
Peloton

California Transportation Commission

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Jonny Morris
External Affairs & Public Policy Lead

# Peloton Technology:

## Our Company

# Peloton Team

**Dr. Josh Switkes**
**CEO**
*VW/Audi, Tula, Stanford University*

**Dave Lyons**
**Chief Innovation Officer**
*Tesla, IDEO, Glacier Bay*

**Steve Boyd**
**VP External Affairs**
*White House, PBS News Hour, Clean Economy Network*

**Chuck Price**
**VP Engineering**
*Broadvision, Yahoo!, Oracle*

**Chris Gerdes**
**Former Principal Scientist**
*USDOT, Stanford CARS, Freightliner*

## Board of Directors

**Rodney Slater**
Former US Sec. of Transportation

**Ralph Eschenbach**
Developer of first commercial GPS

**Mark Lydon**
Managing Director Intel Capital

**Ken Arnold**
Band of Angels, True Global Ventures

# Investors

Peloton

VOLVO
Volvo Group Venture Capital

DENSO

UPS

NGP NOKIA GROWTH PARTNERS

intel Capital

MAGNA

LOCKHEED MARTIN

Castrol innoVentures

Lytx

SAND HILL ANGELS

birchmere VENTURES

band OF ANGELS

# Background on Platooning

# Platooning: Worldwide Activity

EU Platooning Challenge - 2016

ENERGY ITS – Japan 2009-12

SARTRE – EU (Sweden) 2009-Present

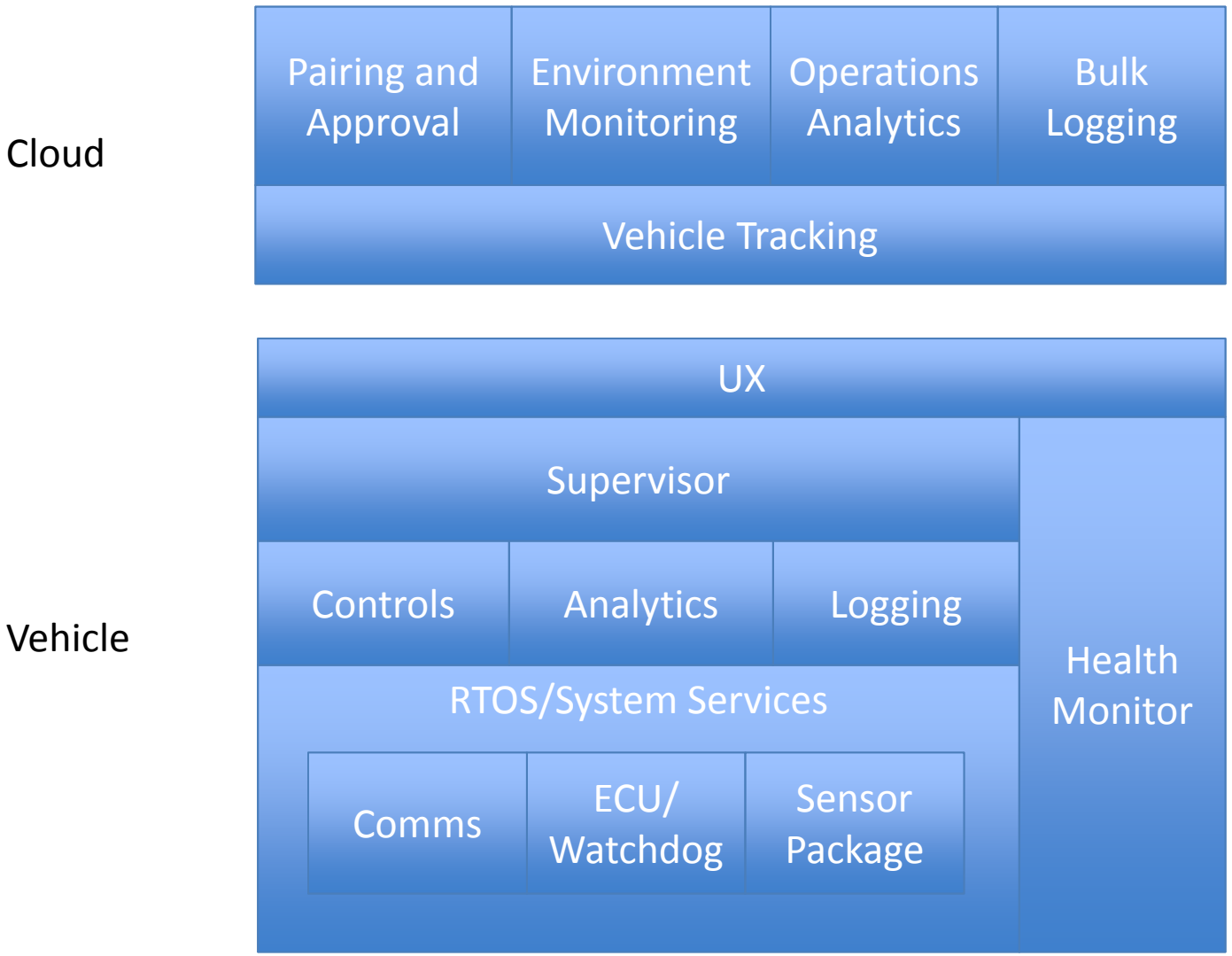

PIT – Canada 2009

KONVOI – Germany 2005-09

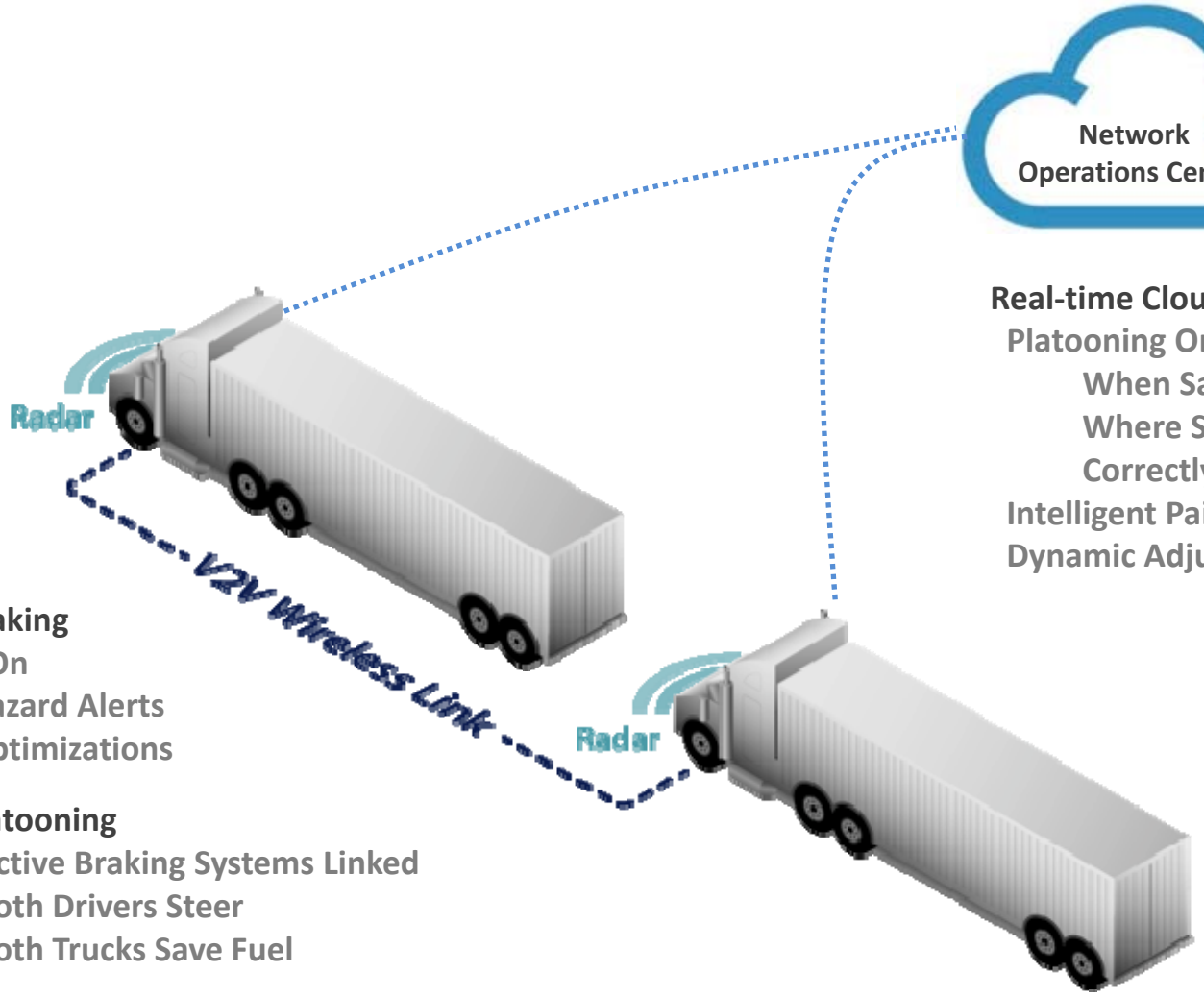
PATH – US ’90s and ongoing

# Technology of Truck Platooning

# Peloton Core Technologies



# Connecting Trucks




**Real-time Cloud Supervision**
- Platooning Only:
  - When Safe
  - Where Safe
  - Correctly Ordered
- Intelligent Pairing
- Dynamic Adjustment to Conditions

