

Open Gateway Community call #2

7 September 2023



GSMA™

GSMA Antitrust Policy

All GSMA participants **must** abide by the following rules:



DO clearly identify the positive purpose of each project and follow it



DO consult with legal in areas where you are unsure



DON'T enter into agreements that restrict other parties' actions or creates barriers to market entry



DON'T discuss or exchange information on pricing, business plans, or any other confidential or commercially sensitive data



DON'T discuss or recommend any reference prices, or any particular pricing policy



Agenda

- Welcome (5 min)
- Channels to market (10 min)
 - Microsoft – Ricardo Villarreal
- Early adopter programmes (30 min)
 - Hubraum/DT – Anna Piwowarczyk
 - Telefonica - Pedro De Alarcon Sanchez
 - CableLabs - Chris Corcimiglia
- Open Gateway progress (25 min)
 - Huawei – Jeff Wei
 - Telefonica - Alberto Torron Rodriguez
 - GSMA – Lucy Thatcher
- Q&A

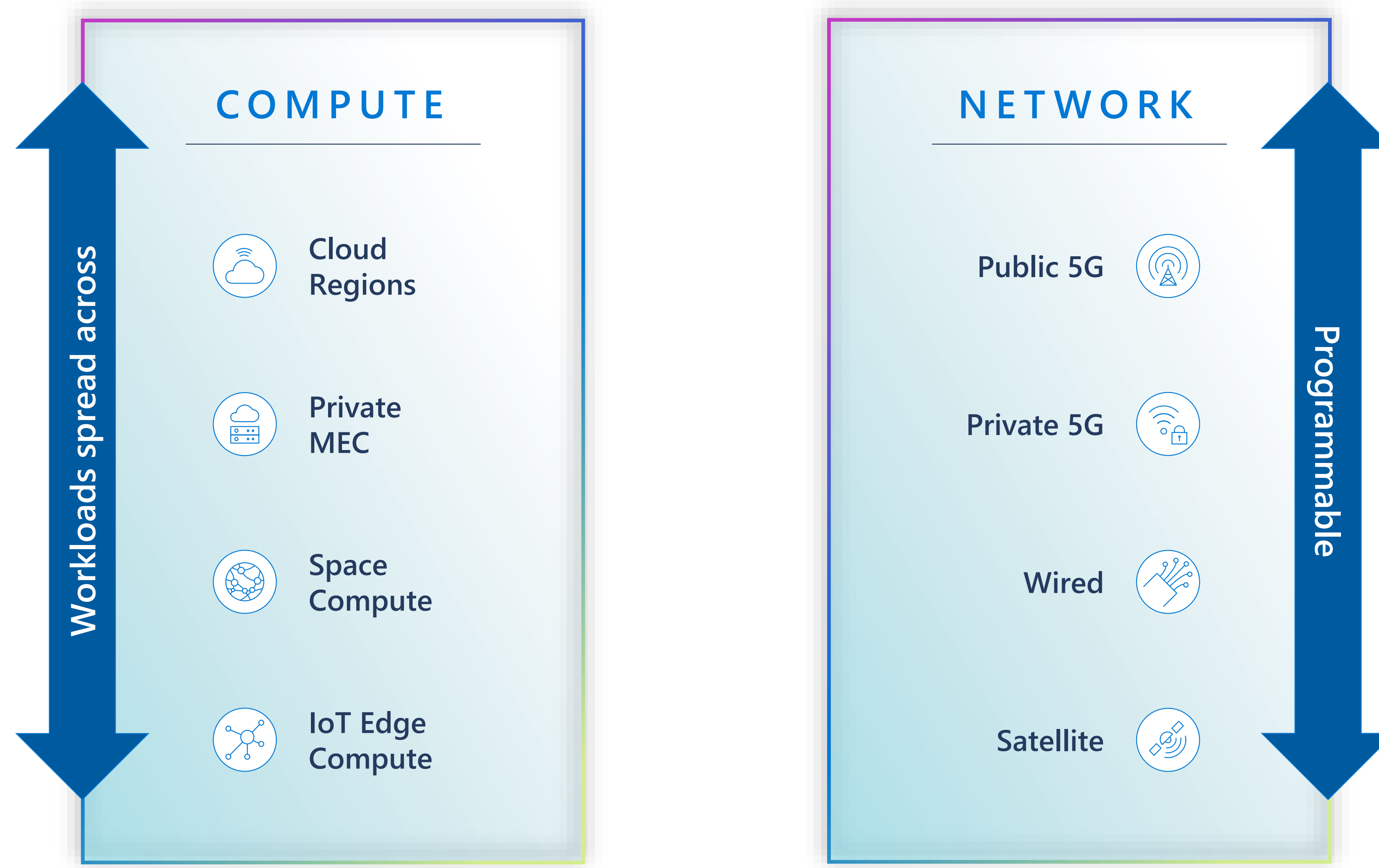
Channels to market

AZURE FOR OPERATORS

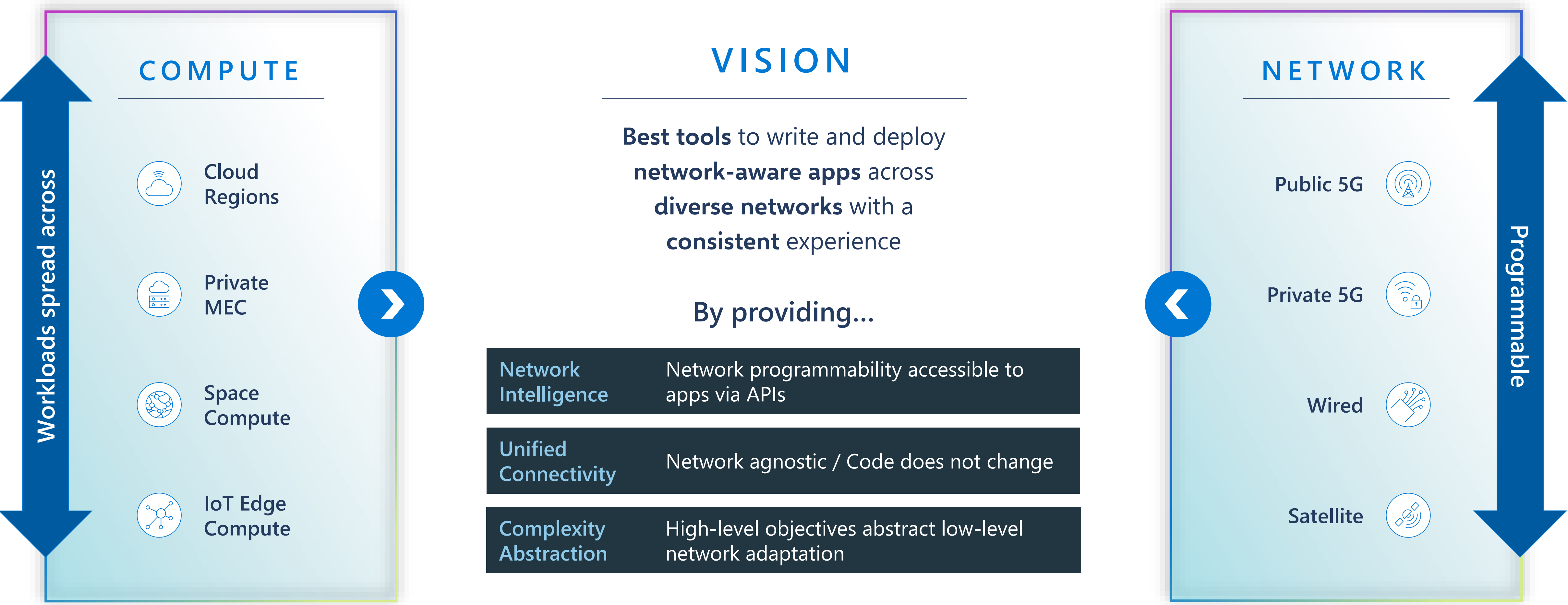
Azure Programmable Connectivity (APC)



Modern Connected Applications



Network Programmability Vision



Network API Challenges

LOW-LEVELS OF ABSTRACTION

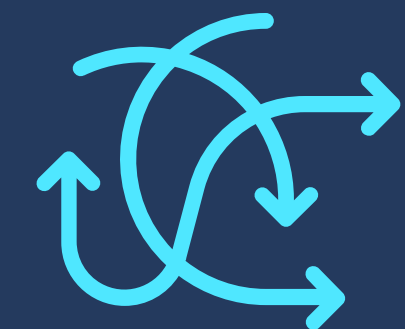
- › Network APIs are too low-level for most developers
- › Network APIs provide inputs to intelligent adaptation
- › Devs want abstractions for guiding intelligent adaptation



Solution: high-level objectives integrated with Azure services

IRREGULAR INTERFACES

- › Each operator's API will be a different flavor (even if NEF based)
- › As apps scale, they must interact with more and more APIs
- › Requires learning and maintaining code for each operator API



Solution: aggregation and translation via Network API Gateway

Azure Programmable Connectivity

ARCHITECTURE

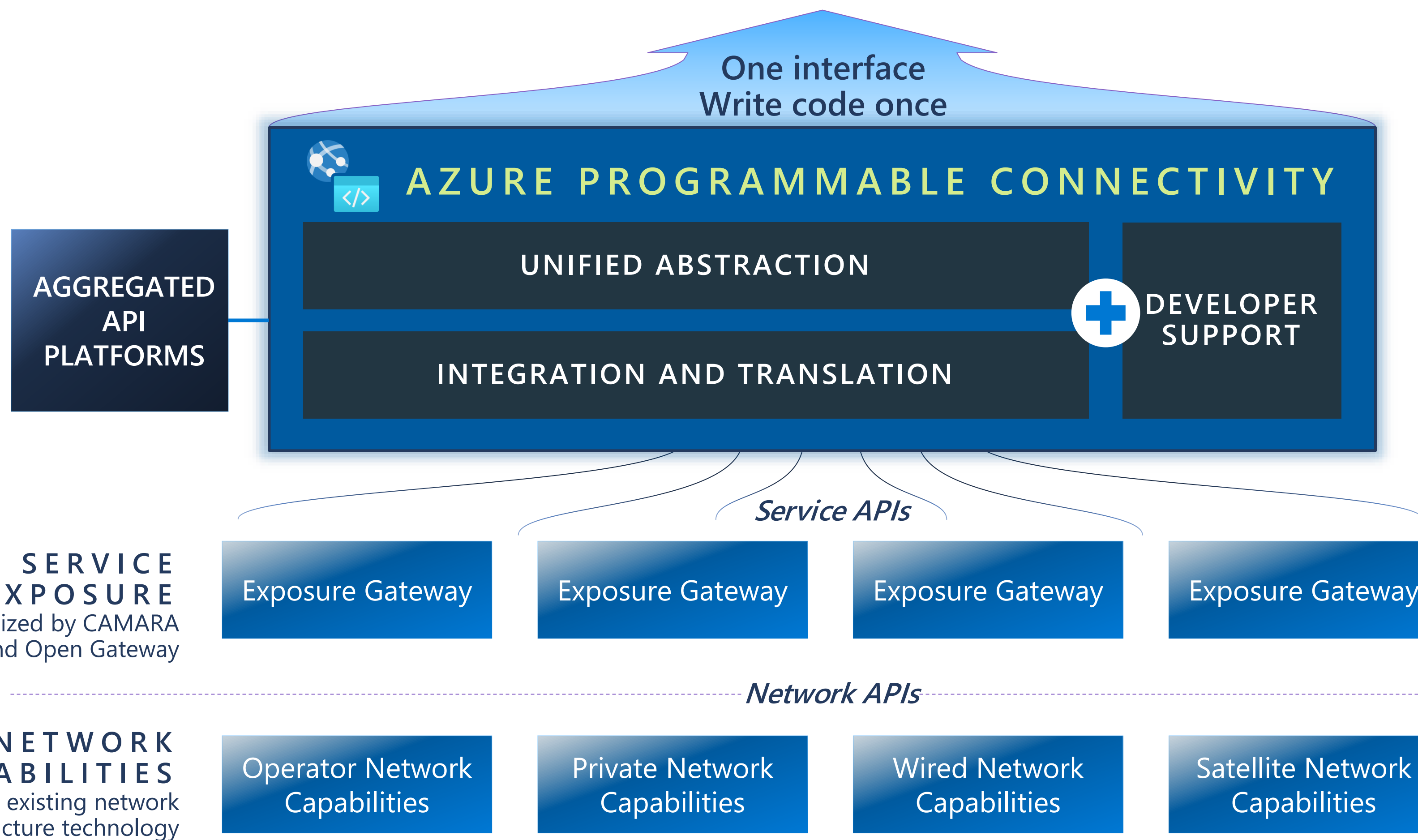
STAKEHOLDER

OBJECTIVE



DEVELOPERS

Seamless unified experience to infuse applications with new network capabilities across all modern operator networks



AZURE

Provide a simple Azure experience for developers abstracting the complexities of using network APIs and helping operators transparently differentiate their offerings

OPERATORS

Access to developer ecosystems to monetize new network capabilities

Azure Programmable Connectivity Features

AZURE PROGRAMMABLE CONNECTIVITY

UNIFIED ABSTRACTION

Credential management

Network providers must authenticate Network API calls

SDK matches caller credentials to API calls

Resource discovery

Discover available clients (UEs) and servers (MECs) on network

Discover client status and network conditions between clients-servers

Resource configuration

Configure how client traffic is routed, when to migrate user plane

Configure quality of service (QoS) between clients-servers

Resource monitoring

Monitor network conditions between clients-servers

Monitor when client status changes



INTEGRATION AND TRANSLATION

Operator Network
Adapter

Private Network
Adapter

Wired Network
Adapter

Satellite Network
Adapter

DEVELOPER SUPPORT

Azure
Marketplace

Simplified
billing

CI/CD

Simulation
environments

VS plugins

Early adopter programmes

A person is walking across a narrow suspension bridge made of wooden planks, which is stretched between two steep, rocky cliffs. The bridge is surrounded by a vast, rugged landscape with snow-capped mountains and a clear blue sky with scattered white clouds. The scene conveys a sense of adventure and overcoming challenges.

