EtherDragons Arena
The Game

White Paper

Abstract

The modern blockchain system as a whole, and the Etherium system, in particular, is a technology that provides ample opportunities for the creation, storage, processing and exchange of digital values. By purchasing or creating a numeric value inside the blockchain, the user becomes the full owner of this value, just as he can be the owner of a material object in the real world. The owner can improve his value, transfer it to process to some services or sell it to other users. Thus, unlike the traditional digital world, which is familiar to us, the blockade allows us to create and use real property with real value.

Therefore the development of services for the creation and maintenance of such digital values and objects can be an exciting and promising direction for software developers.

The EtherDragons Arena game project aims to become one of the first such projects. In contrast to existing games on the blockchain, which allow users only to create and exchange digital objects, EtherDragons Arena provides additional opportunities for interacting with your digital objects.

The main tasks that EtherDragons Arena solves:
- Purchasing of digital objects (dragons) that exist in the blockchain has different characteristics and have a unique visual representation
- Improving the properties of digital objects (dragons) and increasing their value
- Participation of digital objects (dragons) in competitions (battle) with digital objects of other players
- Receiving the award for winning in tournaments in the form of real cryptocurrency (ETH)
- Creation of new digital objects (dragons) through interaction with objects (dragons) of other players
- The possibility to import and export digital objects (dragons) in and out of the game without any restrictions
- All work with digital artefacts (dragons) is implemented as transparently as possible to be understandable, open and convenient both for experienced crypto users and for beginners

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1 Motivation

The motivation for creating the project was the following basic needs of the users of the blockchain:

1. Problems with understanding and perception of blocking technology by ordinary users
2. Difficulties with the practical use of existing blockchain technologies
3. The possibilities of creating and acquiring exciting and useful digital objects, as well as interaction with these objects
4. The need for convenient, affordable and straightforward services to interact with the digital artefacts of users.
5. The possibility of earning with digital objects owned by users
6. The solution to specific problems of the Etherium system, related to the cost and time of transaction processing between users and operations within the network.

1.1 Problems of perception of the blockchain

It now becomes apparent that distributed register technology will be the next revolution in information technology after the creation of the Internet. The potential of this technology is vast and diverse and affects almost all branches of human activity. However, the mass consumer still does not understand the concept of blockchain technology, perceiving it as something strange, incomprehensible and not relevant to reality. Existing projects in blockchain are usually targeted at experienced crypto investors with highly specialised knowledge or interests. Moreover, most such plans exist in the form of concepts or unfinished prototypes that do not bring users practical benefit.

1.2 Modern practical use of blockchain technology

Initial coins offers (ICO) have proved to be a viable financing model for blocking projects. However, despite the great opportunities for investors in financing beyond venture investments, it can create problems for the development of other finance and service areas of the detachment. Moreover, a large number of unfairly conducted ICOs create distrust of the general public both for the ICO model and for the blockchain technology as a whole.

Due to the superficial perception of technology, and also because of the image of a sophisticated financial tool, the average consumer does not understand how the blockchain technology can solve their tasks and realise their needs.

1.3 Digital values

The modern game industry considers a game as a service. It means that a player, buying both a game itself (in marketplaces like Steam), and any game values in it, "de jure" does not own them.

Transfer of game accounts or game values is the direct violation of the End User Level Agreement (EULA) and is penalised by the ban of account.

It turns out a contradiction: the player believes that he spends time and money on the acquisition of specific values, and the game industry believes that the player buys temporary access to these values only.

If the developer stops to support the game or decides that the agreement is violated, the player loses all the resources invested.

Another problem is the game design of modern game projects. To encourage the player to purchase new game entities or update already purchased once, developers change the characteristics of already bought and paid by the player game items or change the game world, the rules of the game, in which bought items lose value.

The player is tied to the project since his acquisitions can only be used in the game in which he performed them.

In the end, we see a situation where a player is spending his resources and receives in result something that can lose its value or can be taken away in any time, and also can be used only in one project.

The solution to these problems is the transition to the creation of decentralized cryptogames.

Thus, it becomes evident that, in addition to cryptocurrency, ordinary users of digital technology are interested in other digital entities that can be functionally useful or can be of value. Now this problem is partially solved at the by the games created on the blockchain technology where it is possible to acquire digital objects and exchange or sell them to other players. But these are very first decisions that cover the needs of the players only partially.

