CAMARA

THE TELCO GLOBAL API ALLIANCE

Wholesale Agreements and Solutions Group – WAS#24

CAMARA Presentation

21.10.2026

Business Use Cases

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Authentication and Fraud Prevention	Location Services	Communication Quality	Device Information	Computing Services
				
Secure Auth Fraud Prevention	Location Verification Location Retrieval Location Geofencing	Safeguarding of Transactions Remote Control AR/VR/XR Gaming	Proactive User Information	Edge Application hosting Latency optimization
Number Verify, Sim Swap, etc.	Location APIs	Quality on Demand	Device Data Volume	Simple Edge Discovery

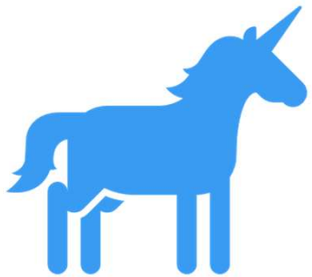
Network APIs offer the opportunity

- For customers to optimize their use cases and applications
- For operators to monetize their invest in 5G infrastructure

It's a win-win!

What is the CAMARA Project?
Key problems we try to solve

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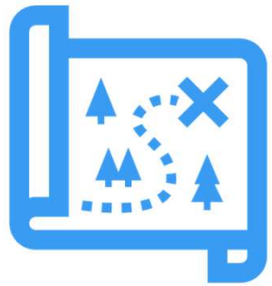
Scale

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.

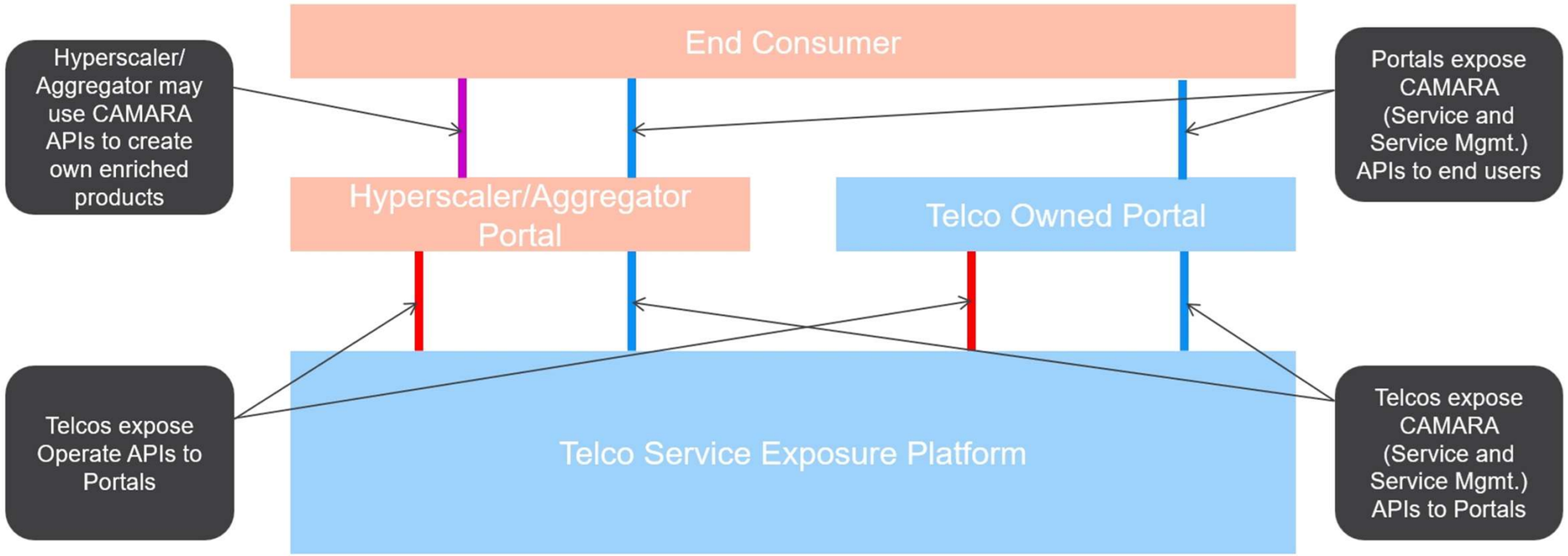
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Where we are now

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- 195 Named Partners
- 490 companies participating in CAMARA
- 8 API Sub Projects
  30 Sandbox Projects
  72 APIs
  5 Working Groups
- 1368 people joined CAMARA
- Development ”home” for GSMA Open Gateway

CAMARA – Scope / Collaboration with Open Gateway and TM Forum

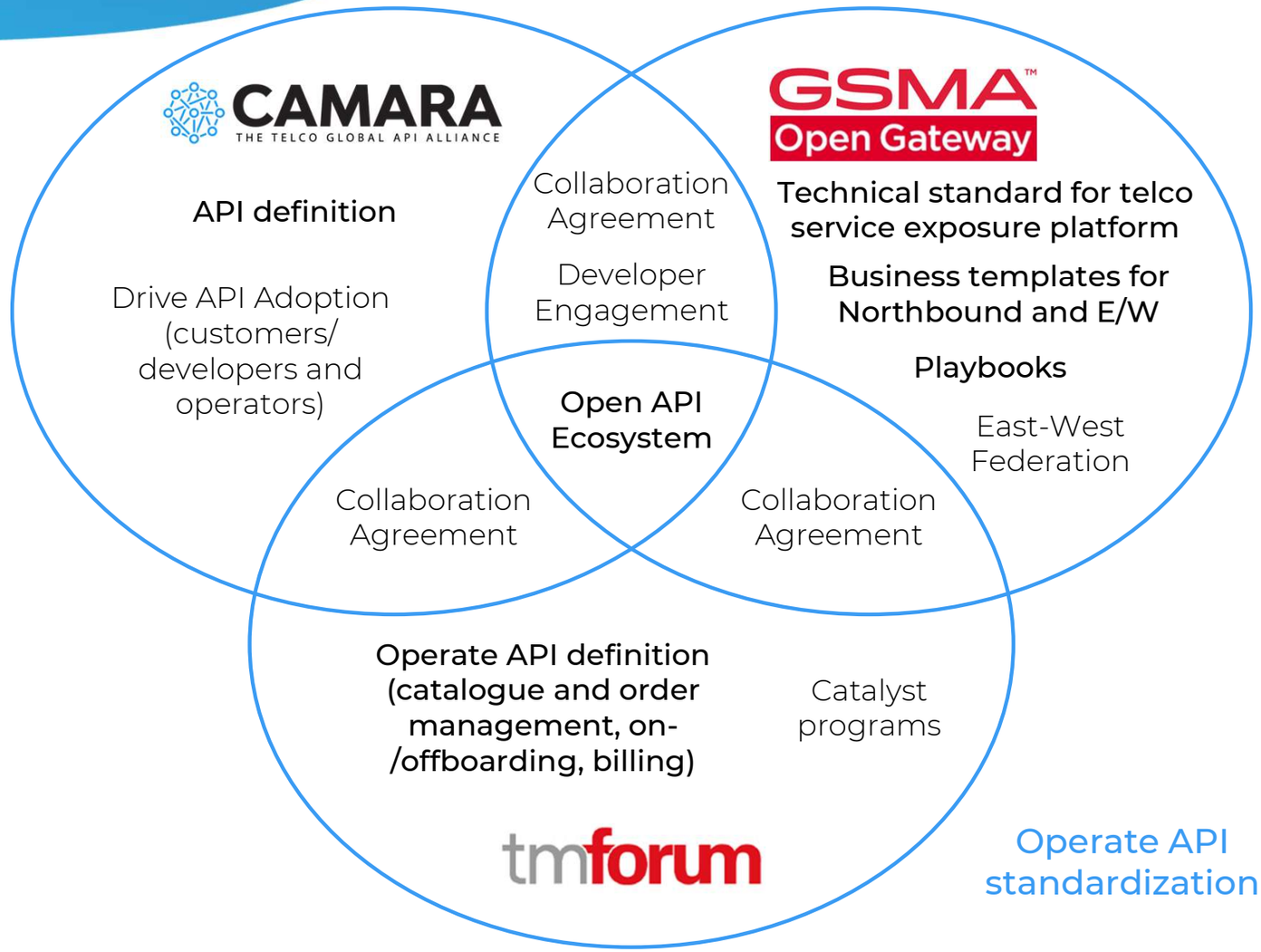


Hyperscalers and aggregators have the possibility to create own enriched products based on the CAMARA APIs and expose that in addition to the CAMARA APIs.

