XTRABYTES

DECENTRALIZE THE WORLD

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Abstract

Decentralization in Cryptocurrency

Standard blockchain environments contain many centralization vulnerabilities, such as monolithic development, consensus methods, and coin monopolization. The XTRABYTES platform seeks to rectify these limitations by creating a truly decentralized cryptocurrency and applications platform. In doing so, XTRABYTES presents a next-generation blockchain solution capable of providing a diverse set of capabilities.

A central objective in the development of the XTRABYTES platform was to create a secure digital currency without the centralized dependency on miners who participate in an energy intensive consensus algorithm required to solve blocks. This mechanism of solving computational problems concentrates the economic power in the hands of the few with the economic means to support the large up-front costs. The mining process itself bears substantial monetary costs due to the increasing mining difficulty and in turn, excessive energy consumption. This results in a massive carbon footprint and hardware junkyards. Additionally, combining the effects of large farming consortiums and daunting entry barriers has created a highly centralized economic base for digital currencies, such as Bitcoin.

The XTRABYTES platform seeks to provide an alternative to wasteful and inefficient block mining technologies. With this new technology, we seek to redefine the concept of decentralization. The process of creating this new economic environment will be one of innovation and creativity, as we separate ourselves from existing structures.

We have created an agnostic code platform to provide the ultimate environment for the creation of decentralized applications in addition to a digital currency, all secured by the most adaptable and modern encryption technologies.

XTRABYTES

XTRABYTES (XBY) is a modular blockchain platform designed to provide significant improvements in security, scalability and decentralization opportunities over current blockchain technologies.

Utilizing a newly created algorithm, ZOLT, and consensus method, Proof of Signature (PoSIGN), XTRABYTES offers a platform on which decentralized application (DApp) developers can create and shape the future of blockchain technology through ZOLT based Z-APPs and Services.

Proof of Signature Consensus and Network Design

PoSIGN consensus is achieved through the interactions between a system of real and virtual node networks in constant communication, ensuring precise, rapid, signature-verified transactions. Additional benefits achieved by the ZOLT algorithm include substantially decreased energy consumption, as the consensus algorithm does not require nodes to solve computationally difficult problems to earn transaction fees or create new tokens. The STATIC (Services Transactions and Trusted in Control) node network is the bedrock upon which the XTRABYTES platform is built. STATIC nodes provide security, ensure consensus, and play a large and developing future role in XTRABYTES governance. The virtual VITALS network of nodes utilizes a proprietary network protocol in order to create an enclosed, private network by which online STATIC nodes can directly communicate. Lastly, to ensure STATIC nodes are indeed verifying the correct block as the VITALS network maintains consensus, the PULSE network functions as the central communication transmission system, providing time stamps in order to make block verification simpler across the entire STATIC network.

1. STATIC Nodes

Comprising the backbone of the XTRABYTES network, the STATIC nodes play several critical functions. These nodes provide the security, consensus, and governance of the entire blockchain on which the XTRABYTES platform resides. STATIC node owners are issued transaction fees and service fees for the modules. As a security feature, it is a requirement of nodes to sign each block, as this mandates that the nodes must be able to communicate with one another rapidly and seamlessly. To address these requirements, XTRABYTES introduces VITALS (Virtual Information Transmissions Aligning STATICS).

2. VITALS

XTRABYTES uses its own proprietary network, named VITALS (Virtual Information Transmissions Aligning STATICS). VITALS comprises a private virtual network directly interconnecting the online STATIC nodes; this network is extended over public networks, effectively providing VPN-like functionality to the network of STATIC nodes. VITALS therefore support the communication needs of the XTRABYTES blockchain by providing interference-free direct paths between nodes to ensure security and speed when processing transactions. The VITALS network is comprised of fixed virtual nodes that corresponds to and is controlled by one or more STATIC nodes.

