DAASL

White Paper

The shiny new dApps

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Introduction and motivation

In the early 2000's HTML/HTTP helped people see the ease with which a new class of applications could be made available. People with minimal programming experience were able to create rich applications that had global reach, and a gold rush began. Out of that development cycle grew an approach to delivering the new media to its audience: sponsorship. Web-based applications could deliver sophisticated content and services to global audiences "for free" because their audience's use of the app was sponsored by advertisement. Of course, what was really happening was that the audiences were as much the product being sold to advertisers as the applications were product to their users, ushering in a regime of surveillance capitalism where detailed information about users' online behavior is regularly harvested and sold to advertisers and other interests.

Over time a small number of these services held the lion's share of the market (the silicon six, as Sasha Baron Cohen calls them), centralizing critical information utilities in the hands of a few. Discomfort over this concentration of power, such as ownership of online identity, coupled with discomfort over privacy issues fueled a response both from the market and from regulators. By now, many understand blockchain's development in this context. It's not merely a decentralization of payment services. If it can be made to scale, it is a decentralization of data and compute services. Applications built on top of this decentralized platform can, in principle, decentralize all of the existing Web 2.0 services, from email and social media, to maps and location, to commerce and logistics, and beyond.

Such decentralized apps, or dApps, face unique challenges, however. Unlike Web 2.0 services, where payment services are effectively an afterthought, dApps must pay for all their blockchain related transactions. If they are using the chain for data storage and retrieval, as well as compute, then every user action causing such transactions incur fees due immediately. When compared to Web apps running on cloud services with monthly or quarterly reconciliation, the friction caused by this difference in business model is significant. Further, existing audiences have grown accustomed to not having to pay directly for Web 2.0 services. So, any attempt to pass these costs along to users directly will be an additional source of friction for dApp adoption.

This situation creates an obvious opportunity: develop an API whereby blockchain resources, i.e. data storage and retrieval, and the execution of smart contracts, can be paid for by the delivery of sponsored content to the end consumers of those resources. For a blockchain like RChain which is designed to be a data warehouse with sophisticated query and query planning capabilities, such an API sits as a thin layer just above the query mechanism. In a standard database the most fundamental data integrity contract is: what you put in is what you get out. Blockchain-based storage mechanisms don't change the data integrity principle, but add cost accounting: pay to put something into storage, and pay to get it out. This is exactly where the rub is. It means that a dApp has to have a ready supply of tokens to use the storage mechanism. This means, ultimately, the dApp must act as a broker for the user, or pass the costs on directly. Either option has consequences both legally and in terms of adoption.

If, however, the fundamental contract with clients is slightly modified, then this burden can be lifted in precisely the same way it is lifted in Web 2.0 applications, today. Specifically, the contract becomes: to retrieve what was stored, either: pay to get it out in exactly the same form it was stored; or don't pay, and get it back in a form that is peppered with sponsored content. This, in a nutshell, is precisely what DAASL does. It enriches the blockchain with a thin horizontal layer so that each dApp can offer its features without passing a direct cost on to the end users. This small shift, however, opens up an entirely new opportunity for dApp creators and dApp end users.

Mining the gap

The deal with the devil that the market has made with the silicon six is this: no one wants to maintain a bunch of servers in their basement on a 24/7 basis in order to have their data private. Instead, the average user lets companies like Google and Facebook take on the operational burden and the operational cost of running all these servers. In the bargain, the users allow themselves to be targeted with sponsored content based on what can be gleaned from their personal data, also freely given over. The delta between the operational cost and the advertising revenue these companies make is enormous. More than 80% of Alphabet's revenue (Google's parent company) comes from online advertising. In fact, online advertising is the largest economy in the world, surpassing oil.

Now, what blockchains like RChain do is tokenize the operational cost of the backend computational infrastructure, while simultaneously decentralizing it. This opens up the datacenter economies to many more participants in much the same way that Uber opens up the hired transport market to millions of individuals who do not work for taxi companies. *DAASL then tokenizes the sponsorship and advertising layer. Its APIs and algorithms manage the spread between the infrastructure tokens and the sponsorship tokens.* This shift is part of the same trend toward a sharing economy, but at the advertising layer. It expands the attention economy -- which in itself brought about massive platform adoption and engagement -- to an economic opportunity for dApps and end users that will bring about a new wave of platform adoption and engagement.

Profit sharing for end users

Social media has effectively replaced much of the print and broadcast services of earlier decades, and where it hasn't replaced them, it has forced them to remodel themselves in the image of social media. One thing social media left behind, however, was payment for the content creators and content curators. In the late 20th and early 21st century a writer or an editor for the New York Times could make relatively good wages. On Twitter and Facebook, content creators and curators earn precisely $0 for their efforts, except through sponsorship and monetization. While Facebook earns billions in profit per quarter from ad revenue, the people who generate and curate the content earn nothing, despite being the very source of what attracts the audiences to whom those ads are shown.

In the tokenized version of sponsorship DAASL contemplates, nothing prevents dApp users from sharing in ad revenue profits. Obviously, there is a cost associated with each user for their use of a dApp. After this cost has been defrayed though, there is every reason to include end users in a share of the ad revenue. This strategy is considerably more than a user adoption gimmick. It becomes the basis of a much more effective and much more powerful advertisement model.

Empowerment Advertising and Sponsorship

The rise of a new economy

As Shoshana Zuboff's exhaustively researched book "The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power" points out, Surveillance Capitalism represents a new economy. This new economy resulted in creating and growing the largest companies in the world over the last decade and a half.

In the first 10 or so years of the web, between 1990 and 2001, much speculative money was spent on the seemingly limitless cornucopia of ideas around how the web would revolutionize

our lives. Yet the vast majority of these ideas didn't have a solid business model and were built largely on fruitless speculation that resulted in the dot com boom and bust of 2000 – 2001.

Then advertising matured its way onto the web and allowed a pathway for the world's largest companies to emerge by profiting from internet usage. By allowing users to download and utilize their software, supposedly free of charge, the surveillance capitalists created an environment where we happily clicked "ok" to EULA's that transferred ownership of our data to their company silos. That wasn't the only thing that was transferred. The era that we are in right now amounted to the greatest and most rapid transfer of wealth in human history. Like the oil era that preceded it, this new economy is plundering a natural resource, but this time the resource is us. And, like the oil industry, this plundering has consequences.

The boom, the bust, the rise of the Phoenix out of the ashes

Some compare the current time in blockchain's evolution to those early years of the web. Over the last decade or so, we have seen the rise of thousands of blockchain projects, all based around the idea that they will somehow generate massive income once their technology can be properly presented.

But the vast majority of these projects do not have a sound business model outside of rabid speculation around token price.

In short, when comparing the dot com boom period to the blockchain boom period, we appear to be at the point where sound business models are needed after the blockchain bust – the crypto winter of 2018.

The allure of blockchain projects revolves around disintermediation. By rooting out intermediaries, we can help bank the unbanked, decentralized supply chains, create trusted voting systems without centralized black boxes of uncertainty, decentralize online identity, decentralize the sharing economy, etc etc. The blockchain promise is that it will disrupt business models that rely on centralized trust.

So what about the centralized business model that has generated the largest amount of wealth during the digitization era – surveillance capitalism? How do we decentralize surveillance capitalism?

How did web companies rise out of the dotcom bust of 2001? Centralized advertising. How will blockchain companies rise out of the blockchain bust of 2018?

Enter Decentralized Advertising!

At the core of decentralized advertising lies a dire need for an alternative to the centralized surveillance capitalism model. We are witnessing these corporate heavyweights being dragged into government hearings and being asked about the harm their companies are causing to the general public. We are seeing an erosion of trust around what we are exposed to. We are seeing our public discourse reduced to binary level bubbles of disinformation creating conflict between family, friends and creating increasingly tense factions of opposing realities.

Centralized advertising involves exploiting the low hanging fruit of base human behaviour in the 6 “F’s” of the limbic “Lizard Brain”, fight, flight, feeding, fear, freezing up, and fornication. Decentralized advertising involves structures that encourage discourse in collective intelligence.

Centralized advertising involves shifting ownership of metadata from the individual to a tiny group of powerful centralized silos. Decentralized advertising involves user controlled ownership of metadata.

Centralized advertising involves unprecedented rapid and extreme concentration of wealth and the blind handover of data.
Decentralised advertising represents a shift to a sharing data economy in which the end user is empowered through the ownership and control of their own data, rather than blindly handing over what is a valuable asset.

Enabling such a decentralised advertising economy to flourish results in a redistribution of that value from which we can take a share.

Centralized advertising involves the force feeding of unwanted ads obnoxiously intervening in the flow of our digital lives in the attempts to manipulate our behaviour. Decentralized advertising involves opt-in targeted advertising designed and displayed with less deception involved in convincing us to purchase products.

