5Growth

Welcome and Introductory Panel:

“Key challenges and requirements for 5G experiments with verticals”

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Online Workshop

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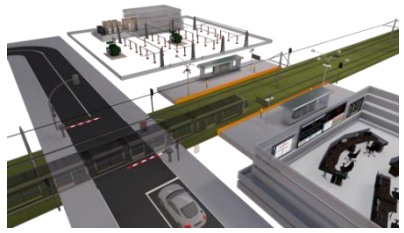
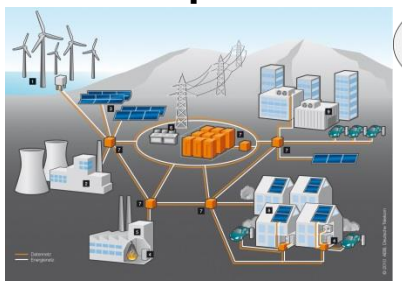
Vertical Pilots

- 5Growth aims to perform real field trials involving customer sites of four vertical locations in Portugal, Spain & Italy
- This requires the development, installation, validation and testing of pre-commercial 5G radio, transport and core technology in vertical sites, connected via the ICT-17 platforms

- Pilots
  - **Industry 4.0:**
    - INNOVALIA
    - COMAU
  - **Energy:**
    - EFACEC_E
  - **Transportation:**
    - EFACEC_S

