5G Konnektivität in der Logistik

Teleoperiertes Fahren – Die Zukunft der Logistik

Oktober 2023

Bringing Together Cellular Technology Leaders

CARRIER-FOCUSED

ENTERPRISE-FOCUSED

ERICSSON

+

cradlepoint

Leading the way in 5G infrastructure deployments

Industry's first '5G for Business' solutions

Cellular infrastructure

70% Of the world's top carriers

180 Countries around the world

2.5B Users from 2G to 5G

Cellular endpoints

36k Customers

4.5k Public safety agencies

2M+ Subscriptions

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The New Era of Transportation Connectivity

Transition to **mobile offices**

More sophisticated use of **location data**

Extending **organization reach**

Demand for **enterprise-class** connectivity & security

Autonomous Tractors Control

More **on-board** applications & devices

cradlepoint PART OF ERICSSON
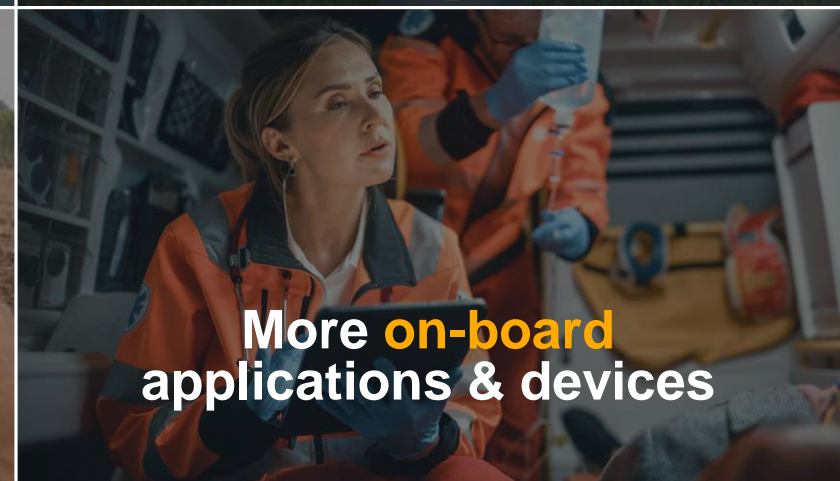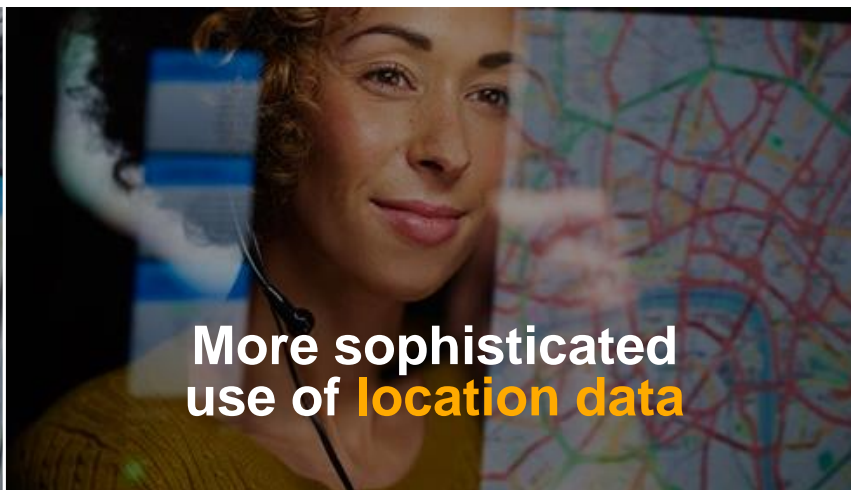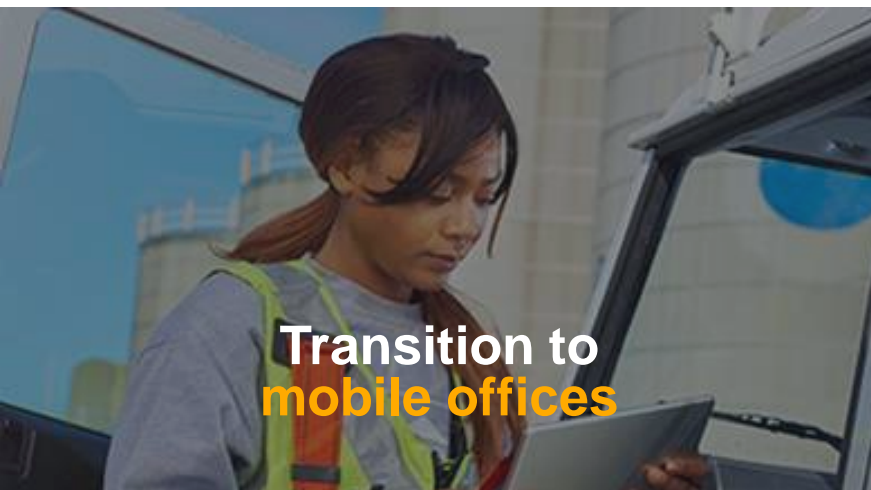
The New Era Looks Like This