Origins and related work

It is no secret that the primary author of this document was working on Synereo, a decentralized social network project. The arguments for that project were much the same as the arguments here. During the work on Synereo it became clear that to build such an ambitious project required the development of a next generation blockchain, RChain. Now that RChain has not only delivered mainnet, but is able to demonstrate the scaling it claimed, it is time to deliver on the promises of Synereo. Of course this is about being true to one’s word, but it is also about necessity.

RChain is designed to be a coordination technology able to harness planet-wide engagement on the coordination problems associated with climate change. Such an aim only becomes viable if people can align their personal economic interests with the interests of the planet. This means

aligning the considerable attention of communities all over the world toward achievable common goals that when stitched together result in not just sustainable, but regenerative transformation. The profit sharing model of an attention economy does just that.

In the recent Netflix documentary ”The Social Dilemma”, virtual reality pioneer Jaron Lanier highlights the gravity of the situation we are in:

“If we go down the current status quo for lets say, another 20 years, we probably destroy our civilization through willful ignorance. We probably fail to meet the challenge of climate change. We probably degrade the world's democracies, so that they fall into some sort of bizarre autocratic dysfunction. We probably ruin the global economy. We probably don't survive."

He then states:
"financial incentives kind of run the world, so any solution to this problem, has to realign with the financial incentives."

We need to build a new model that makes the existing model obsolete, to paraphrase Bucky Fuller. Rather than have society continue to worship at the feet of the high priests of Facebook, Instagram, Twitter, YouTube, who control the keys of who we become, perhaps there is a way to design a system that utilizes the powerful wealth deriving mechanism of advertising in such a way that heals and grows collective intelligence and distributes the wealth rather than makes society turn on each other whilst making a few people obscenely rich so that they can enjoy their sociopathic dance on the grave of our children’s future.

One of the things that makes RChain unique among the other 50 - 100 layer 1 blockchain platforms out there is that we rose out of an existing project that was largely focused on solving this social dilemma. Synereo was an open source social network project dedicated to improving human coordination skills. The incentive towards building RChain as a layer one blockchain platform rose from a project that needed this layer to function properly, and Greg recognized that the other attempts out there had major design flaws that would lead them to major problems down the road. This is still why many of us are still here at RChain after all the highs and lows of the journey we have been on. We see RChain as the correctly constructed essential base layer to build these vitally important projects upon.

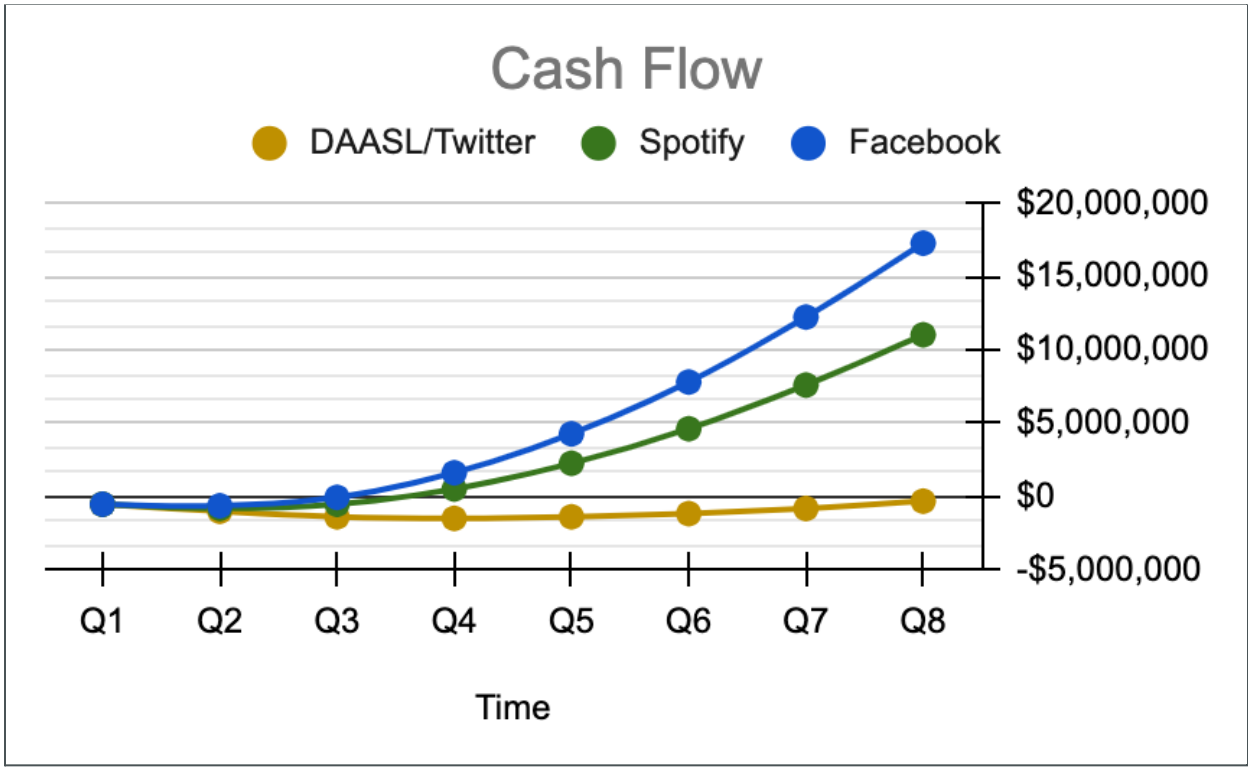
As is well pointed out in The Social Dilemma, the current financial incentives driving the unprecedentedly biggest companies in the world are leading us to ruin. So, we need to come up with a model that will guide financial incentives towards the healing from this damage and towards a new path forward.

How do we do this? We do what ourselves and other creatures do. We hack into the system to create new tools to awaken a new growth in our evolution.

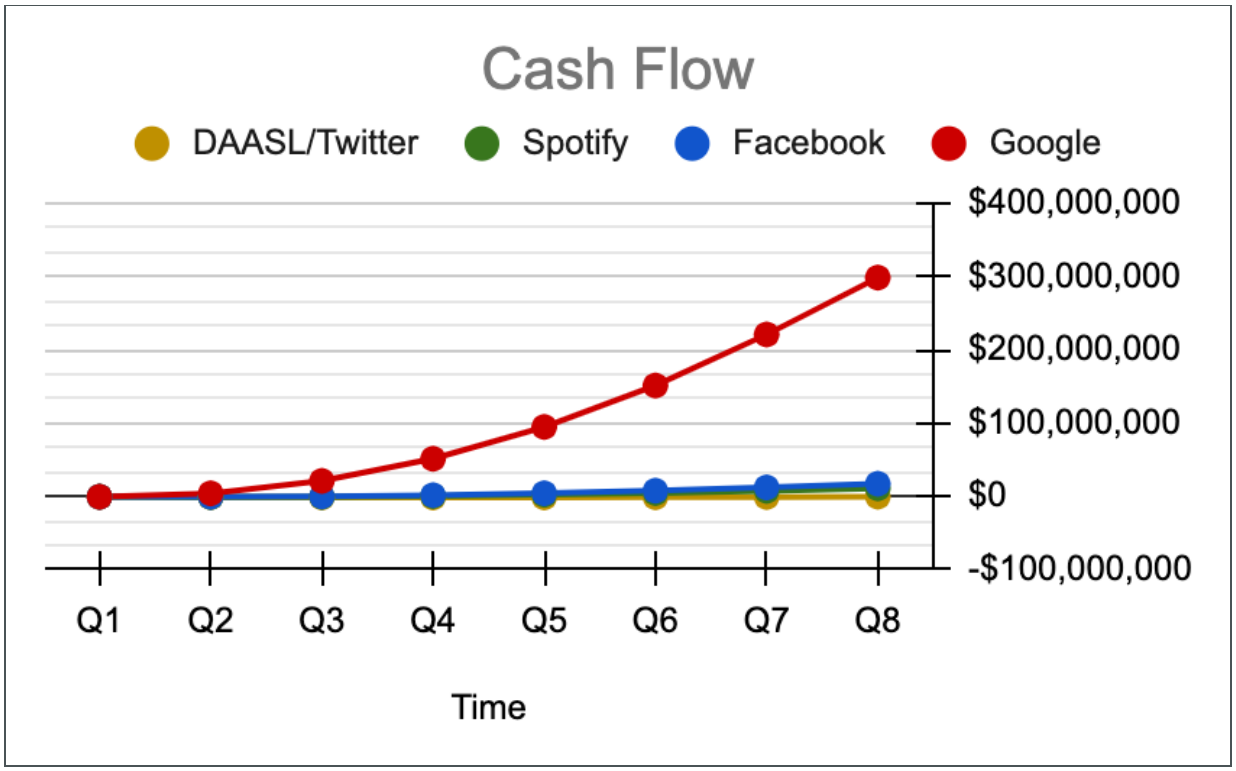
We hack into Surveillance Capitalism itself.

