

NFTraffle

Providing trust and efficiency for non-profit Raffles and enabling efficient distribution of awards via Non-Fungible Tokens.

Inspiration

Lotteries and raffles are a very serious business, with a large amount of money at stake. The Washington Post reported that Americans spent \$77.7 billion on various lotteries in 2018, up about \$5 billion from 2017. That is more than total spending on music, books, sports teams, movies and video games for that year. State Lotteries payout typically 50-70% of each bet back to players. The rest goes to administration, advertising, and revenue for the state government. Aside from problems with revenue distribution, lotteries and raffles face a set of challenges:

- **Fairness of the game** - can we trust a selection process;
- **Availability** - many more people can participate from all over the world if lottery or raffle is held online;
- **Flexibility in currency of purchase** - participants are bound to single currency;
- **Distribution of funds** - lack of trust and transparency in pay off funds;
- **Time** - elapsed time between winning and receiving goods.

Horton, Alex (October 18, 2018). "How Mega Millions and Powerball changed the odds to create monster jackpots". *The Washington Post*. Retrieved October 19, 2018.

Why to use blockchain

Blockchain can provide trust for lotteries and raffles. Blockchain can also reduce the high transaction costs of traditional lotteries and raffles, returning higher rewards to the winners as well as increased revenue for the lottery and raffle organizers, including non-profits and the companies that produce the lotteries and raffles.

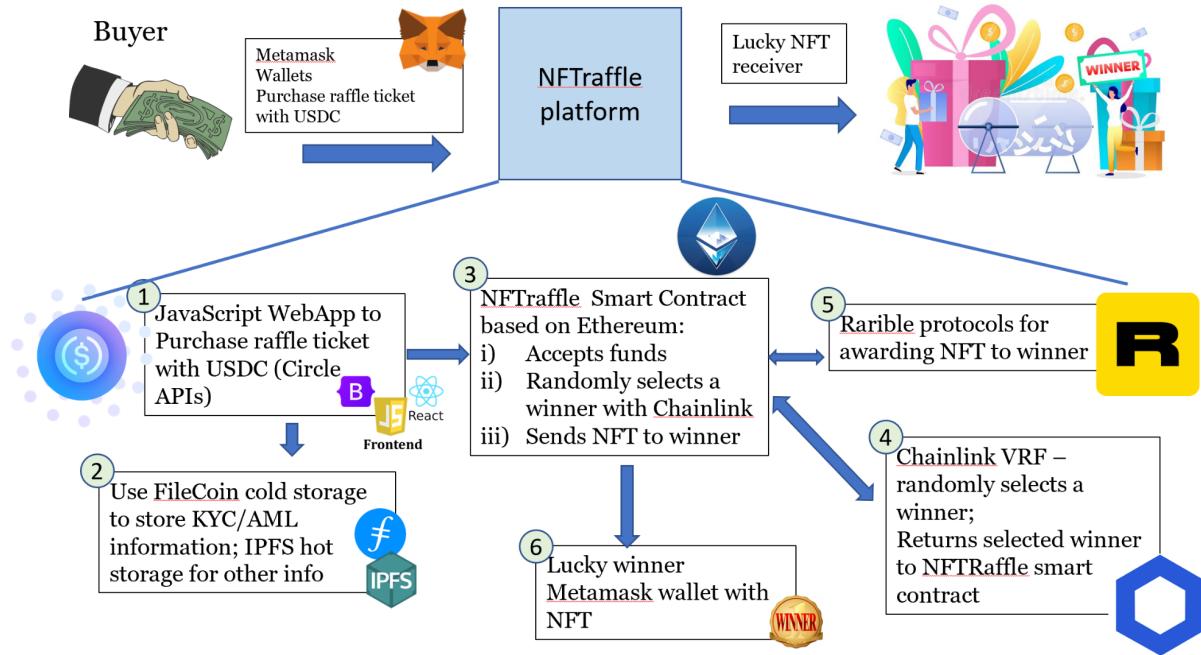
What it does

Our focus is on building a platform for charity raffles for Non-Fungible Tokens (NFTs). Since NFTs are digital goods, they are very appropriate for a blockchain raffle/lottery and can be quickly distributed to lucky winners. Our platform will serve NGOs or any other organization that runs fund-raising events. Participants will buy entry tickets and wait for the “drawing” time. After a drawing is completed, the winnings are all paid out within minutes.