CAMARA – Scope / Collaboration with Open Gateway and TM Forum

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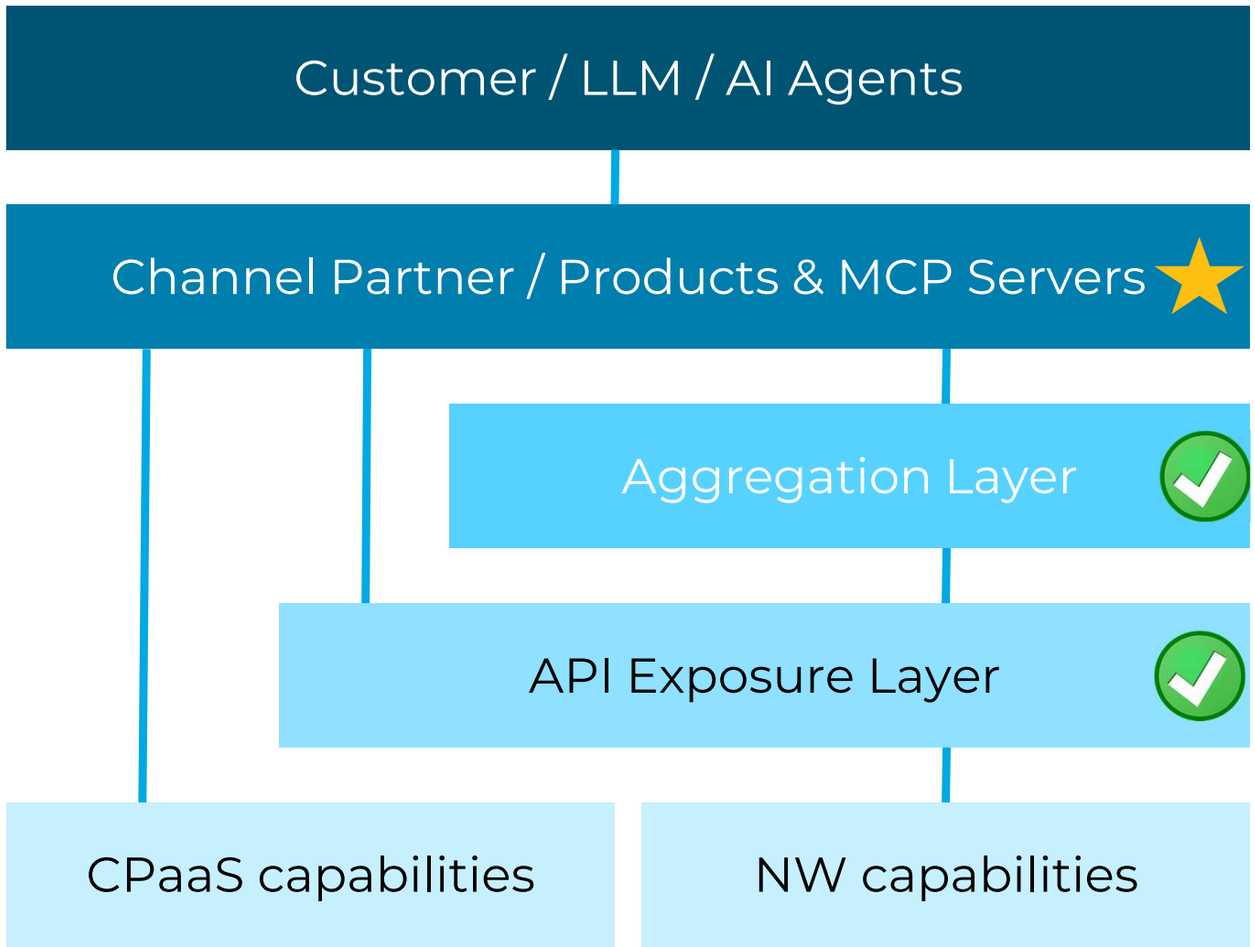
Service API "standardization"



Standardization of telco service exposure platform

Operate API standardization

The API ecosystem – Current status and challenges



CSP – Critical Success Point 2026

Aggregators in each market

GSMA Open Gateway

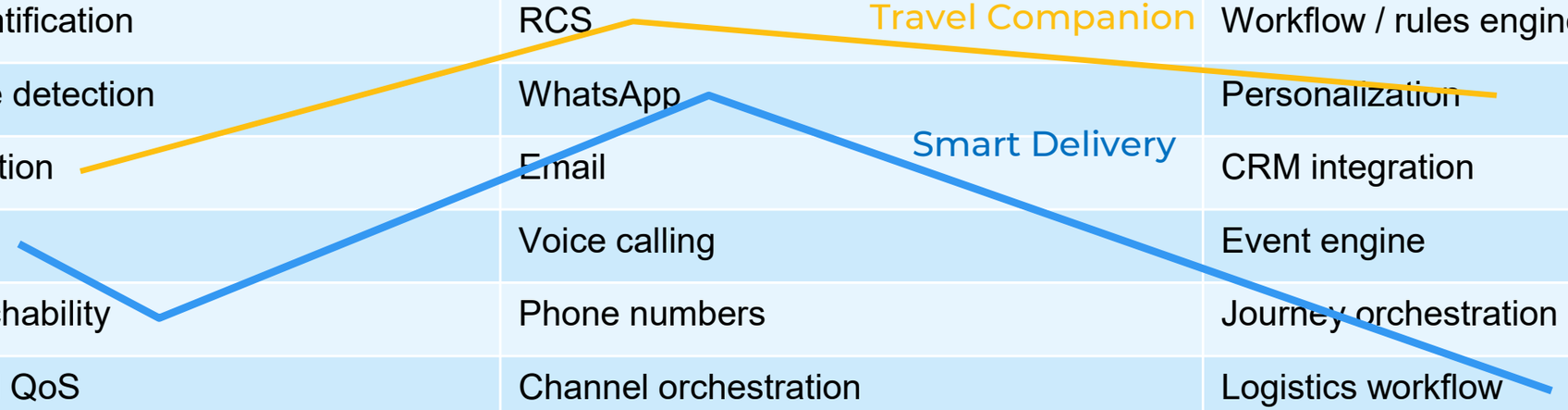
tmforum

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Products - Building blocks

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Network Capabilities (40)	CPaaS Capabilities (25)	Further Capabilities (25)
Number verification	Send/receive SMS	Risk scoring
OTP authentification	RCS	Workflow / rules engine
SIM change detection	WhatsApp	Personalization
Device location	Email	CRM integration
Geofencing	Voice calling	Event engine
Device reachability	Phone numbers	Journey orchestration
On-demand QoS	Channel orchestration	Logistics workflow
Traffic steering	Campaigns	Analytics
Session insight	Delivery intelligence	SLA / assurance
Carrier payment	Sender identity	Policy engine
…	…	…



