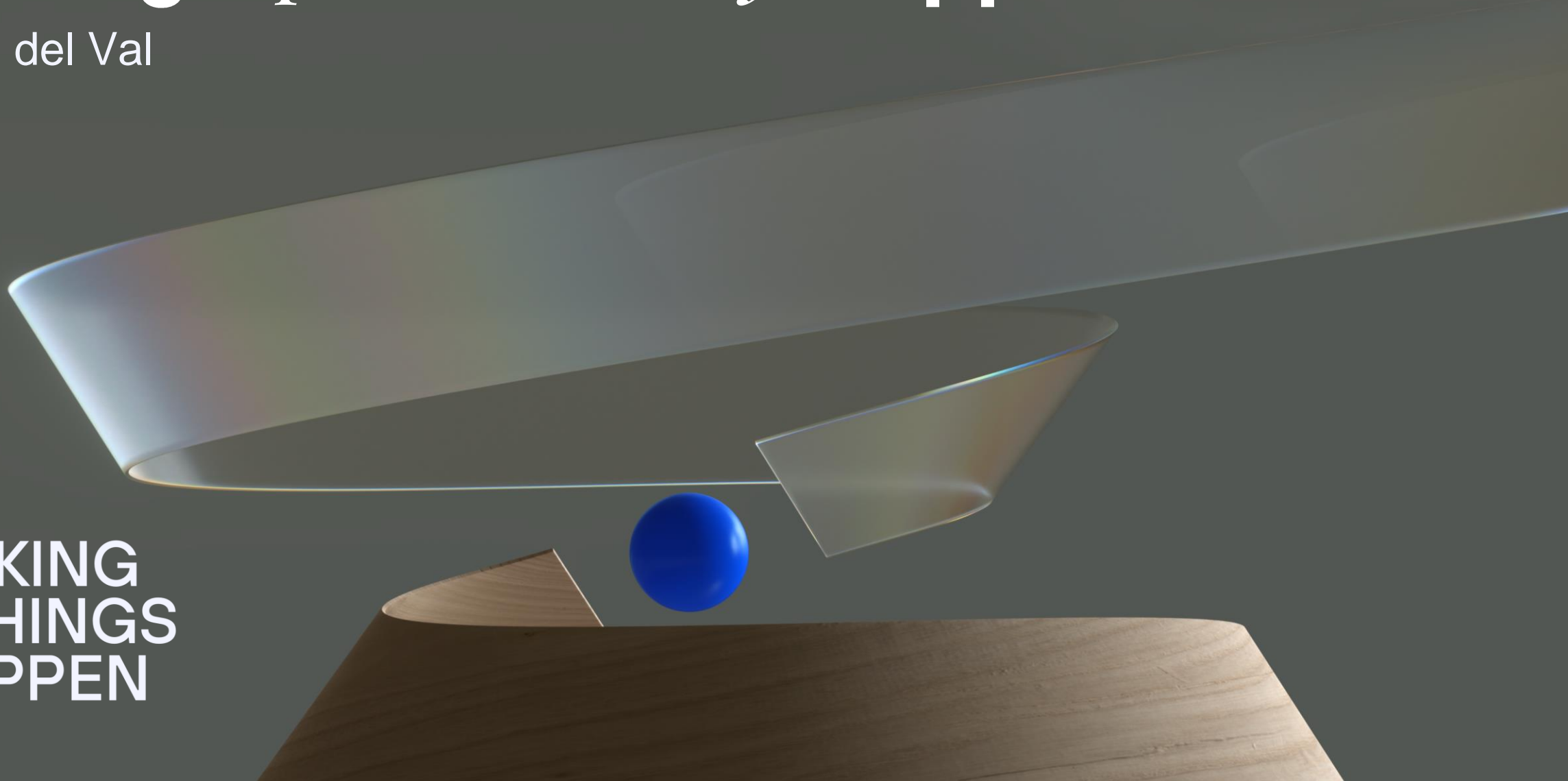


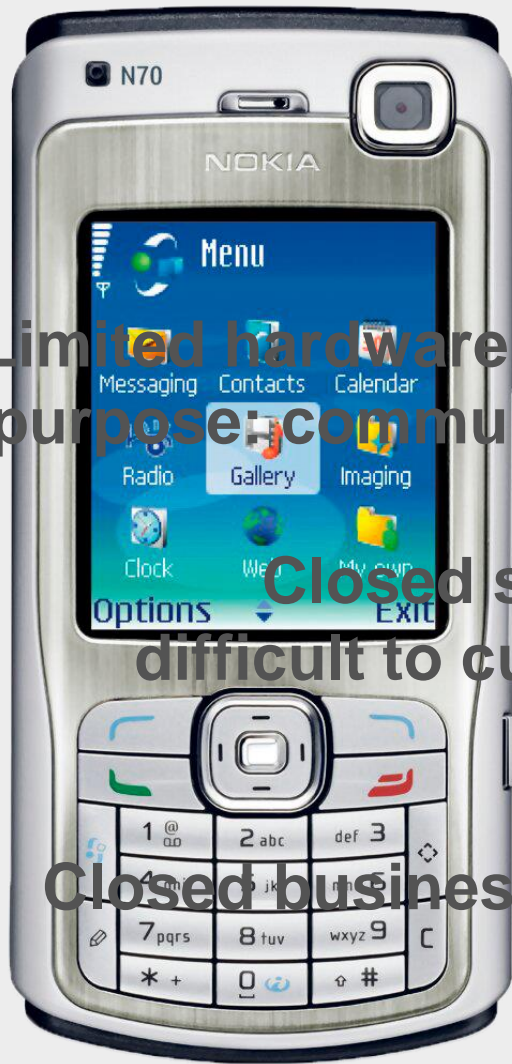
Making *Open Gateway* Happen

David del Val

MWC 2023

MAKING
THINGS
HAPPEN





Limited hardware platform
Specific purpose: communications

Closed software
difficult to customize

Closed business model



Powerful general purpose
hardware platform

Open, API-fied software:
developer friendly

Open business model

3G - 4G



Limited platform
Specific purpose: communications



Closed software
difficult to customize

One-sided business model



Powerful general purpose platform
(Edge, NEF)

Open, API-fied software:
developer friendly

Open business model



Open Gateway

For a “developer friendly” network we need:

Multi TelCo

Many
useful
APIs

Multi
Country

Well known
developer
ecosystems



Multi TelCo

Many
useful
APIs

Multi
Country

Well known
developer
ecosystems

GSMIA™

Open Gateway

A framework of Application Programmable Interfaces (APIs) designed to provide universal access to operator networks for developers and hyperscalers



Integrate once and use everywhere



LIBERTY GLOBAL



Multi TelCo

Many
useful
APIs

Multi
Country

Well known
developer
ecosystems

A first set of APIs has been agreed and will be deployed across TelCos

Quality On Demand

Sets the quality of a traffic flow to deliver improved performance to an application

Device Status (Connected or Roaming)

Checks if a device is connected to the network and/or is roaming

Number Verification (www.numberverify.org)

Check of a number via a mobile network

Sim Swap

Checks the last time that the device associated with a SIM was changed

Number Verification (SMS 2FA)

Sends an SMS or Call with an access code to a given number to verify that the number is correct

Carrier Billing – Check Out

Purchase and payment of products and services in a digital ecosystem using a customer's bill

Verify Location

Checks location of device against provided location and confirms geographic area

Edge Site Selection and Routing

Identifies the optimal Edge-Cloud node for a device. Ensures optimal routing towards the edgecloud node.

