



# ADTECH IN BLOCKCHAIN: IT'S WORKING!

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**WiFi: IAB-Guest**  
**Password: 2123804700**



**#TechLabOpenForum**



**Shailley Singh**  
**Vice President, Product**  
**IAB Tech Lab**



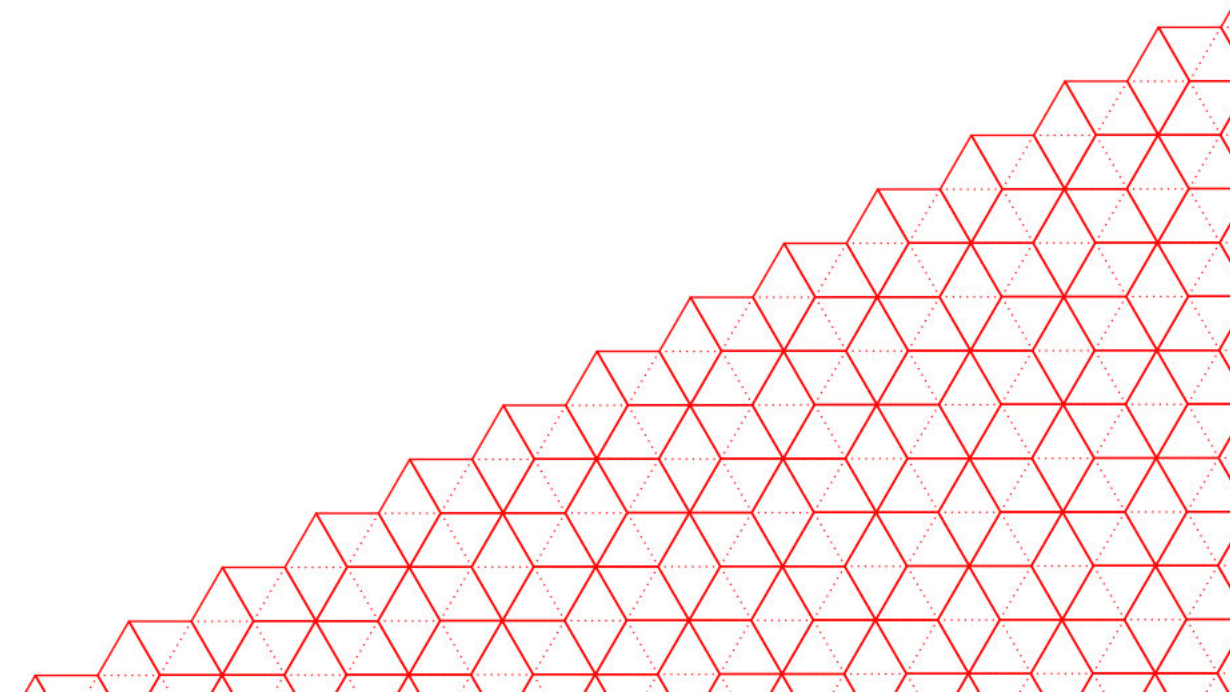
It's working! It's working!

# AGENDA

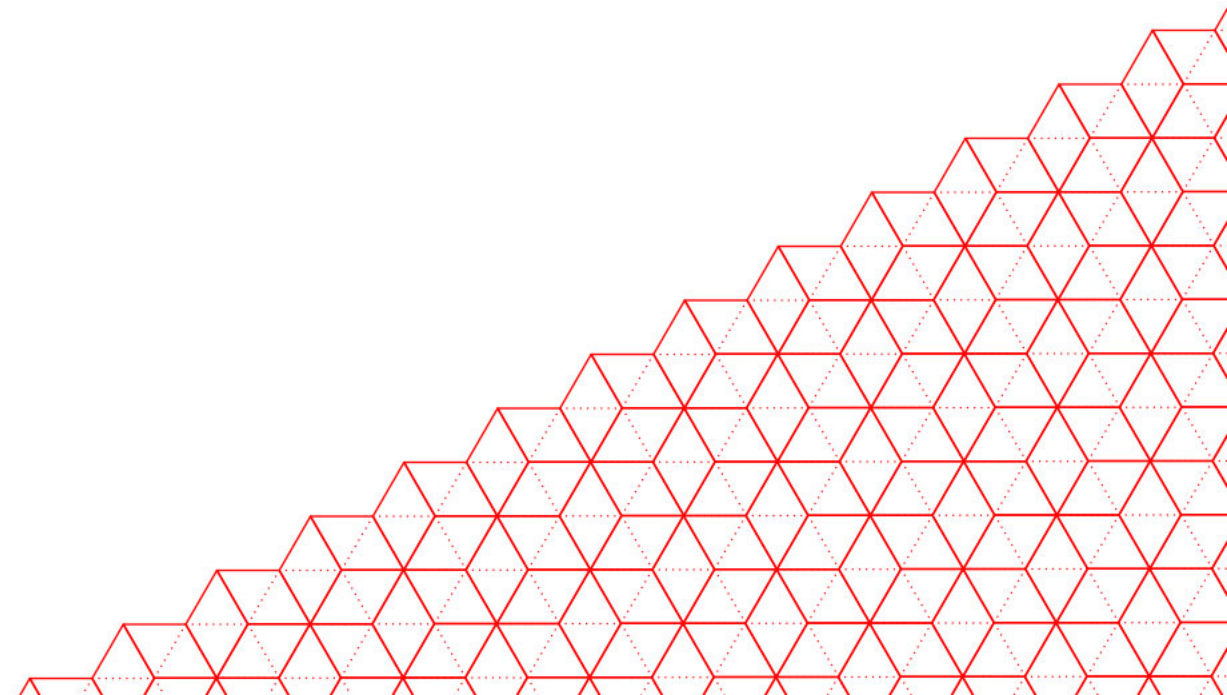


- 10:00-10:15AM** Introduction and Opening Remarks
- 10:15-10:25AM** Blockchain Working Group Updates
- 10:25-10:40AM** Transparency Primer
- 10:40-10:55AM** Network Pilots Updates
- 10:55-11:05AM** SRAX Presentation
- 11:05-11:25AM** RTBAsia Presentation
- 11:25-11:35AM** Freckle Presentation
- 11:35-11:45AM** Lucidity Presentation
- 11:45-11:55AM** AdEx Presentation
- 11:55-12:10PM** Privacy Chain Update
- 12:10-1:15PM** Lunch

- 1:15-2:00PM** Coin in Advertising Technology
- 2:00-2:15PM** AdNode Presentation
- 2:15-3:00PM** Efficiency in Reconciliation Panel
- 3:00-3:20PM** Legal SEC/ Regulatory Topics
- 3:20-3:50PM** Cryptography in AdTech
- 3:50-6:00PM** Cocktail Networking



## About Tech Lab



VPAID  
LEARN  
OpenDirect  
ads.txt  
User Experience  
Blockchain for Advertising  
GDPR Transparency & Consent Framework  
OpenData  
VAST  
V-Suite  
OpenRTB  
MRAID  
Podcast Measurement Guidelines  
OpenMedia  
app-ads.txt  
DigiTrust ID  
Open Measurement  
OM SDK

## Market Development (supporting sales/marketing)

- Education & certification
- Events & networking
- Research
- Best practices



## Proprietary Innovation

- Product/service development
- Packaging & pricing
- Operational excellence
- Competition

*Member  
Companies*

## "Ingredients" (supporting product development)

- Standardized protocols, specs, software, tools
- Compliance programs
- Quality, trust, consistency





1,000+ companies  
30 working groups  
2,000+ people

\* Local/regional IABs supporting Tech Lab

Engage a member **community** globally to **develop foundational** technology and standards that enable growth and **trust** in the digital media ecosystem.

Sharing the cost, sharing the benefits

Member-driven, member-developed

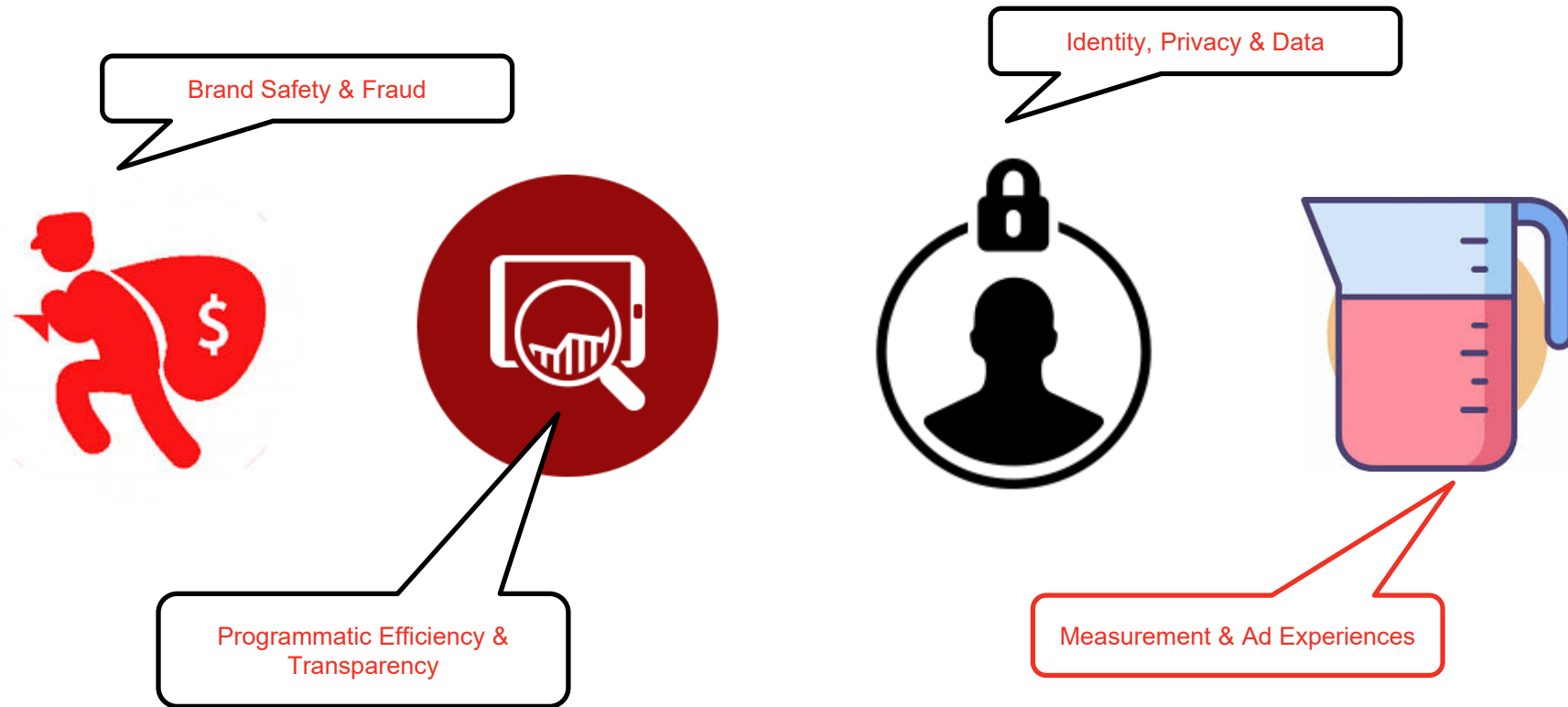
Broad availability and utility, by design

Neutral, transparent, open-source, non-biased, non-competitive, and non-profit

Board of Directors

- ExtremeReach
- facebook
- Google
- groupm
- HEARST digital media
- INDEX EXCHANGE
- IAS Integral Ad Science
- LinkedIn
- LiveRamp
- MediaMath
- Microsoft
- ORACLE DATA CLOUD
- pandora
- PubMatic
- Quantcast
- Rakuten Marketing
- telaria
- theTradeDesk
- verizon media group
- xandr
- YAHOO! JAPAN





Industry Challenges	Our Top Priorities	Emerging Technologies (Blockchain)
Brand Safety & Fraud	ads.txt / app-ads.txt	
	Content Taxonomy	
Identity, Data, & Consumer Privacy	DigiTrust ID, Data Label Transparency	
	Transparency & Consent Framework	
Ad Experiences & Measurement	New Ad Portfolio	
	VAST (4.x)	
	Open Measurement	
Programmatic Efficiency & Transparency	OpenRTB (3.0)	



**Richard Bush**  
**President**  
**NYIAX**



**Michael Palmer**  
**Global Vice President, Emerging Tech**  
**GroupM**

➤ **Very high interest: Agencies, Publishers, Ad Tech Vendors**

150+  
Member  
Companies

300+  
Individual  
Members

3  
Focus  
Areas

## Distributed Ledger

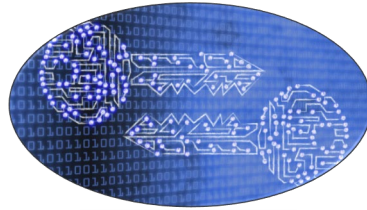


**Shared database**

**Trust and transparency**

**Integrity and unique records**

## Cryptography



**Secure transactions**

**Ensures participant authenticity**

**Reliability**

## Consensus



**Limits fraud**

**Enables compliance**

**Better governance**

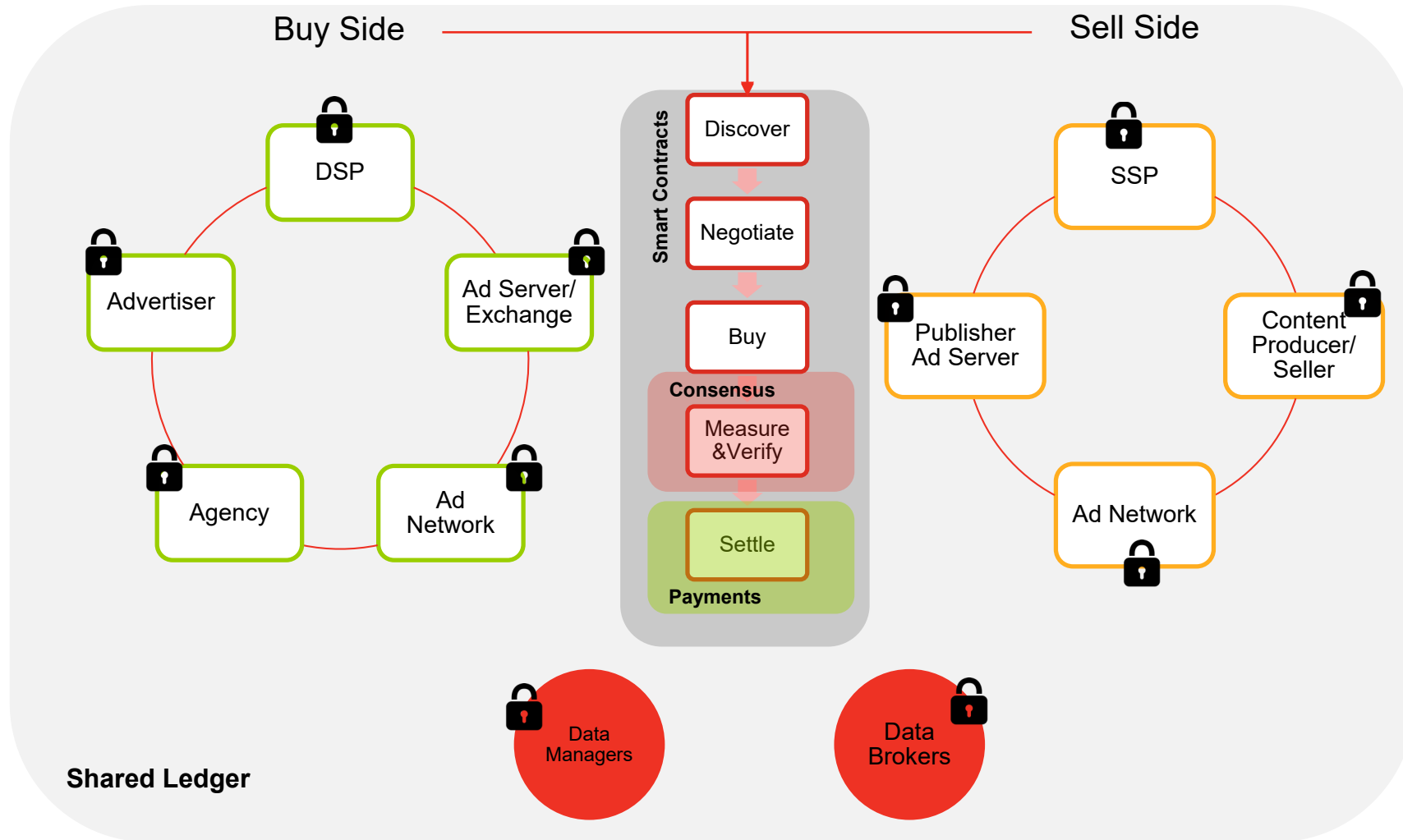
## Smart Contracts



**Implements business rules**

**Self enforcing**

**Disintermediates transactions**



# Blockchain Working Group Focus Areas

## Education

Resources Wiki  
Technology Primer  
Events and product  
showcase

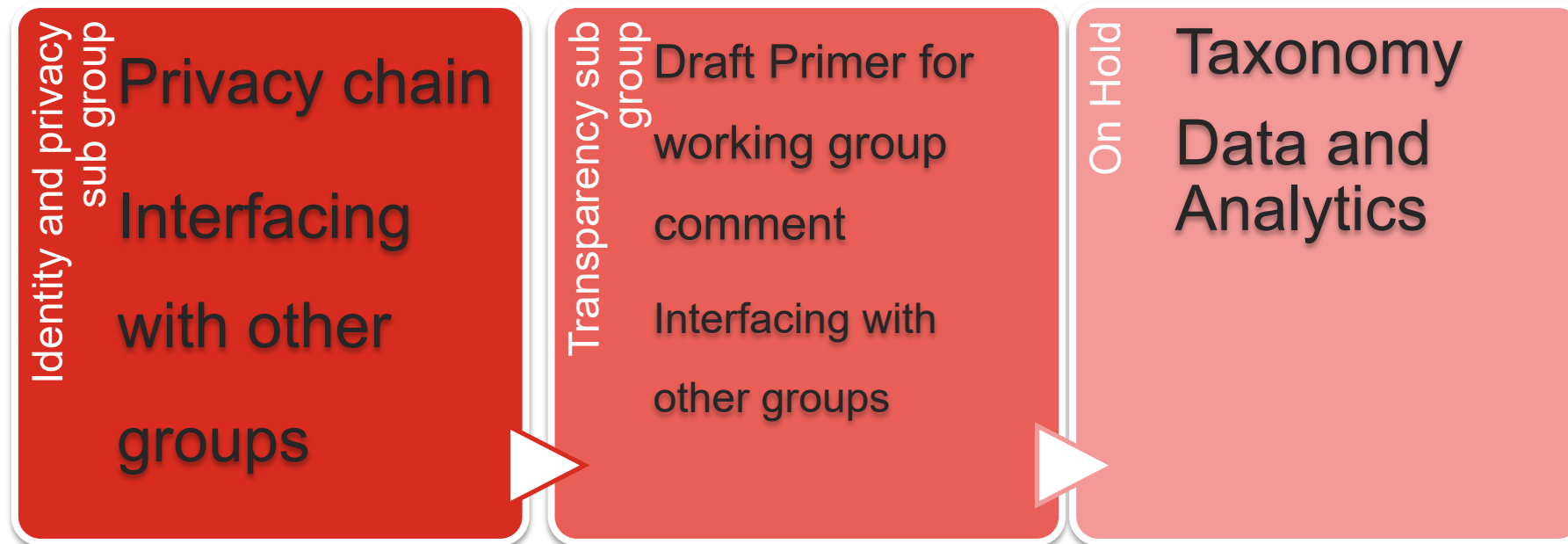
## Technology

PrivacyChain  
Transparency &  
Smart Contract  
Standards  
Payment

## Network Pilots

Real World Testing  
Industry best  
practices  
Lucidity, Metax,  
Xchng,  
FusionSeven and  
more in review

# Blockchain Working Group Sub Groups

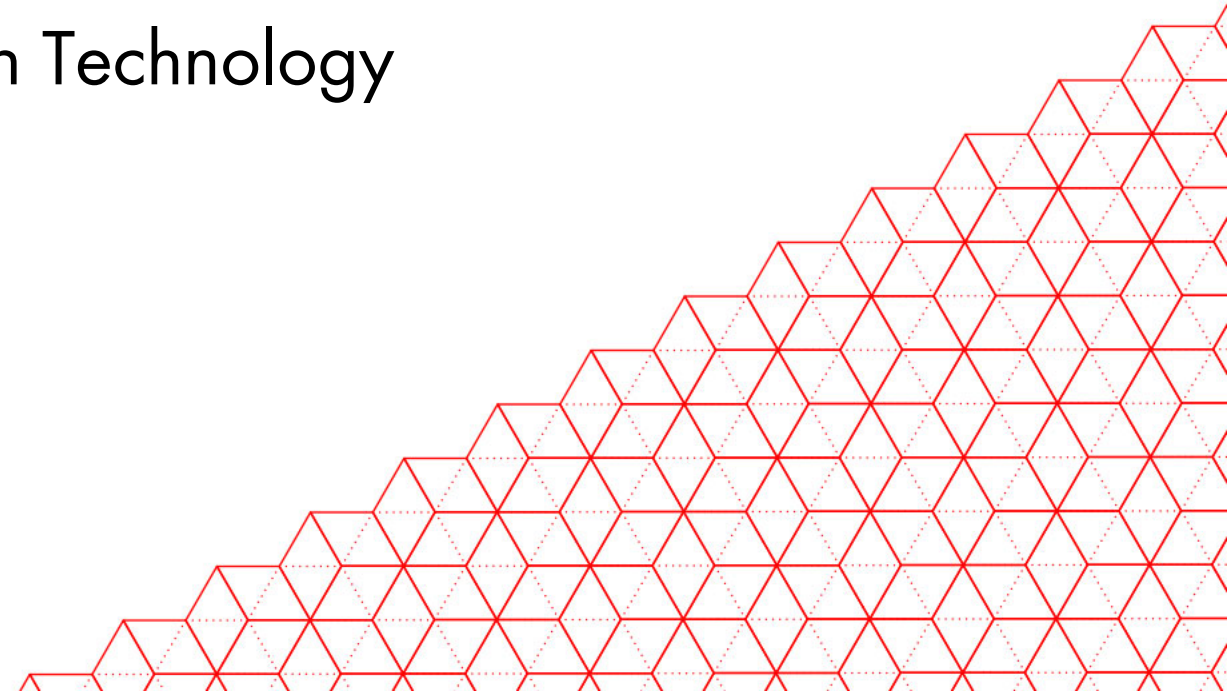




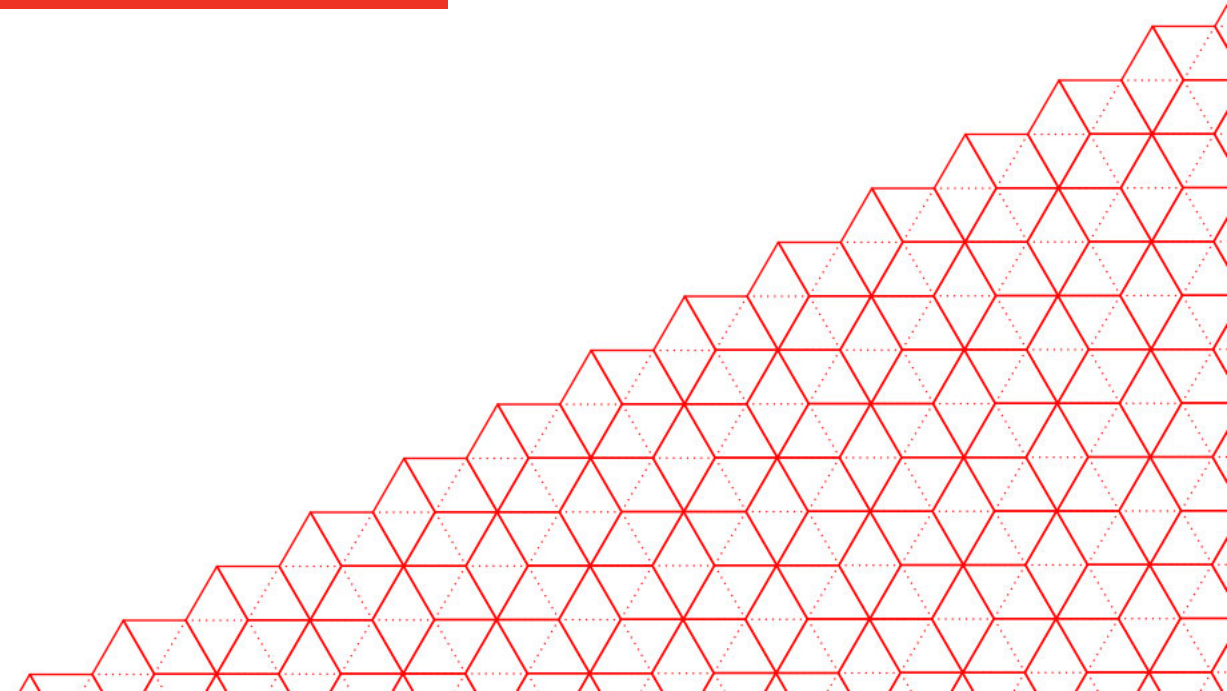


**Miguel Morales**  
**CTO & Co-Founder**  
**Lucidity**  
**@therevoltingx**

Enforcing Transparency, Consistency,  
and Reliability in Digital Advertising  
Using Blockchain Technology