Our mission: support everyone in DT to develop APIs from concept to market.

We put client in the center by representing voice of developers in the company.

Developer relations journey for network APIs

Phase 1
From concept to Validation

Phase 2
From MVP to PRODUCT

Phase 3
From PRODUCT TO SCALE



Early Adopters Program
G2M support to monetize network and communication APIs

5G Early Access Program
Extensive 5G APIs tests with developers' community



5G Early Access Challenge
First exploration of 5G APIs

I ❤️ DevRel

Developer Relations start

- Extensive developers' research

2020

2021

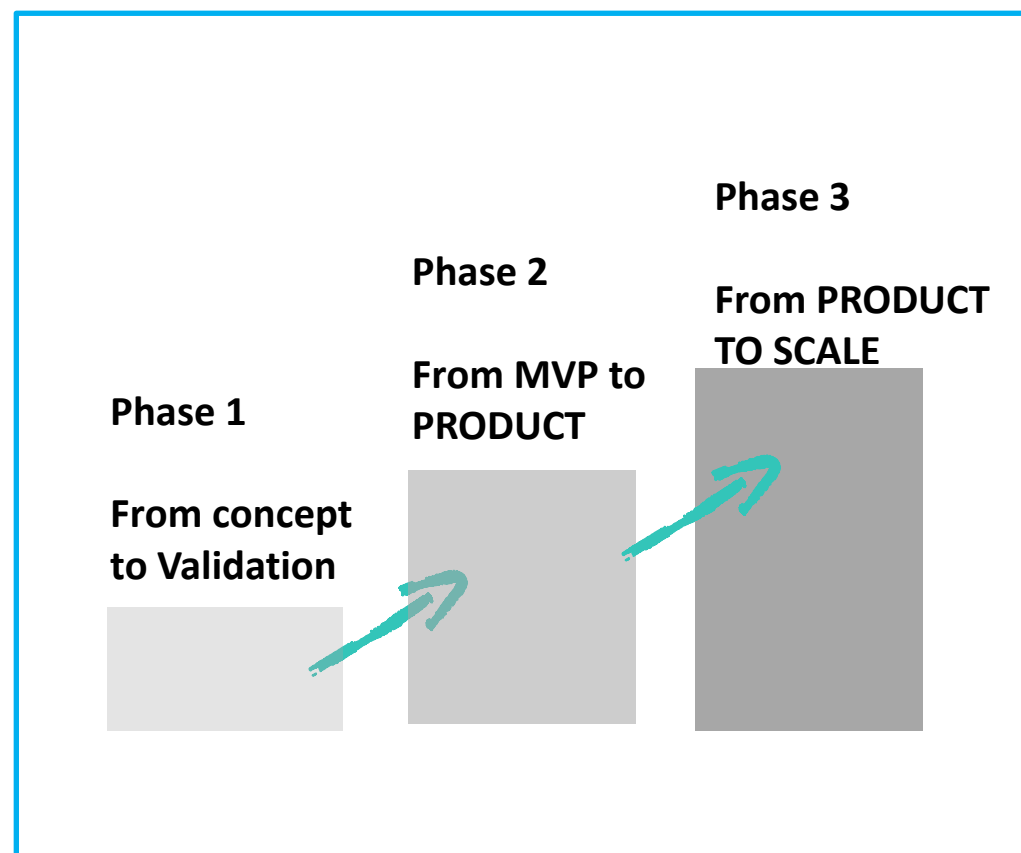
2022

2023

First MVP portal launched

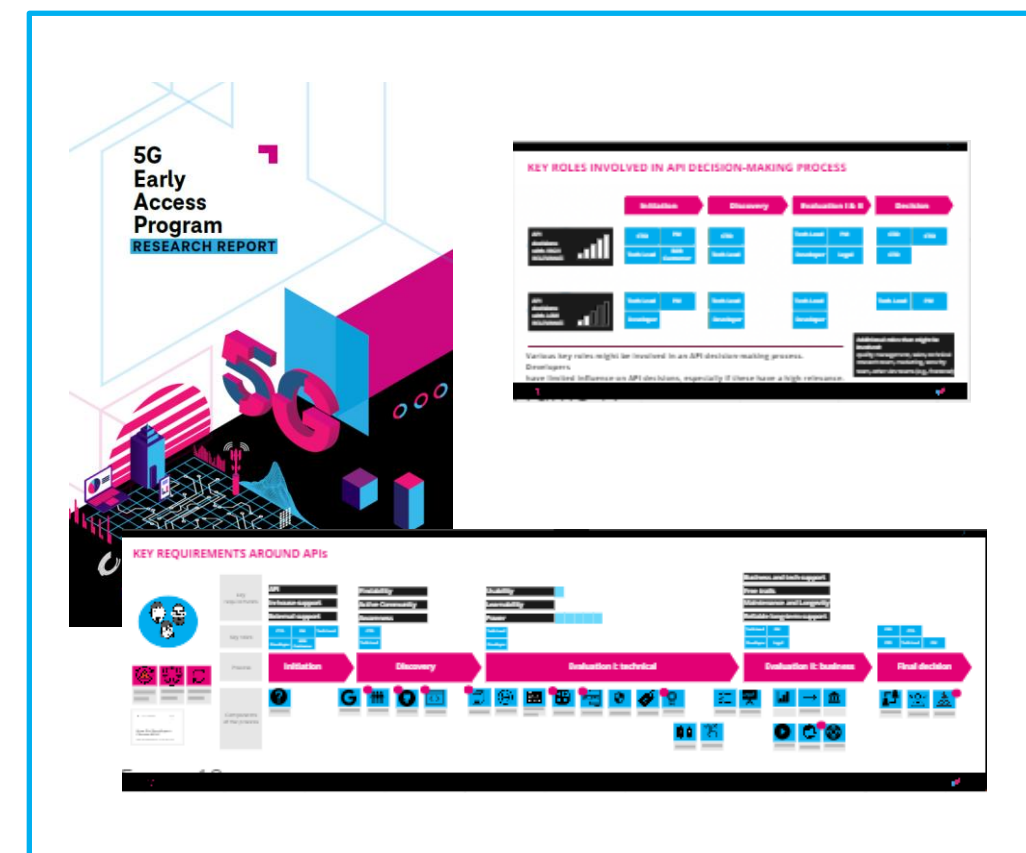
We provide a unique e2e environment

Proven frameworks



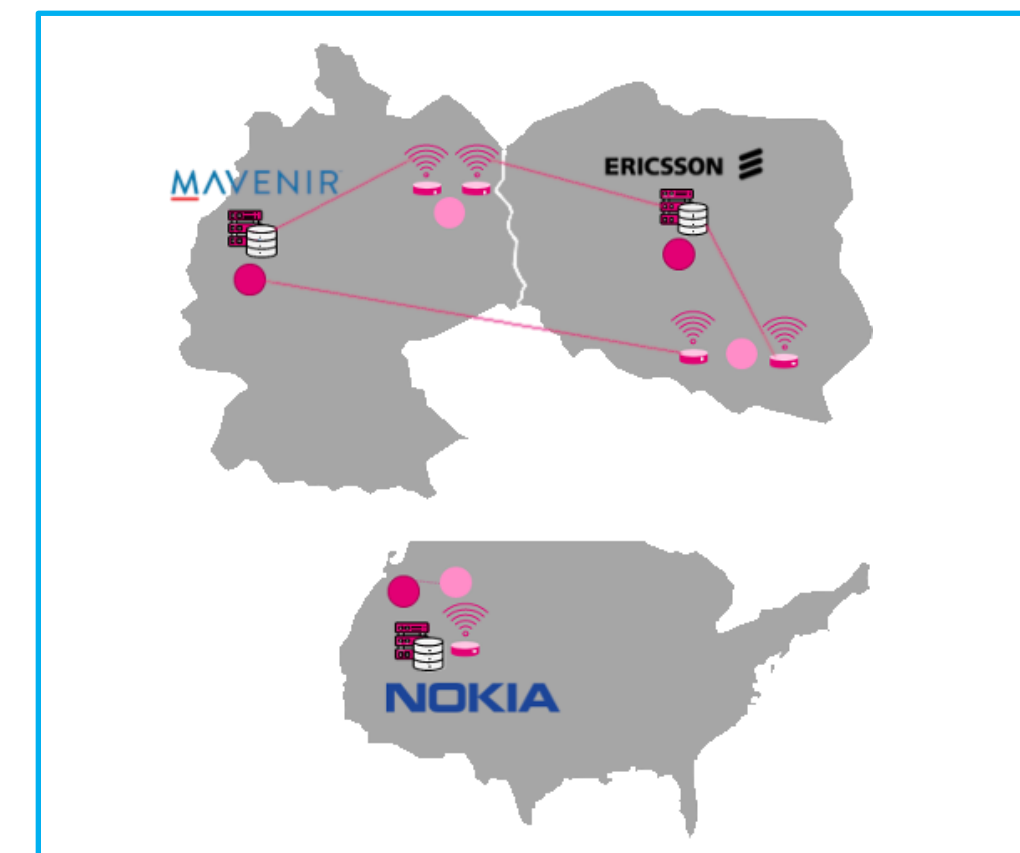
- Ready solutions for every stage of API development
- Establishing **developer relations** as a new function

