

# Connected Vehicle Ecosystem

The Future is Now





## Topics

- Background
- OReGO
- ITS
- Governance

# CVE Background

# CVE

New technologies – new way to pay

New  
transportation  
needs –  
technology  
enabling  
connectivity

More efficient  
vehicles in all  
classes – light,  
medium &  
heavy duty

Declining fuel  
tax revenues  
& new  
demands on  
existing  
funding





# Connected Vehicle Ecosystem



IoT/Edge –  
connected  
devices,  
systems &  
facilities

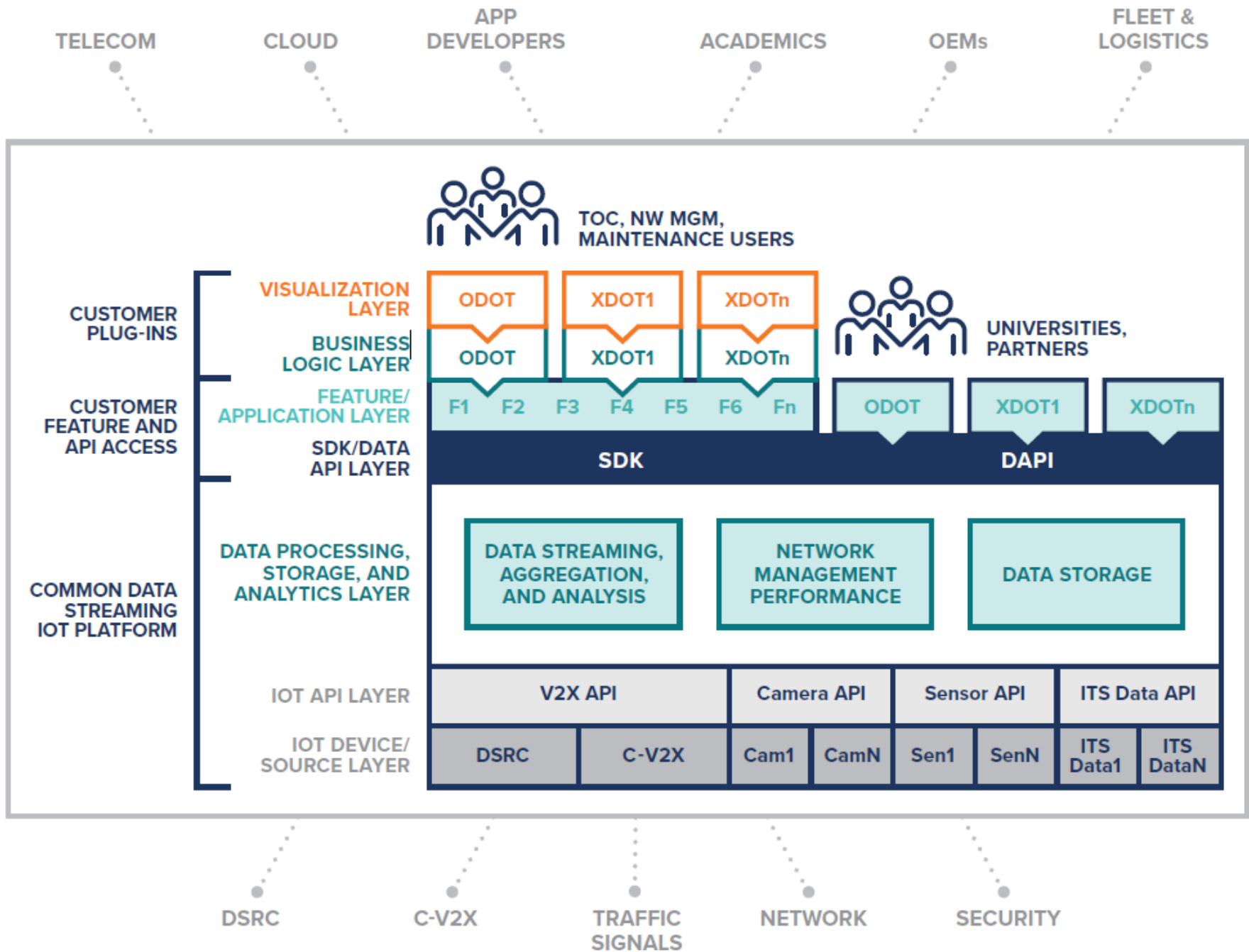


Cloud Analytics  
– data  
processing,  
analytics &  
storage



Open Ecosystem –  
open  
development  
environment for 3<sup>rd</sup>  
party partners to  
deliver services &  
apps





