GUARANTEED ENTRANCE TOKEN

Smart Event Ticketing Protocol

written by the GET Foundation Team

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Abstract GET Protocol whitepaper

Ticket fraud and exorbitant secondary ticket prices are age old phenomena that have had artists and their fans worried since the times of Dickens and Shakespeare. Thirty percent of all tickets are resold with mark-ups between 30% and 700%. The event ticket market is know to be non-transparent, inexplicable transaction costs added to tickets are a common practice among ticketing services. The solution is a blockchain based event ticketing protocol used by ticking and booking companies that will make exorbitant secondary market ticket prices and ticket fraud occurrences of the past. The protocol will offer these features while providing absolute transparency for all actors involved. These features are accomplished by introducing a smart-ticketing protocol built upon the Ethereum blockchain that will facilitate as a back-end backbone to the sale and trade of event tickets by issuing smart tickets to wallet addresses. The owner of such a smart ticket is free to **anonymously** sell a ticket but can only do so within the decentralized and issuance price restricting infrastructure/rule-structure of the GET Protocol. This ensures that ticket trades are done safely and within a set price margin. Over the counter trade or additional off-chain fee surcharges are not possible as trade is anonymous and the tickets QR code non-static. The smart tickets QR code is dynamic and will change as a factor over time and owner of the ticket. This makes trading/selling the QR code outside of the protocol impossible by default. The token, the GET, will act as the main stable value holding asset in the protocol in each event cycle. This characteristic is necessary for this honest ticketing platform, as the token FIAT value locking attribute adds both security and price stability to the protocol during each event-cycle. The GET Protocol will be further developed, owned and operation by the GET Foundation. GUTS Tickets is a blockchain based ticketing company from Amsterdam with an operational ticketing application/business that has initiated the GET Protocol and will also serve as launching customer of the protocol. Over the past year, GUTS Tickets has facilitated numerous events with its application and has much more lined up for the future(330k tickets already **secured for 2019 alone**). The token's issuance, its utility function within the GET-protocol and the role for the token holder are all explained in detail in the body of this whitepaper. Short in time? **Read our two-pager for a brief overview of our proposition.**

Supply type	GET
Total circulating supply on 20 December '17	**9,901,391**
Total circulating supply after transfer of referral and bounty tokens.	**10,384,386**
Total GET minted by crowdsale contract / maximum supply of GET:	**33,368,773**
Maximum theoretical GET max in circulating supply:	**13,523,852**

Table 1: Summary of the circulating and maximum supply of GET. **Check the minting, burning and vesting specifications and subsequent proofs by viewing this public Google spreadsheet.** Monitor the movement of the GET on **etherscan.**

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The ticketing company **GUTS** is currently selling blockchain-registered tickets via its smart-ticketing application. In 2017 alone the company sold tickets for more than 46 events totalling more than 10.000 tickets. Where traditional ticketing companies provide a buyer with a static QR code, the GUTS application serves the user with a dynamic QR code that changes as a function over time and owner. One of the Netherlands most prominent theater companies, Hekwerk Theaterproducties, have partnered with GUTS and its team. This deal alone secures protocol usage for more than 310.000 tickets in 2019. Several prominent artists and their management, for example **Guus Meeuwis** and Martin Garrix. Booker **Chris Payne of ITB**(repr. Adele, Maroon 5 etc.) have also shown their support for our vision of a efficient and transparently merged primary and secondary ticketing market. With as main philosophy cutting out the profits made by parties adding little to no value in the event value chain. The protocol allows ticket owners to resell their ticket anonymously to other consumers directly in the web-application without the risk of being defrauded or getting scalping with fees/excessive margins.

GUTS Tickets	The GET Foundation
Provides smart ticketing services	Provides a open blockchain protocol
Customers: Event organizers, festivals and venue owners.	**Customers:** Ticketing companies, promotors and booking companies.
Builds consumer facing smart ticketing web-application.	Provides a value conserving protocol for ticketing companies.
Operational since Q1 2016	White paper published Q2 2017
Launching customer: Hekwerk 310.000 ticket / year.	Launching customer: GUTS Tickets
GUTS Tickets BV Registrant number: 69771138	GET Foundation (Stichting) Registrant number: 65911296
Both entities are incorporated in the Netherlands and are fully compliant with Dutch/EU rules and regulations.	

