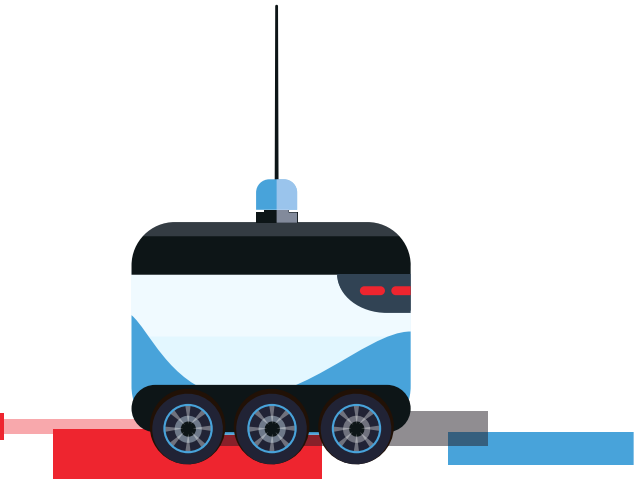
DriveU.auto

Superior Connectivity for Autonomous Vehicle Teleoperation

DriveU's Mission

To provide the best connectivity platform, initially for teleoperations, that enables Autonomous Vehicles to safely accomplish their mission in scenarios where they are unable to operate independently, through:

- Using cellular bonding and dynamic video encoding
- SW-based solution with open APIs



Autonomous vehicles have come a long way
But not enough to give up all control

AV industry leaders acknowledge the need

"An approach that lets us deliver on the promise of self-driving cars now rather than later, is to acknowledge that self-driving cars can't handle every possible traffic situation on their own (yet!)"

Oliver Cameron,
Co-Founder & CEO

"I don't envision a day when the (self driving) technology operates in all weather conditions and without some sort of interaction."

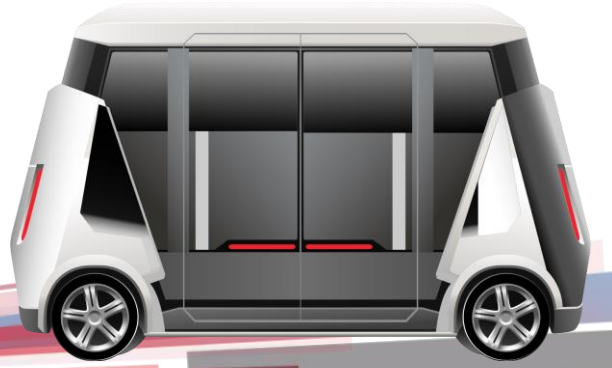
WAYMO

John Krafcik,
CEO

Regulators worldwide are demanding it

"The manufacturer shall certify ... a communication link between the vehicle and a remote operator"

California Autonomous Vehicle Deployment Program



Teleoperations - the what

REMOTE DRIVING (Direct)

Remote operators drive the car remotely: steering, accelerating and braking the vehicle

Example: Autonomous on highway and teleoperated to/from warehouse

REMOTE ASSISTED DRIVING (High level commands)

Remote operators supervise the vehicles

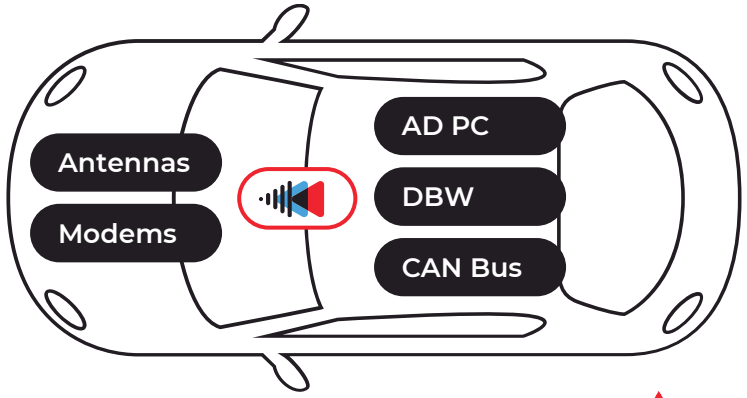
Example: When AI can't drive with confidence, remote operator instructs /approves / corrects the vehicles path