# The Network Effect

Value of an asset increases with the number of people connected to it





# Results: “Big data”

Definition: large, diverse sets of information that grow at ever-increasing rates. It encompasses

- the volume of information,
- the velocity or speed at which it is created and collected, and
- the variety or scope of the **data** points being covered

*What is needed?*

*When?*

*By whom?*



CVE

# OReGO – Oregon's Road Usage Charge Program



# Oregon's Road User Fee Task Force

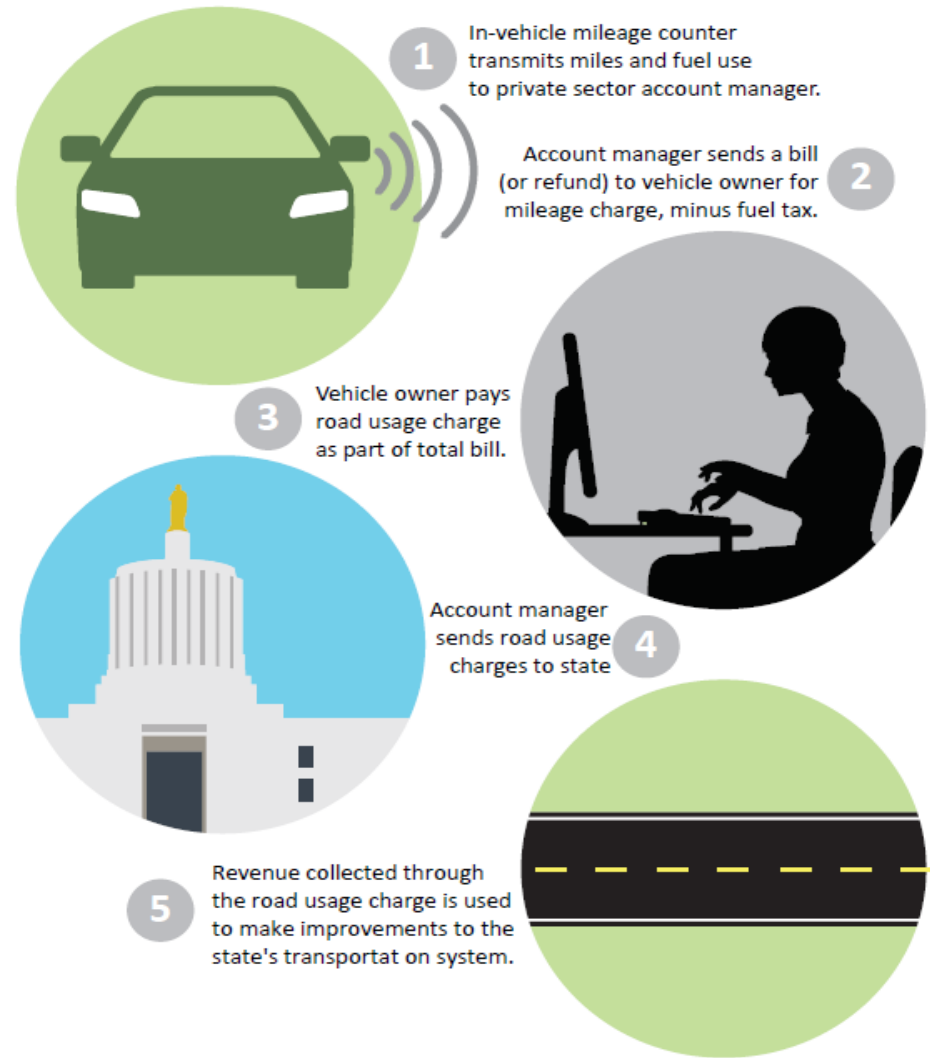
## Legislative Mandate

“Develop a design for revenue collection for Oregon’s roads and highways that will replace the current system for revenue collection.”

