Wilab’s NWDAF POC

Unlocking the Power of NWDAF & Network APIs for 4G/5G Network Automation and Monetization from the Google Cloud Platform.

The primary challenge in monetizing 4G and 5G networks and building automation use cases lies in the time-consuming process of rolling out new initiatives. Typically, these initiatives require 9 to 18 months to launch, discouraging operators from exploring innovative concepts. While 3GPP’s Network Data Analytics Function (NWDAF) and CAMARA APIs for third-party developers aim to address this, they are still in their infancy and haven't yet delivered substantial use cases — until now.

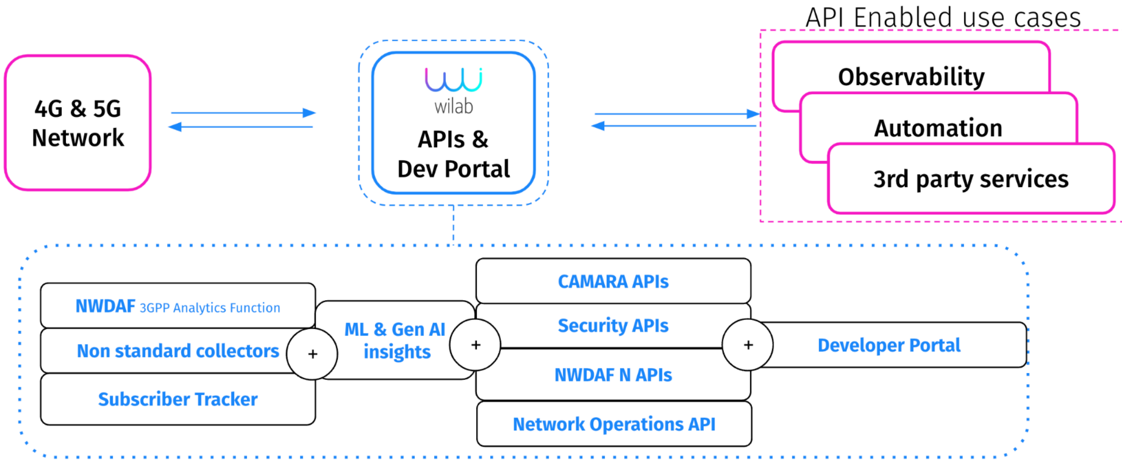
Wilab has demonstrated how to overcome these hurdles through a successful Proof of Concept (POC) on TELUS’ network. This POC showcases how Wilab’s customized 5G NWDAF can seamlessly expose data from both 4G and 5G networks, dramatically accelerating the deployment of automation use cases, enabling rapid monetization of applications using network data and achieving this feat much faster than the industry standard.

Deployed in a cloud environment hosted on Google Cloud Platform (GCP) and connected to the lab network, the solution was up and running in just 11 weeks. The primary objectives were to prove that this approach can:

- **Reduce the time to deploy a new monetizable service by 10x**
- **Enhance automation capabilities**
- **Improve observability capabilities**
- **Showcase the benefits of deploying core network functions on GCP**

The Breakthrough

Wilab showcased how it takes care of all the complexities of interacting with multi-vendor mobile networks and implemented a way to normalize and expose all 4G and 5G core network data in real time via APIs. Outside the scope of this POC, Wilab also offers a Developer Portal, complete with a sandbox environment, further streamlining the development of applications that use 5G network data and capabilities.



End-to-End Solution for Any Network Vendor

Wilab's solution leverages its NWDAF (3GPP Network Data Analytics Function) and other APIs to collect data, provision business rules, and expose data. It includes a Developer Portal to simplify the building of use cases and new services that can be monetized. Here are some building blocks of the Wilab solution:

API Event Subscription: Key to Unlocking New Possibilities

One of the core components of the Wilab solution are its APIs and API gateway, which exposes network information in real-time or near real-time. To expose these APIs, Wilab has modules such as NWDAF, which is a 3GPP standard Network Function that generates and exposes Analytics ID events with network information. NWDAF collects data by subscribing to events generated by other Network Functions of any vendor via the SBI. Consumers (including Operators), other Network Functions, MANO, and even third parties, can subscribe to an Analytics ID, enabling both new services that can be monetized and Observability and Automation use cases.

