



**Blockchain
Telecom**

BUBBLETONE BLOCKCHAIN

**GLOBAL TELECOM ECOSYSTEM WITHOUT INTERMEDIARIES:
SMART CONTRACTS ALLOW DIRECT INTERACTION BETWEEN
MOBILE OPERATORS, SUBSCRIBERS AND SERVICE PROVIDERS**

Welcome message from Yuri Morozov, CEO and Founder



Yuri Morozov
CEO and Founder

Meet our new blockchain-based platform project.

Our company has been in telecom business for more than 20 years. Seventeen years ago we were among the first to create a platform for intelligent communication services, including fixed-mobile convergence.

For more than 18 years we have been successfully developing our own MVNO operator company with a client base of over 250,000 subscribers.

But as an MVNO operator offering its services only in limited areas, we are still unable to provide our clients with global roaming service despite many efforts.

Such a project would require us to sign contracts with about many hundreds global operators, pay a lot of money for technological convergence, check the quality of the services provided (voice, data, SMS, MMS, real-time billing, signaling, etc.) and also guarantee 300,000–500,000 commitments per year. Obviously, a project of such scale demands vast material and human resources.

To provide roaming services to our subscribers, we developed and brought into commercial operation a special OTA platform which makes it possible to remotely swap between mobile profiles of a SIM card, practically on the fly. It looks like you simply bought a new local SIM card and inserted it into your mobile phone.

We partnered with operators that currently provide services to their subscribers in more than 80 countries and who agreed to sell their mobile profiles, paying them deposits. In fact, we can already provide services to our clients at local rates without roaming in more than 80 countries. But there is a big inconvenience: buying profiles involves paying a deposit in each country, setting up online billing and, for many countries, completing a KYC form.

What we have today:

- Operational platform that is able to upload mobile profiles on subscribers' SIM cards;
- Operational applet certified by one of the world's largest SIM card manufacturers, Oberthur Technologies (OT) and Safran Identity & Security (Morpho), which determines whether the subscriber is in his home or guest network. Depending on the settings, it

automatically swaps the home mobile profile for the one newly downloaded by our platform.

- Beta version of the messenger with a playful name - Bubbletone - but serious technological capabilities. The Beta version is already available in the Google Play Market and the Apple App Store.

We chose a meaningful name: while the messenger is a full-featured working tool for users, it's as easy to use as blowing bubbles. We believe that this fun brand name will make our messenger more recognizable around the world.

The Bubbletone app contains more than 100 functions, each being in high demand by users. For our current project, the most important functions are:

- Retaining your mobile number in the app during remote swapping of the SIM card profile. Subscribers will be able to receive incoming calls via an IP channel and also pay for local mobile service bundles in the visited country.
- Using Bubbletone as the first client of a decentralized network based on blockchain technology (explained below), which we are developing. Blockchain made it possible for us to radically change the rules of the game: we simply eliminated roaming.

Collaboration by mobile operators from different countries to make roaming possible involves huge expenditures on infrastructure support. In fact, the provision of services to a network subscriber in another network requires complex interactions between various equipment of the providers.

Our solution will let operators cast aside most of this infrastructure because many requirements, such as validity, integrity and indisputability, are covered by the technology itself. We're not daydreamers — we know exactly which minimum data are processed by operators during service provision and what the process looks like. In our system, the interaction between operators is encoded in a reliable and simple smart contract that contains everything necessary to provide roaming services.

Why should someone visiting another country pay 8–10 times more than a local? This is unreasonable. Plus, the poorer the country, the more expensive the roaming.

In our system we change the “push” paradigm, where operators “force” their subscribers into another operator’s network, for “pull”, where operators see the new clients themselves, securely identify them, and connect them to their own networks. Our smart contract is a separate incontestable agreement between two operators and the clients themselves that is enforced automatically.

In short, our code chooses a suitable operator for a client that will provide that client with roaming or any other communication service and creates a smart contract via a single transaction in which each party will “sign” for each action, attaching the necessary data to the contract every time (data will be securely encrypted so as to be accessible only by the parties.) Each “signature” is written into the blockchain and can be used as a reliable source of information on the status of the contract.

What are its benefits?

- Transactions are incontestable. Operations conducted in blockchain are nearly impossible to fake or hide. This factor is important both for operators and their clients.
- Data are safe. An entire blockchain is kept on many nodes within the network, in many copies, so the chance of data loss is extremely low.
- The transaction error rate is minimized, as each action is controlled by a strict code on the operators' nodes.
- Less traffic is transmitted among operators — all interactions are now conducted via a decentralized p2p network.
- Any additional code the system runs on is void of sensitive information that could be stolen. The only data requiring protection are the private keys of the participants.
- Other benefits of a specific blockchain are given below.

We have analyzed many blockchain platforms and found them not entirely suitable for the telecommunications industry, as their transaction processing speed is rather low and we don't want to let our clients down.

Our platform of choice is Graphene, which underlies the decentralized exchange BitShares and such widely known projects as Steemit, Golos and EOS. Our developers promise us over 10,000 transactions per second, though, to tell the truth, 5,000 would be enough at the start. Also, the first prototype of the first node has already been published on GitHub.

With our solution, operators will be able to publish their price quotes in the blockchain network and automatically get connected clients. The clients will receive all the data necessary for connection with just a couple of transactions and the operator will securely reserve the money to pay for the services. The amount of unnecessary traffic and hardware that will be freed up due to this solution is quite striking. This isn't magic or a trick, but a new class of algorithms with inherent ready-to-use functions for companies providing information services.

Consider the following benefits:

1. When a SIM card is first sold, the home operator validates the client and sends encrypted digital proof of the client's validity into a blockchain. As a result, when the client goes to another country, there's no need to provide their ID to get another SIM card.
2. Roaming operators will only need to promptly offer their services and price quotes, and the network will distribute this information and use it to bill clients itself.
3. The offers will be regulated by the law of supply and demand, so technical and market share dominance will become less important than, for instance, the quality of service. Isn't this the cellular communication we always wanted?
4. We are making communication services exponentially more affordable and are fighting inequality. The cost to use and support our system is significantly less than what you'll find with other operators today.
5. Our system has many technological advantages (and some shortcomings, of course). For more information, see the project's white paper or simply ask us any questions you may have.

We developed a special economy for the telecom industry. We have two tokens: One of them is stable and equals 1 SDR used in telecommunications. We named it SDRT (SDR Token). It's the unit of payment given to providers for their services, i.e., the price of services is measured in these units. Everyone needs SDR tokens, and their amount is unlimited, just like the amount of services is unlimited. The second token is UMT. It's necessary for creating smart contracts, and all service providers require it. For more information on tokenomics, see our white paper.

While our blockchain platform is still under development, we have already received several requests from existing business projects to transfer their business processes to our blockchain. They need stable tokens and a quick blockchain platform, and, like ourselves, they got tired of the many intermediaries that sometimes earn more than those who actually provide services and conduct business. So, our project to kill roaming is only the beginning.

Yuri Morozov, Founder

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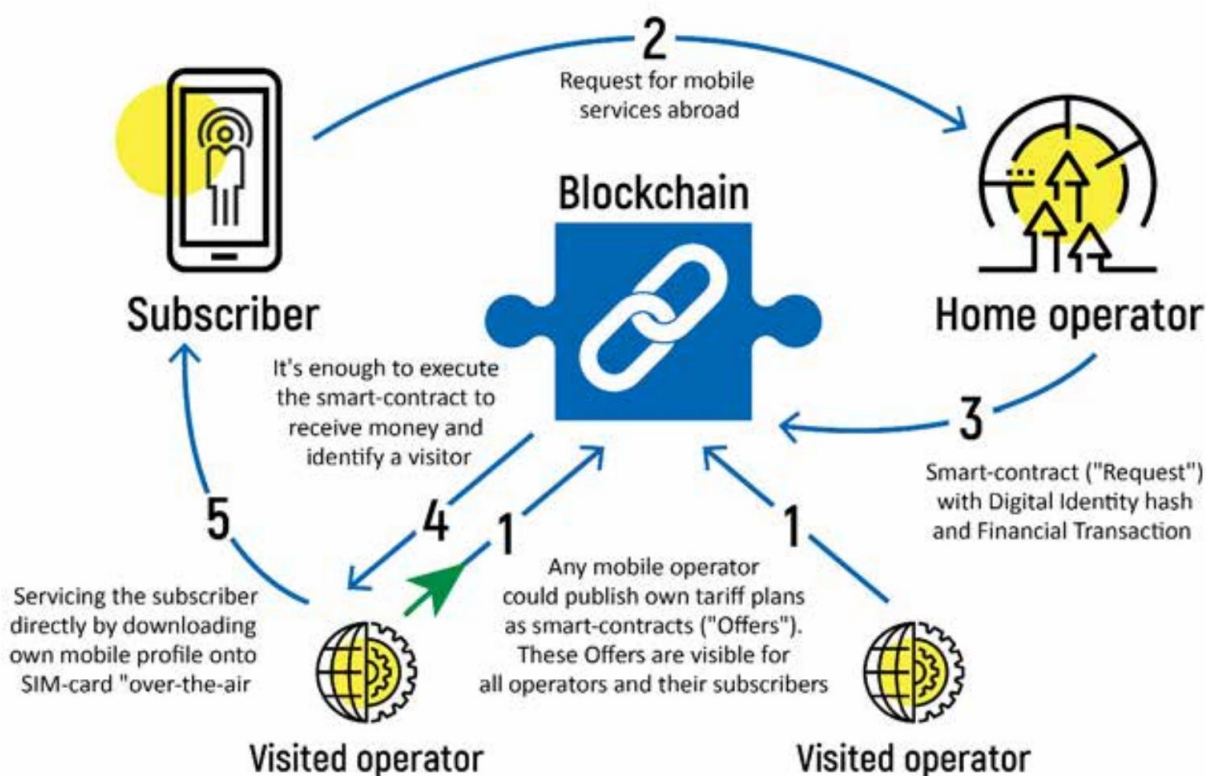
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1. Executive Summary

“**Blockchain in Telecom**” ecosystem provides direct interaction between end-users, mobile operators and service-providers via **smart contracts**.

It eliminates hundreds of intermediators, dramatically reduces costs of mobile services (up to 10 times while going abroad), and saves years and millions of \$\$ on implementation of the old-fashioned and ineffective roaming technology.

How it works: any mobile carrier could publish its own prepaid tariff plans (“**Offers**”) as smart contracts. These Offers are visible to all other operators and their subscribers. By selecting an Offer, a new “**Request**” smart contract is created, with the Digital Identity of a subscriber and Payment transaction.



As a result, the Offer issuer identifies the user and receives money, and starts servicing the subscriber directly, with local price and high quality.

