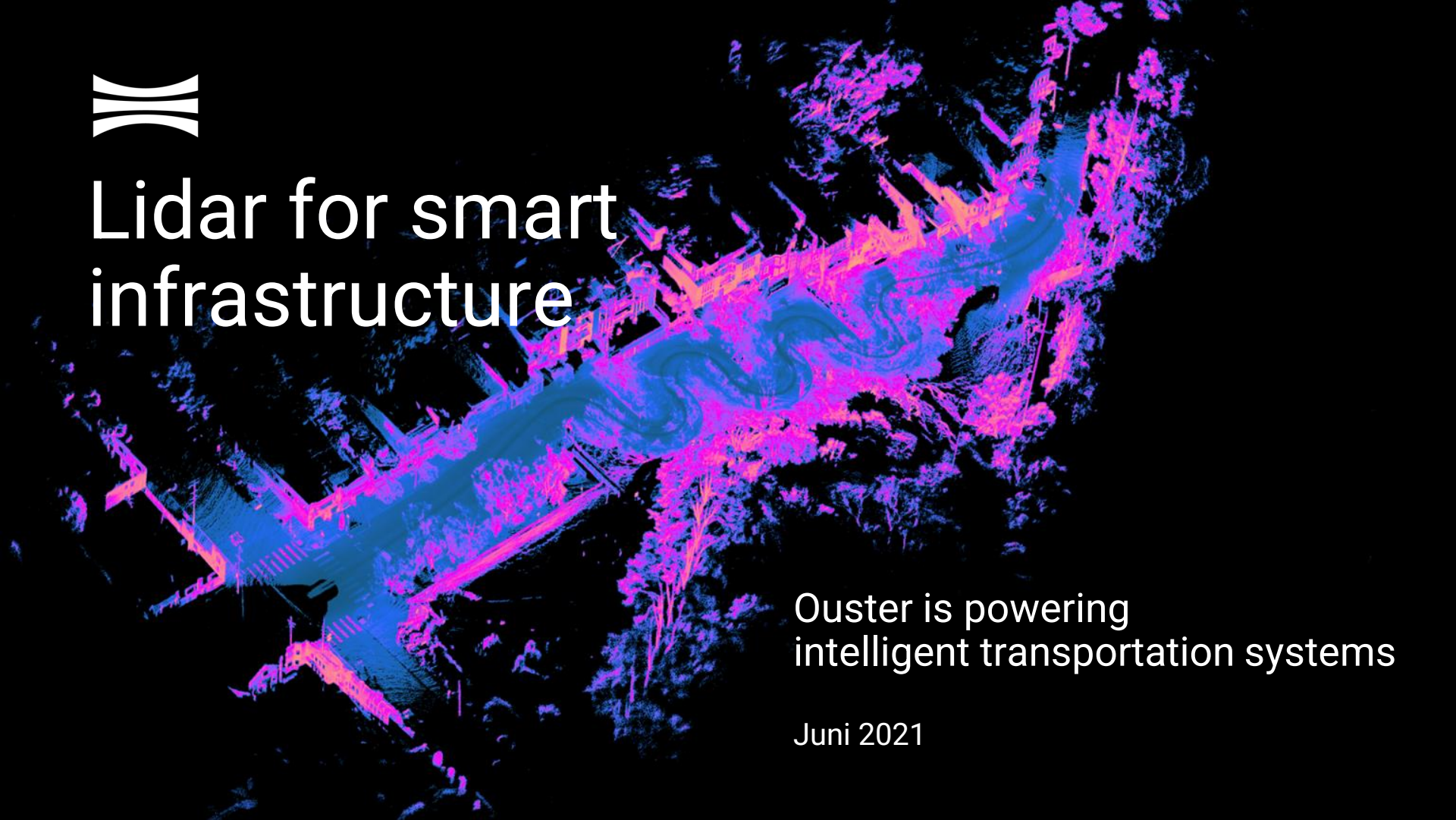
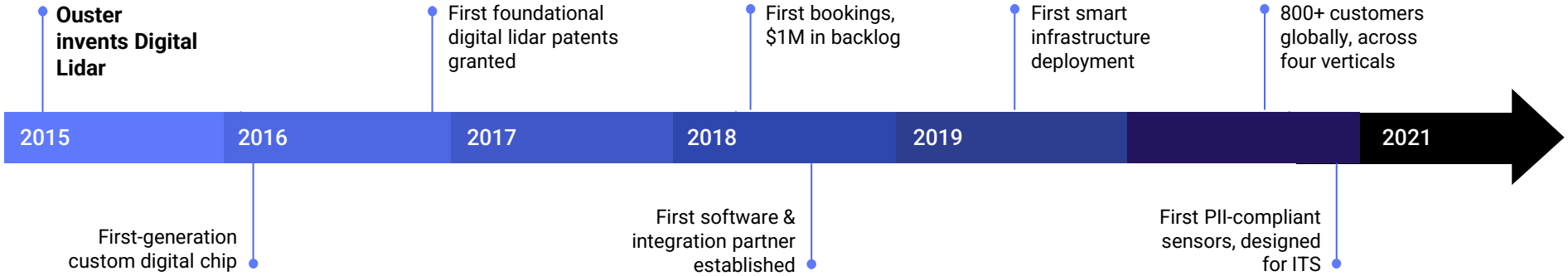