Table 2: **The difference between GUTS Tickets and the GET Foundation.**

The GET Protocol is operational. The GET Protocol is more than a white paper or a proof of concept. It is reality. GUTS Tickets is already selling smart tickets registered on the blockchain. After the crowdsale is completed other functionalities as reselling tickets within a price margin will be added to the protocols functionality. Check out the events we ticket for or try out the sandbox environment and experience the future of ticketing for yourself.

ABOUT THE COMPLETED CROWDSALE - THE GET PROTOCOL ICO ENDED ON 14 DECEMBER

GET Protocol	€Euro	Status	Total GET
Softcap	€2.3 million	**Reached After completing public pre-sale**	8.560.800 GET
Hardcap goal	€15 million	Crowdsale is completed (ended 13 December 13 CET)	23.987.367 GET
Crowdsale result	€6.253.185 million	10.934,62 ETH	9.901.391,97 GET
Circulating supply	Crowdsale + Bounty Referral partitions		10.384.386,70 GET
Maximum supply	Meaning all GET to be ever minted. There will be never more GET than this amount of GET in existence.		33.368.773,40 GET*
Total burned	In total two token burns where conducted. One at the half-way point and the last one at finalization. of the crowdsale. Both burn summed amount to a total of: 56.631.226,60 GET burned.		
Average GET price during complete sale	On average (including the private & public pre-sale) contributors received 0.00110435179 GET/ETH. In total 1179 unique contributors participated in the crowdsale.		

Table 3: Summary of the GET Protocol ICO. Details about the recalibration of the hard-cap on the half way point due to the increased ether price is described in our blog.

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VALUE PROPOSITION

This white paper introduces the Guaranteed Entrance Token (GET): transparent and open smart-ticketing protocol for any event with regulated admission. The GET-Protocol provides primary actors in the event space the following benefits:

- **Users:** GET ensures that event participants enjoy a secure and stress-free ticketing experience, and provides a simple and inexpensive way for ticket holders who cannot attend the event to securely sell their tickets to other consumers/users.
- **Content-creators:** The GET Protocol prohibits commercial ticket resellers from disturbing the value chain; artists can be certain that their fans pay a fair price for a guaranteed, authentic ticket.
- **Event organizers:** GET provides a scalable ticketing protocol to manage ticket sales for any size events in a secure and controlled manner. GET controls and accounts for the true value and cost of transactions, the ticket and possible margins/discounts. The blockchain ensures transparency in the true price and properties of the tickets sold. This transparency by design aims to eliminate middlemen from the value chain. The protocol increases market efficiency as a whole while increasing margins for the stakeholders delivering actual value.
- **Venues:** GET provides users with an honest and fraud-free experience that promotes a higher occupancy rate of the venue. The token will also allow venues to offer dynamic pricing of their tickets and thereby maximizing for attendance. As tickets are only used by actual attendees it allows for accurate re-marketing (on opt-in basis) and giving discounts to their loyal and non-scalping customers of their venue.

ABOUT THIS WHITE PAPER This white paper is structured as follows. In chapter 1 we will describe the current ticketing market, the issues it faces, we introduce smart tickets as a solution and the GET Foundation and GUTS as its champions. The principles for such a smart ticket based blockchain solution will be set out in chapter 2. The GET Protocol and GET and how stakeholders will interact with them during the first two phases of development, is the subject of chapter 3. Chapter 4 contains a roadmap for the development of the GET Protocol. Chapter 5 will contain analysis of the competitive landscape. The final chapter sets out the details of the GET Protocol ICO and structuring of the GET Foundation collecting the contributions. This final chapter will also include a description of the team member behind the GET Protocol initiative.

LEGAL DISCLAIMER

This white paper does not constitute a prospectus of any sort, is not a solicitation for investment and to our knowledge does not pertain in any way to an offering of securities or other financial products or instruments falling under the scope of financial regulations in any jurisdiction. Rather, it outlines our vision about the properties and functionalities of the GET Protocol.

