

Unlocking The Value of Media Over IP : Networked PTP Time Delivery

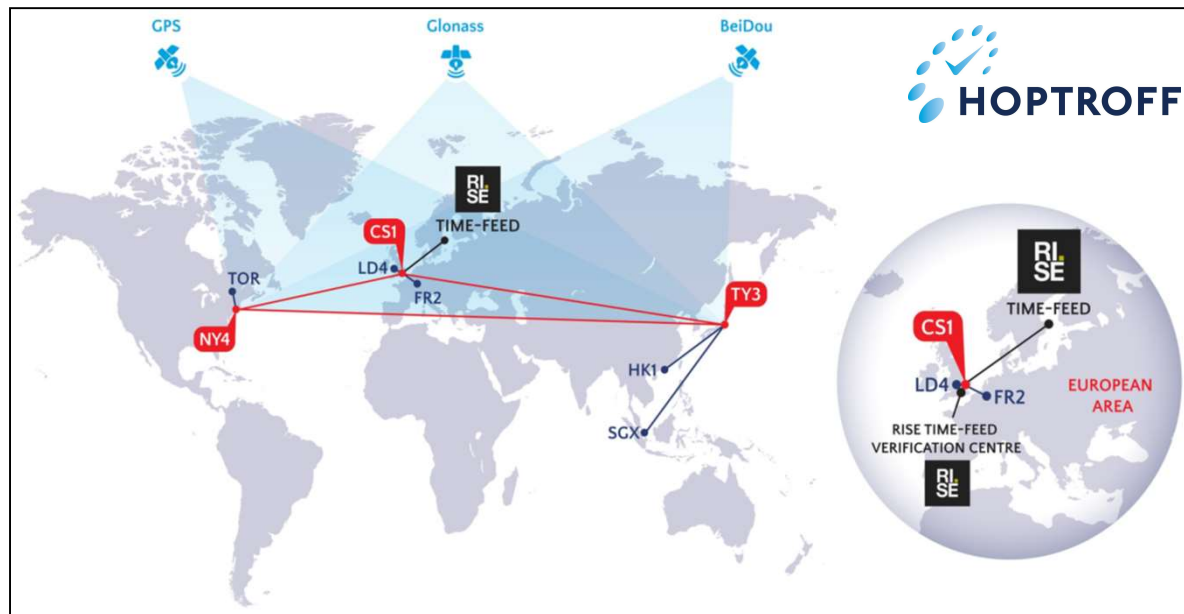
Richard Hoptroff, Hoptroff London Ltd



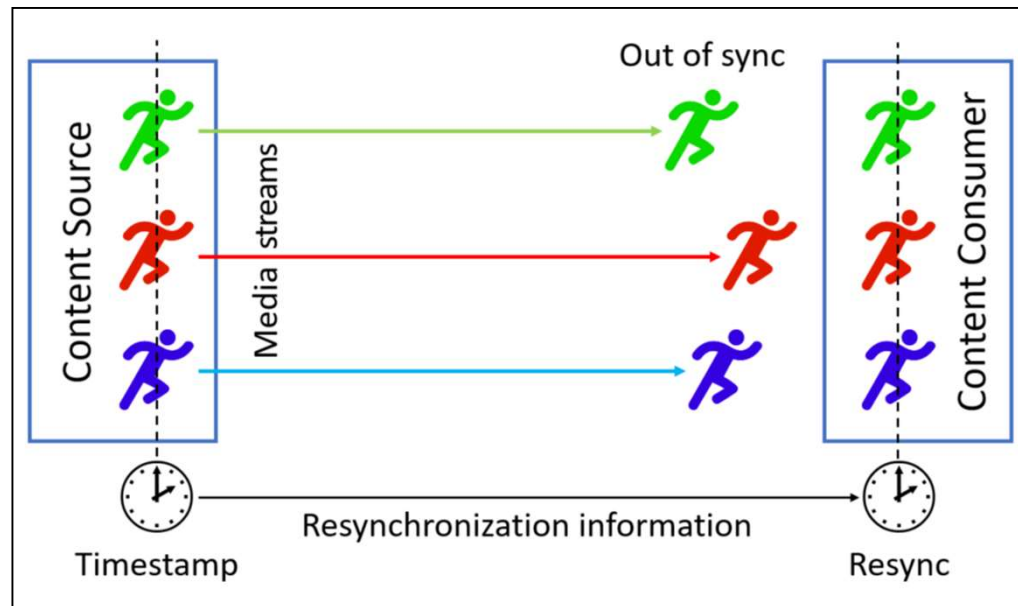
Our Background

- Our background is supplying time as a networked service to financial services
- We discovered that networked time delivery was much lower cost than grandmaster/antenna installations at every facility
- Much lower hassle
- Resilience through redundancy and terrestrial connectivity
- We believe it is equally applicable to IP Media

