

A large yellow graphic element on the left side of the slide. It consists of a solid yellow circle at the top left, followed by three thick, curved yellow lines that sweep from the top left towards the bottom right, creating a sense of dynamic movement.

Architecture, Key Technology Enablers and Interfaces

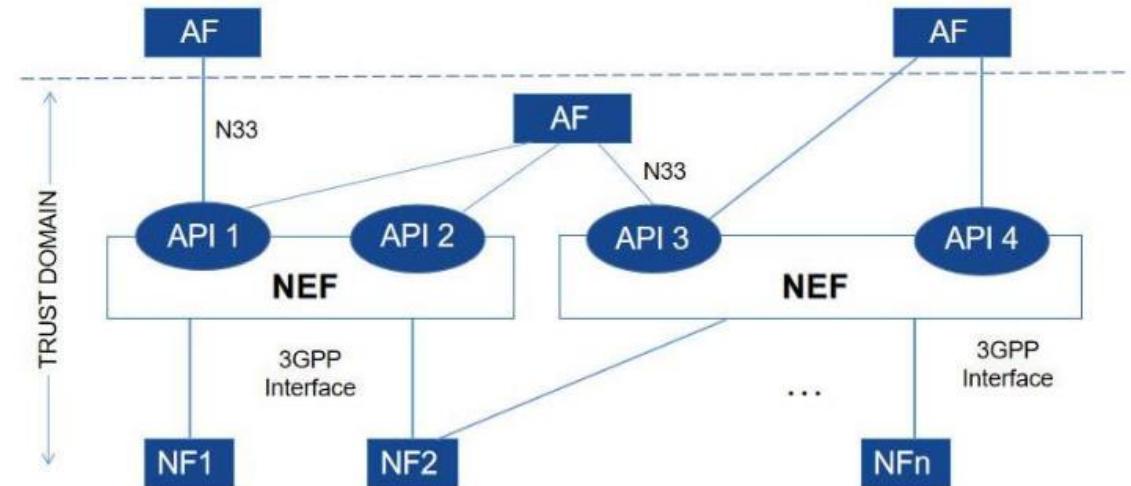
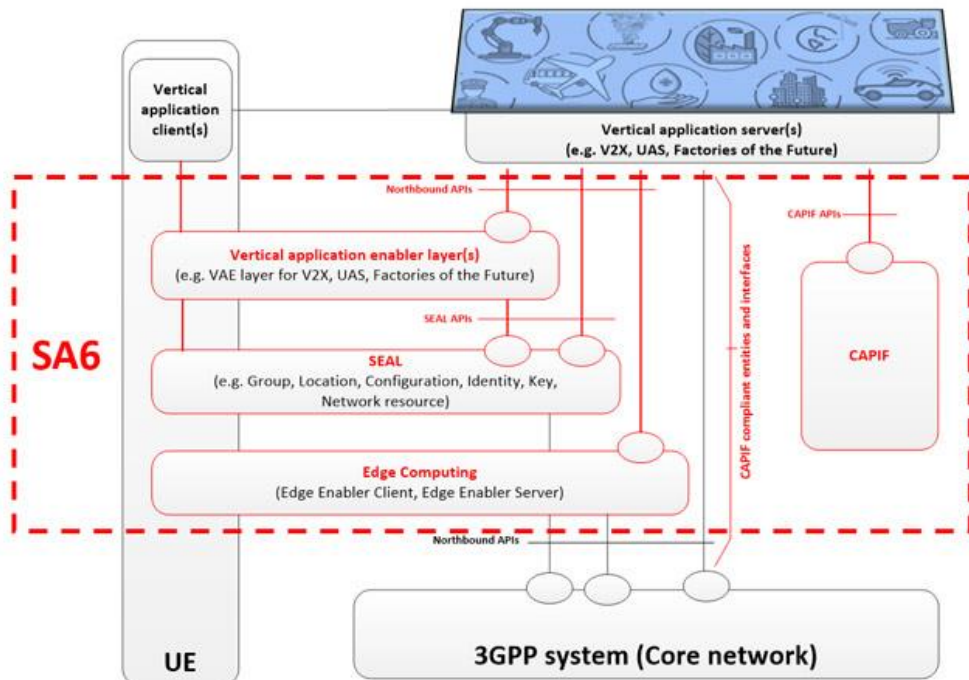
Overview

