WHITE PAPER

DUCATUR

First MultiChain Oracles Framework

Is a ready-made self-sufficient multi-chain ecosystem that unites experts (data sources) based on rating and provides tools for high-quality data exchange and for disputes resolution.

v1.0

EXECUTIVE SUMMARY

The advent of Blockchain technology has started a revolution in the way that businesses can transact with one another in a trusted fashion that can easily be verified.

Drawing parallels with the way in which the Internet revolutionized the way businesses communicated and transacted with one another, the Blockchain and Smartcontracts will once again change the Business landscape, adding the badly needed element of trust and tamper-proof verification in an easily automated way. Increasingly, just as with the Internet, businesses that integrate with the blockchain will find themselves being able to cut their payment costs, legal fees and speed up their verification processes. Businesses that don't will find themselves losing out to speedier, nimbler and more cost effective competitors. For example, in the financial markets, trades happen in a fraction of a second. In reality, exchanging the assets and payments can take days, involving multiple banks and clearinghouses. That can lead to errors, delays, added costs and unnecessary risks.

The problem that businesses face is how to integrate their existing data with the blockchain.
Decentralized applications need an interface to communicate with real world data.
The reason for this is that there is a fundamental difference of formats. Blockchain is deterministic, meaning that it reflects a specific series of events which take place one after another in sequential order - series of transactions. Accessing information outside of the chain would require data points that are not sequential and would therefore be impossible for Blockchain to use or make sense of. This aspect of Blockchain gives it immutability but reduces flexibility.
The off-chain world, however, is non-deterministic, meaning that there is no recording of the events in the specific sequence that they have taken place, which creates problems with transparency. Data points can be generated from and understood at any point, providing increased flexibility, but have difficulty in communicating with the Blockchain.

Coupled to this, with the advent of Blockchain and smart contracts we find the growing need for the ability for smart contracts to access data as without it smart contracts cannot function. Thus, we find that Smart contracts are realizing only a tiny fraction of their potential.

With the help of Oracles, smart contracts have real world applications in virtually every field available. Once data hits the Blockchain, the information can be used to execute the contracts and provide use cases, which can disrupt industries across the board. As an example Blockchains could help reduce the gap of the entire lifecycle of a trade from days to minutes, even to zero. According to a report by Santander InnoVentures, the Spanish bank's fintech investment fund, by 2022 ledger technologies could save banks $15-20 billion a year by reducing regulatory, settlement and cross-border costs.

DUCATUR is the first MultiChain Oracles Framework that is a ready-made, self-sufficient multi-chain ecosystem that unites data sources based on rating and provides tools for high quality data exchange as well as dispute resolution.

DUCATUR offers a unique solution in that it supports a multichain Oracles network that uses the three most rapidly growing blockchains - Ether, NEO and EOS.

We are opening the door to allowing Businesses to get onto the blockchain ecosystem. DUCATUR offers a framework and the tools necessary to facilitate an easier transition to the Blockchain.

This demand for blockchain solutions will drive DUCATUR's success into the future. Our vision is for DUCATUR to become the defacto standard framework for MultiChain Oracles spanning a variety of industries including but not limited to Finance, pharmaceutical, transportation, ticketing, real estate, manufacturing and the Supply Chain involving markets worth hundreds of trillions of dollars.

INTRODUCTION

2018 is the year of big business using the blockchain, and the trend we increasingly see is that many off-chain companies are joining the blockchain space and financial giants such as Goldman Sachs are following. Thanks to many years of experience in IT development and entrepreneurship, we see the delivery of data from off-chain to blockchain using the Oracle technology as one of the greatest opportunities on the market right now. In order to convert this opportunity, we are creating a set of tools [a framework] necessary for the implementation of blockchain into the operational processes of companies across many industries.