1.4 Services to process digital objects
Hence, the need for services that can solve the daily tasks of ordinary users dealt not only with investments and financial services follows logically. In particular, such services should provide a wide range of user interaction with their digital objects, enable them to upgrade the properties of these objects and increase their value. Such services should be accessible, easy to handle and allow users to transfer their digital objects to service services and quickly return them to their crypto-wallets in the blockchain without any restrictions.

1.5. Earnings in the blockchain system
It's evident that one of the dominant needs of ordinary users is the opportunity to earn money using blockchain technology. The ICO investment schemes described above are somewhat complicated for regular users and therefore are inaccessible. Consequently, it is essential to provide users with a right, exciting and simple tool that makes it possible to earn money in the blockchain.

1.6 Problems associated with the features of the system Ethereum
Despite its apparent advantages and great potential, the Etherium system has the following specific problems:
- All actions which are related to the transfer of even minor funds cost money (the so-called gas). And this cost depends on the count of transactions which are processing in the network simultaneously. Therefore when the Ethereum network

overloaded with a lot of such transfers the cost of processing can be very high, sometimes even exceeding the amount of money transferred.
- All activities related to working in the Ethereum network take a considerable amount of time. For example, a money transfer from one user to another can take several minutes.
- In the case of high congestion of the Ethereum network, transfers between users can be delayed for several hours and cancelled.

The described problems complicate the creation of highly loaded popular services running on the Ethereum network.

2. Product

The EtherDragons Arena project is aimed at becoming a service that allows solving the problems and needs described above. It will enable users not only to entertain with their digital objects (dragons) but also to increase their value, create new digital objects (dragons) and earn money.

EtherDragons Arena is a game that using smart contracts creates digital dragons (generation 0) in blockchain according to specific rules. Dragons differ in their characteristics and appearance. Users can purchase these dragons at auction inside the game, breed new breeds of dragons, change their properties, put them on the fight on the arena and sell to other players.

The appearance of the dragon and some of its characteristics are determined by the genome, which is formed according to specific rules at the birth of the dragon and is stored in its smart contract.

Technologies used in the EtherDragons Arena project can solve the following problems for users of the blockchain, described in the previous section.

2.1 Orientation to a broad audience.
EtherDragons Arena is a game that will be interesting for experienced members of the crypto community, and unprepared users. Here you can purchase dragons, upgrade their properties, breed new breeds of dragons and battle with dragons of other players. Besides, using correctly constructed actions, you will increase the value of your dragons and will give

an opportunity to profitably sell them to other players or receive a reward for the winning at the battle.

2.2 Learning aspect

The game EtherDragons Arena is aimed not only for experienced crypto users but also at beginners. For all actions that, in the opinion of the developers, can cause difficulties for inexperienced players, hints made. Thus, the game also has a learning aspect that will allow new users of blockchain to understand the features of the technology better.

2.3 Creating digital objects

The purchased digital dragon of the EtherDragons Arena project is a full-fledged player's property. It can be upgraded, sold or exported from the game to the player's crypt wallet in the blockchain. Users can exchange and sell their dragons both inside the game and on third-party services. Dragons exported from the game or bought on third-party services can be freely imported into the game.

Each dragon has specific properties: the ability to pairing, some combat characteristics and a set of combat abilities. Also, the dragon has a unique appearance. Properties and presence are determined by the genome, which is created according to specific laws at the birth of the dragon in the blockchain.

There are several ways to get the dragon in the EtherDragons Arena game:
- Dragon of any generation and prices can be bought on the market (in-game auction and external marketplaces).
- Dragon can be obtained by participating in our referral program
- Get a gift from another player through an auction inside the game.
- Create a new dragon by pairing the other two dragons

2.4 The EtherDragons Arena game provides players with various services and opportunities to interact with their digital dragons.

2.4.1 You can pair your dragons.

Each dragon can participate in pairing both as a male and as a female.
- If your dragon participates in the process as a female, then you will get offspring.
- If your dragon participates in the process as a male, then you will get money, which the owner of the female will pay for pairing.

