On Open Gateway from GSMA – Is It a Revolutionary or Too Little and Too Late Deal?

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FRUCT conference (Žilina, May 25, 2023)

Outline

- GSMA announced the creation of open telephony interfaces for third-party providers.
- Lack of third party support has always been the Achilles' heel of telecom, both wired and wireless.
- The need for such APIs is obvious, attempts have been made to create them, but there is no result.
- Will a new attempt succeed or is it already too late?

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1. Introduction

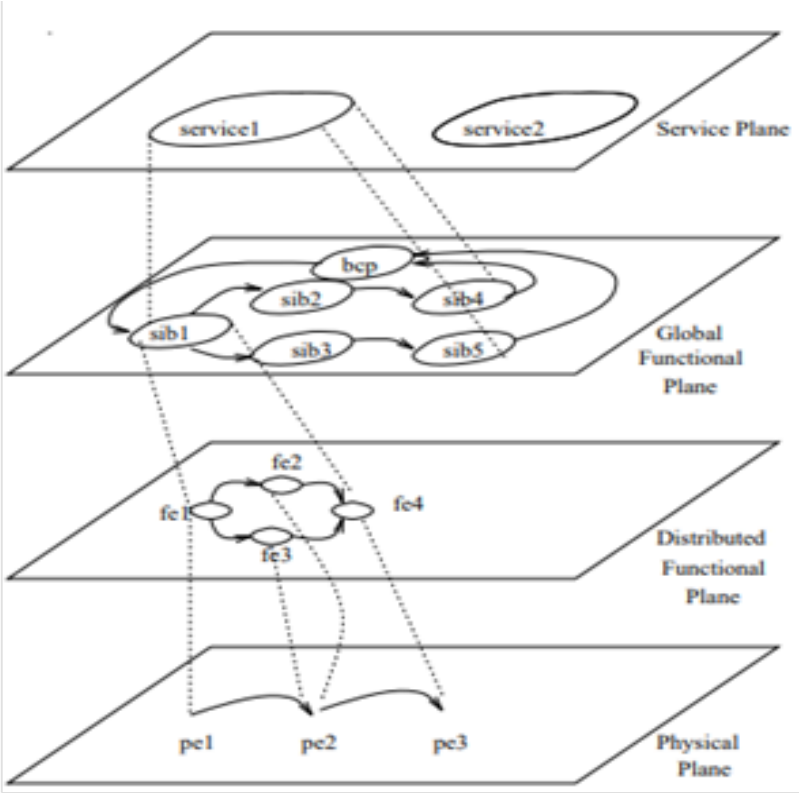
- GSMA in February 2023 proposed a new initiative - Open Gateway.
- The GSMA Open Gateway is an application programming interface (API) platform designed to provide universal access to carrier networks for developers.
- This is the biggest attempt to create common programming interfaces for telecommunication services since Parlay/OSA
- The universal software interface will allow, in theory, to easily transfer services between different telecommunications operators, create common marketplaces, etc.

Introduction

- Targets (as per GSMA): cloud service providers, application developers, content and game developers, and software developers
- 8 APIs: device location, device status, EDGE site selection, number verification, OTP verification, carrier billing, quality on demand, and SIM replacement verification.
- Applications: identification, cybersecurity, billing, signaling, and geolocation. Separately, the control of unmanned aerial vehicles (identification, EDGE calculations) is noted. The scope of the API for geolocation GSMA sees gaming applications