Developer research



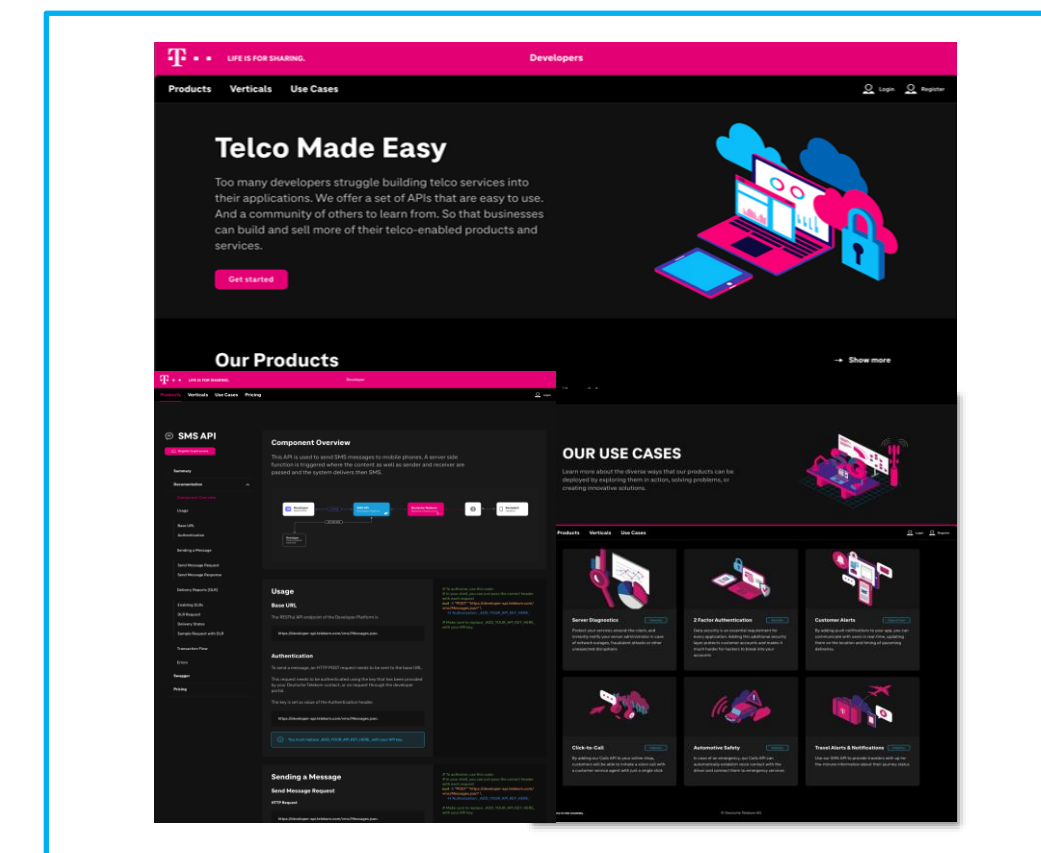
- Understanding developers' needs and transferring know-how to DT

5G testbeds



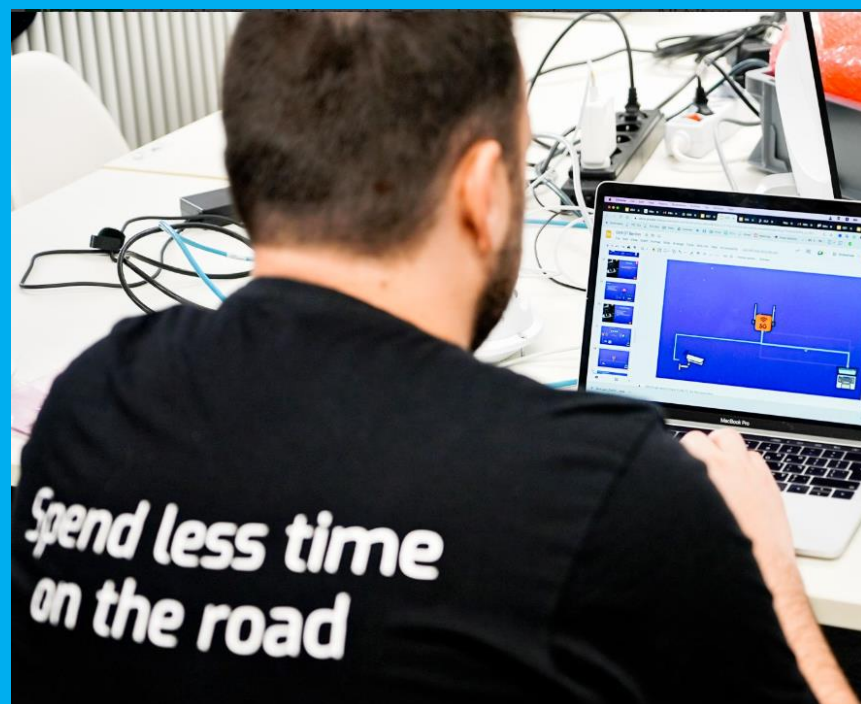
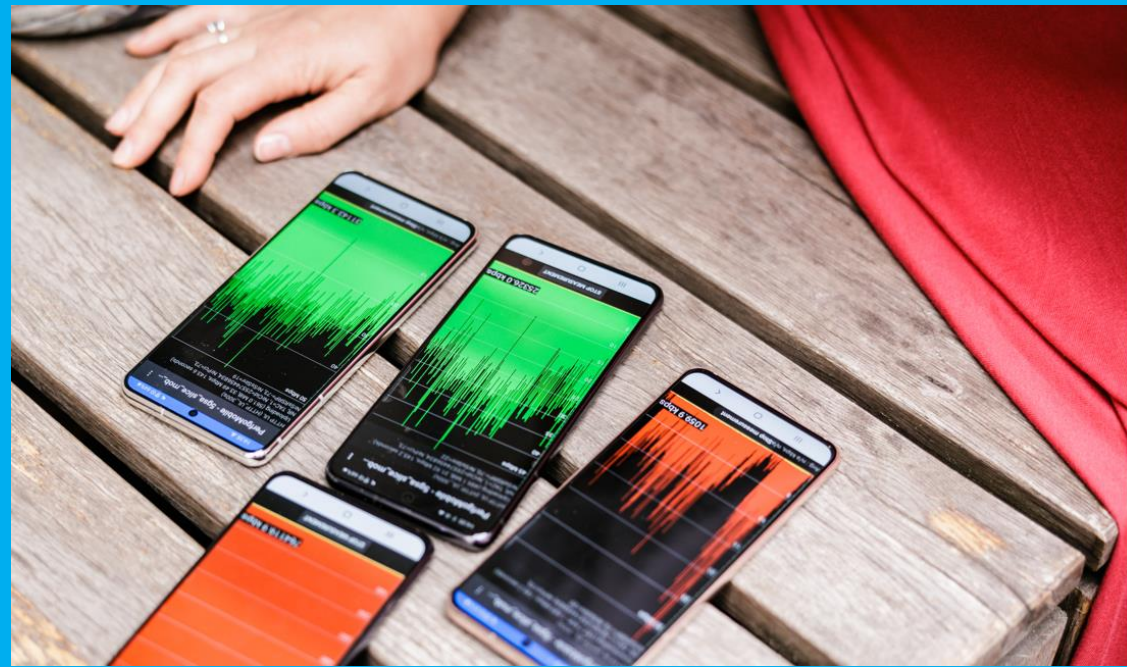
- Pre-Commercial 5G network available for developers

Developer portal



- Integration & exposure of APIs
- Documentation

Early Access Program



Goals

- We open up the products for external feedback
- We focused on the target groups that DT has no experience yet
- We implemented user feedback into the product development to ensure a proper product/market fit

Deliverables

- 4** – Program Batches
- 1** – Joint X-Ocean Program with T-Mobile US
- 70** - Developers actively working on the use-cases
- 20** - Use-cases (startups, hyperscalers, corporates)
- 12** - Main industries
- 100** - Bugs reported

An aerial view of London at sunset, with the sun low on the horizon behind a large cloud. The River Thames flows through the city, with several bridges visible. Digital overlays include blue circles around the Shard, the London Eye, and a building on the left, and purple circles around the Gherkin and another building in the center. The title 'Open Gateway' is centered in large white font.

Open Gateway

Insights from Telefónica's Early Adopter Program

Pedro de Alarcon Sanchez

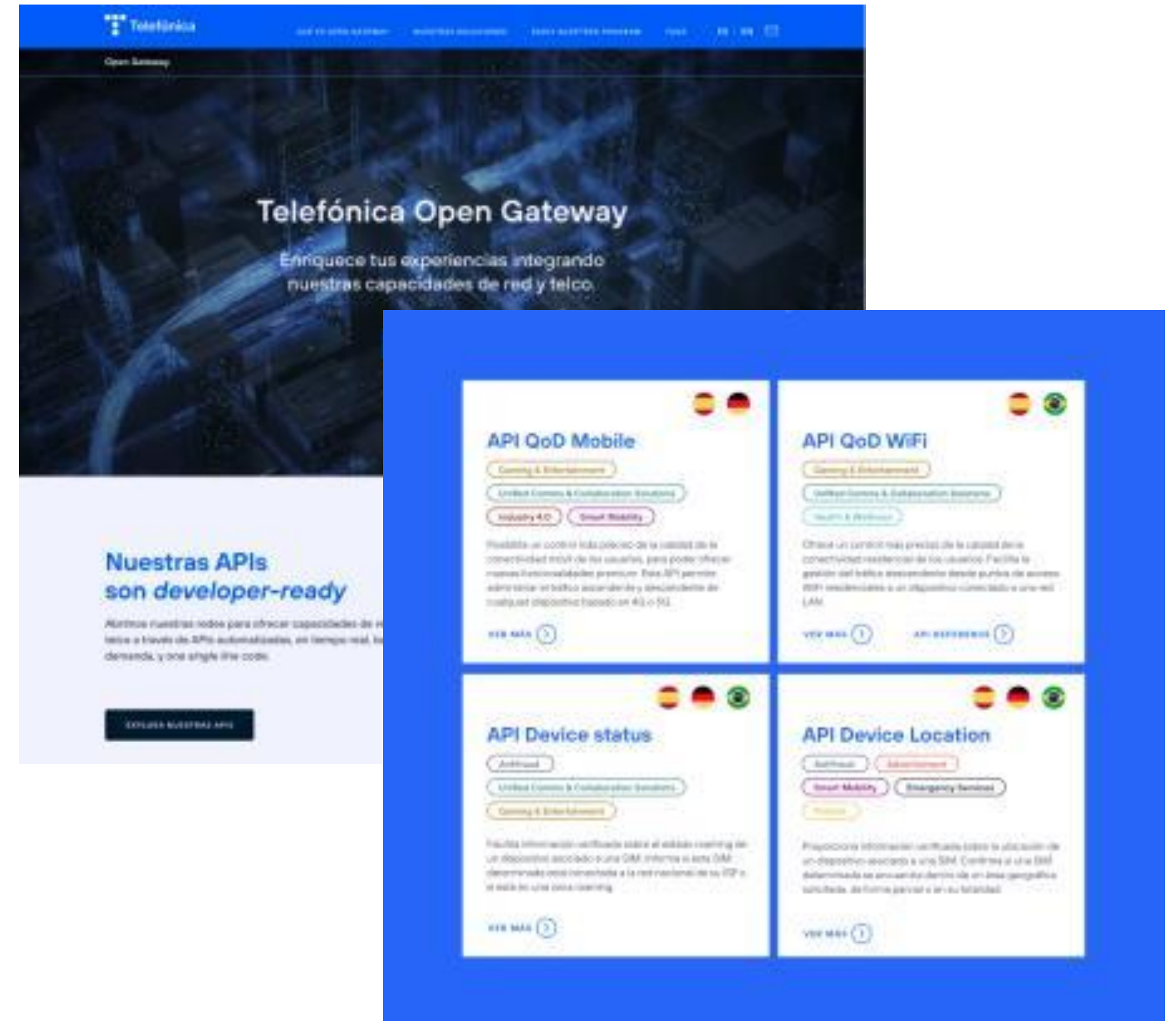
Early Adopters Program (EAP): Accelerating Developer Engagement

Telefónica Open Gateway EAP was launched in MWC'23 and is now live in our production platforms to:

- **Mobilize** the developer community
- Validate OGW business hypothesis
- Identify **new and innovative use cases** and make them a reality
- Create a **continuous feedback** loop for APIs definition and evolution
- Test E2E process of integration with Hyperscalers and Aggregators



[Telefónica Open Gateway Early Adopter Program \(telefonica.com\)](https://telefonica.com)



Benefits for the developer



Free Access

Free access to the pre-commercial APIs of Telefónica Open Gateway



Test Use Cases

Test and validate selected use cases to generate end-to-end services for end customers (B2B or B2B2C)



Experiment

Experiment with high-performance network capabilities to create valuable end user applications



