Traffic Detection Using Modular Infrastructure Sensors as a Data Basis for Highly Automated and Connected Driving

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Summary

Infrastructure sensors enable the collection of reference data for automated and connected driving operations. The collected traffic data can not only be sent online to existing receivers, such as connected and automated vehicles (CAVs), but can also be stored in a central database for research and development purposes. This poster presents approaches to the functionalities of modular infrastructure sensor systems, which are used in the research projects HDV-Mess and ACCorD. Special attention is paid to the data processing pipeline from raw sensor data to fused object lists and their deployment.
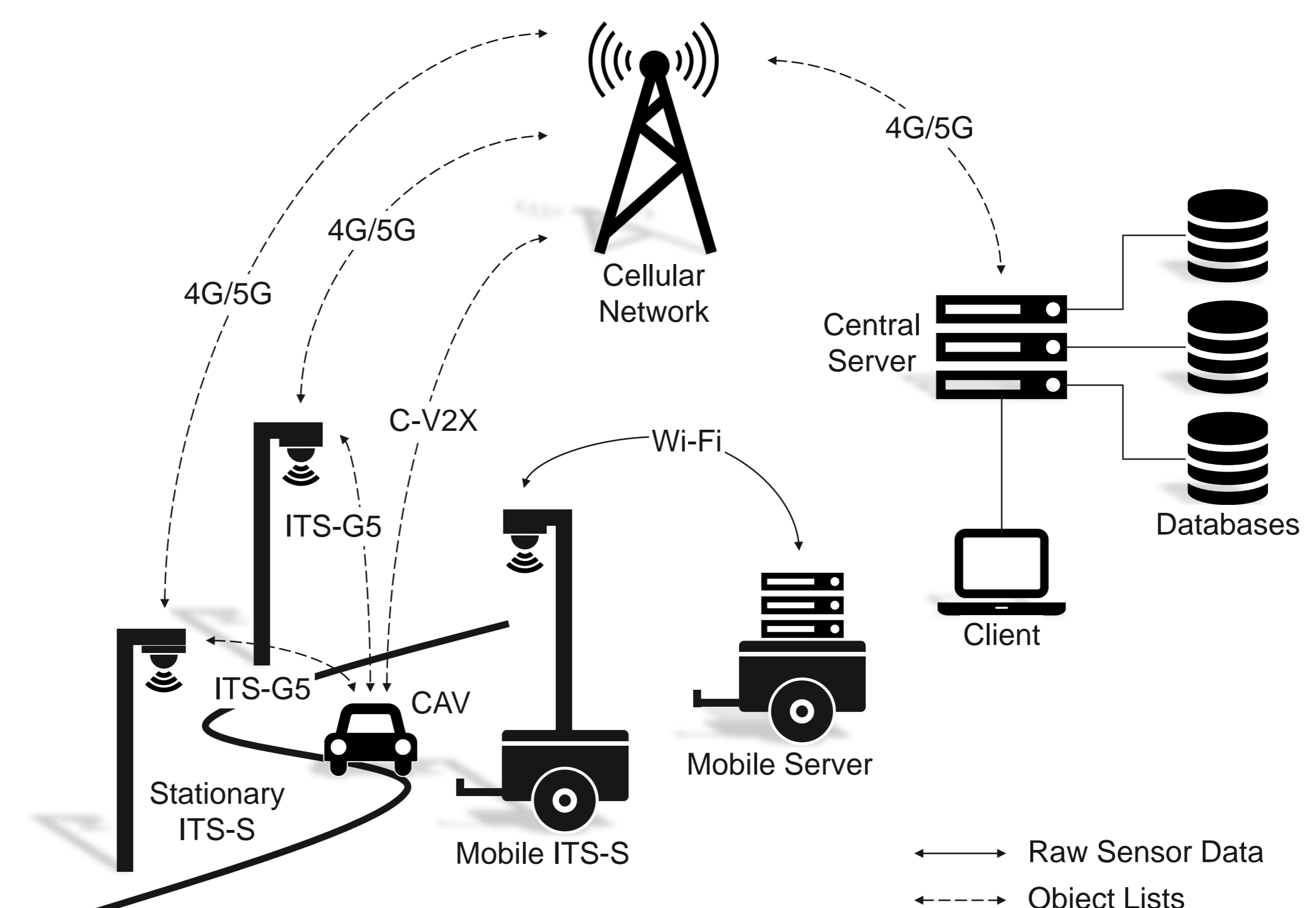
1. Project Objectives

