

DAIMLER

Daimler Advanced Technologies

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Executive Manager, Advanced Safety Systems & Automated Driving



LEADING THE CHARGE

Automation



Electrification



Connectivity



Intuitive Mobility

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Intuitive Mobility

First Licensed Operation of an Automated Commercial Truck on an Open U.S. Public Highway



DTNA Announces **Series Production** of **SAE Level 2** Automated Features in **2019**



New Cascadia with Assurance 5.0 Delivers **SAE Level 2 Automation**



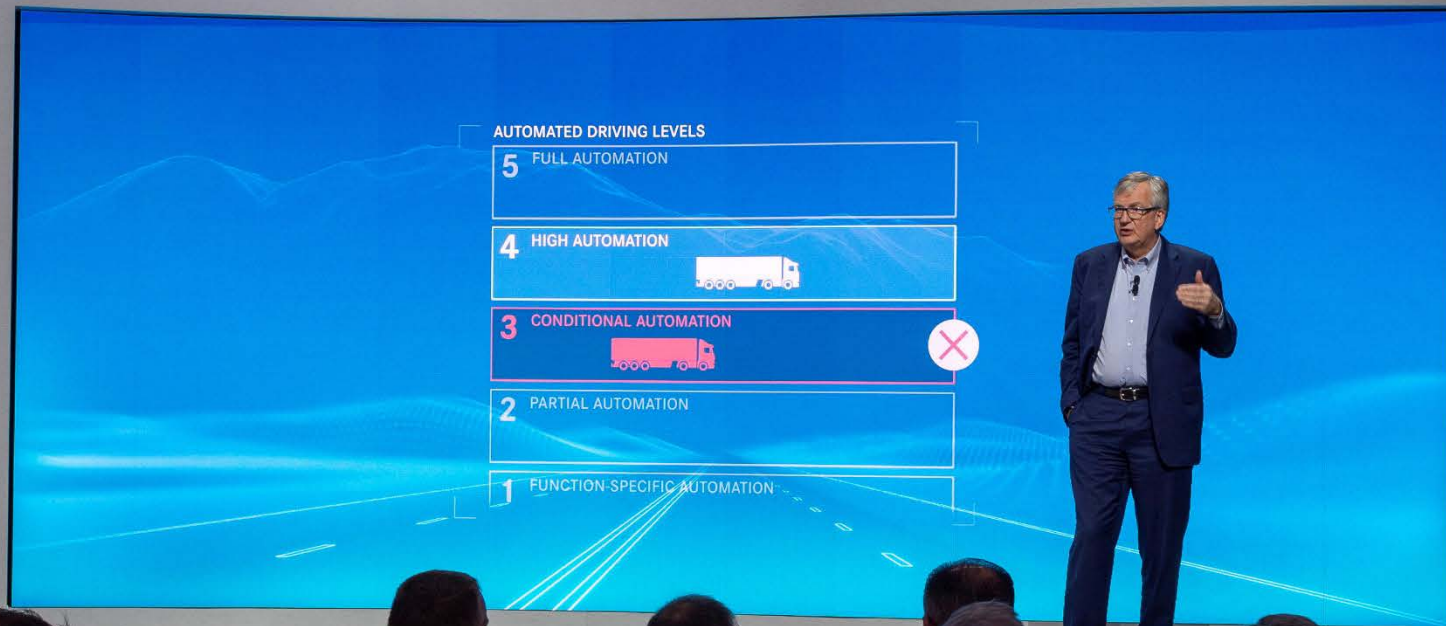
- Automated longitudinal control (ACC) + lateral control (LKA) = SAE level 2
- Considered an advanced driver assistance system (ADAS)
- Driver required to stay engaged by keeping their eyes on the road and their hands on the steering wheel

Safety First – DTNA’s Continual Pursuit of Improved Safety



Pursuit of Level 4 Automation Announced at CES

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Many Considerations in Building a Highly Automated Truck



Many Considerations in Building a Highly Automated Truck

**Reliability/
Uptime**

**Various
weather
conditions**

**Seamless
integration
into customer
process**

**Safety, safety
safety!**

**All
scenarios
incl. the
unknown**

Testing and Validation of Safety and Automated Technologies is in Our DNA



Automated Truck Research & Development Center in Portland

Center for automated driving pioneers

Global R&D network
US, Germany, India, ...

