AQUA TEAM PILOT

- Axiom Technology Group

"Answering the 'Where's My Stuff?' question for the pharma supply chain"

Overview

Today, most trading partners in the pharma supply chain operate in silos – creating operational challenges such as missing or incorrect information and time-consuming, continuous back-and-forth communications.

To address these issues head-on, The Aqua Team has designed an enterprise-wide blockchain solution for asset traceability and data transparency that allows unrelated parties to have end-to-end visibility across the value chain regarding transfer of ownership, business events and transactions. Participants can share pertinent business information via a distributed system, allowing them to share cryptographically assured data across a secure supply chain network.

The Aqua Team Pilot Platform is built utilizing Oracle Blockchain Cloud Solution (BCS) to provide an end-to-end asset traceability solution. Business logic will be applied and implemented via chain codes (Smart Contracts) and combined with analytics to dashboard the asset information.

Team's vision

The team set out to create an end-to-end asset traceability solution to benefit and advance the pharma supply chain. By integrating enterprise blockchains with existing business applications, the pilot demonstrates the seamless integration of business information to a distributed ledger, allowing for custom deployment hosting via enterprise cloud platforms.

The Team invites the industry to collaborate and provide feedback so that it can create a viable blockchain technology solution to benefit all stakeholders.

Pilot will demo:

Utilizing the "product-centric" ReferenceModel #3 developed in the "DSCSA & Blockchain Phase 1" Study, the team employs an Oracle BCS-based blockchain infrastructure to *augment* existing business systems, and in many instances, can be deployed in a way that *eliminates* the need for users to encounter additional system interfaces and log-ins.

Target audience

The presentation is aimed and designed for a broad audience, including:

- Manufacturers
- Brand owners
- Wholesalers
- Regulators
- Packagers
- Regulators
- 3PL companies
- Logistics providers

DSCSA focus

Aqua team's ERP integrated end-to-end asset traceability platform aims to prove the feasibility of blockchain technology for the Drug Supply Chain Security Act (DSCSA) mandates for creating an interoperable exchange of serialized product data across all supply chain participants by 2023. This pilot provides a framework for:

1. Transfer of product between trading partners
   DSCSA requires that when a product is transferred from one party to another in the supply chain, then the receiver must establish the origin of the asset before transferring the product downstream. The Aqua Team's blockchain platform provides for an end-to-end asset traceability – allowing for complete transparency in the supply chain.
2. Saleable Return
   DSCSA's mandate on saleable returns requires that returned products must be matched with their TI/TS and the 2D matrix needs to match with GTIN, Serial number and other data that is available with the manufacturer. All this needs to occur quickly and efficiently, as counterfeit products must be reported promptly to the pertinent authorities. The data related to the 2D matrix verification is available with the manufacturer (Brand Owner).

   Currently, there is no efficient platform in the market where this data exchange between different players can take place. This Proof-of-Concept Pilot aims to solve this "saleable return quandary" by bringing together multiple players (from manufacturers - to the wholesalers – to 3PL companies) by providing a platform for relevant information to be available to *all* parties. *(Note: This analysis assumes that an efficient data exchange platform does not exist currently.)*
3. Delayed information availability
   DSCSA requires that TI/TS information is to be available quickly and efficiently so that there is minimum holdup at any node in the supply chain. The Aqua Team's pilot platform aims to fulfill this requirement for the industry by providing dynamic access to verified and immutable data.

Business processes

Aqua Team's platform leverages the existing ERP infrastructure with clients and extract data onto the Axiom platform. Business logic is implemented via chain codes to write verified, relevant and pertinent data onto an Oracle BCS platform. Axiom's application layer is linked with a user dashboard that allows the user to view relevant data about the asset.

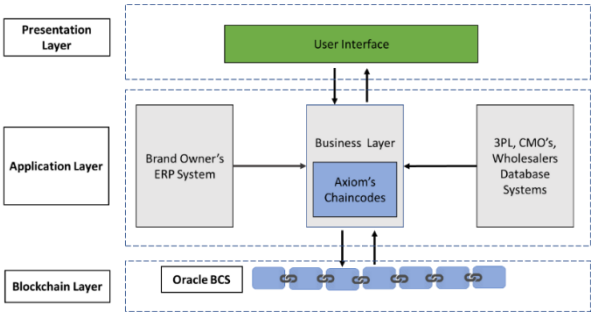

Figure 1: Aqua Team Platform Overview

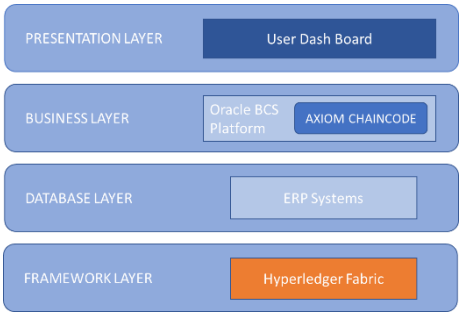

Figure 2: Layered Architecture of Platform

Technical features

Utilizes the product-centric reference model (Ref Model 3), maintaining relevant and pertinent data "on-chain." By implementing business logic via chain codes, it leverages and integrates the client's business applications and creates an effective mechanism for moving data from the client's system to the Oracle Blockchain Cloud Solution (BCS). Built on top of a hyperledger fabric-based framework layer, the platform is designed to allow for *channel-based separation* where only members in a channel have access to the asset information – creating higher levels of confidentiality, flexibility and scalability. Additionally, the platform evaluates the EPCIS events data and updates the asset's current state onto the blockchain.