Since we're focusing on charity fundraising raffles, we should avoid most of the regulation and prohibitions on gambling.

How we built it

1. Receive ETH-based funds from ticket purchasers (use USDC & Circle APIs).
2. Obtain Link funds to utilize Chainlink VRF.
3. Contract Chainlink VRF for random selection of a winner.
4. Receive winning number from Chainlink.
5. Deliver certified authentic NFT through Rarible.
6. Send collected funds to the organizer's Metamask wallet.



Why Ethereum?

Ethereum smart contracts would be more efficient than traditional state lotteries, but Ethereum is by default deterministic, which prevents a random choice of a winner.

Why Circle?

Circle APIs combine global payments and banking connectivity, digital wallet infrastructure and the USD Coin stablecoin, so that we can utilize the next generation internet finance and commerce products.

Why Rarible?

Rarible serves as a marketplace for digital collectibles and art through blockchain technology. The platform is used to create or “mint” NFTs with an extremely simple process that makes it accessible to those with little to no experience with NFTs. The project supports transfers in [many countries](#) around the world that allows it to reach a wide audience for non-profit/cause oriented supporters.

Why Chainlink?

Chainlink is an Oracle that provides offchain information and supports randomization through VRF, so an Ethereum lottery Decentralized Application (DAPP) that uses ChainLink VRF as a source of randomization is possible.

Why IPFS?

The InterPlanetary File System (IPFS) is a protocol and peer-to-peer network for storing and sharing data in a distributed file system. IPFS uses content-addressing to uniquely identify each file in a global namespace connecting all computing devices.

Why Filecoin?

Filecoin provides the ability to efficiently store information off-chain, including KYC/AML and any other information necessary to run the lottery.

These three Web3 projects, Ethereum, Chainlink, and Filecoin, while separate projects, really should be viewed as part of a greater whole. If Ethereum is the world computer, Filecoin provide's the storage for the World Computer, and ChainLink provides the ability for Ethereum programs to know what is going on in the world.

Although there has been interest and speculation about blockchain lotteries, first mover advantage is still available, as nobody has successfully created a lottery on a public blockchain.

Team (background and experience in tackling this problem):

The team has a wide range of experience, including bringing emerging technologies to market, cyber security, software development, identifying business opportunities, expertise in dealing with government regulators, and other skills that will be helpful to solve this problem.

Company Description: We want to increase trust, efficiency and accessibility in lotteries and raffles using Circle and Rarible technologies with the help from Ethereum, ChainLink, and FileCoin.

Our NFTRaffle company will provide a safe, secure, efficient, and transparent way to play the lottery or raffle from any location in the world using Circle and Rarible.

Company Vision: “We want to increase trust, efficiency and accessibility in lotteries and raffles using Circle and Rarible.

Customer & Problem: Who is your customer? What problem are you solving? Customer is states and other organizations that run lotteries and raffles. Problem is efficiency, trust, and increasing revenue.

Solution & Alternatives: How does your solution work better than the alternatives available?

We propose to combine emerging technologies such as Circle and Rarible to improve efficiency, accessibility, and trust, minimize corruption, and address the randomization problem.

Regulation: What regulatory changes or challenges are you using to create a moat for your business? “There are lots of regulations in the gambling space. Online gambling is still relatively new and only allowed in certain jurisdictions.”

Traction: How have you proven the demand for your product?”Lots of other people are talking about this idea, but nobody has really made significant progress yet.”

Blockchain Lottery and Raffle Architecture Alternatives

#1: One possibility is Consumer to Blockchain. Consumer buys ticket online from web app or mobile app, by using cryptocurrency.

#2: Another possibility is that the blockchain is part of the back end infrastructure, and the consumer is purchasing from an existing physical store or existing web store. And the store uses blockchain to interact with the state and other providers of the lottery.

The advantage and disadvantage of #2 is that the consumers do not need to manage private keys or a cryptocurrency wallet.

#3: Is like #1, but we use a hidden wallet in a mobile app, so the user never actually interacts with the wallet or the private keys.

Is our goal to build a platform that others can build on and then pursue adoption? Or are we going to pursue a deployed system and directly pursue adoption ourselves? Whoever is pursuing adoption is going to have to deal with the regulatory matters. So the current approach is to position ourselves to do both, so that we can be agile in deciding what to do in the future.

