Smart5Grid

# Smart5Grid roadshow

26 gennaio 2023, 15.00-17.00

Auditorium Tiscali, Cagliari

# Smart5Grid

Demonstration of **5G** solutions for
**SMART** energy **GRID**s of the future

5G PPP
The 5G Infrastructure Public Private Partnership

This project has received funding from
the European Union's *Horizon 2020*
*research and innovation programme*
under grant agreement n° 101016912

# Smart5Grid roadshow

Agenda

- Introduzione generale
- Il 5G: alcuni dati sull'infrastruttura pubblica
- Infrastruttura Telco pubblica e rete privata: differenti aspetti e opportunità di accesso alle API
- Il ruolo del MEC Server e dell'Orchestrator/NAC nell'Edge-Node
- La piattaforma: OSR e V&V per facilitare l'accesso agli sviluppatori
- I nostri piloti: caso d'uso, Network App implementata e possibili ulteriori sviluppi
- La sperimentazione di terze parti e le opportunità per le SME
- Dibattito aperto

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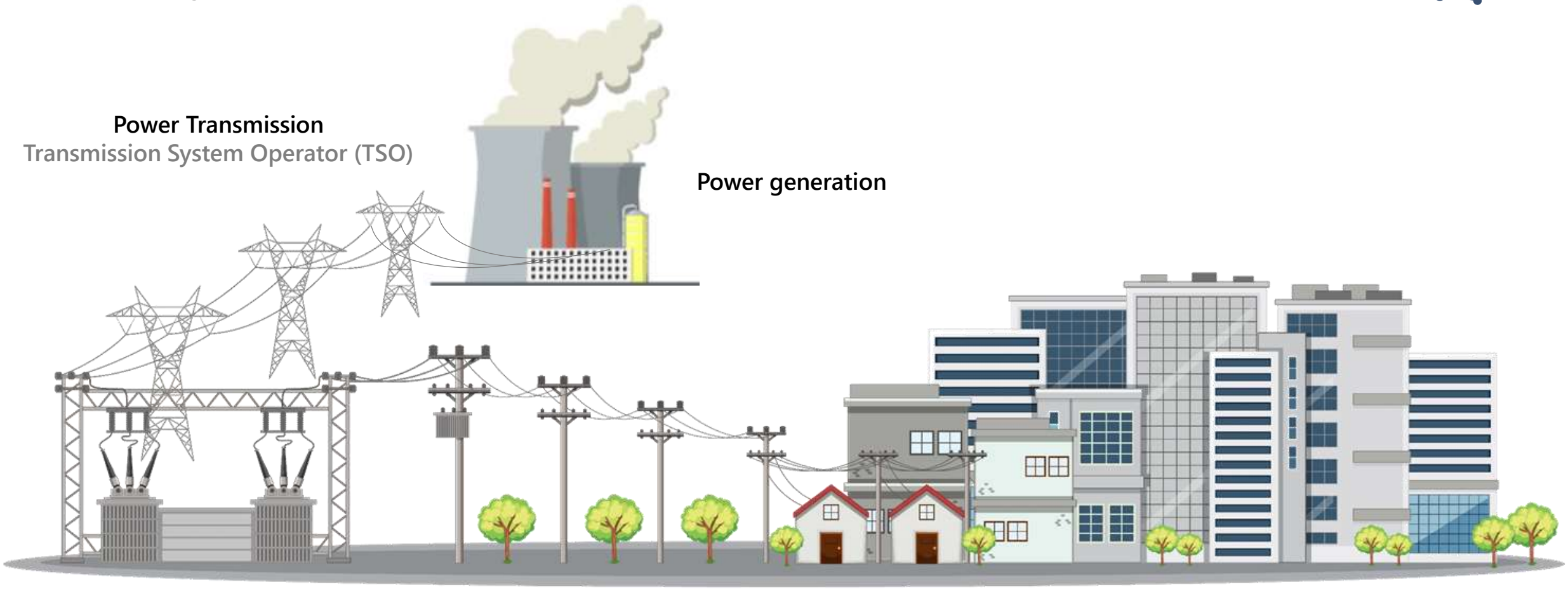
# Energy Vertical

