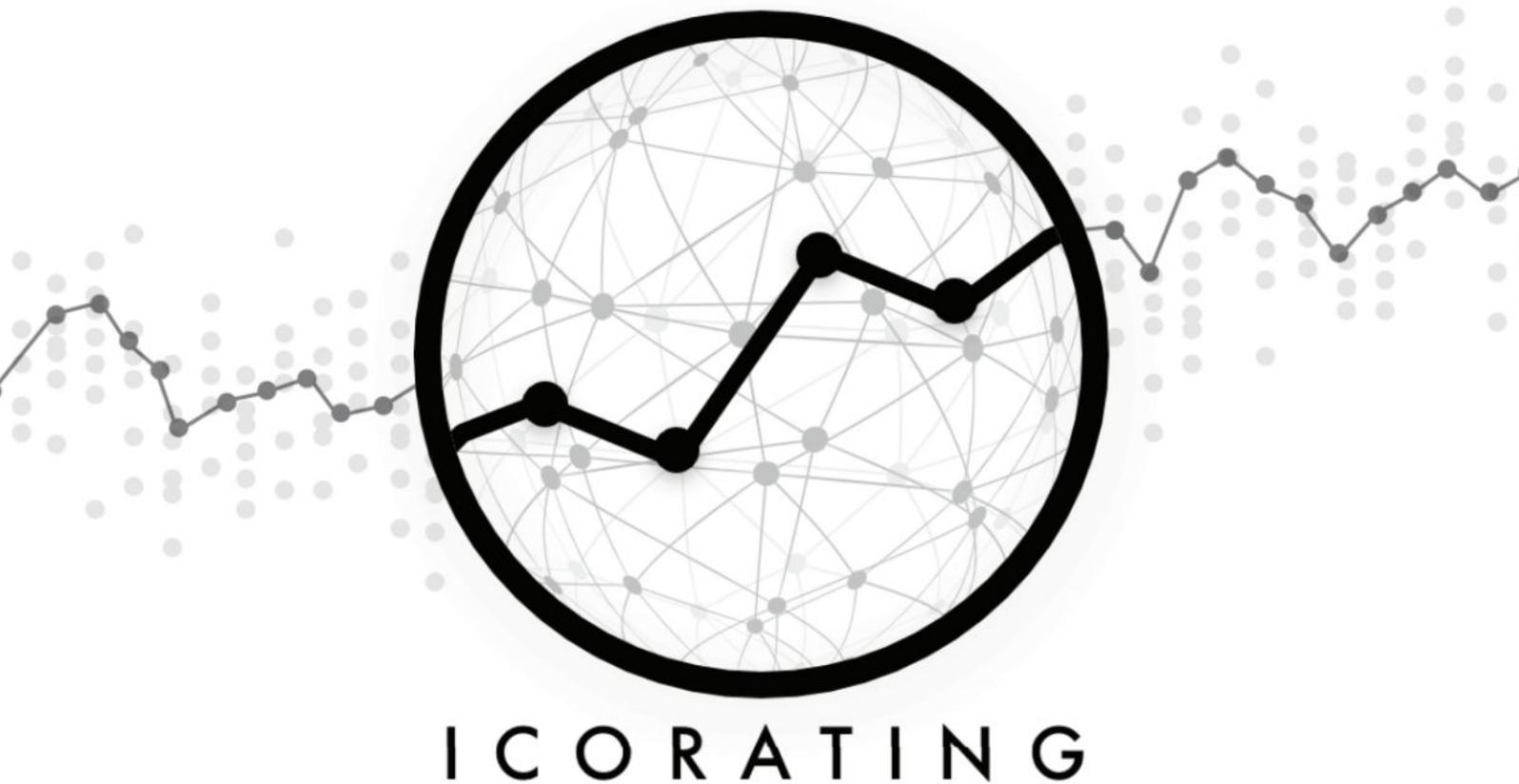


# ICOrating

Tierio Rating Review (<https://tokensale.tierion.com/>)

ICO dates (27.07.2017 – 10.08.2017)



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# 1. Ratings

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**Tierion is a promising project providing an urgently needed, good quality product. It is a unique competitive service. The service is already developed and available for customers' use; the ICO is the next stage of Tierion's development. The only negative we have seen that influences its rating is the minimal amount of information given. Our rating level assessment is «Stable+».**

Tierion has already proven to be highly professional regarding its implemented services. Microsoft services integrate with Tierion services, saying a lot about Tierion's competence. Tierion will work in an attractive market sector. Tierion's competitive engineering solutions help its success in the growing market sector.