Economic modeling

The data on Google, Twitter, Facebook, and other services funded by online advertising is relatively easy to collect with a few searches and can be summarized in just a couple of graphs. Ultimately, one wants to focus on the number of users of the service and the revenue generated per user. At a finer grain, however, DAASL offers a different approach to user adoption than most of these services. DAASL offers the same API across all dApps running on RChain. So, it can grow in two different ways. It can grow because more and more dApps move to RChain; and it can grow because one or more dApps on RChain go viral. In this sense, the closest model is Google, which offers the same advertising features across all of its features, from GMail to Maps to Drive.



DAASL differentiates itself from Google, however, because end users of dApps can *earn* DAASL token after they have paid for their usage of the dApp. This single feature creates an economic opportunity for each and every role in the attention economy, from influencer to consumer that is simply not present in any of the Web 2.0 generation of services. Beyond that, these services do not offer any sort of token model. So, it is impossible to compare them with respect to the token economics of DAASL.



Given these differences, we believe that the relatively nascent dApp ecosystem will be offset by a similar gold rush to take advantage of these new features. More generally, we believe that there are some key market events that will act as sparks which light a fire in this market.

- Non-Fungible Tokens (NFTs)
  - NFTs and single-use tokens allow artists to offer limited content directly to their fans resulting in profitable returns and greater fan loyalty.
- Climate Change
  - Popular opinion goes against proof of work blockchains due to their negative environmental impact.
- Hardware Acceleration
  - Hardware which speeds up computation by 2 or 3 orders of magnitude and facilitates decentralization.
- Data Storage
  - Popular opinion demands self-sovereign data solutions.

We are already seeing mainstream press making these points.

The architecture and API

Core protocol

In the same way that RChain's core execution model is built on a simple notion of data exchange, DAASL's core protocol is built on a notion of data exchange. Both sponsors and dApps want to store content. At the blockchain layer this is a primitive operation:

```
location!( item )
```

which means store `item` in `location`. Likewise, retrieving the `item` from the `location` is a primitive operation:

```
for( item <- location){ doSomethingWithContent( item ) }
```

which waits until there is an `item` at `location` and then runs the code `doSomethingWithContent` with the `item`.

Because these operations must be token limited to prevent denial of service attacks the token charge is prior to the operation and not part of it. The contract for content storage changes when sponsorship is taken into account.

Specifically, when content is retrieved, unless DAASL token is supplied in the appropriate amount, the content retrieved is delivered with sponsored content interwoven. Thus,

```
for( item <- location){ doSomethingWithContent( item ) }
```

becomes

```
for( item <- src( token ) ){ doSomethingWithContent( item ) }
```

Dually,

```
location!( item )
```

becomes

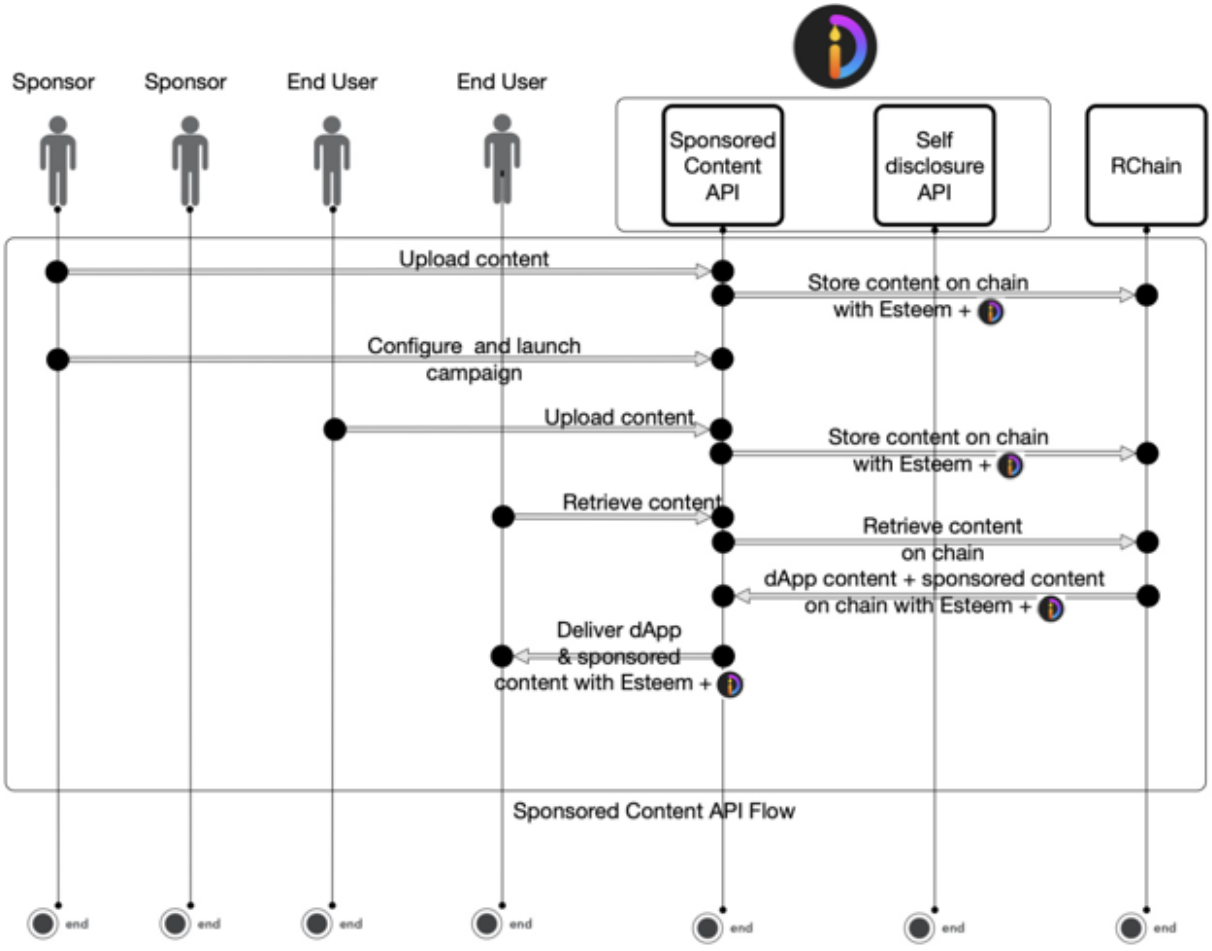
```
location( token )!( item )
```

Content format

When content is retrieved on behalf by a dApp it is retrieved and decorated with metadata. This metadata is in the form of pairs, (esteem, daasl). These are both measures. The first is a measure of the esteem a piece of content has been awarded by previous engagement. Think something akin to how many likes, or reposts a given post has received on a social media site. The second is the amount of DAASL tokens that will be awarded from the sponsor to the user for engagement. This pair of numbers is used by the dApp to place the content in appropriate spots in the UI.

Highly esteemed content will go front and center. Content that delivers the most tokens also takes valued spots in the view. As the numbers dwindle the content moves further from hot spots in the user's field of attention.

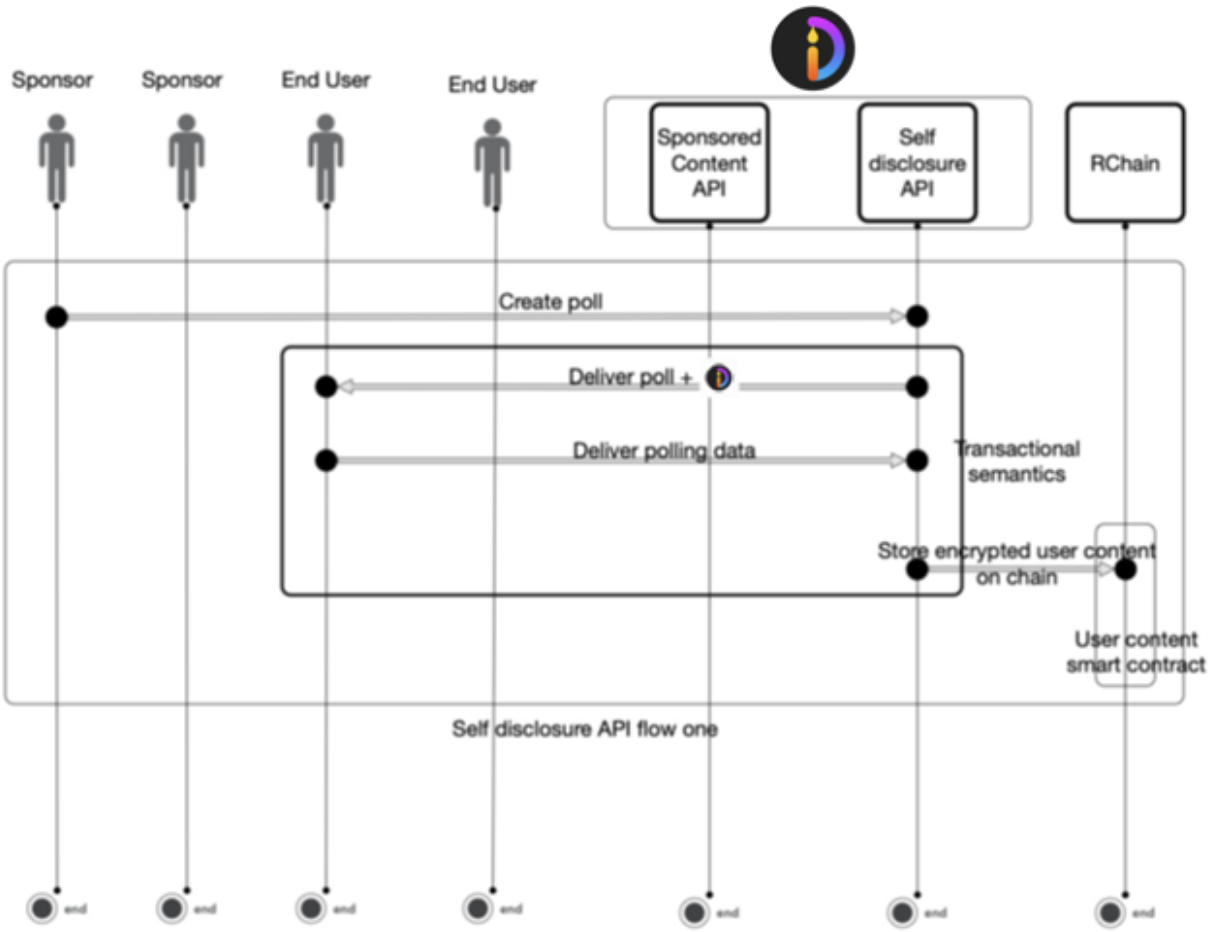
Uploading and managing sponsored content



