Digital Asset

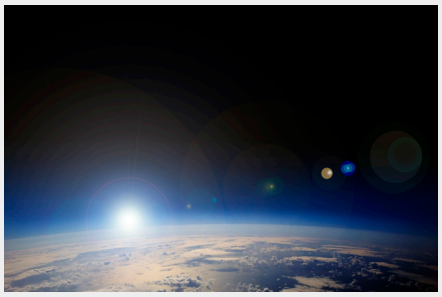
GFT

Blockchain and custodian services

Revolutionise global custodian services with distributed ledgers and Daml

Global custodians burdened by inefficiencies of current operating model

As the central source for assets across foreign and local markets, global custodians play a critical role in capital markets. From cross-border securities transactions to tax processing of asset holdings, global custodians are constantly faced with the burden of direct liability, along with the cost and risk associated with indirect asset control.



Global custodians have separate data stores for transactions, customer profiles, and more that do not communicate with external parties, creating friction between any entity transacting with the global custodian. Global custodians must also rely on the local sub-custodians who hold accounts in the in-country CSD and central bank. This means the local sub-custodian has direct control over assets, creating substantial costs and risks for the global custodian. This burden of direct liability and risk of indirect asset control must be addressed from an operational and technological perspective to create a more streamlined, risk-free environment for the custody network.

The following areas of custody services are well-positioned for blockchain technology, as they involve multiple business parties with different data visibility rights, and require ongoing reconciliation to ensure accurate records of individual assets and identification among custodians, intermediaries, beneficial owners and any secured party:

Custody services in tax processing

The execution of tax documents for assets in foreign and local markets must adhere to the proper rules and regulations per market and trigger the proper action among various entities involved with the asset. Processing tax adds another layer of risk as the proper amount must be submitted to the central bank in a timely manner without error. There is no post-trade system to alert custodians of transaction settlement to lower tax fees, and no unified workflow or automation mechanism that minimises tax processing error.

Custody services in position maintenance

Position maintenance is another area of custody services that must consider new technology to reduce the need for reconciliation. There is no clean process for maintaining positions and ensuring custodians have the most accurate information at all times. Blockchain technology has the ability to address the multi-party interactions between global and local custodians at the post-trade/settlement process. To date, there is no transparency or automation of these processes for audit purposes and KYC link back.

Custody services in custody of digital assets

Few custodian banks have the infrastructure and applications to support the trade of regulated crypto assets. Distributed (or semi-distributed) exchanges propose a revolution in the current exchange model, offering improvements in efficiency, security and transparency when compared to traditional exchanges. In order to buy or sell crypto assets efficiently in a highly regulated market, the use of smart contract technology will become a requirement for parties to participate in distributed marketplaces.

Global custodian services must leverage new technology to transform the outdated operating model that exists today; only then will custodians experience enhanced control, improved governance, and reduced risk.

Using distributed ledger technology and Daml smart contracts to simplify complex processes in global custodian services

Using distributed ledger technology (DLT) and Daml smart contracts creates an opportunity for custodians to benefit from increased control over assets under custody in local markets. Distributed ledgers support a decentralised model, where trust is no longer placed in a single entity to carry out complex processes. When paired with the proper smart contract language, DLT creates an immutable ledger that automatically carries out transactions and contractual agreements across multiple parties. This means data that used to live in a centralised data store at the global custodian level can be shared with local custodians in real-time (and vice versa) with data visibility and rights clearly dictated by the code to achieve optimal privacy and integrity.

Daml smart contracts running on distributed ledgers also provide global custodians with the ability to record legal attributes and ownership information of the individual asset with total transparency and immutability. This helps lower the risk associated with indirect asset control as the immutable nature of the distributed ledger ensures a complete history of asset ownership, position and more. The immutability of the ledger paired with the rights and obligations outlined by the smart contract provides significant flexibility and precision amongst global and local custodians. DLT and Daml ensure multiple parties can view and act on data in real-time without the added burden of reconciliation. Daml smart contracts have built-in functions for handling authorisation, privacy and tracking, and explicitly specify who may view a contract and who may act upon it.

Another compelling argument for the use of Daml across DLT is Daml's unique ability to abstract away the complexity of DLT. This abstraction means developers can focus solely on the business logic that solves the pain points of custody services without the added burden of learning a new programming language or systems code. This also translates into fewer code fixes and a faster time to market for innovative solutions and more intuitive code which is easier to validate with business side SMEs. This provides custodians with an accurate and timely view of the asset's position and the ability to execute corporate actions, tax processing and more against the assets in custody.

Additionally, the use of Daml smart contracts grants global custodians flexibility in their choice of underlying infrastructure. With Daml Drivers – the integration layer that makes deploying Daml applications across databases and distributed ledgers possible - businesses have access to Daml's smart contract language, runtime, and ecosystem that provides everything necessary to build and run multi-party applications.

Incumbent custodian banks are already adapting to offer custody services for crypto, crypto commodities and the various types of tokens to not lose clients that may move to challenger custodial services. Thus, global custodians are facing new challenges around the automation of workflows for the distribution of regulated crypto assets. Smart contracts languages (including Daml) have been successfully applied in such areas in the past; streamlining and securing the holding rules of digital assets across digital asset types.

