

# WHITEPAPER

Bridge. Identity, Secured.

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# **ABSTRACT**

The Bridge Protocol is an open, distributed network of trusted machines and users promoting behaviors, standards and enforcement mechanisms to provide real-world value and application. The system facilitates an ability for users to deploy business processes that comply to existing standards and regulations.

Our private blockchain will provide secure processing of assets, with an aim to guarantee trusted execution using smart contracts, eventually backed by real-world regulatory compliance in the nation which they occur. The system will be comprised of trusted virtual machines, providing user accessible functions for enterprise-grade business operations.

The Bridge Protocol Corporation will begin issuing digital identities to permit individuals and businesses to engage securely and freely, while building extensive real-world trust networks. Early identities will be centrally issued and managed by the company to promote a trusted and stable foundation to the Protocol. For wider adaptation and versatility, this management system will allow self-sovereign identities to be recognized and managed. The first service offered on the Protocol is a Tier flagging of these identities, which coupled with contract logic developed by the Bridge Protocol Corporation, will allow for an Initial Coin Offering (ICO) to have auditable Know-Your-Customer (KYC) information to ensure regulatory compliance.

# **INITIAL COIN OFFERINGS**

Recently, smart contracts have been used for ICOs, more commonly known as token sales. These tokens usually conform to a standard (e.g. ERC20/ERC223, NEP-5), which allows them to be offered for sale and traded on a variety of online platforms. The global adoption of ICO fundraising structures has led to an explosion of new capital formation which has outpaced both the seed and venture capital investment markets. ICOs have raised \$3.7 billion (USD) to date; In 2017 alone, ICO funding surpassed \$1.2 billion (USD). Unfortunately, some ICOs have provided inaccurate, and in some cases, fraudulent claims while attempting to raise funds. Naturally, this has attracted the attention of regulators in many countries around the world.

There are two kinds of tokens sold in an ICO: utility tokens and security tokens.

Utility tokens are used to access services or assets, which are themselves, often based on smart contract technology. The purchase of a utility token is akin to purchasing the rights to use a software or a product. These tokens are like in-game currencies or pay-per-use Software-As-A-Service (SaaS) offerings. As a general rule, tokens representing the sale of products are exempt from the Securities Act in the United States, provided they do not constitute an "investment contract" as defined by the Howey Test:

"In other words, an investment contract for purposes of the Securities Act means a contract, transaction or scheme whereby a person invests his money in a common enterprise and is led to expect profits solely from the efforts of the promoter or a third party, it being immaterial whether the shares in the enterprise are evidenced by formal certificates or by nominal interests in the physical assets employed in the enterprise." (SEC v. W. J. Howey Co. n.d.)

If the resultant token is deemed to be a securities offering, token issuers need to ensure that sales comply with all applicable securities laws or run the risk of severe penalties. In contrast to traditional securities offerings, the general public still does not have a good grasp on the products and technology underlying ICOs. Securities regulators are still developing rules for this space and regulatory bodies have temporarily resorted to issuing warnings. ICO investors are cautioned about the investment and enforcement risks of ICOs as well as issuers, who are still subject to

securities laws. Regulators are applying increasing legal scrutiny towards token sales to ensure compliance. Due to lingering enforcement to stay within compliance of securities laws, some ICOs have cancelled their offerings after discussions with regulators, while others face the risk and follow through with their ICOs.

# **PROBLEM STATEMENT**

Private businesses and legal groups are aiming to create standards of procedure for an Initial Coin Offering, defining the "right" way to transact between participants and token issuers. The Bridge Team and their consulting experience with ProjectICO have noted concepts that would benefit from having a token sale, but are prevented due to financial obstacles and lack of knowledge. The existing legal groups possessing expertise in this space charge \$125,000 to \$250,000 for corporate structuring and general counsel for upcoming token sales. Though these firms are aiming to create a higher standard, Bridge believes it has done the opposite and created unnecessary cost barriers, restricted many entrepreneurs, and lined attorneys' pockets.

The creation of the Simple Agreement for Future Tokens (SAFT) was modeled off prior securities agreements as a precautionary measure, but doesn't solve some the underlying problems which revolve around Know-Your-Customer (KYC) identity verification and cost. Traditional KYC has cost our clients from \$30,000 - \$50,000 to verify basic identities, which then need to be re-verified in each individual ICO. Data exchange in this manner is cumbersome and raises the risk of consumer data being compromised. Many ICO teams are using in-house computer systems to store a participant's confidential data, while providing limited or no protections whatsoever.

In addition, these processes are still using traditional business models, systems and fees. Until now, companies in this space have failed to utilize the blockchain to protect their customers and reduce fees.

# THE BRIDGE PROTOCOL

The Bridge Protocol Corporation is implementing a microservices architecture for business applications that uses the blockchain for management of activities relating to smart contracts, services and general logic processing on its network.

