



## **White Paper**



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## **Adherence to All Legal and Regulatory Standards**

*Buying crypto tokens has a high level of risk, including but not limited to those listed below. Before purchasing Santa Tokens, participants should carefully consider the following risk factors detailed herein:*

The objective of this White Paper is to introduce potential token holders to Santa Browser and Santa Token in connection with the upcoming Token sale. The information provided here is not complete and does not imply the existence of any contractual obligations. Its main aim is to give relevant and appropriate information to prospective token holders in order to let them decide whether to do an in-depth research of the firm with the intent of acquiring Santa Tokens. Nothing in this White Paper will be construed as a prospectus or investment solicitation, nor shall it be construed as an offering or solicitation of an offer to purchase securities in any country. This material has not been prepared in compliance with, and is not subject to, any jurisdiction's rules or regulations aimed at protecting investors.

Santa Tokens are both a utility token and the ecosystem's native token. This product is not a security, commodity, or other type of financial instrument and has not been registered under the Securities Act, any state's securities laws, or the securities laws of any other country, including the securities laws of any jurisdiction in which a potential token holder resides. Santa Tokens cannot be used for any purpose other than those set forth in the White Paper, including but not limited to investment, speculation, or other financial purposes. Santa Tokens are not intended for sale or use in any jurisdiction where digital tokens are prohibited for sale or use. Santa Tokens do not confer any other rights, including but not limited to ownership, distribution (including but not limited to profit), redemption, liquidation, proprietary (including all forms of intellectual property), or other financial or legal rights, except



as expressly described in the White Paper. Several of the statements, estimates, and financial data contained in this White Paper are forward-looking statements or information. Such forward-looking statements or information involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from the estimates or implied or expressed results in such forward-looking statements or information. The White Paper can be customized to include additional details.

### **Value of Santa Tokens**

The value of Santa Tokens might fluctuate greatly after purchase for various reasons. The Santa browser Team cannot guarantee the Santa Token's value over time. The team is not liable for any change in the Token's value. To the extent that the Santa team is unable to control or properly foresee future economic, competitive, or market conditions, assumptions regarding future business decisions most of which are beyond the control of the Santa team and therefore difficult or impossible to accurately predict. Although the team feels their assumptions are acceptable, they may prove to be incorrect. As a reason, the Santa team cannot guarantee the accuracy of the forward-looking statements in this White Paper. Achieving the aims and ambitions of the Santa browser project is not guaranteed due to the major risks inherent in forward-looking statements.

### **Regulatory Risks**

In some jurisdictions, blockchain technology, including but not limited to the issuance of tokens, may be a novel concept, which may result in the application of existing regulations or the introduction of new regulations governing Blockchain technology-based applications, which may conflict with the Santa Token concept.



This could result in significant changes, including the termination of the service and the loss of Santa Tokens, as well as the suspension or termination of all Santa Token functions.

### **Taxes**

It is possible that holders of Santa tokens will have to pay taxes on their transactions. Token holders are solely responsible for adhering to local tax regulations and making any corresponding payments in the countries.

### **Force Majeure**

Due to force majeure, Santa Token's performance may be interrupted, suspended, or postponed. For the purposes of this White Paper, "force majeure" refers to unusual events and situations that the Santa browser ecosystem could not have averted, as well as other conditions beyond its control that did not exist at the time of the Token sale.

### **Information Disclosure**

Information regarding Santa token holders, such as the quantity of tokens owned, the wallet addresses used, and any other relevant personal information, may be released to government authorities, law enforcement agents and other third parties as required by law, subpoena, or court order. Santa shall in no way be held liable for the release of such information.



## Abstract

The rise & evolution of the internet has been a turning point for the world. Profoundly impacting how people, culture and businesses come together. It disassembled a monopoly on information previously held by the gatekeepers of news, radio & TV. A web browser and an internet connection now meant that the entire world was just a click away. With barely a barrier to broadcast yourself or simply tune in, information & ideas could flow free & autonomous.

