FSMTime™

SECURE ENTERPRISE CLOCK SYNC™

by FSMLabs

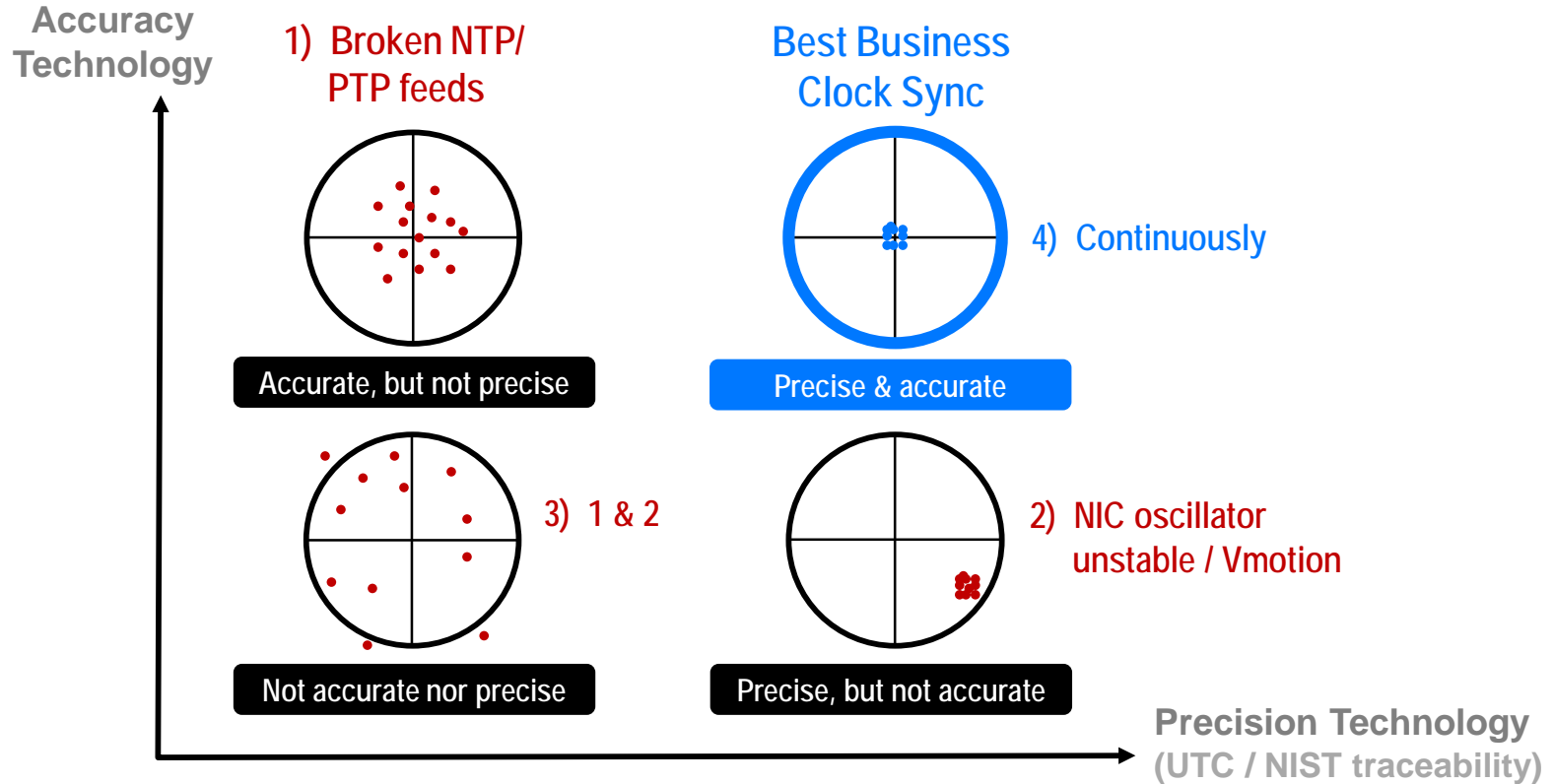UTC | NIST

STAC Summit London | Nov 13, 2019

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

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Ultrahigh Accuracy & Precision Go Together