Lidar for smart infrastructure

Ouster is powering intelligent transportation systems

Juni 2021

Ouster's digital lidar technology is disrupting the market



SOFTWARE & INTEGRATION PARTNERS

outsight
MH CORBIN
SEOUL ROBOTICS
TCS TRANSPORTATION CONTROL SYSTEMS
CRON AI
TRANSCORE
AkiraKan
LiangDao

ACTIVE DEPLOYMENTS

CDOT CHATTANOOGA DEPARTMENT OF TRANSPORTATION
CENTRAL FLORIDA EXPRESSWAY AUTHORITY
Qualcomm
RWTH AACHEN UNIVERSITY
CUIP Center for Urban Informatics & Progress

RAPID SALES ACCELERATION ACROSS MARKETS

500+ new customers in 2020

5 global offices, across the US, Europe and APAC

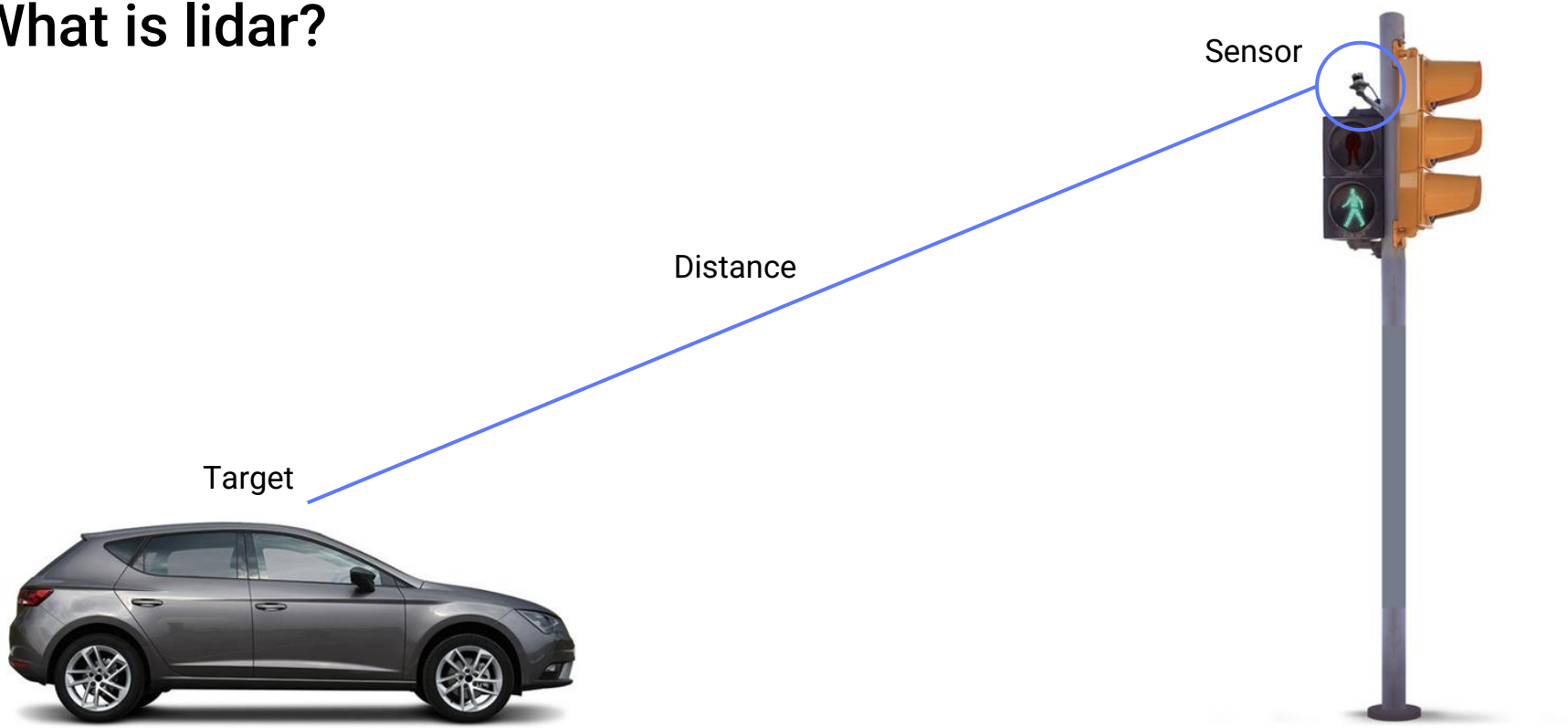
SMART INFRASTRUCTURE DEPLOYMENTS

13+ active global projects

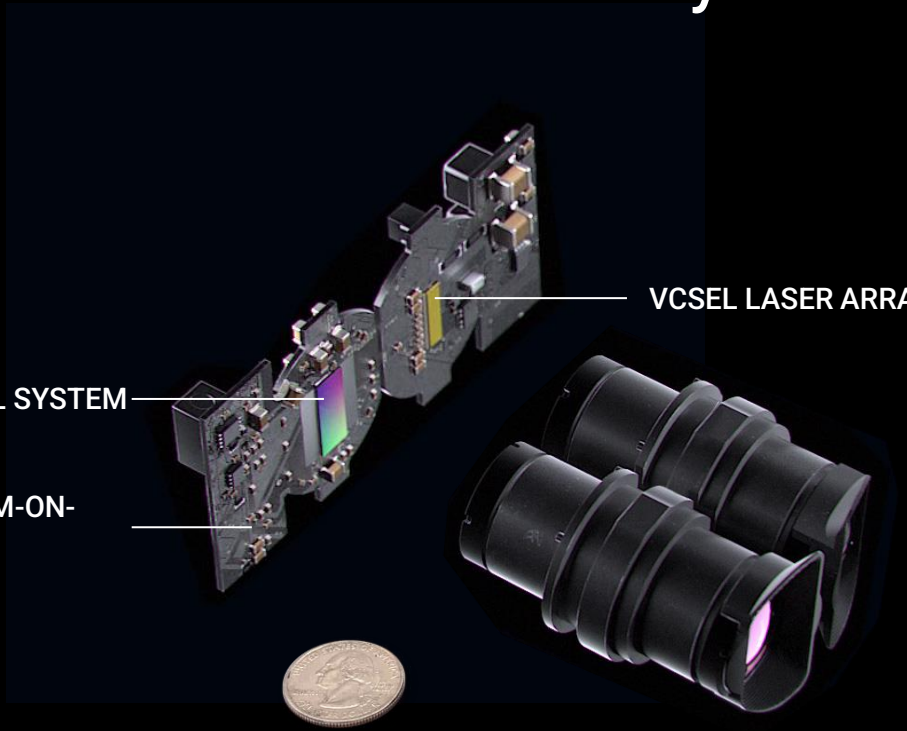
30+ planned deployments for next 12 months


We build the eyes of autonomy

What is lidar?



Ouster's simplified digital lidar architecture enhances reliability and lowers cost