Dev Kit

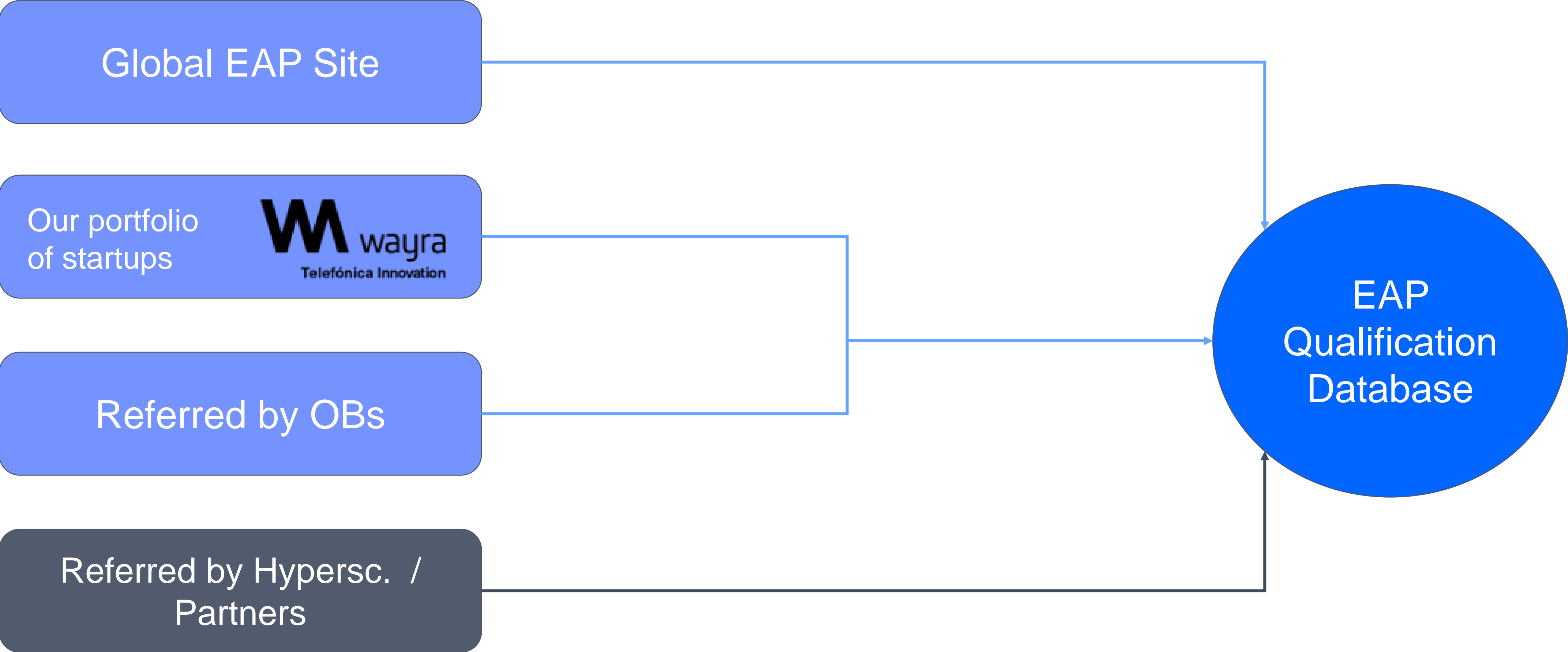
Get access to a **complete kit for developers** with all the tools: SDK, code samples, docs and user guides



Support

Receive **full support** in the resolution of queries and incidents during the entire process

Lead sourcing for the EAP



Global EAP Lead Funnel today: aprox. 200 valid entries



High interest in QoD Mobile, Checkout and Fraud Prevention.

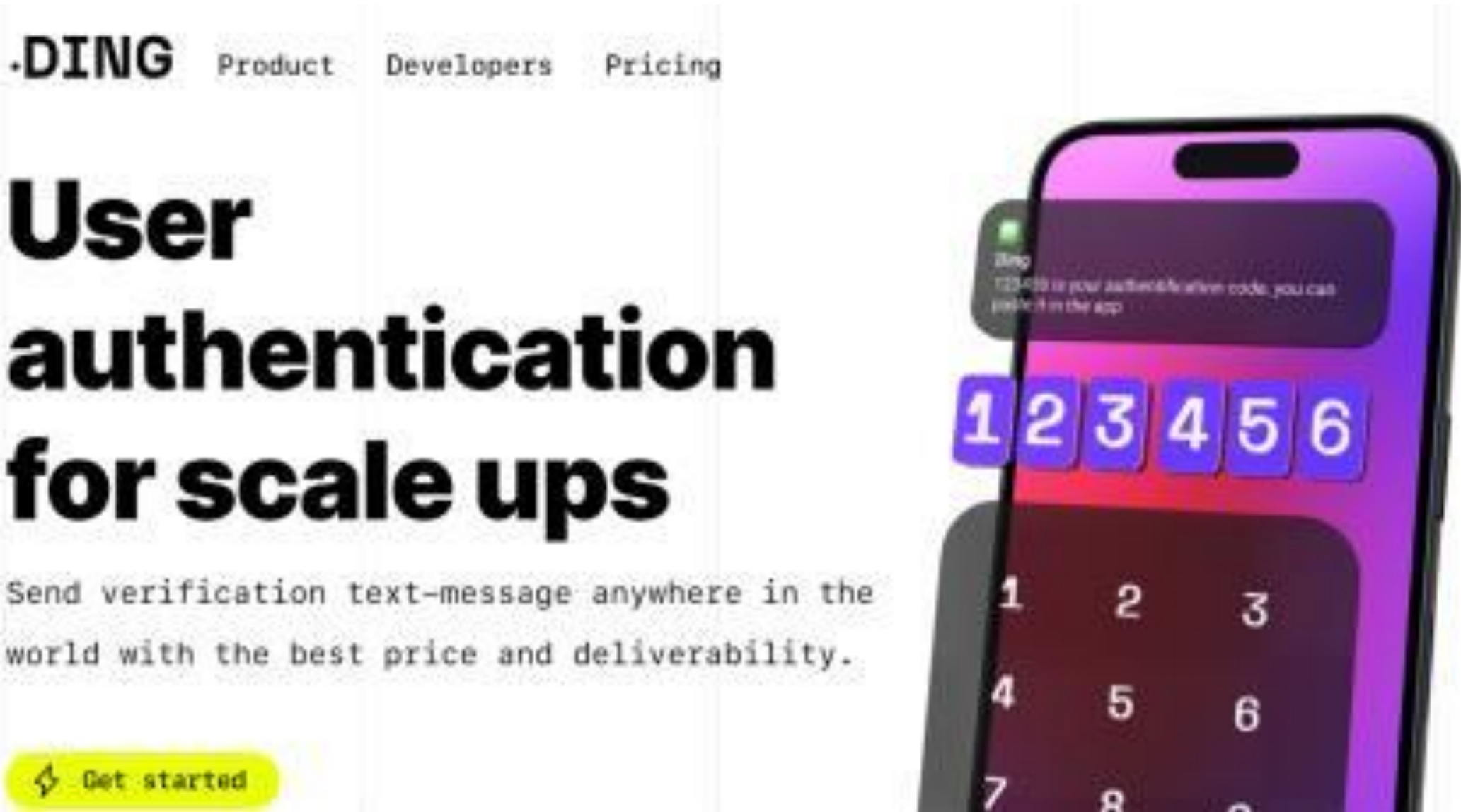


Insightful collaboration with qualified leads.

Objective	When	Services involved	Geographies
5 Validating e2e service experience	Business opportunity is clear, but the service needs to be tested with hyperscalers.	<ul style="list-style-type: none">• Silent authentication.• SIM Swap.• KYC Match	  
10 Validate Use Case / Demand	Use case is clearly defined but the market fit needs to be proved.	<ul style="list-style-type: none">• QoD Mobile• Device Status (Roaming)• Device Location Verification.	 
2 Insights to shape the service	There is a technical capability what the use case needs to be further defined.	<ul style="list-style-type: none">• CDN• Edge routing• WebRTC	
4 Direct monetization	The service is ready to be monetized as soon as it is integrated by the hyperscalers.	<ul style="list-style-type: none">• Checkout	

Silent Auth.

Ding



Singular



Fraud Prevention

Abanca



Vehecall



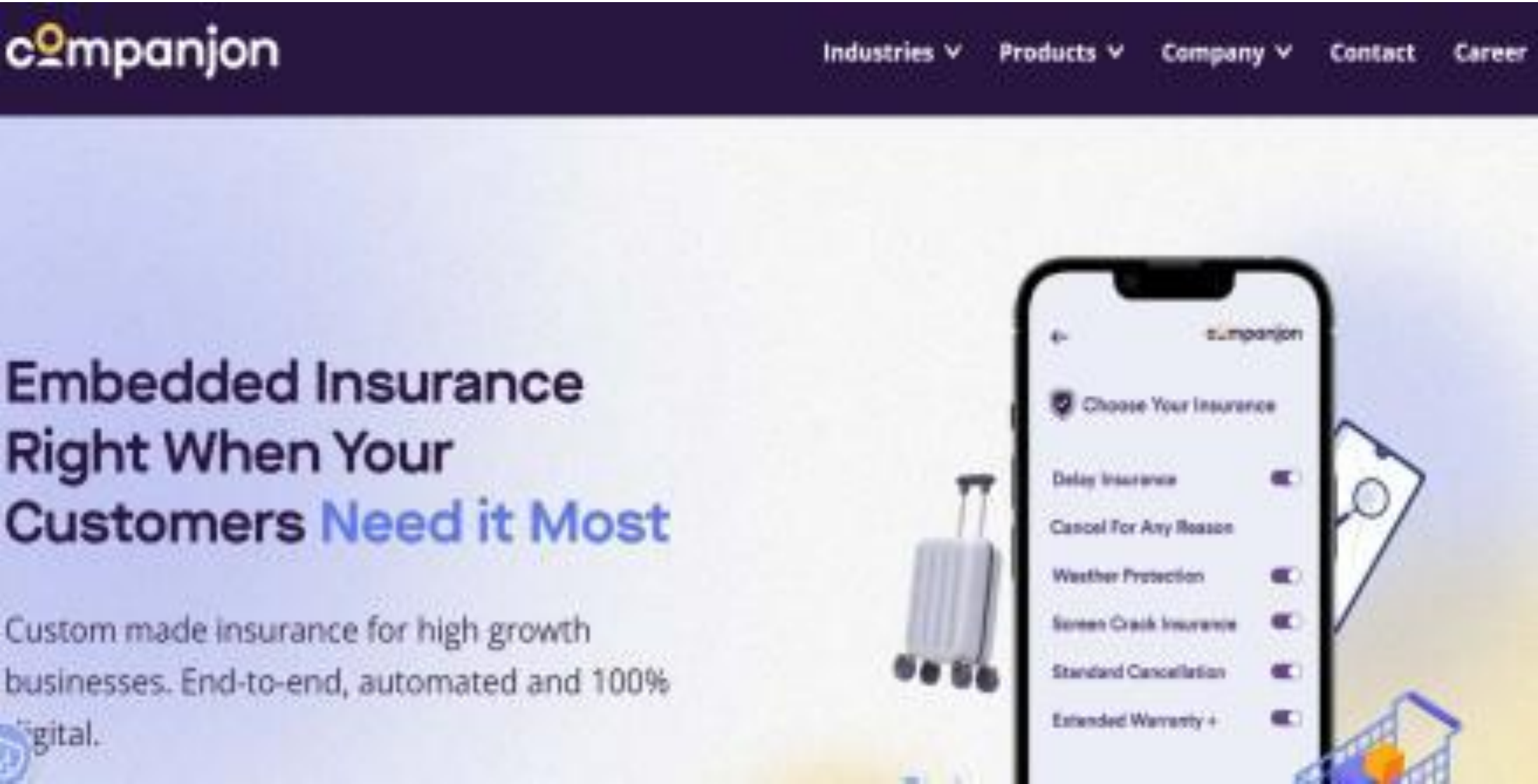
OFG Group



Device Status (Roaming)

