6G BRICKS Open Call 2

PEDESTRIAN: **P**rotecting vuln**E**rable roa**D** us**Er**S with federa**T**ed lea**R**n**I**ng for tr**A**jectory predictio**N**
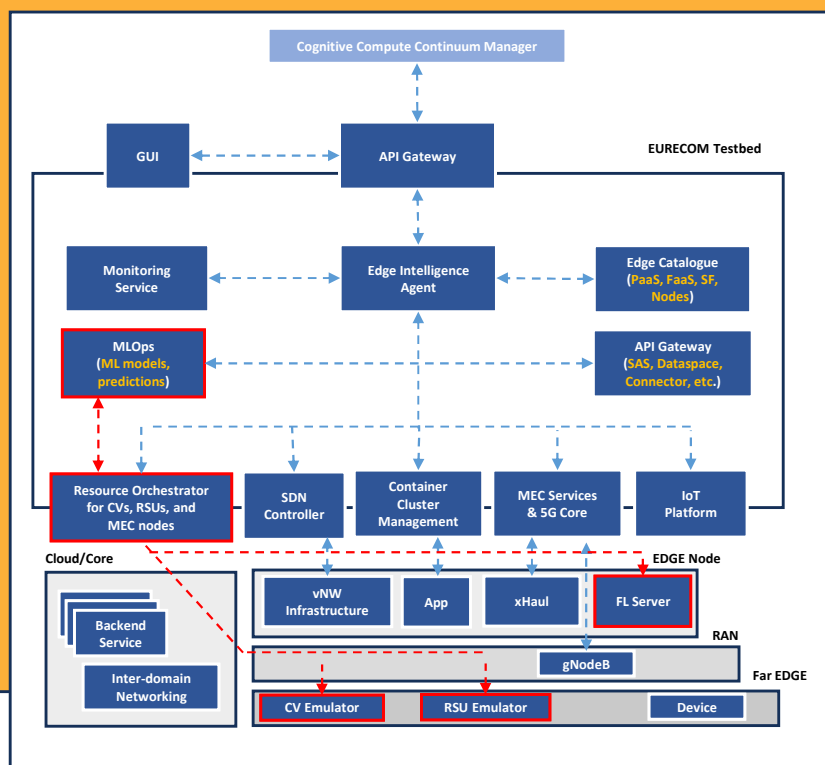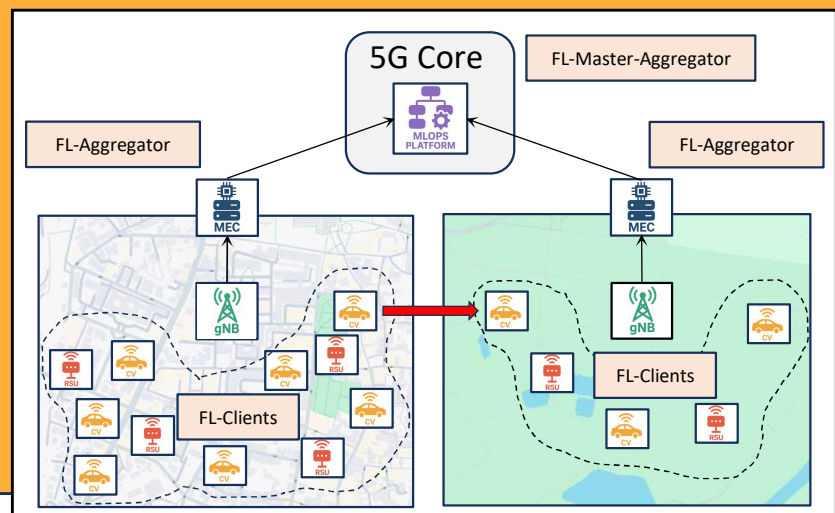
6G BRICKS
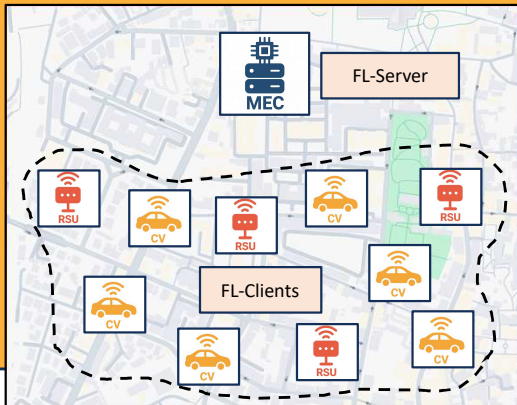
Federated Learning (FL) with Connected Vehicles (CV), Road Side Units (RSU), and MEC nodes.

- Safeguarding Vulnerable Road Users (VRUs) using transformer networks for CV trajectory prediction.

- Train aggregated models in a Federated Learning setting using data from CVs and RSUs (FL-Clients)

- Host coordinators nodes in MEC nodes (FL-Aggregators).

Hierarchical Federated Learning (HFL) to support multi edge-clouds domains.

- Different MEC nodes can cooperate under the management of a parent FL Server deployed in the 5G Core Network.

- Modeling of CV mobility between different coverage areas characterized by varying contexts, such as urban and rural settings.

- Handover management and dynamic model provisioning based on the context.

Integration in the 6G-BRICKS EUR Facility

- Emulators of CVs and RSUs with embedded computing capabilities to act as FL Clients.

- FL-Server module in the MEC Server at the Edge.

- Location and computing-resources aware orchestrator for the Edge (MAC) and extreme-Edge (CVs, RSUs) nodes.

- MLOps platform specialized in automating the training and inference processes requested by the proposed FL-Solution.