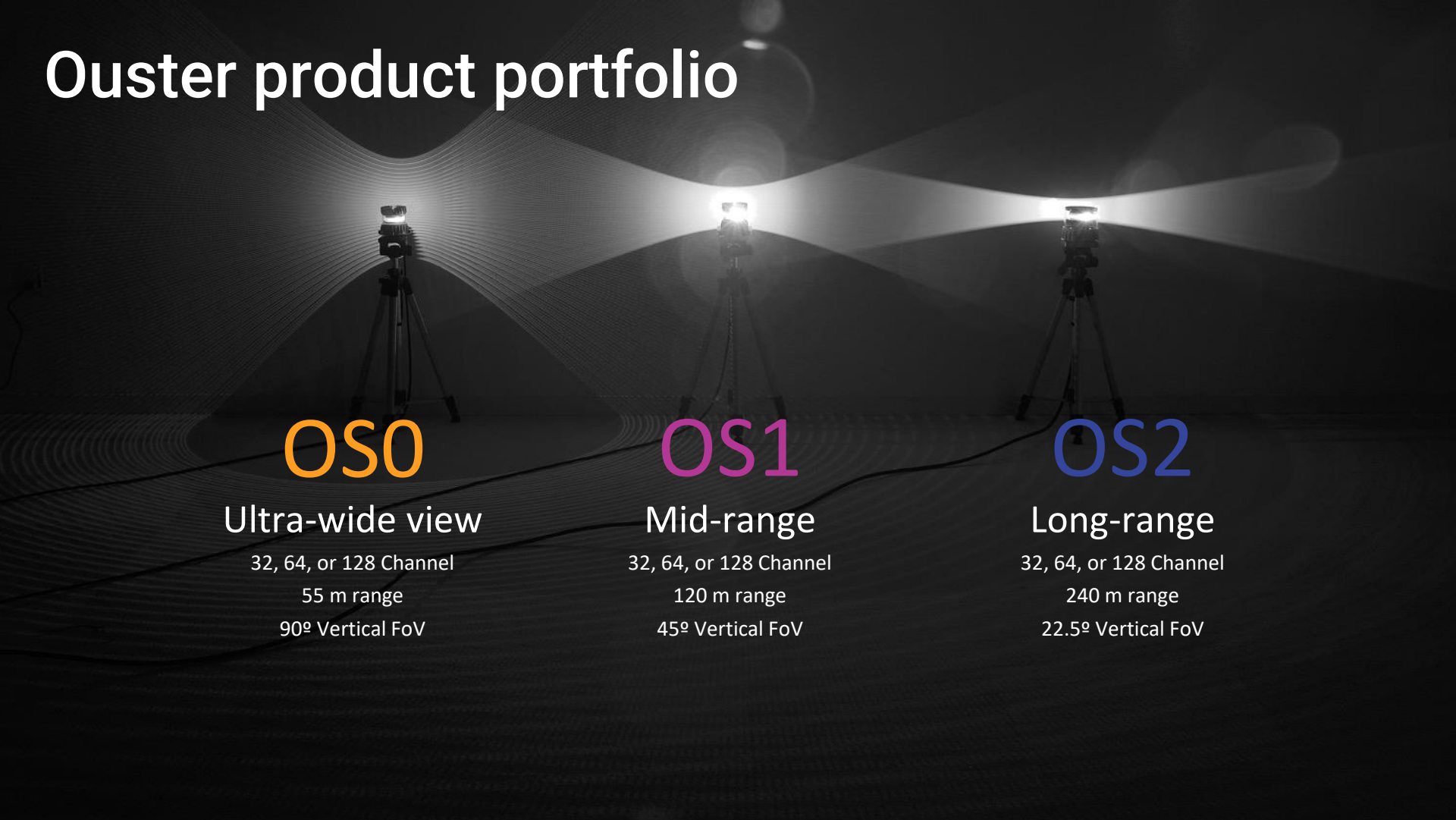


Full integrated, all semiconductor design

High-resolution packed into the smallest form factor available today

Highly reliable and rugged

Ouster product portfolio



OS0

Ultra-wide view

32, 64, or 128 Channel

55 m range

90º Vertical FoV

OS1

Mid-range

32, 64, or 128 Channel

120 m range

45º Vertical FoV

OS2

Long-range

32, 64, or 128 Channel

240 m range

22.5º Vertical FoV

Ambient (sunlight)

Signal

RAW OUTPUT

Ouster OS1-128


Ouster’s ITS solution

Plug-and-play solution combines Ouster 3D digital lidar with perception software

Ouster high-resolution digital lidar sensor(s) + Edge AI compute box or … + Integrated perception software that outputs object data