This white paper is meant for an audience that has a profound understanding of concepts like the blockchain, its usage of public and private keys, crypto currencies and tokens. The reader understands and accepts that while the GET Foundation will make reasonable efforts to develop the GET Protocol as outlined, it is possible that such development may fail or may be different as foreseen for technical, commercial, regulatory or other reasons. Even if all or parts of the GET Protocol are successfully developed and released in full or in parts, due to a lack of interest from target stakeholders, the GET Protocol could be fully or partially abandoned, remain commercially unsuccessful or shut down for lack of interest or other reasons.

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1 INTRODUCTION

Scalpers, ticket touts, black market sellers, and secondary ticketers are all terms used to describe people and organizations that profit from the reselling of tickets without adding any value to the industry. In many countries, primary ticketing organizations and other stakeholders have attempted to restrict the secondary market, but these initiatives offer little protection to the consumer. Though secondary ticketing organizations facilitate a free market and match high ticket demands with similar offers, resellers are denounced by fans and artists alike, who criticize resellers for deceptive tactics and exorbitant price hikes. Blockchain based tickets are a solution to this problem and various other issues the ticketing industry faces. GUTS Tickets, an operational smart ticketing company, has pioneered such a solution. By offering an blockchain protocol, that can be used as a back-bone API/protocol for ticketing companies, the GET Foundation will drive this effort to revolutionize the ticketing sector and create an industry wide paradigm shift that will result in completely honest and transparent ticketing value streams for all actors.

ARTIFICIAL SCARCITY AND FRAUD Professional resellers create unnecessary scarcity in the ticket-acquisition process, creating confusion about the price and availability of tickets. Their intrusion into the process imposes a burden on fans and threatens artists' revenue from live performances: events which are becoming increasingly crucial to artists' success. Instances of ticket fraud compound these problems, as many fans are denied access to events because they were sold an invalid, fake, or already scanned ticket.

1.1 NON TRANSPARENT AND PROFITABLE MARKET

The difference in demand and price between the moment a ticket goes on sale and the time that the event begins creates a lucrative arbitrage opportunity for middlemen resellers, whether they are individuals, bots, or companies. This arbitrage opportunity results in two distinct ticket markets:

1. THE PRIMARY TICKET MARKET Event organizers or content creators (i.e. artists) issue original tickets on the primary market, at a price that they set themselves. Event organizers then engage ticketing companies to sell and distribute the tickets for the event, and the ticketing company typically charges transaction and administration costs in addition to the original ticket price. In some cases, these added costs are distributed between the event organizer and the ticketing company without the consumer knowing.

2. THE SECONDARY TICKET MARKET Thirty percent of all tickets are sold through the secondary market. The ticket resellers that belong to this market, such as touts and scalpers, acquire quantities of the original tickets with the intention of selling them at a much higher price. Ticket touts advertise ticket sales for upcoming events before the primary market even issues the tickets and, in some cases, touts make a deal with primary ticketing companies to acquire a certain number of original tickets before they are available for purchase by fans.

FALSIFYING EVENT TICKETS The most objectionable type of secondary ticketing practice is fraud. The authenticity of a ticket is determined by ink printed onto a piece of paper or through an image in a PDF file, a "technology" that makes committing ticket fraud as easy as taking a screen shot or operating a copier.

THE SECONDARY TICKET MARKET IN NUMBERS In 2009, Europe Economics undertook a study to gain a better understanding of the structure and scale of the secondary ticketing market. The studies findings:

- For popular music festivals, 20-30% of tickets are resold at a mark-up of 30%
- For high-end events (e.g. Kings of Leon), 20-40% of tickets are resold at a mark-up of 100-250
- For very high-end events (e.g. Madonna), 60-70% of tickets are resold, often with a mark-up exceeding 500%.

1.2 THE TICKET LIFE CYCLE AND MIDDLEMEN

Assessing the life cycle of a ticket for a popular event reveals a vast number of intermediaries between the content creator and the end user. Several of these intermediaries – the promoters, the bookers, the artists' management, the venues themselves, and the primary ticketing companies – add certain value to the chain.

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The fragmentation of all these intermediaries, however, prevents transparency and results in two problems: the commercial ticket reseller and dishonest transaction costs. A transparent market avoids these issues and provides end users with a fair and straightforward ticket purchasing experience.

