



LOYAKK VEGA

BUSINESS RELATIONSHIP PLATFORM



Solution Architecture Overview



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1. Solution Summary

The Loyakk Vega Business Relationship Platform is architected to allow complex exchanges of information and orchestration of workflows - both intra and inter-company. The key business requirements for the platform are as follows:

- ▶ Seamless interaction across the multiple organizations that are a part of a transaction such as: parent and child legal entities of one organization, its customers, partners, distributors, vendors and suppliers.
- ▶ Purpose built for Interaction that requires sharing of relationship information, sales and other business data, and similar valuable information with complete security, immutability and auditability
- ▶ Scope of interaction spans organizations across geographical boundaries.
- ▶ Ensure complete veracity and consistency of this high-value data and transactions when accessed and shared by multiple entities - across the ecosystem
- ▶ Interactional model needs to support organizational structure and roles
- ▶ Variety of transaction types with differing validation models

The Loyakk Vega Platform incorporates these requirements and is being built on existing & known blockchain principles with new and proprietary patent-pending extensions.

The scope of this Solution Overview is, by design, limited to the foundational blockchain aspects of the platform, and will therefore not get into details on the UX Layer, Business Data Repositories, Event Monitoring and Analytics.

Before we discuss platform architecture, for purposes of clarity the following definitions will apply throughout the rest of the document.

- ▶ **Blockchain Core:** Our core data layer and the means of inserting and updating data orchestrated by workflows and secured by a blockchain-based data structure that holds encrypted and clear-text data.
- ▶ **Loyakk Vega Platform:** The API's that allow interaction with our workflows, our UI, transaction templates and template composer.
- ▶ **Enterprise Business Networks:** The network of business entities that interact with each other to complete business transactions. A sampling of network entities will include - customers, partners, vendors, manufacturers, shippers, account managers, and approvers of various types etc. depending on the Industry.

- ▶ **Value Web:** We define Value Webs in our Business Overview whitepaper. They are powered by Loyakk Vega nodes and brings together the business partners that constitute the Enterprise's Business Network. The Value Webs focus on information transfer with business context, and have malleable definitions and transaction boundaries.
- ▶ **Loyakk Index:** Our team believes in the transformative power of the blockchain - the power that enables the sharing of just enough information from real transactions to help our token holders easily and precisely calculate the proliferation of the Loyakk platform across the Loyakk Enterprise Customer Universe. The Loyakk index is a patent-pending data pipe that allows token holders to gauge the overall health, stability and velocity of the Loyakk platform. The Loyakk index, its underlying data attributes and their real-time values will be persisted in the Loyakk blockchain. The data attributes will terminate in a single smart contract that amalgamates all the data into a single numeric value. We will also offer a template that will allow you to construct your own formula and thereby create your own personalized index. For example, the Loyakk index for a UK token holder may include only transactions originating in UK and the index for a Token Holder in Singapore may include transactions originating in only Singapore. The central Loyakk index will be persisted and hence historical data will be available for all. It is your responsibility to store data from personalized Loyakk templates.
- ▶ **Digitized Assets:** Unlike digital representations of securities or cash, the Loyakk network is purpose built to transfer digitized data required by value webs - this could be sales and deal information, videos, audio files, complex technology architecture diagrams, solution design, account performance data etc.

2. Loyakk Vega Business Relationship Platform Architecture

The Loyakk Vega platform is being architected to enable enterprises to leverage the power of blockchain for sharing and movement of data and value, while preserving the hierarchical structure of any organization in the real world. Nuances such as departments or personnel having supervision privileges across different branches, functional privileges for specific transactions e.g. to approve deals, pricing are being architected into the platform.

Loyakk Vega Business Relationship Platform

Given the nature of Enterprise Requirements around scope, span, deployment and manageability, the following are the architectural elements of our Blockchain-powered Data & Deployment Layer:

