Network Testing and Emulation Solutions

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CT934 LANforge-ICE 1 Gbps Desktop WAN Emulator 4GB RAM

The CT934 is an excellent choice for a desktop or portable network emulator supporting speeds up to 980 Mbps (bi-directional) or 1 Gbps when traffic load is not maxed out in both directions. It comes standard with 4GB RAM to support multiple seconds of latency. The CT934 has no moving parts, so it is good for mobile work and desktop environments where a loud rackmount system is not desirable. It supports DisplayPort for video, USB ports for Keyboard/Mouse for console/desktop access to the system. The CT934 hardware can support up to 3 simultaneous WAN emulations at near 1Gbps bi-directional throughput. Contact your sales representative if you prefer more than a single WAN emulation or LANforge-FIRE traffic generation feature sets. No additional hardware or software is required, but you may wish to manage the system using the LANforge-GUI on a separate machine.
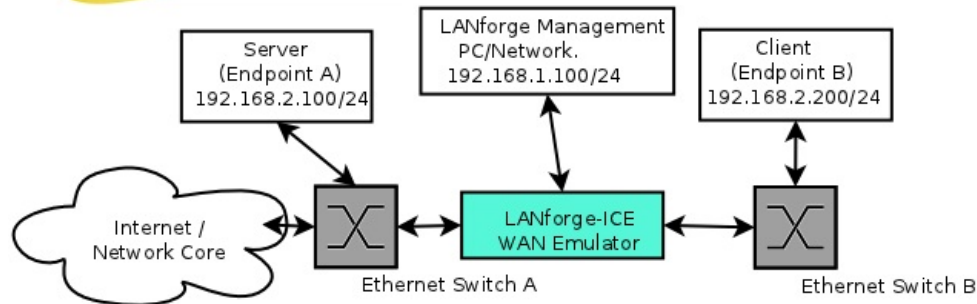
Larger Images: front back

NOTE: This product may have a different hardware configuration than the system pictured above.

Refer to your official quote for details.

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Example Network Diagram

LANforge ICE Network Diagram

This diagram shows how one might use LANforge ICE to emulate a Wide Area Network between a Server and Client. When the Client communicates with the Server, the traffic will flow through the Ethernet switches and then through LANforge ICE. LANforge ICE will enforce the rate limitation and other network emulation as configured. The Client and Server are on the same subnet. For a simpler configuration, the Client and Server can be directly connected to the LANforge ICE system.

Quick Start Guide

1. Connect Management Ethernet port to Management network or management PC. Or, connect DisplayPort, Keyboard, and Mouse to the chassis and manage it locally.

2. Connect Client to one WAN emulation port and Server to the other. The two interfaces will be bridged and this bridge will inject the network emulation.

3. Connect power plug to a standard US or European AC power source.

4. If managing remotely, install the LANforge-GUI on a separate management PC or Laptop. Windows and Linux GUIs are supported: Select the correct one from the CDROM or Candela Technologies Download page and install it.

5. The CT934 should now boot. If DHCP is enabled on the Management network, the CT934 will automatically acquire an IP address. If DHCP is not available, the IP address will be set to 192.168.1.101 by the LANforge scripts.

6. Start the LANforge-GUI on the management PC, or the CT934 machine if managing locally, and click the 'Discover' button. It should find the CT934 appliance and add the IP address to the drop-down box in the Connect widget. Press 'Connect' and you will be connected to the CT934.

7. Select the WanLinks tab in the GUI. One of the pre-configured tests should already be running. You may double-click the row in the top section to modify the configuration. You can also view a real-time report of the test with the 'Display' button. Any modifications take place immediately after you click 'Submit'.