Related Tutorials Section

Tutorial on chain link lottery using VRF

<https://blog.chain.link/how-to-build-a-blockchain-lottery-2/>

Buying Lottery Tickets online

Some states allow online lottery ticket purchase, but they typically require that the purchaser is a resident of the state and located physically in the state at the time of purchase.¹

ETH Gas Transaction Fees

Lottery tickets are typically microtransactions, for example \$2. With current ETH transaction fees, a \$2 transaction would not be efficient. We might have to consider Bitcoin Lightning Network payment channels, Ethereum state channels, Ethereum Plasma, and similar alternatives to support microtransactions.

Payment channels and State channels have the drawback that you lock a certain amount of cryptocurrency in order to fund future transactions. I.e. you lock \$100, and

¹ <https://money.com/how-to-buy-mega-millions-tickets-online/>

can fund up to \$100 of future lottery ticket purchases. Then when you close the channel, you pay one transaction fee. The problem is that many people who want to purchase lottery tickets won't want to lock \$100.

Arguments for and against Blockchain Lotteries and Raffles

Blockchain lottery and raffle Advantages: Full transparency, fairness, nobody can steal your lottery or raffle ticket (private key protected) chance of corruption less, more than 50% of the earnings can be allocated to the winnings, widely available. Controlled by the people not by a central entity.

Disadvantages: One argument is that the betting patterns of professional lottery and raffle players are transparent to all, no anonymity, which could be a disadvantage for professional betters who do not want their betting pattern to be tracked. However, this argument would only be true if the better used the same identity for all bets, but there is no reason why a better should do that, and the best practice is to generate a new public address for every bet/transaction.

Other Blockchain Lottery and Raffle Projects

There has not yet been a successful lottery and raffle project on a public blockchain. First mover advantage is still available in this market.

Quanta has a private blockchain that is being used to support lotteries in Nigeria and the Isle of Man, but Quanta does not permit others to create nodes in their private blockchain, so they have none of the advantages of the public blockchain in their implementation. Furthermore, their implementation of private blockchain may be less secure than a traditional centralized database, as well as subject to all of the vulnerabilities of a centralized database..

Lottery.com received funding through a Security Token Offering (STO),² but their website is an online store to purchase tickets to traditional lotteries over the web or on a mobile phone.³

Some Blockchain lotteries have a goal of emulating the traditional lottery games, others have their own model.

This brief survey is based on about 20 links. Many such companies sprung up in the past 2 years.

² <https://sto.lottery.com/>

³ <https://lottery.com/>

None of these efforts have created a successful, repeatable business so far. All of the efforts are research projects, proof of concepts, hackathon projects, etc.

PoolTogether (<https://pooltogether.com/>): This is a no-loss money game based on Ethereum. You buy tickets by depositing into any prize pool. You will receive one ticket for every \$1 deposited. As long as you keep your money deposited into the pool, you will be eligible to win prizes. Prizes are made up of the interest earned on all deposited money in the pool. The good news is, you can never lose because you can remove your deposit at any time.

PoolTogether is really a DeFI project with random interest instead of a lottery. But it is an example of prizes on Ethereum.

PoolTogether is an open-source and decentralized protocol that is provided on an "as is" and "as available" basis. The protocol has unique risks associated with its use. It is important to understand these risks before using the protocol. Risks include its illegal in many jurisdictions that regulate gambling.

ICONbet is the first DAO (Decentralized Autonomous Organization) built on the ICON Network. ICONbet is a betting platform focused on playing games. The goal of the ICONbet team is that over time the structure of ICONbet will change from an initially centralized one to a Decentralized Autonomous Organization; this will be done by a distribution of tokens that holds ownership of the platform via TAP Tokens are used for DAO votes that shape the creation of the ICONbet platform (<https://iconrepublic.org/>). No site to play the lottery was found.

\$ICX Staking Lossless Lottery (<https://lottery.stakin.com/home>): \$ICX Staking Lossless Lottery is built on the ICON Network. In Proof-of-Stake, interests are generated by locking-up digital assets. In this lottery, participants can buy tickets by locking ICX assets in a smart contract deployed on the ICON Blockchain. The locked-up tokens then generate interests through staking. Each draw, one lucky winner gets the whole pot of staking interests. At any time, participants can leave the lottery and redeem their tickets for their \$ICX value.

