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Why Mobile Mapping?

HD Maps & AR/VR: Challenges, Opportunities & Solutions

GWF GEOSPATIAL WORLD FORUM 2023

V 1.5

Antonio Mendes:

Mobile Mapping Solutions Manager - EMEA

GWF GEOSPATIAL WORLD FORUM 2023

Geomatic Engineer
20+ years in the Geospatial Industry
8+ years at Leica Geosystems
Mobile Mapping business since 2011

Scan

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PEGASUS TRK100

THE FUTURE OF MOBILE MAPPING

Leica Pegasus TRK100 puts large-scale infrastructure mapping capabilities into the hands of GIS professionals so they have the most up-to-date intelligence and data about their assets and can make the right decisions for their business.

MAP | KNOW | SEE

THE FUTURE IS TRK

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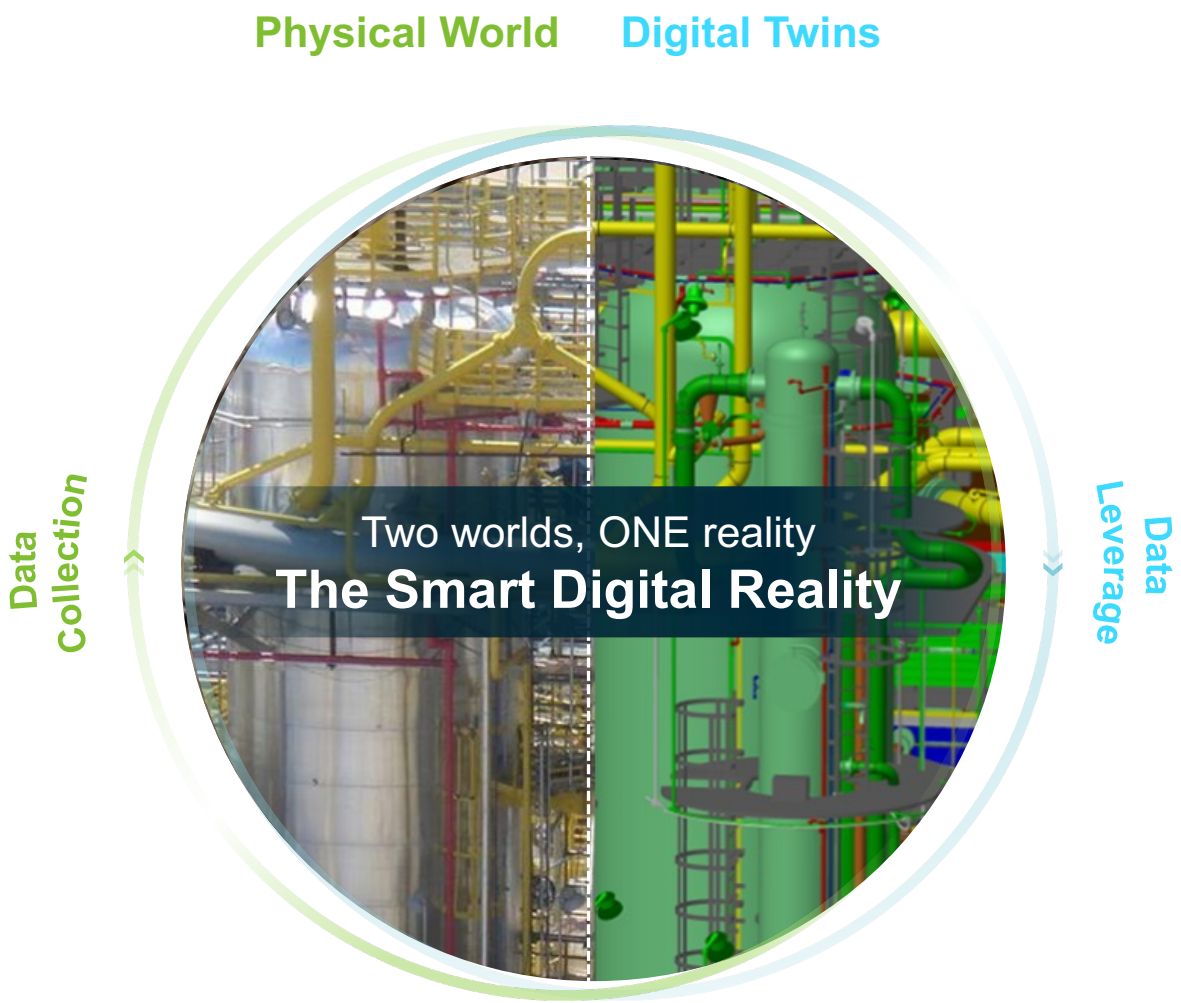
Two Worlds, ONE Reality – The Smart Digital Reality



