tribeOS

Business Overview

Updated October, 2018

EXECUTIVE SUMMARY

tribeOS offers a new and exciting vision for a next-generation advertising marketplace that capitalizes on the emergence of blockchain technology by enabling transparent and trustless interaction.

tribeOS provides a structure that nurtures the values of decentralization and permissionless innovation, while simultaneously creating a viable business model. The tribeOS marketplace builds on the existing proprietary solutions (AdOS, Gold Lantern) and addresses long-standing problems in the online advertising industry such as click-fraud and a lack of transparency.

Perhaps most importantly, it offers a superior fee model, which ultimately puts more money back into the hands of advertisers and publishers alike.

The digital advertising services and ad tech solutions offered in the tribeOS marketplace are designed to maximize an advertiser's ROI, increase a publisher's revenue share, make it faster and easier for advertisers to create performance-driven digital display ads, and provide them with a larger inventory of targeted, contextual and relevant ad space.

Our early adopters are large media buyers and high-volume news site publishers with significant breadth of consumer engagement. These stakeholders typically try to solve these problems today by buying on ad networks that deliver sub-optimal results, are rife with click fraud, and do not provide appropriate placement of messages.

It is precisely this market need that inspired us to build tribeOS, an open and transparent advertising marketplace delivering Contextually Appropriate Ads People Love (™) with real-time bidding interfaces for purchase of placements, and pricing based upon attributable engagement and transactions within a single, consolidated and robust service platform.

For the latest updates please visit our website at www.tribeos.io

INTENDED AUDIENCE

This is a business overview white paper describing the structure and operation of the tribeOS digital advertising marketplace. The target audience is interested parties, their teams and analysts, prospective partners, advisors, and candidate employees.

This document is confidential and may contain certain privileged information legally protected from disclosure. This document is not to be distributed by any means to any parties that have not executed a Mutual Non-Disclosure Agreement with tribeOS Ltd.

The intention and desired outcome of this paper is to inform the reader about what tribeOS is and how it functions.

THIS DOCUMENT IS NOT AN OFFERING

INTRODUCTION

tribeOS is an open, intelligent and automated digital advertising marketplace designed to end ad fraud, provide a radically transparent ad tech solution using distributed ledger technologies, and offer a more profitable platform to both digital marketers and publishers of digital display advertisements.

This platform was built for advertisers, publishers, and developers who struggle to drive awareness of their brands and promote their products online due to the severity of ad fraud and ad waste that occurs within existing ad networks and exchanges.

THE PROBLEM

Ad fraud is an invisible crime that costs advertisers and digital marketers $51 Million[1] each and every day. Sophisticated hackers and ad fraud farms are creating fake clicks, leads, installs, downloads and other conversions to enrich themselves, and the advertising networks know about it and are not taking sufficient action to stop it.[2]

Every day, new entrepreneurs, the oxygen of our global economy, go online to launch digital advertising campaigns, spend thousands of precious early-stage dollars, and end up with little-to-nothing to show for it because much of their ad spend is being lost to fraud and waste.

While the problem originates from online scammers and malicious players who prey on the vulnerabilities of major ad networks and exchanges, it is exacerbated by the fact that existing ad tech solutions operate with little to no transparency. Advertisers and publishers alike are provided with nothing more than convoluted analytics reports providing engagement and impression based performance metrics, but have no way to really verify the accuracy of where an ad was placed, who saw it, and if reported traffic and engagement was the result of real human beings or bots.

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[1] Dr. Augustine Fou - Independent Ad Fraud Researcher, "State of Digital Ad Fraud Q2 2018"

https://www.slideshare.net/augustinefou/state-of-digital-ad-fraud-q2-2018

[2] PPC Protect, "The Biggest Ad Fraud Rings Discovered (So Far)" https://ppcprotect.com/ad-fraud-rings

AD FRAUD ADVERTISING STATISTICS

Here are a few digital advertising statistics on ad fraud and ad waste:

- 77% of display ads are never seen.[3]
- 38% of clicks on online banner ads are accidental.[4]
- 57% of video ads are never seen.[5]
- 8% of internet users account for 85% of all online clicks.[6]
- 60% of legitimate ad inventory is not viewable per IAB standard.[7]
- 86% of consumers suffer from "Banner Blindness."[8]
- 61.5% of all web traffic is not generated by humans.[9]
- 20-90% of ads and clicks are fraudulent - the result of bots.[10]
- 43-46% of web ads are displayed to "suspicious" visitors.[11]
- 30% of internet transactions are marked as fraudulent.[12]
- 85% of companies are already victims of fraud.[13]
- 54% of all advertising isn't seen.[14]

For all of these reasons, we're creating the first ever advertising marketplace serving both advertisers and publishers equally, eliminating ad fraud in the process.

THE SOLUTION

We envision an advertising platform like the world has never seen; a blockchain-driven, permissionless, and transparent marketplace that puts more money back into the hands of its users and ultimately allows more value to be created.

Our mission is to democratize digital advertising through the blockchain. To bring fairness back to advertising using distributed ledger technology.

3 Clickz, "77% of Display Ads are Never Seen" https://www.clickz.com/77-of-display-ads-are-never-seen-sticky/35648

4 Emarketer, "Measuring the Fat Fingers Problem" https://www.emarketer.com/Article/Measuring-Fat-Fingers-Problem/1009470

5 New York Times, "The Great Unwatched" https://www.nytimes.com/2014/05/04/business/the-great-unwatched.html

6 MediaPost, "8% of Internet Users Account for 85% of all Clicks"
https://www.mediapost.com/publications/article/115210/8-of-internet-users-account-for-85-of-all-clicks.html

7 AdExchanger, "The Inefficiencies Of Exchange Traded Media" https://adexchanger.com/ad-exchange-news/why-exchange-traded-media-is-inefficient-and-how-to-fix-it

8 Adotas, "Study: 86% of Consumers Suffer From Banner Blindness" http://www.adotas.com/2013/03/study-86-of-consumers-suffer-from-banner-blindness

9 Incapsula, "Report: Bot traffic is up to 61.5% of all website traffic" https://www.incapsula.com/blog/bot-traffic-report-2013.html

10 Solve Media, "Global Bot Traffic on Pace to Waste Up to $9.5B..." http://news.solvemedia.com/post/60777828761/global-bot-traffic-q3-2013

11 Solve Media, "Global Bot Traffic on Pace to Waste Up to $9.5B..." http://news.solvemedia.com/post/60777828761/global-bot-traffic-q3-2013

12 CPA Detective, "Comprehensive Online Fraud" http://www.prweb.com/releases/cpadetective/cake/prweb11025581.htm

13 Fraud Cracker, "Is fraud a problem in your business?" http://www.fraudcracker.com/is-fraud-a-problem-in-your-business.html

14 Infectious Media, "Viewability Infographic reveals 54% of all digital advertising isn't seen"
http://www.infectiousmedia.com/viewability-infographic-reveals-54-digital-advertising-isnt-seen

tribeOS gives advertisers, publishers, and consumers the power to share contextually appropriate digital advertisements with the utmost security, privacy protection, and fraud prevention.