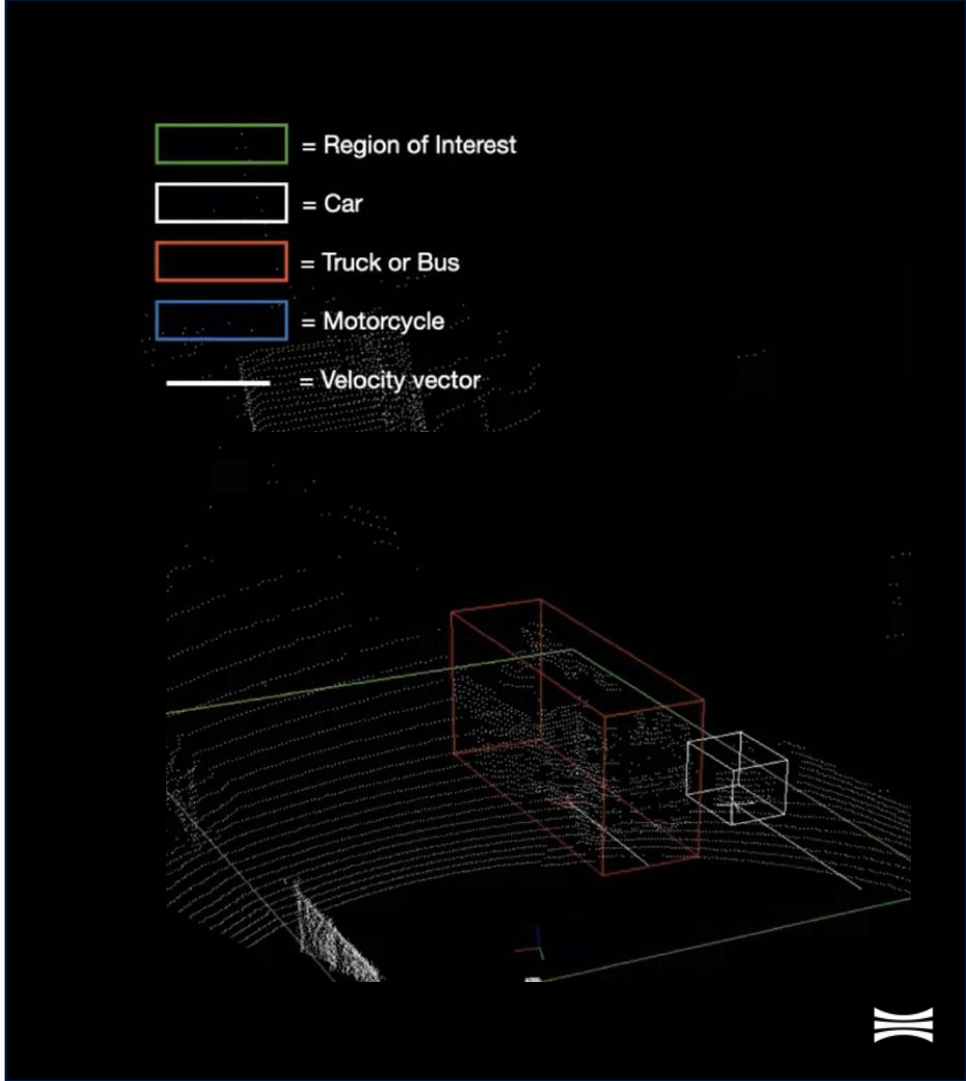
Standard data output