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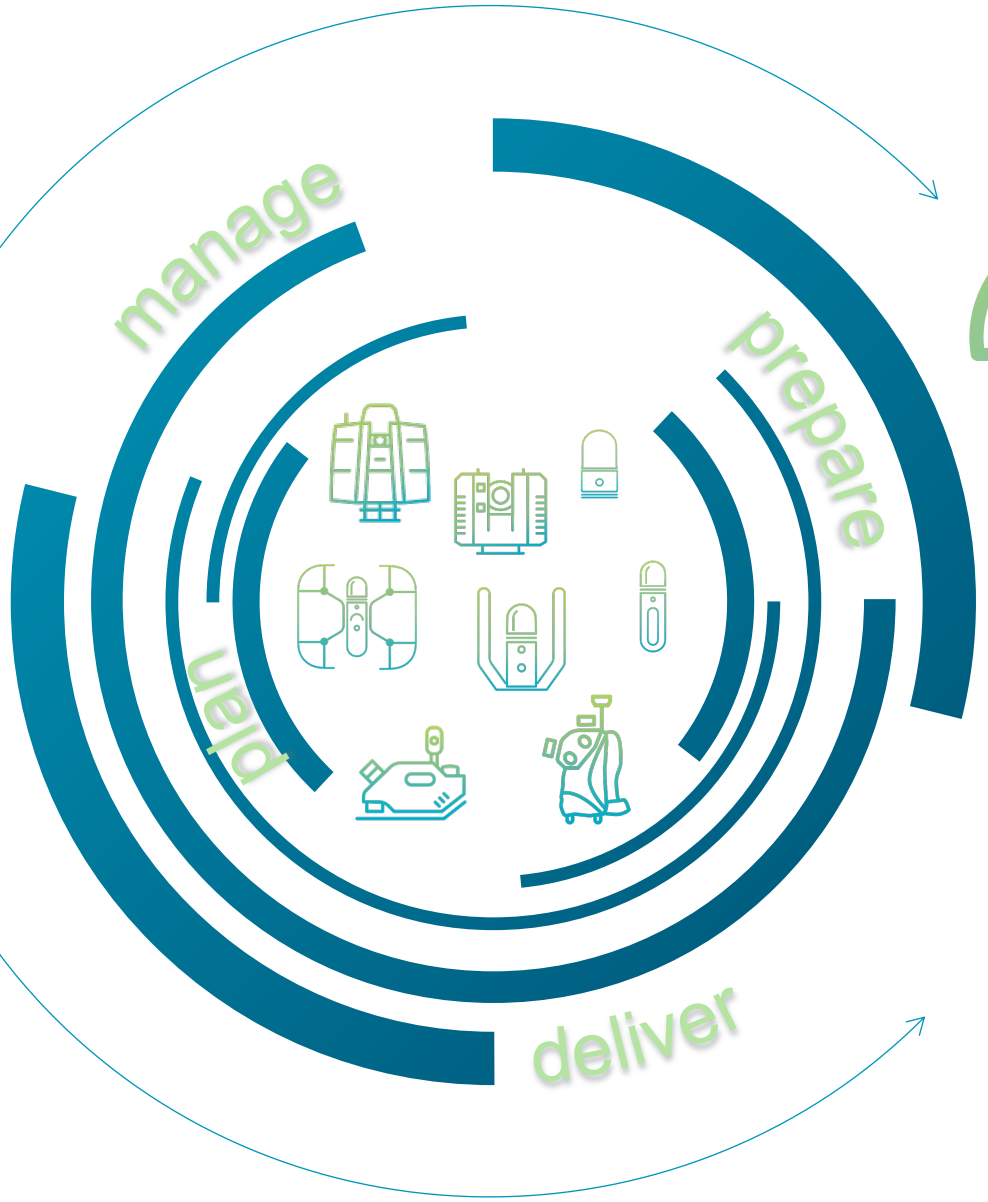
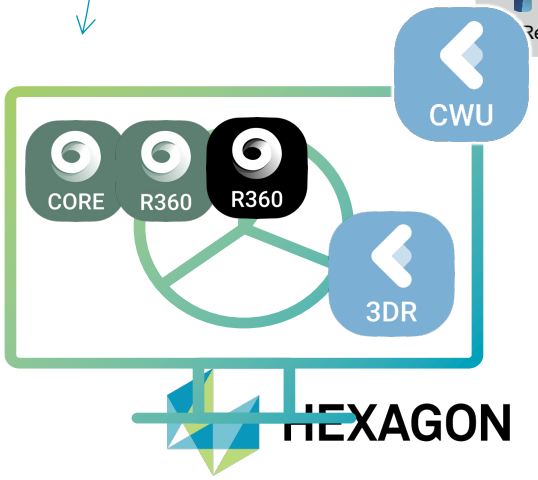
Reality Capture Software Ecosystem





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THE
FUT
URE
IS | TRK

Pegasus TRK Evo
Main Unit

Environmental Protection	- IP65
360° Panoramic Camera	- 24MP with SmartFusion technology - Calibrated colours
Main Scanner	- PhaseShift LiDAR with 2000k points/s
Hybrid Module	- SLAM and Point Cloud densifier
Camera Ports	- Dedicated accessories ports - Expandable with side, pavement and front cameras
LOC8 Anti-Theft	- GPS tracking - Accessible online - Full system lock

