Olam PoC technical bulletin

Introduction

Olam POC (proof of concept) is an application that demonstrates the potential of the Olam platform to drive the digitization of supply chain with an evolutionary process (poc.olam-platform.org) . It provides immutable tracking and sensor data on shipments which is stored on the Ethereum blockchain. This tracking and sensor data is available to all shipment stakeholders through the Olam platform without the need for them to interact with each other (traditional point to point communication).

Olam POC is composed of a web application, a backend process, a centralized database and an Ethereum blockchain.

When a shipment is initiated a new contract is deployed on the blockchain. This contract can be viewed by users who have the contracts address. All shipment information, including shipment location history and sensor data history are immutably recorded with this smart contract on the blockchain.

A backend process is managing the interaction with the smart contract and the life cycle of a shipment, from creation to delivery.

The backend process enables management of shipment and viewing of shipment information:

- Create shipment
- Stop/resume shipment tracking and sensor data recording
- Get current shipment state (location and current sensor data)
- Get shipment trail (location history)
- Verify shipment data credibility by seeing the actual data footprint on the blockchain

The PoC is supported by a web user interface that allows to track shipments and see their location and temperature history.
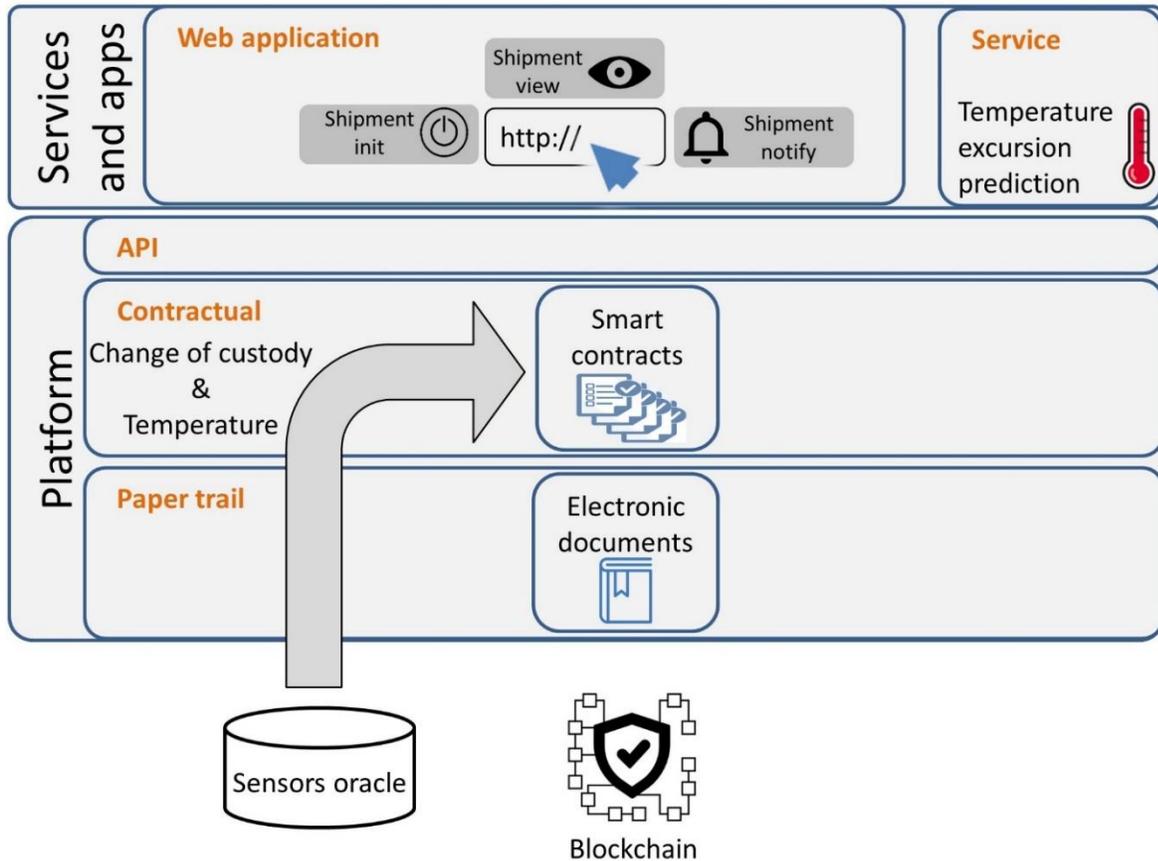
For more professional users, an advanced, more technical application allows seeing the finer details of the Blockchain operations behind the PoC.

Under the hood

The backend process collects sensor data as it being generated and added to the database and interacts with smart contracts on the Ethereum blockchain to generate immutable footprint of this data on the blockchain (github link). This is done by deploying and using Ethereum smart contracts. This enables the user to:

- Get historical shipment sensor data
- Verify shipment data credibility by seeing the actual data footprint on the blockchain

The PoC demonstrates recording of real-time shipment data on Ethereum network. The PoC converts real-time information from sensors into blockchain, immutable events that translates to shipment location, change of custody and temperature.
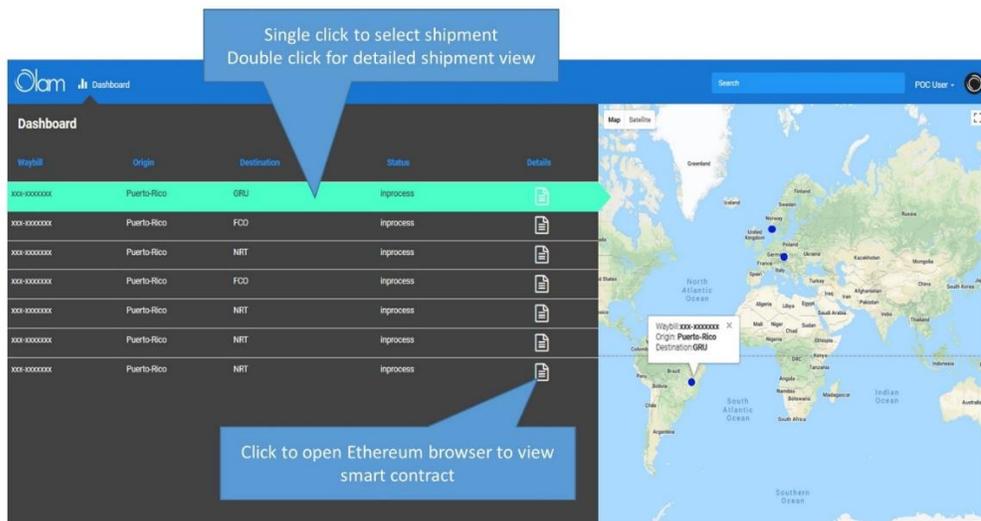
Using the web to view PoC operation

Logging in with www.poc.olam-platform.org

Use the **Participate in the PoC** button to get username and password and access the PoC

Dashboard

The dashboard screen shows current active shipment, with their locations and allow to see the smart contract of a shipment, or to get to the detailed shipment view page

Shipment view