Traditional grid

**Power Transmission**
Transmission System Operator (TSO)

**Power generation**

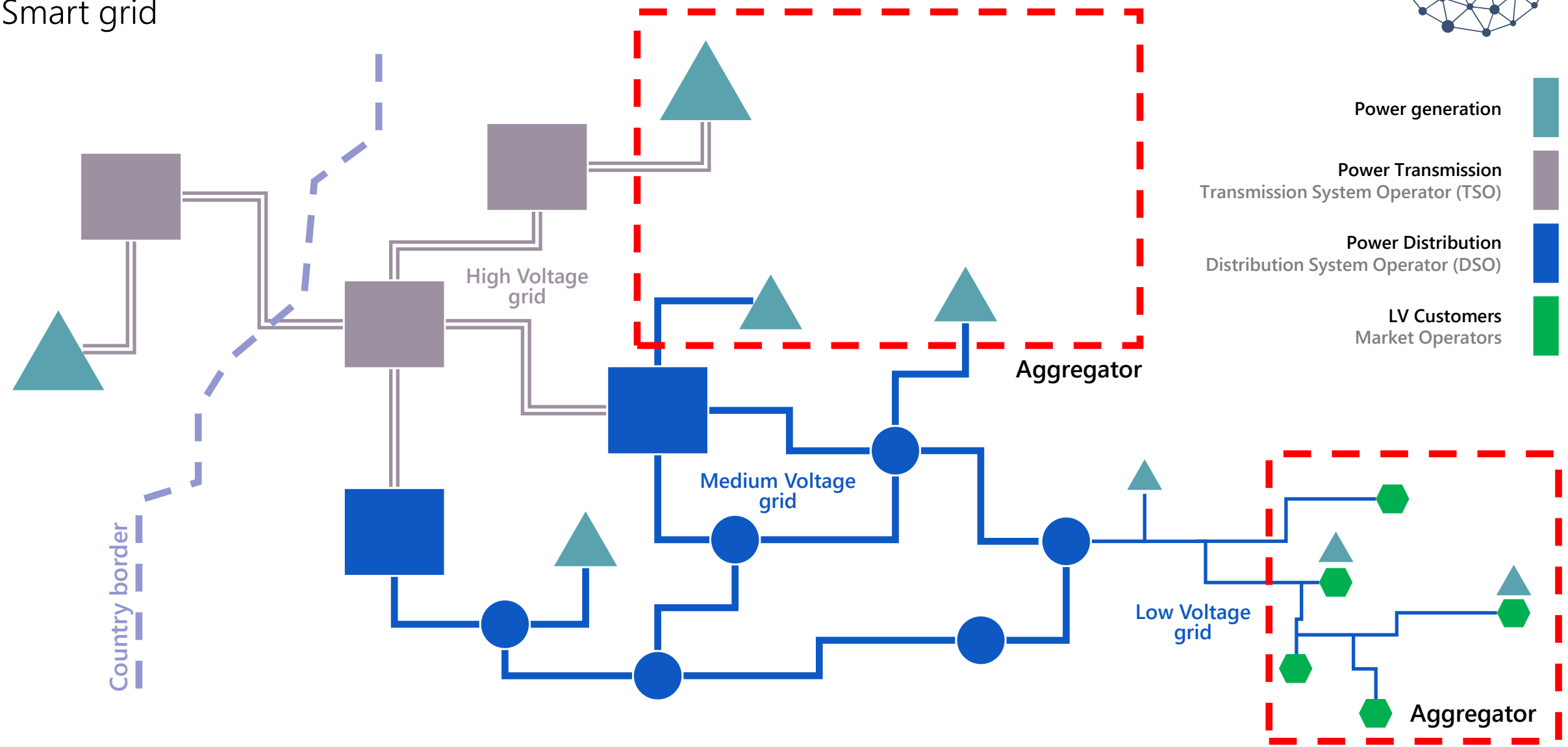


**Power Distribution**
Distribution System Operator (DSO)

**Customers**
Market Operators

# Energy Vertical

Smart grid



# Scenario

Energy industry and need for more fast and reliable communications

High penetration of Distributed Generation

New actors in the Energy Market

New generation of Smart Grids solutions

Stability issues

Safety for field operators

New solutions from 3rd parties

Need for digitalization

Security and reliability

# How to achieve those challenges?

Keywords

Low latency

High speed data

**Digitalization**

Reliable communication

Safe and resilient connections

# Smart5Grid

Demonstration of **5G** solutions for **SMART** energy **GRID**s of the future

The **Smart5Grid** project aims to investigate the potential of 5G-based Edge-Cloud Computation in the Energy industry, by introducing the concept of Network App for simplifying the 5G Complexity. The project testbeds are now available for third-parties' experimenters, fostering the creation of a new market-segment for Network Apps.

## GENERAL INFORMATION

THE CONSORTIUM

**24 EUROPEAN PARTNERS**

(50% SMEs)

