



Gefördert durch:



Bundesministerium
für Digitales
und Verkehr

aufgrund eines Beschlusses
des Deutschen Bundestages

Korridor für neue Mobilität Aachen – Düsseldorf

Testfeldaufbau zur Entwicklung und Erprobung
automatisierter Mobilität

29.03.2022

Laurent Klöcker, M.Sc.

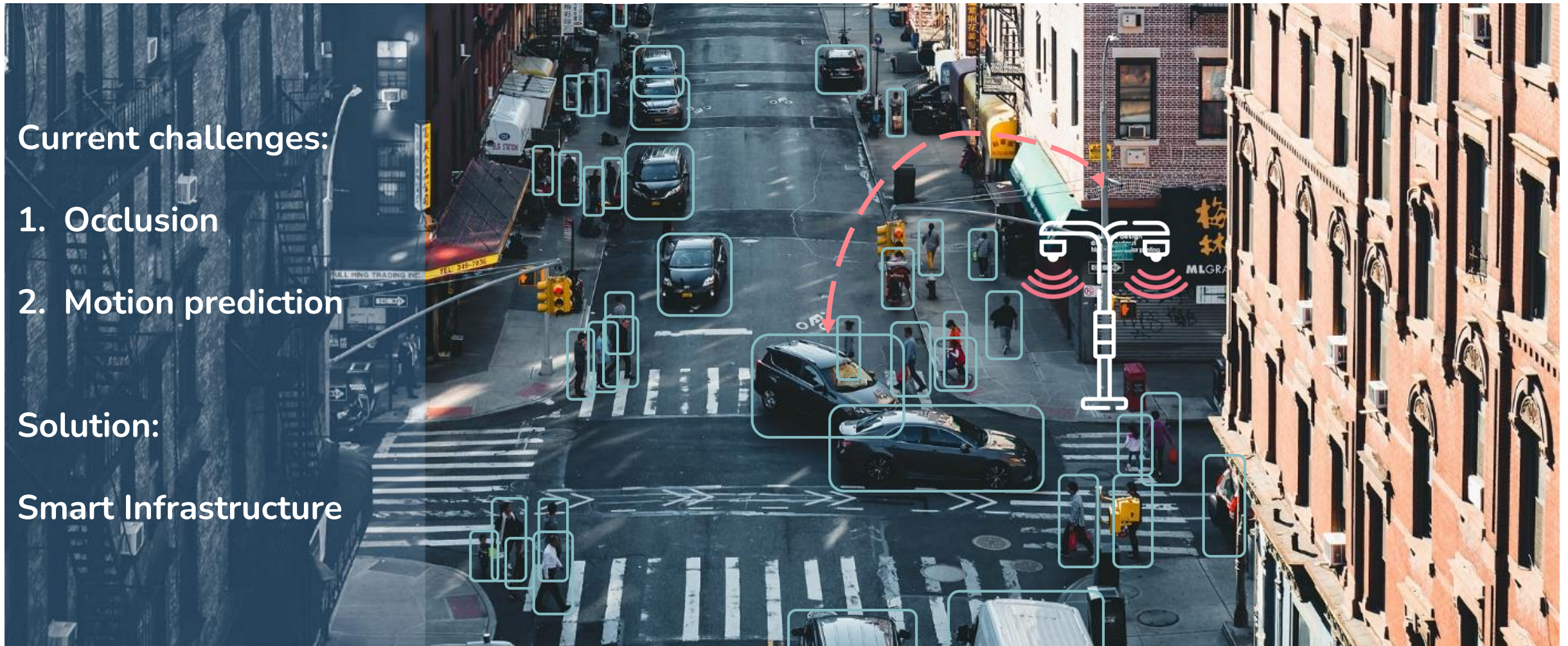


Current challenges:

1. Occlusion
2. Motion prediction



Motivation



Key Facts



Supported by:



on the basis of a decision
by the German Bundestag

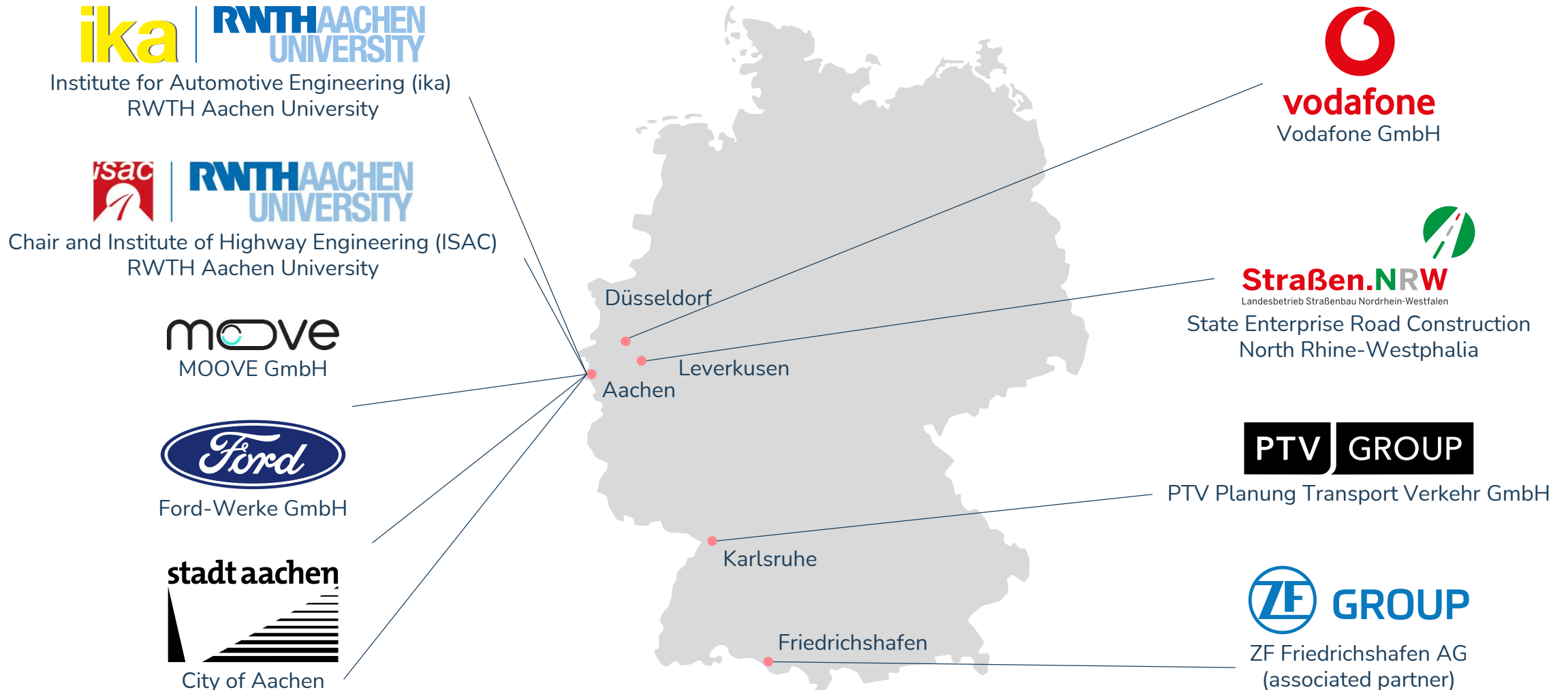
Corridor for New Mobility Aachen - Düsseldorf