A microservices-based architecture will promote continuous development of applications available on the Protocol, consistently enhancing service granularity to provide a robust marketplace for businesses. Through this principle, Bridge will create an environment where cross-blockchain interface development can take place and be rapidly deployable, modular and trusted.

The Corporation will operate as a Certificate Authority on a Blockchain. The Protocol is designed to provide identification services that have high assurance, portability and broad application. This first service offered will foster growth in the Bridge marketplace and address those issues previously highlighted in this document.

The NEO blockchain has been chosen for its observance of existing standards and the development potential it offers Bridge in establishing a Public Key Infrastructure (PKI) for its userbase. The NEO blockchain will support a set of Internet Engineering Task Force (IETF) X.509 compatible digital identity standards, as well as providing a blockchain-based Online Certificate Status Protocol (OCSP) to manage and record the X.509 Certificate Revocation List (CRL).

The Bridge Protocol will contribute to this development and further these efforts by implementing a certification path validation algorithm to build the trust network through intermediate authorities, so business applications can be realized on a vast scale.

The Bridge Identity Management System (bIMS) will issue certificates observant to X.509 formatting standards, while providing extensions (application policies, key usage, etc.) to allow for application logic to be developed and utilized in processes run on Bridge's blockchain. These

certificates will be issued for use by real persons, machines and "virtual persons." bIMS provides interfacing for Personal Identity Verification (PIV) compatible hardware platforms, allowing for application integration and use in microservices provided through the marketplace.

The Bridge Protocol provides a Bring-Your-Own-Key (BYOK) interface to allow for user ownership of keys, data, and processes. These methods will allow for wider adoption of the network for individuals and organizations. A focus on commercial off-the-shelf (COTS) hardware encryption modules opens the network and its services at a cost point much lower than traditional offerings. Merging with existing infrastructure is also possible and encouraged through this approach.

## **SOLUTION FOR ICOS**

Bridge will aim to reduce legal costs and improve verification assurance. This will occur through digitalization of compliant standards for deployment in ICOs. A Bridge Certificate will be created and users will begin network integration by selecting a preferred verifier service in the marketplace.

Through key usage extensions recognized by the Bridge Identity Management System, Tiers are assigned to the certificate. It is signed and ready for use on the network, accessible to ICOs based incorporated logic in contract to whitelist participants; the Tiers act as an immediate gatekeeper and layer of assurance to all parties. Our chain will never see or hold any of the user's data. Verifiers must comply to the Protocol, which governs approval standards to be listed in the marketplace. Data, if viewed or collected (where necessary), is destroyed by the verifier. This ensures all personally identifiable information (PII) standards and data management quality can be upheld.

User's now have a digital ID tied to a blockchain that acts as their digital pen, and much more. Your identity is recorded, immutable and portable within the NEO smart economy. Credentials are

maintained by bIMS in near real time. Certificate renewal will vary depending on Tier levels and regulations for groups like Accredited Investors. As an example under Rule 506(c), General Solicitation in Regulation D Offerings; accredited investors must be certified within the prior 3 months and determination made of status.

The Bridge Certificate Authority will maintain a compliant Public Key Infrastructure in order to guarantee high assurance on its network. Bridge will initially designate attorneys and trusted third parties to audit microservices where needed. Cooperation between these trusted third parties and Bridge Corporation, will initially be used to release smart contract services and make changes to overall architecture. These trusted third parties will be represented through their hardware security devices (smart cards, USB tokens) which are given to access administrative rights.

Our ledger will show regulators a clear audit trail of the transaction and a verified identity based on our standard. The Bridge standard will follow United States Anti-Money Laundering (AML) / Know-Your-Customer (KYC) standards.

## Example:

John wants to participate in a "token sale" that requires a KYC process and they ask for a lot of his personal information. Instead of submitting his private information to a random person or entity, he shares his Bridge public key address from his Bridge wallet for the whitelist process. The token sale owners will then use Bridge tokens to verify the public wallet address from John and ensure that it links to John's basic information given in the whitelist. John then signs the participation document with his private key, creating a legally trusted and binding agreement. This will keep John's sensitive data secure and offer a better solution than currently available.

The verifier knows immediately which Tier the participant has been classed based on extensions embedded in their portable certificate. This eliminates the manual process currently done for KYC and offers an easy way to safely participate in multiple whitelists.

Think of this as "thawing" your credit before purchasing a home or vehicle. This will allow consumers and businesses to comply with standards set on an international scale, while putting data control in the hands of the user.

Having crowdfunding campaigns on NEO comes with inherent thresholds to launch smart contracts and this acts as a base layer for vetting, but the community has asked for a compliance platform. Decentralizing and protecting user data coupled with AML/KYC procedures will position new ICOs on NEO to a higher, more regulatory compliant standard. Bridge will create the one whitelist, one KYC standard for access to many ICOs.