The proposed solutions for tax processing, position maintenance and custody of crypto assets highlight solutions coded in Daml and deployed across a distributed ledger, as DLT provides the post-trade architecture necessary to guarantee a shared state across all parties involved in the direct and indirect control of assets without compromising information that should remain private to a particular entity via Daml's privacy-first framework and languages.

Utilising DLT and Daml to improve custodian tax processing and position maintenance

Global custodians should consider the use of distributed ledger technology and Daml smart contracts to automate elements of tax processing and alert global custodians of settlement processes in local markets to protect against large tax fees and ensure SRD II compliance. The following solution uses an enterprise distributed ledger with Daml to create a single source of truth for all parties involved with the custody of assets:

Global custody services solution

- Create a consortium for the private/ enterprise blockchain and grant a DLT node to the parties involved in all global custodian transactions
- Store securities master data, asset position, entitlements and KYC information across the ledger
- Use Daml to clearly define who has access to what information and the granularity of detail associated with that information
- Use Daml to automate corporate actions and tax servicing information to the proper entity and auto-generate tax documents in local markets
- Use Daml to build alerts for global custodians of assets entering the clearing and settlement phase; create actions for post-trade transactions upon settlement finalisation

The fact that you are maintaining a single source of truth with a consortium ensures custodial services are acting on the most accurate data along with extreme data privacy through built-in authorisation and tracking functions via the Daml code. This solution will clearly show asset positions, information regarding trades that are not being settled, generate alerts for settlement updates and corporate actions, as well as ensure SRD II compliance to minimise tax fees. The tax services will use the solution to obtain the most accurate version of the investor's profile and asset information.

Multiparty Daml workflows

Underpinning the custody of crypto assets with DLT and Daml smart contracts

In addition to providing a single source of truth for all custody services, DLT and Daml will ensure global custodians can manage digital assets such as cryptocurrency. Crypto assets are seeing widespread adoption on a global scale. The custody of crypto assets has unique problems such as increased AML requirements, inbound crypto asset screening (including temporary screening accounts) and tightened security of HSM. In order for custodians to maintain the momentum created by the innovative solution outlined above, they must apply this solution to all assets to ensure a complete audit trail that accurately tracks the buying and selling of digital assets and all of the mandatory checkpoints that comply with bank rules and regulation.

DLT and smart contracts will provide the transparency and automation necessary for a complete audit trail. This solution can be used to back up traditional settlement systems or as a new settlement system that underpins the entire asset's life cycle.

Getting started information

GFT is a global leader and pioneer of distributed ledger technology and smart contract adoption across enterprise organisations operating in the capital market space. We have experience of working in the DLT space for more than six years and partners with both Digital Asset and R3 to provide decentralised solutions to businesses around the world. We have worked on smart contract projects in the following areas:

- Investment banking
- Securities exchanges
- Retail banking
- Supply chain
- Pharmaceuticals
- International payments
- Insurance
- Tourism
- Crypto-exchange development

We will support you on every step of the journey to decentralisation and provide consultancy services where needed. An initial assessment will be conducted to assess your business processes infrastructure and specific use case to identify the proper Daml-driven application. Once the initial assessment is complete, a leader from the DLT and blockchain team will provide a prototype for the proposed solution in Daml. After the prototype review and discussion, next steps for a POC and full project roll out will be discussed.

About GFT

World-class specialist in technology and innovation

GFT is driving the digital transformation of the world's leading financial institutions. Other sectors, such as industry and insurance, also leverage GFT's strong consulting and implementation skills across all aspects of pioneering technologies, such as cloud engineering, artificial intelligence, the Internet of Things for Industry 4.0, and blockchain.

With its in-depth technological expertise, strong partnerships and scalable IT solutions, GFT increases productivity in software development. This provides clients with faster access to new IT applications and innovative business models, while also reducing risk.

Founded in 1987 and located in 15 countries to ensure close proximity to its clients, GFT employs over 6,000 people. GFT provides them with career opportunities in all areas of software engineering and innovation.

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About Digital Asset

Digital Asset is a leading provider of distributed ledger technology (DLT) for building smarter applications that solve real-world business challenges. The company combines deep industry expertise with an extensive partner network and an open source smart contract modelling language, called Daml, to help organisations in a variety of industries synchronise multi-party business processes.

Founded in 2014, the company serves global clients from New York, London, Budapest, Zurich, Hong Kong, and Sydney.

To learn more about Digital Asset, please visit digitalasset.com. To learn more about Daml, please visit daml.com.

Our specialists

David Creer
Innovation and Blockchain Consultant, GFT

David has over seven years' experience working in innovation teams and five years working on DLT and blockchain related projects. He is an innovation specialist with a wealth of information in all emerging technologies (Cloud, AI, DLT, Data Analytics, etc) and expertly knows how these can be applied to a number of industry specific verticals. As a DLT expert, David is a leader in this field, and as well as being heavily involved in the technical implementation of projects, also participates in thought leadership activities and public speaking at major events.

Rodrigo Medenberg
Director of EMEA Sales, Digital Asset

Rodrigo brings over 20 years of experience leading enterprise software teams at Escher Group and Salesforce. At Digital Asset, Rodrigo leads enterprise sales in Europe and works closely with the services team to bring POCs to production for customers across financial services, supply chain, and healthcare.

To schedule an exploratory call to discuss how distributed ledger technology and Daml can help your business, please contact us

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