Previous White Paper

Qchain

Draft as of May 3, 2018.

Abstract

This white paper is outdated following our pivot to the creation of a blockchain-based marketplace for branded content, influencer marketing, and sponsorships. For more accurate information about our company and product development direction, please refer to our pitch deck. This previous white paper has been uploaded solely for your transparent reference. To make it completely clear, we are not competing with Google AdSense or looking to create a product focused on display advertising.

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1 Introduction

The cultural theorist, Marshall McLuhan, coined the expression "the medium is the message" in his 1964 publication, *Understanding Media: The Extensions of Man*. The phrase signifies that the qualities and properties of a medium dramatically influence the reception and perception of messages transmitted through that medium. Fifty three years later, the phrase has pertinent application to today's vast umbrella of digital content and media. When we think of digital media, we think of speed, adaptiveness, and responsiveness. Consumers have come to expect those qualities in the messages that are being delivered through the Internet and the products and services that facilitate the digital ecosystems. Qchain aspires to be a platform that embodies those qualities exactly for advertisers, marketers, publishers, and content creators.

Qchain is open. Source code for our product releases will be available for all to see on our GitHub, such that potential users can gain further confidence in the security of our code and the fairness of our product. Observers will be able to see that our code does not harvest or siphon off user data to a central source. Rather than profiting off of user data in underhanded means, our open development will reflect our honest intentions to facilitate secure advertiser and publisher connections, where data is only privy between those agents directly participating in the transaction.

Qchain offers value. Qchain's decentralized financial structure will offer much in the way of financial benefits for advertisers, marketers, and content publishers. The lack of extensive back-end overhead will result in lower fees for advertisers and higher payouts for publishers. Additional benefits include the nonexistence of central mandates on minimum investments in campaigns for advertisers and faster, direct payouts without withdrawal minimums for publishers, as advertisers can directly pay content publishers without an initial deposit to a middleman.

The resources being transferred between the agents will come in the choice of two tokens, one for each blockchain technology that Qchain will interface with. The ERC20 Ethereum-based token will be called Ethereum Qchain ("EQC"), and the NEM-based token will be called XEM Qchain ("XQC"). Advertisers and publishers can agree on terms over whether

they choose to carry out their smart contracts in EQC or XQC, depending on blockchain technology preference. As Ethereum and NEM are both respected and rapidly maturing blockchain technologies, we feel that giving our users the flexibility to choose between two next-generation technologies is beneficial.

2 Market

2.1 Qchain Ecosystem Agents

There are two main classes of token-exchanging agents in the Qchain advertising application ecosystem:

- **The Advertiser**. The Advertiser accumulates a supply of EQC and/or XQC for an ad campaign. The Advertiser creates the media resources and content for the campaign, and then contracts with Publishers to serve the ads to users. The Advertiser can choose to either be automatically matched with compatible Publishers based on the ad criteria each party has specified or personally select particular contracts to enter into with Publishers. The Advertiser offers some amount of payment per conversion, click, impression, or action to be split between The Publisher and The Host.

- **The Publisher**. The Publisher agrees to display media resources and content produced by The Advertiser for a set period of time on its website in exchange for a number of tokens per click, impression, or other factor. Publishers can specify criteria for advertisements that they are willing to serve, including ad type, genre, content, payment range, duration of time, and many more options.

Upon agreement to terms, the Advertiser will use Qchain to encode the agreement into a blockchain smart contract. The Advertiser will then await clicks and impressions from The Publisher's website. The flow of action between the two agents need not happen in the sequence as described in the above example (for example, a publisher can seek out an advertiser), but no matter the specific order, a successful agreement between the two parties culminates with the deployment of smart contracts reflecting their negotiated terms.

2.2 Revenue and Growth

The global advertising market is one that has seen tremendous growth and rapid expansion in the digital age. One only needs to examine the trajectory of Google and Facebook's advertising revenue to see this fact illustrated profoundly:

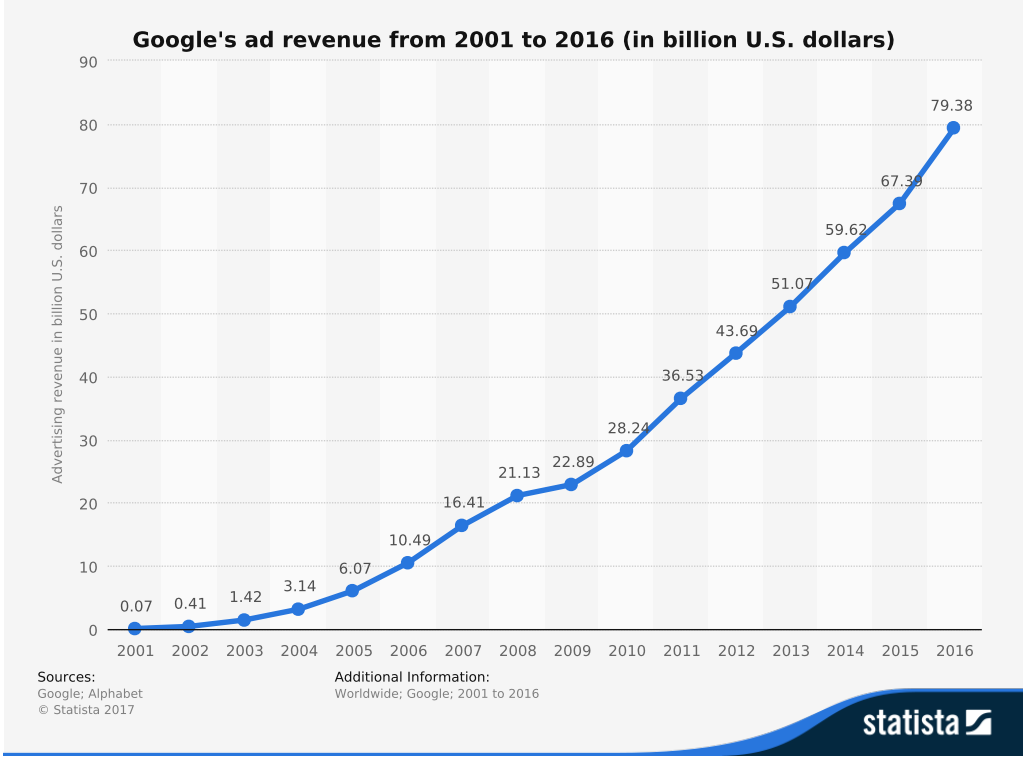
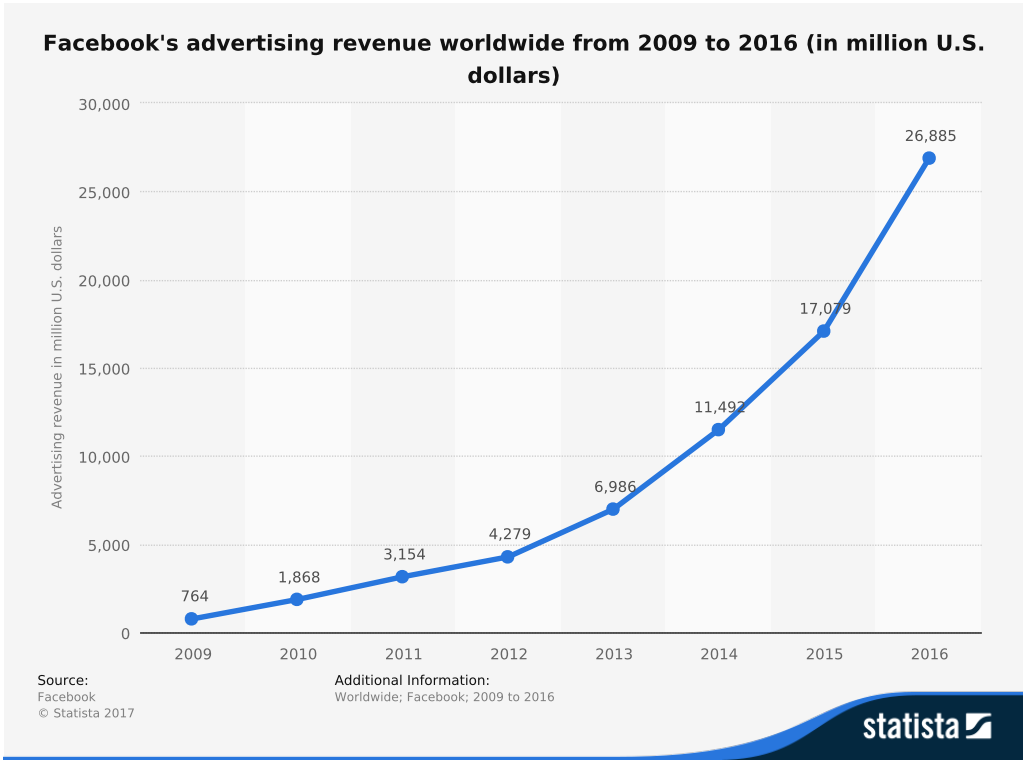


Figure 1: Total Google ad revenue[1]



[1]Statista. Google's ad revenue from 2001 to 2016 (in billion U.S. dollars). www.statista.com/statistics/266249/advertising-revenue-of-google/ (accessed May 13, 2017).

Figure 2: Total Facebook ad revenue[2]

As the above figures demonstrate, over the past few years, Google and Facebook have experienced tremendous growth in ad revenue. Google's 2016 ad revenue of $79.38 billion is larger than the total cryptocurrency market capitalization of $62.25 billion as of May 18th, 2017.[3] These charts provide data through 2016, and the upward trend is projected to stay strong in 2017. The firm eMarketer projects ad spending will increase 32.1% this year on Facebook, 14.8% this year on Google AdSense, and digital ad spending as a whole will jump 15.9%.[4] The digital advertising market appears healthy and robust, with further growth in store as the global population continues to increase and more humans obtain Internet access.