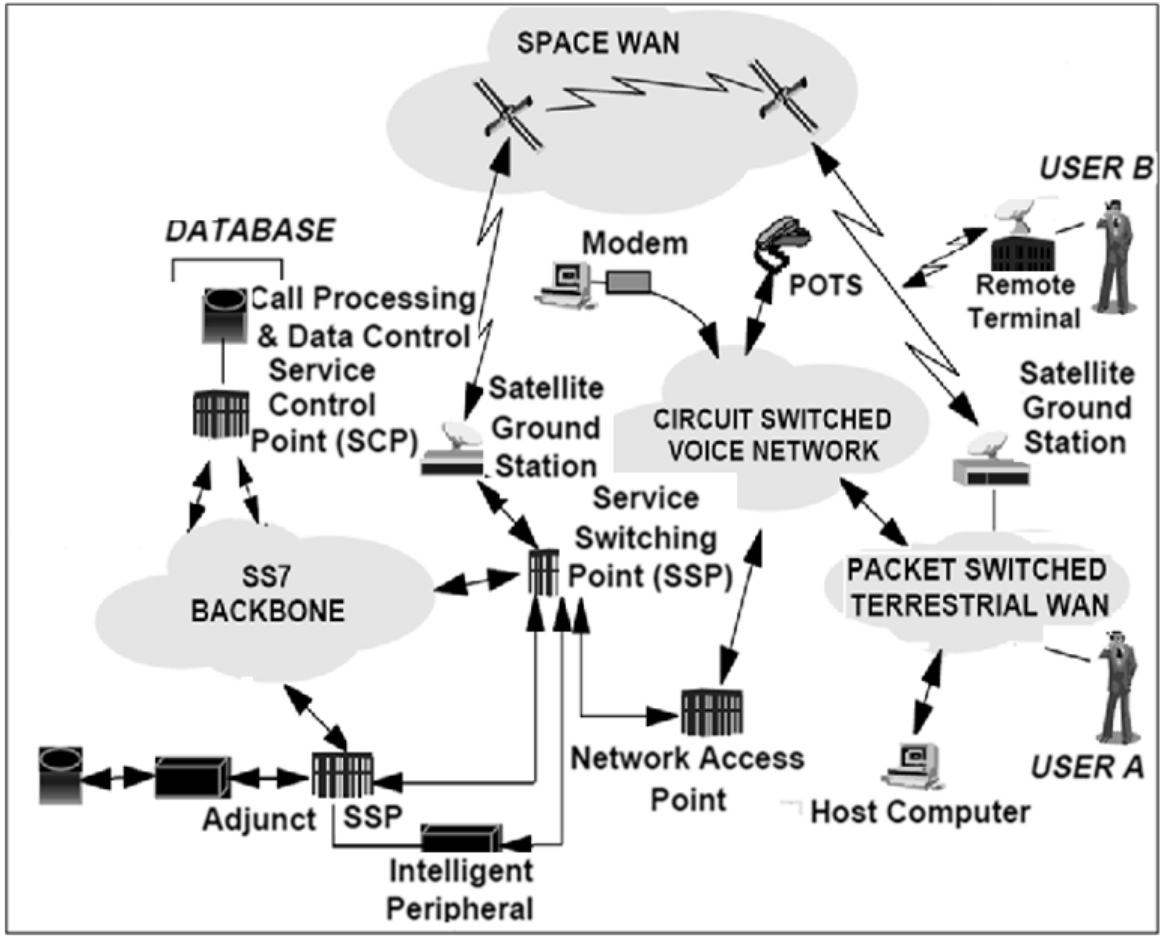
2. On open APIs: Advanced Intelligent Network

Bell Labs: the telephone signaling protocol SS7 and the Advanced Intelligent Network (AIN).
SS7 protocols had developed at Bell Labs since 1975 and defined as ITU standards in 1981

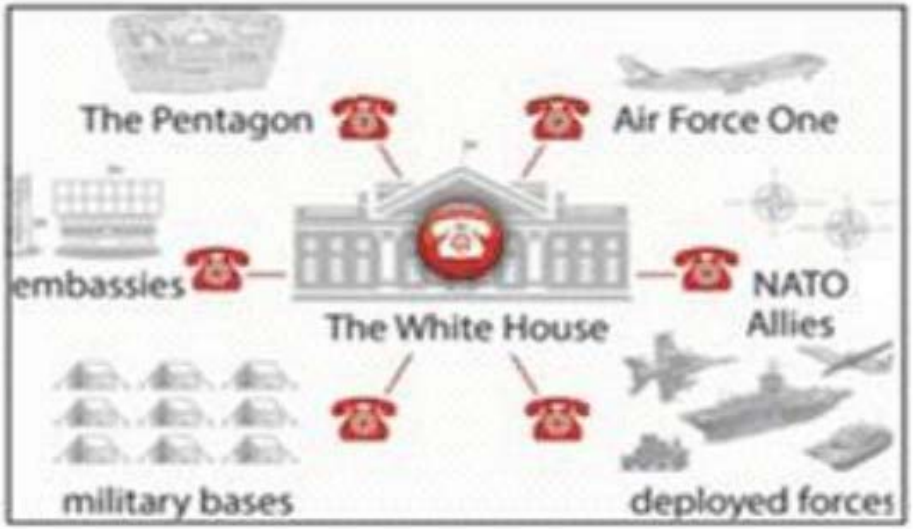


The lack of open interfaces has been one of the major problems with the IN.
Global Functional Plane contains 28 interfaces (SIB) available for vendors only.

