Protocol and token for interaction between businesses, application developers and clients in decentralized way

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Content

Abstract

IZX is a decentralized platform for building effective interaction between advertisers, game developers and customers. It allows business to utilize augmented and virtual reality games in order to convert game players to real customers.

Business logic of marketing campaigns built on IZX platform is flexy customizable and managed by smart contracts. Game artifacts are tied to IZX Drive tokens which backed by special offers and discounts. The game player finds artifacts inside a game arena and receives tokens to her wallet. Then she can exchange the tokens on discounts in a place that sells product or provide services, e.g. hotel, restaurant, clothes store or barbershop.

IZX intent is to make business-to-customer value exchange transparent, secure and easy perceived by customer, at the same time affordable for local business. It brings new opportunities for businesses to build their own effective marketing campaigns, provides new monetization options for mobile game developers and finally makes end-users happy by erasing the boundaries between virtual and real treasures.

This paper describes the IZX concept and protocol along with the proof of concept: working platform with an AR game integrated with it, which to the moment has thousands users in more than sixty countries around the Globe.

Background

"*Half the money I spend on advertising is wasted;*
the trouble is I don't know which half."
John Wanamaker

Advertising technologies require innovation more than ever. In the digital age, business entities are switching to the omnichannel model of interaction with their customers. This leads to the widest coverage being occupied by the world's wealthiest companies. Facebook and Google hold about 75% of digital ads market revenues, and 99% of the entire market growth for the past years. Meanwhile the waste of user attention becomes insane and the auditory responds accordingly - more than 600 million people use ad blockers on their devices, and the number continues to grow.

The return on marketing budgets decreases steadily. Publisher margins are squeezed by intermediaries. For every dollar you put in digital marketing today, 60 cents go to various middlemen. And for this price you get no advertizing accountability. Total lack of transparency, no visibility of how your ads perform. This opaqueness in turn leads to fraud

rising at huge scale. Bots producing fraudulent impression cost the industry $7.2 billion a year, with $1 billion growth yearly[1].

While advertising efficiency does not become better, the customer expectations continue skyrocketing. This trend is called the "*Amazonification of expectations":* customers expect the Amazon Prime level service in all industries. The marketing could take this challenge by utilizing the deep machine learning to analyse the big data of users behavior. This would let to target personal offers with high precision, proposing clients exactly what they need at the exact moment. The problem is the data is being buried at the proprietary servers and is definitely underutilized. They say the data is new commodity. The question is, whom this commodity belongs to? In ideal World, the individual should take all control over who has access both to her personal data and her attention. There should be ways to get clear understanding of what piece of one's personal data is being used by what company and how exactly. Today we have the inverse situation, when the control of user's data has been stolen from her: the data locked in corporate databases, instead of serving the user's needs.

The Game Changer

Cutting edge technologies bring new market opportunities. Imagine a decentralized marketing platform where the only intermediate between an advertiser and publisher is a smart contract which independently runs on a distributed blockchain network and impartially governs this business interaction.

All transaction data, including but not restricted to data referring customer actions, is being stored securely in the distributed ledger, simultaneously allowing the deep analysis of it while ensuring the privacy. This could be achieved by analyzing the shared data layer of blockchain transactions by artificial intelligence built on recurrent neural networks. This shared data allows to track and measure the advertising efficiency down to every cent, allowing advertisers to control their marketing quality. Meanwhile, a customer gets the ultimate fine-grained control over the personal data and an ability to choose what to share with whom to get better offers. Marketers should continuously deliver value to customer, to prevent her retraction of given consent to use her data. This encourages them to fight for the data by testing better approaches to be able to propose the best solution for both - customer and advertiser.

The micropayment opportunities and real-time settlement provided by blockchain network opens new market, where economic models could be built on each customer's impression. This shifts the value from independent demand side platforms and advertising exchanges back into the edges of supply chain: advertisers, publishers and programmers.

Tokenization of this industry enables the power of the crowd to drive the innovation. Participants of this decentralized platform form the community of individuals who share the same vision, values and beliefs. The governance of the platform is entirely under its members control: they define its rules, policies and the development vector. They put their

[1] Ad Fraud Will Cost $7.2 Billion in 2016, ANA Says, Up Nearly $1 Billion, http://adage.com/article/digital/ana-report-7-2-billion-lost-ad-fraud-2015/302201/ [2]

cumulative effort to build it the right way. And they get all the benefits and profits generated by it. This approach also creates a community-driven marketing, where community members promote the platform and businesses by using it themselves.

Marketing is all about customer's sentiments and impression. How to deal with user inflated expectations, when it becomes more and more difficult to surprise the customer spoiled by hi-tech products of omnipotent corporations? Here comes another promising technology of the present - augmented and virtual reality. Imagine your advertising appear on the customer way to office in a form of treasury chest or a Cup with miraculous elixir. She picks it up by with gadget, immediately getting your special discount token right to her smartphone. All she needs now to redeem the prize is just to send this crypto-token to your manager and come to your place. Just as simple and fun at same time.

The most fascinating breakthroughs are tended to be achieved in the space of different research areas intersection. The blockchain technology has emerged and rises rapidly being based upon the combination of software engineering, game theory, economics and cryptography science. We believe that combining the augmented and virtual reality with the decentralized applications on blockchain network and artificial intelligence will spawn the brand new paradigm of business-to-customer communication in emotional, informational and economic senses.

Vision

IZX is a decentralized monetization platform for independent game developers with elements of augmented or virtual reality. The advertising provider may choose games that will be used for its promotional events, their developers get royalties. IZX is a blockchain-based network, its code is open source, and it has no geographical boundaries.

IZX is the protocol for:

- Building without-middlemen economical interaction between advertisers, developers and customers.
- Rewarding game and applications developers who help businesses to interact with customers.
- Implementing discounts, special and personal offers for customers.
- Transferring players efforts and passion into brand awareness and loyalty.

Finally, IZX is the cryptocurrency that represents:

- Advertiser's value proposition to customers.
- Value which particular customers may bring to business.
- Customer attention.
- Game points.
- Loyalty.

Today, cryptocurrency is mainly spread within certain communities, such as computer geeks (including miners), speculators and scammers. IZX is the first cryptocurrency that appears in wallets of a wide audience. It has the following main properties:

1) Availability to everyone - with no need in additional costs or knowledge.
2) Usefulness in applied value in everyday life.

IZX mission is to make value exchanges between business and clients clear, easy and straightforward. We wish to let people independently decide which value proposals and how they'd like to receive in their information flow.

We bring clients to offline businesses from the Internet and mobile world. Existing methods of client acquisition lack the following properties:

1) Online marketing has a lot of middlemen. It leads to high costs and inefficiency.
2) In digital advertising models, offline business loses comparing to online businesses in most cases.
3) Traditional online marketing models as CPM, CPC and even CPA do not exactly match offline business objectives: they pay for virtual actions, not for real ones.
4) Temporary and focused goals, which businesses frequently represent as special offers with limited proposition, are hardly covered with existing models.

IZX protocol sophisticatedly solves these problems by applying cutting edge technologies to build new effective ecosystem. By more than 2.5 billions of smartphone owners on Earth cryptocurrency will soon be perceived as a mundane reality - always at hand, easy to use, reliable, fast and safe way to exchange values. However today most of this immerse audience remains untapped by the crypto-economy because of the high threshold of the technology perception. It is not easy for ordinary people to understand the blockchain concepts deep enough to recognize the fantastic opportunities it can bring to our life. We target this issue by providing the product, which makes the use of cryptocurrency as clear and simple as just catching the Pokemon in the popular mobile game. Users can earn crypto-tokens by simply gathering virtual coins with their smartphones. IZX turns the game app into a crypto-wallet, facilitating the cryptocurrency perception by people.

Meanwhile, crypto-tokens gathering is just a half of the deal. Earning cryptocurrency as a reward engages players into the game rather effectively (more details in the Proof-Of-Concept paragraph of this paper). But what if those tokens were intentionally placed into the game by a company to promote its product or service? These tokens just serve transport function for the values proposed by advertisers to their potential customers. Players put a certain effort to earn these virtual tokens, therefore they have clear incentive to come to the company which claims to exchange the tokens for the real discount or special offer.