We could not obtain all necessary economic and financial data to audit the Tierion project; there is no available information on received funds during the ICO for example, a minus affecting the rating level. If this information becomes available the project will be assessed at «Positive» level.

We believe the project tokens are not profitable for investments. TNT token is an instrument for professionals integrating into the Tierion infrastructure. The tokens are not interesting for investors from the point of view of speculative or long-term investment highlights; we do not recommend to take part in the ICO.

## 2. General information about the Project and ICO

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The Tierion project is a developing global network for verifying data anywhere on the internet. Data storage is more and more in demand; risks of centralized information storage are of course that data can be changed, damaged, lost or hacked. Prompt data retrieval is vital; it is very important to know the data source and its accuracy and validity as well.

The Tierion project was launched in 2015; the ICO is imminent; Tierion wish to decentralize their data in order to process more volume and improve the server fault tolerance.

ICO start: July, 27, 2017 at 9am EDT / 6am PDT

Maximum period of ICO: till August, 10, 2017 (15 days) or less if tokens are sold earlier.

Target cap on crowdsale: \$25 million

ICO price: You will be asked to select the USD value of tokens you are requesting to purchase from the drop-down menu. The USD amount you select in the drop-down menu will be converted to, and payable in, BTC or ETH. The amount payable in BTC or ETH will be based on an exchange rate determined immediately prior to the sale.

Currency: BTC and ETH

Token: Ethereum ERC20 standard

Bonus: No bonuses, discounts, or other incentives of any kind are available for the crowdsale.

Total value of issue: 1 billion (1,000,000,000) TNT.

Distribution:

- 35% (350,000,000) sold in the token sale;
- 35% (350,000,000) for distribution to incentivize the ecosystem;
- 29% (290,000,000) retained by Tierion;
- 1% (10,000,000) to cover tokensale.

There is no available information on further distribution of received funds while the ICO.

### 3. Project services and their usage

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Tierion is a blockchain project for data verification. The main service provided is hash file creation; the hash files are registered in the blockchains of Bitcoin and Ethereum.

There are many strong points in this engineering solution. Some of them are:

- Confirmation of the ownership rights for the data without information disclosure;
- Monitoring of the data change sequence with the help of time stamping;
- Confirmation of data validity without registered agents;
- Anonymity: it is impossible to build a chain between you and your data;
- Decentralization: it helps to eliminate risks on data amendments.

Businessmen often deal with a public notary to certify and protect their rights for property, patents and other contracts. Medical, financial, legal, insurance and other companies trust to and share their private information with the centralized third parties. This is not always safe.

As a solution Tierion has developed the Chainpoint Internet protocol for obtaining information on data sources, changes and amendments. Currently the third version of the protocol - Chainpoint 3.0 – is working, having been developed specially for the distributed Tierion Network.

The platform gives users the following opportunities:

- To confirm any data with the Chainpoint Proofs;
- A cryptographic tracking method of data amendments within the certain time periods;
- To integrate the Tierion service into available applications with the help of API;
- The Tierion project has already been integrated with the popular web applications of online services, namely: Salesforce, Mailchimp, Gmail, Slack, Google Sheets, and others.

After the ICO, the distributed network will give users these new opportunities:

- Any person can join the net and become a Node operator and increase efficiency;
- Node operators receive TNT for helping to improve the scalability and reliability of the network;
- Node operators will get an opportunity to purchase inner net services using their TNT.