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Backup

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Open Source

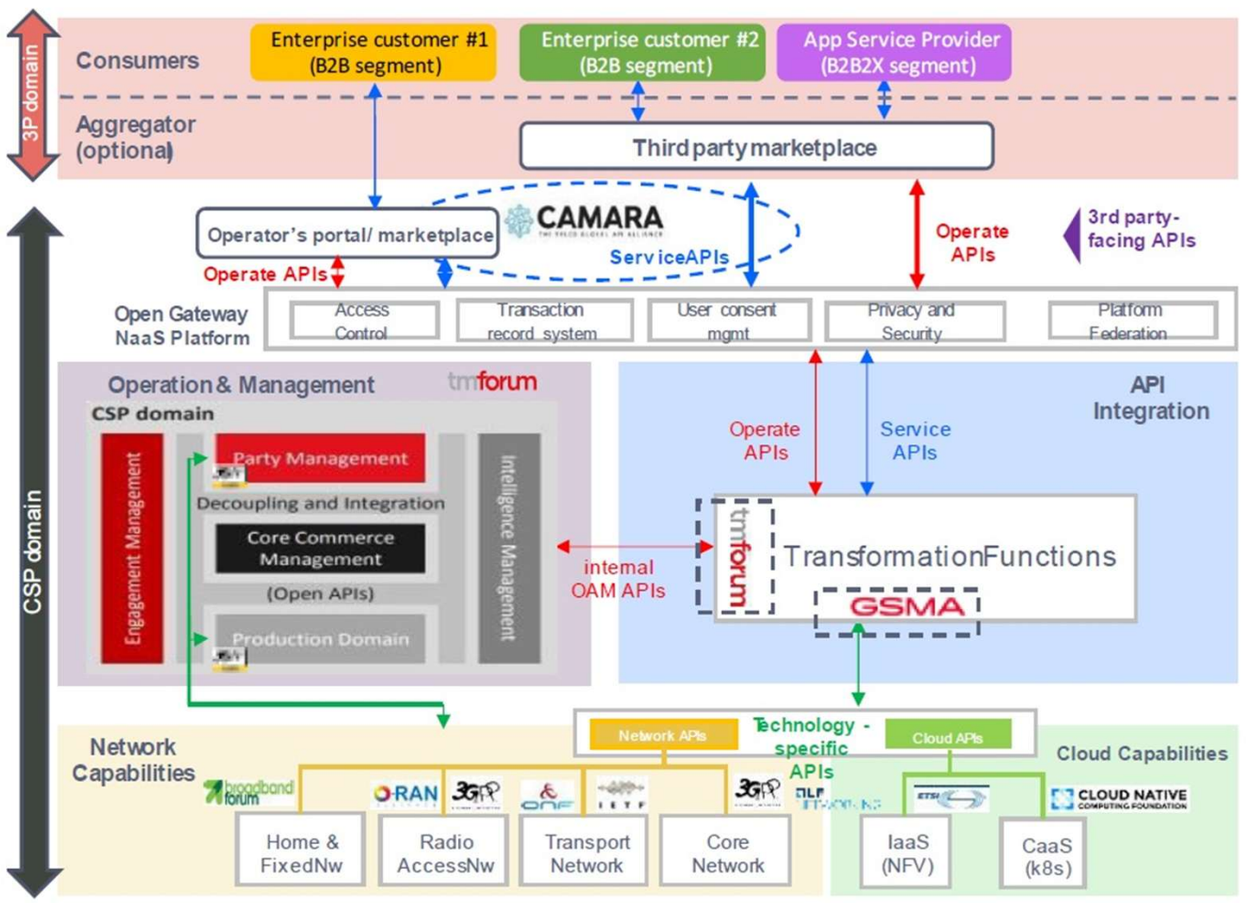
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CAMARA is an open source project within Linux Foundation to define, develop and test the APIs. CAMARA works in close collaboration with the GSMA Operator Platform Group to align API requirements and publish API definitions. Harmonization of APIs is achieved through fast and agile created working code with developer-friendly documentation. API definitions and reference implementations are free to use (Apache2.0 license).

THE LINUX FOUNDATION

GSMA™

CAMARA – Scope / Collaboration with Open Gateway and TM Forum



3rd Party-facing APIs

Service APIs
App-centric, developer-oriented
Apache2.0 lic, user -friendly , easy-to-use
Example: QoD, verify location, device status, SimSwap,….
Includes some management functionality used from the apps (in-app OAM APIs)

Hosted by CAMARA

Contributed by OpenGateway partners , directly or supported by bodies like
GSMA 5GFF tmforum bridge CableLabs

Operate APIs
Management oriented
Easy-to-implement , easy-to-use, simple
Example: register, account, monitor, issue mgmt, order/purchase, pay…
Provides an easy integration of the NaaS Platform with marketplaces /portals

Contributed by OpenGateway partners, hosted by tmforum

Technology -specific APIs
Technical capability oriented, standard, (FRAND) deterministic
Example: policysetting parameter setting information check..

Contributed by specific domain SDOs
O-RAN broadband forum IETF ONF 3GPP CLOUD NATIVE ETSI LINUX

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.

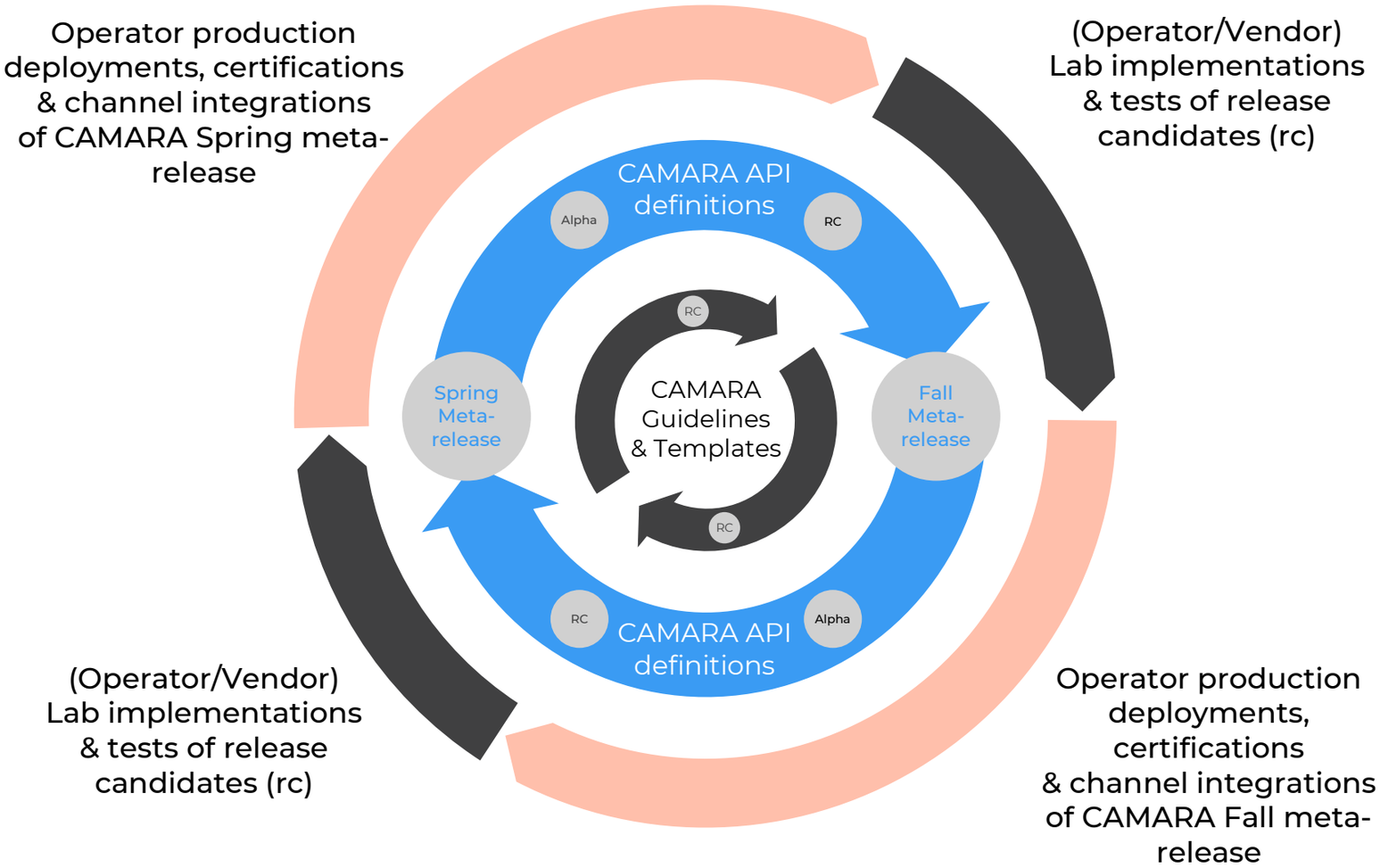
What is different now in comparison to former API exposure trials?