THE FUTURE IS TRK

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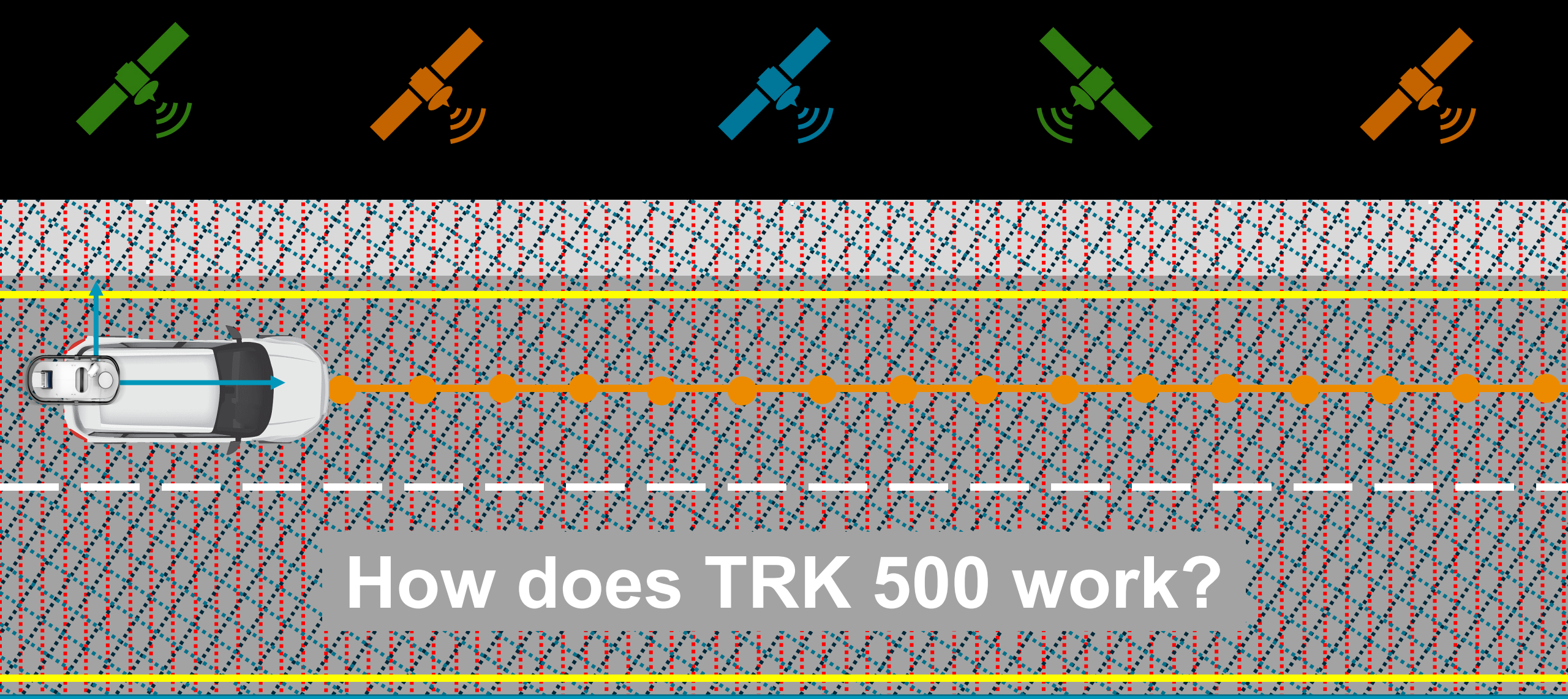
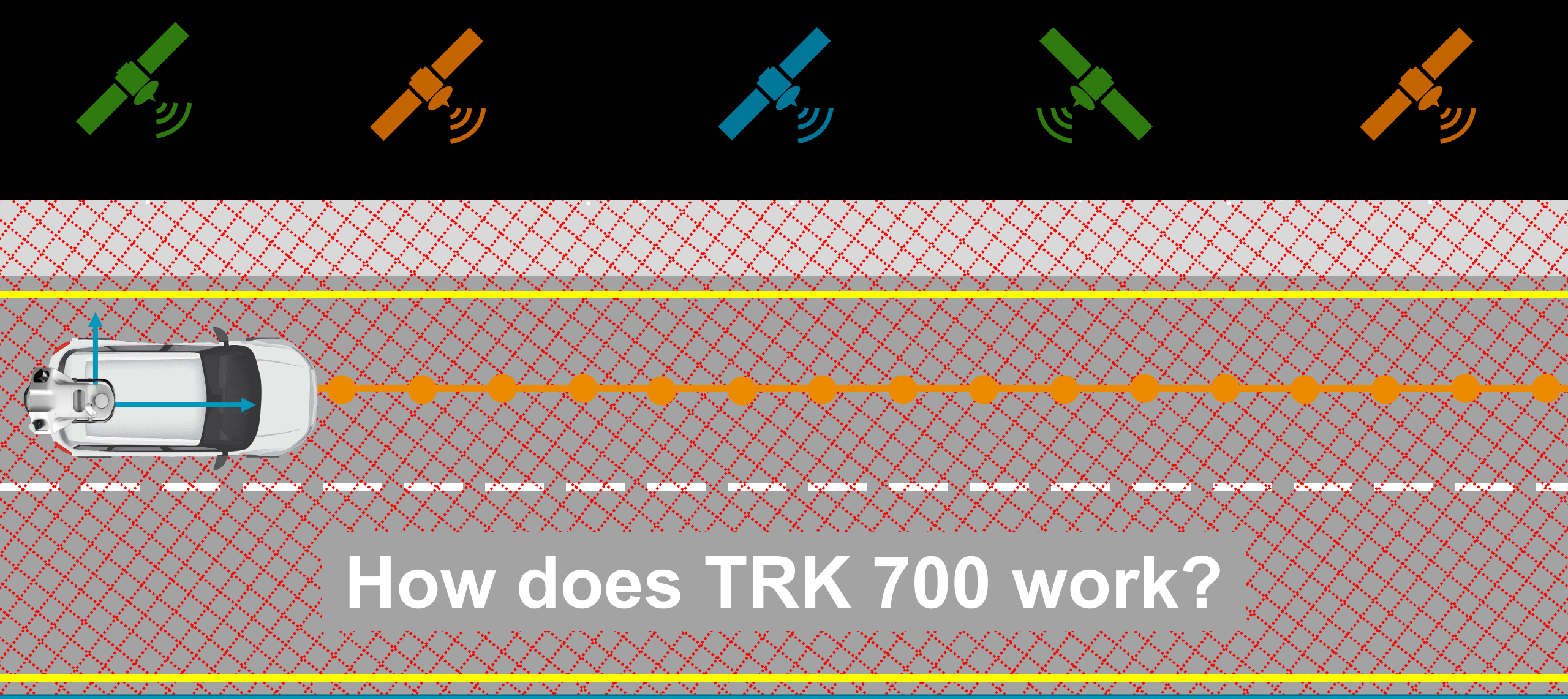


How does TRK 500 work?

