DANLAW
AUTOMOTIVE MADE SMART

Cohda Wireless
A DANLAW COMPANY

Technology Introduction



What is V2X?



Vehicle-to-Everything(V2X)

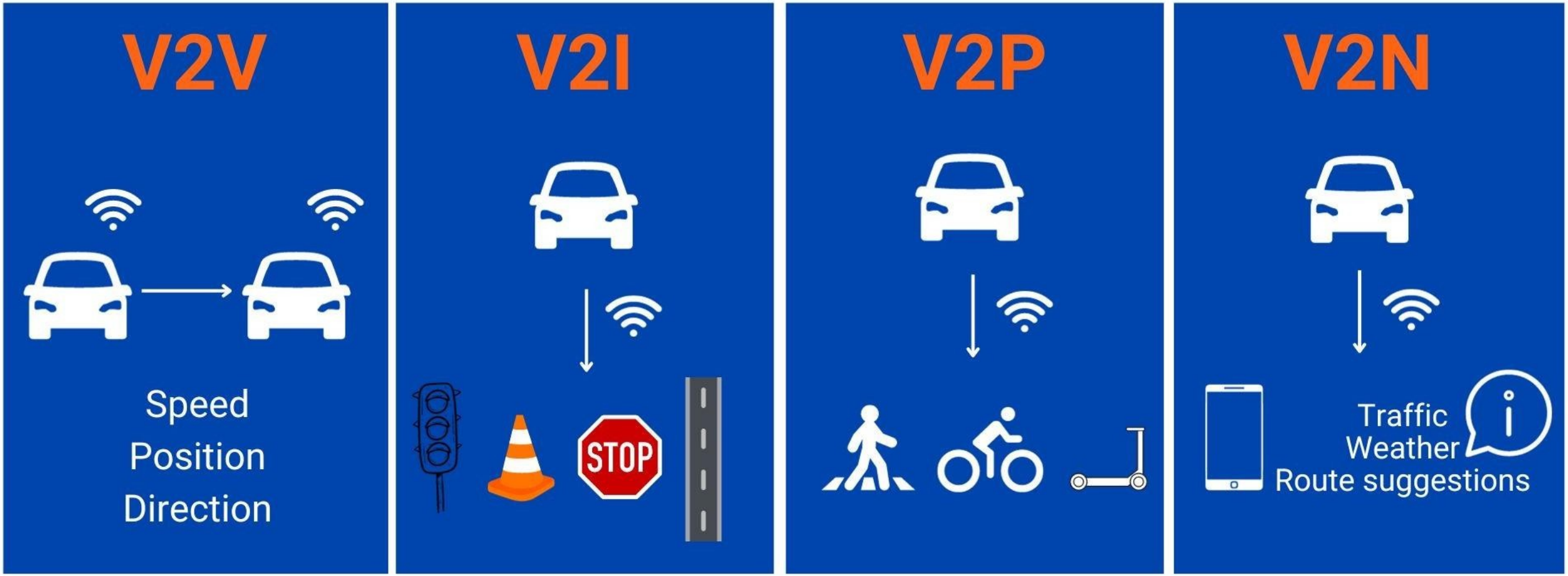
Technology that enables cars to exchange real-time location and heading information with other vehicles and infrastructure.

Creating Safer Roads

- ✓ Traffic accident avoidance
- ✓ Reduced traffic congestion
- ✓ Shortened commute times
- ✓ Reduced emissions
- ✓ Improved public transportation efficiency

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What is V2X

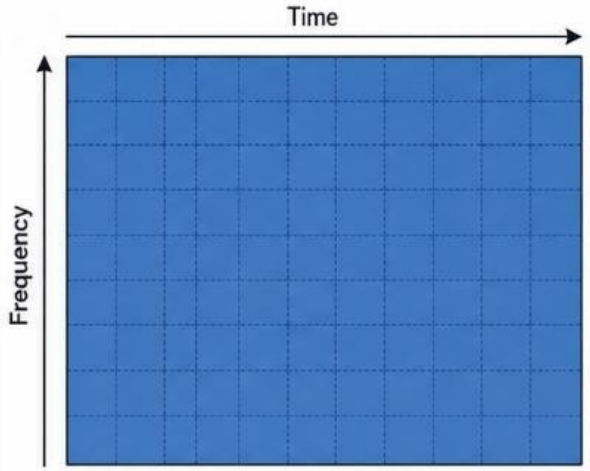


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DSRC vs LTE-CV2X (PC5)

DSRC (IEEE 802.11p)