Global modular technology platform across brands

Automated Truck Research & Development Center

Synergies with Daimler car technology

Defining the future of transportation

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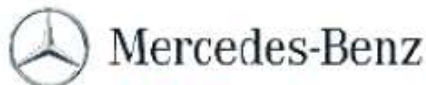
Intuitive Mobility

Daimler is the global leader in eMobility



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Daimler Trucks N.A.



Mercedes-Benz
Research & Development



Thomas Built Buses
Freightliner Custom Chassis

ACCUMOTIVE

Our own American Gigafactory



StoreDot

One example of our investments

Others:



Mercedes-Benz

MB Passenger Car



MB Trucks/EvoBus



MB Van (Sprinter/Metris)



ACCUMOTIVE

Our own Gigafactory

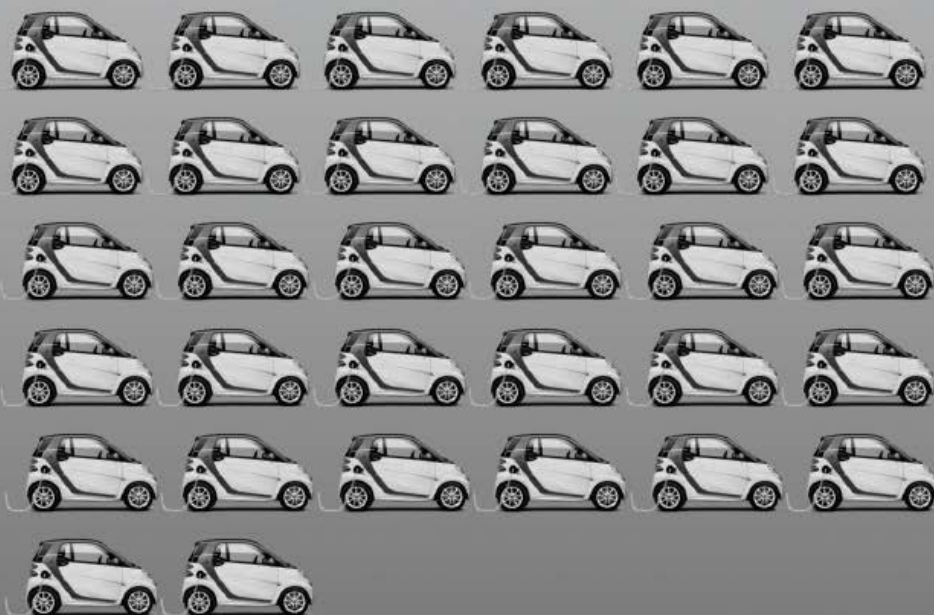


Mitsubishi Fuso
Bus & Trucks

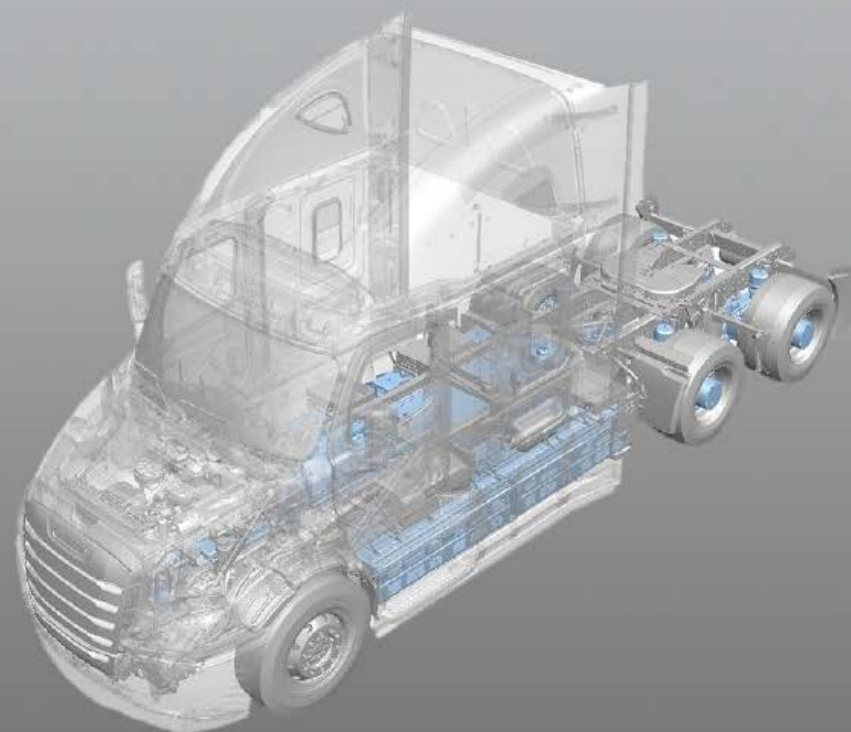


What does it take to power an electric truck?