The tribeOS digital advertising marketplace will:

- Eradicate ad fraud and ad waste
- Provide the largest ROI for advertisers
- Deliver the highest revenue to publishers

Our early adopters are large media buyers and high-volume news site publishers with significant breadth of consumer engagement.

These stakeholders typically try to solve these problems today by buying on ad networks that deliver sub-optimal results, are rife with click fraud, and do not provide appropriate placement of messages.

It is precisely this market need that inspired us to build tribeOS, an open and transparent advertising marketplace delivering Contextually Appropriate Ads People Love (™) with real-time bidding interfaces for purchase of placements, and pricing based upon attributable engagement and transactions.

Our management tools, fraud protection protocols, and real-time analytics reporting offer users high-quality engagement and curated placement of ads to target consumers. The digital advertising services and ad tech solutions we offer are designed to maximize advertiser's ROI, increase a publisher's revenue share, make it faster and easier for advertisers to create performance-driven digital display ads, and provide them with a larger inventory of targeted, contextual, and relevant ad space.

The following paper offers an outline of the technical components of our platform, which are currently in development and scheduled for beta release in early 2019.

For the latest updates please visit our website at www.tribeos.io

SERVICES OVERVIEW

OVERVIEW

tribeOS provides services and technology to:
1. Maximize advertiser ROI
2. Maximize publisher content monetization
3. Enable easier creation of advertising
4. Provide advertisers with a bigger inventory of contextual ad space

The business model is based upon:
1. Ad network - tribeOS captures recurring campaign budgets
2. Publisher network - tribeOS maintains a high quality publisher content inventory
3. High conversion contextual matching - ad placement that performs

The Company is an advertising technology company focused on the development and commercialization of advertising technology services including advanced fraud prevention, contextually relevant advertising placement, campaign management, and content monetization services using cryptographically-secured decentralized ledgers—often referred to as distributed ledger or blockchain technologies.

DIGITAL ADVERTISING SERVICES

We envision an advertising platform that has the power to truly revolutionize the digital marketing industry. A transparent marketplace leveraging distributed ledger technologies that puts more money back into the hands of advertisers and publishers.

- AdShield eradicates ad fraud and ad waste.
- Our AI contextual matching provides the largest ROI for advertisers
- Higher level of monetization of publisher's content with 'aligned' advertising placement by high integrity companies

The core technical components of tribeOS include the AdShield suite of fraud prevention tools, Gold Lantern analytics tracking and reporting services, and the tribeOS AdsManager campaign optimization platform. AdShield eradicates 99% of all ad fraud within the tribeOS marketplace, our AI contextual matching provides the largest ROI available for advertisers, and publishers are able to achieve a higher level of content monetization with high-integrity companies and brands who are 'aligned' with their core values, target audience, and content genre offerings.

The tribeOS digital advertising marketplace utilizes proprietary technology to drive network effect revenues across the platform for both advertisers and publishers. These services include:

Advertising Services - the proprietary tribeOS advertising marketplace which captures recurring campaign budgets/insertion orders driving revenue for tribeOS by enabling advertisers to optimize ad placement and maximize return on ad spend.

Ad Fraud Prevention Technology - the tribeOS advertising services also include a proprietary suite of cybersecurity tools called 'AdShield' enabling real-time detection of fraudulent impressions, engagement, and placement with digital display ads. AdShield protects an advertiser's campaigns from ad fraud and the significant costs incurred from fraudulent traffic and malicious players.

Publisher Network - tribeOS has established relationships with publishers who own digital ad space, providing an inventory of content which allows tribeOS advertising clients to optimize the placement of their digital ads while also enabling publishers to maximize monetization and conversion rates of legitimate visitors to their site.

Campaign Analytics & Optimization - tribeOS AdsManager tools enable real-time optimization of display ads using contextual matching protocols that match the relevancy of a user's profile, interests, and purchasing history with advertiser's targeted demographics, psychographics, brand positioning, and the publisher's content. Together, the curated and contextual relevance of user, content, and advertising drives revenue for tribeOS through the increased performance for advertisers and the sale of value added analytics and optimization services.

Ad Creation Tools - tribeOS provides several unique ad creation tools that save companies time and help them make more money. These tools include (but are not limited to) advanced multi-variable split-testing and using machine learning to optimize ad copy. These value-added services provided by tribeOS enable more cost effective and profitable advertising across multiple channels and mediums including online, display, mobile, in-app, video ads, AR and VR.

HOW IT WORKS

Inside the tribeOS platform, advertisers bid on keywords, categories, and other criteria to get matched with relevant publishers content that have a contextual match. tribeOS' AdShield protects the advertisers by stopping bots, human click farms and other types of ad fraud. AI helps create better more relevant matches for advertisers. Advertisers pay for performance and publishers are able to easily monetize their content. tribeOS collects 10% of the gross advertising revenue as a service fee, 88% is given directly to publishers, and the remaining 2% is reserved for the costs associated with server management.

tribeOS will launch with two options for executing digital advertising campaigns:

1. **Display Advertising** which places campaign assets with high ranking contextual ad space from publishers with targeted audience demographics in channels including but not limited to: banners, native ads, videos ads, and innovation channels like AR and VR advertising.

2. **Performance-Based Advertising** which allows digital marketings to set granular CPMs for factors that include but are not limited to Cost-Per-Action (CPA), Cost-Per-Lead (CPL), Cost-Per-Sale (CPS), and Cost-Per-Download (CPD).

ANTI-AD FRAUD AS A SERVICE

AdShield is the first and final line of defence that stops ad fraud once and for all.

For the last 5 years we've been creating and perfecting our proprietary suite of cybersecurity tools called AdShield, the first and final line of defence that stops ad fraud once and for all. An eight month beta test proved incredibly successful, preventing over 1 Billion instances of fraud.

With AdShield technology we're able to stop click farms, spam bots, and even humans from conducting fraudulent forms of engagement with digital display ads. This means an end to ad fraud for campaigns run on the tribeOS platform, secure campaigns and higher ROIs for advertisers, and a better revenue share for publishers within the tribeOS marketplace.

Using distributed ledger technologies we're able to provide radical transparency for tribeOS users using real-time analytics that demonstrate exactly that is happening on platform with detailed reports on campaign metrics including placement, engagement, and ad fraud attempts. Thus creating the first open, trustless advertising marketplace where scammers no longer have anywhere to hide.