The same business process is available for any non-telecom service provider (like music, TV or cloud services) who is interested in distributing its own Offers among multimillion customer bases of mobile operators.

The Blockchain ecosystem consists of a limited number of high performance servers (“**Nodes**”), which belong to the crypto community. It means that any crypto holder could buy a license to manage the Node, and start earning by processing the smart contracts.

The more operators and service providers are connected to the “Blockchain in Telecom” ecosystem, the more “smart contracts” are to be processed, the more revenue and value of each Node. Our approximated projection is **10x annual growth** of Smart Contracts in the ecosystem.

High ROI is combined with **Low Risks**, because we’re a proven team with 20 years’ experience in telecom industry. During this period, multiple telecom and software development businesses have been created:

- a. Mobile Virtual Network Operator under brand “**Allo Incognito**” (240K Premium Subscribers)
- b. “**Bubbletone**” messenger with 100+ useful features. It’s customized for the needs of mobile operators to provide additional revenue streams on voice calls and SMS from the app and other telecom services. Beta version is already available at App Store and Google Play.
- c. **Global Mobile Data Exchange** developed for mobile operators who are interested in global coverage services for their subscribers. Currently local prices on mobile services are already available in 80+ countries.

We are running an ICO to gather funds mainly for development of the blockchain platform, marketing, expanding and sustainability of the ecosystem.

2. Glossary

Regional telecom carrier (hereinafter "Carrier") - a company with the corresponding license, which is providing telecom services to its subscribers, and possess a non-dominant share of a local market.

SDR (Special Drawing Rights) - a unit of accounting of the International Monetary Fund ("IMF") for International Settlements, which is actively used by the mobile carriers for settlement. The cost of SDR is calculated as a basket of market rates of five world currencies: 41.7% of the US dollar, 30.9% of the Euro, 10.9% of the Chinese yuan, 8.3% of the Japanese yen and 8.1% of the pound sterling.

SDR token – a stable token pegged to SDR (Special Drawing Rights). This token is used for payment for services of mobile carriers and service-providers.

UMT token (Universal Mobile Token) - a token with market exchange rate and a limited amount specified on the ICO. A small number of UMT should be put into each Smart Contract when it is created to perform transactions under the Smart Contract.

UMT tokens can be used to pay for telecommunications services on the Bubbletone platform. Specifically, UMT tokens can be used on a user's balance in the Bubbletone messenger app as payment for sending messages and making voice calls in public switched telephone networks.

To replenish the balance in the Bubbletone app, a user can buy UMT tokens making payment with fiat currencies, crypto currencies or SDR tokens through the payment gateway inside the Bubbletone platform. Crypto currencies, fiat currencies or SDR tokens will be exchanged into UMT tokens and will be deposited as UMT tokens on the balance of the Bubbletone app user.

Proof of Importance (POI) - a further development of Proof - of - Stake consensus in the field of Telecom. It is a consensus based on the net transfers: how much has been 'spent' in the past 30 days.

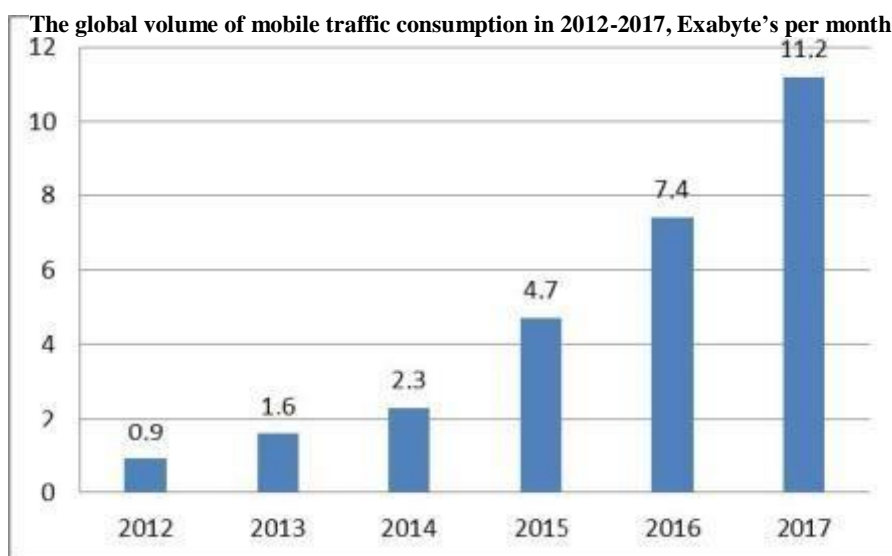
SLA (Service Level Agreement) - Agreement on the level of service which represents a formal agreement between the customer and its supplier, containing a description of services, rights and obligations of the parties and, most importantly, a consistent level of quality of the service.

3. Global market for messaging, mobile traffic and roaming

3.1. The volume of global mobile traffic

The global mobile traffic may reach 19 exabytes (billions of gigabytes) per month in 2018 (Cisco® Visual Networking Index™ Global Mobile Data Traffic Forecast for 2013 to 2018).

The process of digitizing our lives is irreversible. According to research from 2015 and 2016, more than 80% of the population in developed countries have access to the Internet, and more than 60% of Europeans own smartphones, with almost constant access to the network.



Source: Cisco® Visual Networking Index™ Global Mobile Data Traffic Forecast for 2012 to 2017

The expected growth in mobile traffic will be, among other things, the result of the continued increase in mobile Internet connections of personal devices and machine-to-machine connections (M2M), whose number will exceed 10 billion in 2018 (Cisco: in the period from 2012 to 2017 the volume of mobile traffic will grow 13 times).

The development of these trends is facilitated by the popularity of instant messengers (IM). Internet traffic of messengers surpassed voice communications and the volume of SMS traffic in 2016 for the first time. By the number of text messages, IMs will surpass SMS by 10+ times by 2020.

3.2. Tourists consume less or no traffic because of expensive roaming

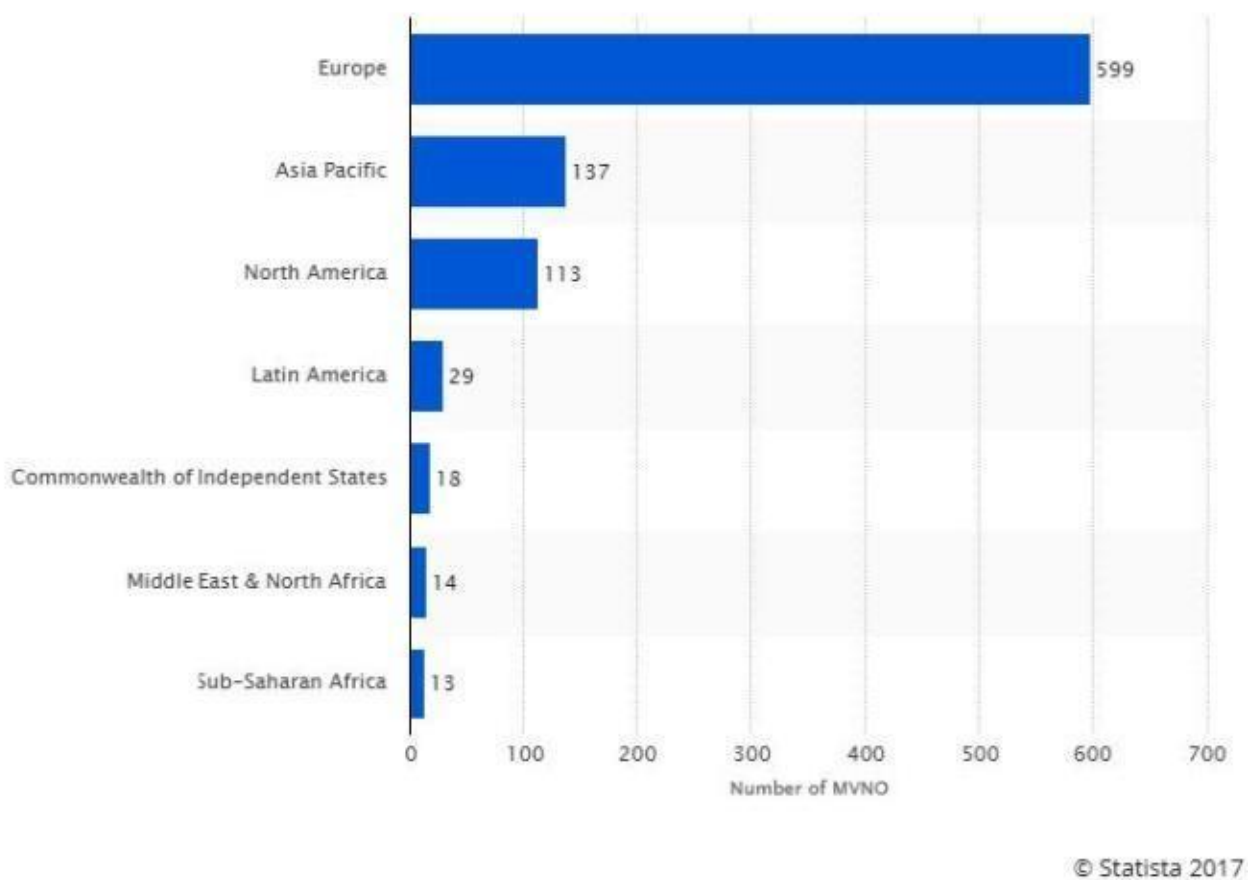
There are more than 1.2 billion travels per year globally, growing by 4% annually.

According to Starhome Silent Roaming, 70% of subscribers disable data roaming, and just 1% of subscribers consume 80% of all traffic in roaming

Our experts consider this to be a consequence of high prices. This means that there is substantial hidden demand for cheaper traffic from tourists.

3.3. There are more than 900 potential partners for Bubbletone Blockchain

The number of virtual mobile carriers (MVNO), by Region, 2015



Creation of the Bubbletone Ecosystem is happening with assistance and in partnership with mobile carriers and service-providers around the world

3.4 Potential of Bubbletone Blockchain with further development of eSIM technology

Mobile device manufacturers have been increasingly producing equipment that only works with embedded SIM. Latest examples are Apple Watch Series 3, Gear S2 Classic 3G and others. Growing is the number of smartphones that have embedded SIM as the main connectivity component or are equipped with it along with the traditional SIM-cards. Smart Insights forecasts the sales of eSIM-enabled handsets would total 346 million to 864 million units by 2020. In the near future 100% of devices will be eSIM-enabled. In the IoT segment the pace of eSIM adoption is even higher.

For embedded SIM users, the Bubbletone blockchain offers an ecosystem where new economic relationships can be made by connecting mobile devices to a specific network. Each user will have the opportunity to choose a network operator and to switch to another operator including the MNP procedure without the involvement of operators and retailers. This approach reduces the costs of subscriber acquisition, starter kits production and logistics. As a result of this change, the operators can use new mechanisms to reduce the price of services for local rates, as compared to selling physical SIM-cards in retail stores. In the coming 3 to 5 years, the Bubbletone blockchain will be able to process over 30% of all connections to mobile networks worldwide. To implement this process, vendors of mobile devices will just have to connect to Bubbletone blockchain.