AVL / telematics	Wifi	Fare box	Tablet
Digital signage	Video surveillance	Digital video recorder	Mobile data terminal
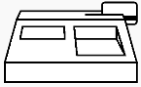
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The New Era Looks Like This

Autonomous & Teleoperated Driving

MIRA GmbH

We enable driverless mobility –
*with **Teleoperation.***

mira

The Future of Mobility is AUTOMATED and DRIVERLESS!

*Numerous benefits are associated with **automated driving:***

❖ *Traffic reduction in urban areas*

❖ *Better use of urban spaces*

❖ *Gain comfort for individual customers*

❖ *Less emissions*

❖ *More efficient logistics processes*

❖ *Less labour costs*

❖ *Less accidents*

Concept and realisation: xoio GmbH.

However…

...full automated driving does not work yet (and maybe never will)!

Automotive News

Home > Mobility Report

Cruise robotaxis block traffic for hours in San Francisco

The traffic jam, which a witness estimated involved more than a dozen of the robotaxis, was not resolved until human operators removed the vehicles.

July 01, 2022 03:18 PM | 16 HOURS AGO

DREW GORETZKA

Automotive News Europe

Home > News Analysis

September 13, 2022 05:11 AM

Truly autonomous cars may be impossible without helpful human touch

Truly autonomous cars may be impossible without permanent remote human supervisors.

Reuters

THE WALL STREET JOURNAL.

THE FUTURE OF EVERYTHING
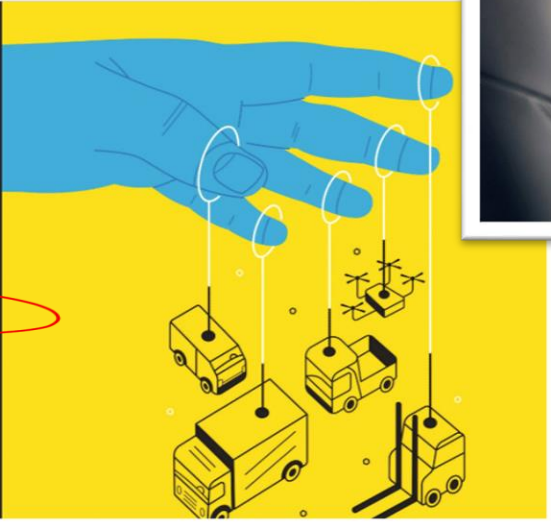
Autonomous Delivery and Work Drones Will Still Need a Human Minder

Development of autonomous technologies is attracting billions of dollars, but industry executives say remote operators will likely always be needed

https://www.aut

mira

Automated driving has real limits

Edge Cases

- ❖ **Road Blocks** & Diversions
- ❖ Adverse **Weather**
- ❖ System **Failures**

Legal Requirements

Human Supervision required by Law (e.g. "Technical Supervision" required in Germany)

Use Cases that cannot be automated

e.g. Non-repeatable driving tasks such as **Rescue Missions, Fire Fighting, Policing**

Our solution -

HUMANS monitor and operate driverless cars remotely via mobile networks

mira

The result: All the benefits of driverless mobility.
Not in five or ten years time – NOW!