THE PROBLEMS THAT BUSINESSES ENCOUNTER WHEN MOVING INTO THE BLOCKCHAIN:

1. Deficiency of specialists and ready-made solutions for blockchain implementation - any specialist with blockchain experience instantly becomes more expensive, and is more difficult to find. Moreover, as the market is so young there are not so many user-cases of implementation of the technology.

2. As a result of this, all existing solutions, although able to solve some of the problems, cannot be streamed and standardized for other customers.

3. Without a system of standardized solutions of blockchain implementation, it is impossible to build a system of ratings and interactions between different oracles / data sources on a global scale.

4. Absence of a mechanism for resolving disputes. The element of business confidence in data sources contradicts the principles of decentralization, and the absence of a mechanism for resolving disputes makes the system imperfect.

Consequently, there is a need to create a single solution and building blocks for decentralized applications that will provide not only the possibility of a simple and cheap implementation process into the existing business operations (selection of an existing solution and data provider, installation of a node, data acquisition), but also protection of the interests of the client in the event of disagreement. Solving such a task is impossible without creating a single register of all existing solutions and a unified reputation system, based on which a trust relationship will be formed.

OUR SOLUTION

A MULTICHAIN FRAMEWORK FOR CREATING ORACLES

DUCATUR is a framework that allows you to create oracles for reliable data exchange between the interacting participants on the blockchain. That would be a system in which you always trust the received data and which provides a reliable connection between the blockchain and external information.

The product is a set of smart contracts and an off-line node with an interface between them.

The mission of the project is to create a successful product that will enable off-chain companies to quickly shift their business onto the blockchain. With the help of the framework, network clients can exchange verified data, resolve disputes, and can build their business as arbitrators, experts and / or data providers.

WHY DOES BUSINESS NEED DUCATUR?

1. Oracle creation availability. The DUCATUR framework will work in several blockchain networks: Ethereum, EOS, NEO. Thus, the infrastructure problem will be solved: it will become possible to create an oracle or dispute resolution mechanism for any

situation without having to pay high commissions and using are tested out dev solutions. In addition, the scope of smart contracts implementation will expand due to working in several networks.

2. A solution for banking transactions. Using the DUCATUR node, the interaction participants enter into an agreement, and if the node conditions are met, it will instruct the banking system to commit the transaction. This solution will effectively build interaction between partners: payment for goods and services will be automatically made when the transaction is confirmed, and its terms are met.
3. Qualitative and reliable data exchange. The data provider in the node is interested in providing reliable information, so that you can be sure of the correct functioning of the prediction market, forecast rating, exchanges or escrow that use this framework.
4. Arbitration in disputes. In the event of a dispute, the expert arbitrator, based on objective data, decides, being, on the one hand, an uninterested party, and on the other - motivated to make the right decision.
5. Entering the "new markets". A market with a capitalization of several hundred billion dollars potentially not only enables the "whales" to strengthen their positions, but also a very good chance of 1,000 local companies, to win their place in the sun.
6. Qualitatively new forms of organizations - decentralized companies, where the management of financial flows occurs through the management of smart contracts through oracles.

SYSTEM FEATURES

TWO-LEVEL RATING SYSTEM

The principle of two-level rating will allow motivating the creators of oracles to provide genuine data and make correct decisions. Thanks to the reputation system, the expert groups

(running nodes in the DUCATUR Network version) will be ranked, which will reflect the quality of the operations performed.

The rating system is built according to the binary principle: the expert's rating can be equal to either 1 or 0. At the moment of joining the node and depositing a pledge in tokens, the expert gets 1 reputation point, in case of giving incorrect data his rating becomes 0 and the pledge burns down.

