HELLENIC REPUBLIC
National and Kapodistrian University of Athens
EST. 1837

SOVEREIGN

Funded by the European Union

Marie Skłodowska-Curie Actions

HORIZON EUROPE

SOVEREIGN: distributed ledger technologies and user-driven automation towards self-SOVEREIGN mobile data access in beyond 5G networks

SOVEREIGN
Grant agreement ID: 101131481

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€ 0,00

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€ 1 656 000,00

Coordinated by
ETHNIKO KAI KAPODISTRIAKO PANEPISTIMIO ATHINON
Greece

https://cordis.europa.eu/project/id/101131481

SOVEREIGN aims to fuel artificial intelligence (AI) with DLT-backed data in order to innovate the B5G service chain and the B5G protocol stack towards the support of fully decentralized, instantaneous, and anonymous resource trading across the B5G network ecosystem (end terminals, infrastructure, OTT service providers, etc.). SOVEREIGN aims to empower intelligent end points in B5G networks, to gain full control of their identities, connectivity, sessions, service terms, and shared data upon accessing B5G spectrum, antennas, network slices and services.

Self-sovereign identity (SSI) is a model for managing digital identities in which individuals or businesses have sole ownership over the ability to control their accounts and personal data.

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8 Partners
6 Countries

Measurable Performance Objectives (MPOs)

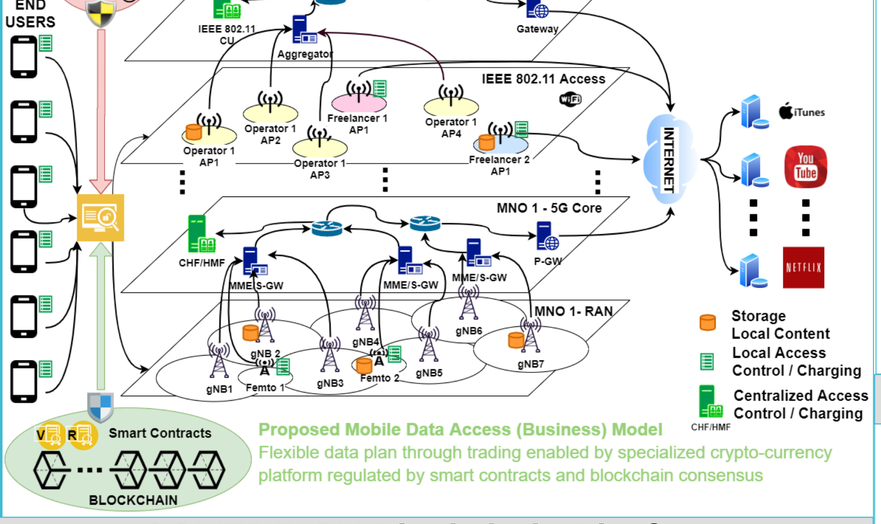
MPO1. *Setup new mobile data services and negotiate new service terms in sub-minute scales*
MPO2. Self-sovereign mobile data access of 20B peers using the DLT-backed B5G service platform
MPO3. Design a DLT-backed B5G service platform supporting 20M transactions per second
MPO4. Sustain 99.99999% availability of the SOVEREIGN anonymity services in B5G systems
MPO5. Demonstrate 99.99% service reliability with partial network-assistance and 99.99999% service reliability with full network-assistance

Research and Innovation Objectives (RIOs)

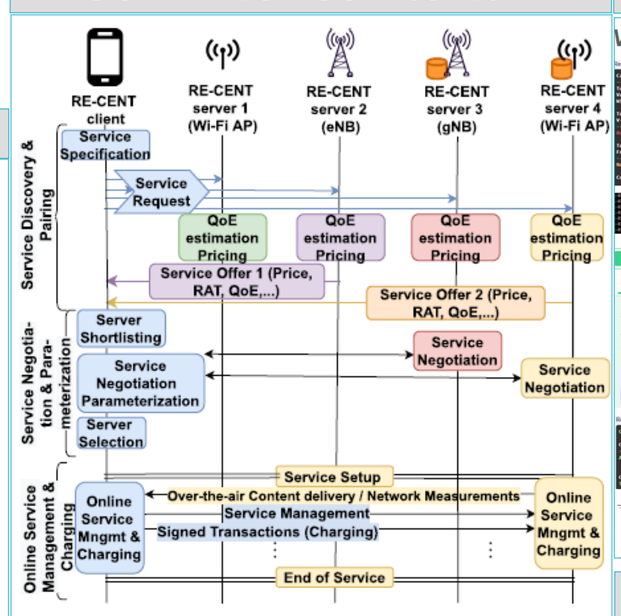
RIO1. *Conceptualize and develop a modular end-to-end service architecture integrating DLT-empowered service provisioning towards self-sovereign mobile data access in B5G networks*
RIO2. Design and implement a fully decentralized DLT-backed authentication, authorization, and accounting (AAA) platform tailored to self-sovereign connected intelligence in B5G networks
RIO3. Design and implement forward-thinking protocols for self-sovereign identity management and anonymity/data privacy preservation over joint DLT/B5G system infrastructures
RIO4. Design, implement, and assess the performance of user-controlled AI-enabled service discovery, pairing, mobility management and resource provisioning for the B5G network protocol stack

WHITE PAPER: D. Xenakis, C. Koulis, A. Tsiota, N. Passas, C. Xenakis, «Contract-less Mobile Data Access Beyond 5G: Fully-decentralized, high-throughput and anonymous asset trading over the Blockchain», *IEEE Access*, vol. 9, pp. 73963-74016, 2021, https://doi.org/10.1109/ACCESS.2021.3079625.