**COVERING 7 EU STATES**

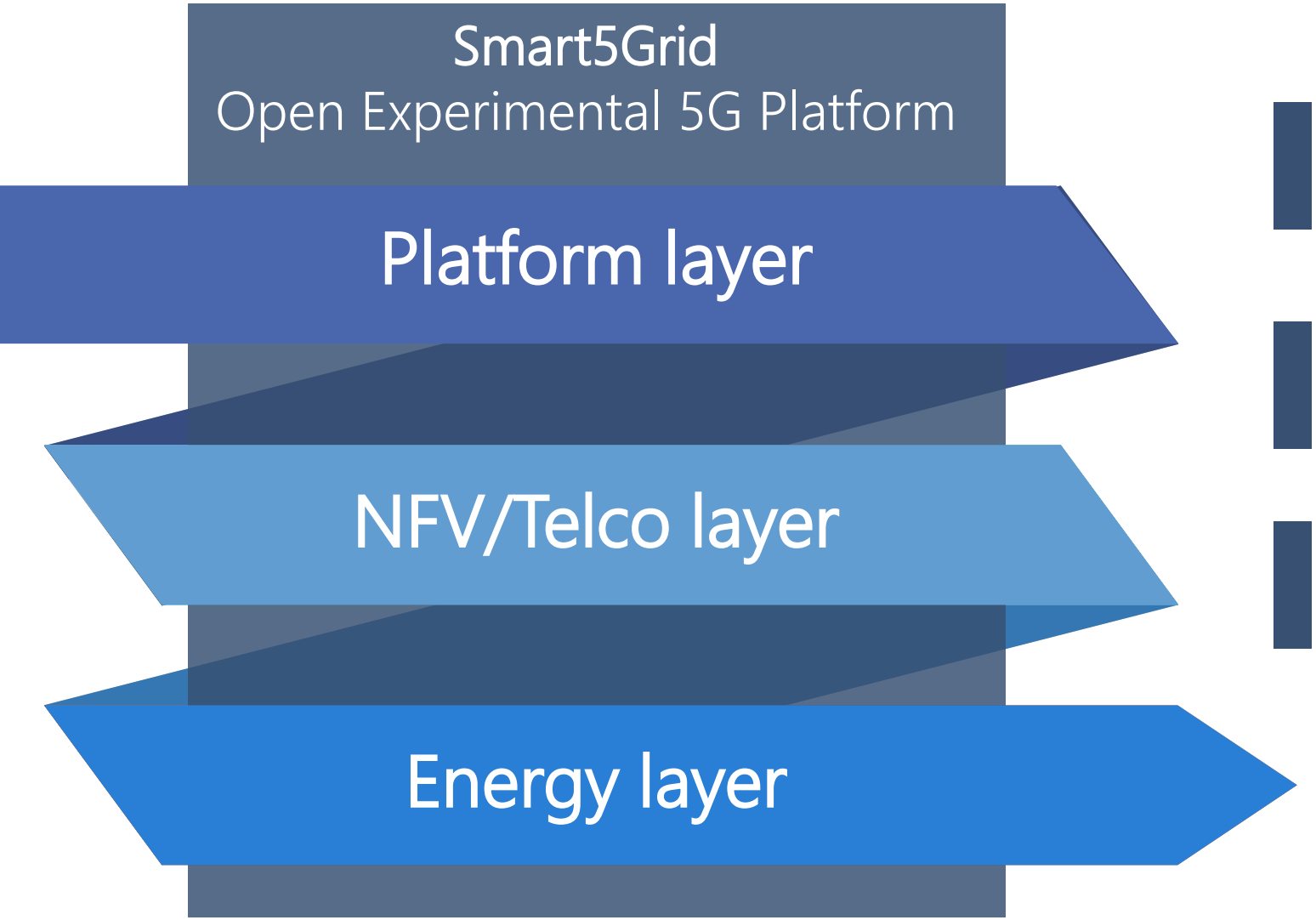
DURATION

**3 YEARS**

TOTAL BUDGET

**8M€**

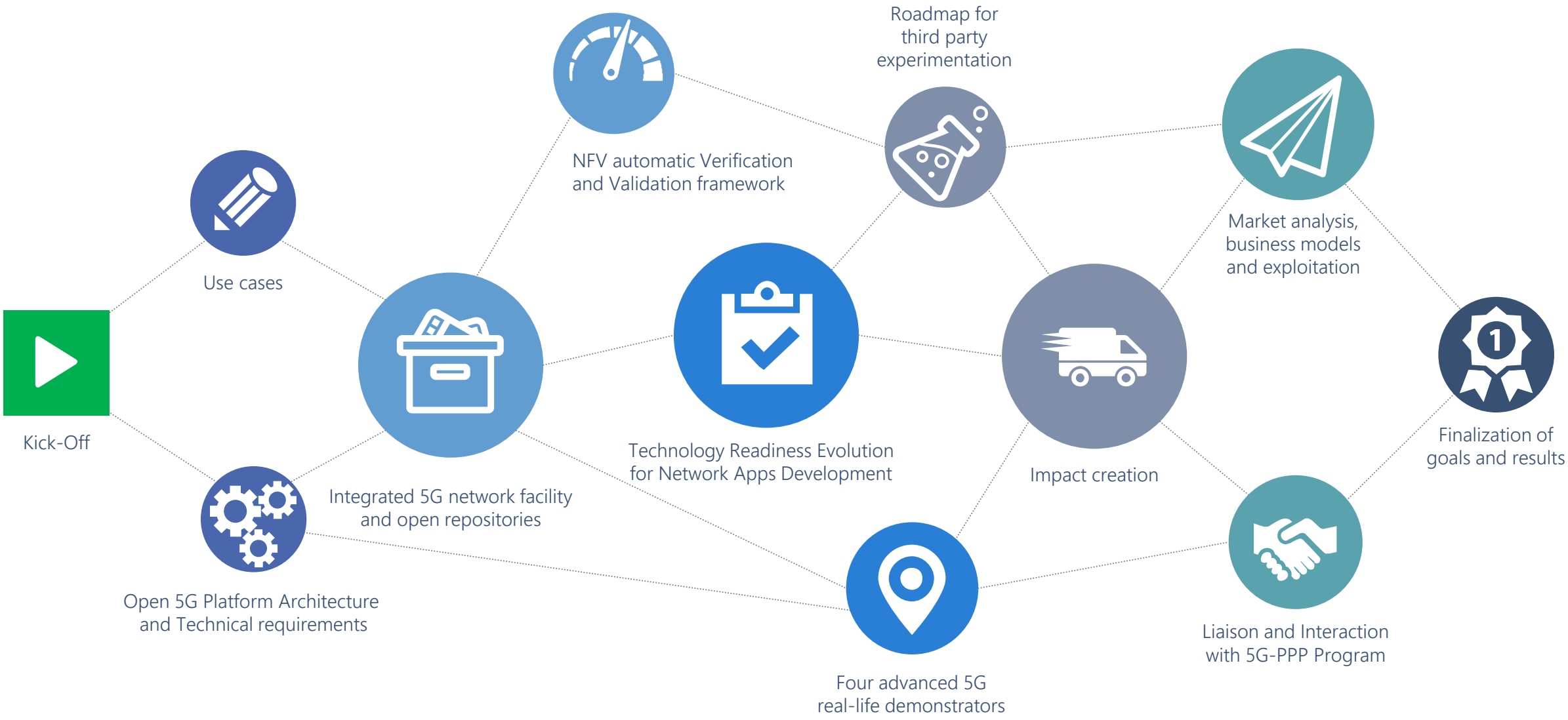
# Smart5Grid overall concept and key characteristics




- Network App definition, modeling and implementation
- Network App Open Service Repository
- V&V Framework
  (Validation and Verification)