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- **Simplicity** – Telco complexity is hidden behind simple, easy to use APIs
- **Demand driven** - Listening to API consumer's voice and demand
- **Availability** – Open APIs with great support of many operators on many platforms
- **Alignment** - With standardization bodies like TM Forum, GSMA or ETSI-MEC
- **Sustainability** – We have the CEOs behind (e.g. Open Gateway MoU, API Venture)
- **Telco maturity** – Telcos are now more digital and cloud oriented
- **Privacy** – Well defined

Release Management
Release Cycle

- 2 meta-releases per year
  - Fall (in September)
  - Spring (in March)
- Continuous and overlapping cycles
  - Update of CAMARA guidelines
  - Development and updates of API definitions in CAMARA
  - Lab implementations and production deployments at network operators
- Tests of API release candidates
  - In operator (lab) implementations
  - Based on CAMARA test definitions
- Feedback in all phases
  - From (lab) implementations and deployments to CAMARA API definitions and guidelines
  - From API definition work to CAMARA guidelines



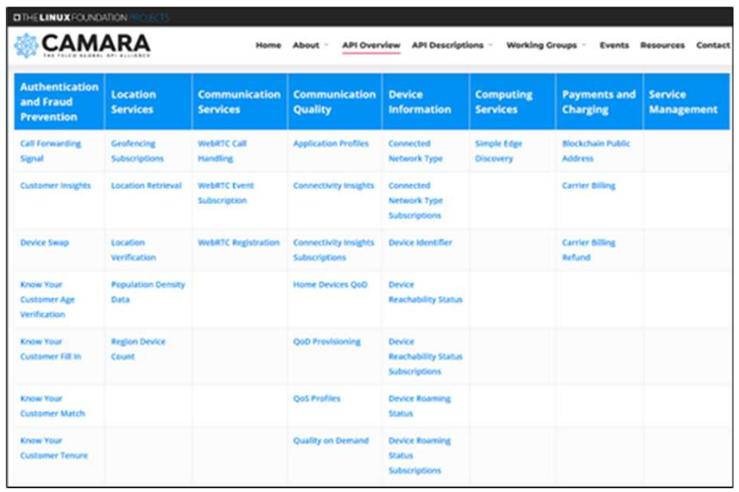
For details see: https://wiki.camaraproject.org/display/CAM/Meta-release+Process

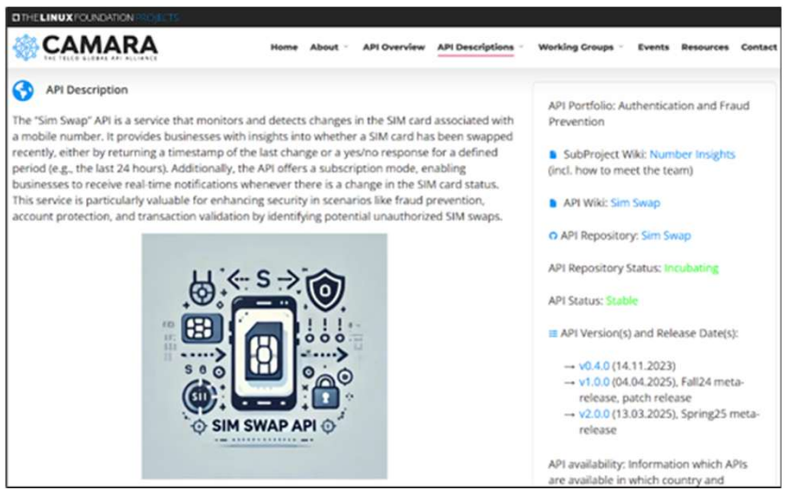
Developers Getting Started with CAMARA APIs

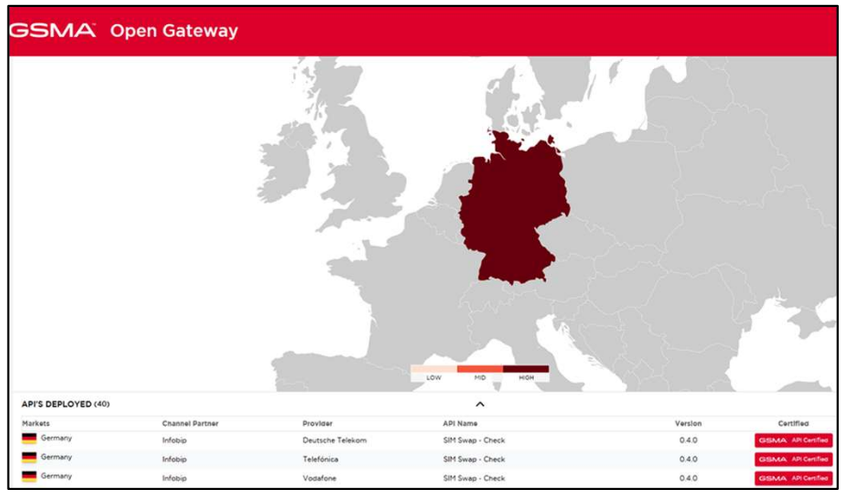
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Integrate API call in own code, e.g. for Sim Swap:

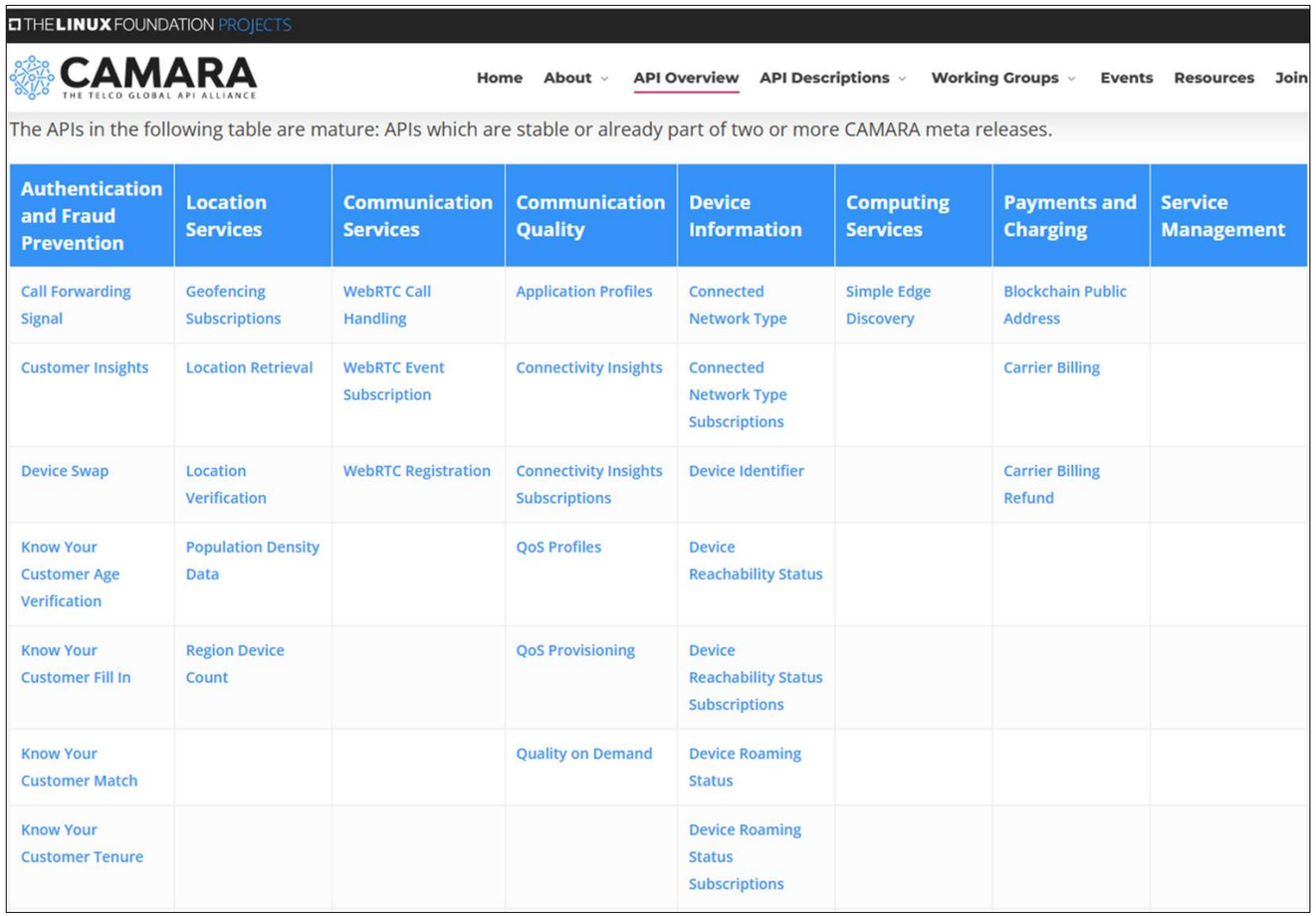
- Get API definition and documentation from https://camaraproject.org/api-overview/ (open&free!)
- Get API availability from GSMA public launch status map (linked in API description)
- Get API access e.g. from DT, Orange, Telefonica (linked in map)