Total Volume: 11.11 million €

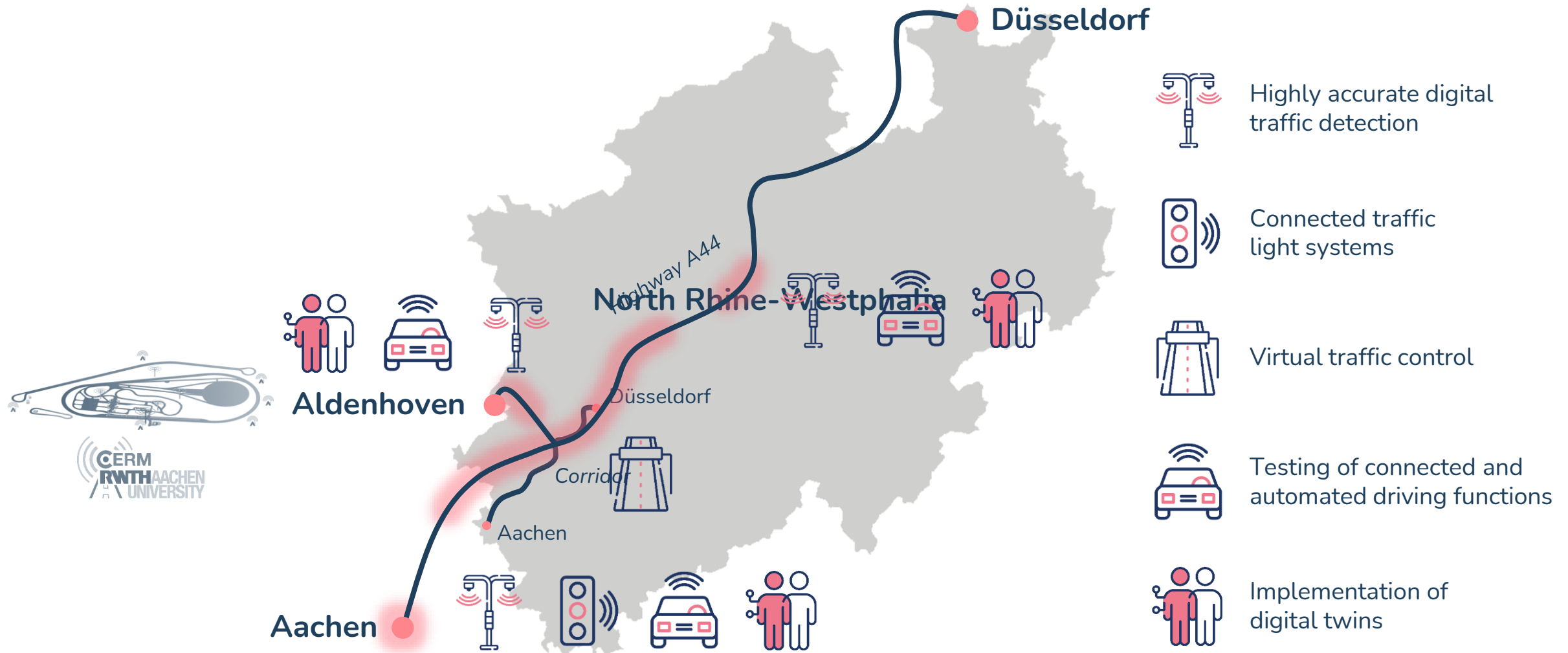
Funding: 9.67 million € (BMDV)