That's how IZX provides advertisers with the way to attract attention and motivate to real actions the generation, which basically spends five hours of their day in a smartphone[2].

IZX Token Model

Economic Model and Added Value

The economic model is based on micro-payments. IZX gives businesses mechanics for client acquisition, user retention and loyalty programs with the micro-payment infrastructure. Overall, IZX protocol can be applied in most scenarios, where B2C customers interact in business, be it with or without monetary value.

IZX added value comes from the additional interactions between customers and businesses that will not take place otherwise.

Businesses, being in a role of Advertiser to the IZX protocol, are willing to run marketing campaigns to engage new or retain existing clients.

Advertisers buy IZX Drive Tokens to run advertising campaigns. Players play the game to collect tokens. After collecting, they are motivated to go to an advertiser to monetize their tokens in exchange to special offer, prize, money or any other reward.

Application developers create new games, integrate tokens into existing games, attracting new and existing players to use IZX Drive tokens. This gives application developers an additional monetization channel for their games.

Application developers, who are attracting new potential customers to advertisers, generate the added value. Primary cash flow comes from advertisers, who pay for tokens.

Design Principles

Design and development decisions are based on the following principles:

1. IZX is the community-managed organization, built on DAO (decentralized autonomous organization) principles. There is no central point of control or decision point.
2. Every IZX participant has equal rights to contribute to the organization. The power in making decisions and ability to benefit from activities is always proportional to his or her contribution to the organization development. The contribution can be done in a variety of ways, enabling many roles to interact with own benefits.

[2] According to Flurry Analytics [3]

3. Technology and business model are aimed at the wide adoption of the blockchain technology in the society. This assumes the priority given to scale-out as opposed to scale-up approaches to technology and business decisions.
4. IZX tokens model is open to extensions and changes in accordance with participant interests.

Roles

Roles are defined for better understanding of the business model, related mechanics and processes. Participants may play multiple roles simultaneously, or in different times, according to their preferences and goals. The list of roles is not limited, as IZX organization may change or extend them.

Parties involved in IZX economic model may play different roles:

- App developers:
- Players;
- Advertisers;
- Token Issuers;
- Referrers;
- Network Fund.

We use role terms to denote a particular protocol usage pattern. However, a particular person may execute multiple roles, depending on real life situation.

Role	Activities	Profit source	Interacts with
PLAYER	Plays game(s)	Earning tokens	Advertiser, Referrer
APP DEVELOPER	Creates game(s)	Get commission in tokens for game	Player, Referrer
ADVERTISER	Creates and runs marketing campaigns	Attracts players, converts to customers	Player, Token Holder, Referrer
TOKEN HOLDER	Issue tokens for advertiser campaigns	Reward from token utility usage	Advertiser, Referrer
REFERRER	Refers participants to join the organization	Get referral payouts	Player, Game developer, Advertiser, Token Holder

NETWORK	Develops and supports IZX network	Reward for token usage and network growth	Game developer, Player, Advertiser

Table 1. IZX protocol actor roles

App Developer

App developer: person or organization, developing applications with IZX Drive token support. App developers integrate IZX as a monetization platform. According to the protocol, app developers get a commission from certain transactions and can monetize the usage of their apps. There might be several types of applications:

- **Games** - applications that involve players into gathering IZX Drive tokens and carrying out real actions with them, e.g. exchanging them for discounts, rewards, etc.;
- **Marketing Applications** - provide Advertisers with products and services for marketing campaigns creation, analysis and optimization;
- **Wallets, exchanges** and other supporting applications.

For any of these application types IZX protocol explicitly defines the monetization model, as well as the commission payment mechanism for app developers.

Games can be developed specially for monetization through IZX protocol, or the protocol can be easily integrated in existing games as the primary or secondary monetization tool.

Application implements IZX support by integrating blockchain API (e.g. web3) to communicate with smart contracts. To even simplify this integration, Izetex will provide embeddable modules for the most common game and application platforms (Unity, React Native, Android, Swift). We also encourage development of open-source API's and modules to simplify development.

Technology platform for application development is not limited – it can be mobile, Web and desktop applications, or messenger bots.

Player

Players are users who play games developed by App developers with integrated IZX Drive token support. Each Player owns an address in blockchain that allows him to hold tokens and operate with them.

Players have several explicit incentives to play games:

- Collected tokens can be exchanged on other cryptocurrencies or fiat money directly from application;
- Advertisers present discounts, loyalty programs and other interesting offers for players in exchange for tokens;

- Advertiser may exchange remaining player's tokens on products, services or money;
- It is fun!

In the basic game scenario, Player does not initiate transactions, and as for now it is not required to have ETH balance.

Advertiser

Advertisers are businesses that acquire new and want to retain existing clients using IZX marketing campaigns.

To execute a campaign, Advertiser buys tokens using an exchange or directly from token holders. Tokens are associated with specific action, required from the client to collect the token. If Player executes a specific action, he collects the token and becomes a potential customer for Advertiser. As an example - Player can be encouraged to find a token in the city, come to a pizza restaurant and make a minimal order with 40% discount based on the token he collected.

Advertisers use software delivered by App Developers to create, manage, analyze and optimize campaigns.

Token Holder

Token Holder is granted the permission to issue IZX Drive Tokens and sell them. Protocol ensures this permission and policy applied to token issue.

Also, Token Holders may initiate voting for the protocol changes, or delegate this to other token issuers.

Referrer

Referrers use referral program, paying rewards for new Player's and Advertiser's registration. Reward is paid using smart contract, when the newcomer will execute valuable action with IZX.

Network

The Network Fund supports the development of the network. It supplies tokens for developer bonuses, bonuses for finding bugs and vulnerabilities, referral programs.
Network Fund gets some initial tokens, and later gets continuously supplemented based on tokens distribution.
Network Fund balance is supported on some level, able to perform special offers, referral programs and other activities for the sake of network development.

Tokens

IZX uses 2 blockchain-based tokens:

1) IZX Drive Token, used for marketing campaigns, games, referral programs, and other activities. This token is temporal, issued on demand and burnt when used.
2) IZX Token, ERC-20 token - Ethereum-based, issued and distributed in the scope of ICO. IZX token primary use is to control the limit of IZX Drive Tokens that can be issued by the token holder.

IZX Drive Token	IZX Token
Used by game players, developers, advertisers	Used to issue IZX Drive Tokens
Burnt when used by Advertiser in exchange to marketing offer	Not burnt
Issued on demand	Issued during ICO
The current number of tokens in the turnover is limited by the number of tokens, issued during ICO	Total number of issued tokens is defined by ICO conditions
IZX Drive token can be exchanged on goods and services from advertisers	Tokens can be bought / sold / exchanged as any other ERC-20 token by holders, as any other crypto-currency
Token is managed by the specialized blockchain network	Token is managed by ERC20 standard contract on Ethereum network

