Iberdrola – Project EFESOT

A project to improve the energy efficiency of the Iberdrola electrical distribution network and optimize its protection against atmospheric surges (such as those caused by thunderstorms) was realized through a combined solution comprised of **Amplia Solutions' OpenGate cloud-based IoT platform** and the technology of INAEL Electrical Systems.

The combined Amplia-INAEL solution for medium voltage networks provides monitoring and actuation of different points along the distribution network.

Status monitoring of the physical power lines:

- Temperature sensing of different points along the distribution network
- Real-time temperature acquisition of each section at intervals
- Alarms for threshold surpassing at each section
- History information of temperature levels per section, line, zone…
- Report of the temperature deviation
- Monitoring of the load curve in the network

Fault monitoring:

- Detection and count of short-circuit faults, discriminating between temporal or permanent
- Detection and count of faulty current flow
- Update of counting method for detection and count
- Alert generation (e.g. when there is a permanent fault, when there are certain consecutive faults…)

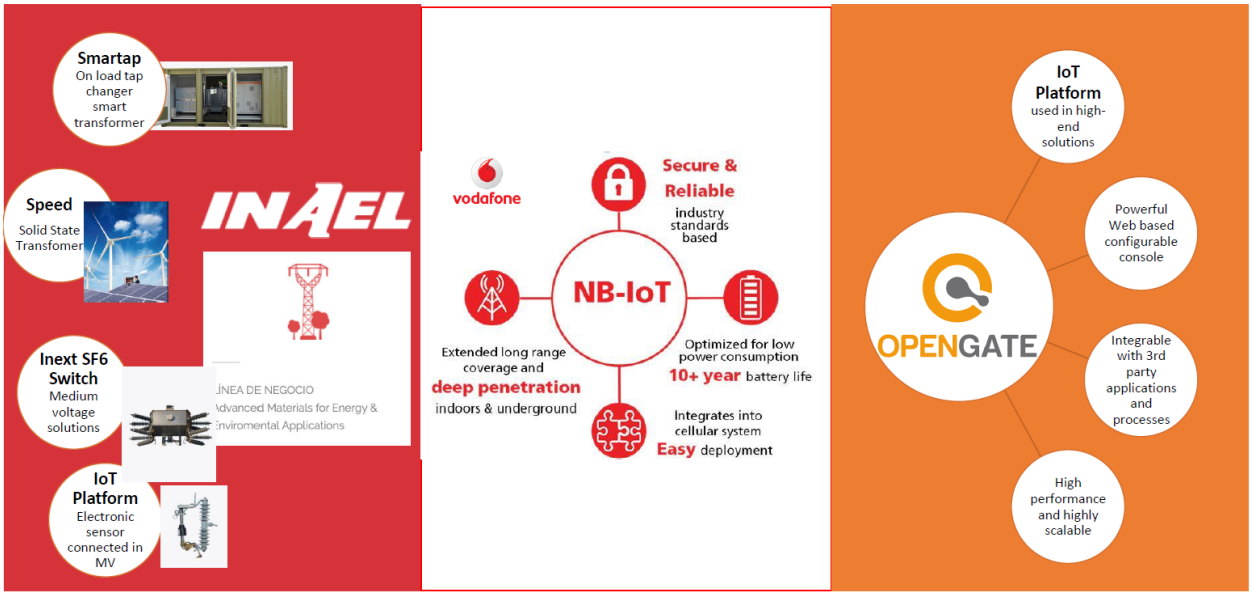
- Alert generation (e.g. consecutive operations)
- Reporting (e.g. sections with biggest number of failures…)
- Verifying correct mechanical aperture

Point of failure location:

- Installation of multiple, low cost sensing points along the network
- Alert generation when wrong situations are detected at certain points

Remote operation and configuration:

- Reconfiguration
- Remote firmware updates of devices
- Device activation and de-activation



The solution architecture is comprised of the following:

Specialized IoT Platform:

- Vertical solution for monitoring and managing the distribution network
- Device management to control the infrastructure of smart IOT devices and communication network devices
- Web application specialized for the solution - Customizable and adaptable to specific needs

Narrowband Communications:

- Two-way communication
- Low cost and low consumption
- Licensed band: restricted access, restricted use

IOT sensors and actuators:

- Sectionalizers
- Fault detectors
- Line temperature sensors