



Shopin

WHITEPAPER

WINNER OF COINAGENDA GLOBAL 2017

**VOTED BEST STARTUP
AND ICO TOP 5 AT DAVOS d10E**

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Retail isn't working

At the core of why retail isn't working is a fundamental issue of not being able to have a full view of the customer.

When the ecommerce customer comes to a retailer site, there is no way to know who they are. Even if they log into the site, the data gathered is only relevant to that retailer and is incomplete.

This leads the retailer to turn to behavioral marketing solutions using big data sets that make assumptions on behavior. In addition the retailer buys third party data, which is outdated and unreliable. In many parts of the world, laws have been passed to stop this surreptitious gathering of data without user consent.

83% of shoppers see value in being recognized with personalized experiences across all devices.
[\(Magnetic, formerly MyBuys\)](#)

73% prefer to do business with retailers who use personal information to make their shopping experiences more personal.
(Accenture, via [Digital Trends](#))

88% think retailers should give them the flexibility to control how their personal information is being used to personalize their shopping experience. (Accenture, via [Digital Trends](#))

If the user can be identified via purchase history at multiple retailers, there will finally be a full and constantly current view of the shopper.

Shopin works with retailers to onboard their database of customers onto a single shopper profile and passes their purchase history data into the profile.

This data can be used to drive accurate product recommendations, discovery, and marketing that is based on fact, not fiction, or assumptions. For the first time, the shopper is in the driver's seat. The shopper can also be understood across all retail, similar to Amazon, but for the whole web.

There is a place where all retailers share purchase data on a single customer and shoppers have a universal profile... Of course, it's Amazon. This allows retailers to show consumers the right items, at the right price and for shoppers to manage all orders through a single console. Shopin is bringing this and more to the open web.

Retail isn't working

Behavioral Marketing

If assumptions-based systems like behavioral marketing worked, then the retail world wouldn't be scrambling for data.

A good example: Imagine you go to Nike.com, look at 20 items and then go to Adidas.com and buy a pair of shorts.

In the world of **behavioral marketing** the thinking would be:

1. You saw the store, and are interested in what you saw;
2. You must be really interested in what you browsed

In the world of digital advertising, you will then be showered (retargeted) with ads for the 20 items you looked at in a 30-day period, when often you are not interested in those items at all. There is also no signal from Adidas to Nike telling them that you bought shorts.

This is a clear example of how little retailers know about their customers. 7% of retailers recognize their customers across different devices and channels. ([Magnetic, Formerly MyBuys](#)).

Imagine the bleed on the industry.

Without understanding purchase history across retailers there will never be an accurate view of the consumer.

The only way this can happen is via a single shopper profile across all retailers owned and controlled by the shopper with the co-operation of the retailers acting as a to share the purchase history of the shopper to the profile.

Market statistics

1. There were 210MM active US online shoppers in 2015. 70% of them shop online monthly ([Mintel](#))
2. There were 1.4Bn active shoppers globally in 2015 ([Demand Institute](#))
3. 85% of retailers are inconsistent with their messaging and marketing across multiple devices (Hubspot)
4. For collaborative product recommendations to work, it takes 100MM points of data and it still fails horribly (MIT) - This is a method of comparing users to 100MM other user points of data to show similar items to "audiences".
5. **\$20Bn+ spent by US retailers on behavioral marketing in 2014 (Forbes)**

Retail Rebooted: An Introduction

Shopin is building a decentralized Amazon on the blockchain with a universal shopping profile and crypto currency for retail and eCommerce.

Mission:

To work with retailers in onboarding their shoppers to create a Shopin profile and thus own their purchase data enabling the shopper to be the most accurate and current source of first party purchase data.

This solution enables a new paradigm in more accurate product recommendations and marketing on every retailer site, app, and store based on a full view of the shopper's history and live purchase data.

Retailer benefits:

- Full view of the shopper's profile
- Increased transactional conversion
- Decreased losses in marketing
- Decreased returns
- GDPR compliance

Shopper benefits:

- Great product recommendations
- Securely own and control your data
- Share your profile for perfect gifting
- Amazon-like benefits, such as:
- 1-click checkout on every retail site
- Manage any returns from your app
- One wishlist for the whole web

700k+
Signups

\$14.7MM generated in successful pilots
for retailers

Shopin users transactionally convert
22% more than regular shoppers due to
accurate product recommendation

Retail Rebooted

Shopin is the next step in personal data management, ownership and reward.

By leveraging the power of the blockchain, Shopin will securely manage your personal data, including online shopping data, personal ID and payment information, and user credit reputation whilst delivering an Amazon-like experience and product recommendation for shoppers on every site they go to.

Shopin will put the user in control of their historical purchase data from multiple retailers, and reward the user when retailers use it to enhance the shopping experience online.

We believe that there is no better single source for a shopper's purchase history than themselves, for them to control and share to shape how they experience the open retail web.

What is Shopin?

1. Shopin is a single verified source of all personal shopping data.
2. Shopin is an incentive management system for all retailers.
3. Shopin is a verified identity source.
4. Shopin securely manages your credit card information.
5. Shopin puts all this information in the user's control, allowing verified access by the user when visiting retail sites.
6. Shopin secures the data using blockchain so it is always safe from prying eyes.
7. Shopin allows retailers to reward shoppers with a cryptocurrency which they can offset against their online and in-store purchases

The Shopin App and Wallet

Via the Shopin app, wallet and single-sign-on, shoppers will be recognized across the retail web via their historical purchase data. It's a single way for the true understanding of who you are based on what you put value in to follow you to every site and ensure you have the most personal shopping experience, built just for you.

1. Shopin will employ a mobile App which will store and distribute personal data in an encrypted form on the distributed file system.
2. The App will secure all the data using standard encryption techniques.
3. The Shopin App will also act as a wallet for the management of the Shopin tokens used as incentives in partnership with retailers.
4. Shopin users will be able to log onto retailer websites using their Shopin login details (oAuth).