Table 2. Comparison of IZX and IZX Drive Tokens

Token Turnover

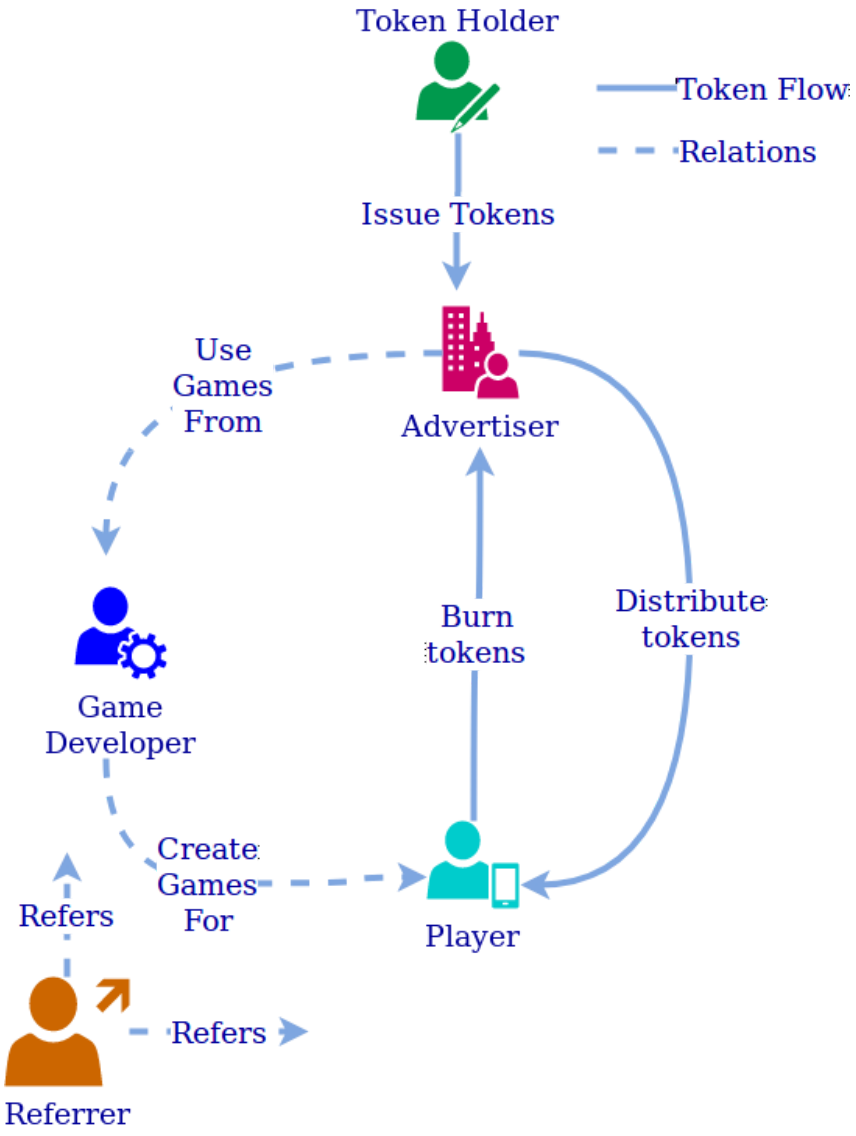

Figure 1. IZX Drive Token flow

The typical scenario of token turnover is supposedly the following:

1) Advertiser plans to run marketing campaign to attract new clients to the newly opened local business. Advertiser creates the campaign and places the buy order for a required amount of IZX Drive Tokens with a specified bid price;
2) Token Holder accepts the order, issues and sells amount of IZX Drive Tokens to Advertiser;
3) Advertiser distributes tokens for players who performed specific action, e.g. reached specific destination in a city;
4) Players come to Advertiser's local office to get a reward for collected tokens. Tokens get burnt after Player exchanges them on reward;

5) Game Developers get commission for their games being played;
6) If Advertiser or Player was referred by Referrer, the Referrer gets commission payout for referrals.

Currently the lifetime of IZX Drive Token is typically limited by a specific campaign run period. Tokens are distributed by Token Holder and ultimately end up being burnt by Advertiser.

Unspent tokens in wallets of Advertiser, Player, Referrers and Game Developers can be sold on exchange to advertisers as the primary mechanism of participant's appreciation.

Token Issuance

Token Holder can issue a number of tokens according to the following formula:

Limit = Grant – Issued + Burnt

where:

Limit = maximum number of IZX Drive tokens this Holder may issue now
Grant = equals to the number of IZX Tokens owned by Token Holder
Issued = total number of IZX Drive tokens issued by the Holder
Burnt = total number of burnt tokens issued by this Holder

The formula ensures that:

1) Token Holder can not issue more than Grant tokens initially;
2) Token Holder can issue tokens continuously and infinitely in time, assuming that the tokens will be burnt;
3) Number of all circulating (not burnt) IZX Drive tokens is limited to the sum of all tokens that Holder grants;
4) IZX Tokens are the measure for token Holder to issue new IZX Drive tokens and utilize it.

Token Utility

Token utility is best described by considering a specific scenario, where all roles are participating to own benefits, generating added value.

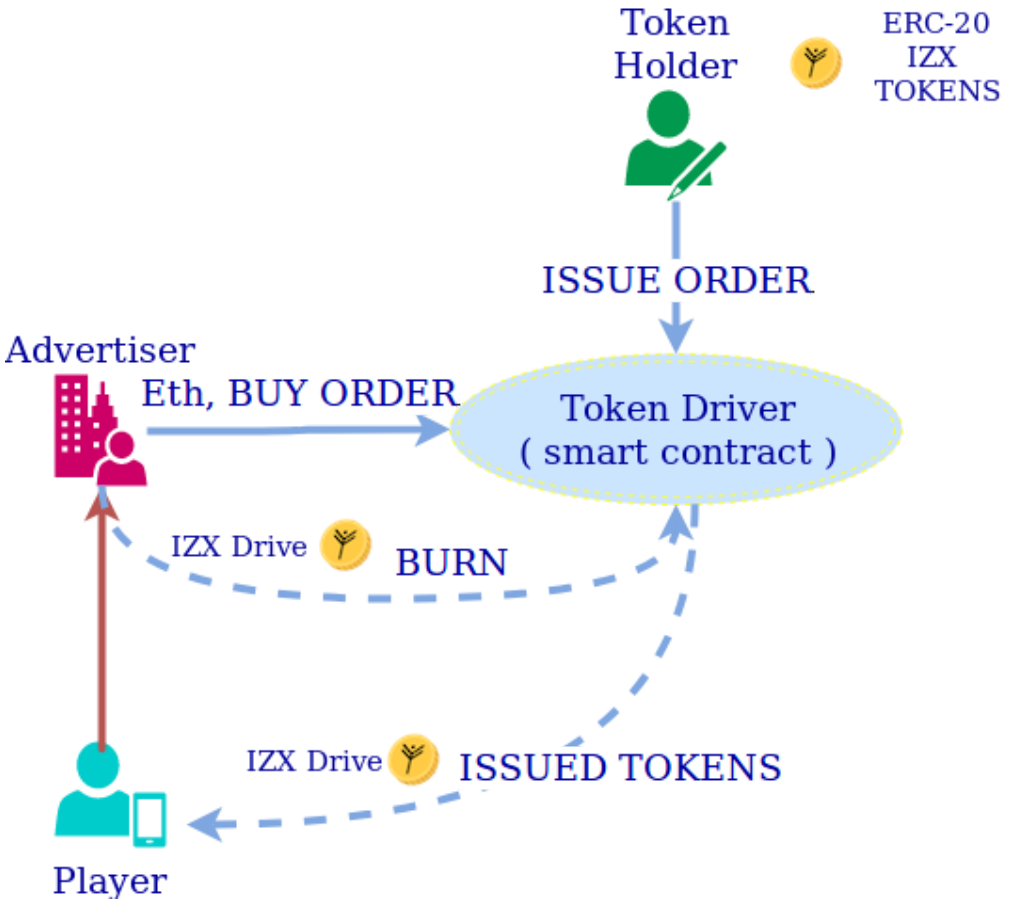

Figure 2. Tokens Utility Diagram (part 1)

Token is utilized according to the simplified schema (Figure 2). Some details and technical interactions between smart contracts are removed for the sake of simplicity. Refer to the IZX Protocol section for the implementation details.

1) Token Holder owns an amount of IZX Tokens (ERC-20, issued during ICO). It allows him to make a sell order for a corresponding amount of IZX Drive tokens;
2) Advertiser places a buy order of IZX Drive Tokens, reserving a corresponding amount of Ethers for the price defined by sell/buy orders clearance;
3) Executing the buy order effectively triggers the issuance of corresponding number of IZX Drive Tokens and reserves Eth on Token Driver smart contract;
4) Issued IZX Drive Tokens are being added to the game, where Player collects them (or receives in any other way);
5) Player comes to Advertiser and they burn the IZX Drive Token;

6) Burning IZX Drive Token removes it completely from the turnover, and distributes corresponding fraction of reserved Ethers from Token Driver;
7) Burning tokens allows Token Holder to place new sell orders, and the cycle continues.