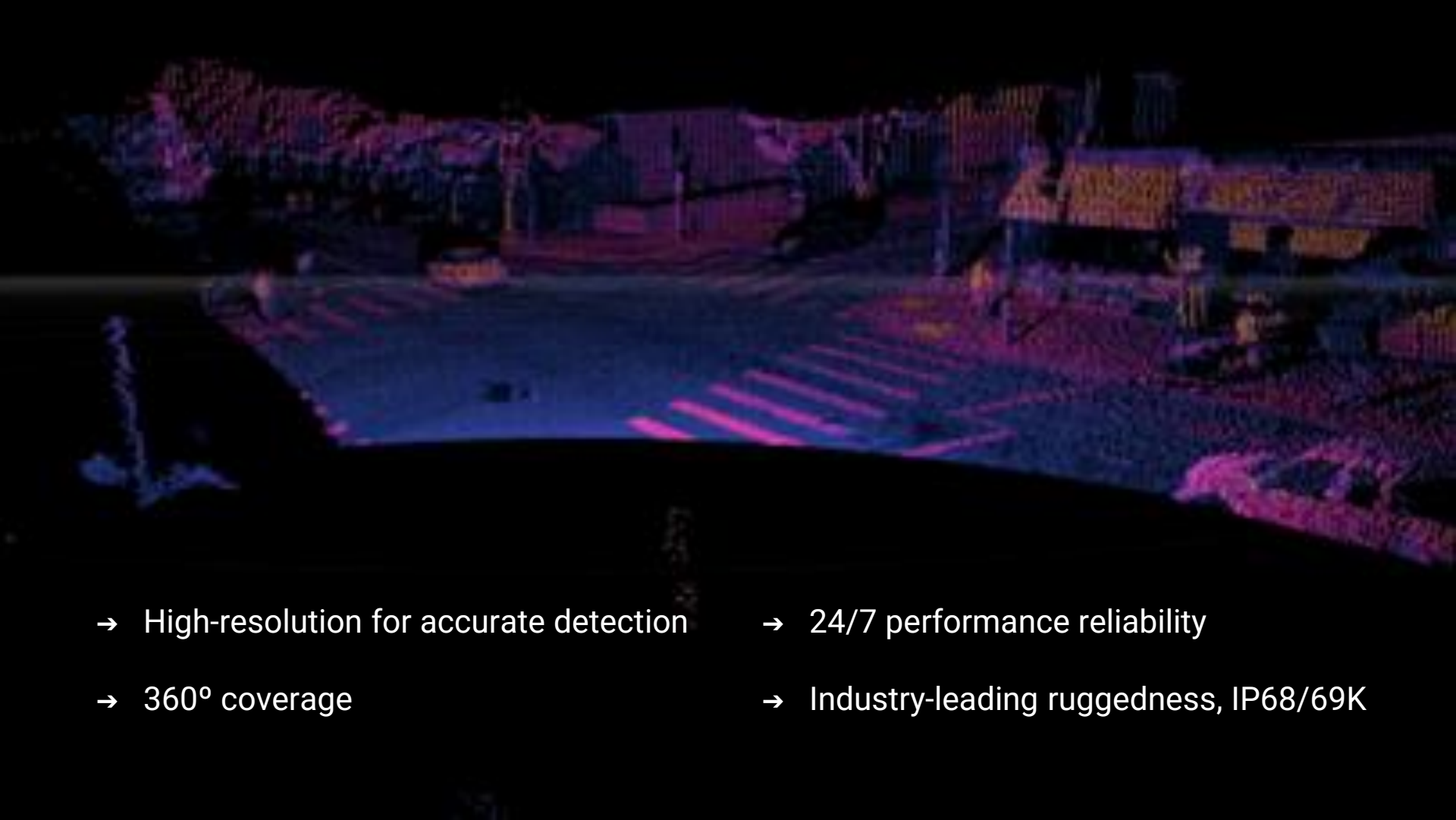
Real-time object detection, classification, and tracking

