GeeqChain™

Where blockchain gets real™

August 2018

Disclaimer

This document does not constitute a solicitation or offer to buy or sell any security or any token in Geeq Corporation and cannot be relied upon for making an investment decision. This document has been prepared and circulated for informational purposes only and is not intended to provide investment, legal, accounting or tax advice or recommendations to any recipient and should not be considered a recommendation to purchase or sell any particular security or token. You should consult your tax or legal advisor about the information contained in this document. This document does not constitute an offering memorandum of Geeq Corporation under applicable Canadian securities laws and does not attempt to describe all material facts or material information regarding Geeq Corporation, its business and operations or its tokens. Any private offering of tokens will only be made to qualified accredited investor. Geeq Corporation has not filed a prospectus or offering memorandum with any securities commission or similar authority in Canada or elsewhere in respect of the tokens and, accordingly, the tokens will not be qualified for sale in Canada or elsewhere and may not be offered or sold directly or indirectly in Canada or elsewhere, except pursuant to an exemption from the prospectus and registration requirements of applicable securities laws. No securities commission or similar authority in Canada or elsewhere has reviewed or in any way passed upon the merits of an investment in Geeq Corporation or its tokens, and any representation to the contrary is an offense. All of the information contained in this document is for preliminary discussion purposes only. Final terms and conditions may change without notice and are subject to further discussion and negotiation..

Why do we want blockchain at all?

- Payments and cryptocurrencies.
- IoT and machine-to-machine communications, transactions, and audit trails.
- Tokenized trading of securities and other assets.
- Time-stamped, authenticated, immutable records keeping.
- Disintermediating two-sided markets.
- Logistics chains.
- Distributed business processes.

Why can't we have it?

Security: Bitcoin and Ethereum offer no better than 50% **Byzantine Fault Tolerance** (BFT).

If more than 50% of the miners or validating nodes are dishonest, they can take over the blockchain, steal tokens, or corrupt data. Other blockchain protocols and Directed Acyclic Graph (DAG) approaches (Iota, HashGraph) offer even less than 50% BFT and have other more serious security flaws as well.

Cost: High transactions fees for both Bitcoin and Ethereum make them impractical as a payments platform and impossible to use in IoT and other micropayments applications.

In 2018, Ethereum transactions costs have ranged from $.30 to $4 while Bitcoin transaction fees have ranged between $1 and $30.

Scalability: Ethereum can execute at most 15 transactions per second. Bitcoin is limited to 7 per second.

Approaches offering more speed (Lightning, Radian, Stellar, DAGs) sacrifice security.

Why do we care?

It would cost somewhere between $1B and $3B for a bad actor starting from scratch to mount a 51% attack on Bitcoin.

Ethereum and other blockchains would cost much less to attack, and if an attacker already owns enough hardware, it is even cheaper.

Who would do such a thing?

USA - Stop tax evaders, money launderers, and criminals.
China or Russia - Cyber warfare.
North Korea - Just for fun.

Blockchain is simply not secure enough to run critical infrastructure, high value financial transactions, or essential enterprise level data applications.

What about GeeqChain?

GeeqChain uses an entirely new consensus approach to validate transactions.

Our proprietary **Proof of Honesty**™ (PoH)™ protocol solves the three key problems with existing platforms:

Security: GeeqChain offers better than 99% BFT in its simplest version. When a protocol based on economic mechanism design is added, GeeqChain offers 100% BFT.

Cost: GeeqChain can securely validate transactions at a cost of $.0006 each using a network of 100 nodes.

Scalability: A single GeeqChain instance can easily validate 40 transactions per second. Federated instances of GeeqChain allow infinite scalability.

How does PoH work?

- The GeeqChain user client runs as a background process and verifies in real time that nodes are behaving honestly.
- GeeqChain users are therefore able to choose to submit their transactions *only* to honest nodes validating honest chains.
- Since GeeqChain users ignore any dishonest nodes, any dishonest chains (or forks) will be orphaned.
- This gives 99% BFT since the only time users will not be able to find an honest chain is when 100% of nodes are dishonest.
- An additional protocol based on economic mechanism design ensures that 100% dishonesty is never possible.

How does PoH differ from other consensus protocols?

