sales@candelatech.com
support@candelatech.com
+1 (360) 380-1618 [PST, GMT -8]

LANforge Competitive Analysis

- LANforge Suite Overview
- LANforge-ICE Network Emulator/Simulator
- LANforge-FIRE Stateful Network Traffic Generation Tool

LANforge Suite Overview

All LANforge products can be remotely managed and can have multiple users connected at once. LANforge supports a Java GUI application that runs on multiple platforms, including Windows and Linux, and a command line interface (TELNET) that can be accessed from any networked machine. Advanced scripting of LANforge is enabled by perl libraries that connect over the CLI. LANforge is lightly integrated with the superb Wireshark protocol analyzer and packet capture tool. LANforge hardware systems are based on the Fedora Core Linux operating system.

LANforge supports most features on Microsoft Windows platforms, including the LANforge-ICE WAN emulator and SIP VoIP call generation, but LANforge on Linux supports more features, is more powerful and more precise.

See the LANforge FIRE Traffic Generator and LANforge ICE Network Emulator datasheets for more detailed feature sets.

LANforge-ICE

LANforge-ICE is able to emulate networks of various latency, throughput, and packet degradation. It is targeted as a full-range product that can emulate networks up to speeds of 5Gbps. The feature highlights include being able to set the throughput, latency, jitter, packet loss, packet duplication, and packet reordering characteristics. LANforge-ICE can also apply these characteristics to particular packet flows using the WanPath feature. LANforge-FIRE and LANforge-ICE can be used as a single integrated product and can run on the same machine at the same time. It is easy to add new machines to a LANforge system allowing it to scale to meet your growing needs!

LANforge-ICE:

- Software-based product with platform independent GUI (graphical management application) for configuration and reporting.
- Supports remote management, multiple users, and scriptable command line interface
- Runs at up to 5Gbps with latency and jitter precision of 1 millisecond
- Acts as an Ethernet bridge or router (bridge mode allows LANforge-ICE to be inserted and removed from the network-under-test without any routing or configuration changes; routed mode can provide a more efficient utilization of network interfaces in certain configurations)
- Graphical network builder for advanced network simulation.
- Supports any Ethernet protocol, including TCP/IP and 802.1Q VLANs
- Supports up to 8 emulated WANs (16 ports) per machine. When combined with a VLAN-aware switch, a single LANforge machine can emulate 48 or more distinct networks in bridged or routed mode.
- Candela Technologies will be happy to furnish you with a fully configured LANforge machine tailored to your requirements

- We will beat any competitor's price for a similar product, and our licenses are good forever so your investment will be with you for the life of your project

One competitor in this class is Shunra's VE SMB Edition (formerly Shunra\Cloud).

Shunra VE SMB Edition:

- Software-based product that only runs on Microsoft Windows
- Advertised to run at up to 10Mbps (network emulation feature set is similar to LANforge-ICE)
- Has some advanced network congestion algorithms
- Acts as a router (implies changes to the existing network-under-test are required to insert and remove the test equipment)
- Can only work with routed traffic (IP layer and above)

There are several open-source network simulators and emulators.

x-kernel

Appears to be an older project that was designed to test protocol development in a pure simulated environment. It does not appear that you can run general purpose network traffic through this system.

nistnet

This is another older project that seems mostly abandoned (development appears to have stopped around 2005). It was originally designed to act as a kernel module and supported routed-mode. It did not appear to be able to act as a bridge.

netem

If open-source, community support and command-line tools are what you are looking for, netem is probably the best choice. It is actively developed and appears to work well in routed mode. It is supported on most recent Linux distributions. It may be functional in bridge mode too, but the documentation is a bit sparse on how that might be configured.

dummynet

Another open-source, comunity-supported and command-line driven emulator is Dummynet. It appears to have most of the standard emulation features and is actively developed. It was originally developed for the BSD platform, and now supports Linux and Windows as well.