DECENTRALIZED COURT

To create a decentralized court, it is necessary to exclude the possibility of fraud and protect the participants from subjective decisions. For this, destinies must be independent and unknown to both parties. There must necessarily be an anonymous place where the parties can provide evidence for their case. To ensure the decentralization of the community, the arbitrators are selected through mathematical algorithms that analyze the reputation of the arbitrators, their sphere of competence and specific jurisdiction.
Payments to arbitrators are taken from the pool of the losing party. The cost of the case is determined by the arbitrator or the client. The price can be equal to zero: for example, to gain reputation. Both sides are responsible for providing data, documents and testimony. In case of fraud detection by one of the parties, an auto-loss or a decrease of reputation to the expert by node are counted. To ensure transparency of the process and motivation for making the right decisions the log-database of all processes with shared access interface is provided.

UNIFIED SYSTEM FOR DATA AND A REGISTER OF READY-MADE SOLUTIONS

To connect the oracle (a new data source) to the DUCATUR Network, an information card is formed and placed in a unified registry, which contains basic data about the data provided.

The information card contains the following data based on which the rating and issuance in the web interface of the registry are calculated:

- Data source - brief information about the data source;
- Links to the website, social network;
- Data type;
- Date of creation - an expert;
- Hash rate - the total amount of information in kb that the source has supplied over the lifetime;
- The number of errors - per 1000 units in percentage, is constructed according to the log;
- Number of experts - the actual number of data sources that it works with;
- Pledge - the amount that the expert will pay for the error;
- Cost of kb - the price that is required for a unit of information.

COMPETITIVE ADVANTAGES OF DUCATUR

• VERSATILITY.

Among the existing solutions, you can find only separate services for importing currencies and commodities exchange rates into the contracts (2010 Multisignature, 2014 Competending Reports, 2015 Pseudo Corporation).

DUCATUR will allow the creation of oracle services for any purpose.

• DECENTRALIZATION.

Oraclize provides an off-chain solution for importing data from the Internet, but centralization creates the need to trust the oracle, which compromises the very idea of smart contracts.

DUCATUR is a network of independent oracles with a two-level rating system that motivates them to transmit reliable data.

- ### QUALITY DATA EXCHANGE.

According to the market, the protocol Chainlink, provides a high-quality data exchange, but according to their road map they are still very far from building their network.

- ### READY-MADE SELF-SUFFICIENT ECOSYSTEM.

Thanks to a unified register of all published solutions, searching and installing the suitable solution will take minimum amount of time.

- ### DECENTRALIZED ARBITRATION.

You can simulate any disputable situation and choose the solution most suitable for you, including the connection of live experts in case if mistakes in your business can not be unified and require detailed consideration.

Thus, the DUCATUR framework is a ready-made self-contained multi-chain ecosystem that unites experts (data sources) according to the rating principle and provides tools for high-quality data exchange and resolving disputes.

PROJECT ARCHITECTURE

DUCATUR NETWORK ROAD MAP

ETH	DUCATUR	EOS
Oracle contract	Experts	Oracle contract
Oracle contract	Node - Node	Oracle contract
Oracle contract	API's Expert's	Oracle contract

DUCATUR interacts with ETH and EOS networks: oracles transmit data through a central node to the connected blockchains. Experts and third-party data sources (APIs) are connected to the node and are being rated inside the node in accordance with the reputation

mechanism. The ranking of nodes within DUCATUR NETWORK takes place similarly.

DUCATUR will develop its own network, which will

- ensure the safe storage of all pledges in the contract (without the need for duplication in each connected blockchain);
- will record voting of experts in oracle: thus, deception of voices data is impossible, and calling contract method in proprietary network will reduce costs (no calls between experts and oracles in each network);
- contains a complete list of all sources connected to the DUCATUR network.

The basic unit of network functioning is the node. Node is the central element of the client's oracle, which has its own contract in the ETH network. Node calculates the votes of experts, thereby rating them between themselves.

Node registration occurs as follows:

The host of the future node sends a pledge in tokens and thereby calls the method of the DUCATUR management contract. During the registration process, a node contract is deployed, which is assigned a unique id and address. This pair of values fits into the directory of the DUCATUR management contract.