Global Time Distribution for Financial Services

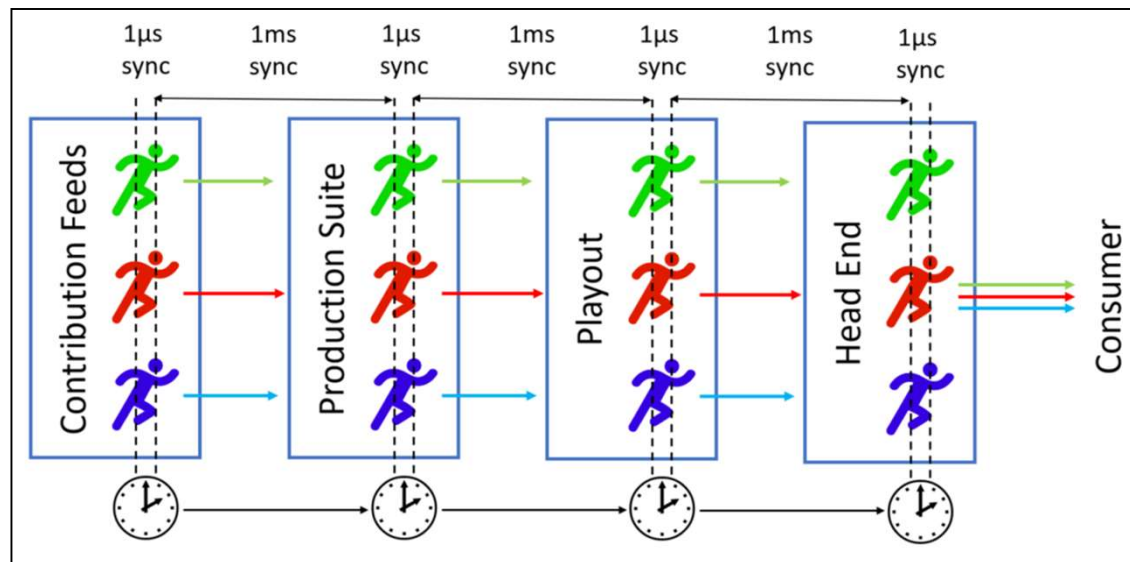


Media over IP Timing Requirement



IP is asynchronous. Media needs synchrony

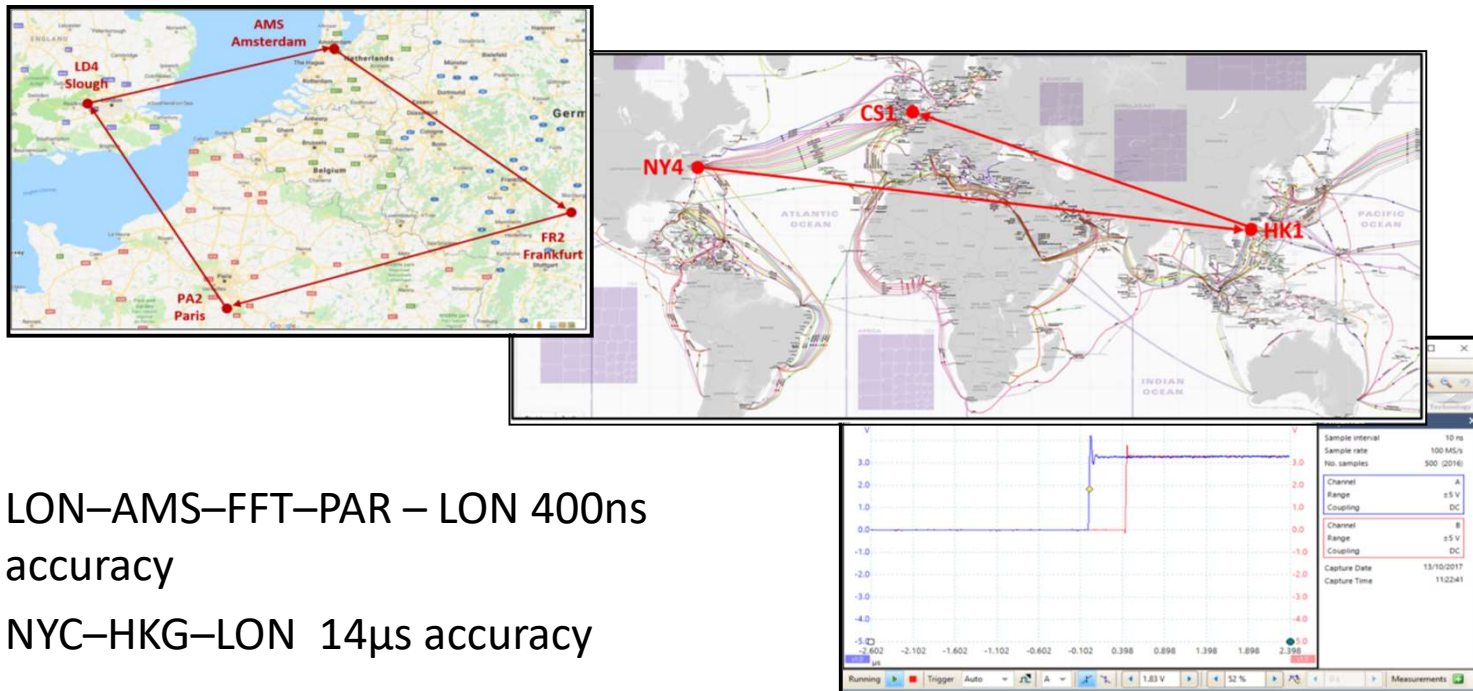
How Accurate Must Timing Be?



