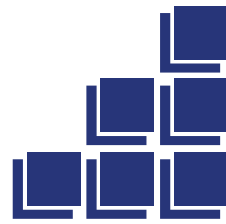


# **STEP**

## **ELECTRONICS**

*A Division of Av-Comm*



## **Linktropy® WAN Emulators**



**APPOSITE**  
TECHNOLOGIES



### **WAN Emulation Made Easy™**

**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 Linktropy® WAN emulators simulate bandwidth, latency, jitter, loss, congestion, and other important link impairments to test the performance of applications in the lab under a spectrum of real-world conditions.

Through an intuitive, browser-based user interface, you can install the Linktropy WAN emulator and begin testing within minutes.

### **About Apposite Technologies**

Apposite Technologies makes WAN emulation easy by offering professional-quality network emulation tools at affordable prices. Apposite's 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.

## FEATURES

**Easy to Use:** Linktropy WAN emulators are a snap to install and configure. Just plug in the Ethernet cables, specify your link conditions, and begin the emulation. No software to install, no training needed. The Linktropy GUI combines the responsiveness of an application with the convenience of a standard web browser.

**Bandwidths up to 1 Gbps:** Emulate links of any speed from 300 bits per second up to 1 Gbps.

**Delay up to 10 seconds:** Emulate latency from 0.1 ms up to 10 seconds in each direction in a constant, normal, or uniform distribution.

**Error Emulation:** Specify loss as a packet loss rate, bit error rate, or both.

**Congestion:** Determine the effects of congestion on bandwidth and jitter-sensitive applications by utilizing Linktropy's background traffic emulation.

**Multiple Links:** Emulate multiple links with the 8510 model. Four separate pairs of Ethernet interfaces make simulation of multiple links as easy as a single link.

**Bridging/Routing:** Install the Linktropy WAN emulator as either a bridge or router for easy integration with any test network.

**Copper or Fiber Interfaces:** Available with either copper or SFP ports for easy integration into any network.

**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.

**Capture and Replay Live Network Conditions:**

Capture live network conditions with the Linktropy Recorder and replay them through the Linktropy WAN emulator to reproduce the varying characteristics of the actual network in a repeatable test environment.

**Advanced Emulation Parameters:** Verify that applications properly handle anomalous packet reordering and duplication conditions without inducing stability or performance problems.

**Traffic Monitor:** See a visual display of the current traffic, including throughput graphs and link statistics. Download up to 24 hours of statistics for analysis.

**Automated Testing:** Take advantage of the Linktropy Scheduler or the command line interface to automate a series of tests.

**Unsurpassed Precision:** Test with confidence — Linktropy WAN emulators offer unsurpassed precision to ensure accurate and reproducible results.

**Everything You Need:** Everything you need is included in the compact, rack-mountable Linktropy WAN emulator. No additional hardware, software, or training required.

## USE CASES

**Application Testing:** You've developed your client/server application and it works great on your local network. But how well will it run when users are located across town from the server, or on the other side of the world? Use the Linktropy WAN emulator to ensure your application works well under all conditions before deployment.

**Network Validation:** You have to choose between terrestrial, wireless, satellite, and other WAN technologies to connect offices across the globe. The cost tradeoffs are easy to quantify, but how do differing delay, jitter, and loss affect performance of critical applications?

**Website Performance:** See your website as your users experience it and make sure it's responsive. Verify that your e-commerce system doesn't leave purchasers hanging when their links are slow.