CONSEQUENCES FOR THE STAKEHOLDERS In addition to the unnecessary burdens they impose on fans, middlemen can also create problems for event organizers and content creators, including low ticket sales and an inability to attract the right audience. Exorbitant ticket prices often provoke conflict between unhappy fans and content creators, who are themselves incapable of controlling prices set by secondary market resellers. Other stakeholders rarely share user data with the content creators, with the risk that the latter lose a critical opportunity to cultivate a sustainable fan base. Despite adding very little value to the event itself, intermediaries earn more than the content creators. Event organizers bear all of the financial risks, yet they have little or no control over ticket sales because they have no alternative than to enlist a ticketing company to issue tickets. By relinquishing the control of ticket sales to a third party, content creators and event organizers are, at their own expense, providing opportunities to intermediaries who benefit in the short-term without contributing to the artists' future success, making the promotion of upcoming events more difficult and allowing the events themselves to remain a large financial risk for organizers.

1.2.1 *The right to resell the ticket*

A purchased ticket is the property of the end user, and users have the fundamental right to (re)sell their property. Regulating ticket reselling, however, is complicated, and current solutions remain inadequate. In the Netherlands, for example, a law to end extreme prices for secondary tickets remains under review six years after it was first proposed. Governments will not provide a global solution for the problem, let alone a local one. The rise of online markets has eroded the government's power to regulate, even when the laws are in place.

Modern ticketing companies mainly use barcodes or QR codes to store all of the ticket data required for event admission. These data types merely obfuscate a ticket holder's information, which is later checked against a database prior to entry. Information is only encoded, not encrypted, and therefore can be scanned and decoded by anyone with a smart phone. These vulnerabilities provide opportunities for malicious actors to modify these data structures and create a new barcode that will be unique but not recognized as legitimate when consumers try to use them to enter an event.

The scarcity of event tickets combined with the unregulated nature of the market ensures that resellers will always exploit end users with exorbitant secondary tickets prices. It is common knowledge that certain primary ticketing companies and secondary ticketing companies are subsidiaries of the same holding companies, which illustrate how market forces incentivize revenue maximization to the detriment of content creators and fans alike.

Market	Problems
Primary ticketing market	- Lack of market transparency results in high and undefined added costs. - Collusion between stakeholders thrives without transparency.
Secondary ticketing market	- Touts, scalpers and resellers cause excessive inflation of secondary ticket prices. - Ticket buyers have no guarantee of ticket authenticity. - The "middle man" effect of the secondary market results in a loss of user data.

Table 4: Overview of the problems with traditional ticketing markets.

The demand of stakeholders

Now that it is clear what is wrong with the market, another more important question arises: *What do the stakeholders actually want?* The wish list displayed below was drafted on the basis of experiences, research and meetings with stakeholders all over the industry in 2016 and 2017, including from our launching customer GUTS Tickets.

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Stakeholder	Wishes
End user	- Fair ticket price. - Low transaction costs. - Ability to sell the ticket when unable to attend the event. - Guaranteed authenticity of tickets.
Content creator	- Tickets sold to actual fans, not resellers. - Increased sales and event attendance. - Fair prices and authentic tickets for fans. - Ability to create and sustain community of fans.
Event organisers	- Acceptable financial risk for event. - Effective sales solution for any size event. - Stable selling and distribution of tickets. - Stable sale and distribution of tickets. - Fair dynamic pricing for high occupancy events. - User data collection (with permission).
Venues	- Reduced ticket fraud. - Efficient validation process. - Easy-to-use system. - Ability to sell additional offers before the event (e.g. drinks).

Table 5: Event ticket market shortcomings overview.

1.2.2 *The GET Protocol Solution*

A solution to the issues posed by the secondary market should address the root cause of the problem: the ability to resell tickets at a higher price by charging additional and unnecessary fees. The solution proposed in this white paper—the **G**auranteed **E**ntrance **T**oken (GET) protocol—does just that.