CAMARA API Overview


THE LINUX FOUNDATION PROJECTS

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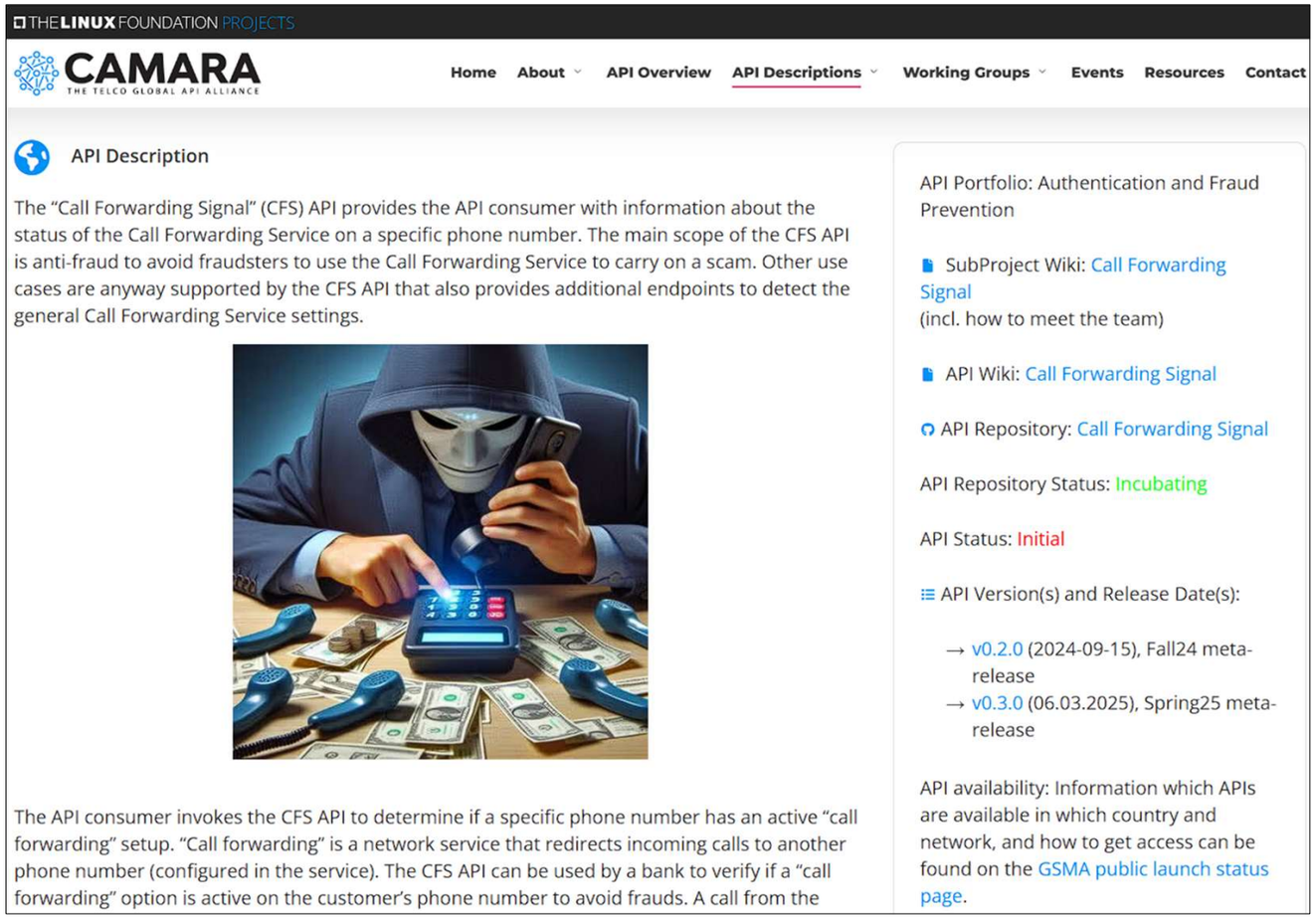
Home | About | API Overview | API Descriptions | Working Groups | Events | Resources | Join

The APIs in the following table are mature: APIs which are stable or already part of two or more CAMARA meta releases.

Authentication and Fraud Prevention	Location Services	Communication Services	Communication Quality	Device Information	Computing Services	Payments and Charging	Service Management
Call Forwarding Signal	Geofencing Subscriptions	WebRTC Call Handling	Application Profiles	Connected Network Type	Simple Edge Discovery	Blockchain Public Address	
Customer Insights	Location Retrieval	WebRTC Event Subscription	Connectivity Insights	Connected Network Type Subscriptions		Carrier Billing	
Device Swap	Location Verification	WebRTC Registration	Connectivity Insights Subscriptions	Device Identifier		Carrier Billing Refund	
Know Your Customer Age Verification	Population Density Data		QoS Profiles	Device Reachability Status			
Know Your Customer Fill In	Region Device Count		QoS Provisioning	Device Reachability Status Subscriptions			
Know Your Customer Match			Quality on Demand	Device Roaming Status			
Know Your Customer Tenure				Device Roaming Status Subscriptions			

- https://camaraproject.org/api-overview/
- Mature APIs
- APIs in earlier development

API Descriptions

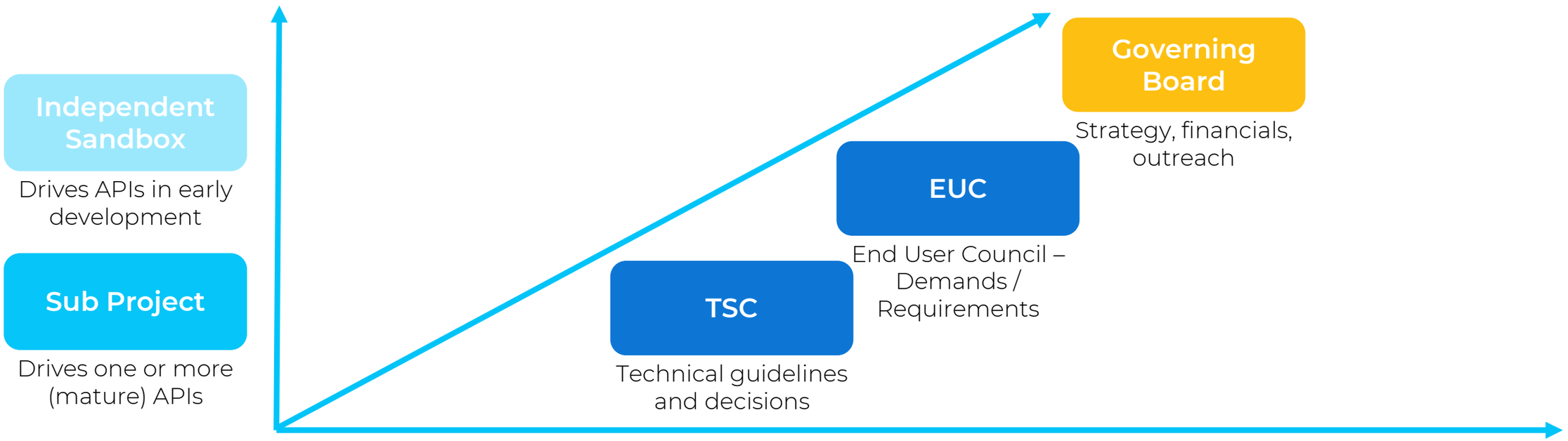


- API description
- Use Cases
- Benefits

- Links to
  - Sub Project (contacts)
  - API Wiki
  - API repository
  - API version(s)
  - GSMA public launch status