APIs available in CAMARA as Open Source



<https://github.com/camaraproject>

A screenshot of the GitHub repository page for the CAMARA Project. The page header includes navigation links for Product, Solutions, Open Source, and Pricing, along with a search bar. The repository name 'CAMARA Project' is prominently displayed, along with 104 followers, location (Germany), website (http://camaraproject.org), and email (adm@lists.camaraproject.org). Below the header, there are tabs for Overview, Repositories (18), Projects, Packages, and People. The 'Pinned' section shows two repositories: 'Governance' (Public) and 'WorkingGroups' (Public). The 'Repositories' section is filtered and shows three repositories: 'DeviceStatus' (Public), 'Governance' (Public), and 'SimSwap' (Public). Each repository card includes a description, star count, license, forks, issues, and update time. A green line graph is visible on the right side of each repository card.

Product Solutions Open Source Pricing Search

CAMARA Project
104 followers Germany http://camaraproject.org adm@lists.camaraproject.org

Overview Repositories 18 Projects Packages People

Pinned

- Governance** (Public)
Telco network capabilities exposed through APIs provide a large benefit for customers. By simplifying telco network complexity with APIs and making the APIs available across telco networks and coun...
☆ 28 🍴 26
- WorkingGroups** (Public)
Repository for the CAMARA Working Groups
☆ 18 🍴 31

Repositories

Find a repository... Type Language Sort

- DeviceStatus** (Public)
Repository to describe, develop, document and test the Device Status API family
☆ 0 🍴 Apache-2.0 🍴 12 🕒 5 🐞 2 Updated 3 hours ago
- Governance** (Public)
Telco network capabilities exposed through APIs provide a large benefit for customers. By simplifying telco network complexity with APIs and making the APIs available across telco networks and countries, CAMARA enables easy and seamless access.
☆ 28 🍴 26 🕒 0 🐞 1 Updated 15 hours ago
- SimSwap** (Public)
Repository to describe, develop, document and test the Sim Swap API family
☆ 2 🍴 Apache-2.0 🍴 4 🕒 3 🐞 1 Updated 16 hours ago

We envisage a broader number of possible APIs



Data centers &
Edge Compute



CPaaS



Network Info
& Access



Payments &
Financial Services



Security
& Privacy

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useful
APIs

Multi
Country

Well known
developer
ecosystems

In Telefónica, we are advancing in all geographies

Quality On Demand



Device Status
(Connected or Roaming)



Number Verification
(www.numberverify.org)



Number Verification
(SMS 2FA)



Carrier Billing –
Check Out



Verify Location





we are opening such standardized telco APIs.

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APIs

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ecosystems





**And all this to solve real
business needs: use cases**

Video Production

CINFO



Required APIS: [QOD MOBILE](#)

Partners:



Cloud Gaming

BLACKNUT

Required APIS: [QOD MOBILE](#)

Partners:    **Blacknut**



Remote Assist

apoQlar

Required APIS: [QOD MOBILE](#)

Partners:  Microsoft [apo@lar](#)