HYBRID MODEL (using both modes)

Example: using Remote Assisted Driving for some of the scenarios and Remote Driving for extreme cases

Connectivity's critical role in Teleoperations

In-vehicle sub-systems



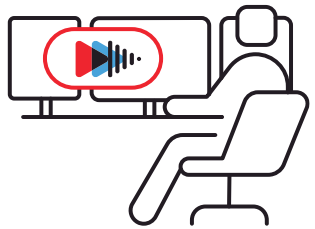
HD video

Sensor data

Driver Node

Command & Control Center

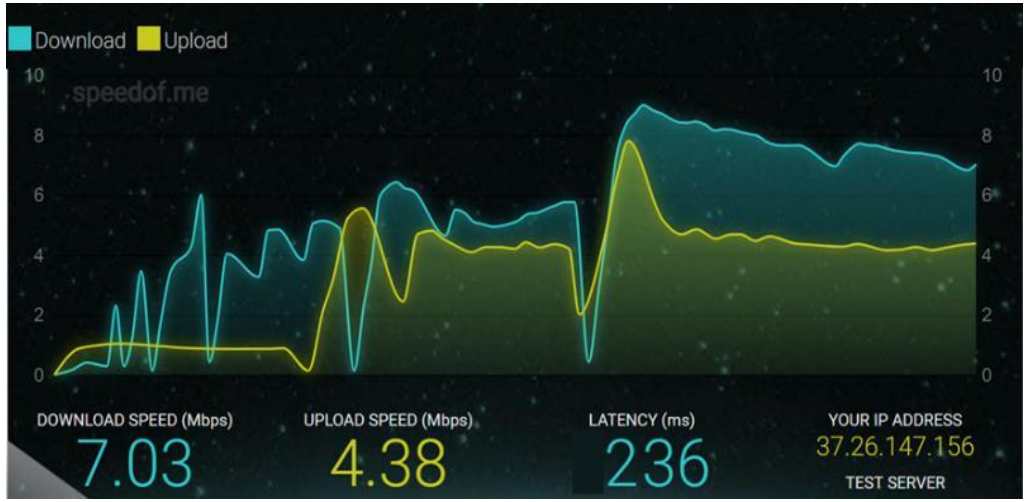
Need uninterrupted, low latency, high-capacity connectivity



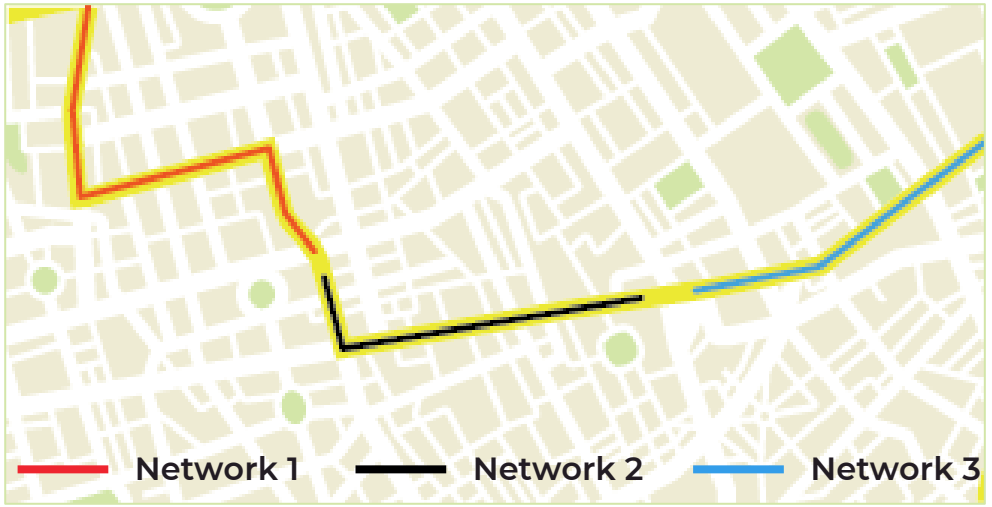
Minimal latency
Perfect continuity

Control commands

Connectivity: a reality check



Sample performance for one modem:
Throughput is changing all the time, latency unmanaged

