

5GZORRO at EUCNC2021 - 6G Summit "On the Road to 6G"

Porto, Portugal - Virtual Conference



June 3rd, 2021 – 5GZORRO will join the next EuCnC 2021-6G Summit “On the Road to 6G”.

The [30th EUCNC2021](#) will take place, in its second Virtual edition, next 08 – 11 June 2021 jointly with the **6G Summit**.

Since the conference, supported by the European Commission, focuses on all aspects of telecommunications from #5G deployment, mobile #IoT to #6G exploration and future communications systems and networks, including experimentation, testbeds, applications, and services; [5GZORRO](#) partners have prepared a series of truly relevant contributions and activities in this context: **two conference papers, a workshop participation, and Charing a Special Session**.

After the difficult times of the Covid-19 pandemic outbreak and the forced global lockdown, deployed 5G infrastructure is needed to keep up with pervasive virtual connectivity, improved communications, and new services.

#5G has demonstrated to be one of the main catalysts of the pervasive digitalisation of our society: ultra-high bandwidth, low latency, increased density, and continuity of connectivity for various innovations prepared by our Vertical industries (Media, eHealth, Smart Cities, Digital Factories, etc.). The step forward is to achieve intelligent connectivity and implement all of this at a large scale, without limits.

[5GZORRO](#), a research project funded by the European Commission in the context of the [5G Public-Private Partnership Phase 3](#), is working on **Zero-touch automation, security and trust among multiple parties through blockchains, network slicing across various domains, ubiquitous computing and connectivity for multi-operator 5G networks, Distributed Ledgers for Telcos**. These are critical aspects of investigation with the ambitious goal to define solutions for the *5G evolution in longer terms* and R&I.

The Consortium is investing a significant number of resources in generating awareness and visibility for research results, both within the scientific community working on 5G and within network industry, operators, regulators, SMEs, etc.

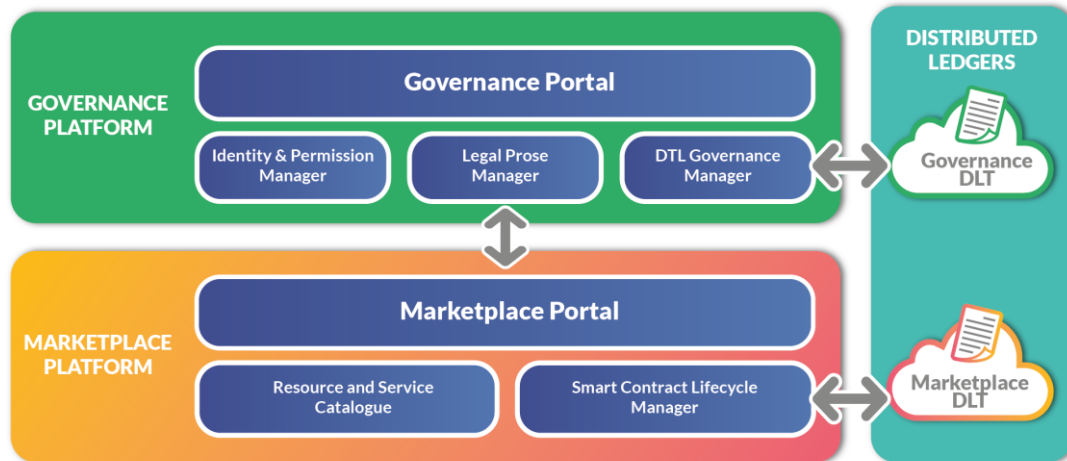
The project will concentrate its efforts on three representative use cases. The results will be tested at [5GBarcelona](#) and [5TONIC](#) Madrid facilities, with the vision to build innovative solutions which can address the new **Intelligent Connectivity**.