Among the key user scenarios is the uploading of sponsored content. As the diagram indicates, sponsors upload sponsored content to chain. They do so using a slightly modified form of

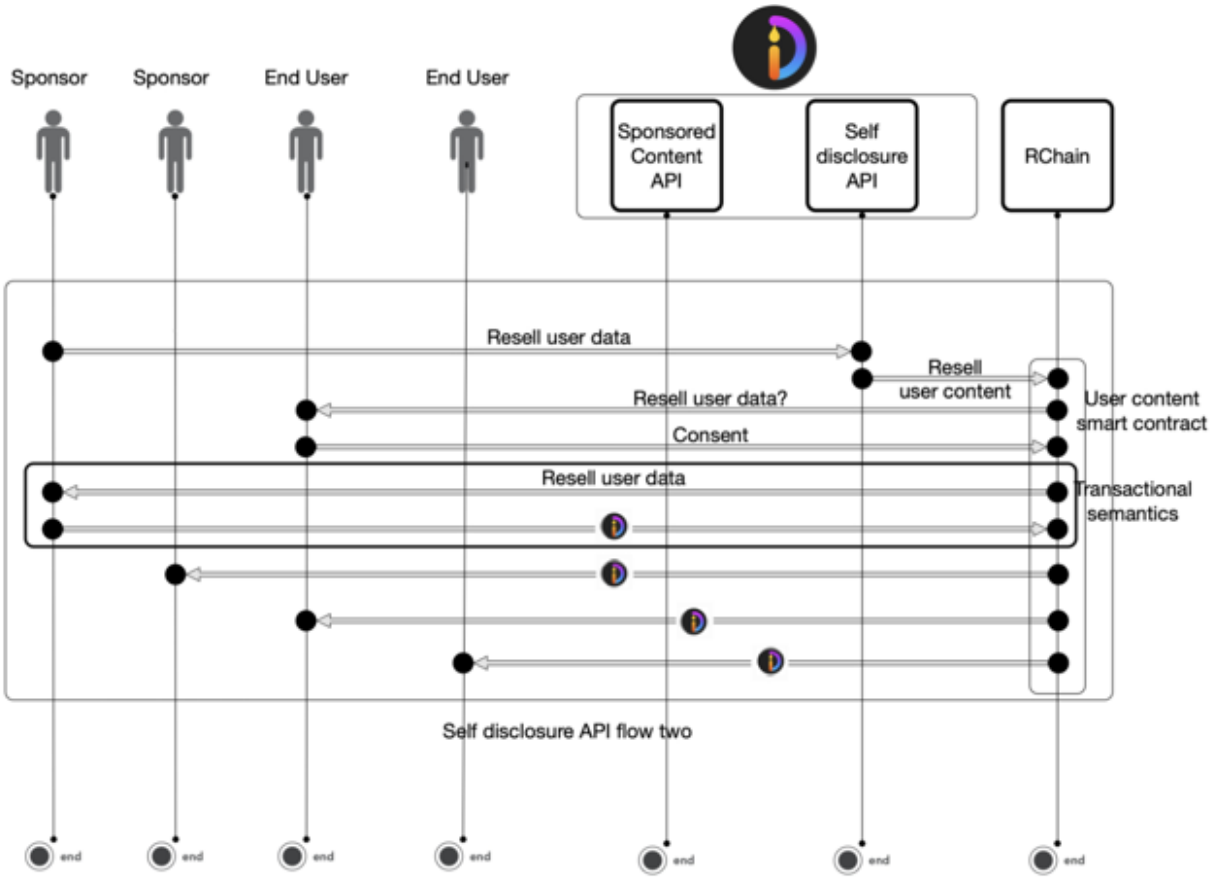
ordinary storage, as per the section above. After sponsored content is uploaded to chain, they may configure a campaign. During this configuration the sponsored content will be decorated with esteem measures and DAASL token estimates. When a dApp user takes an action that delivers content to their dApp UI the content request must provide esteem and DAASL token requirements which will be used to place the sponsored content in various places in the dApp UI.

Self-disclosure of user data



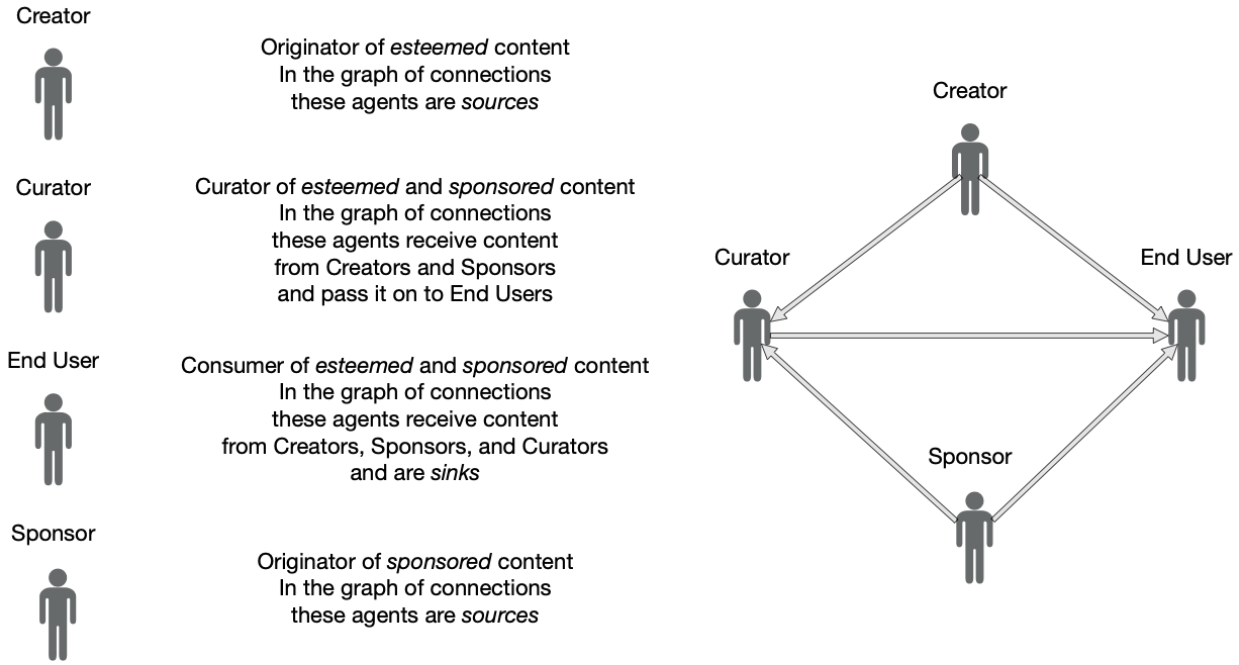
Another key user scenario is self-disclosure of user data. Today's users have become quite accustomed to providing data about themselves as they go. In DAASL we assume that they already self identified to a large extent by selecting the sponsors and type of sponsored content they are willing to engage. Naturally, sponsors will want more targeted information than this. DAASL provides basic APIs to solicit additional information about users.

Reselling user data with users as partners



DAASL believes that users, rather than wanting to circumvent reselling information about them, actually want to be included as full partners in any such data exchange. If users are informed, and consent, and are financial participants in any such exchanges this is mutually beneficial for all. It allows users to know which downstream agencies are interested in their data and to participate in the economic responsibility of allowing their data to be used.