At least this was the promise, which was achieved to some extent. As the internet matured, the monopolistic unfairness of older mediums once again crept back in. This time taking on a different form - normalizing surveillance, fraud, interruption & user exploitation. Users unknowingly gave away the entirety of their privacy to a digital economy based around collecting and selling their data. Billions have been made in targeted advertising revenues. All without any clear consent or fair share for the users whose data made it possible. Every major government, though not for lack of trying, is baffled for an answer. The opaqueness and sovereignty of the platforms in control have kept their position firmly secured.

However, this may not be the case indefinitely. The recent emergence of a new wave of thought, surrounding DAOs, completely restructures the way we look at organizations & governance as a whole. As decentralized networks & applications built on block chain technologies further advance into development, we have the makings of a viable answer. Aptly named Web 3.0, this next step in the internet's evolution is committed to a new digital economy. One which is open, transparent and closer to the original ideals of the internet.



We seek to catalyze this movement with Santa. Created with the vision of a democratized digital world, Santa will bring back full data ownership for all users and fairness for all parties participating within a decentralized economy.

We strongly believe user privacy needs to not just be respected but resolutely protected. Hence, Santa's self-serve ad-platform delivers highly relevant campaigns to users without any compromise on their privacy. By cutting out the need for the 'digital-middlemen' of yesteryears, Santa will pass those ad revenues back to users instead. Finally giving user time & attention the due value & consideration deserved. Additionally, our reward systems are designed to give users progressive benefits for repeatedly interacting with those parts of the internet which they love most. For users, this means every engagement is sweeter (instead of intrusive, irrelevant or frustrating). For advertisers, this results in more meaningful interactions with a user base holding a high LTV (lifetime value). As users have complete control over every aspect of their digital life, participation within any of the aforementioned systems is entirely optional.

Santa boldly aims **to embed transparency & excitement in the macro as well as the micro of the internet.** While our goals may be ambitious, we see endless potential in the many applications of web3 & the Santa ecosystem.

This whitepaper entails our efforts in building this new age internet experience of jolly good browsing.



## Introduction

With billions of people worldwide having some form of access to technology, about half of the world's population browses the web everyday. The internet has become a core part of the modern human experience. While it has mostly remained a universal and free environment for information, the majority of its 'social vein' & newer evolutions (Web 2.0) have been monopolized by a handful of tech giants.

A tool with the capacity of empowering people across the globe instead became a means of mass data mining & exploitation. Enormous inequities evidently persist in all sectors, both locally and internationally. Users are subjected to a variety of ill intentioned behaviors on a daily basis (spam, ads, pop-ups, clickbaits, malware, phishing, identity theft... the list is endless). Politically, the internet has been repeatedly misused as a device of mass surveillance, manipulation and crackdowns on dissenting voices. Users are increasingly concerned about their privacy and how their information is collected and exploited.

The majority think that their personal data is less safe now than ever. That this pervasive system of data collection carries more threats than benefits, and that it is impossible to live without being tracked. Moreover, users do not receive any fair share of profits for their information or contributions. Even with a budding global creator economy, centralized platforms continually take advantage of the creative & technical abilities of their users. Digital monopolists have generated billions through data harvested & sold without any real consent..

One of the most compelling arguments for the internet was that it would increase economic efficiency, growth, and competitiveness. It was intended to let new players,





particularly small enterprises and young entrepreneurs, enter the game and compete with more established organizations and businesses by allowing them to circumvent the barriers to entry that kept them away from customers and markets. Additionally, it was viewed as the location where consumers would obtain increased choice, lower prices, better services and general influence over businesses. Unfortunately, none of this has come to pass in any meaningful way. One of the greatest ironies of the internet is that it has become the largest producer of economic monopoly ever known in any economic system.

If humanity does not undergo a dramatic paradigm shift soon, the internet will mostly be remembered as a squandered opportunity. The lost foundational piece of an almost-utopian world. One with a radically inclusive civilization in which networked communities can actively shape their common future. A society with a reinforced social fabric where anyone can freely connect & share their thoughts, works & ideas while receiving fair credit & remuneration for their contributions. All in a digital economy where control is equitably distributed amongst every stakeholder.