5GZORRO will explore and test a new approach to:

- **Share and discover heterogeneous types of resources** (i.e., spectrum, virtualised radio access, virtualised edge/core, software-defined WAN, etc.) across multiple operators and infrastructures.
- **Multi-party agreements to build distributed and pervasive 5G infrastructures**, from data centres down to edge and far edge computing.
- **Complete automation of network and service management** (zero-touch network and service management).
- **Coexistence of Cloud-native and traditional IaaS network functions** (containers, service meshes, microservices).
- **Distributed Ledger Technologies for spectrum sharing** and cross-operator/cross-domain service chains.

Following a brief overview of **5GZORRO** scheduled contributions and activities at **EUCNC 2021**:

- Two conference papers will be presented:
 - [Thursday, 10 June 2021, 16:00-17:30 - 6ET2: 6G Enabling Technologies II- Zoom Room.](#)



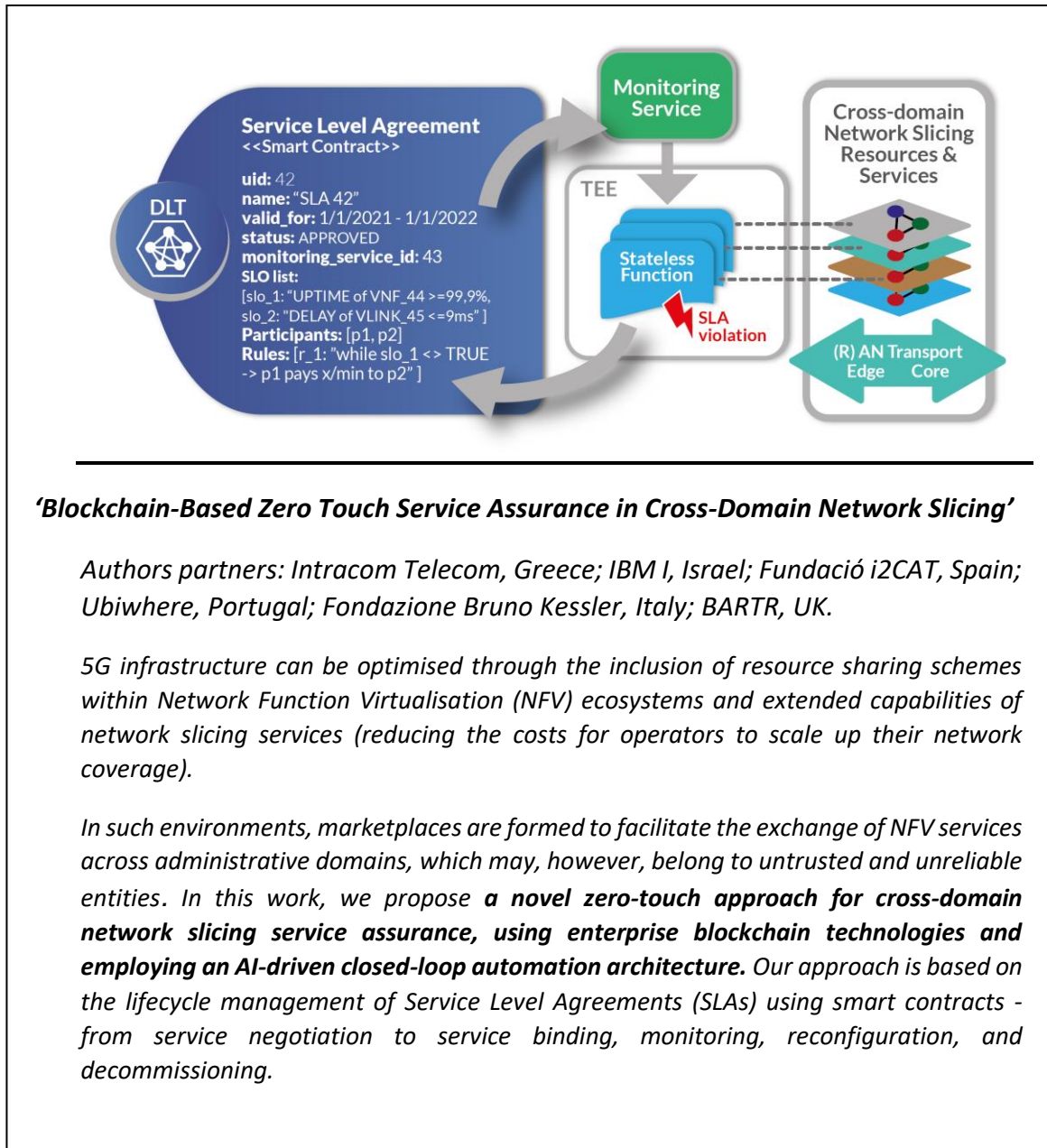
***'Multi-Party Collaboration in 5G Networks via DLT-Enabled Marketplaces:
A Pragmatic Approach'***