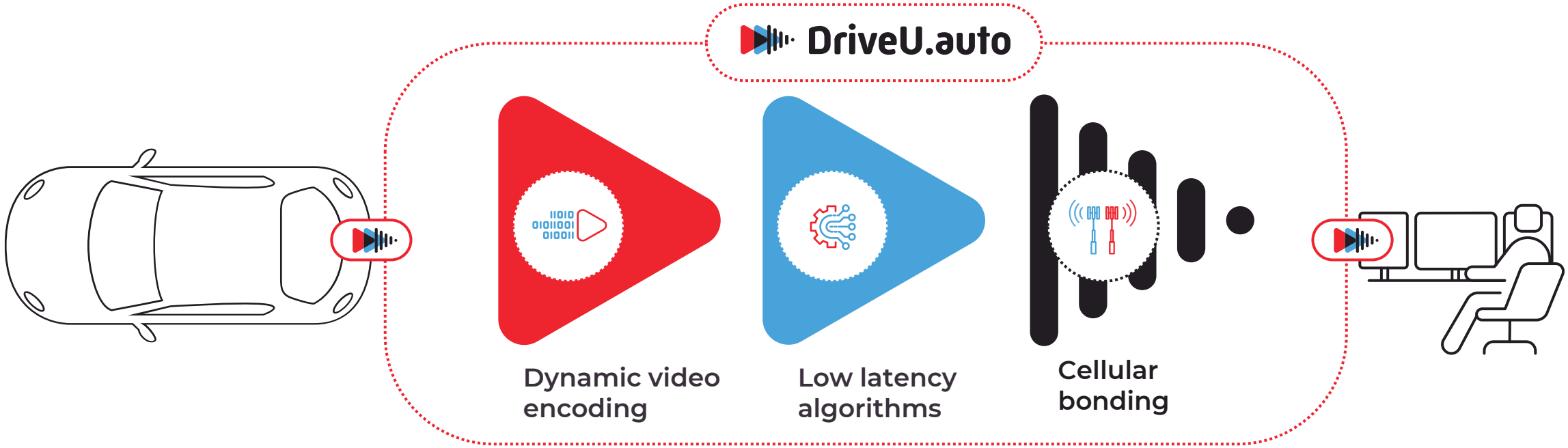


Public network signals - areas with sufficient connectivity for teleoperations

- Network conditions very dynamic
- Bandwidth varies rapidly
- Coverage varies street-by street

One network is not enough
(not event 5G)

DriveU.auto Platform:
Superior Connectivity for Teleoperation



Solution Unique Strengths

- **Typically, 10-20 Mbps uplink, supporting video down to 1Mbps**
  - 4k video (multiple streams)
  - Audio (*multiple streams*)
  - Low latency channel (user generated, telemetry, drive control)
  - High speed data channel (user generated , LiDAR, file transfer, etc.)
  - *WiFi access (Internet, Infotainment)*
- **Ultra Low latency**
  - RTT: ~ 100msec on LTE (<50msecs on 5G)
- **Seamless Connectivity - best in the market (from 2 to ∞ modems)**
  - Working simultaneously on multiple networks/modems
- **Open platform via SW only option - APIs both for vehicle and for C&C center**
- **Secure & scalable architecture**

DriveU spun off from LiveU - A decade of cellular bonding expertise

LiveU is the leader in live video transmission from the field for the media market, with over 50% market share

Serves 3000+ customers in 130 countries across 5 continents

Reliably transfer real-time high-speed video and data from a mobile environment

2007 — LiveU established

2018 — DriveU – A new division of LiveU

H1/2019 — LiveU acquired by FP and IGP

H2/2019 — DRIVEU.auto SPINOFF

DriveU.auto

DriveU.auto

Field proven and patented technology & expertise provides a superior solution

- Over 40 granted patents on cellular bonding and video encoding
- Based on >14 years of experience in live video & data transmission over cellular networks

Customers + successful PoCs

- Drives on public roads + integration into customers' platforms
- Excellent feedback on speed of integration, quality and reliability
- The only open platform for connectivity: teleoperation and other applications

Strong and experienced team


Let’s talk
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