As we become known and respected as *the anti-ad fraud solution*, we will provide anti-ad fraud in exchange for a service fee to existing ad networks and platforms across advertising channels including:
- Online Display Advertising
- Mobile Display Advertising
- Mobile in-App advertising
- Online Video Advertising
- Emerging Augmented Reality (AR) and Virtual Reality (VR) Advertising
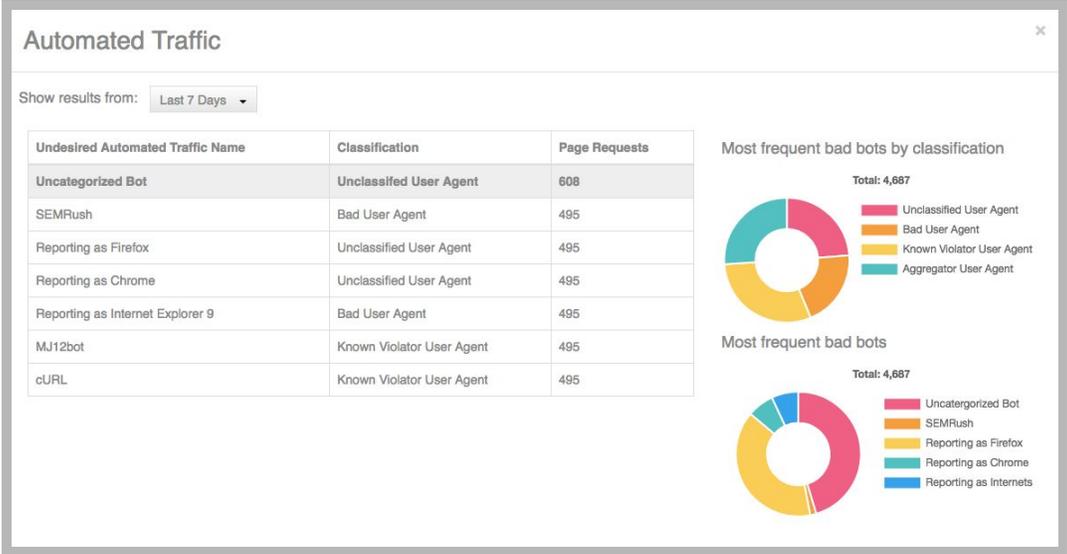
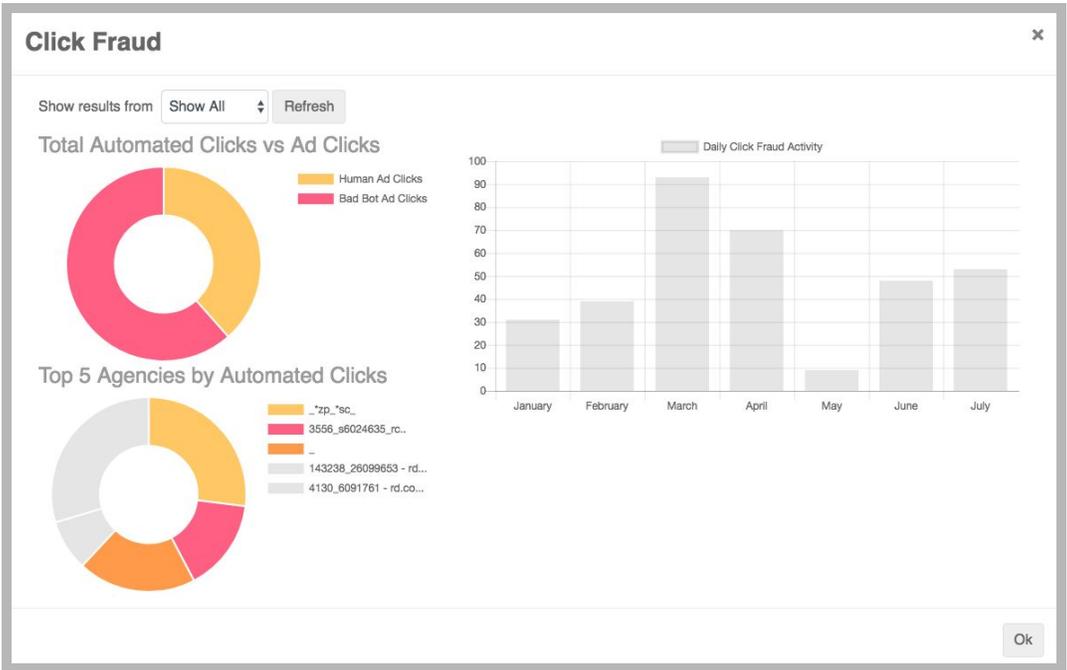Here are some screenshots of our AdShield dashboard:
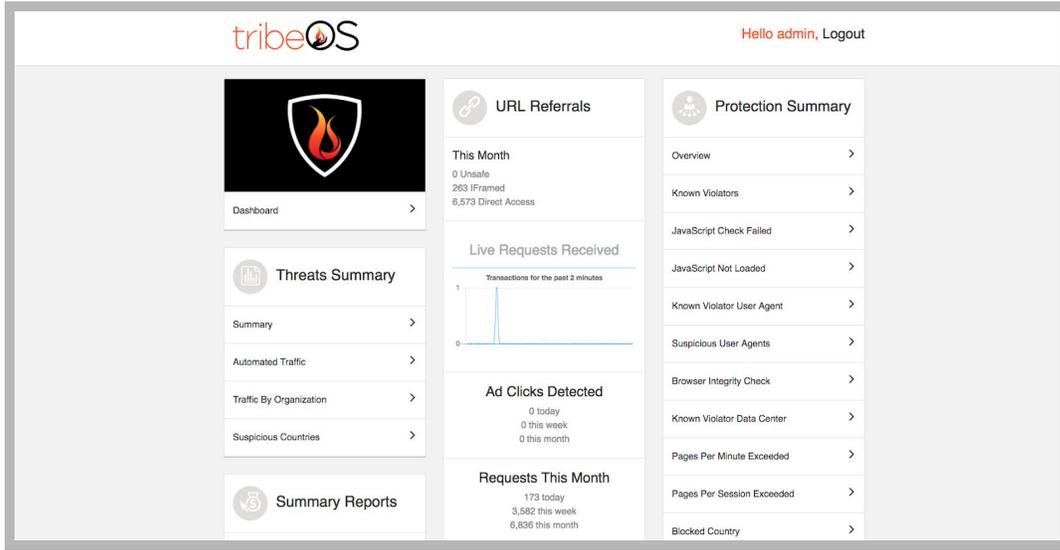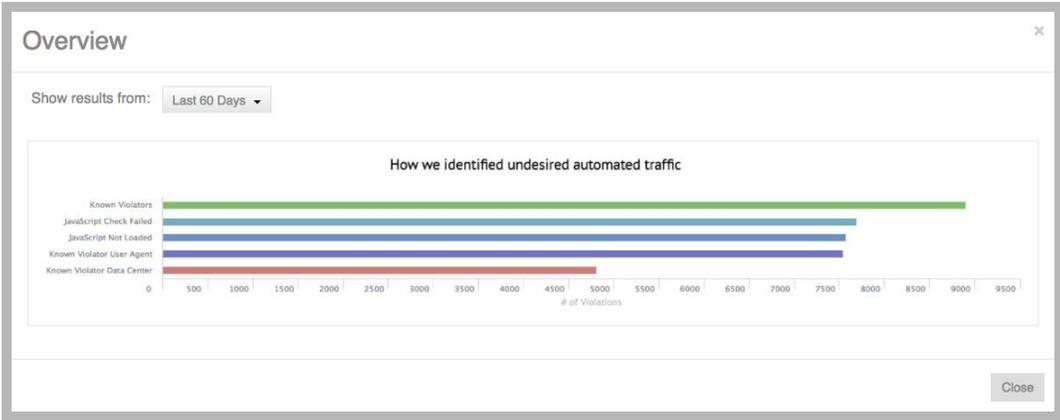