3. PULSE

The PULSE (Ping Unified Ledger Synchronization Equalizer) service is the central communication system for the STATIC nodes. Anytime there is a transaction created on the XTRABYTES ledger, a PULSE signal will be sent to all of the nodes, alerting them that they need to validate the new block. This signal will operate as governance for the VITALS network, providing time stamps and facilitating the block verification process. Because of the speed, near real-time, at which the STATIC nodes process transactions, it is possible for a node to unsync from the network and a PULSE warning will be issued to the relevant STATIC node accordingly.
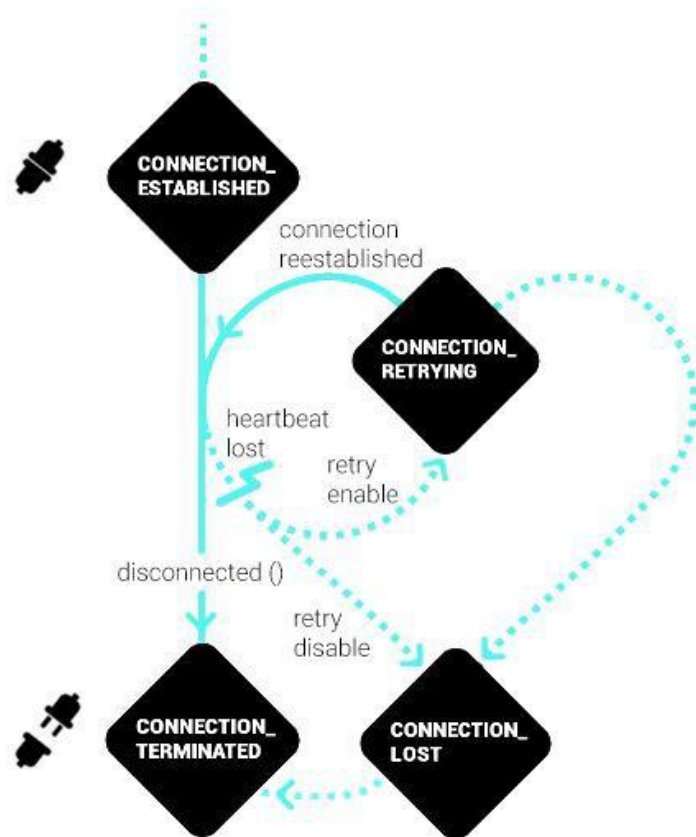
(PULSE diagram)

Privacy and Security

Security is the most important principle of the XTRABYTES core technology and will always influence all aspects of XTRABYTES development. Employing SHA-512 encryption puts XTRABYTES in the forefront of quantum resistance--and this is only the beginning. The underlying core technology is coded in such a way that XTRABYTES' security protocols can be upgraded with ease.

With Proof-of-Signature requiring that every node sign every transaction, the entirety of the STATIC node network would need to be compromised simultaneously to undermine the integrity of the blockchain. Furthermore, by leveraging the use of digital signatures extensively in security algorithms, the XTRABYTES developers go several steps further than SSL and Microsoft's signed software to ensure the security of the signature protocol.

Signature keys are protected to deter tampering. Online keys are intermediate and can easily be changed if necessary. Therefore, if a signature is compromised, the associated STATIC signature will automatically be revoked as the consensus among nodes has been violated. The owner of the affected STATIC node is then warned to generate a new signature before the node can resume participation of the network.

If a disruptive agent attacks and disables a STATIC node, one or more of the other STATIC nodes will take control of the virtual node until the original STATIC node has been brought back online. The transmissions between the STATIC nodes to verify consensus are always protected by encryption.

XTRABYTES Economic Distribution and Circulation

The total supply of XTRABYTES will always be fixed at 650,000,000 XBY coins, as no XBY will be mined or added to the supply by any means. However, the total coins in circulation will be dynamically fluctuating as node owners register and break their STATIC nodes. When coins are stored in registered STATIC nodes, this removes them from the total available circulation, increasing the value of the coins still in circulation, as the available XBY supply shrinks. As all level 1, 2 and 3 STATICs become registered, our total circulating supply of XBY will become depleted. To counter this and to fund development, XFUEL (an internal utility coin/token) has been created.

With XFUEL we are able to fund the development of XTRABYTES. XFUEL is an internal coin/token that can ONLY be earned (initial emission) and can later be traded on X-CHANGE. The final, intended purpose of XFUEL, is to allow for the entire network of STATIC nodes to be filled, while still maintaining a healthy circulating supply of XBY.

The full STATIC network is made up of 3 levels, which contain a total of 3584 STATIC nodes. These nodes are capable of holding deposits which exceed the initial 650 million coins, therefore we have implemented a protocol which consists of a blend of XBY and XFUEL, where XFUEL is limited to approx. 33% of the deposit. The target result is to fill the entire network and maintain a circulating balance of +/- 100,000,000 XBY.

It is important to note that the emission of XFUEL will be very slow as people are paid (week to week) for all final development purposes.

In the future, there will be always be opportunities to register nodes on a proprietary STATIC node marketplace, allowing the nodes to change hands freely.

Total XBY Supply: 650,000,000
Blended % of XBY/XFUEL: 67/33

MAXIMUM Blended XBY deposit for Level 1 network - 168,960,000 XBY -   512 STATICS
MAXIMUM Blended XBY deposit for Level 2 network - 174,080,000 XBY - 1024 STATICS
MAXIMUM Blended XBY deposit for Level 3 network - 174,080,000 XBY - 2048 STATICS

Total MAXIMUM Blended XBY deposit on STATIC network - 517,120,000 XBY

Total MAXIMUM XFUEL deposit on STATIC network - 250,880,000 XFUEL

XTRABYTES Decentralized Application Environment (Z-APP)

Modules

Modules are best understood as extensions of the XTRABYTES core and its functionality. Modules implement the major use cases for XTRABYTES, whether it be decentralized storage, instant messaging, decentralized exchanges, or any other conceivable applications a developer might create. The XTRABYTES core, along with the DICOM API, allows programmers the freedom to create their own modules using many different popular programming languages ranging from Visual Basic, Java, to C++ and many others. The opportunity for developers to create agnostic coded modules makes the XTRABYTES platform not only extremely flexible, but also allows the creation of modules by third party developers of any programming ability. Module development is one of the simplest aspects of the XTRABYTES platform, thereby offering an excellent entry point for individuals to discover, explore, and learn more about PoSIGN and the XTRABYTES core infrastructure.