Duration: January 2020 – March 2022

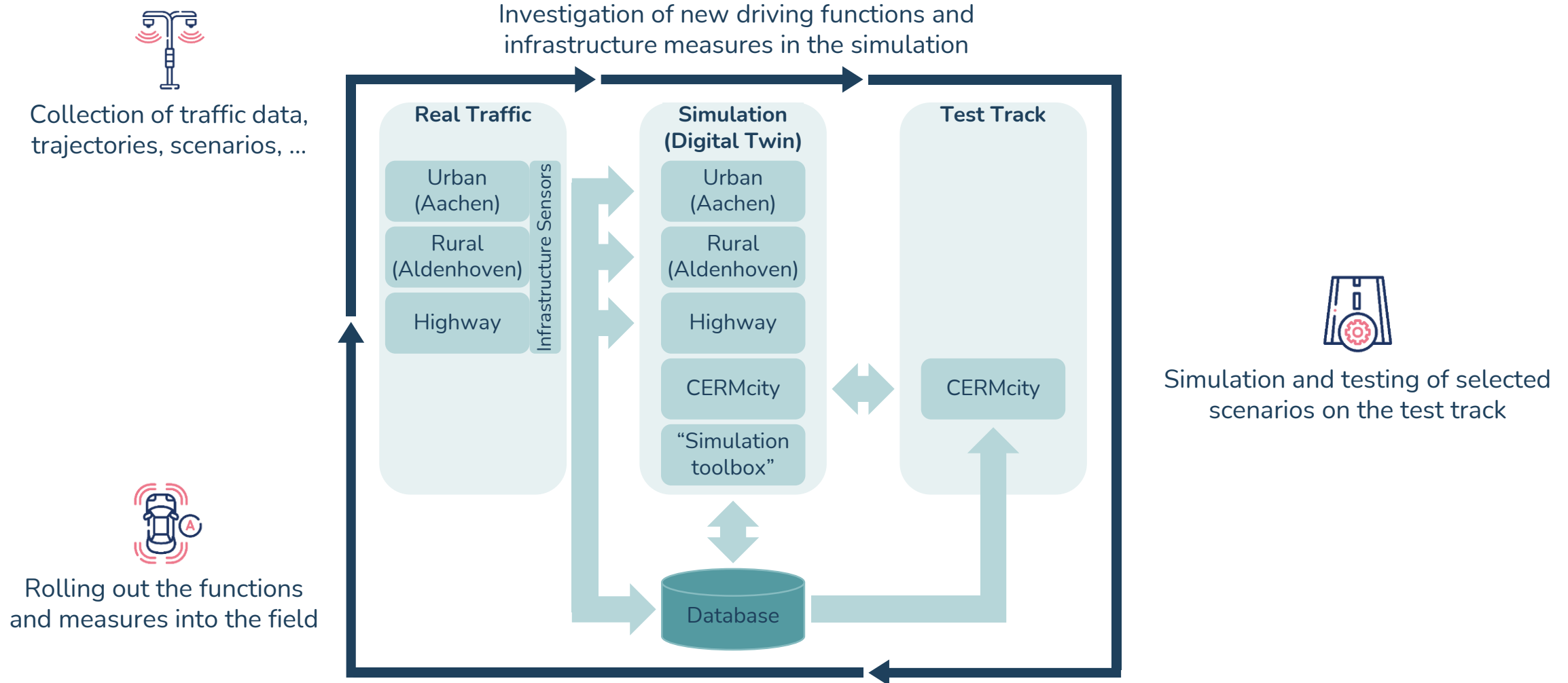
Project Partners



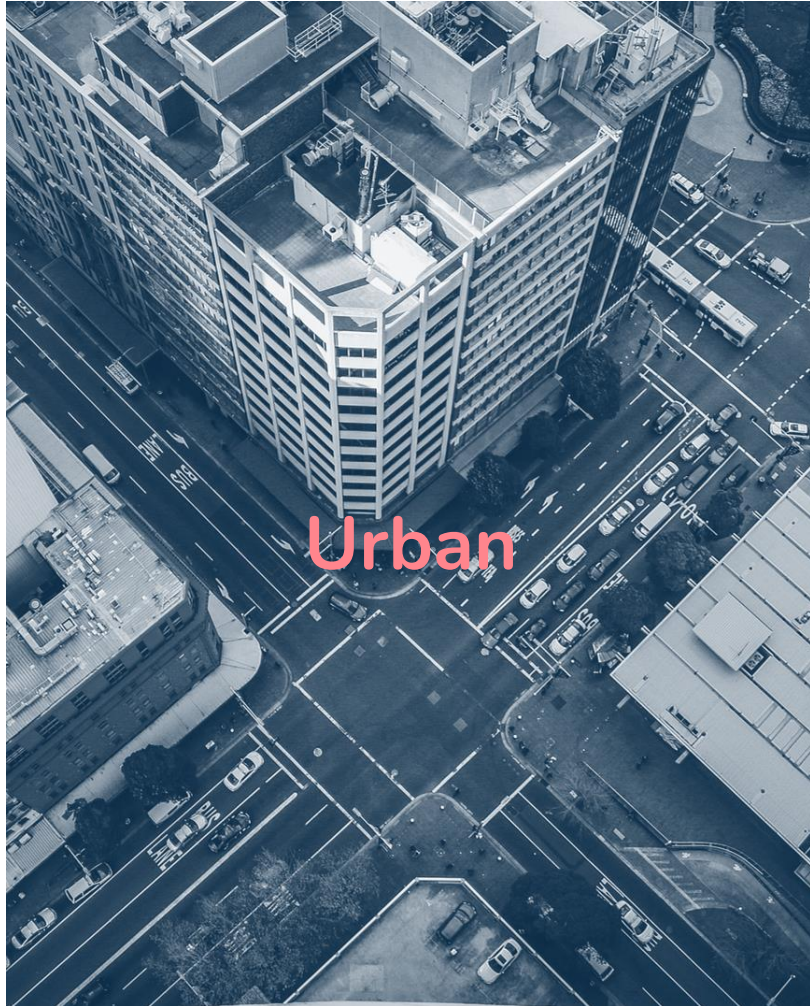
Overall Objective of the Project



Overall Objective of the Project



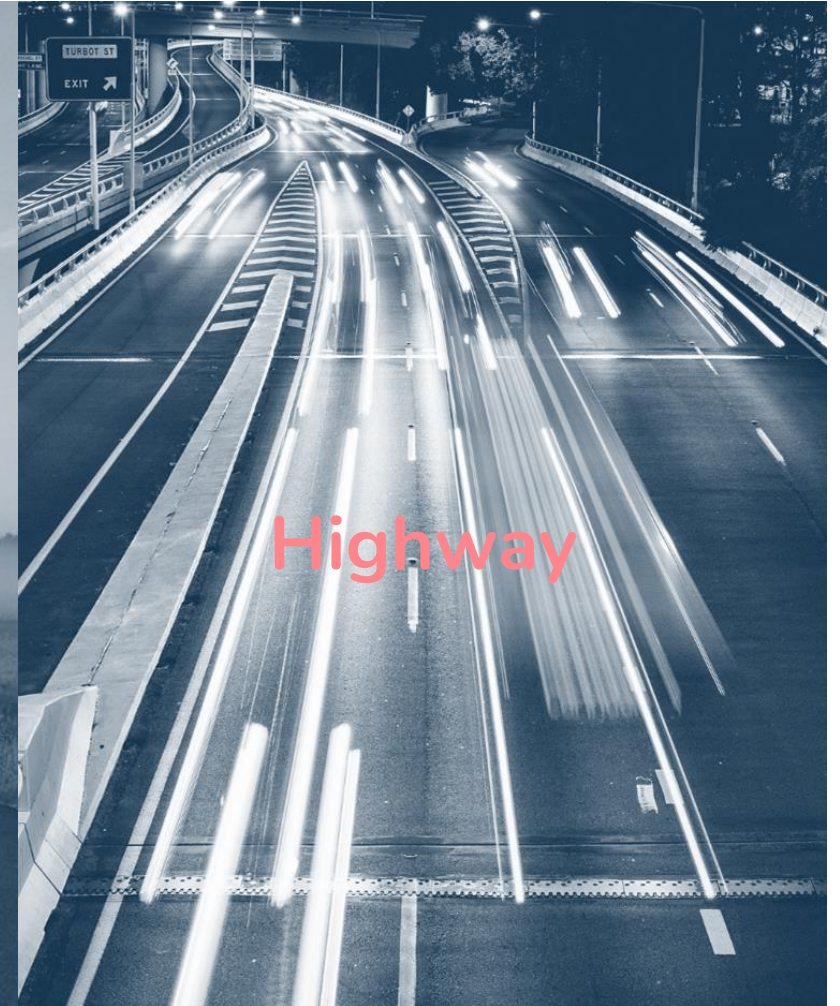
Test Fields for Automated and Connected Mobility



