

WESTPOLE, NET SERVICE, FLOSSLAB'S CONSORTIUM FOR EUROPEAN BLOCKCHAIN SERVICE INFRASTRUCTURE (EBSI) PRE-COMMERCIAL PROCUREMENT (PCP)

ABOUT US

WESTPOLE Belgium NV as Consortium leader, Net Service S.p.A. and Flosslab S.r.l. as Consortium members have joined forces to design and create an innovative solution for the EU Blockchain Pre-Commercial Procurement open procedure. The consortium combines:

- WESTPOLE's experience in IT services delivery to European Institutions;
- Net Service's knowhow on building Blockchain Products and Architectures;
- Flosslab's R&D expertise in Blockchain Technologies as University Spin-Off.

HOW OUR SOLUTION FITS WITH EBSI

We started with a specific consideration: "no single blockchain can perfectly fit every functional and nonfunctional requirement of the Call for Tender".

Our solution plans to build a **network of scalable DLTs** that will allow us to:

- Plug-in, use and integrate different DLT technologies with multiple DLT instances;
- Shift from a DLT transaction centric approach to a Service Oriented Architecture where Applications and Services can work together and use DLTs to permanently store digital fingerprints of the original information;
- Improve the network over the years with novel DLT technologies and new Distributed Business Applications;
- Maintain the old EBSI infrastructure since already existing DLT technologies can become nodes of the new Solution and old applications can keep on working in the new EBSI Infrastructure;
- Manage the network through a Control Room. Probes will continuously check the quality of exposed services and a collection of agreed KPIs will allow us to check sustainability, performance, scalability, security and robustness of each authorized node;
- Explore the network. Distributed Business Applications will provide open API to integrate with a Search Explorer able to visualize the information in an easier web format.

NEW NETWORK / INFRASTRUCTURE CAPABILITIES

The solution will work on a network of Blockchains/DLTs with different technologies and capabilities. Our approach is DLT agnostic and it has multiple pros:

- We can add novel DLT technologies to improve the scalability, energy efficiency and security of the network if needed;
- We can choose the proper DLT technology for the appropriate Use Case Application;
- We can put in a quiescence state an old DLT technology and replace it with a more valid or efficient DLT.

SCALABILITY

can be easily achieved by adding new valid DLTs and exposing their Use Case Applications in the EBSI Network through APIs building a SOA network

ENERGY EFFICIENCY

of the DLTs is monitored by probes and a set of KPIs will help us to verify the sustainability of the solution and how to increase global efficiency. DLTs with low energy consumption are always encouraged and promoted in the network and they will be preferred in the Use Case market sharing thanks to the KPIs

SECURITY

is promoted by adopting only DLTs quantum attack safe. For no-quantum attack-ready DLTs, we propose a layer-2 infrastructure to improve the quantum attack resistance. Communication in the network will always use encryption and a subset of probes will help us to manage DDoS attacks

OBJECT IDENTIFICATION

is achieved by defining a Uniform Resource Identifier (URI) for the new EBSI Network in order to address any specific resource. For example, The URI has the ability to identify inside a DLT or Storage distributed in the network a specific Digital Product Passport

ROBUSTNESS

is achieved in many ways. The entire network is built through open standards, designed and approved by an Open Community. KPIs will help us to check the robustness of a specific Distributed Application released on the network and provide feedback to developers

INTEROPERABILITY

is promoted through the Compliance with Interoperability Standards. Anyone will be able to plug-in its own infrastructure by implementing these standards and it will be able to provide its own services. For example, the old EBSI network will be plug-in by implementing these open standards

TECHNICAL APPROACH

We introduced the concept of EDGE to turn blockchain specific-domains into services and create a layer of interoperability based on Distributed Business Applications.

The EDGE provides key capabilities:

- It implements core services and protocols to build a P2P network of EDGES;
- It can expose APIs to internal or external Services;
- It can mainstream different DLTs and Storage to fulfill its business applications;
- It is designed through a “High Availability” Architecture;
- It can manage multiple business applications and Use Cases.

The EDGE Technology is based on Kubernetes:

- It can spawn Controllers, Applications and Services to fulfill scalability, robustness and control the global sustainability of the EDGE;
- Applications can be picked up by a marketplace and easily installed in the EDGE;
- DLTs are integrated with Services and Queue Managers;
- It can send KPIs to monitor Energy Consumption and the State of Health. The Control Room is the Entity in charge to track the global Quality Standards and the Service Level Agreement.

USE CASES

Our PCP project targets 2 Use Cases:

- Digital Product Passport
- IP Rights



Digital Product Passport will focus on Batteries and Tyres and it will provide 3 major applications:

- **Circular Economy and Product Life Cycle:** the application covers the needs of Product Owners, Producers and Recycling Centres to handle the product state till the end of its lifecycle. For example the Tyres DPP will extend the EPREL Dataset to handle states, product composition, ownership and responsibilities;
- **Tracking Items/products:** the application focuses on tracking products, components and raw materials traded and used across the EU;
- **Data and Document traceability:** the application allows to track data and documents referable to a specific Digital Product Passport. These documents/data can be managed inside a specific EDGE or managed by an external Portal.

IP Rights will provide one major application and it will use WIPO dataset:

- **Trademark Request/Opposition:** the application allows us to use EDGES and DLTs to submit a Trademark Request through a specific Trademark Office and manage the opposition period.