DICOM

DICOM (DIstributed COmmand Message) is a language application for the core programming interface through which external modules connect to XTRABYTES' core via API. DICOM provides a set of functions and procedures allowing the creation of applications which access the data or features of the XTRABYTES core while also facilitating interactions with other applications or services. DICOM also plays an important role in modular security by signaling the module core to verify and validate the modules. The module core is, in turn, connected to the XBY core. The DICOM API has been purposely designed to be as user friendly as possible by removing single programming language barriers as well as overly complicated user guides as is often the case with other modular blockchain platforms. The combination of a user friendly DICOM API with code agnostic modules will provide and maintain a PoSIGN secured ecosystem free and open to all levels of programming ability or interest.

X-CHANGE

X-CHANGE, the first proposed XTRABYTES Z-APP Module, will operate as a decentralized cryptocurrency exchange. This will provide a proof-of-concept as the first operating module on the ZOLT algorithm. Initially built directly into a patched Qt wallet, the finalized X-CHANGE will be a core module on the XTRABYTES platform. X-CHANGE will enable users to utilize the secure trust and decentralization of a true P2P without the failings of conventional exchanges.

1. Operations and Functions of X-CHANGE

The X-CHANGE Z-APP module will allow users to trade and execute transactions directly within the PoSIGN blockchain, providing an environment immune to the vulnerabilities that standard exchanges suffer from. Starting with XBY/XFUEL as the initial pairing, we will demonstrate coin creation, proof-of-concept, functionality, and operation of the X-CHANGE module. All transactions will be on a true P2P basis, allowing consumers greater control and safety in regards to their funds.

The addition of other trading pairs will come with time as the X-CHANGE Z-APP gains popularity and interest by the public at large. Our developers wish to add all major trading pairs to X-CHANGE in the future, thus providing all users of the XTRABYTES platform a liquidity source for the leading cryptocurrencies.

2. STATIC Owner Options

All STATIC owners will have the option to participate in X-CHANGE. Participation with this module will require an additional commitment which is above the normal acceptance of any other modules. The commitment is of course a financial commitment because we are in fact participating with a decentralized exchange platform where a deposit of trade pair coins must be available in order for the system to function without going into debt.

As each trading pair is being brought online, STATIC owners will be notified ahead of time so they can purchase the amount of coins they wish to keep on deposit. Once trading starts, the entire system of profit sharing will be based on percentages of deposit on hand with the size of the STATIC also being taken into account. Deposit minimums and maximums will be implemented in order to keep the X-CHANGE platform and its participants in an environment that is both fair and powerful.

X-VAULT

The X-VAULT Storage Z-APP will utilize shard data storage and P2P VITALS technology. This proposed storage module will allow users to securely store their data across the STATIC node network. The data stored within X-VAULT will be encrypted and divided into shards across the network of STATIC nodes, just as the blockchain ledger is shared between all wallets. The storage network is the foundational layer to build our Z-APPs into the XTRABYTES core, creating storage for both the consumer and the developer.

X-CHAT / X-PAY / X-CERT / X-DEAL

(The above are future module concepts we have in mind as we continue to advance our technology and our core modules. More information will be released regarding their purposes and functions when the time comes.)

Multiplatform

The XTRABYTES developers have engineered this platform with the future in mind. This has motivated them to create a platform readily adapted for mobile use. As DICOM is code agnostic, the future Z-APPs for XTRABYTES will be easily programmable into mobile programming languages. The first Z-APP modules will provide proof-of-concept of mobile compatibility by programming the first XTRABYTES Z-APPs in Java.

Envisioning the Future

The XTRABYTES platform is uniquely positioned to be the digital currency and Z-APP platform of the future. By providing a low cost of entry in comparison to other minable digital currencies, the XTRABYTES platform is readily available for mass-market adoption and does not suffer from centralized control. Crucially, XTRABYTES' security and scalability features ensure that it can handle and serve the needs of millions of users safely and reliably.

All development within the XTRABYTES core system is directed with the objective of creating a complete ecosystem geared toward design and innovation. Ultimately, the vision for XTRABYTES is a platform of unlimited potential--a canvas on which the user can create.