At present, the internet is incredibly far from this reality. It goes without saying that there's a lot of work to be put in, but the path ahead is clear. The world is pivoting, slowly yet inevitably, towards **Web 3.0 (an internet powered by blockchain technologies)**.

As the acceptance and use of these technologies rapidly increase, we believe the bridge to this future is a simplified access layer that allows users to safely & easily explore all the possibilities of Web 3.0 across various blockchains. Or in simpler terms, **A decentralized web browser for the emerging crypto world.**



## Overview Of The Current Browser Landscape

### The Monopoly

*“Just as people can call each other no matter which telephone provider they belong to, just as email allows people to send messages to each other irrespective of their email provider, and just as the Web allows links to any website, so the Social Web should allow people to create networks of relationships across the entire Web, while giving people the ability to control their own privacy and data.”*

**~ “A Standards-based, Open and Privacy-aware Social Web”, W3C Incubator Group Report**

W3C envisioned a Social Web, commonly known as Web 2.0, that allows people to create networks of relationships across platforms while giving them autonomy over their data and privacy. This vision paved the way for online social networks to enter the Web 2.0 landscape with the promise of offering browser-based rich user experiences on par with the contemporary desktop experience, for social networking and secure interactions. Unfortunately, despite all its advancements, Web 2.0 is grossly misaligned with this ideology.

Rather than creating fair environments for competitive marketplaces with more or less equally distributed market shares, the internet has accomplished the reverse, owing to network economics. Essentially a paradigm of winner-takes-all, once someone achieves the first position, everyone has a strong incentive to utilize that service (whether a search engine, game or social network) because human tendency makes us want to be on the same network as everyone else. Hence, the services with a lot of users get a steady supply of even more, and the network effects result in what is known as a natural monopoly.



Web users joined these networking services in droves and resorted to voluntary information sharing which drove their interactions and networking potential with other users. Big Tech online social networks monopolizing this sector constantly encouraged individuals to reveal more and more about their Personally Identifiable Information (PII) to make their profile more 'complete' in order to have unambiguous networking.

Although this gave an illusion of privacy, complexities quickly arose when users were faced with a plethora of such networking services, each specializing in different dimensions of their lives (professional, social, or personal). With the advent of Web Service APIs for machine to machine interoperability, a new breed of mashup services now had the liberty to pull and mash PII data ignoring the varying degrees of privacy settings across these services. For instance, data deemed confidential in one service gets classified as public in another. End users quickly lose track of their declared personal data and privacy control due to this inter-service percolation.

## Trackers

Adding to this complexity, most ubiquitous web browsers completely fail to offer people any real control over their privacy and data. End users are presented with lengthy, vague and dubious consent frameworks that users deal with in the same manner as an annoying pop up. These highly diluted privacy documents with hidden caveats are swiftly consented to and dismissed. Users are unaware of the fact that what follows is a myriad of third party cookies and super cookies parking themselves within the browser only to continuously profile and transmit their browsing behavior and 'consented' personal information across the web.



An equally harmful technique is browser fingerprinting where entities try to identify users uniquely by the information transmitted over their request headers and also with the help of JavaScript code.

The following is a partial *list* of information that can be extracted using fingerprinting:- User Agent, User Agent, HTTP\_ACCEPT headers, Browser Plugins, Timezone Offset, Time Zone, Screen size and color depth, system fonts, whether cookies and super cookies are enabled, html5 canvas, WebGL, WebGL vendor and renderer, whether do not track is enabled, language, platform, touch support, ad blocker usage, audio context, cpu class, hardware concurrency, and device memory.

## User Data Exploitation

Motivated by the ever-growing digital advertising budgets and an entire ad-tech landscape awaiting to claim their own share of voice in it – browsers, publishers and advertisers have reduced the end users to mere advertising targets who get continuously profiled and eventually either convert on their own or followed incessantly until they convert.

Advertiser's budgets get entirely distributed amongst the various ad tech intermediaries, and whatever remains reaches the publishers leaving the end users with absolutely no incentive for their participation, while the entire industry spins around targeting the 'right audience' based on data gleaned from customers.