If you want to get the desired offspring, then inside the game you can pick up a suitable dragon (male) and pair it with your dragon (female). As a result, after a while, you will have a new dragon, which will have the appearance and characteristics inherited from the parents according to specific rules. Thus, by intelligently selecting pairs of dragons, you can deduce the offspring with the properties that interest you. Pairing and getting new dragons is not only an element of collecting but also an exciting opportunity to bring dragons with the features you need.

If you want to earn money by pairing your dragon, then you can rent out your dragon to other players as a male.

Ability to pairing is given to the dragon at birth and depends on the skills of its parents. It should be born in mind that each subsequent generation of dragons is less able to pairing than the previous one. Also, these abilities deteriorate after each pairing.

2.4.2 Dragons can be upgraded.
To upgrade the combat characteristics of the dragon you need to devour other dragons. In this case, the components of the devouring dragon will be superimposed on the features of the improved dragon by specific rules. You can devour your dragons only. If you do not have dragons to eat, you can always buy them in the game.

A set of combat abilities is given to the dragon at birth and can not be changed in any way. But you can bring a new dragon with the characteristics you need, pairing your dragons with the dragons of other players.

2.5 Earning ability
Some services are implemented in the EtherDragons Arena project to solve user needs:
- Sell their digital objects (dragons) to other players
- Battle with digital artefacts (dragons) of other players with a reward in the form of a cryptocurrency ETH
- lease their dragons
- pairing their dragons with the dragons of other players, creating new digital objects (dragons) to sell them or earn on battles in the arena

2.5.1 You can sell your dragons to other players in the Market section. When preparing to sale your dragon you can specify the time during which it will wait for the buyer, as well as the maximum and minimum price for which you want to sell the dragon. In this case, the cost of the dragon will smoothly change from the maximum to the minimum value within the specified time. If the dragon is not sold, then it returns to the player.

2.5.2 Battles in the Arena
Battles between dragons in the EtherDragons Arena game are held in real time, and the player has real opportunities to influence the outcome of the fight by his actions.

In combat, the player selects a part of his dragon body to protect and a part of an enemy dragon body to attack. The player can activate one of the combat abilities that the possesses his dragon. If the enemy has put the defence on the part of the body that you attacked, the kick is considered repulsed and does not count. If you struck an unprotected part of the body, then the enemy's life is reduced by the number of units equal to the strength of your dragon. The battle lasts as long as both opponents have health. The dragon, whose health ended first, is declared a loser. If both opponents have completed the fight at the same time, the bout is announced tied, and the players are refunded their bet.

In the process of fighting in the arena, the Dragon receives a title that depends on the percentage of victories:
- 0-10%: Loser
- 11-20%: Feeble
- 21-30%: Week

- 31-40%: Meadele
- 41-50%: Hope
- 51-60%: Expert
- 61-70%: Leader
- 71-80%: Hero
- 81-90%: Star
- 91-100%: Legend

So for wins in battles in the arena player receives not only a monetary reward but also increases the value of his dragon. And this value is understandable and displayed visually.

2.5.3 Rent out a dragon

As already mentioned in the section on pairing, it is possible to earn money on a dragon by giving it to pairing as a male. It is sufficient to indicate the cost of your dragon's services and the time during which it will wait for the female. As soon as the dragon has paired, money will be transferred to your account, and the dragon will return to you.

2.5.4 Creating new dragons.

As you already know, in EtherDragons Arena game you able to pair dragons to receive offspring, which will inherit the properties of its parents. Thus, by correctly selecting pairs of dragons, you can bring out new dragons with the desired characteristics, to earn money on arena battles or sell them to other players.

2.6 Solving problems related to the operation of the Ethereum system

Since the EtherDragons Arena game is a service application that involves the active interaction of users, the exchange of digital objects (dragons), real-time battles, bets on fighting, etc., the problems of the Ethereum network described above can adversely affect convenience users and on their income. Therefore, to solve these problems, the following solutions were implemented:

- For each user in the game, a separate account with a local wallet is created. Utilizing this local wallet, users can transfer money and dragons to each other and make payments to the game services.
- Any user may replenish his local wallet and withdraw any available funds to his crypto-wallet in the block room at any time without any restrictions
- Any dragons created or purchased inside the game can be exported to the blockchain without any limits.
- Any dragons created by the EtherDragons Arena system and purchased on third-party services received under the presale program or transported to the blockchain earlier can be imported into the game without any restrictions.

We sincerely hope that you will appreciate our decision, enjoy the game and be able to make good money on it.

