

FSMTime[™]

SECURE ENTERPRISE CLOCK SYNC[™]

by FSMLabs

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**In Production: Better than 100 Nanos Accuracy,
ML-Based NTP/PTP, Fault Tolerance, and Forensic Traceability**

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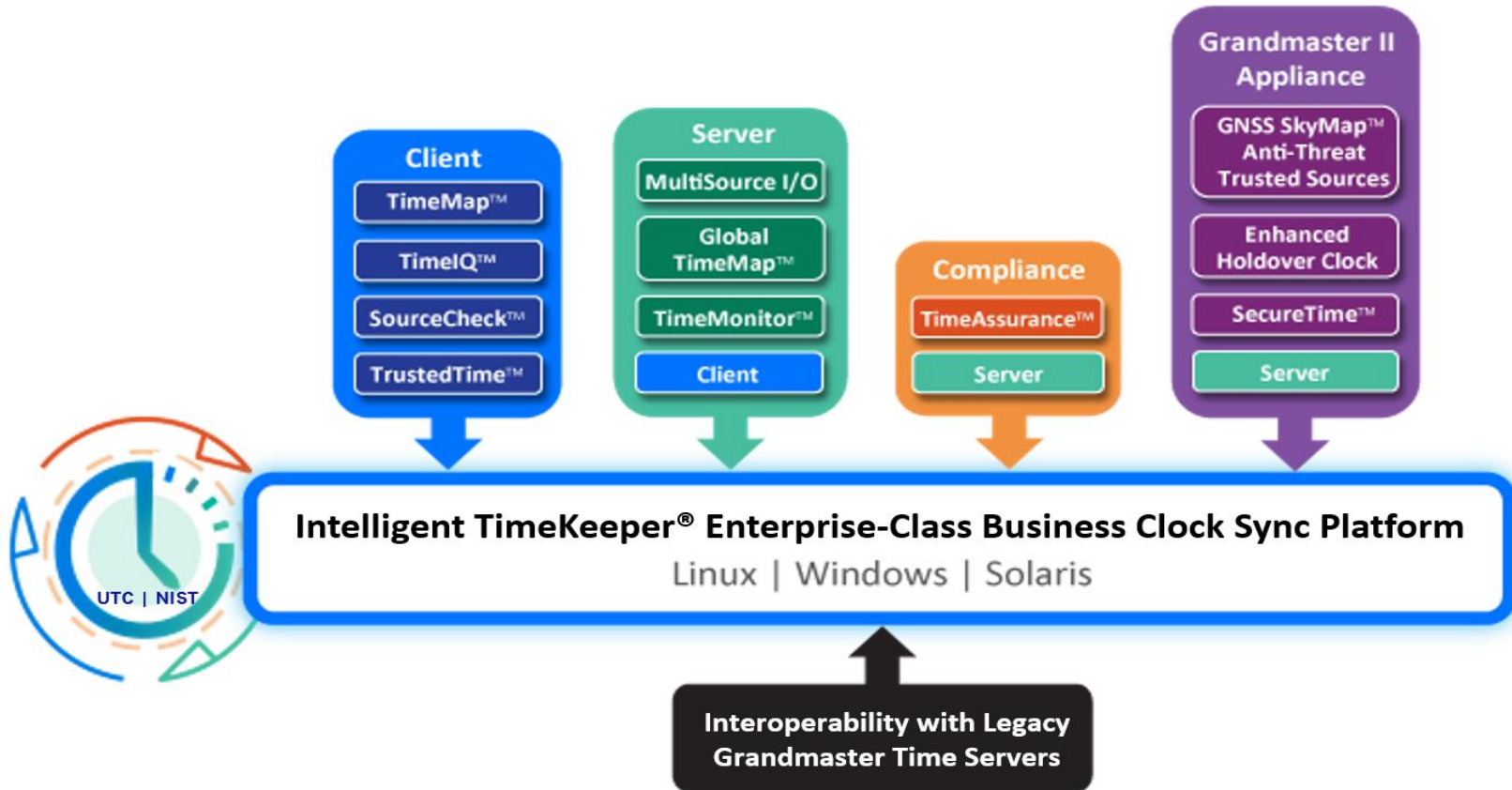
TimeKeeper Business Clock Sync Platform