FROM PASSENGER CARS TO HEAVY DUTY COMMERCIAL VEHICLES

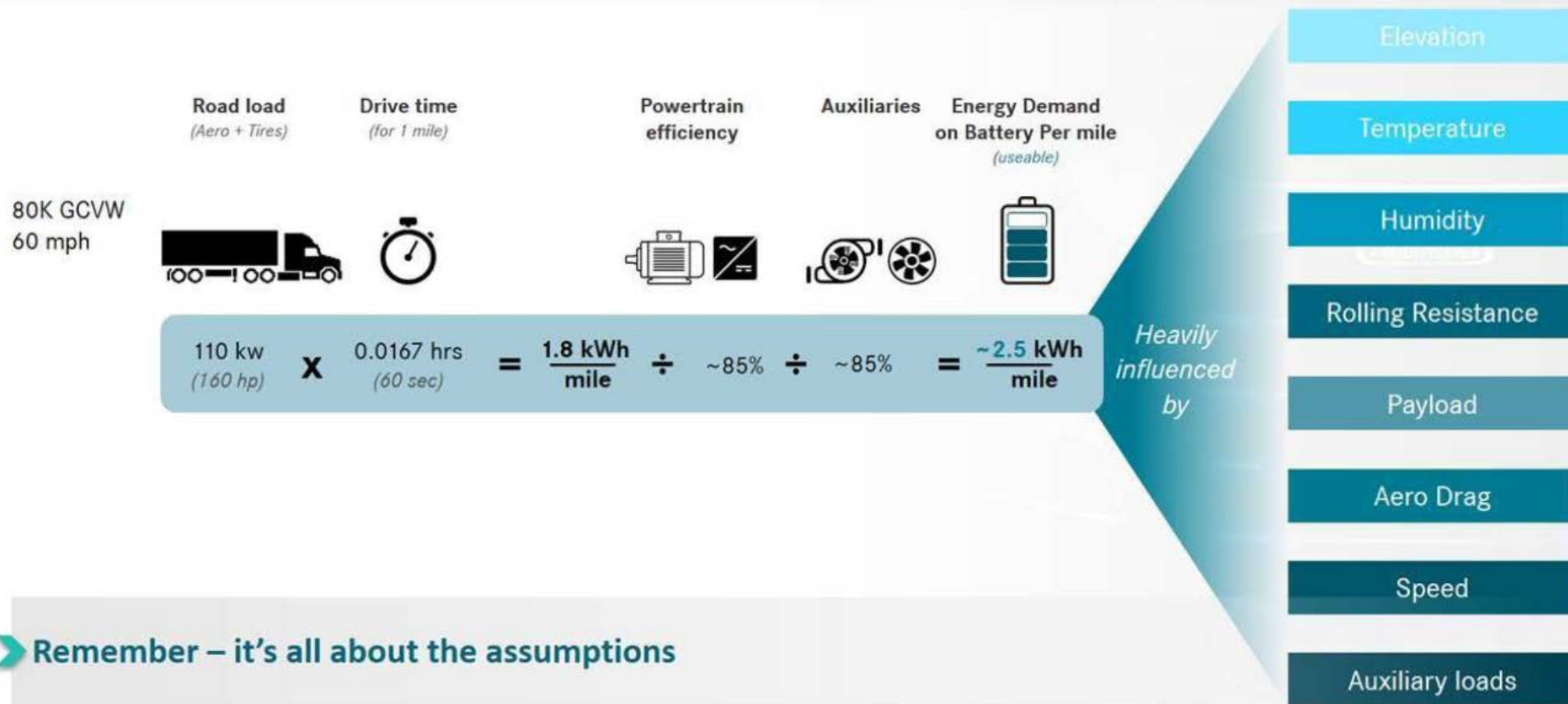


32 x 17.6kWh



550kWh

Electric range depends on many factors...