# INTRODUCTION

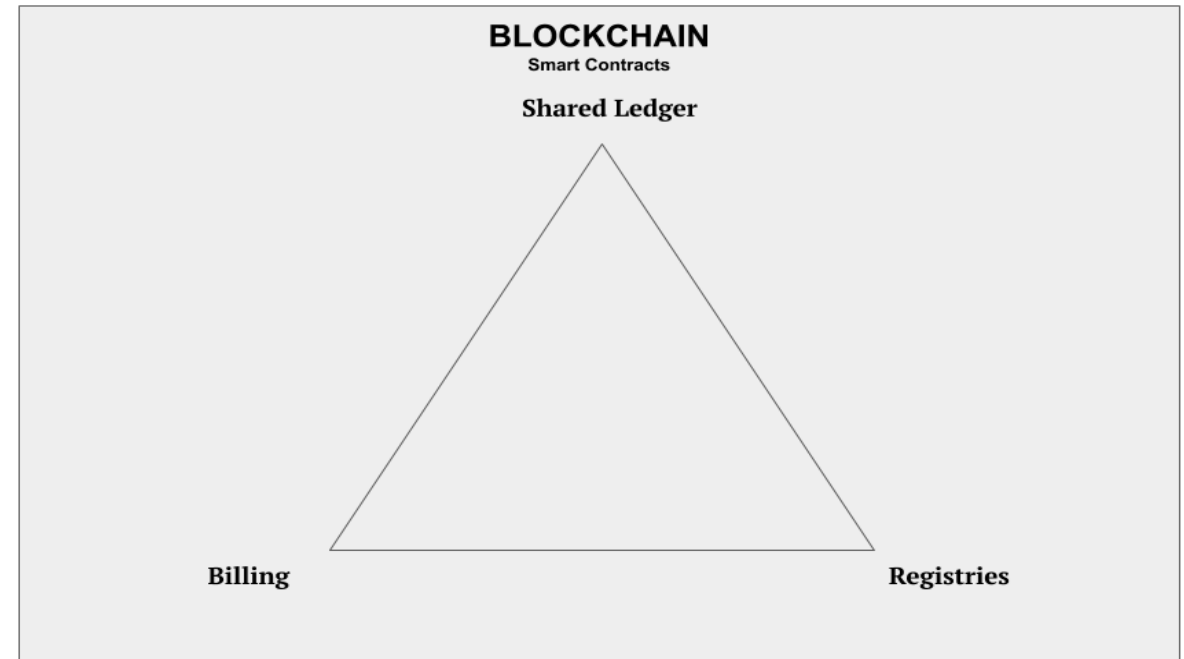


# What is “The Trifecta”?

- A subgroup of the IAB Tech Lab’s Blockchain Working Group
- Releasing primer document for public comment
- This presentation reviews the primer

# The Trifecta: 3 Key Areas

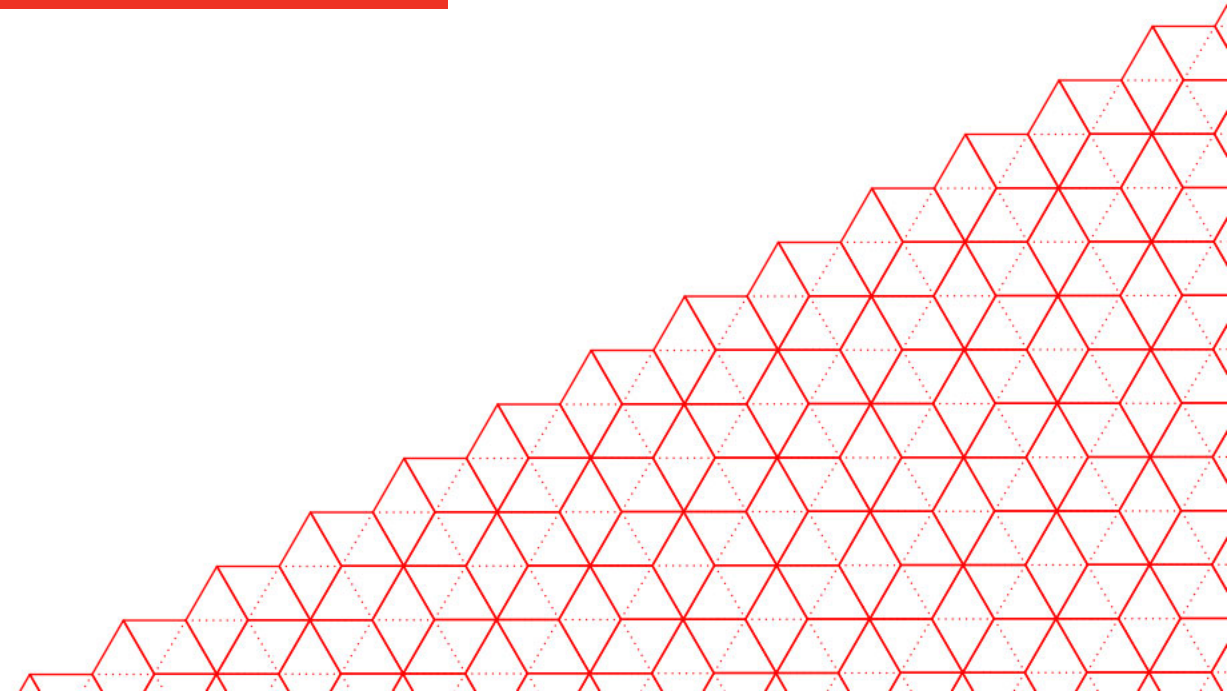
- Registries
- **Shared Ledger**
- Billing



# What is “The Trifecta” Sub Group’s Goals?

- Educate the public on the usage of blockchain in digital advertising.
- **Designing protocols to bring trust to digital advertising using the blockchain.**

# REGISTRIES



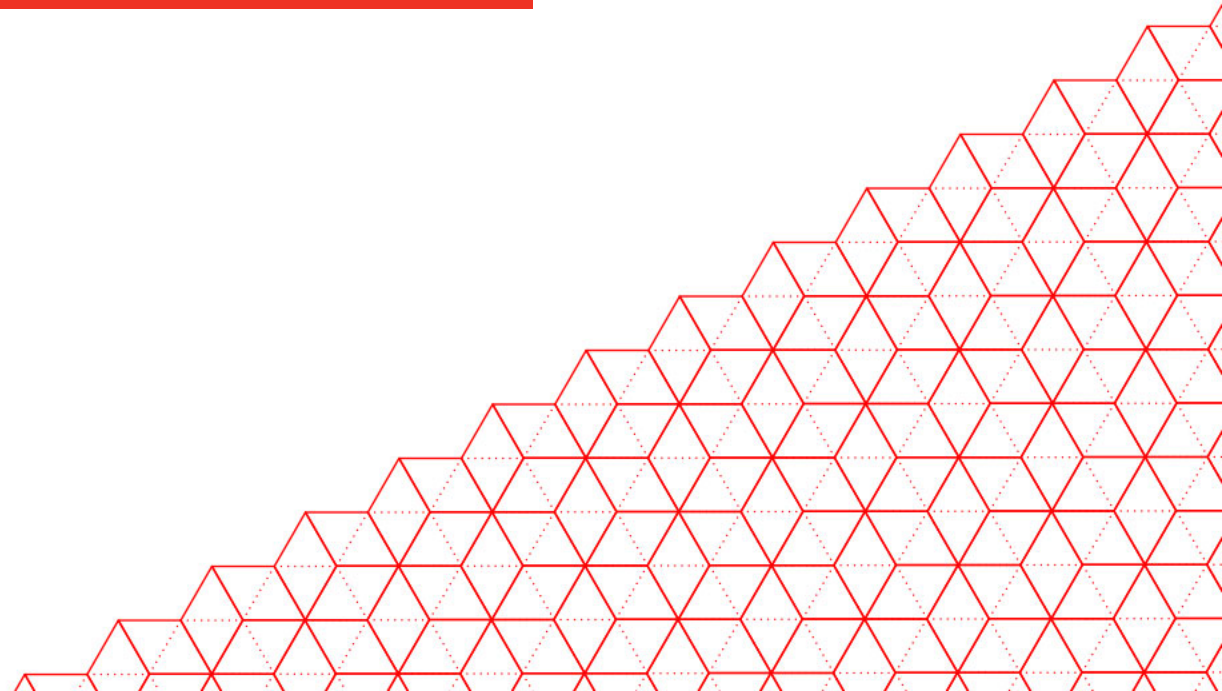
- Common Usage of the Blockchain
- Think of a blockchain as programmable DNS
- Cryptoeconomics is fun

## Blockchain Registry Examples:

- Ads.txt+
- Publisher Reputation
- Campaign Registry
- Consent Registry



## SHARED LEDGER: OPENRTB OVERVIEW

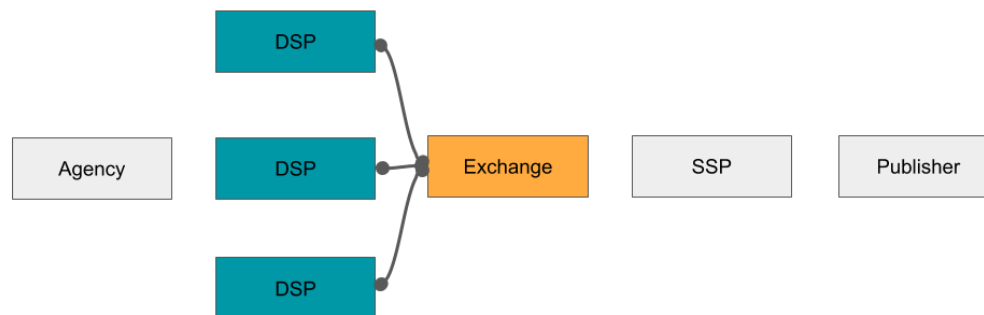


# Defining Transparency: Depth

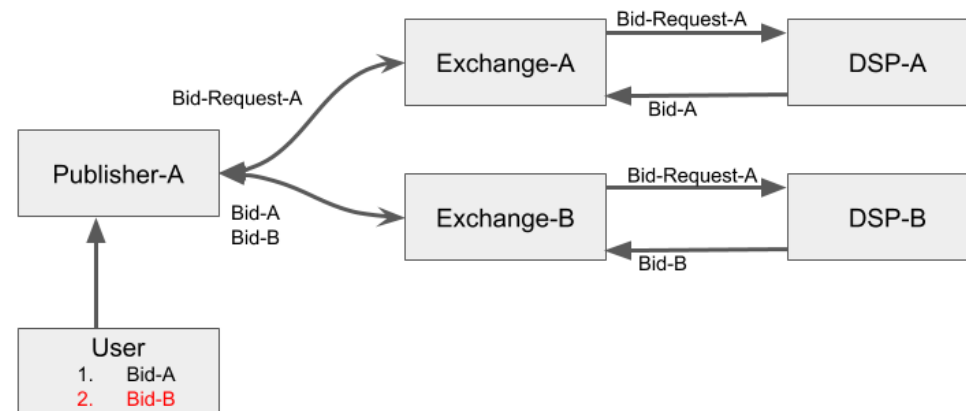
- How much do you know about a given path of a bid request?
- Example
  - DSP knows the agency and the exchange
  - Exchange knows DSP and Publisher



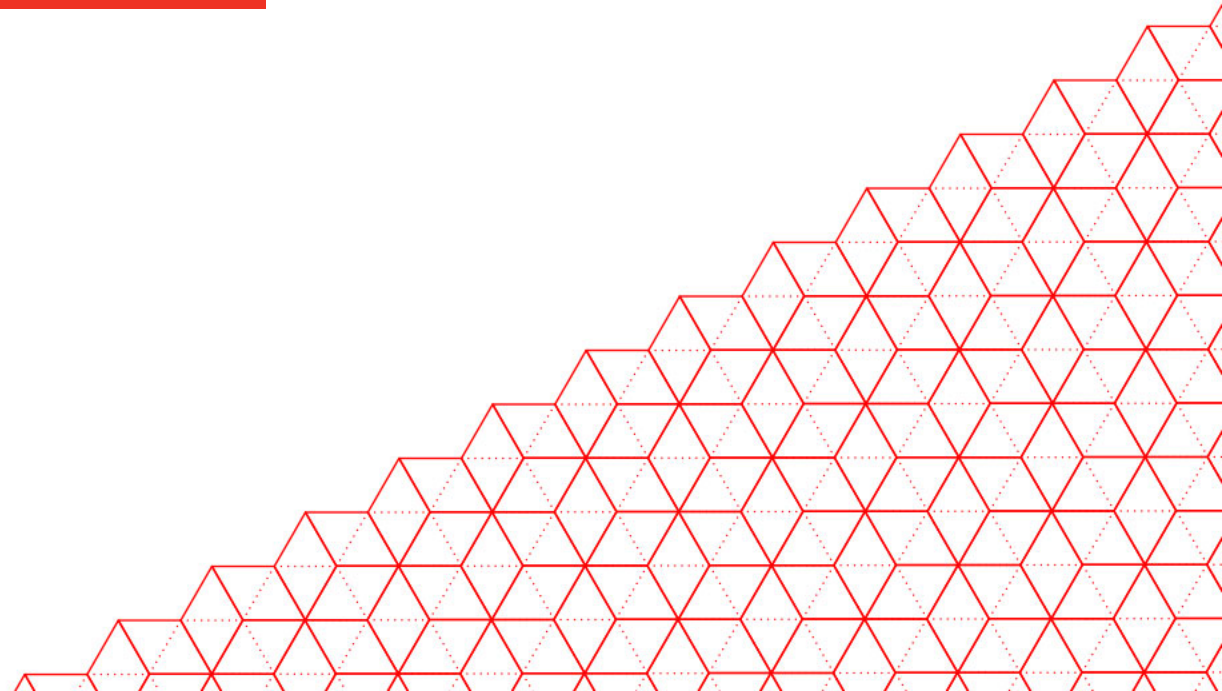
- How much do you know about how others are behaving?
- Example
  - DSP **does not** know what other DSPs are bidding
  - Exchanges **does** know what DSPs are bidding



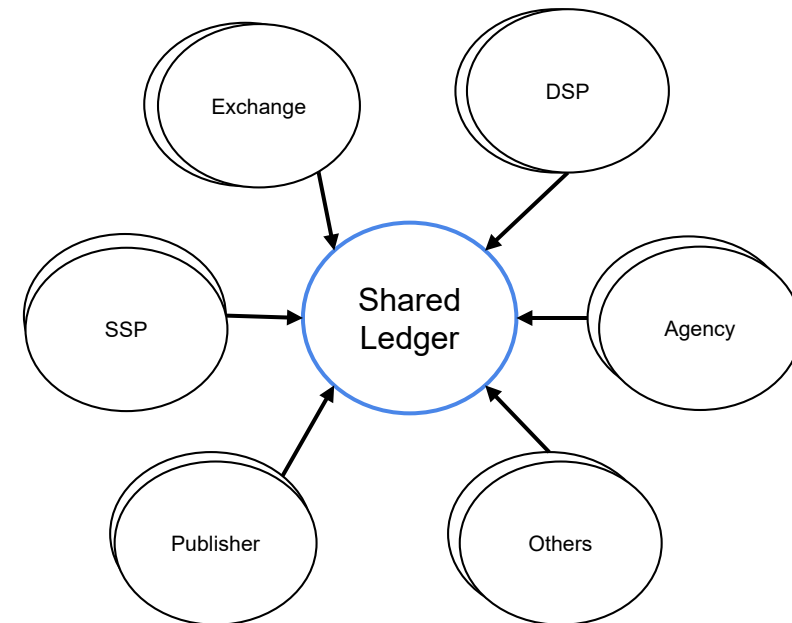
- Auction Enforcement
- End to End Validation
- Examples
  - Malware
  - Parasite Campaigns
  - Bid Caching
  - Double Serving
  - Piggy Backing





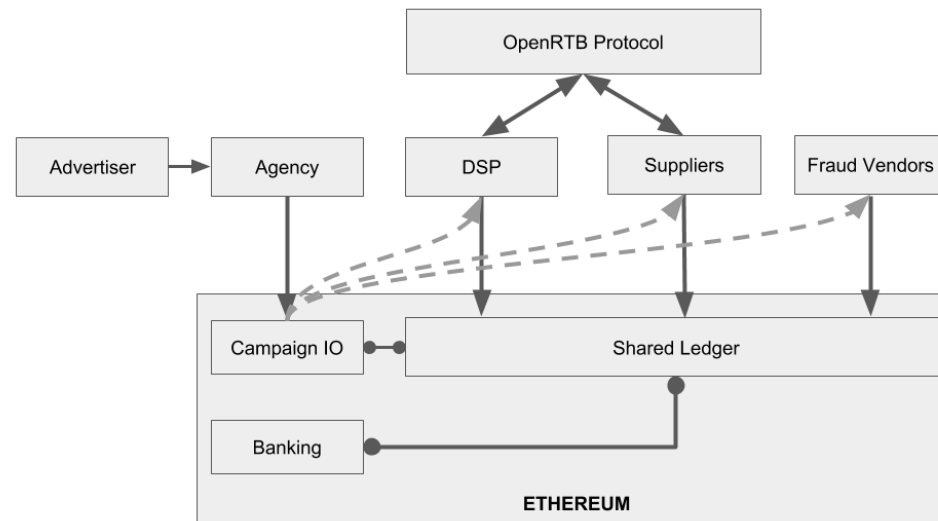
## SHARED LEDGER



- Messaging layer for OpenRTB and Direct IO
- Provides:
  - Consistency
  - Transparency
  - Enforcement
  - Security
  - Auditability
  - Reconciliation



- Ads.cert is cross-compatible with popular blockchains 
  - secp256k1\* used by Bitcoin and Ethereum
    - prime256v1 aka secp256r used in current ads.cert spec
    - ed25519 is faster, but poor support
  - got an ads.cert? you already have a crypto wallet
  - you can receive payments on that wallet
  - you can resolve disputes using your wallet
  - you can prove things using your wallet and the blockchain
- Blockchains are Cakes 
  - Root layer: Bitcoin, Ethereum
  - Second layers: Lightning, Sidechains, Plasma
  - Third layers: OpenRTB, etc



- Avoiding “Garbage-in, Garbage-out”
  - Why are Ethereum smart contracts not vulnerable to this?
  - Dealing with digital goods (impressions, clicks, etc.)
  - Submitting aggregates susceptible to this problem
  - Event-level to emulate smart contract transactions
- Transaction IDs
  - OpenRTB 2.5+ Bid Request’s transaction id for tracing
- Consistent Identity
  - Entities (publishers, DSPs, exchanges, etc) will primarily be known by their domain



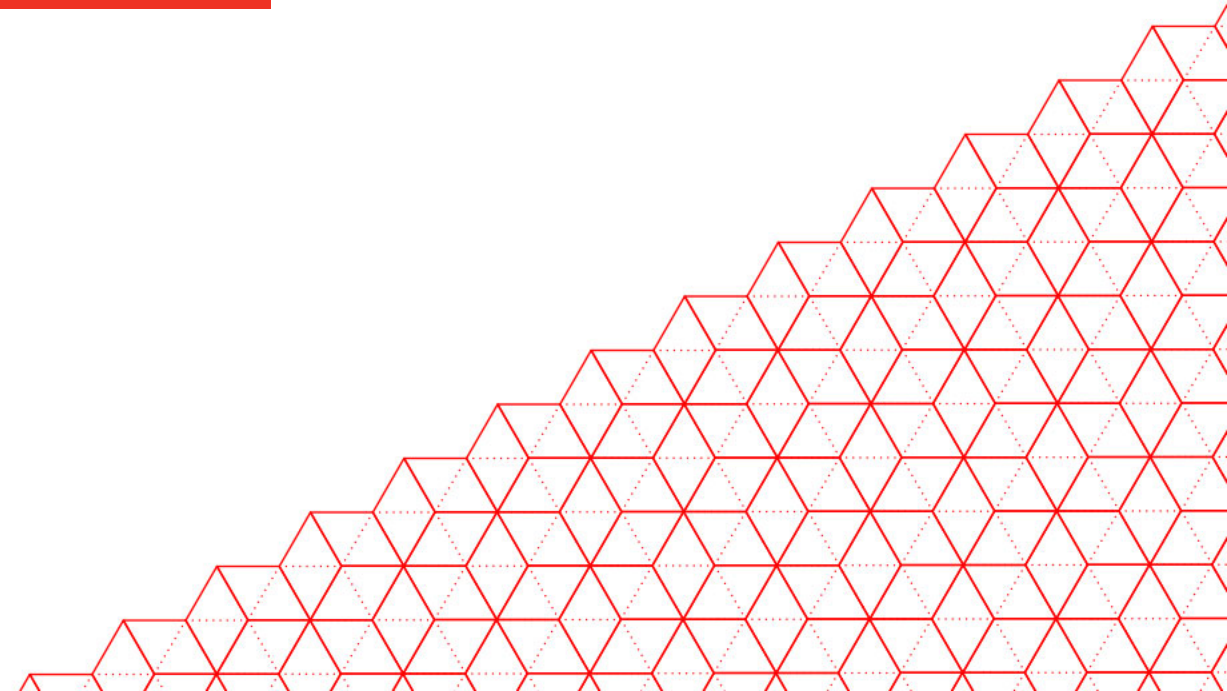
# Shared Ledger: Unified Reporting

- Across DSPs, Exchanges, etc.
- Consistent Measurement
- Agreeable Numbers
- Efficient Billing

# Shared Ledger: Introducing Receipts

- Shared ledger receipts proves things that happened in the ledger
- Receipts provide proof of:
  - Inclusion/Exclusion
  - Computation
- Shared ledger proves transparency
- Did your agency and its vendors misbehave? Here's proof they did or didn't.