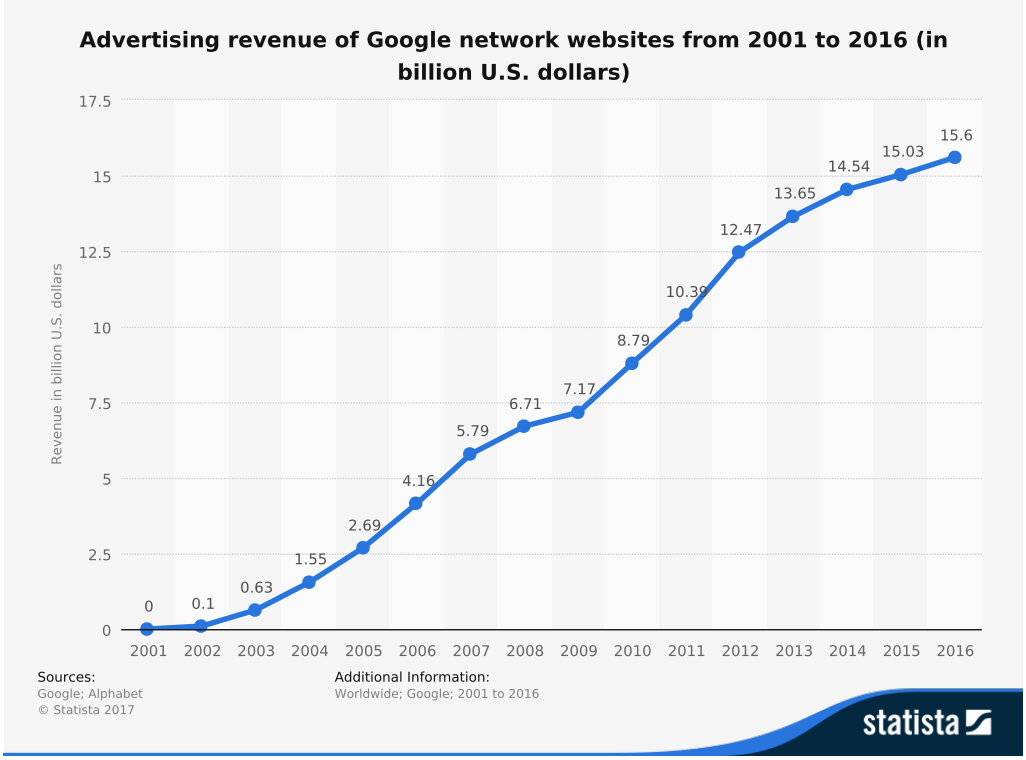


Figure 3: Total Google ad revenue from Google Network Members' websites[5]

Additionally, Google itself reports that the total number of ad clicks across its network

[2]Statista. Facebook's advertising revenue worldwide from 2009 to 2016 (in million U.S. dollars). www.statista.com/statistics/271258/facebooks-advertising-revenue-worldwide/ (accessed May 13, 2017).

[3]CoinMarketCap. Total Market Capitalization. coinmarketcap.com/charts/ (accessed May 13, 2017).

[4]eMarketer Inc. www.emarketer.com/Article/Google-Facebook-Increase-Their-Grip-on-Digital-Ad-Market/1015417 (accessed May 13, 2017).

[5]Statista. Advertising revenue of Google network websites from 2001 to 2016 (in billion U.S. dollars). www.statista.com/statistics/266245/advertising-revenue-of-google-network-sites/ (accessed May 13, 2017).

websites increased by 10% year-over-year from Q1 2016 to Q1 2017.[6] The magnitude and trajectory of both Google's own revenue and that of its Network Members indicates a prime growth market with room for smaller competitors, such as us, to innovate in the space as well as claim market share.

It is here where Qchain has a chance to shine right off the bat. Our focus will be different from Google's and significantly more personalized, prioritizing the transacting parties instead of the middle man. In addition to offering a better value proposition for advertisers and publishers, we will facilitate more direct relationships between advertisers and publishers. On our marketplace, advertisers will be able to individually see the websites they can advertise from. Advertisers and publishers will also be able to directly message each other. Thus, in our initial rollout, we opt to trade blind efficiency in favor of transparency, as opening communication channels between advertisers and publishers forwards our goal of empowering and strengthening their relationships and facilitating faster feedback between the two parties.