On open APIs: the military AIN (from 1880s) is operating by now



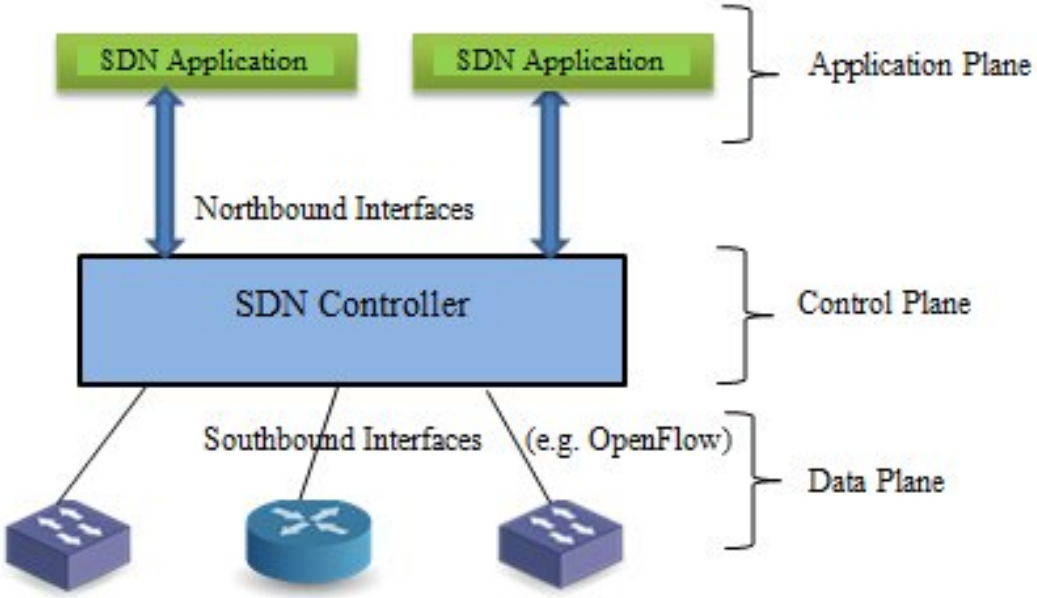
Defense Red Switch Network (up to now)



DSRN - 40 years old ISDN technology: as a case of CS vs PS

3. On open API: SDN

In reality, only SDN (as a programming model) has provided access to its model in the form of an API: the weak point - undefined Northbound Interfaces