PancakeSwap (<https://pancakeswap.finance/lottery>): PancakeSwap is a decentralized lottery that is running on the Binance Smart Chain. The platform lets you swap between tokens on BSC chain and earn \$CAKE tokens through farming. Additionally, the platform has a lottery featuring pancakes and rabbits, making it a lot more fun than your regular lottery.

If you'd like to win the lottery jackpot, which contains 60% of the entire lottery pool, you'll need to match all four numbers on your ticket with the position of the four winning numbers. And as long as you have two numbers that match, you'll always receive a reward.

MYLottocoin.com (<https://mylottocoin.com/>): A crypto lottery that is conventionally ruled, anonymously played and autonomously operated. It was built on the Ethereum blockchain but the project team is looking to migrate it onto Binance Smart Chain. It is a decentralized app operated autonomously by a smart contract without any human interaction. Currently, MYLottoCoin.com is offering a draw similar to the US Powerball.

FIRELOTTO (<https://firelotto.io/>): This is a start-up which seeks to leverage the blockchain technology to revolutionise the online gambling industry. The FIRELOTTO system has built a completely transparent and fully decentralized platform for organizing and conducting a lottery using the blockchain technology and ETH smart contracts for collecting and distributing funds, drawing winning numbers in a random fashion, and paying lottery ticket sales commission to token holders. The prize pool of the FIRELOTTO lottery is formed from 70% of the funds collected from ticket sales.

Quanta lottery is available in a few nations but not in the Americas. Quanta does actually have blockchain lottery type games in Nigeria and the Isle of Man. They started out looking at Ethereum public chain and currently do a private blockchain.

ColoradoGameJam (jams.gamejolt.io/colotterygamejam): With the closing of the Colorado GameJam, we have witnessed an outstanding leap for blockchain as a whole. Not only was the Colorado lotteries first attempt at crowdsourcing their lottery, but it was also them looking into possibly running their lottery with blockchain/web3 tech.

Lottery.com has a website to play the lottery, they are working with the state lottery system to let players play popular games on the go. Lottery.com provides online access to traditional lotteries. They did a Security Token Offering and have talked about utilizing blockchain for lotteries, but don't actually do it yet.

Lotto (<https://www.lotto.finance/>): This is the only lottery system built directly into an Ethereum token- the token IS the lottery. Unlike a traditional lottery where players have to continuously buy tickets for every drawing, LOTTO focuses on simplicity- just acquire the token, hold, and you'll automatically be entered into the lottery each week.

Links

- <https://medium.com/stakin/overview-of-the-blockchain-lottery-ecosystem-cbd80c841ff7>
 - <https://jiliangodsil.medium.com/how-is-a-blockchain-lottery-different-6e5ebf2e3111>
 - <https://medium.com/@FireLottery/how-blockchain-will-revolutionize-the-lottery-853afcb6dc74>
 - <https://medium.com/quanta/introducing-quanta-blockchain-lottery-protocol-9b88a9c3ee5c>
 - <https://medium.datadriveninvestor.com/blockchain-and-lotteries-how-decentrality-can-fix-them-e8f075ed8f03>
 - <https://peasantforhire.medium.com/lotto-the-fastest-growing-lottery-in-cryptocurrency-b7d1004aca2d>
 - <https://medium.com/@luckyleprecoin>
 - <https://www.investingcube.com/why-blockchain-in-the-lottery-lottery-modernization/>
 - <https://bearbearlotto.medium.com/>
 - <https://gamyfi.medium.com/>
 - <https://finance.yahoo.com/news/lottery-com-announces-memorandum-understanding-120000312.html>
 - <https://3commas.io/blog/blockchain-and-gambling>
 - <https://www.quanta.im/>
 - <https://coinpedia.org/news/cryptoprize-revolutionary-lottery-on-blockchain/>
 - <https://cryptoshib.com/powerbalt-lottery-system-us-powerball/>
 - <https://paidnetwork.medium.com/updated-paid-lottery-rules-513e5a9878f1>
 - <https://www.newsbtc.com/sponsored/fire-lotto-worlds-first-blockchain-lottery-platform-launched/>
 - <https://www.bitcoininsider.org/article/87841/how-blockchain-tech-revolutionizing-traditional-lotteries>
 - <https://www.youtube.com/watch?v=OAL89WpBj9k>
- Royalty-free image:
- <https://www.dreamstime.com/prize-draw-concept-vector-illustration-online-random-promotional-marketing-winning-lottery-isolated-tiny-people-image144872768>