We see two basic use cases -

Teleoperation for…

…Non-self-driving Vehicles (SAE Level 1-3)

e.g. Rental and Sharing fleets:
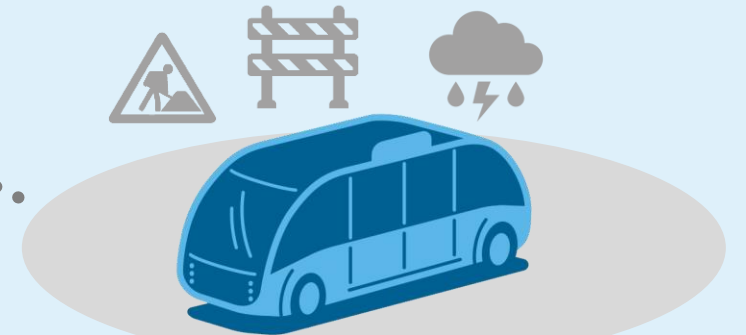Teleoperated delivery and pick-up of vehicles

e.g. Truck fleets:
Teleoperated short haul operation of trucks

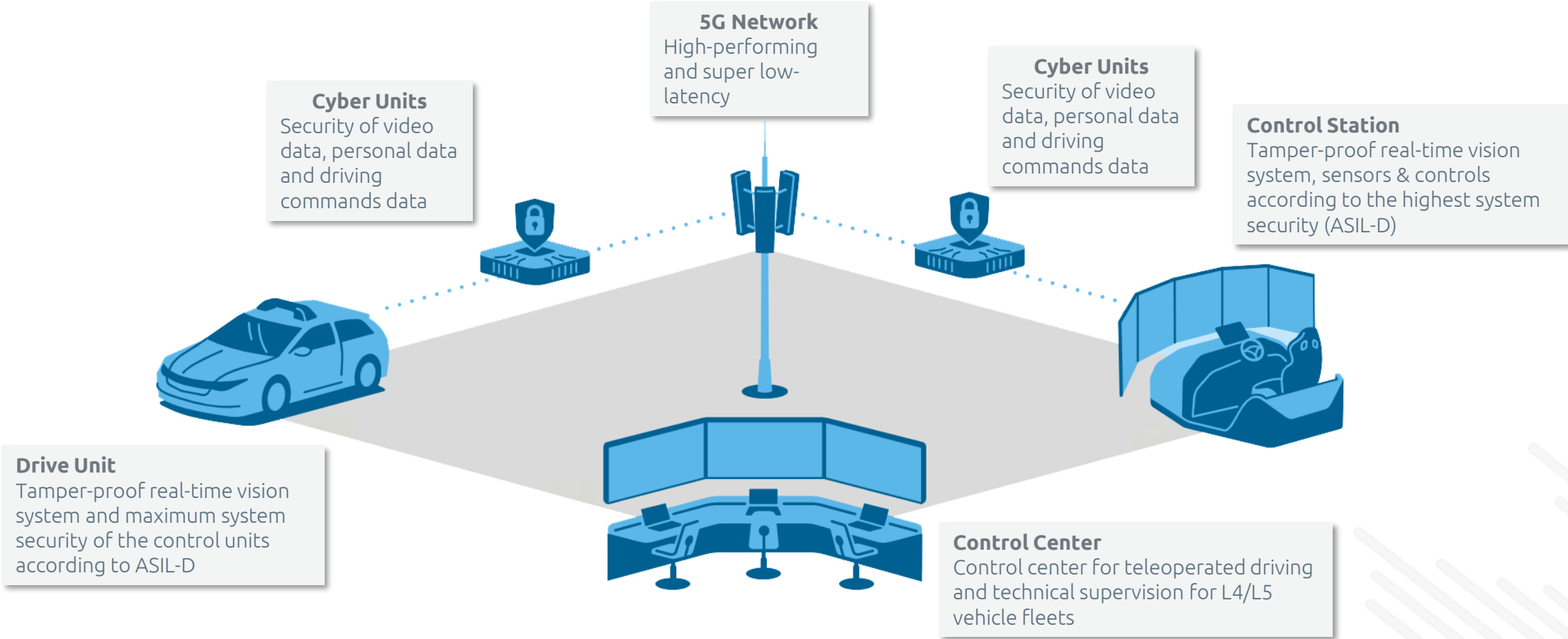## …Self-driving Vehicles (SAE Level 4 & 5)