# BILLING

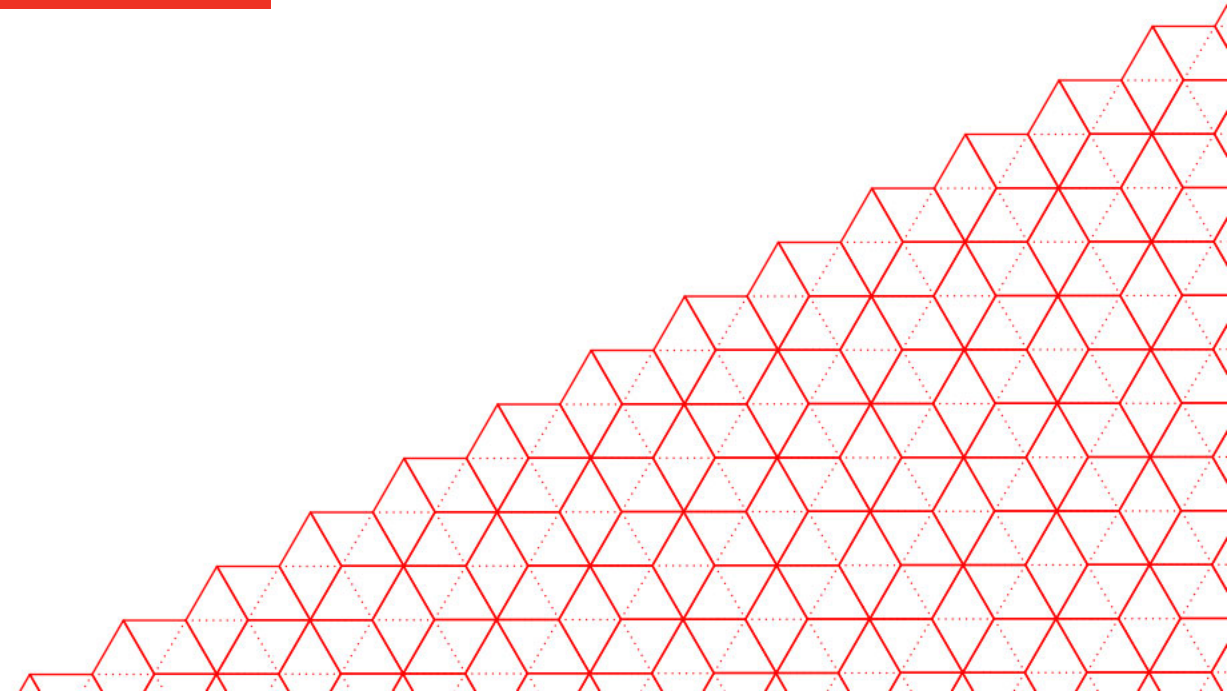


- Fiat is still king.
- With consistent and agreeable numbers, comes efficient billing.
- No financial department would ever want to deal with a cryptocurrency like Bitcoin.

# Billing: Stable Cryptocurrencies

- Blockchain has a few killer features
  - Smart contracts
  - Programmable incentives
  - Cryptocurrencies
- Self-sovereign payments and freedom are important
- Stablecoins are recommended
- Advanced shared ledgers supports smart-contract based crypto payments

## CONCLUSION



- Many issues solved by shared ledger
- We only provide guidance for registries and crypto payments
- We provide technical specifications for shared ledger
- Does not rely or require OpenRTB 3.0
- Primer document ready for public comments in the coming weeks - stay tuned!

# Thank You

**Miguel Morales**

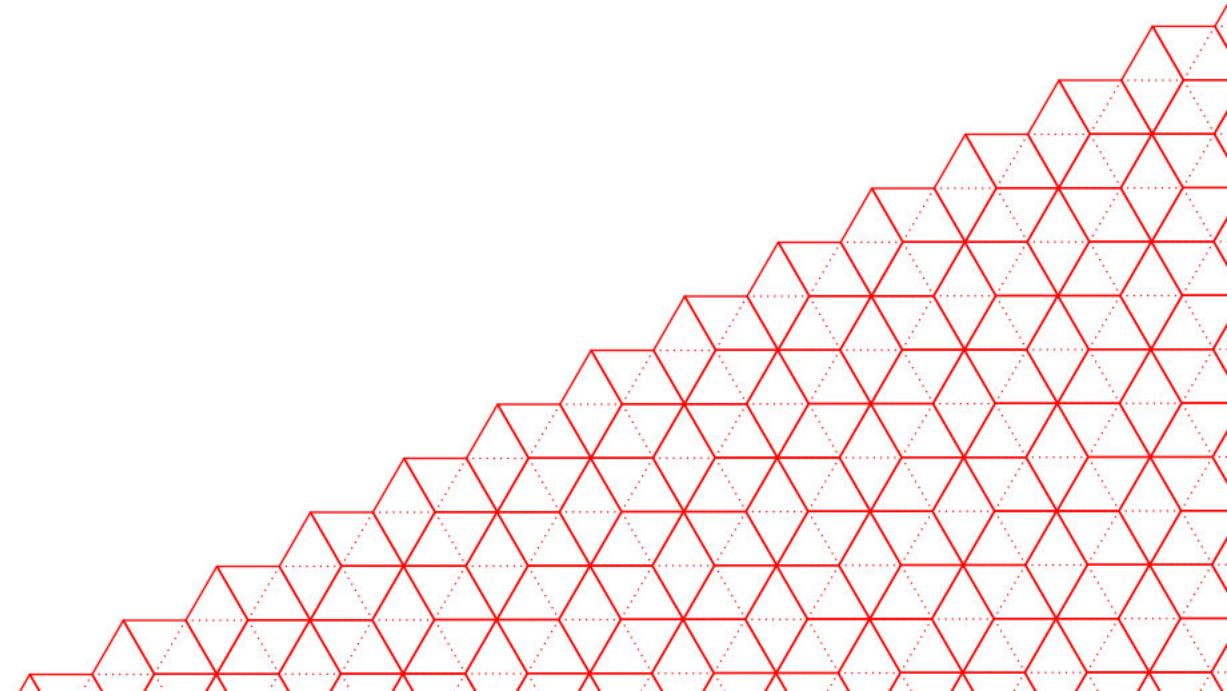
Lucidity

@luciditytech

mmorales@lucidity.tech | @therevoltingx

**Mike Freyberger**

Xandr







# **Network Pilot Updates**



**Matt Hrushka**  
**Product Manager**  
**Kochava**



### Unified Audience Platform

- Universal Measurement for Connected Devices
- \$7B+ in Media Spend Measured Annually
- Configurable Attribution
- End-to-End Analytics
- Traffic Verification
- Fraud Mitigation
- ML-Driven Optimization Technology



- Mobile-First DMP
- Over 5B Mobile Devices
- Self-Service Audience Targeting
- Self-Service Audience Enrichment
- White-Label DMP for Service Providers
- Natively Integrated into Kochava Measurement



PANDORA



CBS



skillz



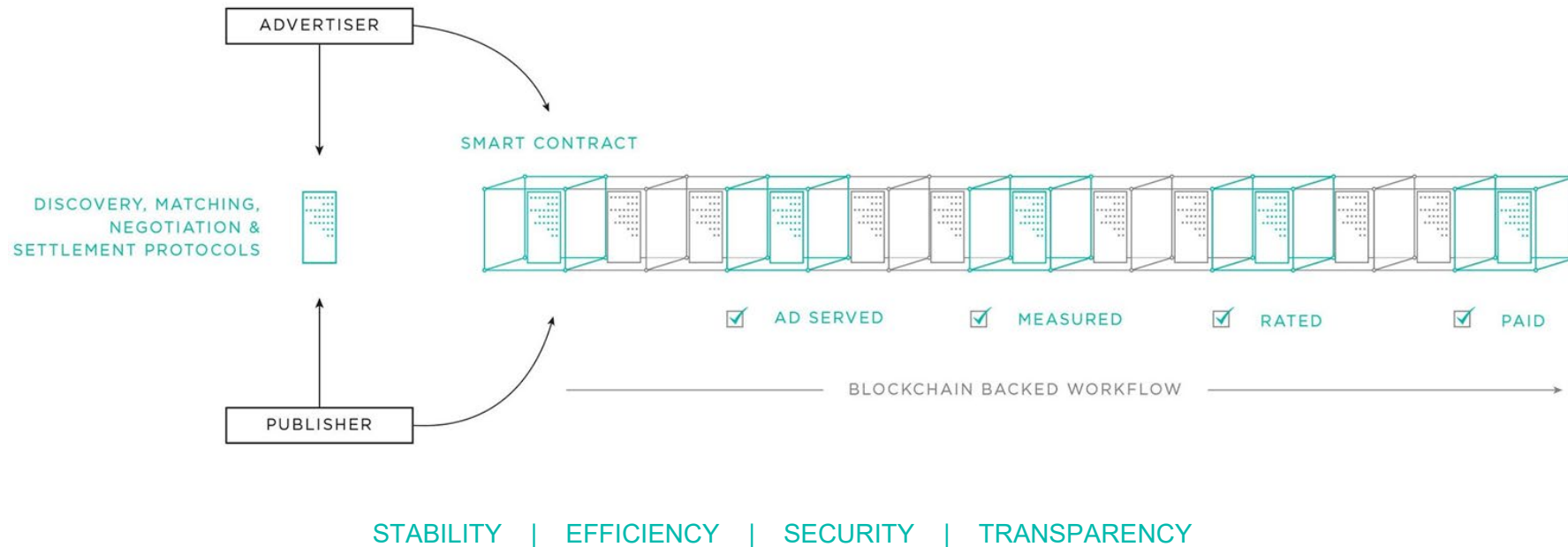
priceline.com



BBC

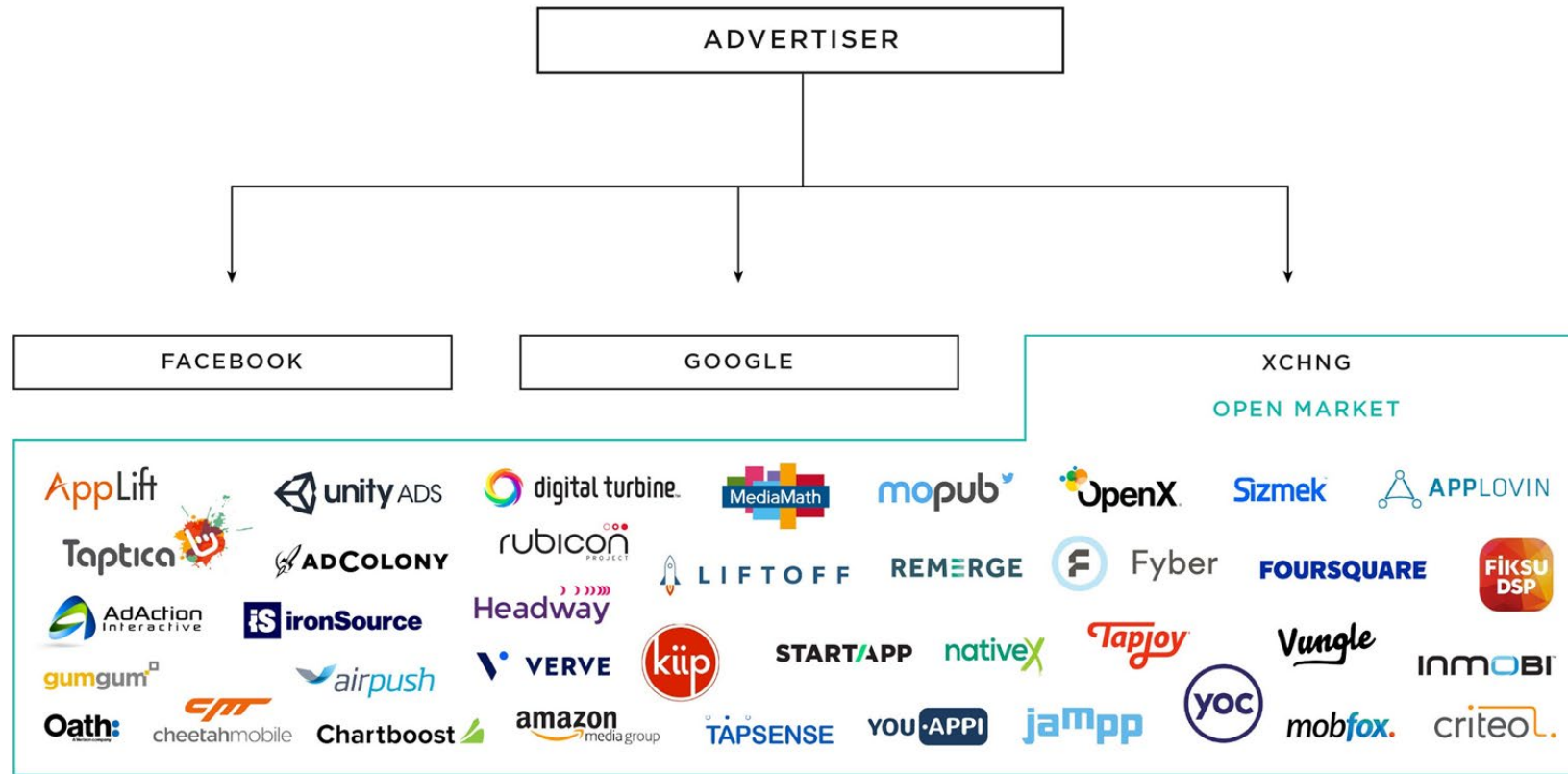
netmarble Games

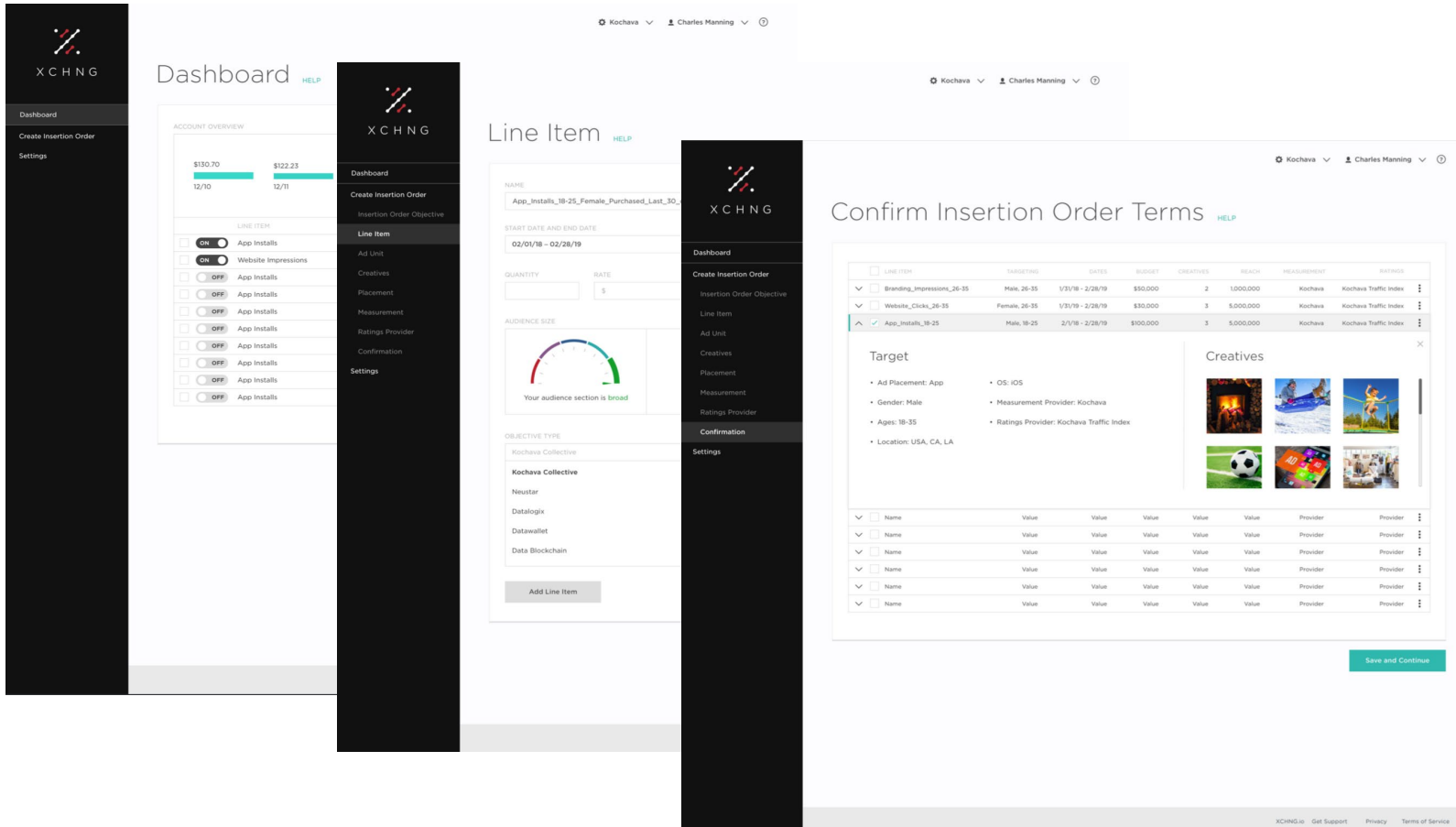
# Revolutionizing Digital Advertising



# An Open Market Outside of Walled Gardens

## XCHNG OPEN MARKET







**Dayna Moon**  
**Head of Client Services**  
**MetaX**

Meta 

adChain Audits

ad  chain Publisher Registry

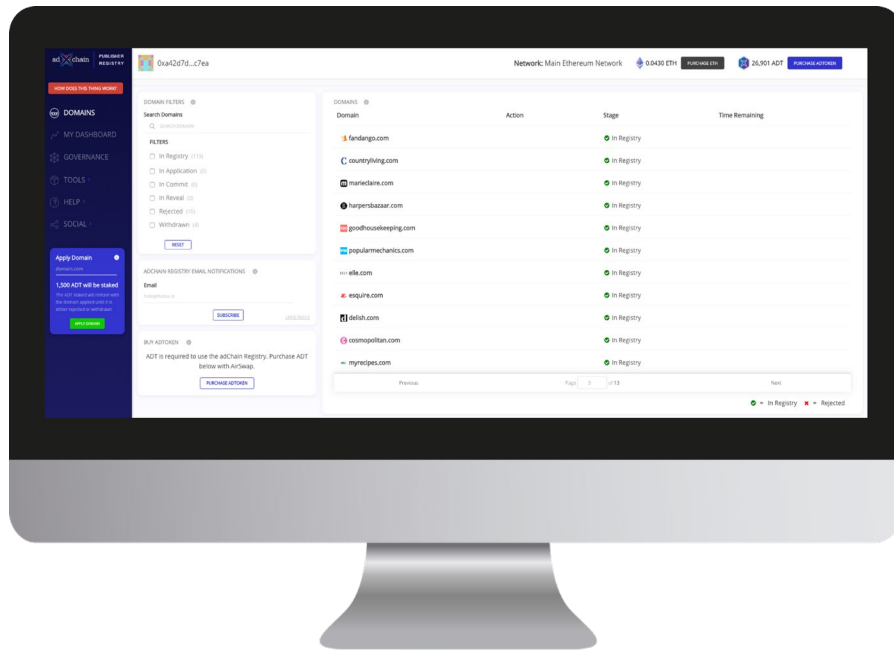
May 7<sup>th</sup>, 2019



*MetaX leverages Web 2.0 and blockchain technology to design real-world advertising solutions that elevate digital media standards and establish a transparent ecosystem.*



## Decentralized Global Whitelist of Domains



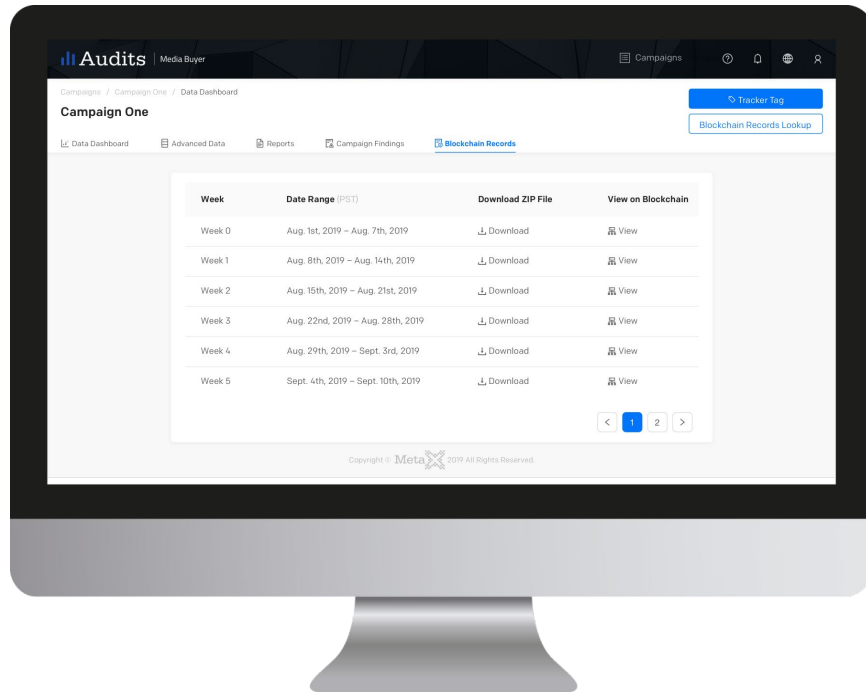
### Fast Facts

- Deployed April 2018
- 1<sup>st</sup> dApp on Ethereum
- 3 Smart Contracts
- 119 Registered Domains

### WHY?

- To provide advertisers with a community-vetted stamp of approval on the websites best suited for serving ads
- Highlight good actors
- Call out bad ones

## Independent ad fraud detection and analysis



### Fast Facts

- 50+ campaigns
- Average fraud reduction 5%-30% for each campaign
- 15+ partners. Mixture of agencies, marketers, publishers

### WHY?

- Need for objective displayed within the registry
- Immediate value add to the industry
- Truly scalable solution

## ➤ How we're using it today

Date	Download Zip File	Signature	Transaction
2019-04-23	<a href="#">Download</a>	0x02d397d7cd41b0cce5d7638e5ee05298b8c4abc5dcfdca8c308b7d a272c4	<a href="#">View</a>
2019-04-24	<a href="#">Download</a>	0xd85ef8e5d077b18d922de56f9f8687c18df6a8c47f17b0b7e0d5721012 54c	<a href="#">View</a>
2019-04-25	<a href="#">Download</a>	0x9c6b767133d85c5d3a9027e03c39c2767aa86a20cfa5e8667d27b5b1 896b	<a href="#">View</a>
2019-04-26	<a href="#">Download</a>	0x18d7592404c7554378915584ec58fcaab0dc38ba8d1d9f90a1a9796 5f59	<a href="#">View</a>
2019-04-27	<a href="#">Download</a>	0x773c481d6d44888e68b4cafaa898c681485c04eac566910d4032d691 312376	<a href="#">View</a>
2019-04-28	<a href="#">Download</a>	0xce710ee4dad168a937a95a56f98d5f5d77b744638ba30c0c79c1a 1211	<a href="#">View</a>
2019-04-29	<a href="#">Download</a>	0x74b15c9549a64594f9531c6478069a25ba488530d831ae4900f1bb5 64f69	<a href="#">View</a>
2019-04-30	<a href="#">Download</a>	0xd44581e76984e229b67d72ba2b2800007e03d7584feca915d69119ed 0724c	<a href="#">View</a>

- Additional layer of security to prevent any tampering of data and ensure the quality remain intact
- Scalable solution today answering the need for data security



**Sam Goldberg**  
**President & Co-Founder**  
**Lucidity**

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LUCIDITY.TECH



Q2 2019

# Blockchain Network Pilots Update

IAB TECH LAB

MAY 2019

SAM GOLDBERG, PRESIDENT/CO-FOUNDER

SGOLDBERG@LUCIDITY.TECH

## Lucidity x IAB Tech Lab Network Pilots Update

*20+ Pilot Campaigns*

- More than **20 pilot campaigns** completed
- **Transparency Report** with pilot findings published in Feb. 2019
- Progressed to **next phase of pilots** to assess different ad formats, onboard more platforms, and authenticate additional signals from the supply chain

FEATURED PILOT PARTNERS



SAATCHI & SAATCHI



PUBLICIS GROUPE

ASSEMBLY



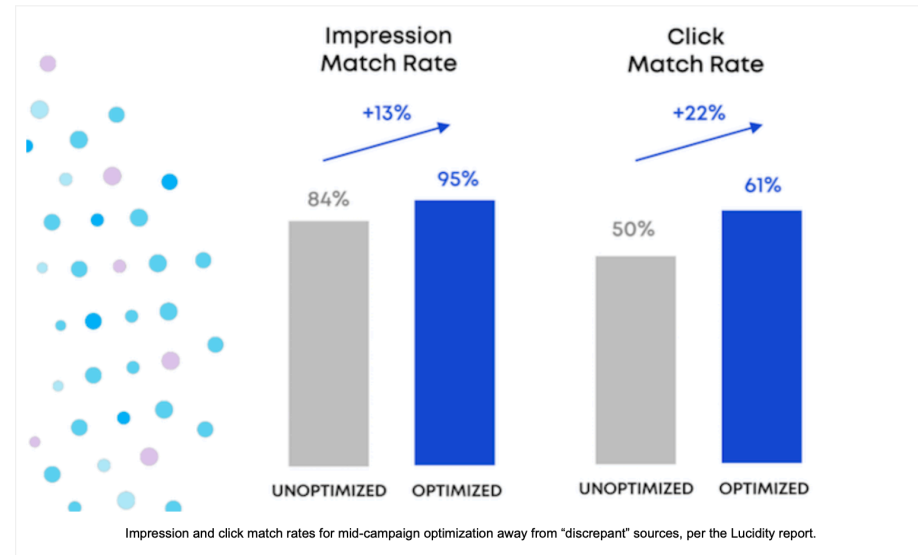
## Industry Is Eager to Learn About Results & Use Cases

### Marketing Land

#### Lucidity's new report shows a successful field test for blockchain-based ad optimization

The results indicate high levels of fraud and waste in the system, but large lifts for campaigns that optimize for authenticated inventory and providers.