2.3 Addressing the Publisher's Dilemma

One of the greatest challenges for publishers in the Internet era is achieving a balance between delivering quality content with a positive user experience and maintaining a sufficient and sustainable revenue stream. In most cases, it is now obligatory for online publishers to run large volumes of ads in order to receive enough revenue to continue their operations. Unfortunately, they are currently given insufficient control over what advertisements are served, which often negatively impact the user experience and egregiously violate the privacy of website visitors, going against the desires of both publishers and their audiences. This dilemma has inevitably manifested in the widespread use of ad-blockers.

However, this is a completely unnecessary problem as well as one with straightforward solutions. Simply, advertisers should have precise control over where their ads are targeted, and publishers should have precise control of exactly what ads are displayed alongside their content. Publishers do not want to alienate visitors with poor ads. On the flipside, advertisers want to ensure that ad space they are paying for is not being directed at demographics who

[6] Alphabet. Q1 2017 financial highlights. abc.xyz/investor/news/earnings/2017/Q1_alphabet_earnings/ (accessed May 13, 2017).

are uninterested in the first place.

This leads us to one of the primary draws of the Qchain platform: it gives back control to advertisers and publishers. This allows advertisers to direct ads to the right audiences and publishers to ensure that ads are context-appropriate and do not degrade the visitor experience. When ads are appropriate and useful, content consumers are simply not incentivized to avoid ads like they are now. This is demonstrated clearly by the success of devices like the ad-supported Amazon Kindle with Special Offers[7]. The fact is that when well-targeted and value-added ads are presented in a non-intrusive way, audiences not only tolerate them but may also *like them* because they enrich the user experience.

We foresee our publisher clientele to initially be content networks, forums, and blogs – the kinds of websites that have loyal and dedicated followings, which should help advertisers build up more engaged and enthusiastic customer bases through better introductions from publishers. An example of the kind of website that we would love to see adopt our service is the blog *Slate Star Codex* (no affiliation with Qchain currently), which has built up an active and loyal following through its intellectually engaging and original content that focuses on topics ranging from artificial intelligence to effective altruism. The companies and institutions advertising on *SSC* display ads that integrate smoothly with the website. They pitch products that are highly relevant to the recurring themes in *SSC*'s posts and the interests of the technologically savvy and intellectual readership. *SSC*'s writer, who goes by the pseudonym Scott Alexander, personally introduces each of the ads. Thus, the ads end up complementing the content of website, rather than detracting from it as a distractor.

While publishers like *SSC* occupy a small amount of real estate on the web, even a small slice of Google Network's revenue represents significant earnings. For example, just 0.1% of the Google AdSense Network's $15.6 billion revenue represents a very sizable return, and collectively, smaller websites represent an appreciable portion of ad publishers. Prefacing the rollout of our product, we will reach out to and get in touch with blogs like *SSC* to try our product. This would serve as a great start for Qchain and prime our application for expansion.

[7]Frommer, Dan. The Ad-Supported Kindle Is Amazon's Best Seller. www.businessinsider.com/kindle-sales-2011-5 (accessed May 19, 2017).

2.4 Competition

A few other projects related to blockchain advertising have also been announced. Such competitors include Brave Software's Basic Attention Token (BAT), Synereo's Qrator, and adChain. To be clear, we are not worried about sharing this space with other platforms. We welcome the addition of other applications, particularly if they enrich the blockchain ecosystem as a whole and provide users with more control and options to best suit their needs. Especially in this rapidly growing market and technology sector, there is room for multiple startups, and we can all learn from each other as we grow.

In day-to-day usage, our application is more akin to Google AdSense than to the aforementioned blockchain startups. Our goal is first and foremost to facilitate ethical, personalizable, and trustless transactions between advertisers and publishers. We aspire to provide the same practical convenience that Google AdSense offers without prompting parties to change fundamental parts of their toolchain such as browsers or server infrastructure and use unfamiliar tools that introduce a steeper learning curve. We are focused on proving ourselves to advertisers and publishers and establishing a network and ecosystem from which we can swiftly expand, and in the process, return control of revenue, content, and user engagement to advertisers and publishers.

3 Advantages of a Decentralized Platform

3.1 The Value of Decentralization in an Advertising Context

More and more, our global economy seems to be dominated by monopolies and monoliths. Our disparate industries are dominated by a small collection of familiar names: Comcast, Disney, AT&T, Google, Amazon, and the like. These large conglomerates have created an environment where we consumers have to depend on their products and systems and have little recourse for alternatives in case of central failure. The desire to resist the consolidation of the global economy by central agents, be they corporations or governments, is certainly one of the factors driving the meteoric rise in the use and adoption of cryptocurrencies and blockchain technologies by people around the world. The drive for decentralization has unified people across the spectrum of creed, culture, and class.

However, the word and concept of decentralization have also become neutered and obscured as more players flock to cryptocurrency for its returns and profits. Decentralization has quickly become a buzzword that is mentioned in association with every product and application being launched in the cryptocurrency space. Hence, before we speak further on it, let us specifically define our usage of the word: we define a decentralized software as a piece of technology that cannot be shut down by a single agent participating in the space.

