

# HOME WI-FI QOE SOLUTION

## Artificial Intelligence to support Service Providers in monitoring and analysing Wi-Fi home environments

For the past few years, we've been seeing a significant evolution of the **Home Network** and Wi-Fi home environments, and a further explosion is expected in the future:

- **Ultrabroadband Evolution** – Exponential growth trends, accelerated by the Covid-19 pandemic as a result of the widespread use of smart working
- **Home Network Evolution** – Explosion of new devices, of different types and increasingly sensitive and intelligent
- **Wi-Fi Dominance** – More than 90% of devices on the home network are connected via Wi-Fi

### Why monitor the Home Network?

For **Service Providers** that offer **ultra-wideband internet connection** to their residential customers, it becomes increasingly important to equip themselves with adequate tools to ensure an **increase in the quality of Wi-Fi connections** in the Home Network of customers. In fact, the quality of the Home Network and of the Wi-Fi is directly associated with the overall quality of service.

The **business consequences of low quality perceived by end customers** on their home network can prove to be severe for the Service Provider:

- **Increased Customer Churn Rate** - Customers evaluate the option to switch providers, looking for better quality
- **Less use of premium services** - Customers are discouraged from using new value-added services
- **High costs of the Technical Assistance** - The Service Provider's Technical Assistance services are more stressed and take more time and resources to resolve issues

It is therefore becoming increasingly important for Service Providers to **equip themselves with tools** both to help technicians in troubleshooting and to integrate with self-help facilities.



## Italtel Home Wi-Fi QoE solution

Italtel has developed for Service Providers an advanced solution for the **monitoring and data analysis of home networks**, able to **support the Technical Assistance service** in detecting and diagnosing problems related to the customer experience in the use of home Wi-Fi in Ultra Broadband accesses.

Italtel Home Wi-Fi solution collects **telemetry data** from the devices of the residential networks connected to the Service Provider network **and analyses them in real time**, using advanced techniques of machine learning and artificial intelligence, to derive **representative indicators of the Customer experience (KPI)**, such as objects present on the network, signal level, generated traffic, dropped packets.

The analysis, thanks to the fundamental contribution of **machine learning and artificial intelligence**, by means of correlations, even temporal, between the detected KPIs, is able to promptly **identify the actual problems** and **highlight the anomalous situations** that could lead to failures, even before the customers perceive their onset.

The key outputs of the analysis provide useful information to:

- Enable and initiate **automatic feedback mechanisms on the network (closed loop)**, such as corrective actions on modems (proactive actions such as using another Wi-Fi channel or using the 5GHz band)
- Providing **diagnostic information** to Contact Centres and Technical Assistance, capable of simplifying and speeding up their work and facilitating the interaction with customers
- Feed **self-care recommendation tools** for direct use by end customers when requesting technical assistance

The solution, **in operation at leading international Telco Providers**, can be customised according to specific needs, thanks to the design and SW development skills of Italtel.



## Benefits for the Service Provider

Thanks to the solution designed by Italtel, the Service Provider achieves some important benefits:

- **Speeding up and simplifying the Technical Assistance process.** The diagnoses made in near real time by the Wi-Fi Monitoring solution help the Service Provider technicians in the timely identification of problematic situations on the home network of the end customers, speeding up the resolution with the related benefits on costs, as well as ensuring the end customers a better service.
- **Selecting the most appropriate devices.** Analyses on telemetry data allow the Service Provider to identify the rationale for the technical adequacy of the devices, both in general and according to the specificities of the home network of the end customers.
- **Fid ·Loyalty of the Service Provider's end customers.** End customers benefit from an improved Quality of Experience on their home network as a result of early problem resolution; from a Service Provider perspective, this translates into end customer loyalty and reduced customer churn.

## The value of Italtel

Italtel can boast a **consolidated experience in the field of digital networks** and their management, with in-depth skills (design, implementation, integration, maintenance, evolution) that place it in a prominent position in the panorama of companies' expert in IT/Telco networks and their management. This expertise allows Italtel to be present on the market with:

- **Knowledge of application domains and technologies.** Italtel has an in-depth knowledge, applied in many successful projects, of Application Domains and Technologies, with an eye always turned to innovation.
- **Knowledge of the environments.** Italtel understands customer needs and addresses solutions, thanks to knowledge of the Networks - Italtel Engineering has been designing Telecommunications Networks for 100 years.
- **Understanding of Customer needs.** Ability to accompany customers throughout the process of defining the correct path according to the objectives to be achieved, with a "tailored" approach.
- **Adoption of agile methodologies in the SW lifecycle.** Familiarity with and adoption of DevOps-type methodologies ensures successful delivery in a timely manner.
- **References.** Italtel's design capabilities are proven by numerous references.



Italtel is a multinational company that operates in the ICT sector with a strong focus on innovation. Italtel offers solutions for the digital transformation that include networks and UBB infrastructures, data centers, business collaboration, cybersecurity, hybrid cloud, the internet of things. The solutions are composed of proprietary and third-party software products, managed services, engineering and consultancy services, analytics & automation. The target market consists of service providers, public and private enterprises, with a specific focus on vertical markets such as Telco & Media, Manufacturing, Energy & Transportation, Finance & Insurance, Healthcare, Smart Cities. The shareholders of Italtel are PSC Group, Clessidra and TIM.

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