

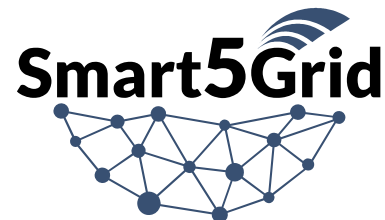
Use Case 1

RAN integrated monitoring for automatic fault detection and restoration functionality in DSO grid



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WP Leader



Demonstration of **5G** solutions for
SMART energy **GRIDS** of the future

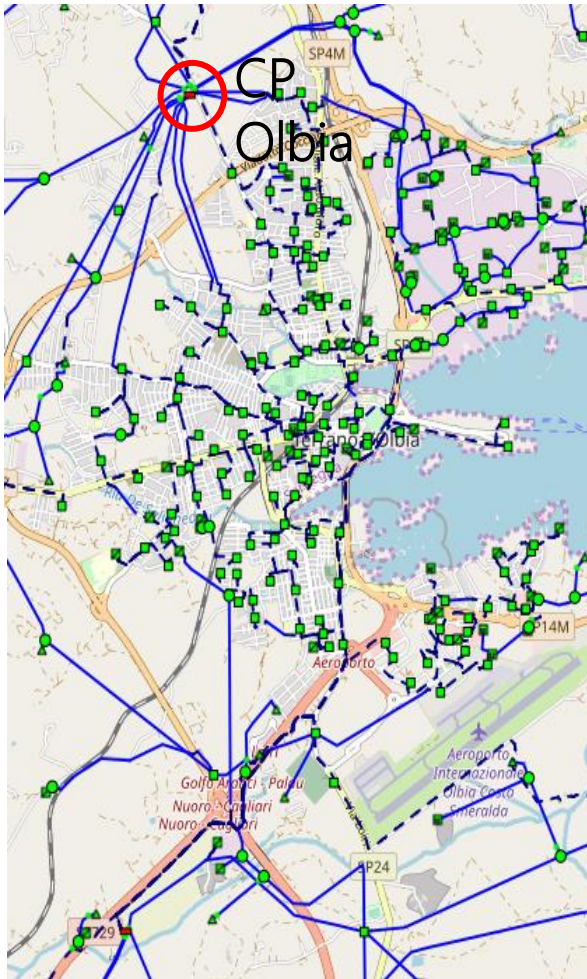
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Use Case 1 - Objectives



RAN integrated monitoring for automatic fault detection and restoration functionality in DSO grid



Location: Olbia Primary substation (150 kV) and different secondary substations (15 kV) connected to it

Objectives

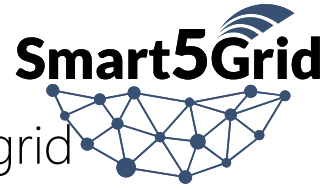
- Verify that 5G network help to Improve the performance of automatic fault detection and restoration functionality (called real-time self healing) especially in high populated geographical areas.
- Prove that the use usage of NetApp can help to improve the monitoring accuracy of the communication layer dedicated to the Automatic Power Distribution Grid Fault Detection infrastructure.

Partners involved:

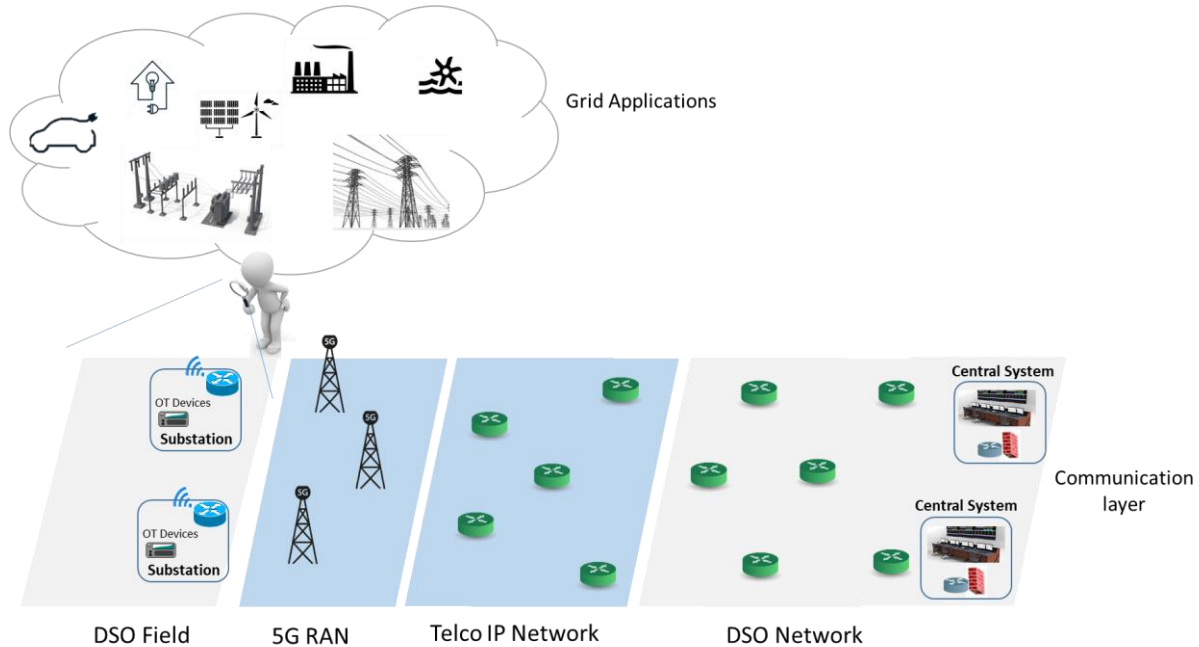
e-distribuzione



Use Case 1 – Business goals



RAN integrated monitoring for automatic fault detection and restoration functionality in DSO grid



Business goals

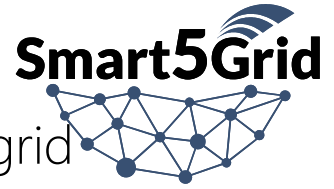
- Reductions of effort and operative costs for DSO in maintenance of communication infrastructure reserved to the grid automation function and grid remote control
- Improve the **stability** of power grid with the introduction of 5G network capabilities combined with NetApp introduction.



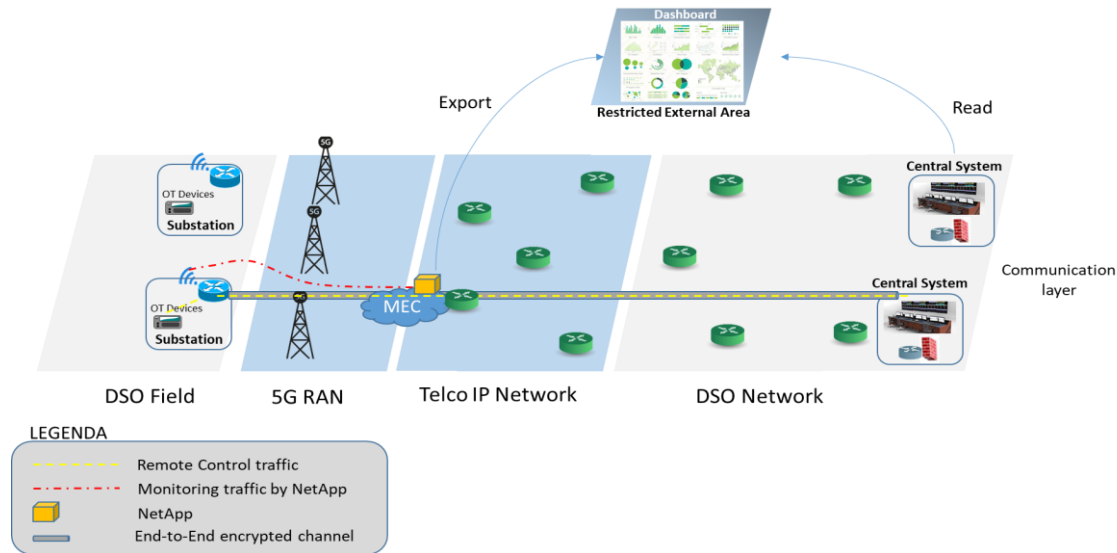
Main Constraints

- Grid stability: pay attention we operate on a real grid
- Cyber security: we must be compliant with DSO and Telco Cyber SEC guide lines

Use Case 1 - Advantage vs legacy scenario



RAN integrated monitoring for automatic fault detection and restoration functionality in DSO grid



