



# TimeTrace<sup>®</sup> Software

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TimeTrace is a software-only latency monitoring tool designed to tell you where network latency and delays are coming from on your Linux based systems without requiring application or operating system modification. It fills the gap left by hardware solutions and is designed to be used in conjunction with them to give you a full latency picture.

## Picks up where other solutions give up

A common scenario is upgrading a NIC, driver, operating system, system settings or applications then seeing latencies show up that are difficult to track down. TimeTrace can tell you, quickly, where those latencies are coming from and let you isolate and fix the causes. It's also a great tool to measure the effect when tuning system latencies to get the best results for your tuning work – allowing you to focus your efforts on where you get the greatest benefit.

Most solutions out there can tell you latency for packets as they traverse your network gear but not what they are doing within a single server. Even those that can tell you what is happening in a server are very coarse grained (just network taps) and require you to insert debug code into your application, call external libraries and offer little more than a complicated print statement. TimeTrace automatically monitors the Linux network stack, drivers, NIC then reports individual component latencies in simple log files.

## Answer common questions with TimeTrace

- Where is latency coming from in our server?
- Why is the only server showing excessive latency?
- What is our outgoing order to execution latency?
- How many orders/second are we sending?
- Is CPU/interrupt affinity working properly?

## Fast, Easy

TimeTrace can be enabled at runtime without a reboot, application restart or any other changes.

## Solarflare/Mellanox/Intel

Take advantage of NIC timestamps to measure NIC reception/transmit time and how much time your network stack components cost you.

## Simple Interaction

No need to install cumbersome software. Use a simple CLI interface to enable TimeTrace. Clear and human readable log file format without complicated logging servers or extra hardware.

## Low Overhead

TimeTrace costs only a few nanoseconds per trace point.

## Network wide view

TimeTrace takes advantage of TimeKeeper time accuracy so you can see and compare events on multiple servers across your network.

## TimeKeeper

### What TimeTrace shows you

An example of a small part of what TimeTrace shows

- Packet received by NIC (eth3) at time T on CPU 1
- Packet from NIC to driver, 800 nanoseconds later on CPU 0
- Packet from driver to IP stack, 1200 nanoseconds later on CPU 0
- Packet to TCP stack, 2700 nanoseconds later on CPU 0
- Packet received by application, 17500 nanoseconds later on CPU 7

### How to purchase

TimeTrace and TimeKeeper are available from FSMLabs and FSMLabs' resellers. For purchase information or for a live demonstration of TimeTrace please contact FSMLabs at [sales@fsmlabs.com](mailto:sales@fsmlabs.com).

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