LANforge-FIRE

LANforge-FIRE is a stateful network traffic generator that supports multiple protocols including Ethernet, 802.1q VLAN, PPPoE, UDP, TCP, IPv6, HTTP, HTTPS (SSL), FTP, TELNET, SCP, SIP, RTP, NFS, SMB (Samba), iSCSI and others. It supports 802.1Q VLANs, and can also emulate more than 2000 Ethernet interfaces with unique MAC and IP addresses, allowing a single LANforge machine to appear as an entire subnet of machines. It can run all of it's supported protocols at the same time allowing one to generate very realistic network traffic patterns. LANforge-FIRE can support 30,000+ concurrent TCP connections and a mix of other connection types. LANforge-FIRE runs on the Linux and Microsoft Windows operating system, and uses the standard protocol stacks. This ensures standards compliance as well as very realistic traffic generation, including all the subtle latencies and burstiness that a hardware-based solution like SmartBits may not generate. LANforge-FIRE can generate up to 10Gbps UDP traffic rates, and slower speeds for other traffic patterns. LANforge-FIRE supports at least 20 physical interfaces on a single machine, but can emulate many more. Multiple machines can be aggregated together to generate higher traffic loads, and the LANforge software will manage the entire realm as a single entity.

LANforge can calculate various statistics including throughput, latency, jitter, packet-loss, packet corruption, and Ethernet level errors. The Java GUI provides real-time graphical and tabular representation of these reports, and the raw numbers can be saved to disk for post-processing with your spread-sheet of choice (or custom scripts as desired).

One competitor in this class is Ixia's IxChariot, which is similar to LANforge in many ways. Both support a wide variety of real-world protocols and both provide scripting (TCL for IxChariot, Perl/TELNET for LANforge) for advanced traffic generation scenarios.

Ixia's IxChariot:

- Requires user to configure routing rules when using multiple interfaces. This can be difficult or impossible when attempting to have one machine use multiple ports on the same subnet and/or send traffic to itself.
- Requires Windows management console.
- Supports up to 100,000 concurrent connections (not clear how many machines this requires.)
- Supports traffic-generating/monitoring endpoints on a very wide variety of operating systems.
- Feedback from other users indicates that IxChariot does not do true protocol generation, but often just sends packets that approximate a protocol's characteristics. This may invalidate tests against equipment that inspects higher-level protocols, and precludes load-testing third-party servers.
- Easily saturates 1Gbps networks with modern hardware.

Agilent's N2X:

- A hardware based solution aimed at high-speed packet generation.
- Does not do true protocol traffic generation, but does allow you to craft any packet and send it over and over again at high speeds.
- Supports 8000 or more 'streams' per interface.
- Supports triggers and other means of isolating network faults as they happen.
- Is more than twice as expensive as LANforge-FIRE.

LANforge-FIRE:

- A software based product that runs on Linux and Microsoft Windows, with a Java graphical management application that runs on Linux, MAC, Windows and others. LANforge is best supported and most powerful on Linux.
- Allows remote management, multiple users, and scriptable command line interface.
- Can generate and receive traffic up to 10Gbps per interface.
- Supports multiple Ethernet interfaces in a single chassis, and can emulate more than 2000 unique machines (including unique MAC and IP addresses) with a single machine.
- Supports 64+ virtual 802.11a/b/g/n/AC WiFi stations per machine (with appropriate wireless NIC and licenses installed.)
- Each LANforge Ethernet interface (physical or emulated), can have its own routing table, and LANforge can even be set up to send traffic from one interface to another on the same machine, allowing a very portable test unit. LANforge manages the IP address information, routing tables and rules for you (on Linux).
- Supports over 30,000 simultaneous TCP connections per LANforge machine.
- Supports various protocols: Ethernet, UDP, UDPv6, TCP, TCPv6, VOIP (SIP, RTP, RTCP), HTTP, HTTPS, SCP, FTP, NFS, NFSv4, CIFS, iSCSI and more.
- Stateful protocol support means LANforge can be used to load-test third-party servers and infrastructure as well as generate network traffic load for testing networks.
- Candela Technologies will be happy to furnish you with a fully configured machine (or machines) tailored to your requirements.
- Base license includes support for 1000 concurrent connections.
- We will beat any competitor's price for a similar product, and our licenses are good forever, ensuring that your investment will be with you for the duration of your project.