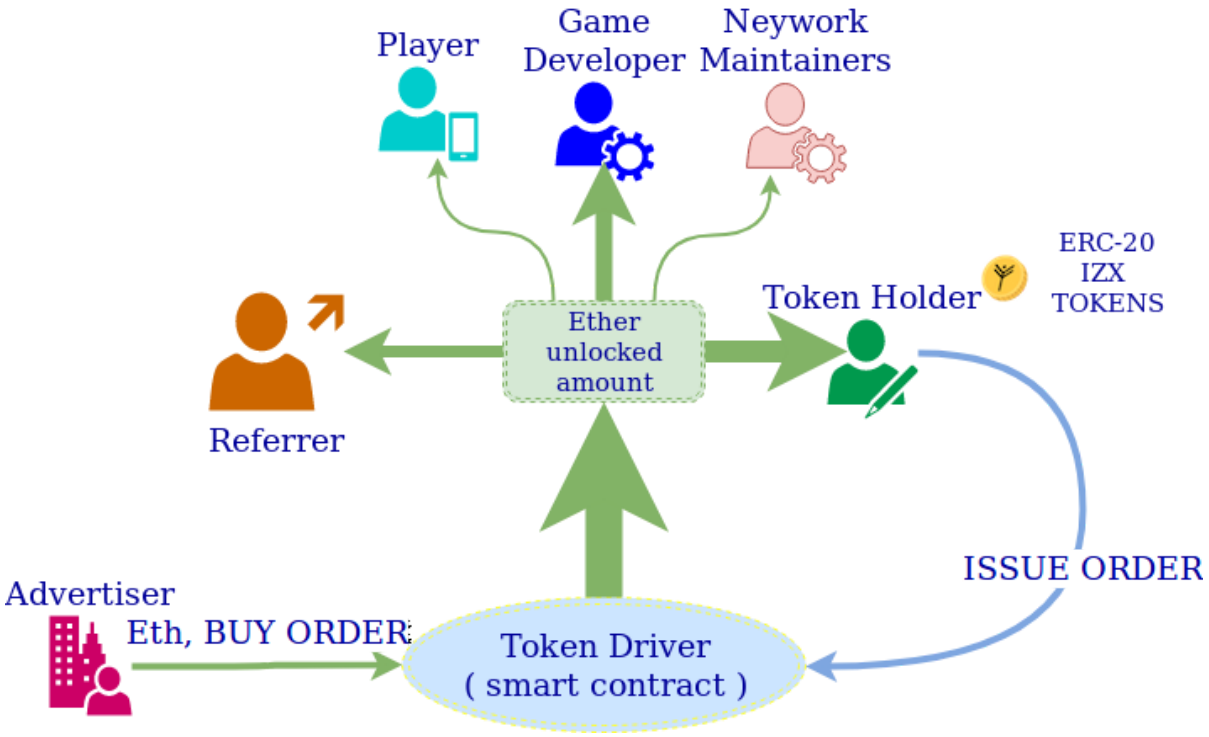

Figure 3. Token Utility Diagram (part 2)

When Ethers are unlocked from Token Driver, the smart contract distributes them according to the rules:

1. Token Holder receives part of Ether as the reward for placing sell order and issuancy of IZX Drive tokens.
2. Game developer receives reward for the development of game, which helped to acquire Players and execute proper transactions with Advertiser.
3. Network maintainers are rewarded for the token blockchain protocol development and functioning.
4. Players are rewarded for taking part in the game and burning tokens.
5. Referrers, who take part in the protocol, are optionally rewarded:
    a. who referred this advertiser to use IZX Drive tokens;
    b. who referred this player to install the application and then use IZX Drive tokens with Advertiser.

The actual ratios and policy on this distribution are a subject to change at any moment, assuming the approval of IZX Token holders. The IZX protocol policies are set up in the form of smart contracts and are subject to be executed with no central authority or organization.

IZX Protocol

Protocol Purpose

IZX protocol is a set of smart contract interfaces and communication rules between parties. The purpose of the protocol is to ensure that the economic model is properly executed for all participants.

To use the protocol, some of participants should use an account in Ethereum network, with capability to sign transactions. Some methods require Decentralized Applications to be used.

Blockchain Protocol

Smart Contracts

This diagram shows the main smart contracts constituting IZX protocol and roles of participants that sign transactions with smart contracts.

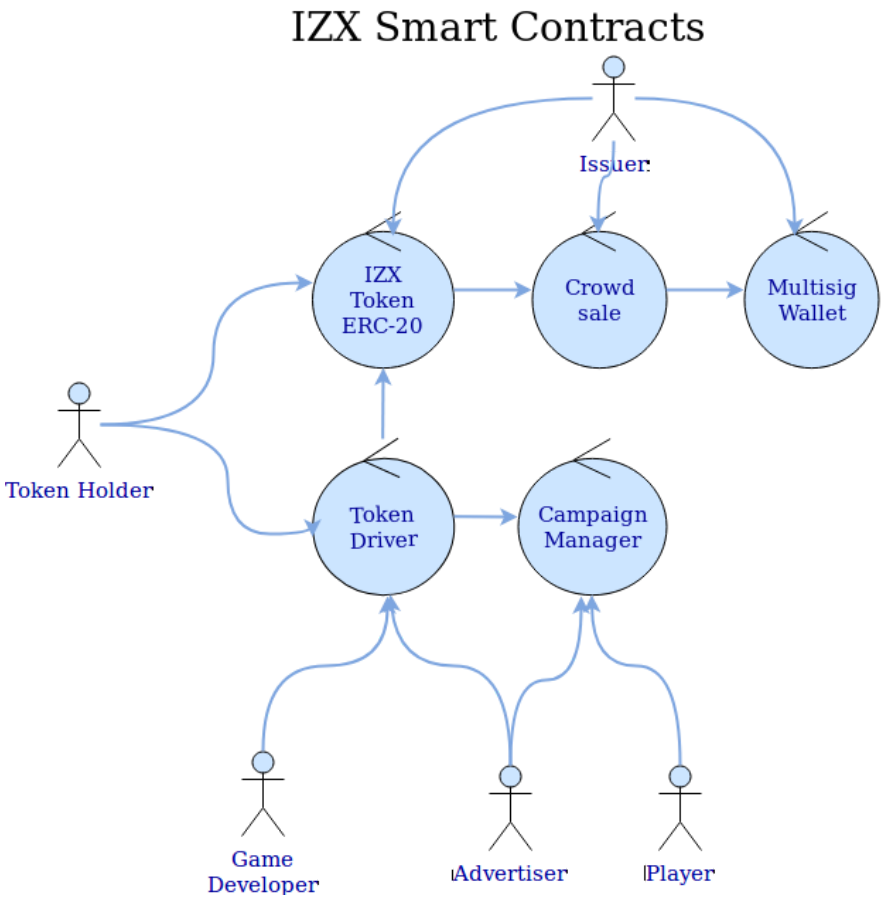

Figure 4. IZX Smart Contracts

IZX Token ERC-20 Smart Contract

Smart Contract IZX Token is signed with the Token Holders. It follows the ERC-20 standard[3].

Crowd sale Smart Contract

Crowd-sale smart contract is signed between the issuer and Token Holders based on the price and rules of ICO.

Multisig Wallet Smart Contract

Multisig wallet smart contract is signed between IZX network founders to ensure proper distribution of collected Ether.

Token Driver Smart Contract

Token Driver smart contract ensures the IZX Drive token issuance policy, sell/buy order clearance and proper distribution of Ether to parties after IZX Drive token is burnt.

Campaign Manager Smart Contract

Campaign Manager smart contract ensures that campaigns are properly registered and executed according to Advertiser preferences.

Scenarios

Scenarios presented below are to demonstrate how the protocol can be used for real world usage. It is not intended to cover all possible cases, as smart contract methods can be executed in any sequence and context.