(10') – Harilaos Koumaras, NCSRD

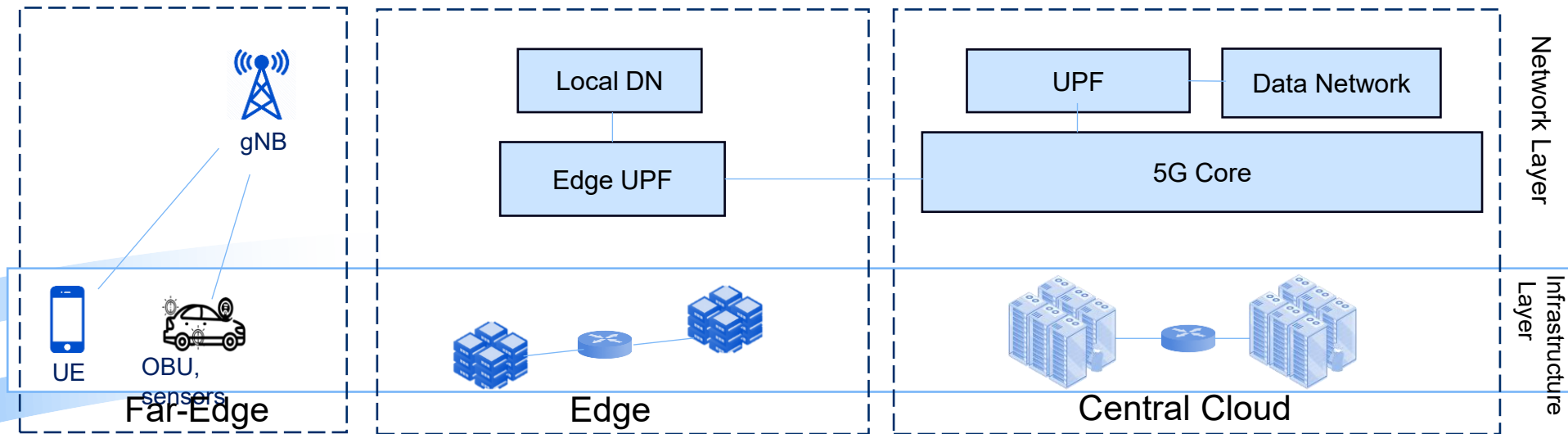
A blue graphic element at the bottom right of the slide. It features several curved, overlapping lines in shades of blue and white, sweeping from the bottom right towards the center, mirroring the style of the yellow graphic on the left.

ENVELOPE principles and motivation

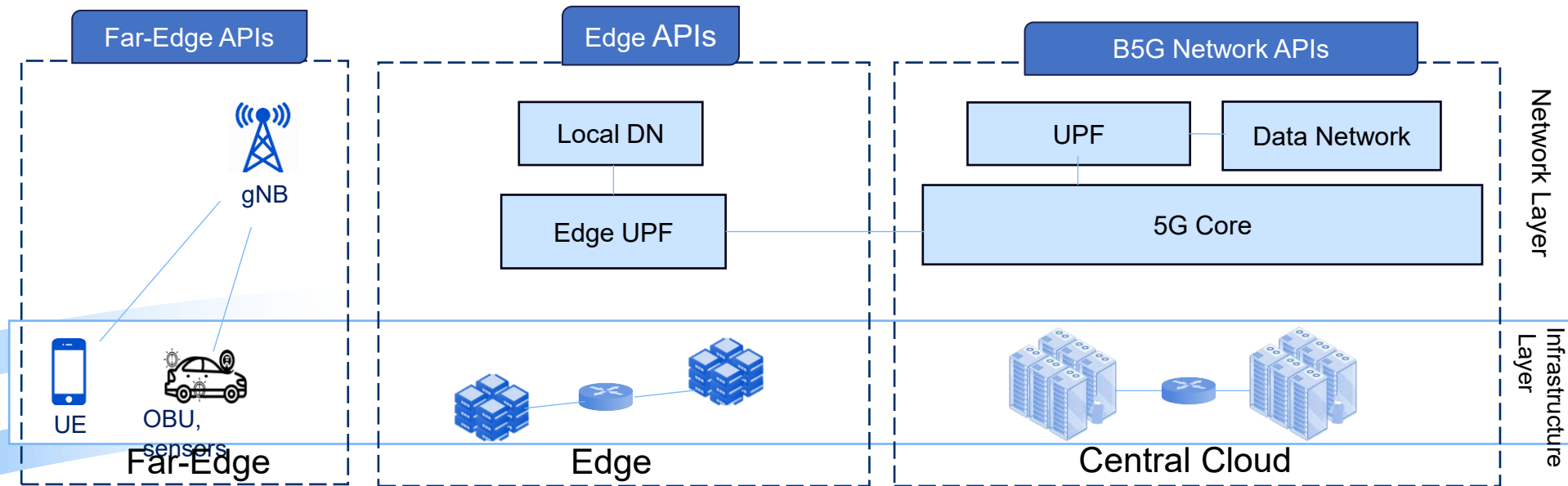
The ENVELOPE project envisions **creating a groundbreaking framework** that leverages the **openness and flexibility** of **advanced 5G network capabilities** to support a diverse range of emerging applications and industries.