Barry Levine on February 15, 2019 at 12:38 pm



ADWEEK

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BLOCKCHAIN

## Results of IAB Tech Lab's Blockchain Pilot Shows How Many Digital Ads Are Seen by Humans

It worked with Lucidity on the first test

By Marty Swant | February 11, 2019



# Start your campaign with Lucidity in **3 easy steps**

*Accepting additional advertisers + partners*



## 1 – ACCOUNT CREATION

Receive dashboard training and setup data feed

## 2 – CAMPAIGN SETUP

Add our tracker to your pixel

## 3 – CAMPAIGN OPTIMIZATION

Blacklist the highlighted placements called out on the Lucidity dashboard

**INTERESTED IN A PILOT  
CAMPAIGN?**

Reach out to  
[hello@lucidity.tech](mailto:hello@lucidity.tech)

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LUCIDITY.TECH



**thank  
you**

MAY 2019

SAM GOLDBERG

SGOLDBERG@LUCIDITY.TECH



# **Product Presentations**



**David James Stewart**  
**Head of Business Development**  
**SRAX / BIGtoken**



# BIGtoken

## Product Overview

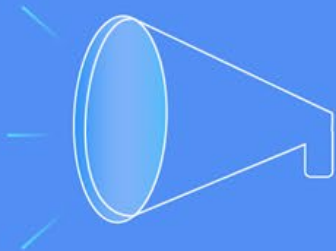
Blockchain Identity Graph (BIG) where consumers to own, verify and sell their data.

# Who owns our data?

A consumer's digital footprint, including everything he or she searches for, views, reads, listens to, purchases, likes or comments on, is collected and sold in a data market that's currently worth over \$130.1 billion. While the data market takes its value from consumers, it offers little value in return.

But what if new technology enabled us to create an equitable relationship between consumer and corporate data interests? The market opportunity would be exponential.

Awareness



Transparency



Choice



Reward



# BIGtoken puts data back into the hands of consumers

## Choice

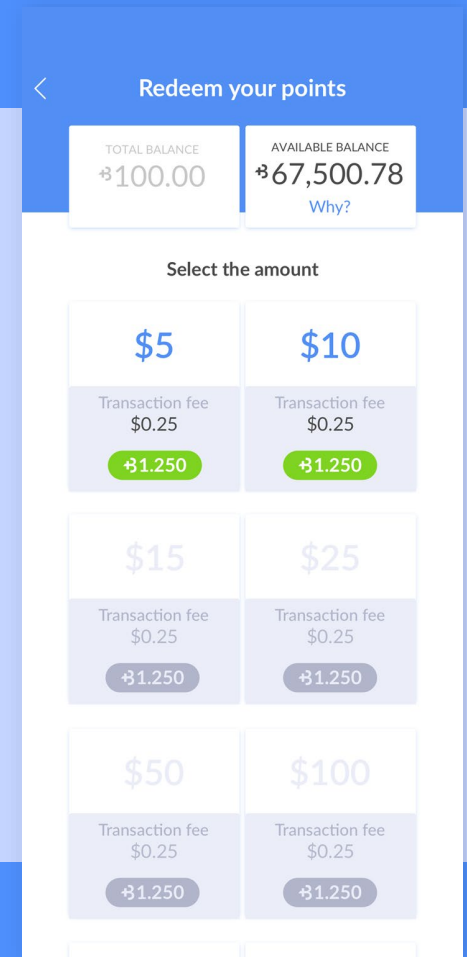
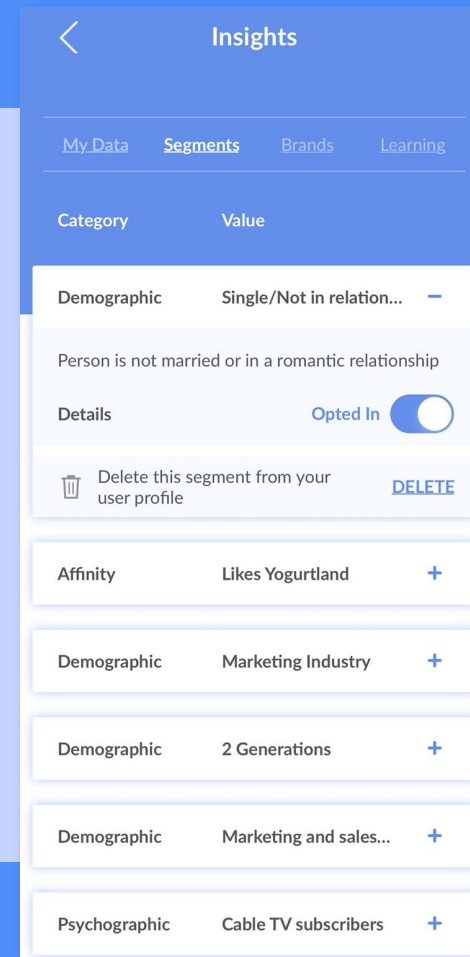
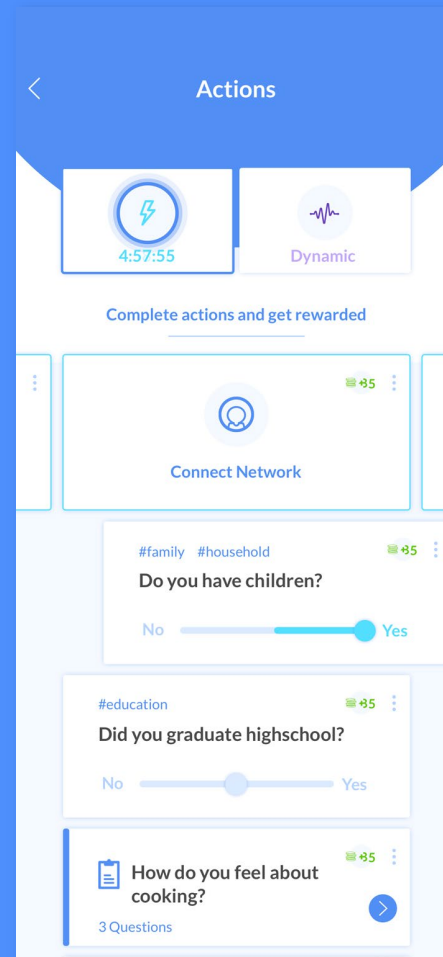
Consumers decide what Data is shared, who can Buy it, and how it's used.

## Transparency

Consumers are fully aware of how their data is used.

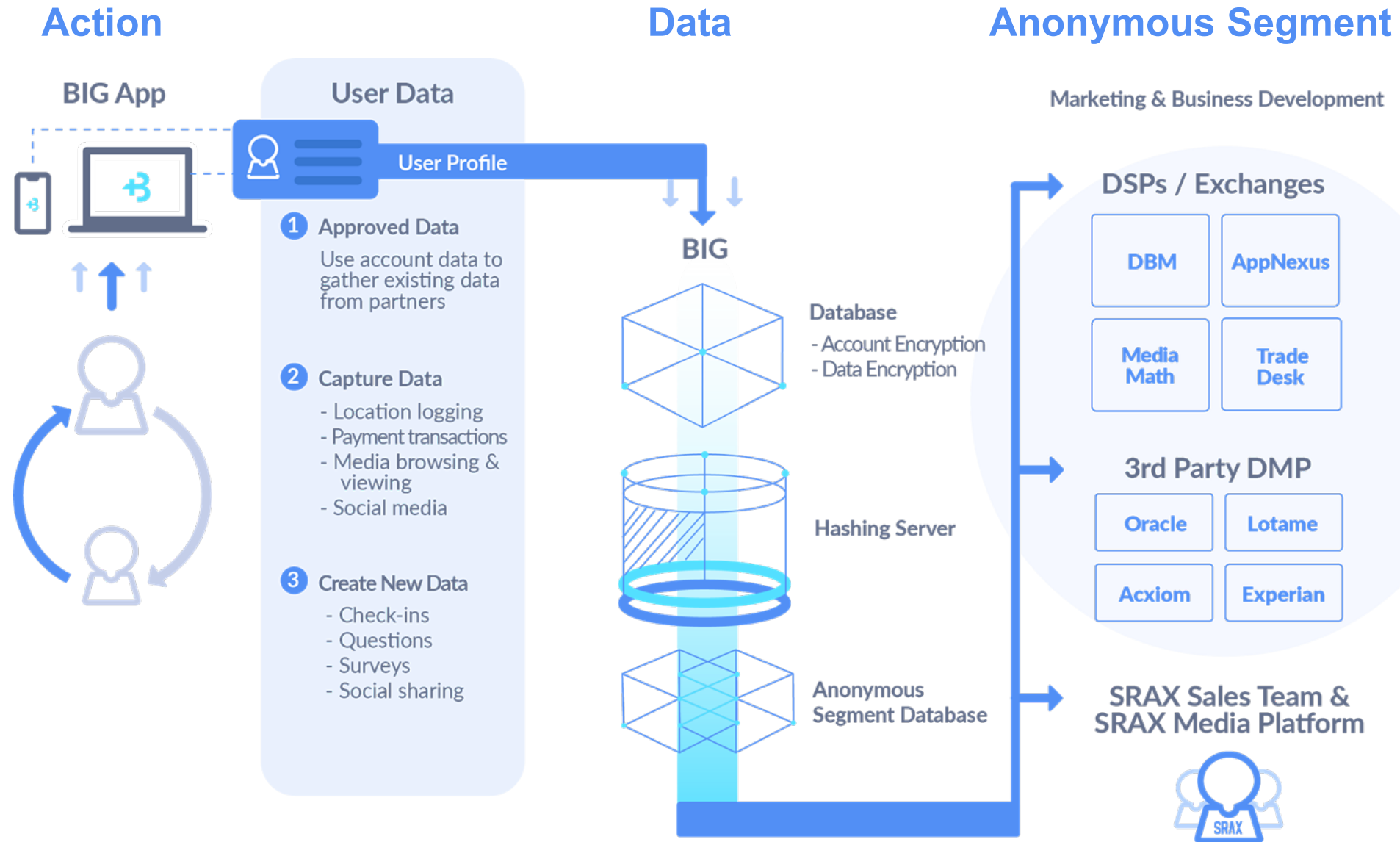
## Compensation

Consumers earn when they opt-in to sharing their data and when that data is purchased.



Over 15 Million Consumers since launch

# Data Journey





# BIGtoken provides accurate and verified consumer data for marketers

## Data Quality

Advertisers reach real, responsive audiences to target across all channels.

## Data Accuracy

Advertisers gain consumer data that is passed through multiple layers of verification.

## Data Transparency

Advertisers have full transparency on consumer data and data transactions.

### Data collection before BIG

Basic Info		
<b>Undergraduate Degree</b>	Demographic > Education > Undergraduate Degree	X
<b>Renters</b>	Demographic > Housing Attributes > Renters	✓
<b>Tweens/Teenagers (11-18)</b>	Demographic > Family Composition > Children in Household>Yes	X
<b>Single</b>	Demographic > Marital Status > Single	X
<b>High School Diploma</b>	Demographic > Education > High School Diploma	✓

Basic Info		
<b>Mortgage</b>	Demographic>Financial Attributes>Credit&Debt>Mortgage	X
<b>Credit Card Holder</b>	Demographic>Financial Attributes>Credit&Debt>Credit Card Hold	✓
<b>Children (6-10)</b>	Demographic > Family Composition > Children in Household>Yes	X
<b>Married</b>	Demographic>Marital Status>Married	✓
<b>Not Married</b>	Demographic>Marital Status>Not Married	X



SRAX COO  
Kris Nelson

### Data collection after BIG

Age	✓
Location	✓
Household Income	✓
Homeowner	✓



Transparent to consumer



Consumer is compensated



100% verified by consumer  
- high accuracy



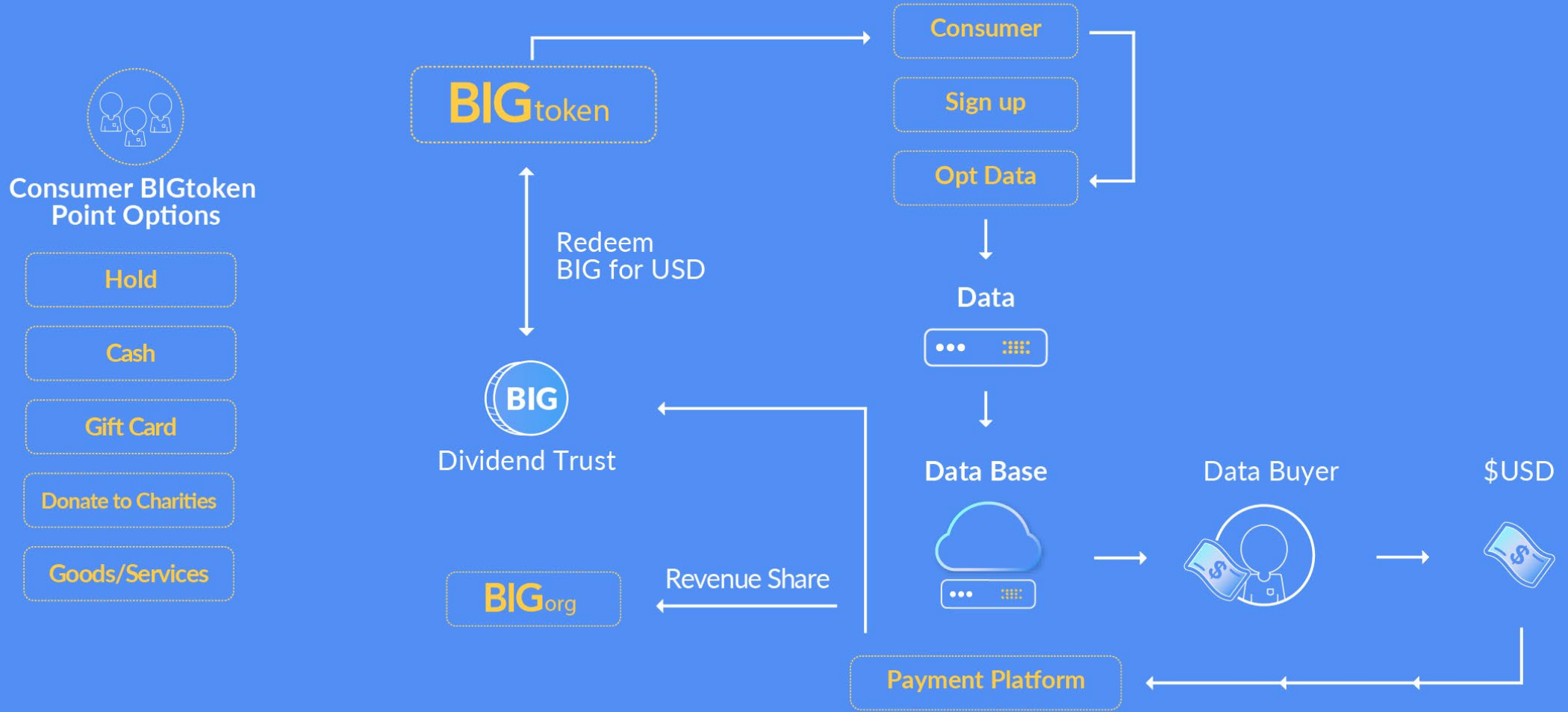
Consumer opted-in 3rd party systems like social networks will further verify data

Large Third-Party Data Set  
More than 50% of data on Kris Nelson  
is incorrect.

BIG Data Set  
Data on Kris Nelson is verified and correct.

True Consumer Consent

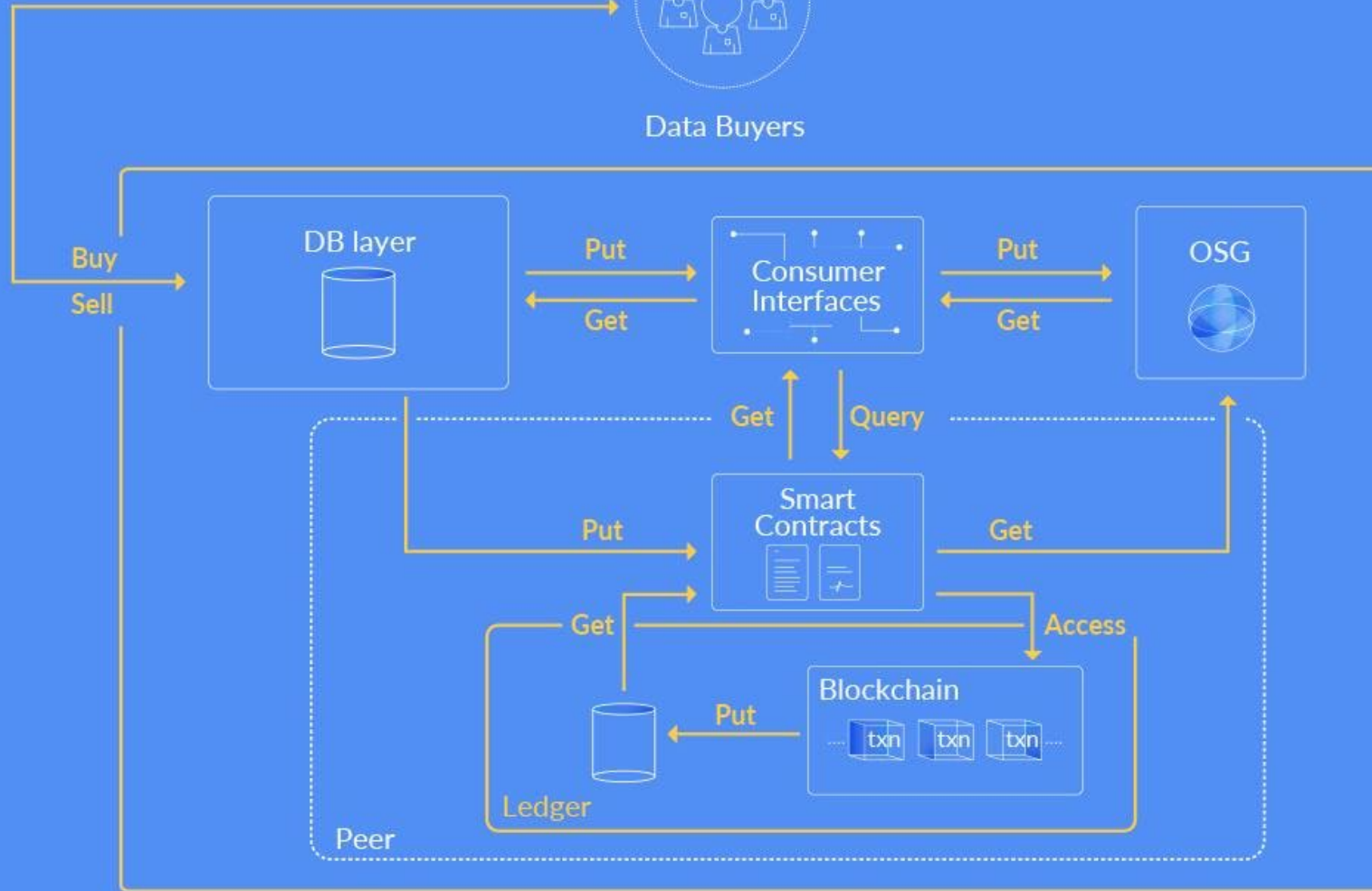
# BIGtoken Economics



# Product Ecosystem



Data Buyers



# Thank you

Join my BIGtoken network with code  
**MYDATA**

## **David James Stewart**

SRAX (Nasdaq: SRAX)

Davidjames.Stewart@bigtoken.com

**Twitter** / @Davidjamesjr8

**Facebook** / David James Stewart

**LinkedIn** / David James Stewart

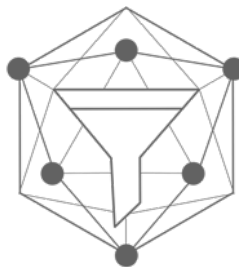
The logo for SRAX, featuring the letters S, R, A, and X in a bold, sans-serif font. The 'S' is dark blue, while the 'R', 'A', and 'X' are light blue. The letters are closely spaced and have a slight shadow effect.

# DIF (Distributed Invalid Traffic Filter)

## A Collaborative Effort to Filter Invalid Traffic



**Andy Fan**  
**Chief Executive Officer**  
**RTBAsia**



## DIF: Distributed Invalid Traffic Filter

DIF is a private chain designed to make **collaboration** in digital advertising ecosystem more **efficient** and **transparent** in the effort of combating invalid traffic.

DIF is open to the entire digital advertising ecosystem, including ad tech companies, publishers, advertisers, agencies, industry associations, academic institutions, compliance auditors etc.