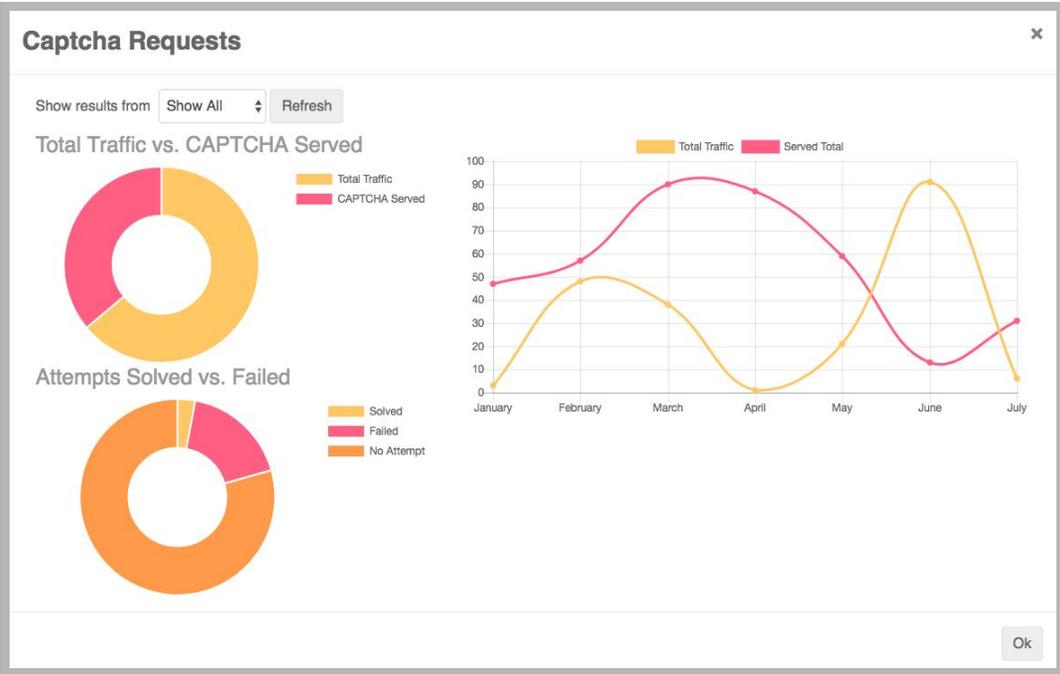*tribeOS Dashboard*
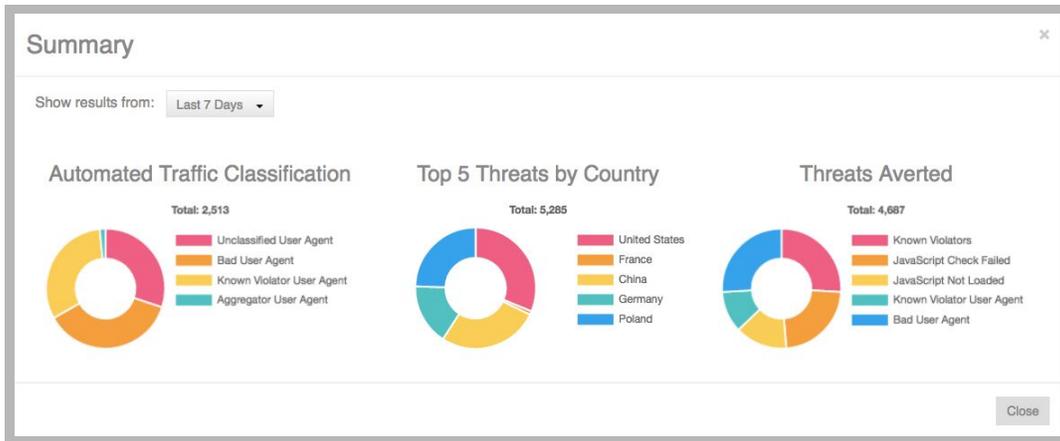
Analytics Report Overview

Fraud Report Overview

Automated Traffic Report Overview

Bad Bot Report

Captcha Report Overview

AdSHIELD

The first line of defence against fraud, AdShield is our proprietary suite of cybersecurity tools used to prevent spam bots and click farms from generating fraudulent ad traffic for the purpose of exploiting budget of advertiser for junk traffic.

AdShield is composed of many metaheuristic algorithms, integrated knowledge gained over the years, used to identify various patterns in bots to prevent them from inflating campaign metrics with fake impressions, engagements, and clicks. This technology has blocked billions of clicks and saved millions of USD for advertisers.

With AdShield technology we're able to stop click farms, spam bots, and even humans from conducting fraudulent forms of engagement with digital display ads and eliminate 99% of on-platform ad fraud.

The AdShield system looks at and analyzes a range of different fraudulent indicators which helps us build a detailed account of all traffic that flows through our system. Some examples of these methods or indicators of fraud include: detecting known proxy IP addresses, detecting old or outdated user agents, analyzing referring URLs, verifying the accuracy of submitted user data, analyzing both advertiser and publisher traffic trends and surges, evaluating traffic service providers for unusual patterns, detecting click farms from similar IP ranges, and many many more.