Urban

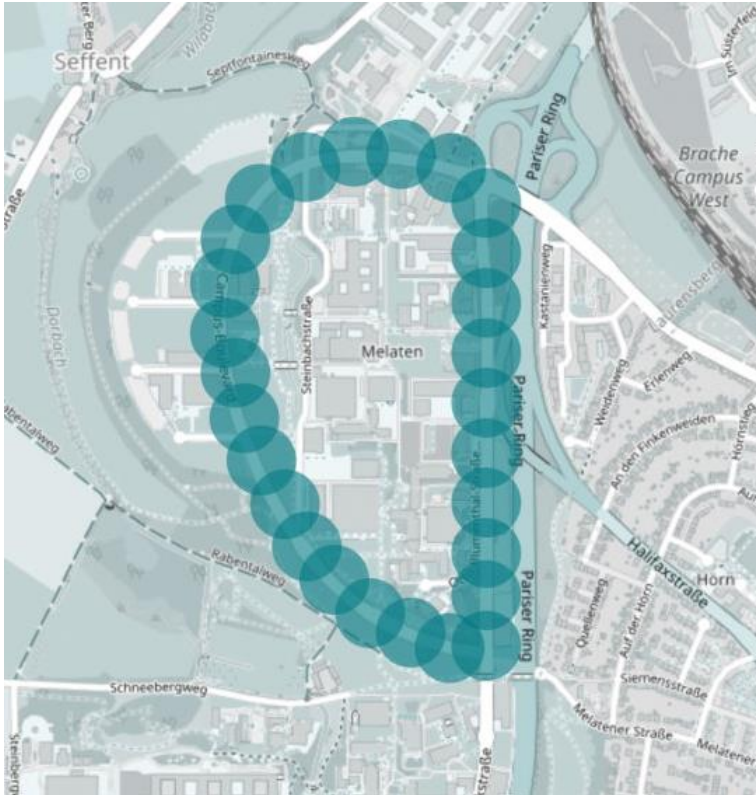


Rural

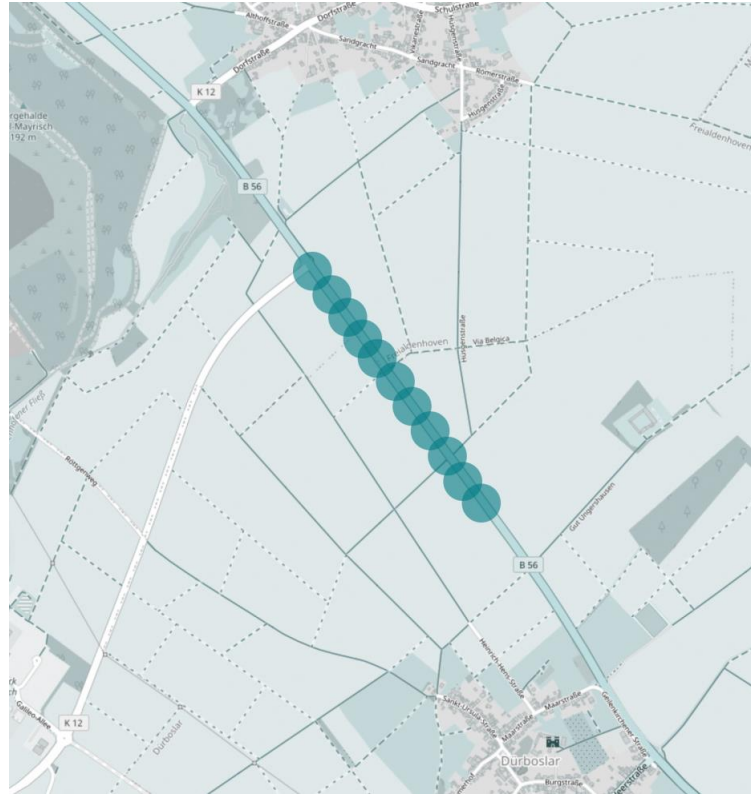


Highway

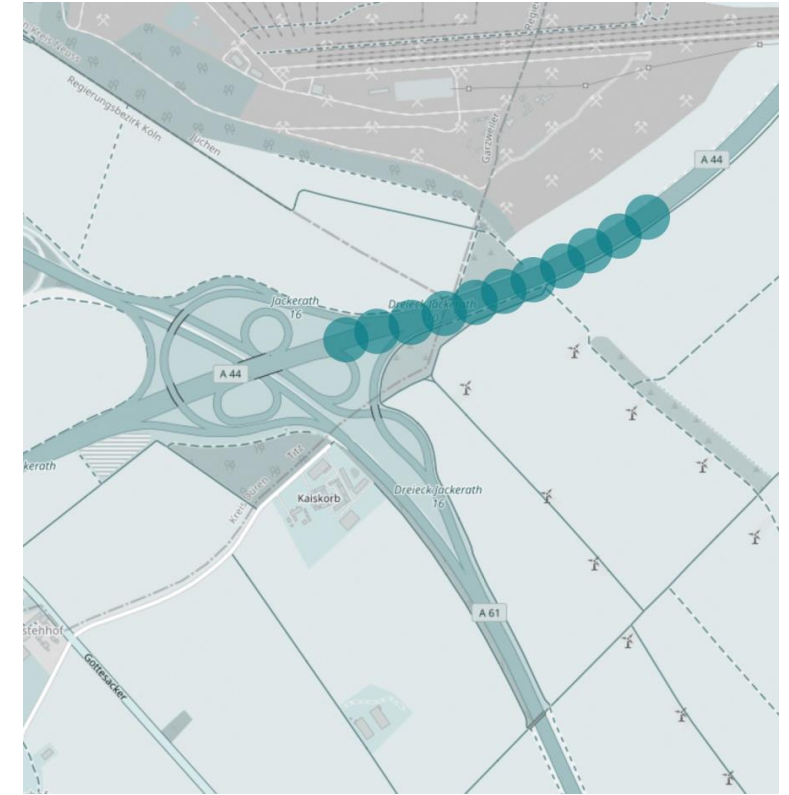
Test Fields for Automated and Connected Mobility