Authors partners: Fundació i2CAT, Spain; Nextworks, Italy; BARTR Group, UK; Altice Labs, Portugal; University of Murcia, Spain; Telefonica, Spain.

To fully cope with the requirements of innovative 5G use cases, evolving business models and flexible networking scenarios spanning multiple administrative domains are envisioned. In this context, transparent and trusted frameworks that enable network service providers and infrastructure providers to advertise, negotiate, and acquire, in real-time, 5G resources and services, distributed over various geographical areas, are extremely valuable.

*To address this goal, **emerging Distributed Ledger Technologies (DLTs)** arise as well-suited solutions to ensure distributed security and trust, as well as effective and agile transaction management across the various parties involved in the 5G service chain implementation. Following this vision, this paper presents the design of a DLT-enabled Marketplace aimed to foster the secure trading of heterogeneous resources in dynamic 5G ecosystems.*

- [Friday, 11 June 2021, 09:30-11:00 – NET3: Network Softwarisation III - Zoom Room.](#)



'Blockchain-Based Zero Touch Service Assurance in Cross-Domain Network Slicing'

Authors partners: Intracom Telecom, Greece; IBM I, Israel; Fundació i2CAT, Spain; Ubiwhere, Portugal; Fondazione Bruno Kessler, Italy; BARTR, UK.

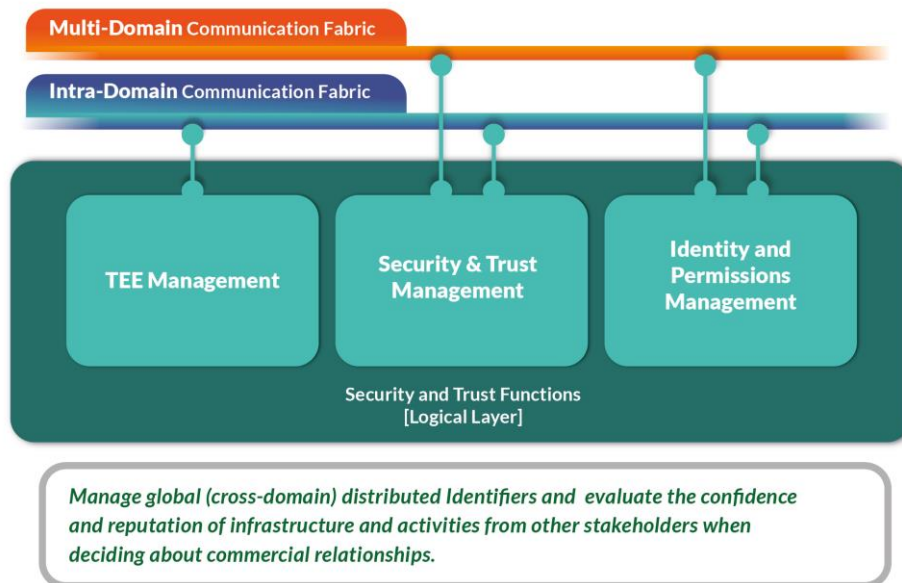
5G infrastructure can be optimised through the inclusion of resource sharing schemes within Network Function Virtualisation (NFV) ecosystems and extended capabilities of network slicing services (reducing the costs for operators to scale up their network coverage).