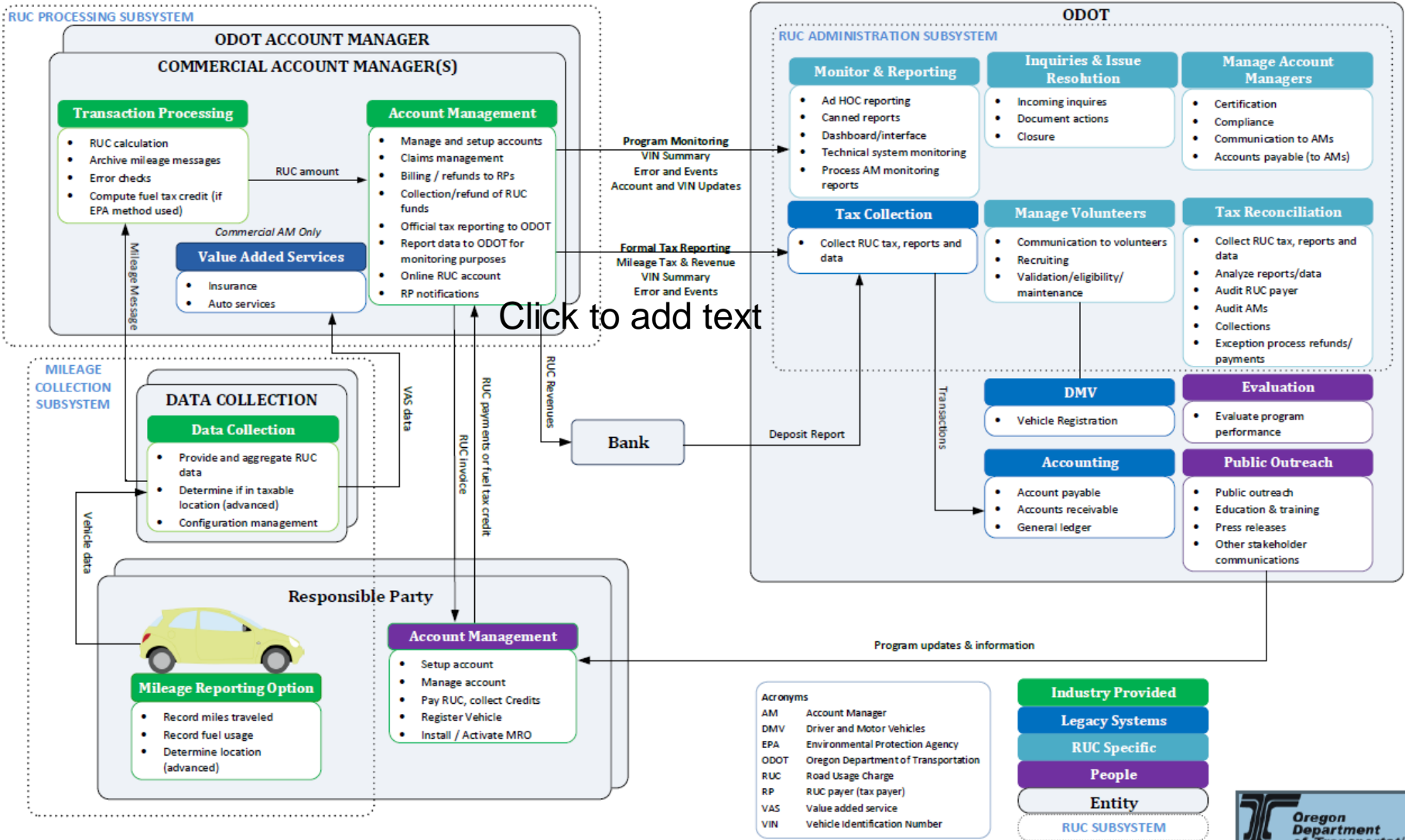
# How it works now

Other viable options  
(not in production)