We are creating a non-geographic mobile profile (GMP), which is not dependent on the legal requirements of any specific country where mobile service is rendered. This will allow for the creation of a universal product operational throughout the world according to uniform rules. GMP allows registration of mobile devices and loading of the mobile profile of the local operator via SMS or https channel in accordance with eSIM standards (SGP-21), Security Mechanism for the SIM (3GPP TS 23.048), and other solutions ensuring secure loading of profiles to mobile devices. This gives the user the option to select the necessary network operator and use mobile services at local rates worldwide.

For the GMP to operate correctly, we plan to maintain the relevant telecommunications infrastructure and also to sign agreements with network operators throughout the world to ensure the GMP is registered in their networks. To accomplish this, we are going to use the infrastructure of our MVNO network. Agreements with operators will be signed according to the standard roaming procedure utilizing the existing infrastructure of transit operators (SS7, IPX/GRX). GMP will change the current process of connecting a mobile device to the mobile operator eliminating the involvement of retail chains and SIM card logistics.

4. Value for carriers, for subscribers and for crypto community

BubbleTone Blockchain will create a fair and transparent ecosystem for the telecom industry to substitute for current ineffective and costly roaming technology.

BubbleTone Blockchain should allow:

- Carriers – to cut costs and increase revenues,
- Subscribers – to gain access to local prices worldwide instead of high roaming charges and to earn bonuses for activities that can be spent on communication services and other services from the participants of BubbleTone Blockchain,
- Crypto-Community - to enjoy rapid growth of income.

***BubbleTone Blockchain, as well as other global Blockchain platforms,
will belong to Crypto Community***

4.1. What is roaming and roaming agreements

In the context of mobile phone networks, the word “roaming” is used when a mobile phone is used outside of the range of its home network and connects to another available cell network. For example: should subscribers travel beyond their mobile carrier networks, their cell phone would automatically hop onto another phone company's service, if available.

The legal roaming business aspects negotiated between the roaming partners (mobile carriers) for billing of the obtained services are usually stipulated in so-called roaming agreements. The GSM Association broadly outlines the content of such roaming agreements in standardized form for its members. In order for a subscriber to be registered on a visited network, a roaming agreement needs to be in place between the visited network and the home network. This agreement is established after a series of long testing processes, various legal and financial commitments, and other cumbersome procedures.

The goal of the BubbleTone Blockchain platform is to eliminate all of the above long, complex and costly procedures, creating a new market for thousands of telecom carriers and opening affordable mobile services for silent roamers. Moreover, the platform creates a synergy between the telecom business and service providers outside of the telecom market.

4.2. Problems for the regional carriers

The technology of roaming is cumbersome, expensive and hard to implement. It bears cost on the integration of carriers, measured in years and millions of dollars. As a result, the roaming services

market has become virtually monopolized by the major carriers, and it is closed to regional carriers. The latter actually lose their subscribers at a time when they are traveling abroad.

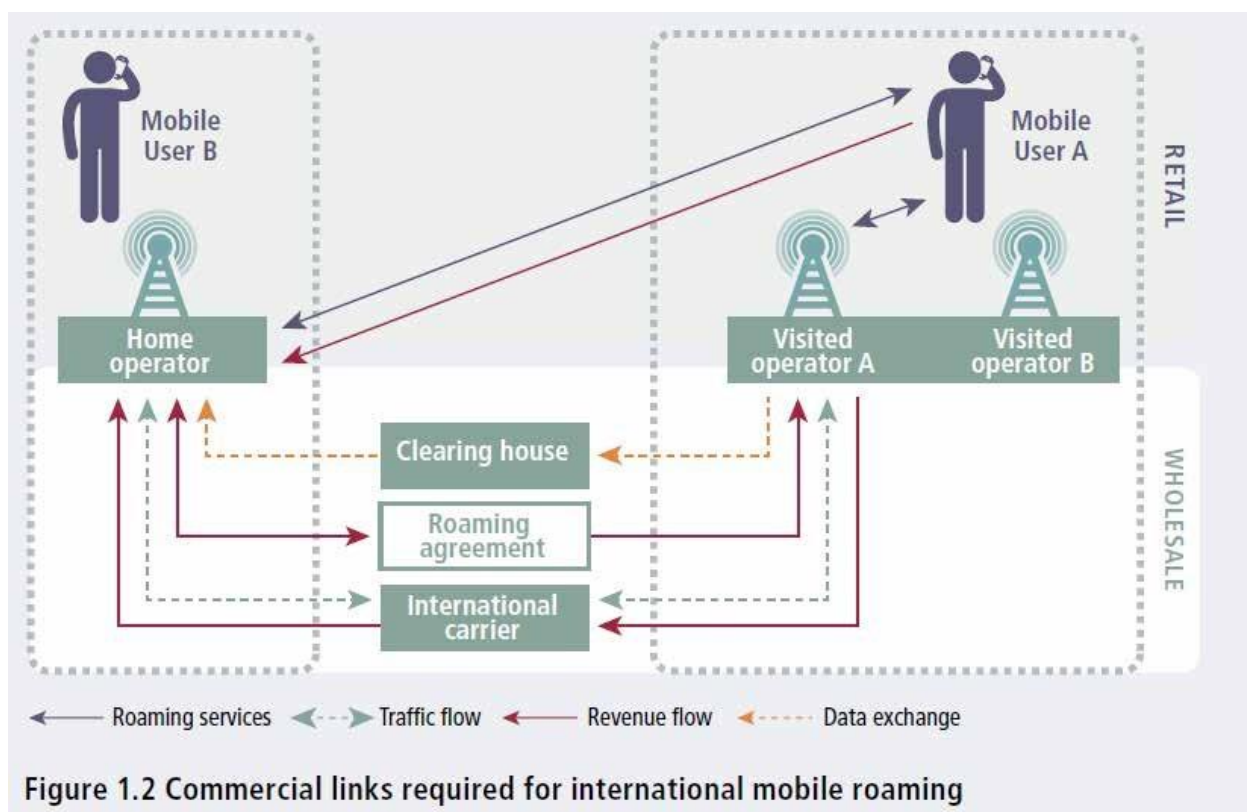


Figure 1.2 Commercial links required for international mobile roaming

(GSMA International Roaming explained)

From the time of market entry of instant messengers all carriers began to lose a substantial part of their revenues on voice traffic and SMS. A project to launch its own messenger for any carrier involves considerable time and capital cost. In addition, messengers from carriers usually lose to popular messengers by their functions and prevalence. For the regional carriers, it is difficult to compete with large players who invest significant funds in design and marketing of new services.

One more problem is a decreasing average revenue per user because of strong competition between operators. Small and medium mobile operators have limited budgets on R&D and marketing to implement new services in short period. As a result, they are not able to compete with large mobile carriers on equal terms.

4.3. Solutions of Bubbletone Blockchain for carriers

By connecting to Bubbletone Blockchain, carriers will avoid the need to enter into roaming agreements. Mobile carriers will be able to connect to Bubbletone Blockchain through a simple API (Application Programming Interface). They do not have to go through a complicated and lengthy process, as in the case of roaming.

They will also be able to provide for their subscribers a Bubbletone messenger, with integrated tariffs plans and customized wallpaper with their logo and colors. They will be able to provide to their subscribers the opportunity to keep their mobile number while traveling abroad and, additionally, save on roaming. Which means that the home mobile carrier will not lose revenue from incoming and outgoing calls, which otherwise would have gone to another operator.

In addition, mobile carriers will be able to provide services to subscribers coming to their country with acquisition cost close to zero. According to our sources, to attract a subscriber today, regional mobile carriers spend about 20%-30% of their LTV (Lifetime Value).

Connection of new carriers to the Blockchain is carried out by the consensus of existing players, which makes the process transparent, excludes patronage, and also significantly reduces the appearance of scammers.

4.4. Problems of subscribers

Being inside their home network, the subscriber does not have the ability to quickly switch between carriers in case of poor-quality communication because domestic carriers do not have an effective national roaming mechanism.

Traveling subscribers have to significantly overpay for services of foreign carriers because the roaming market is monopolized by Mobile Network Operators.

Traveling subscribers have three alternatives for roaming, but each of them has its own disadvantages:

- Local SIM card: the need to look for the point of sale to set up a local SIM card, which may be complicated by a possible language barrier and sometimes requires several hours; risk of losing the user's main SIM card; change of the user's home number.
- Global SIM card: higher rates than local SIM cards; separate balance; change of the user's home number; risk of losing the user's main SIM card.
- Wi-Fi hotspots: the need to search for an access point; permanent reconnection between hotspots; these points usually require a password, which disrupts the continuity of the network connection.

4.5. Solutions of Bubbletone Blockchain for subscribers

To avoid roaming charges and stay connected with their home number outside of their home network, any subscriber can set up the Bubbletone Messenger and buy a local tariff in the country they visit. The beta version of the Bubbletone messenger is now available for download in the App Store and Google Play.

The beta version of the Bubbletone Messenger already has enhanced security and unique features:

1. Audio and video calls.
2. Group chats and SMS chats
3. Burning messages after reading.
4. Sending messages to the future.
5. Sending SMS from the messenger onto GSM network.

6. Stickers and animations.
7. Sharing photos, videos and large files.
8. Record voice messages with pre-listening.
9. Request geolocation of subscriber and contacts.
10. One account for multiple devices with message synchronization and built-in cloud storage.

It is already supported by the mobile carrier “Allo Incognito” and negotiations are being held with several other carriers.