Problem Statement

- Improve the continuous accuracy of the communication layer dedicated to the Automatic Power Distribution Grid-Fault Detection infrastructure.
- Improve the performance of real-time self healing capability of distribution grid, especially in geographical areas with several users connected to the mobile network.
- Reductions of DSO's efforts for operating the communication infrastructure dedicated to the grid automation function and grid remote control



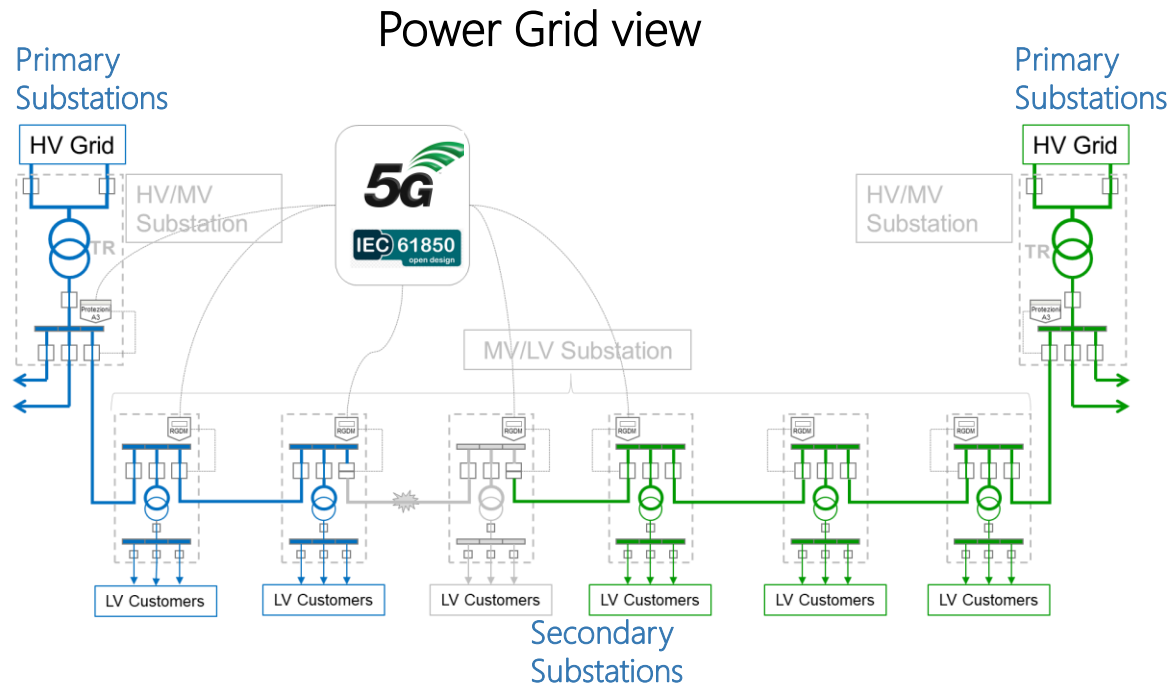
Main Constraints

- Grid stability: tests to be executed on a real grid
- Cyber security: we must comply with DSO and Telco Cybersecurity guidelines