In addition to experts, you can connect third-party data sources (APIs) to the node. The API is connected in a manner similar to that of the expert. Each data source requires a deposit to be made in the node contract and is regulated by a reputational mechanism: the higher the reputation indicators of the API, the higher the percentage of profit distribution. In case if the reputation becomes negative, the pledge "burns" and the data source is disconnected from the system.

Pipeline of disputes resolution:

- First, the network client’s contract is connected to the node. After selecting a node, the client calls the DUCATUR control contract method for signing in for the disputes resolving service in the node id (types of disputes are as well predetermined by the node and have id).
- The managing contract delegates the call to the selected node's contract, the address of which is stored in the management contract directory.
- The client's contract address is written to the node's contract directory.
- In case of a disputable situation, a call of the management contract is made, which forwards it to the node method.
- Calling this method activates the work of experts.
- After the work is complete, the node aggregates the result and through the delegated call passes the solution to the network client contract.

ILLUSTRATION

EXPERT REGISTRATION

Network	Offchain
Main Contract <- request+pledge	Replenish the wallet with tokens for the pledge
Oracle Contract	Main Contract request, making a deposit, delegating a call to the contract oracle
Expert Contract	Creation of an expert contract

VOTING

ETH VOTING

Client Contract -> Main Contract (interaction with oracles, nodes and experts)

1. The client addresses the Main Contract to resolve the dispute
2. The dispute is delegated to the contract of the oracle
3. The oracle node randomly selects experts who vote
4. The oracle considers and delivers the verdict
5. The solution is sent to the client through the Main Contract

IMPLEMENTATION AREAS

The DUCATUR framework allows solving the problem with trust in various blockchain spheres.

SECURE CROSS-VALIDATION OF DATA

Two companies store and process personal data. Any reconciliation of such data will be very risky for both parties if they are not 100% trustful of each other. In order to ensure security, an oracle is created on the basis of the DUCATUR framework that checks this data while ensuring 100% protection.

TRANSPARENT SHARING OF INCOME BETWEEN PARTNERS

Sharing of income among partners and business units is very resource intensive activity, the cost of which could be reduced by just creating a smart contract and connecting the Oracle to it. In such case all calculations will take place automatically at the expense of Network.

PREDICTION MARKETS / BETTINGS

Prediction markets can be viewed as exchanges, where users trade with the results of upcoming events, concluding so-called event contracts. These contracts specify the possible outcome of the future event, the procedure for paying dividends depending on the outcome of trading as well as the expiration date of the contract. Blockchain suits such interaction better than anything

else. However, the problems described above can become a serious obstacle to obtaining objective information. With the help of DUCATUR framework it is possible to develop a special solution for a specific market of predictions, thereby ensuring reliable data exchange.

ARBITRATION FOR MARKETPLACES AND FREELANCE EXCHANGES

Concluding the transaction through a smart contract, the seller and the buyer (the contractor and the customer on the freelance exchange) agree on the formal terms of the transaction. If these conditions are met, the money pledged in the smart contract is transferred to the seller. But what is to be done in those cases when the condition is formally fulfilled, but the quality of the service does not suit the client? A product or service may not be in accordance with the declared properties. In such cases there is a need for a fair and independent arbitration, which on the one hand, will not be interested in any of the parties, and on the other will be motivated to achieve a fair result. For such cases you can use the DUCATUR framework and find a suitable expert.

RATING WEBSITES

Rating websites give projects the listing opportunity which means posting information about themselves on the website. The listing agreement can be concluded through a smart contract, making the appearance of information on the website to be the condition for transferring payment. The DUCATUR framework allows you to build an oracle that will be able to verify the fulfillment of this condition and send information to the blockchain so that payment is transferred to the seller's account.

THE SOLUTION FOR BANKING TRANSACTIONS

If the bank uses the DUCATUR framework, legal entities can conclude an agreement on the provision of services to each other on the basis of a smart contract - contracts are registered in

the node of the bank, and when the condition is met, fiat money obligations are fulfilled (Visa and Mastercard interaction as an example).