In the future, we are planning to develop new functionality for the Bubbletone messenger as a part of Bubbletone Blockchain:

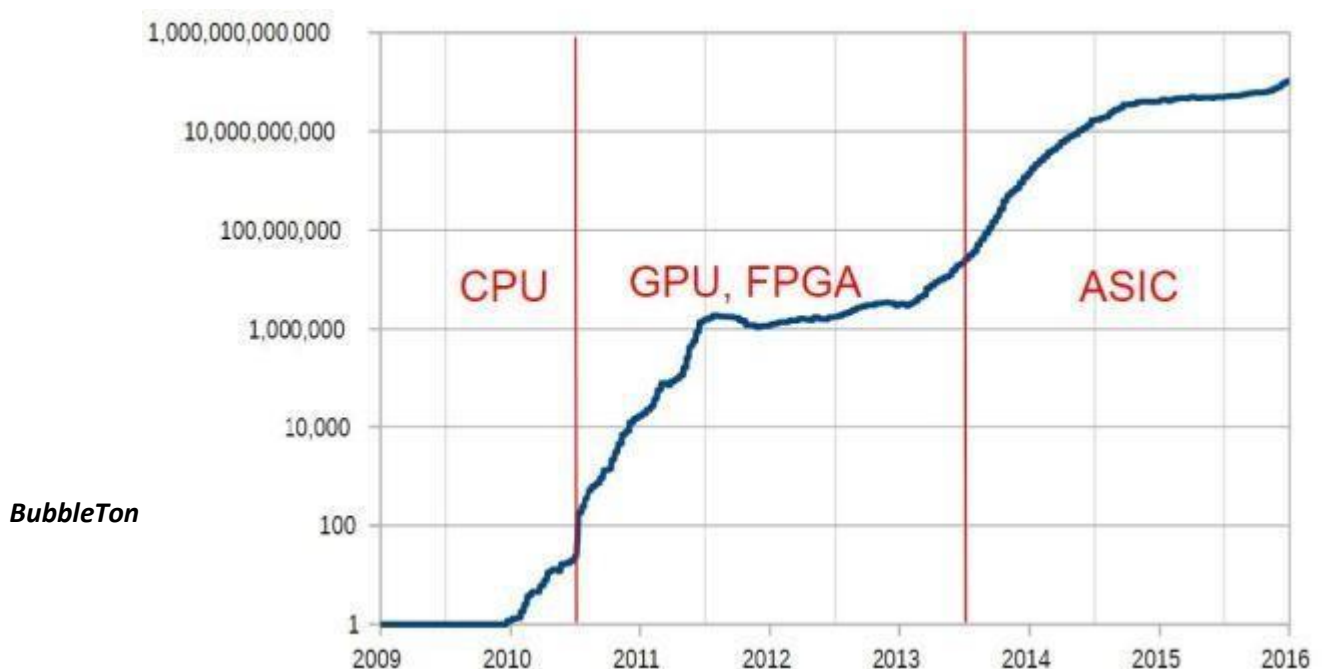
1. A technical capacity to buy a virtual number in 60 countries around the world and order communication packages in 100+ countries around the world, according to their local tariff plans
2. The ability to enable automatic selection of the carrier by the criteria of price or quality of communication services
3. Access to independent rating of mobile services provided by the carriers. Each user can estimate the quality with one “click” in the Bubbletone messenger, and his/her choice will be recorded inside the Blockchain
4. Make P2P payments in crypto and fiat currency around the globe
5. With a built-in voting platform based on blockchain, users can organize voting contests, business meetings, and give honest ratings to products and services
6. Videoconferences with a large number of participants
7. Hidden chats and contacts in case an unidentified person appears in front of the device.

4.6. The crypto-miners problem

Apart from volatile exchange rates, crypto-miners have two other problems.

- 1) The constant “arms race” because of the increasing complexity of mining.

The complexity of mining a Bitcoin (logarithmic scale)



2) The problem of the utility-value of the earned crypto currency. Most crypto currencies do not yet provide an opportunity to buy real goods and services with them. Also, they are purely speculative.

4.7. Solutions of Bubbletone Blockchain for crypto-miners

Bubbletone Blockchain gives crypto-miners an opportunity to process smart-contracts created by mobile carriers and service providers, and earn reward on this business.

Crypto-miners in Bubbletone Blockchain will be able to engage in useful work. Instead of searching for artificial hashes, the crypto-miners will be processing transactions for the provision of communication services and other online services.

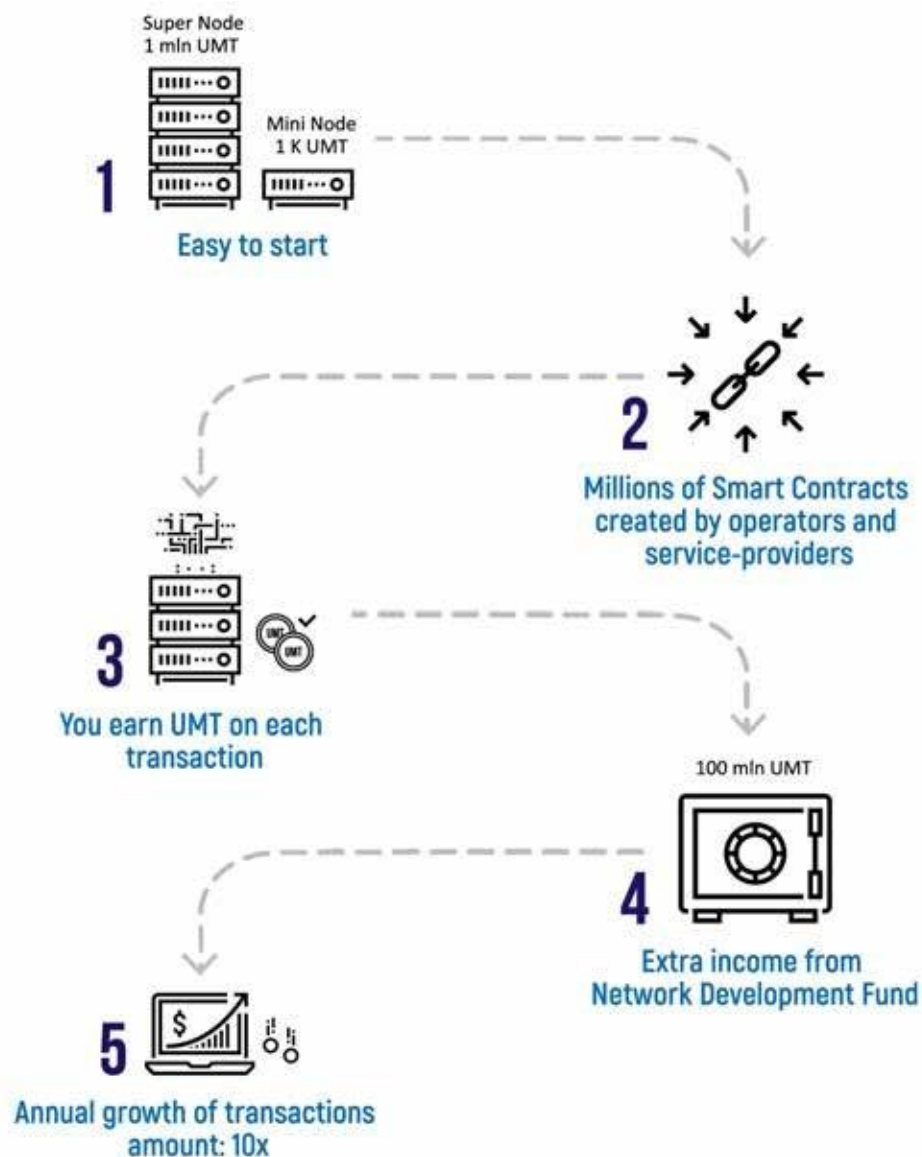
Crypto-miners can earn Universal Mobile Tokens (UMT), which are required in Bubbletone Blockchain to pay fees for processing the transaction. UMT is a universal token to make a smart contract executable in Bubbletone Blockchain. When we connect new carriers and subscribers to the system, the number of transactions will grow.

For mining in the system, Proof of Importance (POI) consensus will be used. It's a further development of "Proof - of - Stake" consensus in the field of Telecom.

In order to start processing the transactions, crypto-miner should buy UMT and put them onto deposit. There are two investment levels in Bubbletone Blockchain:

Level 1 - a **Super Node** – a high-performance server which has to be switched online and tuned according to SLA (Service Level Agreement) to execute the Smart Contracts. **It will require a deposit of 1 million UMT.** In addition to commission fee on transactions, a Super Node holder will be able to receive a share from the daily payment from the Network Development Fund (NDF). The purpose of NDF is to support the nodes until there will be enough transactions for them to process with profit. So, we plan to develop the network in two years.

Level 2 – a **Mini Node** – any computing device (even smartphone) to assist the Super Nodes in transaction processing. **It will require a deposit of 1,000 UMT.** Each Mini Node must be attached to a Super Node of his choice. Super Nodes will be able to give tasks to Mini Nodes such as validating of smart contracts.



The commission fee on transaction processing will be distributed as follows:

- 45% goes to Super Nodes. Out of these Super Nodes may provide additional bonuses to the Mini Nodes attached to them.
- 30% of income is split among Mini Nodes attached to a Super Node. This Bonus can be earned by assistance the Super Node in transaction processing.
- 25% goes to the Community Development Fund to ensure constant development of the system and to exclude the Deadlock situation, where there may be not enough UMT to perform the transactions.

4.8. Proof-of-Importance (POI) consensus

Proof-of-Importance is a Blockchain consensus mechanism introduced by NEM. BubbleTone Blockchain uses its version modified for the telecom services.

It functions similarly to Proof-of-Stake: nodes need to 'vest' an amount of currency to be eligible for creating blocks and are selected for processing a transaction roughly in proportion to some score. In Proof-of-Stake, this 'score' is one's total vested amount, but in Proof-of-Importance, this score includes more variables. The calculations follow from the math of network clustering and page ranking.

For a user who owns a Mini Node, the primary inputs of his POI rating are:

- 1) Amount of currency in deposits for purposes of creating a node (minimum 1000 UMT)
- 2) Activity in traffic consumption – this type of measurement is better than measuring outbound traffic as it guards against bots and spammers who could increase their rating by artificial means.
- 3) Activity in transaction generation – e.g. ordering services in the past 30 days, with more recent transactions weighted more heavily.

The importance rating addresses primary criticism of proof-of-stake that people simply hoard as many coins as possible and reap the rewards from that. This concentrates wealth while discouraging transactions. The importance rating means that spreading tokens around will increase it.

For a user who owns a Super Node, the primary inputs of his POI rating are:

- 1) Number of days from the past 100 days, when Super Node was online and performed at the level required by SLA.
- 2) Super Node standing in the list of best performing Super Nodes in the network.