1 Million points per second
Up to 267 rotations per second

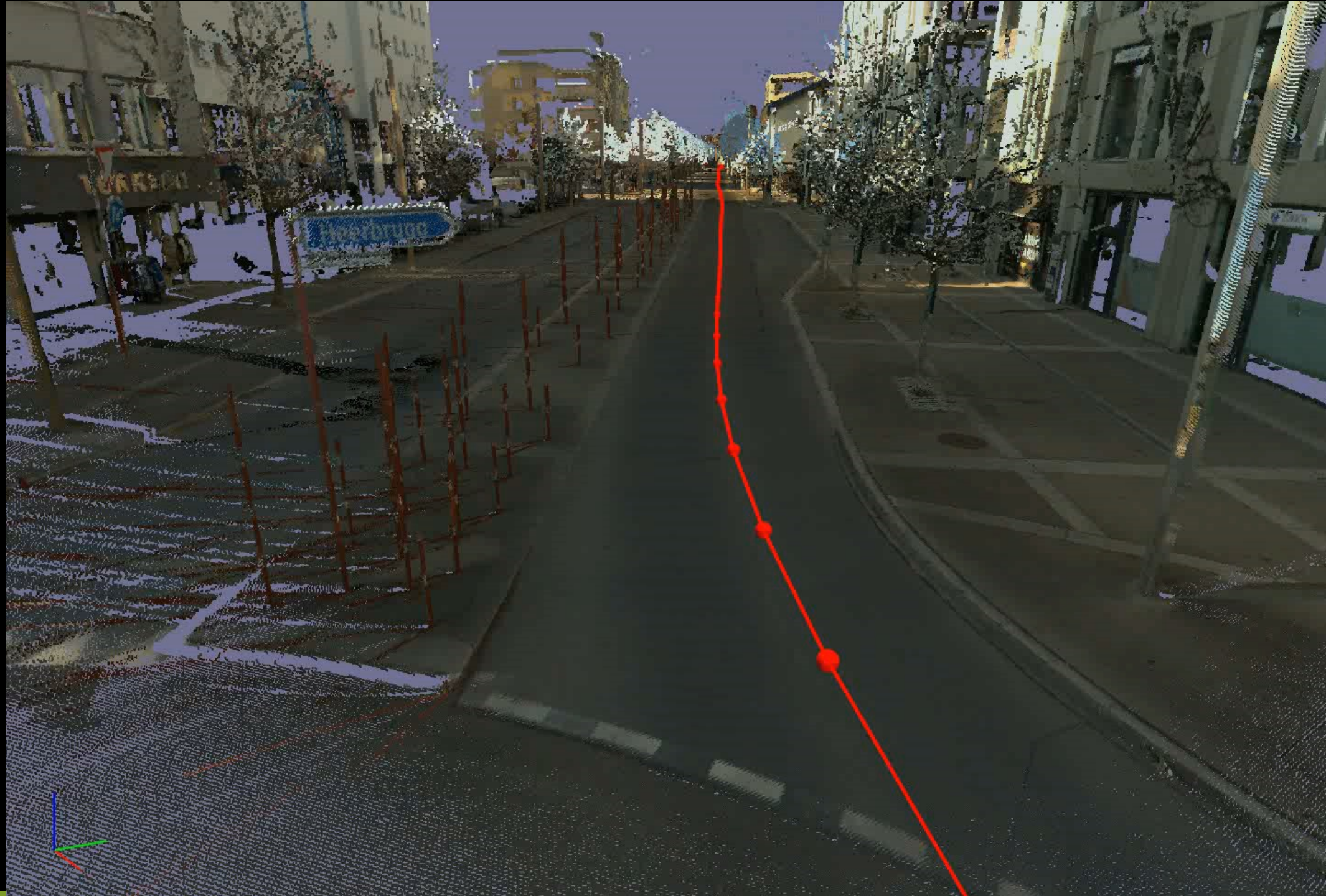
Rotates the platform in -30°, 0°, +30



How does TRK 700 work?

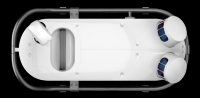
2 Millions points per second
Up to 267 rotations per second

TRK700 EVO



THE FUTURE IS *TRK*

TRK100 vs TRK Neo vs TRK Evo



Pegasus TRK100

Pegasus TRK Neo

Pegasus TRK Evo

MAIN APPLICATIONS

SURVEYING	Cadaster, road-constr.
ENGINEERING	As built, structure analysis, deformation
RAIL	Track geometry, as built, inspection
ASSETS	road signs, telco/power lines
AUTONOMOUS	HD Base Maps
MODELLING	City modelling, simulations
MINING	Volumetric analysis
MARINE	Costal **erosion, canals**

RELATIVE ADVANTAGES

	Pegasus TRK100	Pegasus TRK Neo	Pegasus TRK Evo
ABSOLUTE ACCURACY	19/11 mm	11/11mmm	11/11mm
SCANNER PRECISION	10 mm*	3mm	1mm
RANGE	100m	490m	182m
DENSITY	0.6 Mio	0.5–1Mio	1–2 Mio
DYNAMIC RANGE	High	High	Medium
HYBRID MODULE / SLAM	n/a	Yes	Yes
OPERABILITY	8h	7h	3.5h
PROTECTION	IP67	IP67	IP65
WEIGHT	14 kg	18/23 kg	21/29kg