Accuracy Technology

1) Broken NTP/ PTP feeds

Accurate, but not precise

Best Business Clock Sync

4) Continuously

Precise & accurate

3) 1 & 2

Not accurate nor precise

2) NIC oscillator unstable / Vmotion

Precise, but not accurate

Precision Technology (UTC / NIST traceability)

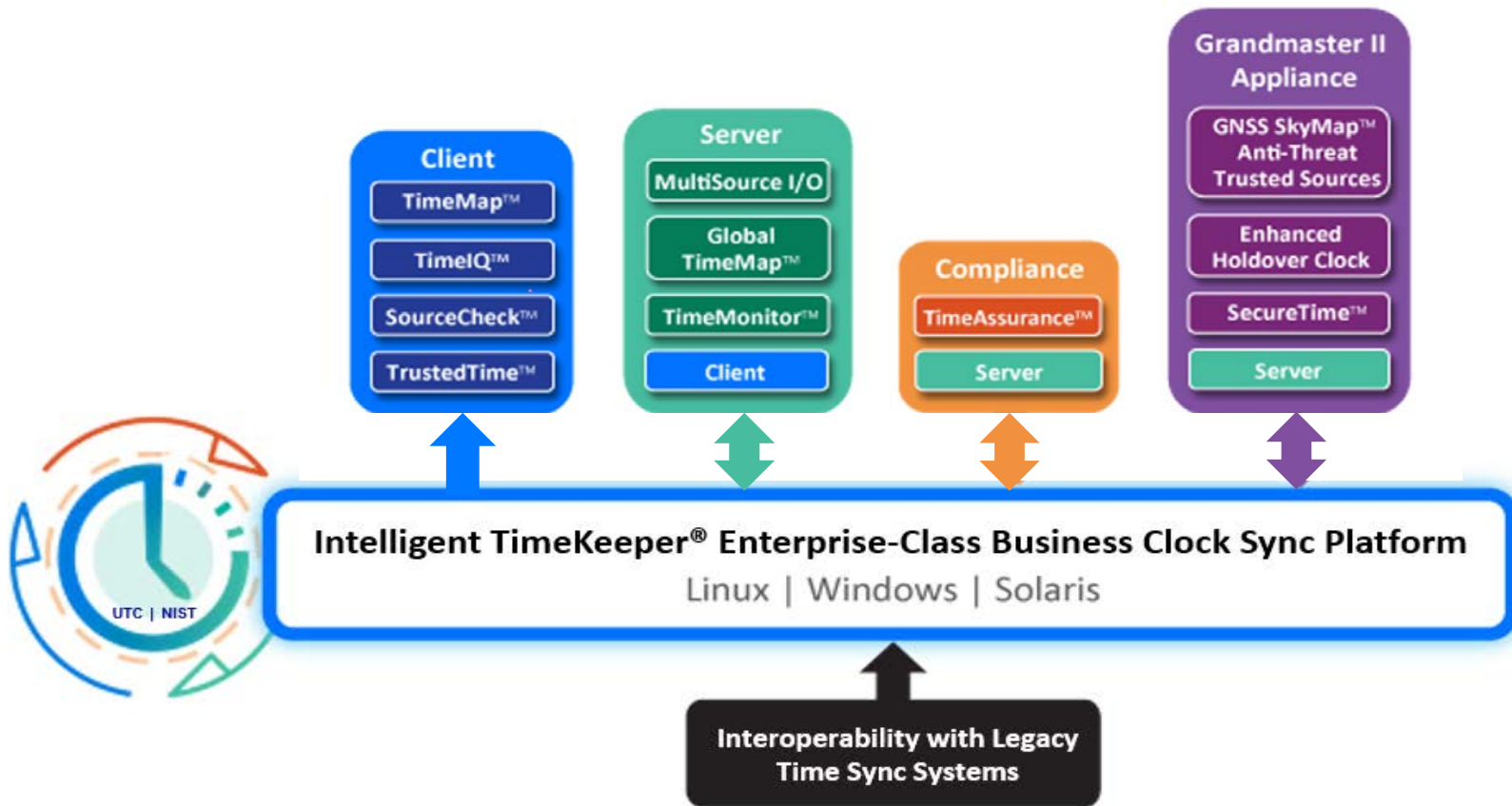# TimeKeeper Business Clock Sync Platform