LANforge-ICE Related Screen Shots

WanLinks Tab

Control Reporting Tear-Off Help

Stop All   Restart Manager   Refresh   HELP

Layer-4 | Generic | Test Mgr | Resource Mgr | Serial Spans | PPP-Links | Event Log | Alerts | Port Mgr | Messages
Status | Layer-3 | L3 Endps | VoIP/RTP | VoIP/RTP Endps | Armageddon | WanLinks | Collision-Domains | File-IO

Rpt Timer: fast (1 s) ▾ Go Test Manager all ▾   Select All   Start   Switch   Stop   Clear
☐ Hide Stopped   Display   Create   Modify   Batch Modify   Delete

WanLinks for Selected Test Manager

Name	EID	K-M	State	Endpoints (A <-> B)	Pkt Tx A->B	Pkt Tx A<-B	Rate A->B	Rate A<-B	Rpt Timer
VRWL-1.1.000	6.22	✔	Run	VRWL-1.1.000-A ...	565,080	439,422	1,000,000,000	1,000,000,000	1,00
VRWL-1.1.001	6.3	✔	Run	VRWL-1.1.001-A ...	4,054,185	3,658,228	1,000,000,000	1,000,000,000	1,00
VRWL-1.1.002	6.2	✔	Run	VRWL-1.1.002-A ...	18,632	18,593	44,736,000	44,736,000	1,00
VRWL-1.1.003	6.4	✔	Run	VRWL-1.1.003-A ...	3,657,007	4,040,390	1,000,000,000	1,000,000,000	1,00

All WanLink Endpoints

WPs	Name	Run	Script	Max Rate	Tx Pkts	Rx Pkts	Tx Rate	Tx Drop %	Dropped	Tx-Failed	Failed-Late	TX Bytes
+	VRWL-1.1.0...	✔	Stopped	1,000,000,...	439,422	565,088	1,014,228	0	0	0	0	653,589,...
+	VRWL-1.1.0...	✔	Stopped	1,000,000,...	565,080	439,434	1,020,730	0	0	9	0	843,838,...
+	VRWL-1.1.0...	✔	None	1,000,000,...	3,658,228	4,054,215	69,677	0	0	0	0	782,190,...
+	VRWL-1.1.0...	✔	None	1,000,000,...	4,054,185	3,658,203	77,642	0	0	0	0	866,984,...
+	VRWL-1.1.0...	✔	None	44,736,000	18,593	18,613	85,816	0	0	0	0	3,980,56...
+	VRWL-1.1.0...	✔	None	44,736,000	18,632	18,612	85,849	0	0	0	0	3,988,51...

Logged in to: 192.168.100.138:4002 as: Admin

WanLink Display

WanLink Display: VRWL-1.1.000 Manager: brent-6port

Endpoint: VRWL-1.1.000-A (1.1.9.65)

☑ 30-sec Averages

WAN Speed: 128 Kbps	TX Rate: 128.124 Kbps
RX Rate: 130.572 Kbps	TX Pkts: 981
Dropped: 0	Duplicated: 0
Reordered: 0	TX Failed: 0

32 KB

4.295 Gbps
16.777 Mbps
65.536 Kbps
256 bps
0 bps
Rx Bytes Dropped [Record-Dropped]

128 Kbps
96 Kbps
64 Kbps
32 Kbps
0 bps
Rx Throughput [Recorded]

129 KB Backlog

Endpoint: VRWL-1.1.000-B (1.1.11.66)

☑ 30-sec Averages

WAN Speed: 128 Kbps	TX Rate: 127.734 Kbps
RX Rate: 140.298 Kbps	TX Pkts: 1100
Dropped: 0	Duplicated: 0
Reordered: 0	TX Failed: 0

45 KB

4.295 Gbps
16.777 Mbps
65.536 Kbps
256 bps
0 bps
Rx Bytes Dropped [Record-Dropped]

128 Kbps
96 Kbps
64 Kbps
32 Kbps
0 bps
Rx Throughput [Recorded]

129 KB Backlog

WanPaths for WanLink Endpoint: VRWL-1.1.000-A

Name	Tx Rate	Disabled	!	!F	Filter Pattern	Tx Pkts	Rx Pkts	TX Bytes	RX Bytes	Dropped	Dup Pkts	OOO Pkts	Co