In the following sections, we will demonstrate our application's merit as a true representative of decentralization, and that it will be difficult for any single agent (even us) to globally stop or cripple the application once we have set things in motion. For application development, we concede that there are tradeoffs for skewing towards either direction on the decentralization/centralization scale. There are benefits to centralized features, which could include convenience and simplicity, and it is impossible for any application or technology to be platonically decentralized at every feature and facet. But in the case of digital advertising, we certainly believe the advantages of emphasizing decentralization outweigh the disadvantages for the publisher and advertiser.

3.2 Freedom, Flexibility, and Bargaining Power

One of the general advantages for a decentralized and distributed system is that rather than consolidating freedom and flexibility of actions to the whims of a single, central agent, it allots those qualities to all agents participating in the system. This generality extends to the digital advertising system. In the Google AdSense network, Google, the single middle man, holds the vast majority of the negotiating power. Google can increase fees, deploy intrusive data-collecting code, and renege on terms in a manner that is detrimental to publishers and advertisers on their network with little fear of effective resistance. A collaborative boycott by a majority of publishers and/or advertisers would possibly have an effect, but the sheer scale of the network and lack of alternative revenue sources makes such an action prohibitively difficult to coordinate.

An adverse outcome of unbalanced man-in-the-middle (MITM) dominance for other agents was demonstrated recently when YouTube (owned by Google, of course) abruptly and opaquely tightened its conditions for monetization of videos by content publishers in March of 2017.[8] Google had received some complaints from some of its larger conglomerate advertising clients, including AT&T and Verizon, that their ads were being matched with racist content. Google responded with a heavy hand and introduced stronger filters for advertisers that would prevent their ads from being displayed alongside videos deemed by an algorithm to contain hate speech content. However, the algorithm ended up flagging and demonetizing many videos that did not stray foul of YouTube's updated hate speech prevention content guidelines. A number of independent content publishers who depended on YouTube ads for their salaries suddenly found that they could no longer receive enough ad revenue to cover their livelihoods because of the algorithm's decision. To date, there has been little recourse to the affected video publishers. Google has released few details about its hate speech filtering process and has given publishers no opportunity to appeal their demonetization. As a result, many of them have had to consider career changes that they were unprepared to make.

Thus, one of our goals with Qchain is to distribute the control of capital flow in digital

[8] Jackson, Gita. YouTube's Latest Advertising Changes Have People Worried About Money. kotaku.com/youtubes-latest-advertising-changes-have-people-worried-1793912694 (accessed May 19, 2017).

advertising so that no single agent or class of agent can dominate the ecosystem. Relaxation from single-agent control redistributes freedom, flexibility, and bargaining power to individual agents and enables smaller-scale negotiation between those individuals. Individual agents can then spend their time and attention on defining tailored deals with each other, rather than worrying about struggling under one-size-fits-all agreements that apply indiscriminantly to whole classes and can change without a moment's notice. We outline some of the redistributed advantages and added bargaining options that advertisers and publishers will enjoy from using our software over an MITM application like Google AdSense.
For advertisers, advantages will include:

- greater control over the content and websites that ads are displayed with
- greater control over the amount paid per action (CPA), click (CPC), or impression (CPI) in a certain contract
- increased freedom of contract structures to allow greater variability in payment conditions (i.e. advertisers would be able to demand payment after a combination of action, click, and impression counts from a publisher's site has been met)
- increased freedom of contract structures to allow greater variability in payment conditions (i.e. advertisers would be able to disperse payment after a combination of action, click, and impression count from a publisher's site has been met)
- reduced exposure of their revenue and click data to an MITM agent
- increased ability to break contracts and pull their ads from websites without needing to wait for intervention from an MITM agent
- increased freedom of content delivery mechanisms and hosting preferences
- the lack of minimum investments and deposits for ad campaigns
- the ability to hold and maintain control of payout capital in personal storage mechanisms free from the prospect of MITM seizure

For publishers, advantages will include:

- increased payouts from reduced fees
- the lack of a lengthy verification and content approval process from an MITM that may result in days of missed revenue
- the ability to transfer payouts with quicker turnaround times directly to personal storage mechanisms without having to wait on a central MITM agent
- the ability to exit a single contract from a single publisher without severing an entire central source of ads
- more versatility and command over the kinds of ads they can choose to host (e.g. text ads, display ads, native ads, or a combination of the three)
- increased authority over the sourcing of ads displayed alongside their websites and content
- reduced exposure of their visitor data for collection by an MITM

Advertisers and publishers will share the advantages of having access to greater control and flexibility of dictating contracts, faster transactions, improved privacy, increased protection from system-wide censorship, and guaranteed freedom from the opaque whims of an MITM agent in the decentralized digital advertising environment that Qchain will provide. We are confident that decentralization will increase peace of mind for publishers and advertisers.