- Over **8 years in production use** at the world's largest banks, exchanges, market makers, hedge funds & many smaller startup disruptors
- **NTP & PTP** are routinely down to **50 ns accuracy** against **UTC/NIST traceability**
- **Flexibility & interoperability at scale on any IT environment** - cloud/VM, bare metal, Linux/Windows Solaris, and shared/dedicated networks
- NTP & PTP are **ML-augmented/optimized**
- Built-in **fault tolerance & security**
- **No Special hardware** needed
- **Field proven platform of products**, not a simulation



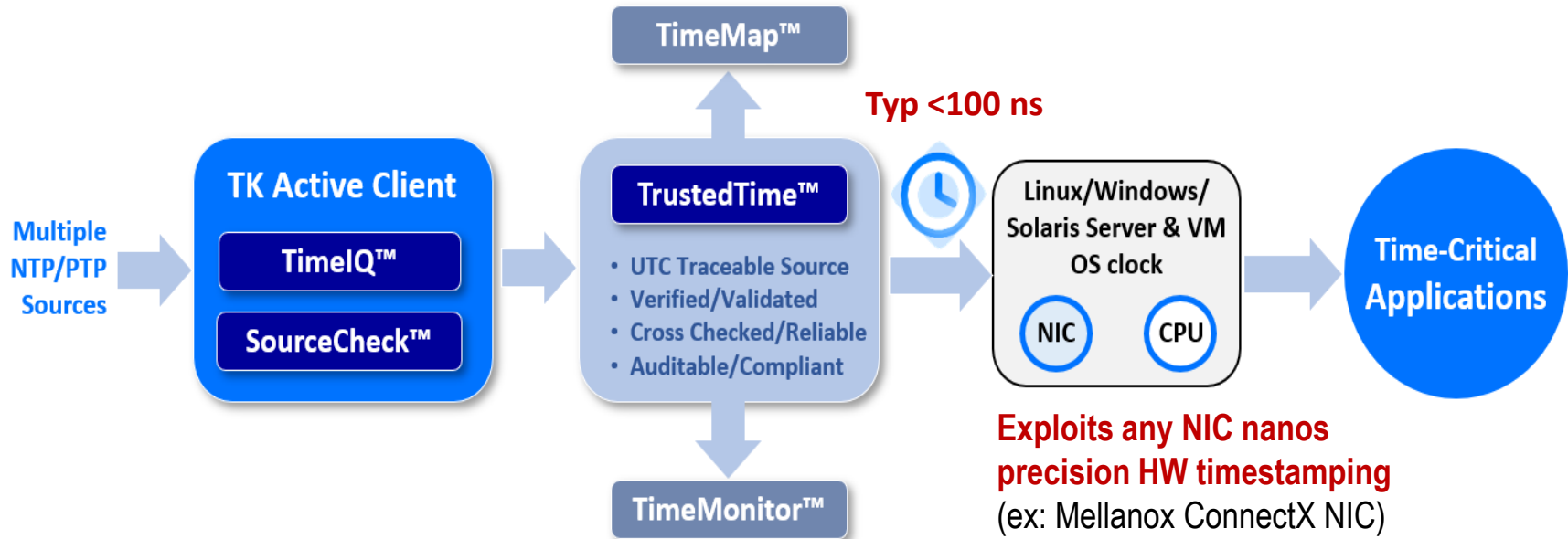
Not STAC Benchmarks

Complete End-to-End Solution: 4 Native Products



TimeKeeper Client Key Features

- NTP/PTP **TrustedTime™** consensus model: multisource, verify, **SourceCheck™**, validate, **ML-optimized TimeIQ™** accuracy & UTC/NIST traceability, fault tolerant, self-healing, all in real time





TimeKeeper Server Key Features

- Multi-NTP/PTP clients accuracy monitoring/analytics and TimeMap™ visibility tool