- Use of OEM telematics data
- Manual reporting option
- Validation of odometer reading through odometer image capture

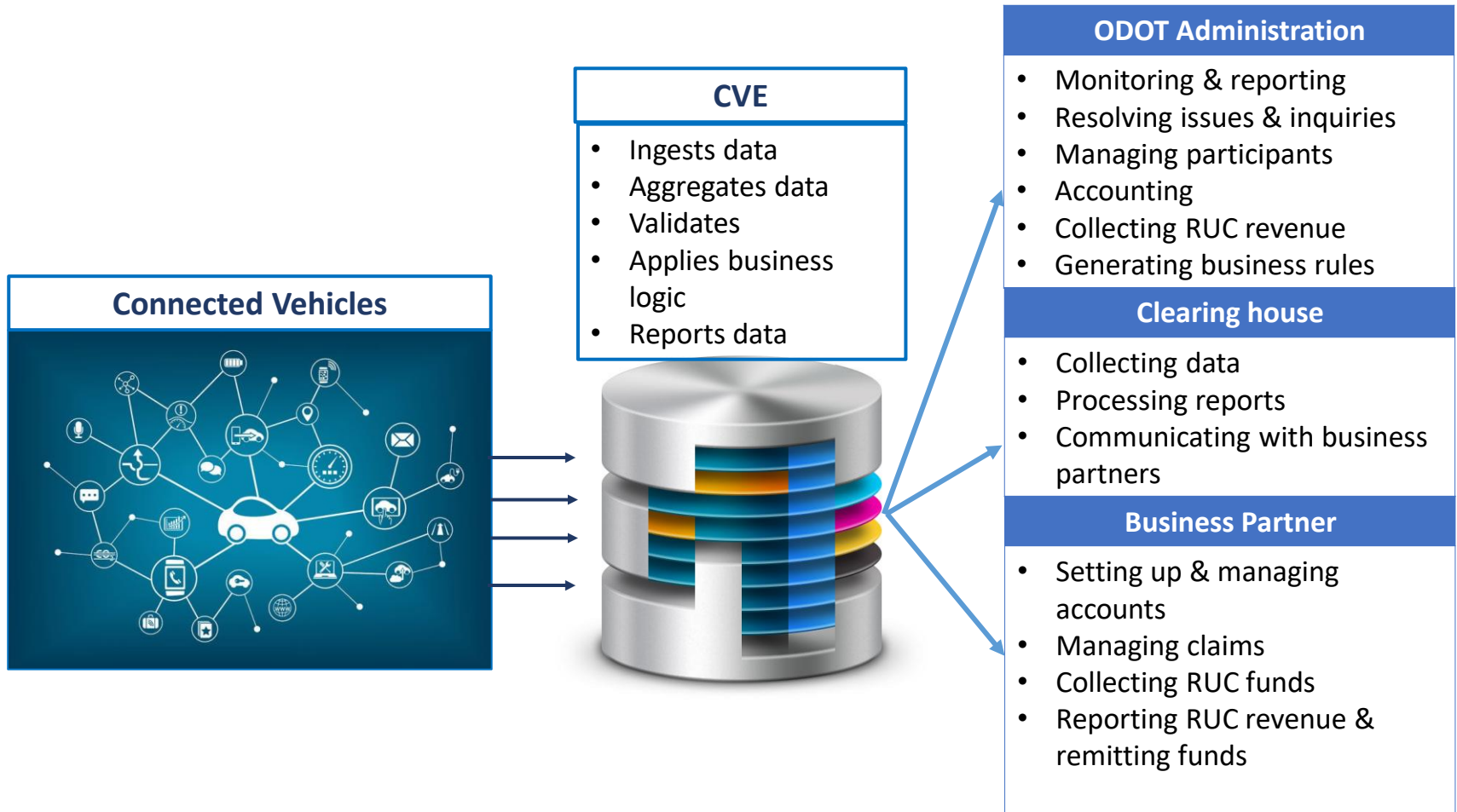


# RUC Architecture



Click to add text

# CVE – RUC application



CVE