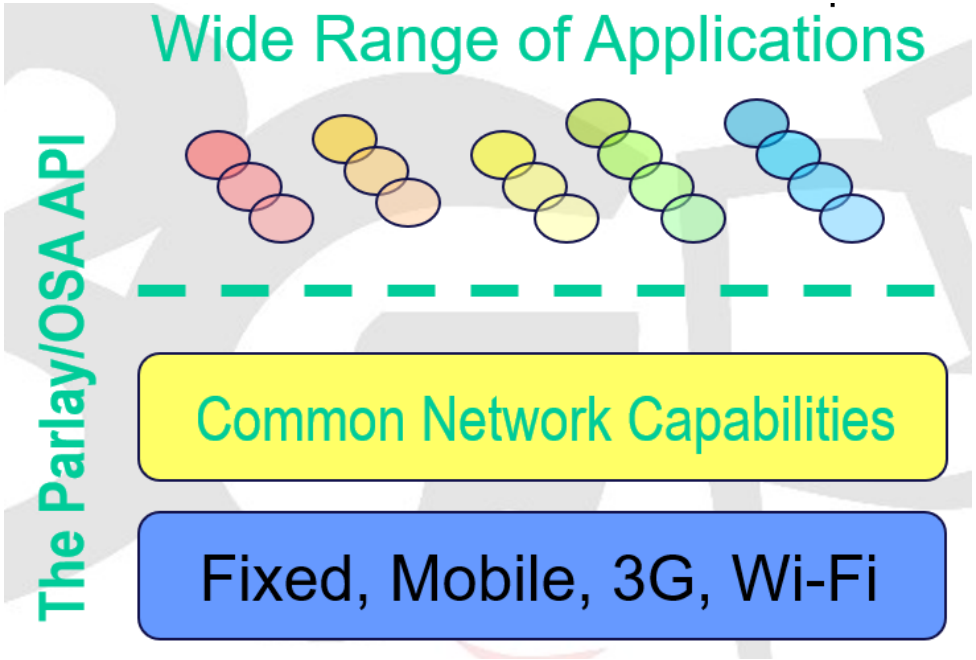
SDN Architecture

4. On open API: 5G

- We note here that even in relatively recent architectures, the need to support third-party developers is not observed.

- For example, the D2D model in 5G (ProSe – proximity services) does not discuss third-party access for developers (e.g. for IoT). Meanwhile, this model is one of the few new additions to 5G (besides the radio component) and software access here could be an advantage.

5. On open APIs: Parlay/OSA (1990s)



Parlay/OSA

- 22 specs (e.g. Third-part call, Call notification, etc.)
- Only 4 parts have similarity with GSMA Open Gateway:

"Payment" - Pre-paid payments and post-paid payments in third-party applications

"Account Management" - Account querying, direct recharging, and vouchers based recharging

"Terminal Status" - Programmatically request the status of a terminal

"Terminal Location"- Programmatically getting location information about a terminal

- The Parlay/OSA API was never adopted by the developer community because the level of abstraction was too low.

