OPNT
Optical Positioning, Navigation and Timing.

CES 2021
Israel

Monty Johnson (CEO)
Marco Gorter (Co-Founder / COO)
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opnt.
TIME PROVISIONING

An Inconvenient Truth …

GPS timing dependance is a Time Bomb for <u>ALL</u> vital infrastructures

Accuracy

Reliability

Traceability

Confidence

Control

Cost

Coverage

Cyber Security

Resistance to Attack

GPS Back-up!

Reliable timing is crucial for:

– 4G/5G mobile networks, IoT

– Banking and trading systems (traceable to UTC)

– Power grids

– Datacenters

– Distributed databases

– Edge computing

– The Internet

– Blockchain

– Cyber Security

– Etc.

GPS is a "Time Bomb"!

GPS has become an invisible utility
(US Government Accountability Office)

US DOT: OPNT scoring perfect 100's (includes resilience)

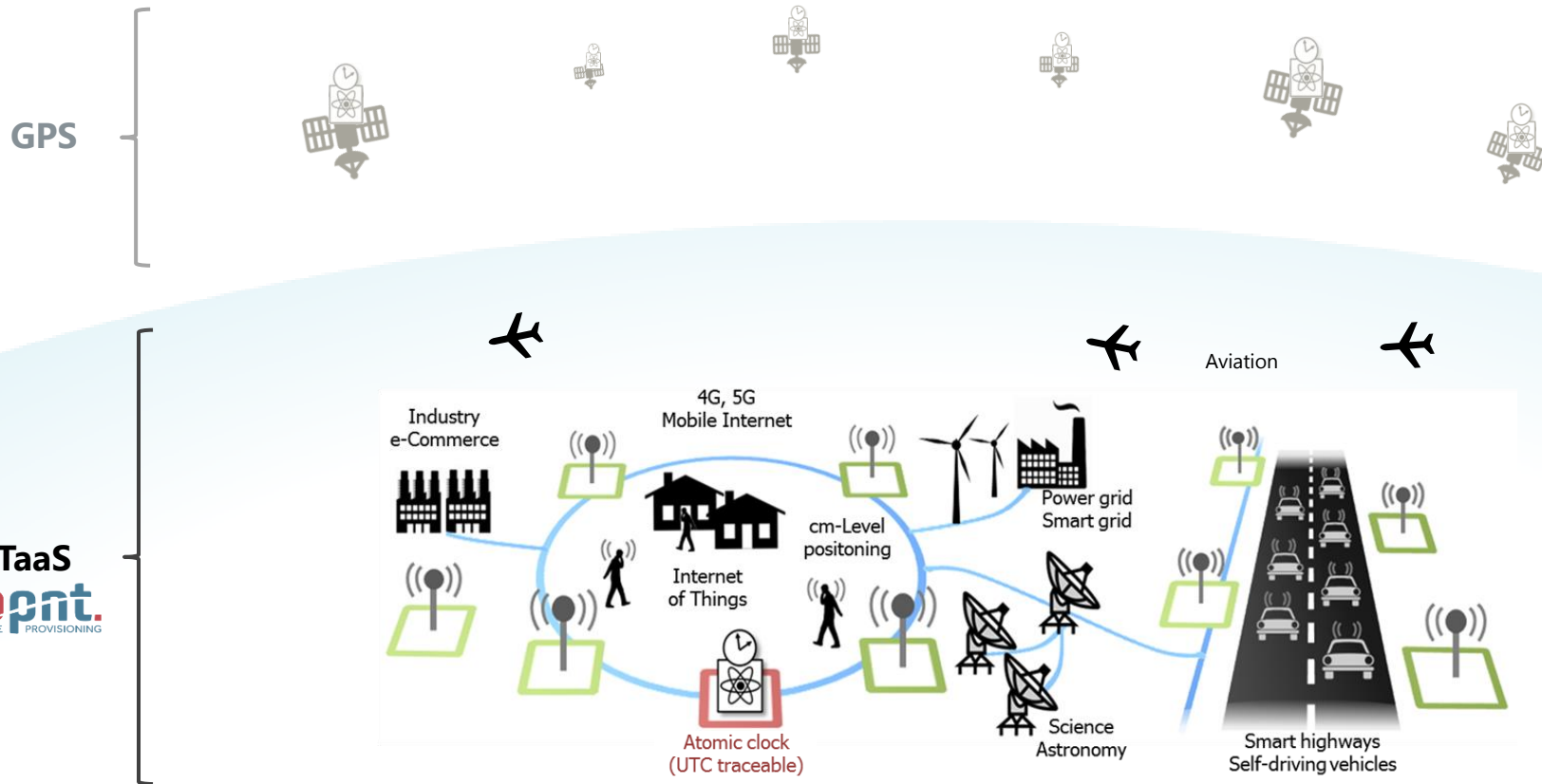US Exec. Order: NIST/OPNT key benchmark achievement