Companjon

Contecnow

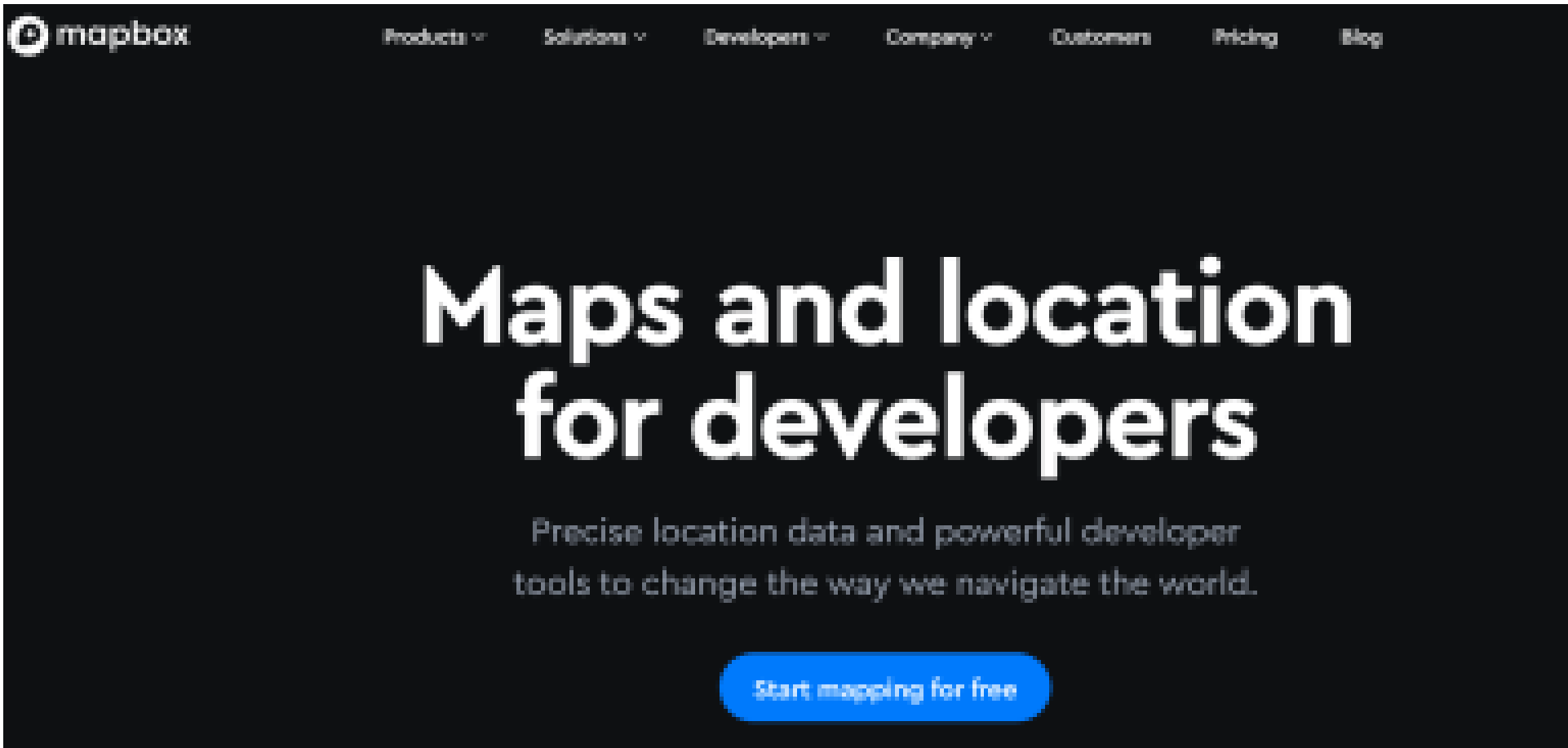


Device Location

Denso



Mapbox



Ride-on



Wipass



KYC Match

Digitel / MadisonMK
(+Bankinter)

DIGITELTS
by MADISON

Nosotros

Soluciones

Recursos

De los Servicios de Confianza a la Identidad Digital



TVUP Streaming media



PLATFORM

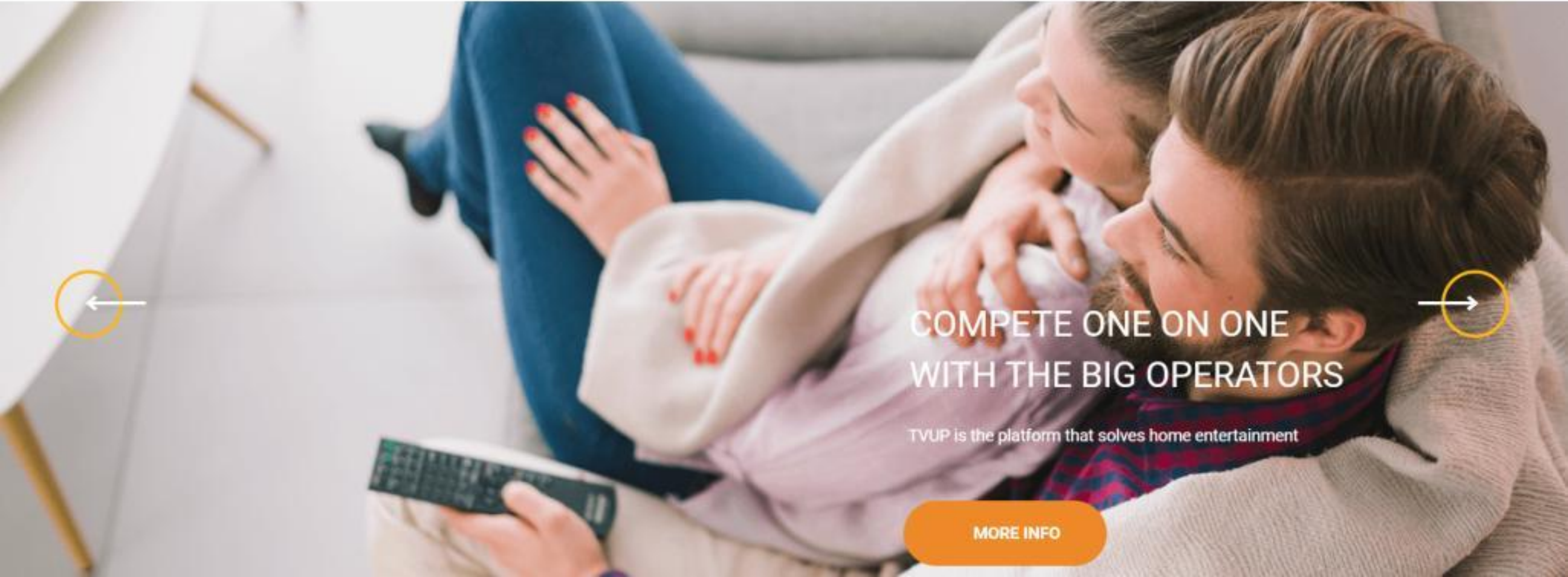
TECHNOLOGY

COMPANY

BLOG

Es | En

SOLICITAR PRUEBA



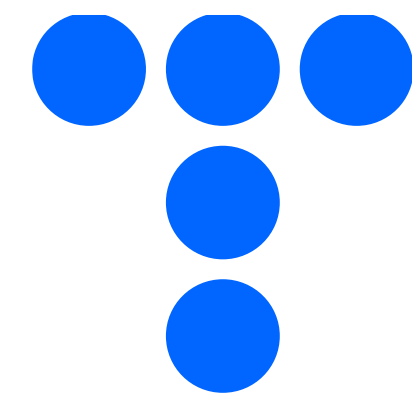
COMPETE ONE ON ONE
WITH THE BIG OPERATORS

TVUP is the platform that solves home entertainment

MORE INFO

Key takeaways

- Great initial feedback from leads. They remark the importance of having ***all telcos onboard***.
- Importance to consider local prioritization of leads with **global strategy guidelines**.
- **Hyperscaler integration** by default. Direct integration model is only considered for very particular cases.
- Prioritization criteria: hyperscalers preference to focus on leads with the **most representative use cases** and with **higher market demand**.
- PoCs carefully selected for the most interesting leads. An “easy-to-go” dev kit needs to be in place in order to **cover all the demand**.



Telefónica

The background of the slide is a night-time photograph of a city skyline, likely New York City, with numerous skyscrapers illuminated and their lights reflecting on the water in the foreground. The CableLabs logo is prominently displayed in the upper center in a large, white, sans-serif font. Below the logo, the text 'Global Developer Platform (GDP)' is written in a slightly smaller, bold, white, sans-serif font. A solid red vertical bar is located on the far left edge of the slide.

CableLabs[®]

Global Developer Platform (GDP)

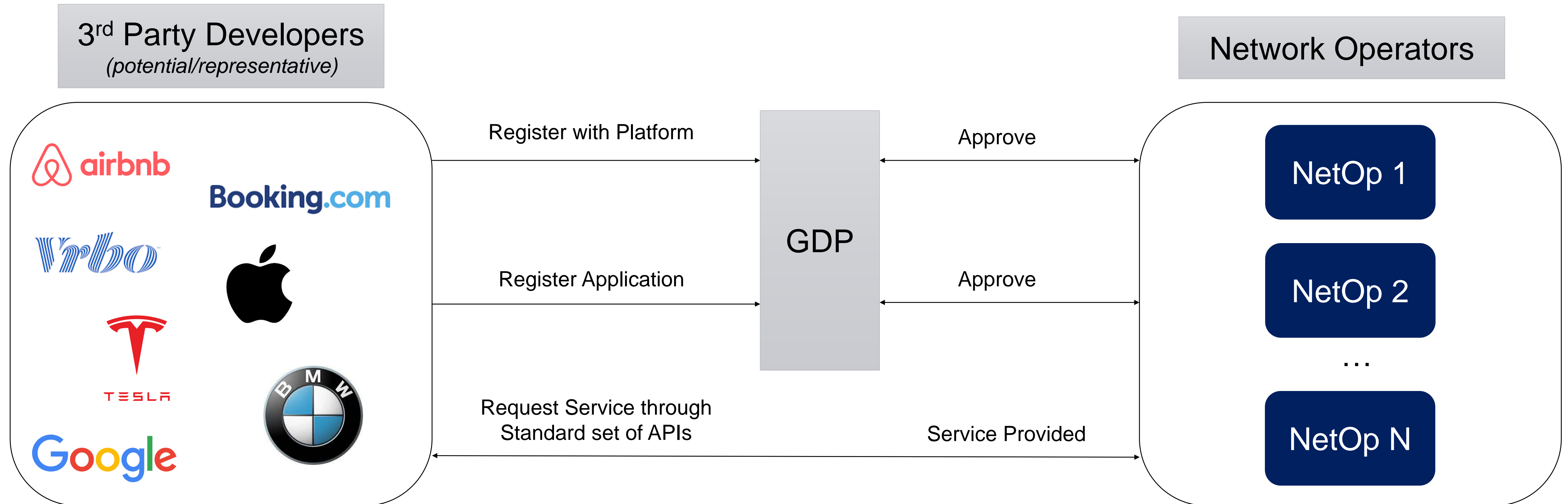
CableLabs

Chris Corcimiglia | VP, Future Infrastructure Group
c.corcimiglia@cablelabs.com

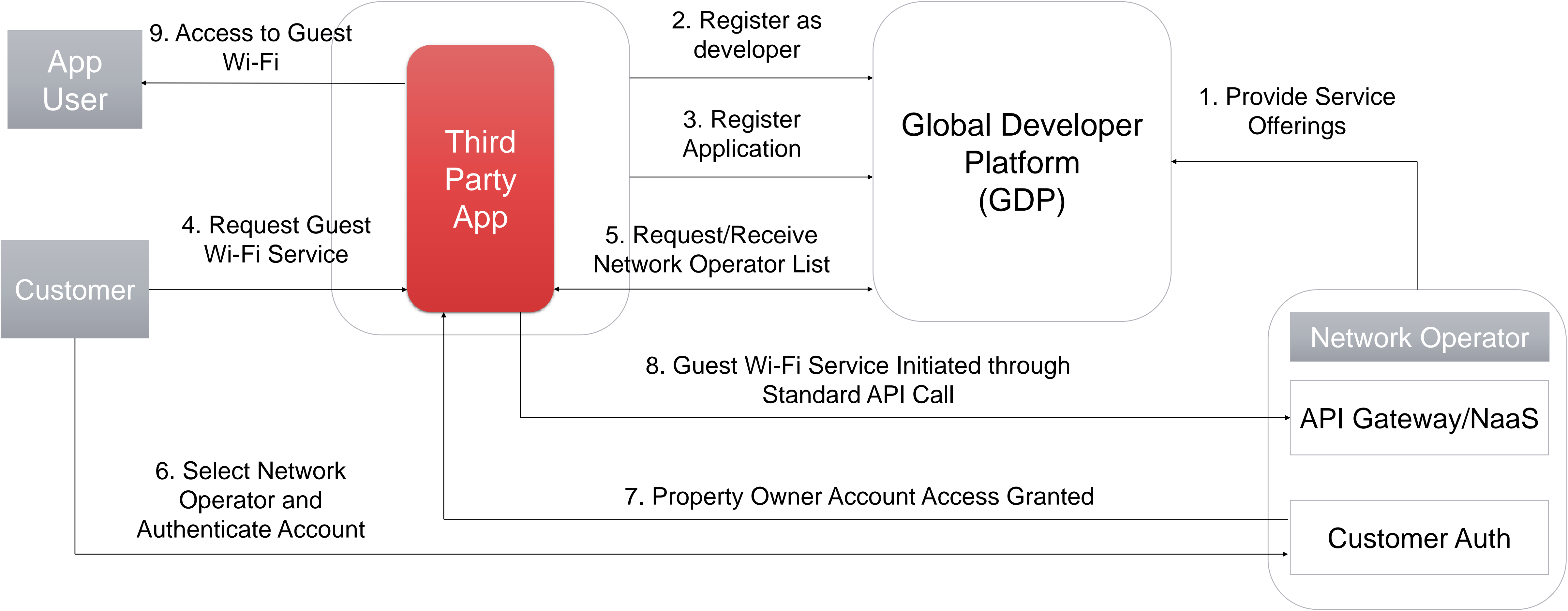
Global Developer Platform Overview

What is GDP?