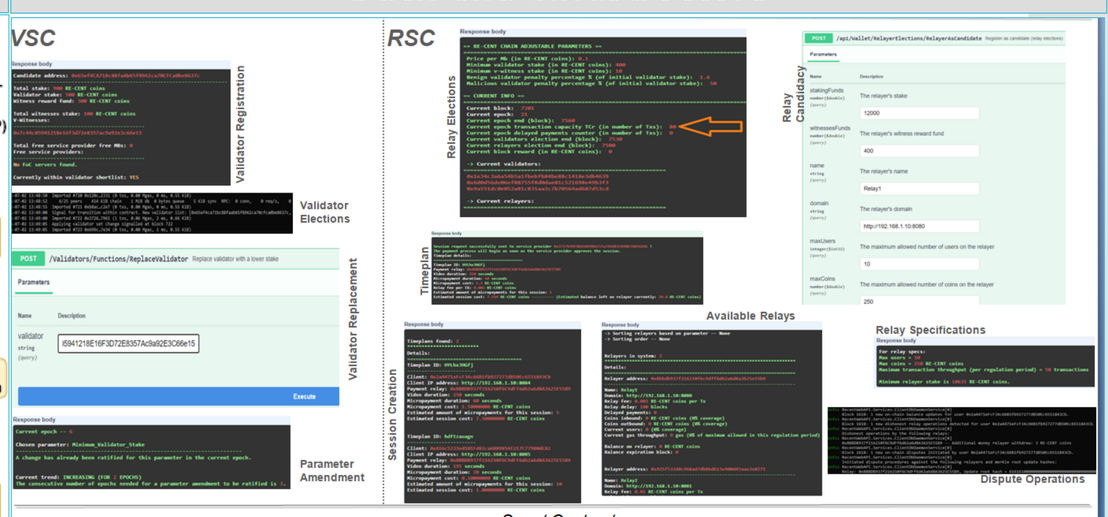
SOVEREIGN Conceptual Architecture



SOVEREIGN Service Flow

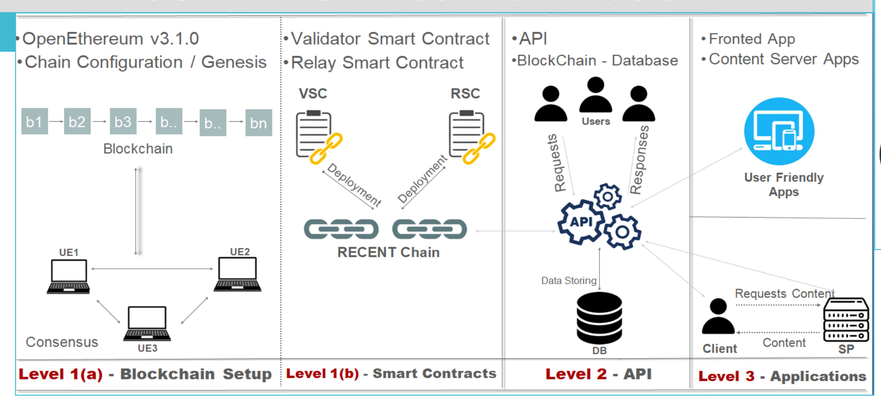


Back-end Infrastructure

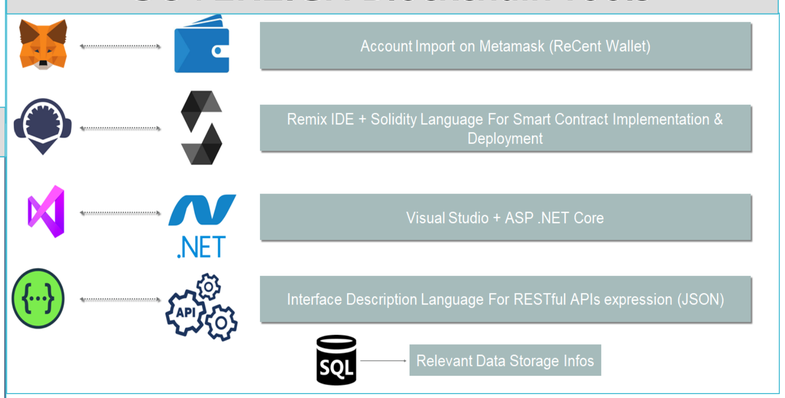


Smart Contracts Snapshots

SOVEREIGN Blockchain Platform



SOVEREIGN Blockchain Tools



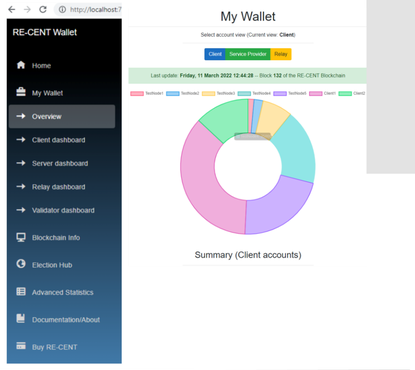
Front-end

4. FrontEnd

Presents all the necessary functionalities and information about the Re-Cent blockchain and related tasks, such as Validator/Relay elections blockchain info, etc.

FrontEnd Part (ReCent's Webpage) contains:

- **Home** - Initial Webpage
- **My Wallet** - Validator/Relay/Client/Server Account & Balance Overview
- **Blockchain Information** - Validator/Relay & Adjustable Parameters
- **Election Hub** - Validator/Relay Elections Information
- **Advanced Statistics** - Chain's Statistics & Data
- **"About" Section** - Information about Re-Cent
- **"Buy Re-Cent" Section** - ** TBD



ReCent WebPage

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