# Intelligent Transportation Systems

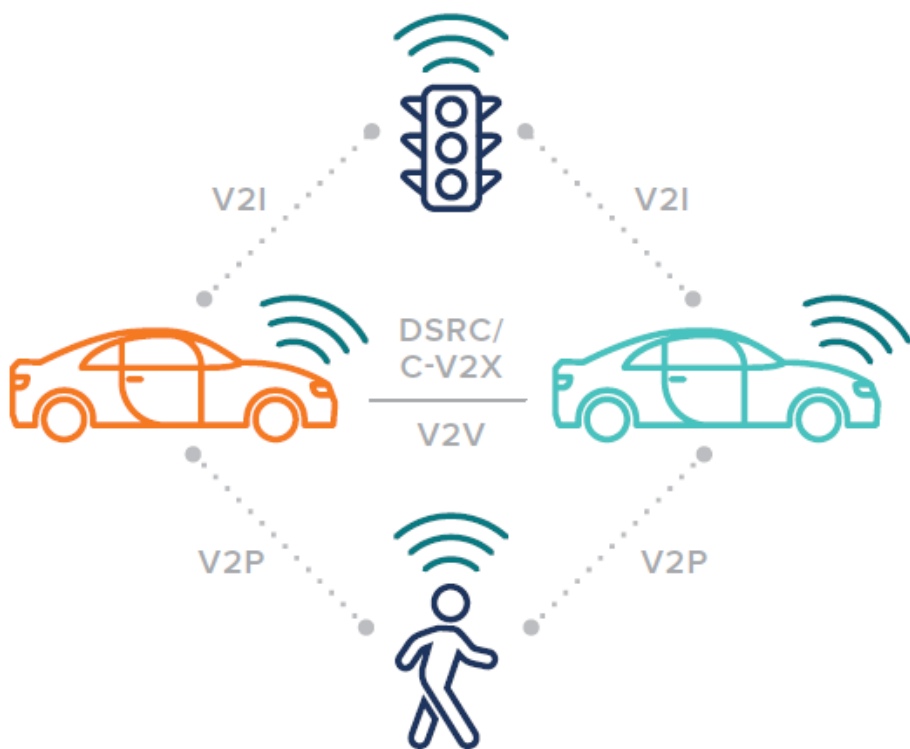




# Connected vehicle ecosystem

Enabling V2I, I2V, V2V, and V2X

## V2X VEHICLE-TO-EVERYTHING



### DIRECT COMMUNICATIONS

- USES DSRC/C-V2X
- OPERATES IN THE ITS BAND (5.9 GHz)