GDP provides Developers a standard registration and authorization flow for their applications' access to Operator network services.



Guest Wi-Fi Use Case & Lab Pilot



Use Case Pilot Notes

- Guest Wi-Fi Initiated through Standard API Call
 - This request will be done through a standard `/isolated-networks` API end points that will be contributed to CAMARA
 - Standard APIs can be used as a wrapper for any internal APIs that already exist through the API Gateway/NaaS
- Centralized Reg/Auth Model for Pilot
 - Provided the quickest path to a Pilot, but centralization is not the end game
 - Potential implementation seed for GSMA Open Gateway Community (OGC) allowing extension to a federated model from a proven code-base
- Third Party Developers obtain consistent access to network services through standard intent-based APIs across all participating Network Operators

Network Operator Engagement

Current Contributions

- Validation of OAuth 2 authorization process and flow for 3rd Party access.
- 3rd Party Developer and Application registration process.
- Identify strategic 3rd Party partners
- Standard API development

Future Contributions

- Standard API contributions back to CAMARA
- Continued alignment and contributions to GSMA OGC
- Current and future network services for 3rd parties
- Use case prioritization

Open Gateway progress

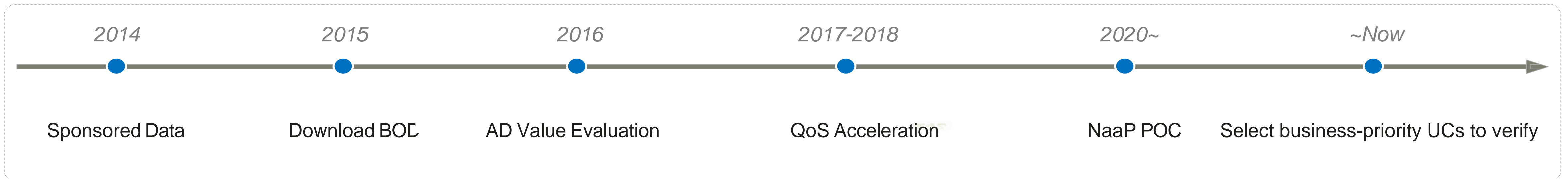
Through NaaS, Exploring A New Paradigm of Telco Business

Jeff Wei

Network Architecture Transformation Marketing Dep, Huawei



Huawei's Long-term Contribution to Network Capability Exposure(NaaS)



Huawei Joined CAMARA and Position

Joint Design, Test and Verification

- Start from Network Layer
- UCs PoC and demonstration with enhanced network capabilities

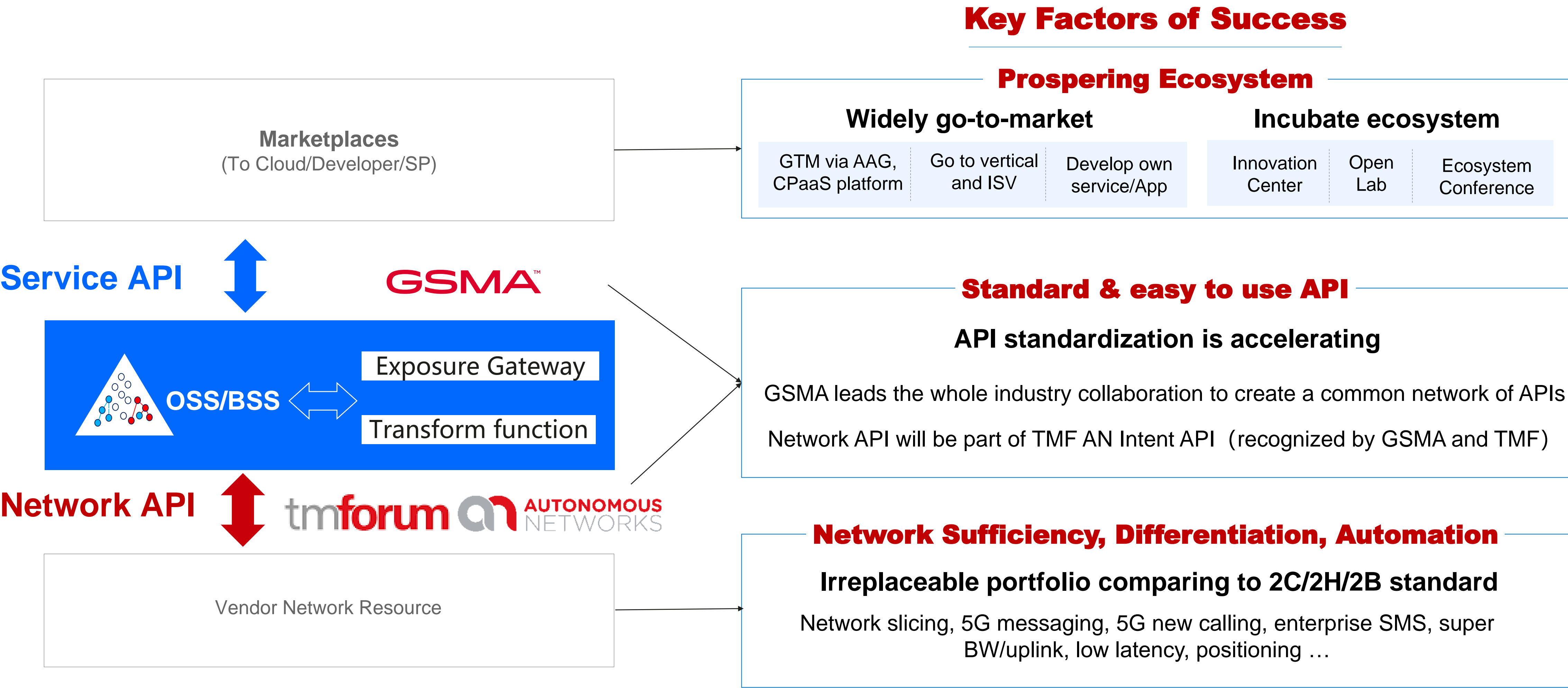
Standardization

- Contribution in architecture design and API standardization
- Accelerate building eco-system resiliency (3GPP, ETSI, TMF, etc.)

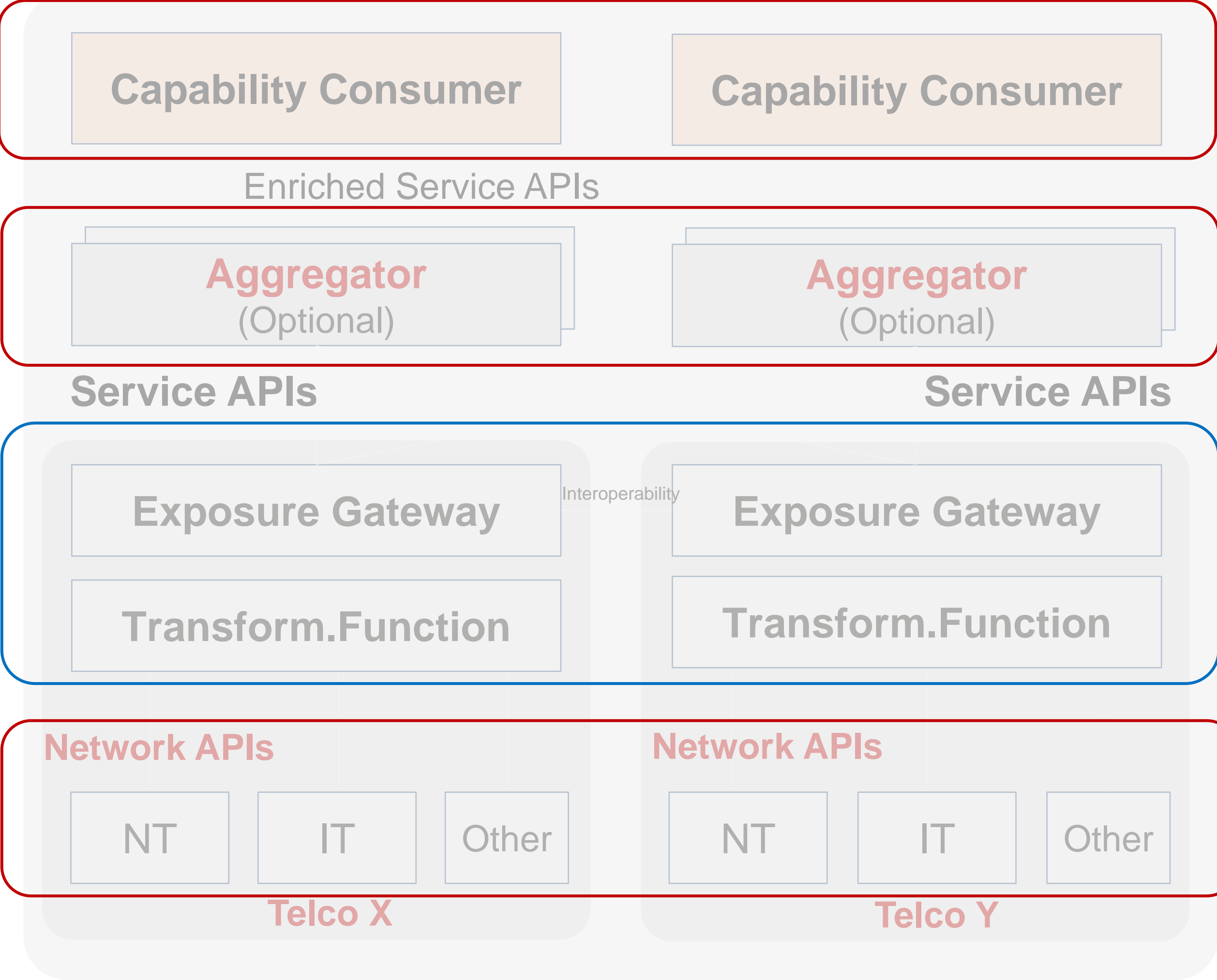
Huawei as a bridge to cultivate ecology

- Bring more Chinese Company practiced UCs to CAMARA
- Sharing Huawei cloud eco-system

3 Key Factors of Telco NaaS Success

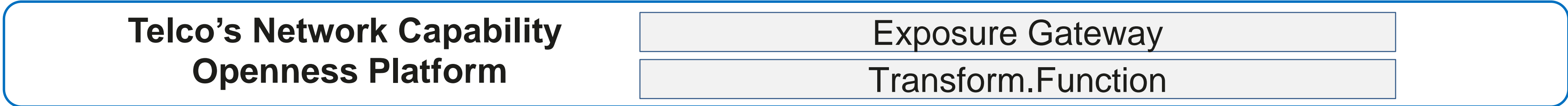


Huawei Promotes Network Capability Exposure in Three Aspects



- ➔ Huawei supports new UCs joint innovation
- ➔ Huawei iTA(Communication Cloud Service) aggregate and sell service APIs to capability consumer
- Telco's Network Capability Openness Platform
- ➔ Huawei supports Telcos' network capability openness with 3 types of Network APIs