DECENTRALIZED COURT // CASE

The user concludes a smart-contract with the betting company for the winning on February 28 of a certain person. The event takes place, but the user receives no money. The story could have ended badly save for the DUCATUR. The user visits the website, specifies jurisdiction, segment, smart contract number and downloads data into the template, where he describes the problem, adds documents, testimonies, also specifies the defendant's data, email, wallet address and so on. The algorithm selects judges and assigns a date for the verdict. One of the arbitrators considering the case can postpone the date, that is, request additional data or a written comment, or refuse to sue, since there is no legal background, or can take both a positive and a negative decision. Three judges participate in the arbitration of the first level, if the decision is taken unanimously, then the decision is considered final, if the decision is not unanimous, then it is considered accepted, but either party may file for revision.

DECENTRALIZED COMPANIES

With the advent of the blockchain, new forms of collective activity organization began to appear - the Decentralized Autonomous Corporation (DAC). Thus far, the construction of such companies required the deployment of their own blockchain. DUCATUR will allow implementation of these blockchains in any client network (ETH / EOS / NEO). In such companies, the budget is collected in a contract and distributed through stakeholder voting.

DUCAT ROADMAP

2017

3 QUARTER

DUCATUR idea
First researches
First investments ($ 500 000) from AtlasBlockchain

4 QUARTER

The earliest version of the product

2018

2 QUARTER

The MVP release
The first use case for standartico.com: transparent sharing of Income between partners
Pre-TGE
TGE
Tokens emission, unlocking and distribution

3 QUARTER

Ducatur light release
Oracle marketplace
Unified register of all published Oracles
Multichain token: the function of an exchange between Ethereum (ETH) and EOS networks

4 QUARTER

DUCATUR network release
Two-level rating system
Decentralized court

2019-2021 TBA

DUCAT TOKEN

The DUCATUR framework will function solely due to the DUCAT token, which is deeply integrated into the system to ensure maximum turnover, as the value of any crypto currency exponentially grows with the number of agents using it.

TOKENS IMPLEMENTATION

1. The payment for obtaining reliable data using DUCATURs networks.
2. Entering a pledge into the contract of the node to initiate work. The expert must enter the DUCAT tokens into the node contract to become the arbitrator in the disputes or in order to start the data supply. According to the binary rating system, when entering the network (the introduction of tokens into the smart contract) the expert gets 1 rating point. In case of giving incorrect data, the expert loses the deposit and 1 point of the rating.
3. Payment for expert services. The network client pays the expert's work with the DUCAT tokens and receives a dispute resolution mechanism / supply of authentic data. The distribution of the commission is as follows: % is assigned to the expert executor, % of the payment - to the DUCATUR network, % - to the off-chain node.

GENERATION OF DEMAND FOR A TOKEN

Since the DUCAT token is the only mean of calculation on the platform, so the demand for it will grow based on the number of nodes created, experts and the development of the framework itself. About 7,000,000,000 Ducats will be created at the moment of TGE, according to the logic of having 100 ducats for each smart contract in the Ethereum network at the time of the TGE. Thus, the model of the token is deflationary, built on limited offerings with growing demand over the past year, the number of smart contracts has increased 40 times with the expected growth of 100 times.

2016 June 13 - 123,376 contracts
2018 February 10 - 4,784,631 contracts
2018 March 3 - 5,202,239 contracts
Planned 2018 June 1- 7,000,000* contracts

DETAILS OF FUNCTIONS AND OFFERING

There are four ways of buying DUCAT tokens:

- During the pre-TGE with a bonus;
- During the TGE with a bonus;
- On exchanges where DUCAT tokens will be placed after the crowdsale;
- Through the Bankor protocol on the DUCATUR Network.

The DUCAT tokens comply with the ERC-20 standard.

A total of 7,000,000,000 tokens will be issued, no additional offerings are planned. Unsold tokens will be destroyed.