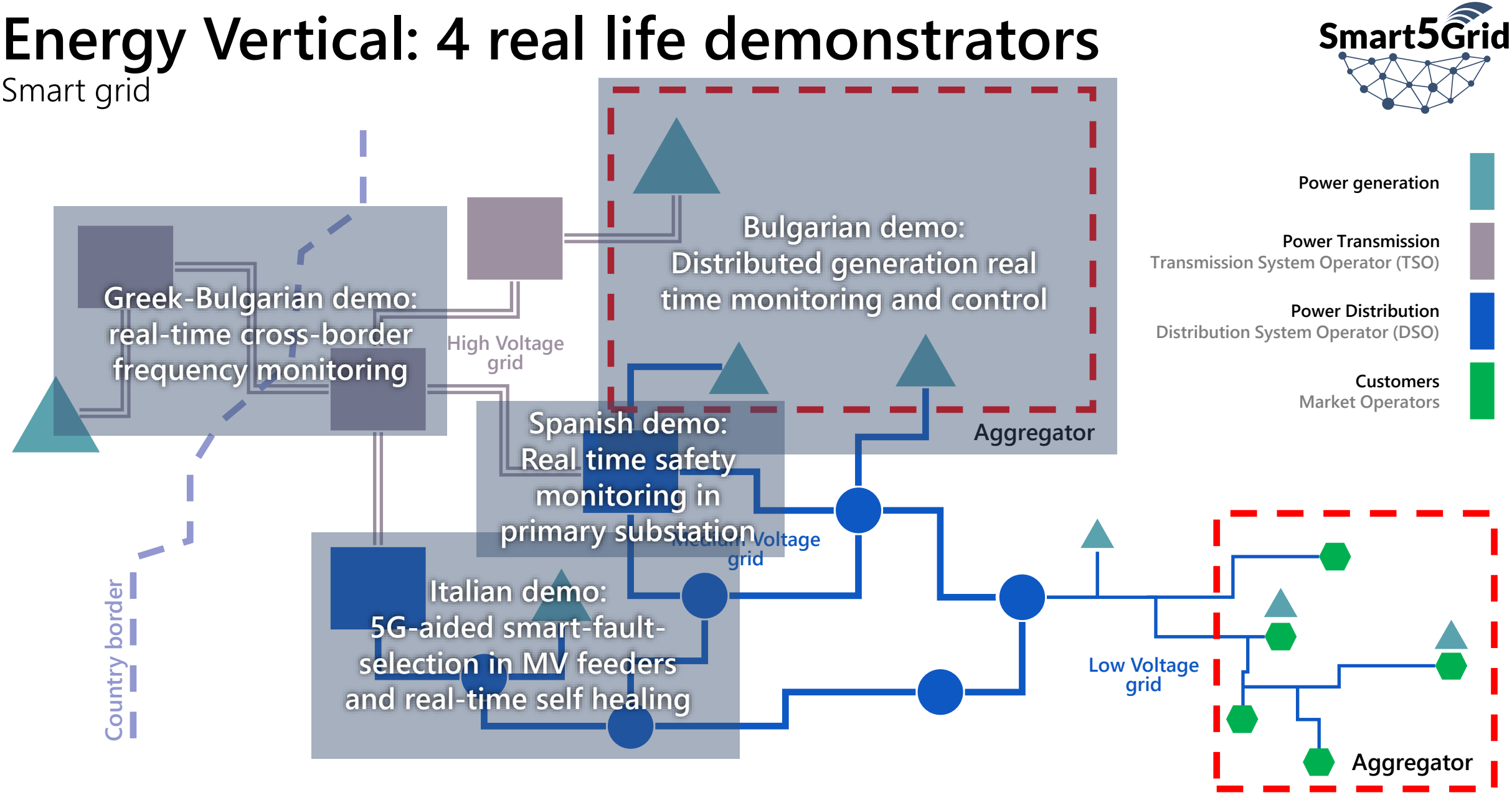
# Structure of the project

## Implementation roadmap



# Energy Vertical: 4 real life demonstrators

Smart grid



# the Smart5Grid Consortium

## Coordinator

enel

## TELCOs

WINDTRE

OTE GROUP OF COMPANIES

VIVACOM

## Tech Companies

ENGINEERING

Atos

*gridspertise
accelerating your electric future

## Universities/Research institutions

i2cat

HELLENIC REPUBLIC
National and Kapodistrian University of Athens
EST. 1837

University of Cyprus
ΚΟΙΟΣ

## DSOs

*e-distribuzione

*e-distribución

## TSOs

ECO ЕАД

ադμηε

## SMEs

EIGHTBELLS

INFOLYSIS

SC

NEARBY COMPUTING

axon logic

ubiwhere