- ▶ Our blockchain core enables key features of security, validation and privacy across the broader Enterprise Business network and allows us to construct unique transaction boundaries for enterprises: Private, intra-organization and inter-organization.
- ▶ Powers a verifiable ledger of transactions across a wide spectrum of digital content that gets exchanged within and across organizations as a part of business. Digital content will span enterprise data variants including sales information, deal data, relationship information and value, and will support clear-text, documents, images, videos, and payments.
- ▶ The platform builds upon and extends the concepts of multi-party transactions by enabling enterprises to mix public & private transactions across their value webs.
- ▶ The platform will allow setting of permissions on nodes to participate in consensus mechanism and transactions that will permit use of smart contracts.
- ▶ Loyakk tokens will be used in order to conduct transactions between parties. The Loyakk Token is essentially a carrier of information and is essential to invoke a “microservice” between any two organizations in the Value Web. The number of tokens that will be used for a particular transaction will be a configurable option based on the parties involved, and the type of transaction. More details on the token can be found in the Tokenomics document.
- ▶ The platform will allow nodes to maintain their private states (based on participation permissions), as well as public states in a single Blockchain within enterprise scope.
- ▶ The platform will provide pre-built templates for commonly used transactions in certain industry-specific use cases while allowing customers to develop their own templates by using a base layer of our tools and smart contracts.

2.1 Adaptive & Nested Node Architecture

Loyakk is blending building blocks found in Ethereum - an open platform based on Blockchain that enables developers to build and deploy decentralized applications - and Quorum - a distributed ledger and smart contract platform built on Blockchain by JPMC.

Loyakk Vega Business Relationship Platform

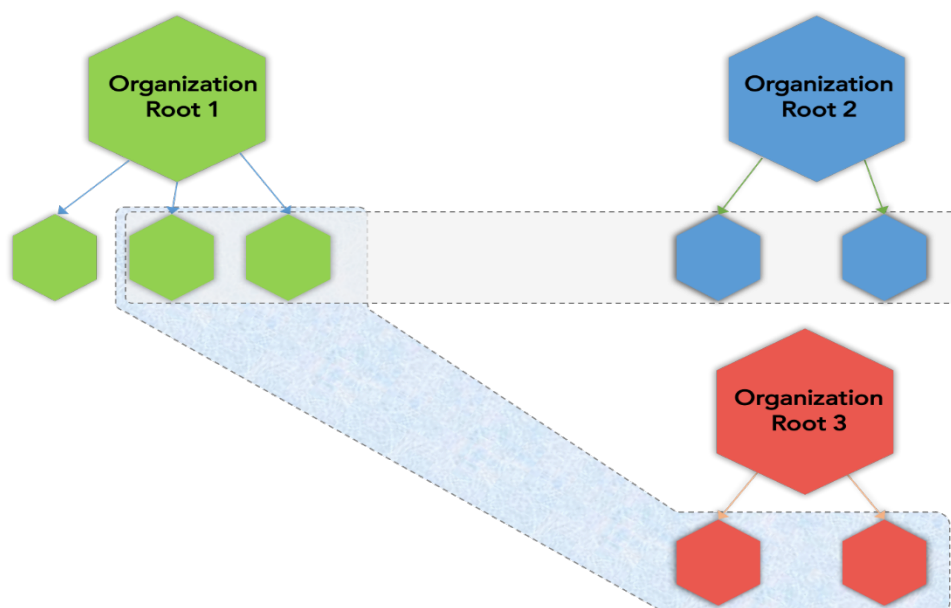
Loyakk is leveraging and extending these two technologies with proprietary patent-pending approaches that are essential for Enterprise usage and adoption of Blockchain capabilities. The custom extensions such as Nested, Full vs. Lean Nodes, Multi-level tree nodes, Flexible transactions across multiple branches of the tree and transactions across organizations, and ability to reference to and reuse key run-time components such as Transaction Manager, Crypto Manager are described here.

The Loyakk Vega Platform will allow permissions-based multi-level tree structure represented by nodes that can be configured for placement at any level in the tree.

The Vega Platform will host materially more data than what the blockchain based ledger was designed to do. Hence we will enable the construction of Full and Lean Nodes. Voting Chains will necessarily need Full Nodes but the Full node is not required for all operations on the platform. Unique to our platform is the ability to convert a Full node into a Lean Node and vice-a-versa depending on changes in the role of particular organization / entity - a common occurrence in enterprise business networks.

The Platform will also enable the concept of Nested Nodes with the construct of Root Node as well Sub-nodes in a tree, essentially allowing hierarchical structure of nodes. This structure better represents how Enterprises are organized and how they interact between the parent organization and its sub-entities. Multiple nodes can co-exist at any given level in the tree to ensure that we can represent sister entities or peers / partners. These nodes can cross Organizational and Geographic boundaries. The Platform will allow the notion of Flexible Transaction Boundaries with Flexible Grouping of nodes to form a virtual organization that may be party to a transaction within or outside the root tree at the time that the transaction is constructed. Once constructed, no new entities can be added to the transaction without approval from the entities already in it.