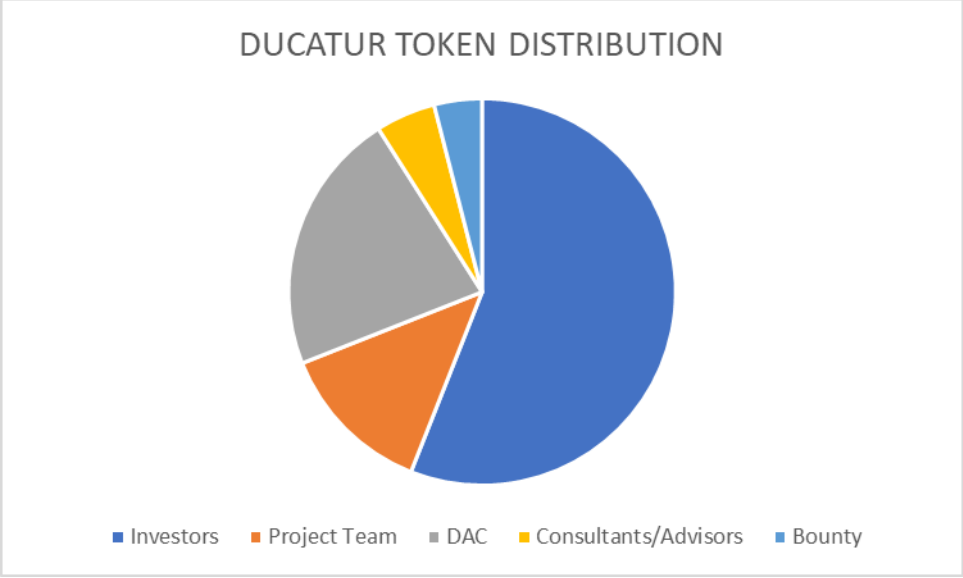
TGE STRUCTURE

STAGES AND BONUSES

Whitelist 01.03 - 30.04

Pre-TGE 01.05 - 31.05
TGE 01.06 - 30.06

Token type: ERC20,EOS,NEO
Ticker: DUC
Whitelist: YES
Know Your Customer(KYC): Only for contributions over 10 000$
Min/Max Personal Cap: 0.1 ETH / TBA
Date held: 01/03/18
Soft cap: 1 270 ETH
Hard cap: 15 700 ETH
Base price of 1 DUCAT = 0.000005 ETH (approx 0.003$)
The total number of DUCAT tokens is 7,000,000,000, which is ~ x1000 to the number of smart contracts in the Ether network per day of TGE.
Token Issue: AFTER THE CONCLUSION OF THE PUBLIC SALE EVENT.
Token Issue: After the conclusion of the TGE
Accepts: ETH, BTC, NEO, EOS



Percentage distribution of tokens

13% of tokens will be the share of the project team. Team members are not allowed to sell tokens for 1 year after the TGE. The team's share is unblocked monthly by 8.3%.

57% of tokens will be the share of investors.
21% is deducted to DAC DUCATUR account, dedicated to creating long-term partnerships with major players in the field.
5% of tokens are paid to project consultants and advisors.
4% of tokens are deducted as bounty awards.

TEAM

Our team has experience in developing and maintaining projects since 2007, and we know for sure what is becoming popular in the market right now - that's why we created DUCATUR: a product that will become a decentralized system and an epicenter of connection between the blockchain and the real world.

IVAN KOSHECHEV | CTO
Since 2007, Ivan has been a developer for SAP enterprise systems, developing internal system interfaces for companies such as IBM EE / A, Rosatom, Gazprom, Rosneft, Transneft, Alfa-Bank, SAP CIS, Severstal, and is currently developing Atos A / S, Metinvest, BDO IT solutions.
https://www.linkedin.com/in/ivan-kocheshev-85bbaa42/

GEORGE BELL | COO & Founder
George is the co-founder of Crynet - one of the five best agencies in the crypto sphere and has extensive experience with more than 20 ICO's.
He participated in the development of LAToken ($ 20,000,000) and Swissborg ($ 50,000,000), has been an advisor in multiple projects.