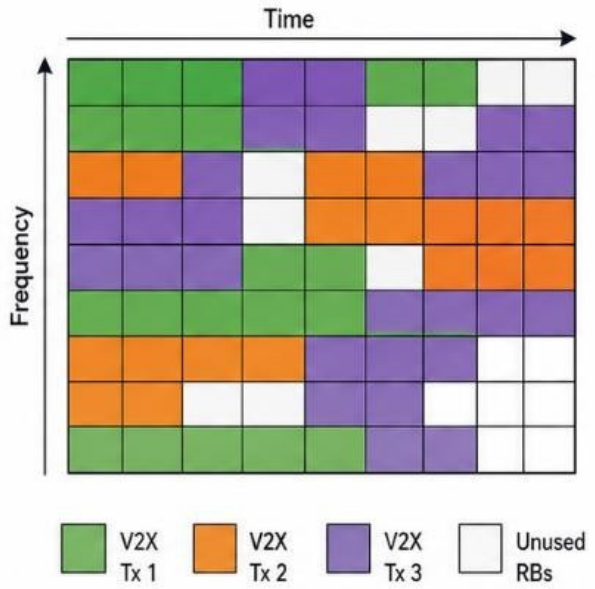
No concept of resource blocks.
Uses whole channel in both time and frequency.



- Entire 10 MHz channel used
- No division into resource blocks
- Transmissions contend for the whole channel (CSMA/CA)

LTE C-V2X (3GPP Release 14+)

Uses resource blocks (RBs) that are spliced in both time and frequency.



- Channel divided into resource blocks (RBs)
- RBs are allocated flexibly in both time and frequency
- Enables efficient sharing and better scalability

KEY TAKEAWAY

DSRC: No resource blocks – uses entire channel in time and frequency.

LTE C-V2X: Uses resource blocks – spliced in both time and frequency for efficient, flexible scheduling.

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Current ADAS disadvantages

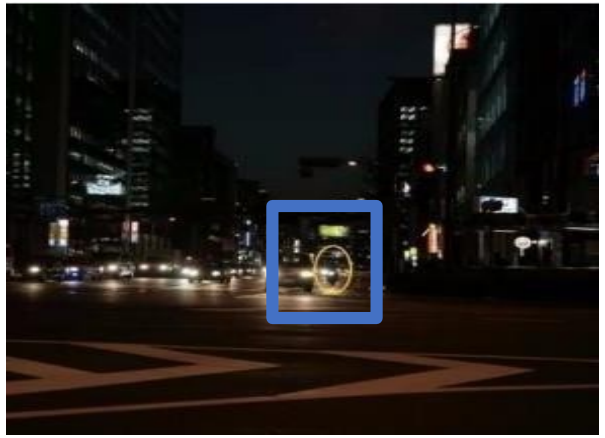




Certainty?



