Dr. Lazaros Gkatzikis - ICCS

14/03/24

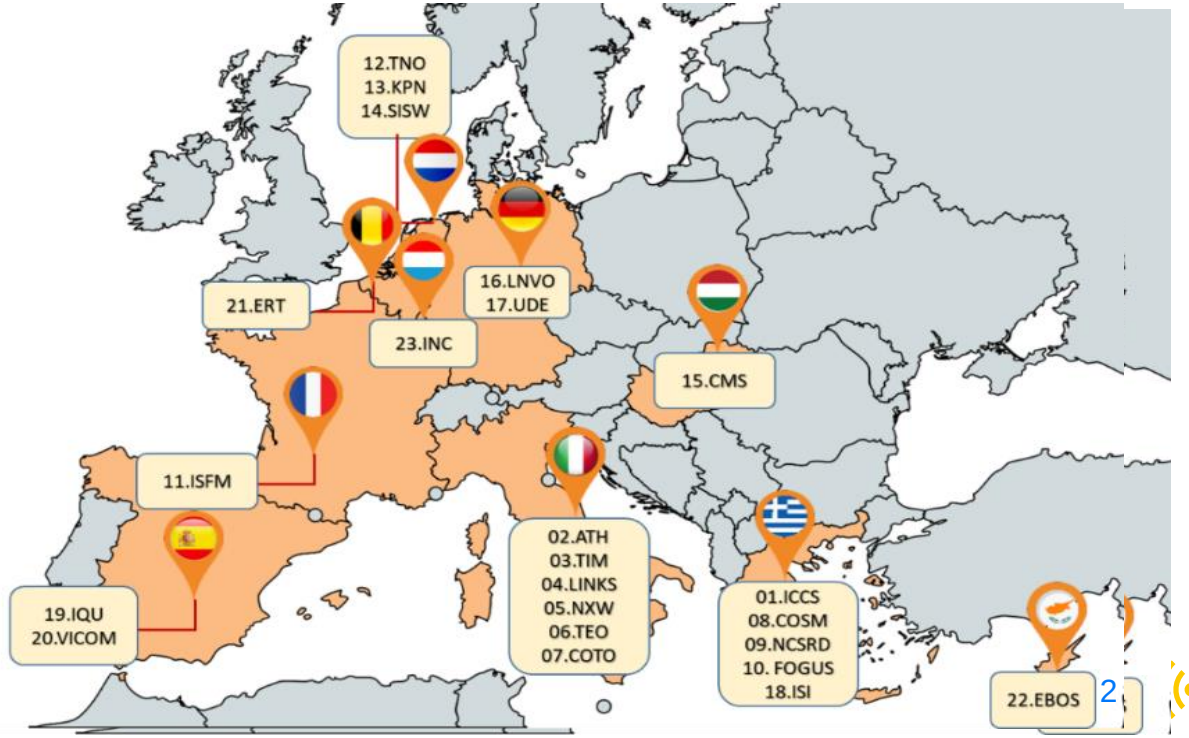
Project overview

HORIZON JU Innovation Actions | 101139048 |
ENVELOPE - HORIZON-JU-SNS-2023

Co-funded by
the European Union

General facts and figures

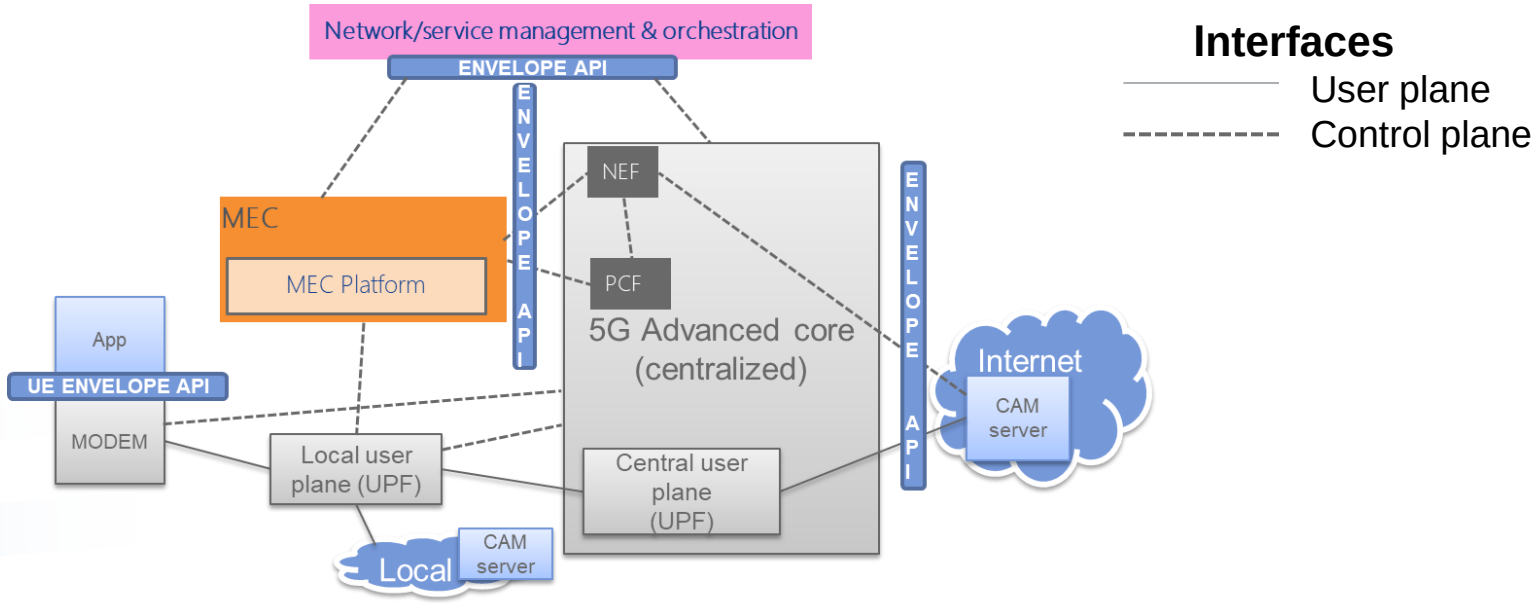
- **Call**: HORIZON-JU-SNS-2023
- **Topic**: STREAM-D-01-01, “SNS Large Scale Trials and Pilots (LST&Ps) with Verticals”
- **Use Case Priority 1**: Connected and automated mobility (CAM) vertical and intelligent terrestrial transportation
- 23 Partners
- 3 Living Labs (Greece, Italy, Netherlands)
- 10 MS Countries
- Total Budget in €: 15.8M (2.7M to open calls)
- 36M Duration: 2024-2027



ENVELOPE high level view

- Transform the reference 5G-Advanced architecture into a vertical-oriented one with the necessary interfaces tailored to vertical CCAM use cases that:
  - expose network capabilities to verticals,
  - provide vertical-information to the network; and
  - enable verticals to dynamically request and modify certain network aspects,

  in an open, transparent and easy to use, semi-automated way
- Develop an envelope that can cover, accommodate and support any type of vertical service