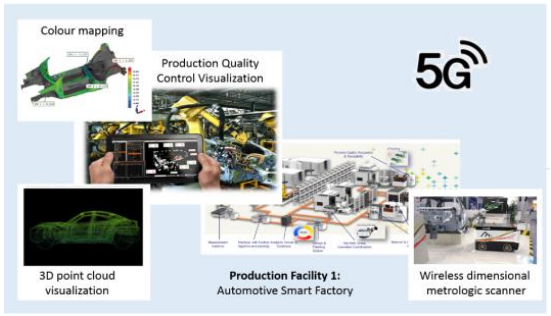


Transportation

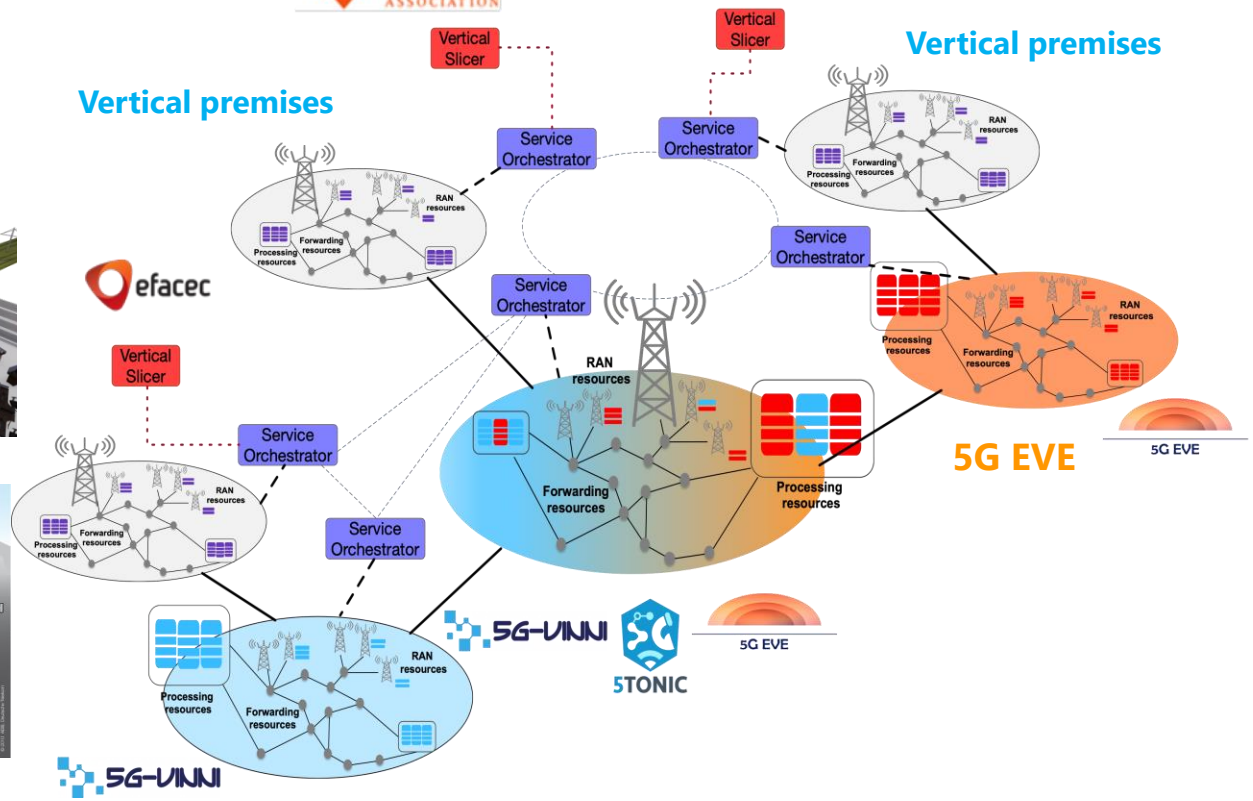


Energy

Industry 4.0



Industry 4.0



Use Case Families

Industry 4.0: Smart factory

- Remote Operation of equipment
- M2M collaboration for factory automation
- Digital Twin
- Telemetry/Monitoring
- Digital tutorials and remote support