Figure 1: Flexible Transaction Boundary



Adding new entities to existing transactions is complex, and has to follow pre-defined rules for participation and engagement. If an entity is added to a transaction, approvers of the addition can decide whether to expose the entire transaction history or expose only the activity from the point in time that the new entity was added. If the entire transaction history is not exposed, the new entity does take on responsibility of dealing with a lack of complete and authenticated provenance of digital assets.

Enterprises will be able to permission nodes for transactions depending on the nature of transaction across multiple root trees.

2.2 Run-Time Architecture

The platform contains proprietary and patent-pending run-time architecture models that enable functionality necessary for enterprise usage. Some runtime components will leverage principles described in Quorum and Corda. For the purposes of this document and ease of user understanding, we will follow nomenclature that is similar to Quorum:

Transaction Manager (TM)

A TM's role in Loyakk Vega platform will be to store and provide access to encrypted private transaction data. It will also be responsible to communicate with other TMs in the network if required based on participation of other nodes and the type of transaction. A TM in the Loyakk network may be used at any level in the tree, or a higher level TM can serve as a TM for any and all sub-level nodes.

Crypto Manager (CM)

CM in Loyakk Vega platform will be responsible for private key management, communication with TM, and encryption and decryption of transaction data. A CM in Loyakk network may be used at the level in the tree or at any level below its own level. We envision that the platform will be deployed across many organizations each with their own security models and protocols, and so will support multiple variants of encryption and decryption. Additionally, these organizations will leverage multiple Hardware Security Module (HSM) infrastructures. Our crypto manager will abstract away the platform's interaction with the underlying security infrastructure and requirements.

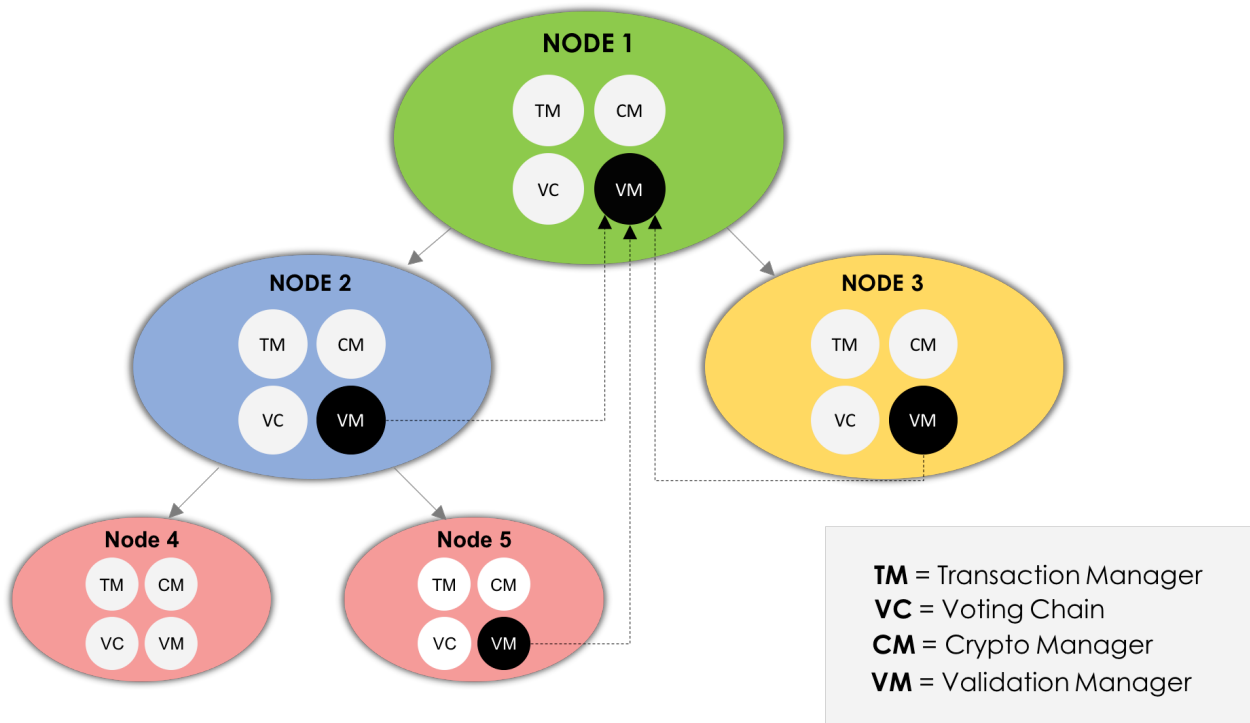
Voting Chain (VC)

VC in the Loyakk Vega platform will offer majority-vote based consensus mechanism to verify the transactions.