WanPaths for WanLink Endpoint: VRWL-1.1.000-B

Name	Tx Rate	Disabled	!	!F	Filter Pattern	Tx Pkts	Rx Pkts	TX Bytes	RX Bytes	Dropped	Dup Pkts	OOO Pkts	Co

Display Selected Paths   ☐ Pause Display   Print   Modify   Stop   Refresh   Clear   Close

Create/Modify WanLink Window

Software Features

1. General purpose WAN and Network impairment emulator.

2. Able to simulate DS1, DS3, OC3, OC12, DSL, CableModem, Satellite links and other rate-limited networks, from 10bps up to 1 Gbps (full duplex), with at least 8 seconds of one-way latency.

3. Can modify various network attributes including: network-speed, latency, jitter, packet-loss, packet-reordering, and packet-duplication.

4. Supports Packet corruptions, including bit-flips, bit-transposes and byte-overwrites.

5. Supports WanPath feature to allow configuration of specific behavior between different IP subnets, MAC addresses or other packet filters using a single pair of physical interfaces. WanPath support may require purchase of additional WanPath licenses, please ask your sales contact for more information.

6. Supports routed and bridged mode for more flexibility in how you configure your network and LANforge-ICE.

7. Supports WAN emulation across virtual 802.1Q VLAN interfaces more efficient use of limited physical network interfaces.

8. Supports 'WAN-Playback' allowing one to capture the characteristics of a live WAN and later have LANforge-ICE emulate those captured characteristics. The playback file is in XML format, and can be easily created by hand or with scripts. The free LANforge-ICEcap tool can be used to probe networks and automatically create the XML playback file.

9. Allows packet sniffing and network protocol decoding with the integrated Wireshark protocol sniffer.

10. Includes comprehensive management information detailing all aspects of the LANforge system including processor statistics, test cases, and Ethernet port statistics.

11. GUI runs as Java application on Linux, MAC and Microsoft Operating Systems (among others).

12. GUI can run remotely, even over low-bandwidth links to accommodate the needs of the users.

13. Central management application can manage multiple units, tests, and testers simultaneously.

14. Includes easy built-in scripting to automatically iterate through bandwidth, latency and other settings. Advanced programmatic scripting over a TCP socket also supported and example perl libraries and scripts are included.

15. Automatic discovery of LANforge resources simplifies maintenance and configuration of LANforge test equipment.

Hardware Specification

1. Operating System: Fedora Linux with customized 64-bit Linux kernel.

2. Six 1Gbps Ethernet ports, room for two wifi NICs

3. Intel Core i5-6300U CPU @ 2.40GHz processor.

4. RJ45 Serial console (115200 8 N 1) for console management & initial configuration.

5. DisplayPort, USB ports for desktop usage.

6. 4 GB RAM.

7. 120+ GB Solid State Hard Drive.

8. Larger storage drives available.

9. 12v 5AMP external power supply (brick).

10. Weight: 4 lbs

11. Dimensions: 6 x 7.5 x 2.5 inches   Metric: 153 x 190 x 63 mm.

12. Operating Temperature: -0 ~ 40°C.

13. Certification: CE Emission, FCC Class A, RoHS

List Price: $7,995   List Price with 1 Year support (17%): $9,354

Additional Feature Upgrades

Unless otherwise noted in the product description, these features usually cost extra:

- WanPaths (LANforge-ICE feature set)
- Virtual Interfaces: MAC-VLANs, 802.1Q VLANs, WiFi stations, etc
- LANforge FIRE traffic generation.
- VOIP: Each concurrent call over the included package requires a license.
- VoIP-Mobile Audio Quality Testing using POLQA/PESQ.
- Mobile-Mobile Audio Quality Testing using POLQA/PESQ.
- Armageddon: Each pair of ports requires a license if not already included.
- RF Chambers for WiFi testing.
- External battery pack: 12+ hours for CT520, CT523, CT92X and other platforms.

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