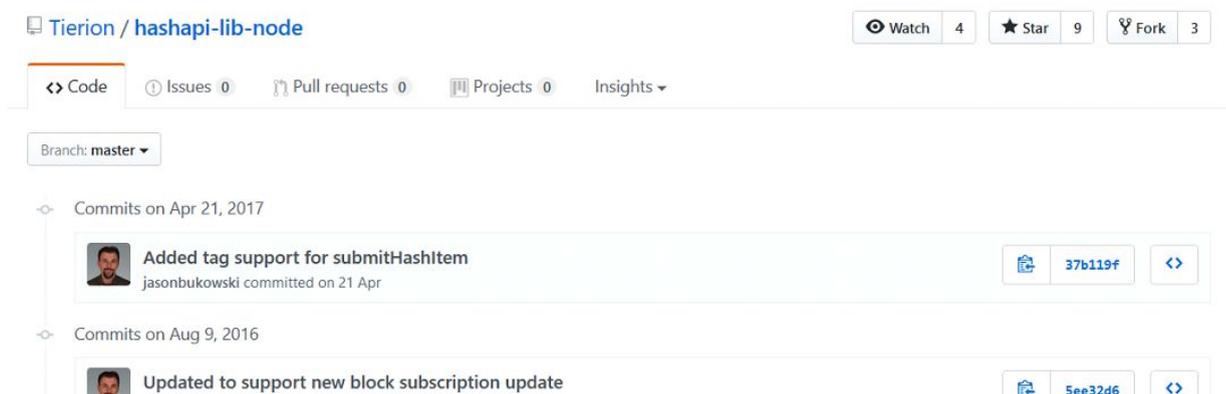
The Chainpoint protocol is the only network service within the first period of the distributed Tierion platform. Building on this, it is possible to develop other services for blockchain data verification. Security provision services, verification data access provision services, archive services, and others will all be possible.

Digital data verification has become more popular than the classical method using written documents.

## Engineering solutions

The system is developed under open source software. Source codes are published in the repository in the GitHub website.

The main algorithms of the system operation are published in the repositories in the form of JS Nodes, namely, for third parties, the API client. Generating algorithm - Merkle trees and blockchain anchor. Updates occur rarely. The last comment in the repository was on April 21:



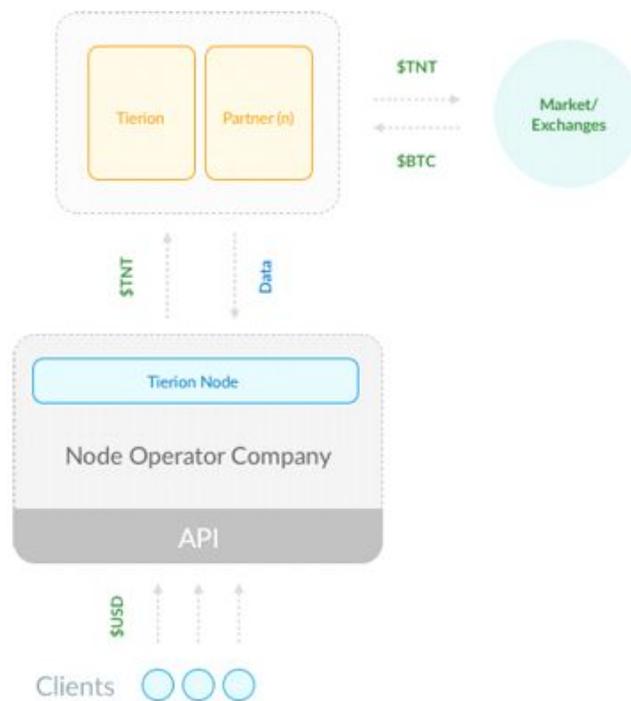
Tierion is announcing a token sale system that sets a new standard for ease-of-use and industry best practices. Tierion partnered with the team at Element Group to solve many of the most frustrating problems with past token sales. The result is a system that surpasses the already high standard set by Civic with their recent token sale.

Nevertheless, five days before the ICO start there are no source codes of the backend ICO arrangement processing in the GitHub website. The developers do not show them in advance, so the community lacks an opportunity to study the strategy.

Basically, Tierion allows clients to store the hash of a file in Bitcoin's Blockchain so that anyone can certify that the file existed at a specific time.

Node Operators maintain a copy of a blockchain created by Core. This blockchain is called the Chainpoint Calendar. It contains data needed to verify any Chainpoint proof created by any node on the Tierion Network. The Calendar grows at a rate of approximately 4GB per year regardless of the number of proofs generated. This keeps the cost of node operations low.

Node of Chainpoint Calendar:



The Tierion project solves the following tasks:

- It demonstrates data ownership without revealing actual data.
- It verifies document integrity.
- Using the blockchain, you can certify the existence of a document without the need for a central authority.
- In practice, this decentralized proof cannot be erased or modified by anyone.
- It is anonymous, so others cannot identify you or your data.

You can connect the Tierion website with Python to examine the Hash API. The API instruction is given in the website of the developers.