Route section-specific:
A teleoperator takes over and remotely drives a logistic vehicle on first & last mile

Case-specific:
A teleoperator intervenes and assists driverless L4/5-vehicles in edges cases

Core components and system architecture

5G Network
High-performing and super low-latency

Cyber Units
Security of video data, personal data and driving commands data

Cyber Units
Security of video data, personal data and driving commands data

Control Station
Tamper-proof real-time vision system, sensors & controls according to the highest system security (ASIL-D)

Drive Unit
Tamper-proof real-time vision system and maximum system security of the control units according to ASIL-D

Control Center
Control center for teleoperated driving and technical supervision for L4/L5 vehicle fleets

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OUR TRACTION: We're on the road since July 2022, more ODDs to be launched within next 12 month

Living Lab I:
Industriehafen Düsseldorf

*First rollout of a teleoperated vehicle under **real-life conditions on public roads***

Living Lab II:
Bonn-Beuel

*Testing of various use cases e.g. **on-demand staff shuttles** (in cooperation with Deutsche Telekom AG)*

Living Lab III:
Location t.b.c.

*Project start **Hub2Production** on public roads with partner incl. further use cases*

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www.mira-mobility.com

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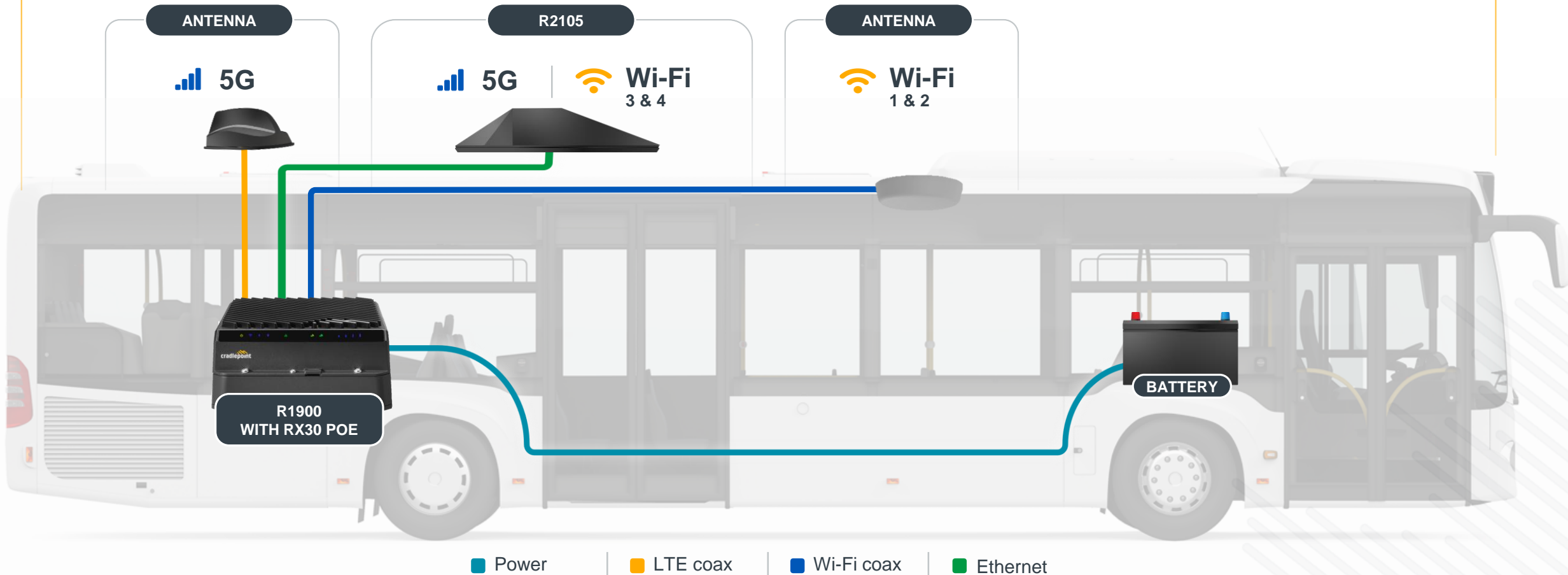
Hardware and Technologies