Social graph roles



Many, if not most dApps will support a social graph. The DAASL APIs can take advantage of these social graphs to allow sponsors to build more effective sponsorship campaigns and to empower users to participate more fully in the economic opportunities.

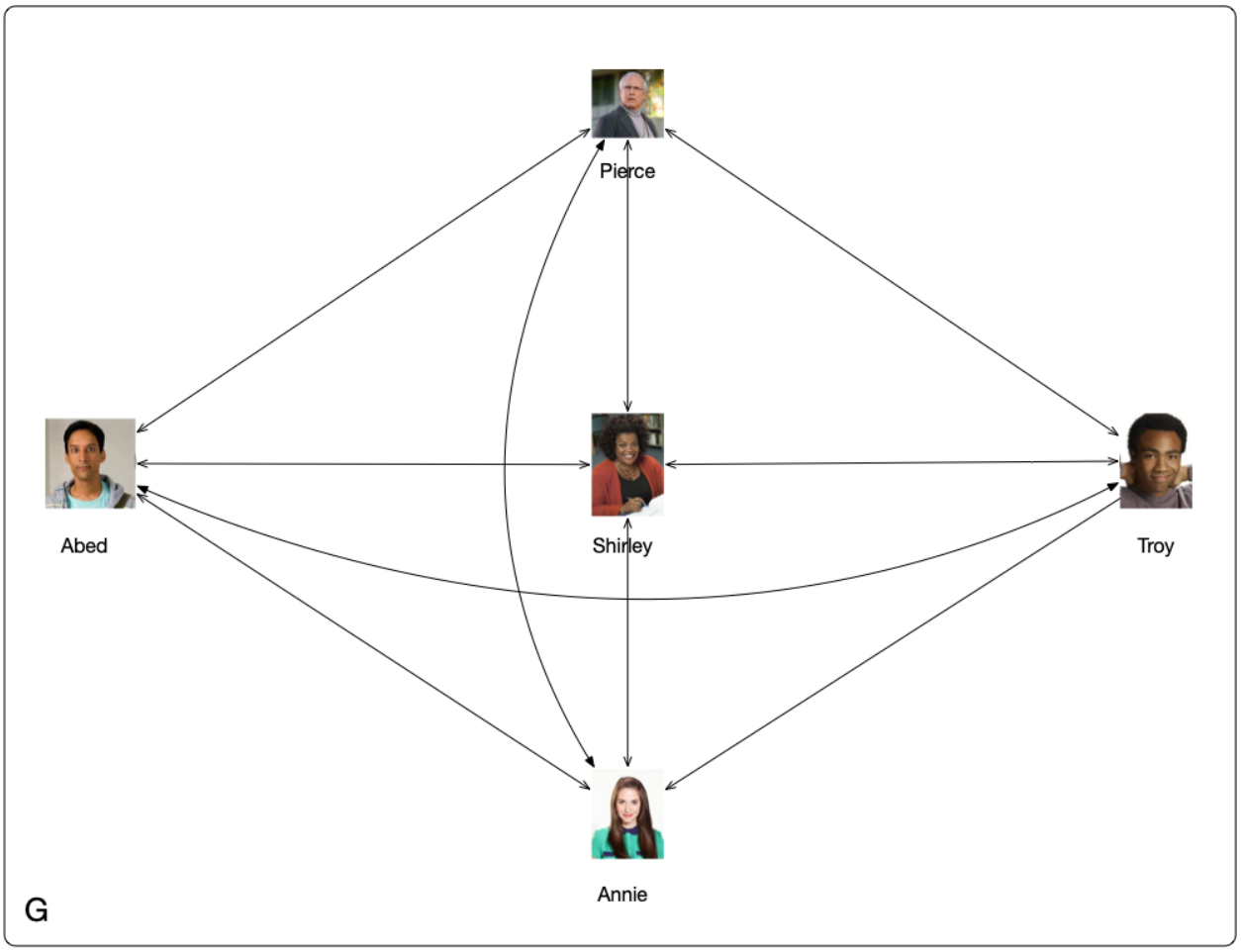
Esteem and DAASL

One of the most important differences in DAASL is a balance between content that arrives at an end users dApp console because it is sponsored versus content that arrives because it is considered inherently valuable. Many social media apps, e.g., Reddit, provide users the ability to upvote or downvote a post. The intent is to provide a proxy measure of the quality of the content of the post, but are in fact interwoven with the popularity of the posters. It is not actually necessary to unweave these to achieve the sort of balance required because what we are balancing is content that arrives on the basis of sponsorship versus on the basis of value, whether that value is derived because of the actual content or because of the popularity of the content provider.

To that end we actually develop a notion of valued content based on a notion of respected, or *esteemed* users. From esteemed users we can develop a notion of esteemed content in terms of content that esteemed users are more likely to engage.

Esteemed users

Thus, we first develop a notion of esteemed users. We bootstrap this notion from a comparison of responses between to users. Consider the social graph below. We measure the comparative or relative esteem of Abed versus Pierce by looking at all users connecting Abed and Pierce and measuring how often they engage content from Abed versus content from Pierce. For example, Shirley is directly connected to both Abed and Piece. So, we can measure the ratio of how often Shirley engages content from Abed versus how often she engages content from Pierce. We can then make this not relative by summing that comparison over all direct connections with a given user. Thus, to get Abed's esteem we sum his relative esteem with Pierce, Shirley, Tory, and Annie.

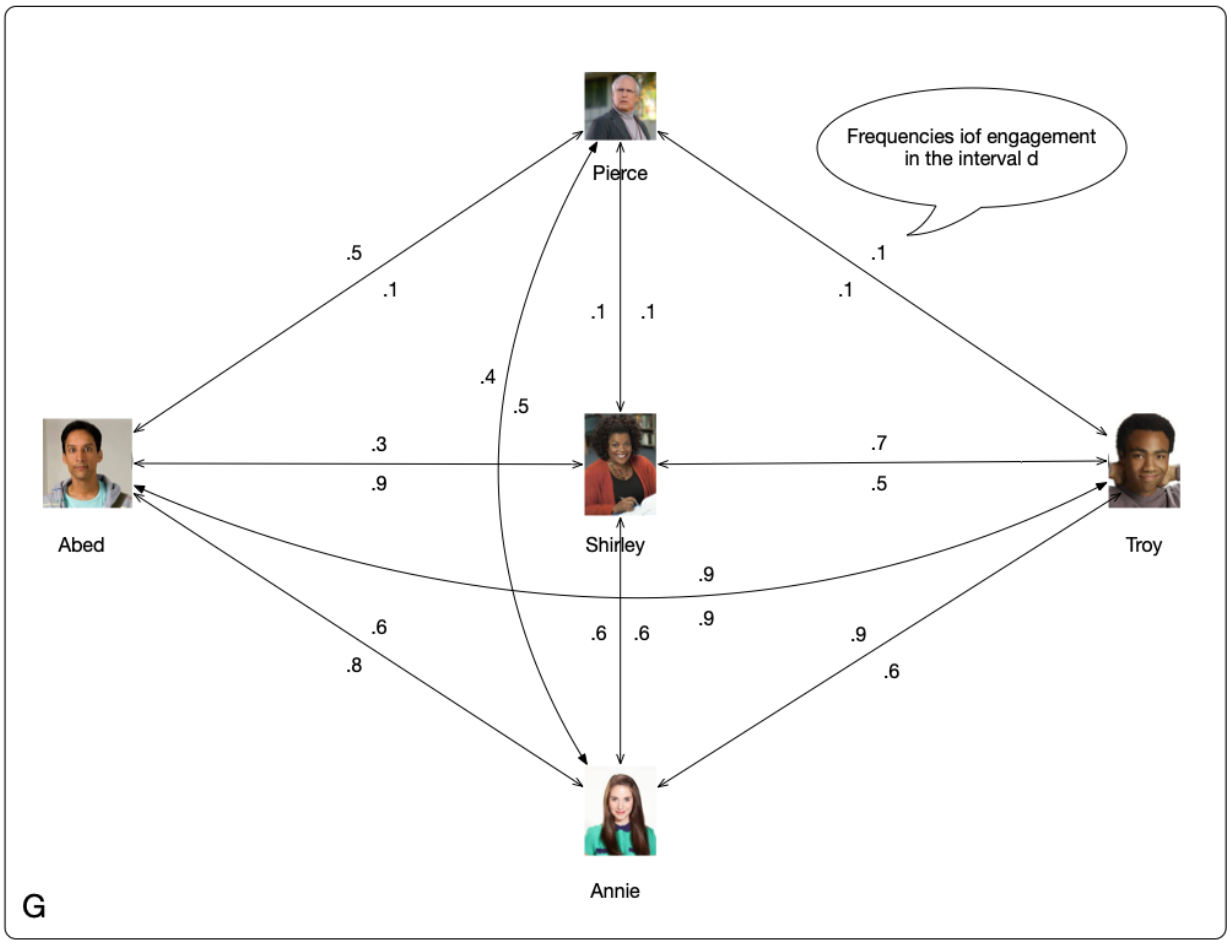


$$esteem_G(A,d) := \sum_{Y \in cnxns(A)} \sum_{X \in connectors(A,Y)} frequency(contentEngaged(A,X), d)/frequency(contentEngaged(Y,X), d)$$