5. How it works?

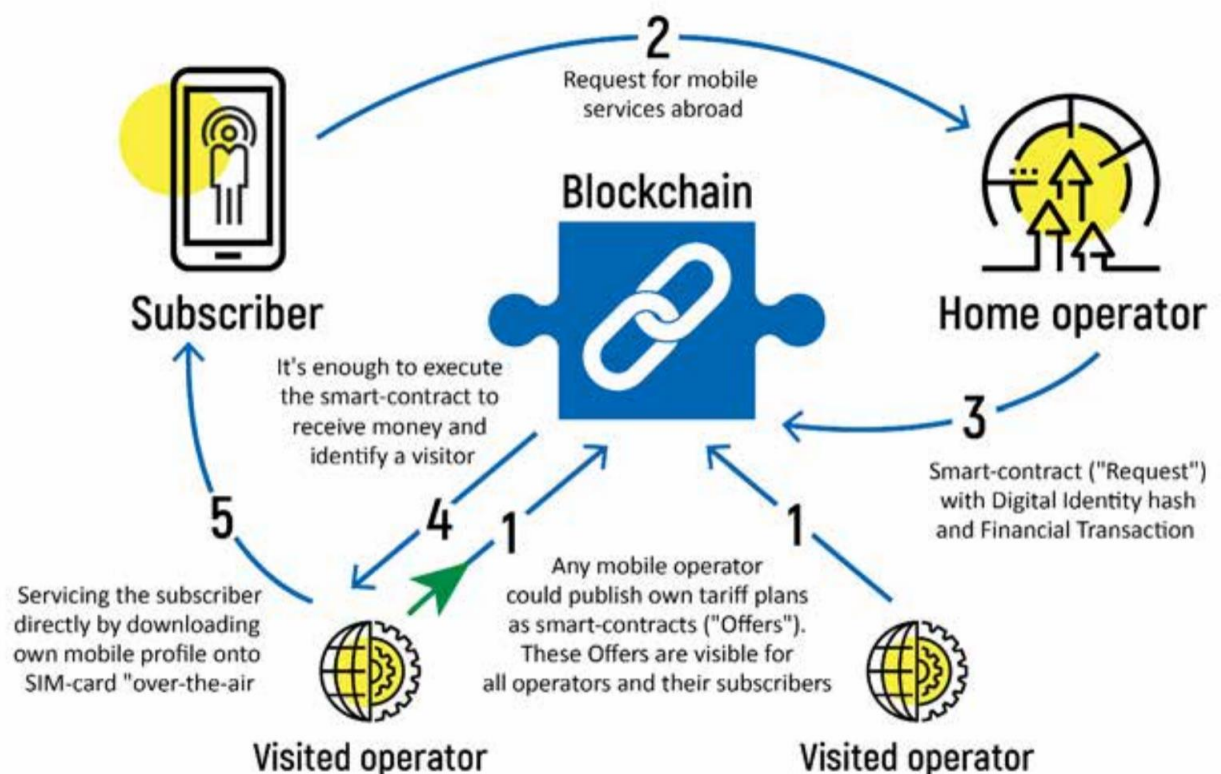
Initially, any mobile carrier could publish its own prepaid tariff plans ("**Offers**") as smart contracts. These Offers are visible to all other operators and their subscribers. By selecting an Offer, a new "**Request**" smart contract is created, with the Digital Identity of a subscriber and Payment transaction in SDR tokens. Each transaction has UMT to be processed by Super Nodes.

As a result, the Offer issuer identifies the user and receives money, and starts servicing the subscriber directly, with local price and high quality.

The same business process is available for any non-telecom service provider (like music, TV or cloud services) who is interested in distributing its own Offers among multimillion customer bases of mobile operators.

The process of creating and executing of smart contracts is seamless for customers and takes about a minute. Direct connection to a local operator provides low rates and high LTE quality, with easy management using BubbleTone mobile app.

We're planning to issue Global Mobile Profile in 2019 to make mobile devices connected. This profile will be embedded into devices by vendors, so any end-user will be able to select required mobile provider at home and abroad in one click.



Crypto-miners can earn Universal Mobile Tokens (UMT), which are required in BubbleTone Blockchain to pay fees for processing the transaction. UMT is a universal token to make a smart contract executable in BubbleTone Blockchain. When we connect new carriers and subscribers to the system, the number of transactions will grow.

6. Characteristics of BubbleTone Blockchain

BubbleTone Blockchain is planned to use Graphene Framework and Proof-of-Importance consensus.

6.1. Bubbletone Blockchain will be developed using Graphene Framework

Graphene is an Open Source C++ Engine developed in a very modular fashion, making it adaptable to many different uses. Our Blockchain will be developed on Graphene and can execute over 10,000 transactions per second.

The telecom industry needs hard, real-time transaction processing. Waiting over one minute for connection services is critical for the subscriber.



Source: Graphene

6.2. Development of the third-party apps

We will have an open source platform and will invite developers to prepare new smart contracts for new partners. Also for Bubbletone, we will create a powerful platform for the development of third-party bots and small applications.

After completion of the ICO, a Team & Community Development Fund will be created, which will amount to 209,000,000 UMT tokens (20.9% of all UMT tokens).

6.3 Hardware requirements for a Super Node

The main pattern of work of blockchain node is:

- massive computations for transactions signature checking
- sequential look into stored blockchain blocks
- absence of massive block updates, only addition of new data (except fresh blocks)

So,

- CPU - must be good for effective encryption and signature checks
- RAM - minimal requirements are strong, many internal structures needed, all rest of RAM will be effectively (thanks to absent updates) used as file cache for accessing blocks
- HDD - SSD - very good pattern for it (several inserts, many reads, no updates). Only availability is important, data consistency and replication are provided by blockchain
- NET - mostly websockets:// traffic. Many opened and kept TCP connections, multiple adapters recommended. Network, due to possible amplification of incoming traffic can become a bottleneck

So, our requirements are:

- Intel i7, 8+ cores
- 64GB RAM
- 2xSSD 1Tb, RAID 1 (Mirror)
- 2x10Gb/s network interface.

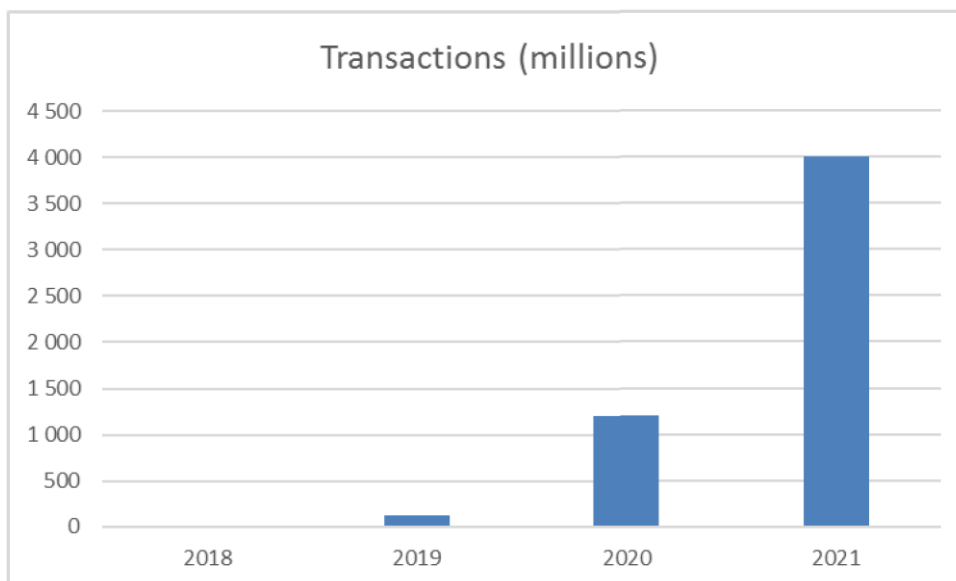
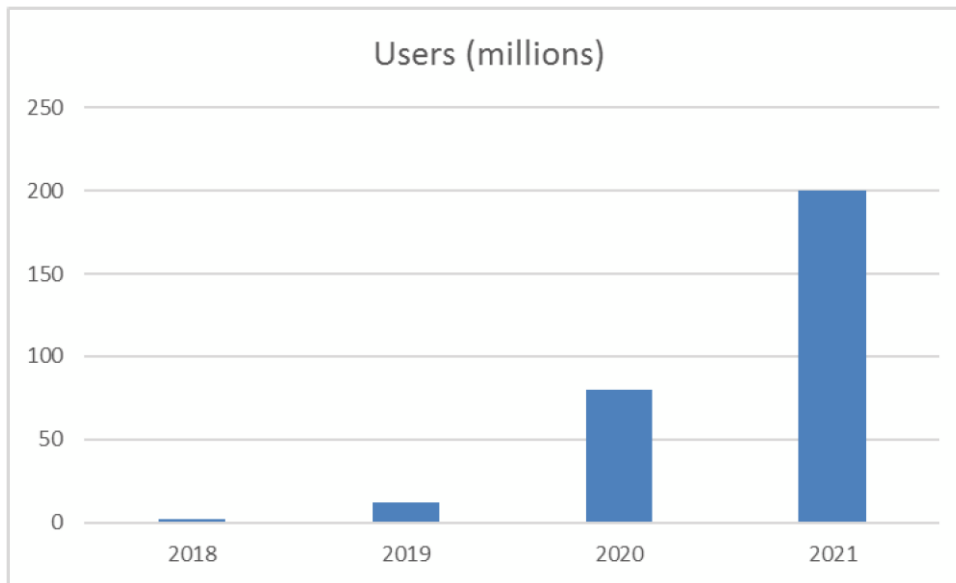
7. Business model of BubbleTone Blockchain

Bubbletone Blockchain has two tokens due to following reasons:

- a) The need to ensure stable prices of services for subscribers, and projected revenues for operators and service providers. For these purposes, the SDR token has a fixed rate pegged to 5 major fiat currencies.
- b) The need to provide a link with the crypto currency market to give crypto-miners the opportunity to exchange revenues from transaction processing to fiat and crypto currency. For these purposes, the Universal Mobile Token (UMT) has a floating rate and a limited amount. It will be sold at the ICO with a capacity of listing on crypto exchanges.

