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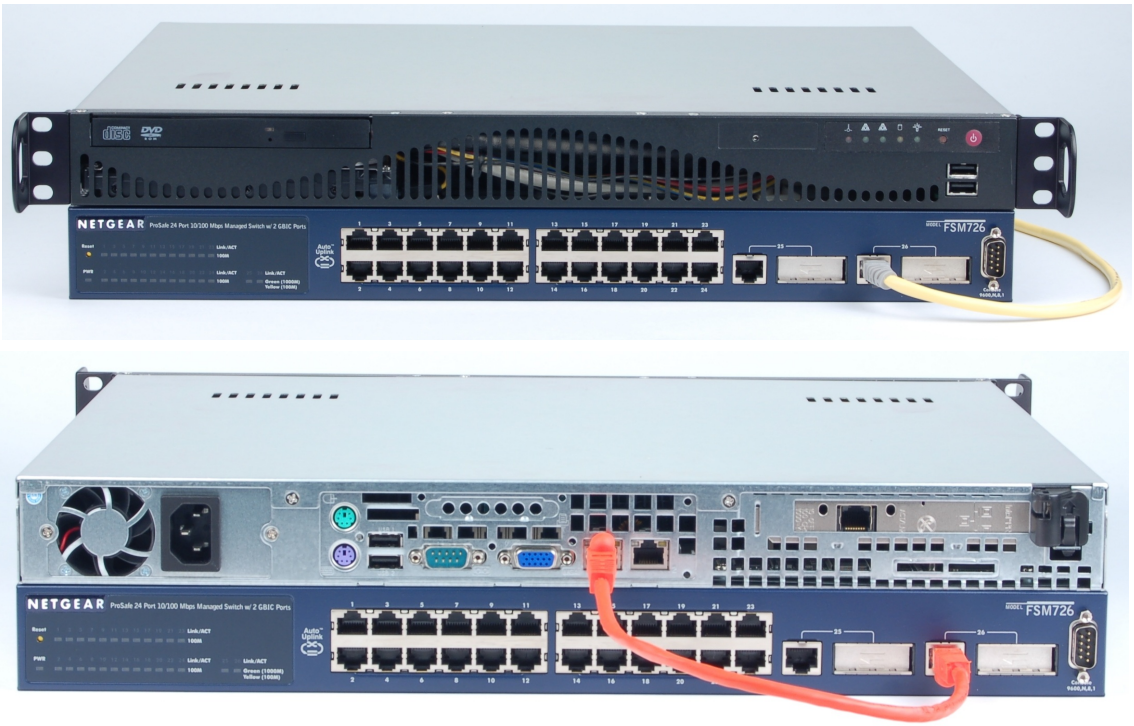
CT570 LANforge FIRE Last-Mile Traffic Generator

The CT570 is an excellent choice for testing DSL, Cable-Modem and other configurations with many relatively low-speed endpoints generating traffic against a higher-speed core network. The CT570 uses a 1U rackmount LANforge machine and a managed ethernet switch supporting 802.1Q VLANs to provide 48 ports of 10/100 ethernet traffic generation. The system can generate and receive about 2Gbps (4Gbps total across the backplane). Other quantities of ports are available, and additional systems can be clustered for increased traffic generation capacity.

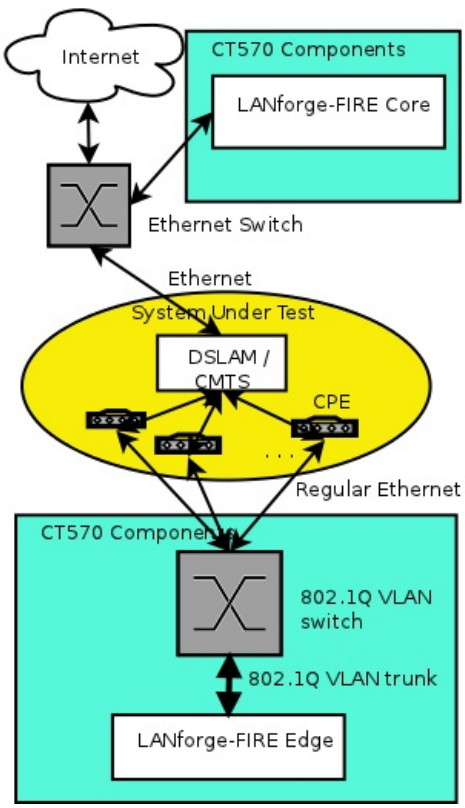
The CT570 1U rackmount chassis fits into a standard rack and is about 14 inches deep. It supports standard VGA, Keyboard, and Mouse interfaces for easy console/desktop access to the system. The ethernet switch is a standard managed ethernet switch and can be rack-mounted or used on the desktop. The LANforge rackmount chassis is relatively noisy, so it is better for a data center deployment than a desktop environment. Other form factors better suited for traveling or desktop use are also available at similar prices and performance. This system includes the Armageddon feature at no additional charge. VoIP support is priced separately. Please communicate your preferences to your sales representative. No additional hardware or software is required, but you may wish to manage the system using the LANforge-GUI on a separate machine.