# The Team Behind DIF Project

Organizer



Technology Provider

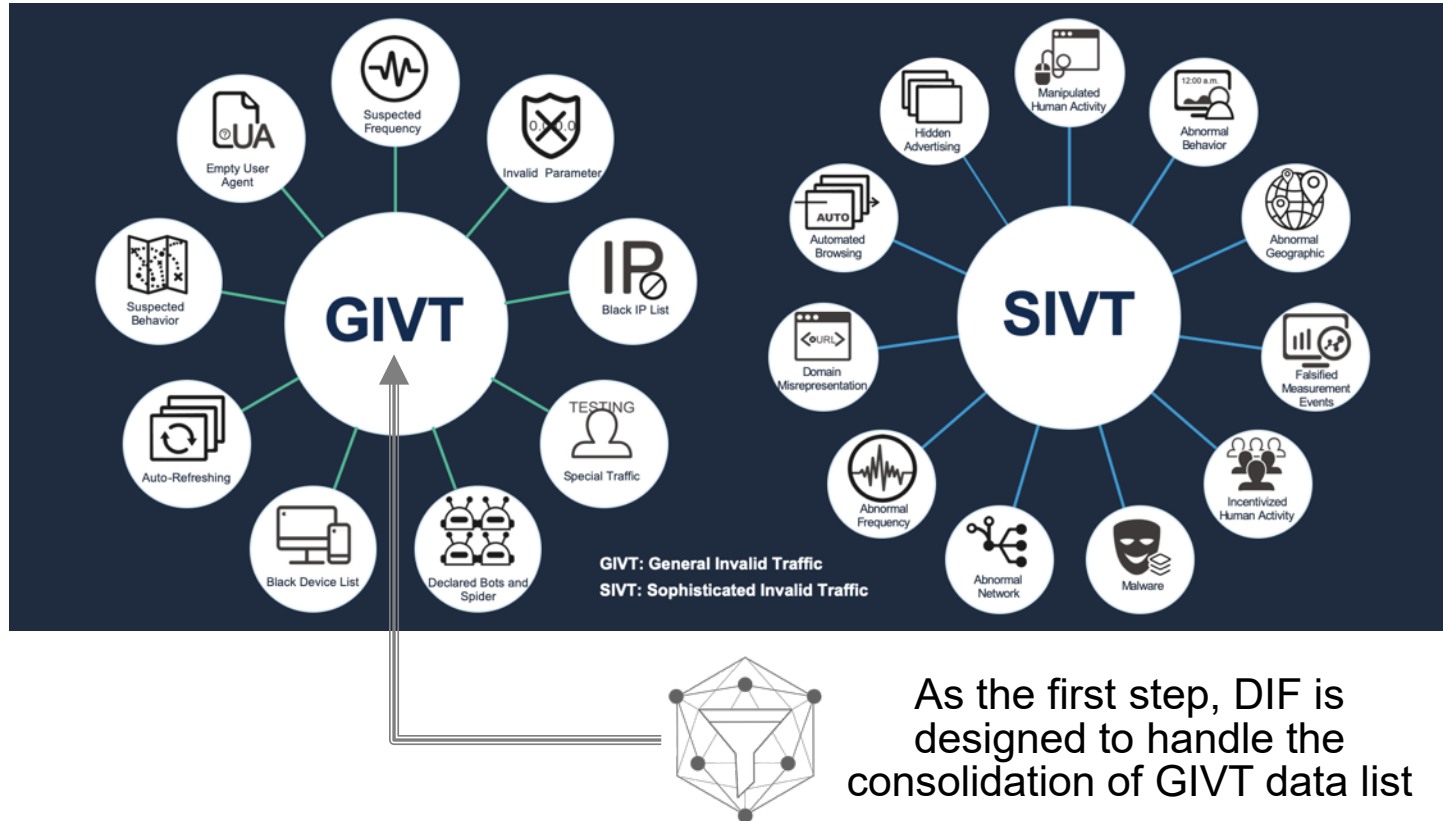


Private Chain Members



The DIF project is initiated by MMA China and CAA invalid traffic working group, and follows the charter and rules laid out by MMA China and CAA

# The Problem That DIF is Tackling Now: GIVT







Efficiency Issue



Appealing Process Issue



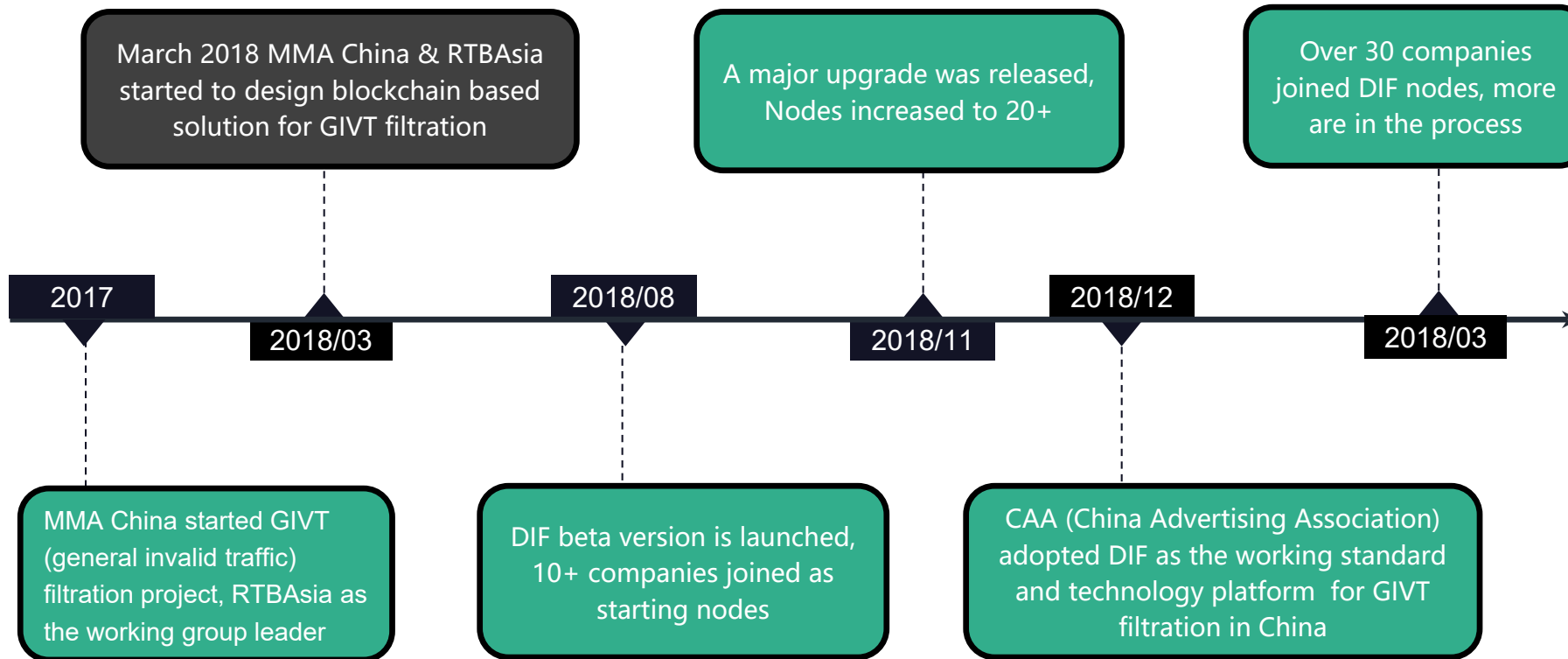
Transparency Issue



Blockchain?



## GIVT List 区块链应用发展历程



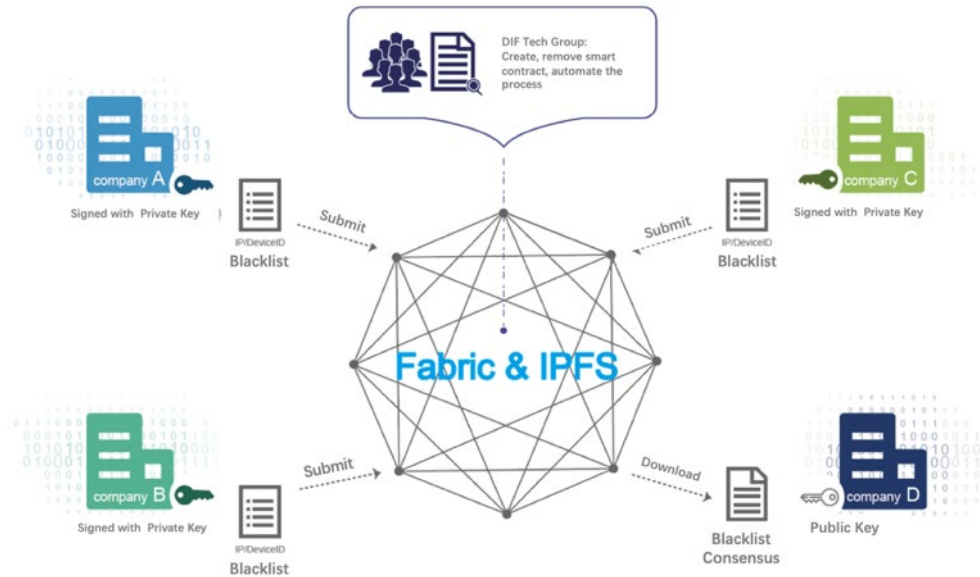
## Live DIF Nodes

RTBAsia MVDhouse 亿动广告传媒 Publicis GREATER CHINA P&G NSEC lab 上海交通大学  
Network Security and Privacy Protection  
dentsu AEGIS network PROGRAMMATIC 科大讯飞 IFLYTEK YOYI 悠易 Miaozen Systems 腾讯灯塔 Beacon.qq.com huan.com 欢网科技  
hdtMEDIA GRIDSUM 国双 Empower your e-Performance 银联智慧 UnionPay Smart 伊利 YIMC 省广集团 酷云互动  
TalkingData aisame 传谦 hylink 泛为科技 智子云 YCMEDIA

## DIF Nodes In Preparation

数字精准 DIGITAL PLUS Trendy 小米营销 E.MI.COM LEO DIGITAL NETWORKS ctr 央视市场研究 inMOBI nielsen 尼尔森

A live distributed ledger of 50,000+ IP addresses and 6 million+ Device ID



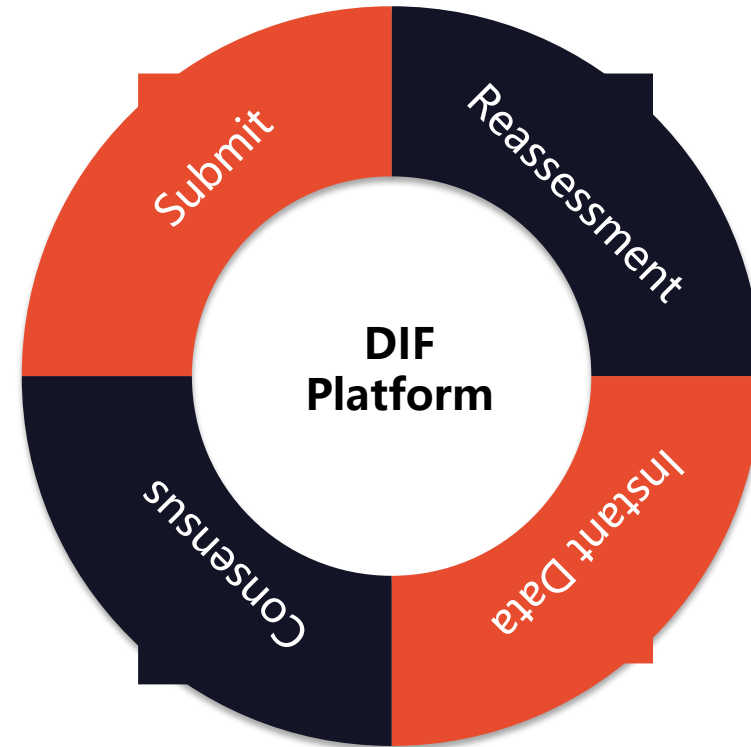
### DIF Output Now:

- GIVT Source IP address (filtration-list)
- GIVT Source Device ID (filtration-list)
- Device ID Default Values (grey-list)
- Publisher Server IP Address (grey-list)

### Planned New Features :

- GIVT source user-agent list (filtration-list)
- Domain filtration-list

- 1 Submit GIVT List Candidate Data**  
Each node can submit their data for collaborative filtration
- 2 Submit Request for Reassessment**  
Each node can submit request for the entire network to vote on corrections
- 3 Transparent Consensus**  
Rules and laws is clearly written in codes and recorded in distributed ledger at every nodes
- 4 Instant Data Access**  
Each node can generate full GIVT list data without delay or dependency on centralized mechanism



## Submit Data / Generate GIVT List

日期范围  
2018/02/25 - 2018/08/24

查询 清空

黑名单 移除列表

成员名	日期	类型	操作
YOYI	2018-07-25 16:41:21	ip	下载
Gridsum	2018-07-24 11:34:34	ip	下载
zhiziyun	2018-07-24 10:20:43	ip	下载
Fancy	2018-07-23 20:04:04	ip	下载
hdtMEDIA	2018-07-20 17:08:26	ip	下载
AdMaster	2018-07-19 15:21:35	ip	下载
AdMaster	2018-07-19 14:46:19	ip	下载
AdMaster	2018-07-19 14:34:28	ip	下载

Powered by Hyperledger Fabric  
© 2018-2028 RTBAasia

历史提交记录

日期范围  
日期范围

查询 清空

成员名	日期	类型	操作	投票
RTBAasia	2018-08-20	device	下载	投票

Submit for Reassessment  
(Appealing)

历史提交记录

日期范围  
2018/02/25 - 2018/08/24

查询 清空

黑名单 移除列表

下载合并版本

类型  ip  设备  默认设备

取消 下载

成员名	日期	类型	操作
YOYI	2018-07-25 16:41:21	ip	下载
Gridsum	2018-07-24 11:34:34	ip	下载
zhiziyun	2018-07-24 10:20:43	ip	下载
Fancy	2018-07-23 20:04:04	ip	下载
hdtMEDIA	2018-07-20 17:08:26	ip	下载

Download Data List

- DIF working group charter is inherited from the offline meeting rule, all decisions requires **2/3** of the vote
- IP address filtration-list candidate data requires a minimum of **2** votes to enter the list
- Mobile device ID default value candidate data requires a minimum of **2** votes to enter the list
- Mobile device ID filtration-list candidate data will enter the list automatically
- Each node can start appealing process and it takes **4/9** members' votes to remove mistake data



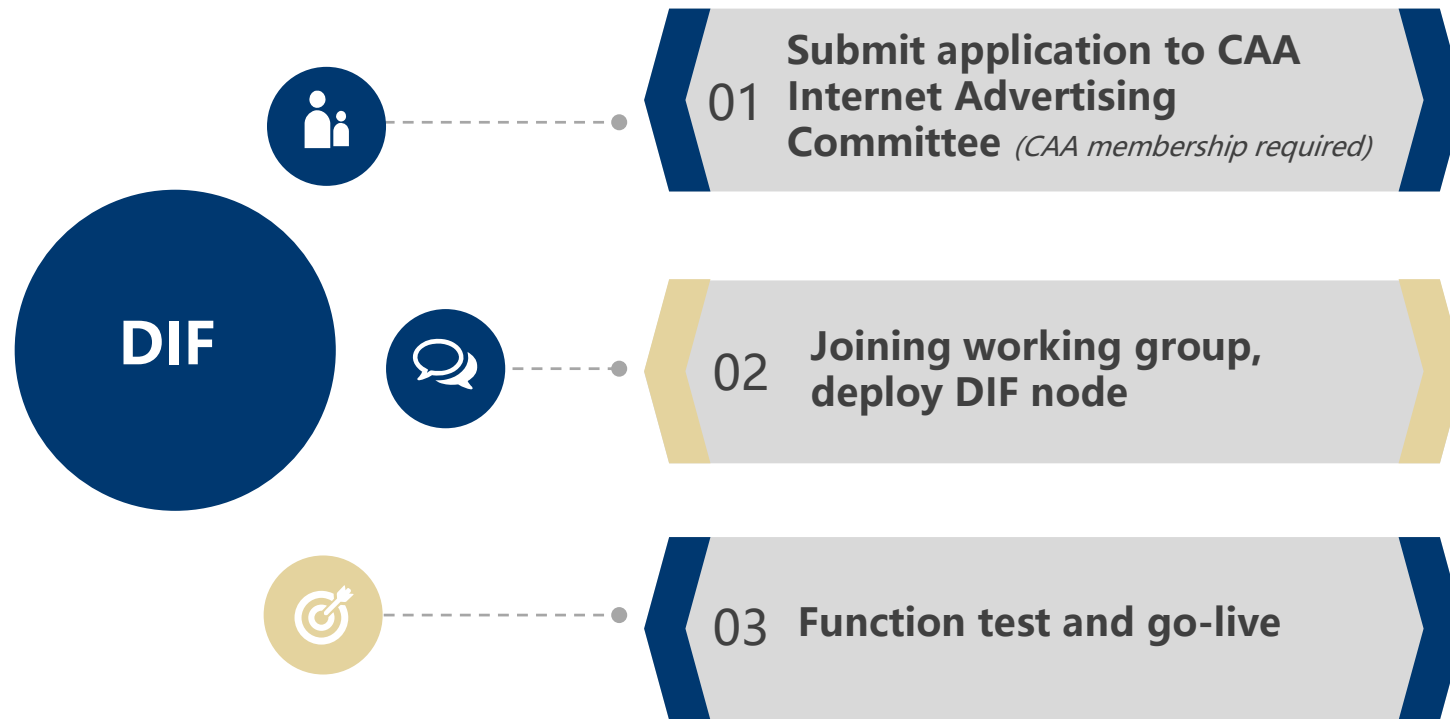
➤ DIF is developed based on Hyperledger Fabric and IPFS

GitHub: <https://github.com/tagphi/dif-client>

**Minimum Hardware and network requirements for each DIF node:**

- OS: CentOS 7.3
- Memory: >4G
- HDD: >500G
- CPU Core: >2
- Docker: 18.03.0-ce
- Docker Composer: 1.20.1
- IP address: 1
- Ports: 80, 7051, 7053



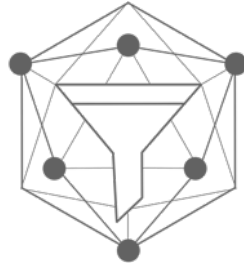


## › Learning:

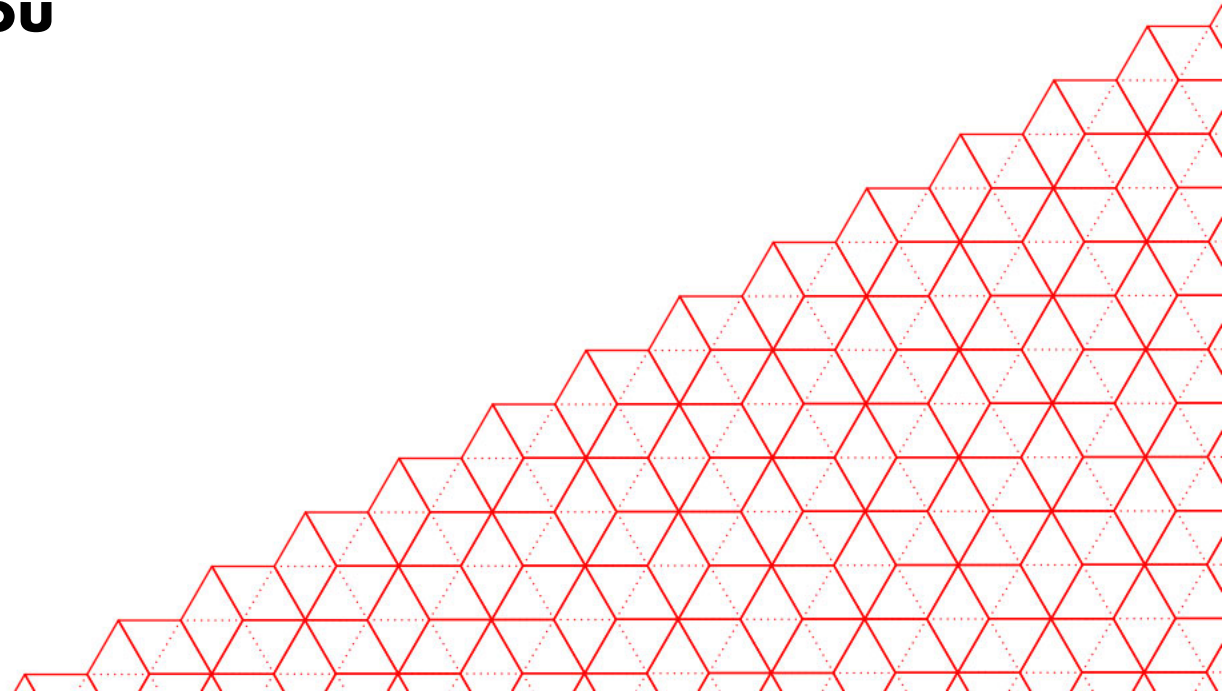
- Reaching consensus on functionality design and rules is far more challenging than technology development
- “UBO” identification is important, DIF piggybacks on MMA China membership status and CAA membership status to simplify the qualification process
- Advertisers’ participation will greatly drive the growth of the DIF network

## › Future Plan:

- Keep it as a not-for-profit project and open-source project, and there should be no boundary in features
- Expand to area beyond GIVT, such as processing of IP geo-location correction
- Evaluate anonymous mode, so as to build an influencer rating list and issue log for marketers, as suggested by advertisers

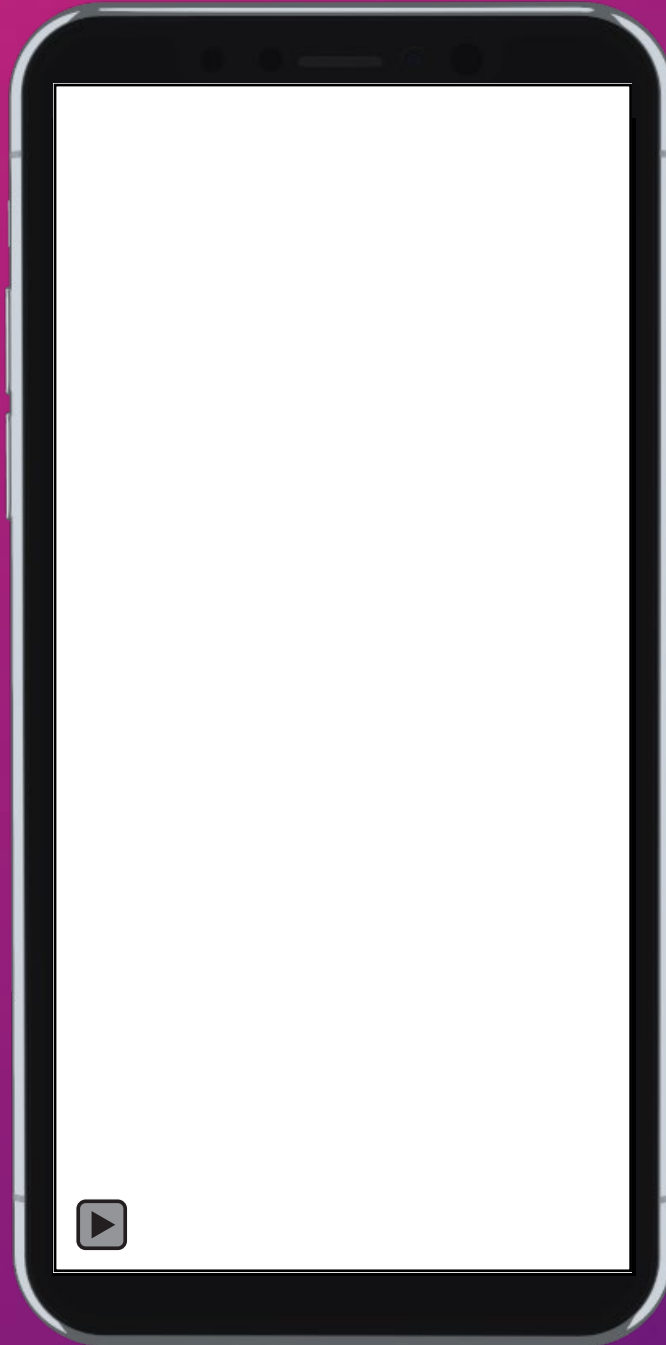


**Thank You**





**Neil Sweeney**  
**Founder & CEO**  
**Freckle**





**Sam Goldberg**  
**President & Co-Founder**  
**Lucidity**

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Q2 2019

# Introducing Confirmed Impressions™

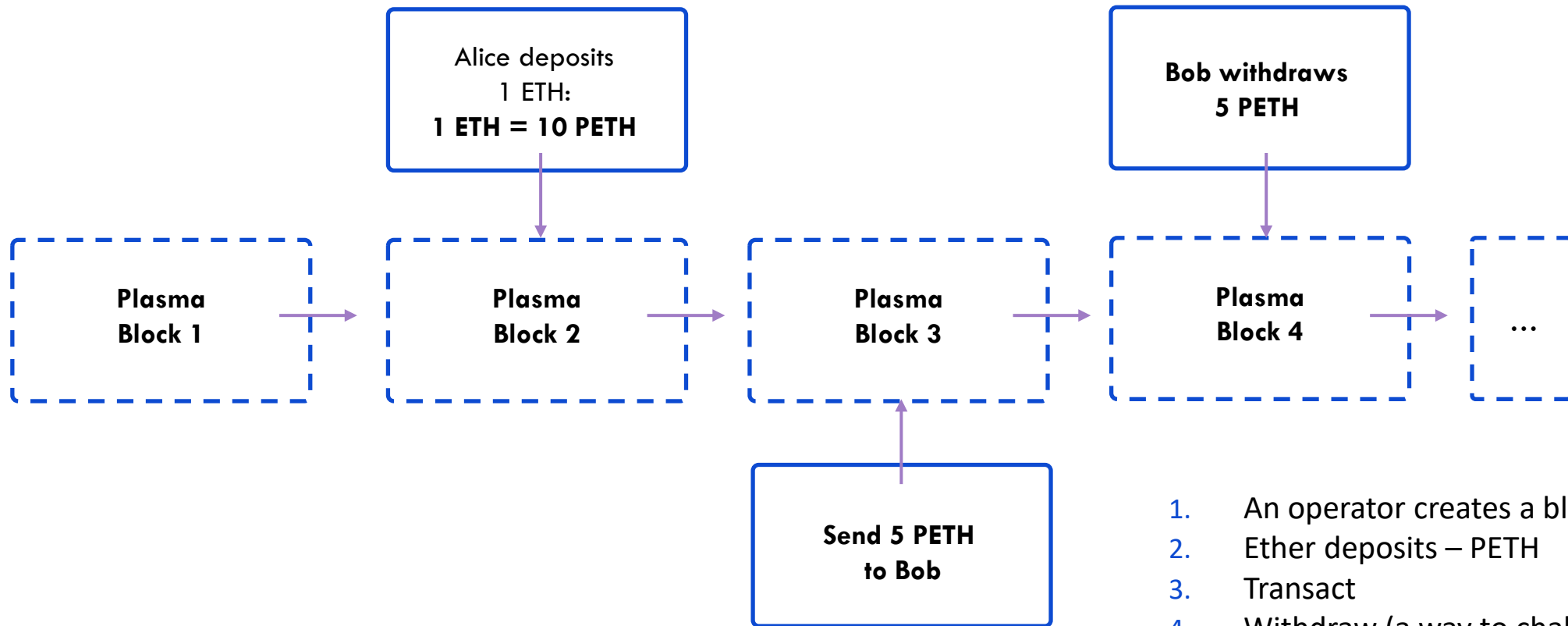
Auditable, Event-Level Data to Confirm You're Getting What You Paid For

