Financial sector engagement

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Timing in the financial sector

- Algorithmic Trading & High Frequency Trading
- Low Latency Trading and colocation
- Arbitrage
- Instrumentation
  - Timestamping
  - Sync systems
  - Flow/Health monitoring
  - Latency monitoring
  - Network Performance
  - Hardware development
  - Best execution algos
- Risk evaluation
- Forensics
  - Order of execution
  - Feed delays
- Tick warehousing
- Regulation
  - MiFID II, Audit, Order Audit Trail System, CAT
NPLTime®

Traceable
Certified
Resilient

Sync

Redundancy
Benefits

- **Risk mitigation**
  - Not affected by solar storms, jamming, spoofing
  - Resilient close loop controlled holdover solution

- **Simplicity of implementation**
  - Time is consumed, not managed, leap seconds

- **Maximises confidence in data timing**
  - Ease of audit
  - Ensure accurate data release timing
  - Enhanced forensic and playback capability

- **Maximises benefit realisation of localised infrastructure upgrades**
  - Provides both absolute time and sync across implementations of PTP

- **Eases the requirement internally to achieve compliancy**
  - Source (NPLTime) → internal distribution → timestamping engine
  - Lower cost of infrastructure upgrade

- **Inherent synchronisation of multi-location implementations**
  - NPLTime SLA available at all certified demarcation point

- **Eases measurement capability**
  - Network optimisation and latency metrics
  - Simplistic $t_B - t_A$ latency measurements
ESMA regulation
European Securities and Markets Authority

MiFID II, RTS 36, Consultation Paper, Mar 2015
Markets in Financial Instruments Directive II

- Tiered approach so far, likely to degrade
- Jan 2017 implementation

- Traceability to UTC
- Gateway to gateway latency based
  Voice trading → 1s to UTC
  1ms – 999ms → 1ms to UTC
  1µs - 999µs → 1µs to UTC (electronic trading)
  <1µs → 1ns to UTC!! (colocation and HFT)
Realisation of a unified common clock at the timestamp

- Provide an overview of time in the financial sector
- Understand international regulatory requirements
- Clarify time traceability to UTC
- Discuss issues faced in achieving traceability
- Assess cost implications of infrastructure upgrades
- Assess the future of computer trading and the traceability requirements

• International Advisory Group
Thank you for listening