Scenarios are best described as UML sequence diagrams using the following notation:

	Actor as per role. Owns blockchain address
	Smart contract

[3] https://github.com/ethereum/EIPs/blob/master/EIPS/eip-20-token-standard.md

	Call smart contract in blockchain
	Sign and submit transaction to blockchain network
	Direct interaction between actors, NOT involving blockchain

Table 3. Scenario UML Notations

Crowd Sale

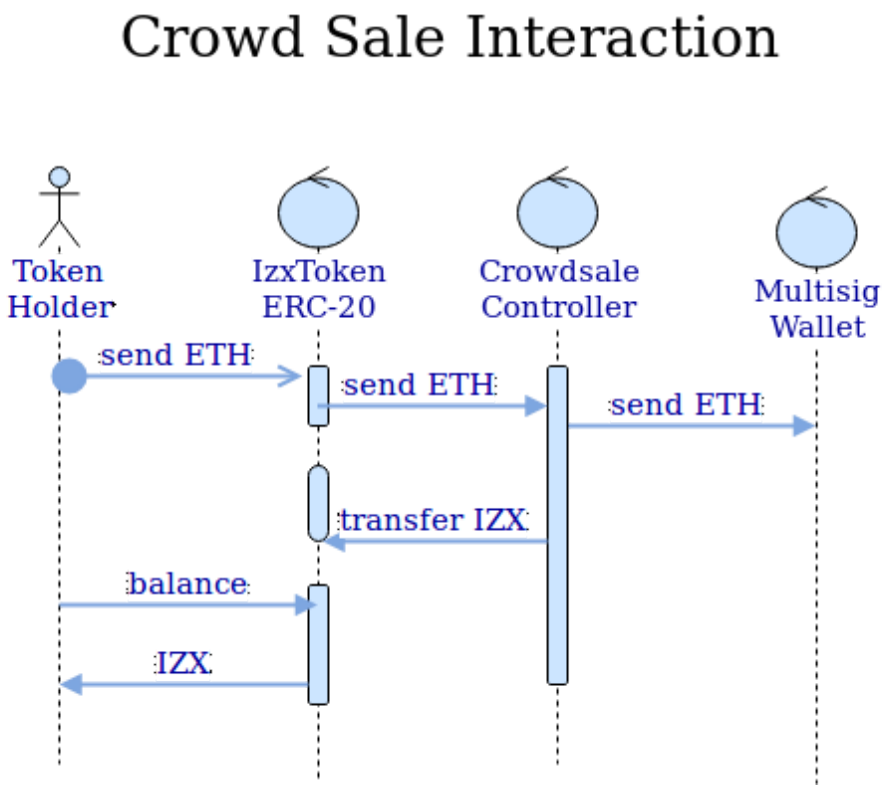

Figure 5. Crowd sale interaction diagram

1) Token Holder sends Ether to ERC-20 standard IZX Token contract
2) IZX token delegates the call to Crowdsale smart contract
3) Crowdsale calculates the number of IZX to transfer, and change if needed. It executes 3 operations:
    a. Transfer IZX tokens to address of Token Holder
    b. Send Ether for IZX Tokens to Multisig Wallet smart contract
4) Token Holder can now query for balance of IZX tokens.

Issue Scenario

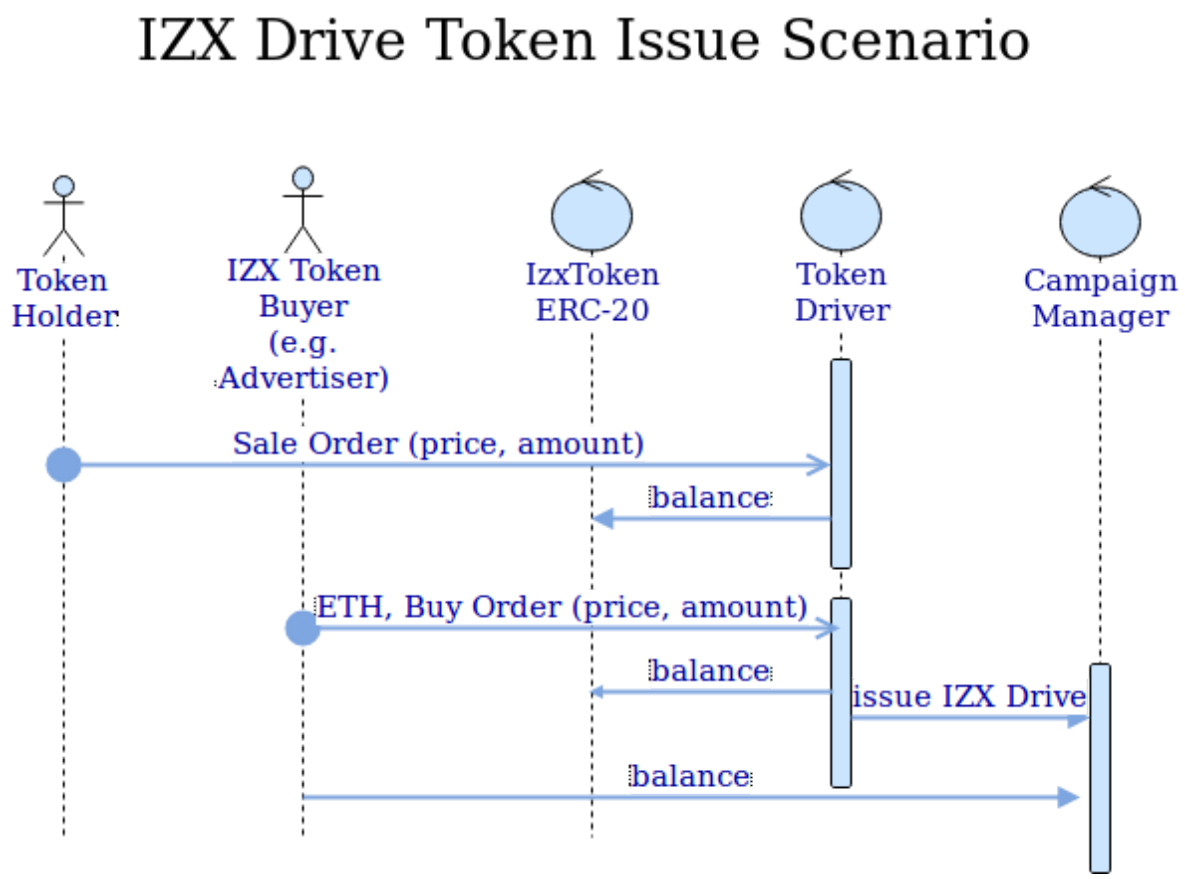

Figure 6. IZX Drive Token Issue scenario diagram

1) Token Holder owns IZX ERC-20 tokens. Token Holder signs the Sale Order transaction, expressing the intent to issue a specific amount of IZX Drive tokens for specific price;
2) IZX Token buyer signs the Buy Order transaction along with the maximum price and amount he wishes to pay. Transaction is payable, it costs the amount equal to the price of IZX tokens. IZX Token buyer transfers this amount to Token Driver;
3) Token Driver smart contract executes the clearance between Sale Orders in the queue and the Buy Order;
4) The result of clearance is a number of issued IZX Drive tokens, transferred to Campaign Manager smart contract, and bound for IZX Token buyer.
5) IZX Token buyer now can use IZX Drive tokens on Campaign Manager smart contract. Ether is reserved on Token Driver smart contract and can be requested back, or spent on converted client (look IZX Drive Burn Scenario)