In summary, interconnecting people the Web 2.0 way has resulted in:



- End user browsers are bloated with harmful junk tracking code violating end user privacy and concealing the performance burdens behind the ever-increasing processor capabilities of modern computers.
- Publishers saturate their content inventories with monetization units to make the most and stay competitive, leading to unpleasant browsing experiences for users.
- Advertisers partner with a host of ad tech companies that constantly profile, mashup and distribute PII information in the name of targeted advertising ignoring end user privacy.
- Most importantly, end users keep getting the short end of the stick. They are perennially left out of the marketing economics after powering the entire advertising industry and enduring continuous violation of their right to privacy.

We've gone full circle and are back to square one. The initial aspirations still remain unmet - *'creating a network of relationships across the web while giving people the ability to control their own privacy and data.'*



## Introducing the Santa Ecosystem

### Browse-2-Earn (B2E)

*The Online Advertising Market is expected to grow at a CAGR of 14.3% over the forecast period (2021 - 2026) with the global ad spend on digital advertising sitting at approximately 450BN for 2021*

The current business practices of ad monetization are wholly unfair. The primary focus is to squeeze the most out of users by exploiting their data (behavioral) without any incentivization of their ad interactions. The whole paradigm is skewed to the benefit of only the advertiser/affiliate networks and the publisher. Users have retorted with mass adoption of ad blocking plug-ins and softwares, increasing the number of obstacles between brands & audiences.

There are a lot of flaws in the current model like

- The lack of transparency: Google had to force users to use ads.txt to help buyers identify counterfeit inventory and help publishers receive more advertiser spend that might have otherwise gone towards that counterfeit inventory.
- Bot clicks & Fraudulent traffic: Since the pot of gold is quite big there are a lot of bad actors trying to generate impressions/clicks to deplete brand budgets
- Data Privacy: Users data is exploited (Third party) and shared to build audience segments without the consent of the user.

A core element of Santa's new-age internet experience is Browse-2-Earn (or B2E), a novel advertising model that seeks to reframe the digital marketing space.



Promoting clear consent & fair value exchange, B2E eliminates the middlemen by directly connecting brands & agencies with their audiences. Most of the time these middlemen are ad-networks that serve the purpose of connecting supply (publisher and publisher inventory aggregators) with demand (advertisers/agencies and demand aggregators).

With B2E, revenues presently captured by centralized platforms & middlemen networks can instead be redistributed to the users whose data & attention it was generated with. Users can earn rewards simply for watching ADs, clicking sponsored links and other familiar non-intrusive interactions they come across in their regular browsing sessions. Additionally, participation in all that B2E has to offer is entirely optional.

Despite abandoning the exploitative practices of web 2.0, Santa will maintain and possibly supersede the relevancy of ads offered to users today. This will be accomplished with our patentable self-serve ad platform which facilitates complete privacy in a completely transparent network. Taking a direct approach also helps us bring in accountability & measurability to the entire ecosystem.

Santa will be the first consumer-direct self-serve ad platform. We see this enablement of attention monetization coupled with user data sovereignty, being the unlock for a global economy sustained by unimpositive, unobtrusive & purely voluntary advertising. An economy that is not just mindful of user time & attention but generously rewards it.



## Types of user incentives

- **Autocomplete Recommendation:** A feature where we'll be saving users money while paying them to shop online by finding discounts & cashback offers for desired products from a range of retailers.

Based on their searched keywords, whenever cash back incentives are available for products users want, they'll receive a notification. If they choose to take advantage of the opportunity, their cash back reward will be deposited in their wallet.

- **Search Feed:** Being Search syndication partners, we help monetize search intent traffic with the right feed. The earnings from search monetization will be passed back to the users in Santa Tokens
- **eCommerce:** Our plugins on major platforms have been built with the task of getting the best deals for users. Furthermore, commissions on conversions will also be passed back to the users in Santa Tokens.
- **Ad monetization:** Our Direct Advertiser Relationships, Programmatic Partnerships and the Agency Trading Desk Relationships help us get the best value per user eyeball. The benefits gained through these relationships will be passed directly back to users. Awarding them Santa Tokens whenever they interact with Ads.
- **Usage Rewards:** Users will gain progressive rewards for repeat spends & interactions with their favorite brands & creators.





