

DISTRIBUTED MANAGEMENT OF NETWORK SLICES IN BEYOND 5G



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Project Coordinator



France



Poland



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@monb5g

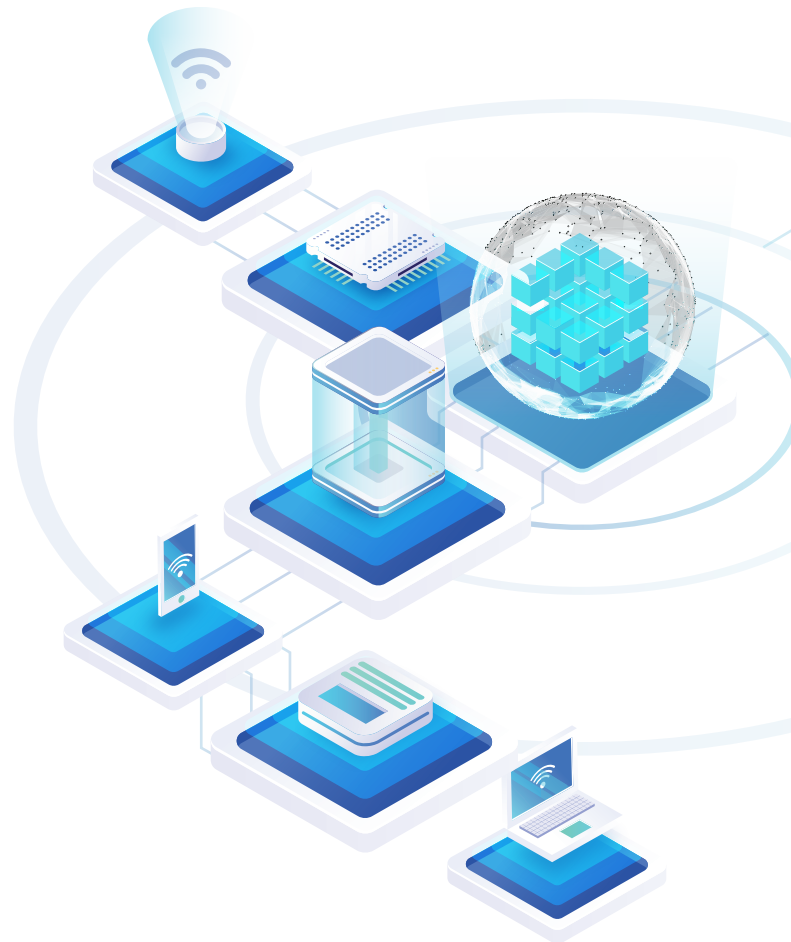
monb5g

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PROGRESS UPDATES

The first eighteen project months are significant as they included the designing of the network architecture, formulation of the use cases, and other data-driven algorithmic innovation phases of the project. The highlights of their achievements are outlined below:

- Finalization and release of MonB5G architecture.
- Definition of Trust model and trust management approaches.
- Refinement of use cases to better address potential market demands.
- Definition and mapping of the List of objectives, proof-of-concepts (PoCs) and Artificial Intelligence (AI) Key performance indexes (KPIs).
- Design and test bed implementation of the Monitoring System (MS).
- Development of several Analytical Engines (AEs).
- Design of full end-to-end decision engine (DE) architecture and AI algorithms developed.
- Security scenarios/attacks fully described.
- Initial exploitation plan established.



MEETINGS

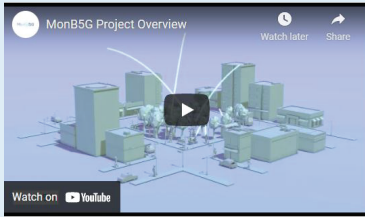
In the past period, the 5th plenary meeting took place, hosted by the project coordinator, the Telecommunications Technological Centre of Catalonia's (CTTC) SMARTECH department, to the project's mid-term progress, and outline the roadmap to the upcoming proof-of-concepts and demonstrations. All 12 partners joined remotely via teleconference due to COVID-19 restrictions.

MonB5G 5th Plenary Meeting

20th-21st April 2021



NEWS



Mon5G publishes First Video, aiming to provide an overview of the project's innovations in 5G and beyond management and delivery

May 14, 2021



Our latest Press Release by In Business Magazine (Cyprus)

June 1, 2021

5G-PPP PARTICIPATION



The 5G Infrastructure Public Private Partnership

White Paper Contribution

"AI and ML – Enablers for Beyond 5G Networks"

The sixth issue of the European 5G Annual Journal was released on 27th May 2021, featuring Mon5G Project.



Mon5G

Project description and overall objective

Mon5G aims at deploying a novel autonomous management and orchestration mechanism framework by heavily leveraging distribution of operations together with state-of-the-art Artificial Intelligence (AI) based mechanisms. The developed system is based on a hierarchical approach that allows the flexible and efficient management of network tasks, while at the same time, introducing a diverse set of centralisation levels through an optimal adaptive assignment of monitoring, analysis, and decision-making tasks. The Mon5G approach focuses on the design of a hierarchical, fault-tolerant, automated data driven network management system that incorporates security as well as energy efficiency as key features, to orchestrate a massive number of parallel network slices and significantly higher types of services in an adaptive and zero-touch way.

Fig. 28: Mon5G vision

Specific Objectives

To achieve the overall objective of Mon5G, a series of specific objectives have been specified:

1. Devise a distributed management plane to handle the deployment of a massive number of network slices.
2. Define network slice service-level KPIs that consider not only a single Virtual Network Function (VNF), but all the network slice components, i.e., VNFs, Physical Network Functions (PNFs) and networking components.
3. Devise data-driven management system components (i.e., Monitoring System, Analytics Engine, Decision Engine), based on State-of-the-Art federated learning AI techniques.
4. By combining the Intent-based policy definition and the cognitive management entities,
5. Define decision algorithms tailored to the Radio Access Network (RAN). The envisioned decisions should allow to update the RAN configuration, when the latter is detected as the root cause of network slice performance degradation or when considered necessary to meet the heterogeneous performance requirements of multiple coexisting slices.
6. Elaborate advanced security schemes and plans to empower secure smart network slice LCM.
7. Provide AI-assisted techniques to optimise energy efficiency in all technological domains (i.e., Cloud, RAN, Core and Multi-access Edge Computing).

Mon5G will target multi-domain zero-touch network configuration of sliced 5G and beyond networks.

DELIVERABLES

Deliverable	Title	Responsible Partner	Date
D2.1	1st release of the MonB5G zero touch slice management and orchestration architecture	ORA-PL	February 2021
D7.5	1st Report on Dissemination, Standardization and Exploitation Plans	CTXS	February 2021

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