

HOPTROFF

**USING TRACEABLE TIME
TO CREATE TRUST IN DATA**

Richard Hoptroff

Property of Hoptroff





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Founder and CTO

USING TRACEABLE TIME TO CREATE TRUST IN DATA

- The virtual world is not well audited
- Our background and where we are now
- How traceable time can be used to create trust in data



ELECTRONS HAVE CONSEQUENCES

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Our lives are increasingly virtual and cloud-based, from shopping online to in-play betting

The mechanisms for auditing electronic events are relatively weak. Much has to be taken on trust. This undermines confidence.

- Prove the in-play bet was received late
- Prove the online ad was placed on screen
- Prove the body-camera video evidence timestamps are correct



OUR BACKGROUND

When MiFID II started, we thought we would be selling a clocks to banks

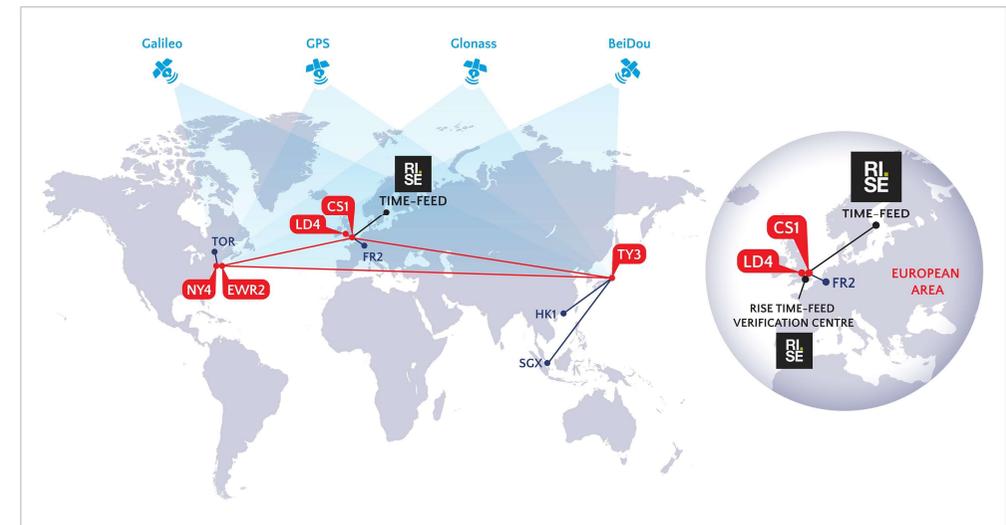
Building a Global Traceable IP Time Distribution Network was more cost effective

Being terrestrial, it is resilient against satellite interference

Timing quality is between $1\mu\text{s}$ and 1ms depending on what you want to pay

It is fully traceable

Could we use it to solve virtual audit?



WHAT VIRTUAL AUDIT MEANS

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Proving the

**TIME
PLACE
IMMUTABILITY**

of events in the virtual world



TIME, PLACE, IMMUTABILITY

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Traceable time is well understood well by this community

Place is traceable using time – latency triangulation over IP

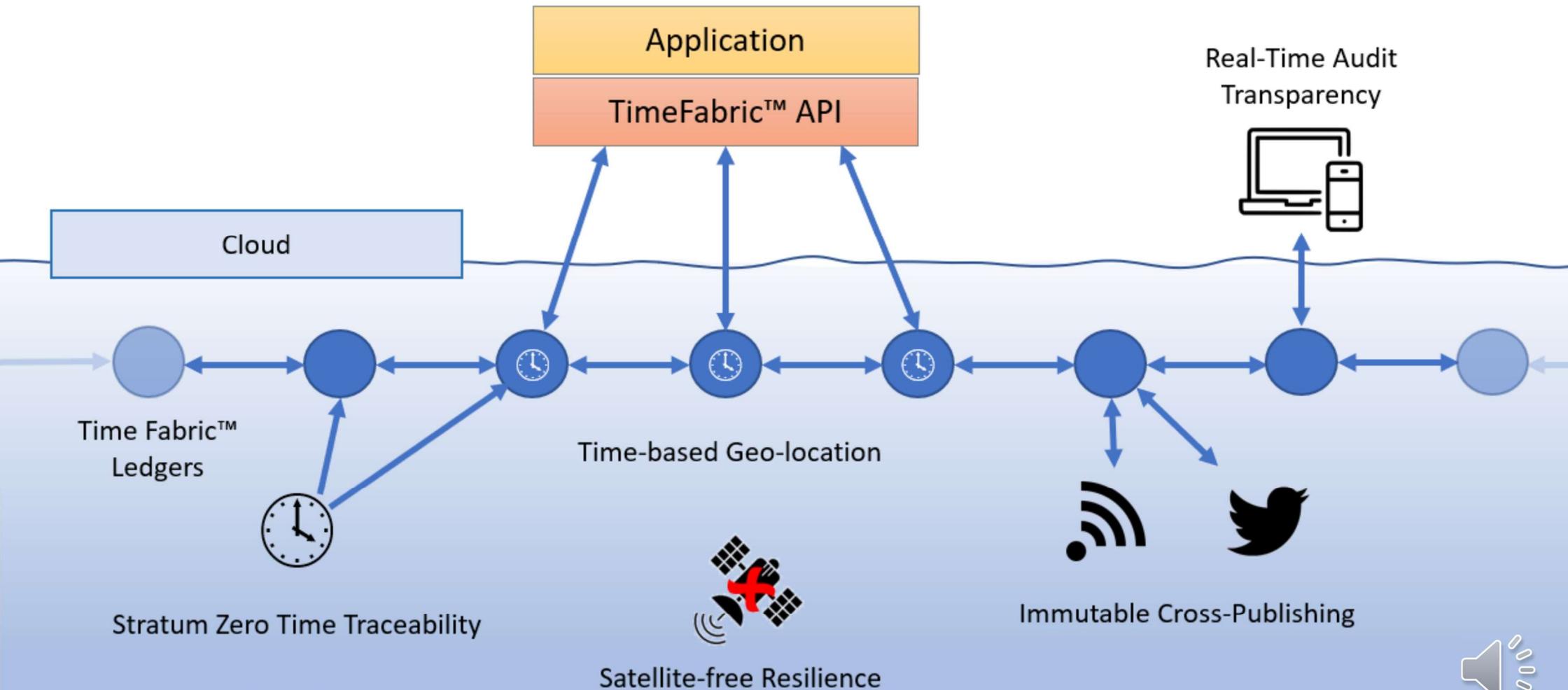
Immutability – Weave time, place and event data into hash ledgers

A new class of data – Data you can trust



THE TIME FABRIC

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WRAPPING UP

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PNTT – Position Navigation Time Trust

Contact me for technical details





Thank you



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