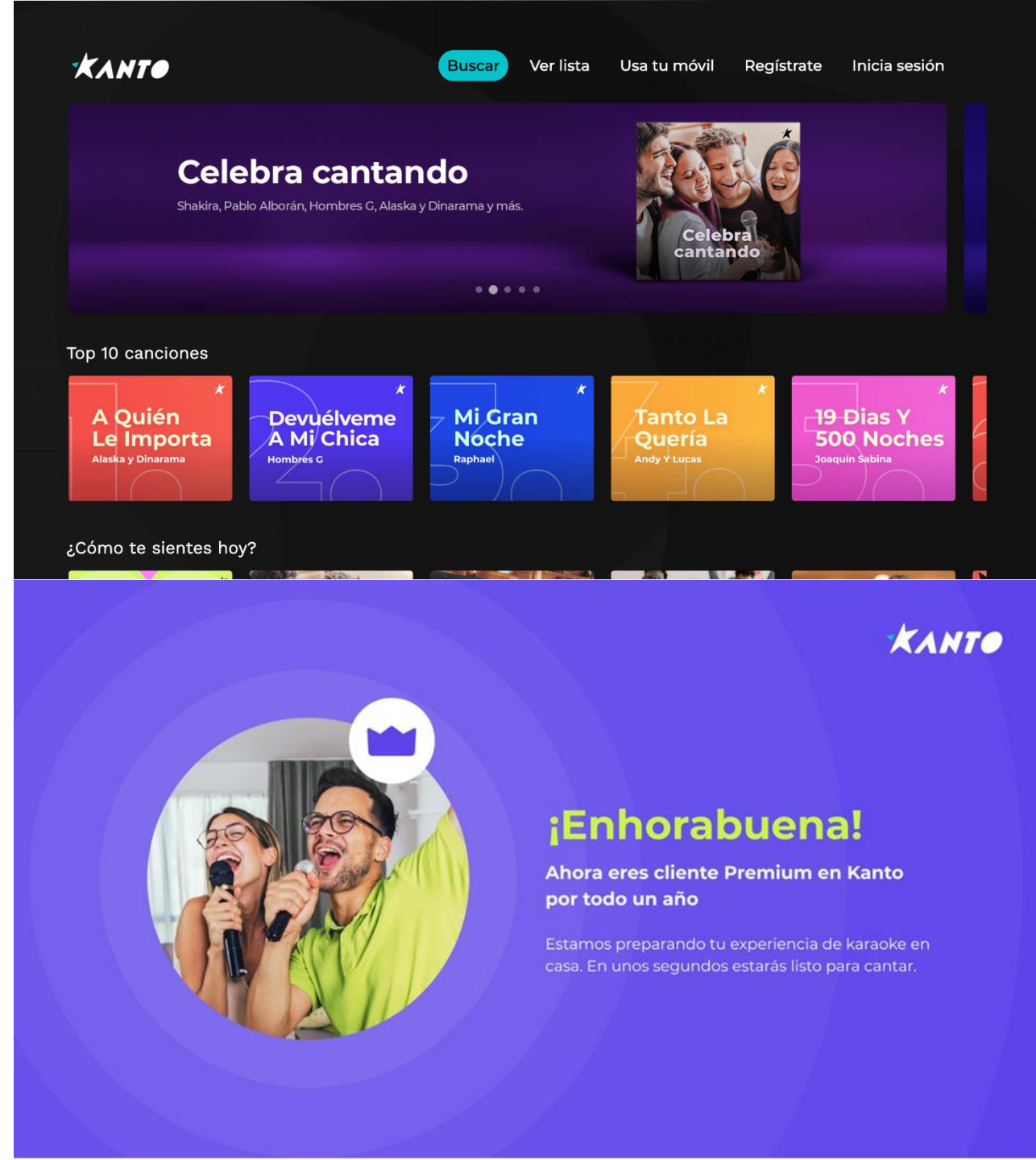


Carrier Billing

KANTO

Required APIS: **CARRIER BILLING**

Partners:

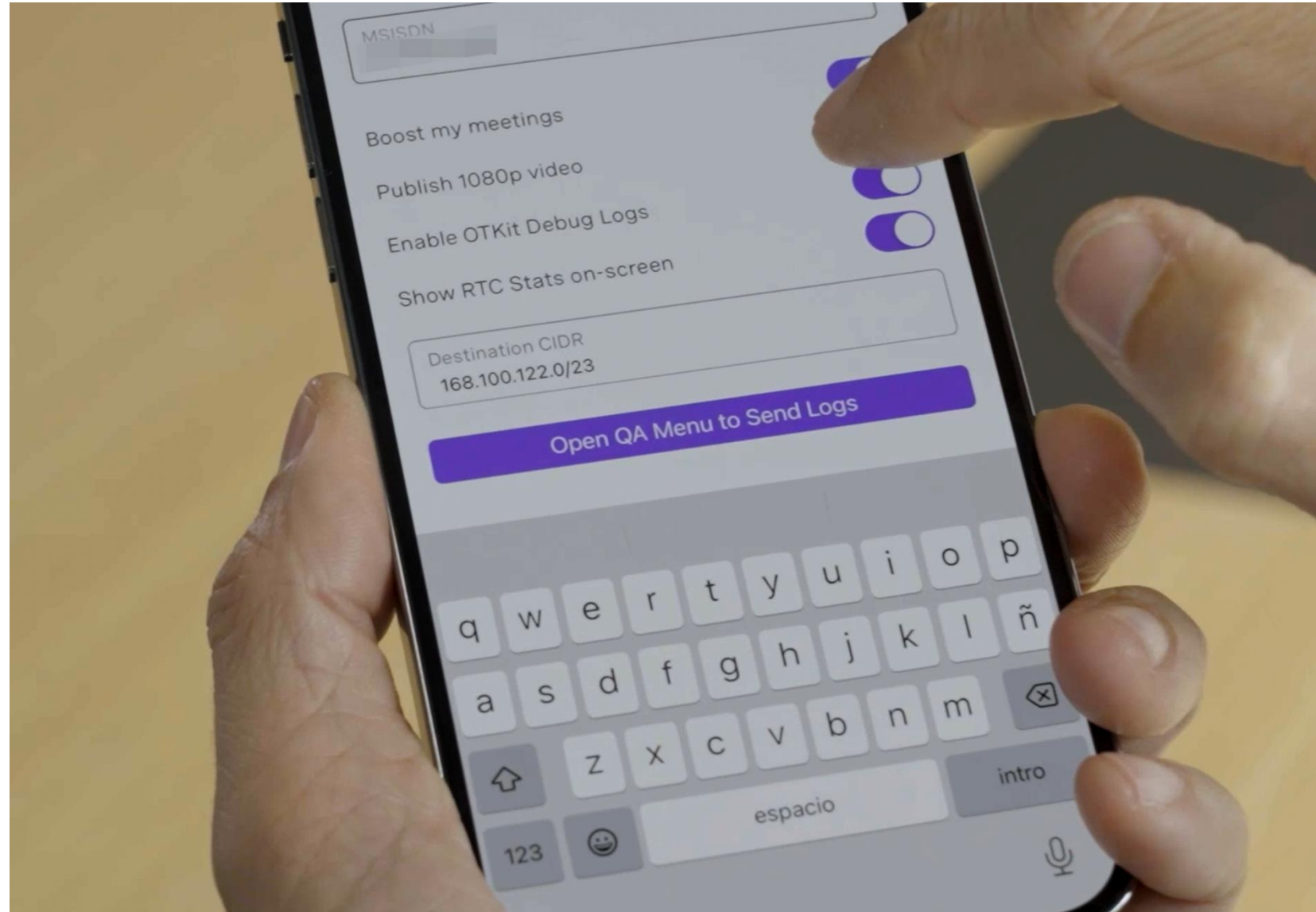


Video call

VBC

Required APIS: [QOD MOBILE](#)

Partners:

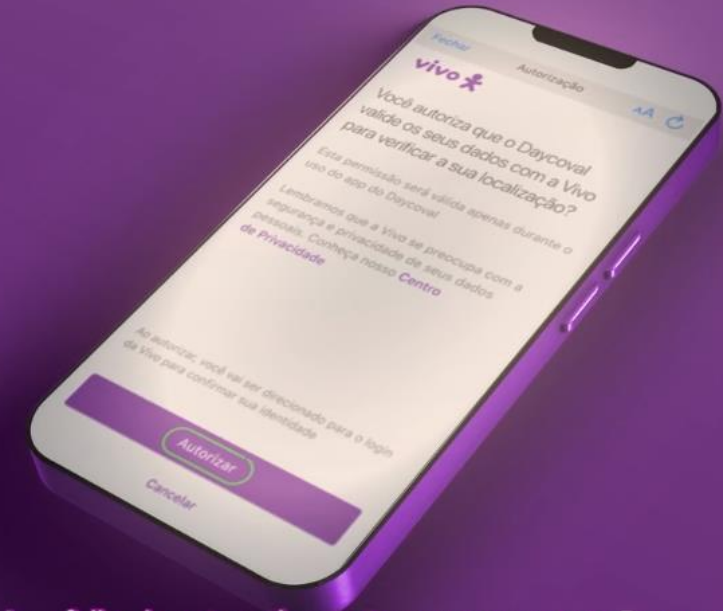


Fintech

DAYCOVAL

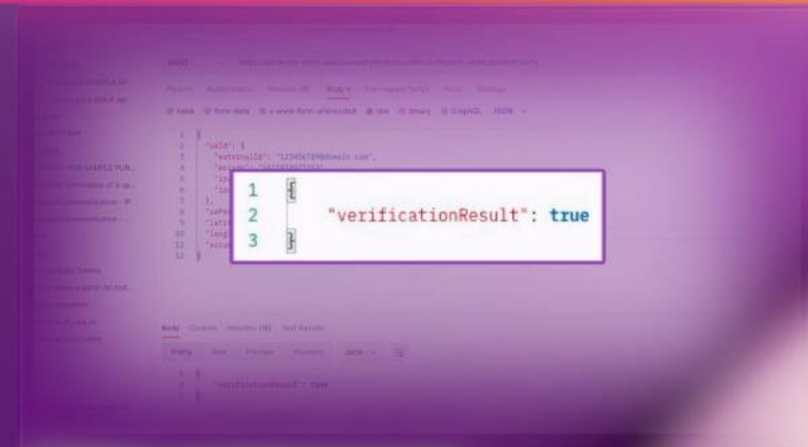
Required APIS: **DEVICE LOCATION**

Partners: 



As a following step, the customer consents to Daycoval

Identity + Latitude + Longitude + Accuracy  = True



Validation completed in seconds

comparing it to different data sources.





Early Adopter Program

MOBILE WORLD CONGRESS 2023

MAKING OPEN GATEWAY HAPPEN

DISCOVER MORE →

We're turning our networks into a developer-ready platform

We're opening up our networks to offer telco capabilities through global and standardised APIs. Create new experiences and features by integrating the power of the network.

EXPLORE OUR APIS

Our APIS are available in partnership with:



Google Cloud

Microsoft Azure

VONAGE

Deliver a premium experience in your services with our network and telco APIs

Under CAMARA project



QoD Mobile API

Gaming & Entertainment Health & Wellness Industry 4.0

Unified Comms & Collaborations

This exerts control over the mobile connectivity service quality (throughput, latency, congestion). Our QoD Mobile API provides more accurate control of the connectivity service quality.

VIEW USE CASES

Under CAMARA project



QoD WiFi API

Gaming & Entertainment Unified Comms & Collaborations

This can manage downstream traffic from residential access points to a device connected via Wi-Fi. Our QoD Wi-Fi API (under the CAMARA project known as QoD Home Devices API) exerts control over the configuration of the network for devices connected to the Wi-Fi network on demand.

VIEW USE CASES

SAMPLE CODE

Under CAMARA project



Device Status API

Antifraud & Fintech

This provides the option of verifying the roaming status of a given SIM-based device without any identity or GPS theft. Our Device Status API can check whether a user or device is in roaming status in order to guarantee services and prevent fraud, particularly in banking and payments.

VIEW USE CASES

Under CAMARA project



Device Location API

Antifraud & Fintech Industry 4.0

This provides the option of verifying the geographical location of a given SIM-based device and validating whether it's within a requested geographical area (radius <1km) without any identity or GPS theft. Our Device Location API validates the location of a device to enable services or allow transactions by verifying the location.

