

## NetworldEurope SME Working Group

SME Success Story – October 2022



# NEARBY COMPUTING

Nearby Computing S.L.

### Context

**Nearby Computing (NBC)** participates in the H2020 (5GPPP) research project “**Affordable5G: High-tech and affordable 5G network roll-out to every corner**”. Affordable5G aims at creating a 5G network that will deliver a complete, disaggregated and affordable solution covering the needs of private and enterprise networks through technical innovation that span across all parts of the 5G network including Radio Access, Edge, 5G Core and Orchestration.

### Product in the project

In the context of Affordable5G, NBC is offering their flagship cutting-edge **NearbyOne Edge Orchestrator** to provide **network and service orchestration** in one of the Affordable5G experimental pilots. The NearbyOne solution is composed of two main elements (see Figure 1):

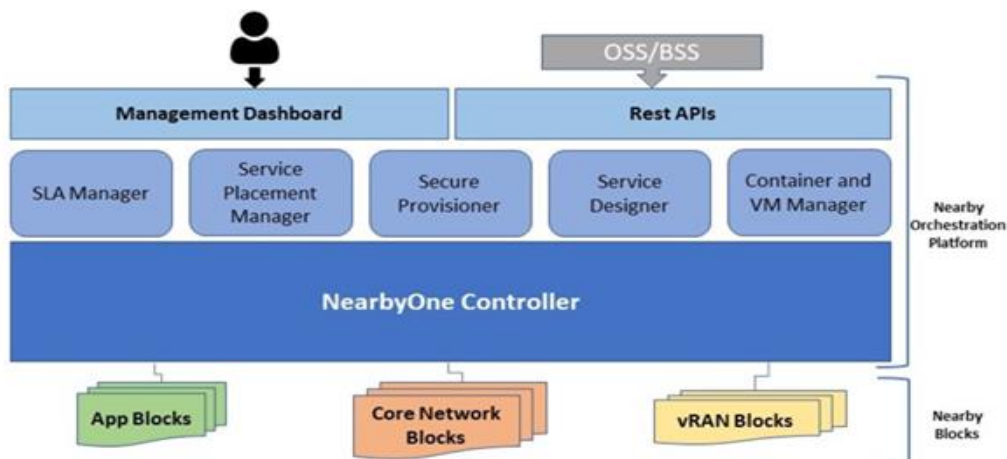


Figure 1 NearbyOne Architecture

- The **Nearby Orchestration Platform**, which is the main component of the solution, runs in a central location and oversees the performance of all tasks related to the orchestration of applications and infrastructure.
- The **Nearby Blocks**, which are distributed components that encapsulate logic and code for different application and virtual network functions (VNF) specific functionalities.

VNFs and Applications, as deployed in the NearbyOne solution, are encapsulated into Nearby Blocks to address ecosystems that require inter-application communication and accurate placement decisions, that typically implies advanced tuning of their execution platform. The NearbyOne orchestrator component continuously monitors the telemetry of the platform (processors, memory, accelerators) and the VNF/Application Blocks. Through the telemetry collection interfaces, the orchestration layer has access to all the resources consumed by the blocks, the map of available resources, as well as the high level KPI metrics for each application. When a new Application or VNF block is deployed, the orchestration layer observes the available resources and allocates the necessary resources to it. All this information is made available to the orchestrator for the enforcement of automated service placement decisions. More specifically, three components (part of SLA Manager and Service Placement Manager) are responsible for enforcing placement policies:

- **SLA monitoring:** collects all telemetry information generated at the infrastructure, network and chassis levels, and models the end-to-end KPIs observed at the service level.
- **Policies:** description of the expected behaviours for the different components of a service when some of the SLA are not met.
- **Placement Engine:** makes decisions about service location based on the inputs of the SLA monitoring component and according to the policies component.

## Distinction

Our work on zero-touch network and service management has been singled out by **European Commission's Innovation Radar**, which has analysed and highlighted our **end-to-end intelligent orchestration and slice management** (carried out jointly with the project partners Acceleran and i2CAT) as “**key innovation**” that addresses needs of existing markets. The Innovation Radar platform builds on the information and data gathered by independent experts involved in reviewing ongoing research and innovation projects funded by the European Commission. These experts also provide an independent view regarding the **innovations in the projects** and their **market potential**.

Our organisation's inclusion in this initiative could open up new opportunities for collaboration with business or academic organisations and trigger interest from potential customers or investors in our innovations. Above all, it will demonstrate to a global audience the innovative work NBC is active in delivering.