EU tender: Alternative Positioning, Navigation and Timing

Ministers spend £36m to make UK time 'hack-proof'

Critical infrastructure heavily relies on GPS only

Timing as a Service
Transition from a satellite to terrestrial based system

GPS

GPS enabling technology:
precise atomic clocks on
each GPS satellite
*- it is the precision timing
which enables positioning!*

TaaS

Industry
e-Commerce

4G, 5G
Mobile Internet

Aviation

cm-Level
positoning

Power grid
Smart grid

Internet
of Things

Atomic clock
(UTC traceable)

Science
Astronomy

Smart highways
Self-driving vehicles

TaaS: **precise atomic clock
signals** distributed through the
fiber-optic network and
wireless network

OPNT Business Plan Summary

➢ **Mission**: to **own the global market for the terrestrial TaaS core** and aggressively leverage that position toward **dominance of time delivery and assurance at the edge**

➢ OPNT has **successfully developed** the end-to-end, full-service solution and proven it in both the U.S. and The Netherlands
  ❖ The only fiber-based full timing solution provider in the market
  ❖ Received the only 100 score on Service Resilience in the U.S. DOT GPS Backup Demonstration program, with the next highest grade a 60

➢ OPNT is **raising Series B to support our mission**:
  ❖ "Minimum critical mass" commercial deployments in U.S. and other key countries, along with global partnerships to win customers and reduce operational costs
  ❖ Finalize our wired and wireless edge expansion entry solutions to revolutionize timing at customer's point of use and anticipated major impact on 5G

OPNT Leadership: Breadth and Depth

Executive Team

- Monty Johnson (CEO / US based, former AT&T/Bell Labs, DSC, Motorola, dynamicsoft, Tekelec, CEO-WTT, Ubiquisys, Cisco)

- Marco Gorter (COO, founder)

Board of Directors

- David Blivin (GP Cottonwood)

- Alain le Loux (Partner Cottonwood)

- Niel Ransom (former CTO Alcatel)

- Monty Johnson (CEO)

- Marco Gorter (founder)

Advisors

- Jeffrey K. Harris (former Director NRO and President Lockheed Missile and Space)

- Marc Weiss (former NIST, world-renowned 'Time Lord' who built first GPS timing receivers early 1980s)

Contact Information

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Backups

Counter to Oversimplification, Use of GPS is Not Free

➤ **Expertise, capex, opex, and risk costs per-customer, per-location on the receiving end**
  - ❖ E.g Sky-view antenna itself is often a killer cost, even as high as $200K on some buildings, including in cases where affordability is an order of magnitude lower

➤ **Dangerous cascading of non-redundant time distribution from non-assured base, requiring either further redundancy cost or (risk of) lost of service**
  - ❖ E.g. Addition of alternative beacon sources, such as eLoran and LEO satellites, themselves currently driven by GPS/GNSS

➤ **Veracity assurance … "How do you know???"**
  - ❖ E.g. Avoidance, detection, and source identification of 5G spectrum interoperability violations across mobile operators, resulting from lack of timing/synchronization

Business-case opportunity:
SLA-backed 3-5x customer savings versus $10K-$500K / site, along with avoidance of complex distraction from core business