Proof of Honesty puts users in the driver's seat.

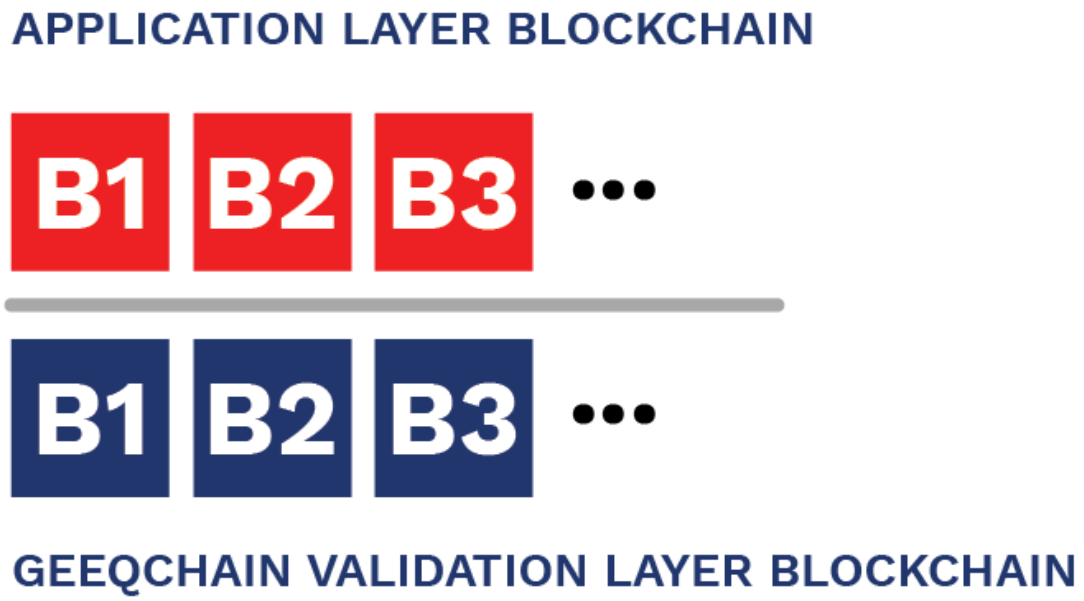
Letting token owners who risk being robbed by dishonest validators be the arbiters of truth is incentive compatible.

Proof of Work, **Proof of Stake**, and **Directed Acyclic Graphs** allow nodes to determine the validity of transactions and blocks.

Nodes benefit if they can get away with writing false transactions that steal tokens from users and this creates a conflict of interest.

Putting nodes in charge of blockchain is like putting the fox in charge of the hen house.

GeeqChain architecture



1. GeeqChain architecture is built on **two separate blockchain layers.**

The Geeq application layer is customizable and can contain native tokens and specialized data objects to suit any use case.

The Geeq validation layer contains only GeeqCoin accounts and allows only basic transactions between users.

Why separate the application and validation layers?

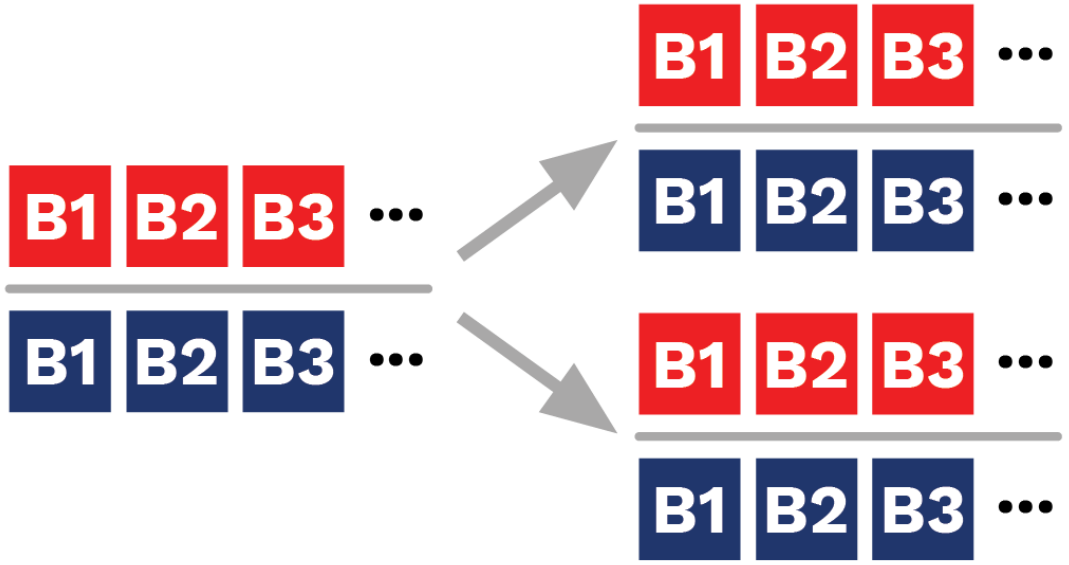
- The validation layer is kept simple, robust, and bullet-proof.
- The validation layer has no smart contracts, data objects, permissioning tables, etc., just GeeqCoin transactions between user accounts.
- The validation layer is fire-walled from the application layer.
- The application layer can include native tokens, arbitrary data objects, smart contracts, and any sort of business logic a use case requires.
- Instead of building a Swiss army knife that tries to be all things to all users, GeeqChain allows maximum flexibility at the application layer since we cannot anticipate what developers might need in the future.