AdOS

AdOS is ad marketplace unique in world that allows publishers and advertisers to communicate directly and buy and sell ads. Platform supports all versions of marketplaces like CPM (Cost Per Impression), CPC (Cost Per Click) and CPA (Cost Per Action) that advertisers and publishers can use. Among marketplace there are various tools for ad creation and ad serving. Integrated tracking is also part of this platform.

For too long now brokers and intermediaries have unnecessarily inserted themselves between an advertiser and a publishers. AdOS will allow engagements between these two parties to happen without any middle-men taking a cut of the revenue. This allows publishers to both scale their traffic at a much faster rate while also allowing them to generate traffic in areas that were once unprofitable. Advertisers will also immediately see this benefit on their bottom-line since they will be able to pass this "middleman tax" onto the publisher and grow their campaigns faster.

AdOS also offers a full suite of marketing tools to their users at no extra charge. Advertisers will be able to quickly launch new ad campaigns and be immediately matched with high quality publishers who have inventory available. Publishers will be able to utilize our internal tools to build out and serve ads at a much faster rate. When advertisers and publishers are working in harmony, everybody wins.

AdOS platform supports very detailed targeting (device, location, gender, keywords) that feeds matching algorithm to provide optimal matching between advertisers and publishers. Also as a part of the matching algorithm there is extension for RTB (real time bidding) that allows advertisers to bid on specific web page visitor in real time.

QUALITY AND FAIRNESS ALGORITHMS

Quality score algorithms are used primarily in the matching engine to improve the marketplace. Entities with low quality scores will pay more to participate and those with higher scores will pay less. This boosts the overall value of the network, attracting more businesses.

PUBLISHER QUALITY SCORE

A simple, yet effective algorithm will reward desirable publishers and penalize unfavorable ones. The Publisher Quality Score will be parameter in matching algorithm that will have huge impact which publisher will get opportunity to serve ads with biggest bids. It is a simple competition among publishers where the one with best score wins the race.

An "unfavorable publisher" is a publisher who's conversions are below average, and a favorable publisher has higher conversions. Many blackhat SEO experts are skilled at generating massive traffic. However, their websites do not presell, persuade, or prime the visitor for the ad buyer's offer.

Many unfavorable publishers are masters at maximizing CTR (click-through rates) by positioning the ads in the content for maximum CTR. Our advertising data shows this also significantly drops conversion rates. We look for this and eliminate it.

In addition, quality scores can also be negatively impacted if the network detects deceptive practices such as clickbaiting, domain spoofing, hidden or invisible ads, or other similar activities.

AD BUYER QUALITY SCORE

A simple, yet effective algorithm will penalize undesirable, scammy ad buyers and reward favorable ones.

An "unfavorable ad buyer" is someone who's selling low-quality products, providing poor customer service, or failing to effectively target the right audience for their ad campaigns. How will we track this? Refunds, chargebacks, public ratings and network votes by publishers.

A "desirable ad buyer" is someone who sells great products that people love and whose chargebacks/refunds are below average. Currently, big networks manually review their clients websites, which is slow, cumbersome and expensive.

How we do it:

- Domain Age
- Customer Vote
- Bounce Rate
- Visitor Votes
- Bbb

- Publisher Strike
- Refunds
- Chargebacks
- Public Ratings
- Keyword Bot Analysis

VISITOR QUALITY SCORE

After ad fraud, the biggest waste of money for advertisers comes in the form of low-quality visitors. A "low-quality visitor" is someone who's conversions are below average. These low-quality visitors aren't valuable to advertisers for one or more of the following reasons:

- They don't have the money.
- They aren't comfortable buying online.
- They are extremely skeptical and difficult to convert.

A "desirable visitor" is someone who's conversions are above average. Many visitors are extremely valuable to advertisers for the following reasons:

- They have the money.
- They are comfortable buying online.
- They are passionate and excited about the topic/product/industry being promoted.

Our algorithm will increase the cost of desirable visitors and lower the cost of unfavourable ones to maximize the ROI for advertisers.

THE FAIRNESS ALGORITHM

Almost every exchange is built upon the "alpha lion factor". In nature, the alpha lion eats first and leaves the scraps for the rest of the pride.

The standard evolution of almost every ad network until now has been the following:

- Brave pioneering entrepreneurs are the first to test the platform.
- As the platform matures, major corporations come into play, bully the smaller companies by aggressively outbidding, and ultimately become the dominant force.
- Small advertisers are kicked out by the new "rulers of the platform" as the ad network changes their rules to favour big corporations with bigger budgets, eliminating the smaller advertisers.

The Fairness Algorithm is the answer to this problem.

For the health of the ecosystem, we propose having an algorithm where ~75% of the traffic goes to the alpha lions, and the other ~25% is distributed amongst other top advertisers using a "velocity score".

The velocity score is a quality score that doesn't factor the bid/spend. This protects the small high-quality advertisers and gives them a fair chance at getting their ads displayed.

The Fairness Algorithm will improve the overall health of the tribeOS ecosystem for these reasons:

- It will create a better experience for the visitors by showing relevant and diverse ads. Currently, the same ads and companies get shown over and over again leading to what is called "banner blindness."
- It will create more revenue for publishers. Lowering banner blindness will generate more clicks, and thereby more revenue for the publishers.
- It will create greater equality for advertisers. Because advertisers can't be "bullied" by bigger buyers, this offers a fair chance for the smaller companies to build a successful company, and therefore continue to buy advertising on the platform.

ATOMIC TRACEABILITY & ACCOUNTABILITY

tribeOS Marketplace Services are designed to enable capture of all interactions amongst stakeholders at the level of the 'Atomic Units'.

The smallest discrete unit of interaction is typically an "impression" (page view) or a visitor click. Within a blockchain-based system, every single placement, impression, and engagement action (such as a click or video view) can be verified and accounted for. The atomic units are not limited to clicks and impressions. They include:

- Advertising Message/Content
- Publisher Content
  (Print, Video, Image, etc.)
- Advertiser ID
- Publisher ID

- Visitor/Consumer ID
- Device ID
- Placement Matching ID
- Engagement/Interaction ID