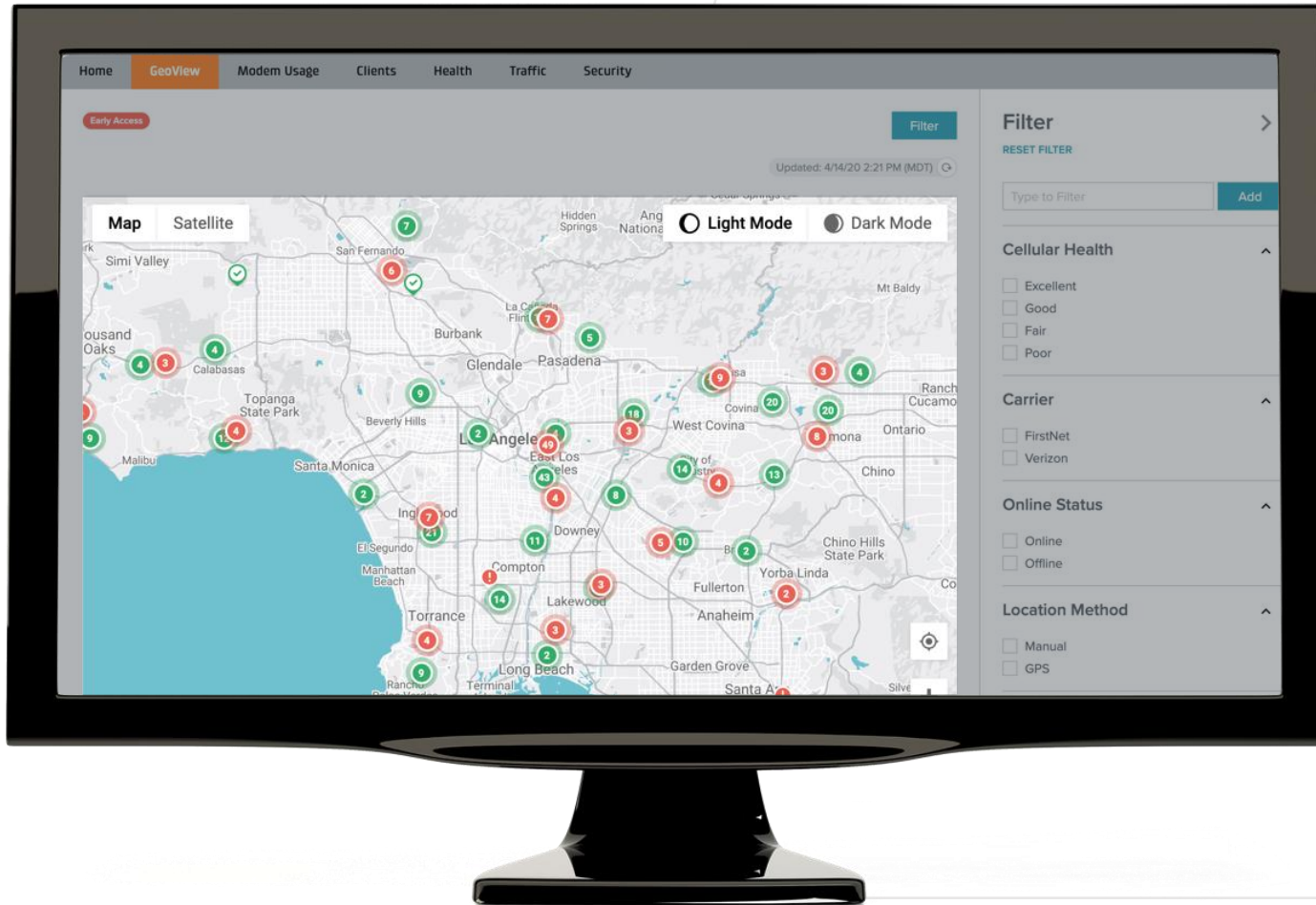cradlepoint PART OF **ERICSSON**

R2105 Captive Modem - Dual 5G + Multi Wi-Fi

Quad Wi-Fi Radio

ANTENNA | R2105 | ANTENNA

5G

5G | Wi-Fi 3 & 4

Wi-Fi 1 & 2

R1900 WITH RX30 POE

BATTERY

■ Power | ■ LTE coax | ■ Wi-Fi coax | ■ Ethernet
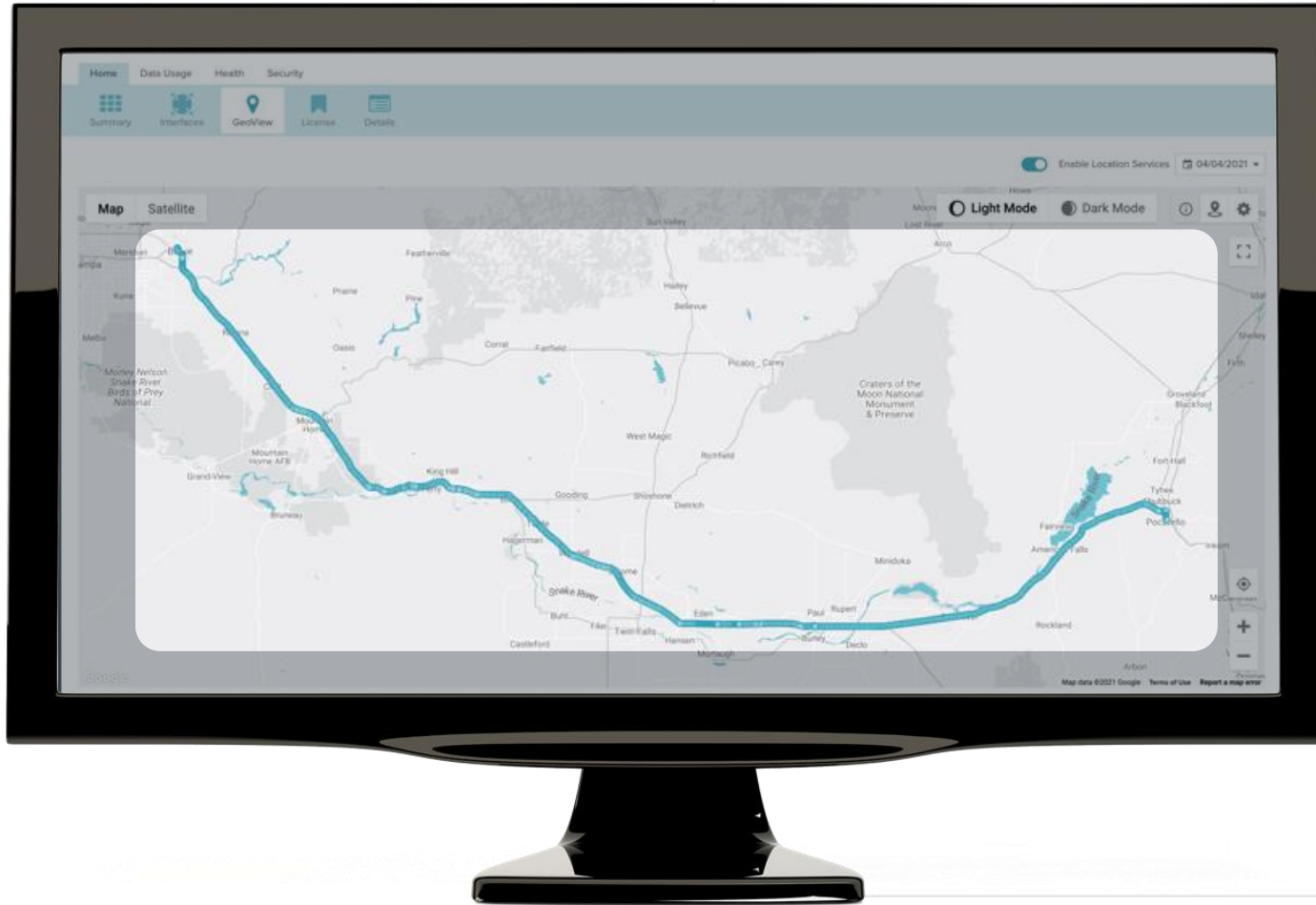