4 The Direct Buy Application Architecture

4.1 A Unified Interface

The Qchain web application will have a straightforward and unified interface for publishers and advertisers. As eBay allows an agent to be both buyer and seller, Qchain will allow an agent to be both publisher and advertiser. An accessible navigation menu within the interface will allow agents to navigate seamlessly between publisher and advertiser functionality of the application. The publisher section will list and sort the active and expired smart contracts in which the user is serving as the publisher. It follows that the advertiser section will list and sort the active and expired smart contracts in which the user is serving as the advertiser along with information detailing total and remaining payout capital balances per contract. In either case, parties can access summary statistics for their contracts and detailed analytics regarding their payments and payouts. Within the publisher and advertiser sections, a simple toggle selection will allow publishers and advertisers to switch between interacting on the Ethereum or NEM blockchains. Located underneath the tabs to access the advertiser and publisher interfaces will be the button to access the smart contract marketplace, where advertisers and publishers list and solicit their offers and proposals.

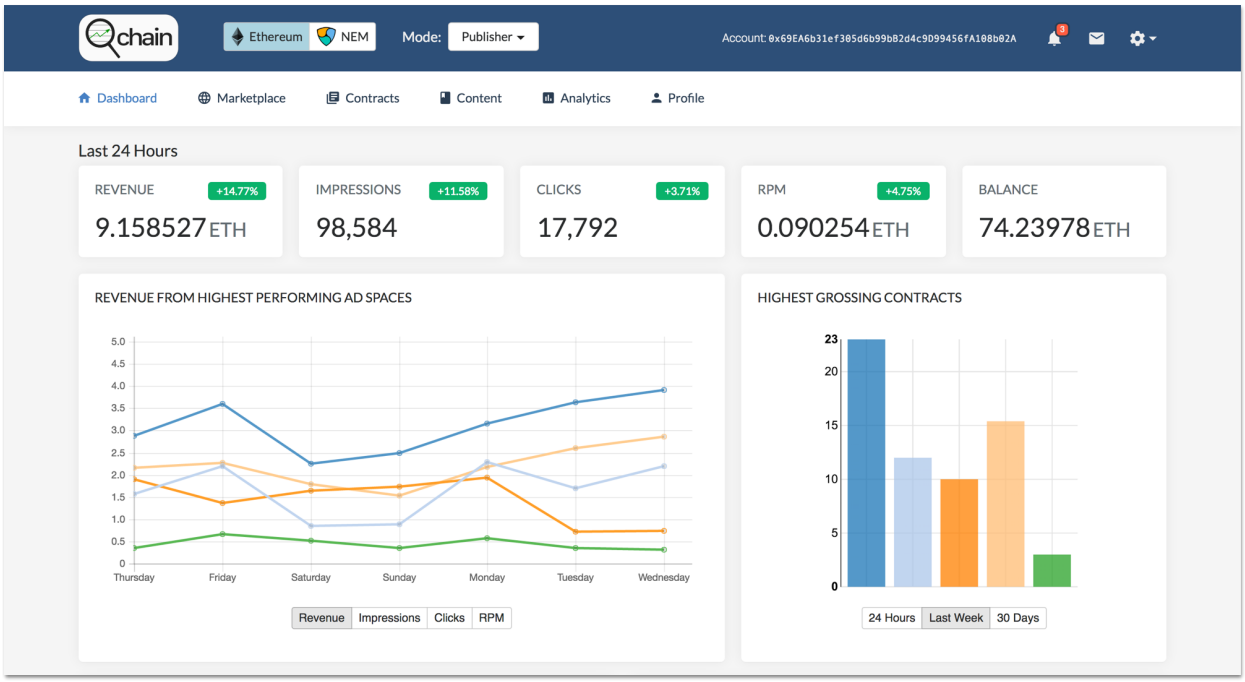


Figure 4: Easily switch between operation on Ethereum and NEM blockchains, and smoothly navigate between advertiser and publisher dashboards.

4.2 The Direct Buy Marketplace

Qchain will launch with an advanced and augmented direct buy marketplace. For the marketplace, we take inspiration from Craigslist. Advertisers and publishers will be able to view and filter from a database of available offers, solicitations, and proposals from each other to open negotiations. To allow advertisers and publishers to easily find each other, there will be separate advertiser and publisher subsections within the marketplace; publishers can search specifically for ad content, and advertisers can search specifically for places to display their content. Advertisers will be able to sort publishers by the specific thematic content of the publishers' website (e.g. American politics or computer science), the type of website (e.g. blogs or forums), and the type of ads publishers are accepting (e.g. banner ads or text ads and display ads or native ads). So, for example, advertisers will be able to filter offers to find all specific ones from blogs that cover environmental issues and are looking for banner ads. Similarly, bloggers will be able to search for all advertisers that are asking to display ads within, say, posts about renewable energy, and then bloggers will be able to adjust their content accordingly to appeal to the offer. Additionally, both advertisers and publishers can specify parameters such as the timespan, price range, and price cap of a desired contract. Once an interested advertiser or publisher has selected an offer listing, they will be able to directly message the other party through the app to gauge interest and begin negotiations. Of course, for advertisers and publishers looking for maximum simplicity, one will also be able to use our automatching functionality. Through this function, advertisers are automatically paired with publishers if they have both submitted contract requests with compatible terms (e.g. content genre, ad type, and price range), without having to engage in any negotiations.