Campaign Scenario

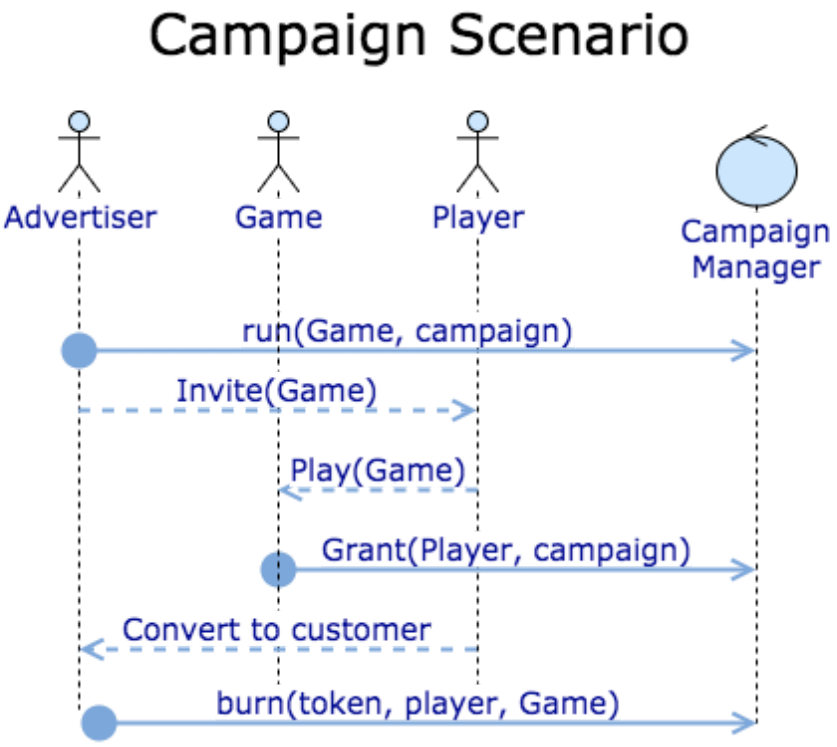

Figure 7. Campaign Scenario Diagram

1) Advertiser should have a number of IZX Drive tokens (look IZX Drive Issue Scenario) before running a campaign. Advertiser sets up a client acquisition campaign, defining desired auditorium, game, and many other relevant parameters;
2) Advertiser issues a signed transaction to run a campaign to Campaign Manager smart contract. Campaign Manager smart contract reserves the issued tokens for this campaign that later can be used for the campaign;
3) Advertiser announces the game campaign start, Players start collecting IZX Drive tokens;
4) When player wins a game, the Game issues a transaction to Campaign Manager smart contract that the player collected the right to burn the token. This right may be a temporal, depending on campaign's settings. If token gets expired, the right to use this token is revoked. Rights to burn the tokens are displayed in the personal account of Player (in his game "wallet") as own balance;
5) After the Player gets converted to Advertiser's client, he asks to burn the token. Advertiser issues the Burn transaction, which removes the token from the Campaign Manager registry, and triggers the IZX Drive Burn Scenario.

Loyalty Program Scenario

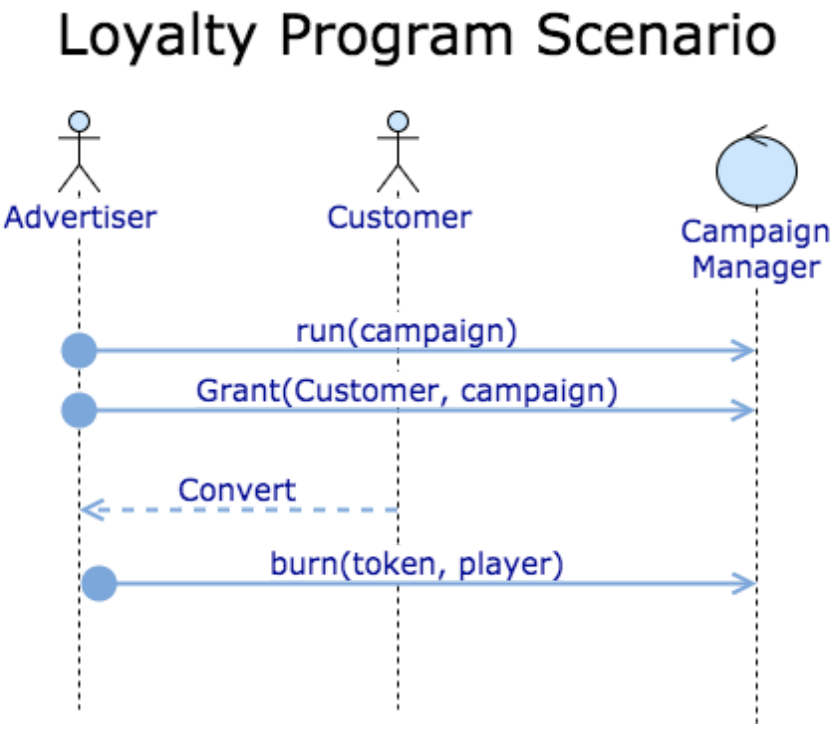

Figure 8. Loyalty Program Scenarios

1) Advertiser starts a loyalty program campaign the same way as described in Campaign Scenario. The campaign defines important parameters,such as special offer conditions and the timeframe for a loyalty program activity;
2) After customer executes the rules of loyalty program, advertiser burns the token.

Payment Scenario

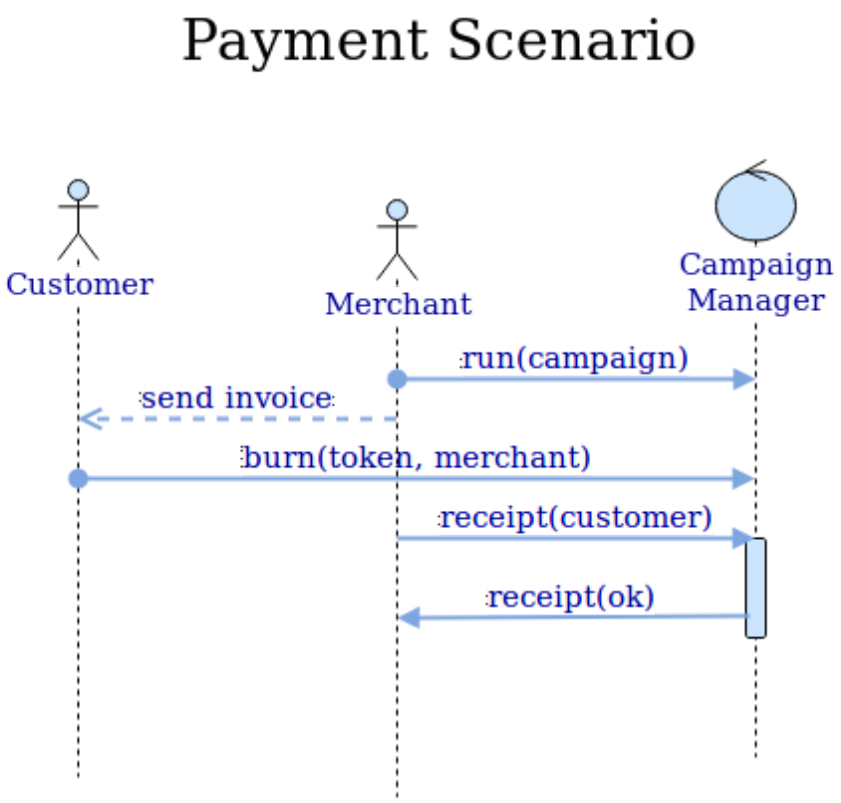

Figure 9. Payment Scenarios

1) Customer receives issued IZX Drive tokens, as role “IZX Token Buyer” in Issue Scenario
2) Merchant, accepting payments in IZX, sets up a campaign in Campaign Manager
3) Merchant creates an invoice to customer, owing IZX Drive tokens (IZX Drive Buyer at Issue Scenario). This can be done using QR code scan between mobile devices, or using other wireless technology;
4) Customer issues the transaction to burn the invoiced amount of tokens, to Campaign manager;
5) Merchant may ask for receipt, that tokens were burnt;
6) After executing the Burn Scenario, the amount in Ether, according to the number of tokens burnt, will be transferred to Merchant account;