MAY 7, 2019

SAM GOLDBERG | PRESIDENT & CO-FOUNDER

SGOLDBERG@LUCIDITY.TECH

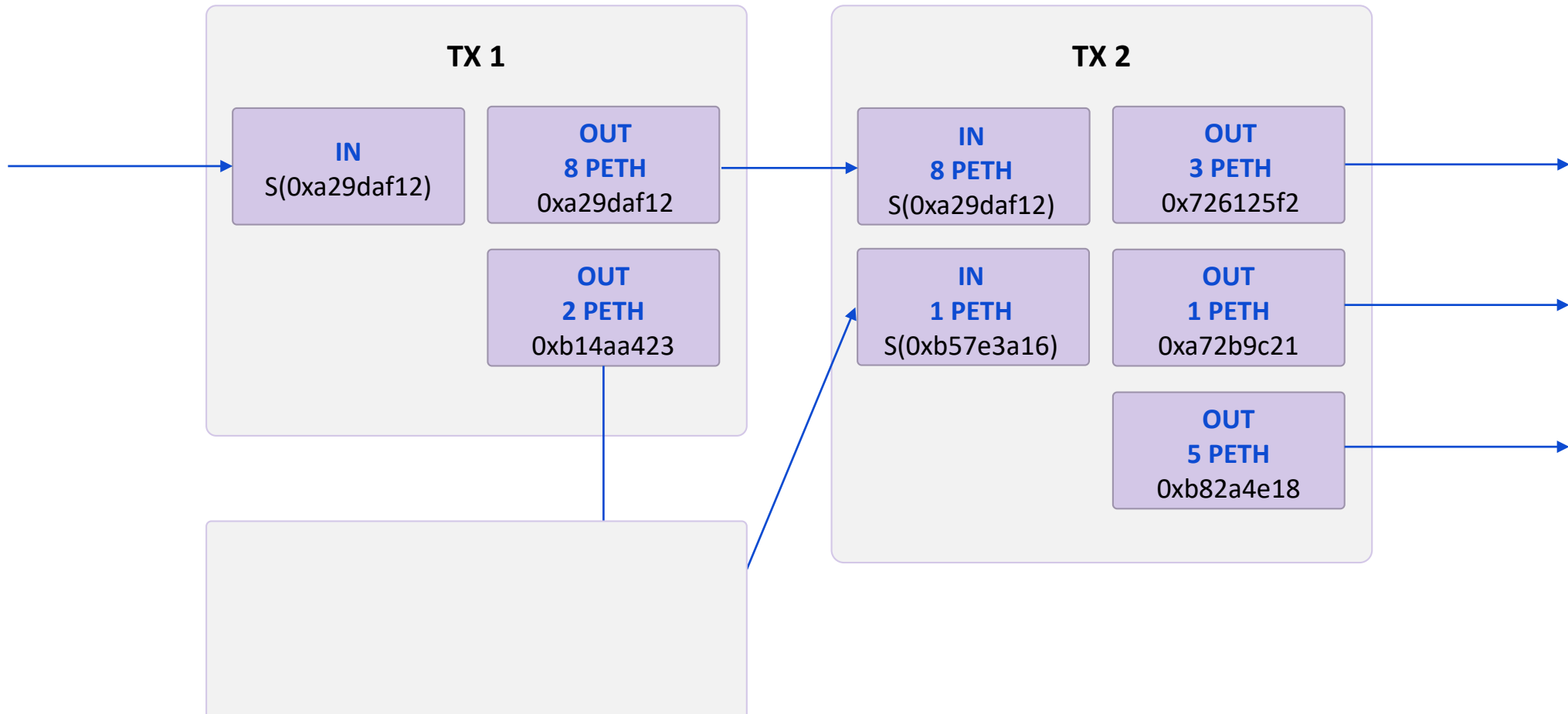
# Plasma Basic Workflow



1. An operator creates a block
2. Ether deposits – PETH
3. Transact
4. Withdraw (a way to challenge)
5. Mass Exit



# Transactions: UTXO Model

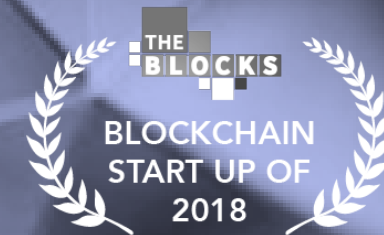


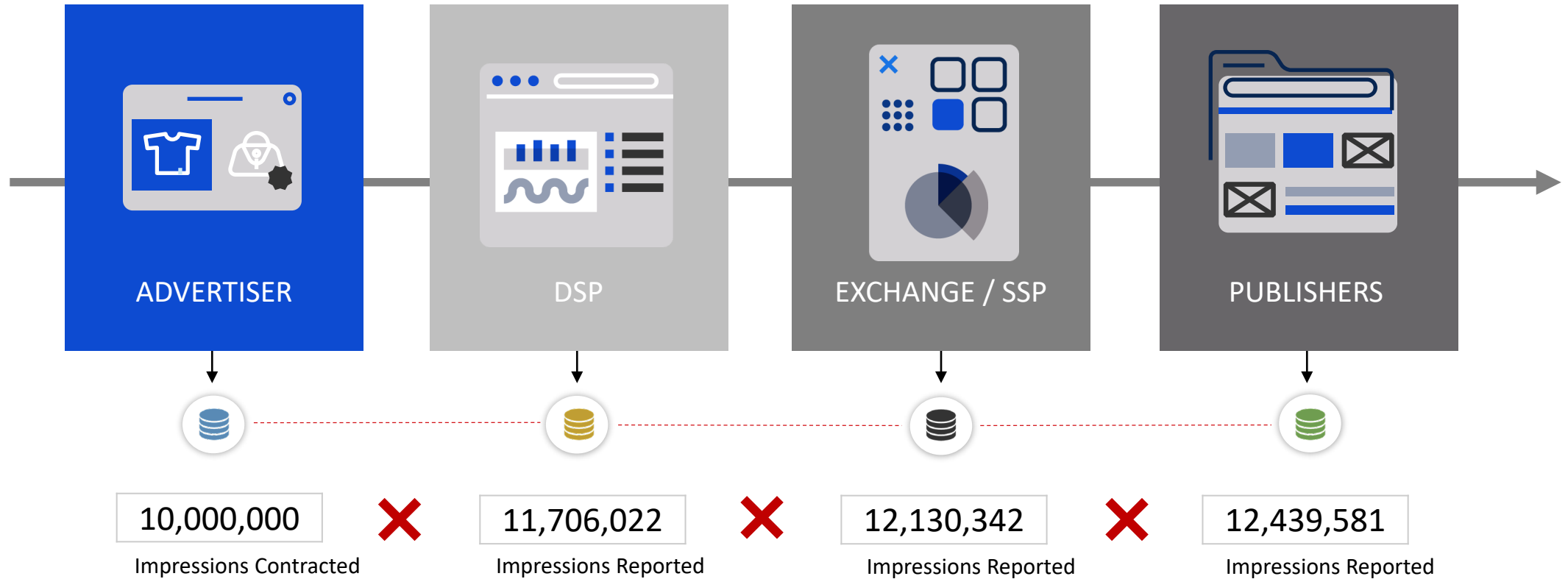


## ✓ Lucidity

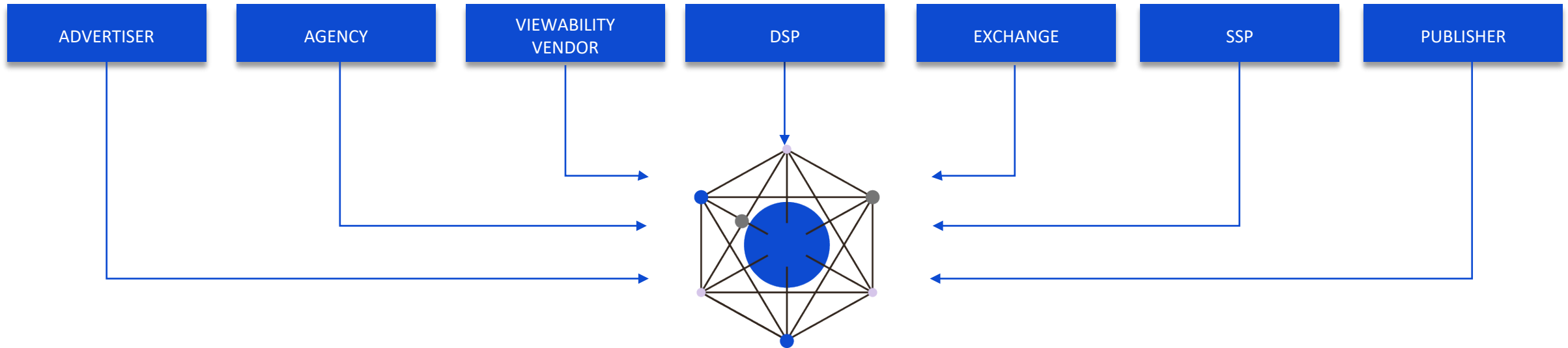
# We Use Blockchain to Authenticate Every Impression and Click

Lucidity arms marketers with Confirmed Data™ so they can maximize what is most important to them. Knowing when an impression has been properly sent and recorded from vendor to vendor provides a unified view that was not possible before.





The ad supply chain is full of discrepant, inconsistent data creating opportunities for fraud, waste and inefficiency



**Solution: We use blockchain to generate a clean, unified Confirmed Data™ set for marketers**

## First-look: Lucidity's new ads.txt feature

- For the first time, see if your impressions truly ran on ads.txt authorized inventory
- Actionable campaign data (versus a pre-bid filter)
- First ads.txt solution to use blockchain authentication
- Crucial signal to flag counterfeit inventory
- Works in conjunction with Confirmed Data™ to provide unified view of cleanest possible impressions across the supply chain

☰

+ Create
🔔
(M)

### Summer Sale Event Jan 1, 2019 – May 15, 2019

97

Impressions
ALL
CONFIRMED

📄 Ads
🔄 DSPs
↔ Exchanges
📄 Publishers

Show All
⋮
🔍
📄
+
⚙️

Viewing Publishers

PUBLISHERS	PUBLISHERS ID	DSP	EXCHANGES	IMPRESSIONS	IMPS	IMP MATCH	CLICKS	CLICKS	CLICK MATCH	ADS.TXT
				7,482,592	5,692,386	76%	67,343	47,813	71%	---
Flashlight123.com	564357			194,955	177,409	91%	1,724	965	56%	---
Vice.com	8454			194,550	188,713	97%	1,542	1,356	88%	Reseller
ESPN.com	569542			191,178	183,530	96%	1,498	1,333	89%	Direct
Time.com	42715			190,057	171,051	90%	1,658	1,392	84%	Direct
CBS.com	76814			187,490	170,615	91%	1,547	1,276	82%	Direct
TradeCorp.com	13453			177,939	137,013	77%	1,528	1,100	72%	Reseller
Lifewire.com	12590			108,248	102,835	95%	1,429	1,257	88%	---

ADS.TXT

---

Reseller

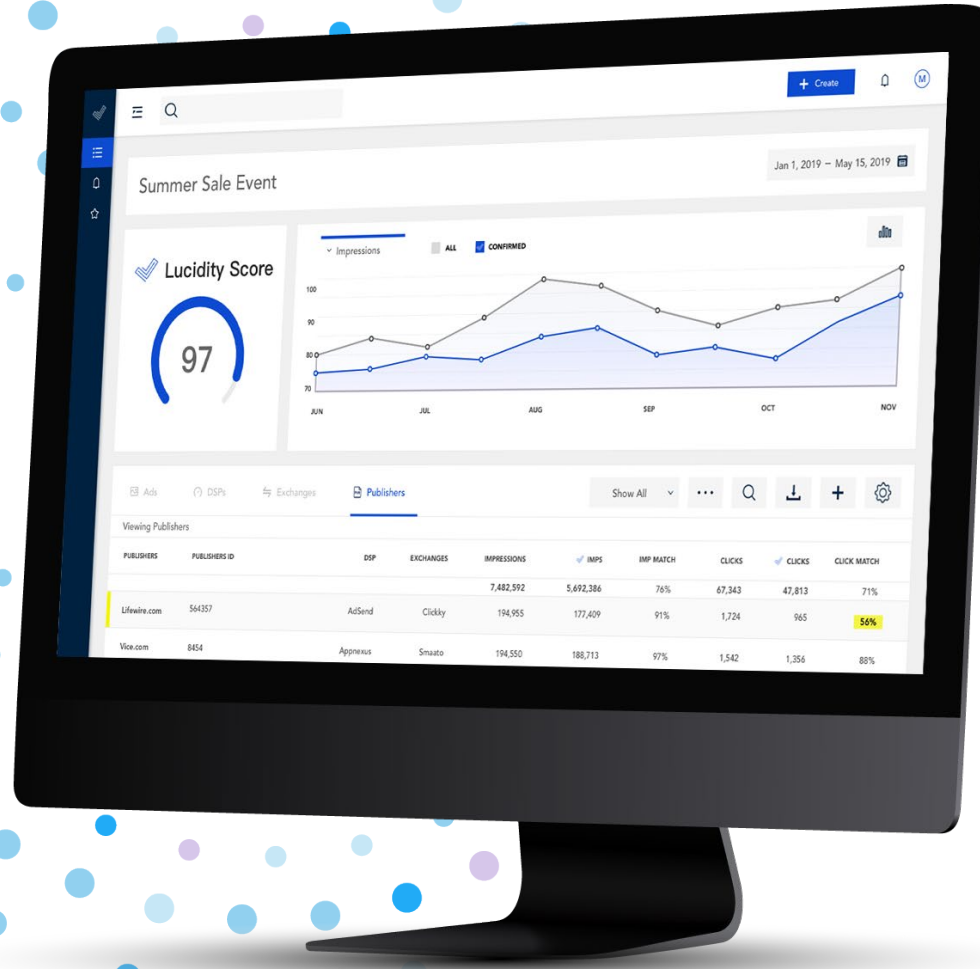
Direct

Direct

Reseller

---

Dashboard shows: Ads.txt authorized; reseller; or not authorized



**CONVENIENT TO USE**

Easy Setup. No changes to end user work flow

**SAFE TRANSACTIONS**

Hashing + encryption keeps your private data private

**FAST + SECURE**

Processes the high frequency throughput required in digital advertising



---

LUCIDITY.TECH



# thank you

MAY 7, 2019

SAM GOLDBERG | PRESIDENT & CO-FOUNDER

SGOLDBERG@LUCIDITY.TECH



## **Dylan Dewdney** **Head of Business Development** **AdEx**

PRODUCT DEMO

# AdEx: An Ad Network for a Cleaner Web

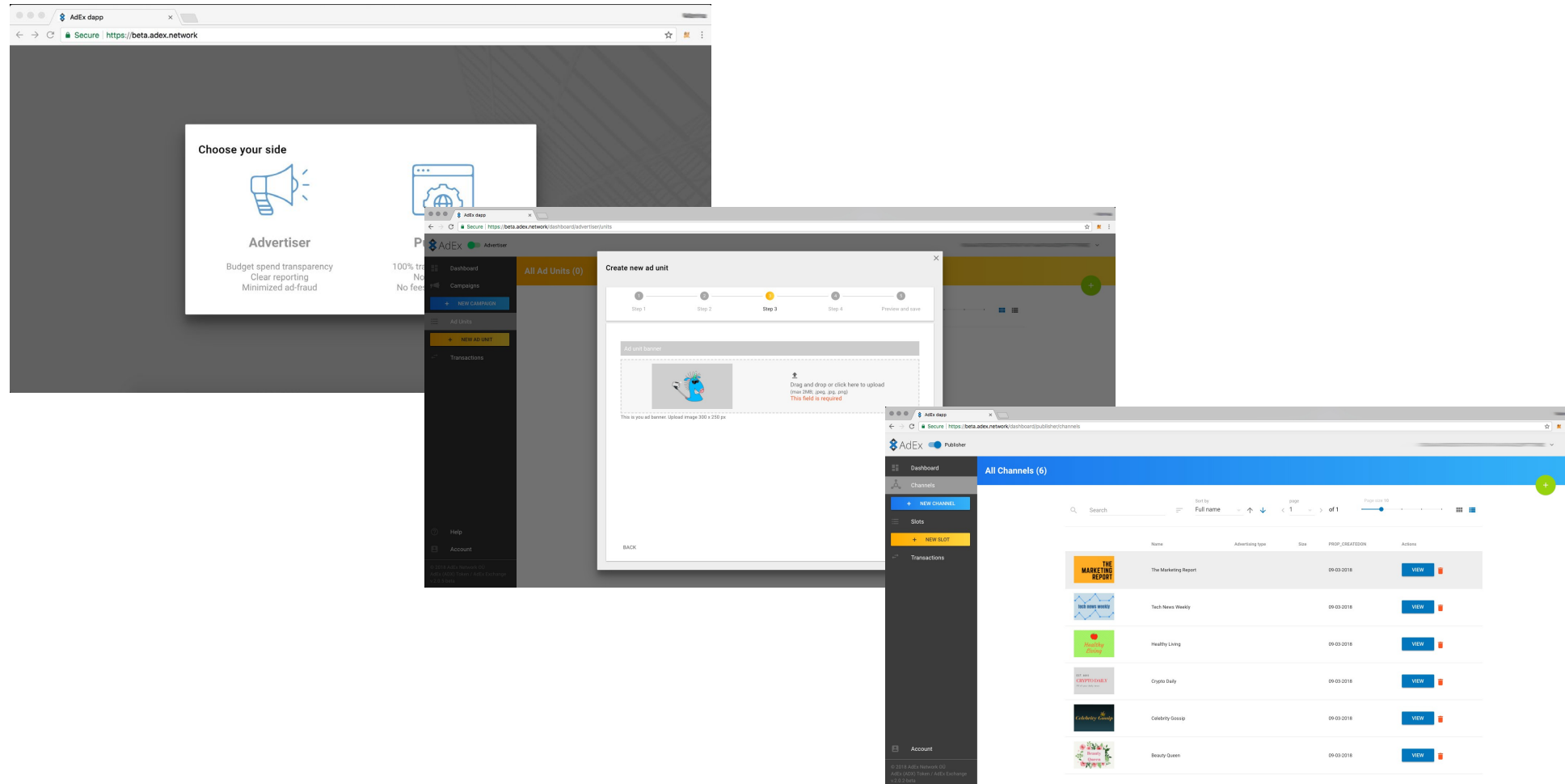


# AdEx: An Ad Network for a Cleaner Web

**Join us for a product demo of AdEx Network, a new generation ad network that:**

- ❖ Helps reduce ad fraud**
- ❖ Helps optimise advertising budgets**
- ❖ Protects end user privacy**

# AdEx: An Ad Network for a Cleaner Web



[www.adex.network](http://www.adex.network)





**Shailley Singh**  
**Vice President, Product**  
**IAB Tech Lab**

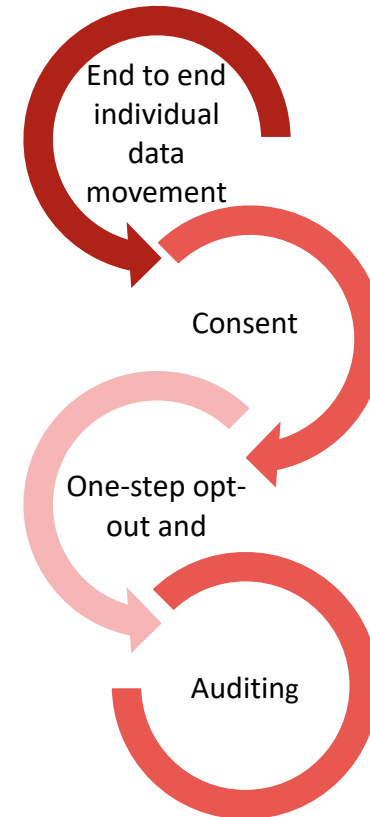
## PrivacyChain: A Blockchain-based open-source standard for Consent Management

A next-generation technology platform for implementing privacy protocols

Conceived as evolution of the current technology

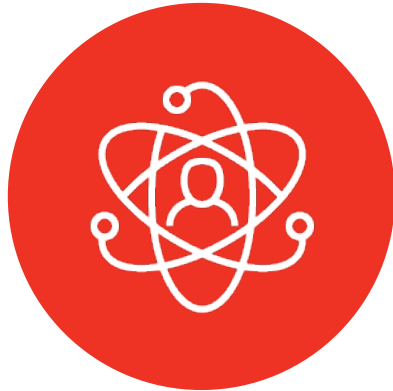
Allows all members of the supply chain to more easily implement privacy controls and standards like TCF based on a single, shared, distributed ledger and smart contracts

<https://github.com/InteractiveAdvertisingBureau/PrivacyChain>



# Permission Management Platform

## Individual



Consent  
Management & Data  
Movement Tracking

## Business



Data Movement Tracking

Data Supply Chain  
Data Collectors . Data Processors  
Simplifies implementation for small publishers