- 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
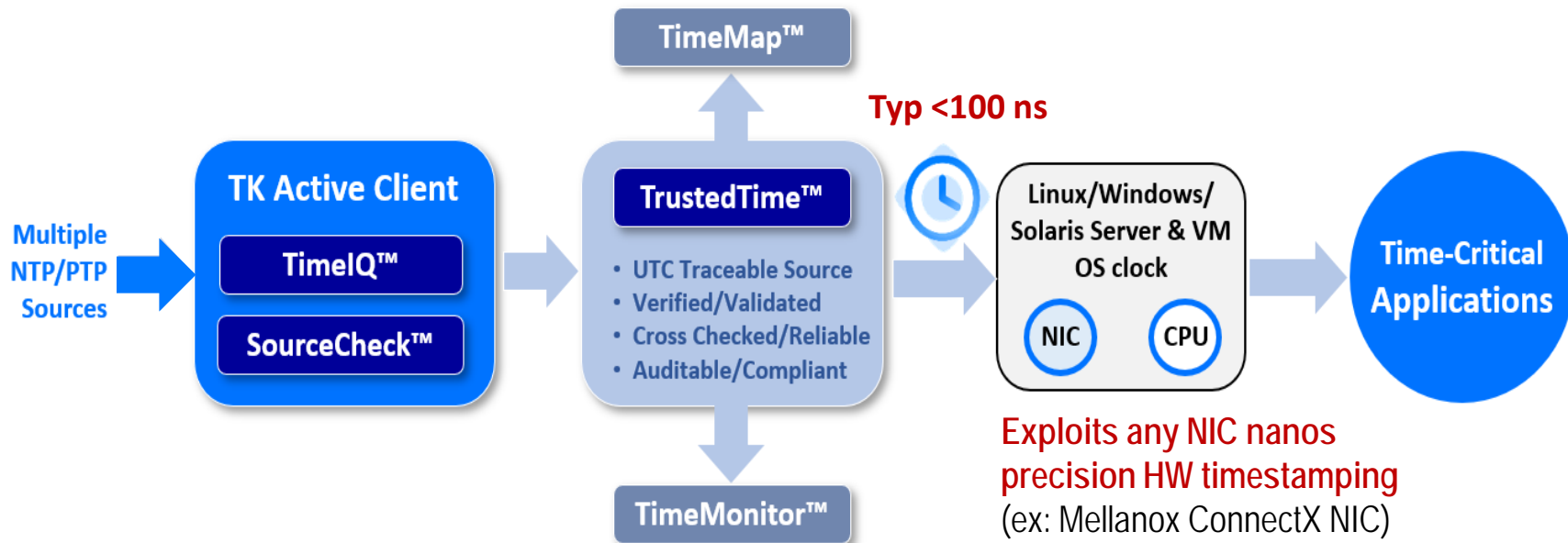
Not STAC Benchmarks