Rigorous tracking of 'Atomic Accountability' enables the advertiser and publisher to have fully auditable end-to-end tracking of the advertising performance. This includes full visibility of visitor/consumer engagement with the ad message and key metrics for the performance of the advertisement including time on page, click-through, and other data revealing the level of engagement.
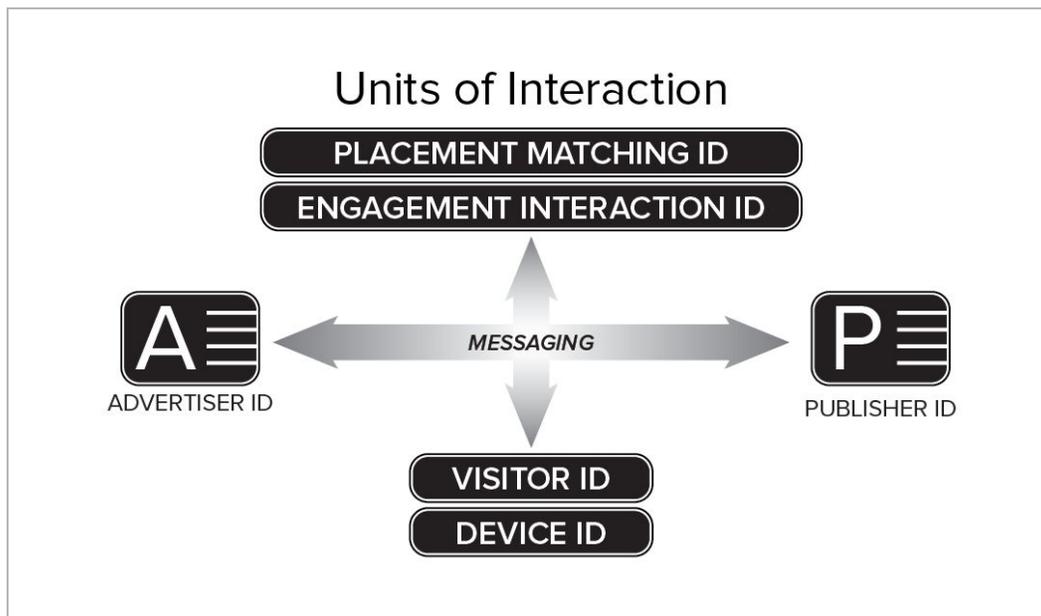
By comparison, the traditional online advertising world offers poor accountability. Media buys such as banner ad placements are often the worst, with the advertiser paying thousands of dollars for traffic that is riddled with low quality visitors. The advertiser is not able to closely scrutinize what they are paying for in many cases.

Centralized, corporate "pay per click" networks offer better stats, but come at a big markup. And advertisers still do not get granular data about each visitor.

An oversimplified (naive) solution is that the advertiser sends a BCH payment directly to a publisher for every impression or click. This is the right idea in spirit but doesn't work in practice because of latency and fees.

INNOVATIVE ATTRIBUTION

Gold Lantern is a powerful analytics platform that gives advertisers an extremely accurate view of the performance of their ads and campaigns. It gives them the relevant information that empowers them to make smart advertising decisions: stop unprofitable campaigns and scale the profitable ones.

Advertisers would be shocked to see how many conversions they assisted, with no attribution, and therefore no revenue. tribeOS has built some of the most accurate attribution modeling technology ever created and built it directly into the marketplace.

This modeling gives advertisers a new level of understanding from their advertising: they now know exactly what is happening with each visitor.

BULLETPROOF TRACKING

tribeOS has also built a tracking system that gives the most accurate visitor tracking ever offered by any advertising marketplace. It doesn't matter if someone moves from their desktop to their mobile, changes IP, or even has ad-blockers, tribeOS can track their actions.

NEXT-GENERATION REPORTING

Many advertising platforms keep their users in the dark. If you ask an advertiser, "When do you break even? How long does it take to double your investment? What is your payback period?" They can't answer. We will provide our advertisers with our "ROI Over Time" reporting, which allows them to accurately manage their advertising budget.

24 Hour ROI	15 Days ROI	30 Days ROI	60 Days ROI	3 Months ROI
87.00% ($14,580.00)	132.55% ($22,215.55)	157.53% ($26,401.55)	197.94% ($33,173.55)	221.72% ($37,159.55)

tribeOS DISTRIBUTED LEDGER TECHNOLOGY

Using distributed ledger technologies we're able to provide radical transparency for tribeOS users using real-time analytics that demonstrate exactly that is happening on platform with detailed reports on campaign metrics including placement, engagement, and ad fraud attempts. Thus creating the first open, trustless advertising marketplace where scammers no longer have anywhere to hide.

The goal of creating a full-featured, user-friendly marketplace with managed services initially seems to be in conflict with the desire to embrace the "blockchain values" of decentralization, trustlessness, and disruption. However, these can exist simultaneously by offering both a permissioned and a permissionless option in each part of the network. The underlying p2p network is open for anyone to connect to. Users can choose to run their own relevancy and bidding algorithms, serve their own ads, and implement their own tracking and reporting.

SERVICE	tribeOS	OTHERS
Relevancy	As publishers come onto the platform, web crawlers examine the properties and build a database which provides information to advertisers.	Advertisers can query publisher nodes directly and run their own relevancy algorithm.
Ad Serving	tribeOS provides a high-availability, low latency CDN solution.	Participants can choose to serve their own ads.
User Interface	Ready-to-use Dapps are freely available to use.	Third parties can develop compatible software.
Bidding	DSP and SSP functionality is provided to optimize profits.	Participants can make their own bidding decisions.
Payments	BCH blockchain	BCH blockchain
Quality Scoring	tribeOS' scoring system feeds into its bidding algorithm.	Participants can make their own bidding decisions.
Tracking and Reporting	tribeOS provides a complete tracking and reporting system.	Participants can use third party tracking or no tracking.

tribeOS welcomes alternative algorithms. If they can outcompete tribeOS' defaults, they will improve the network by providing more business to those who deliver more value. If they do not, they will simply cost the users money. For example, ignoring the quality scores (discussed later) would result in paying more for lower quality traffic.

Advertisers still are required to pay tribeOS its network fee. If they attempt not to, publishers on the network running default software will reject their transactions as invalid. Bad behavior can be detected and penalized by exclusion.

THE BITCOIN CASH BLOCKCHAIN

Creating a truly innovative, next-generation advertising marketplace requires a well designed architecture that maximizes and synthesizes the value-adds offered by both 'traditional' and blockchain-based, distributed ledger technologies.

We believe in using the right tool for the right job. For example, blockchains are great at distributed consensus but a poor choice for low-latency operations.

We intend to utilize innovative technology to enable efficient and profitable business operations. With that tenet in mind, we are intentionally selecting the Bitcoin Cash Blockchain as a scalable and highly robust blockchain as a platform for value transfer and transaction management within tribeOS.

Key attributes the Bitcoin Cash Blockchain provides include:
- End-to-end transparency enabling fully auditable peer-to-peer transactions and granular accountability.
- Smart contracts enabling establishment and enforcement of agreements and orchestration of complex transactions.
- Micropayments facilitating real time authorization and settlement of payments.
- Support for an open, transparent, and permissionless architecture.
- Operation that is independent from banking and merchant services.
- Atomic isolation of transactions with rigorous access control, protecting data and access to information by authorized parties only.