Definition of esteem for an agent, A, in the social network G

The diagram below carries out an example calculation. Note that this calculation is parametric on a duration parameter which gives us a window in which to sample engagement.
It is possible to abstract this parameter, but we don't go into this here.

dAasl API for sponsored content



$$\text{esteem}_G(A,d) := \sum_{Y \in \text{cnxns}(A)} \sum_{X \in \text{connectors}(A,Y)} \text{frequency}(\text{contentEngaged}(A,X), d)/\text{frequency}(\text{contentEngaged}(Y,X), d)$$

$$\text{esteem}_G(\text{Abed},d) = (.5 / .1 + .3/.7 + .6/.6) + (.3/.1 + .6/.5 + .9/.1) + (.5/.1 + .9/.5 + .6/.6) + (.5/.4 + .3/.6 + .9/.9)$$

$$\text{esteem}_G(\text{Abed},d) = 30.68$$

One of the most important aspects about the esteem calculation is that it is parametric on the social graph. Thus, it can be calculated for the Facebook social graph, or the Twitter social graph, or the LinkedIn social graph, or any other social network graph, whether it comes from a Web 2.0 application, or a dApp. This means that dApps can bootstrap their key metrics from other social networks before they have a significant user base.

Esteemed content

From a notion of an esteemed user we can develop a notion of esteemed content. Content that esteemed users engage often is deemed esteemed (or alternatively engaging content).

Existing dApps

Here is a list of dApps that utilize the RChain platform.

- DAASL - a decentralized blockchain based software-as-a-service company aiming to accelerate the growth of the dApp ecosystem.
- Dappy - a decentralized distribution network for files and web applications.
- Digital Accreditation Wallets
    - COVID-19 Identity Passport - a safe, secure self-sovereign way of carrying your data with you.
- RCat - RChain asset tracker.
- RChat - using a largely unmodified zulip installation, we listen to database modification events and make the corresponding modifications to a store in RChain.
- RSign - RChain signature tool.
- RStake - POS staking pool support on RChain contracts and pool contracts.
- RSong - a client facing REST layer to proxy RSong requests to RSongs Rholang contracts.
- RVote - a blockchain based voting dApp used by the RChain Coop membership for the October 2020 Annual General Meeting (AGM).
- Liquid Democracy - trust from the top down and bottom up are combined to determine sentiment and make good decisions in line with both the cooperative and the members.
- Wallets
    - Capo Wallet
    - My RChain Wallet
    - RNode Client
    - Rui Wallet

User stories

In what follows we describe both the experience and value proposition for the various types of users.

dApp developer

Bob's Ethical Coffee B2C dApp:

- Bob is a dApp developer.
- Bob created a fair trade coffee dApp called Bob's Ethical Coffee B2C[1] dApp for coffee shop owners and coffee lovers. The dApp allows the community to connect to discuss brands, locate shops, use promotions and make purchases.

- Bob uses the DAASL dApp accelerator platform with its various APIs, assets and components for development and secure deployment of his coffee dApp.
- As a result, Bob is able to develop the dApp faster and more easily than other dApp development platforms, saving Bob time, money, and effort. Now, Bob has more time to spend developing his next dApp called the Ethical Coffee B2B[2] dApp for coffee growers, wholesalers, and shops.
- Cross-dApp promotion to other existing dApp communities allows Bob's Ethical Coffee B2C dApp to grow its user base quickly.
- DAASL token API monetization of sponsored content allows Bob to quickly monetize his dApp to generate revenue and cover operating costs.
- Bob's dApp growth is scalable and can handle high transaction volume for dApp user operations and in-app promotions and purchases.
- Bob's dApp system operation, uptime and performance are monitored 24/7, giving him peace of mind.
- Bob is able to tap into other relevant (suitable for his user community) advertising sponsors that are already advertising on the platform with other dApps.
- Each dApp builder may bring one or more sponsors that then are available to all other dApps, as well as other dApps are available for them to advertise to, based on mutual perceptions of suitability of the user base.

End user/Curator

Alice the Ethical Coffee B2C dApp end user:

- Alice is a coffee lover who prefers fair trade coffee.
- Alice uses Bob's Ethical Coffee B2C dApp to discuss brands, locate shops, use promotions and make purchases.
- Alice has been using the dApp more and more frequently over time. Alice views coffee-related sponsored content on the dApp, as a result, her monthly subscription fee has continuously decreased over time. Currently, her monthly dApp subscription is free and she has started to earn DAASL tokens for viewing sponsored content. Alice is thrilled with the dApp and it has become one of her favorites.
- Alice has made several friends who love coffee as much as she does using the dApp.
- When Alice first started using the dApp she was able to import her standing from other social networks.
- Over time Alice's standing in the community has grown. Her thoughts and opinions are valued and respected. As her following grows her esteem rating continues to rise.
- Alice has begun to capitalize on her increasing esteem rating. She curates sponsored content from coffee brands and shops. Alice makes more DAASL tokens curating content due to her rising esteem rating.
- Alice prefers dApps on the DAASL platform not only for the opportunity to generate income by earning DAASL tokens, but she feels assured her personal data is secure and she is not being surveilled.

Advertiser

Claire's Cafe

- Claire owns and operates Claire's Cafe
- She likes Bob's Ethical Coffee B2C dApp since it has a strong community of coffee lovers. She appreciates the fact that the community has targeted fair trade coffee which is Claire's Cafe specialty.
- Claire advertises on the dApp to attract customers, announce promotions and sell products. Here ads are more effectives because her ads reach a targeted audience.
- Claire and Alice found each other on the dApp.
- Because Alice has a high esteem rating she curates ads for Claire's Cafe.
- As a result, Alice makes DAASL tokens, curating ads for Claire's Cafe. Claire has more customers and sells more coffee because Alice curates ads.
- For Claire the DAASL ad platform is transparent and simple. She can easily see where her spend goes, how effective the ads are, and whether the platform is performing as expected. The platform provides her with incorruptible and immutable proof of her ad metrics which is essential for auditing and traceability.
- Claire feels empowered by the DAASL ad platform since the responsibility of ad performance is now in her hands.
- Claire uses the DAASL platform predictive analytics to create more targeted and effective ads which makes ad budget go farther.
- Network effects / synergies: Claire is able to analyze the other dApps on the platform to identify additional segments of interest for her products and advertise to them similarly.

dApp investor

Dave the dApp investor:

- Dave invests in dApps. He typically is interested in optimizing each investment to derisk it, as well as maintain a balanced portfolio of such investments, to further increase expected returns.
- Dave traditionally spends a considerable amount of time and effort researching and evaluating his next dApp investment.
- Dave and Bob are friends. Bob would like Dave to invest in his next dApp, Bob's Ethical Coffee B2B dApp for coffee growers, wholesalers and shops.
- To help Dave in his due diligence, Bob provides Dave rich data sets such as performance metrics, ad revenue projections and DAASL token economic models on his current dApps in production - Bob's Ethical Coffee B2C dApp. The wealth of available information allows Dave to have a deeper dApp insight quickly.
- Dave likes the fact that through DAASL APIs, development, deployment and monetization services, as well as the network effects for user growth, Bob's Ethical Coffee has faster time-to-market as well as faster time-to-monetization for his newest dApp which helps to de-risk his investment.

- In doing his due diligence Dave studies the dApps operational cost on the DAASL dApp accelerator and determines costs and growth projections are responsible.
- In addition, through the DAASL ecosystem, he is introduced to other dApps he can invest in. Because of the analytics provided by DAASL, he's able to perform similar due diligence on potential investments in other dApps. He can choose to either diversify his portfolio into other promising sectors or get investment exposure to more dApps.
- Where applicable, Dave is also able to encourage other (non-performing or slow to market) dApps in his portfolio to leverage the DAASL platform and gain the same benefits as Bob's Ethical Coffee, further enhancing his portfolio results.

[1]B2C stands for business to consumer.
[2]B2B stands for business to business.

The DAASL Team

Individual effort to a group endeavor is what makes a team work and a company succeed. The DAASL team is a group of dedicated management professionals, with a proven track record of successfully managing world class companies and innovative startups. The experience, wisdom and persistence that each individual brings to the groups is amplified when working together towards the common goal of bringing new blockchain solutions to dApp developers, advertisers, and end users. Team members are:

Steve Ross-Talbot
Steve is a seasoned CTO having first assumed the position in 1997 as the founder of SpiritSoft. He has built and managed large teams in practices for multiple systems integrators and founded several start-up companies. He is an acknowledged specialist in distributed systems from SOA to Microservices to Cloud Native and blockchain and is a Professor of Distributed Computing. He is the co-inventor of the ZDLC and the holder of 4 patents. He is a former chair of all web service standards at W3C and a co-author of the SOA manifesto. He has been a member of the RChain Board of Directors since 2018.