Urban
Campus Melaten, Aachen
2.4 km, 46 Road Side Units



Rural
B 56, Aldenhoven
1 km, 11 Road Side Units



Highway
A 44, Jackerath
1 km, 11 Road Side Units

Test Fields for Automated and Connected Mobility



Urban
Campus Melaten, Aachen
2.4 km, 46 Road Side Units

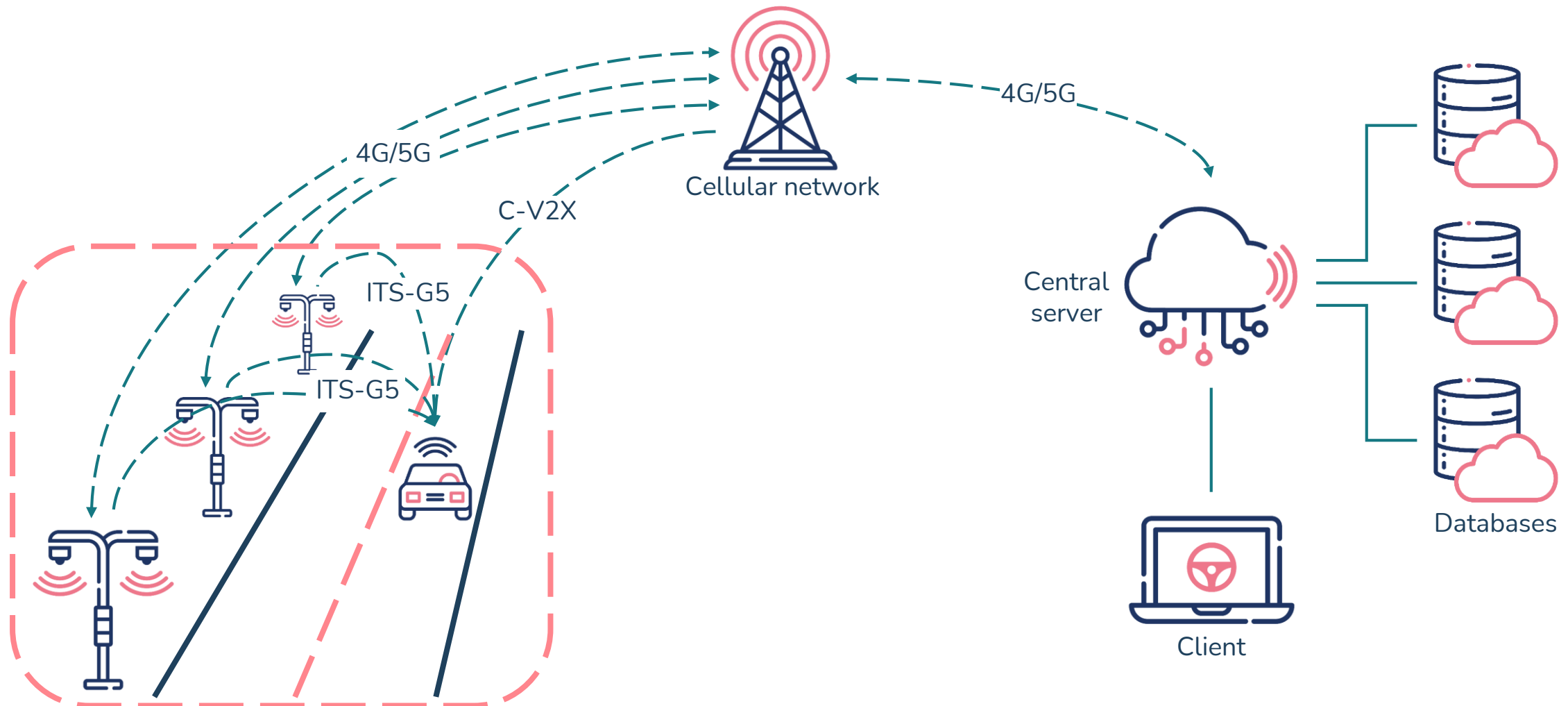


Rural
B 56, Aldenhoven
1 km, 11 Road Side Units

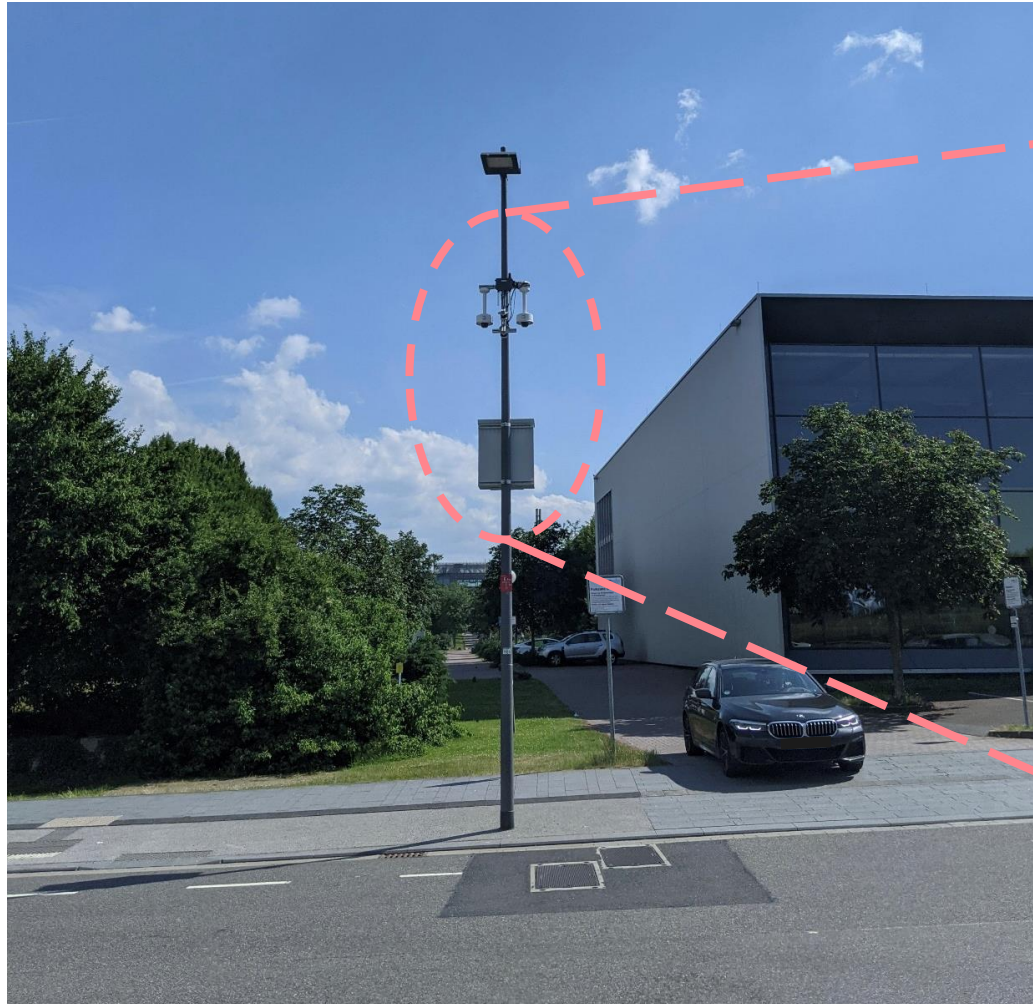


Highway
A 44, Jackerath
1 km, 11 Road Side Units

Traffic Detection Concept



Stationary Smart Roadside Infrastructure Sensors



V2X road side unit
(ITS-G5/802.11p)



2 LiDAR sensors
(128 vertical layers)



2 Camera sensors
(4K resolution)



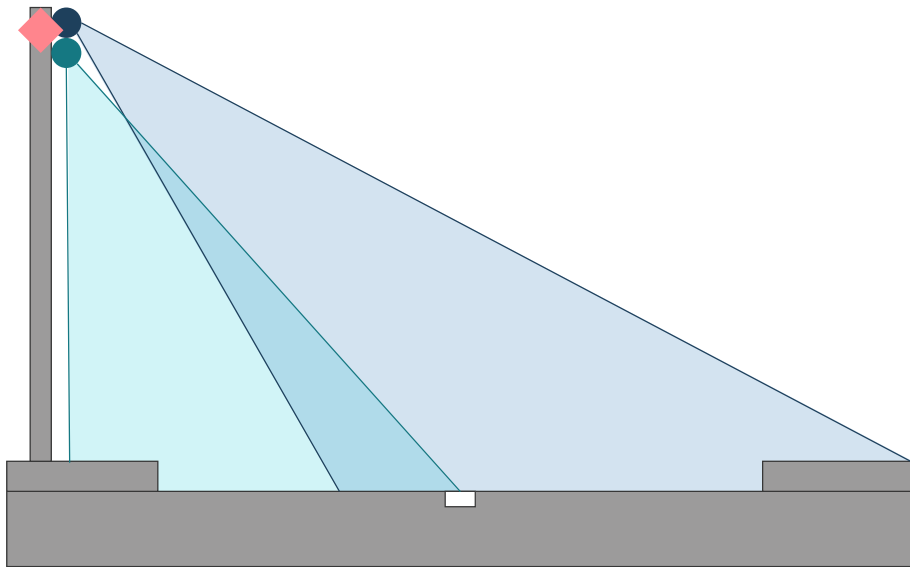
Sensor data processing unit



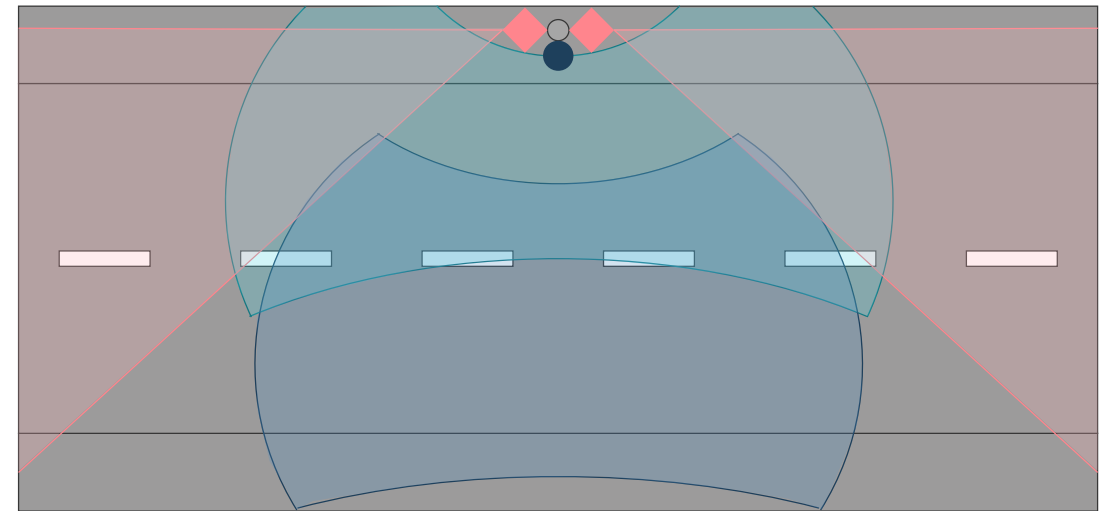
Multiband antenna
(GNSS/Wi-Fi/4G/5G)