Creation of an integrated development environment to test and validate CAVs in interaction with connected infrastructure.
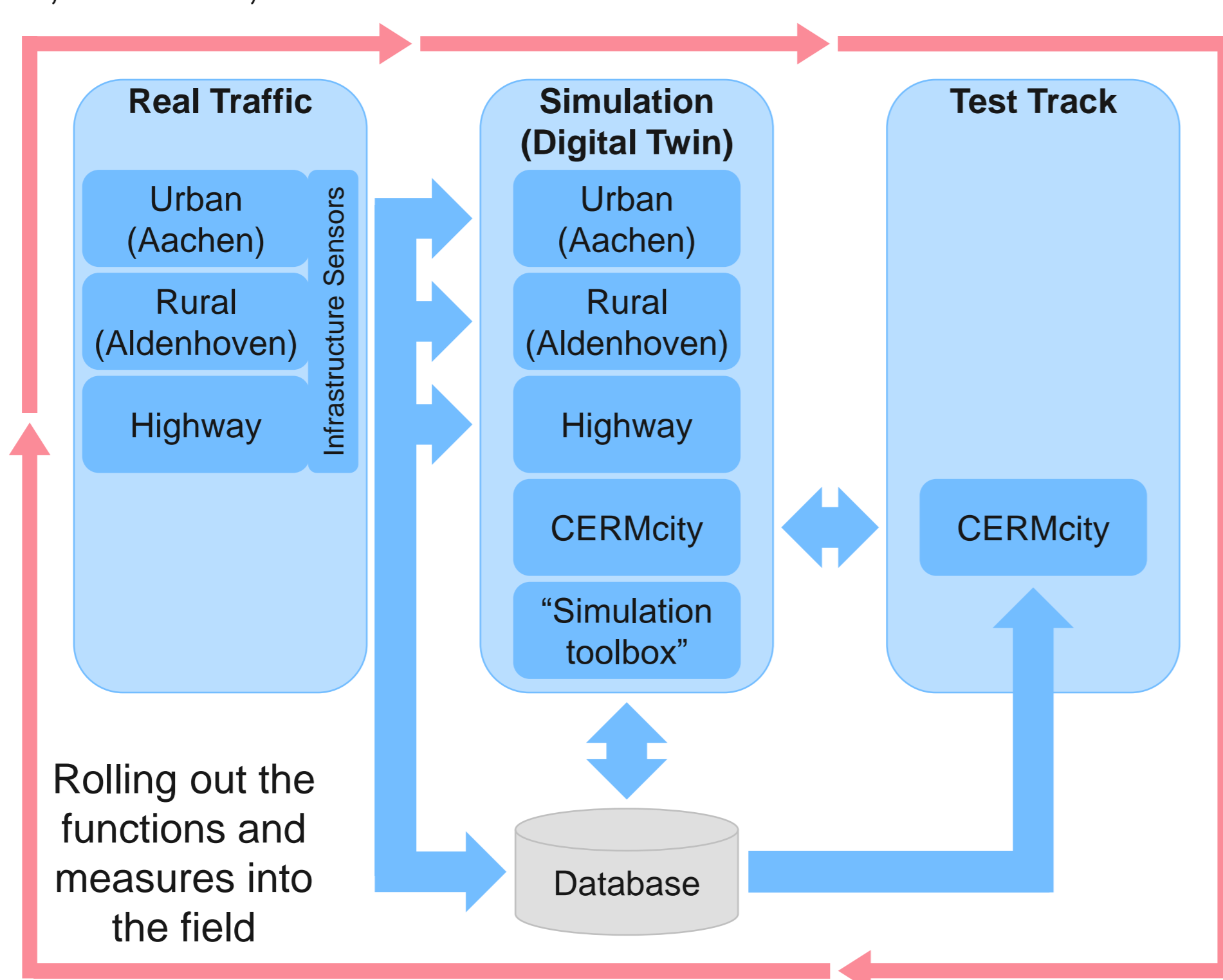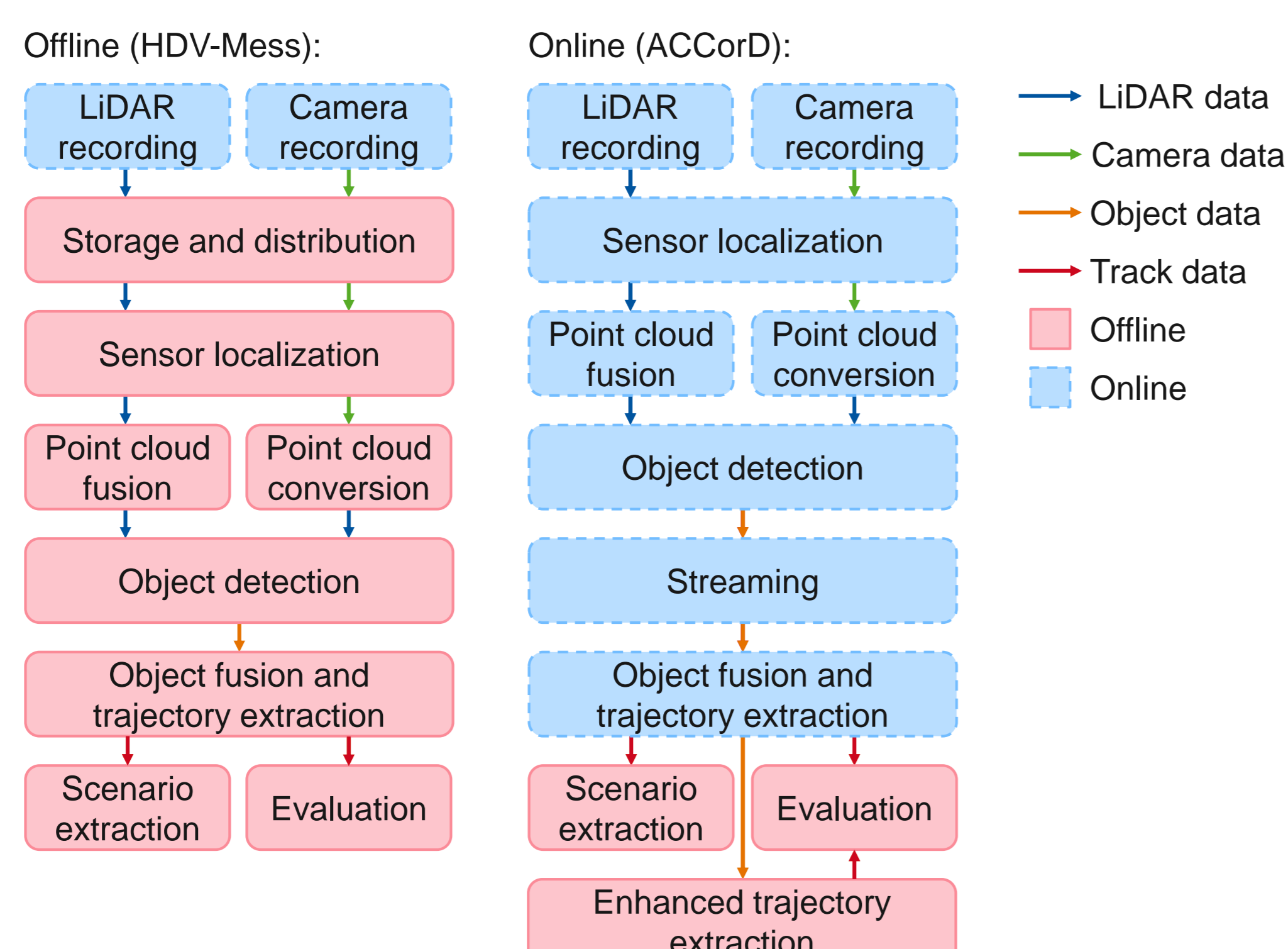

2. Traffic Detection Concepts

Utilization of mobile (HDV-Mess) and stationary (ACCorD) intelligent transport system stations (ITS-Ss) for online and offline traffic data recording and deployment.

3. Data Processing Pipelines

Offline and online processing of LiDAR and camera raw data and extraction of object lists, trajectories and scenarios.

4. Simulation and Digital Twin

Live traffic investigation and derivation of driving parameters in offline simulation based on recorded scenarios.

Real Scenario

Simulation