Rao Bhamidipati
As a technologist and business strategist for 30 years, Rao excelled in delivering award winning products and created several bellwether solutions and business models, often transforming industries and best practices. Over nine years at Xerox in several confidential management positions and as a consultant to Visa, Quaker Oats, Sovereign Bank, Kraft-General Foods, Merck, Verizon and several other Fortune 100 companies, Rao leveraged technology to transform businesses to gain strategic competitive advantage, be more agile and profitable. He led the deployment of the first online bank in the USA and advised the first online travel agency in the world. Rao has experience in both corporate intrapreneurship and with startups from scratch.

Since 2019, Rao has been leading the delivery of the Rchain platform, its techno-economic governance and now, the ecosystem development. He is a Director on the boards of Rchain and Daasl.

Rao holds a Bachelors in EE (JNTU India), MBA (Indian Institute of Management) and a Masters in Computer Science (New Jersey Institute of Technology).

Darryl Neudorf

Darryl is a Grammy nominated, platinum selling Juno award winning music producer. He has been involved with RChain from before its inception as an active member of the Synereo community beginning in early 2015. Darryl then became an advisor for flagship RChain dApp, Resonate and RChain's RSong dApp project. He is currently on RChain's board of directors and working in the capacity of Communications. Education: 2000-2001 - Applied Information Technology – Capilano University, Vancouver.

Steve Henley

Steve Henley is a thought leader, strategist, innovator and entrepreneur with 30 years industry experience. His early career background includes travel industry sales and telecom technical support. He is a RChain board of director and is responsible for business development. He earned a B.S./B.A. degree in Business Administration from the University of Florida.

Advisors

Greg Meredith

Lucius Gregory (Greg) Meredith is the president of the RChain Cooperative. Greg is a mathematician, and the discoverer of the rho-calculus, a co-inventor of the LADL algorithm, and the inventor of the ToGL approach to graph theory. Greg was the principal architect of Microsoft's BizTalk Process Orchestration as well as co-author of several W3C standards, such as WSDL.

Ian Bloom

Ian Bloom is board member emeritus of RChain Cooperative and a current staff member in operations. He previously worked as a Microsoft Software Engineer for AEGON, Computer Security Specialist for Fortress Technologies & Kroll.

DAASL Financial Projections

We present the financial projections in a number of ways. The first is the cashflow forecast for the next 3 years. The second is the cost base over the same period including the headcount

growth along the way. The third is the revenue projections. And then we cross check against the token economic model to support the sponsored content decentralised market place in order to understand how many and the quality of the sponsors needed.

The cashflow shows a cash need of just under $5M. The nature of the investment requires that this is double (see reference of some sort). Thus the investment needed is $10M. Cashflow positive is expected in Q9 with revenue exceeding cost by just under $100K in Q9. Cost at steady state is just over $1.1M per quarter. Revenue at steady state is just over $1.6M per quarter.

All of this is achieved with 13 sponsors at revenue quality of $1.2M per sponsor per quarter. This needs a pipeline of sponsors to be developed from Q1 onwards to the tune of 39 (one goes away for no reason, one goes with someone else and one signs-up) at a confidence level of 33% (proposal agreed in principle with the sponsor) which requires at least double the 39 to be identified as targets for the pipeline to be developed.

DAASL Cashflow Projections

Cashflow	Q1	Q2	Q3	Q4
Costs	$ 506,875	$ 587,500	$ 737,500	$ 737,500
Revenue	$ -	$ -	$ -	$ -
Initial Cash Position	$ -			
Balance	$ -506,875	$-1,094,375	$-1,831,875	$ -2,569,375
	Q5	**Q6**	**Q7**	**Q8**
Costs	$ 791,667	$ 954,167	$ 1,089,583	$ 1,103,125
Revenue	$ 108,000	$ 360,000	$ 630,000	$ 900,000
Initial Cash Position				
Balance	$-3,253,042	$-3,847,208	$-4,306,792	$ -4,509,917
	Q9	**Q10**	**Q11**	**Q12**
Costs	$ 1,103,125	$ 1,103,125	$ 1,103,125	$ 1,103,125
Revenue	$ 1,170,000	$ 1,440,000	$ 1,602,000	$ 1,620,000
Initial Cash Position				
Balance	$-4,443,042	$-4,106,167	$-3,607,292	$ -3,090,417

DAASL Cost Projections

Designation	Cost
CEO	$ 125,000
COO	$ 125,000
CTO	$ 125,000
CFO	$ 125,000
DevOps Manager	$ 125,000
Senior DevOps	$ 125,000
Junior DevOps	$ 125,000
Senior Developer	$ 125,000
Junior Developer	$ 125,000
QA	$ 125,000
Marketing Manager	$ 125,000

Cost Sources	Q1	Q2	Q3	Q4
Headcount	11	12	12	12
People Costs	$ 446,875	$ 487,500	$ 487,500	$ 487,500
Infrastructure Costs (HW + SW)	$ 40,000	$ 80,000	$ 80,000	$ 80,000
Development Costs TOTAL	$ 486,875	$ 567,500	$ 567,500	$ 567,500
Marketing	$ -	$ -	$ 150,000	$ 150,000
T & E	$ 20,000	$ 20,000	$ 20,000	$ 20,000
BUSINESS DEVPT COSTS TOTAL	$ 20,000	$ 20,000	$ 170,000	$ 170,000
OPERATING COSTS TOTAL	$ 506,875	$ 587,500	$ 737,500	$ 737,500
CUMULATIVE OPERATING COSTS TOTAL	$ 506,875	$ 1,094,375	$ 1,831,875	$ 2,569,375
	Q5	Q6	Q7	Q8
Headcount	14	18	21	21
People Costs	$ 541,667	$ 704,167	$ 839,583	$ 853,125
Infrastructure Costs (HW + SW)	$ 80,000	$ 80,000	$ 80,000	$ 80,000
Development Costs TOTAL	$ 621,667	$ 784,167	$ 919,583	$ 933,125
Marketing	$ 150,000	$ 150,000	$ 150,000	$ 150,000
T & E	$ 20,000	$ 20,000	$ 20,000	$ 20,000
BUSINESS DEVPT COSTS TOTAL	$ 170,000	$ 170,000	$ 170,000	$ 170,000
OPERATING COSTS TOTAL	$ 791,667	$ 954,167	$ 1,089,583	$ 1,103,125
CUMULATIVE OPERATING COSTS TOTAL	$ 3,361,042	$ 4,315,208	$ 5,404,792	$ 6,507,917
	Q9	Q10	Q11	Q12
Headcount	21	21	21	21
People Costs	$ 853,125	$ 853,125	$ 853,125	$ 853,125
Infrastructure Costs (HW + SW)	$ 80,000	$ 80,000	$ 80,000	$ 80,000
Development Costs TOTAL	$ 933,125	$ 933,125	$ 933,125	$ 933,125
Marketing	$ 150,000	$ 150,000	$ 150,000	$ 150,000
T & E	$ 20,000	$ 20,000	$ 20,000	$ 20,000
BUSINESS DEVPT COSTS TOTAL	$ 170,000	$ 170,000	$ 170,000	$ 170,000
OPERATING COSTS TOTAL	$ 1,103,125	$ 1,103,125	$ 1,103,125	$ 1,103,125
CUMULATIVE OPERATING COSTS TOTAL	$ 7,611,042	$ 8,714,167	$ 9,817,292	$ 10,920,417

DAASL Revenue Projections

Revenue Sources	Q1	Q2	Q3	Q4
Dapps 1-3 (1 per month)	$ -			
Dapps 4-6	$ -	$ -		
Dapps 7-9	$ -	$ -		
Dapps 10-13	$ -	$ -		
Dapps 14-17	$ -	$ -		
Dapps 18-21	$ -	$ -		
Total Revenue	$ -	$ -	$ -	$ -
Cumulative Revenue	$ -	$ -	$ -	$ -

	Q5	Q6	Q7	Q8
Dapps 1-3 (1 per month)	$ 108,000	$ 252,000	$ 270,000	$ 270,000
Dapps 4-6		$ 108,000	$ 252,000	$ 270,000
Dapps 7-9	$ -		$ 108,000	$ 252,000
Dapps 10-13	$ -	$ -	$ -	$ 108,000
Dapps 14-17	$ -	$ -	$ -	$ -
Dapps 18-21	$ -	$ -	$ -	$ -
Total Revenue	$ 108,000	$ 360,000	$ 630,000	$ 900,000
Cumulative Revenue	$ 108,000	$ 468,000	$ 1,098,000	$ 1,998,000