GeeqChain architecture

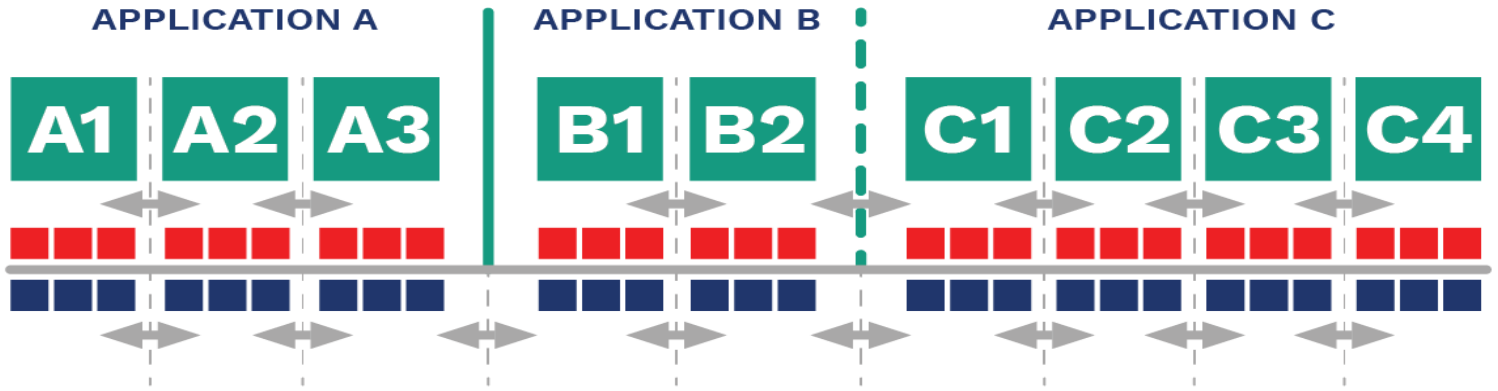
2. Any number of **federated instances of GeeqChain** can be created.

Splitting into federated instances allows GeeqChains to scale up to deal with arbitrarily large numbers of transactions per second.

Different applications can be built on separate instances of GeeqChain customized to each developer's needs.



GeeqChain architecture



3. Federated chains can be structured to **interoperate** in a variety of ways.

Different applications may choose to exchange applications layer tokens and data objects on any basis they wish (Applications **B** and **C**).

Applications may also choose not to interact with any others (Application **A**).

GeeqCoins are always free to move across all instances of all applications within the validation layer.