Validation Manager (VM)

A VM in the Loyakk Vega platform will serve an arbitrator and record holder responsible for maintaining the public as well as private state of transactions in which it participates. The VM will also reconcile all of its state with the VM in immediate next (higher) level, going all the way to the root level. The VM will also reconcile its private state in case of private transactions involving multiple branches and/or levels within a single tree or multiple trees across organizations.

Figure 2: Run-time Architecture



Platform allows VMs at root nodes as well as in lower levels in the tree, where VM at any level will maintain state of public and private transactions at its own level as well as (if required) levels below it. The VM will keep the state in sync with the VM that is the next higher level hierarchy in the tree.

2.3 Private Vs. Public Transactions

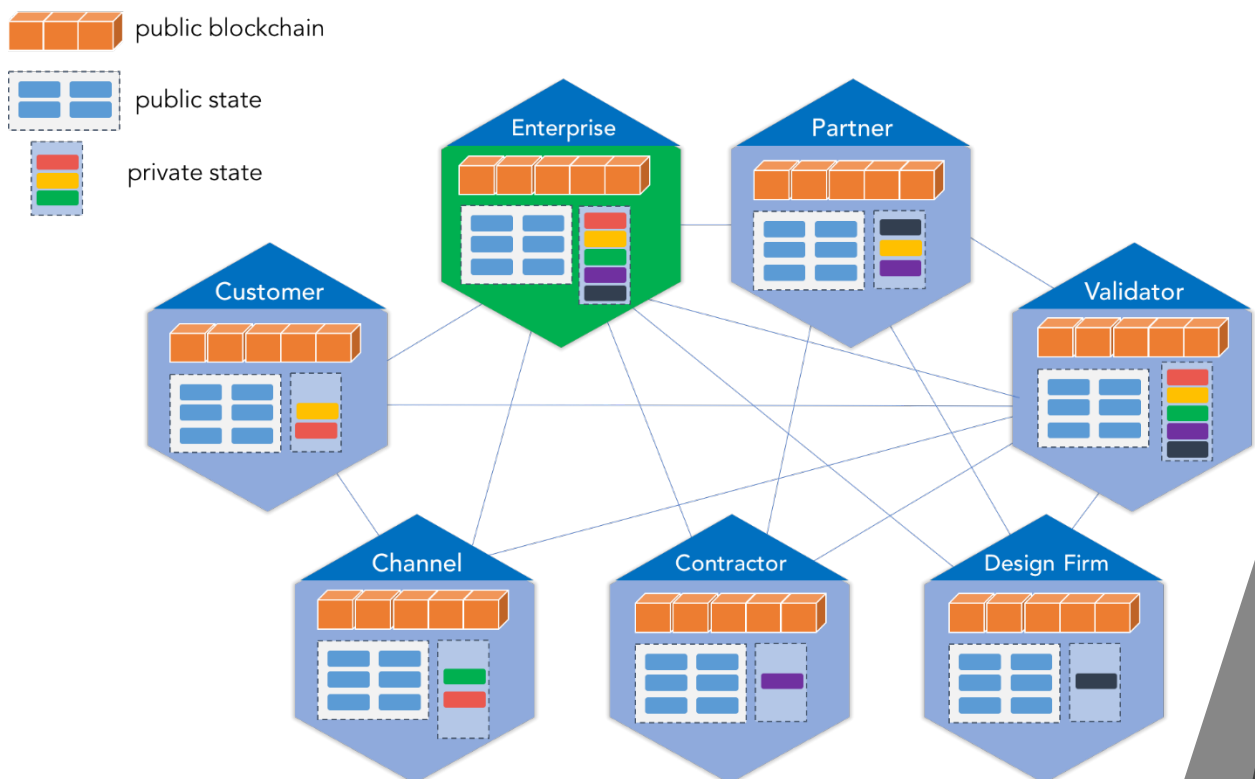
In the Loyakk Vega platform, at an organization level, all public and private transactions will be part of a single blockchain. The state maintained at VMs and nodes (at various levels) will depend on their participation in transactions, and permissions given by the administrator.