A sustainable solution

It's time for a solution that puts verified purchase history data in the customer's hands, and rewards the shopper for access to a constantly growing data pool.

The more the pool grows, and the more the data is leveraged successfully, the more valuable the data becomes.

We are creating an economy of verified data at Shopin, and shoppers are at the heart of our rewards mechanism. Our core benefits for consumers are:

1. Transparency and control:

See an activity feed of who is accessing your data and how it's being used. Easily control permissions and sharing.

2. Accurate recommendations, reduced discovery:

By sharing your purchase history from multiple retailers, when logging onto a retailer site with your Shopin profile, retailers can give you a more personal "just for you" experience. This includes showing you the best products, the right size, and taste as well as giving you the right pricing deal based on what you actually pay for products. You even get one-click checkout on every site, just like Amazon.

3. Centralized management:

Wishlist products from any Shopin-powered retail site, and and a one-click checkout – no matter how many products or from where they originate. You can also track and manage all of your returns from one place.

4. Sharing:

Share access to your Shopin taste profile with friends and family so that they see the world of retail through your eyes, buying you the items you desire. You can also gift tokens to one another.

Why the blockchain?

Overarching Philosophy:

Shopin's founding reason for existence is to create an economy of data for retail and customers' interactions with retailers. Blockchain technology empowers Shopin to truly decentralize the ownership of shopper data and create an economy around shoppers and retailers that incentivizes both the retailer and the shopper to work together to deliver the best and most rewarding interaction for everyone.

Why not a cloud solution?

Storing this data in a cloud database, on servers owned and controlled by any centralized company or entity, offers nothing new in the truly decentralized ideal of shoppers owning and controlling their data. To truly decentralize shopper data, the individual must store and own the rights to his/her data.

How will we achieve this goal?

To achieve this goal, we will use off-chain data store and trusted channels between the shopper and the retailer to record interaction and transactions. We are working with BigChainDB and iExec to distribute and decentralize the storage, computing power and Artificial Intelligence (AI) implementation and to manage the interaction with the Ethereum blockchain. This will minimize the cost of recording and validating transactions between retailers and shoppers, as well as store and backup shopper data on both the shopper's device and on a decentralized file store.

Why the blockchain?

Purpose of the Shopin Token:

The Shopin Token, which we will use to incentivize retailers and shoppers to use, will serve as the medium of exchange for accessing data from the shopper in a variety of ways.

Amongst the ways the retailer will use the token to entice the shopper:

- share their data, so that the retailer can better service the shoppers needs through recommendations and marketing
- loyalty
- referrals
- push advertising
- pull advertising
- gifting

The shopper will use the token to retain the value of their interaction and sharing of their data in the form of blockchain-secured incentives available as value in future purchases.

Because the tokens are fungible and easily circulated asset, they can be exchanged with anyone, who can then use the value of the token. This enables gifting of tokens between shoppers and even the donation of tokens by shoppers and/or retailers to third party entities.

By enabling opt-in advertising, shoppers will be able to control the way they receive information on products, and retailers will lower their acquisition barriers and cost of each customer. This will allow retailers to redirect advertising budgets as rewards for shoppers who share their data and preferences with retailers in a targeted and secure way.

We plan to use Ethereum's Raiden implementation to manage the interaction with the blockchain and minimize the cost of recording and validating transactions between retailers and shoppers, as well as store and backup shopper data on both the shopper's device, and on a decentralized file store.

A Cryptocurrency for retail

The Shopin Token:

Blockchain technology is empowering entrepreneurs to develop economic tools that incentivize user participation in their protocols and services. This new model is directly opposed to the status quo, where successful companies generate significant financial profit from recording user participation and their data in return for offering a service in, for example,, social media eCommerce. These corporate services are free to use; however, the companies are not economically reciprocating true value with their users,putting them at unnecessary risk to identity theft and manipulation.

Right now, the data market is the most robust market on earth. Nearly every company and government monitors digital footprints – websites visited, items purchased, emails sent. One dominant property of a decentralized and cryptographically secured ledger is the accessibility to, and ultimately the protection of, consumer data from malicious or exploitive characters.

The decentralized revolution is cost-effectively providing the infrastructure to ensure that no site or protocol needs to “own the data.” Moreover, , the associated economic revolution lets users receive assets (in this case,tokens) for their participation. Now, instead of a system where companies protect valuable centralized databases by using the password “password” (looking at you, Equifax), data can be cryptographically secure on a blockchain, a better system of trust. Instead of making companies extremely rich by having users voluntarily giving out their own data, users can receive assets like tokens in return for their contribution to the ecosystem.

Entrepreneurs who have long accepted that the users themselves are the rightful owners of their data now have a platform to empower and incentivize customers to use services and control access to their digital footprint.

A Cryptocurrency for retail

The Shopin Token (cont.)

Shopin respects consumer data rights and allows the users to decide if they wish to share their data with retailers and advertisers. We ask for permission and deliver experiential and economic value back to the user.

Users' retail data is attestable, and smart contracts maintain systems. At Shopin we see that user ownership of data is a non-negotiable component of client relationships. We strive to create a moral, reciprocal economy of data for both shoppers and retailers through our token economy.

Our approach is easy:

1. Shoppers store their personal and transaction data in their profile, which lives on the blockchain.
2. Retailers work with shoppers to negotiate a rate for shopper data.
3. The retailer rewards the shopper with tokens in a value equivalent to their measured margin over time. (We will marry physical -store and eCommerce data for the user via our mobile app).
4. Shoppers can use those tokens to offset the full or partial price of goods bought from retailers -- both online and physical stores.

Shoppers receive rewards for their data should they choose to disclose it. Meanwhile, their data is as secure as it can be.

Shopin Token Dynamics

The Market

Retailers find it difficult to transact sales using loyalty points since most loyalty coin incentives have limited utility by being confined to just one or a very limited number of retailers.

Shopin offers a common system that will allow incentive tokens rewarded by multiple retailers from multiple purchases to be pooled together and redeemed. The end result? A better overall user experience and an increase in average sales conversions amongst retailers participating in the network.