## Regulator



Auditing



- **Currently ~ 40 volunteers representing 25+ companies**
- **Six working teams**
  - **Product Management**
  - **Engineering**
  - **Go-to-Market**
  - **Communication**
  - **Community**
  - **Policy Coordination**
- **Special working team for identity**

Policy Coordination ← IAB TCF Working Groups

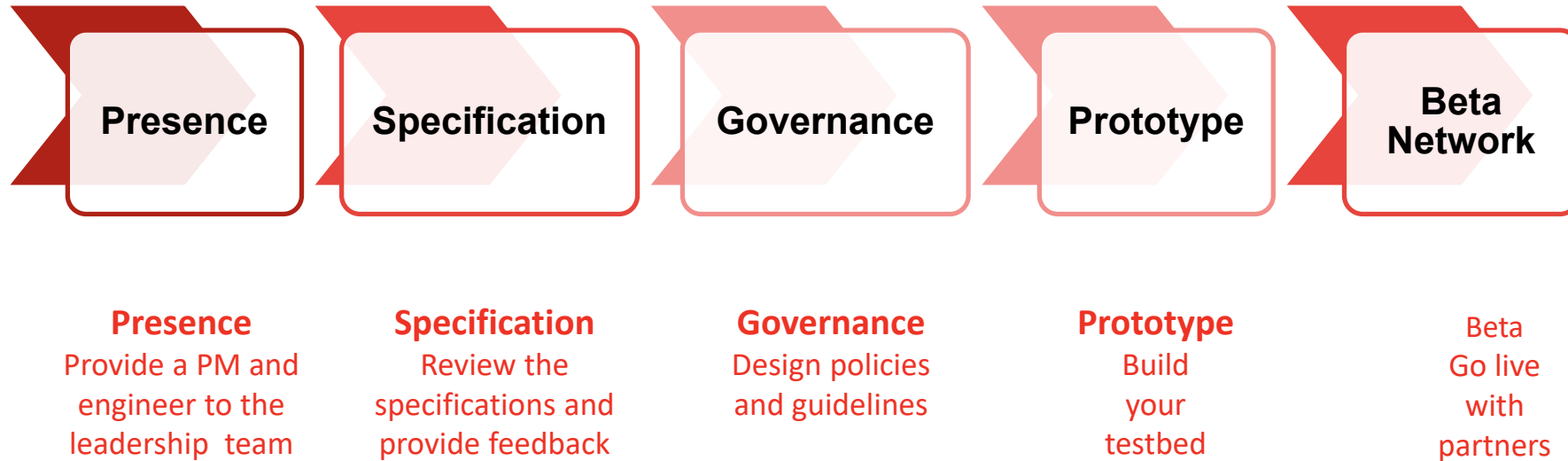


**Founded by Arthur Coleman, OpenX**

**Current leadership team:**

- **Wendell Baker, Verizon Media**
- **Joe Hsy, LiveRamp**
- **Lily Chang, Viacom**
- **Kees Schouten, NYIAX**
- **Vadislav Kuchemsik, NYIAX**

# Engaging with PrivacyChain



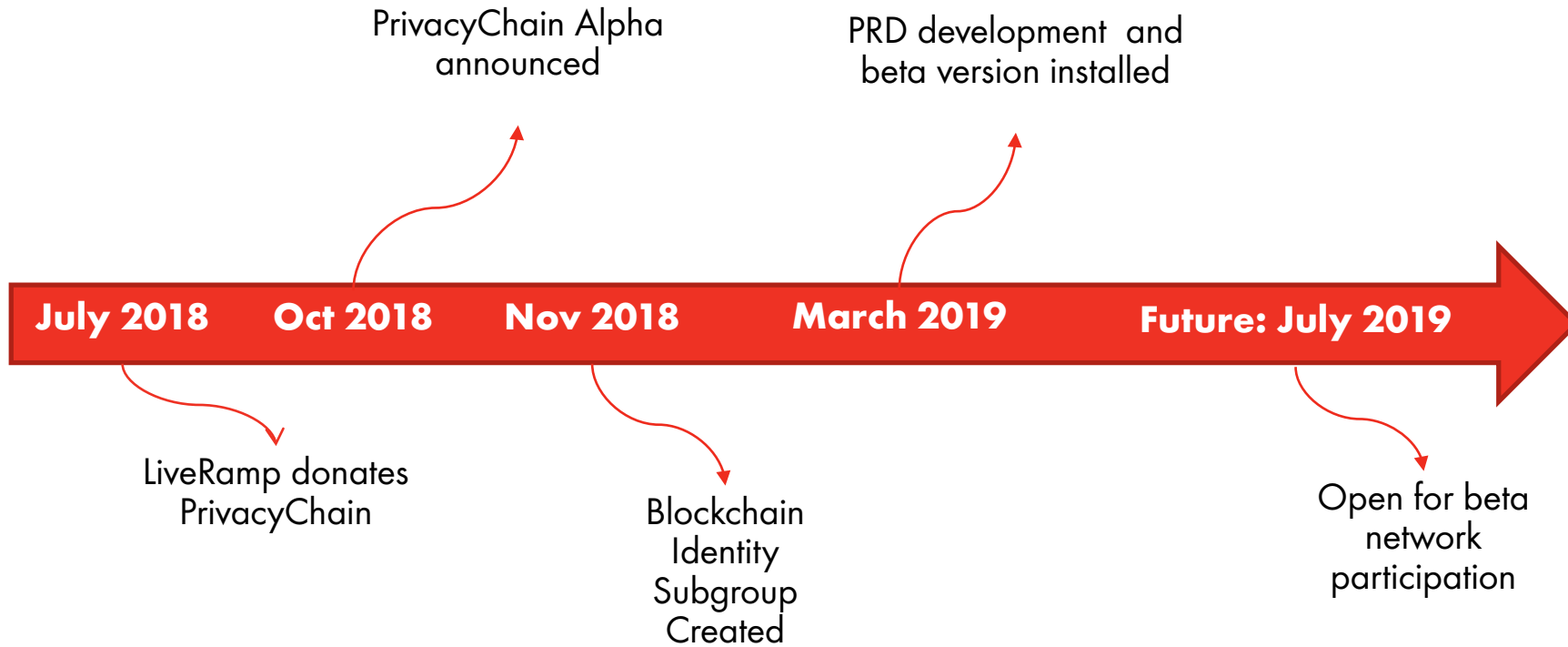
## Establish TestNet

- › **Hyperledger Fabric**
- › **Setup up PoET-based consensus algorithm**
- › **Encryption protocols**

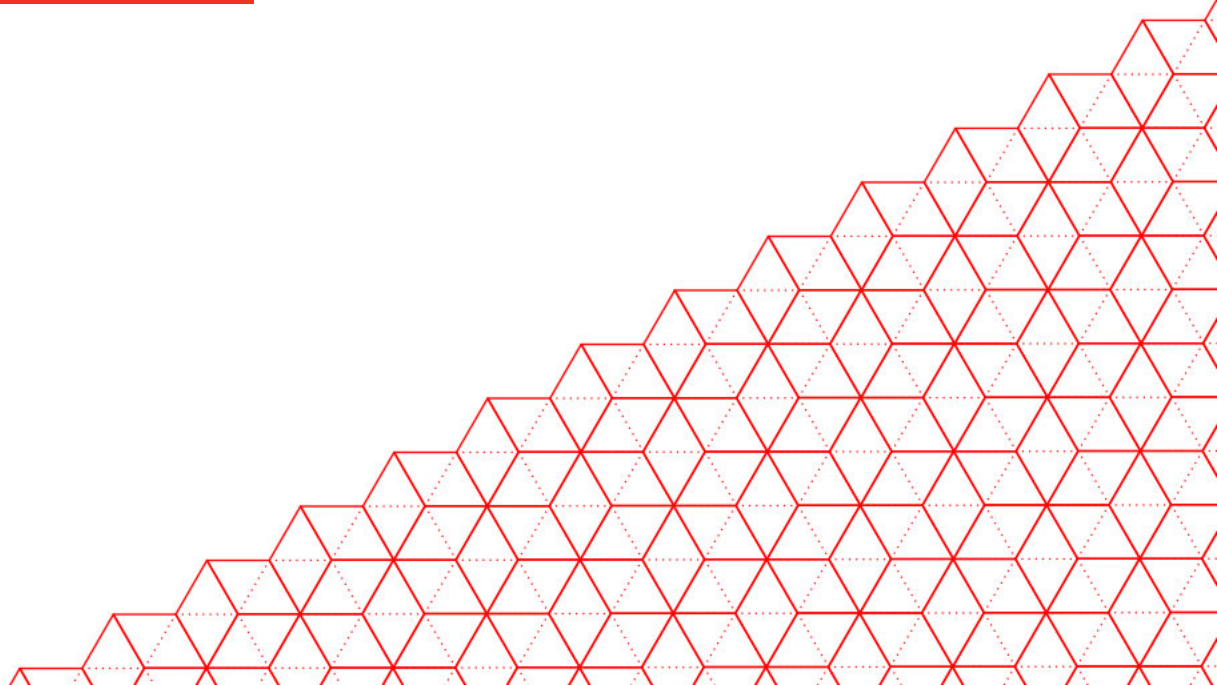
## Endpoints to develop (simple implementation only)

- › **/register/anonymous**
- › **/register/known**
- › **/partner**
- › **/transfer**
- › **/retrieve**

## Test scale, stability, retrieval and response times under PoET



# PrivacyChain Demo



# Coins in Advertising Technology (Panel)



**Richard Bush**  
**President, NYIAX**  
**(Moderator)**



**Dylan Dewdney**  
**Head of Business Dev**  
**AdEx**



**Matt Hrushka**  
**Product Manager**  
**Kochava**



**LuRae Lumpkin**  
**Chief Executive Officer**  
**Blockchain4Media**



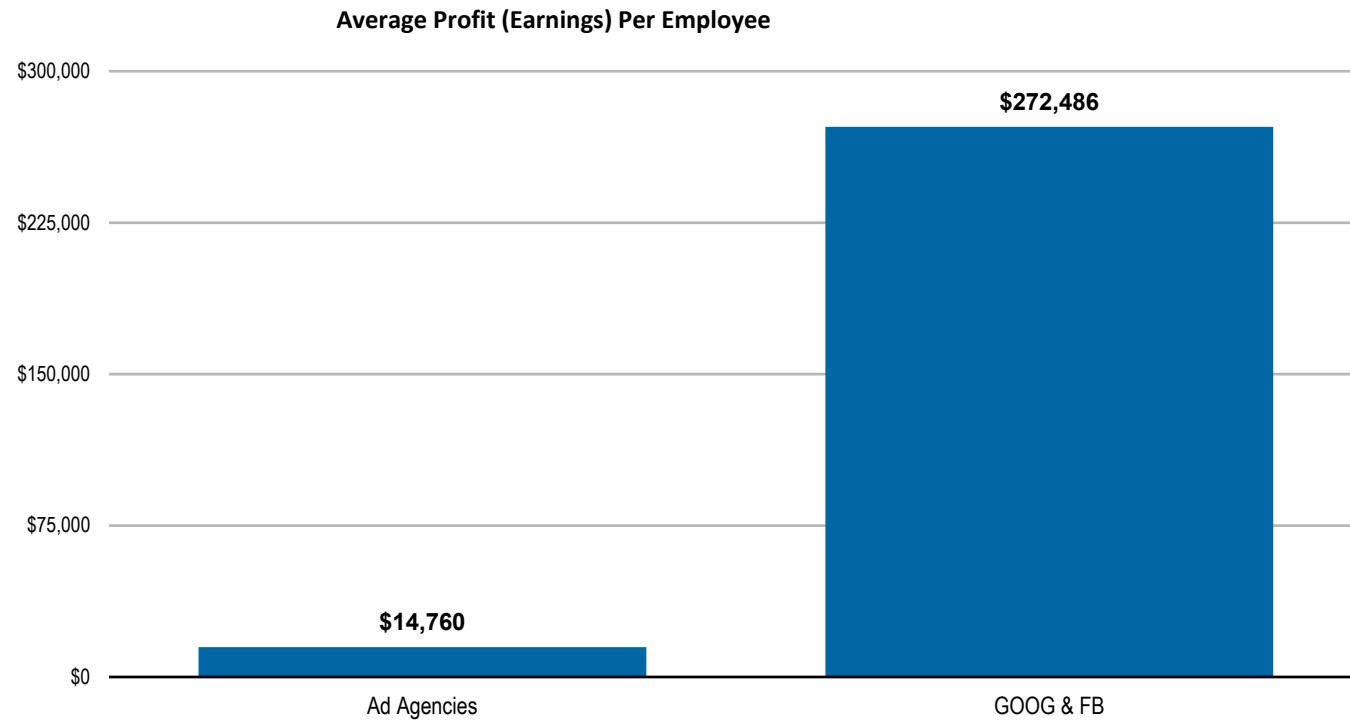
**David James Stewart**  
**VP, Business Development**  
**SRAX**



**Michael Rodov**  
**Chief Executive Officer**  
**AdNode**



# Digital Ad Buying is Inefficient and Manual



Source: 2016/2017 Full-Year Company GAAP Reported Financials. Ad Agency industry category is composed of the five largest publicly traded ad agency holding companies by market capitalization. Net profit is calculated as the greater of 2016 or 2017 full-year performance. All currencies converted to USD based on February 2019 exchange rates. Figures represent weighted-averages.

- **Inefficiency from inventory reconciliation**
- **Inefficiency from viewability & ad fraud**
- **Inefficiency from missed opportunities**

---

*“As much as 56% of all ad dollars were lost due to fraudulent or unviewable inventory.”*  
*- Forrester Research*

---

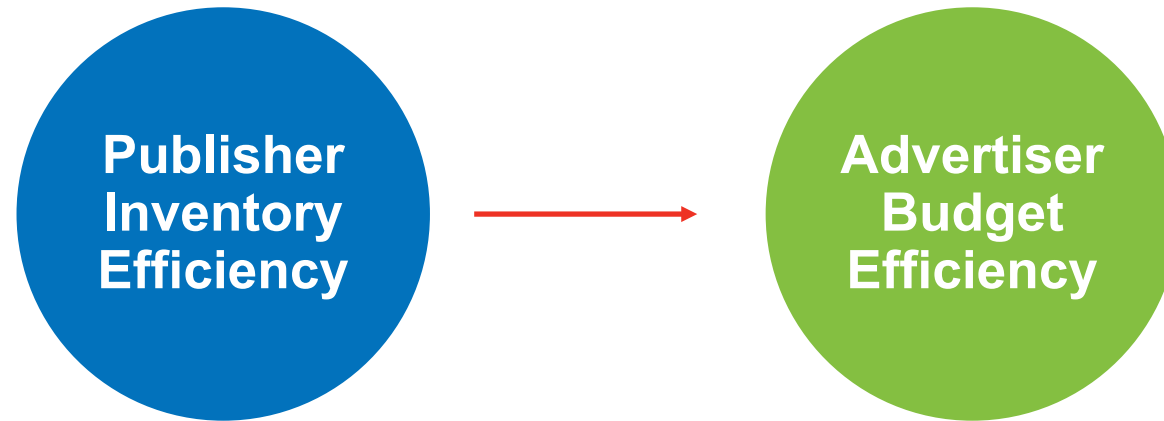
Source: Forrester Research, 2018

# Early Supply Chains Suffer from Inefficiency

Lost Inventory Increases Costs



# Inventory Efficiency Creates Budget Efficiency



# The Diffusion of Responsibility in Digital Advertising

Brands expect agencies to solve the transparency and ad waste issues. Agencies place the responsibility on publishers. Publishers place the responsibility on vendors and back on agencies. The “blame game” ensues.





## Smart Insertion Order Contracts

Create smart contracts with pre-defined terms setting criteria for “good” impressions that are viewable, brand-safe, or audience verified and not wasteful or fraudulent.



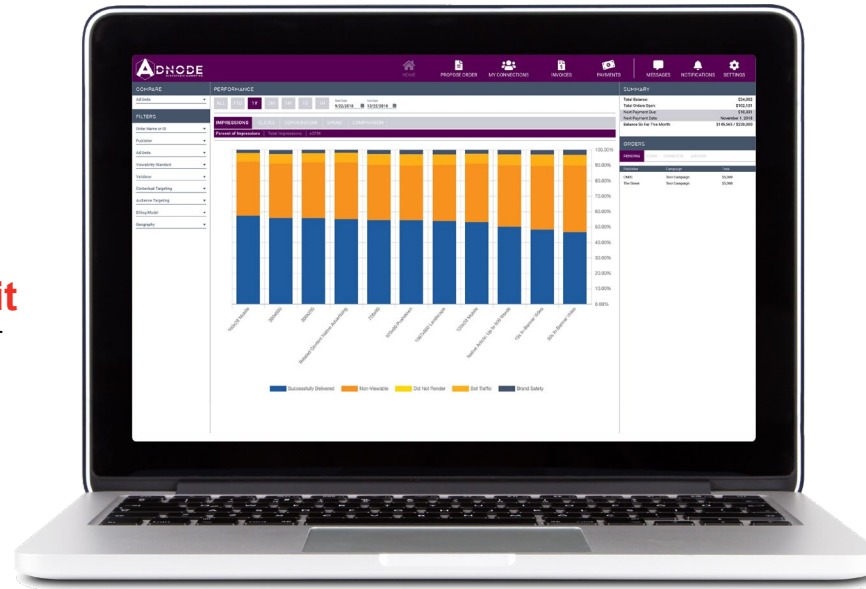
## Near Real-Time Verified Reporting & Audit

Benchmark performance and costs of ad units of publishers in near real-time to quickly verify outcomes and shift spending to more efficient programs.



## Automated Order Reconciliation

Invoices are automatically generated based on blockchain records including smart insertion orders and ad impression delivery reports verified by trusted, independent vendors.





## Efficiency

Buy conforming ad impressions at the best price based on near real-time independently verified data on the blockchain.



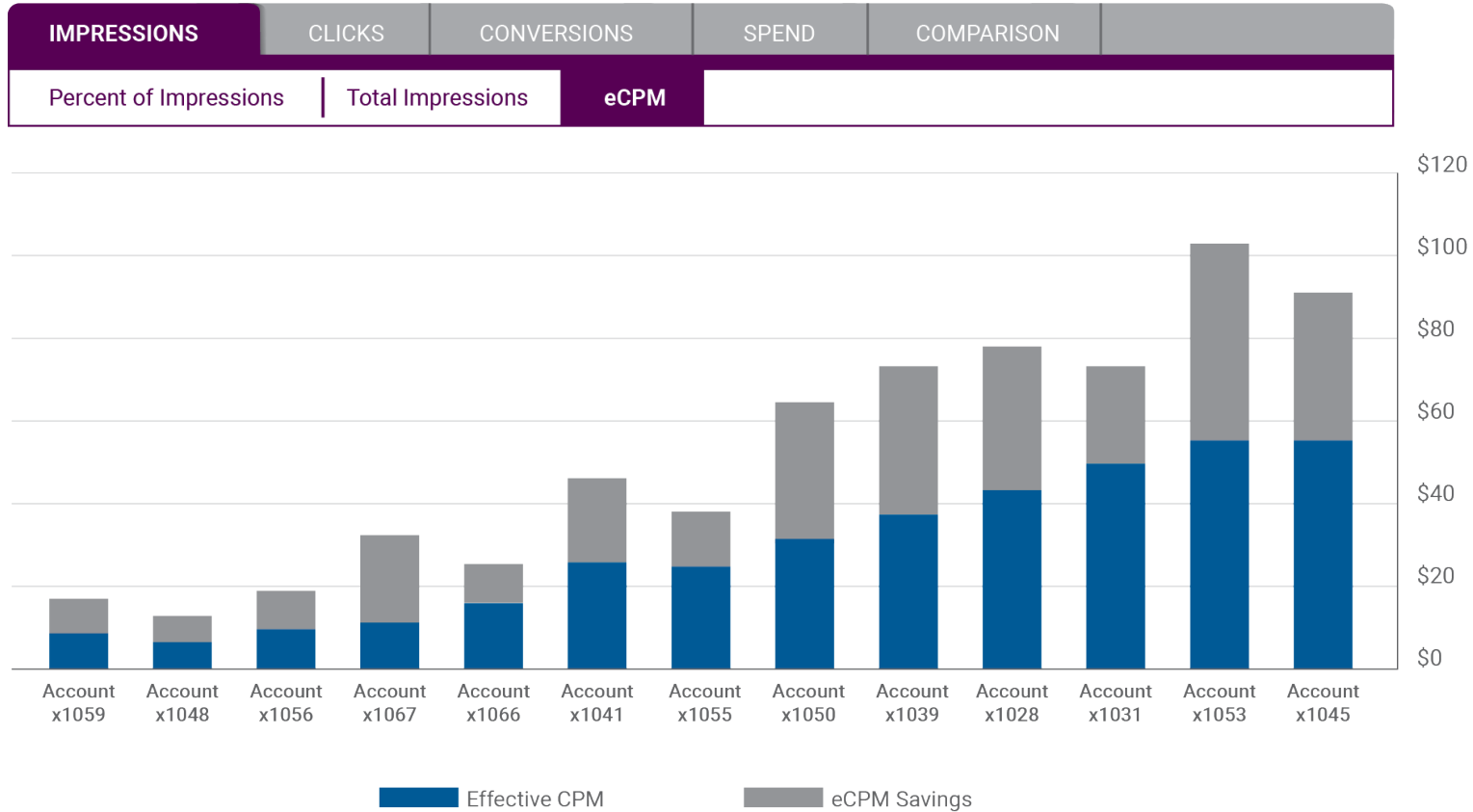
## Reconciliation

Invoices are automatically generated and final with blockchain-certified sales receipts attached.



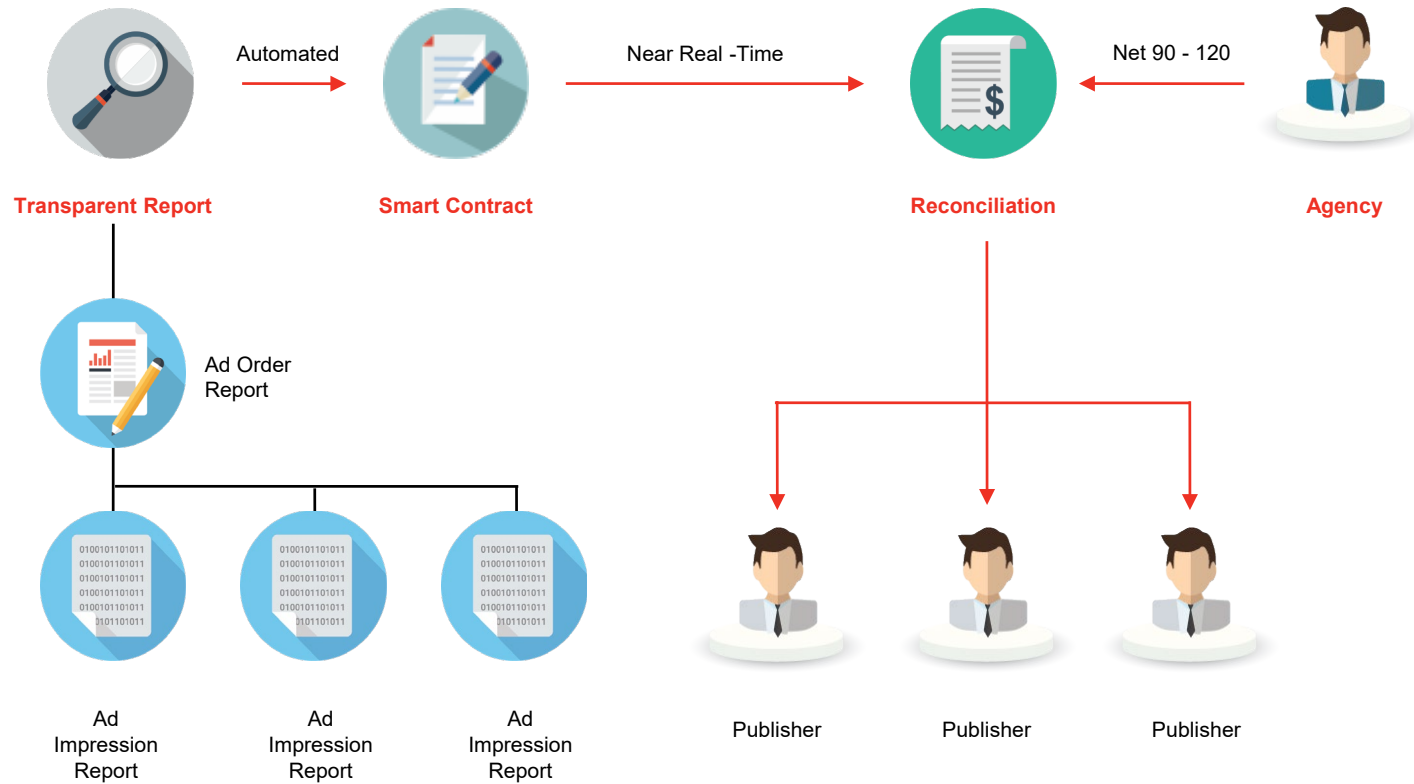
## Visibility

Provide transparency to advertisers that request view-ability, brand safety, audience and pacing data that is blockchain-certified.