Complete End-to-End Solution: 4 Native Products

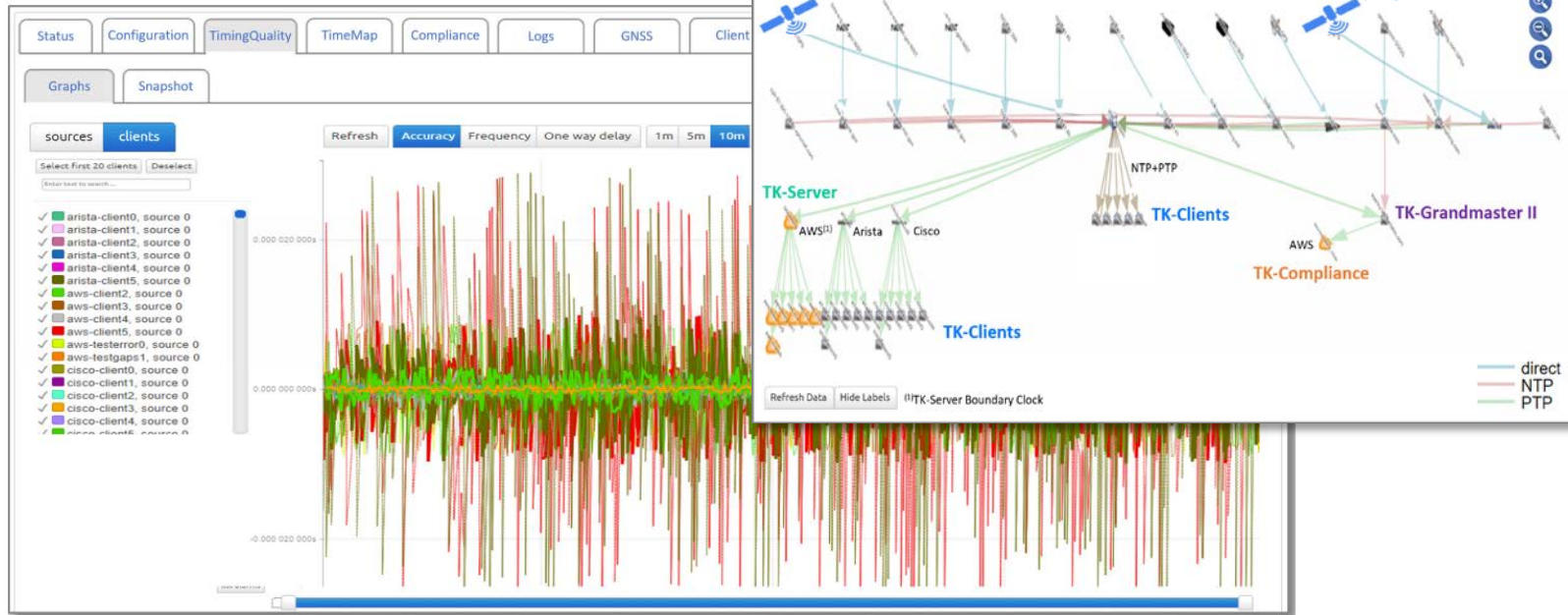# **TimeKeeper Client** Key Features

- NTP/PTP **TrustedTime** consensus model: multisource, verification, **SourceCheck**, validation, **ML-augmented/optimized TimeIQ** accuracy & UTC/NIST traceability, fault tolerance, self-healing, all in real time

TimeMap™

Typ <100 ns

TK Active Client

TimeIQ™

SourceCheck™

Multiple NTP/PTP Sources

TrustedTime™

- UTC Traceable Source
- Verified/Validated
- Cross Checked/Reliable
- Auditable/Compliant

Linux/Windows/ Solaris Server & VM OS clock

NIC   CPU

Time-Critical Applications

Exploits any NIC nanos precision HW timestamping (ex: Mellanox ConnectX NIC)