* *MatchPoint* technology applied

MatchPoint

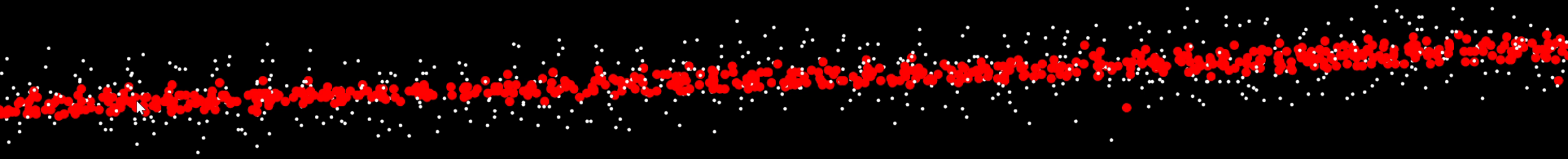
THE FUTURE IS TRK

Next Level
Machine Learning

Principle:

We trained an AI/ML model to denoise the Velodyne by teaching how Z+F data look on the same spot.

- Next Level
- Machine Learning



THE FUTURE IS TRK

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UTILITIES

RAIL

HIGHWAYS

Heavy Construction

WATER

TUNNEL

Airports/Race Courses

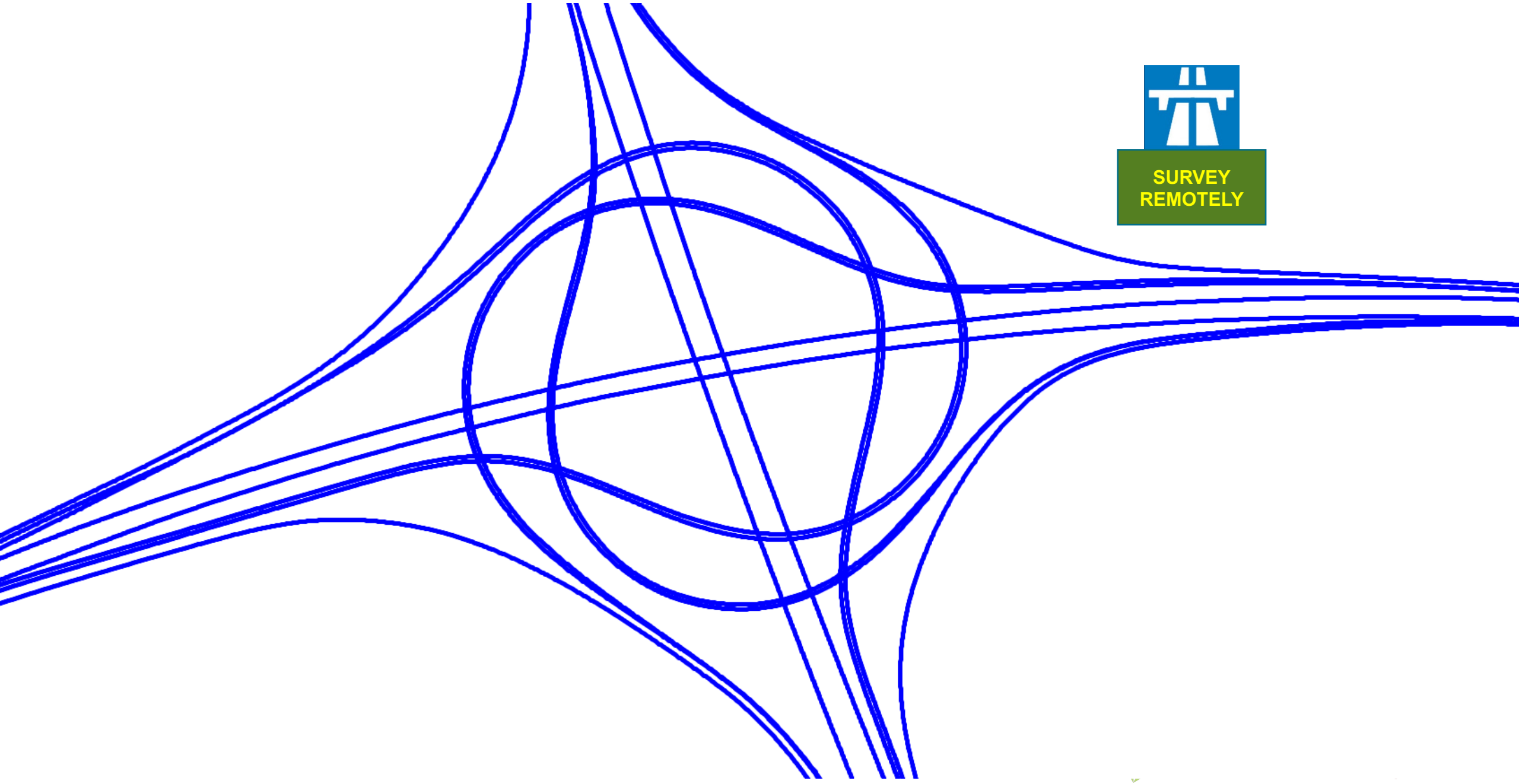
ABOVE & BELOW

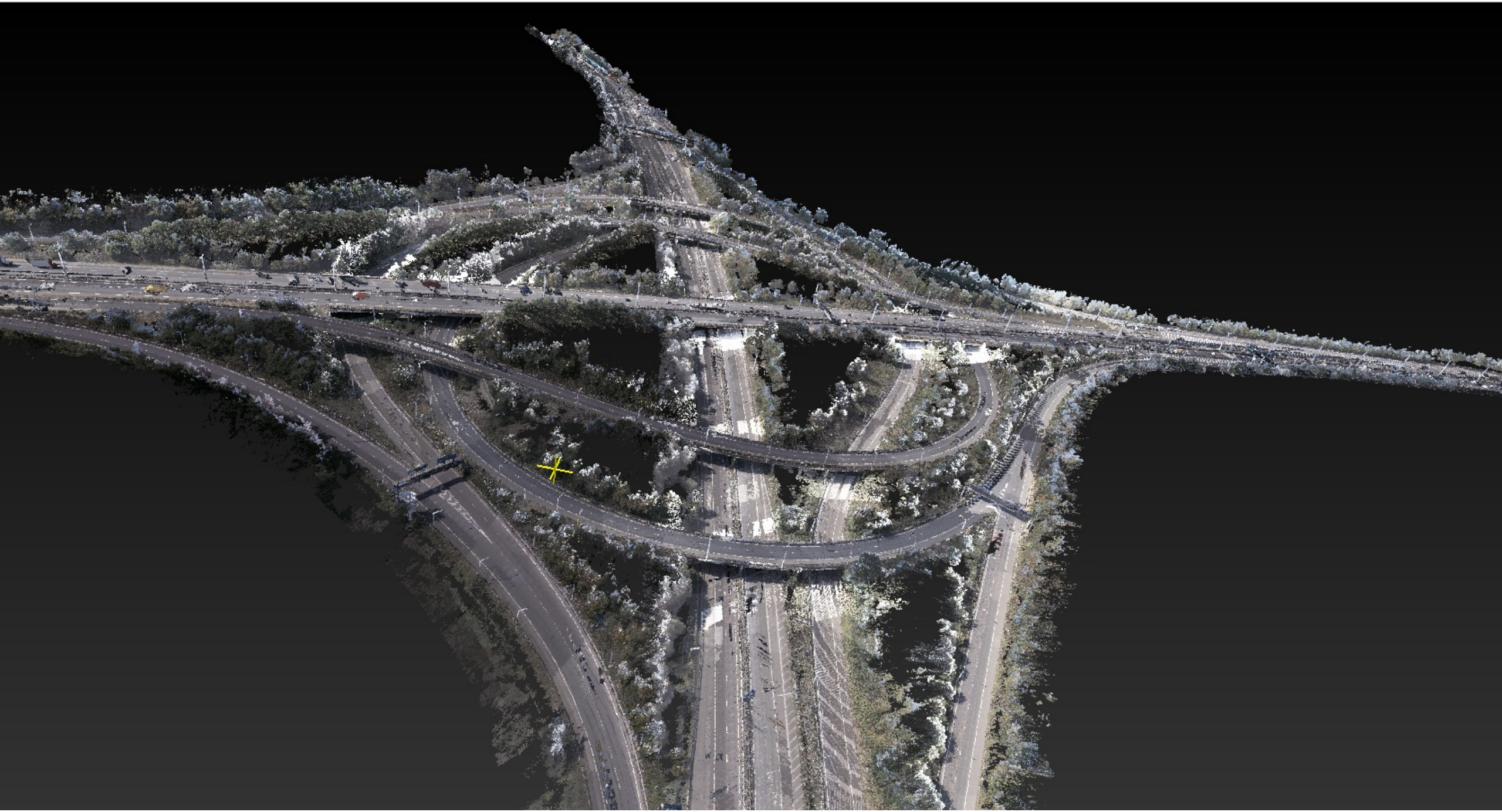
SMART CITY

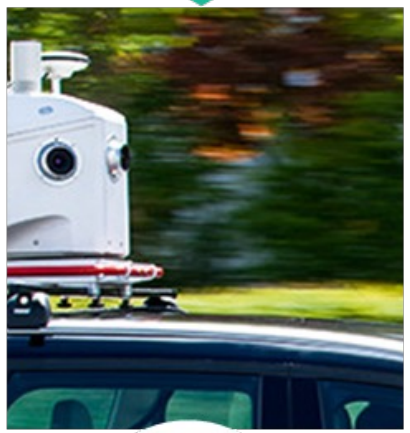
BEACH

BUSY CITY

ULTRA MOBILE


SURVEY
REMOTELY



	Traditional 10mm	Mobile 10mm	Mobile 20mm	Mobile 5mm
10km of Survey				
Cost	3.9 x Cheaper	7.3 x Cheaper	2.9 x Cheaper
Delivery time	2.6 x Faster	3.1 x Faster	1.6 x Faster
Time on field	5.8 x Less	9.6 x Less	4.2 x Less