The platform services are optimized to make best use of the enabling technology. Services benefiting from distributed ledger technology are provisioned on the blockchain. High performance services like real time-bidding, interaction tracking, and asset management are on infrastructures optimized to ensure the performance, availability and scalability of the platform.

tribeOS will be constructed as a distributed open network, with advertisers and publishers having the freedom to communicate peer-to-peer. tribeOS will provide value added services to ensure a streamlined, user friendly experience as well as high quality results.

The services tribeOS provides include relevance matching, competitive bidding, ad fraud and ad waste prevention, CDN ad serving, web traffic tracking and reporting, and smart contract construction and enforcement.

The blockchain component will serve as a distributed ledger for transferring value from advertisers to publishers. Transaction handling, interaction attribution, and payment settlement are tightly integrated to the core operation of the marketplace, facilitating real time trade between participants.

BCH VS OTHER BLOCKCHAINS

Bitcoin Cash is a practical solution for tribeOS because of its low transaction fees and its commitment to massive blockchain scaling, which practically ensures that fees stay low and capacity will increase in the years to come.

Both Bitcoin Cash and Ethereum offer "3rd generation" capabilities (the ability to represent complex agreements between parties). Ethereum's smart contract capabilities are more flexible, but this is not necessarily advantageous when the smart contracts rely heavily on external data.

Websites, impressions, and clicks can be represented digitally, but happen in the real world as a result of real people making decisions in real time.

	BITCOIN	BITCOIN CASH	ETHEREUM	HASHGRAPH
Description	The Bitcoin BTC network.	Truly peer to peer electronic cash system.	A powerful blockchain application platform.	Distributed ledger technology based on a directed graph.
Pros	Highest level of proof-of-work security.	Low fees, on-chain scaling.	Flexible smart contract platform.	High performance throughput.
Cons	Erratic fees, network congestion, lack of blockchain scalability.	Less flexible scripting than ETH.	Moderately high fees, potential rollbacks.	Permissioned governance.
Fit for tribeOS	Not a fit due to the impact of transaction fees at 100x - 1,000x greater than BCH.	Proven security model, scalable technology, with low fees.	Not a fit due to the impact of transaction fees at 100x+ greater than BCH.	Lack of inmarket validation; Limited traffic, questionable security model.

ROADMAP

2013
- Created complete tracking system.
- Marketplace platform architecture created.
- Created next-generation publisher optimization tools.

2014
- Created unique ROI reporting tools (ROI Over Time).
- Enabled marketplace features.

2015
- Created innovative cross-domain tracking and attribution system.
- Released closed beta service platform.

2016
- Created next-generation ad optimization tools.
- Began client acquisition and generated waitlist of over 30,000 publishers and advertisers.

2017
- tribeOS acquired Gold Lantern and AdOS and merged all technical assets into one product.
- Distributed architecture development
- Bitcoin knowledge acquisition and community ties

2018 H1
- Built tribeOS Board of Advisors
- Recruited team
- Established operations
- Elaborated go-to-market plan and technical designs

2018 H2
- The Company intends to undertake the STO to qualified investors in appropriate jurisdictions.
- Consolidation and integration of existing technologies
- API launch: launch of tribeOS and the tribeOS API Q4-2018.

2019
- Integrate all existing technological assets.
- Launch integrated marketplace and security framework
- Tools launch: development of advertiser and publisher tools with iterative releases Q1-2019 to Q4-2019.
- Construct the DApps including functionality for user interfaces, p2p messaging, digital signatures, and interfacing with the blockchain.
- Deploy AdServer, CDN, tracking, verification, and other tools that interface with the DApps.
- Release relevancy algorithms for advertiser/publisher pairings.
- Implement the quality score and fairness algorithms.
- Fully integrate marketplace security protocols.
- Set up the secondary smart contracts, versioning functionality, and third-party app functionality.
- Complete full system testing and launch mainnet.

EXECUTIVE MANAGEMENT

Matt Gallant, Chief Executive Officer

Matt Gallant is a seasoned, serial entrepreneur who's built 13 profitable companies. His 20 years of advertising experience has prepared him for tribeOS. His experience includes: over 8 Million leads captured, over 13,000 marketing experiments performed, over $10 Million spent on digital advertising, and over $40 Million generated in online sales. He is a professional marketing strategist who knows how to get traction. For the last 5 years Matt has been building the ultimate advertising tracking platform with cutting edge advertiser tools, many of which will be integrated into tribeOS. Matt's single-minded purpose is to create the most profitable advertising marketplace ever for advertisers and publishers.

James Wallace, Chief Technology Officer

James Wallace (JW) has been an entrepreneur since he was 11 years old, and has built hundreds of applications in over 25 tech startups. JW built his first website in 1994, and hasn't stopped building technology since. JW comes from five generations of advertising experience that serviced the Fortune 500 for over a century. The family sold its offline assets and James took the company online in 1994, trading Fortune 500 clients for Silicon Valley tech startups. Since the nineties, his companies have been robbed of Millions of dollars in ad fraud. This motivated him to build the best tools to protect not only his own companies, but the network's advertisers and publishers. This anti-ad fraud technology is the first line of defense in advertising, and JW is eager to end ad fraud for everyone, forever, with tribeOS.

James Tonn, Chief Operating Officer

James Tonn (JT) co-founded Podium Publishing, which he grew exponentially from a $10k investment into a 9-figure valuation in less than 5 years by leveraging technology and digital marketing. He has over a decade of strategic procurement experience, specializing in Innovation and Public-Private Partnerships (P3s), and has been entrusted as the Fairness Advisor on a number of multi-billion dollar and highly complex partnership projects. JT and JW are co-founders of Exponential University, whose blockchain venture fund was the sole Pre-Seed Investor in tribeOS. JT is personally excited about disrupting the oppressive power imbalance in the advertising industry, which is perfectly aligned with his core values of transparency and fairness.

Edward Katzin, Chief Product Innovation Officer

Edward has spent 20+ years working at the intersection of financial services, telecommunications, and technology with a focus on building highly reliable commerce platforms operating at scale. He has applied this experience to multiple innovative companies and projects in the fields of payments, e-commerce, high frequency trading, telecommunications, retail, and insurance. Edward has held leadership, strategic, and product defining roles for a broad spectrum of companies from Visa to several successful startups, and led technology/business transformations at large and small corporations. He is an inventor and has several patents. Edward currently works with a range of companies to help them design and launch new products, capture intellectual property, and discover in-market traction. He is an experienced product leader and manages his teams with a balance of product vision and technical rigor.