- → Object ID
- → 3D bounding box: size, volume, orientation
- → Speed
- → Current and initial positions (XYZ coordinates) and timestamp
- → Full velocity vector
- → Classification (car or van, truck or bus, bicycle or motorcycle, pedestrian)
- → Continuous object tracking
- → Predicted trajectory
- → Near-miss detection

User-defined event zone information

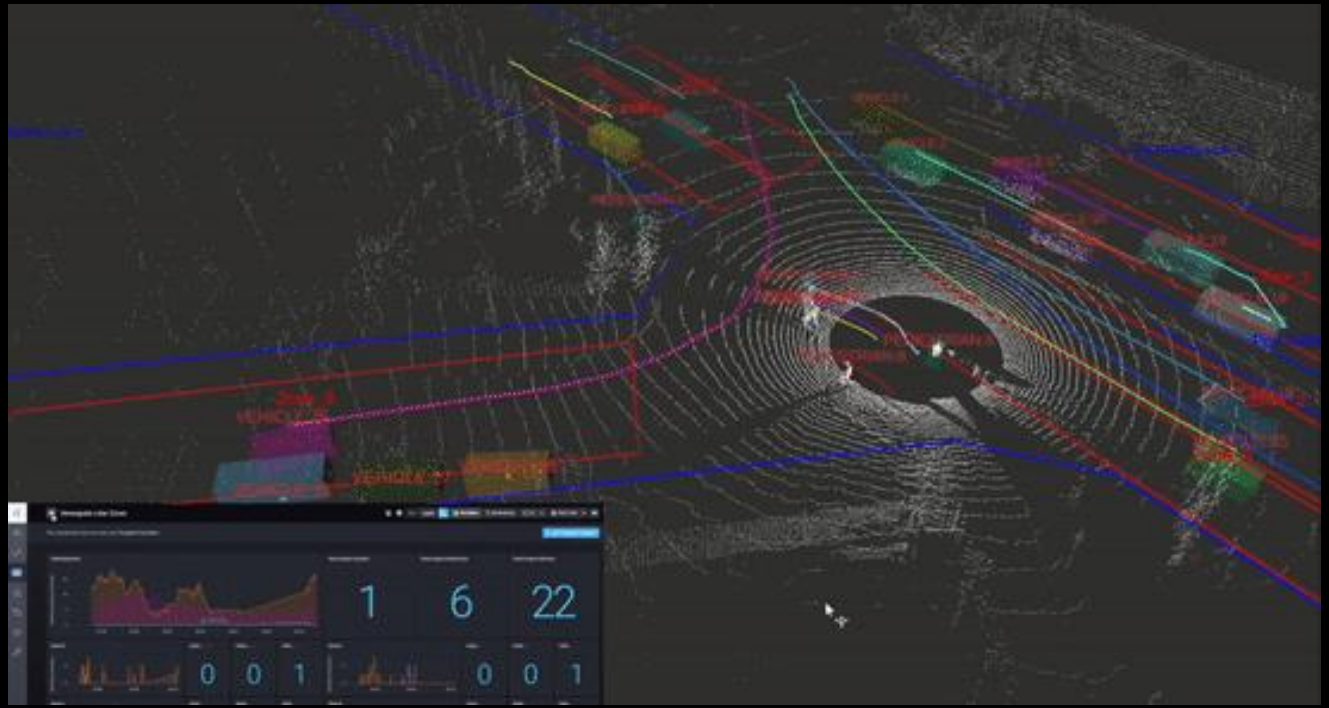
- → Zone ID
- → Region of interest box
- → Object IDs found in zone





- High-resolution for accurate detection
- 360º coverage
- 24/7 performance reliability
- Industry-leading ruggedness, IP68/69K