Here is an example of how to obtain the timestamp of a free string (the «test\_string»):

```
apiStem = 'https://hashapi.tierion.com/v1'
login_creds = {
    'username': 'youremail@here.com',
    'password': 'yourpassword',
}
reqToken = requests.post(apiPath + '/auth/token', json=login_creds)
reqToken.json()
token = reqToken.json()['access_token']
auth1 = {'Authorization': 'Bearer ' + token}
```

```

hashText = hashlib.sha256("test_string ").hexdigest()
hashItem = '/hashitems'
myHash = {'hash': hashText}
respHash = requests.post(apiStem + hashItem, json= myHash, headers = auth1)
receipt = respHash.json()['receiptId']
respHash.json()
getReceipts = '/receipts/'
getRec = requests.get(apiStem + getReceipts + receipt,headers = auth1)
getRe.json()

```

Authentication takes place via a JSON Web Token. The next step is string coding with the help of SHA-256 and hash sending to Tierion. The script then receives back the timestamp of the source string.

You can carry out this test by yourself. All given repositories are downloadable and enabled for emulation. In the network there are displayed results of public testing of the Tierion system.

An example of the algorithm is in the deployed local site:



Create Verify



Choose a file or drag it here.

Last documents registered:

File Hash	Timestamp
88e4e421a225ba99f9c3e4442c3866ca857f55d48c5d3b1107be4	2014-08-02 01:17:08 UTC
e550e19c2261817b630a2148b3969ca1c3f9e44e4e464ca5a6e408694227	2014-08-02 23:25:29 UTC
e5ae227955ec5c00545aeb86a0860deb17393bf0423a452a9666b0403ed1f	2014-08-02 23:29:44 UTC
26172ac44669f184c548c5550e0701812e3a3a0739e17a054ef80f18a76	2014-08-02 23:29:50 UTC
1739949f52cab4e48501e5cc264e1a1e297a7e4c93197b9467136788c47a2320a	2014-08-02 23:18:04 UTC

Last documents confirmed:

File Hash	Timestamp
e550e19c2261817b630a2148b3969ca1c3f9e44e4e464ca5a6e408694227	2014-08-02 23:40:00 UTC
26172ac44669f184c548c5550e0701812e3a3a0739e17a054ef80f18a76	2014-08-02 23:30:00 UTC
e5ae227955ec5c00545aeb86a0860deb17393bf0423a452a9666b0403ed1f	2014-08-02 23:30:00 UTC
1739949f52cab4e48501e5cc264e1a1e297a7e4c93197b9467136788c47a2320a	2014-08-02 23:20:00 UTC
1739949f52cab4e48501e5cc264e1a1e297a7e4c93197b9467136788c47a2320a	2014-08-02 23:20:00 UTC

## 4. Market Review

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The market for blockchain document verification has been active since 2012. The first project was the Proof of Existence, developed by Manuel Araoz and Esteban Ordano. This was the idea to create hash-documents and store them in the Bitcoin network. Comparing the hash-document with the public document in the blockchain can verify document validity.

This idea proved popular; Daniel Cawrey from CoinDesk subsequently wrote: «It is an example of how the power of this new technology can have applications far beyond the world of finance, in this case, giving a glimpse of how bitcoin could one day have a substantial impact in the fields of intellectual property and law.» As a result new services like the Proof of Existence were developed. Such services can be considered the first generation of blockchain data verification.

Currently the aforementioned services are hardly used any more. The Tierion White Paper explains this fact: These first-generation projects had limitations and they were not profitable:

- 1) Not Scalable - One document hash was published per Bitcoin transaction. Bitcoin's current network throughput is approximately three transactions per second. This is far too low to support the entire world's applications.

- 2) Cost - In June 2015, the cost of anchoring data into Bitcoin was approximately \$0.03 USD. In June of 2017, that cost has increased over 100x to \$3.40 USD.

- 3) Inaccurate - Bitcoin's block time accuracy is  $\pm 2$  hours 8 sec. This means the timestamp of the block could be an hour before a transaction was published. Time travel violates the laws of physics.

Current systems do not have such restrictions. Thanks to Merkle trees the available services can register an almost unlimited quantity of hashes for every blockchain transaction. A Merkle tree is a hash based data structure that is a generalization of the hash list. It is a tree structure in which each leaf node is a hash of a block of data, and each non-leaf node is a hash of its children. So, hashes of large data aggregates rather than of individual files are registered in the blockchain.

One more successful project in the field of blockchain data verification is the Stampery project, similar in structure and services to Tierion. We believe the Stampery project is the main competitor.