The use of smartphones to manage and redeem the tokens also presents a far more interactive and compelling value for the user. Gone are the stack of loyalty cards in the wallet with an opaque and uncertain value. Shoppers will be able to see the actual monetary value in the app at anytime. Shoppers will be able to redeem this value by scanning QR codes on their smartphones into an online store's digital payment system.

Shopin effectively solves traditional, multi-retailer reward schemes by pooling multiple rewards from multiple retailers into a single, universal reward system.

Data value dynamics:

The core premise at the heart of Shopin's token is that data has value.

1. In retail and advertising purchase history is the most valuable data.
2. The more the data is used successfully to increase transactional ROI, the more the user is verified and the more valuable the data becomes.
3. When each source of data contains more layered and cross-verified data, the value of the total data set increases. The value of that set is related to the value of the transactional lift when it is leveraged.

Shopin Token Dynamics

The Shopin Token:

Shopin will employ a digital token that will be used to manage incentives offered by retailers. This token will be an integral part of the economy around data sharing and validation on the Shopin network. Shoppers will be rewarded each time their data is used by retailers for analytics on their own websites.

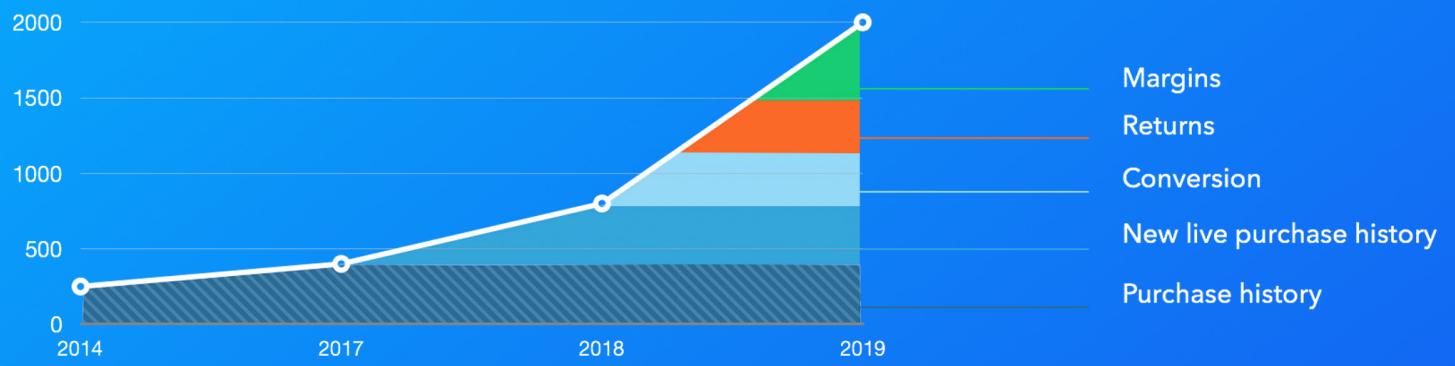
What is the purpose of the Shopin Token?

Shopin is building the most valuable data source for marketing and sales conversions; an attestable, continually updated, lifetime value of a shopper based on purchase data.

This means we understand all the purchases of the shopper in context across the whole web, ranging from conversions and returns to whether they are a full price or discount customer. As a result, Shopin understands the true lifetime margin value of a customer's. The Shopin token is a tool used by retailers to access that value and loyalty of the shopper, whilst the shopper is paid with a cryptocurrency they can redeem on purchases at any retailer.

