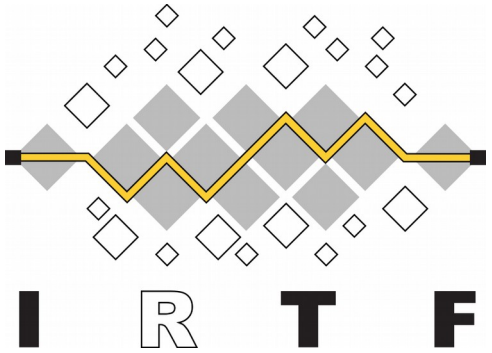

IBN for network slicing in 5G-EVE project

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Singapore, NMRG meeting, November 2019

This work has been (partially) funded by the EU H2020 5G-EVE Project (grant no. 815074)

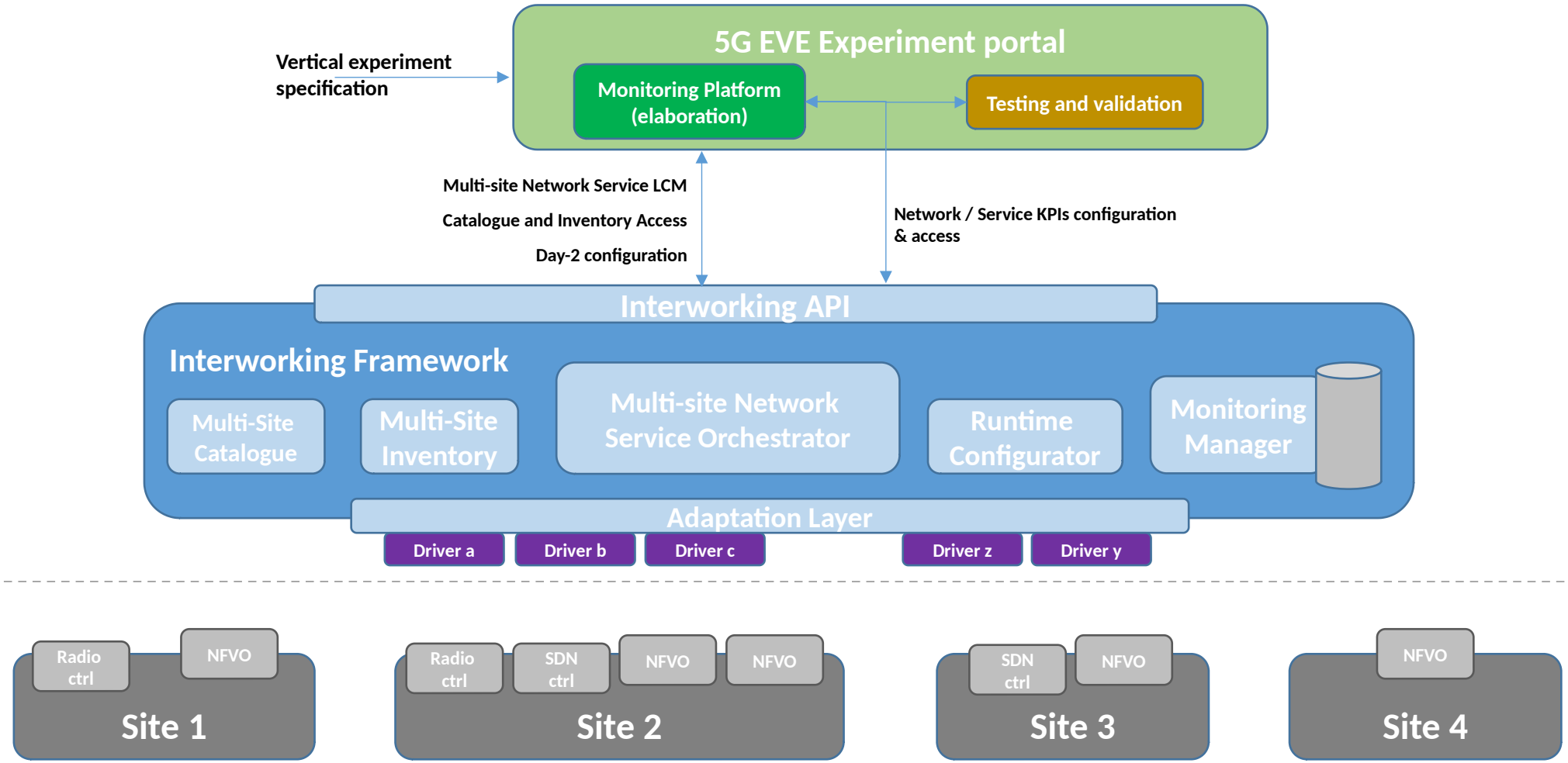
5G EVE

5G-EVE(*) objectives

- Create a 5G end to end facility to enable experimentation and validation with full sets of 5G capabilities
- Interworking site facilities in Greece, Spain, France and Italy offering vertical industries a validation platform through a unified functional and operational API.
- Build an operational abstraction that provides vertical industries with a single operational interface to the 5G end to facility.
  - APIs, tools, and mechanisms that ease the verticals to deploy their multi-site trials.