In the market there are also projects with large-scale ability to verify data inside their own blockchains. For example, Fathom (FCT) is a platform for business software development based on the blockchain. NEM Apostille is an instrument for events verification operating in the NEM(XEM) blockchain network.

We see that the blockchain data verification service is in demand among businessmen. The IT giant Microsoft confirms agreements with the Tierion and Stampery Companies. Tierion

services are integrated into the cloud platform Azure to create services for data validity verification. The Stampery company will certify Microsoft Office documents.

To confirm the above, here is Microsoft's Daniel Buchner of the Azure Identity team:

"The goal of Microsoft's decentralized identity initiative is to give people and organizations control of their identity and related data. We're building technology that lets users sign data, claims, or agreements with their identities. These bits of identity-signed data are called attestations. Microsoft and Tierion are collaborating on a service that generates, manages, and validates attestations. Together we're exploring how this technology serves the needs of developers and organizations.

In the future, you might take an online course and receive an attestation proving you completed the required work. This attestation is digitally signed by the educational organization's decentralized identifier and a timestamp proof that is rooted in a secure public blockchain. Anyone can verify the identities and validate this data without trusting the signers or their service providers. The blockchain serves as the root of trust. Attestations will be kept in secure datastores that are fully controlled by users. The industry sometimes calls this self-sovereign identity."

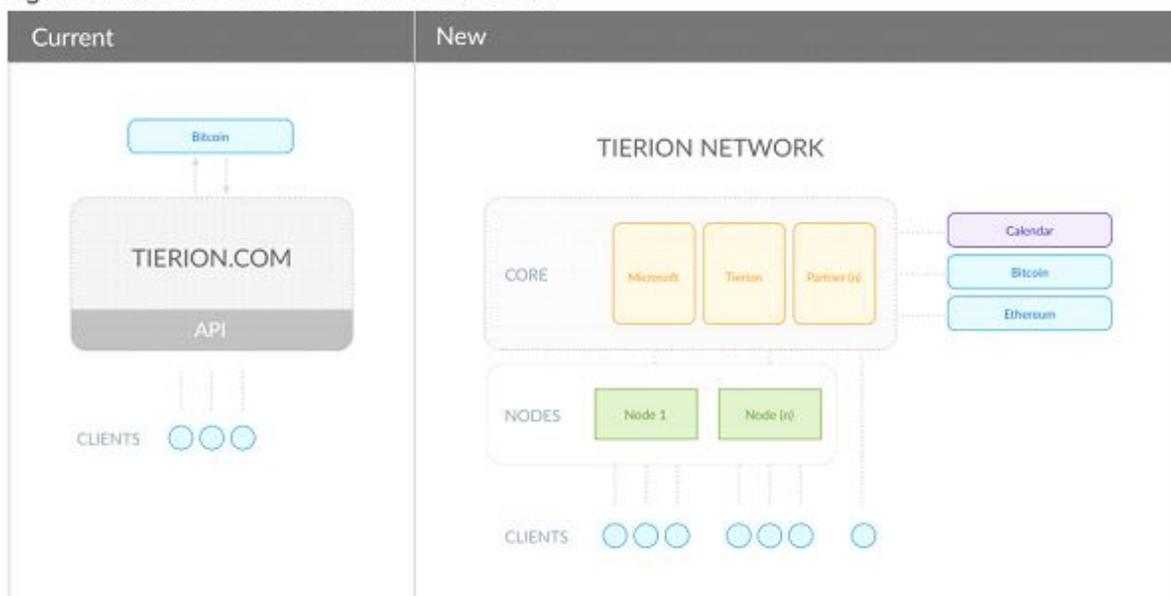
Approval by large-scale companies like Microsoft clearly makes the Tierion project interesting and aids demand. It is difficult to estimate the size of the modern market, because there are different statistical characteristics. We can compare this market sector with the market for digital signatures. The P&S Market Research rating agency states that it will grow by 24.1% from 2017 to 2023. We can draw a conclusion from the above information, that the market of the blockchain data verification will be no less successful.

## 5. Strengths of the project

Tierion is already a mature company in the developing blockchain data verification market. In 2015 it received its first million dollars for development. The venture capital investors were Blockchain Capital, Fenbushi Capital, and Digital Currency Group Companies.