Understanding the true LTV of a shopper

We are building an economy of purchase data
and one-to-one model for retailers

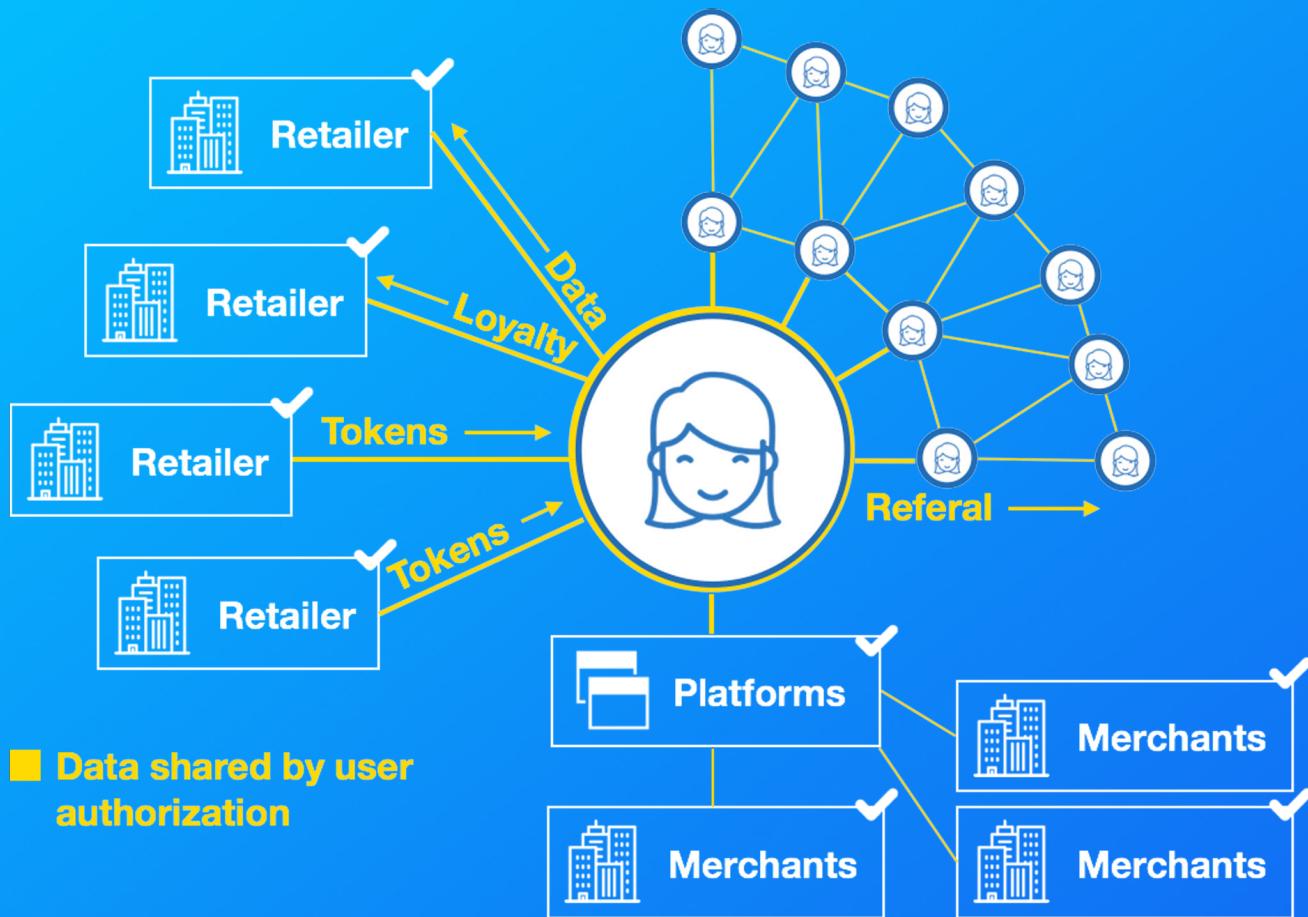


Life Time Value of Shopper

Shopin Token Dynamics

How the token will be used:

Retailers reward shoppers with Shopin Tokens that shoppers can spend within Shopin-enabled retailers, offsetting the token value against their total purchase.



Shopin Token Dynamics

1.5 BN tokens will be allocated in the token sale (capped), of which 33% will be allocated for the incentive economy.

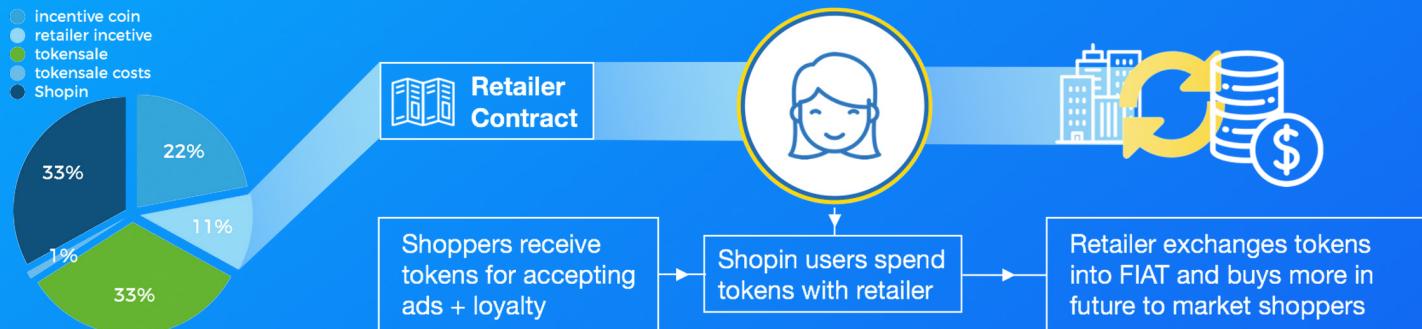
Incentivizing retailer launch partners to adopt:

The ultimate question of a utility token is: how do I make sense of the adoption cycle and ensure these is a reason for utility and for holding onto the tokens?

Since we are in a nascent stage of this market, and we know retailers will hesitate to enter into a tokenized economy, we are implementing several innovative strategies to help kickstart the value of the Shopin token on the exchange:

1. Retailers pay to receive product recommendations on their pilot SaaS contracts (for 18 months) based on a percentage of transactional sales lift.
2. To advertise on the shopper profile and engage in other programs, the retailer needs to pay in tokens, which shoppers can redeem to offset purchase prices.
3. To kickstart the adoption of the token, Shopin will offset 30% - 50% of the retailer contract value by purchasing tokens from the exchange and from the retailer incentive allocation pool (50% allocation from each - i.e. 1/2 the tokens from the exchange, and 1/2 the tokens from the retailer incentive allocation pool.).

This creates a system of immediate adoption into the ecosystem and invigorates the value of the token on the exchange by selling not only to participants, but to the main users of the token as well.



Retailers Marketing Advantage

Generalized Opt-in Advertising

The Shopin app will serve as a direct line of communication from retailers to customers by offering customers more rewards when they respond to direct, opt-in advertising.

This service can be monetized by Shopin and serve as a source of rewards for customers who opt-in to the service.

When a customer opts into the service, the Shopin App can receive push advertising from the retailer that is matched against the customer's data and buying history, whilst the customer shares in part of the advertising revenue.

Specific Opt-in Advertising

Another feature of Shopin will be an opt-in system for advertising and promotions on specific products in which the user has recently expressed interest in buying.

When users opt in this way, their interest will be sent to all retailers with the product they have selected, and retailers will have the opportunity to directly target deals for the customer.

In both of the above cases, retailers will use tokens as incentives for shoppers in the ecosystem.

Referrals, Rewards

Shopin can facilitate a referral-based rewards system for the retailers using social media and referral links to products that the shopper shares with friends and family.

Each shopper will be rewarded for future purchases made by the referral by receiving part of the retailer Shopin token incentives.

Team



Eran Eyal - CEO | Founder

3 acquisitions in technology, retail and design. Advisor and investor at VaultML, Display.io, WinIt, CateredFit. Blockchain enthusiast and Hodlr. Eran is the winner of the United Nations World Summit Award for Innovation. TechStars Pitchnite. His previous startup was listed by FastCompany in the world's most innovative startups. Eran also carries the recommendation of the United States Commission on Presidential Scholars.