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

Refer to your official quote for details.

Example Network Diagram



LANforge-FIRE multi-port traffic generator system.

The CT570 configuration is an affordable way to use LANforge to generate network traffic on a large number of physical interfaces. LANforge uses its ability to support 802.1Q VLANs and an affordable 802.1Q VLAN switch to provide traffic generation on 24 or more physical 10/100 Ethernet interfaces

The LANforge-FIRE Core system(s) emulate the core of the network (the internet). These Core systems can plug directly into the Device Under Test (DUT) or into an Ethernet switch connected to the DUT.

The LANforge-FIRE Edge systems connect to the 802.1Q VLAN switch provided by Candela. This switch will be configured with a VLAN trunk port connecting to LANforge. The other ports on the switch will be configured such that each port is associated with a unique VLAN. The DUT's edge ports (such as DSL and Cable modems) are connected to the VLAN switch ports. Please NOTE that the DUT does NOT need to understand 802.1Q VLANs: The switch will speak regular Ethernet to the DUT.

When generating traffic with this configuration, the LANforge endpoints will be configured between the Edge and Core systems. If the DUT supports it, the LANforge Edge systems can also communicate with each other.

Total traffic generation volume depends on the protocols used and the LANforge machine's hardware specifications. Current high-end systems will be able to generate about 1Gbps of traffic for common protocol configurations.

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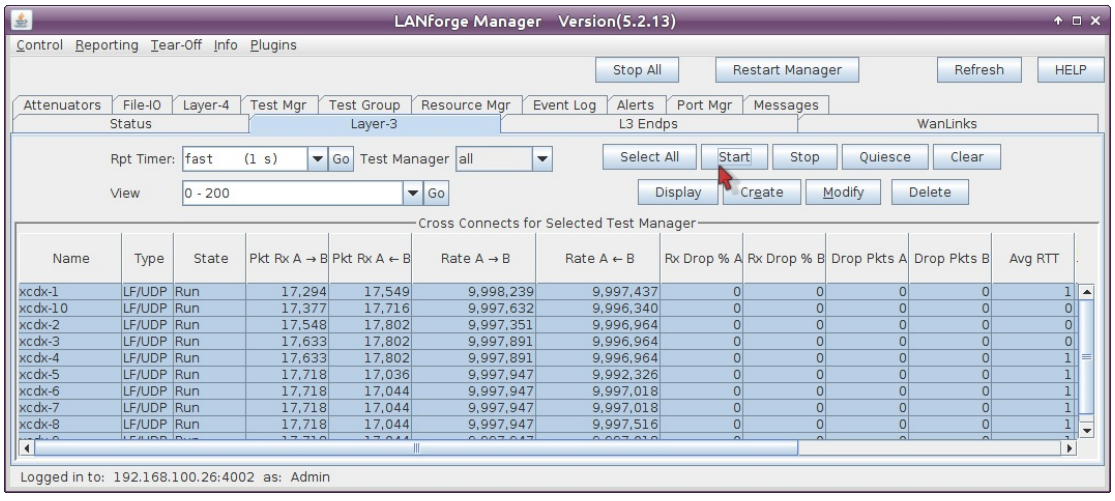
Quick Start Guide

1. Connect Management ethernet port to Management network or management PC. If connecting directly to a PC, an ethernet cross-over cable should be used. Or, connect VGA, Keyboard, and Mouse to the chassis and manage it locally.
2. Connect LANforge VLAN-trunk port to the VLAN switch's trunk port.
3. Connect ports 1-48 on the VLAN switch to the CPE devices (system-under-test).
4. Connect other LANforge traffic generating port to the up-stream side of the CMTS (system-under-test).
5. Connect power plug to a standard US or European AC power source.
6. 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.
7. The CT570 should now boot. If DHCP is enabled on the Management network, the CT570 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.