(*) https://www.5g-eve.eu/

5G-EVE experimental framework



IBN in 5G-EVE

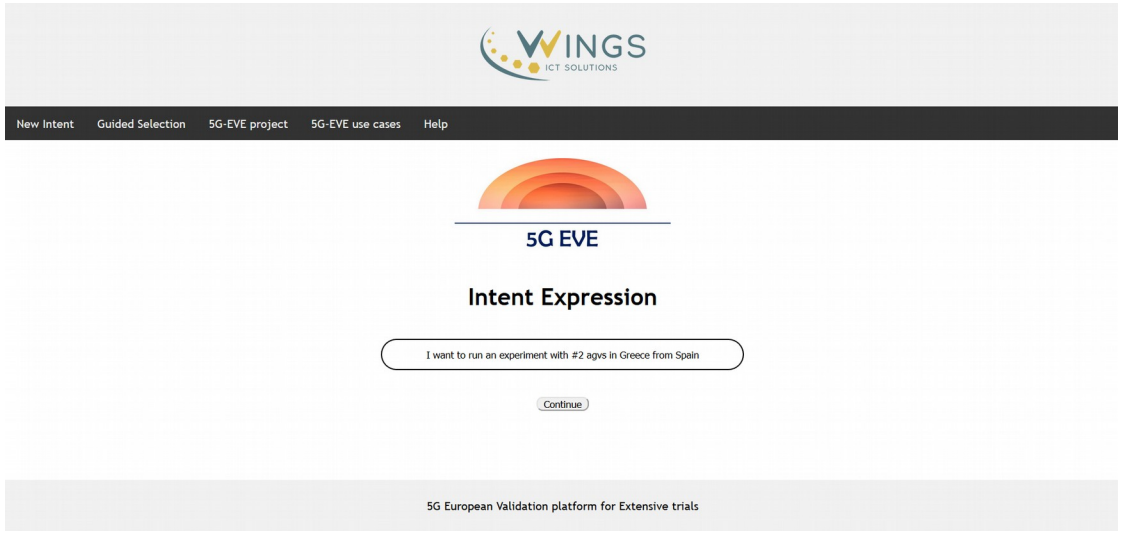
- To provide a way for the vertical experimenters to instantiate an experiment (experiment design and definition phase).
- The intention of the user is collected and translated into the most suitable Vertical Service Blueprint (VSB)
  - Description of Vertical's intended service needs in networking terms
  - Creation of an experiment descriptor (ExpD) assisted via natural language
- To define an experiment, the experimenters have two choices: i) through a free text format or ii) by providing the necessary information in the Guided Selection part of the GUI.
- Documented in Deliverable 4.1 (to be released as public document in the next months)