SUITING THE FUTURE

athonet

SETECHCO

SIDROCO

ENTRA ENERGY

UBITECH
digitizing energy

nosia
- SEÑALIZACIÓN INDUSTRIAL
- EQUIPAMIENTO PARA LA INDUSTRIA

STAM
MASTERING EXCELLENCE

*Linked third-parties of Enel Grids

# Four real-life demonstrators

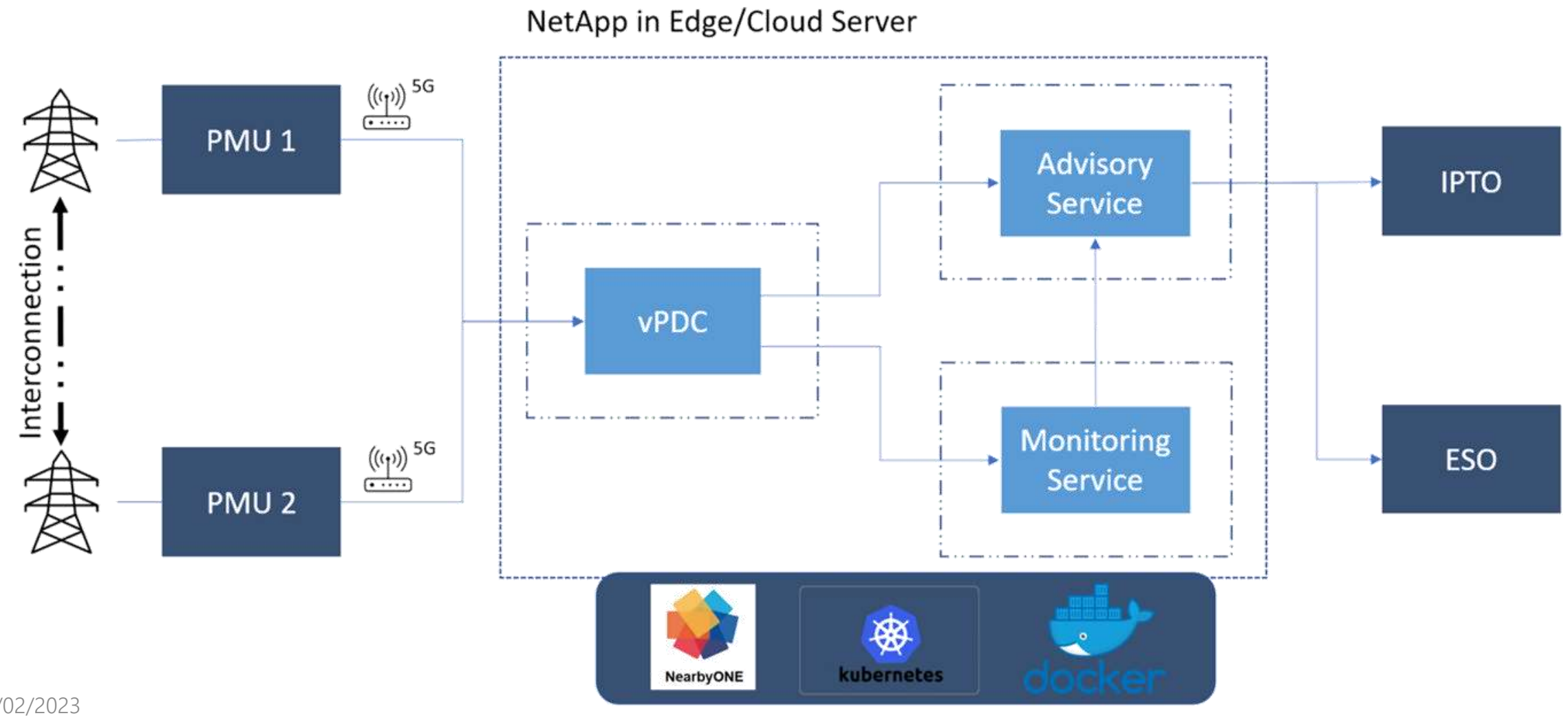
Validating our use-cases

# Greek-Bulgarian Demo

## Real-time cross-Country frequency monitoring

# Greek-Bulgarian demo

Real-time Wide Area Monitoring

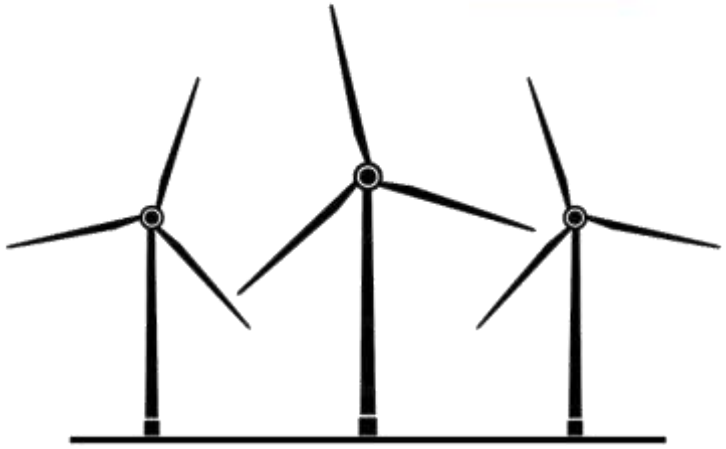


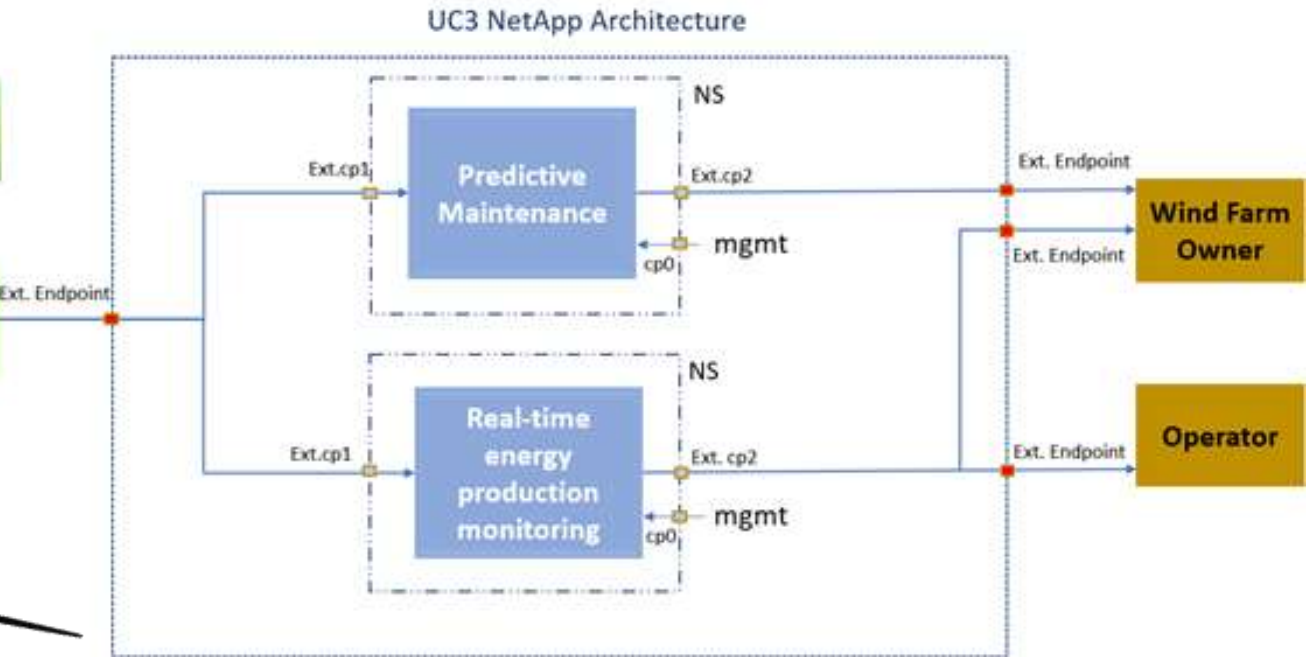
**Bulgarian Demo** | Sofia

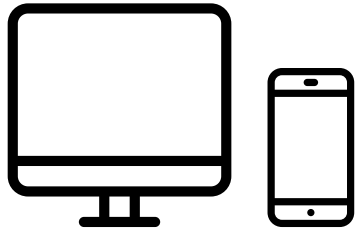
## DER management and predictive maintenance