Loyakk Vega Business Relationship Platform

The platform is being designed to address real-life customer scenarios such as when sub-nodes in one organization's tree sometimes have to work with sub-nodes in another organization. The platform enables:

- ▶ Mix of Private and Public transactions
- ▶ Single blockchain architecture, where all public and private smart contract states can be derived from a single blockchain with transactions validated by all nodes
- ▶ Private smart contract states validated only by permissioned nodes, which can be configured to enable restrictions to participating parties.
- ▶ The validation mechanism can include third party nodes which are not part of the transaction itself.
- ▶ High performance - thousands of transactions per second with larger payloads of digitized data assets.

Figure 3: Blending Public & Private States



2.4 Voting Based Consensus (Validation)

The Loyakk Vega platform will allow majority-vote based consensus. Only nodes permitted to view the transactions will be allowed to vote for validity of a private transaction, and certain nodes may be configured to process only public transactions.

Validation of transactions can be configured across following core dimensions (assuming mutual consent between the parties and approval by higher level nodes):

- ▶ Every single node in the tree will have an ability to verify a transaction, if it has the right permissions
- ▶ A node may or may not have its private TM, CM or VM components based on the needs, and may point to such components hosted at a higher level in the tree.
- ▶ Depending on the type of transaction, smart contracts can be components of the transaction
- ▶ All nodes will keep track of the mandatory public state and selective private states of transactions they are permitted to vote on.
- ▶ All VMs will be in sync with other VMs at lower levels and hold a collective state of all such lower level VMs, and in case of inter-organization transactions, VMs configured to be part of private transactions.
- ▶ In case of “virtual organization” across branches of the tree, whether within same organization or across multiple organizations, similar configuration will be allowed whether the group of nodes belong to a single tree with one root or multiple trees with multiple roots.

Advantages

- ▶ Allow multiple root trees at each primary enterprise level where transactions will be allowed within an organization as well as across multiple organizations
- ▶ Allow permissioning of nodes at any level in any of the root trees, either individually or as a group, to participate in transaction
- ▶ Allow maintaining of public and private contract state at any level desired, where the state is reconciled and maintained all the way up to the root of the tree
- ▶ The Platform will allow cost of transaction/validation to be configurable to be no cost, single-payer or split cost across multiple parties. This will be permitted to a Class of Transactions or to a specific Transaction. Cost of processing a transaction may be split between parties according to prior arrangement, with ability to change it by Administrators on multiple ends.

3. Essential Platform Administration Details

3.1 Permissioning

Administrators and permissioned users will be able to create a tree structure of nodes reflecting real-life hierarchies and needs of any organization. Using the Loyakk Admin Framework, Administrators will be able to do the following tasks:

1. Create multi-level tree structures
2. Create “virtual organizations” by grouping multiple nodes together
3. Define transaction types based on Loyakk-provided templates
4. Define new transaction types and create smart contracts associated with them
5. Assign permissions for verifying transactions
6. Configure TM, VM, etc. setup at each level in the tree depending on grouping and transactions
7. Manage the entire setup and view reports

3.2 Templates

Loyakk will provide industry-specific templates for interactions and transactions that are of common variety such:

- ▶ Sales data sharing across external organizations
- ▶ Information exchange involving partner and service providers
- ▶ payments across parties

Loyakk will also often-used smart contracts to cover many facets of day-to-day business transactions.

Overall, there is a lot of very complex development work for Loyakk to execute on to make the Blockchain elements of the Vega Platform ready for Enterprise Use. The unique blend of the current Loyakk Enterprise Platform, our Pending Patents, and new Blockchain capabilities will give Loyakk a unique competitive advantage to deliver a compelling product to our future customers.

Summary

We will provide a platform with patent-pending technology that will enable enterprises all over the globe to leverage the power of blockchain for a large variety of interactions and complex business processes involving multiple parties - across organizational and geographic boundaries. Interactions & transactions constructed on the Loyakk Vega platform will ride with complex multi-level privacy and carry multiple types of digitized payloads - documents, videos, deal documents, financials etc.

Billions of interactions and transactions happen every single day between enterprises across their business networks. Loyakk will transform these interactions from the ground up, and exponentially increase the value of enterprise relationships across their value chain.