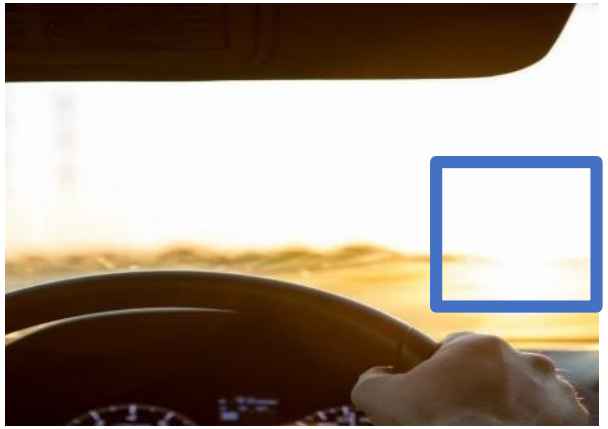
Two-Wheeler



Obstructed



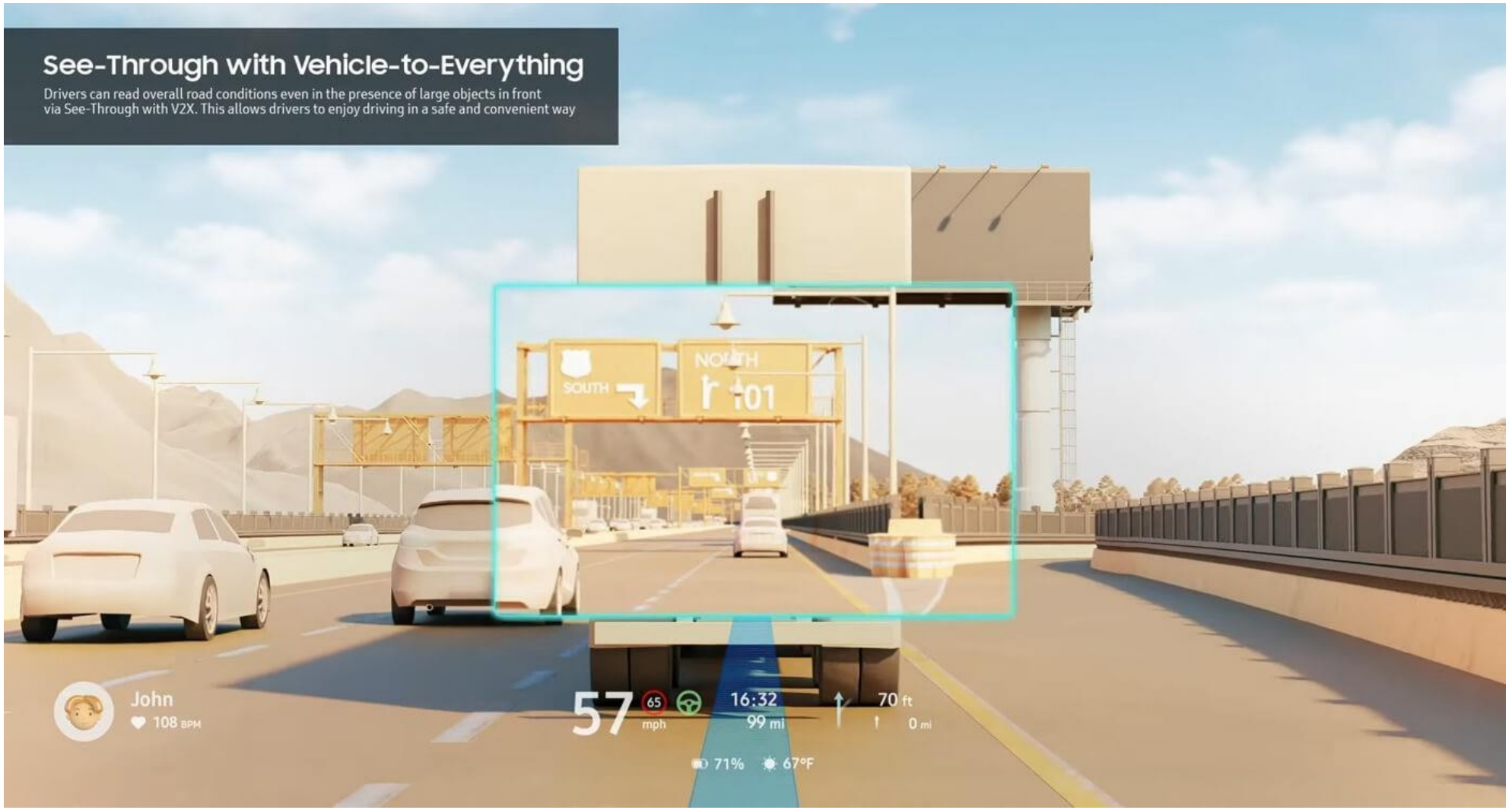
Saturation?



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V2X – Unique Selling Point



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Cohda Wireless – Key Sectors & Portfolio

SMART VEHICLES

Connecting and enhancing connected and autonomous vehicle operation and safety

SMART CITIES

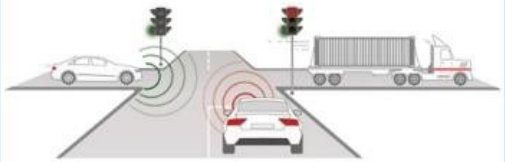
Enabling transport infrastructure management, safety and efficiency

SMART MINES

Improving mine safety and productivity

SOFTWARE

- Stack
- Applications



For OEM projects

SOFTWARE

- Software Development Kit



Ported SDK to 50+ 3rd party platforms

HARDWARE

- MK5 OBU, RSU, XBU
- MK6 OBU, RSU



For infrastructure deployments working with System Integrators

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Major V2X Projects by Cohda Wireless



- GM Cadillac CTS production in the US
- VW in production in Europe with Golf8, ID.3, ID.4, ID.5, ID.7, ID.Buzz, CUPRA Born, T7, Tiguan, and
  Passat (2M vehicles produced to date)
- Production with an Indian OEM (SOP 2024)
- Production with a European OEM (SOP 2025)
- Multi-year engagement with an Hyundai Motors European Technical Centre for Day 2 Apps
- To date Cohda has ported V2X Software Stacks and Apps to more than 50 Tier 1 platforms.
- Cohda has two Level 3 Connected Autonomous Vehicles in Adelaide for R&D
- Working with Qualcomm QVX350 V2X SoC







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Major V2X Projects by Cohda Wireless

SMART CITIES & MINES

- 450 MK5 RSUs for C-Roads deployments in Portugal
- 1500 MK5 RSUs and 500 OBUs supplied for Georgia DOT
- 400 MK6 OBUs supplied for Georgia DOT
- 100 MK6 OBUs supplied to UMTRI
- Master Supply Agreement with Swarco for RSUs
- 430 MK6 RSUs supplied to Swarco for C-Roads projects
- 3400 RSUs supplied to Siemens
- 3000 OBUs deployed with Danlaw for NYC DOT
- Production License with Caterpillar (around 1000 vehicles annually)
- Deployment with Rio Tinto in the Oyu Tolgoi underground mine in Mongolia





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Major V2X Projects by Danlaw

Georgia Department of Transportation – sole source for 1000s of RSUs

Florida Department of Transportation – selected to supply dual band RSUs and CV2X

OBUs Macomb County Michigan – emergency vehicle preemption and virtual RSU

Ohio State 400 RSUs and OBUs for multiple applications

Arizona DoT – 700 units for Transit Signal Priority

applications New York City DoT – 4000 units for multiple

applications University of Michigan Transportation Research

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