



**CAMARA**  
THE TELCO GLOBAL API ALLIANCE

# Infosys Presentation

13.07.2023

# 5G network capabilities

## Introduction



Reachability and Location of UEs  
Identify (last known) location of drone



# of UEs in geographic region  
Traffic jam or Corona warning



# of UEs in slice, network congestion  
Adapt resolution for video transmission



Quality on Demand / Traffic influence  
Enable augmented reality



Wake up UEs  
Support low energy IoT devices



Block UEs in geographic region  
Crisis management

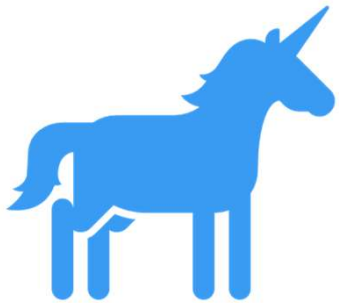


# What is the CAMARA Project?

## Key problems we try to solve



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Scale

Developers dream of being the next unicorn... If apps, products, or services are built on our APIs they want them in all relevant markets and networks globally.



Consistency

Multi-nationals want consistency across all markets they operate in... they do not want APIs that only work in a single network in a single country. They do not want to try and build for the differences of each network.



Simplicity

Telco networks are complex, and every network is different.... Developers want simple, intent-based APIs.



Accessibility

We go to the developers where they are so the project is open sourced in the Linux Foundation. Allowing API users to work directly with CSPs creating the service.



Demand driven

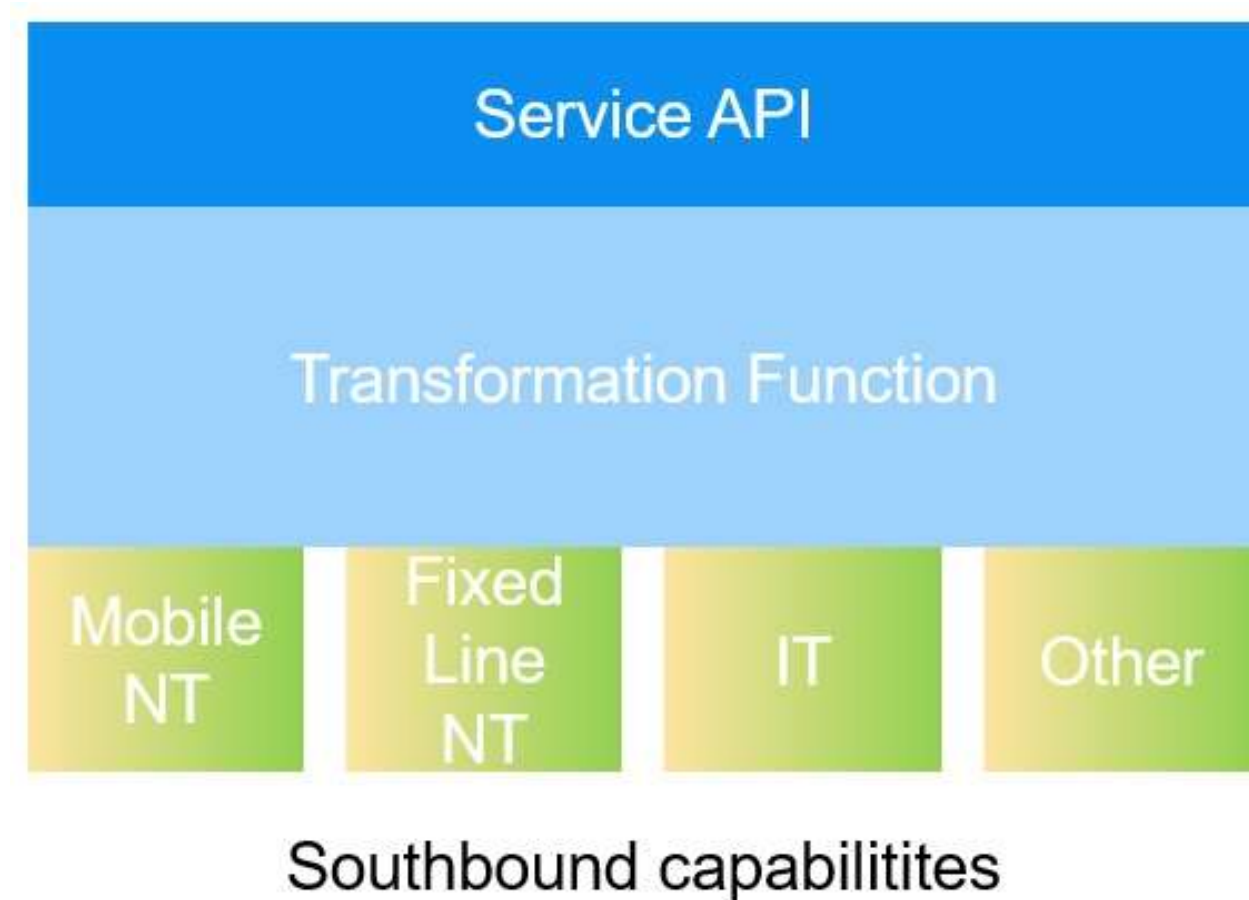
We develop the APIs and design it in the way our customers need it. The demand is collected from organizations like GSMA OPAG but also from customers directly.