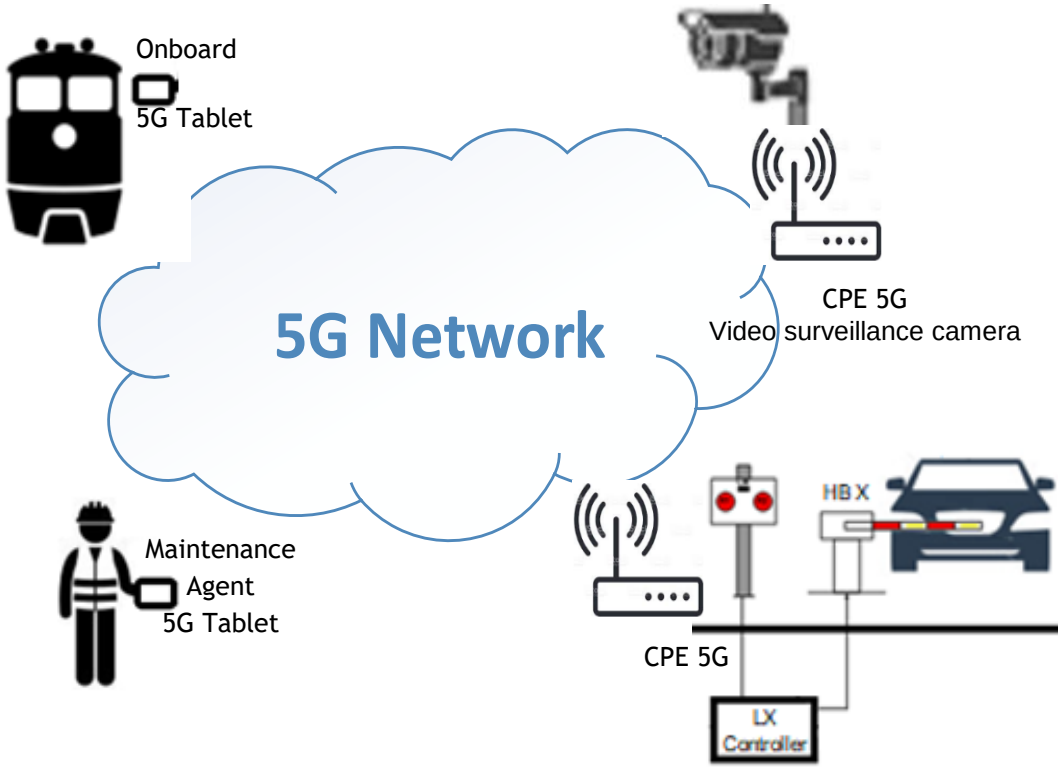
Digital twin

Real plant

Use Case Families

Transportation : Safety control of the railway level crossing

- Safety critical communications between *the* train approaching detecting sensors and Level Crossing (LX) controller
- Real-time video transmission between the level crossing site and the train driver/Maintenance staff + Level Crossing Supervision

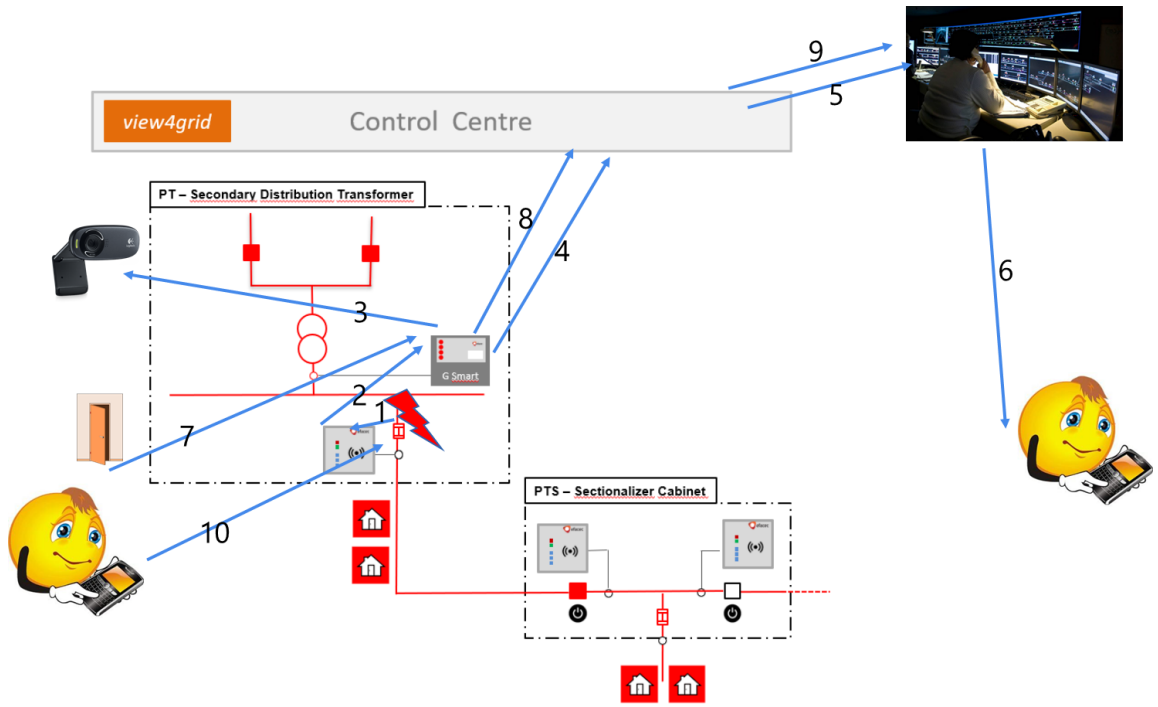


EFACEC Engenharia e Sistemas, Portugal

Use Case Families

Energy : Improve the maintenance of secondary substations on medium voltage/low voltage (MV/LV) distribution network

- Advanced monitoring and maintenance support of secondary substation
- Advanced critical signal and data exchange across wide smart metering and measurement infrastructures