Our projections on the Blockchain Ecosystem growth are as follows:

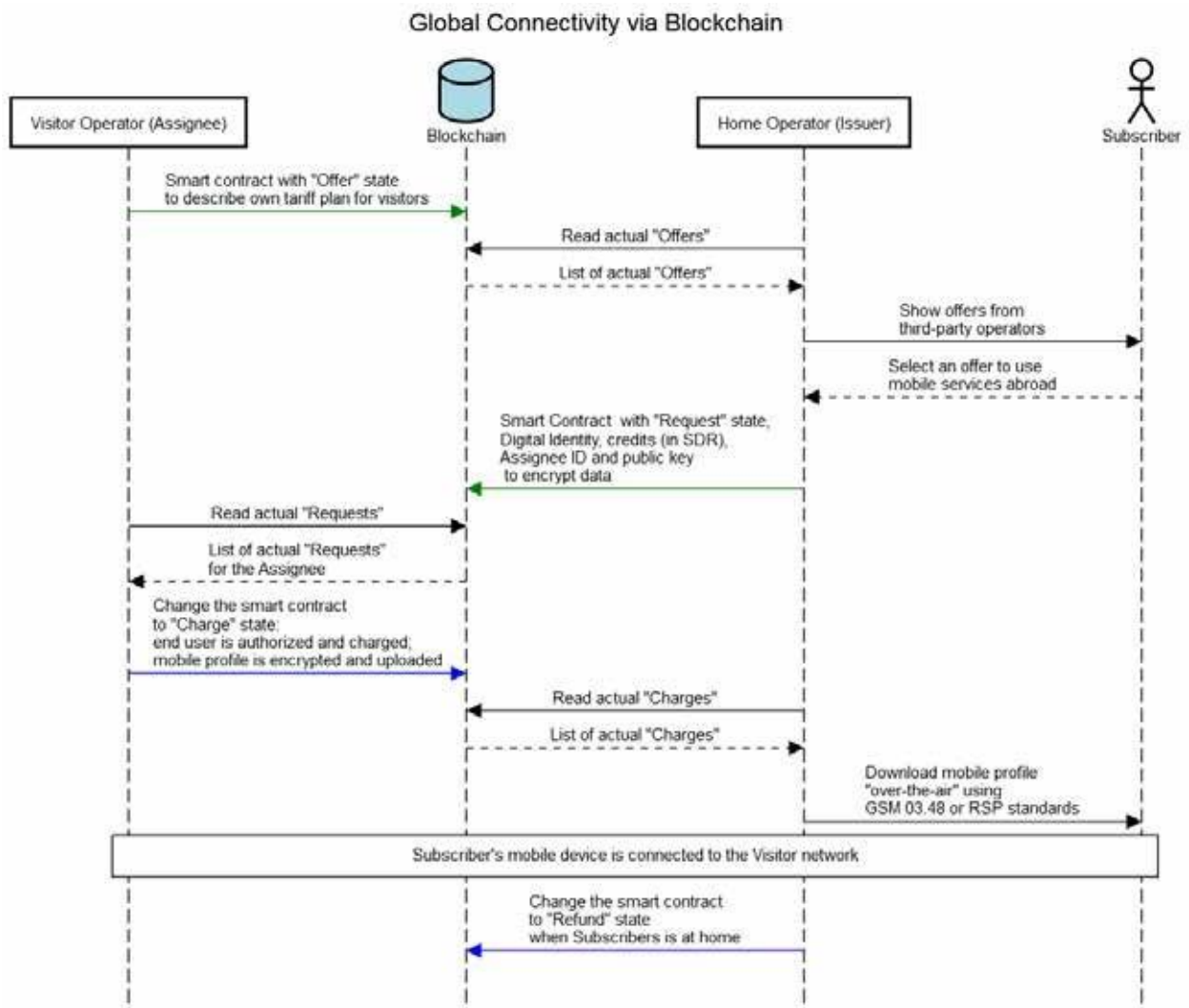
| | 2018 | 2019 | 2020 | 2021 | 2022 |
|--|------------|-------------|---------------|---------------|---------------|
| Number of Mobile Operators | 15 | 50 | 110 | 190 | 270 |
| Number of Service Providers | 40 | 100 | 200 | 350 | 500 |
| Number of their Subscribers | 2 000 000 | 12 000 000 | 80 000 000 | 200 000 000 | 250 000 000 |
| Services per Subscriber per year | 5 | 10 | 15 | 20 | 25 |
| Total number of Smart Contracts | 10 000 000 | 120 000 000 | 1 200 000 000 | 4 000 000 000 | 6 250 000 000 |
| Average commission per a Smart Contract (\$) | 0.15 | 0.14 | 0.13 | 0.12 | 0.12 |



8. Technical specifications

8.1. High-level diagram

A high-level diagram on how operators and subscribers interact each other via Blockchain is shown below. The very important point is the great scalability of this business model because neither technical nor commercial integration between the operators are required.



Blockchain Telecom (BT) provides interoperability of mobile operators through the special smart-contracts (hereinafter - SSC), that are in fact a strictly predetermined finite automation, constructed from sequential transactions, that was put on a blockchain by users and operators. This goal is reached by consensus transaction processing, performed on blockchain nodes. Only transactions, corresponding to previous transactions, having right state, values and signatures of participating parties are valid.

The function of SSC is to store client's funds, allow operators to charge client several times, and, finally, redistribute funds held by SSC between participating parties. These transactions offer services, open requests for service, charge clients and, finally, transfer payments to operator, performed the request, fee to operator, published original request, and change to client.

Execution of SSC, validation of transactions and publication of the new blocks in BT is performed in a decentralized manner, on high-speed nodes, providing extremely high, stable and predictable rate of processing transactions. For the telecom industry, the quality of service in terms of transaction execution speed is not a wish, but absolutely necessary condition for the existence. So, for the

implementation of the SSC, we consider only high-speed blockchain projects to ensure the finalization of the vast majority of transactions in a fraction of a second.

BT uses special tokens - Universal Mobile Tokens (UMT) and SDR Tokens. The economic model of these tokens is described in detail in the "Business Model" section. Here we mean that the main goal of participating parties is a safe, effective (in terms of storage), and technically undeniable (excluding collusion between nodes) transmission of correct amounts of funds from one party to another.

8.2. The general procedure

Operator, that provides service (hereinafter - "Assignee"), sends a so-called "Offer" transaction to BT. "Offer" transactions contain the information necessary for obtaining the service: price, amount of traffic, and other information, encrypted, if needed. These transactions are actually an operator's prices with info, needed to buy a service.

Operator, representing a subscriber (hereinafter - "Issuer") selects from the fresh blockchain block an "offer" transaction, i.e. a specific service with specific parameters and cost. With this offer, Issuer initializes the SSC using transaction "Request", which indicates the Assignee, who must carry out request, and set the required parameters. "Request" transaction is linked to corresponding "Offer", by signing it, so, with "request" transaction Issuer starts transactions chain, that we call SSC. Also, "Request" transaction "freezes" some fixed amount of Issuer funds in SSC. These funds will be used as maximum amount of funds, that can be spent on Assignee' services.

Then, Assignee, through the "charge" transaction, reserves amount of funds, needed to provide the service, and starts providing mobile services to the subscriber. it repeats this procedure several times, if needed, sequentially decreasing reserved funds, and increasing funds, destined to himself. All funds continue to stay frozen in SSC upon completion of SSC (by any cause, if everything was ok, if service failed, or SSC is expired by time-to-live).

Then, Assignee, Issuer or Client through the transaction "Refund" completes the execution of SSC and funds are finally distributed between all participants.

8.3. Detailed discussion of smart contract

The basic algorithm can be represented by a graph of transitions of SSC states. Each edge of the graph - is a transaction, validated and related to the previous transaction with strictly defined type. For example, "charge" transaction will not be accepted by the network if the network does not have a previous transaction with type "request" or "charge" transaction cannot prove its acceptance by signing it.

In the first version of the protocol, we consider only four different states of SSC - offer, request, charge, refund:

Offer - a transaction that declares the service of a particular operator, its price, and other info about the service. The "offer" transaction can have no previous transactions, and the SSC uses it as an initializing transaction for the whole SSC transactions chain.

Request - is the transaction following the "offer", placing information about the client and the operator that is invited to serve it. It transfers some "reserved" amount of funds from client to SSC, and now the only way to return them is send the "refund" transaction. Also, it contains the information necessary to

provide the service. The transaction, in fact, places deposit and makes a “task” to operator-assignee in response to his “Offer”.

Charge - a transaction, following “Request” or previous “Charge”. It fixes a certain part of service (billing step), which the operator-assignee has provided (or planning to provide). This transaction can be sent multiple times, until there are funds, allowed for charge, and all other conditions are met. But in all cases the transaction must certify previous transaction (“Charge” or “Request”), thereby transitively accepting “Offer” conditions

Refund - a transaction which is carrying out the final allocation of funds. Called by any participant it stops the SSC, transferring funds to the participants in the amounts, corresponding to the charges provided. In the first version of the protocol there is a special flag, indicating that the refund is caused by bad, or non-working service. The number of such transactions, in relation to a particular operator, is a good metric for independent rating of mobile carriers.

Each transaction in this transactions chain, except the first “Offer”, includes the signature of the previous transaction. Thus, each participant confirms the fact that he sees the correct processing of the history of SSC and agree with it. Otherwise, it sends to the network a transaction refund, returning a portion of its funds, and notifying the network about his complaint on quality of service of particular operator.

The states (transactions) of SSC are presented in Yellow Pages called “Service Smart Contract states and transitions description”

8.4. SSC side points and practical aspects

We would like to see all the interactions between the operators of the transaction took place within BT. This will allow the network to be as robust and flexible as well as eliminate the need for direct integration between operators, that was a big technological problem for a long time because of very diverse equipment.

Symmetric key exchange, organized within the SSC from first transaction is very useful for such kinds of interactions in BT, allowing parties to organize fast and secure communication channels, saving time and resources spent for extra challenge-response handshakes between operators' equipment.

For example, when a subscriber wants to register in an operator's network, a mobile profile (including credential data) of this operator should be downloaded onto SIM card (or embedded SIM chip) over-the-air. The necessary symmetric keys can be obtained by both parties from “Offer”, “Request” and “Charge” transactions.

Downloading of mobile profiles is performed by Issuer onto its SIM-cards using one of the standards for the telecom industry:

- Remote SIM Provisioning (<https://www.gsma.com/rsp/2017/04/12/remote-sim-provisioning-works/>)
- Download information on the SIM-Map of SMS-channel in accordance with the GSM 03.48 “Security Mechanism for the SIM.

The solution for safe mobile profile downloading and installing is already realized by our team, or Issuer can use solutions from other companies, but it's important that these solutions satisfy the standards above.

8.5. BT Blockchain requirements

The main requirements for BT is a guaranteed level of service. Stable transaction closure speed is critical, because otherwise the client will not be able to get the service she/he needs. It should be noted that at a stable transaction closing rate, we mean not only the average time of placing the transaction in a block, but also the problems of peak loads. Even in the case of a high average speed, a noticeable increase in processing time at peaks (for example, when a big operator publishes many service offers or charges), BT must continue to steadily serve customers. So, at the current stage we plan to use only highly available specialized servers responsible for their availability and performance.

The job of the BT node is the validation of all new transactions, adding them to blocks and publishing blocks in the p2p network. Node checks the current transaction, searches for the previous one in the blockchain, checks the signatures and balances of the participants. The inclusion of a transaction in the block means that the node verified it, verified its authenticity, and guarantees the correctness of the data. Also, it is the node that receives the commission for placing the transaction in the block. Transaction validation, in fact, is actually executed by an SSC because all our logic, checking signatures, balances, transactions order really only makes one choice - is the transaction valid or not. So, the SSC is "hardcoded" in the node's validation algorithm and renews only with the node's software.

The requirement for quality of service limits the range of available solutions for building BT. From the candidates for building high-speed blockchains with a controlled closing time of the transaction, we selected engines based on the consensus of the Delegated Proof of Stake. They make it possible to assign high-performance servers as delegates, closing blocks at a predictable rate, and control the degree of decentralization. In future versions, the options for building a node hierarchy in BT are considered, allowing some transaction processing jobs to pass to client devices, which let them helping nodes.