Divakar Rayapaty - CTO | Co Founder

Divakar was the first engineering hire and principle engineer at Priceline for 14 years. He was responsible for architecting Gen 1 and Gen2 of Priceline (still in use today). Post Priceline, Divakar went on to become the technical cofounder of Flowhealth and became an active angel investor.



Jeremy Harkness - Blockchain Technology Officer | Co Founder

Jeremy is a true technologist at heart, who served as CTO at two major African companies and as the cofounder of Stratice. He is also the inventor of the world's first failover router and the holder of multiple patents. Jeremy has spent the past 5 years trading crypto and building blockchain technology solutions.



Abhishek Yermalla - VP of Engineering

Abhi is a seasoned architect with 12 years experience in ecommerce. He was twice awarded annual CEO achievement award during his 8 years at Priceline.



Michael Herman - CRO

Formerly president of global sales at Elie Tahari, Michael has spent the past 20 years in senior executive positions with Natori, Donna Karan, DKNY, Wacoal and Valentino.

Team



Doron Wesly - CMO

Doron boasts incredibly deep experience and a prestigious career in B2C and B2B marketing. Prior to joining the Shopin team, Doron was CMO at Lotame, the first data management platform, head of market strategy at Tremor Video (NYSE: TRMR, now TLRA), head of Business Science at media agency Mindshare, global head of media investment at Samsung's in-house agency Cheil Worldwide, and various leadership positions at Millward Brown, IAB, Lycos, Hotbar and Applebee's



Valdimir Ustinov - Senior DevOps Engineer

Vlad has served as senior engineer at Maker's Brand, Flow Health, Eigengraph. He holds a masters degree in Cosmic Physics and Ecology from Tomsk State University.



Alexey Kyulkin - Senior DevOps Engineer

Prior to Shopin, Alexey served as the front end engineer at Maker's Brand. Backend engineer at Flow Health. He was the Head of Department at National Research Tomsk Polytechnic University.

Advisors



Steven Nerayoff

Architect of Ethereum Token Sale. Inventor of Gas for Ethereum. Founder and CEO of Maple Ventures, co-founder of Alchemist Ventures and Founder and CEO of CloudParc.



Sampo Parkkinen

Founder of RapidBlue (acquired by Shoptrakker). CEO Revive, GP Land in Chicago. Sampo is an early seed investor in Shopin and an incredible supporter.



Jeff Pulver

Jeff is an investor in over 350 startups. Founder of MoNage, and Alchemist Ventures, Jeff is a VOIP pioneer, who is often credited as the grandfather of the VOIP industry.



Tom Gonser

Tom is the renown founder of tech unicorn DocuSign. He is an investor in Shopin as well as the GP at Seven Peaks Ventures. Tom brings the maturity of building a powerful business brand from startup to massive growth.



Amadeo Brenninkmeijer

Amadeo is an accomplished angel investor with a strong background in retail healing from the C&A family. Including Shopin, he is an investor in over 40 startups and was formerly at Bain Capital.



David Drake

Managing Partner of LDJ Fund. David is a board member and advisor at several renown blockchain companies and is deeply entrenched in the crowdfunding community, constantly driving the industry forward.



Garrette Furo

Garrette is an accomplished cryptocurrency trader. He generated 3000% YTD ROI as of August 2017, beating Bitcoin by over 2000%, without significant leverage. Bachelor degree in Molecular Neurobiology and Alternative Investments.

Advisors



Nathan Low

Nathan is the epitome of a serial angel investor, with keen insight on adtech. He has invested in over 120 startups to date, including Shopin. Nathan is the founder of Sunrise Securities.



Moshe Bellows

Moshe is an early investor in Shopin and is a well known angel investor who serves on several NYC and Israeli startup boards. Moshe's network in the retail world runs deep and has opened many doors for Shopin.



Bryan Feinberg

Bryan is an early investor in Shopin and is a well known angel investor who serves on several NYC and Israeli startup boards. Moshe's network in the retail world runs deep and has opened many doors for Shopin.

Shopin Architecture

1.1 Overview:

Shopin will facilitate the scalable transmission of Shopin Tokens using a Proof Of Stake Blockchain with built-in distributed database, featuring enterprise hardened scalable decentralized NoSQL database technology, with built-in NoSQL query capability and a robust permission system to manage access to data. Shopin will implement a proof of stake consensus algorithm which will associate permission to run full nodes with a minimum stake of tokens in the network.

1.1.a Shopin Profile

The first and most fundamental entity on the blockchain will be a Shopin profile. This will serve as the basis for the shopper's data storage in network.

1.1.b Personal Data

The Shopin profile will form a key part of how individuals share and manage their private information with authorized retailers on an individual's own terms. Retailers will be able to develop applications to allow for the retention of shopping data by getting their customers and will use incentives based on Shopin tokens.

2. Background

2.1 Distributed Stack Architecture

Shopin will run using a three-tiered DAPP architecture, which will employ the Ethereum blockchain at the top layer, enabling the management of Shapin tokens, and the smart contracts for the Shapin DAPP, and its own private blockchain based on BigchainDB, which will exist in a decentralized cloud architecture based in the iex.ec cloud

2.1.a Ethereum Blockchain

Shopin will deploy the ERC20 tokens from an Ethereum smart contract during the token sale. The tokens will be distributed to all token sale participants during the token sale.

Retailers will be supplied with Shopin tokens, which will be moved using atomic swap smart contracts to create the tokens on the Shopin Blockchain.

Shopin Architecture

Background (cont.):

2.1.b. Private DAPP Nodes

Using a decentralized cloud based virtual environment, Shopin will distribute the server around the world, which will provide not only redundancy and DOS attack protection but significant improvements on service delivery speed.

2.1.c Private Permissioned Blockchain

Shopin will run an invite-only permissioned blockchain distributed database, which will allow retail partners to host nodes for the blockchain. This architecture sufficiently decentralizes the control and security of the Shopin blockchain secures fast and close access to the database.