# Bulgarian demo

Millisecond Level Precise Distribution Generation Control





Remote monitoring

Further implementation

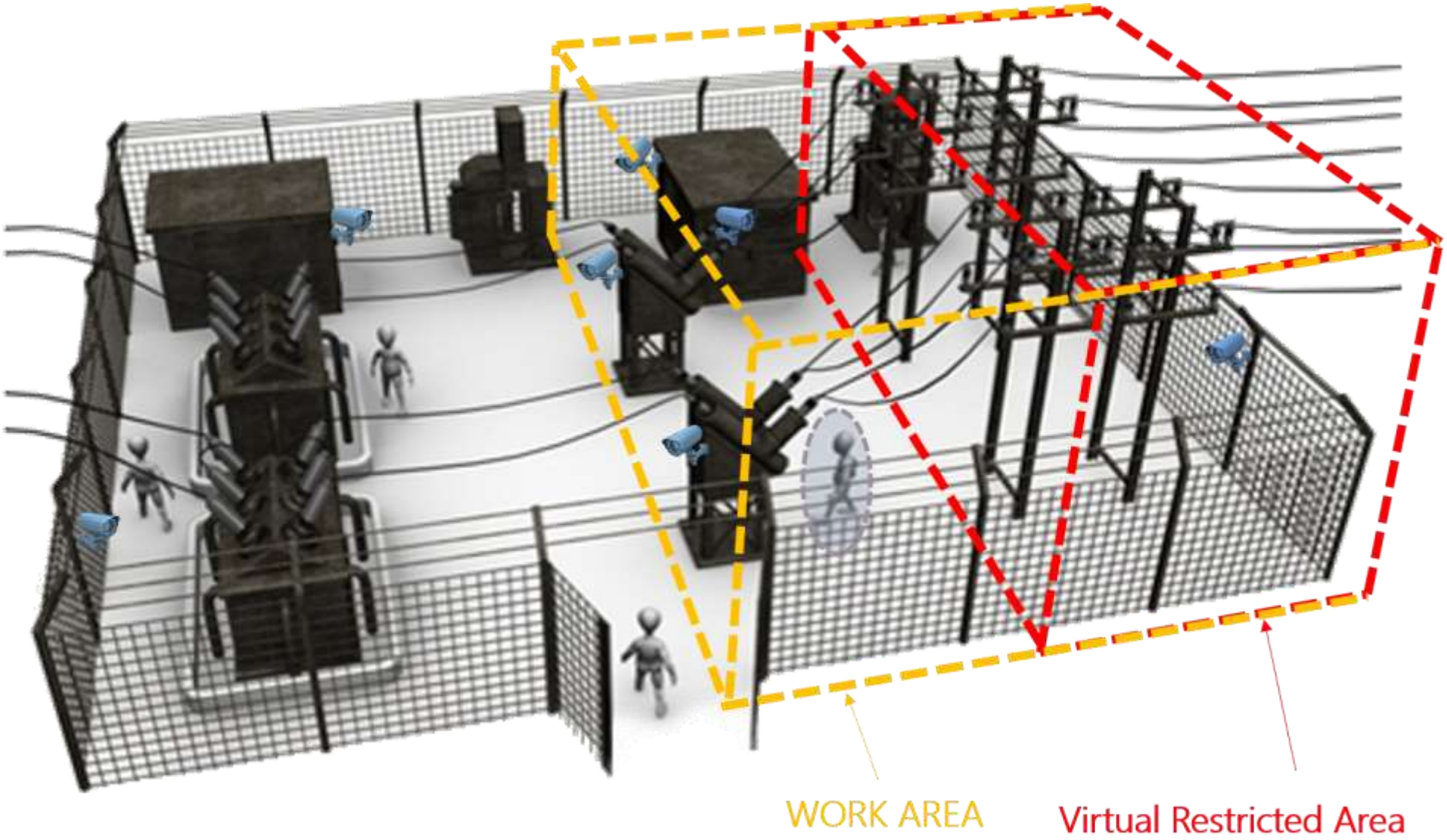
Predictive maintenance providers

**Spanish Demo** | Barcelona

## Power plant operators' safety monitoring

# Spanish demo

Remote Inspection of Automatically Delimited Working Areas at Distribution Level