The Company has already developed its project to provide a number of services. Users include the Philips Healthcare Group and Microsoft companies. After change to a distributed model, the algorithm is changed in accordance with this schema:

*Figure 1. Current Tierion vs New Tierion Network*



The distributed model helps the service to be more efficient and stable, thanks to computing power suppliers' nodes. The network is expanding, and throughput is increasing. The algorithm as a whole is the selling point. Stampery, being the main competitor, is at a disadvantage in this area; its service will work in its own cluster.

It is good to use developed blockchains to store hashes so as to make blockchain data verification successful. It helps to minimize the amendments and changes in the blockchain and maintain a service for the customers if the project is ceased. The founders of the Tierion company realize this; hence the company will work with Bitcoin and Ethereum simultaneously.

Tierion is a pioneer in using both capitalized blockchains and its own blockchain to distribute computing powers. As a result the Tierion project is a very promising service.

## 6. Team

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The Tierion project is the product of high qualified specialists. They already have good reputations. Bo Shen – a general partner of the venture fund FenBuShi Capital, confirms this assessment: “Unlike most projects raising money through token sales, Tierion already has a live product that they’ve been improving for years. We’ve been impressed with Tierion’s team since our initial investment, and we’re excited to continue supporting them through the Tierion token sale.”

The FenBuShi Capital Company approves their participation in the Tierion ICO.

Wayne Vaughan - Founder, CEO

Wayne founded a digital agency in the mid-90s and created one of the first SaaS marketing automation platforms. He brings twenty years of software and product design experience to Tierion. Wayne also serves on the Advisory Board of Blockchain Capital.

Jason Bukowski - Founder, Lead Developer

Jason has over twenty years of experience developing highly scalable software. He built one of the first real-time web analytics systems and spent a decade developing marketing automation software. Jason is the lead developer of Chainpoint and several popular open source crypto libraries.

Glenn Rempe - Vice President of Engineering

Glenn is Tierion’s principle architect. He spent over a decade with Accenture where he lead engineering teams for eBay, Symantec, Electronic Arts, and Hewlett Packard. Glenn maintains several security and cryptography focused open source projects.

Eder Santana - Developer & AI Research

Eder is the author of “Deep Learning With Python”, has a PhD in Machine Learning, and is a leading AI developer. He has worked on self-driving cars at Comma.ai and Apple. Eder is a core contributor to Chainpoint and is working on a stealth-mode blockchain AI project.

### Advisors

William Mougayar - Advisor

William is a technology executive with over 30 years experience. He serves on the Board of The Ethereum Foundation and Openbazaar.

Pierre Wolff - Advisor

Pierre is a veteran business strategist and connector in the tech industry. He's a two time Founder and currently serves as an advisor to several VCs and startups.

Zaki Manian - Advisor

Zaki cofounded Skuchain, a blockchain supply chain startup, and is an expert in applied cryptography. He has made contributions to Zcash, Chainpoint, and other cryptocurrency projects. Zaki advises several venture capital firms and startups in the blockchain industry.

Ryan Shea - Technology Advisor

Ryan is the CEO of Blockstack. He graduated YCombinator (YC S14), has authored several popular open-source cryptography and blockchain libraries, and was named to Forbes 30 under 30.

Shawn Wilkinson

Shawn is the Founder and Chief Technology Officer of Storj, a decentralized cloud storage platform.

We ourselves do not think it is a good idea that representatives of large-scale sector-specific investment funds participate as founders or advisors in a project; a potential conflict of interest that we believe is risky for investors. An ICO can be potentially used by them as an opportunity to exit with a good profit. In this case we refer to Wayne Vaughan. As we know the Blockchain Capital Company has already invested in the Tierion project; it could be argued that the Tierion ICO is a chance to cash out for them.

## 7. Marketing strategy

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There is little information on the project's further life in the documents available. At the time of our assessment, the Tierion Network and Chainpoint Service are working under closed beta software. The Whitepaper says: «the original version of Tierion has a nearly two year track record and has been used by thousands of organizations.» This statement is currently unverifiable.

Open beta software will be implemented shortly after the ICO in August of 2017; this arrangement is connected with the second anniversary of the Tierion project. "Microsoft's infrastructure is planned to come online shortly thereafter" is the only available information. Besides that, in the Roadmap section of the White Paper there is the information that the major launch of the Tierion Network "is planned before the end of 2017".

The product is almost fully developed, so the level of risk associated with unissued product is of course small. The product is to undergo further development and improvement to meet the requirements of the business public and its clients to increase the product's competitiveness.