Sensors' Fields of View for Each RSU

Side view



Top view*



● LiDAR 1

● LiDAR 2

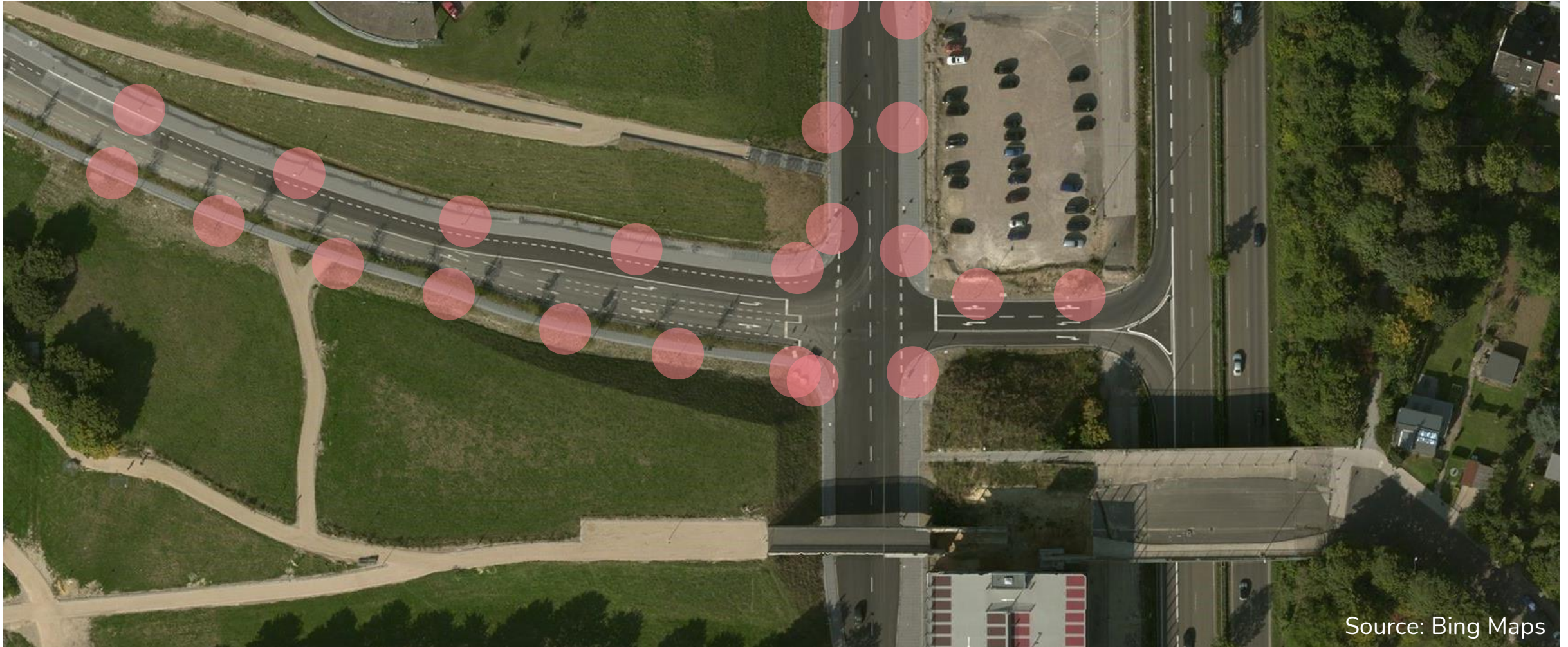
◆ Camera 1

◆ Camera 2

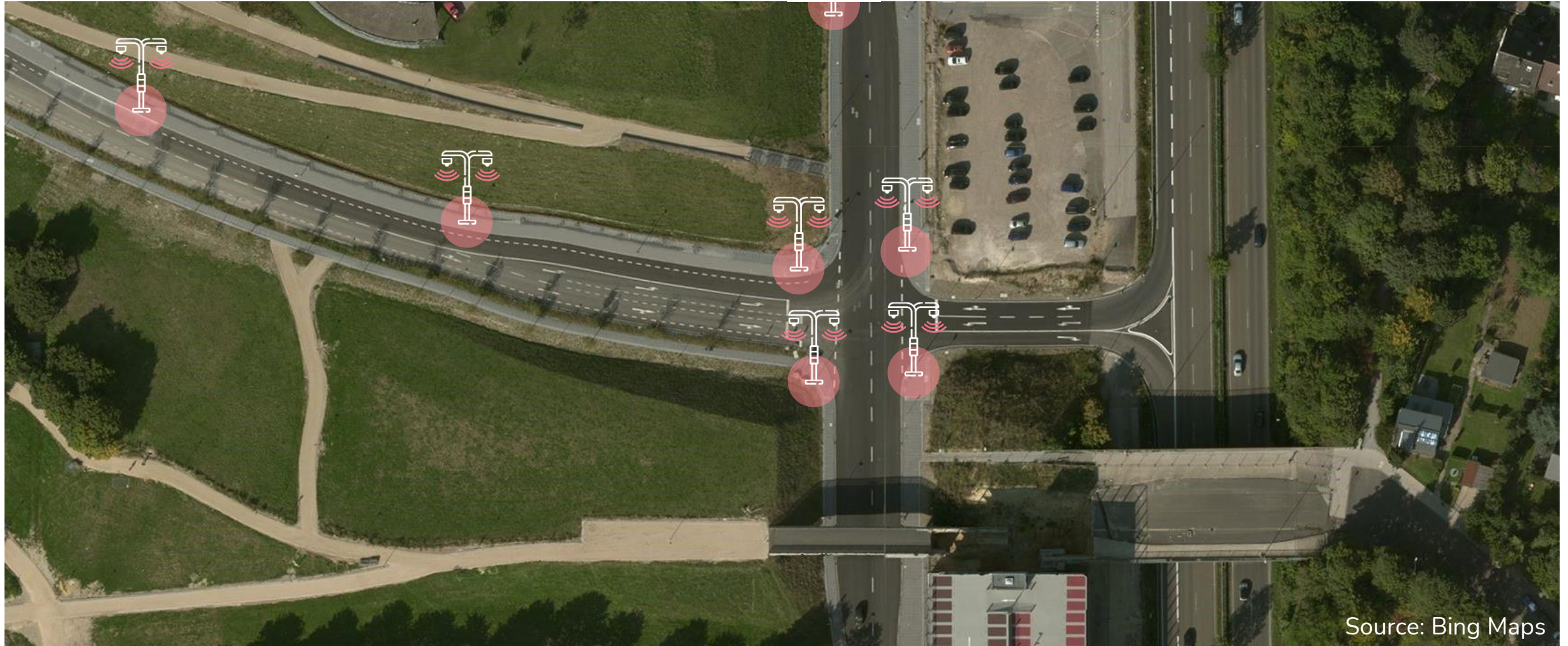
***Scales shown are not true to reality!**