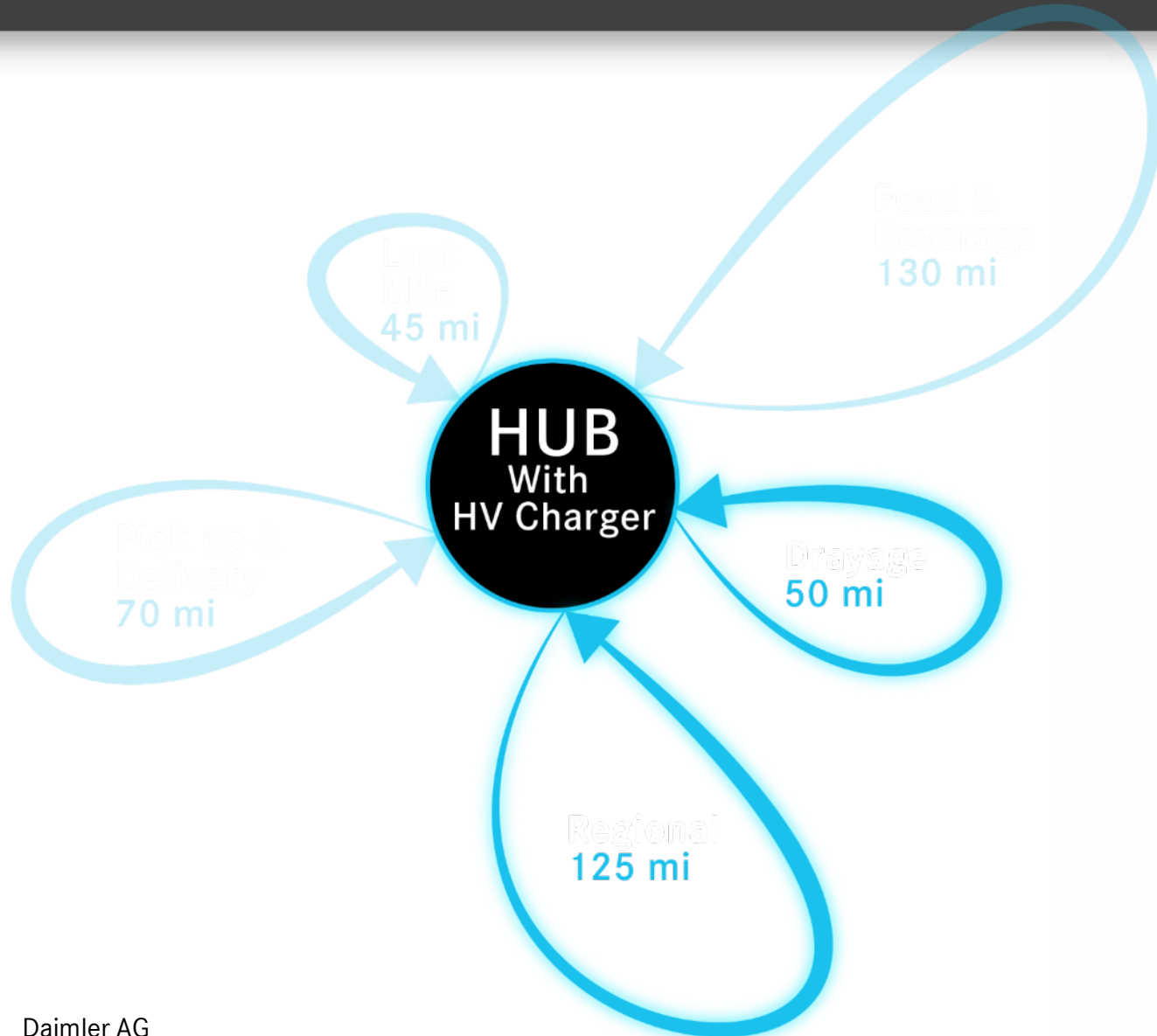


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Meet Daimler Trucks' electric vehicle line up in North America



Practical applications for electric trucks – dedicated and repeatable routes



PORT TO STAGING LOT
 PORT TO INTERMODAL TRANSFER

Dedicated route, consistent charger location, heavy-haul, predictable environment

Daily use:
 2-3 round trips to/from port
 Daily mileage < 150 miles

PICK UP AND DELIVERY

Dedicated route, consistent charger location

Daily use: 1 round trips from warehouse to multiple drop off points
 Daily mileage < 150 miles

Challenges to Commercial EV viability are related

Range

Travel distance per charge
Range variation due to temp, load, speed
Installed vs. usable battery capacity



RCO

E-truck cost vs diesel truck cost
Energy/maintenance cost
Residual value and battery lifetime
Incentives



Payload

Weight of e-truck vs diesel truck
(electric powertrain/batteries,
thermal systems, auxiliaries)



Charging

Infrastructure investments
Overall charge time
Max charging 0-80% vs. top charging 80-100%
AC vs. DC, connector, charge levels



LEADING THE CHARGE!