Also, a good candidate for the role of the main blockbustor BT are the engines that implement sidechains for large, decentralized blockchains - Bitcoin and Ethereum. We examine the Rootstock and Plasma engines to evaluate their suitability for our task. There is a big advantage in that they allow using of traditional BTC and ETH crypto currency in the system, greatly facilitating the fight against the volatility of the working token and are more convenient to use than the self-made tokens.

Nevertheless, at this stage the most promising direction of development is the Graphene engine and solutions based on it (Bitshares, Steemit, Golos). This engine already works in the production environment, it is constantly developing, and, most importantly for us, it provides the following important functions:

- Add / remove delegates (Super Nodes)
- p2p network for publishing transactions and blocks
- implementation of "transfer" and other exchange functions
- account management and many functions to operate with accounts
- excellent performance due to implementation in C ++
- many types of transactions and the ability to create and modify our own types
- * The implementation of the SSC in the Ethereum network is also considered as a prototype in order to present a solution to the experts and the community.

One of the implementation problems is the update of the software on the nodes. SSC implies further development, and, as realists, we know that the protocol will require changes, at least necessary to add

the data to provide new types of services. Changing the logic of transactions validation can easily take out an outdated node, so we plan to make protocol changes that are strictly compatible with previous versions. The fact that delegate nodes belong to operators, who have a real economic incentive to keep the code up-to-date, is an additional advantage.

Including new operators in BT is also a problem. To provide telecom services, the operator must undergo an offline validation procedure, have a license and title documents. This, on the one hand, protects the network from bad players, and on the other hand it obstructs the operational management of the network. We plan to resolve this issue with the help of a functionality that will force operators to participate in the election of new delegates. Those participants who did not participate in the procedure of consensus adding / excluding operators for a long time will be penalized by a rating downgrade and exclusion from consensus.

Decentralization of BT is not an easy matter. From the client's point of view, BT is not decentralized, it's just a convenient service. From the operator's point of view, BT is decentralized, because nodes are equal and are not controlled by any entity. We do not see a contradiction here because the internal interaction of operators among themselves is not a problem of the client, who in general does not care how they get the service. At the same time, it is important for operators to know that each node is independent, and transactions in BT are technically undeniable.

A separate discussion is the possibility of information attacks on the BT. The implementation of the SSC requires many searches in the blockchain to find the previous transaction in the chain belonging to the same SSC. For example, after seeing the "charge" transaction published by the client, the node must find the corresponding "request" transaction. If we do not limit this process, we will have to look through the whole blockchain, not part of it. To limit the number of blocks viewed, each transition of the SSC from state to state must have a restrictive period (with the exception of the "refund" transaction). In this case, knowing that "charge" cannot persist longer than Tmax seconds from the previous transaction, we can restrict the search to blocks belonging only to the last interval of Tmax seconds. Unfortunately, this way you cannot restrict the transaction refund - any participant should be able to return the funds belonging to them, regardless of when they were placed in the BT.

9. Roadmap

Q1'2018 Initial version of smart contracts is ready. The first "Offer" and "Request" are on the

Blockchain platform. Demonstration of the platform at Mobile World Congress in Barcelona (February'18). Integration with major eSIM platforms to download mobile profiles onto SIM cards

Q2'2018 Web-API for integration of mobile operators and service providers. Integration of Digital

Identity into BubbleTone app. Commercial launch, with "Offers" from 10+ mobile operators are on Blockchain, low rates in 80+ countries.

Q3'2018 Global Mobile Profile approval by International Telecommunication Union. Update Mini Nodes to participate in processing smart contracts.

New features in the Bubbletone app: Voting platform based on Blockchain, 4K video-conferences, transfer of fiat money and crypto currencies

Q4'2018 Expanding list of mobile operators and service providers connected to Bubbletone Blockchain Ecosystem. The first 1 million transactions are processed

Q1-Q4'2019 Signing agreements with mobile operators worldwide to activate the Global Mobile Profile. First prototype of a global SIM-chip to be embedded into mobile devices.

Creating a public offer for all mobile device vendors to implement the Global Mobile Profile in them. Bubbletone is the global decentralized distributor of mobile devices connecting to home carrier and abroad carriers.

Expanding list of mobile operators and service providers connected to the Bubbletone Blockchain Ecosystem. 10 million transactions are processed.

Project development stages depending on funds raised:

\$10M Basic "Blockchain in Telecom" platform, adapted for telecom services, with potential market up to 1 billion smart contracts a year

\$50M Building a customizable Blockchain Platform adapted for multiple non-telecom industries, such as cloud services, booking of hotels and plane tickets, money transfers, etc. Potential market up to 10 billion smart contracts a year

\$100M Global Mobile Profile interconnected with all major operators around the world. Potential market: 10 billion connected devices, generating dozens of billions of Smart Contracts to process annually.

10. Our team

Our team has 20 years of experience in the Telecom Industry.

It helps us building innovative products for mobile operators, as we understand their major pains. During this period, multiple telecom and software development businesses were created:

Mobile operator under brand "Allo Incognito", with 240K Premium Subscribers

"Bubbletone" messenger (www.bubbletone.net) with 100+ useful features. It's customized for the needs of mobile operators to provide additional revenue streams on voice calls and SMS from the app, call forwarding, conference calls and other telecom services. Beta version is already available at App Store and Google Play.

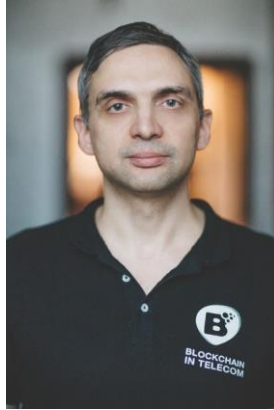
Global Mobile Data Exchange developed for mobile operators who are interested in global coverage services for their subscribers. Currently local prices on mobile Internet are already available in 80+ countries.

Our team has unique combination of technical and commercial expertise in telecom industry:



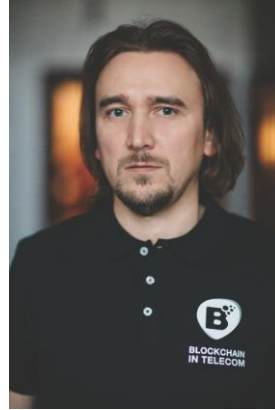
Yuri Morozov

Founder of 4 active telecom companies, with \$50M annual revenue



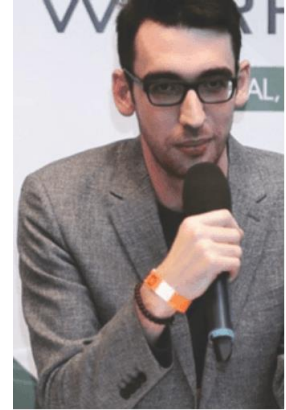
Oleg Pravdin

Telecom visionary, founder of 3 start-ups in the USA, China and Russia.



Sergei Ivanov

CEO of "Allo Incognito" (mobile virtual network operator)



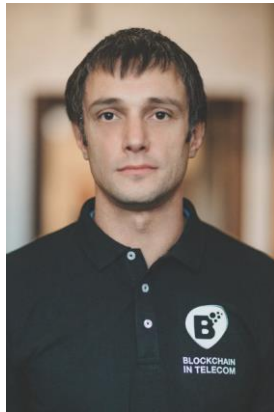
Stepan Gershuni

Blockchain expert, co-founder @Block Notary



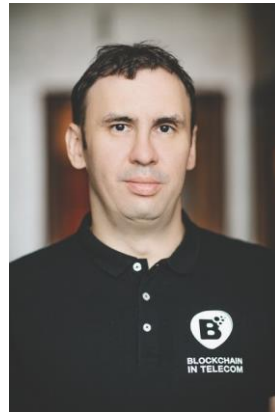
Sergey Sevantsyan

Blockchain expert, Adviser, ICO Supervisor



Oleg Vintovkin

Development of IT project Yandex Telephony; development BSS & OSS for mobile carriers



Sergey Prilutskiy

Security expert, Blockchain architecture development



Sergey Lepenkov

Development of payment services and high-load applications in the telecommunication field



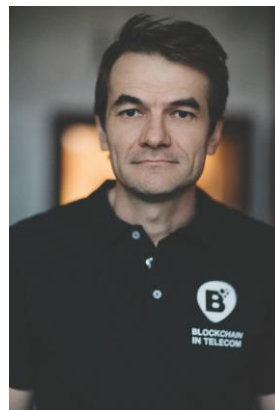
Fedor Rozhnov

Strategic Developer for Telco, Realized 2 MVNO-projects for Russian mobile market



Yuri Vasilchikov

Security expert, Smart contracts software development



Alexander Artemiev

Bubbletone messenger architecture development, integration with mobile carriers



Jackov Mayurov

Bubbletone messenger project manager



Ajmat Iqbal

Bubbletone messenger
software development
leader



Mir Monsoor Hossain

Senior software
developer



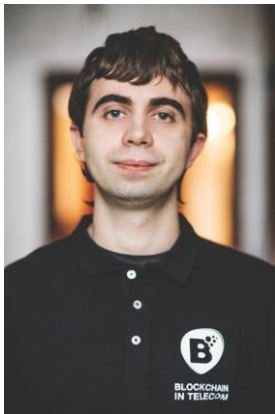
Momi Monjil Ara

Senior software devel-
oper



**Khandaker Raihan
Hossain**

Senior software developer



Alexey Makeev

Smart contracts
software engineer



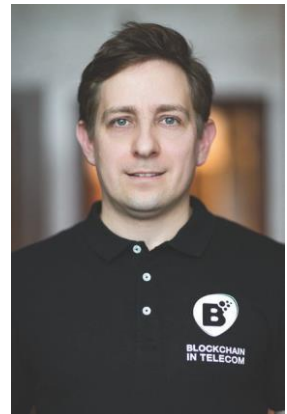
Md. Shaqiuqul Islam

Front-end software
developer



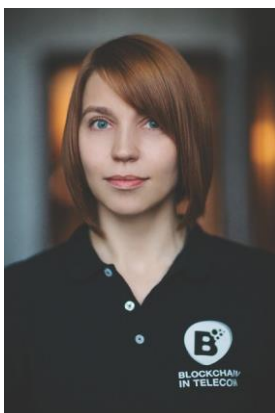
Sergey Baloyan

Head of Marketing



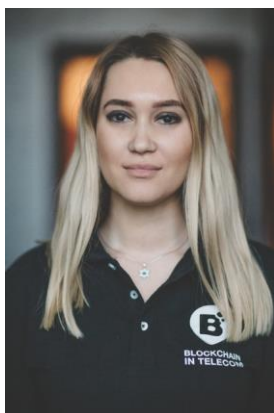
Kirill Maskaev

Communications Director



Mariana Bugaeva

Head of design group



Maria Voronova

Project Manager



Varun Reddy

Investor Relations,
ICO Marketing



Md Maniruzzaman

Back-end software
developerdevelopment

11. Our partners

Initially we're creating a community of small and medium-sized mobile operators that are looking for new services for their subscribers, such as global mobile coverage and value-added services, as well as new revenue streams on inbound tourists, Identity-as-a-Service and Voice-over-IP calls.