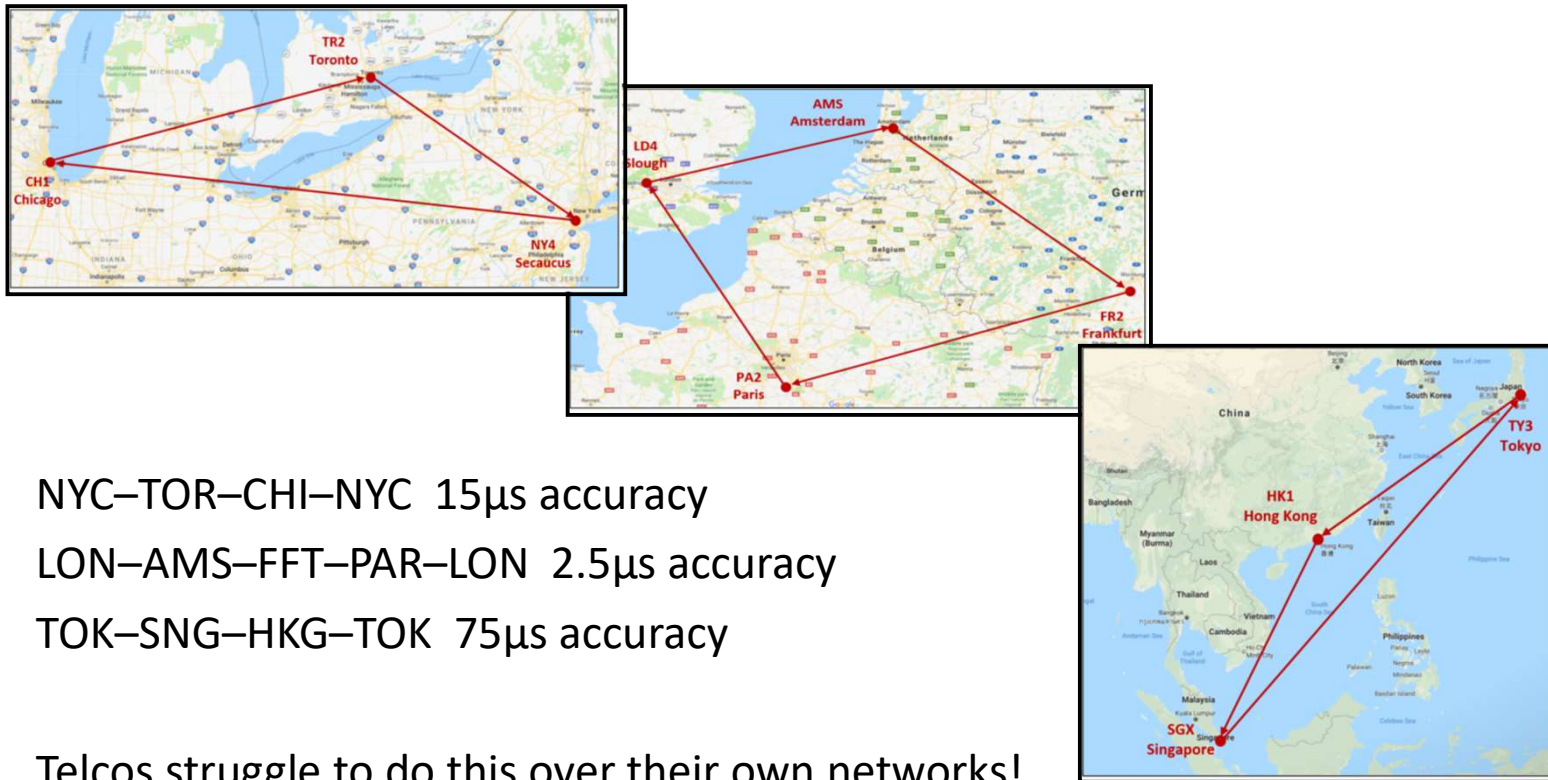
ST 2059-2 : $1\mu\text{s}$ within a facility