*In such environments, marketplaces are formed to facilitate the exchange of NFV services across administrative domains, which may, however, belong to untrusted and unreliable entities. In this work, we propose **a novel zero-touch approach for cross-domain network slicing service assurance, using enterprise blockchain technologies and employing an AI-driven closed-loop automation architecture.** Our approach is based on the lifecycle management of Service Level Agreements (SLAs) using smart contracts - from service negotiation to service binding, monitoring, reconfiguration, and decommissioning.*

- [Presentation in Workshop 8: From 5G to 6G Automated and Intelligent Security: FAST](#)

Session 1: Security and Trust Architecture for Beyond 5G Networks

➤ **Tuesday 8 June 2021, 9:30-11:00, Zoom Room.**



‘Overview of the Security and Trust Mechanisms in the 5GZORRO Project’

Partner Presentation: University of Murcia, Spain; Intracom Telecom, Greece; BARTR Group, UK; Fundació i2CAT, Spain; Altice Labs, Portugal; Malta Communications Authority, Malta.

5G’s capabilities and flexibility hold the promise of further facilitating the society’s digitalisation by enabling new services (e.g., remote surgery, advanced industrial applications) and communication modes (e.g., gestures, facial expressions, and haptics). Current wireless communication systems do not meet the performance requirements of these new services, such as bandwidth, latency, and reliability. Such transformation and the new requirements make the need of secure, reliable, and high-quality digital services promised by 5G more crucial than ever. Moreover, these fundamental drivers are expected to amplify and become even more prominent in future 6G networks.

One of the most critical areas of application for zero touch automation is the protection of the network and system assets against potential cybersecurity risks introduced by the unprecedented evolution of the 5G threat landscape. Zero touch automation also helps on the dynamic management of trust chains running end-to-end and enabling critical workloads to traversing different tenants and stakeholders with the required level of security and trust. The workshop will be organised around a set of key thematic areas structured in 3 technical sessions, with the participation of 12 5G projects and one prominent keynote speaker, followed by related discussions on a panel of experts.

- [Chairing and presentation of Special Session 8: Autonomous Network Management towards 6G.](#)
 - [Friday, 11 June 2021, 09:30-11:00, Zoom Room.](#)



'Zero-touch AIOps in multi-operator 5G networks'

Authors partners: IBM, Israel; Nextworks, Italy; Fundació i2CAT, Spain.

The very nature of 5G/6G requires deep transformations of mobile and fixed networks towards truly massive and pervasive connectivity fabrics, capable of end-to-end security, high flexibility, and very dynamic service lifecycle. Despite the huge progress of the last few years, 5G networks today have not completely achieved all these challenges. Network automation, NFV and cloud-native technologies are widely adopted to transform the way 5G networks and their services are built and managed today, but their entire potential is still not fully exploited. There is an urgent demand for truly autonomous network management solutions for supporting efficient and intelligent networks at scale, beyond the current 5G.

A clear vision on requirements and challenges for Autonomous Network Management to be addressed towards 6G is missing. It is observed that networks will require a more efficient use of heterogeneous virtualisation technologies from multiple radio, edge and core domains, also from multiple operators; moreover, highly automated management and orchestration solutions will be needed to implement data-driven network management to exploit advanced analytics techniques; zero-touch solutions and intent-based approaches to network slicing will take critical role to manage the huge scale of software-defined network functions; heterogeneous resource trading and sharing (extended to spectrum) will need to be used to implement networks and service pervasiveness, at acceptable CAPEX for Operators and fully integrated with end-to-end trust and security.

These are the main activities from **5GZORRO** that will be promoted at the **EUCNC2021**, in its continuous effort to contribute to the development and implementation of a series of essential services and functionalities to reach the full deployment of 5G, *'on the road to 6G'*.



5GZORRO project aims to develop envisaged solutions for zero-touch service, network, and security management in multi-stakeholder environments (ubiquitous), making use of smart contracts based on Distributed Ledgers Technologies to implement required business agility.

The **5GZORRO Consortium** is formed by **13 partners from 7 European countries** and funded by the **European Commission** under the **5G PPP Phase 3, Part 4: 5G Long Term Evolution programme**.

More info:

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