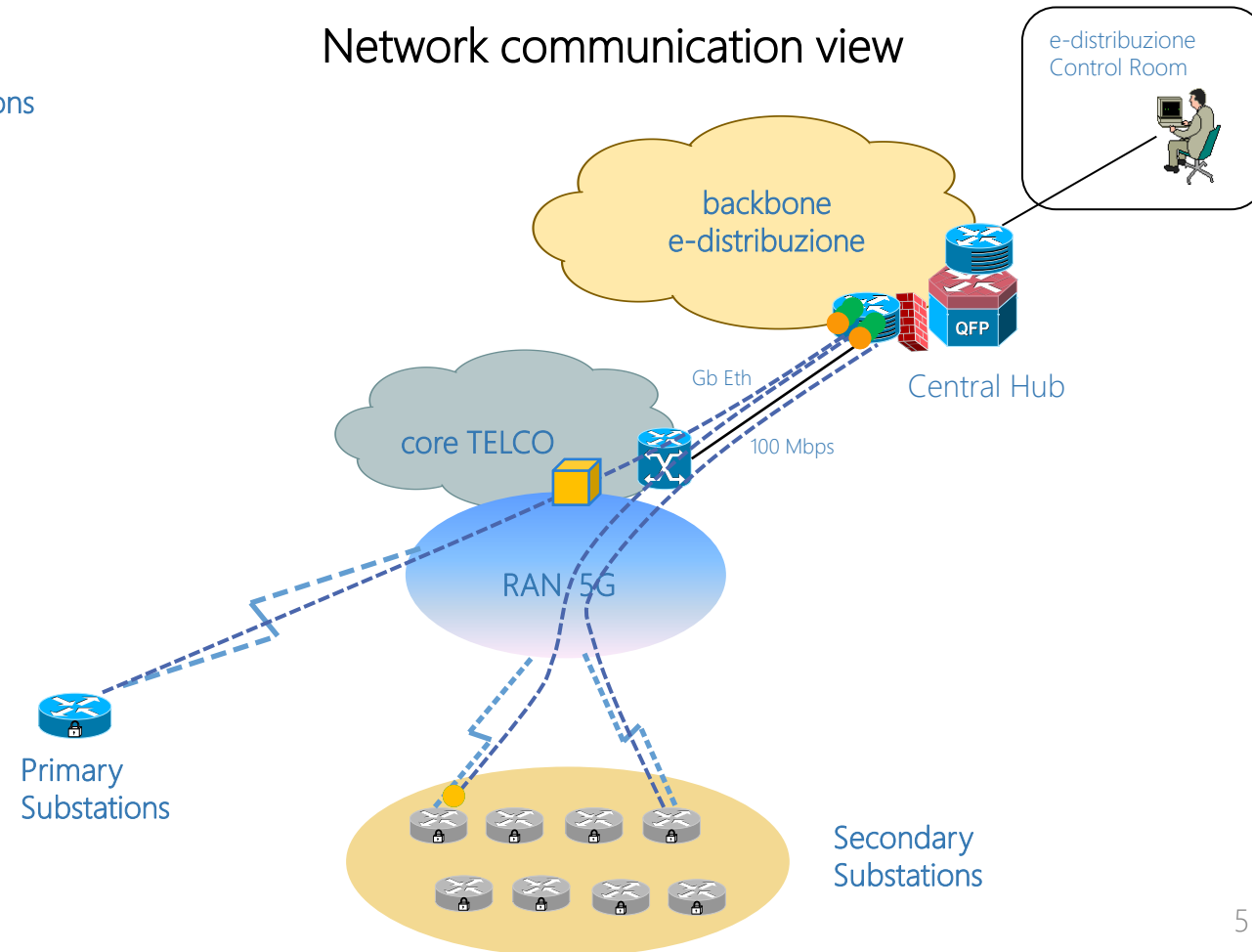
Use Case 1 – Vertical specific and 5G Network



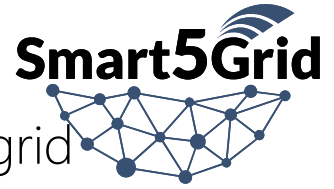
RAN integrated monitoring for automatic fault detection and restoration functionality in DSO grid



Network communication view



Use Case 1 -Target markets & opportunities

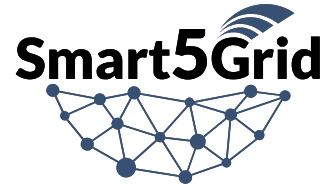


RAN integrated monitoring for automatic fault detection and restoration functionality in DSO grid

- Target market:
 - Utilities implementing advanced automation systems, that need to monitor “from inside” the communication infrastructure.
- Opportunities:
 - Exploration of this new computational paradigm for the DSO, as first step for further investigations for technology shift.
 - Disseminating to other DSOs, TSOs and technology providers the potentials of NetApps in a real environment, fostering the awareness creation and creating new ideas and opportunities.

Use Case 1 – NetApp specific usage

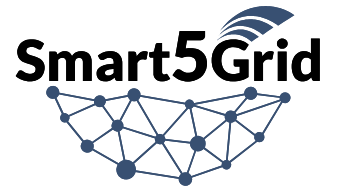
Role of the NetApp



- NetApp objectives:
 - To collect data referred to 5G radio access network quality
 - To represent the collected data in a dashboard
- NetApp capabilities:
 - To generate specific traffic to verify the real performances of 5G RAN (e.g.: availability, latency, jitter ...)
 - To elaborate data collected from NetApp instance located in Telco infrastructure
 - Performance test customization



Q&A?



Thank you

Wishing all the best for our common success!