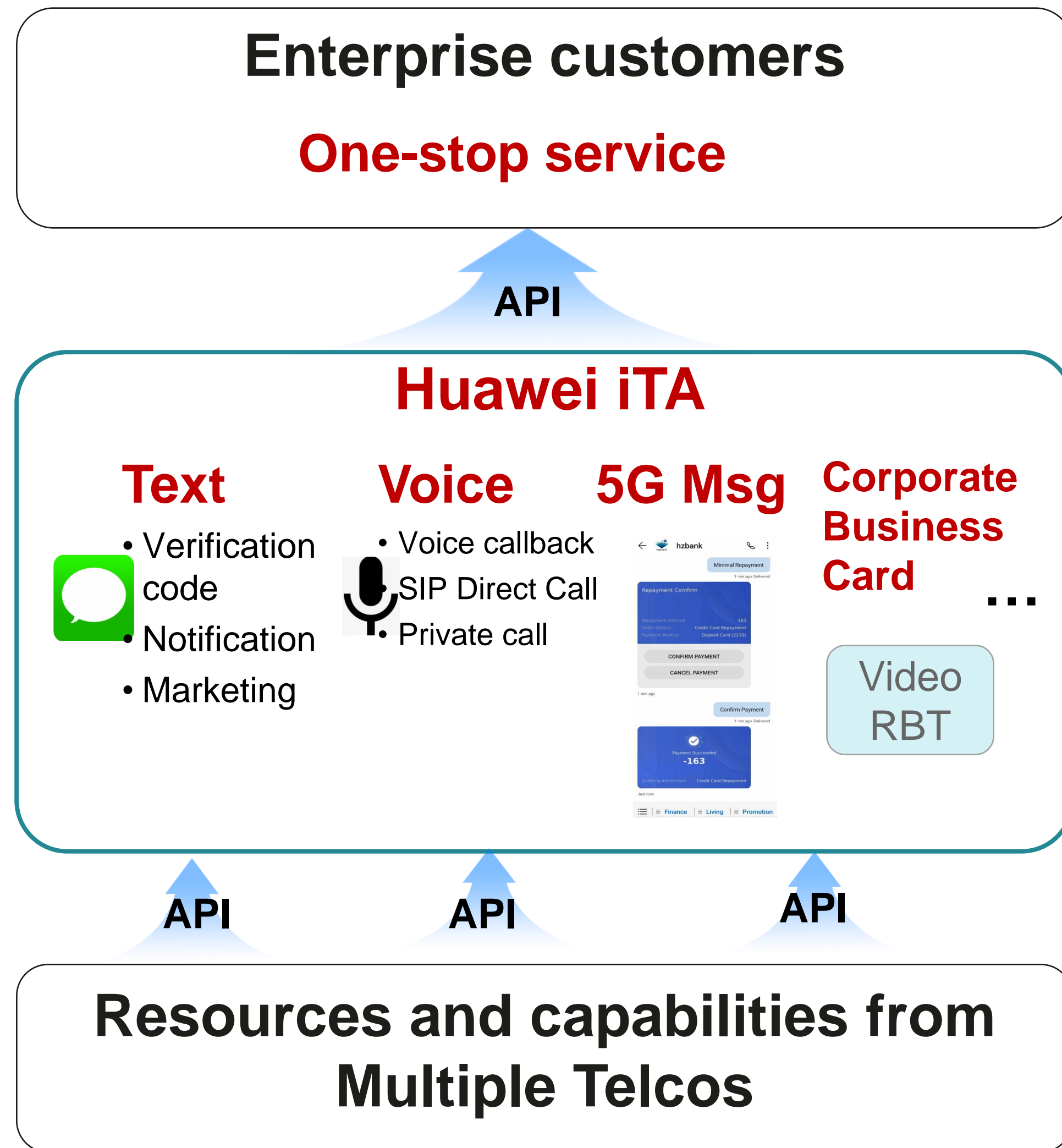
Huawei supports Telcos with 3 Types of Network APIs



Network APIs

3 Type of Network APIs	Wireless Network	Core Network	All Optical Network	Data Communication	5GtoB
1) Enable new offering creation # of ready : 10 # of planning: 10	<ul style="list-style-type: none"> Slicing deployment and pre-evaluation Network Congestion Status 	<ul style="list-style-type: none"> New Calling QoD Device Status Device Location Edge Site Selection and Routing 	<ul style="list-style-type: none"> BoD Latency & Reliability SLA 	<ul style="list-style-type: none"> BoD Cloud-Network Slicing 	<ul style="list-style-type: none"> Location API Electronic fence API
2) Enhance existing offering selling # of ready: 13	<ul style="list-style-type: none"> WTTx Suite for provisioning 		<ul style="list-style-type: none"> Potential Customer Identification Private Line SLA Visualization Latency Map API 	<ul style="list-style-type: none"> Private Line Service Quality Visualization Private Line Latency Map 	<ul style="list-style-type: none"> Resource statistics
3) Improve O&M efficiency # of ready: 24 # of planning: 5	<ul style="list-style-type: none"> Fault prediction Troubleshooting 	<ul style="list-style-type: none"> Slicing KPI IaaS resource provisioning 	<ul style="list-style-type: none"> Incident API Risks of Optical Network Health 	<ul style="list-style-type: none"> Incident API Automatic provisioning of private line 	<ul style="list-style-type: none"> Slicing alarm

Huawei iTA(inTouch Aggregator): Communication Cloud Service



iTA Global Operation:

- **Service center:** Beijing and Singapore service center are already in operation
- **Service access point:**
 - Service access points are available in Beijing, Shanghai, Guangzhou, and Bangkok, Thailand.
 - Service access points in the Middle East, Northern Latin America, Southern Latin America, and Africa are planned to go live in 2023.
 - European service center and access points are to be planned in 2024.

The Trend of New Service API and Use Cases

Production: "commercially used" for Existing APIs

Existing API Federation : Use the Open Gateway Declaration to implement interconnection across carriers, attract large-scale application use, and achieve industry-level business success.

Development: Injecting Differentiation, Connection and New Service

Direction One : Build multi-level connection service APIs.

SoD → BoD → QoD → Stable QoD

Direction Two: Develop new services and enable new business.

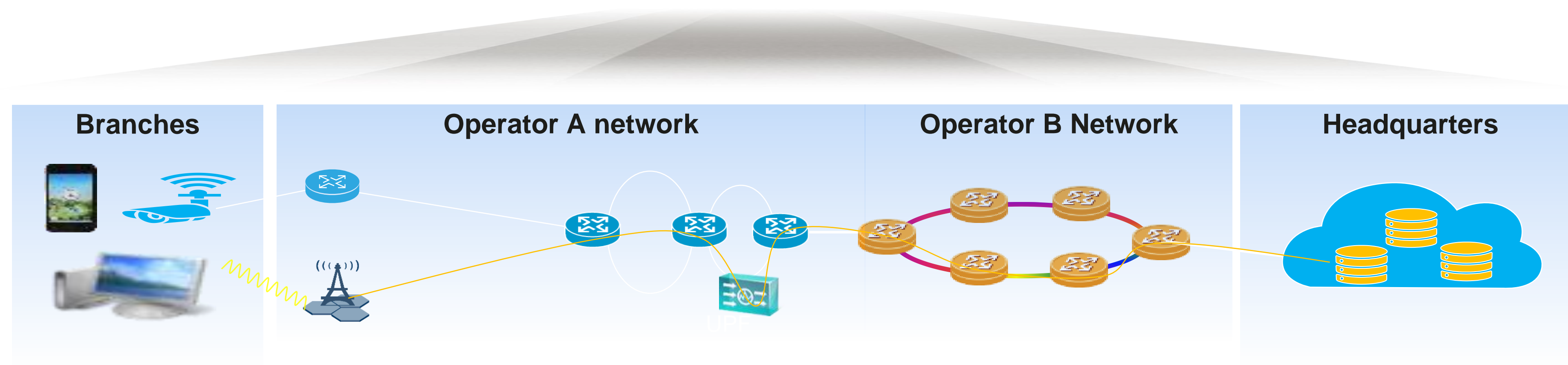
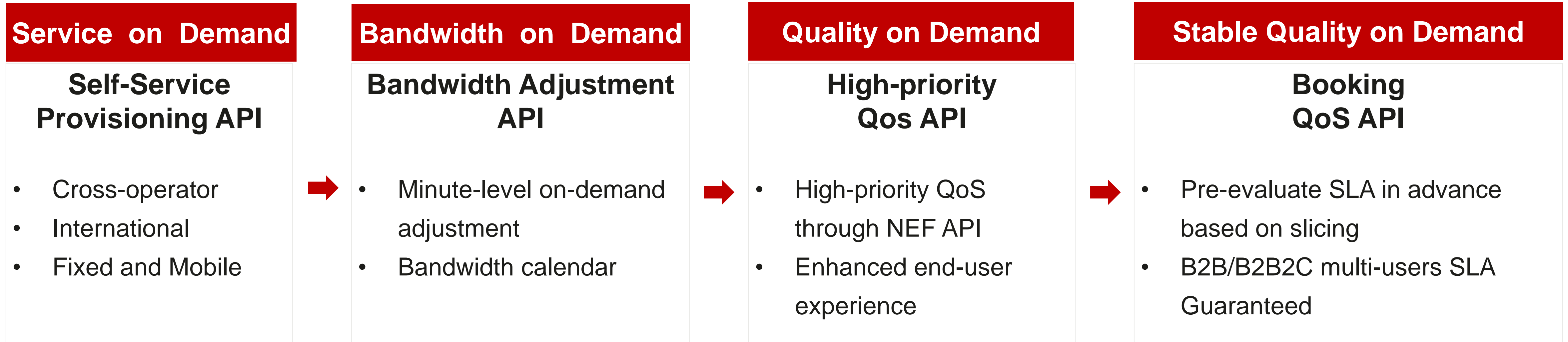
5G New Calling API enables New applications in the ToB Industry

Beyond: From Providing Service to Leading New Things, Beyond Connectivity

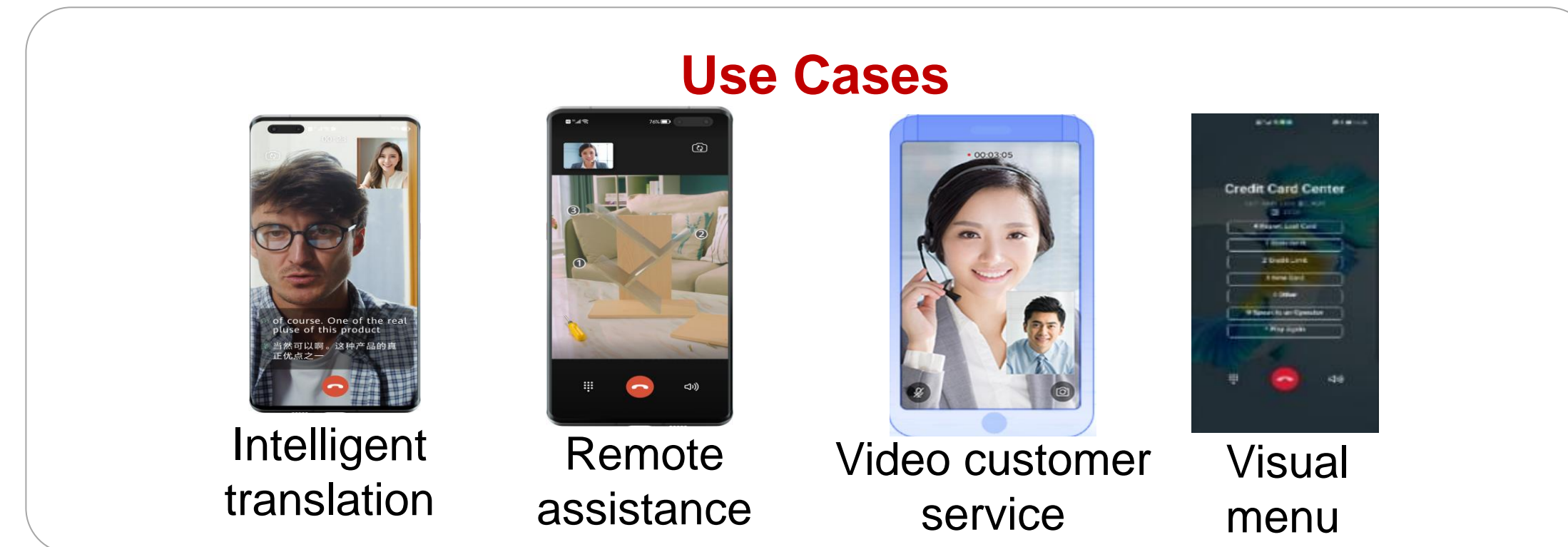
Scenario One: From Phone Number Verification, to Phone Number as a **Global ID/Super ID Service**, becoming the reliable base of Internet

Scenario Two: From providing APIs for apps on the cloud to supporting built-in devices and sharing entrance dividends

