Viant: Supply Chain and Asset Tracking

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What is the business case, area, or topic that this use case applies to?

Business process modeling, asset tracking, and supply chain building

What problem are they trying to solve?

Viant solves the problem of transparency in asset tracking and supply chains. This has been a struggle for many businesses and organizations, whether they are tracking vaccines from distribution to use or tracking oil and gas samples through the extraction, analysis, and decision making process. In order to know where an asset comes from, the idea of provenance is key. Provenance is a record of ownership that shows the history of the asset. Provenance shows its creation or starting point, and then every step along the supply chain it is a part of. By creating a digital, immutable provenance of an asset, the asset can be clearly traced and gives transparency to anyone who wants to track it. This transparency allows for compliance with protocol, whether agreed upon by participants in the supply chain or with regulations from governments.

What is the value created by solving this problem?

Viant allows businesses to increase transparency by recording the provenance of an asset on their blockchain platform. Tracking in this way allows for participants in the supply chain to have confidence that at each step along the way in the supply chain, the agreed upon actions are occuring. For example, for doctors, this might mean knowing exactly when a vaccine was produced, and how it got from a production facility to their hospital.

Asset tracking in this way also makes regulatory compliance easier for industries where it is necessary to prove the provenance of an asset. If a fish is claimed to be fresh caught off the coast of Fiji, and a regulator wanted to confirm this, Viant allows for the tracking of the fish from catch to market, recording the data about where the fish was caught and how it moved to market.

Finally, creating this transparency in the supply chain allows for participants to begin to identify inefficiencies in the supply chain. If an asset is continually going through an unnecessary step in the process, it will be recorded, so the business or group of participants can take action to improve the supply chain.

Do they need a database?

Yes. Information about each asset being tracked needs to be recorded.

Does it require shared write access?

Yes. At each step in a supply chain, the individual interacting with the asset needs to be able to write data about that asset to the blockchain. Therefore, it becomes important that there is shared write access to the individuals who are participating in the supply chain.

Are any of the parties unknown or untrusted? Or if they're trusted is it possible for them to have conflicting interest?

In order to ensure that asset tracking is done properly, there has to be an assumption that the lack of trust of the other parties, even if they are trusted. The only way to maintain transparency that is inscrutable, especially for regulators, is to create a chain of provenance that can be easily followed and is immutable. Therefore, an assumption of the parties involves having a lack of trust or having conflicting interest is necessary to create the conditions for transparency that would hold up to both internal and regulatory scrutiny.

How will a blockchain be applied to this use case? Which component pieces will be utilized?

Viant creates a tamper-proof asset tracking system built on top of the Ethereum blockchain. The Viant user interface allows an analyst to model a business process or supply chain, and then create Smart contracts that contain those details of the business process. The smart contracts are used to write data on the movement of assets from various users and steps along the supply chain to the Ethereum blockchain. Therefore, the movement of assets is able to be transparently tracked.

Will the blockchain used be public, private, or consortium and why?

For Viant, all three types of blockchain can be used. A private or permissioned blockchain might be requested by a company that wants to keep their supply chain information private to the participants in the supply chain, and therefore, will not put their data on the Ethereum public blockchain. For certain actors, a consortium blockchain will make sense, as multiple actors will want to collaborate together in the supply chain. Finally, certain organizations might want to make a supply chain process completely public, and are able to do so on the public Ethereum blockchain.

Are there overlay networks that will need to be utilized in order to make this use case operate? If so, what are they? If not, why does the existing infrastructure work?

Yes, IPFS is used as decentralized storage for the attributes of the assets. For example, details on a type of beverage being shipped. That way less information has to be written to the blockchain, but can be recalled to give information about a tracked asset.

Are there other factors to consider in this use case?

Viant allows the definition of roles, users, and permissions, to give access to certain parts of Viant to the users. For example, not everyone participating needs access to model the supply chain. They may just need permission to accept or reject an asset. For example, an inspector ensuring the asset meets a certain quality control standard in the asset tracking process. The smart builder allows for the assignment of roles and create specific users that are tied to those roles. Then, permissions of what those users can do can be created. So many individuals or groups participating in the system may just need permissions to access the tracker, since they are playing a role in tracking an asset through the process.