5 Blockchain Agnostic Platform Scalability

Qchain's back-end architecture is fundamentally designed for effortless scalability from individual virtual server instances to massively distributed cloud infrastructures, and everything in between. Our software is built from the ground up to be portable and efficient, such that smaller scale advertisers, publishers, and hosts do not need to invest in propriety or exbortitantly priced hardware and the staff to administrate it. Additionally, we are developing Qchain with deployment to cloud computing providers in mind (in fact, our prototypes are running on Amazon Web Services). This allows parties to leverage the extensive cloud infrastructures of companies like Amazon, Google, and Microsoft, without having to relinquish profits, control, and privacy.

6 Legal Summary

6.1 Legal Disclaimers

NOT AN OFFER TO SOLICIT SECURITIES AND RISKS ASSOCIATED WITH "EQC" AND "XQC" AND THE QCHAIN APPLICATION

This document is for informational purposes only and does not constitute an offer or solicitation to sell shares or securities in Qchain or any related or associated company. Any such offer or solicitation would only be made by a confidential offering memorandum and in accordance with applicable securities and other laws. None of the information or analyses presented are intended to form the basis for any investment decision, and no specific recommendations are intended. Accordingly, this document does not constitute investment advice or counsel or solicitation for investment in any security. This document does not constitute or form part of, and should not be construed as, any offer for sale or subscription of, or any invitation to offer to buy or subscribe for, any securities, nor should it or any part of it form the basis of, or be relied on in any connection with, any contract or commitment whatsoever. Qchain expressly disclaims any and all responsibility for any direct or consequential loss or damage of any kind whatsoever arising directly or indirectly from: (i) reliance on any information contained in this document, (ii) any error, omission or inaccuracy in any such information or (iii) any action resulting therefrom.

The Qchain token, or "EQC" and "XQC", is a cryptographic token used by the Qchain application. EQC and XQC is not a cryptocurrency. At the time of this writing, (i) EQC and XQC have no known uses outside the Qchain application, (ii) EQC and XQC cannot be exchanged for goods or services, and (iii) EQC and XQC are not listed on any known exchanges. EQC and XQC is not an investment. There is no guarantee indeed there is no reason to believe that the EQC and XQC you purchase will increase in value. It may and probably will at some point decrease in value. Those who do not actually use their EQC and XQC honestly and fairly may lose their right to use EQC and XQC to those that do use EQC and XQC honestly and fairly. EQC and XQC is not evidence of ownership or right to control. Controlling EQC and XQC does not grant its controller ownership or equity in

Qchain, or the Qchain application. EQC and XQC does not grant any right to participate in the control, direction or decision making of Qchain or the Qchain application.

6.2 Legal Disclosures

Last Updated: June 10, 2017

1. **Risk of Losing Access to EQC and XQC Due to Loss of Credentials:** The purchasers EQC and XQC may be associated with a Qchain account until they are distributed to the purchaser. The Qchain account can only be accessed with login credentials selected by the purchaser. The loss of these credentials will result in the loss of EQC and XQC. Best practices dictate that purchasers safely store credentials in one or more backup locations geographically separated from the working location.

2. **Risks Associated with the Ethereum and NEM Protocols:** EQC and XQC and the Qchain application are based on the Ethereum and NEM protocols. As such, any malfunction, unintended function, unexpected functioning of or attack on the Ethereum and/or NEM protocols may cause the Qchain application or EQC and XQC to malfunction or function in an unexpected or unintended manner. Ether, the native unit of account of the Ethereum protocol and XEM, the native unit of account of the NEM protocol, may itself lose value in ways similar to EQC and XQC, and also other ways.

3. **Risks Associated with Purchaser Credentials:** Any third party that gains access to or learns of the purchasers login credentials or private keys may be able to dispose of the purchasers EQC and XQC. To minimize this risk, the purchaser should guard against unauthorized access to their electronic devices.

4. **Risk of Unfavorable Regulatory Action in One or More Jurisdictions:** Blockchain technologies have been the subject of scrutiny by various regulatory bodies around the world. The functioning of the Qchain application and EQC and XQC could be impacted by one or more regulatory inquiries or actions, including the licensing of or restrictions on the use, sale, or possession of digital tokens like EQC and XQC, which could impede, limit or end the development of the Qchain application and increase legal costs.