Highway management



Wrong-way vehicle detection

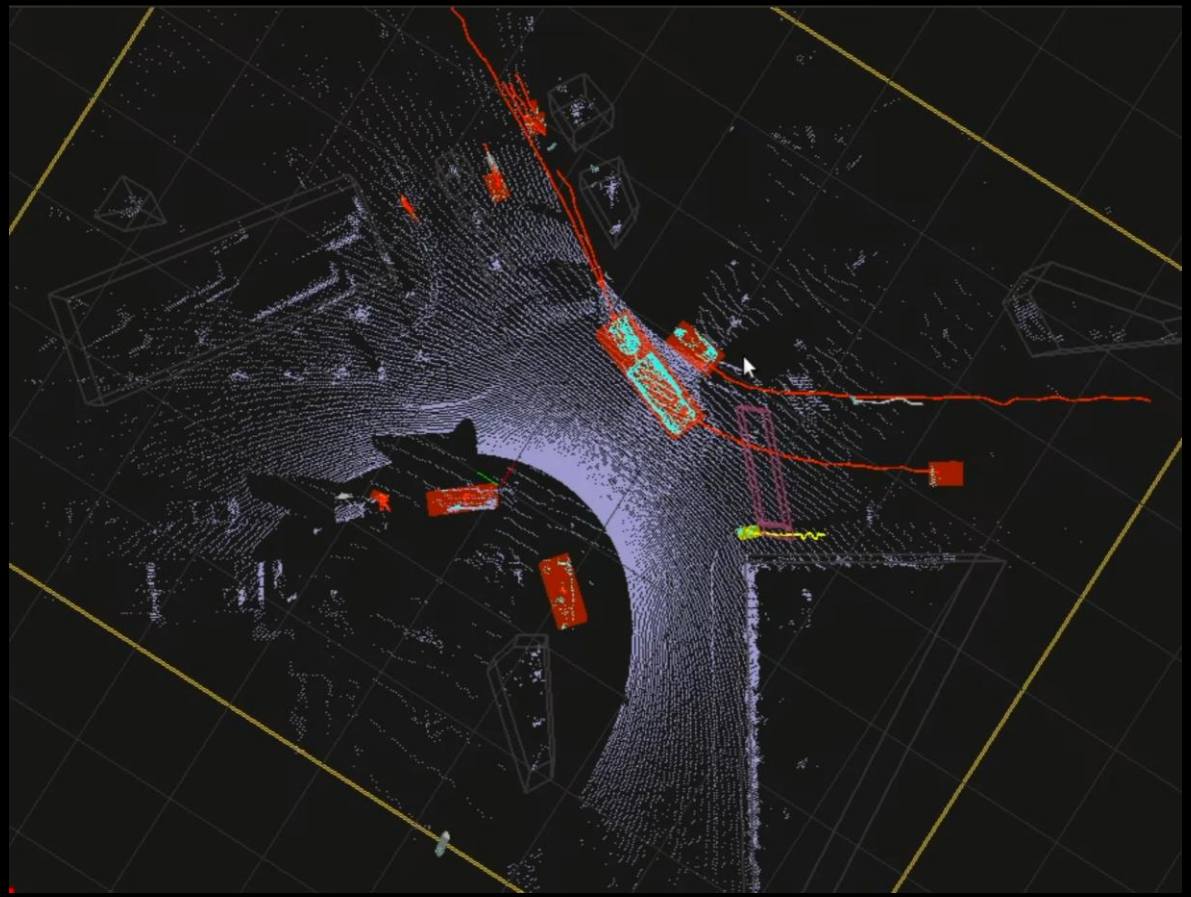
Tolling / speed enforcement

Queue detection

Lane-by-lane analytics: vehicle speed, turning moving counts, movement patterns

Vehicle count and traffic analytics, per lane

Lidar fusion

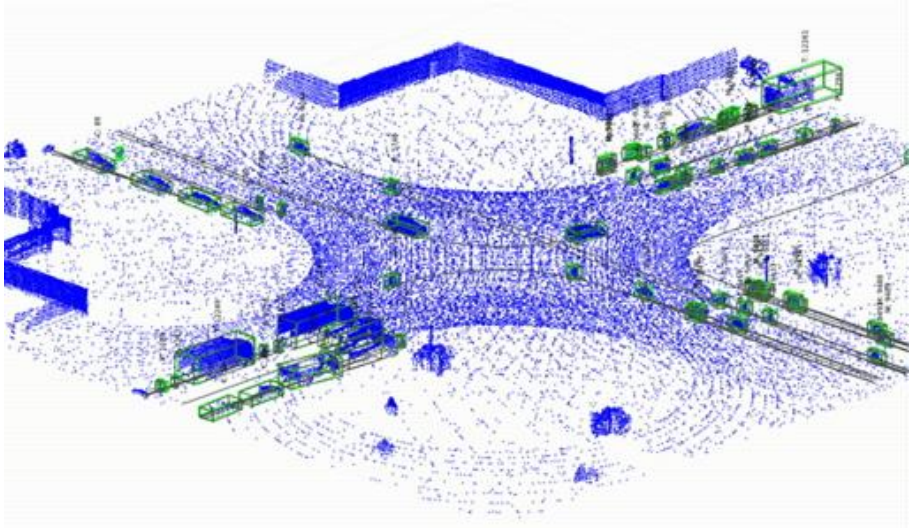



Ouster in the wild

Ouster at intersections, highways, cities around the world

Wrong-way detection on exit ramps in Orlando, Florida

- Central Florida Expressway using Ouster lidar for real-time tracking of movements and trajectory of all vehicle classes across two lanes from a side fire Ouster lidar
- Monitored zone extends from toll collection booth to stop bar, a distance of 800’+
- Operations center is automatically alerted when wrong-way incidents are detected
- Ouster lidar replaced all aged and failing lidar system from another provider