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The inherent difference between the market value of tickets at the moment of initial sale and the moment the event sells out creates an arbitrage opportunity for both businesses and consumers that are hard to resist. Even for initially non-profit-seeking consumers, it is difficult to ignore the sudden price increase of a ticket. Data analysis of the "fair" secondary ticket market platform, TicketSwap, confirms this statement. The company reported that regular ticket holders who want to sell their ticket to other fans seem strongly inclined to add 20% mark-up for their ticket. [1]

ROLE OF REGULATION Even strict government regulation that specifically forbids ticket sales for profit in the secondary market does little to deter the practice itself. The rise of online markets has eroded the government's power to regulate, even when the laws are in place. Modern ticketing companies mainly use barcodes or QR codes to store all of the ticket data required for event admission. These data types merely obfuscate a ticket holder's information, which is later checked against a database prior to entry. Information is only encoded, not encrypted, and therefore can be scanned and decoded by anyone with a smart phone. These vulnerabilities provide opportunities for bad actors to modify these data structures and create a new barcode that will be unique but not recognized as legitimate when consumers try to use them to enter an event.

NERDS TO THE RESCUE From both a technological and political perspective, regulating the sale of tickets by, for example, tracking the profit margins made on each ticket, is almost impossible. To eliminate the shortcomings inherent in modern tickets and ticket reselling, tickets should be able to "know" when ownership changes and the tickets themselves should dictate the price of the transfer. In other words, we need to make event tickets "smart" and store information in a robust and transparent database.

Did somebody say smart tickets on blockchain?

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[1] Source: www.medium.com/@TicketSwap

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1.3.1 *The Ethereum network*

Ethereum is a decentralized database that is incorruptible by any central malicious actor. It can be accessed by anyone with an Internet connection and is very cheap to harness. These features render the blockchain as transparent by nature, such that many of the oversight and ticket verification issues are solved immediately. Blockchain technology provides an environment where consumers could locate a validated and trusted list of outlets selling tickets on the blockchain.

SMART CONTRACTS The GET Protocol is composed entirely of smart contracts that allow for the creation and validation of events and tickets. The issuance and sale of tickets in primary and secondary ticket markets (which can be controlled by event organizers) and the distribution of ticket sale revenue and market/event fees between the stakeholders are both monitored and executed with these smart contracts. The protocol charges minimal fees for the use and creation of these contracts, thereby making the protocol competitive against the current off-chain solutions and ensuring maximal adoption.

1.4 INTRODUCING THE GET FOUNDATION AND GUTS TICKETS

1.4.1 *GUTS Tickets*

GUTS Tickets is a blockchain-based ticketing company founded in March 2016 by three Dutch entrepreneurs. The company employs eight developers and has won multiple innovation awards both in the Netherlands as well as throughout Europe. GUTS Tickets has partnered with some of the most famous comedians in the Netherlands to support the mission of truly transparent ticketing. Visit the GUTS website to view the events previously ticketed by GUTS, and use the Ethereum blockchain explorer to view the tickets on the chain. If you want to experience the future of event ticketing, check out our sandbox ticketing app and test it for yourself.

Curious? Buy and sell a (free) smart ticket for a event via the GUTS ticketing application on our sandbox environment:
https://sandbox.guts.tickets/events

EXPERIENCE AND PARTNERS OF GUTS TICKETS Over the last year of its existence, GUTS Tickets has acquired both actual real-world experience in the business of selling tickets for events and, by running successful demos, has collected a set of important and influential stakeholders in the Dutch market, including Hekwerk Theatre Productions. This company organizes 800 theatre shows annually and has 20 major artists and comedians under management. GUTS Tickets completed a successful pilot program with A-venue (organizer of East Ville and Latin Village festivals), which organizes several festivals that draw over 30,000 attendees. In addition, GUTS Tickets has upcoming events in the pipeline in cooperation with major event organizer and partner Innofest.

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1.4.2 *The GET Foundation*

GUTS Tickets came to the conclusion that to truly unleash a revolution in the ticketing industry, the technology it developed should be further developed and operated from within a separate foundation so other ticketing companies will be able to make use of the GET protocol. Moreover, GUTS Tickets realised that in order to increase the pace and expand scope, such a foundation would require sufficient resources. Hence the choice of conducting an ICO for building and deploying this protocol worldwide was made.

