## SECURE ENTERPRISE CLOCK SYNC SOLUTIONS

### **ABOUT US**

### We Make Clock Sync More Accurate, Resilient, **Compliant, and Easier to Manage**

FSMLabs (Finite State Machine Labs, Inc.) is now doing business as FSMTime. The FSMTime name highlights our more-than-a-decadelong business designing, marketing, and selling TimeKeeper® innovative enterprise clock sync products and services to keep business and operations applications clocks synchronized with high precision. TimeKeeper® software and hardware products and TimeCare<sup>s™</sup> services are used in a variety of time-critical applications, including financial trading, 5G IoT, cybersecurity, gaming, cloud DB, automation, broadcasting, first responder, defense, and government agencies. With over 20 years of experience and hundreds of customers ranging from some of the world's largest corporations to tiny startups, FSMTime is the leader in financial trading and a growing leader in the other industries it serves. FSMTime products and services are sold globally through a mix of partners, VARs, and direct support.

### **SMART TIMEKEEPER® PRODUCTS**

### The Gold Standard in Enterprise Clock Sync

We offer the following innovative TimeKeeper® (TK) products to time-sync critical enterprise application servers and VMs:

- TK-Platform Solution
- TK-Server Software
- TK-Client Software
- TK-Compliance Software
- TK-Grandmaster II Appliance

### PATENTED TECHNOLOGY

### TimeKeeper® Enterprise-Class Clock Sync Platform

Released in 2008, the company's first intelligent TimeKeeper enterprise-class clock sync platform offered unique microsecond accuracy performance over NTP for time-syncing critical financial trading applications. TimeKeeper (TK) was soon extended to support IEEE 1588 PTP and to offer the first resilient NTP/PTPdiversified fault tolerance capability. Released in 2011, initially the first and now the second generation TK-Grandmaster II time server appliance, remains the only TK software-powered, GNSSsourced hardware network clock that provides <30ns accuracy at its output and synchronizes TK-Client at sub-us accuracy against UTC traceability over NTP/PTP network feeds, with native 10/25/40/100GbE ultrahigh speed capability.

The company's first generation, real-time products powered complex, high-end systems, from Samsung's ship building robots to Pratt & Whitney's jet fighter engines. Our second generation TK products keep the world's most advanced financial trading firms on beat, as well as providing the secure enterprise heartbeat to other industries we serve.

### TIMECARE SERVICES

### Peace-of-Mind TimeCare<sup>SM</sup> Service Level Agreement Support

We provide customizable TimeCare<sup>SM</sup> SLA (Service Level Agreement) support to our customers to help them keep their network clocks time-synchronized to run their critical applications reliably and in compliance with regulatory and business requirements. The base service is the high quality standard support defined in the company End-User License Agreement (EULA). TimeCare SLA support includes any combination of these services:

- TimeKeeper® (TK) Software EULA
- TK-Grandmaster Appliance EULA
- TK-product installation & setup
- TK-network timing architecture
- TK-help desk (email, phone) for diagnostics & troubleshooting issues
- TK-software upgrades
- TK-Grandmaster II appliance RMA
- TK-Grandmaster II appliance extended warranty
- Specific TimeCare customer requirements

### **TIMEAUDIT SERVICES**

### **Measuring Your Enterprise Clock Sync Chain Performance** & Compliance

We provide various TimeKeeper® TimeAudit<sup>SM</sup> services to help you measure your enterprise clock sync performance, from analyzing your time security, fault tolerance, and resiliency, to monitoring and diagnosing your time clients' KPI's for compliance against regulatory and business requirements, such as MiFID II, FINRA, CAT, SMPTE 2059, and UTC traceability. TimeAudit helps measure other time-sensitive functional performance as well, such as timestamping accuracy, deterministic network, and low latency.

### **CUSTOMERS**

### **Best-in-Class Products for Our Customers' Success**

Our TimeKeeper® products are the gold standard in secure enterprise-class clock sync, used by hundreds of large companies, including global banks, financial institutions, government agencies, and other industries on a global scale.