VIEW USE CASES

A complete developer kit

Client SDK
Sample Code

Developer Documentation
Multiple languages: C#, Go, Python,...

The screenshot shows the GitHub interface for the repository 'lpcx / programmable-connectivity-quickstart'. The repository is private and has 5 watchers, 0 forks, and 0 stars. The main content area displays the file 'test-tef.py' in the 'python' directory, which is 49 lines long and 1.65 KB in size. The code is as follows:

```
40
41 # discover edges
42 edges = api.getEdges()
43 print("Discovered edges:")
44 rich.print_json(json.dumps(edges))
45
46 # set QoS
47 print("Setting QoS between {} and {}, ".format(tefUE, tefAS))
48 channel = api.setProperties(tefUE, tefAS, { "properties" : { "networkProperties": { "avgLatencyMs" : 10 } }})
49 rich.print_json(json.dumps(channel))
```

The screenshot shows the README.md file for the Developer Kit. The title is 'Developer Kit'. The text states: 'This repository is for the Developer Kit.' The first step is 'Step 1: Deploy a publicly accessible EC2 instance to a Wavelength Zone'. The instructions for this step are:

1. Ensure your AWS Account is opted-in for WLZs. You can do this on the EC2 Dashboard page (Zones --> Enable additional Zones).
2. Follow the [AWS CDK Documentation](#) to setup the AWS CLI and AWS CDK for TypeScript.
3. Update `bin/mec.ts` with your desired configuration (i.e. AZ, WLZ, Key-Pair, CIDR Blocks, AMIs, and Instance Types) and `lib/mec-stack.ts` with the correct Security Group rules for your instances.
4. Build the stack.

```
npm install && npm run build
```

5. Deploy the stack.

```
cdk deploy MecStackDFW
```

On the right side of the README, there are sections for 'Packages' (No packages published), 'Contributors' (2 contributors: dependabot[bot] and amazon-auto), and 'Languages' (JavaScript 46.8%, Python 43.4%, Shell 6.9%, Dockerfile 2.0%, Makefile 0.9%).