It is important to note that an off-line module that allows performing part of the data processing on a separate server, and whose necessity is caused by extremely low transactions speed within the Ethereum network, may be replaced by full blockchain solution soon. So the server part of EtherDragons Arena will be fully implemented in the distributed

registry. It will happen when Ethereum developers modify the network and transaction speed inside it will not be critical for the game functioning. According to the developers of Ethereum, this may happen in early 2019.

3 Advantages of the game in comparison with competitors

Analyzing the solutions of other gaming projects, we decided to focus on the following key features:

- A lot of sources of income for the player: breeding and selling new breeds of dragons by breeders, buying / selling dragons with the necessary characteristics and reward for winning the arena.
- Full cycle gameplay
- All game activity is stored in the blockade in the form of hash-trees. At any time, the player can make sure that the game is not fraudulent on the part of developers.
- The speed of in-game transactions does not depend on the workload of the Ethereum network (offline module)
- Zero commissions for all transactions inside the game. The player at any time can transfer money to any wallet and sell the dragon on third-party blocking resources. The costs are reduced only to the payment of input/output of capital and dragons through a smart contract of the game.
- Bets on the outcome of the battle
- Dragons of any level are useful and can be used in one way or another, and therefore have a market value
- Dragon power is determined by the combination of its genes, the combinations of which are countless, and there are plenty of options for experiments
- The result of the battle depends not only on the power of your dragon but also on your skills to fight in the arena, which makes it possible to demonstrate ability and defeat a stronger opponent

4 EtherDragons technologies and non-Fungible Tokens

EtherDragons Arena provides a practical use case for digital scarcity and digital collectables by pioneering ERC-721, a non-fungible token protocol.

In general, tokens on the blockchain are fungible. The value of every token is the same and, similar to cash, it doesn't matter what token you receive. Because of this, blockchains track counts of tokens instead of the specific tokens themselves. It works well for things like stocks or currencies, but because dragons are genetically unique and breedable, we needed to create a non-fungible token environment.

To do this, we built our non-fungible tokens on ERC-721 protocol, the standard for transactions and ownership of non-fungible assets on the blockchain. Using this protocol, EtherDragons arena provides both an interface to browse unique items and robust smart contracts to conduct transactions (breeding) once both parties agree.

5. Roadmap

Our team does not stand still, and we plan to improve and develop our EtherDragons Arena project continually.

To do the work as efficient and transparent as possible for users, we tied our Roadmap to the revenues that we plan to get from selling dragons at the pre-sale stage and the first stages of the game launch.

Current state:
- start of presale program for the early sale of digital dragons
- closed beta testing of all systems of EtherDragons Arena game

200 ETH
- open beta testing of EtherDragons Arena game

300 ETH
- the full release of EtherDragons Arena game
- 15 new dragons breeds
- Five new fighting abilities

400 ETH
- Ten new dragons breeds
- 25 new fighting abilities

500 ETH
- advanced fight animations

- bonus sets

Also, part of our plans for technical updates of the project is related to the promise of Ethereum developers in 2019 to increase the speed of the network significantly. When it's done, we plan to start the transfer of the server part of the EtherDragons Arena game entirely to the Etherium network.

6. Bounty program

We have developed Dragons Bounty Programm For users who want to participate in the development of the project and attract new players. For participation in the program, please contact game@etherdragons.world.

7. Conclusion

The EtherDragons Arena project team believes in the potential of blockchain technology, but we are frustrated by the lack of attention to technique both to a broad audience and to the negative perception of government structures. We believe that positive user experience and education are necessary moments in the popularisation of blockchain technology. And we do our best to convey our beliefs to a broad audience.

For our part, we see numerous opportunities for innovation in the field of blockchain technologies and the EtherDragons Arena project is our first contribution in this field. Together with the technology of blockchain, we want to build a bright future, oriented to a broad consumer and solving his problems and tasks. Our team plans to continue contributing to the development of innovative technologies to make the technology of blockchain more popular and closer to each user, and become the reliable support in his life.

We are actively studying the needs of users, their needs and interests to fully meet them in our current and future projects.

We believe that our EtherDragons Arena project will become a new bright flash in the field of blockchain technology, which will bring our users joy, pleasure and fun from communicating with the game and the blockchain technology as a whole!