How CAMARA Works

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API Backlog
Maintains the API Backlog for CAMARA

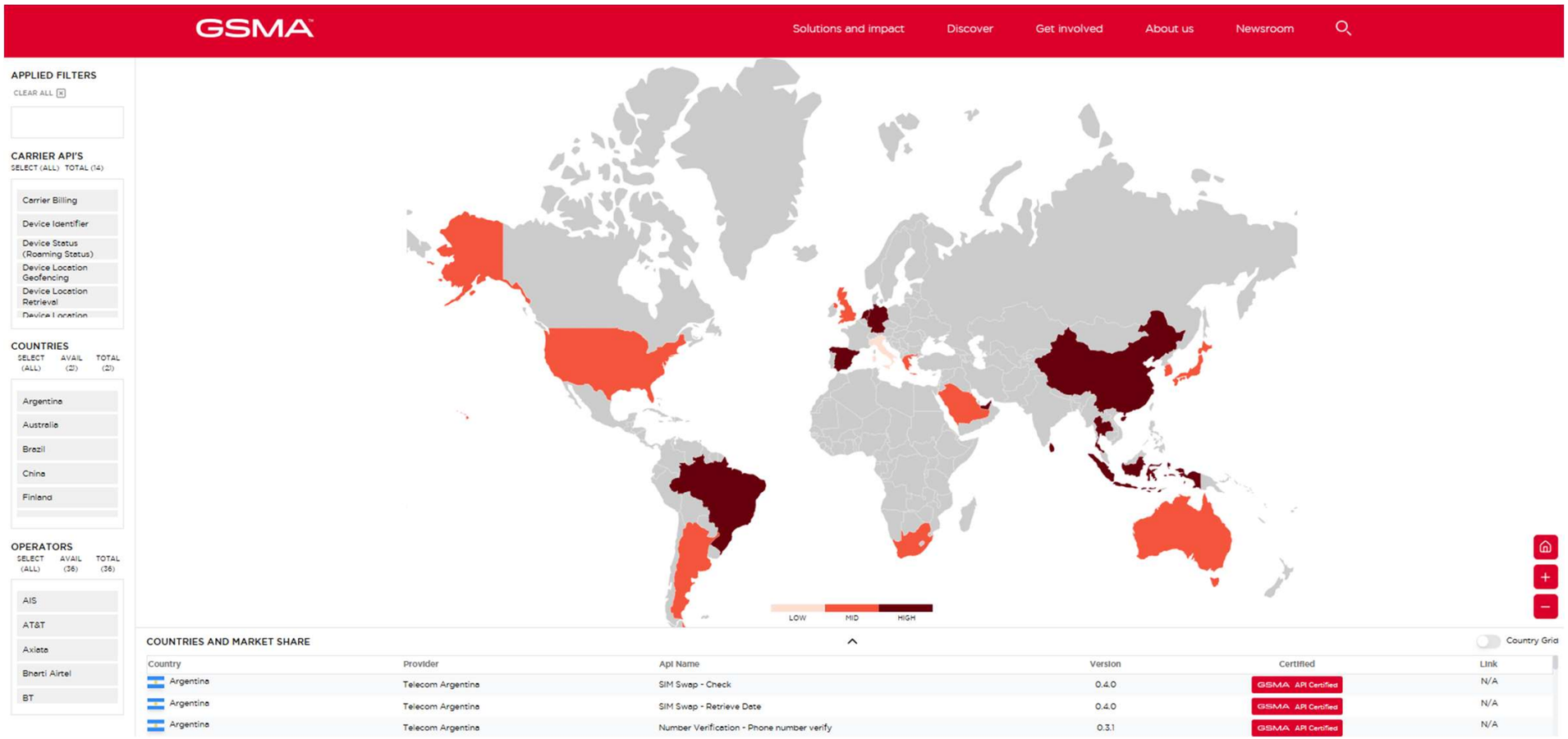
Common-alities
Guidelines and assets mandatory for all CAMARA Sub Projects

Identity and Consent Management
Provides solutions to capture, store and manage user consent

Marketing / Outreach
Plans and performs marketing activities for CAMARA

Release Management
Guidelines and assets for Release Management in CAMARA

CAMARA / Open Gateway API public launch status



https://open-gateway.gsma.com/

CAMARA / Open Gateway API public launch status

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Commitment

138 *80* operator groups and *58* Channel Partners supporting the Open Gateway MOU

291 operator networks represented

>80% of mobile connections represented

Assets

66 APIs published in CAMARA

34 APIs in Development

Technical

Standardization through certification
Certified APIs

Commercial

Open Service Agreement, Channel Partner On-Boarding and E-W Federation Agreement Templates