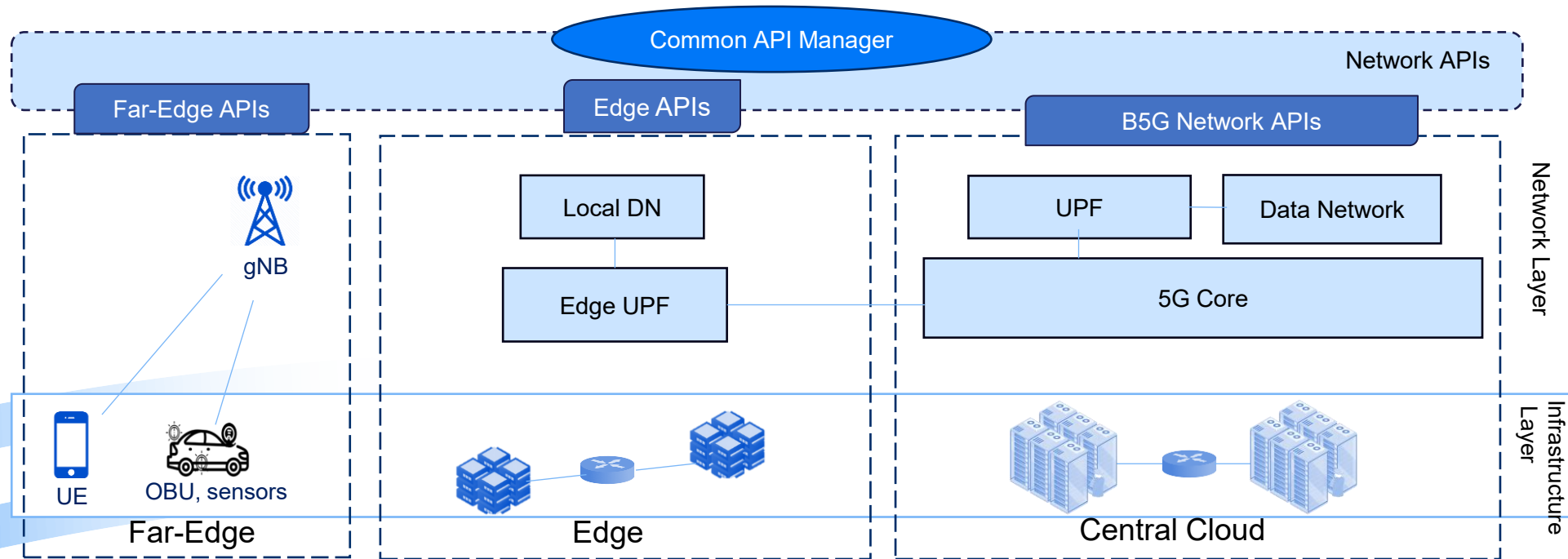
ENVELOPE INFRASTRUCTURE



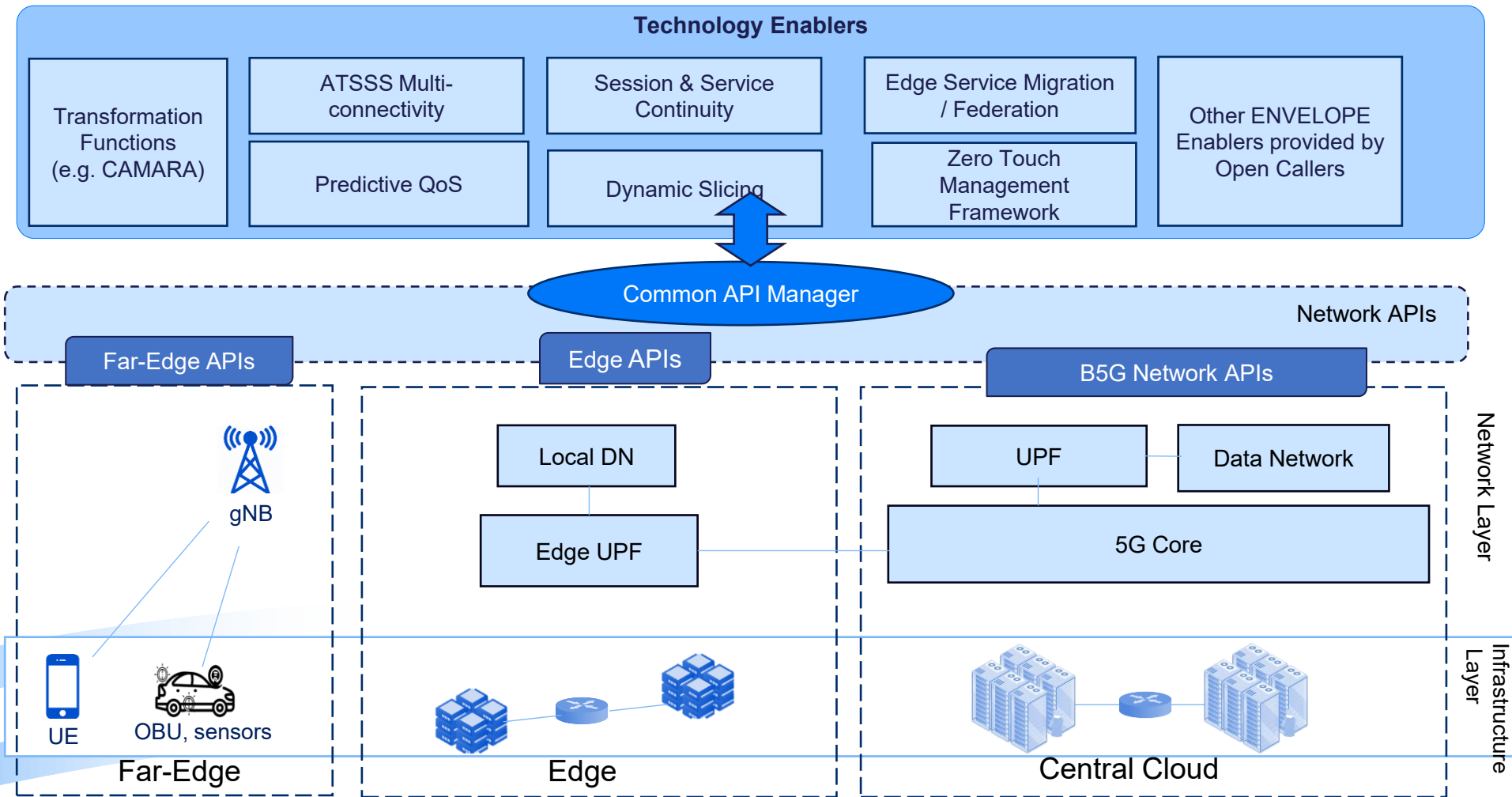
ENVELOPE INFRASTRUCTURE

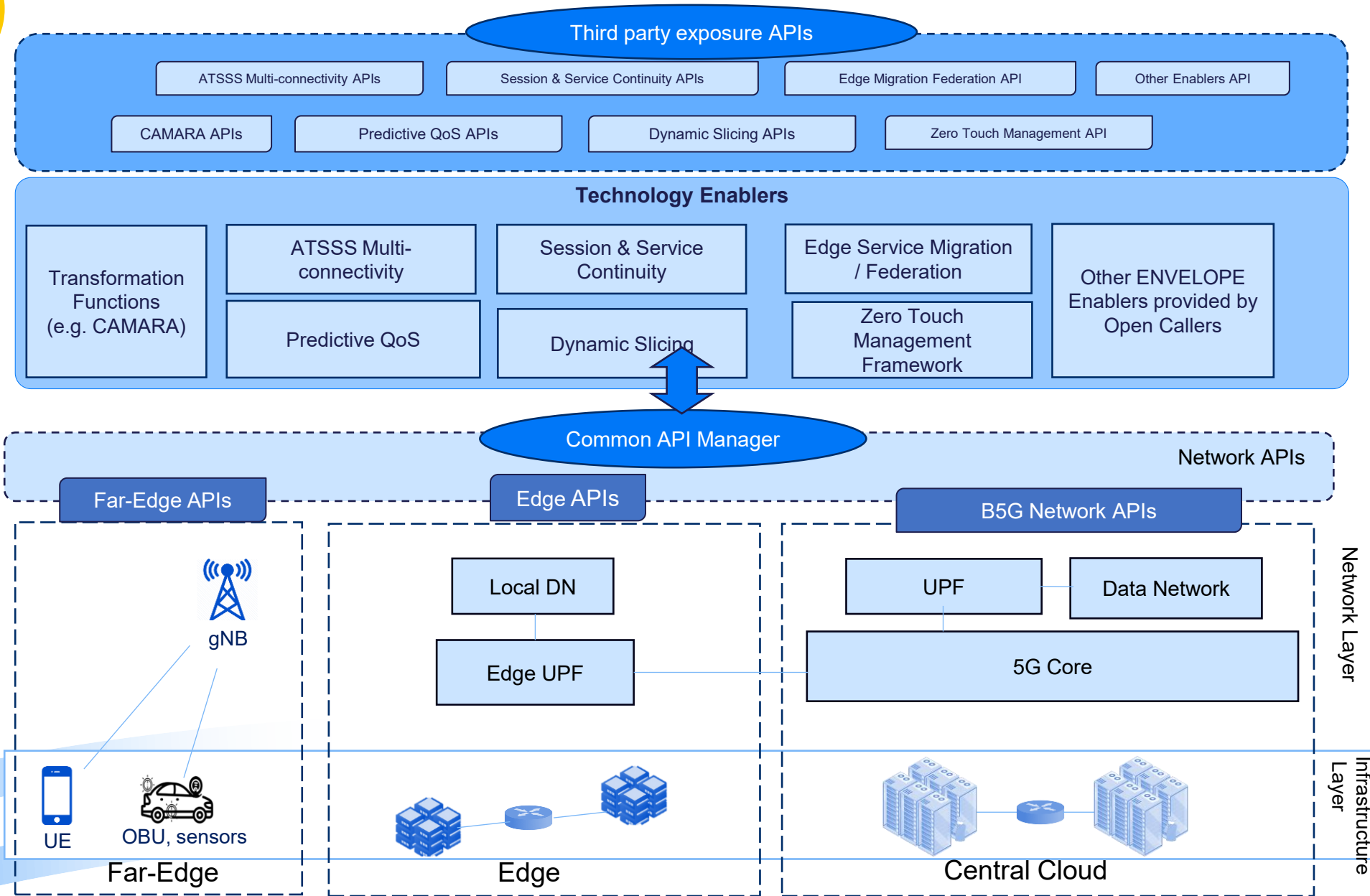


ENVELOPE INFRASTRUCTURE



ENVELOPE INFRASTRUCTURE





CAM Applications

Advanced in-Service
Reporting

Dynamic Colaborative
Mapping for Automated Driving

Real-Time Situational
Awareness

Digital Twin

Other CAM apps



Third party exposure APIs

ATSSS Multi-connectivity APIs

Session & Service Continuity APIs

Edge Migration Federation API

Other Enablers API

CAMARA APIs

Predictive QoS APIs

Dynamic Slicing APIs

Zero Touch Management API

Technology Enablers

Transformation
Functions
(e.g. CAMARA)