Additional Considerations

REGULATORY, COMPLIANCE, AND LEGAL CONSIDERATIONS SECTION

This token sale has not been registered or qualified under the securities laws of any jurisdiction anywhere in the world. Prospective purchasers of a SAFT are required to inform themselves about, and to observe any restrictions relating to, the SAFT and any related documents in their applicable jurisdiction. This whitepaper does not constitute an offer to sell, or a solicitation of an offer to buy, a SAFT or Loyakk Tokens in any jurisdiction in which it is unlawful to make such an offer or solicitation. Neither the U.S. Securities and Exchange Commission (the “SEC”) nor any other federal, state or foreign regulatory authority has approved the purchase of the SAFTs or the Loyakk Tokens. Furthermore, no such authority has confirmed the accuracy or determined the adequacy of this whitepaper. We have however taken reasonable steps and good-faith measures to account for evolving law and regulatory practices regarding ICO’s which we have touched upon herein.

This whitepaper contains a summary of the SAFT, the Loyakk Token and certain other documents referred to herein. Each prospective purchaser should review these documents for complete information and take all reasonable steps to educate themselves on the subject matter covered in. Loyakk reserves the right to unilaterally and exclusively modify the terms of this sale, the SAFTs and the Loyakk Tokens described in this whitepaper, and the SAFTs are offered subject to Loyakk’s ability to reject any submission to purchase tokens, in whole or in part, by any prospective purchaser.

Currently, digital tokens are being closely and regularly scrutinized by various regulatory bodies around the world, including but not limited to the SEC, European Securities and Markets Authority, and each individual state in the United States. Law regarding ICO’s is an evolving area of law, and there is no clear guidance from regulatory agencies, courts, and laws regarding legally-compliant practices for ICO’s. As a result, future evolution of the law and potential consequences are too speculative for the Loyakk to reasonably foresee and act upon. Loyakk has taken good-faith measures to account for the evolving law and rules on ICO’s and in an effort to comply with such law. However, there is a substantial risk that in numerous jurisdictions, including the United States, that Loyakk Tokens may be deemed to be a security, meaning such token must be registered or comply with an applicable exemption from registration. For example, applicable securities laws may limit the ability to hold more than certain amounts of Loyakk Tokens; restrict the ability to transfer Loyakk Tokens; require disclosure or other conditions on you in connection with any sale of Loyakk Tokens; and may restrict the businesses that facilitate exchanges or effect transfers of your Loyakk Tokens. Every user, purchaser, and holder of a Loyakk Token is required to make diligent inquiry into determine if the acquisition, possession and transfer of Loyakk Tokens is legal in its jurisdiction and to comply with all applicable laws and Loyakk’s SAFT, Terms of Use, and other documents referenced herein. The legal ability of Loyakk to provide Loyakk Tokens and the Loyakk Token network in some jurisdictions may be eliminated by future regulation or legal actions. In response to such action, Loyakk may take actions that adversely impact you and the Loyakk Tokens you hold, including: (a) ceasing operations or restricting access in certain jurisdictions, (b) adjusting Loyakk Tokens and the network in a way to comply with applicable rules and regulations, (c) voiding or not processing token purchases, or (d) ceasing operations entirely.

Each purchaser of the Public Sale: (a) if in the United States, or a U.S. Person (as defined in Regulation S under U.S. Securities Act of 1933 (the “Securities Act”)), must be an accredited investor (as defined in Regulation D under the Securities Act) or (b) if outside of the United States, must be a non-U.S. Person (as defined under Regulation S under the Securities Act) who is not purchasing for the account or benefit of a U.S. Person and who is eligible to purchase SAFTs and Loyakk Tokens under the applicable laws of the purchaser’s jurisdiction. Each purchaser of the Loyakk Token must be sophisticated in terms of investment, business, and/or blockchain technology, or be able to fend for themselves or have access to the information that can allow such purchaser to fend for themselves with regard to the subject matter of this token purchase sale.

