Future-proof solutions to accelerate the digitalization of power grids

> QEd Quantum Edge® device



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THE CHALLENGE

Growing electrification as well as distributed generation are increasing the complexity of power flows managed by the grid.

Power distribution networks need to go through a great technological transformation to increase flexibility, grid resilience and quality of service. THE SOLUTION

QEd - Quantum Edge® device is our edge **platform for substation virtualization**.

Thanks to its decentralized computational capability, this all-in-one solution performs all the main functionalities of electrical substations **by virtualizing their components into edge applications**. QEd addresses the main challenges of the grid such as **automation** and **DER integration**, **outages prevention** and **reduction**, **IoT sensor integration**, **metering, remote monitoring and control**.

QEd[®] Applications Domains

Meter Data Concentrator

Quantum Edge Devic

Native integration of Data-concentrator to gather Smart Meters data via PLC and RF streams

LV Grid Monitoring

All Annual

Asset health and performance monitoring from transformer up to LV feeders through IoT sensors

Remote Control

Remote commands to control the MV and LV networks and the system performance on the edge, allowing a constant update of the topology integrity and the recording of logs, events and measures

Automation

Multifeeder MV protection and control, automated real-time fault detection and service restoration

DERs Observability and Control

Granular monitoring of measurements of electrical equipment and DERs as well as remote load management to increase grid hosting capacity

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Communication

Multiprotocol communication HUB leveraging on embedded virtual Modem, switch and Router

Distributing intelligence at the edge unlocks new potential for grid operations

Edge Intelligence



QEd's distributed computational capabilities enable to extend the typical centralized systems functions to run operations closer to the sources of data in near real time. This is particularly relevant when it comes to manage grid observability and DER integration .

Virtualization



QEd's virtualization technology enables increasing functionalities without adding new devices. The traditional equipment of your substation can now be digitalized into an edge platform through virtual apps, cutting down installation space and costs, as well as optimizing maintenance, logistics and safety.

Open platform



The QEd leverages on an open platform, which allows the DSO to adopt the applications included from the first installation, to purchase new applications over time, as well as to develop customized applications based on current and future needs.

QEd Accessories

Remote I/Os units

QEd ecosystem relies on external I/Os modules to extend the number of digital inputs and outputs while enabling a perfect interoperability with third parties electrical equipment (MV switchgears, external RTU, etc). Furthermore a special I/Os module has been designed to connect QEd with Enel-like MV equipment.

Remote Merging Units

Merging units with embedded I/Os are part of the QEd ecosystem providing unmatched flexibility for real-time measurements acquisition from different MV LPITs (Low Power Instrument Transformers) including the Gridspertise Smart Termination sensors.



Power Supply Battery Charger (PSBC)

Is the QEd module enabling batteries charging and managing the supply switch in case of loss of primary voltage source; PSBC also provide the integration with local PV panel and micro wind turbine to supply QEd Ecosystem with green energy.



This module allows QEd to gather environmental data (like temperature, humidity, flooding and ozone) and electrical parameter from MV/LV transformer (including internal temperature and current) generating a mathematical model to get an accurate estimation of its wear out.



Environment Module

Edge Beat

A cutting-edge Remote Asset Management Platform to enhance operational efficiency and reduce OPEX associated with grid management. With EdgeBeat DSOs can conveniently engage with all QEds installed within their grids.

Key functionalities provided by the EdgeBeat platform include:

Status monitoring and diagnostic alarm/event tracking.

Remote application management ensuring seamless control over the software environment.

- Downloading new application versions ensuring access
- Visualization of installed applications providing valuable insights regarding their deployment.

Hot Back-up for the cloud-based download of complete machine parameterization, minimizing downtime, and improving overall system resilience.



Join our Co-Creation Program!

Gridspertise has launched a Co-Creation Program to collaborate with pioneering DSO customers and other players from the network ecoystem with the aim to develop new applications and enrich QEd functionalities.

Are you a DSO, an App developer or a Hardware manufacturer interested in our co-creation program?

Join us!

EdgeBeat empowers DSOs to remotely interact with QEds, providing comprehensive monitoring, application management, and backup capabilities.

to the most up-to-date

functionalities and features.

Are you ready for the electric future? www.gridspertise.com





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