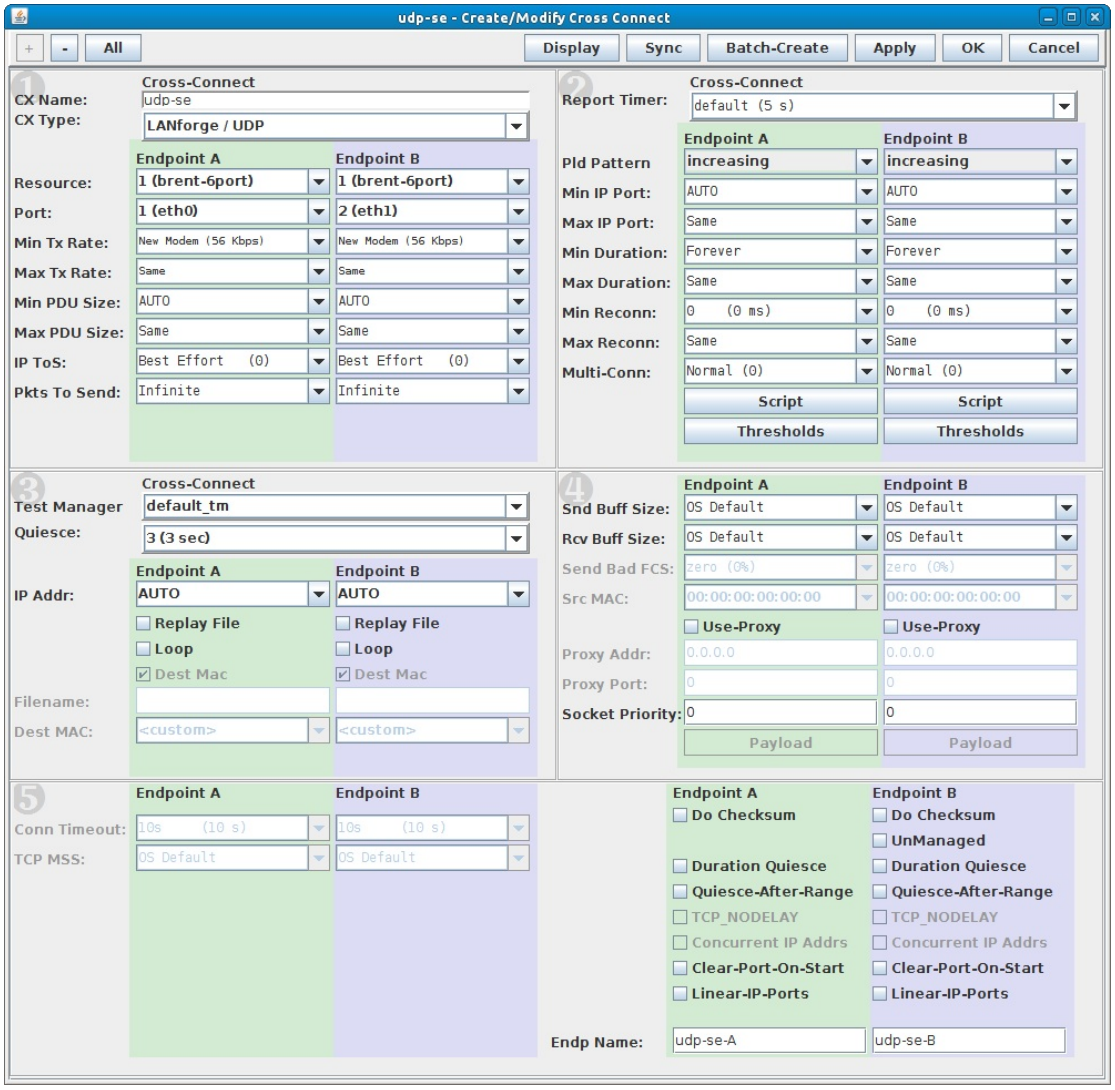
8. Start the LANforge-GUI on the management PC, or the CT570 server if managing locally, and click the 'Discover' button. It should find the CT570 appliance and add the IP address to the drop-down box in the Connect widget. Press 'Connect' and you will be connected to the CT570.
9. Select the Layer 3, Layer 4-7 and other LANforge FIRE related tabs in the GUI to see existing traffic connections and to modify them or add new ones. You can also view a real-time report of the test with the 'Display' button for some traffic types.
10. LANforge can send Layer 3, Armageddon and most other traffic types between any two physical or virtual ports, so one can send traffic between port vlan0 and vlan1, vlan0 and vlan2, vlan3 and vlan4, etc. Use the Port Mgr tab in the GUI to configure the IP addresses for the interfaces as appropriate for your network and cabling.
11. Any modifications take place immediately after you click 'Submit'.

