LibChat: Tokenized Blockchain Chat with LibComms, RedBlock

Introduction

LibComms is a nonprofit organization created to support communication in high-risk activism and human rights groups. Their final product is a blockchain based chat application. Due to the hazardous nature of these groups' missions, privacy and security take the highest priority in design considerations.

Challenges & Concerns

Before electing to create their own application, LibComms considered current market favorites. LibComms cannot advocate the use of centralized communication applications such as Signal or Telegram. These are blocked by some national governing parties. Telegram is at minimum partially disabled in Iran, China, Bahrain, Indonesia, Pakistan, Russia, and India. Telegram does not send messages with end to end encryption by default, which is suboptimal for unfamiliar users. Another drawback is storing a user's contacts to notify when another contact joins Telegram. This presents a major security risk. Signal is blocked in Iran, however, every other country blocking Signal is circumvented through allowing users to choose a location upon setup.

LibComms serves groups in all of these countries, disqualifying these applications from their tool base. LibComms rejected creating and hosting chat servers for the poor scalability and expense. Hosting resources on Amazon Web Services was declined for moral reasons as their unconfirmed use by China in the mass surveillance through Dahua Technology and Hikvision.

Solution

Ultimately, LibComms elected to contract with RedBlock for a bespoke blockchain communication service. Largely a coordinating and advocacy entity, LibComms desired a low maintenance end product. Token based blockchaining fulfilled this requirement, as well as its inherent security and privacy.

Security is a tenet of blockchain. Chain amendments require over half of all chains be amended. This includes the target block and all succeeding blocks. An enormous amount of computing power is used, especially as every user carries a copy of the full blockchain. This is through decentralization, another benefit where LibComms bears no hosting responsibilities. Authority is distributed through all users rather than one entity. Development spanned a month, including testing and distribution. Initial communication between RedBlock and LibComms extended for two weeks.

Result

Ultimately, LibComms outsourced the production of the application to RedBlock Development. Outsourcing with a contract for maintenance was lower than both net and gross cost of an in-house department. Recruiting, management, and salaries for the team estimates are double the project cost on a yearly basis. Glassdoor quotes an average blockchain developer salary as $80,000 per year. Extrapolating this figure to an entire team exceeds LibComms' budget for this endeavor.

This contract fulfilled LibComms' technical limitations as well as its financial. In this use case, scalability is rated for many small to medium groups, where there is one

referenced chain per group. This is more compartmentalized than having a main chain supporting every user of this application.

Training and deployment created no issues for any of LibComms' groups. Though less easily quantified, LibComms highlighted their mission to support all current and potential users. A distribution excluding clients in Iran and China would not have been acceptable. At this point, no groups have been compromised. All have experienced a full featured chat application running on blockchain.