

## vRSU Cloud Solution

13 Oct 2022



# V2X Products

7 years of experience in V2X industry with projects including:

- RSU supplier to:
  - Ohio Department of Transportation
  - Georgia Department of Transportation
  - Michigan Department of Transportation
  - Macomb County Department of Roads
- OBU supplier to
  - New York City Department of Transportation - [https://www.its.dot.gov/pilots/pilots\\_nycdot.htm](https://www.its.dot.gov/pilots/pilots_nycdot.htm)
  - Ann Arbor Connected Vehicle Test Environment (AACVTE)- Managed by University of Michigan Transportation Research Institute (UMTRI)- <https://aacvte.umtri.umich.edu/>
- Installations including integration with school and transit buses, light and heavy-duty trucks, cars, snowplows and emergency vehicles



# Connected Intersection

## 5G (or) 4G LTE

**TMC – Traffic Management Center**

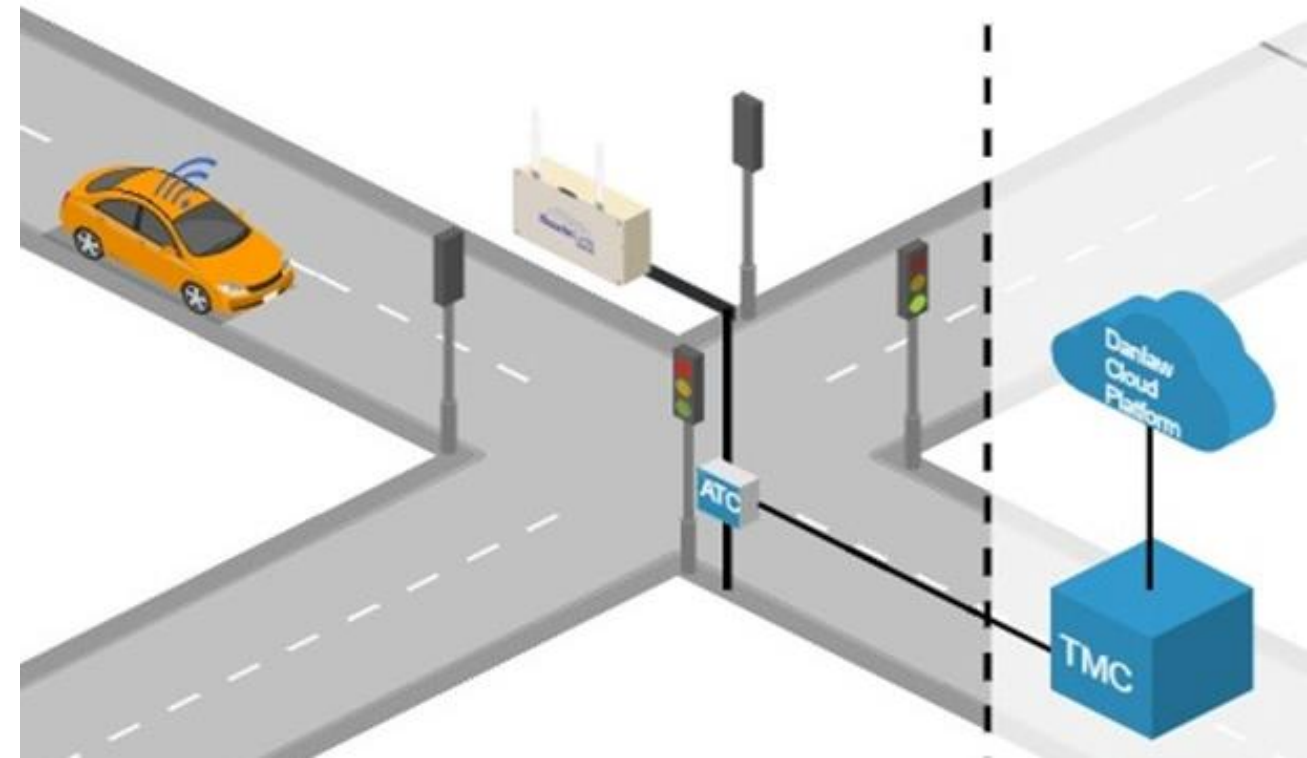
**ATC – Advanced Traffic Controller**

**RSU – Roadside Unit**

**MAP – Intersection Geometry Message**

**SPaT – Signal Phase and Timing Message**

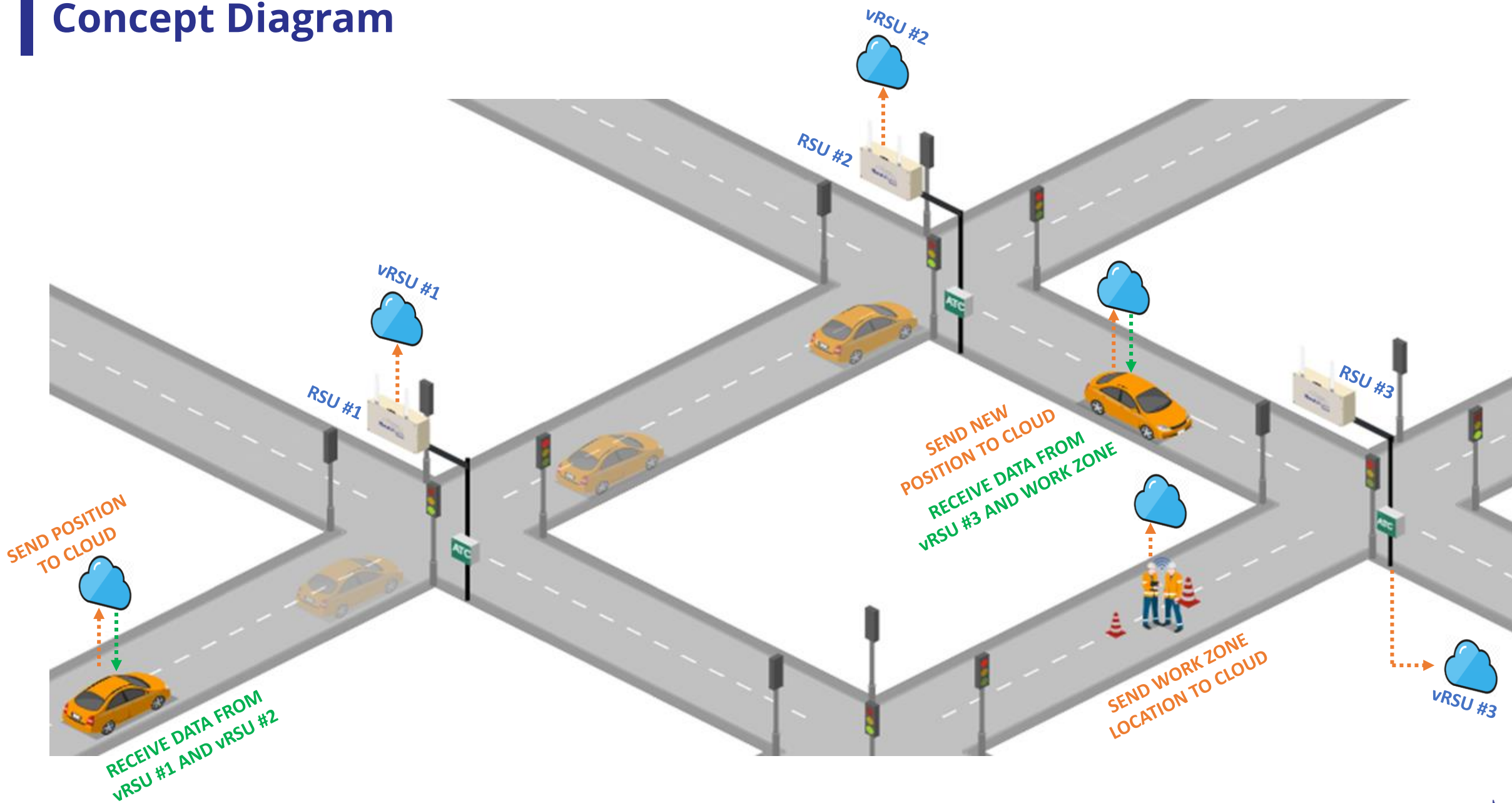
- TMC configures ATC with intersection MAP and SPaT
- ATC communicates real time SPaT to RSU
- RSU communicates SPaT to the Cloud through the TMC
- Vehicle sends its location to the Cloud (over 5G or 4G LTE)
- Cloud geo-fences relevant RSUs based on Vehicle Location
- Cloud forwards MAP and SPaT Vehicle (over 5G or 4G LTE)