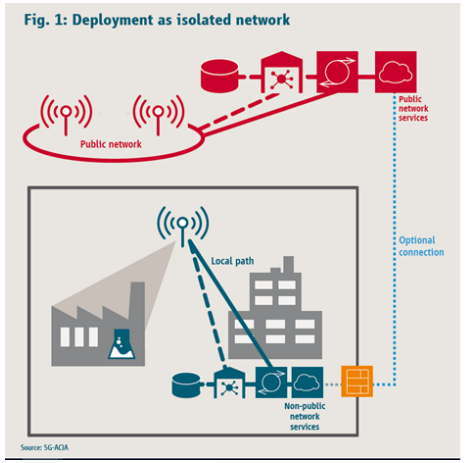
EFACEC Energia, Portugal

Main Requirements

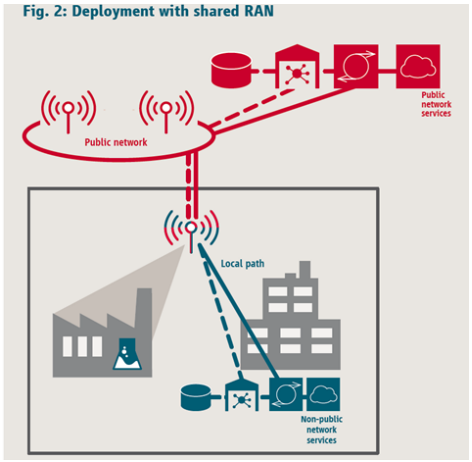
- Require real 5G deployment including radio, transport and 5G core (NSA or SA), as well as may need cloud infrastructure at the edge (e.g. within the vertical premises) or in the core
- Require to support multiple slice types (eMBB, URLLC, mMTC) to enable different service components of the pilot
- Require a portal and standard interface for the verticals to define their services (vertical service blueprints) and specify their experiments
- Require service monitoring and evaluation of the service KPIs
- Some use cases may also require automated real time service management over run time (e.g. auto-scaling, self-healing, etc.)

Key Challenges

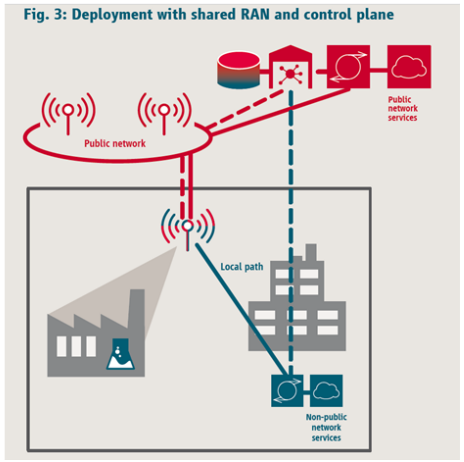
- How to integrate vertical's private 5G network, a.k.a. Non-Public Network (NPN) deployed at vertical premises, with the public networks owned and controlled by operators (i.e. ICT-17 platforms in the context of the project)?
  - Which of the NPN deployment model?
    - What parts will be shared or what parts will be dedicated to the verticals?
    - Who controls what?
  - What interfaces to request the services?
  - What kind of service requests (the whole E2E service or only a subset of the service)?



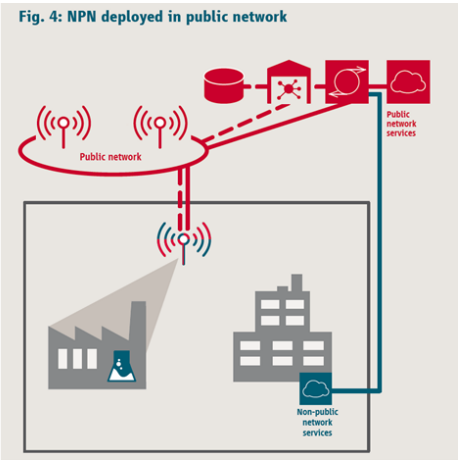
1) Standalone NPN (Isolated Deployment)



2) Shared RAN



3) Shared RAN and Control Plane



4) NPN hosted by public network

Source from 5G ACIA: https://www.5g-acia.org/publications/5g-non-public-networks-for-industrial-scenarios-white-paper/

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