

Use Case

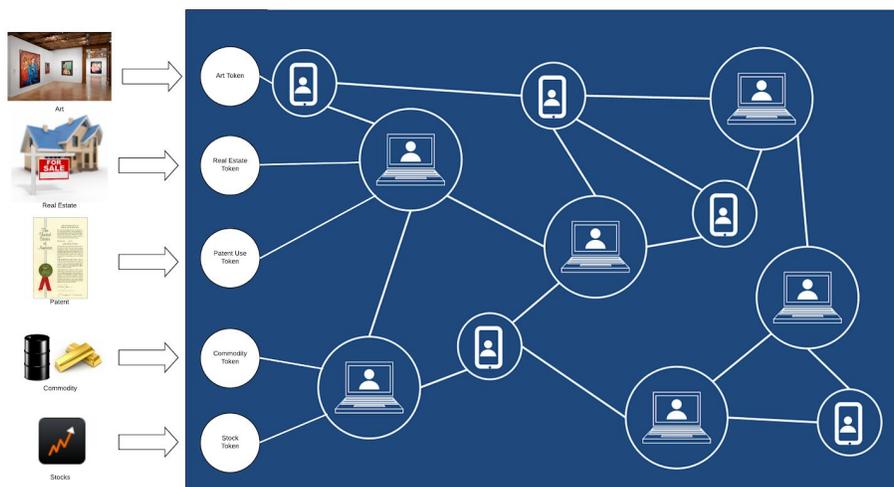
Tokenized Asset Management

Problem

Real world requirements and regulations make tokens tougher to manage than it first appeared they would be. With a great deal of manual workflow required, and scaling solutions “TBD”, the true potential of blockchain technology hasn’t yet broken into the real world.

Background

Asset tokenization is the process in which physical (eg- gold bars) and intangible assets (eg- securities) are represented within digital systems using unique distinctive identification symbols. The idea is that the token can be used to represent ownership of the underlying asset, which can be transmitted electronically or even split between multiple parties without modification of the real world asset.



This all sounds amazing, and it can be, but hidden under all of that shine are some tough real world problems. Developers with the knowledge to implement the tokenization and smart contracts needed to support it are few, far between, and very expensive. Maintaining an accurate accounting of how the digital assets map back to reality is both a regulatory requirement and very challenging. The state of the art solution right now is a manual workflow, re-inserting the same kinds of reconciliation processes that exist in the old infrastructure.

Truly, the heart of the problem is scale. A quick hack to get 10 people virtual assets and a powerpoint presentation to prove they were tracked makes for a fantastic prototype. As the market is slowly realizing, those prototypes simply can't deliver an alternative that is actually superior to the previous generation's solutions.

This isn't the fault of blockchain technology, or the engineers building the prototypes. It's a consequence of the ongoing mantra of "someone will figure it out" when it comes to systems of systems thinking in the blockchain space. Well, someone has figured it out: Manifold.

Solution

Manifold's serverless blockchain platform provides a high-speed, planetary scale blockchain to empower real-world business applications. It provides a secure, extensible, and future-proof platform for blockchain-based innovations by combining powerful AWS services, our proprietary ledger technology, and automated synchronization to multiple public blockchains. Utilization of our architecture results in low operational costs, far less than using a public blockchain directly.

Description

Our blockchain platform is exposed as a set of REST interfaces that can be securely accessed from any internet connected source to submit data for codification into the blockchain. Data verification and processing is encapsulated into separate, discrete Lambdas for stateless execution. Data is then written to AWS' fully managed autoscaling database DynamoDB for persistence.



*Lambdas run code only when triggered,
using only the compute resources needed*

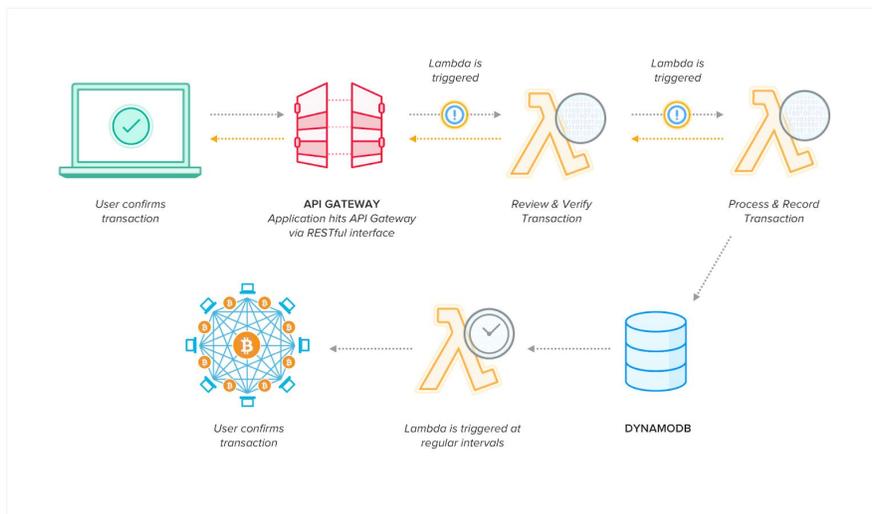
Compute resources are minimized

The stateless nature of AWS Lambdas means that PII, KYC, or other sensitive information can be shared with the Lambdas to allow for a determination about the veracity of a transaction without the possibility of that information being retained in the cloud. This reduces the perceived

risks associated with cloud migrations while simultaneously maintaining compliance for companies working with sensitive datasets.

As AWS Lambdas are stateless, they can not be used to execute malicious code or other than intended commands. These Lambdas function as trusted gatekeepers to the secure blockchain data and are the only entities given append-only write access to the datastore, ensuring confidence in the integrity of the intermediate chains between verification periods. Furthermore, the use of a Lambda system architecture allows easy chaining of additional functionality, as needed.

Technical Architecture



Transactions are generated on an external system (IoT device, mobile app, back-office server) and submitted to a RESTful endpoint hosted by an AWS API gateway. When a transaction is received, it triggers a series of Lambda executions that first review and validate the transaction before processing and recording it to the blockchain.

All data is then protected by the selected public blockchain(s) by periodically recording the most recent interval's hash to them. This approach ensures data immutability and enables easy independent verification of that data.

Bottom Line

As blockchain projects transition from lab and proof-of-concept environments into the harsh and unforgiving real world, they will need a future-proof platform capable of delivering the scalability and throughput needed to achieve their vision. Manifold's serverless blockchain platform offers just that.