, and local offices, telecommuters, and partners, all connected to headquarters or a centralized datacenter.

- View applications as they will be seen by different end users
- Verify the operation of application servers with concurrent users

**Side-by-side benchmarking:** Run separate tests side-by-side.

- View the effects of different conditions on application responsiveness
- Compare products from different vendors
- Tune application settings
- Analyze the benefits of acceleration and optimization products

**Isolate individual applications:** Segregate traffic from different devices and apply impairments to specific applications.

**Concurrent testing:** Test a matrix of conditions by running multiple emulations in parallel.

### View Impact of Network Conditions

#### • **Throughput**

Test bulk data applications:  
File transfer, network storage, remote back-up / disaster recovery

#### • **Responsiveness**

Test interactive applications:  
File sharing (CIFS), virtual desktop (VDI), database applications, CRM, ERP, remote access, web, cloud computing, SAAS

#### • **Quality**

Test real-time applications:  
VoIP, video, IPTV

Specifications	N61	N91	10G1	10G2	40G
<b>Capacity</b>					
Max. Link Emulation Speed	10 Mbps, 45 Mbps, 100 Mbps or 1 Gbps	10 Mbps, 45 Mbps, 100 Mbps, or 1 Gbps	1 Gbps or 10 Gbps	1 Gbps or 10 Gbps	10 Gbps or 40 Gbps
Max. Aggregate Throughput	2 Gbps	8 Gbps	20 Gbps	40 Gbps	80 Gbps
Emulation Engines	1 @ 1 Gbps	4 @ 1 Gbps	1 @ 10 Gbps	2 @ 10 Gbps	1 @ 40 Gbps
Maximum Packet Rate	3 million pps	12 million pps	29 million pps	17 million pps	36 million pps
Maximum Frame Size	9 KB	9 KB	9 KB	9 KB	9 KB
<b>Emulation Capabilities</b>					
Packet Classification	IP source & destination address range (IPv4 or IPv6), VLAN, TCP or UDP port number, IP ToS, MAC address, MPLS label, or any other packet contents				
Bandwidth	100 bps – 40 Gbps in 1 bps increments (depending on model and license)				
Delay	0 ms – 10,000 ms. in 0.01 ms increments; constant, uniform, normal distributions; replay recorded loss, accumulate & burst				
Loss & Corruption	random, burst, periodic, BER, Gilbert-Elliott, or recorded loss; data corruption				
Background Utilization	0 – 100% in increments of 0.1%; PCAP replay				
Queuing & Prioritization	RED or tail drop queue management; priority or round robin queuing				
Additional Parameters	Packet Reordering, Packet Duplication, MTU and Fragmentation, Queue Depth, Framing Overhead				
<b>Interfaces</b>					
Emulation	2 Gigabit Ethernet (copper or SFP)	8 Gigabit Ethernet (8 copper, 8 SFP, or 4 of each)	2x SFP+ 1/10 Gbps or 2x RJ45 100M/1G/10G	4x SFP+ 1/10 Gbps	2x QSFP 40 Gbps
Management	1 x Gigabit Ethernet, 1 x RS-232 serial console				
Security	SSL and SSH for secure management; per-user locking of engine configuration				
<b>Warranty &amp; Support</b>					
Hardware Warranty	1 year included				
Support & Maintenance	1 year included				

## About Apposite Technologies

Apposite Technologies makes WAN emulation easy by offering professional-quality network emulation tools at affordable prices. Apposite's award-winning Netropy and Linktropy WAN emulation appliances simulate bandwidth, latency, loss, congestion, and other network impairments with fine-grained precision to provide accurate simulations of any type of wide-area network. Netropy and Linktropy WAN emulators are widely deployed by leading enterprises, application and equipment developers, telecoms carriers, and government and military organizations around the world. **Apposite Technologies – WAN Emulation Made Easy**



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