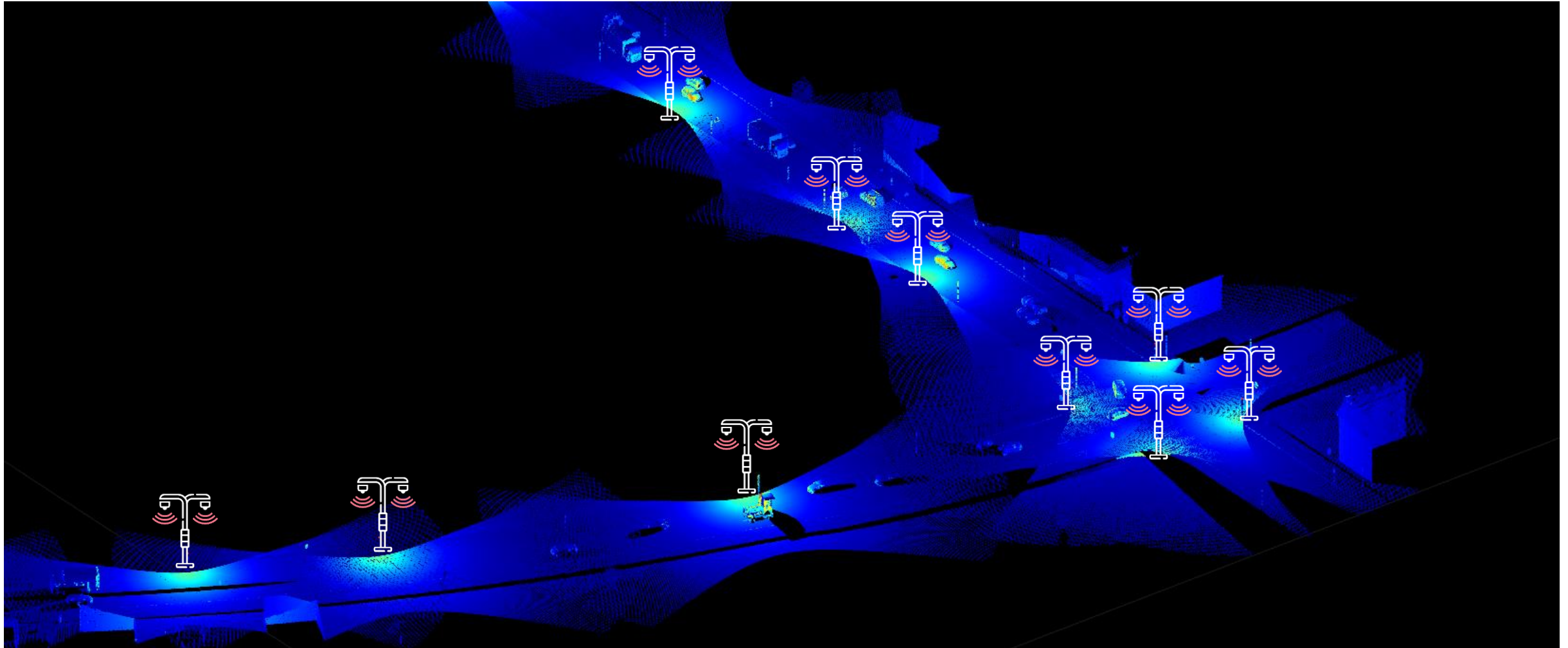


Source: Bing Maps

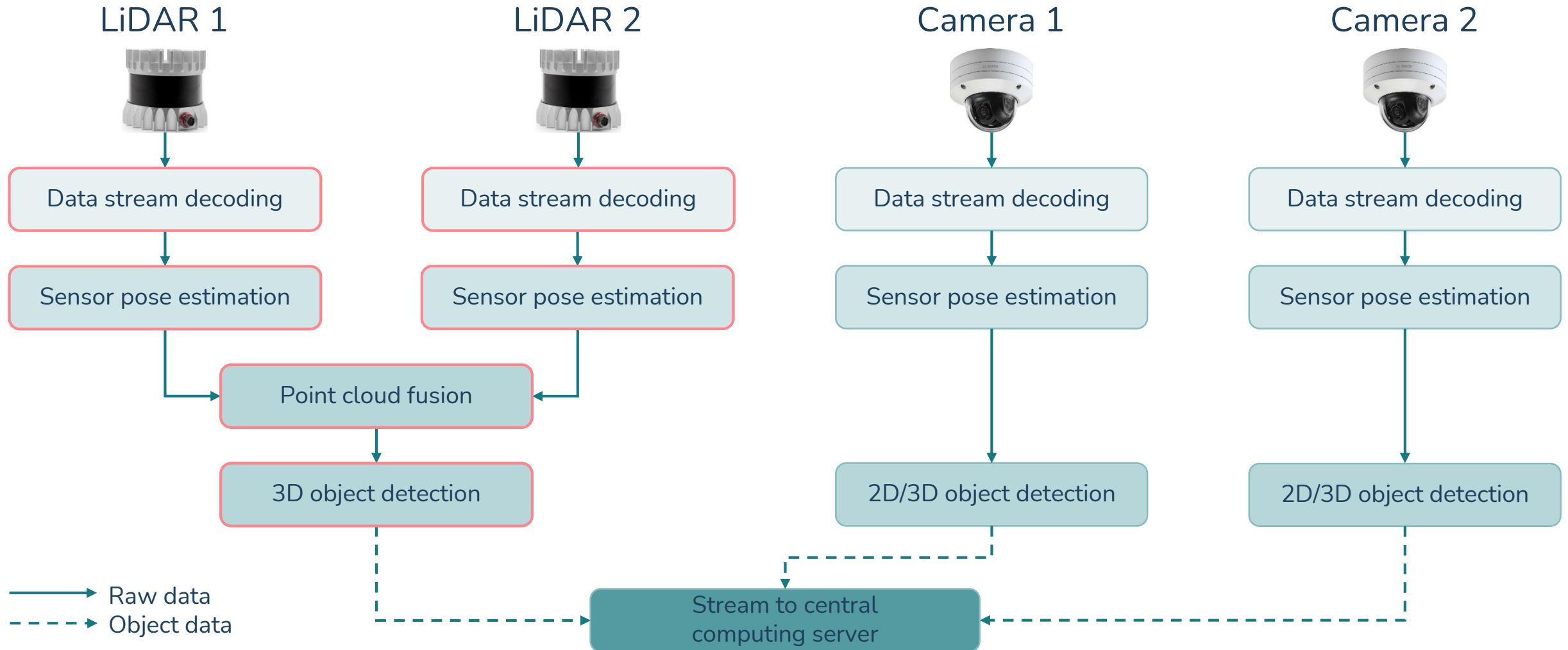


Source: Bing Maps

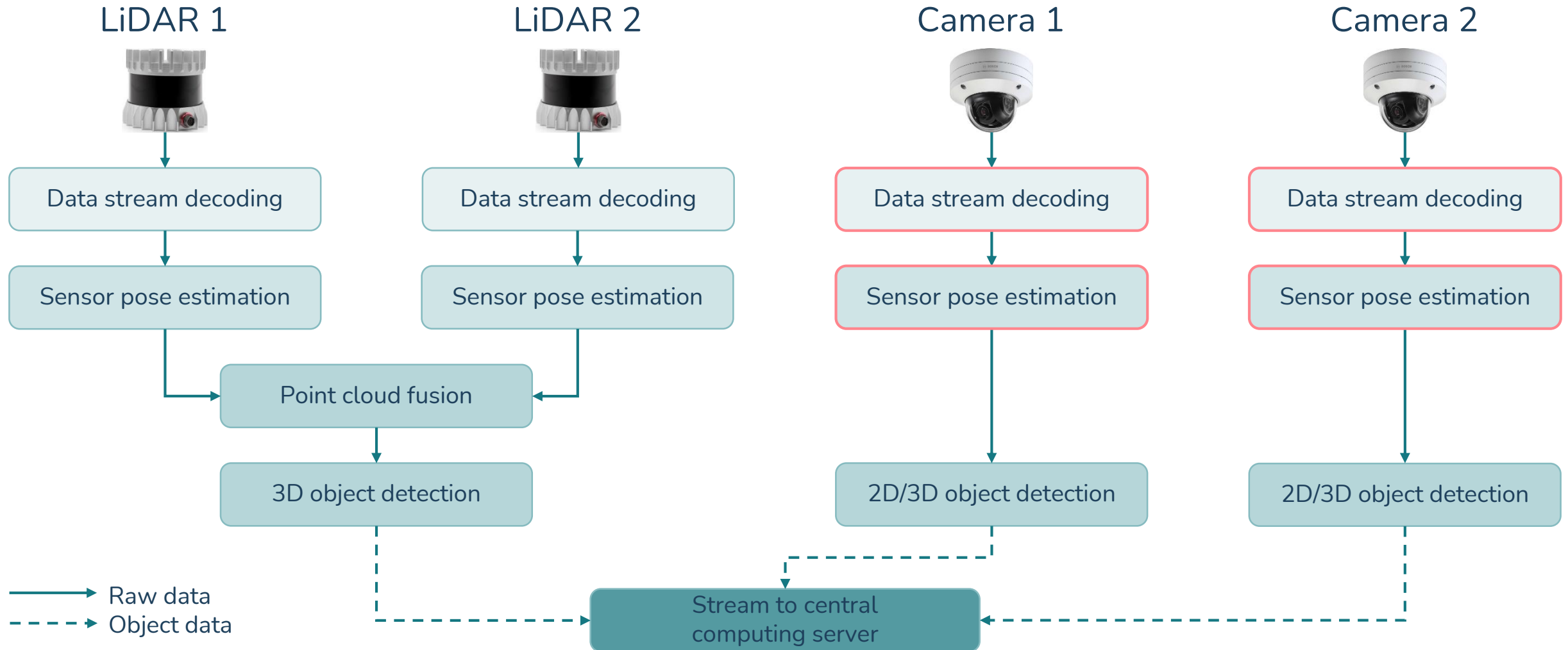
Global Fused LiDARs' Fields of View



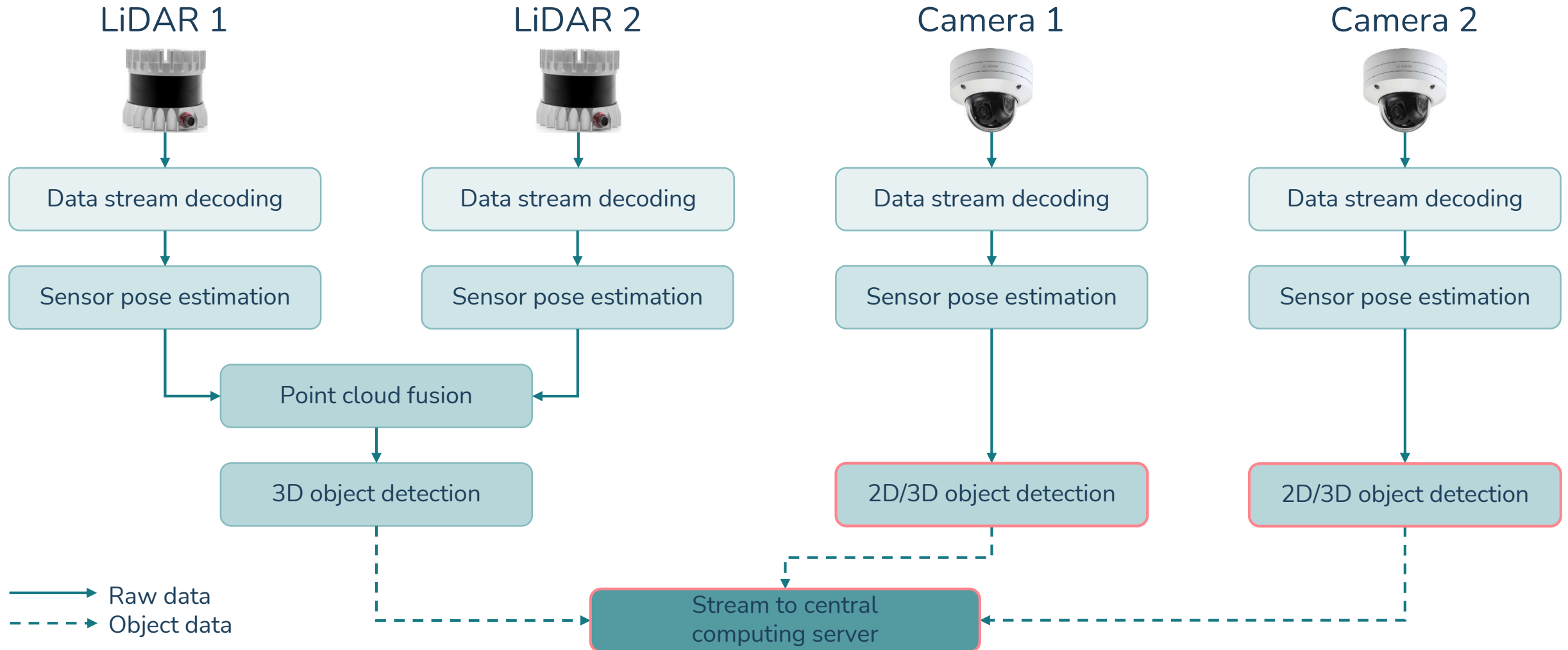
Data Processing Pipeline for Each Road Side Unit