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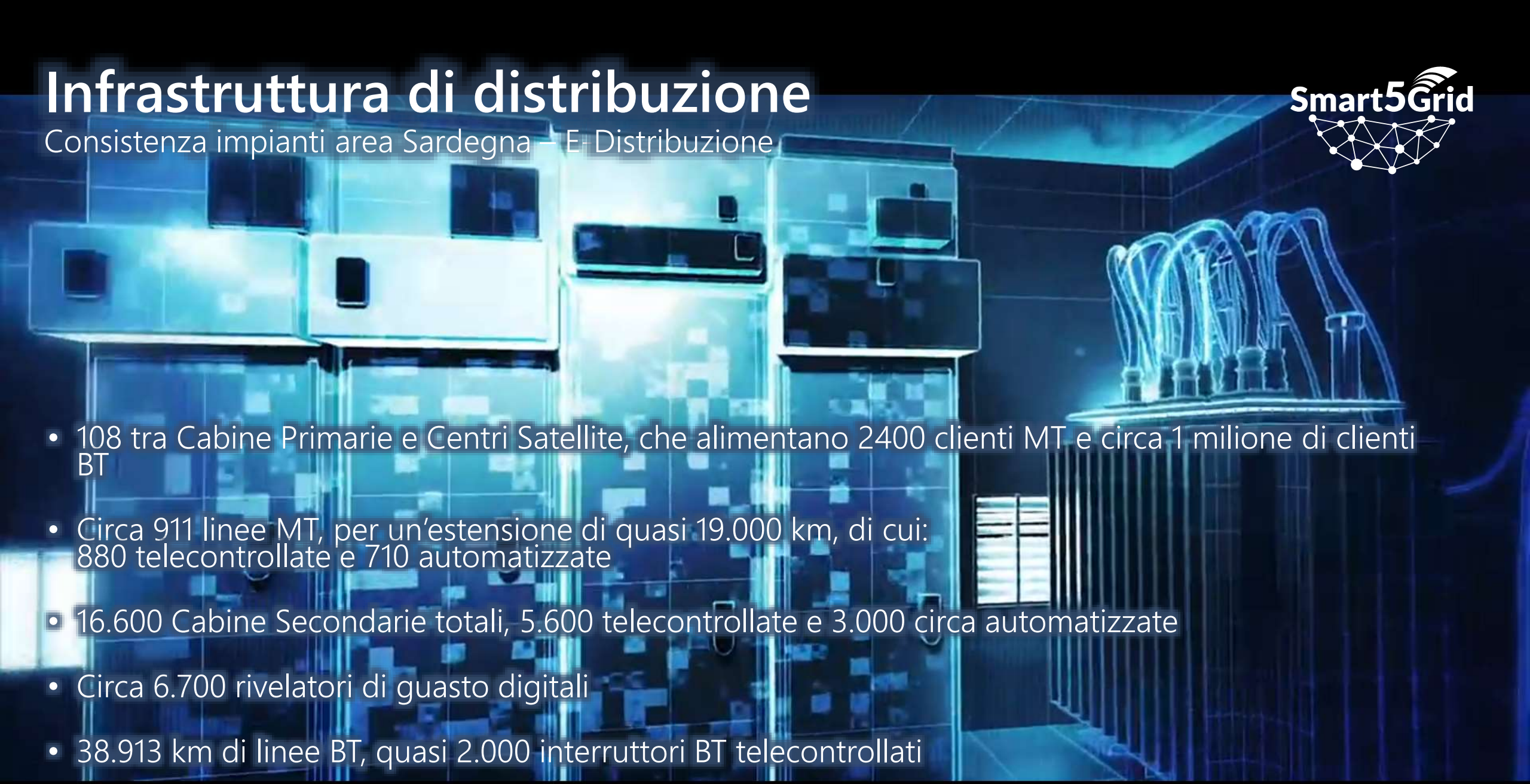
**Italian Demo** | Olbia

# IP monitoring tool for Smart Grids

# Infrastruttura di distribuzione

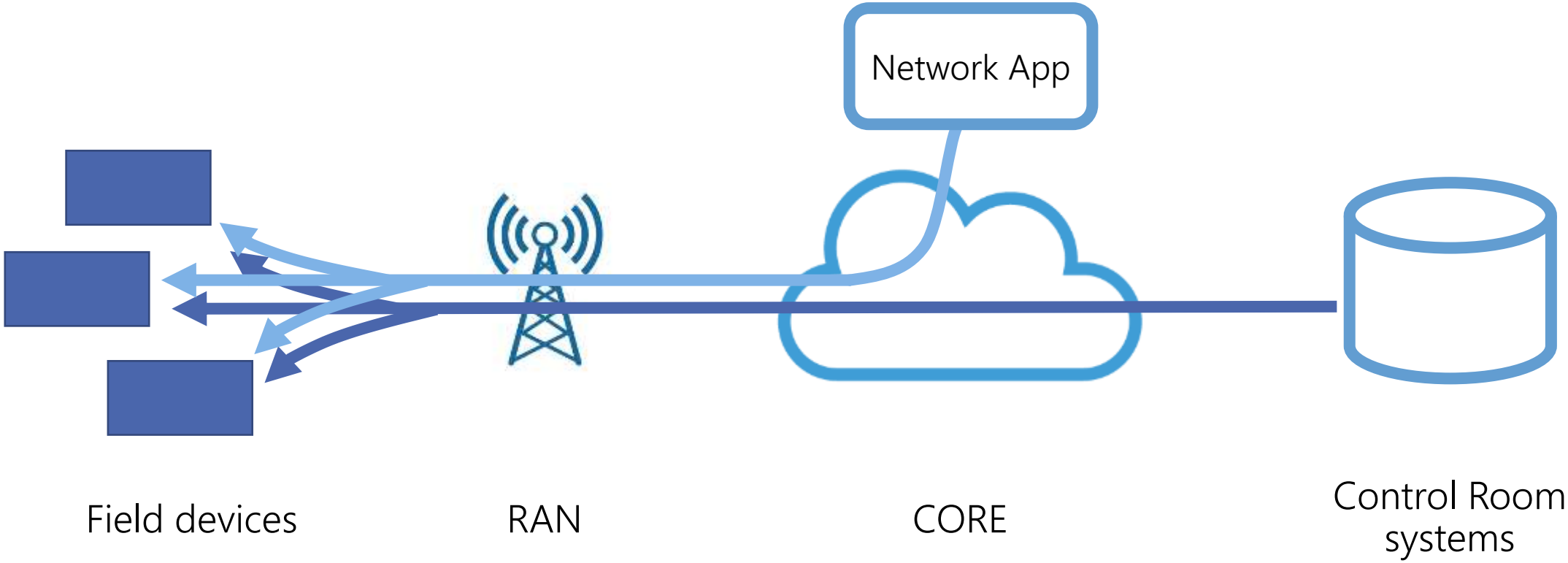
Consistenza impianti area Sardegna – E-Distribuzione