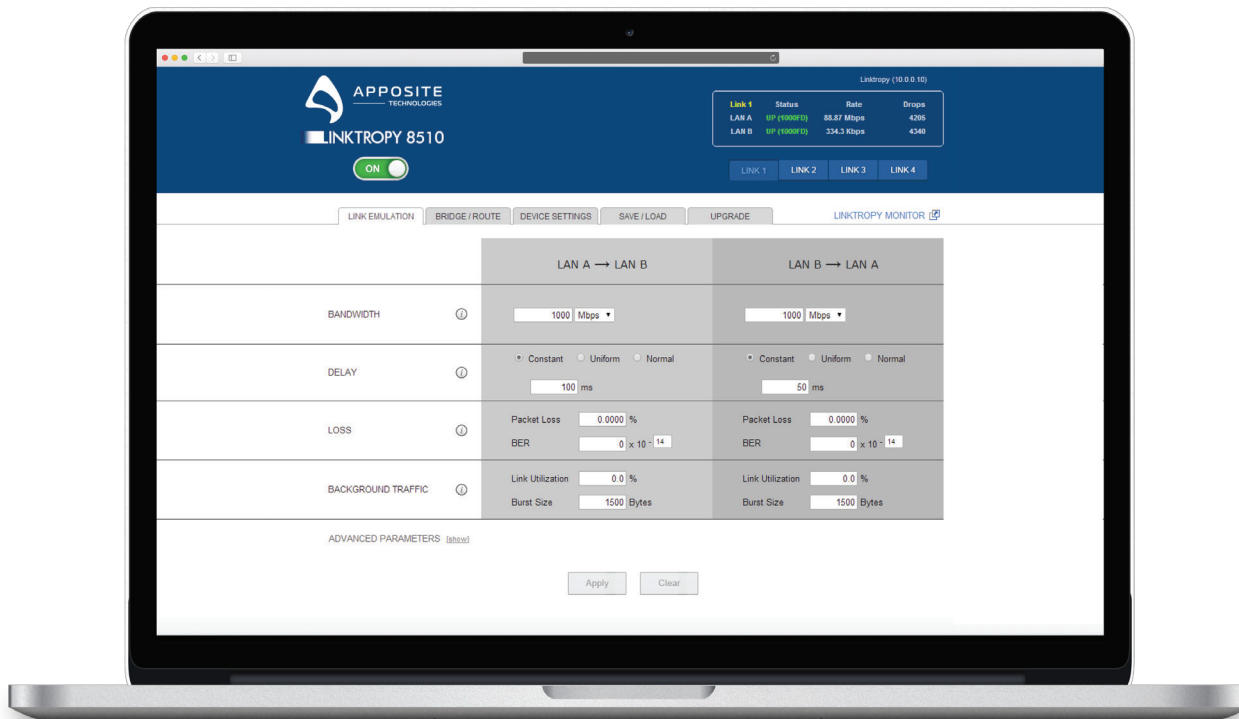
**Optimization:** Can tweaks to application settings improve performance? How much benefit will an

accelerator, traffic shaper, or application proxy provide? Use the Linktropy WAN emulator to find out.

**Troubleshooting:** Our applications aren't performing well and you need to find out why. Use the Linktropy WAN emulator in the lab to help pinpoint the cause of the problem and validate solutions without disrupting the production network.

**VoIP and Video:** P voice and video work perfectly in demonstrations on the LAN, but quality degrades with latency, jitter, and packet loss. Evaluate quality under real-world conditions to verify that they meet your requirements before making a commitment.

**Disaster Recovery and Remote Backup:** Data at remote offices needs to be backed up to a central facility, while centralized records have to be moved off-site for disaster recovery. Use the Linktropy WAN emulator to ensure that bandwidth limitations and link latency do not prevent the process from completing in the available time.



LINKTROPY CONFIGURATION WINDOW



LINKTROPY MONITOR WINDOW

## PRODUCTS

### Linktropy 5510

Emulate wan links up to 1 gbps in a compact, cost-effective appliance.



### Linktropy 8510

High-precision, gigabit-speed wan emulation of up to four separate links.



Specifications	Linktropy 5510	Linktropy 8510
Capacity		
Max. Emulation Speed	10 Mbps, 45 Mbps, 100 Mbps or 1 Gbps	10 Mbps, 45 Mbps, 100 Mbps or 1 Gbps
Max. Aggregate Throughput	2 Gbps	8 Gbps
Emulated Links	1 link	4 links
Maximum Packet Rate	3 million pps	12 million pps
Emulation Settings		
Bandwidth	300 bps – maximum rate in 1 bps increments	
Delay	0 ms – 10 sec. in 0.1 ms increments; constant, uniform, normal distributions	
Packet Loss Rate	0 – 100% in increments of 0.0001%	
Background Traffic	0 – 100% in increments of 0.1%	
Additional Parameters	Bit Error Rate, Packet Reordering, Packet Duplication, Queue Depth, Framing Overhead	
Interfaces		
Emulation	2 Gigabit Ethernet (copper or SFP)	8 Gigabit Ethernet(8 copper, 8 SFP, or 4 of each)
Management	1 x Gigabit Ethernet, 1 x RS-232 serial console	1 x Gigabit Ethernet, 1 x RS-232 serial console
Warranty & Support		
Hardware Warranty	1 year included	1 year included
Support & Maintenance	1 year included	1 year included