ATSSS Multi-
connectivity

Session & Service
Continuity

Edge Service Migration
/ Federation

Other ENVELOPE
Enablers provided by
Open Callers

Predictive QoS

Dynamic Slicing

Zero Touch
Management
Framework

Common API Manager

Network APIs

Far-Edge APIs

Edge APIs

B5G Network APIs



gNB



UE

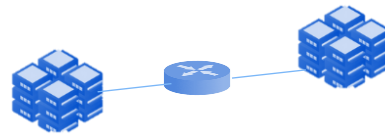


OBU, sensors

Far-Edge

Local DN

Edge UPF

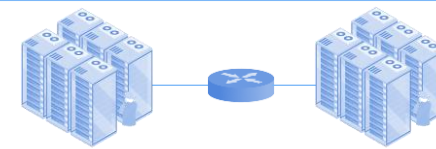


Edge

UPF

Data Network

5G Core



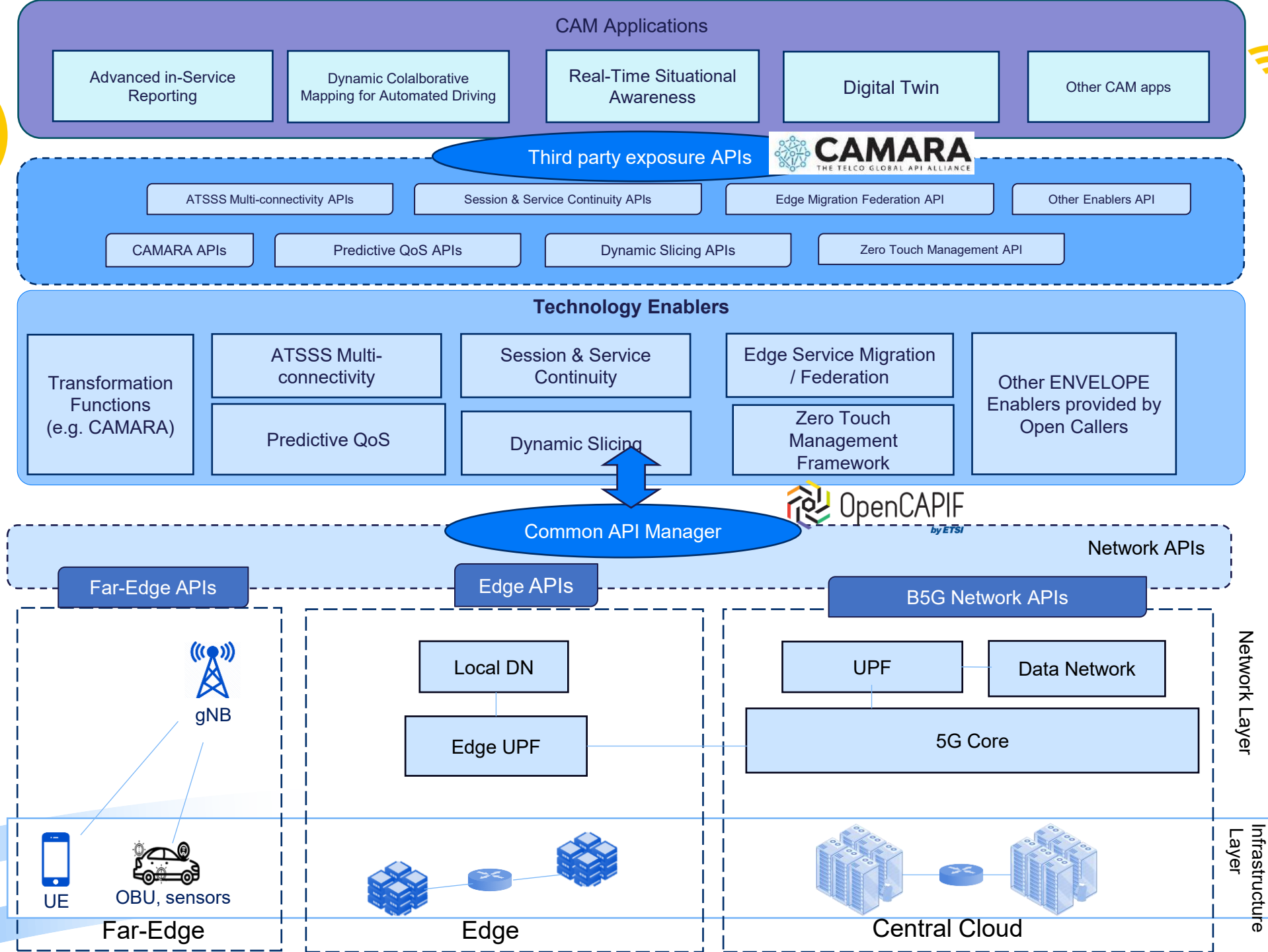
Central Cloud

Network Layer

Infrastructure
Layer



Management and Orchestration Layer



ENVELOPE principles and motivation

ENVELOPE aims to:

- 1. Maximize the Potential of Exposed APIs:** By securely exposing 5G network functionalities via standardized APIs, ENVELOPE seeks to **bridge the gap between network capabilities and the specific needs of vertical industries.**
- 2. Enhance Service Innovation:** It envisions fostering collaboration among external developers, platform designers, and industries to develop innovative, **network-aware applications that fully utilize the programmability of the 5G core.**
- 3. Advance Network Intelligence and Automation:** Incorporating insights from analytics (NWDAF) and **leveraging machine-learning techniques, ENVELOPE aims to enable smarter, more adaptive, and sustainable networks** as part of the transition towards 6G.
- 4. Prepare for Future Applications:** By staying aligned with the latest 3GPP standards (Releases 16–19), **ENVELOPE ensures readiness for next-generation communication systems**, paving the way for more complex, intelligent, and automated ecosystems.