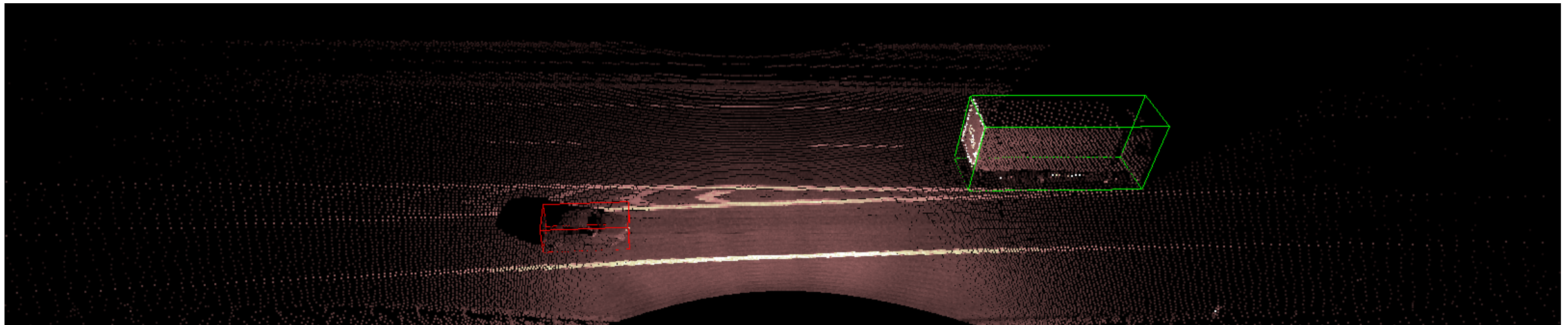
Data Processing Pipeline for Each Road Side Unit



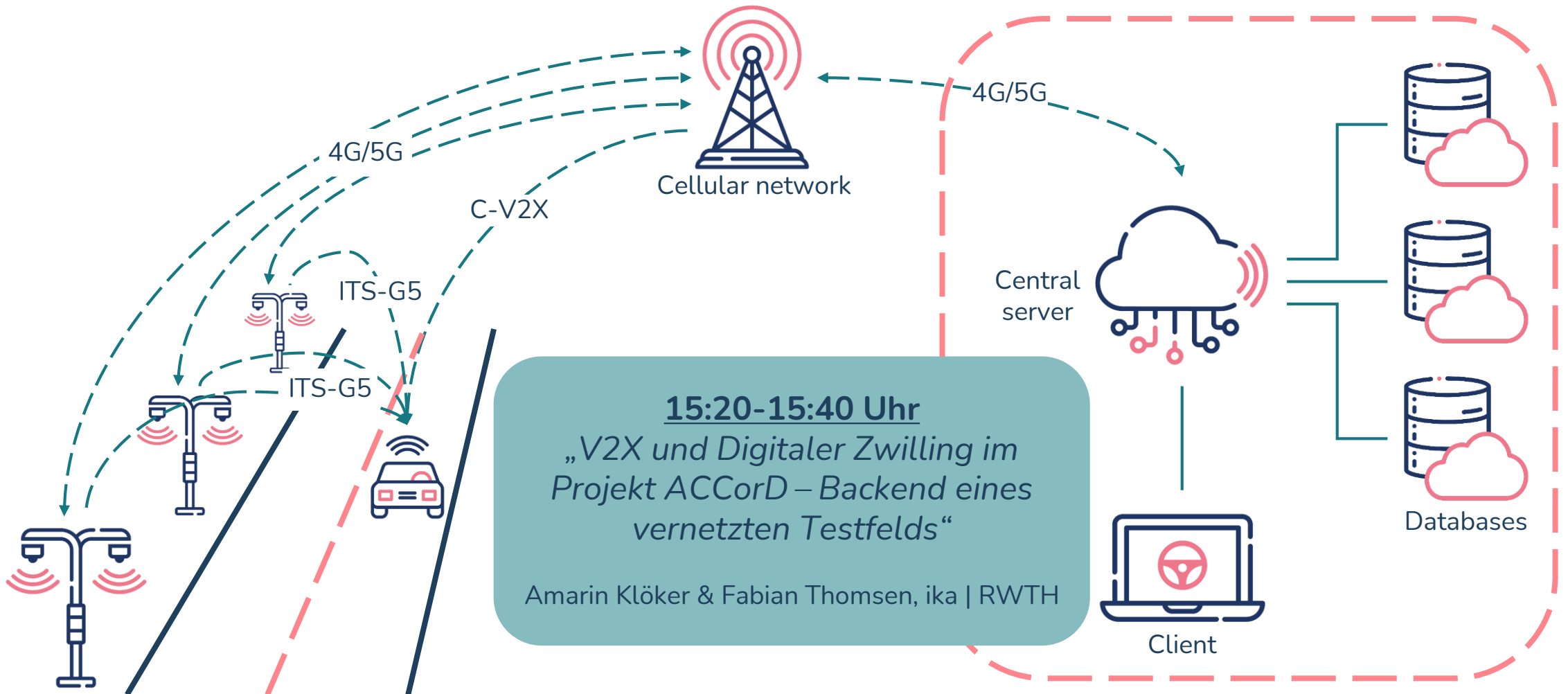
Data Processing Pipeline for Each Road Side Unit



2D/3D Object Detection in Sensor Raw Data



Traffic Detection Concept





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