2.2. Distributed Databases

Our modern world of Google search, YouTube, Netflix, and Facebook would not be possible were it not for the massively distributed system they run on. To deliver such services at the scale of billions of users, every one of these ubiquitous services needs to have a robust and reliable distributed database underpinning every piece of data traversing the system. Shopin will deploy a blockchain solution that will be both fast and scalable and deliver on the transaction volume that will be required for the solution to service the retail clothing industry.

2.3 Traditional Blockchain Scalability Constraints

In traditional blockchain implementations, there are a number of factors that affect scalability and thus, mass adoption.

2.4 Resource wastage

A prime waste of resource can be observed in the first blockchain implementation of Bitcoin, in which vast amounts of energy are used to ensure network stability and consensus. This has led to an arms race in ASIC development to deliver the fastest hashing capabilities per dollar, burning a huge amount of electricity worldwide and requiring huge mining farms situated in centralized positions near power stations offering the best prices per Kilowatt Hour (kWh).

Shopin Architecture

Background (cont.):

2.5 Transaction rate limitations

Current consensus mechanisms result in limited transaction processing capability by constraining the amount of data that can be included in each block. This has resulted in Bitcoin being limited to a peak of about seven transactions per second utilizing the current block size.

2.6 Transaction speed limitations

Block time is another limiting factor. The speed at which a transaction can be verified is limited by the confidence in the immutability of the current state of the ledger. It is possible for a blockchain to experience short-term breaks in consensus and that full consensus is only reached after a number of additional blocks have been confirmed. This has led to a requirement by participating parties engaging in virtual asset transactions to wait for multiple confirmations before assets are made available to the receiver.

2.7 Network bandwidth as a limitation to adoption

The biggest limitations are Internet connection bandwidth requirements for a traditional blockchain to operate at scale. If either Bitcoin and Ethereum was to be able to scale on-chain to millions of transactions per second, half a Terabyte (TB) of additional storage per day would be required. The network nodes would not be able to handle the corresponding bandwidth to maintain this amount of data.

3. Blockchain scalability requirements

Shopin has identified key features required if the next generation of blockchains and the associated distributed applications is to be realized.

3.1.a No centralization of the underlying consensus mechanism

By ensuring that only highly trusted individuals can run verifying nodes, the system insures maximum security as well as decentralizations of the consensus nodes. By implementing a permissioned system, the trust of the node operator is ensured.

Shopin Architecture

Blockchain Scalability Requirements (cont.):

3.1.b Minimization of wasted energy

The use of permissioning removes the need to use huge amounts of energy to validate the blockchain.

3.1.c Transaction throughput that scales with the network

By employing pooled voting to reach consensus, blocks are verified in a continuous, real-time directed acyclic graph of transactions. Tests have shown that 32 nodes can deliver more than 10,000 transactions per second.

3.1.d Confirmation times as low as 1.3 seconds for a globally distributed system

Geographically centralized permissions blockchains running on BigChainDB have been tested in a single data center and can reach full consensus in less than 50 milliseconds.

3.1.e Minimizing bandwidth and storage resource requirements for full nodes

Shopin's distributed database blockchain constantly updates every node with new consensus votes, associated with new blocks of transactions. A reasonable replication factor will increase the blockchains data storage capacity in proportion to the number of nodes and will minimize bandwidth and storage requirements for the entire system.

3.1.f Efficient storage and replication of the blockchain

Because we will use a reasonably high replication factor, Shopin will lower the storage and bandwidth requirements for the blockchain database.

3.2 Shopin: a scalable retail solution

Shopin's solution has taken advantage of highly reliable, tried and tested open source software. Shopin has deployed its solution in a novel way that will enable Shopin to deliver a decentralized, scalable retail solution for shoppers personal data -- delivering speed, throughput, reliability, and security with blockchain transparency and immutability.

Shopin Architecture

Blockchain Scalability Requirements (cont.):

3.3 Performance

Shopin's blockchain architecture runs on standard hardware or in distributed cloud environments and network platforms with impressive results that have been experimentally verified by third parties. Shopin is not a cloud solution, it uses cloud solutions to facilitate the distributed Application. We plan to use iex.ec instead of Amazon, or Google cloud to perform the role of infrastructure for the purposes of running the distributed application.

3.3.a Block Time

Using the power of a new blockchain pipeline and node-voting mechanism delivered by the underlying consensus algorithms, which are based on derivatives of the PAXOS consensus algorithm, Shopin can reach consensus at speeds only limited by the average latency between nodes. Given a global network evenly spread across the planet and a node-to-node latency of 150ms, full consensus can be reached in less than 1.5 seconds. No additional confirmations will be required after this, as there is no way for transactions to be charged once consensus has been reached. No future uncertainty exists on the state of the blockchain.

3.3.b Transaction capacity

Through experimental tests using 96 nodes, the private Shopin blockchain can process over 10,000 transactions per second per node, exceeding 2 million transactions per second during testing.

3.3.c Storage capacity

The Shopin blockchain can store and manage data and Shopin tokens, for every shopper, at the Petabyte (PB) range with a small number of nodes hosting large storage capacity.

3.4 Profile Security

Shopin uses private keys to manage access to personal data and will use the Shopin distributed application to facilitate the management of a user's private keys. We also propose a novel multi-signature key management system. Third party ID verification companies will be a key component in this key recovery process.

Shopin Architecture

Blockchain Scalability Requirements (cont.):

3.5 Distributed Application Architecture

Shopin will be deployed as a blockchain alongside a distributed application that will extend the base interface of the system to the individual via a web wallet, which will function as the interface for profile management, retailer subscription, and a permission management console.

3.5.a DApp Nodes

The distributed application will run on Shopin nodes, which will also be on a distributed web services platform running on top of iex.ec distributed cloud, allowing for the servicing and running of the primary DAPP supporting the Shopin blockchain.

APIs will allow independent retailers running on their own systems to interact with the database to store and retrieve data from individuals' data store. Permissions allocation via retailer subscription by the individual will ensure that each retailer is isolated from shopper other private data. In other words, retailers will only have access to data permissioned to them by the shopper. By default, retailers only get access to data they created with the permission of the shopper, the shopper can revoke this at any time. other retailers do not have access to data they do not have permission to.