- **Referrals:** Like any referral program, Santa will reward those who bring in new users into the ecosystem. The only exception would be that their rewards would be directly deposited into their wallet, in the form of tokens.

## Data privacy

The Santa Browser ecosystem is built with end user privacy as its foremost architectural and business mission. The ecosystem comprises two main components namely the Browser and the Platform.

### Browser

A fast and secure thin client that is hosted and distributed by Santabrowser for end users to install on their devices and browse the internet.

- The browser is built on top of the [open source Chromium](#) project. It is a modern multi-process browser that isolates web programs and modularizes their execution. Each concurrent web program is assigned an individual operating system process thus overcoming all performance drawbacks of a monolithic architecture. This allows complex web pages to be rendered in a fast and secure manner.
- Although forked out of Chromium, we have further sanitized the browser from a wide range of privacy harming features inherent in the Chromium build.
- Users have absolute control over their participation in advertising through the Consent Control framework. Users can specify their consent to participate in the rewards program and their ad preferences such as maximum number of ads within a specific duration and what type of ads they wish to be presented with.
- The browser by default blocks all tracking scripts by harnessing the tracking protection lists provided by projects such as [uBlock](#). In addition Santa browser randomizes browser's fingerprint to thwart attempts to uniquely identify users based on their request headers and other scripts. All third party cookies and storage are blocked by default in the Santa browser.



- User interests are studied in-browser based on browsing history and any supporting machine-learning models and advertising campaigns are imported into the browser and never transmitted out of the browser.

Besides these, Santa browser continues to research and implement privacy preserving measures to stay committed in protecting end user privacy.

## Platform

A web-based backend component that allows Advertisers to book and manage their campaigns and Santabrowser administrators to manage the entire platform operations. The Browser and the backend Platform use encrypted communication extensively and follow a zero knowledge protocol as described below to interchange just enough information required for proving the interaction.

- Advertisers create Campaigns using the Campaign Manager and transfer funds corresponding to the campaign budget to an Escrow account using a payment gateway.
- A Campaign is a catalog of 'n' Ads ( $A_1, A_2 \dots A_n$ ) with an agreed upon Yield for each Ad. Yield is the amount an Advertiser pays to Santa for each verified user interaction with their Ad.
- Once a Campaign is approved, the Campaign Manager creates an array of Yields corresponding to the catalog based on the rate card. ( $Y_1, Y_2 \dots Y_n$ ) represents the Yield corresponding to the Ads ( $A_1, A_2 \dots A_n$ ) in such a way that  $Y_i$  corresponds to the Yield for  $A_i$ .
- The Campaign Manager also creates an array of Rewards corresponding to the catalog based on the rate card. ( $R_1, R_2 \dots R_n$ ) represents the Rewards corresponding to the Ads ( $A_1, A_2 \dots A_n$ ) in such a way that  $R_i$  corresponds to the Reward for  $A_i$ .
- The Campaign Manager generates a public key (pk) – secret key (sk) pair and encrypts each item of the Yield and Rewards arrays using the public key.



These encrypted arrays are persisted as part of a Contract in Blockchain using the CARE (Crypto Amendments and Retrieval Engine) component.

