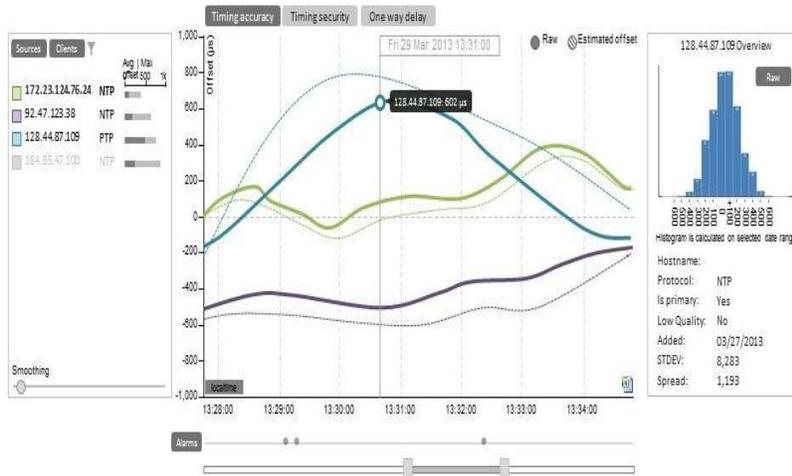![FSMLabs Enterprise Real-Time®]

TimeKeeper® Software

The TimeKeeper is client and server software that can also manage time distribution enterprise wide and monitor time synchronization quality throughout your network.

- PTP, NTP, PPS, GPS – low 100's of nanoseconds accuracy
- No additional hardware required
- Can take advantage of existing hardware assist from:
  Solarflare, Mellanox, Intel, Broadcom
- Act as NTP server, PTP GrandMaster, Boundary clock and client at the same time
- Requires no application changes – standard Linux time API
- Reading time is faster – actually improving performance
- Time Intelligence Platform gathers statistics from clients and peers, detects problems
- Auto-discovers your time network topology and displays it for single-pane-of-glass enterprise management
- Multiple simultaneous time sources for redundancy, security
- Detect, alert, self-heal from network failure/spoof attack
- Scalable operation, including support for remote servers outside the local network and high performance implementation of both PTP and NTP
- Advanced time network administration via web interface
- Integrates with existing NTP/PTP infrastructure
- Includes testing tools to validate sync quality

Security from the ground up

TimeKeeper is able to track multiple sources of time as cross checks and is able to detect spoof attacks and equipment failures.

Flexible Configuration

The web interface simplifies configuration. For example: the clock can be easily setup to use a NTP source as a backup to a GPS backed PTP feed with another NTP source as cross-check.

Transparent Failover

Instances can be setup to back up each other up so that if one has a failure time service continues.

Enterprise Reliability

Testing tools to validate performance, enterprise-wide monitoring, SNMP alerts, audit log trails and security validation of time make for a reliable time management system you can trust.

www.fsmlabs.com

Why TimeKeeper is better

There are a number of legacy time synchronization solutions, some free, but when compared with TimeKeeper capabilities and considering the cost of installing and maintaining other approaches the cost/benefit and unique capabilities of TimeKeeper make it a clear winner. Here's a short list of how TimeKeeper is better because it can do things that no other solution can and gives you visibility into what your network is doing:

- Production solution in use for years by top-tier banks/exchanges, not hobby project
- Phone/email support
- Complete, all-in-one solution for NTP, PTP, IRIG, GPS, PPS and more
- Support for hardware timestamp network cards – transparently takes advantage
- Multiple time sources at the same time – compare quality and have failover
- End-to-end distribution and management of time
    - Server, client, boundary clock, stratum clock with all protocols
    - No need to mix and match software
- Can bridge your current NTP network while moving to PTP
- Can give you microsecond leve NTP today – a drop-in upgrade to NTPd
- Complete IEEE 1588 support: PTP unicast, multicast, telecom and hybrid profiles
- Detects timing errors by monitoring time sources instead of just trusting them
- Provides tools for validating your time and testing it before and during deployment
- Cross-checks multiple time sources at runtime to detect GPS spoof/jam attacks
- Will not let time go backwards, will not let time lurch forward
    - Smooth adjustments of time rather than discrete jumps
- Detects virtualized systems and can discipline clocks in EC2, VMWare and others
- Not at the mercy of the Linux kernel, TimeKeeper takes over time control for:
    - Fixing long existing Linux time related bugs
    - Faster reading of the time (less overhead)
    - More accurate time
    - Faster startup and initial sync – in seconds
- TimeKeeper gives you more information
- Alerting on problems or quality tolerances: SNMP, email, web, syslog
- Human readable audit logs of all operations to give you the information you need
- Web based GUI for all operations as well as command line tools
    - See your whole network of servers and clients on a single-pane-of-glass
    - Monitor clients, monitor servers for accuracy – alert on problems

How to purchase

TimeKeeper, TimeKeeper Server Software, and TimeKeeper Client Software are all available from FSMLabs and FSMLabs' resellers. For purchase information or for a live demonstration of TimeKeeper

FSMLabs
Enterprise Real-Time®

TimeKeeper

Specification

Linux support	All major distributions of Linux and support for most in-house custom distributions	Standard
Networking	Ethernet (100M/1G/10G), RS232, Infiniband	Standard
Time Sources	NTP, PTP, GPS, CDMA, RS232, IRIG	Standard
Time Serving	PTP, NTP, PPS, TIME (RFC868)	Optional
IEEE 1588 (PTP) profiles supported	Default, Telecom, Hybrid	Standard
Fault Detection	TimeKeeper Multi-Source self-check, patent pending threat detection	Optional
Monitoring/Management	Full monitoring of upstream, downstream, peer and other entities with alerting	Optional
Protocol Support	PTP, NTP, PTP telecom profile, PTP hybrid mode	Standard

TimeKeeper and FSMLabs are registered trademarks of Finite State Machine Labs Inc.