In addition to NWDAF, Wilab exposes other essential data for network operations. This data is collected every two minutes directly from Network Functions and supported vendors. These collectors bypass the EMS (e.g., Nokia NetAct), which typically exposes data every 15 minutes, significantly reducing the time to detect degradations.

Network Data APIs

- Throughput
- Call success
- Subscribers
- Traffic per OTT
- CDR/EDR Analytics
- VoLTE
- Roaming

NWDAF Analytics

- NF_Load
- UE_Mobility / Geofencing
- Service experience
- Congestion

User Insights APIs

- Service experience
- Services Enabled per user
    - VoLTE, VoWiFi, 5G, 4G, FWA
- Congestion per site
    - Traffic shaping
    - Heavy Users
- User profiling
- Geofencing

CAMARA API

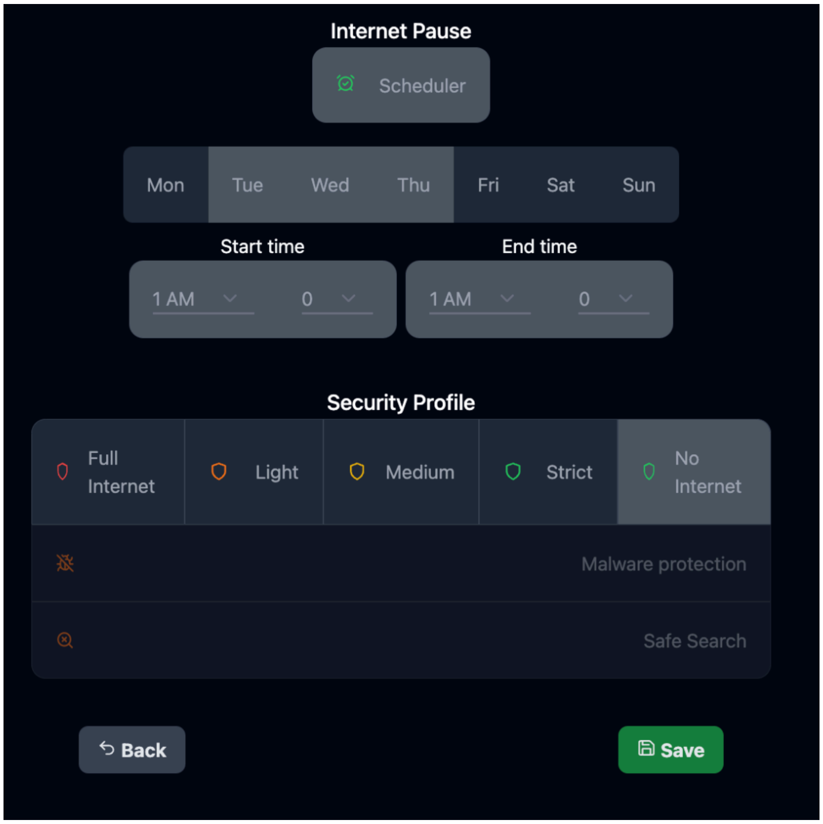
- SIM SWAP fraud prevention
- Device Location
- Device Status

POC Goals and Results

Goal 1: Reduce the time to deploy a new monetizable third-party service by 10x

The AKAMAI SIA (Secure Internet Access) was chosen to demonstrate this capability. In other operators, this service takes 12-14 months to implement. In this POC, with Wilab exposing the necessary data, it was implemented in 6 weeks in the lab. This is a 10x improvement.