Burn Scenario

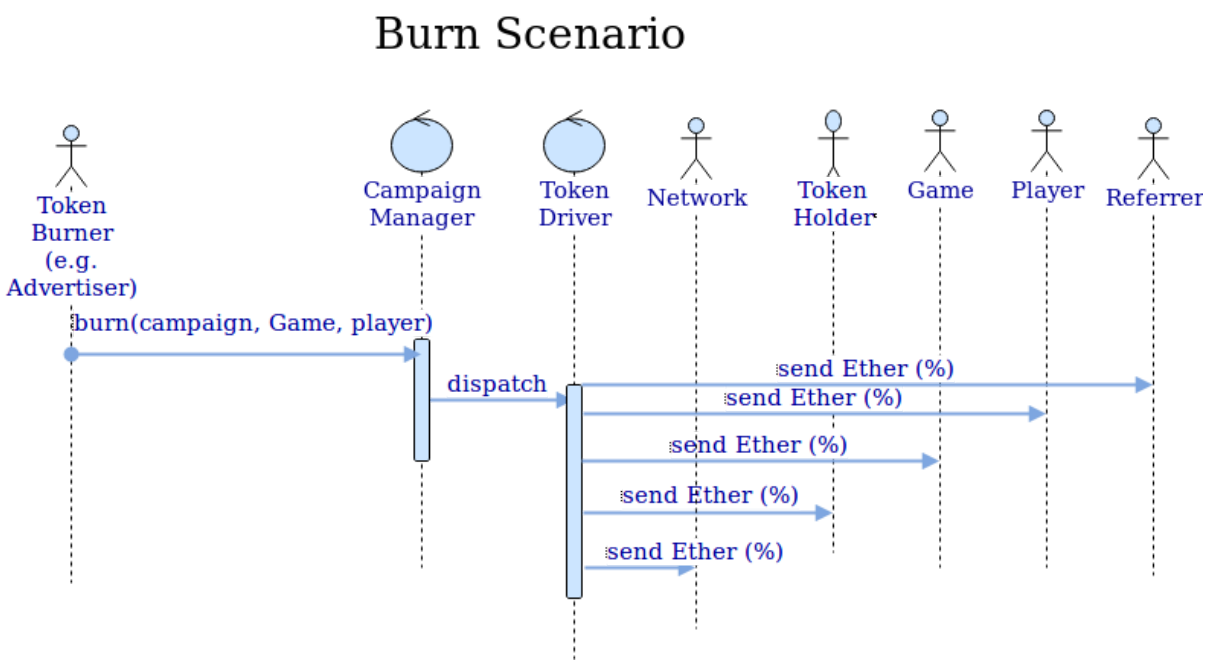

Figure 10. Burn Scenario Diagram

After the IZX Drive token is burnt, the Token Driver is triggered to distribute the reserved Ether (received in the process of Issue Scenario). The trigger is executed in batch[4] to avoid large Ethereum gas consumption on every token burn.

Ether is distributed to all participants who have participated in the token lifecycle according to Token Utility section.

Decentralized Applications

Decentralized applications (DApps) are utilized by participants to use Blockchain Protocol in a convenient way.

Also, some DApp functionality can be embedded in other software used by business in a scope of business processes.

Izetex develops necessary DApps and helps others to integrate capability to use IZX protocol in their application. Open source repositories [19] contain the API's and examples for third party developers.

The list of DApps below is not final, as every developer can make own application based on Blockchain Protocol.

[4] Transaction batching: https://blog.ethereum.org/2014/09/17/scalability-part-1-building-top

Token Holder Console

Token Holders use console to perform tasks related to IZX Drive token issuance:

1. Put sell orders for automatic token production;
2. Issue tokens for a specific buyer;
3. Monitor the granted issue amounts and token usage statistics;
4. Monitor the burn process and associated rewards.

Token Holder console will be implemented as in-browser DApp. It communicates with Token Driver, Campaign manager and IZX ERC-20 token smart contracts.

Campaign Management Console

Advertisers use campaign management console to:

1. setup campaigns;
2. track token balance;
3. place buy orders;
4. monitor campaign performance;
5. extract and analyze data from all campaigns using real-time and historical data.

Campaign management console will be implemented as in-browser DApp. It communicates with Token Driver and Campaign manager contracts.

Mobile Game

Player uses mobile game IZX to collect tokens and request to burn them Advertiser.
Mobile Game allows Players to:

1. play the game to earn tokens;
2. see the token balances as rights to burn tokens;
3. conditions and multimedia materials about specific campaigns where tokens are used;
4. request to burn the token from advertiser.

Mobile game prototype has been created on MVP (look MVP section) stage of the project as Apple Store / Google Play application. Mobile application is interacting with Campaign manager smart contract.

Advertiser Cashier Mobile Application

Advertiser uses cashier mobile application as a tool to:

1. burn tokens by request (as QR code scan) from client;
2. receive the receipt for the actual number of tokens burnt.

Advertiser cashier application was implemented as a part of MVP (look MVP section), as a part of IZX Game. Mobile application is interacting with Campaign manager smart contract.

Proof of Concept

To test the viability of our ideas we decided to build the prototype which currently includes:

- mobile game with augmented reality which mechanics pretty much reminds a well-known PokemonGO©;
- the backend for marketer which allows him to set up customized marketing campaigns by minting branded tokens and placing them on the map;
- the set of smart contracts governing IZX token emission and participant rewarding rules.

Questions we wanted to figure out in first place:

- can interest for the game really convert players into customers for business that place their proposals in the form of game artifacts?
- does blockchain transaction transparency help to ensure security from the fraudulent behavior of protocol participants?

The answers follow directly based on the data obtained from the tests.

MVP

Izetex uses the agile approach in the product development. We move forward through the HADI[5] cycles by formulating certain hypothesis and testing them in the real market conditions. In August 2017 we released the Beta version of IZX Platform alongside with the same name augmented reality game connected to it.

[5] Hypothesis-Action-Data-Insight

Figure 11. IZX mobile game screenshots

The mobile game IZX is available at both Google Play and Apple Store and have thousands of active players monthly, as per October 2017. The game demonstrates a fold increase in audience every month, as shown on the diagram:

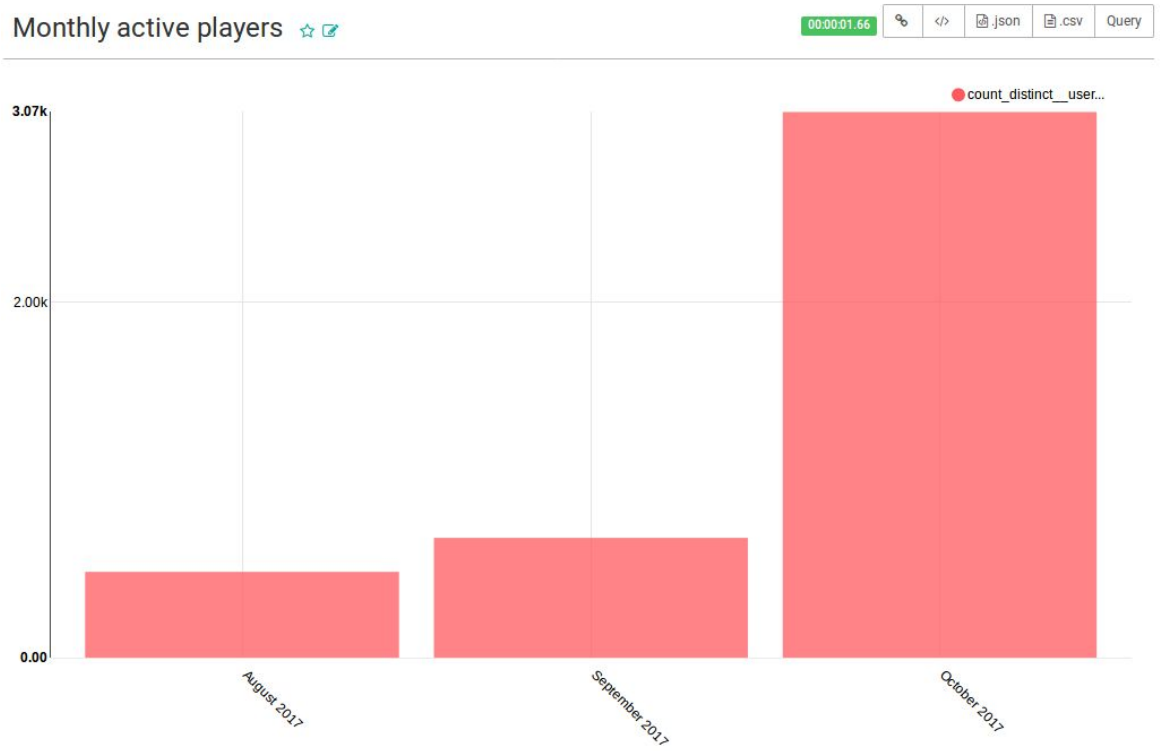

Figure 12. IZX game monthly active players diagram

Statistical reports

All the data regarding player metrics, marketing campaign efficiency, game spread around the World and a lot of other information is available at analytical dashboards in the platform backend where advertisers have an access to with their personal accounts.