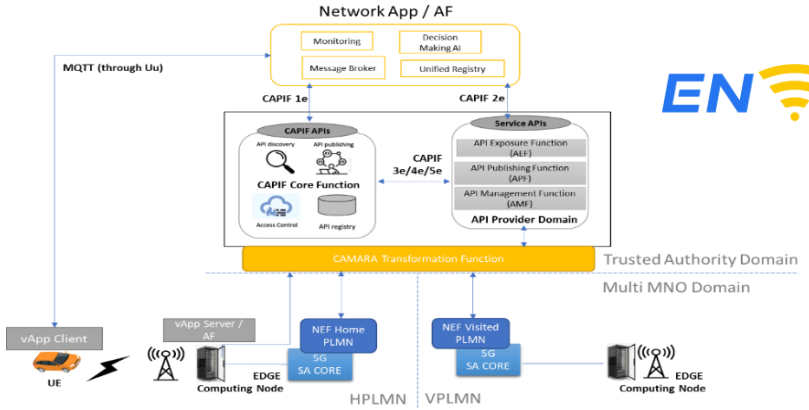


Scope & Project Objectives

Advance and open up the reference 5G-Advanced architecture for verticals

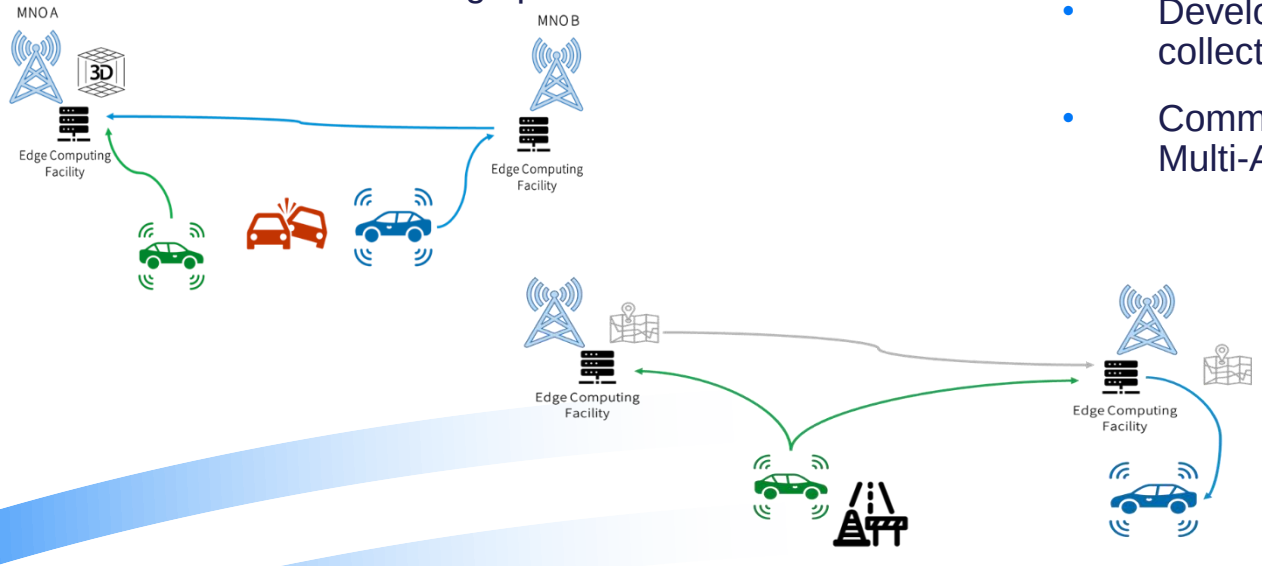
- Develop an **open and dynamically reconfigurable B5G system** with NEF + PCF services
- Develop novel CAM services and design vertical-oriented **open, transparent and easy-to-use interfaces** (network and service side)
- **Advance key B5G technologies** to enable the ENVELOPE architecture to meet the challenging requirements of automation and improved user experience (ATSSS multi-connectivity, PQoS, Zero-Touch management)
- **MEC integration and cross-domain east/west-bound coordination** involving different stakeholders (network-assisted service continuity)
- **Demonstrate** the ENVELOPE capacity to accommodate a variety of services (CAM and Open Call large-scale experimentation on 3 B5G infrastructures)

Living Labs (LLs)



Italy

- Advanced 5GS architectures supporting dynamic reconfiguration in cases of **emergency triggers**
- **The network as a distributed black box** that will be able to collect and reconstruct an accident scene, or even proactively detect it and provide critical guidance to avoid it
- Focus on **east/west-bound interfaces** especially across different edge providers or MNOs

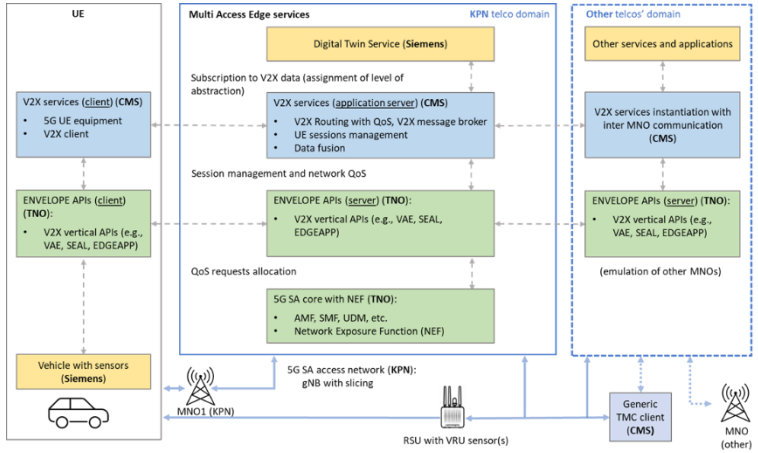


Greece

- **Vertical control and information delivery** to the network/vehicle (see AF influence)
- **Roaming scenarios**: interaction of the commercial network of COSM with that of NCSRD private PLMN.

Netherlands

- Development and testing of new open **uplink-focused APIs** for data collection and **Digital Twin creation**.
- Commercial SA network of KPN hosting a DT service running on a Multi-Access Edge service environment & V2X protocol stack



Planned Use Cases (UC)

- **Italian UCs**
  - Advanced in-service reporting for automated driving vehicles
  - Dynamic collaborative mapping for automated driving
- **Dutch UCs**
  - Periodic vehicle data collection for improving digital twin, e.g., for predictive maintenance
  - Vehicle testing with mixed reality
  - Tele-operated driving aided by DT
- **Greek UC**: MEC handover across MNOs


ENVELOPE

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