Proof of Concept

1x eCascadia & 1x eM2

June 2018



Strategically align regional/global Daimler brands from design to production



GAINING KNOWLEDGE

Co-creation of Innovation Fleet

Testing 30 eTrucks with our customers and learn together



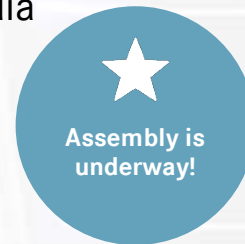
Q4 2018 – Q2 2019



20 eCascadia



10 eM2



SERIES PRODUCTION AND MARKET LEADERSHIP

Viable Customer Solutions

Scalable product for series production that can be sold at a fair price for DTNA and our customers



SOP 2021



eMobility ecosystem – it is more than just the truck

HV safety organization



Charging infrastructure



Customer use cases

Use Case	Vehicle Model	Key Features	Application
City 4x4	Mercedes-Benz Sprinter	Power windows, Power Mirrors	e-Canter
City 4x4	Mercedes-Benz Sprinter	Power windows, Power Mirrors	TAR Jouley
City 4x4	Mercedes-Benz Sprinter	Power windows, Power Mirrors	M2e / FCCC M141
City 4x4	Mercedes-Benz Sprinter	Power windows, Power Mirrors	Mercedes-Benz eSprinter



Regulatory & Incentives



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DETROIT™ Detroit Connect is DTNA's suite of connected vehicle services