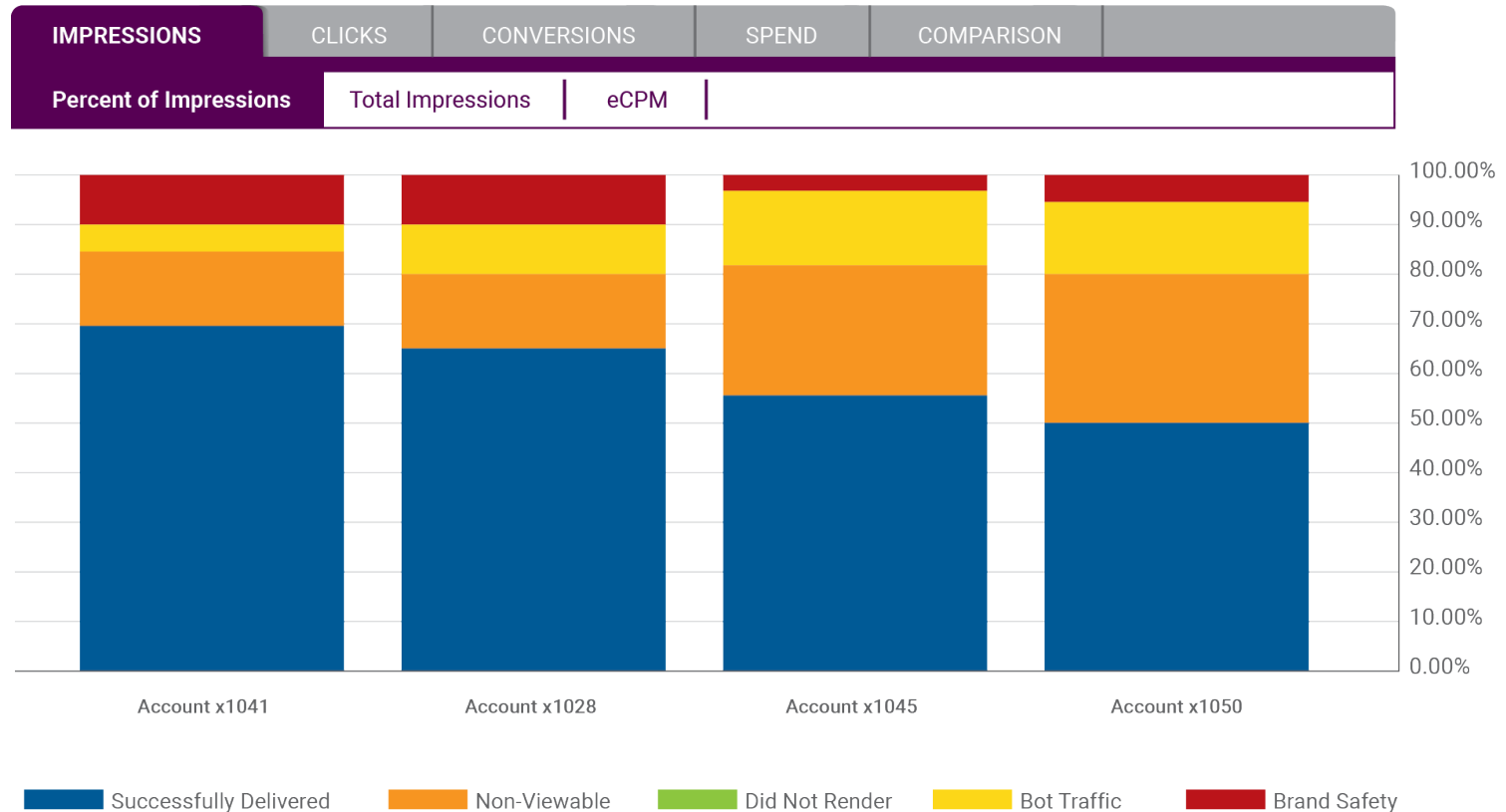




# Fully Automated Reconciliation: Floats Remain



# Insight: Identify Non-Billable Impressions in Near Real-Time





## Guaranteed Direct

- Fixed successful price
- One-to-one deals
- Guaranteed volumes



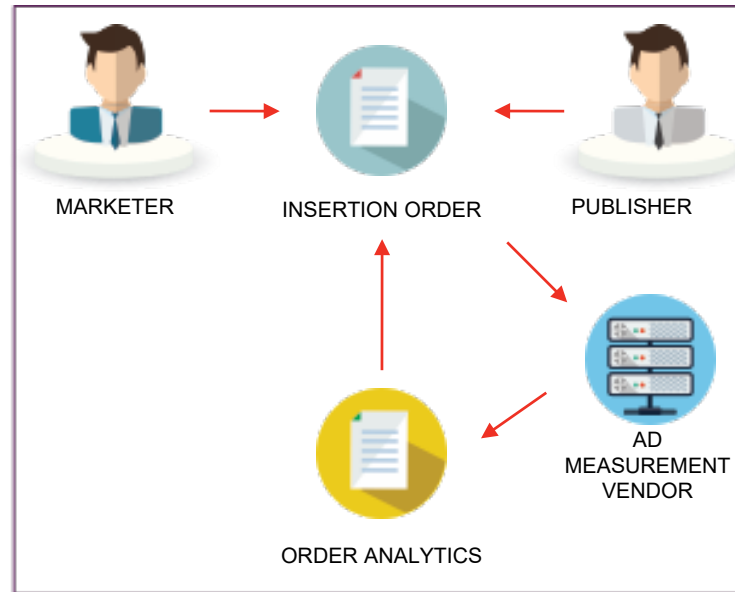
## Programmatic Preferred

- Fixed successful price
- Invitation-only deals
- Non-guaranteed volumes

# AdNode Guaranteed Direct Smart Contracts

1 Marketer and publisher agree to a success-based advertising order; select ad measurement companies

2 Publisher delivers advertising

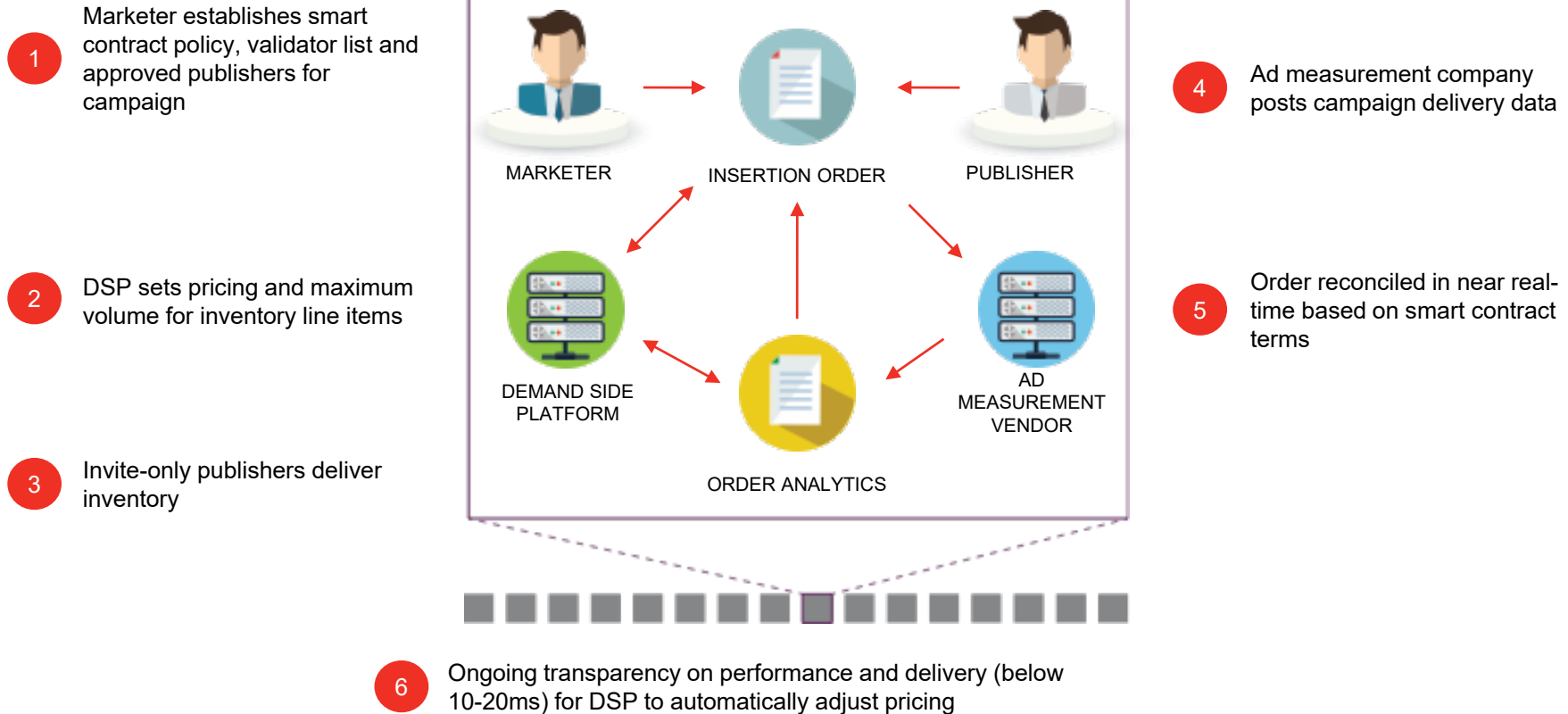


3 Ad measurement company posts campaign delivery data

4 Order reconciled in near real-time based on smart contract

5 Ongoing transparency on publisher performance across all campaigns for connections

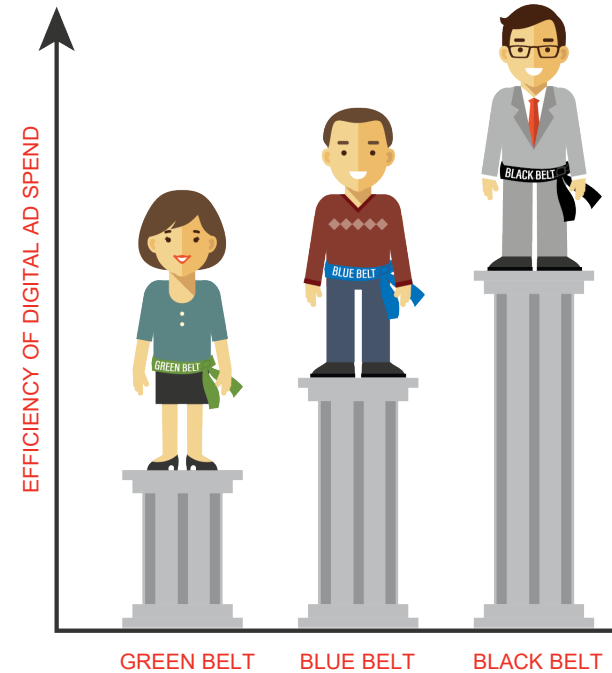
# AdNode Programmatic Preferred Smart Contracts



	AdNode
Platform: Easy-to-use Online Product and APIs	✓
Integrate Existing Ad Measurement Vendors and Publishers	✓
Customize Guaranteed Direct and Programmatic Preferred Programs	✓
Blockchain in the Background: No Crypto or Blockchain Knowledge Required	✓
Near Real-time Reporting: 15 Millisecond Data Rate	✓
Rapid Blockchain Validation: Consistently under 1 Second	✓
Scalable: Validates 1,500 Ad Impressions / Second / Server	✓
Easy Integrations: ETL Abstraction Layer	✓

# AdNode: More Good Impressions With Less Work

- Budget efficiency
- Operational efficiency
- Visibility





# Thank You!



CEO Contact Info:

**Michael Rodov**

Email: [mike@adnode.io](mailto:mike@adnode.io)

Phone: 646.209.5460

CTO Contact Info:

**Daniel Arnold**

Email: [daniel@adnode.io](mailto:daniel@adnode.io)

Phone: 646.932.5641



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# Efficiency in Reconciliation (Panel)



**Michael Palmer**  
Global VP, Emerging Tech  
GroupM  
**(Moderator)**



**Ivan Guzenko**  
Chief Executive Officer  
Smartyads



**LuRae Lumpkin**  
Chief Executive Officer  
Blockchain4Media



**Sam Goldberg**  
President & Co-Founder  
Lucidity



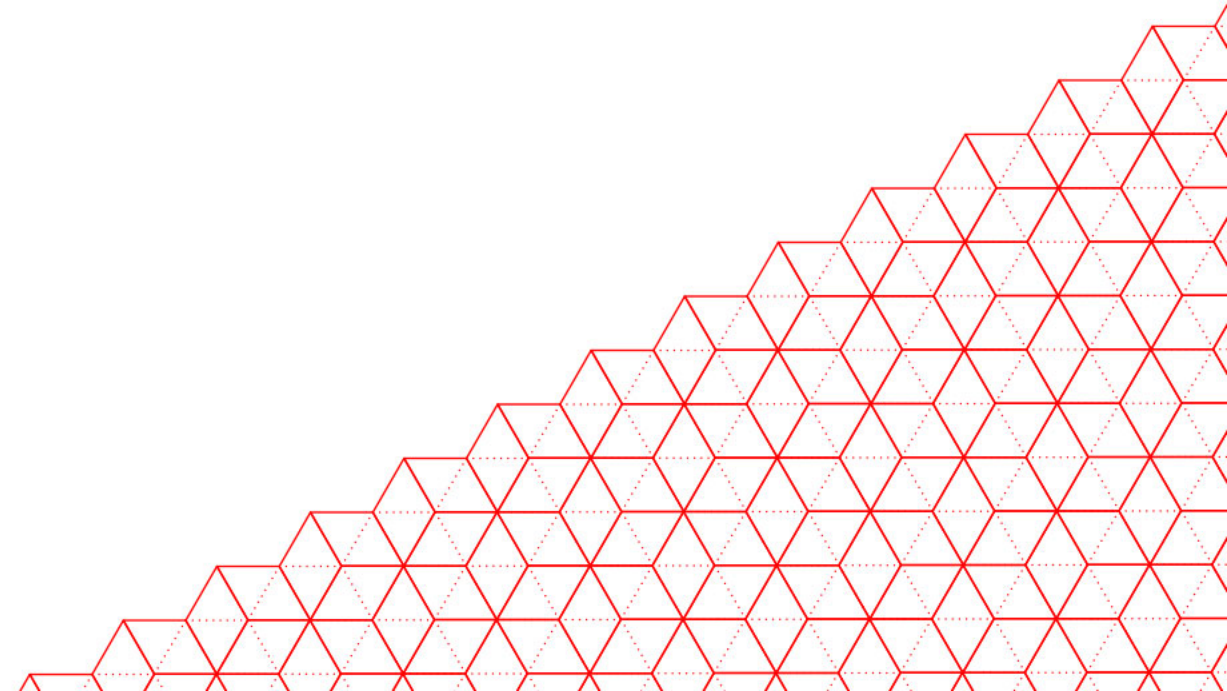
**Michael Rodov**  
Chief Executive Officer  
AdNode



**William Brannan**  
**Counsel**  
**Lowenstein Sandler LLP**

# The Evolving Regulatory Landscape of Digital Assets

**Where do we stand?**



- **The SEC recently provided regulatory guidance concerning digital assets via:**
  - **A framework for determining when a digital asset is a security under the Howey “Investment Contract” analysis; and**
  - **A No-Action Letter for TurnKey Jet, Inc. where the SEC determined a particular token offering was not an offering of a security.**
- **Despite this recent guidance there are other regulatory issues and concerns, including:**
  - **Status of a bitcoin exchange traded fund (ETF);**
  - **Guidance on the custody of digital assets and broker-dealers; and**
  - **The Token Taxonomy Act.**

**On April 3<sup>rd</sup>, the SEC provided guidance, via two documents, that provided more insight into the intersection of digital assets and the U.S. securities laws:**

- 1. The “*Framework for ‘Investment Contract’ Analysis of Digital Assets*” ; and**
- 2. The “*TurnKey Jet, Inc. No-Action letter*”.**
  - **TurnKey Jet, Inc., a jet-leasing company, wished to sell a digital token that would provide consumers access to charter flights without filing for securities registration.**

**Previous guidance by the SEC was given primarily through speeches, vague statements, and enforcement settlements.**

**Both of these items provide the most substantive guidance to date regarding the view of the SEC on digital assets.**

## The Framework for “Investment Contract” Analysis of Digital Assets

The Framework applies the investment contract aspect of the *Howey Test* to digital assets to determine when they should be considered a security.

An investment contract is: the investment of money in a common enterprise with a reasonable expectation of profits to be derived from the efforts of others.

Divided into three parts:

1. **Investment of Money**: An asset is purchased/acquired in exchange for value;
2. **Common Enterprise**: Fortunes of the purchasers and promoters are linked; and
3. **Profits**: Is there a Reasonable expectation of profits from efforts of others.
  1. Two subparts: (1) *reliance on efforts of others* and (2) *reasonable expectation of profits*.

**Two questions to consider for reliance on the efforts of others:**

- 1. Did the purchaser of the digital asset reasonably rely upon the efforts of an “Active Participant” (“AP”) typically a promoter, sponsor, or other third party?**
- 2. Were efforts of the AP *significant* (essential managerial efforts affecting the success or failure of the enterprise), for example:**

**Profit - capital appreciation of the digital assets resulting from the development of the investment or enterprise. Price appreciation that results solely from external market forces is not generally considered profit.**

**Other factors to determine when there is an expectation of profit:**

- **Is the digital asset transferable or traded on a secondary market or platform.**
- **Is the digital asset offered to potential purchasers or expected users.**



**The SEC also noted the importance of the economic realities of the digital assets and provided factors that would make it less likely the digital asset would be considered an investment contract:**

- **When the network and digital asset are fully developed and operational.**
- **Where the digital asset can be used for its intended functionality.**
- **The digital asset can immediately be used to make payments or act as a substitute for real (or fiat) currency.**
- **The digital asset can be redeemed within a developed network or platform to acquire or otherwise use those goods or services.**

## TurnKey Jet, Inc. No Action Letter

**A No-Action Letter is written by the SEC indicating that it will not recommend legal action should the entity requesting the letter engage in a proposed course of action. For TurnKey Jet, Inc. ("TKJ") the SEC stated they would not recommend enforcement action if it offered its "Tokens" under the following circumstances:**

- **No funds from the sale of TKJ Tokens are used to develop its platform, network or app.**
- **TKJ Tokens are immediately usable at the time of sale.**
- **Transfers of TKJ Tokens are restricted to TKJ wallets only.**
- **The price is set to one U.S Dollar per TKJ Token.**
- **Any repurchases by TKJ would be at a discount.**
- **TKJ's marketing would emphasize the functionality of the TKJ token.**

**The letter is particular only to TKJ but it, along with the Framework, set forth the SEC's focus on whether a digital asset is an investment contract.**

## Bitcoin ETF approval

Thus far no ETF proposal has received SEC approval. In prior rejections the SEC's focus has been on:

- **Preventing fraudulent and manipulative practices including:**
  - **The lack of transparency within the market, the volatile price history of bitcoin, fraudulent ICOs, and the lack of spot exchange surveillance-sharing agreements or independent surveillance procedures.**
  - **The relatively small market size and lack of liquidity in the market, which could lead to manipulation of the price.**

## Custody and Broker Dealer Registration

The proper custody of digital assets is a large concern of the SEC and FINRA yet neither have issued any meaningful guidance on how they expect custodians to properly maintain custody of digital assets or registration requirements. Recently the SEC posed the following questions to interested parties:

- **What are the compliance challenges with the “Custody Rule” and digital assets.**
- **How should concerns about misappropriation of digital assets be addressed?**
- **What is the settlement process and potential risks of P2P digital asset transactions?**
- **Can decentralized ledger technology be used for ownership of securities?**

# Broker-Dealer Custody Issues

**The issue around the custody of digital assets is as follows:**

**While broker-dealers can verify they have access to particular digital assets they have difficulty proving that no one else can access the holdings (i.e., no one else has the private key).**

**“Possession and control” is difficult to demonstrate with digital assets as whoever possesses the private key can access the tokens and it is hard to prove a negative.**

**Until the SEC provides meaningful guidance on custody of digital assets there will be a hesitation from interested parties and from FINRA to approve intermediaries and digital asset focused broker-dealers.**

**Despite this lack of guidance, the SEC has stated an entity facilitating the issuance of “digital asset securities” (through ICOs and secondary trading) may be acting as a broker-dealer and subject to registration.**

**This was highlighted in the SEC’s TokenLot order (9/11/18).**

- **TokenLot, a self-described ICO superstore, allowed the purchase of digital assets, during or after an ICO.**
- **Its activities included the marketing and facilitating the sale of digital assets, accepting orders and funds for payment, and enabling the disbursement of proceeds.**
- **Further, they received compensation based on a percentage of the proceeds raised in the ICOs. The SEC determined that TokenLot acted as an unregistered broker-dealer and had to pay fines and penalties.**

## Token Taxonomy Act of 2019

Reintroduced to the U.S. House on April 9<sup>th</sup> the Token Taxonomy Act would, among other provisions:

- **Remove digital tokens from the SEC's jurisdiction under specific conditions.**
  - **But allows the SEC to stop transactions that the agency determines involve the sale of securities.**
- **Preempt state law providing a national framework for the treatment of digital assets.**
- **Exempts from taxation gains of \$600 or less stemming from the sale of digital assets and removes tax for exchanging one virtual currency for another.**

## Thoughts:

- **However, there are concerns about the broad exemption the Act provides for and the Act still needs robust input from regulators and market participants.**
- **Despite its shortcomings the Act properly identifies the issues facing digital assets and provides a good starting point for how to think on these issues.**

**While progress is being made in the regulatory framework and treatment of digital assets more clarity and input is needed on specific regulations including the custody of digital assets.**

**Without guidance from regulators or lawmakers interested parties will continue to stay on the sidelines hindering the growth of the market and thus adoption and acceptance of products like a bitcoin ETF.**



# Cryptography in Ad Tech (Panel)



**Miguel Morales**  
**CTO & Co-Founder**  
**Lucidity**  
**(Moderator)**



**Daniel Arnold**  
**Chief Technology Officer**  
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**Neil Sweeney**  
**Founder & CEO**  
**Freckle**

**ADTECH IN BLOCKCHAIN: IT'S WORKING!**

**THANK YOU!**