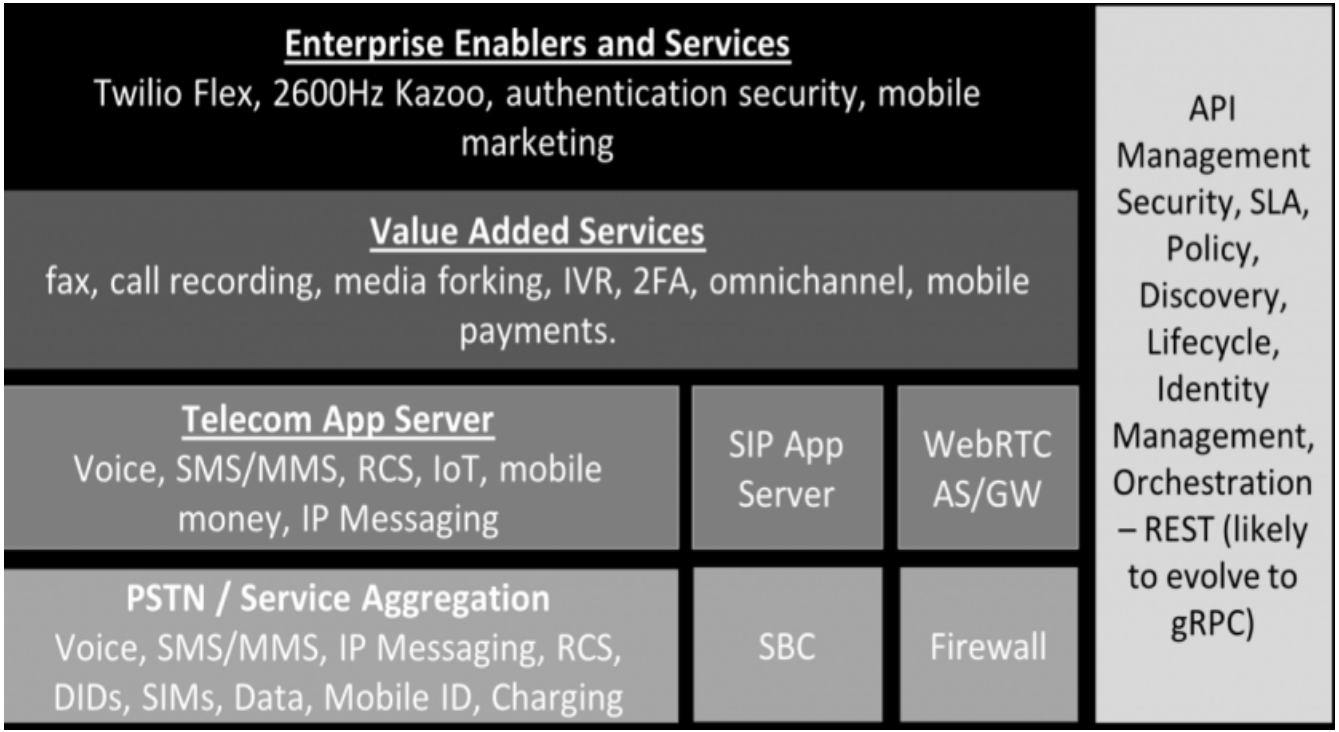
Parlay X APIs

- Call Control
  - 3rd Party Call
  - Call Notification
  - Call Handling
  - Audio Call
  - Multimedia Conference
- Address List Management
- Presence
- Message Broadcast
- Short Messaging
- Multimedia Messaging
- Location & User Status
- Presence & Availability
- Connectivity Management
- Terminal Status
- Terminal Location
- Payment
- Account Management
- Geocoding
- Application Driven QoS

Parlay/OSA

- In fact, Parlay/OSA did not meet the main requirement for software tools - it did not save development time.
- A simplified version of Parlay X was adopted, which was based on the newly introduced web services, but it only supported a limited number of APIs at all.
- In general, the new proposal from GSMA is much smaller (yet?) than the old Parlay/OSA specification.
- It can be noted the complete absence of actual telephone functions (calls, messages) in GSMA spec.

6. On the current practice: CPaaS

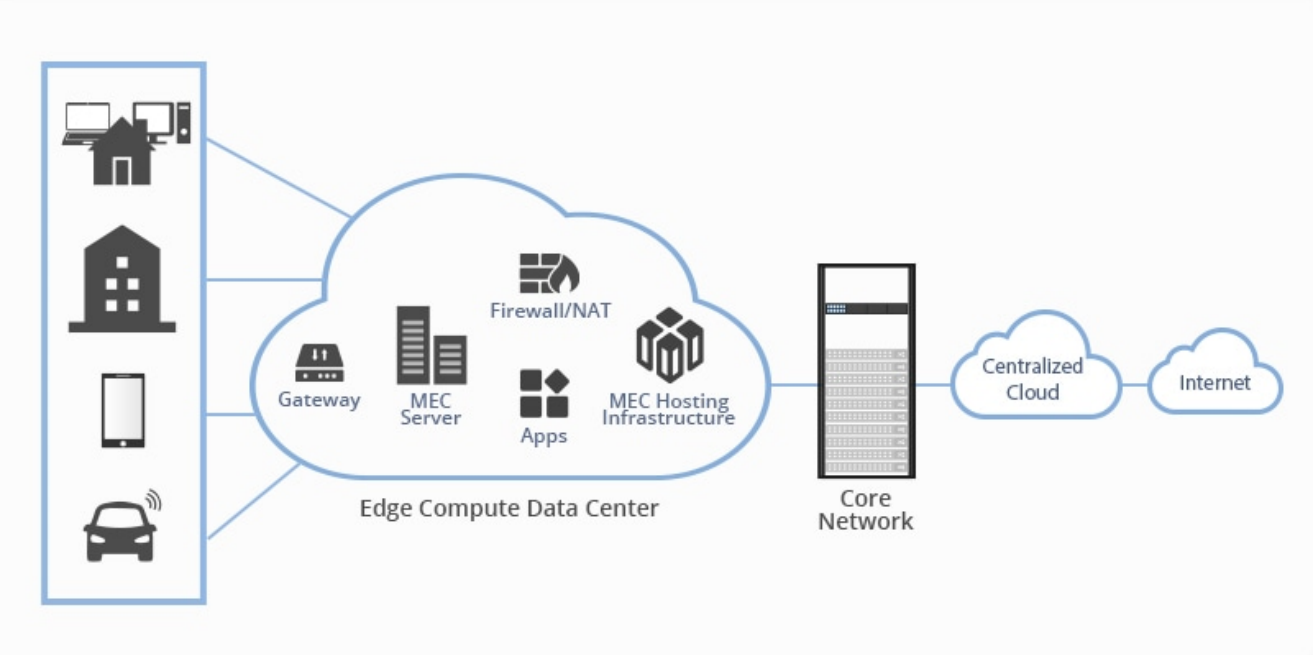


Communication platform as a service (cPaaS) platforms

On the current practice: Twilio

Twilio provides programmable communication tools for phone calls, text messages, and other communication functions using its web service APIs

On the current practice: Multi-access Edge Computing (MEC)



Instead of sending all data to a cloud for processing, the network edge analyzes, processes, and stores the data: Proximity, Ultra-low latency, etc.