# **SOLUTION FOR LEGAL PROCESSES**

There are businesses with fundamental issues that can be solved with implementation of verification protocols and the blockchain. The legal process can benefit with these verified identities and in recognition of their sovereignty, provide new avenues of trust.

During the Dot-com era, technological innovations brought change to the legal processes and traditional big firm business models. This resulted in a reduction of fees that benefited the consumer. Our system is the next phase in a cultivation of emerging technology which will continue this trend of benefitting the consumer.

We will create a marketplace that supports new legal services for token sales, wills, employment agreements and much more. This process will keep documents consistently evolving and updated to new regulations and legal changes. The contributor of the legal process will be rewarded with the native token as a bonus for producing new microservices. The marketplace will not be limited though, as auditors can propose and drive development for any business or community need.

Community participants will also be able solicit legal consult by certified auditors and attorneys. Participants will be able to see a background of the auditor and their licensed states to practice law. Our tokens will be used as payment to legal teams and for processing microservices. Bridge will connect software developers and legal experts in a platform that is conducive to collaboration and community benefit.

Remaining compliant with current laws through varying nations will be a challenge. Regulations like General Data Protection Regulation (GDPR) in Europe require that users' data must be removable, portable and secure. Put simply, there is a requirement that data must only be kept for its original purpose and not for any time thereafter. While true that blockchains create an immutable ledger, Bridge only uses this for historical record while all personal information remains fluid. GDPR is only one example where our Tier concept can be utilized for individual and enterprise compliance solutions that add quantifiable value.

# **MARKETPLACES**

The Bridge ecosystem revolves around a microservices marketplace. Personal identity verification and legal microservices are the first storefronts that will be available. Service providers will be able to request a digital storefront after a vetting process from the Bridge Corporation and trusted third parties. Bridge Protocol standards must be adhered to in order to be an accessible storefront.

**Identity Storefront**: This store will be the hub for issuance of certificates and KYC services for digital identities that are used in the marketplace.

**Legal Storefront**: This store sells legal services and applications. The user will easily be able to customize products offered to fit their needs.

**Developer Storefront**: This store provides the needed connection between coders, legal experts and users.

# **BRIDGE TIER STOREFRONT**

The company storefront will offer its first microservice for KYC process integration in the NEO Smart Economy. Bridge Tiers will be compromised of non-sensitive and vague user traits that will be sufficient for KYC compliance while not being uniquely identifiable to individuals. Not only will identity be tiered and sensitive information kept off the chain, but Bridge will give users power to securely transact with their own encryption when necessary.

# Tiers:

**Tier 1** – This tier includes information like name, address, date-of-birth, payment behavior, email.

Tier 2 – These tiers will include all prior Tier 1 items but will require more sensitive information like social security number, driver license, passport or government issued identification. This will be the tier that most users will want to adhere to. This allows participation in ICOs and signing of legal agreements. bIMS will be able to process basic information about an identity, i.e. user over 18 years old, country of origin, etc. This is done to ensure sensitive information is never seen.

Tier 3 – Special or accredited investor status. Participants that are purchasing offerings that only sell security tokens or using SAFT for accredited investors will want to receive this Tier. Our verifiers will process documents from attorneys and/or CPAs to certify accredited status. Credentials will expire unless recertified every three months in this Tier due to Rule 506(c). Upon expiration, reclassification automatically occurs to Tier 2.

# **DISTRIBUTION MECHANISM**

The IAM is a NEP-5 token minted through a NEO Smart Contract.

One billion tokens will be minted and none thereafter. These tokens will then be divided into two portions. The first portion of 500 million tokens is distributed to supporters during crowdfunding. The second 500 million is managed by the Bridge Corporation to support development, operation and maintenance. At the close of the token sale, 480 million of this portion will be locked for 6 months.

## Bridge plans to use IAM tokens as follows:

- 20 million immediately unlocked for bounty programs
- 200 million to motivate developers, attorneys and auditors to participate in the ecosystem
- 200 million will be used to cross-invest in other projects, which are in partnership with the Corporation and used to enhance the Bridge ecosystem and create new microservices
- 80 million will be retained as contingency

## Use of Token Sale Proceeds:

- 55% Blockchain & Microservice Development
- 5% Marketing
- 20% Operations
- 20% R&D

## **Bridge Smart Contract Moratorium**

To preserve the project and protect token sale contributors there will be a mandatory six (6) month moratorium on selling IAM tokens for all founders and advisors. This policy will be built into the smart contract for total transparency. We will also burn all tokens not sold in the token sale.

# **CONCLUSION**

The Bridge Protocol is the first step in ensuring compliance on the blockchain. By addressing immediate business use cases with tangible digital solutions, Bridge Corporation will offer trusted token sale (ICO) templates and better KYC processes for participants. Our microservices will reduce regulatory scrutiny and reduce compliance costs, while offering high assurance products through storefronts that will be designed to serve communities needs.

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- d. units in a business trust;
- e. derivatives of units in a business trust; or
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