ADVISORY BOARD MEMBERS

Roger Ver
bitcoin.com
a.k.a: "Bitcoin Jesus," Roger is one of the world's most ardent, vocal, and sometimes controversial advocates of Bitcoin. In 2011 his company memorydealers.com was the first website in the world to accept payment via Bitcoin, which is largely credited as the impetus for a future wave of merchant adoption of cryptocurrency exchange. One of the very first investors in blockchain-based startups, some say that Roger single handedly funded the first generation of crypto-companies like our own tribeOS. He has now dedicated himself to promoting Bitcoin Cash (BCH), the hard fork, low fee, rapid transaction blockchain that drives our digital advertising marketplace.

Libertarian, peace advocate, and firm believer in true voluntaryism- the idea that all human interactions should be conducted with mutual consent, or not at all- Roger ranked 36 in Fortune's 40 Under 40 for his contribution to ushering in a new era of business through innovations in finance and tech.

Josh Ellithrope
coinbase.com
Josh is a Chicago native who began his career in the late nineties working in all aspects of the tech stack. As an open-source advocate, he released his first open-source project, throttled, in 2001. Specializing in Ruby development, Josh has worked on some of the biggest emerging social applications for companies like Facebook and Involver. Developer and sysadmin who is constantly out to learn and broaden his skill-set. Currently, his world revolves around Go development and creating high end enterprise solutions at Apcera. His specialties include: Programming/Scripting Languages: Go, Ruby, Cocoa, PHP, XHTML/CSS, JavaScript, tcl/tk, Perl, Shell Scripting & AppleScript.

Security Tools: OpenSSL/SSH, Firewalls (PIX, ipfw, ipchains, iptables & pf), nessus, ethereal, ettercap, tcpdump, libpcap, libnet, nmap, tripwire, snort, nagios, & stunnel.

Clay Hebert
http://clayhebert.com/
Clay helps entrepreneurs fund their dreams: Since 2012, he's helped over 150 entrepreneurs, makers, inventors, authors and filmmakers raise over $50 million on crowdfunding platforms Kickstarter and Indiegogo. He advises startups on marketing, storytelling and growth: After a decade at Accenture, the world's largest consulting firm, Clay left corporate America and attended the most selective and unique marketing MBA program in the country, a six month journey working directly with Seth Godin and eight other amazing people. Clay speaks at conferences around the globe on crowdfunding, innovation, creativity, marketing,

entrepreneurship and the future of work. His corporate speaking clients have included everyone from Accenture to Zappos as well as some of the top universities and nonprofits in the world, and his work and writing have been featured in The New York Times, The Washington Post, Forbes, Lifehacker, Entrepreneur, Fast Company, Inc. Magazine and The Next Web.

Yanik Silver
Yaniksilver.com

Yanik redefines how business is played in the 21st century at the intersection of more profits, more fun, and more impact. He is the author of several best-selling books including Evolved Enterprise. He is also the founder of Maverick1000, a private, invitation-only global network of top entrepreneurs and industry leaders. This group periodically assembles for breakthrough retreats, rejuvenating experiences, and impact opportunities (to-date raising over $3M+) Yanik was named one of Entrepreneur Magazine's top 50 Favorite Online-Marketing Influencers. Yanik's lifetime goal is to connect visionary leaders and game changers to catalyze innovative business models and new ideas for solving 100 of the world's most impactful issues by the year 2100. Leveraging business as a multiplier for good.

Jason Dreyzehner
bitpay.com

Jason Dreyzehner is a designer and full-stack engineer. He focuses on payments, identity, and security applications.Jason joined BitPay in 2013 as one of its earliest developers, and he currently leads BitPay's design team. Over the years, BitPay has helped to introduce thousands of companies to bitcoin and cryptocurrencies, and currently processes over $1 billion USD in payments each year. Jason also contributes to Copay, BitPay's open source, multi-signature wallet platform. The Copay platform is used by dozens of popular wallets, including Copay, BitPay, and the Bitcoin.com wallet. Over 5 million wallets have been created with Copay, and Copay wallets transact billions of USD worth of payments each month. Jason's open source work and contact information is available at github.com/bitjson.

Kurtis Minder
https://www.groupsense.io/

A proven technologist with varied background in information security engineering, sales, business development, product development, Kurtis is a driven entrepreneur developing new cloud technologies to make the world a better place. He is CEO and co-founder of GroupSense, which delivers fully managed cyber intelligence and reconnaissance services to keep you in front of breach activity, stolen data, intellectual property trafficking, executive targeting and brand fraud. Kurtis' specialties include: Data Privacy,Technology Sales,Trusted Computing, Network Access Control Technologies, Network and Systems Security, BSD/Linux/Unix, Routing and Switching, Cloud IaaS, PaaS, SaaS, Cloud Security, Managed Security Services

Jesse Elder

https://www.jesseelder.com/

Jesse is a speaker, mentor, entrepreneur, and all around lover of life. He's devoted his life to sharing his principles of self-mastery with people all around the world. Through his popular Mind Vitamin videos, online courses, events, and private coaching, Jesse teaches others how to create their own success and fulfillment, reclaim their personal freedom, and master their reality.

Chad Lavallee

http://www.curatemobile.com/

Chad Lavallee has been building cutting edge products in the advertising world over the last 15 years. Always on the leading line of new technologies and techniques, he has pushed the boundaries of what the industry is capable of, and pulled as much out of it as possible. Case in point, a team he was leading brought down the entire US cell network for 15 minutes in 2005; too much volume for the aggregator to handle! Ask him exactly how sometime; he loves to share that story. He brings a wealth of product knowledge from several disparate sub industries within the digital advertising ecosystem, and clearly understand how they work together, and where there are still major gaps. He has founded and managed companies across a large variety of industries over the last 15 years. He has been the head of product, and sometimes owner, for many companies, ranging from publicly traded companies to small startups.

Marc Goodman

http://www.futurecrimesbook.com/

Marc Goodman is a New York Times Best-Selling author, global strategist and consultant focused on the profound change technology is having on security, business and international affairs. He is the founder of the Future Crimes Institute and currently serves as the Chair for Policy, Law and Ethics at Silicon Valley's Singularity University. Over the past twenty years, he has built his expertise in international cyber crime and terrorism working with organizations such as INTERPOL, the UN Counterterrorism Task Force, NATO and the US Government. Goodman frequently advises industry leaders, security executives, start-ups and global policy makers on transnational cyber risk and intelligence and has operated in more than 75 countries around the world. His professional experiences include working as a street police officer, undercover investigator and counter-terrorism strategist, as well as briefing myriad cabinet ministers and heads of government, including the White House. Goodman's current areas of research include the security implications of emerging technologies such as artificial intelligence, big data, robotics, crypto-currencies, synthetic biology, virtual reality and the Internet of Things.