JT-NM TR1001-1 : 100ms between facilities (ideally 1ms)

Time Delivery Over OSI Layer 2



Time Delivery Over OSI Layer 3



Long Distance Delivery of SMPTE PTP

- Sent SMPTE PTP (multicast) over Layer 2
LON – AMS – FRA – PAR – LON
- Lands on Arista 7280R for onward
distribution to production facility
- Distribution accuracy 800ns



SMPTE PTP At The Destination

Native PTP Devices



Contribution
Feeds

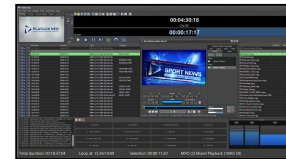


Works with Native SMPTE PTP Stacks from device manufacturers – tested over Arista switch network

Media Servers



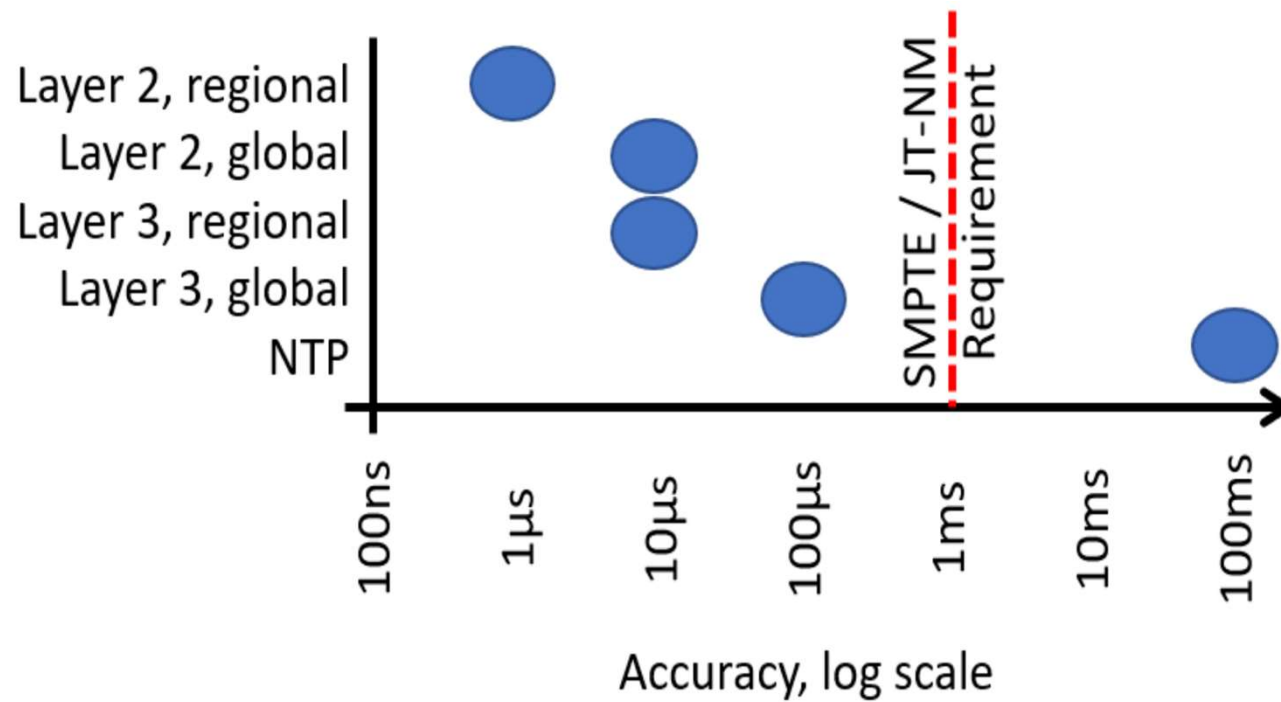
Production



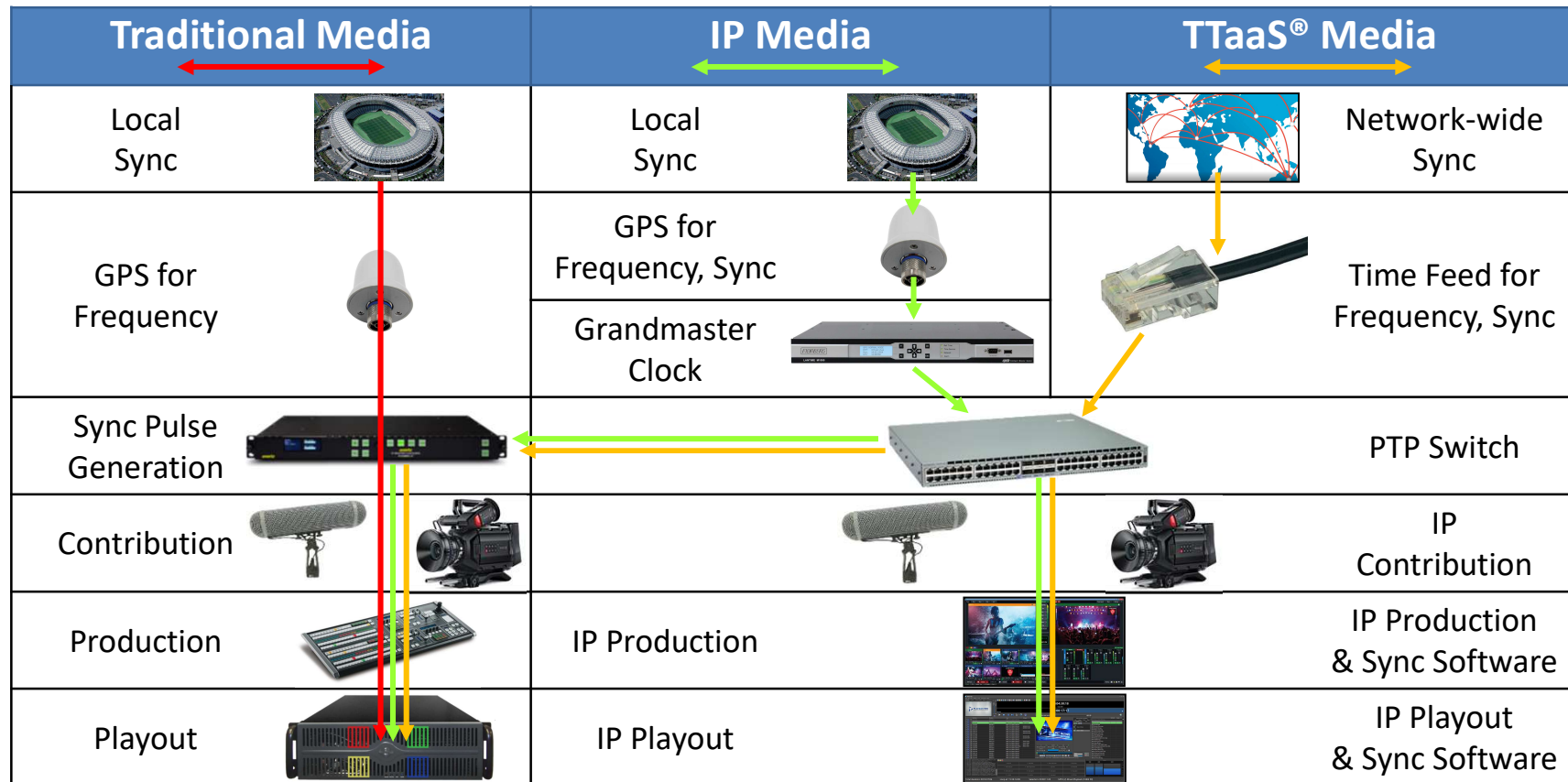
Playout

Hoptroff Time Suite Software syncs server system clocks to UTC
Works with Cloud servers

Performance Summary



Media Timing Technologies



Benefits Of Networked PTP Time Delivery

Low Cost

Significantly less expensive when setup,
maintenance & overhead savings considered

Pricing is opex-based, not capex, ideal for
project-based work

Compare with 50% savings in financial services

Low Hassle

No need to buy, install & manage timing
hardware

Requires no ongoing maintenance

Easy and quick to deploy and scale

Resilient & Secure

Network reach

Terrestrial Feed, works without GPS/GNSS

Not affected by jamming & spoofing

Isolated from core media backbone

Compatible

with existing equipment

Proven

3 years' operation in finance sector

PTP Telecom and SMPTE profile