The Geeqosystem

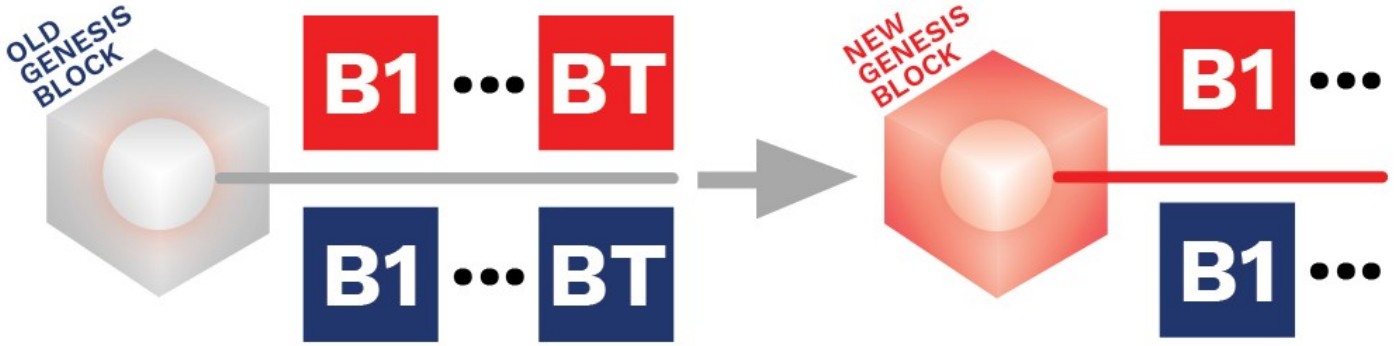
- GeeqChain is a far more flexible, scalable, inexpensive, and secure platform to build any blockchain application than Ethereum's ERC20 smart contract.

- In addition to attracting a rich community of independent developers, GeeqCorp will build a set of turn-key enterprise blockchain solutions in order to make GeeqChain immediately useful.

- Applications each live on their own instances and have their own set of validators. They are not affected by actions, overhead, or demands of applications in the rest of the Geeqosystem. GeeqChain applications don't step on each others' toes.

- GeeqCoins are designed to power an almost invisible validation engine and virtual machine supporting the applications written on top.

Future-proof and upgradable



- Bugs, hacks, upgrades, new functionalities, quantum computing, etc. all make it desirable to be able to let applications evolve and change over time.

- Hard forks imposed by foundations, developers, and even through complicated governance systems, break faith with users and undermine confidence in the platform.

- GeeqChain's solution is to create new genesis blocks for applications and give users and validators the option to **vote with their feet** and migrate to the new instance voluntarily.

- Users and validators who wish to stay and use the original protocols may do so. **Code is law and GeeqChain never imposes a new law on unwilling users.**

The uses of GeeqCoin

- The most important purpose of the GeeqCoin is to reward and incentivize the validating nodes.

- GeeqChain's extremely low transactions costs and scalability make GeeqCoin an ideal cryptocurrency for microtransactions.

    - In addition to powering validation on thousands of instances of GeeqChain, GeeqCoin can be used to buy content and web services, pay parking, tolls, and other items in the context of smart cities, and facilitate markets between the billions of increasingly sophisticated IoT devices coming on-line in the near future.