# Abstraction API Architecture



**Abstraction** from Network APIs to Service APIs is necessary:

- To simplify telco complexity making APIs easy to consume for customers with no telco expertise (user-friendly APIs)
- To satisfy data privacy and regulatory requirements
- To facilitate application to network integration



# CAMARA

## Where we started...



Launched at MWC Barcelona 2022

22 Launch Partners

Supported by GSMA and Linux Foundation

Simple idea to “standardize” developer facing APIs



# CAMARA

... and where we are now



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- 78 Named Partners
- 236 (+142) companies participating in CAMARA
- 14 Active API development repos
- 130+ regular participants in Open Steering Calls
- 695 (+777) people joined CAMARA
- Development "home" for GSMA Open Gateway

# CAMARA Logos



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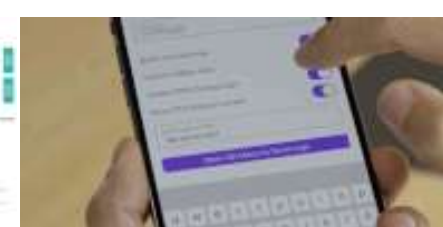
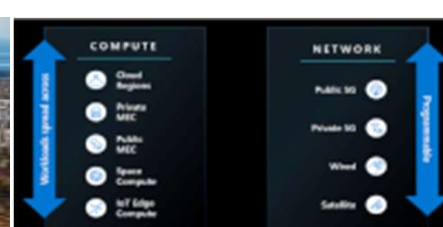
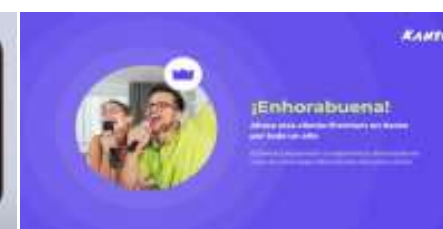


# CAMARA API Showcases



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<https://camaraproject.org/resources/>

