Quartz™ - Blockchain Solutions for Enterprises and Ecosystems

Co-existence. Integration. Interoperability.

- Quartz Smart Solutions
- Quartz DevKit
- Quartz Gateway
- Quartz Command Center
Overview

Blockchain, is undeniably one of the biggest disruptions for today’s business and is making inroads into virtually every industry. Organizations have moved well past the pilot stage, and most of them have started to seriously explore the ability to apply blockchain in their mainstream business processes. Blockchain is best leveraged in business problems involving siloed legacy systems, data duplication, reconciliations, excessive messaging, and the lack of trust and transparency between stakeholders. Blockchain today is fostering collaboration between multiple organizations in a value chain, eliminating redundancies, and reducing risk and time. It is being explored in areas as varied as digital identities and registries, payments, settlements, information exchange, trade finance, e-Governance, healthcare, insurance, supply chain, provenance of commodities, music, art, among others. Blockchain has the power to bring organizations together by creating ecosystems that amplify the value delivered by each on a stand-alone basis.

Co-existence. Integration. Interoperability.

Organizations are working towards enabling truly connected ecosystems with real-time, efficient transaction processing, without the intervention from intermediaries. Blockchain, with its ability to synchronize data across participating entities, builds trust and encourages firms to collaborate in setting up such ecosystems. Firms will be well served to adopt a philosophy of ‘co-existence’, of combining the best of their legacy infrastructure with blockchain. Reusing existing systems and infrastructure, even while moving parts of the business or operations onto blockchain, can help remove risk and save costs.

The introduction of blockchain into an ecosystem implies that it needs to integrate all connecting systems or nodes. Such an integration is needed, to not only connect various connecting systems to blockchain, but to also allow the ecosystem to leverage standard messaging networks as applicable.

Blockchain is an evolving technology with different platforms that are likely to provide varied features. There is therefore a need to interoperate with multiple blockchain technologies, platforms and ecosystems to realize its true benefits. Data exchange between various blockchain networks will be the first step towards interoperability, which will further expand to transaction flows.

Quartz

The Quartz solutions are targeted at helping organizations across multiple domains to leverage blockchain meaningfully for their businesses. They comprise the following:

- **Quartz Smart Solutions** - A set of ‘Designed for Blockchain’ business solutions across industries
- **Quartz DevKit** - Smart contract development kits that enable development of high quality code for different Blockchain technologies
- **Quartz Gateway** - Solutions which easily integrate existing applications with blockchain ecosystems/networks
- **Quartz Command Center** - Solutions that facilitate administering and monitoring of the entire ecosystem

Quartz Smart Solutions

Quartz Smart Solutions are comprehensive solutions with business and domain aware ‘Smart Contracts’ that help automate processing on the blockchain platform.

A Smart contract is a ‘self-executable’ software that is stored on the ledger and triggered either because of specific events occurring within it or from pre-configured rules that are programmed into these contracts. Participants can provide, consume and instruct these transactions on the ledger based on their role and privileges. Smart Solutions are designed as a combination of on-chain services deployed on blockchain and off-chain services, residing on traditional databases.

Some of the readily available Smart Solutions include Contract Authoring, Reward Points, Trade Settlements, Announcements, Crypto Services, Loan Securitization, Facultative Reinsurance, Cross Border Remittances, Contract Performance Monitoring, KYC, among others.

Quartz DevKit

The Quartz DevKit – an intuitive, low code smart contract development kit - is designed to help software developers introduce blockchain into their business processes, and generate, compile, package, and deploy business code on the blockchain. The Quartz DevKit also comprises a standard set of architectural features covering security, data privacy, access controls, user management, audit trails and logging framework. These are together represented as Quartz Foundation Components. By deploying a combination of the Quartz DevKit along with Quartz Smart Solutions, the blockchain implementation is simplified for an organization. Using DevKit’s pre-built components for platform setup, administration and deployment, platform security authentication, encryption, and node as well as identity and user management, programmers can write smart contracts 40% faster. This enables organizations in targeting faster launch timeframes on blockchain.

Quartz Gateway

The Quartz Gateway is a single, smart channel that can help integrate applications with various blockchain platforms, industry networks and ecosystems. Using the Quartz Gateway, organizations can connect seamlessly to the blockchain, thereby eliminating the need for large scale and continuous changes to be made to their existing systems. It facilitates interoperability between blockchains and with other messaging networks. It also supports orchestration of services across multiple blockchain platforms.
Quartz Command Center

The Quartz Command Center helps a blockchain sponsor, to administer and maintain oversight of the entire blockchain network. It provides a comprehensive visual representation of all the activities taking place within the blockchain ecosystem at any point in time, and allows the system administrator of the sponsor to make key decisions when administering the network.

The Quartz Advantage

- **Co-existence and Interoperability:** Quartz Smart Solutions and Quartz Gateway are built on this philosophy and can integrate with third-party solutions and various blockchain based systems and networks.
- **Integration:** The Quartz set of solutions are simple, lightweight and can seamlessly bring together third-party solutions, legacy applications and messaging middleware. They can therefore reduce entry barriers to blockchain adoption by insulating connecting systems from the complexities of the underlying blockchain.
- **Agile Development and Deployment Framework:** Quartz DevKit along with the Quartz Foundation can provide an agile framework for faster development and deployment of Smart Solutions for a choice of blockchain platforms.

Leveraging these architectural principles and using Quartz, your organization can:
- Automate business processes and functions with Smart Contracts
- Eliminate data duplication and associated reconciliation issues
- Ensure data integrity with cryptographic encryption of data, making it immutable
- Restrict access (private permissioned ledger) to ensure greater security
- Help integrate existing/legacy systems with blockchain solutions

Backed by awards from the Financial Technology Forum (Best Blockchain Breakthrough of the Year 2019) and recognition from Analysts (Leader & STAR Performer in Everest PEAK Matrix), Quartz can help you operate at the forefront of technology innovation and spearhead blockchain adoption successfully within your enterprise and beyond.
Quartz is a startup incubated in TCS to create innovative solutions that leverage the emergence of blockchain technology.

Quartz provides foundational technology, tools and business components for creating distributed solutions for varied industries.

To know more about Quartz, please write to us at tcs.quartz@tcs.com, or visit our website https://www.tcs.com/quartz-blockchain-solutions

About Tata Consultancy Services Ltd (TCS)
Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match.
TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India’s largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at www.tcs.com