10+ operators with 20+M subscribers totally are ready for Proof of Concept (PoC) of the "Blockchain in Telecom" solution, such as Tesco Mobile (IE), Citic Telecom (HK), TruRoam Asia (AU) and others.

We have signed an agreement with world-famous English-learning service called "Lingualéo" to be connected to the Blockchain platform. It allows accepting SDR tokens to pay for language services as well as expanding sales channels via mobile operators.

We have become full member of the Crypto Valley Association. It is one of the world's leading ecosystems established to develop crypto, blockchain and distributed ledger technologies.

12. Competitors

- Roaming hubs are intermediators between mobile operators to provide interconnectivity with use of roaming technology. This technology is very complex and expensive, especially for small and medium operators. As a result, it takes 2 – 3 years and 10+ million USD to launch global coverage offer for subscribers. "Blockchain in Telecom" resolves this issue within weeks without investments in infrastructure.
- Project Fi powered by Google offers tariff plan with low rates (about \$10 per GB) in 135 countries. But it's workable on Google smartphones only, requires monthly subscription fee (\$20 a month) and doesn't support LTE quality in most of these countries. Also, it's a proprietary solution which couldn't be implemented by third-party operators.
- Apple SIM is workable on some iPad's only, has rather high rates (3 – 5 times higher comparing to local prices) in most of supported countries. This solution is proprietary too.

13. Terms of tokens distribution

13.1. Private Placement

Pre-sale starts on 24.10.2017 and ends on 20.01.2018

Pre-Sale offer:

- Condition upon request by e-mail, minimum 50K USD
- Participation in Pre-Sale would allow one to acquire Super Nodes of the future network

13.2. Pre-ICO from 20.01.2018 to 15.02.2018

Start price of UMT token at Pre-ICO is expected to be 0,42 USD

13.3. ICO from 20.03.2018 to .05.2018

A special early-bird price of 0,5 USD per token

Then price rises by 0,05 USD every 5 days, up till 1 USD

We accept Ethereum and BTC. You should have an Ethereum wallet to receive our tokens.

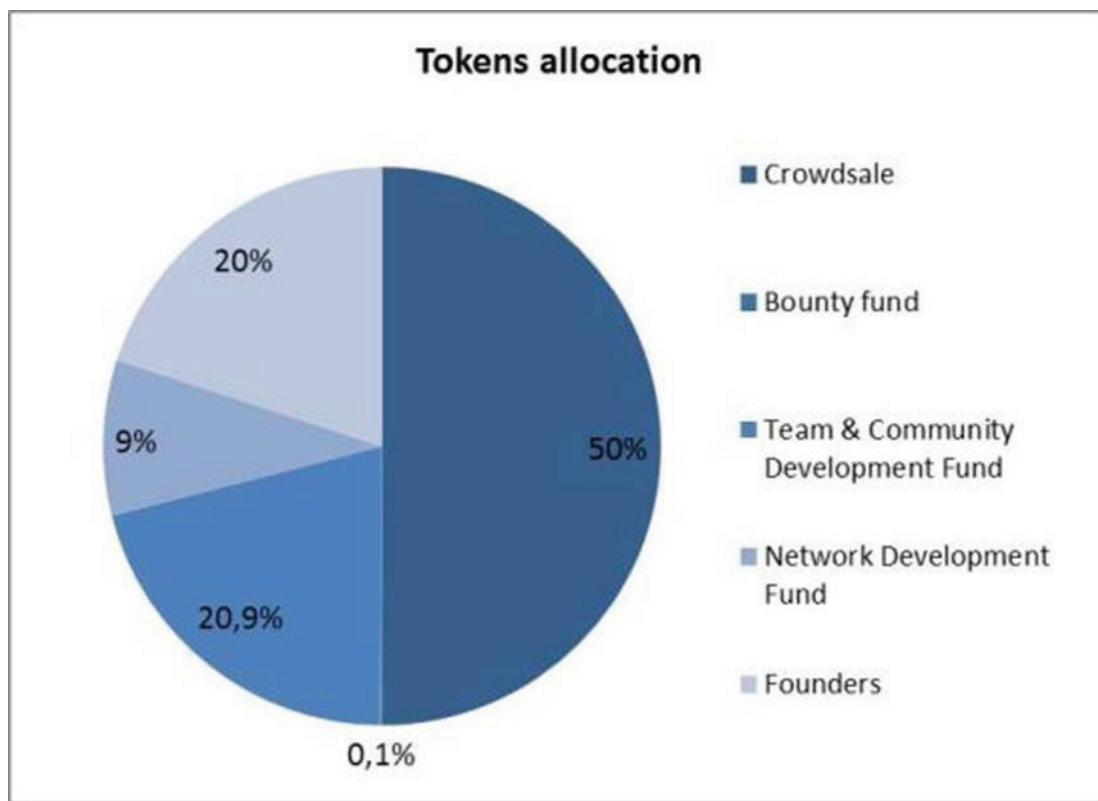
13.4. Tokens distribution at Pre-ICO and ICO

We're planning to spend tokens from the Network Development Fund (NDF) for creating reserve Super Nodes when not enough private Super Nodes exist in the system. All income generated from them should go back to the NDF.

We're planning to spend tokens from the Team & Community Development Fund (TCDF) for several purposes:

- ✓ To motivate new team members, business and legal advisors, developers and subcontractors.
- ✓ To organize community growth in all means possible.
- ✓ To prevent a Deadlock situation, when there may not be enough UMT to perform the transactions.

| # | Tokens allocation | % | Total tokens | Value after ICO at Pre-ICO rate |
|---|-----------------------------------|-------------|----------------------|---------------------------------|
| | | | UMT | USD |
| 1 | Crowdsale | 50% | 500 000 000 | 210 000 000 |
| 2 | Bounty fund | 0.1% | 1 000 000 | 420 000 |
| 3 | Team & Community Development Fund | 20.9% | 209 000 000 | 87 780 000 |
| 4 | Network Development Fund | 9% | 90 000 000 | 37 800 000 |
| 5 | Founders | 20% | 200 000 000 | 84 000 000 |
| | Total: | 100% | 1 000 000 000 | 420 000 000 |



Source: Bubbletone Blockchain

13.5. Technology and security

The platform we have chosen for our crowdsale is Ethereum. Smart contracts for tokens and crowdsales will be written in the Solidity language. The provisions outlined in this document will be guaranteed in smart contracts with cryptographic reliability. The collected Ether will be stored in a separate contract 1 that provides an automatic return of funds to investors in case of the ICO failure.

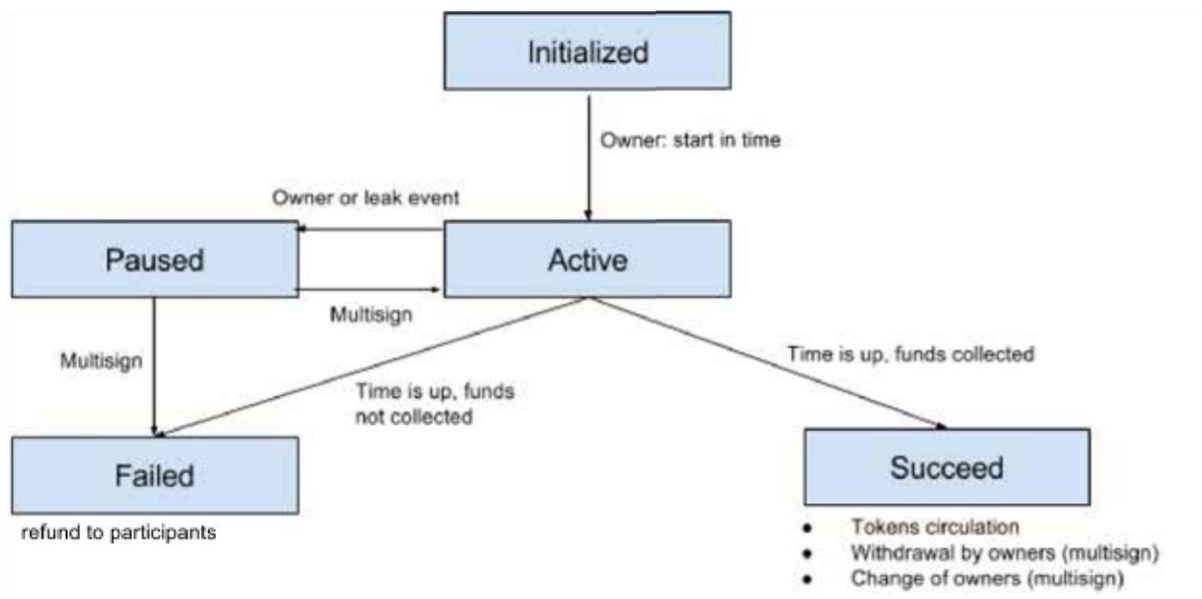
Smart contract management and withdrawal of funds will both be protected by multiple signature.

In crowdsale contracts, there will be a fallback mode (pause), which will automatically turn on if a leak of funds is detected, and can be activated by the owners in any unforeseen circumstances. This regime is designed to protect the collected funds and prevent the receipt of new funds in case of threats.

Before the deploy to the Ethereum main network, the smart contracts code will be fully covered by unit tests and tested in the test network. The contract code will be published on Github, and the bytecode will be verified in the Etherscan.io service. Our Github address is <https://github.com/bubbletone>.

To confirm the safety of our smart contracts, we will engage third-party auditors, as well as hold an open bug bounty campaign with significant prizes.

Graph of crowdsale contracts states:



14. Road Show 2017

| | |
|------------------------|---|
| 25 – 26.09 2017 | World Blockchain Forum in London https://london.keynote.ae/ |
| 26 - 27.09 2017 | Telecom Conference in Singapore https://tmt.knect365.com/mvnos-asia/ |
| 03 – 05.10 2017 | Blockchain Solutions Forum in Barcelona http://www.blockchainsolutionsforum.com/ |
| 08 – 12.10 2017 | GITEX Technology Week in Dubai http://www.gitex.com/ |
| 24 – 25.10 2017 | World Blockchain Summit in Dubai https://www.dubai.worldblockchainsummit.com/ |
| 14 – 15.11 2017 | Telecom Conference in London http://tmt.knect365.com/mvnos-networking-congress |
| 29 – 30.11 2017 | Block Show Asia in Singapore (Powered by Cointelegraph) https://blockshowasia.com/ |