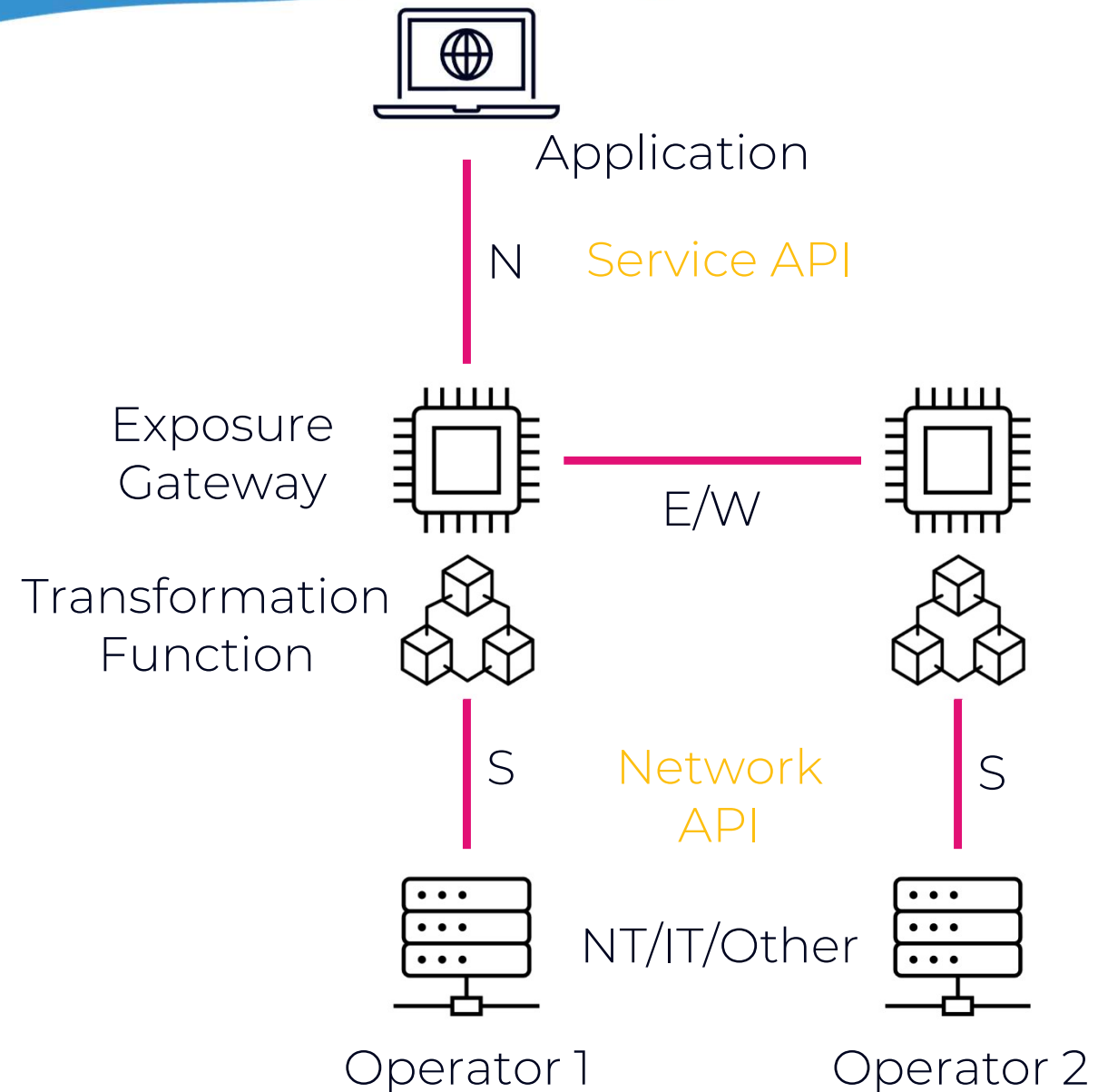


# CAMARA Scope



From functional perspective the scope is limited to **telco APIs**, that means APIs in the domain of telco mobile networks, telco fixed line networks, telco edge cloud, etc. or supporting these.

Thereby the focus is on the **northbound interface** (between telco operator and aggregator or capability consumer). East-/westbound interface APIs are out of scope for CAMARA.