5. **Risk of Alternative, Unofficial Qchain Application:** Following the Crowdsales and the development of the initial version of the EQC and XQC platforms, it is possible that alternative applications could be established, which use the same open source code and protocol underlying the Qchain application. The official Qchain application may compete with these alternative, unofficial EQC and XQC-based applications, which could potentially negatively impact the Qchain application and EQC and XQC, including its value.

6. **Risk of Insufficient Interest in the Qchain Application or Distributed Applications:** It is possible that the Qchain application will not be used by a large number of businesses, individuals, and other organizations and that there will be limited public interest in the creation and development of distributed applications. Such a lack of interest could negatively impact EQC and XQC and the Qchain application.

7. **Risk that the Qchain Application, As Developed, Will Not Meet the Expectations of Qchain or the Purchaser:** The Qchain application is presently under development and may undergo significant changes before release. Any expectations or assumptions regarding the form and functionality of the Qchain application or EQC and XQC (including participant behavior) held by Qchain or the purchaser may not be met upon release, for any number of reasons including mistaken assumptions or analysis, a change in the design and implementation plans and execution of the Qchain application.

8. **Risk of Unfavorable Fluctuation of Ether and Other Currency Value:** The Company team intends to use the proceeds from selling EQC and XQC to fund the maintenance and development of the Qchain application, as described further in the White Paper. The proceeds of the crowdsales will be denominated in Ether or XEM, and converted into other cryptographic and fiat currencies. If the value of Ether or other currencies fluctuates unfavorably during or after the crowdsales, the Company team may not be able to fund development, or may not be able to develop or maintain the Qchain application in the manner that it intended.

9. **Risks from Taxation:** The tax characterization of EQC and XQC is uncertain. You must seek your own tax advice in connection with purchasing EQC and XQC, which may result in adverse tax consequences to you, including withholding taxes, income taxes, and tax reporting requirements.

10. **Risk of Theft and Hacking:** Hackers or other groups or organizations or countries may attempt to interfere with the Qchain application or the availability of EQC and XQC in any number of ways, including service attacks, Sybil attacks, spoofing, smurfing, malware attacks, or consensus based attacks.

11. **Risk of Security Weaknesses in the Qchain Application Core Infrastructure Software:** The Qchain application consists of open source software that is based on other open source software. There is a risk that the Qchain team, or other third parties may intentionally or unintentionally introduce weaknesses or bugs into the core infrastructural elements of the Qchain application interfering with the use of or causing the loss of EQC and XQC.

12. **Risk of Weaknesses or Exploitable Breakthroughs in the Field of Cryptography:** Advances in cryptography, or technical advances such as the development of quantum computers, could present risks to cryptocurrencies and the Qchain platform, which could result in the theft or loss of EQC and XQC.

13. **Risk of EQC and XQC Mining Attacks:** As with other decentralized cryptographic tokens and cryptocurrencies, the blockchain used for the Qchain application is susceptible to mining attacks, including double-spend attacks, majority mining power attacks, selfish-mining attacks, and race condition attacks. Any successful attacks present a risk to the Qchain application, EQC and XQC, and expected proper execution and sequencing of Ethereum contract computations and NEM computations. Despite the efforts of the Qchain team, the risk of known or novel mining attacks exists.

14. **Risk of Lack of Adoption or Use of the Qchain Application:** While EQC and XQC should not be viewed as an investment, it may have value over time. That value may be limited or non-existent if the Qchain application lacks use and adoption. If

this becomes the case, there may be few or no markets following the launch of the platform, potentially having an adverse impact on EQC and XQC.

15. **Risk of an Illiquid Market for EQC and XQC:** There very well may never be a secondary market for EQC and XQC. There are currently no exchanges upon which EQC and XQC would trade. If ever exchanges do develop, they will likely be relatively new and subject to poorly understood regulatory oversight. They may therefore be more exposed to fraud and failure than established, regulated exchanges for other products and have a negative impact on EQC and XQC.

16. **Risk of Uninsured Losses:** Unlike bank accounts or accounts at some other financial institutions, funds held using the Qchain application or Ethereum network are generally uninsured. In the event of any loss, there is no public insurer, such as the FDIC, or private insurer, to offer recourse to the purchaser.

17. **Risk of Dissolution of the Qchain Project:** It is possible that, due to any number of reasons, including an unfavorable fluctuation in the value of Ether or XEM, development issues with the Qchain application, the failure of business relationships, or competing intellectual property claims, the Qchain project may no longer be viable as a business or otherwise and may dissolve or fail to launch.

18. **Risk of Malfunction in the Qchain Application:** It is possible that the Qchain application malfunctions in an unfavorable way, including one that results in the loss of EQC and XQC.

19. **Unanticipated Risks:** Cryptographic tokens are a new and untested technology. In addition to the risks discussed in this White Paper, there are risks that the Qchain team cannot anticipate. Further risks may materialize as unanticipated combinations or variations of the discussed risks or the emergence of new risks.