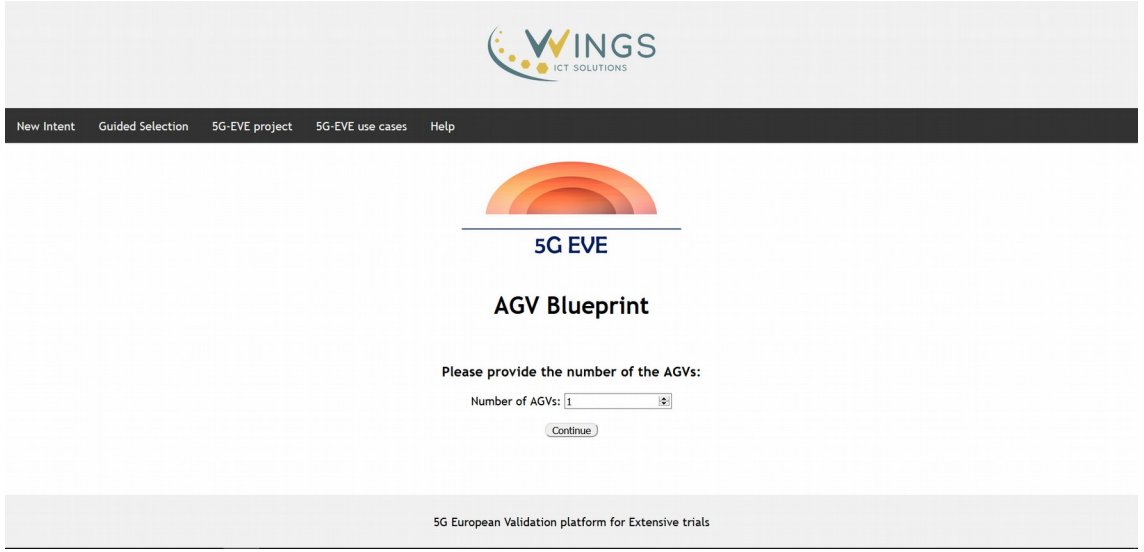
Tool design

- GUI allowing the experimenters to provide their intention, using one of the two ways available (Free Text – Guided selection)
- A Translation tool collecting the information provided and creating a Blueprint schema
  - This component recognize keywords in the intention provided and to translate them into specific actions/functionalities for the various blueprints.
  - Iterative interrogation of the user to refine the originally expressed intent
- A database where the confirmed experiments are stored.
  - Through the DB the application also checks the availability of the resources in each site/facility according to the scheduled experiments.
- An Apache Tomcat Server hosts the whole application and makes it available to the users to access the Intent-Based Interface.
- Available at: https://github.com/5GEVE/5G-EVE-WP4-intent-based-tool

Free text format

- The experimenters may define their intention by using natural language
- The translation tool checks the intention and matches specific keywords to certain fields of the VSB
  - To identify specific keywords and map them into specific actions
  - The keywords identified so far are the sectors, the services, and the following expressions in order to define where to run the experiment and the 5G EVE site facility
- In case there are empty fields the users are prompted to provide the missing information
  - Iterative interrogation of the user until all basic VSB fields can be filled
- Also, in case the experimenters have provided invalid information, such as a passed date, or negative numbers, or a country that cannot support a specific service, a message is returned to them by stating the problem encountered.





Guided selection

- In case of the Guided Selection the experimenters may select the service, they want to run, from a list of the available services
- Some fields are also automatically filled from the intent-based mechanism
  - These fields contain information about the range of some KPIs needed to run the specific experiment, according to pre-set information collected from the verticals for a given kind of experiment (e2e latency, data rate, reliability, etc)

Next (research) steps

- To generalize the concept developed in 5G-EVE to the processing of GSMA/3GPP Slice Templates
  - **Generic Slice Template (GST)** is transformed into the different **NEtwork Slice Types (NESTs)** required to run the service
  - From the NEtwork Slice Type (NEST) it can be extracted parameters and constraints for the transport network (link to IETF work)
  - Move passed VSB fields. From intent ⎵ to slice provisioning & network component configuration
- To document this in a draft targeting IETF#107