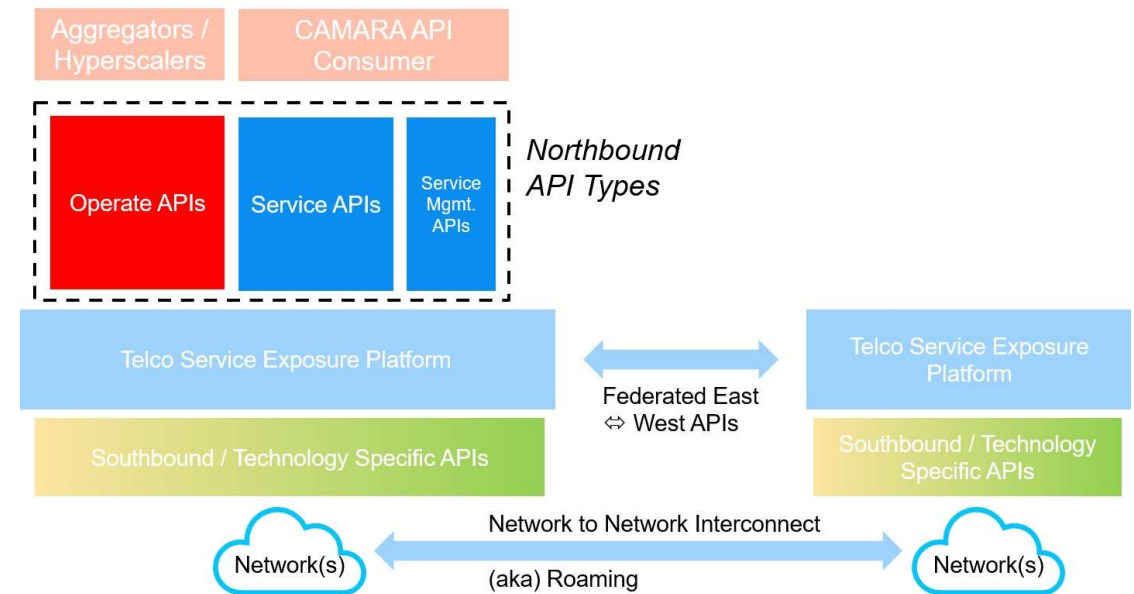


# CAMARA Scope



We differentiate between 3 types of Northbound APIs:

- **Service APIs:** APIs intended for end consumers and integrated by developers to invoke a certain telco capability.
- **Service Management APIs:** APIs intended for end consumers to manage or get data about offered Service APIs in application runtime, e.g., check service availability or performance information.
- **Operate APIs:** Operational and maintenance APIs provided by a telco to channel partners for the purpose of service fulfillment and assurance to their [channel partner] customers. This may include service provisioning for a mobile user, technical API performance monitoring, fault ticketing, information exchange such as product catalog, pricing, settlement, etc.