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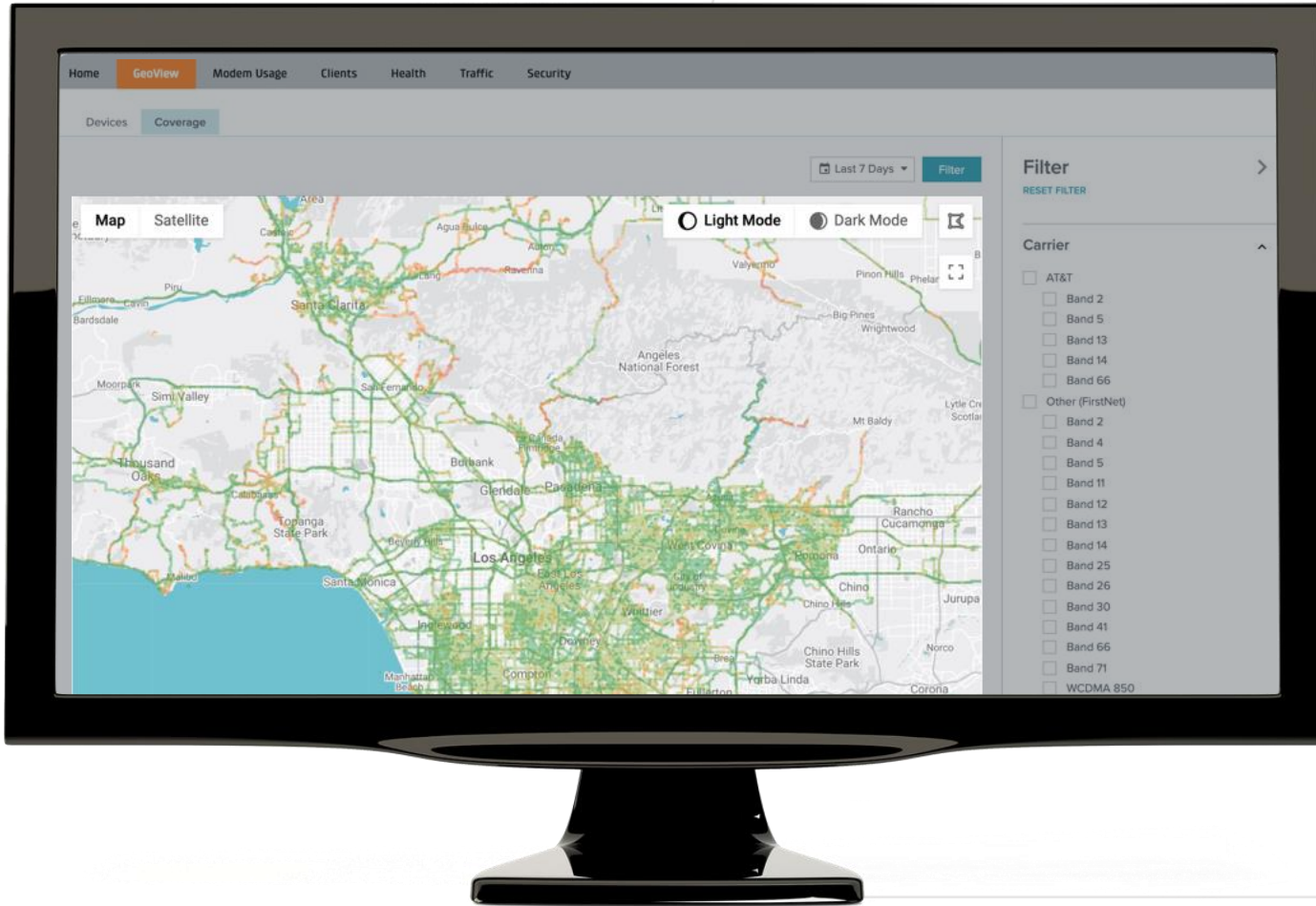
GeoView Real Time Tracking

FILTER BY

- Device type
- Cellular health score
- Carrier
- Online status
- Location method

Historic Location Tracking

- Ability to track historic device location
- Enables additional LTE/5G troubleshooting capability for locating poor coverage areas
- 365 days data storage

Coverage Map

- Utilizes location tracking data points to create coverage map
- Helps identify coverage gaps
- Filter by health, band and carrier
- Troubleshooting aid

Vielen Dank