3.5.b Distributed cloud architecture

Shopin will be deployed using standardized Docker containers which will be able to run on any docker enabled platform, including a personal computer, Google Cloud, Amazon AWS, and decentralized clouds such as iex.ec.

3.5.c Docker containers

A docker container is a virtual operating environment that facilitates the standardization of all application packages intended to fulfill a specific software need. A container can take customized configurations initiated at startup.

Shopin Architecture

Glossary of Terms:

4.1 Blockchain

An immutable decentralized ledger with no third party trust required to validate the authenticity of transactions involving the transfer of assets.

4.2 Bitcoin

The first practical implementation of a blockchain

4.3 SQL Databases

Databases that store data in tabular format and use a query language that addresses entries based on table names and column headers.

4.4 NoSQL Databases

A database that stores data in a format consisting of key-value pairs or a graph.

4.5 Distributed Databases

A database that makes use of more than one hardware / software system on a network which can be geographically separated, to store and retrieve data that is replicated across the network, and may be split into subsets of the full dataset to achieve efficiency gains.

4.6 Replication Factor

This refers to the degree to which data in a distributed database is split into smaller subsets of the full database in order to achieve efficiency gains in storage, bandwidth utilization, data delivery and processing capability.

4.7 Immutable

This refers to the property of a record when it cannot be changed after it is created.

4.8 Zero Knowledge Proofs

A method by which one individual can exchange proof of knowledge or lack thereof, of a certain secret, without revealing the secret to the asking party, and without an observer being able to determine if the holder of the secret is in fact in possession of the secret.

Shopin Architecture

Glossary of Terms:

4.9 Node

A node is a reference to a single computer system in a network of similar computer systems that work together as a distributed solution for the delivery of a network service, such as processing, storage, databases, network traffic routing. In general, nodes are agnostic and stateless as far as the network is concerned and can be removed without affecting the service delivery of the system.

4.10 Consensus

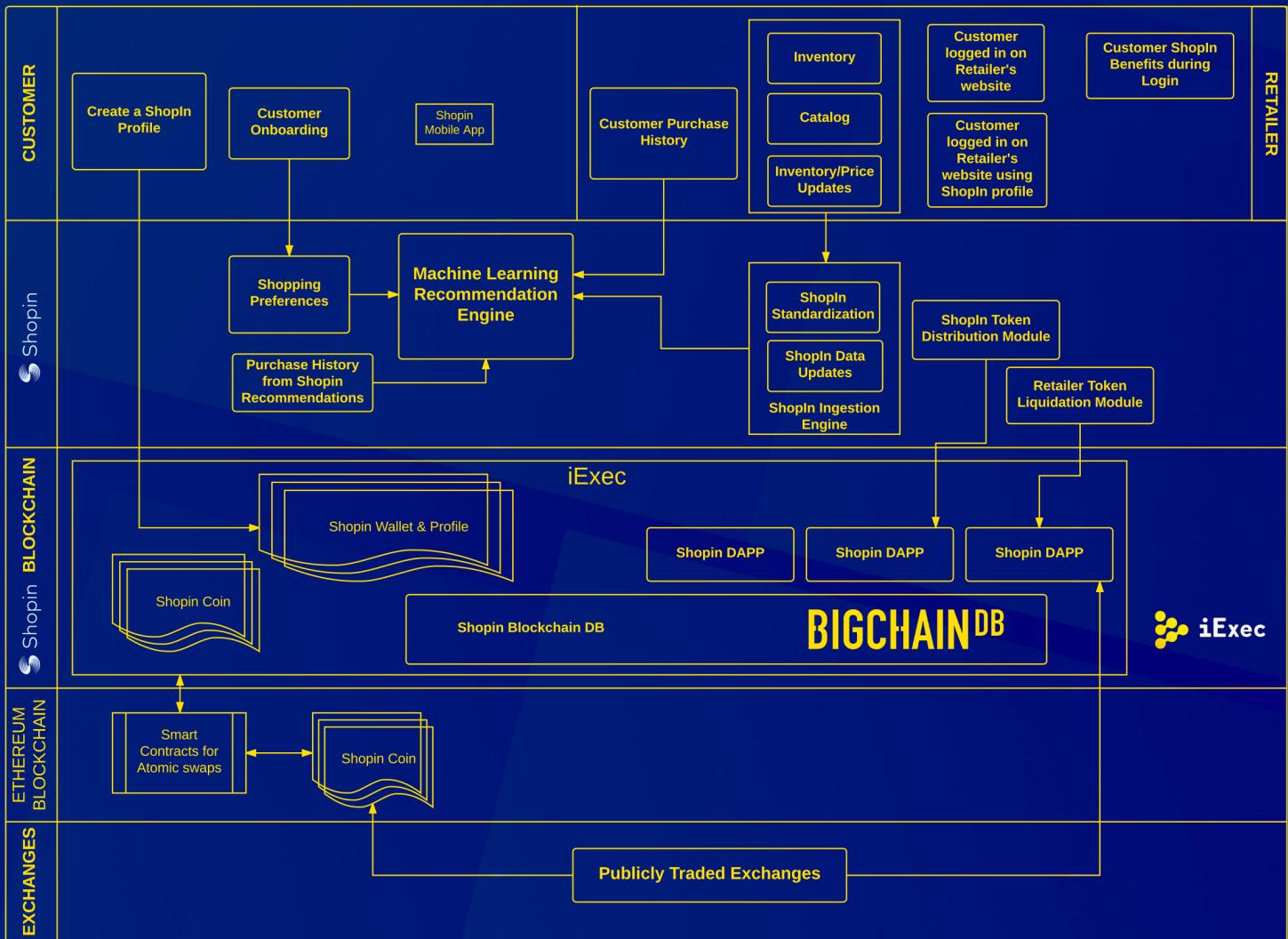
Consensus describes a group dynamic in which decisions are decided by a majority within a group with the intention of resolving group disputes without the use of a third-party mediator. Usually, all parties in the group agree before reaching consensus that once consensus is reached, all parties in the group accept the outcome of the consensus decision even if they did not agree with the decision individually.