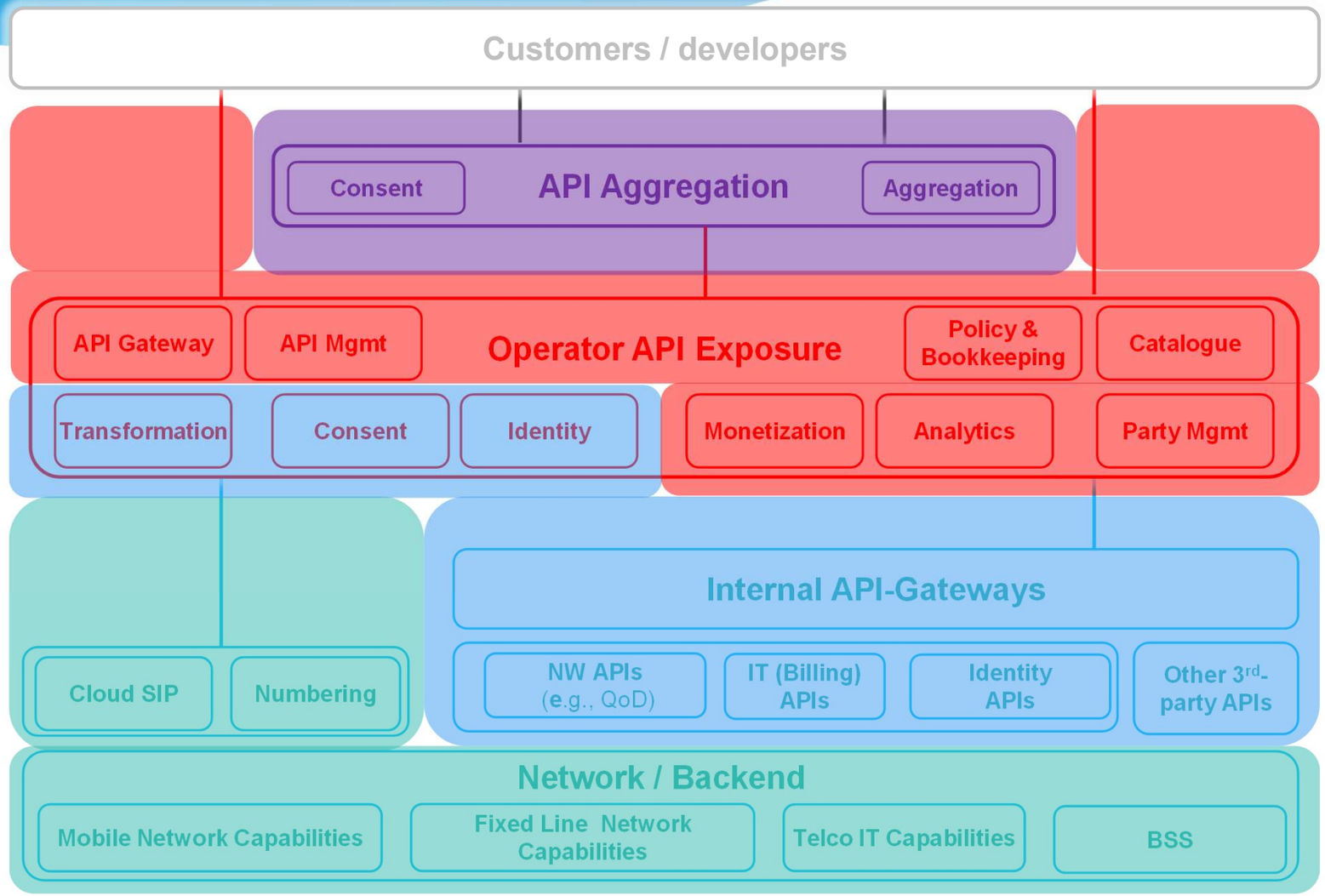
Impact

270 commercial API launches

21 market champion launches with align GTM services, engaged with *68* Markets

17,096 media mentions in 2025, 22K in 2024

Role of CAMARA, Open Gateway and aggregators



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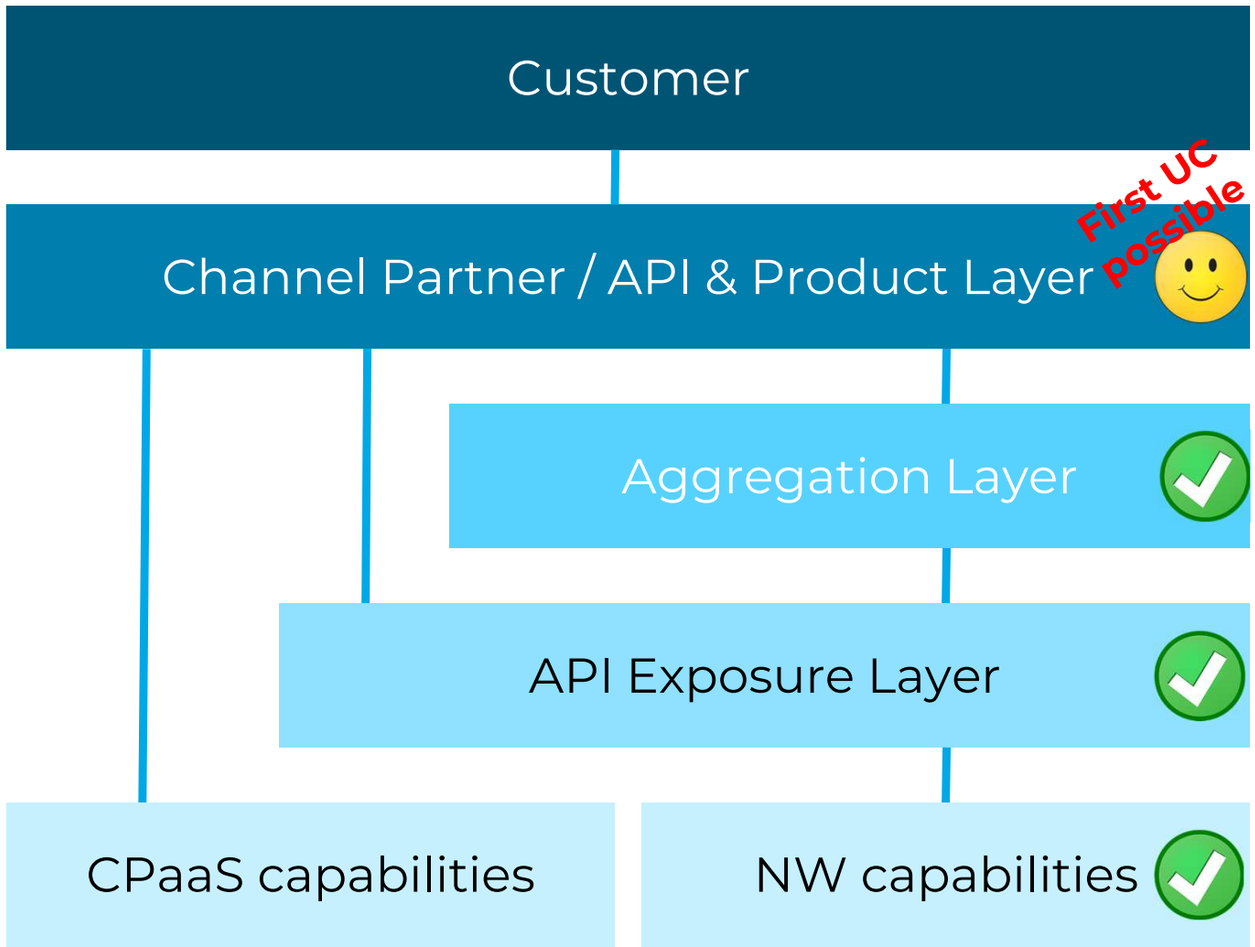
Aggregators in each market

tmforum

GSMA™
Open Gateway

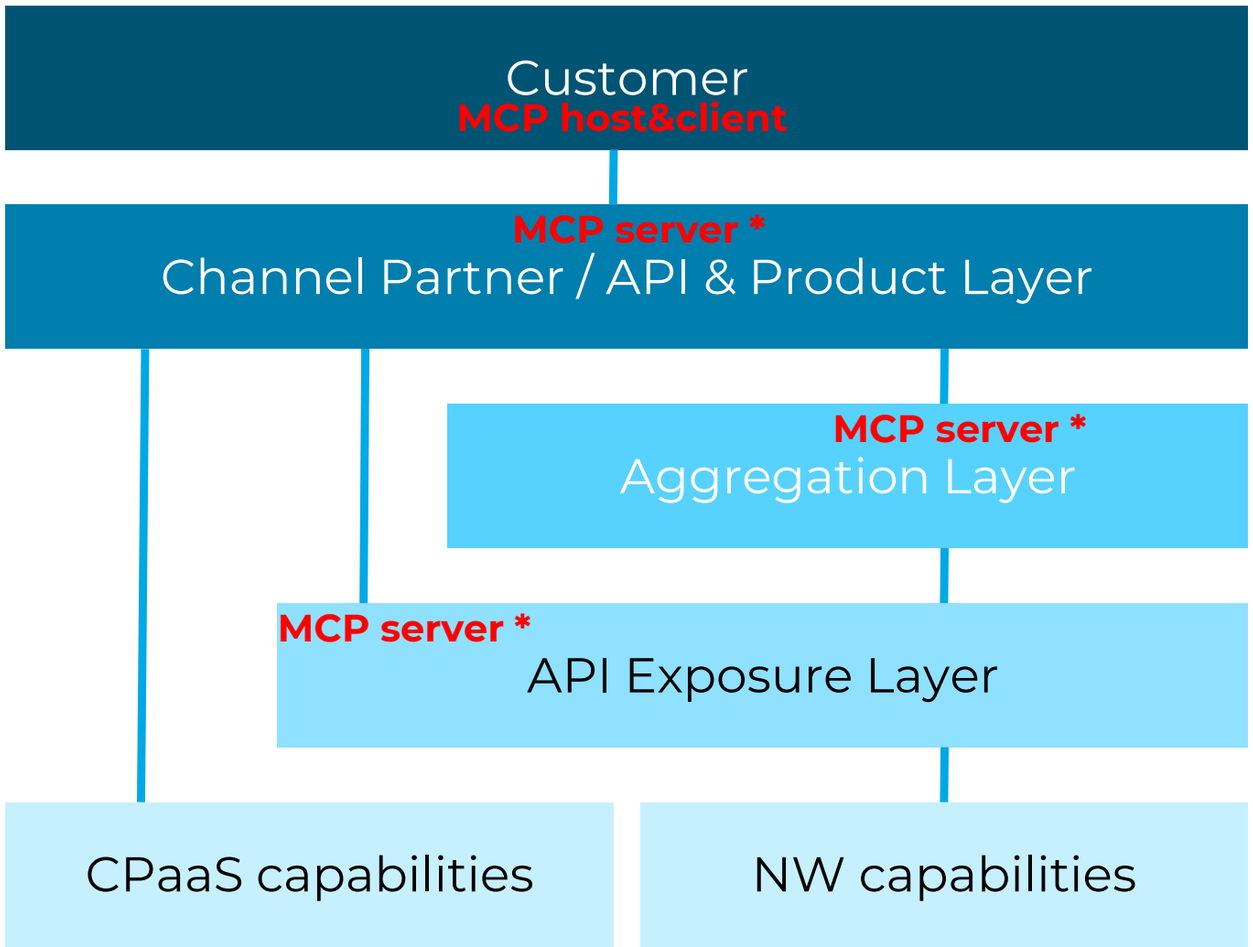
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The API ecosystem – Current status and challenges