LANforge-FIRE Related Screen Shots

Layer 3 (Ethernet, UDP, TCP) Connections



Layer 3 Create/Modify Screen



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Software Features

1. Supports real-world protocols:
    1. Layer 2: Raw-Ethernet.
    2. 802.1Q VLANs.
    3. PPPoE: Integrated PPPoE support.
    4. Layer 3: IPv4, IPv6, UDP/IP, IGMP Multicast UDP, TCP/IP.
    5. Layer 4-7: FTP, HTTP, HTTPS, TFTP, SFTP, SCP
    6. Layer 4-7: TELNET, PING, DNS, SMTP, NMAP (via add-on script).
    7. File-IO: NFSv3, NFSv4, CIFS, iSCSI.
2. Supports up to 1000 concurrent TCP connections with base license package.
3. The CT570 is able to generate 2Gbps or more, depending on protocols mix and speed of the network under test. Supports 48 ports of 10/100 ethernet traffic generation by utilizing the 48-port VLAN switch. Supports at least 35 VoIP (SIP, RTP) calls if appropriate licenses are purchased. The portable chassis configurations may run at different speeds than the 1U rackmount systems.
4. Hardware supports over 10,000 TCP connections on a single machine, but base license package includes 1000 licenses. Contact sales for additional licenses.

5. Supports real-world compliance with ARP protocol.
6. Supports ToS (QoS) settings for TCP/IP and UDP/IP connections.
7. Uses publicly available Linux and Windows network stacks for increased standards compliance.
8. Utilizes libcurl for FTP, HTTP and HTTPS (SSL), TFTP and SCP protocols.
9. Supports file system test endpoints (NFS, CIFS, and iSCSI file systems, too!). File system mounts can use the virtual interface feature for advanced testing of file server applications.
10. Supports custom command-line programs, such as telnet, SMTP, and ping.
11. Comprehensive traffic reports include: Packet Transmit Rate, Packet Receive Rate, Packet Drop %, Transmit Bytes, Receive Bytes, Latency, Jitter, various Ethernet driver level counters, and much more.
12. Supports generation of reports that are ready to be imported into your favorite spread-sheet.
13. Allows packet sniffing and network protocol decoding with the integrated Wireshark protocol sniffer.
14. GUI runs as Java application on Linux, MAC and Microsoft Operating Systems (among others).
15. GUI can run remotely, even over low-bandwidth links to accommodate the needs of the users.
16. Central management application can manage multiple units, tests, and testers simultaneously.
17. Includes easy built-in scripting for iterating through rates and packet sizes, with automated reporting. Also supports scriptable command line interface (telnet) which can be used to automate test scenarios. Perl libraries and example scripts are provided!
18. Automatic discovery of LANforge data generators simplifies configuration of LANforge test equipment.
19. LANforge traffic generation/management software is supported on Linux and MS Windows.

Hardware Specification

LANforge Server Specifications

1. High-End Intel Multi-Core 1U rackmount server.
2. Operating System: Fedora 64-bit Linux with customized Linux kernel.
3. 4 built-in 10/100/1000 Ethernet interfaces, one of which should be used for management.
4. 1 IPMI port.
5. High-availability Ethernet hardware bypass option available.
6. One Quad-Core Intel E3 v2 processor, 3.6+Ghz
7. 1 PCIe x16 slot (2-6 port 10/100/1000, 1-2 port 10G fibre, etc)
8. 8 GB or more RAM.
9. 40 GB or larger Hard Drive.
10. Solid State Drive option available.

11. Standard US or European power supply (automatically detects EU v/s US power).
12. Weight: 18 lbs or 8.2 kg.
13. Dimensions: 17 x 14 x 1.75 inches (14-inch deep 1U rackmount server) Metric: 432 x 356 x 44 mm.
14. Power Supply: Fixed 350W AC
15. Estimated Power Usage: 1.4 Amps @ 120 VAC under load, 0.7 Amps idle.
16. ROHS compliant.

Ethernet Switch Specifications

1. 48-port 802.1Q VLAN switch with 2 GigE uplinks.
2. 48 10/100/1000 Autonegotiating RJ45 Ethernet interfaces.
3. 2 10/100/1000 Autonegotiating RJ45 Ethernet interfaces.
4. Dimensions: 17 x 10 x 3.2 inches (Standard 10-inch deep 2U rackmount) Metric: 432 x 254 x 81 mm.

List Price: $31,900 List Price with 1 Year support (17%): $37,323

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
- FIRE Connections: Base FIRE license includes 1000 active connections.
- LANforge-ICE Network Emulation.
- 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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