Blockchain technologies have been the subject of evolving and intense scrutiny by various regulatory bodies around the world. For example, some U.S. jurisdictions regulate providers of money transmission services who create a medium of exchange or a method by which value is transferred from one person to another person or location. The implications of triggering such requirements may include registration with the U.S. Department of the Treasury’s Financial Crimes Enforcement Network (“FinCEN”), and implementing an anti-money laundering/know-your-customer compliance program that meets federal standards, including transaction monitoring, designation of a compliance officer, employee training, and periodic auditing and testing. In certain U.S. states and other international jurisdictions, there may be various compliance obligations, such as the need for licenses or registrations, minimum net worth requirements, bonding, biographical and financial approval of officers and directors, and other ongoing compliance, examination, and reporting obligations. We do not intend to operate in any jurisdictions that require a license or registration to conduct a money services business, money transmitter or virtual currency business. If you are a resident of a jurisdiction that requires such licensing or registration, do not purchase the SAFT or receive Loyakk Tokens. The application of these regulatory agencies to Loyakk Tokens and Loyakk is unclear, but if implicated these requirements will require us to expend significant time and resources to comply with them or face adverse regulatory action. In addition, Loyakk Tokens are subject to risks related to regulatory inquiries or actions taken with regard to the blockchain. A lack of a central regulatory authority and structure and the global nature of digital assets and blockchain technologies limit legal remedies and recourses – As a result, you may have no legal remedies or recourse against Loyakk, other users, holders, purchasers or sellers of Loyakk Tokens, and any other person or entity that may interfere with Loyakk, Loyakk Tokens, or your digital wallet.

Companies with total assets above \$10 million and more than 2,000 holders of record of its equity securities, or 500 holders of record of its equity securities who are not accredited investors, as the last day of their fiscal year must register that class of equity securities with the SEC under the Exchange Act of 1934 (the “Exchange Act”). From this token sale, Loyakk may surpass \$10 million in assets as it builds out its Loyakk Token network. Furthermore, there is the possibility that this token sale or future transactions in SAFTs or Loyakk Tokens may result in more than 2,000 holders of record or 500 unaccredited investors. While the SAFTs do not have obvious features likely to result in

their being considered equity securities, there is no clear guidance from the SEC on this issue. Furthermore, Loyakk believes that Loyakk Tokens, when issued on conversion of the SAFTs, will be utility tokens and not securities (equity or otherwise) or otherwise comply with applicable securities registration exemptions, but there is no clear guidance from the SEC on this point. Any requirement that Loyakk or iStrategies Ltd. register a class of equity securities with the SEC would require significant time and expense. Loyakk, Inc is the developer of the technology and platform, and iStrategies Ltd. Is licensing the technology, Loyakk brand and assets to market, initiate fundraising efforts, including but not limited to an initial token (or coin) offering, and resell to enterprise customers across all markets excluding the United States.

CAUTIONARY STATEMENT ON FORWARD-LOOKING STATEMENTS

Certain statements in this whitepaper constitute forward-looking statements under applicable securities law. Except for statements of historical fact, information contained herein constitutes forward-looking statements, including: (1) Loyakk's technical ability to develop Loyakk Token and enable decentralized enterprise networks for customers with iStrategies, Ltd. as described herein; (2) the projected utility and functionality of the Loyakk Token and its functionality on Loyakk Token network; (3) the completion of, and the use of proceeds from the sale of all SAFT's; (4) the execution of Loyakk's vision and its growth strategy and use cases for Loyakk Token and its network; (5) the use of Loyakk Token by token purchasers, fundraisers, consumers, or enterprises seeking to use Loyakk's token for business or personal transactions; (6) the sources and availability of third-party financing for Loyakk Token transactions; (7) the completion of Loyakk's or iStrategies's projects that are currently underway, in development or otherwise being considered; (8) future working capital and capital requirements; and the functionality; (9) versatility of the blockchain protocol to accommodate the functionality and utility of Loyakk Token; (10) the development and evolution of applicable law, including securities and tax law, to enable Loyakk and iStrategies to develop Loyakk Token without impediment, regulation, or large expense as a result of compliance efforts; and (11) the viability of the strategic partnership between Loyakk and iStrategies. Forward-looking statements can also be identified by words such as "can," "expect," "will" and other identifiers of non-historical events. Forward-looking statements are provided to allow potential purchasers of the SAFTs the opportunity to understand management's beliefs and opinions with respect to the future. Loyakk is an early stage company and any token purchase through a SAFT is inherently risky. Forward-looking statements are not guarantees of future performance, and you should use your own prudent judgment in assessing the likelihood of future performance. Although forward-looking statements contained herein are based upon what management believes are reasonable assumptions, they necessarily involve known and unknown risks and uncertainties, which may cause actual performance and financial results in future periods to differ materially from any projections of future performance or results expressed or implied by such forward-looking statements. Loyakk undertakes no obligation to update forward-looking statements for any reason, except as required by applicable securities laws.