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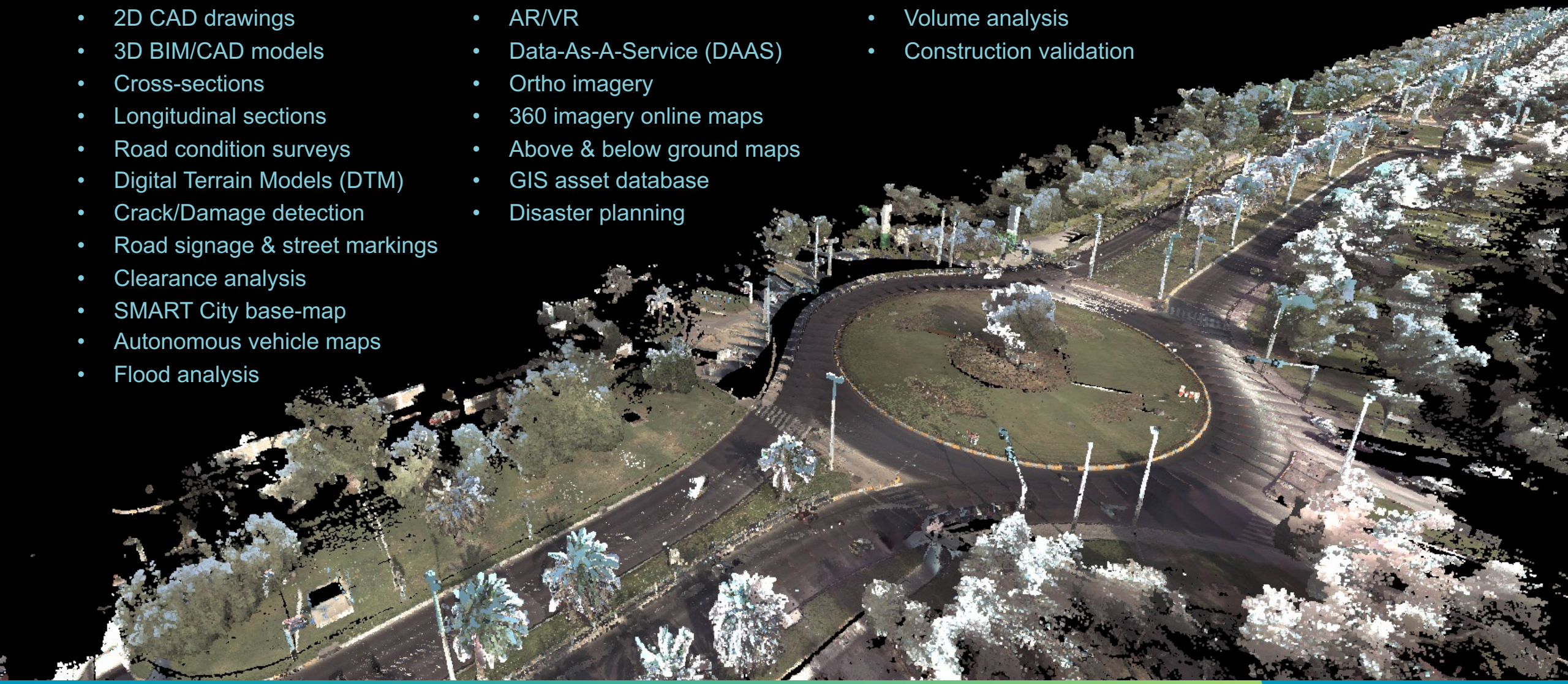
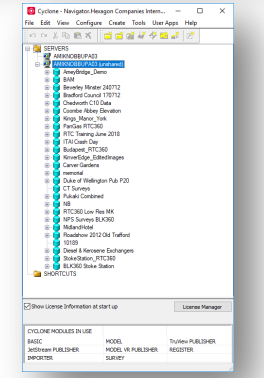
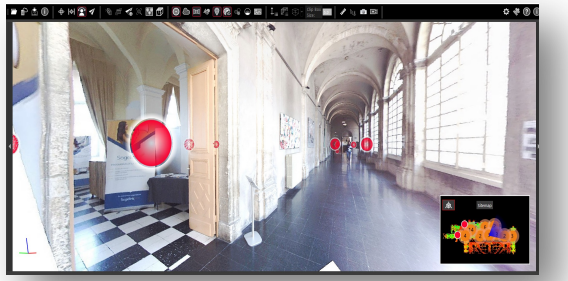
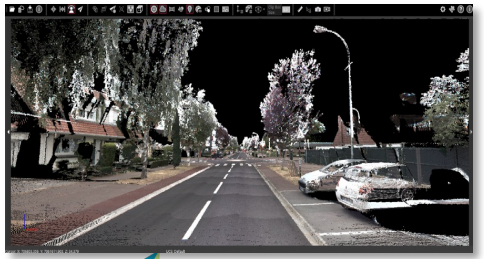
What can you do with the data?

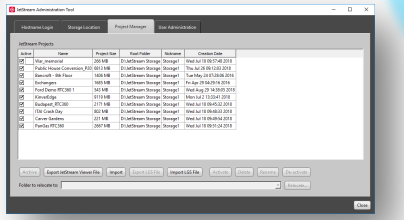
- Topographical surveys
- 2D CAD drawings
- 3D BIM/CAD models
- Cross-sections
- Longitudinal sections
- Road condition surveys
- Digital Terrain Models (DTM)
- Crack/Damage detection
- Road signage & street markings
- Clearance analysis
- SMART City base-map
- Autonomous vehicle maps
- Flood analysis
- Overhead utility mapping
- AR/VR
- Data-As-A-Service (DAAS)
- Ortho imagery
- 360 imagery online maps
- Above & below ground maps
- GIS asset database
- Disaster planning
- Routing analysis (train/truck)
- Volume analysis
- Construction validation











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Cyclone Enterprise / HxDR / 3rd party