OPNT Solution

➢ **Starts with cost-effective, telecom-grade, fiber-based time distribution mesh sourced directly from multiple national timing sources**
  ❖ Leverage of commodity telecom networks is the only viable path to achieve reach, redundancy, and practical cost
  ❖ Includes considerations from the beginning for both wired and wireless applicability
  ❖ Aggressively capturing the edge through combination of customer cost savings and service assurance

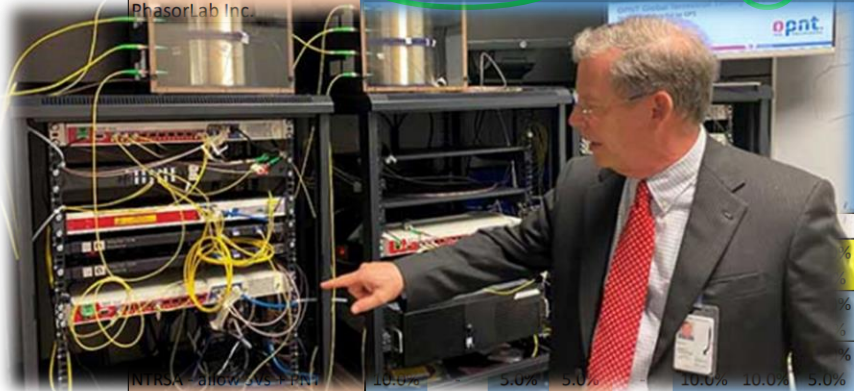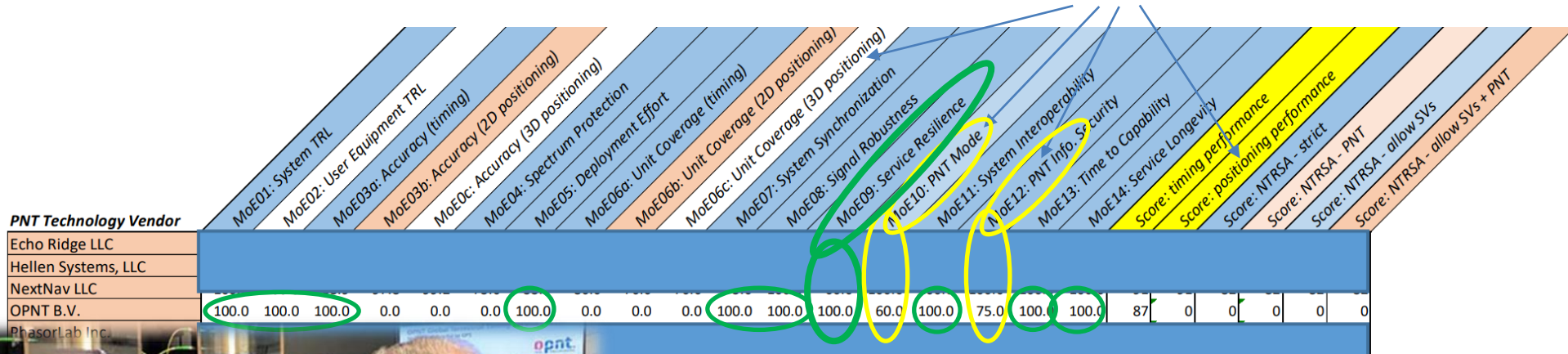➢ **Deliverable as cost and expertise-shared offering via Timing as a Service**
  ❖ Time is universally required, like water
  ❖ But with orders of magnitude more complexity, requiring holistic global focus and scale
  ❖ TaaS enables sharing both expertise and infrastructure to cost-effectively deliver market-dominant value

➢ **Proven in U.S. DOT demonstration, U.S. Executive Order field test, and Netherlands realizations**
  ❖ DOT scoring of perfect 100 on "Service Resilience / fail-safe", with next highest score of 60

Achievements : OPNT's perfect (100%) DOT scoring

OPNT **all 100's**, **including Service Resilience**, except when included wireless / "P" and "N"

At the GPS Backup Demonstration program arranged by the Department of Transportation(DoT) at NASA's Langley Research Center, **OPNT** was the only company to score a **perfect 100** on every non-wireless category, and the **only company to score above 60** on critical issue of **Service Resilience**

Figure ES.5. Application of Scoring Functions with Weighting and Explicit Requirement Filters