LEGAL STATUS A separate foundation fully dedicated to designing the GET Protocol has been incorporated: de 'Stichting GET Protocol Foundation' (the GET Foundation, trade registry number 69771138). This foundation is incorporated in the Netherlands and under the laws of the Netherlands. A Foundation under Dutch law has a board, and does not have shareholders or members. It may operate a business, employ persons, own assets and enter into agreements. **Importantly, however, a foundation under Dutch law may not distribute profits.**

THE WAY FORWARD GUTS Tickets developed and tested what we will here coin the "genesis" version to the GET Protocol, which will be further developed and tested by the GET Foundation. As we will explain in further chapters, GUTS Tickets will transfer the requisite assets to the GET Foundation and will serve as launching customer of the GET Protocol. As the GET Protocol moves to a fully distributed smart event ecosystem, we intend that other event organizers and ticketing companies can use our open source infrastructure to develop their own use case for the GET Protocol. We want the GET Protocol and the tools associated with it to become the standard for smart event ticketing. **After years of being ripped off and defrauded, festival and theatre visitors deserve a secure, fair and well-engineered event protocol.**

Further details about the GET Foundation, GUTS Tickets, their cooperation and the GET Protocol will be given in the following chapters.

Partnerships of GUTS Tickets & the GET Protocol Foundation

Blog announcement 13 Oktober - Partnership secured with Hekwerk. Responsible for 310.000 tickets per year. Hekwerk will be using GUTS/GET for their ticketing increasingly from this point forward.

Blog announcement 4 December International partnership secured with Get In The Ring. Officially taking the smart ticketing solution over the Dutch border!

Blog Announcement 11 December GUTS/GET announced a partnership with Modestus, an event huge Dutch stadium fill organizer. Modestus organizes club- and theatre tours and also organizes concerts in stadiums for artists like Guus Meeuwis. Modestus filled up the Philips Stadium (with a capacity of 35.000 people) more than 50 times since the inception of the company in 2009.

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2 EVENT TICKETING PRINCIPLES

INTRODUCTION

In the previous chapter we have described the current state of the ticketing industry and outlined the obvious problems and inefficiencies millions of consumers have to endure when buying a ticket. We believe that blockchain technology can introduce a layer of transparency to the costs incurred in the ticketing industry. Touting and scalping practices can be prevented with help from the possibilities offered by the GET Protocol proposed in this white paper.

This chapter will outline event ticketing principles. These principles are not theoretical or conceptual, but have been learned and are currently applied by GUTS Tickets over the last 18 months through real-world interaction with event organizers, venue owners, and, most important, ticket-buying customers. In this chapter we describe how GUTS Tickets currently sells tickets via the blockchain using the "genesis" version of the GET Protocol. In other words, we describe a solution that already works. More specifically, we will outline the experiences that have led to a series of design decisions and incentive structures that will define the further development of the GET Protocol by the GET Foundation.

Principle 1. You can't have your cake and eat it too

All modern ticketing services provide the buyer with either a QR code or a barcode ("Code") containing the necessary data to determine a ticket's validity. The problems in the secondary market arise because these Codes are static. This is because the Code printed on the ticket has no inherent connection to the ticket's owner. With the GET Protocol, the Code will be linked to the owner rather than the ticket, allowing the GET Protocol to control and regulate the secondary ticket market.

Furthermore, the GET Protocol utilizes a dynamic Code that is only revealed right before an event starts. This way, scalpers cannot sell a fake ticket because they don't have a Code to sell in the first place. The screenshot below from the GUTS application show how these(figure 1) features work, viewed from an user's smartphone.