- For each ad in the catalog, a counter array ( $C_1, C_2 \dots C_n$ ) is initialized with an encryption of the value zero using the same public key ( $pk$ ).  $C_i = E(0, pk)$ . This counter maintained at the ad level denotes the total number of user interactions with that particular ad.
- User downloads the catalog of ads ( $A_1, A_2 \dots A_n$ ) along with the public key ( $pk$ ). Once the in-browser Ad Server begins to serve, the browser creates an interaction array for each ad that the user interacts with ( $V_1, V_2 \dots V_n$ ). Each item in this interaction array is a binary value that either has the value zero or one. One indicates that the ad had an interaction. For example,  $(0, 1 \dots 0)$  indicates that the user had an interaction with the second ad in the catalog.
- Browser then encrypts each item of the interaction array using the same public key ( $pk$ ). Each item in the array is an encryption of either the value, one or zero. Aggregate of the items in the interaction vector is an encryption of the value one. Campaign Manager continues to increment the interaction counter against each ad, with corresponding values from the interaction array sent by the browser.
- At the end of the billing cycle, the Campaign Manager sends the aggregated counter array with encrypted items representing the total interactions against each ad to CARE. The Contract in Blockchain has the encrypted Yield array corresponding to this catalog. CARE executes the Contract in the Blockchain and identifies the total Yield by multiplying the scalars, Yield and Counter for each ad. This Yield value is returned by CARE to the Campaign Manager which then proceeds to invoice the Advertiser and settle any refunds applicable for the Advertiser through the payment gateway and Escrow account.
- Similarly, at the end of the billing cycle, Users send the aggregated encrypted interaction array across multiple catalogs to the Campaign Manager, which then forwards the same to CARE. The Contract in Blockchain has the encrypted Rewards array corresponding to different catalogs. CARE executes the