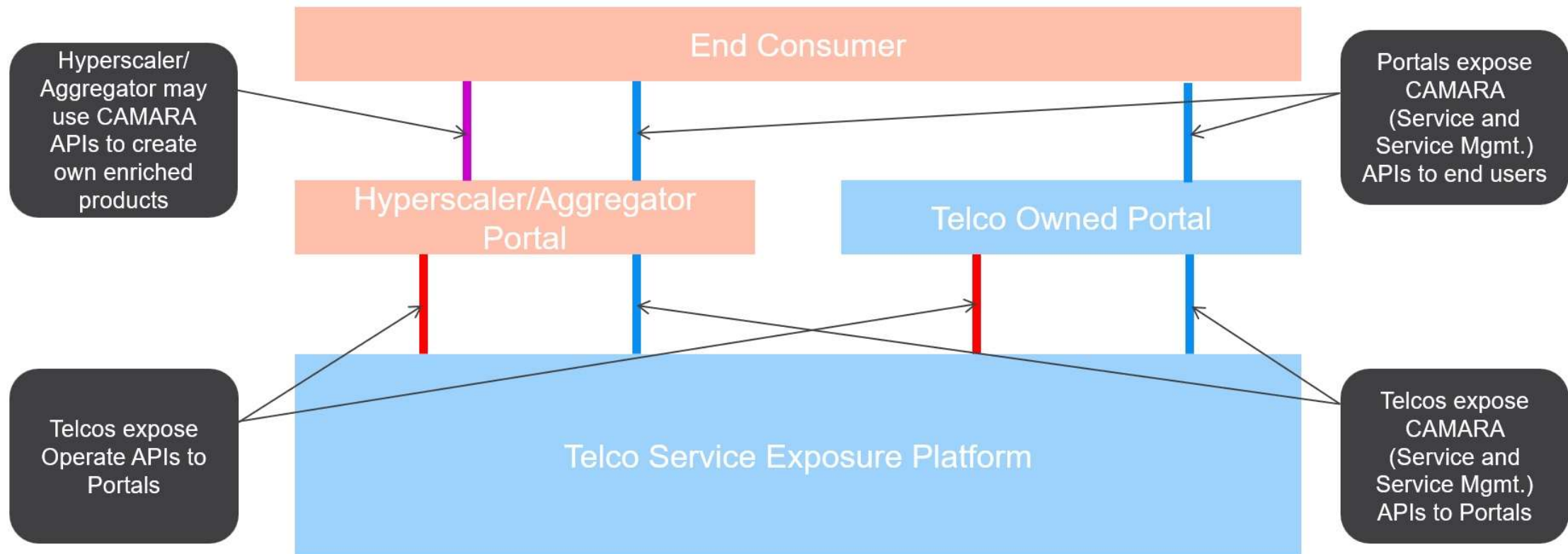


**Service APIs and Service Management APIs** are in scope of CAMARA. Operate APIs are out of scope of CAMARA (these are already covered by other SDOs = Standards Development Organizations like TM Forum).