## 8. Competitive Advantages of the Project

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There is little obvious information on the Tierion marketing strategy in the WP and ICO website, or on the Tierion project website. This is not the most important minus point but it is better to disclose such information in the White Paper.

Tierion's product is quite unique, so the marketing strategy description style differs from other companies' descriptions; the lack of some information is not a serious problem. The most important fact is that the project has such illustrious partners as Microsoft, Philips, Blockcerts, and Verifai. There is some information about the project available on the following websites: [coindesk.com](http://coindesk.com), [nasdaq.com](http://nasdaq.com), [medium.com](http://medium.com), [cointelegraph.com](http://cointelegraph.com), [newsbtc.com](http://newsbtc.com), and [cryptocoinsnews.com](http://cryptocoinsnews.com). The project has been functional for two years. We do not doubt that it has its own marketing strategy.

It is unfortunate however that the project does not have its developmental tasks detailed in popular forums within the blockchain community. This has become something of a tradition and shows good form; At the very least, they should begin to chat with the community in the [Bitcointalk.org](http://Bitcointalk.org) forum.

Tierion is looking for an investment of US\$25 million; there is no detailed information on these budget goals, or a distribution plan.

"Tierion has raised a \$1 million seed round from Blockchain Capital, Fenbushi Capital, and Digital Currency Group". We take the opinion that these funds have received their profit from investments made almost 1,5 years ago. Perhaps this is why they do not disclose information on the allocated purpose of received monetary funds. The project is developed and active; it does not need so much money for its development.

## 9. Risks of the Project

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We examined the active system cooperating with its larger, well-known company counterparts. The economic risk associated with the Tierion project are less than 90% of the projects held in 2017. From the one hand, it is difficult to estimate risks and on the other hand, we do not want to overestimate their importance.

We have already described possible risks above. Among them are the existence of a competitor (Stampery) and the lack of ICO backend processing.

One of the most important features of the project is its possible popularity among legal entities. Services are paid for by fiat currency, so the legal entities will not have problems with book keeping and crypto currency operations.

There are no significant risks for the project's implementation. Of course the project's scalability can be less than the developers foresee; this is a common problem for venture investing.

**The most important negative point is the lack of nontechnical information given by the developers. There is little information on the roadmap, marketing strategy, and financial model. That is why we cannot give the highest rating level assessment for the Tierion project. Our rating estimation is «Stable+».**

## 10. Economy of the Project and Investment Highlights of the Token

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### Project Economy

In the part of the ICO documentation named Economics, you can find descriptions of the economic advantages of the Tierion project. The economic strategy is not disclosed.

There are two methods of cooperation with clients:

- free – with hash and records limits;
- enterprise – flexible conditions for the users.

The charging policy is not disclosed.

At the time of preparing the rating review we have not received information from the Tierion Company on the distribution of assets received during the ICO. We do not know if they will be spent on financing or capital investments; we did not receive financial and accounting statements and reports. Thus we cannot assess the profitability and soundness of the project.

There are many doubts about the economic efficiency of the Tierion service for users. More clarification regarding the project's efficiency for users is required.

### Investment highlights of the token

We believe the project tokens are not attractive for investing:

- dividends or other remunerations are not paid;
- tokens are not used for payment for the services.

TNT tokens are given to the nodes for Tierion service scaling. They are not interested in holding more tokens than the quantity necessary for nodes.

Founders want to remunerate nodes with additional bonuses in the form of TNT tokens. More tokens owned by the nodes – amount to more bonuses; at the moment it is difficult to calculate the nodes' profitability.

This measure does not make the demand growth faster in any way, but it will decrease the number of tokens able to be offered in the secondary market. The tokens will be in demand only among the few crypto currency market representatives who wish to support the project.

It is not profitable or efficient to buy TNT tokens during the ICO as a speculative investment. Bonuses for early purchase are not foreseen at the moment. There is no HYIP for the project.

Our rating level assessment for the TNT tokens is “Market Underperformer”. We do not recommend that traditional investors take part in the ICO. The TNT token is an instrument for professional participators willing to take part in the project using their working capacity.

The information contained in the document is for informational purposes only. The views expressed in this document are solely personal stance of the *ICOrating* Team, based on data from open access and information that developers provided to the team through Skype, email or other means of communication.

Our goal is to increase the transparency and reliability of the young ICO market and to minimize the risk of fraud.

We appreciate feedback with constructive comments, suggestions and ideas on how to make the analysis more comprehensive and informative.