All available in each aggregator partner



Microsoft Azure



Google Cloud



VONAGE

Multi TelCo

Many useful APIs

Multi Country

Well-known developer ecosystems

**Early
Adopter
Program**

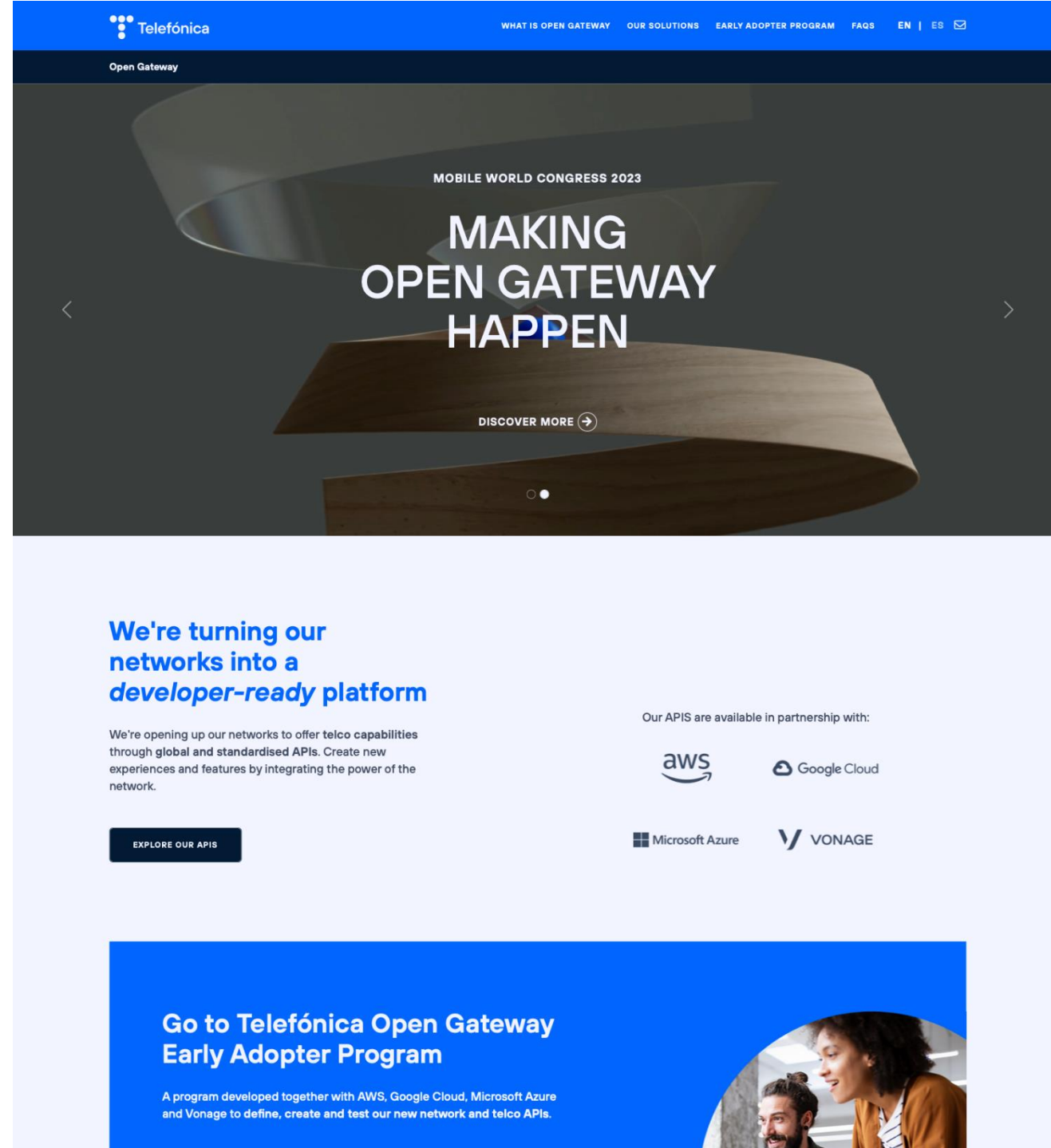
Early Adopter Program

OPEN GATEWAY

Enhance your users' experiences, join us!



opengateway.telefonica.com



The screenshot shows the Telefónica Open Gateway website. At the top, there is a blue navigation bar with the Telefónica logo and links for 'WHAT IS OPEN GATEWAY', 'OUR SOLUTIONS', 'EARLY ADOPTER PROGRAM', 'FAQS', and 'EN | ES'. Below the navigation bar, the main header features a large, abstract graphic of a wooden structure with the text 'MOBILE WORLD CONGRESS 2023' and 'MAKING OPEN GATEWAY HAPPEN'. A 'DISCOVER MORE' button with a right arrow is positioned below the main text. The main content area has a light blue background and contains the headline 'We're turning our networks into a developer-ready platform'. Below this, a paragraph states: 'We're opening up our networks to offer telco capabilities through global and standardised APIs. Create new experiences and features by integrating the power of the network.' To the right of this text, it says 'Our APIs are available in partnership with:' followed by logos for AWS, Google Cloud, Microsoft Azure, and VONAGE. A dark blue button labeled 'EXPLORE OUR APIS' is located below the main text. At the bottom, there is a blue banner with the text 'Go to Telefónica Open Gateway Early Adopter Program' and a sub-headline: 'A program developed together with AWS, Google Cloud, Microsoft Azure and Vonage to define, create and test our new network and telco APIs.' A circular image of two people talking is partially visible on the right side of the banner.



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Open Gateway