# CAMARA Scope

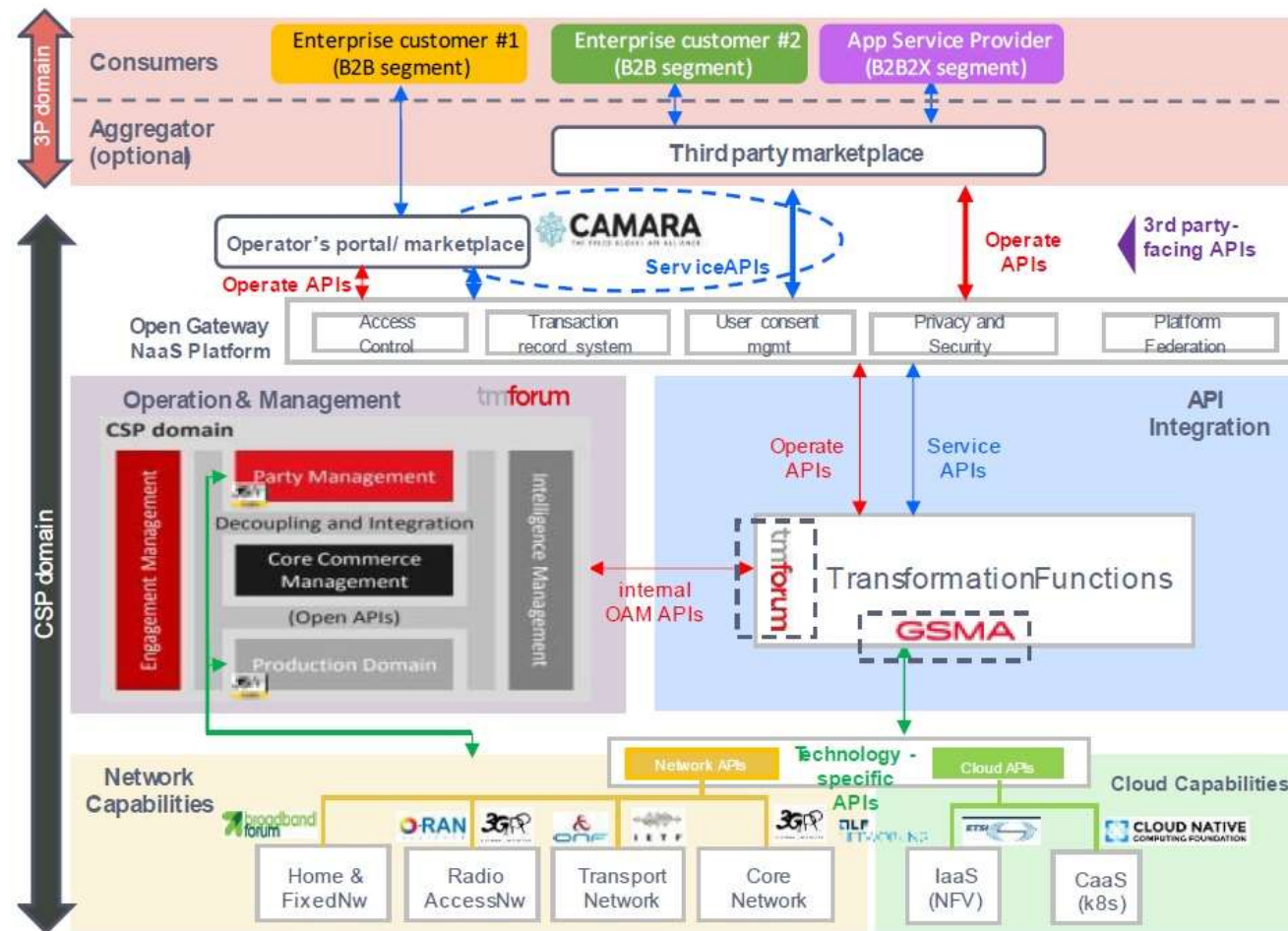


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Hyperscalers and aggregators have the possibility to create own enriched products based on the CAMARA APIs and expose that in addition to the CAMARA APIs.

# CAMARA Scope



CAMARA project defines CAMARA APIs.

TMForum develops the Operate APIs.

Several SDOs cover the different technology domains that provide the telco capabilities.

More details can be found in the whitepaper "The Ecosystem for Open Gateway NaaS API Development" (jointly published by GSMA, CAMARA, Linux Foundation and TMForum) available [here](#).

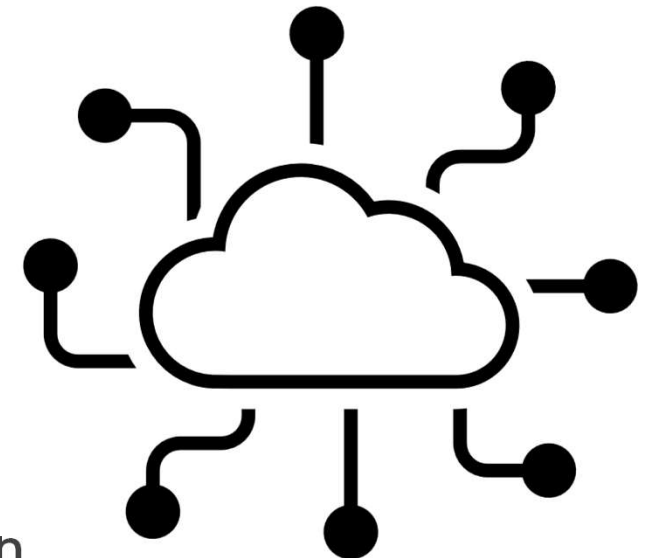
## The scope of the CAMARA Project is:

- **Collect API requirements** from GSMA Operator Platform Group and other sources
- **Define Service APIs and Service Management APIs**
- Create test plans / cases / tools from an API consumer perspective
- **Develop and test Service APIs and Service Management APIs**
- Create developer friendly **documentation**

## The following deliverables are provided by the CAMARA Project:

- **Service API and Service Management API definitions and documentation**
- Optionally Service API and Service Management API code and
- Test plans, cases and tools for the APIs all contained in deployment packages.

Project resources can be found in the **GitHub repository**: <https://github.com/camaraproject>.