Uptime:

Virtual Technician

*Expanded Faults – GHG17,
Transmission and Safety System*

Flash Over The Air

Remote Engine Parameter Change



Fuel Economy and Performance:

Connect Fuel Performance Analytics

Fleet and Trip Fuel Analytics

Fuel Efficiency Driver Scoring

Trip Reporting



Safety:

Connect Safety Event Reporting

Vehicle and Fleet Scoring

Safety Event Detail Viewer

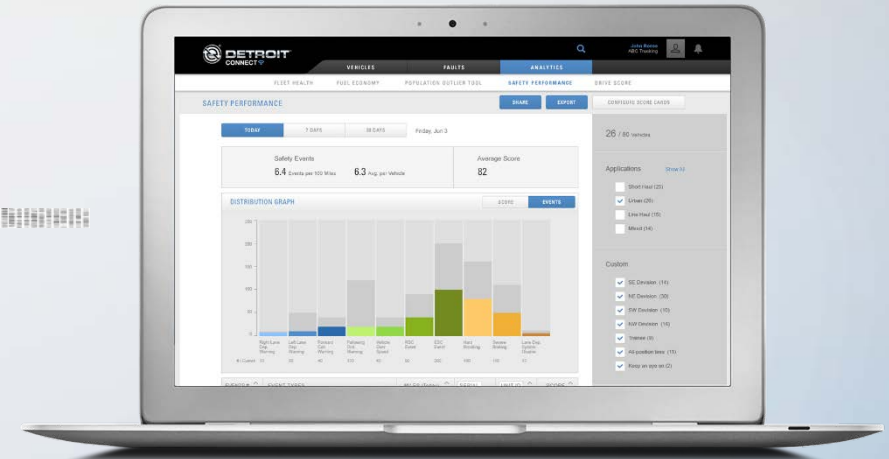
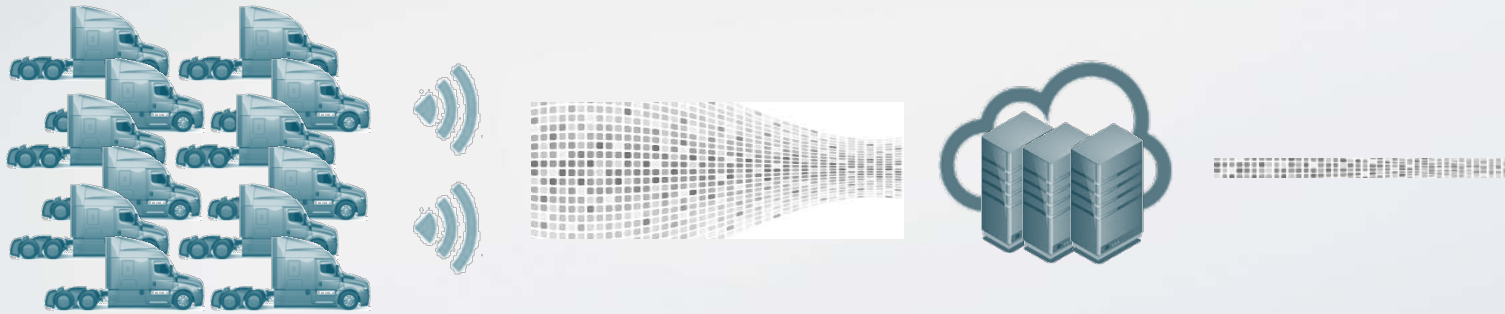
Detroit Connect Web Portal and Mobile App

One Stop Shop for ALL DTNA Connected Vehicle Services





Detroit Connect Analytics



Fuel Performance Analytics

- Single Vehicle Trip Reporting
- Fleet Level Analytics
- Fuel Efficiency Driver Scoring



Safety Event Reporting

- Vehicle and Fleet Scoring
- Safety Event Detail Viewer

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Thank You!