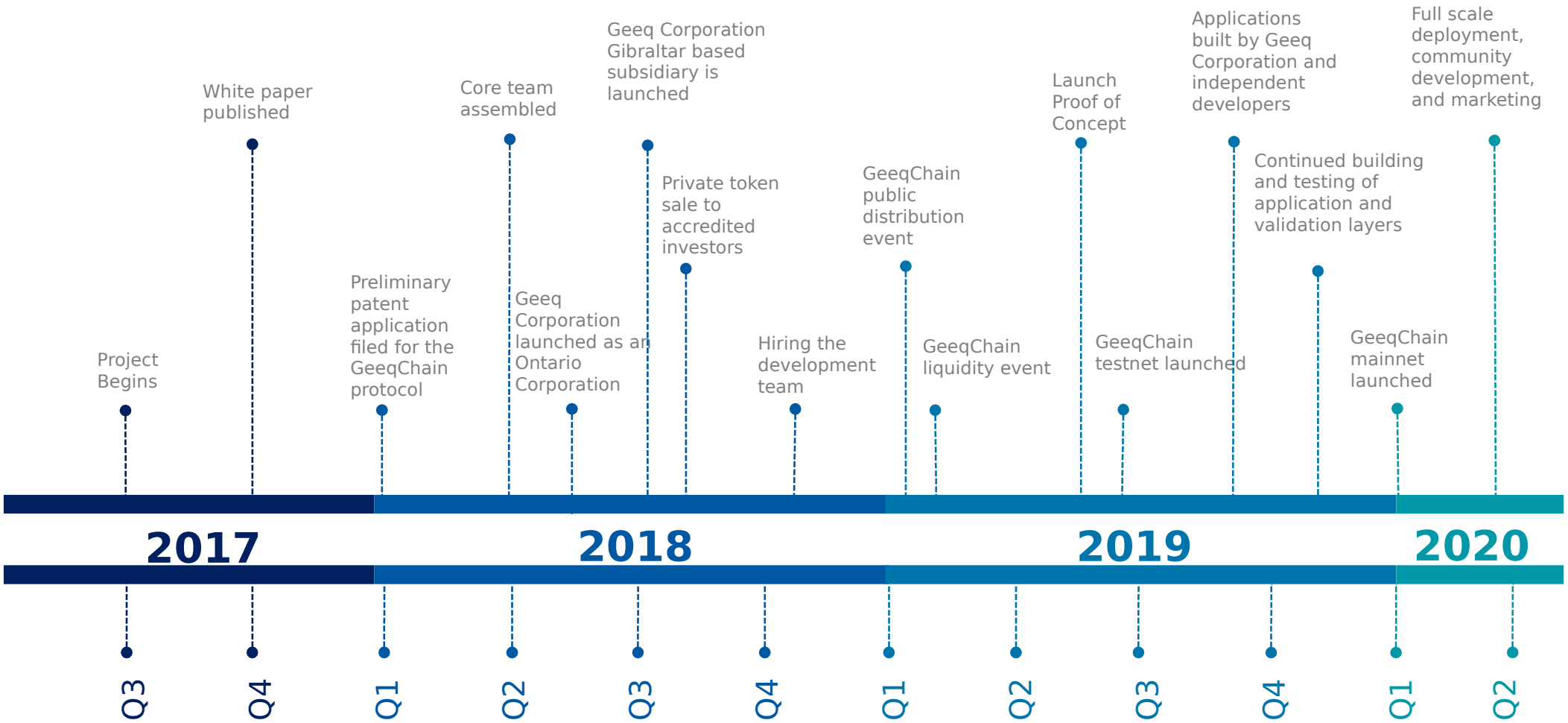
- GeeqCoin can also serve as a generalized transactional currency for ordinary people.

    Visa and MC charge 2.5% or more in fees, and high Ethereum and Bitcoin transactions costs mean that only relatively large transactions make economic sense. Whether cryptocurrencies will replace or significantly supplement fiat currencies issued by national governments is an open question. *To the extent that they do, however, GeeqCoin is better positioned than any existing alternative to fill the role.*

Summary

- GeeqChain has a security level that exceeds any other blockchain, offering 100% BFT instead of 50% BFT or less.
- GeeqChain is an ecosystem of federated instances that allow infinite scalability as well as interoperability.
- GeeqChain transactions cost $.0006 or less and this is independent of transaction demand, system load, and other factors.
- GeeqChain is future-proof, offering an orderly, within protocol, mechanism to upgrade and change with the needs of the day.
- GeeqChain is flexible, customizable, and offers a far better foundation on which to build applications than ERC20 contracts.
- GeeqChain's validation and virtual machine layer is simple, secure, and fire-walled from the application layer.

Projected Road Map



Our Team

Ric Asselstine
Terepac IoT
Chief Executive Officer and Founder

Dr. John P. Conley
Vanderbilt University
Chief Economist and Founder

Darryl Patterson
Terepac IoT
Chief Technical Officer and Founder

Dr. Stephanie A. So
Vanderbilt University
Chief Development Officer and Founder

Dr. Eric Ball
Impact Venture Capital
Advisor

Dr. Gene Deszca
Wilfrid Laurier University
Advisor

Murray Gamble
C3 Group
Advisor

Blaire Gateman
Gateman Homes
Advisor

Kurt Hoppe
General Motors
Advisor

Tom Hunter
GowlingWLG
Advisor

Dr. Simon Wilkie
Microsoft Corporation
Advisor

Lun-Shin Yuen
Technologist and Entrepreneur
Advisor