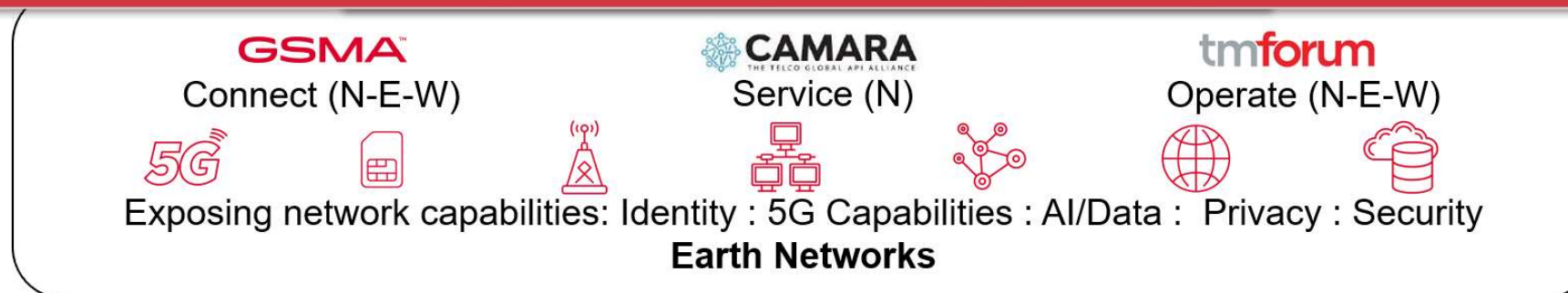


# CAMARA - Collaboration with GSMA Open Gateway



**Open Service (Northbound) Common Network APIs**  
via CAMARA GitHub & GSMA Agreement Templates

**Open Federation APIs (East West Federation & Interconnection)**  
via GSMA Operator Platform Specifications & Agreement Templates



**Specification by Doing Code, not documentation**

**GSMA™**

# Current CAMARA API Families



## Blockchain Public Address

Manage a blockchain public address associated to a phone number

## Carrier Billing CheckOut

Purchase, pay, and follow up on fulfilment of products

## Commonalities

Guidelines and assest mandatory for all CAMARA Sub Projects

## Device Identifier

Check the identity of the subscribers' device

## Device Location

Check the location of a device.

## Device Status

Check the network connection and roaming status of a device

## Edge Cloud

Provide and manage network and compute resources for an application

## Home Devices QoD

Request prioritization of traffic on a specific device on the home network.

## Identity and Consent Mamt

Provides solutions to capture, store and manage user consent

## Number Verification

Allows users to verify the phone number of the connected device

## OTP Validation

To offer secure user authentication to service providers.

## Quality on Demand

Allows users to set mobile connection quality and get notifications

## SIM Swap

Allows users to get information on SIM pairing changes

# CAMARA

## Where are we going next...



1

Additional APIs and roadmap sync across CSPs and Hyperscalers

2

Creation of Technical Steering Committee (TSC) and strengthening of project governance

3

API lifecycle management consistency  
Documentation of API versioning and availability globally

4

Ensuring federation through GSMA and OAM through TM Forum

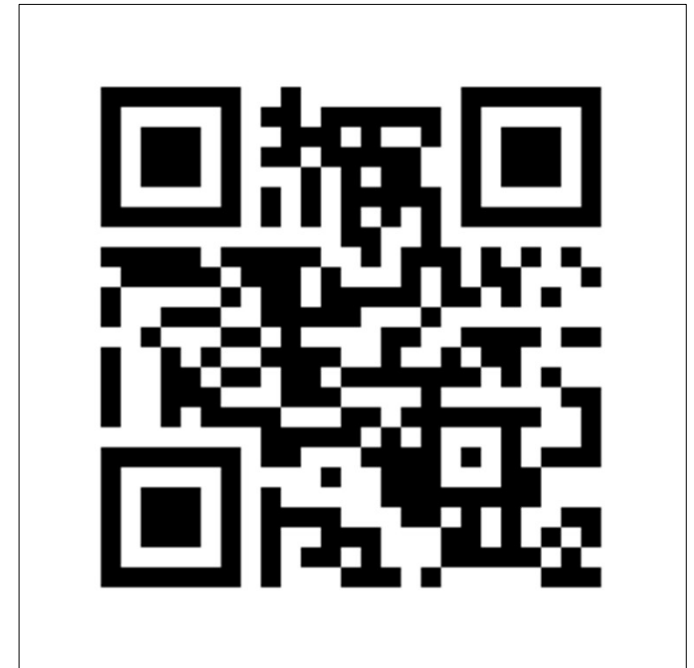
# CAMARA Contacts



Customers (enterprises and startups), aggregators, cloud operators, telco operators, and network equipment vendors are welcome to join CAMARA. Participation is free, without any fees or obligation to work.

If you are interested in joining CAMARA, please subscribe to [all+subscribe@lists.camaraproject.org](mailto:all+subscribe@lists.camaraproject.org). You may unsubscribe from CAMARA and these communications at any time.

In case of further questions please don't hesitate to use our contact page at <https://camaraproject.org/contact/>.





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