ONE5G

5G PPP 5G IA INFRASTRUCTURE ASSOCIATION

European Commission

/ E2E-aware Optimizations and advancements for the Network Edge of 5G New Radio

Serving underserved areas through 5G (IoT and big data) technologies

A critical infrastructure and agricultural use case

Architecture

Applications (end devices)

A. Gas-sensor control, buzzer control

B. Drone control

C. Drone camera control

Application Logical interface

Sensor/ drone activation, video feeds

Application logic (backend, frontend)

G. Application components (events, action triggering, etc.)

REST API — *Vertical requirements*

D. 5G Slice Negotiator (Vertical)

REST API — *Slice negotiation*

E. 5G Slice Negotiator (Operator)

REST API — *Slice activation*

F. 5G Slice Management (Management and Orchestration)

Proprietary or standard interface — *Slice management*

Data plane

Data plane

Gas sensor, Buzzer

Drone

PC

USRP

USRP

PC

PC (Cloud)

H. Wireless / 5G Infrastructure

Technical Benefits

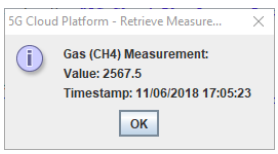
- ❑ Efficiency of 5G technologies coupled with IoT and AI
- ❑ Technologies for serving traffic mMTC, eMBB (when needed), URLLC (under conditions)
- ❑ Low cost (CAPEX/OPEX) through flexible creation and management of slices

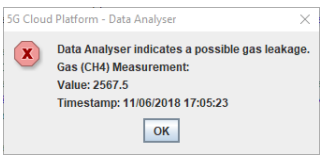
Business-Societal Benefits

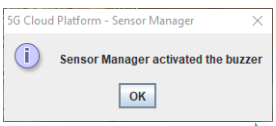
- ❑ Narrowing the digital divide between megacities and underserved areas
- ❑ Retaining a low cost 5G network in rural and suburban areas
- ❑ Win-win situations for various businesses

1

Retrieval of measurements
Critical event identification
Raising of alarm



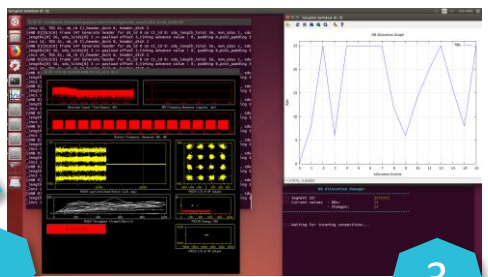


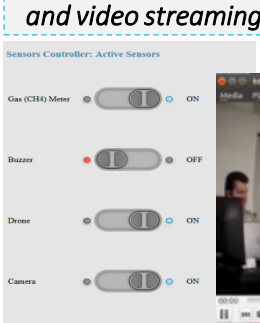


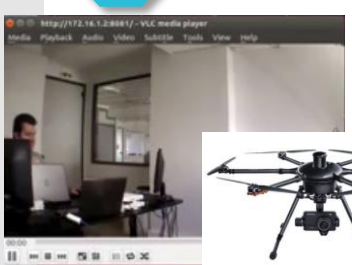
Drone activation and video streaming

4

Slice activation
Open Air Interface Reconfiguration







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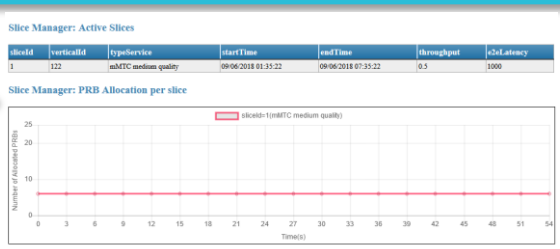
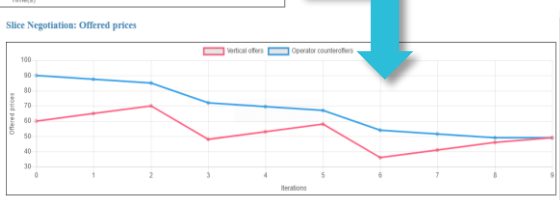
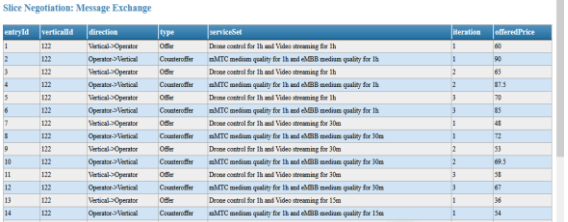
Drone control for 1h
Video streaming for 15 min

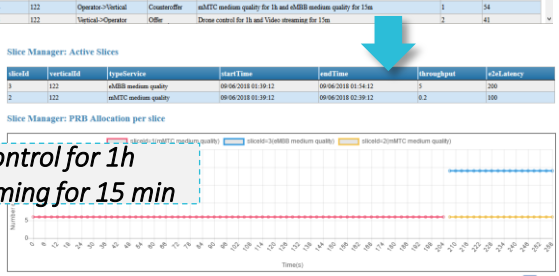
2

Slice negotiation and management









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