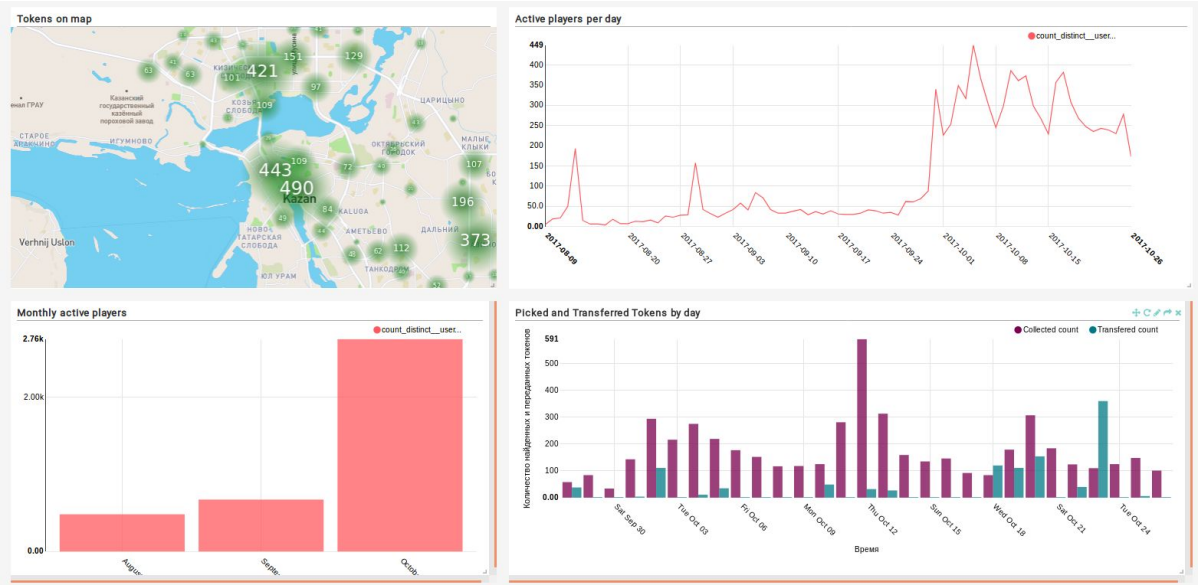

Figure 13. IZX statistical dashboard

Some of the platform's basic metrics visualisations are publicly available real-time on our site for all who are interested: http://stat.izx.io/superset/dashboard/8/ .

Tests performed

During past months we have performed a number of tests of our platform for promotion of the following enterprises:

Date	Enterprise	Tokens placement	Number of Participants	Token gathered	Token redeemed
13/08/17	Restaurant 1	City streets	39	61	22
13/08/17	Restaurant 2		45	67	35
29/08/17	Bank 1	Conference hall and streets nearby	55	175	118
29/08/17	Bank 2		35	75	49
29/08/17	ICO startup 1		38	107	65

29/08/17	Government agency		41	78	55
29/08/17	Hi-Tech Technopark		61	171	107
03/10/17 - 05/10/17	ICO startup 2	Conference hall	20	84	9
12/10/17 - 13/10/17	ICO startup 3	Conference hall and streets nearby	27	69	25
22/08/17 - 21/10/17	IZX	All locations where app users appear	795	4607	2639

Table 4. IZX MVP tests

IZX marketing campaigns allowed restaurants to offer real-time discounts during low-activity periods. Game tokens were distributed on city streets, they represented free drinks and cakes provided for new customers. This technique brought a lot of new clients to these restaurants during the testing period. All advertisers have fulfilled their obligations on providing real value to player on exchange to gathered tokens.

Only 12 tokens redeemed of 84 gathered during *"ICO startup 2"* campaign, because the majority of participants turned out to be cheaters and gathered tokens using geolocation spoof software. This kind of fraud is easily detected by the platform algorithms, and all tokens obtained unfairly are revoked.

IZX tokens represent our airdrop tokens: they are exchanged on 1-to-1 basis to our ERC20 tokens distributed to the community during our crowdsale. To distribute airdrop tokens fairly, we developed special algorithm which puts tokens near a game player in case there are no tokens located in the epsilon neighborhood of player's position. This trick allows us to monitor the natural game spread around the Globe.

Figure 14. IZX game spread around the Globe

To the date of October 26th, tokens had been distributed over 60 countries. The top 10 countries by token quantity are:

Country	Tokens
Russian Federation	10833
Ukraine	1774
Spain	629
India	264
Belarus	258
Kazakhstan	177
France	164
United States of America	115
Turkey	78
Uzbekistan	72

Table 5. IZX game top-10 countries

Summary stats

- **Total participants:** 3484
- **Total distance walked by players:** 6715 km
- **Total time spent in game:** 1533 hours
- **Total tokens gathered:** 6814
- **Total tokens redeemed:** 1708

Main findings

The analysis of the data gathered during the tests gives us a number of insights. Among them the major ones are:

- Our concept works: Players are ready to put their physical efforts to walk tangible distances and gather IZX tokens. They do come to Advertisers to redeem the tokens, naturally converting themselves into customers.
- Player's' interest to the game does not depend on the value of the prize: the game is interesting by itself, quite enough for just gathering tokens without redeeming them.
- A chance that Player will redeem earned token really depends on the prize value.
- Artificial barrier to redeeming a token reduces the conversion rate of the token into the prize. For the sake of the best campaign efficiency, Advertiser should provide an instant and easy token redeeming process.
- Wide range of token types available for gathering simultaneously in the same location leads Player to take them all, indiscriminately.
- People are ready to walk several kilometers daily during the play. And they return to the game regularly on a daily basis, even without any specific events or campaigns.
- The game engenders a certain amount of fanatical players who are starting to collect tokens professionally, but still following the rules. As well as a certain amount of cheaters whose behavioral patterns are recognized easily by the system AI algorithms through transactions analysis.
- Blockchain brings value to the process in the security aspect: transparency of transactions available on the public ledger makes it easy to detect fraudulent behavior. This motivates advertisers to fulfill obligations entirely, as everybody, including potential customers and other advertisers, can see the transactions. And more importantly, this lets to detect cheating players publicly and verifiable, so that the impartiality of given penalties raises no question.
- Interestingly, the use of blockchain technology also brings an additional incentive to players: they are happy to earn cryptocurrency through the game.

Advantages

Here is IZX comparison with traditional loyalty programs

	Loyalty program	IZX
Zero-cost setup	-	+
Zero-time setup	-	+
Near real-time	-	+
Universal points	-	+
Attracts NEW customers	-	+
Decentralized	-	+
Transparent	-	+
Secure	-	+

Here is IZX comparison with a well-known augmented reality game

	Pokemon GO	IZX
Player’s happiness	+	+
Augmented Reality	+	+
All game functions FREE	-	+
Earning real value	-	+
Is a platform	-	+
Lets you monetize your apps	-	+
Open and Decentralized	-	+
Customizable for advertisers	-	+

Conclusion

Izetex provides new effective approach for customer acquisition and retention. Its protocol solves the number of common problems inherent to traditional centralized marketing services. IZX platform builds new market for digital advertising by encouraging game developers to integrate their apps with decentralized marketing program. It removes the input threshold for business to build their own original effective digital marketing.

IZX tokens become the actuating medium for value transmission between Game Developers, Players and Advertisers, harmonically converting virtual prizes to real ones, and gamers to customers.

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