	Q9	Q10	Q11	Q12
Dapps 1-3 (1 per month)	$ 270,000	$ 270,000	$ 270,000	$ 270,000
Dapps 4-6	$ 270,000	$ 270,000	$ 270,000	$ 270,000
Dapps 7-9	$ 270,000	$ 270,000	$ 270,000	$ 270,000
Dapps 10-13	$ 252,000	$ 270,000	$ 270,000	$ 270,000
Dapps 14-17	$ 108,000	$ 252,000	$ 270,000	$ 270,000
Dapps 18-21	$ -	$ 108,000	$ 252,000	$ 270,000
	$ 1,170,000	$ 1,440,000	$ 1,602,000	$ 1,620,000
Cumulative Revenue	$ 3,168,000	$ 4,608,000	$ 6,210,000	$ 7,830,000

Dapp click to pay model		
Number of Dapps	20	
Clicks per day per user per Dapp	10	
Number of users per Dapp	10000	
Dapp revenue per click		
DAASL revenue per click	$ 0.0100	
Steady state 1 years worth of Dapp/users	$ 7,300,000	
Assume onboarding rate per month of	1	
Assume offset in months from start of	3	
Assume users per Dapp growth to target of	2000	/mnth

DAASL Token Economic Model

	$ equivalent of TOKENS over time							
	Q5		Q6		Q7		Q8	
Actor	Count	Amount	Count	Amount	Count	Amount	Count	Amount
Sponsor	1	$1,200,000	3	$3,600,000	5	$6,000,000	8	$9,600,000
Curator	3	$60,000	6	$90,000	12	$75,000	24	$60,000
DApp provider	3	$60,000	6	$90,000	9	$100,000	13	$110,769
DAASL		$150,000		$450,000		$750,000		$1,200,000
	Q9		Q10		Q11		Q12	
	Count	Amount	Count	Amount	Count	Amount	Count	Amount
Sponsor	9	$10,800,000	10	$12,000,000	12	$14,400,000	13	$15,600,000
Curator	24	$67,500	24	$75,000	24	$90,000	24	$97,500
DApp provider	17	$95,294	21	$85,714	21	$102,857	21	$111,429
DAASL		$1,350,000		$1,500,000		$1,800,000		$1,950,000
	Notes:	With $1M of sponsorship across 3 DApp providers with 10,000 users each we see $50K to each curator, the same to each DApp provider and $125K to DAASL						
		By Q12 DAASL is at break even with $1.6M in sustained revenue havign acquired 13 sponsors at $1M per quarter each and with a user base of 21 DApps.						

Key variables	
End Users	55.0%
Curators	15.0%
DApps	15.0%
Daasl	12.5%
RChain	2.5%
Token exchange	$0.06

Competitive Analysis

Brave Software, Inc

What does Brave do?
Brave is a free and open-source web browser developed by Brave Software, Inc. based on the Chromium web browser. It blocks ads and website trackers, and provides a way for users to send cryptocurrency contributions in the form of Basic Attention Tokens to websites and content creators.

Where are they in their development?
In June 2019, Brave started testing a new ad-blocking rule-matching algorithm implemented in Rust, replacing the previous C++ one. The uBlock Origin and Ghostery algorithms inspired the new logic, which Brave claims to be on average 69 times faster than the previous algorithm.

Brave launched its stable release, version 1.0, on 13 November 2019, while having 8.7 million monthly active users overall. At the time, it had approximately 3 million active users on a daily basis. Brave 1.0, running on Android, iOS, Windows 10, macOS, or Linux, integrated "almost all of Brave's marquee features across all platforms", according to engadget.

How do they differ from DAASL?
Brave uses its Basic Attention Token (BAT) to drive revenue. The "Basic Attention Token" (BAT) is an open-source, decentralized ad exchange platform based on Ethereum.

Since April 2019, users of the Brave browser can opt in to the Brave Rewards feature, which sends BAT micropayments to websites and content creators. Site owners and creators must first register with Brave as a publisher. Users can either turn on auto-contribute, which automatically divides a specified monthly contribution in proportion to the time spent, or they can manually send a chosen amount (referred to as a tip) while visiting the site or creator.

Users can choose to earn BAT by viewing advertisements which are displayed as notifications by the operating system of their computer or device. Advertising campaigns are matched with users by inference from their browsing history; this targeting is carried out locally, with no transmission of personal data outside the browser, removing the need for third-party tracking. In addition or alternatively, users can buy or sell BAT through Brave's relationship with Uphold Inc., a digital currency exchange operator.

The first version of the micropayments feature, launched in 2016, was called Brave Payments and used Bitcoin. Advertisements were shown in a separate browser tab.

MediaOcean

What does MediaOcean do?
MediaOcean provides advertising purchasing, accounting, communication, advertising integration, and other services.

Where are they in their development?
As of 2013, MediaOcean provides advertising statistics to customers, through integration of AOL's online advertising with its own TV-based services.

In 2018 Mediaocean revealed that its blockchain developed with IBM is currently live. Almost two dozen brands, agencies and tech partners are actively participating.

How do they differ from DAASL?
The MediaOcean blockchain system logs transactions such as budget, authorization, orders, verification, invoices and payments. Soon participants will be able to monitor transactions on the blockchain including a consolidated audit journal. The blockchain uses Hyperledger Fabric, the permissioned enterprise blockchain that allows only authorized participants to see their relevant transactions. The IP of the blockchain application is owned by Mediaocean. The app in essence sits on top of IBM’s Blockchain Platform as a Service (PaaS).

Smaato

What does Smaato do?
Smaato is a global real-time advertising platform for mobile publishers and app developers, with more than one billion monthly mobile users. Smaato focuses on the monetization of mobile apps and connecting advertisers to in-app ad inventory. This technology enables app publishers to keep their apps free for users.

Where are they in their development?
Smaato launched its mobile supply-side platform (SSP) a year after the company was formed in 2005. In 2012, Smaato launched its real-time bidding ad exchange. After, the company focused on mobile acquisition and building out the self-service side of its automation platform.

In 2015, the company released a full-featured publisher ad server, the Smaato Publisher Platform (SPX). The platform enables app developers and digital publishers to immediately monetize their properties by delivering target consumers to advertisers, based on real-time data.

The following year, Smaato was selected by Google and integrated into the AdMob and DoubleClick for Publishers platforms via SDK-less mediation. Later in 2016, Smaato further developed its solutions for the demand side of mobile advertising. The Smaato Demand Platform (SDX) offered demand partners greater flexibility and control over their mobile ad traffic.

In 2018, the company integrated with Amazon Publisher Services (APS) to provide in-app demand partners access to Amazon's Transparent Ad Marketplace inventory.

Smaato presently focuses on deploying artificial intelligence and machine learning. In May 2018, their Automated Traffic Curation (ATC) product was reported to significantly reduce costs of programmatic bidding for demand-side platforms (DSPs). The machine learning technology filters out less relevant inventory before sending a bid request to a demand partner's platform — providing better opportunities for advertisers by saving time and expenses related to data processing.

Currently, Smaato is trying out Amazon’s QLDB blockchain offering.

How do they differ from DAASL?
The Smaato/ Amazon QLDB is a blockchain-like solution. Unlike blockchains, QLDB is centralized, and as a result, offers scalability. The benefit is immutability and the ability to provide a transparent audit trail. The Smaato audit trail includes the initial auction, the winning bid, through to the final impression delivery.

Summary

Why is DAASL making the most impact and having the biggest growth curve?

Blockchain advertising is in the early stages. DAASL is in the position to benefit from its first mover advantage capturing market share by offering a new foundational framework for dApp developers, advertisers and end users.

By comparison, the competition's solutions are lacking and fragmented. DAASL provides a turnkey solution built on RChain which is scalable, secure, and provides a high transaction volume platform with no throughput bottlenecks.

DAASL has the opportunity to disintermediate the adtech middlemen and take additional market share. Advertisers want transparency, simplicity and safety and to make the performance of ads their responsibility. The DAASL platform provides incorruptible and immutable proof for auditing and tracing and does away with the current trust-based model necessitated in the digital advertising industry today. DAASL's predictive analytics allows advertisers to create more compelling and productive ads to achieve better results.

The DAASL tokenized APIs that multiply paths to dApp monetization and encourage end user participation are key to the DAASL platform growth and adoption. By delivering sponsored content dApp developers quickly generate revenue to offset operating costs. The DAASL token economic model allows end users to participate in the attention economy by receiving compensation for content they create and curate.

Call to action

DAASL is seeking a capital investment of $10 million USD from investors. For the investment, investors will receive DAASL equity shares or DAASL tokens or both. There are 10 million DAASL equity shares and 5 billion DAASL tokens available for investment. The minimum DAASL investment is $100,000 USD. With an investment of $1.5 million USD investors can obtain a DAASL board of directors seat. Investors may also consider an investment of their time and talent to be utilized to grow the DAASL company.

Use of funds

Funds raised during this first DAASL offering will be split 50/50 between DAASL and core protocol layer.

DAASL funds

- Developers, devops, management
- Running 20 nodes on various cloud providers
- Marketing
- Exchange listing of DAASL token

RChain funds

- Developers, devops, management
- Running 20 nodes on various cloud providers
- Marketing
- Exchange listing of REV token