### **CONTACT US**

**Global Presence, Local Support** 

### **USA Headquarters**

Austin, Texas +1 512 263 5530 sales@fsmtime.com www.fsmtime.com

### **International Sales Desk**

### London

+44 (20) 39 23 68 55 sales@fsmtime.com www.fsmtime.com

### **Local Resellers & Representatives**

**US & International** 

Contact us at sales@fsmtime.com



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**Broadcast** 



Cloud DB





Automation



Gaming



Defense



**Public Safety** 





5G IoT



Government



**Data Center** 





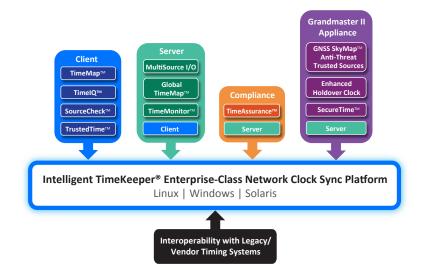


Financial Trading Cybersecurity



### TIMEKEEPER PLATFORM SOLUTION

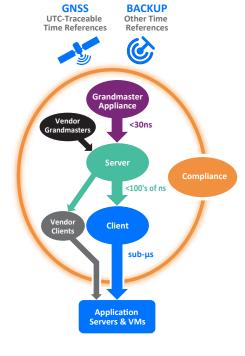
The Gold Standard In Secure Enterprise Clock Sync



**TimeKeeper Platform** (TK-Platform) solution is an intelligent, complete software-driven clock synchronization solution, enabling secure, resilient, and state-of-the-art enterprise clock sync at higher accuracy performance than competing products and at the lowest total cost of ownership. TK-Platform is used by hundreds of large organizations, including global banks and other financial institutions, as well as government agencies, broadcast studios, and leading firms in industries ranging from Internet gaming to network management to public safety. The TK-Platform is an integrated suite of products for secure clock sourcing, distribution, synchronization, monitoring, management, and administration.

# TimeKeeper Enterprise Clock Sync Chain

TK-Platform enables users to manage and visualize the enterprise clock sync chain at sub-microsecond timing performance over distributed network and cloud environments.





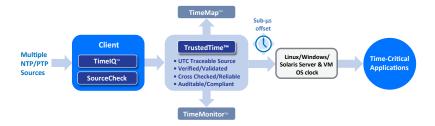
### **TIMEKEEPER CLIENT**

Smart, Secure Sub-Microsecond Client Clock Sync Of Critical Enterprise Applications



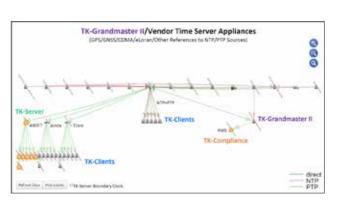
**TimeKeeper Client** (TK-Client) is a smart, fault-tolerant network clock sync software system for enterprise or other applications. TK-Client synchronizes clocks on Linux, Windows, and Solaris application servers and virtual machines to multisource NTP/PTP feeds over the network at up to sub-microsecond precision. TK-Client seamlessly upgrades legacy NTP infrastructure with leading-edge NTP/PTP precision at the lowest TCO, while automatically exploiting available hardware-assisted NIC timestamping for enhanced time precision. TK-Client performance exceeds many regulatory requirements, including MiFID II, RTS-25, FINRA, CAT, PSD2, ESMA, and SEC, while meeting UTC traceability.

### How the ML-based Multisource TimeKeeper Client Works



### TimeMap™ Visualization Tool

This powerful tool visually displays the topology of the enterprise network clock sync of time feeds from multivendor time servers.



# SERVER

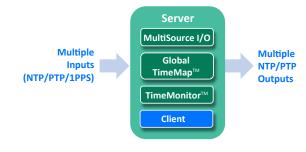
### TIMEKEEPER SERVER

Smart Software Grandmaster Time Server Or Boundary Clock



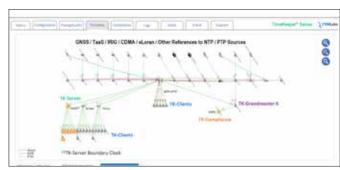
**TimeKeeper Server** (TK-Server) is a smart software grandmaster that can act as a boundary clock or stratum time server while providing real-time monitoring and alerting, fault-tolerance, and clock distribution analysis. TK-Server receives any time source (GNSS, IRIG, CDMA, NTP, PTP, and others) and serves multiple NTP/PTP feeds over the network. TK-Server monitors the entire network time sync, visualizes the global network time sync topology, analyzes performance, and archives auditable records.