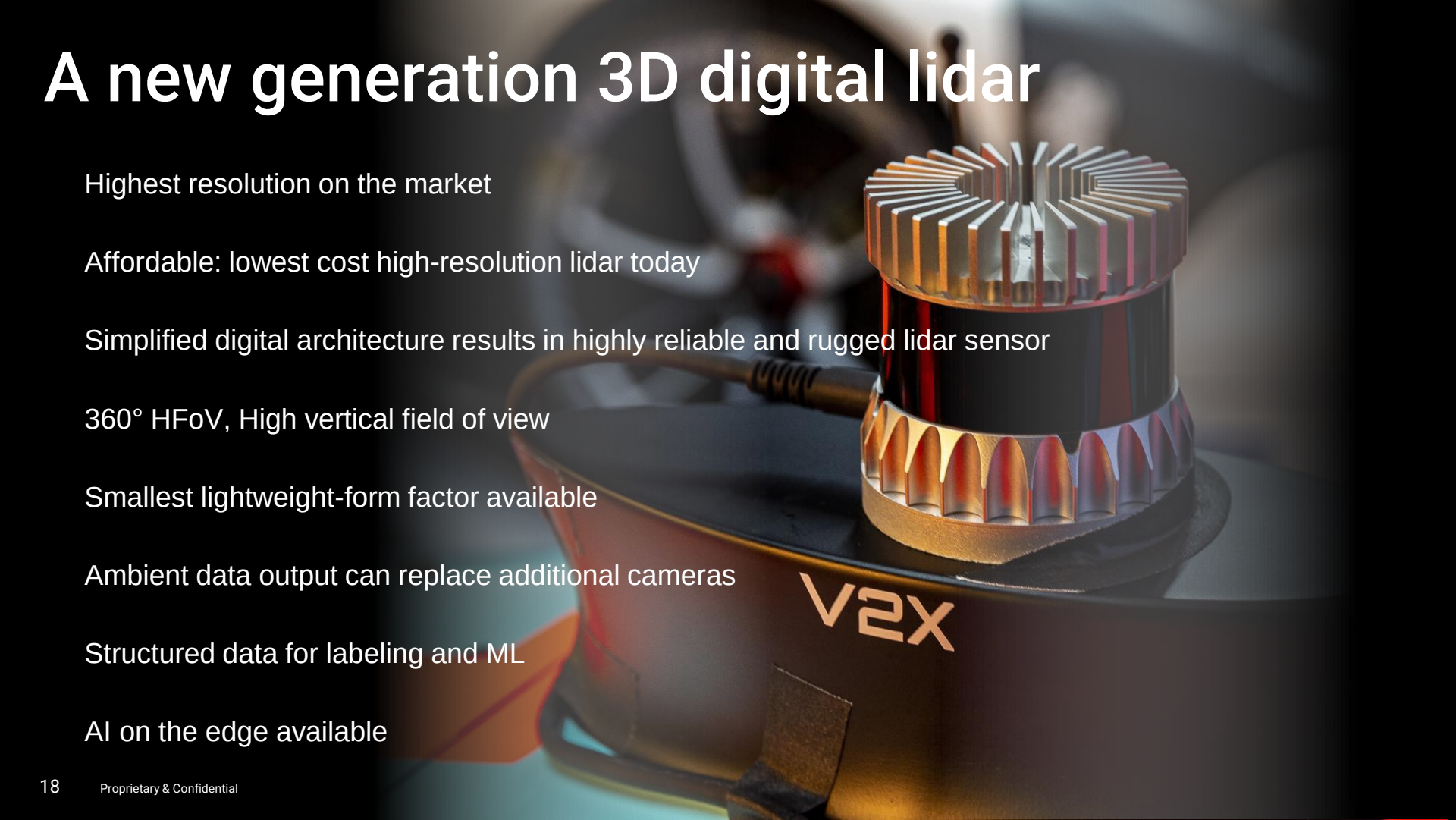
100+ sensors for connected and autonomous vehicle applications at Corridor for New Mobility

Lidar used to capture traffic data and create digital twin

Data used to develop connected infrastructure for V2X applications

€11 million project, funded by the German Federal Ministry of Transport and Digital Infrastructure

A new generation 3D digital lidar



- Highest resolution on the market
- Affordable: lowest cost high-resolution lidar today
- Simplified digital architecture results in highly reliable and rugged lidar sensor
- 360° HFoV, High vertical field of view
- Smallest lightweight-form factor available
- Ambient data output can replace additional cameras
- Structured data for labeling and ML
- AI on the edge available


Thank you