- Show the figures (successful revenues) - GSMA
- Find balance between regulation/data privacy and usability for the markets - GSMA
- Prepare all layers for (agentic) AI – Channel Partners, GSMA, CAMARA
  Next slide
- Introduce products - Channel Partners
  - Change communication (solve customer problems instead of expose capabilities)
  - Design and develop products following customer need, considering alternative (non-telco) solutions and attractive pricing
- Push market coverage and communicate it - GSMA
- Close gaps at operators - Operators
- Enable Consent API for multi-API one-step consent independent of API flows - CAMARA

The API ecosystem – Prepare for agentic AI



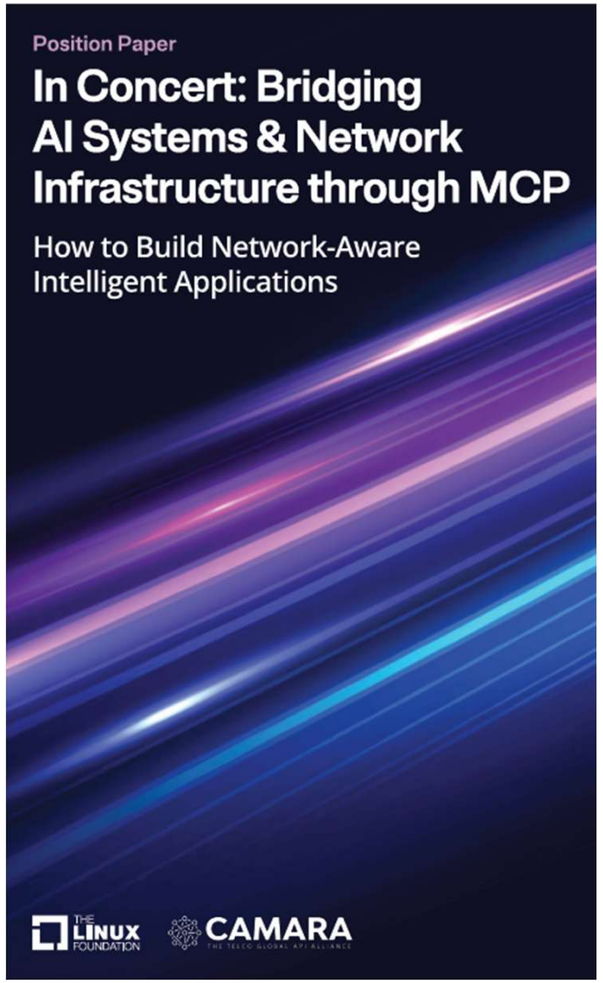
- CAMARA should provide context for MCP servers, esp. scopes and purposes, user consent requirements
- CAMARA should adjust security guidelines and API design guidelines
- CAMARA should provide authoritative MCP function definitions versioned in lockstep with corresponding CAMARA API definitions
- GSMA/OGW should add MCP servers to technical standards, launch map, certification
- Operators and Aggregators should expose MCP servers in parallel to APIs
- Channel partners and Customers should use LLMs/MCP hosts/MCP clients in parallel to products. Channel partners also can expose MCP servers to customers.

*** MCP server can sit in exposure layer (for single operator APIs), aggregation layer (for aggregated APIs) or Channel Partner layer. But aggregation only happens on API side, not on MCP side**

In Concert: Bridging AI Systems and Network Infrastructure through MCP

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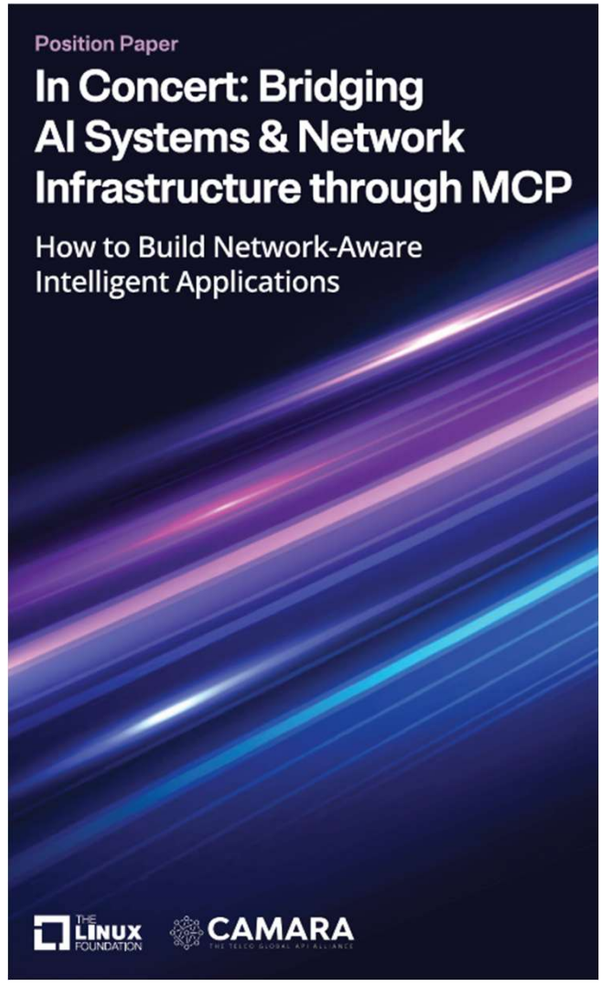
- To enable LLMs accessing network capabilities, APIs and a bridging protocol (MCP) is needed. Combining both AI developers can
  - Deliver more intelligent, network context-aware services
  - Reduce delivery complexity, accelerate time-to-market, expand global reach
  - Enable AI models to make real-time, policy-compliant decisions that optimize UX and resource utilization
- Example use cases are listed in the whitepaper



In Concert: Bridging AI Systems and Network Infrastructure through MCP

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- No fundamental changes are required to either ecosystem
  - Provide context for MCP servers, esp. scopes and purposes, user consent requirements
  - Follow CAMARA security guidelines and API design guidelines (both need to be adjusted to AI)
  - CAMARA may provide authoritative MCP function definitions versioned in lockstep with corresponding CAMARA API definitions
- Details are documented in the whitepaper



CAMARA Contacts

Individuals and organizations from application developers / API consumers (e.g. enterprises and startups), aggregators, cloud operators, telco operators, network equipment vendors, system integrators, and software vendors are welcome to join CAMARA.

To access CAMARA technical resources like API definitions, API specifications or API code just visit the CAMARA GitHub. All resources are reachable without any prerequisite. To create issues and start contributing to CAMARA you need a free GitHub account without any further prerequisite. This participation is free, without any fees or obligation to work.

If you are interested to be included in the CAMARA communication, please subscribe to all+subscribe@lists.camaraproject.org. You may unsubscribe from CAMARA and these communications at any time. Participation is free.

If you are interested to show your logo on the CAMARA website as “Participating Organization” you can send it to adm@lists.camaraproject.org. Participation is also free.

If you would like to join as CAMARA sponsor or associating organization, please don’t hesitate to use the enrollment link https://enrollment.lfx.linuxfoundation.org/?project=camarafund. Cost is depending on the kind of membership and the number of employees.


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