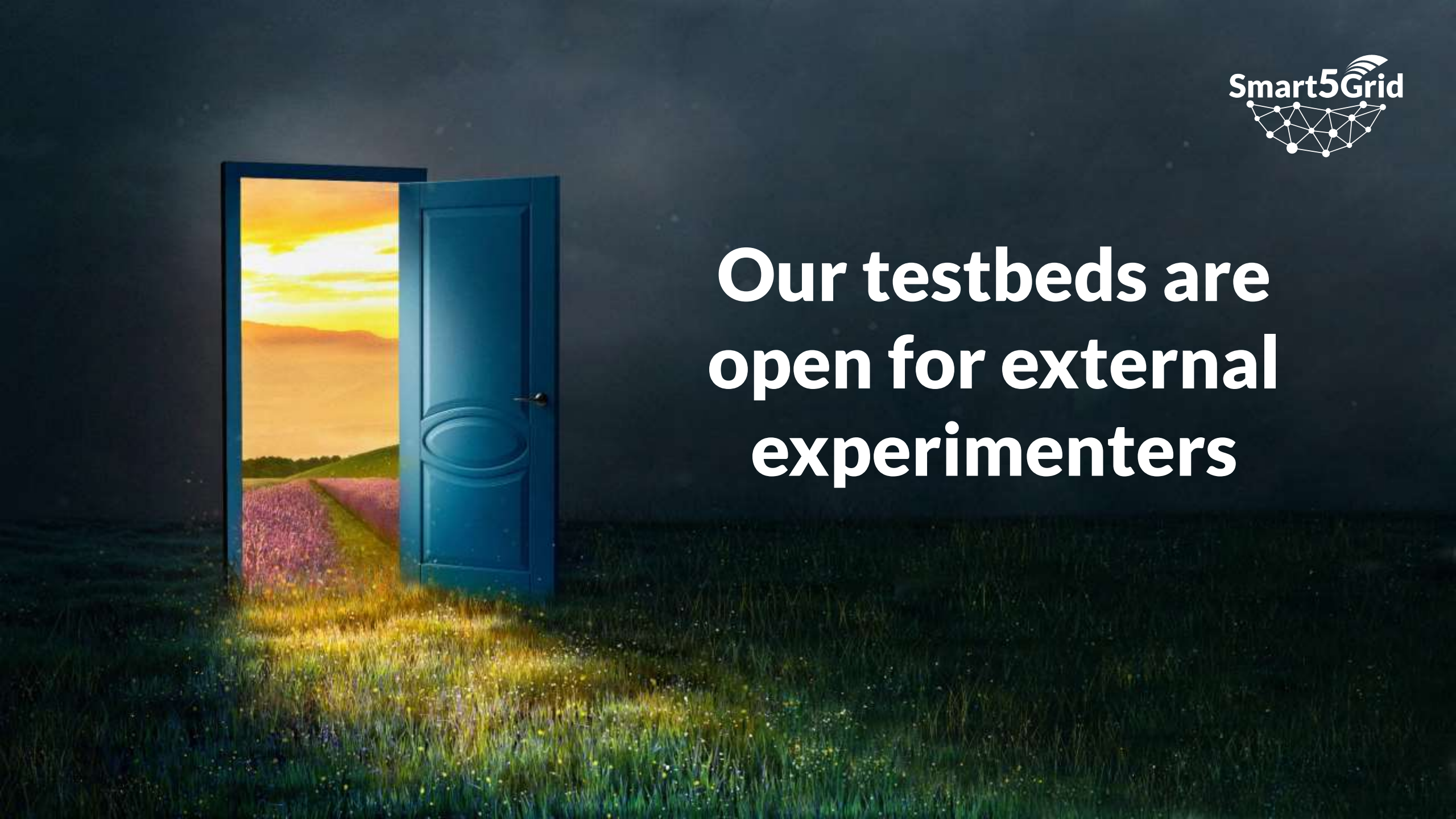


- 108 tra Cabine Primarie e Centri Satellite, che alimentano 2400 clienti MT e circa 1 milione di clienti BT
- Circa 911 linee MT, per un'estensione di quasi 19.000 km, di cui: 880 telecontrollate e 710 automatizzate
- 16.600 Cabine Secondarie totali, 5.600 telecontrollate e 3.000 circa automatizzate
- Circa 6.700 rivelatori di guasto digitali
- 38.913 km di linee BT, quasi 2.000 interruttori BT telecontrollati

# Italian demo

General purpose




Smart5Grid
Our testbeds are open for external experimenters

# build and test your own Network App

# Third-parties experimentation

Available tools

## OSR
Open Service Repository

## V&V Framework
Validation and Verification

## Contact desk
Remote support for developers

# Foster flexibility and scalability

# Network Application

one approach for multiple uses

5G PPP
The 5G Infrastructure Public Private Partnership

5G PPP Phase 3, Part 6: 5G innovations for verticals with third party services & Smart Connectivity beyond 5G

| | | |
|---|---|---|
| 5GASP | 5G-EPICENTRE | 5GERA |
| 5G IANA | 5G INDUCE | 5GmediaHUB |
| evolved 5G | Smart5Grid | VITAL 5G |

# Dissemination

All the experimenters will be listed in our channels,

we will showcase all Network Apps to our stakeholders,

you will meet the European Commission to present your successful story!

# Join us!
# Follow us!
# Like us!

scan me!

[smart5grid.eu]

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# Open discussion

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