TimeKeeper Compliance Key Features

- Database of **aggregated clock logs** for **data integrity** support/monitoring, **network forensics**, and **regulatory audit reporting** (MiFID II, SEC 613 CAT NSM, UTC/NIST traceability), powered by **TimeKeeper Server** in real time, with **easy data export**

FINRA listed

Configuration | TimingQuality | TimeMap | Compliance | Logs | GNSS | Client | Support | TimeKeeper Compliance | FSMLabs

Audit Details

Report: All | MIFID2 | FINRA. 192 net | FINRA amazon hosts

Type: Monthly | Daily | Weekly | Yearly

Year: 2017 | 2018

Month: January | February | March | April | May | June

Day: 1 | 2 | 3 | 4 | 5 | 6

Performance Metrics

Sync'd Clients (max offset range): 25

Alert: 1 (yellow bar), 0 (red bar)

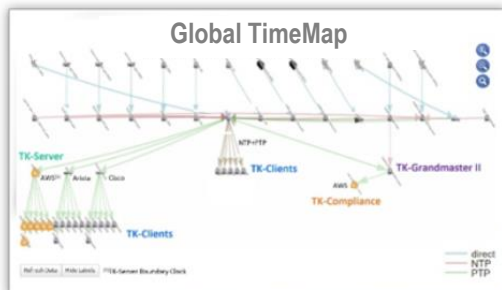
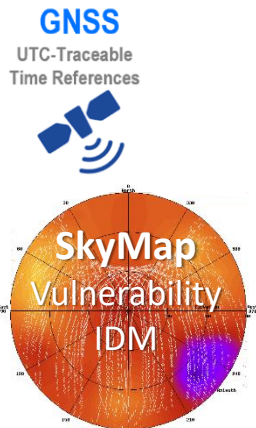
Synchronization & Quality Time Report

IP (hostname)	Source	Max offset	Date/time of offset
Clients >= Alert threshold			
10.10.2.39	0	0.001 100 199	Sun, 30 Apr 2017 00:00:00 GMT
Synchronized clients			
10.9.2.44	0	0.000 024 999	Sun, 30 Apr 2017 00:00:00 GMT
10.50.2.2	0	0.000 019 999	Sun, 30 Apr 2017 00:00:00 GMT
10.50.2.1	0	0.000 019 999	Sun, 30 Apr 2017 00:00:00 GMT
10.11.2.44	0	0.000 009 999	Sun, 30 Apr 2017 00:00:00 GMT
10.10.2.44	0	0.000 009 999	Sun, 30 Apr 2017 00:00:00 GMT
10.10.2.43	0	0.000 002 999	Sun, 30 Apr 2017 00:00:00 GMT
10.10.2.41	0	0.000 002 999	Sun, 30 Apr 2017 00:00:00 GMT
10.10.2.42	0	0.000 002 999	Sun, 30 Apr 2017 00:00:00 GMT
10.10.2.40	0	0.000 002 999	Sun, 30 Apr 2017 00:00:00 GMT
10.11.2.40	0	0.000 000 499	Sun, 30 Apr 2017 00:00:00 GMT
10.13.2.40	0	0.000 000 499	Sun, 30 Apr 2017 00:00:00 GMT
10.11.2.42	0	0.000 000 499	Sun, 30 Apr 2017 00:00:00 GMT
10.13.2.39	0	0.000 000 499	Sun, 30 Apr 2017 00:00:00 GMT
10.11.2.43	0	0.000 000 499	Sun, 30 Apr 2017 00:00:00 GMT



TimeKeeper Grandmaster II Key Features

- **Fastest time server (<100G), integrated SkyMap™ GPS/GNSS anti-jam/spoof tool, nanos precision HW timestamps, powered by TimeKeeper Server, with dual hot swappable power/storage cards**



TimeKeeper Platform/Product Benefits

- Best-of-breed performance
- Cost effective (lowest TCO)
- Secure, fault tolerant & self-healing
- Total time network control & visibility
- Trusted business clock accuracy & precision

Not sure? Get a **TimeAudit**SM
of your clock sync chain