CYE

Terra solid
POINT CLOUD INTELLIGENCE

SCC 12
Survey Control Centre

orbit
GEOSPATIAL TECHNOLOGIES

TopoDOT®

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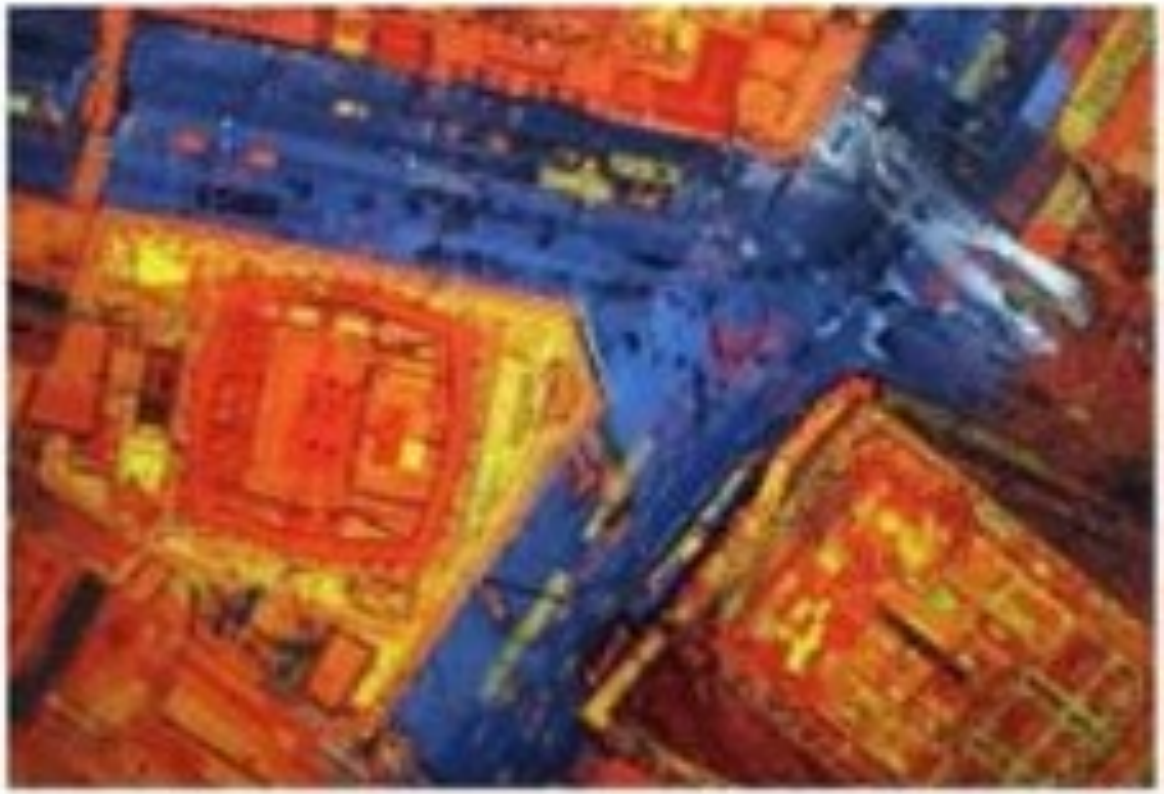

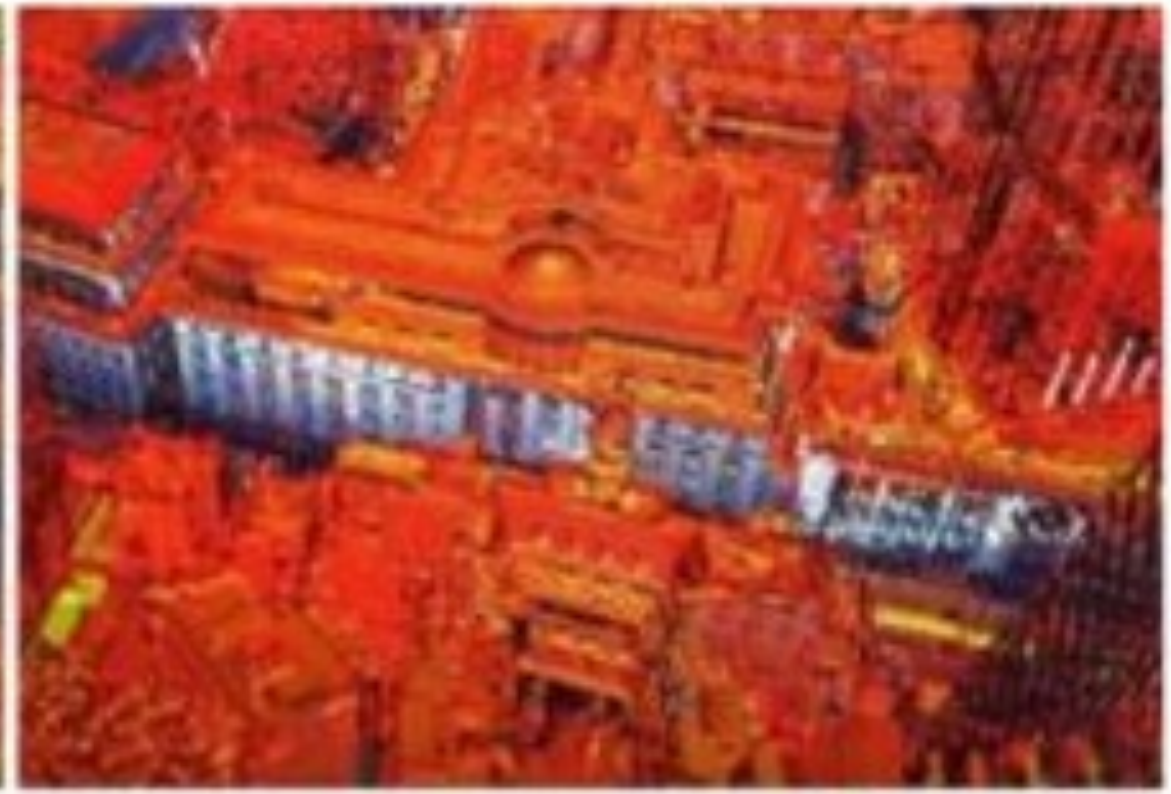

LOD0
LOD1
LOD2
LOD3
LOD4

HxDR
DIGITAL REALITY