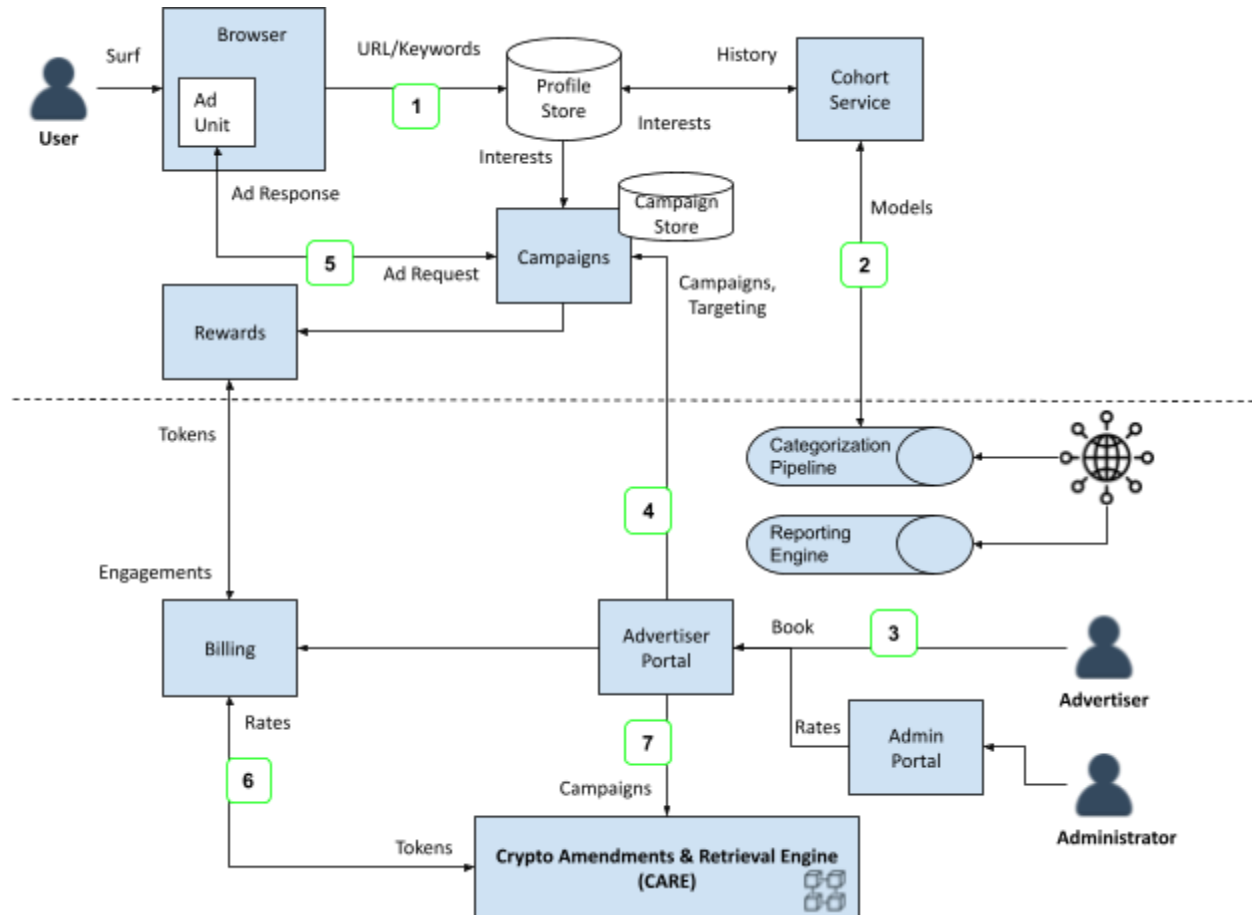


Contract in the Blockchain and identifies the total Rewards by multiplying the scalars, Rewards and Interactions for each ad. This Rewards value is returned by CARE to the Campaign Manager, which then proceeds to credit the corresponding tokens to User Wallets.



## Overview of Santa Browser's Technical Architecture

### Architecture



1. Users surfing the internet generate a browsing history of URLs visited and keywords searched that get added to their Profile Store in the browser.
2. The Categorization pipeline analyzes web URLs and generates a URL - Interests mapping model that is downloaded periodically by the browsers.
3. Advertisers use the Campaign Manager to book campaigns by selecting the Cohorts to target, specifying the budget, and agreeing to rate per ad.



4. Browser syncs the active campaigns and their metadata into its Campaign Store.
5. While engaging with the browser, Ad Units fire a request to the Campaigns service that in turn picks the best matching ad based on the targeted interests. Campaign Service intimates the interaction to the Rewards service for securely transmitting the interaction to the Platform.
6. Billing system computes the rewards to be credited to the User wallet at the end of every billing cycle.
7. Crypto Amendments & Retrieval Engine (CARE) is expected to handle translating the campaign agreement into a Smart Contract, User Token settlement and Accounts for Blockchain users.

## Browser Components

- A **Browser Core** component with integrated security and privacy modules and the following user functionalities: Dashboard, Settings, Search, Cards, News, Standard Built-ins.
- **Campaigns** component to sync the booked ads from the Platform and serve them to matching users based on User's interests and intent within their advertising preferences. Different Ad Units will be the touchpoints for Users to engage with privacy-preserving relevant ads.
- **Rewards** component to accumulate User engagement incentives and disburse tokens to the User wallet every billing cycle. Users are continuously appraised of their engagement and earnings through a reporting dashboard.
- **Cohorts component** to collaborate with the Platform's ML model and enrich User profiles based on their browsing and search history.



## Platform Components

1. **Advertiser Portal** for direct advertisers to book campaigns through the Campaign Manager by providing a budget and targeting criteria such as URL & Interests. Integrate with Payment Gateways for Advertisers to pay and complete their ad booking.
2. **Administration Portal** for centralized monitoring and management of entire Platform Operations. This includes campaign approval, advertiser account management, User rewards, System health monitors etc. Develop Rate Cards that provide a catalog of ad inventory and their rates.
3. **Categorization Pipeline** for continuously deriving URL - Interests mapping by classifying web URLs. These URL - Interests mappings can then be downloaded by browsers periodically to identify the interest categories of a particular web page User visits and then serve the matching ads. There are multiple approaches that can be employed to achieve this corpus of URL categorization:
  - a. Extract keywords from URLs and scrape/stem them in order to apply NLP Heuristics.
  - b. Use Classification Feeds that provide URL - Interests mapping.
  - c. Use semantic classifier services such as eContext.
4. Affiliate and Search API **Reporting Engine** to pull in campaign performance through third party APIs. Reporting consolidated data points and presenting a Dashboard for Advertisers to track their campaigns and Administrators to have platform-wide campaign analytics.
5. **Billing** to settle the tokens to be credited to the Users at the end of the billing cycle and arrive at the amount to be charged to Advertisers.