**Active Braking**
- Always On
- Cloud Hazard Alerts
- Cloud Optimizations

**Platooning**
- Active Braking Systems Linked
- Both Drivers Steer
- Both Trucks Save Fuel

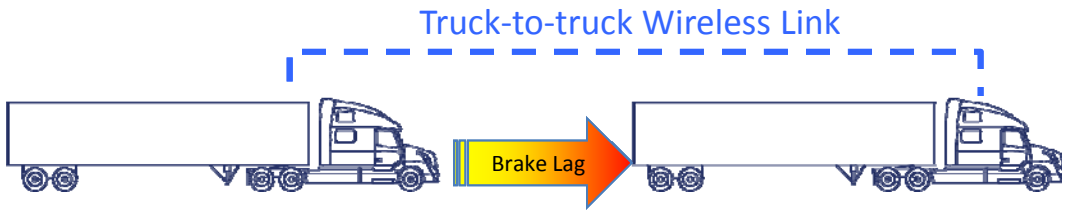
# The Platooning Experience

# Platooning & Following Distance

- Under ordinary conditions, proper following distance must allow for a following driver to perceive and react to the lead vehicle. This is in addition to the brake response lag in the braking system.

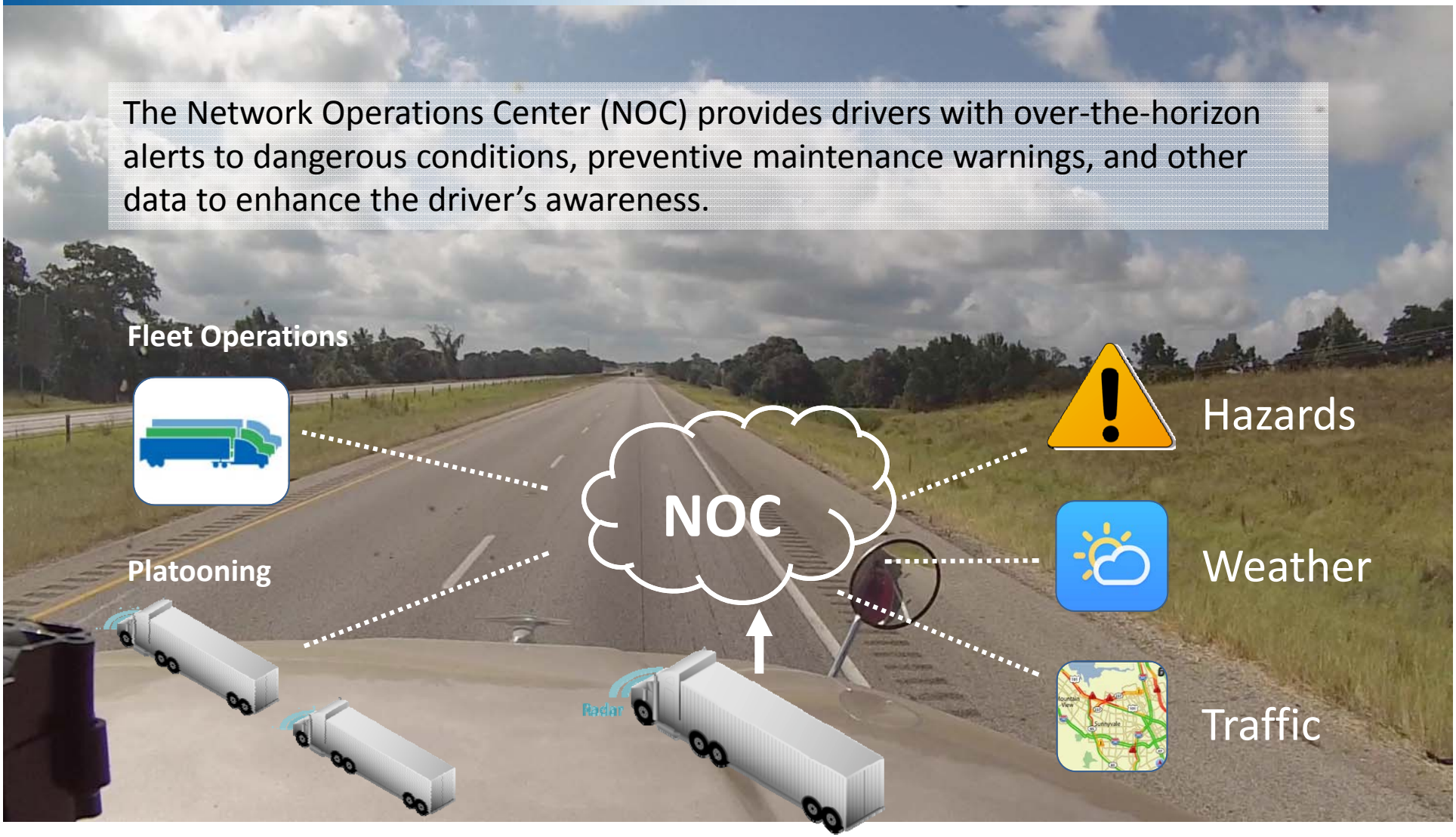
- With radar-based collision mitigation systems, driver perception and reaction are not necessary before the following truck brakes, but the following truck radar must detect the lead truck slowing before it can start to engage the following truck's brakes.