7. GSMA Open Gateway (2023)

- Sim swap
- Quality On Demand
- Device status
- Number Verify
- Edge Site Selection and Routing
- Number Verification (SMS 2FA)
- Carrier Billing – Check Out
- Verify Location

GSMA Open Gateway: Example

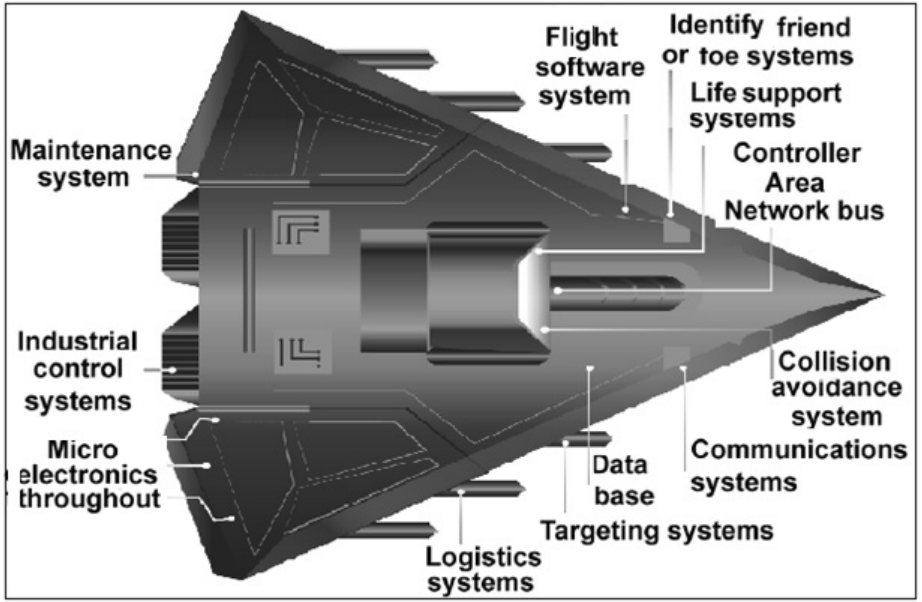
```
curl -X 'POST' https://sample-base-url/location/v0/verify
-H 'accept: application/json'
-H 'Content-Type: application/json'
-H "Authorization: Bearer eyJ0eXAiOiJKV0eXAiOi..."
-d '{ "ueId": { "ipv4addr": "95.165.30.107" },
"uePort": 8081,
"latitude": 55.755821,
"longitude": 37.617356, "accuracy": 4 }
```

8. Discussion

- The technical simplicity of the proposed APIs is beyond doubt.
- But the question of using any API remains dependent on the organization providing access.
- How will the work of telecommunications operators with the developer community be organized?
- How easy will it be to access the API?
- It can be recalled that Parlay/OSA was supposed to be implemented according to the same scheme, as a result, none of the operators wanted to be the first in this process.

Discussion: On Cybersecurity (2018)

First of all, for cybersecurity tasks (anti-fraud in payment systems, etc.).



In October of 2018, the Government Accounting Office (GAO) has reported, “the United States weapons systems developed between 2012 and 2017 have severe, even “mission critical” cyber vulnerabilities”.

Discussion

- Note that if the main purpose of the new API is to support applications for 5G (or already for 6G), then voice communications are not at all the main thing there.
- 5G brings nothing new to voice communications. But, for example, 5G defines D2D interactions (e. It might make sense to focus on those APIs where there might be something new compared to the existing offerings.
- The current capabilities of existing APIs are much larger than the GSMA proposal. And these APIs already have their users
- In its current form, the open API from GSMA presents a rather small range of possibilities for third-party developers.