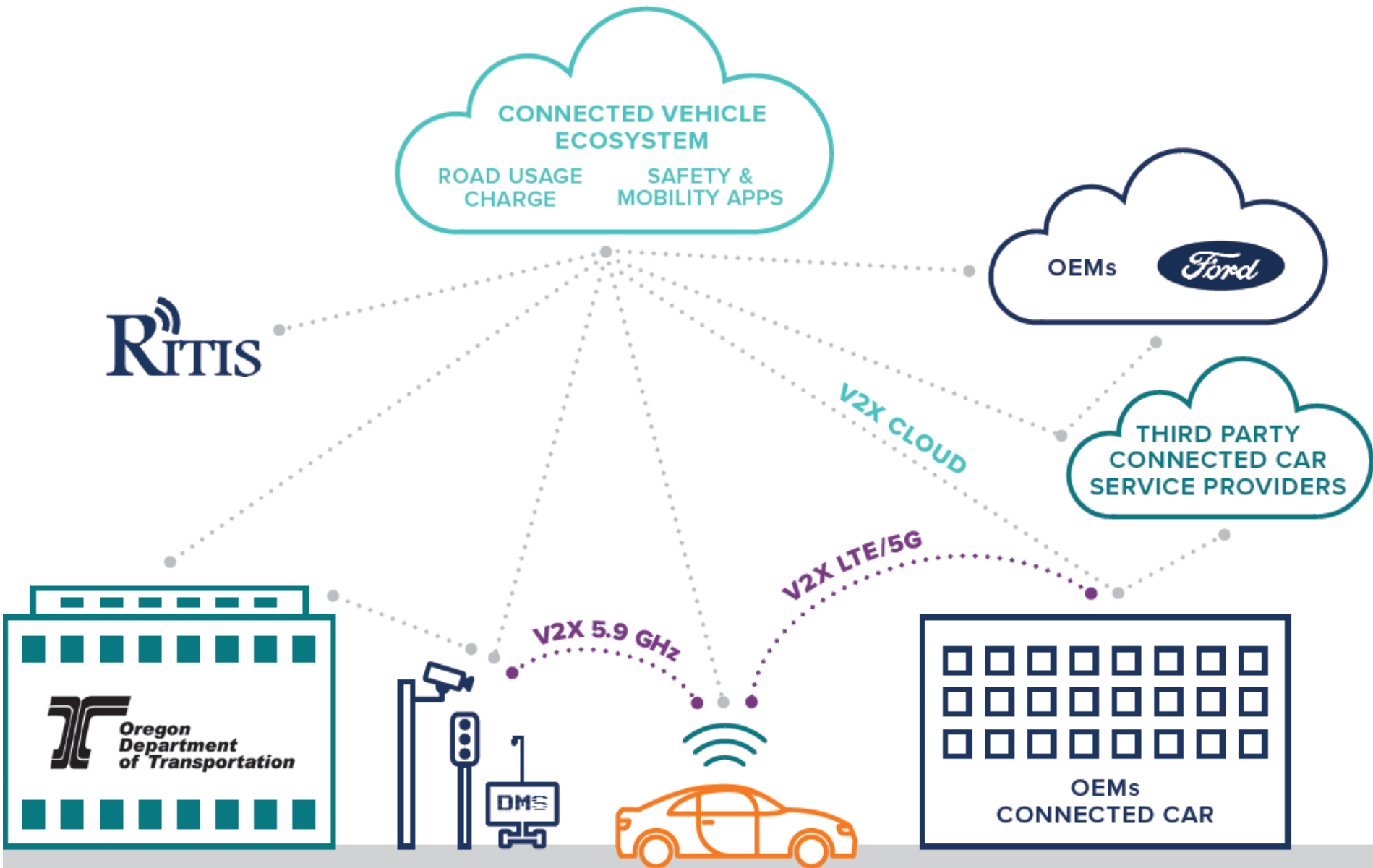
## V2N VEHICLE-TO-NETWORK



### NETWORK COMMUNICATIONS

- LTE/5G FOR V2N
- OPERATES IN LICENSED CELLULAR SPECTRUM AND OVER THE INTERNET

# V2X Data Platform



# Possible ITS Applications

Improving safety & mobility



Weather incident reporting

Curve warning

Connected traffic signals



# Examples – CDOT & UDOT



CDOT

90 miles of I-70

Improve safety &  
mobility; reduce GHG  
\$70 million over 5 years

UDOT

Improve safety &  
mobility  
\$45 million over 5 years

CVE  
Governance

# Oversight

Enterprise  
Information  
Services

Road Usage  
Charge  
Steering Team

CVE Leadership  
Team





# Enterprise Information Services

## Governance Framework

- Ensure accountability across state
- Work with assigned Strategic Technology Officer

The background of the slide features a city skyline at sunset, with a network of white lines and circular nodes overlaid on the image. The sun is low on the horizon, casting a warm glow over the city.

# Road Usage Charge Steering Team

## Governance Framework

- Advise on policies
- Define roadmap for RUC development efforts





# CVE Leadership Team

## Governance Framework

- Ensure coordination between ITS and RUC project teams
- Work with consultant & CVE provider