- A platooning system creates a near-instantaneous link, allowing a following truck's brakes to engage even *before* the lead truck begins to slow. This allows for a safe platooning following distance to be smaller than under ordinary conditions. The truck with the longer stopping distance is always put in the front position.



# Enhanced Awareness

The Network Operations Center (NOC) provides drivers with over-the-horizon alerts to dangerous conditions, preventive maintenance warnings, and other data to enhance the driver's awareness.



# Platooning Benefits

# Facts on the Ground

- US Freight Trucking: **$700 Billion in Revenues**
  - Fuel Cost: **$100+ Billion**
    - **33%+** Operating Costs
  - Accident Cost: **$90+ Billion**
  - Industry Net Profit: **3%**

- Preventing Accidents
- Saving Fuel
- Improving Decisions

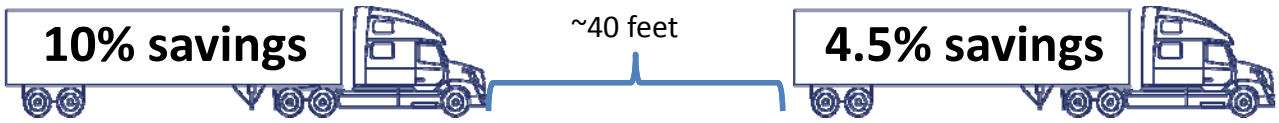
=

Enhanced
Fleet Economics
& Safety

*Platooning accelerates the payback period for collision mitigation and advanced safety technology*

# Platooning Benefits

In addition to **improving individual and paired truck safety all the time**, public benefits of platooning include:




- **Fuel savings/Range Extension** (Independent test, 7.5% avg for both trucks)
- **Emissions reduction** (Corresponding GHG & Criteria Pollutants)
- **High quality data generation** (for fleets and govt)
- **Increased infrastructure efficiency**
- **Economically viable** (Fleet Payback Period <1 year)
- **Potential low-speed applications** (Platoon Signal Priority)

# Partners & Engagement

# Government Engagement

**Federal** (USDOT: NHTSA, FMCSA)

- No federal limitations to platooning
- Two USDOT projects (Auburn Univ. & CalTrans/PATH) to demonstrate platooning, establish best practices, and create pathway to deployment
- More projects coming → encouraging progress

**States** (State DOTs)

- No numeric following distance limitation in majority of States: "reasonable and prudent" standard
- Working with growing number of States to hold trials via administrative approval or legislation

## Funded Projects with:

# Collaboration

- **Industry Standards & Best Practices:** ATA/TMC, SAE, etc.
- **AASHTO and CVSA:** dialogue, best practices, harmonization
- **Collaboration on Demonstrations**
  - UT (Nov'13), NV (May'14), MI (Sept'14), FL (private test) (Apr'15), CA (Nov'15), UT (Nov'15), TX (Dec'15)
  - Potential upcoming California demos
- **Setting stage for Fleet Trials in 2016**
  - Administrative approval: TX, NV, MI, AL, NM
  - Legislation passed or in process: UT, CA, FL, MO
  - High interest & discussions: AZ, IA, WI, AR, TN, OK, OR, WA, others

# Thank You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