



NetDisturb



Impairment Emulator Software for IP Networks (IPv4 & IPv6)



Common Key Features for the Standard and Enhanced Editions

- Simultaneous support of **IPv4** and **IPv6**
- Client-Server architecture based on the SOAP mechanism which uses the HTTP protocol and the XML format for the exchanges between the Client and the Server
- **NetDisturb** is an Ethernet bridge to avoid any network configuration
- use of standard Ethernet Network Interface Cards up to 1 Gbps
- Symmetric or Asymmetric **bandwidth limitation** with router simulation
- Very easy to use and intuitive Graphical User Interface
- 16 configurable flows per direction
- **Aggregates** of flows can be defined (set of flows sharing the same Delay & Jitter characteristics)
- **User-defined rules for disturbances**: pattern trigger, starting time after delay or number of packets received, stop impairments after number of received packets or elapsed time, loops and more...
- Predefined filter parameters based on the main protocol header fields (MAC, MPLS, VLAN, IP, TCP and UDP headers) and user-defined pattern filter
- **Unidirectional** or **bi-directional** packet impairments
- **Impairments**: Latency, Loss, Duplication, bandwidth limitation, Delay and Jitter, Content impairment (mathematical laws or user-defined files)
- Change the impairment law **on-the-fly** for a flow
- Ability to impair the remaining network traffic that could be either only the IP packets or all the Ethernet frames
- Connections per flow: impairments are applied to the flow or to each connection of the flow
- Ethernet / Internet modes (Out-of-Sequence packets)
- **Command Line Interface (CLI)** to use **NetDisturb** in test beds
- Ethernet Jumbo frames supported (payload up to 17,976 bytes)
- Statistics display and export detailed statistics into a file
- **Accuracy = 1 millisecond resolution**



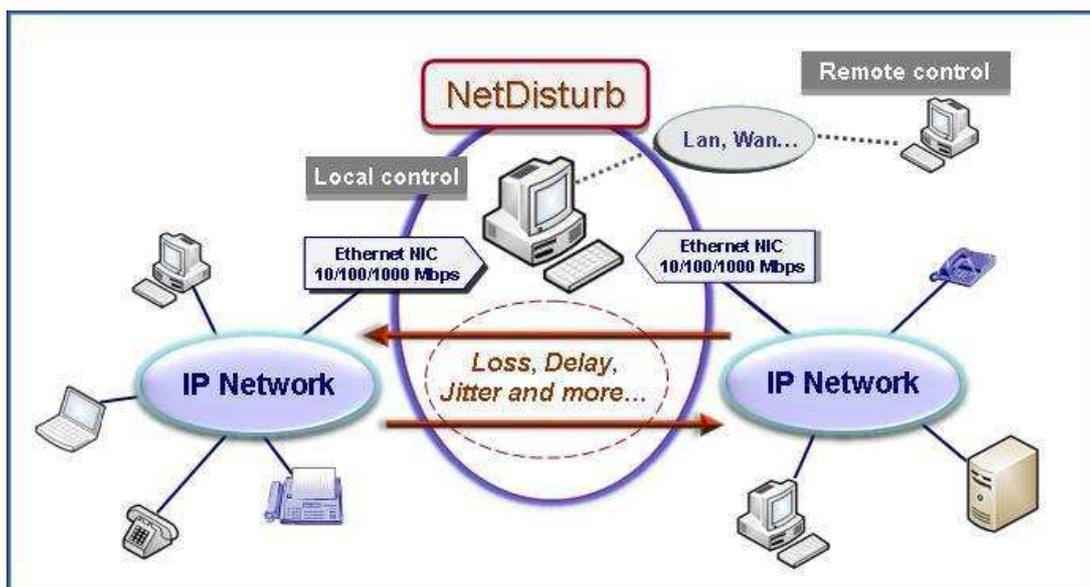
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Comparison between NetDisturb Standard Edition and NetDisturb Enhanced Edition

Features

Impairment of IPv4 & IPv6 packets, ARPs and Ethernet frames

Filter parameters to define a flow:

* Activity rules:

- Start/Stop after a time limit or a packet counter or a pattern trigger
- Loop to reapply the rule with delay between each iteration

* Packet filters: source address, destination address, source port, destination port, protocol, DSCP DiffServ (ToS), MPLS, VLAN, MAC address...

* User-defined pattern filter based on Ethernet packet content

16 User-defined flows to impair using filters and other flows to impair without using filters

Dynamically modify impairments on-the-fly per flow in each direction when running

Aggregates of flows (set of flows sharing the same delay and jitter characteristics)

View Per-Flow statistics and NICs statistics

Accuracy = 1 millisecond

Standard impairments: drop/loss, duplicate, delay (latency), jitter, bandwidth limitation, congestion, packet error, bit error, reorder, burst errors

Delay from 1 millisecond up to 10 seconds in each direction

Emulate bandwidth up to 1 Gbps

Impairments by using the IP protocol field

Definition of flows to disturb based on protocol primitives:

- **ARP** (ARP Operation Code)
- **DHCP** (DHCP Message Type)
- **DNS** (DNS Message Type, DNS Message Operation)
- **FTP** (FTP Command, FTP Returned Status)
- **FTP-DATA**
- **HTTP** (HTTP Method, HTTP Returned Status)
- **NTP**
- **RTP** (Audio Payload Type, Video Payload Type, DTMF)
- **SIP** (SIP Method, SIP From, SIP To, SIP Returned Status)
- Detailed log events per flow



Yes



Yes

No

Yes