4.11 ASIC

An ASIC is a specialized electronic device whose circuits are designed to do one specific operation very efficiently. In contrast, a general purpose processor that is programmable and can solve many problems by being directed at runtime by the software, which is loaded at the time of execution.

Shopin Architecture

SHOPIN FLOW V1.0 - TOKEN MODEL



Conclusion

Shopin is positioned to create an ecosystem where data is the coin of the realm.

In this paradigm, shoppers and retailers are finally part of the same conversations while consumers are the driver's seat.

With consumers in charge of their data and the introduction of Shopin Tokens, retailers will be in a better position than ever before to service their customers.

The more that consumers interact with retailers and each other in this tokenized economy, the greater the value of their data becomes.

Control, visibility, value. Shopin is becoming the coin of the retail realm.

**For the token resale visit:
tokenpresale.shopin.com or
email tokensale@shopin.com**



Addendum: Blockchain FAQ

How do you use the blockchain to secure the data?

Using the Ethereum Blockchain we can write the hash of an IPFS object to the blockchain, thus a reference to the data on IPFS will be stored in the blockchain. But instead of storing the raw HASH for the objects, we can encrypt the hash before we store it so that the actual IPFS Hash is still private. Moving forward, we are integrating with BigChainDB and iExec to create a totally decentralized solution.

How will Shopin work with retailers and merchants?

Via the Shopin app, wallet and single sign-on. Shoppers will be recognized across the retail web via their historical purchase data, which is the most accurate way to get a complete and true understanding of shoppers as they make purchases across the web. The Shopin profile ensures consumers have the most personal, "just for you" shopping experience.

Are you planning to build this as a “closed ecosystem” between issuers, users and consumers? Or will it be based on open standards and also accessible for other applications?

Shopin systems, the customer devices, and retailers will be taking part in the ecosystem. The tokens, however, will be standard Ethereum tokens because Ethereum is the most robust system for smart contracts, which will be the basis of users’ interactions with each other and with the retailers.

Our core philosophy is to be open in integrations, standards and other applications, working collaboratively with other companies and products in the blockchain space to help each other grow and form a larger, cohesive ecosystem.

Do you store the data on something like IPFS and not on the phone?

Data will be stored on the phone in the Shopin app and will be encrypted and backed up to IPFS so that it can be retrieved if users lose their devices. Each user’s Ethereum wallet can also be backed up to IPFS so that it can be retrieved if the user loses his/her device. Each user’s Ethereum wallet will also be backed up and can be retrieved from IPFS.

Addendum: Blockchain FAQ

Is IPFS or BigChainDB going to be a secure solution?

We are using a multi sig key system so that two or more keys will be needed to decrypt the IPFS/BigChainDB data. The third key will be held by a trusted third party. If a wallet is compromised, the files will be moved to a different set of keys associated with a different ETH address, and the old files will be removed from IPFS or BigChainDB permanently.

Do you have a prototype of the app?

Not at this stage. This is the second phase of our engineering after the token sale. Right now our focus is:

1. Finish the product pipeline we shared along with the blockchain technologies/integrations with blockchain companies we want to collaborate with.
2. Build the API integrations like CommerceCloud/DemandWare, Shopify Plus, Oracle, Dynamix etc. for quick integrations with retailers, merchants and platforms.
3. Build the app and functionality.
4. Focus online first, late offline (in-store) integrations.
5. Focus on fashion, accessories, footwear, cosmetics and then later into home goods.

How do you plan to store and recover the encryption key(s) for the data?

Shopin will employ a multi sig wallet approach so that users can always recover their data and Shopin will use three signatories, one will be the user, the other will be Shopin and the third will be with a trusted third party. Securities will be investigated and industry best practices will be used in lieu of this suggestion.

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Addendum: Blockchain FAQ

So the users will store/restore via a seed? Are you using the same key for the data encryption as well as for the Ethereum transactions? What transactions will be recorded on the blockchain?

We will store Shopin Token exchanges on the blockchain, but will use private channels to minimize on chain spam between retailer and Customer to store the transaction logs off chain and write them to the blockchain periodically or when the channel is closed.

In our first implementation we believed that transaction data can also be encrypted and stored in a ledger stored in IPFS in its own IPFS folder/directory accessible using a multi-sig system allowing two of many keys to access the data. This was supposed to one be a stop-gap, as we were hoping Raiden would be available with the time frames of this project. Private data, would be backed up in different files under the customer's own Directory on IPFS.

Since this was not the case, with Raiden being delayed with no solution in sight, we have formed a partnership with BigChainDB (Germany) to store the data and decentralize the AI/computing power to iExec (France) with swaps to the Ethereum Network.

Once the user is done shopping, the channel can be closed, and the final exchange can be committed to the blockchain.

(continued on the next and final page)

Addendum: Blockchain FAQ

How do you plan to handle challenges with Metadata? Wouldn't it be clear who is shopping where and how often?

1. Who is the person behind this persona?
2. What have they purchased?
3. What is the SKU level information begins what they purchased (strip out brand identifiers)?
4. How often do they buy that item or a similar one?
5. What do they pay for the different categories of items on average and what is the relationship of what they pay to the original price of that item?
6. How does this relate to seasonality and fashion trends?
7. Locations of purchases as clusters.
8. Online vs. offline purchases.
9. What form of payment do they use?
10. How much is spent on credit vs cash/credit card?
11. If credit/loan/installments, what are payback terms and limits (later phase)

Our real-time product recommendation engine captures any purchase, wishlist, or removal of an item on the "Just for You" page when shoppers are logged onto a retail site powered by ShopinIt instantly learns updates the core Shopin profile and all the other retailers' product recommendations and marketing collateral in real-time across our network.