George possesses professional experience, as well as expertise in the field of digital advertising and the development of start-ups, George is an ICO marketing expert.
https://www.linkedin.com/in/cryptogeorge/

FRANCIS LEITAO | CDO
IBM, Dynamic Limited, Sun Microsystems (Oracle), Pillar Project. Highly skilled and result driven Senior IT Professional with over 25 years of experience in with hardware, software and systems as well as Business knowledge, possesses several years of IT Project Management, ERP, Senior Consultancy, Cryptocurrencies and pre-sales experience in the Enterprise.
https://uk.linkedin.com/in/fleitao1

SUVI RINKINEN | Brand Management
Suvi has extensive experience in Fintech, in Payments and Remittances industries working in Fincode, being responsible for bizdev, accounting and stakeholder management. She has also worked in communications, PR, and content marketing projects. Suvi holds a Master's degree in linguistics from University of Helsinki.
https://www.linkedin.com/in/suvirinkinen/

MIKHAIL SHUKSHIN | Frontend developer
Leading frontend development specialist. Implemented several large automation projects. Mikhail was engaged in the development of applications for interaction within the system from operators to administrators with support for various processes. He has experience in the reporting, control, planning and various acceptance and accounting modules development areas. TypeScript, React, Mapbox, D3, Node.js.Lead.
Experience in GoLamaGo, Priem Team, Pyrus, ePythia.
https://www.linkedin.com/in михаил-шукшин/

We are growing our team and currently have 9 blockchain developers that are on the probationary period.2

GLOSSARY

Framework - software tools (a set of libraries) that are used to quickly develop everyday tasks and simplify the creation and support of technically complex projects.

Bancor protocol - standard that allows creating fully liquid smart tokens that calculate their own cost and allow you to convert one token without using the other party.

Oracle1 - the third party that provides operation of smart contract by supplying data to a block. The emergence of blockchain and smart contracts opens up opportunities for safe and transparent interaction. The fulfillment of the terms of the transaction is controlled by the code, not by the people: as soon as the data enters the blockchain, smart contracts are included, and the conditions are fulfilled. Changing, hiding or cancelling the transaction is not possible.

The problem of oracles is the determination of the correct solution under given conditions (a set of states of the system). However, blockchain do not have access to information outside the chain of blocks, so they cannot independently verify the conditions underlying the smart contracts. To achieve this, there are oracles, which translate information from external sources into the blockchain accessible form. But the problem of trust remains open - the chosen oracles can compete and finding data and correctly processing it becomes more difficult in the rapidly changing information world. This leads to the risk of getting the wrong data.2

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1 https://cointelegraph.com/explained/blockchain-oracles-explained

2 https://www.reddit.com/r/ethereum/comments/7te8qc/decentralized_oracles_the_truth_nothing_but_the/

DUCATUR managing contract - the central contract that registers oracles, carries out routing of users' requests and accumulates fees for services.

Node - the central component of the client oracle, which ensures the interaction of the software infrastructure of the business unit with the blockchain. In order to support its operation, the node is in contact with other nodes of the DUCATUR decentralized network and has its own contracts in the ETH, EOS and NEO networks. It is an executable module within the DUCATUR framework and it functions within the managing business unit infrastructure.

Expert - an arbitrator or data provider, including the API.

Two-level rating system - rating system, under which the ranking of the nodes (the first level) and the experts within them (the second level) takes place.

Trust as a core value is the operating principle of a system in which all interaction participants can trust information that they receive (without having to trust the other members of the network) and on the basis of which various agreements come into force, ranging from bank transactions to resolving disputes. In this regard, it becomes obvious that soon the market will need a tool that can organize a transparent and honest data exchange system.