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CROP.network: Blockchain based, High Load Ad Platform

Executive Summary

There is market demand for a next-generation transparent Ad platform which eliminates middlemen, improves ad relevance and conversion rates, and meets the latest privacy protection regulations.

Objectives

CROP.network requirements:

- high-load Ad Platform
- process hundreds of millions of events every day
- provide integration of API libraries for websites and iOS/Android apps
- employ Artificial Intelligence algorithms to optimize conversion
- minimize time needed to select the most relevant ads for a particular user (max. 100-200 milliseconds)
- build payment circulations based on blockchain utility tokens
- protect user's private data and meet modern user privacy protection regulations
- prepare system for a smooth scale-up
- improve auction so that it considers various factors apart from bid value such as visitor's purchase history, similar conversions, user behavior, etc.
- create a scalable system, which adds new servers without changing architecture and components of the implementation

Solutions

Arkuda Solutions designed, implemented and deployed Ad Platform.

Blockchain:

- Stellar (www.stellar.org), which is based on utility tokens
- Escrow accounts
- Multi-signature support: important accounts require several digital signatures
- Scheduled transactions for a particular date and time
- Hardware wallets and signing process support
- Transaction time takes 1-3 seconds
- Blockchain transaction capacity is 1000-3000 transactions per second
- Transaction cost is 0.0000007 USD, approximately 14,000 transactions for 1 cent.
- Blockchain-based processing system' implementation took much less efforts comparing to the "traditional" approach

Back-End:

- Linux
- Node.JS
- ClickHouse
- Redis
- PostgreSQL
- Mongo DB
- Kafka
- Nginx

Front-End:

- Vue.JS
- Webpack
- Angulair.JS,
- HTML 5.0
- SASS
- CSS



www.arkudasolutions.com

Results:

CROP network Ad Platform

<https://crop.network>

The system can process tens of millions of events per day with a low hardware load.

Auction is completed in several milliseconds. A performed auction is based on user's behavior, similar conversion history, behavioral patterns, and user's properties and interests.

User data is stored as salted hashes, meaning that the system does recognize the user, but the data is protected and cannot be compromised.

Significantly decreased development critical path, and saved development efforts.

Scope of Work:

- Analysis of the requirements
- Design
- Implementation (iterative scrum-based approach)
- Testing
- Deployment with continuous integration