### **How TimeKeeper Server Works**



### Global TimeMap™ Visualization Tool

This powerful planning tool visually displays the global enterprise-wide clock sync network topology of multivendor clients and time servers.



### Global TimeMonitor™ Tool

This innovative monitoring tool self-discovers the network topology of the enterprise clock sync chain by using a variety of network time protocols and profiles (PTP, PTP hybrid, PTP unicast, NTP, and more).



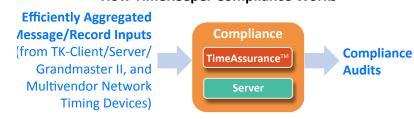
### TIMEKEEPER COMPLIANCE

Smart Performance Management For Real-Time MiFID II/ FINRA/CAT Reporting Compliance & UTC Traceable Clock Sync\*



**TimeKeeper Compliance** (TK-Compliance) is a smart clock sync compliance software tool for data center IT users and auditors, enabling real-time UTC-traceable performance monitoring, troubleshooting, big data analytics, reporting, and management, all in a consolidated audit trail. TK-Compliance visualizes and monitors the global clock sync chain topology, aggregates data from all TK-Clients and other vendor clients, graphs all client KPIs, reports compliance performance divergence, and securely stores all network clock sync records for over 5 years

### **How TimeKeeper Compliance Works**



TK-Compliance integrates the smart TK-Server, which aggregates all time client data while monitoring clients' KPIs, and provides innovative, scalable features for easy compliance analytics and reporting. TK-Server's TimeMonitor™ capability allows users to configure an arbitrary, redundant network of TK-Compliance servers for fault tolerance, efficient workloads, and low-latency networks.

### TimeAssurance™ Reporting Tool

This powerful auditing tool efficiently aggregates all the clock sync data logs from TK-Client, TrustedTime $^{\text{TM}}$  multisource network analyzer, TK-Server's TimeMonitor, as well as other vendor time clients according to their data aggregation and communication capabilities.

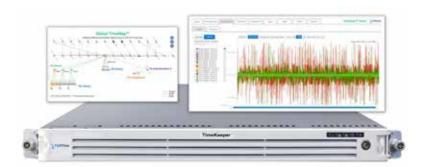
\*Disclaimer: We don't provide legal or regulatory compliance advice with regard to any of our products or with respect to the use of our products. You should consult with your attorney and/or regulatory compliance officer.



### TIMEKEEPER GRANDMASTER II

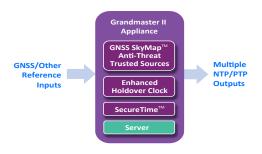
**GRANDMASTER** 

Smart, Secure <30ns, Software-Powered Ultrahigh-Speed <10/25/40/100GbE GNSS Time Server

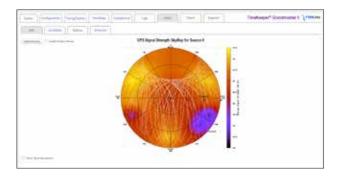


**TimeKeeper Grandmaster II** (TK-Grandmaster II) is a smart, secure, second-generation, high-performance software-defined time server appliance for data center IT users, receiving any time source (GNSS, CDMA, NTP, PTP, and others) and serving time over multiple ultrahigh-speed, hardware-timestamped <10/25/40/100GbE NTP/PTP ports at 100ns precision. Powered by the smart TK-Server, TK-Grandmaster II provides powerful client/server management, configuration, monitoring, fault logging, performance analytics, clock sync chain topology visualization, alert notification, and security.

### How TimeKeeper Grandmaster II Works



### GPS/GNSS SkyMap™ Anti-Threat Trusted Sources Tool



SkyMap<sup>™</sup> is a patented GPS/GNSS threat analytics tool, monitoring real-time performance, attack, and resilience of multi-satellite time references while alerting users. It mitigates and accepts only trusted time sources for reliable, quality NTP/PTP time serving.