Case1: Building Service APIs with Multi-level Connections

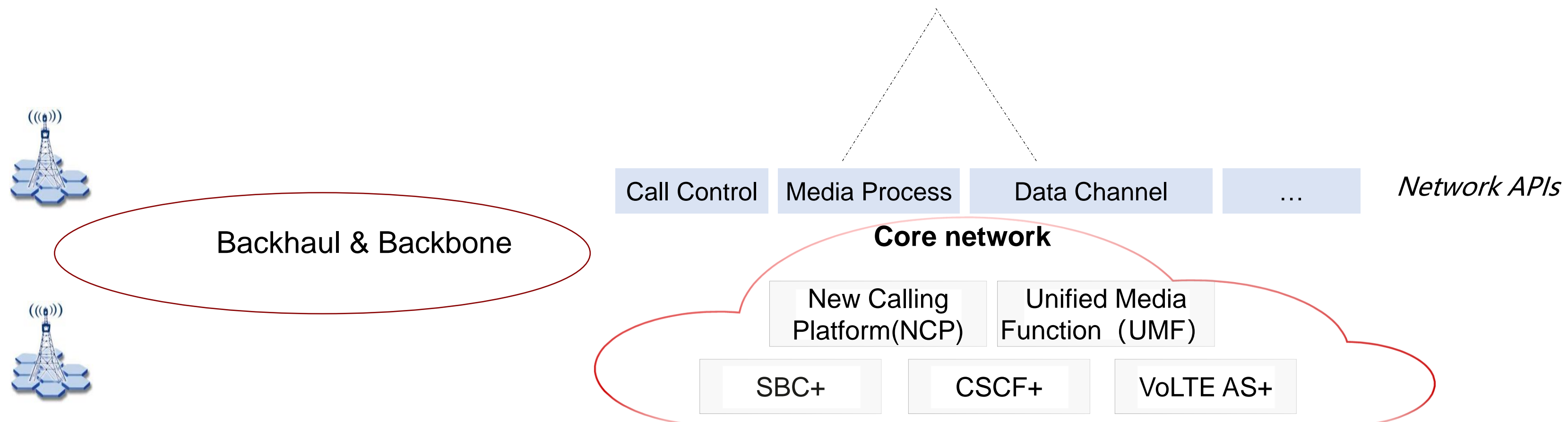


Case 2 : New Calling Enables New Interaction and Better User Experience



Offering: Telcos provide 5G new calling capabilities and charge by API invoking

Service API: 5G New Calling API (Video Call API, Intelligent Translation API, ...)



Take Away

- 1、 Network Sufficiency, Differentiation, Automation are the foundation of Network Capability Exposure, Network API will be part of TMF AN Intent API
- 2、 Two layers for valuable APIs:
 - Connection-related API: SoD, BoD, QoD, SQoD
 - Business service: Focus on 5G New Calling businesses, define and implement the APIs
- 3、 Three level of value acquisition for Network Capability Exposure

Thank you.



**Copyright©2023 Huawei Technologies Co., Ltd.
All Rights Reserved.**

The information in this document may contain predictive statements including, without limitation, statements regarding the future financial and operating results, future product portfolio, new technology, etc. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied in the predictive statements.

Therefore, such information is provided for reference purpose only and constitutes neither an offer nor an acceptance. Huawei may change the information at any time without notice.

March, 2023

An aerial photograph of London at sunset, with the sun low on the horizon behind a layer of clouds. The River Thames flows through the city, and several bridges are visible. Blue circles are drawn around specific buildings: the Shard on the left, a building in the center, a tall chimney in the foreground, and a building on the right.

Open Gateway

Market Update (Spain)

Alberto Torron Rodríguez

Formal Organization

Representatives from local MNOs and GSMA, with the support of a legal team.

GSMATM



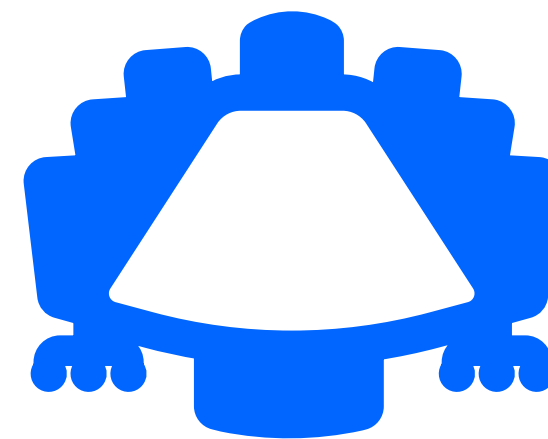
Tracks and Participants

Three different levels of discussion:

Legal



Business



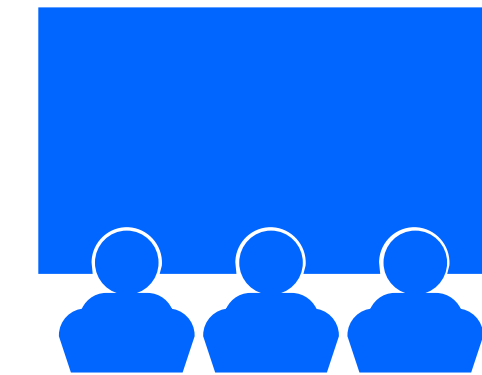
Technical



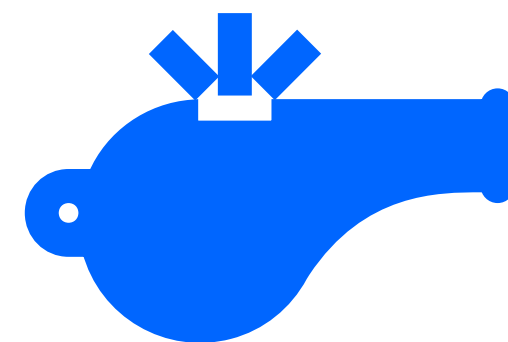
Key stakeholders from these 3 areas from each MNO. Around 15 participants per meeting as an average

Weekly Meetings

We organize the topics in advance and share the meeting minutes to make sure we share a common view.



GSMATM



GSMA implication. They play a referee role in the meetings and the discussion

Key Takeaways

Best Practices

- If you want to evolve a big industry, you'd better be proactive and embrace the change
- We share a view and try to sync a speed to go to market together increasing the total national market value.

Commitments

- We commit to have a common framework under the Camara project and host a regulated and compliant discussion about the standardization process.
- We commit to follow open standards

**Need more information?
Do you have a big plan on telco's API's?**

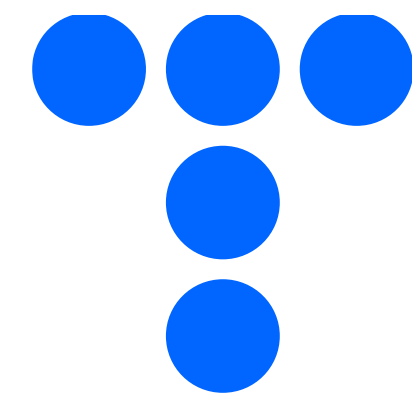
Let's talk!

Alberto Torron Rodriguez

Head of go to Developers. Telefonica Open Gateway

Alberto.torronrodriguez@telefonica.com

+34 660090990



Telefónica

MWC™
GSMA

In partnership with
ctia™

LAS VEGAS
SEPTEMBER 26-28
2023

Open Gateway DevCon

Wednesday 27 September 2023
10:00 - 16:30 PDT
The HUB Innovation stage,
Las Vegas Convention Center, West Hall

GSMA™

Platinum sponsor:

NOKIA

Gold sponsor:

5GFF



Agenda highlights

Making networks accessible to application developers

Mikko Jarva, Head of Portfolio & Architecture, Network Monetization Platform, Cloud and Network Services, and Shkumbin Hamiti, Head of Network Monetization Platform, Nokia

Fireside chat: Why create future ready services

Claude Arpin, IoT Senior Product Manager, Bell Canada, Masaaki Koga, Executive Director, KDDI and Henry Calvert, Head of Networks, GSMA

Harnessing the potential of network APIs for transformation and growth

Mikko Jarva, Head of Portfolio & Architecture, Network Monetization Platform, Cloud and Network Services, Nokia, Ricardo Villarreal, Product Manager for Azure Programmable Connectivity, Azure for Operators, Microsoft, Noel Wirzius, Product Manager for Network APIs, Deutsche Telekom and Dharmik Mehta, Principal Product Manager, 5G Services, T-Mobile US

How to....workshops

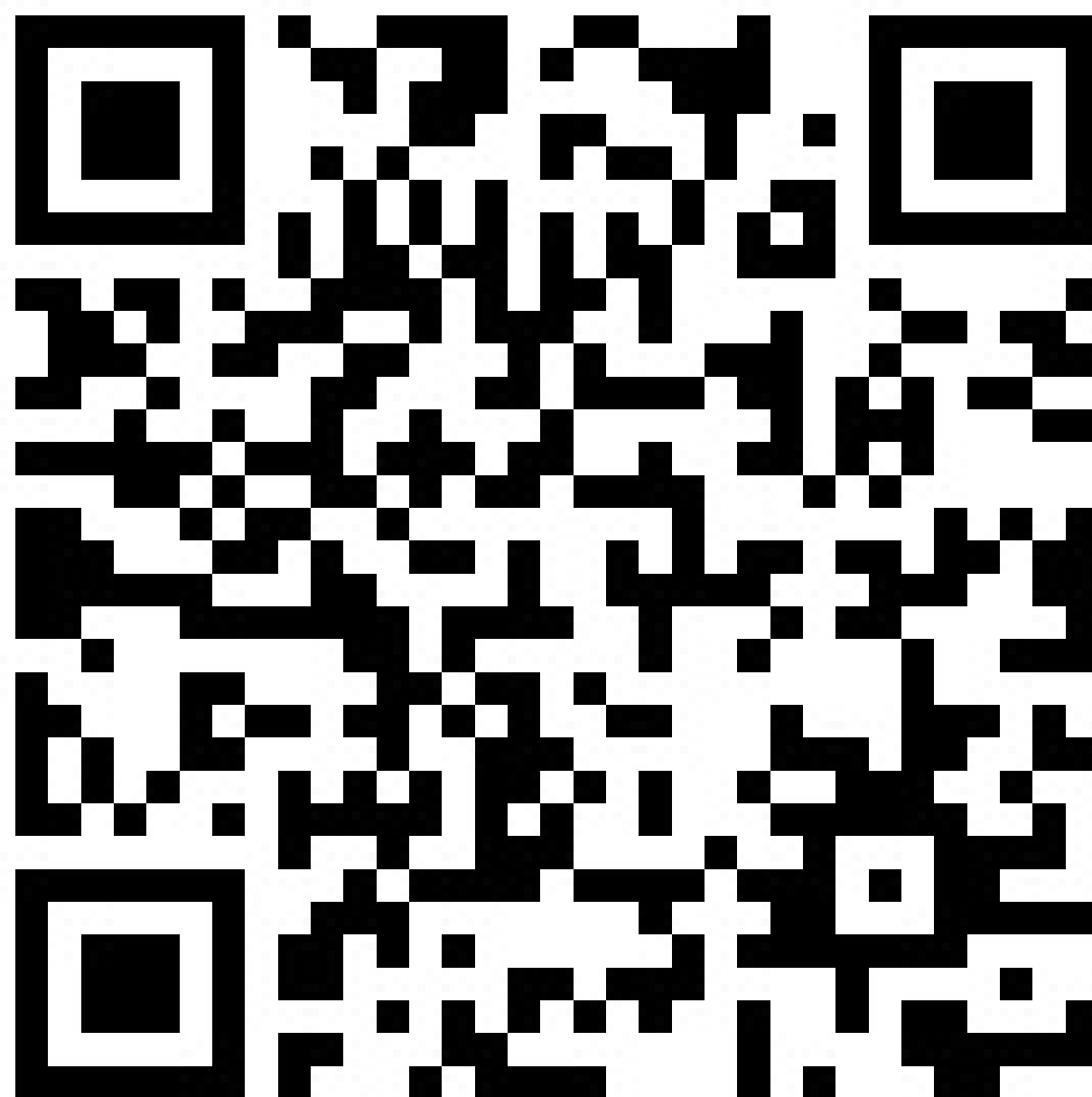
Get the most from the Telefonica Early Adopter Programmes

The APIs in depth with Nokia

Security by design with Verizon

Creating a digital future together

Find out more and register..... for free!



Q&A

Thank you

**Next Open Gateway
Community call will take
place in November 2023.**