The AKAMAI SIA solution enables customizable internet filters for each subscriber. This is valuable for SMB customers who lack IT staff to protect against ransomware and phishing attacks. For enterprises, it adds a layer to their defense-in-depth strategy, and for families, it provides parental control to filter adult content and set internet access schedules. Here's the UI that customers can use to customize their security settings:

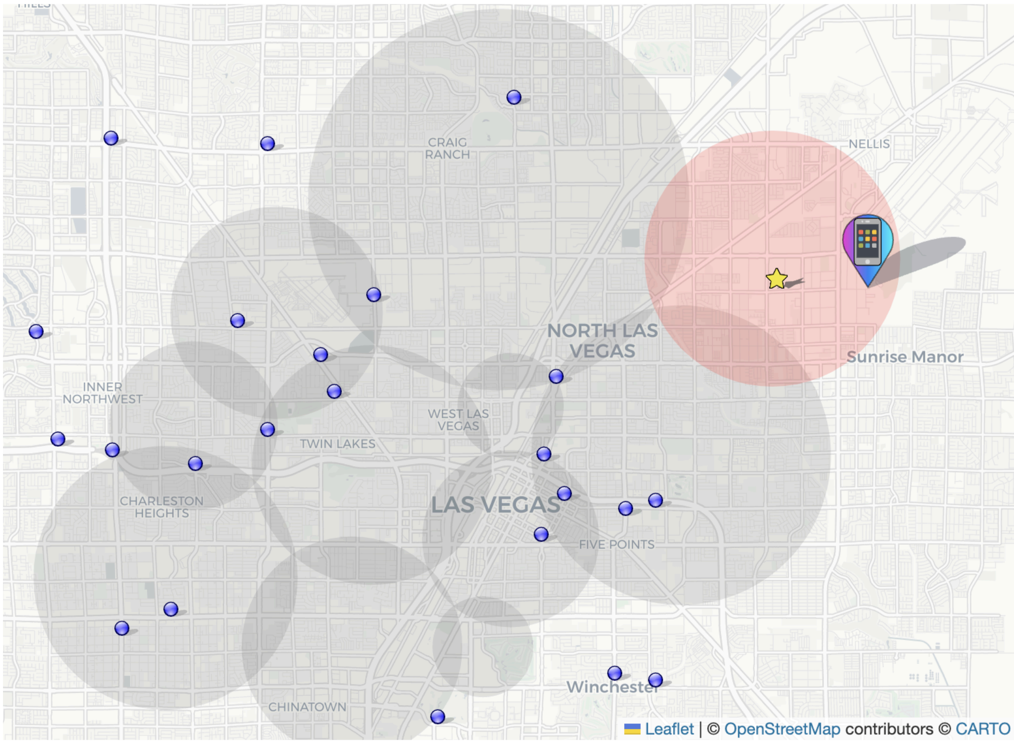


Goal 2: Automatically create a Geofence that triggers a service when a UE enters or exits an area of interest

Wilab APIs were used to create a geofence for one or many UEs with a single API call. This feature can trigger a wide array of new services, including:

- Location-based services
- Drive test analysis
- Network planning
- Revenue assurance for FWA
- Unlimited internet at home plans
- Free internet at a Stadium to stream the game