TimeMonitor™

TimeKeeper Server Key Features

- Multi-NTP/PTP clients accuracy **monitoring, alerting & analytics**, in real time
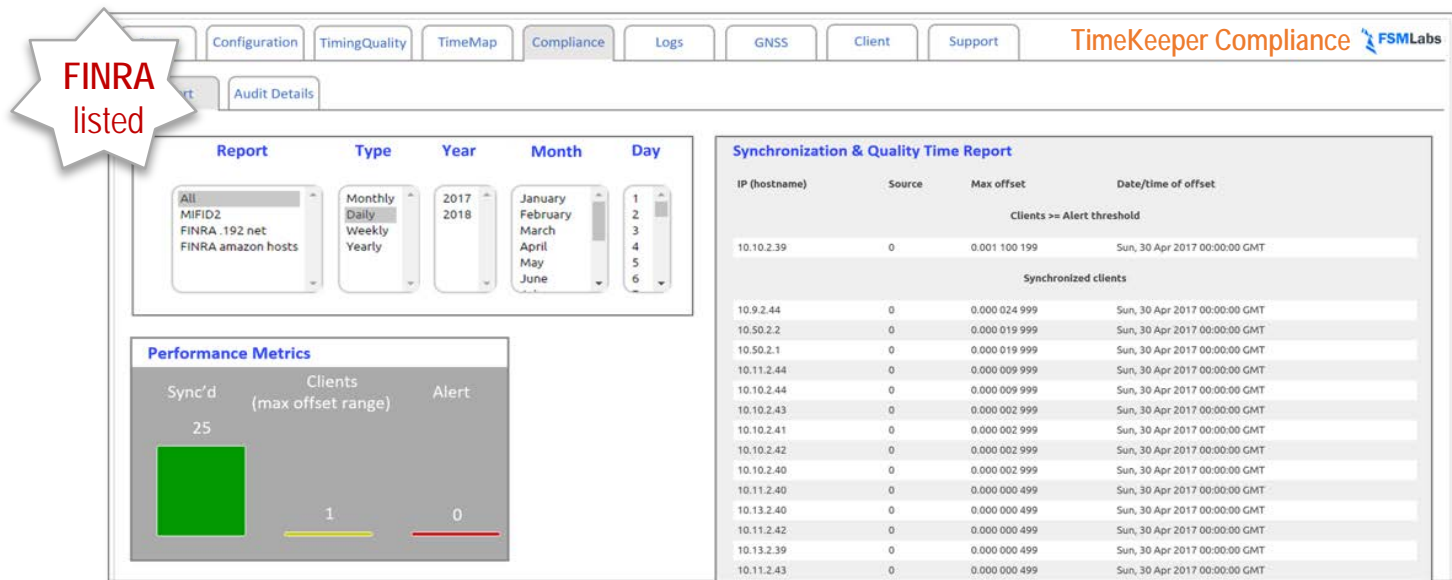
- **TimeMap** visibility tool

TimeKeeper Compliance Key Features

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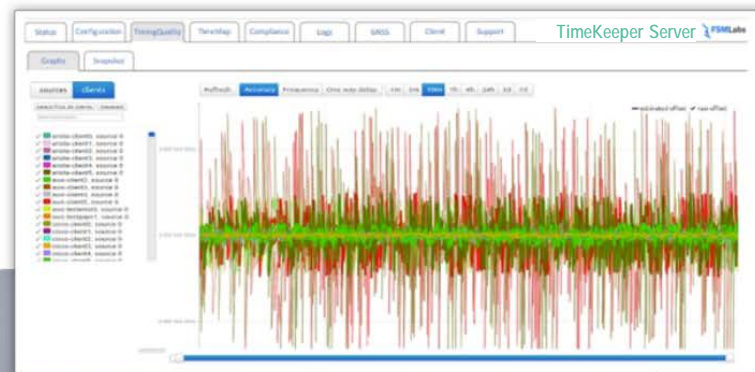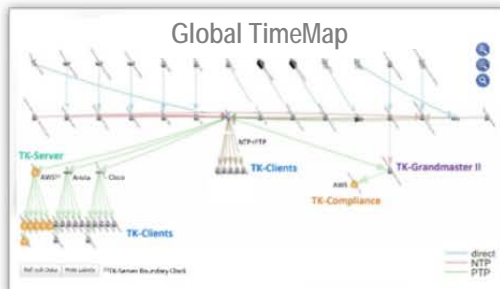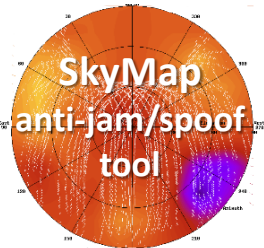
TimeKeeper Grandmaster II Key Features

- **Fastest time server** (<100G), integrated **SkyMap GNSS anti-jam/spoof** tool, **nanos precision HW timestamping**, **GNSS+XO/Rb backup holdover clock** module, powered by **TimeKeeper Server,** with **dual hot swappable power/storage cards**

Commodity high-MTBF ultrafast server adapted into a time server

TimeKeeper Platform Solution Benefits

- **Best-of-breed performance**

- **Cost-effective** (lowest TCO)

- **Secure**, fault-tolerant & self-healing

- **Total network time control & visibility**

- **Trusted business clock accuracy & precision**

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