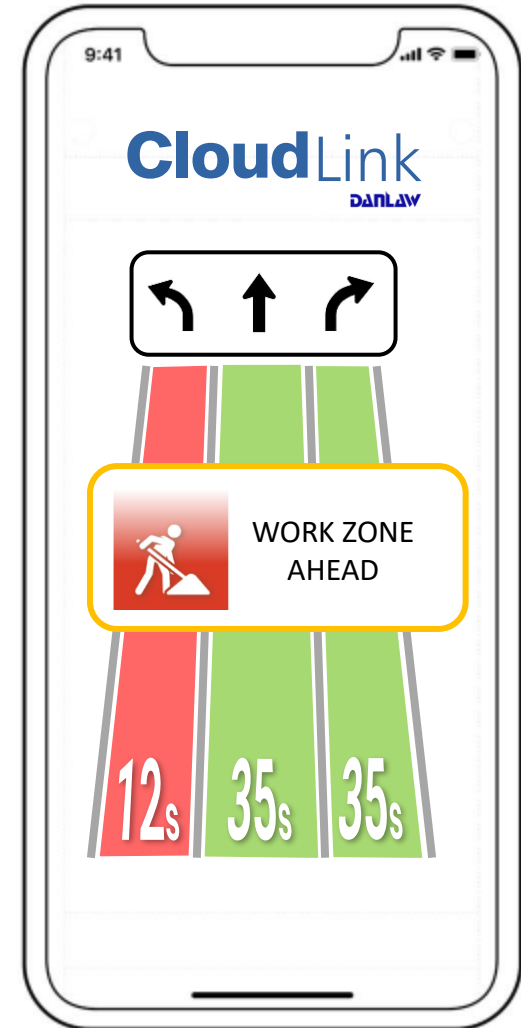
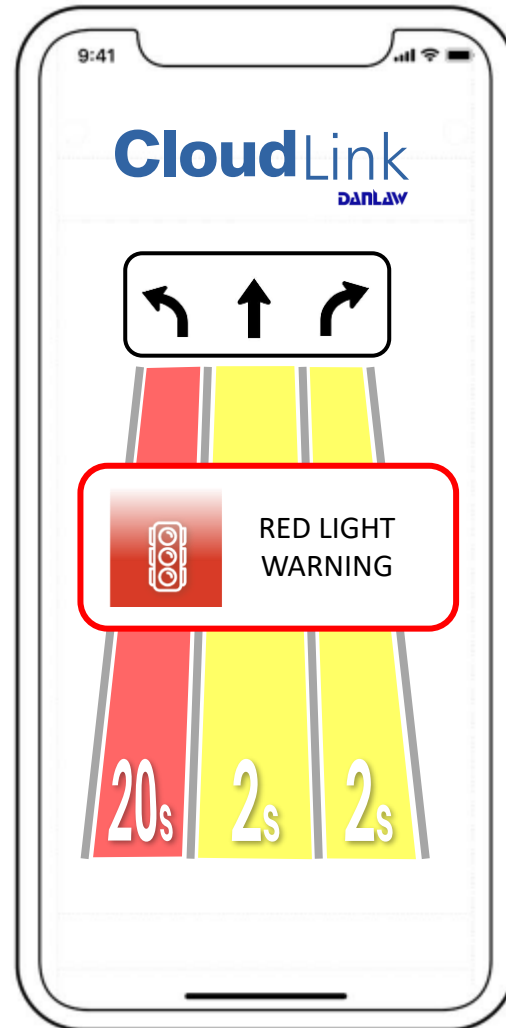
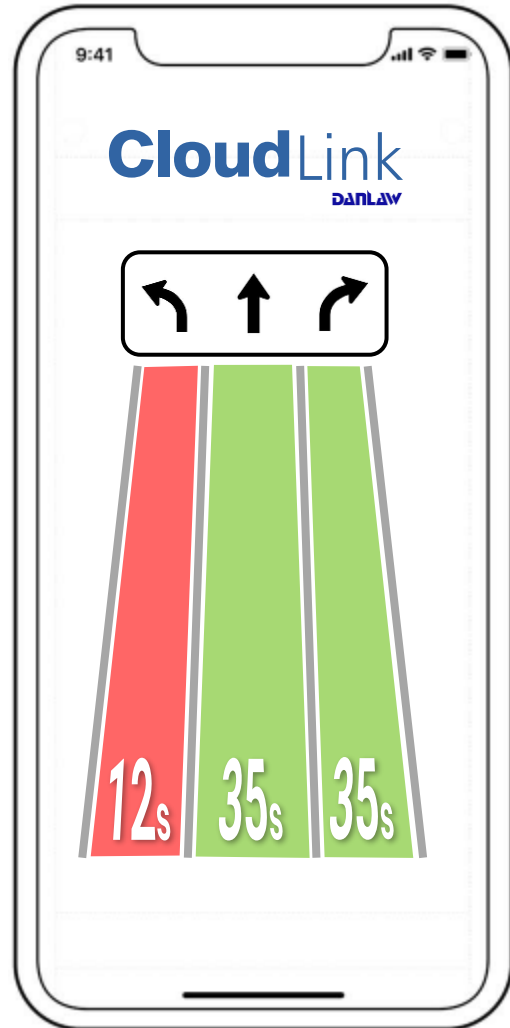
# Goals

- 1) Platform should be [able to scale up efficiently](#) and handle high numbers of RoadSideClients and UserClients (USA 300k intersections and 250M vehicles)
- 2) Data delivery with [Low latency](#) to vehicles (i.e. SPaT, others)
- 3) Data deposit and Data retrieval Communication protocol to be [standardized](#) for interoperability with other platforms or vehicle devices
- 4) Data [message format](#) to be developed in line to [existing V2X standards](#) (J2735) where possible
- 5) Flexibility to support various vehicle devices (OBU, TCU, Datalogger, Pedestrian with Cell Phone, etc.)

# Concept Diagram



# DANLAW Phone App Screen





## Coming Soon in Macomb County

- 300 Danlaw RSUs already installed and functional in Macomb
- PILOT vRSU Cloud Project is going to be deployed in Macomb County