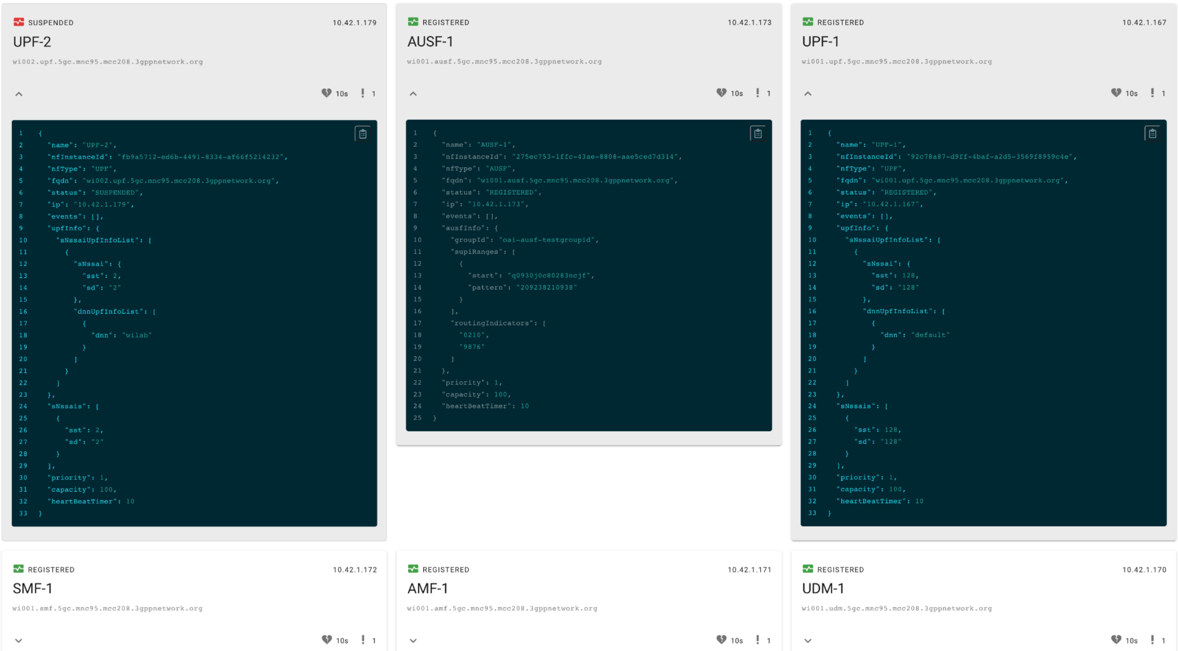
Previously, creating a geofence to enable services in specific areas required complex logic. Now, Wilab APIs enable the creation of a geofence for one or more UEs with a single API call. This procedure is GDPR-compliant, as it can only occur with the UE owner's permission.

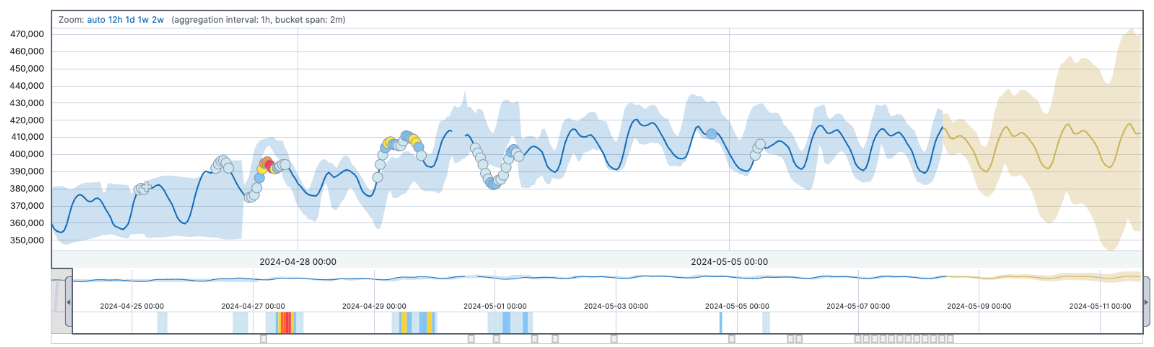


Goal 3: Improve real-time observability of the network

In this POC, Wilab demonstrated improved network observability, showcasing the network's topology, NF status, and load. Outside of the scope of this POC, Wilab's capabilities extend to all other Core Network Metrics, Alarms and Logs from control plane, user plane, and service experience.

Wilab showcased a real-time network topology in an intuitive UI where consumers can generate API subscriptions, receive events or forecasts, and create observability dashboards for any metric. This capability was demonstrated with the status and a forecast of the load of NFs, providing valuable information for troubleshooting and scaling the network efficiently and sustainably.





Note: Diagrams for reference purposes only

Conclusion

Wilab's POC on NWDAF demonstrated significant advancements in reducing deployment times, enhancing automation, and improving network observability. By simplifying the complexities of multi-vendor 4G and 5G networks and offering seamless API integrations, Wilab is paving the way for rapid deployment of Observability, Automation and Monetization use cases. This end-to-end solution is poised to revolutionize how operators leverage 5G networks, making innovative services more accessible and profitable.