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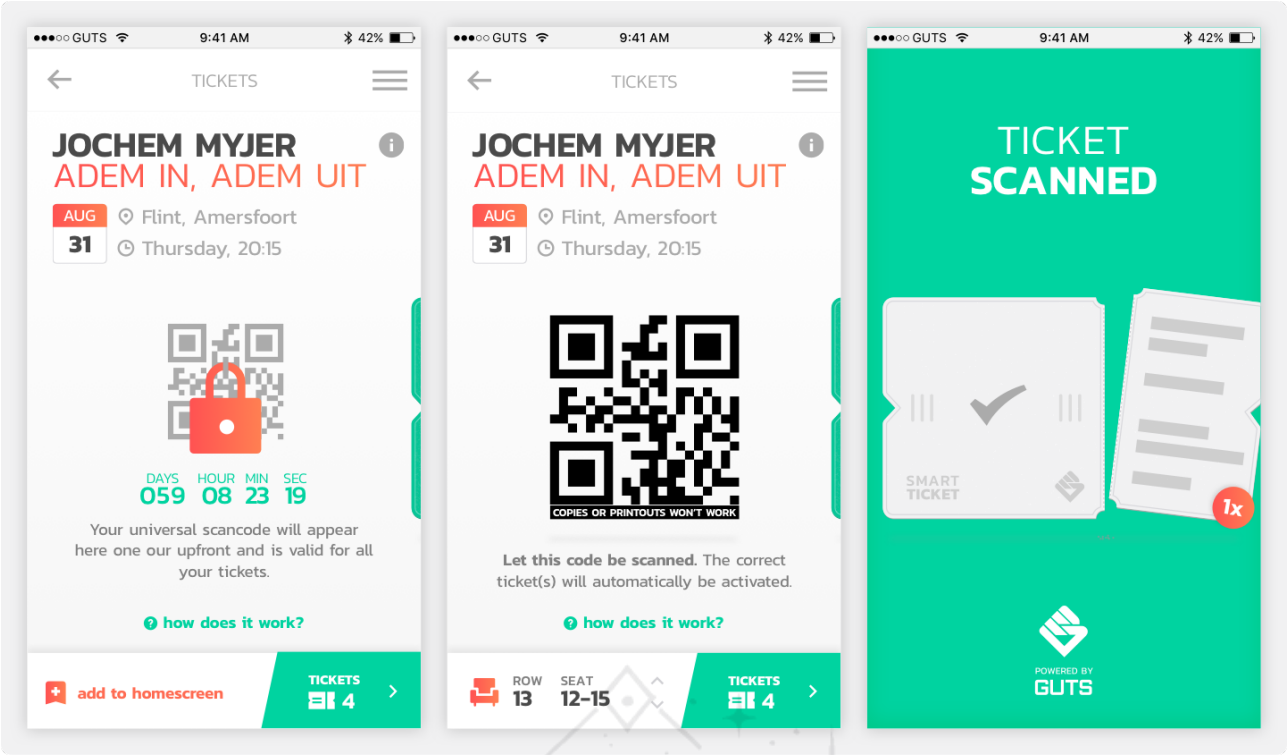


Figure 1: The Code on the smart ticket (at left) remains hidden during the days/weeks leading up to the event, therefore trading tickets outside of the GET Protocol is impossible by default(there is no data to sell). The user-specific Code (middle) appears just before the event starts. Once scanned at the entrance the user-specific Code disappears (right), preventing last minute reselling of the ticket. The Code itself changes as a function of time, thus taking a screen-shots of the ticket before the scan is of no practical use; any screen-capped Code becomes invalid just minutes after it has been captured.

IMPLEMENTATIONS OF THIS PRINCIPLE

- The ticket's Code is dynamic, not static, meaning it changes as a function of time, and when it is transferred to a different user.
- The event organizer chooses and sets the time that they want user-specific Codes to become visible.
- Codes are linked to users through their phone number[1]; only the ticket owner will receive his or her ticket, and on the verified phone only.

Principle 2. Professional resellers are professional

Secondary ticket sales is a billion dollar market. Consequently, those seeking to make a profit in this market employ sophisticated techniques and are willing to work around "inconvenient" barriers. The notion that the secondary market is merely a collection of bots or consists of at-home casual resellers looking to make a quick buck is naive. To ensure that these malicious actors cannot profit from a resale scheme, the measures set forth must be robust and foolproof.

IMPLEMENTATIONS OF THIS PRINCIPLE

- User verification by means of a text message to link the user to a specific mobile phone number.[2]
- A smart ticket is exclusively linked to a phone's SIM card, therefore the Code will only appear on this verified phone. Users can simply tap on the dynamic smart ticket on their phone to sell their ticket, eliminating the need for a secondary market as well as preventing scalpers from selling tickets on their own platform. The implementation of this principle is displayed in figure 2 below.

[1] There are several alternatives available to verify a users uniqueness when buying a ticket (for example: Facebook, CIVIC etc.)
[2] It would be possible for ticket-scalpers to sell a physical SIM card containing the smart tickets for an event. This would be extremely inconvenient and hard to actually scale, as the secondary markets would have to sell SIM cards instead of PDFs with QR codes in them.

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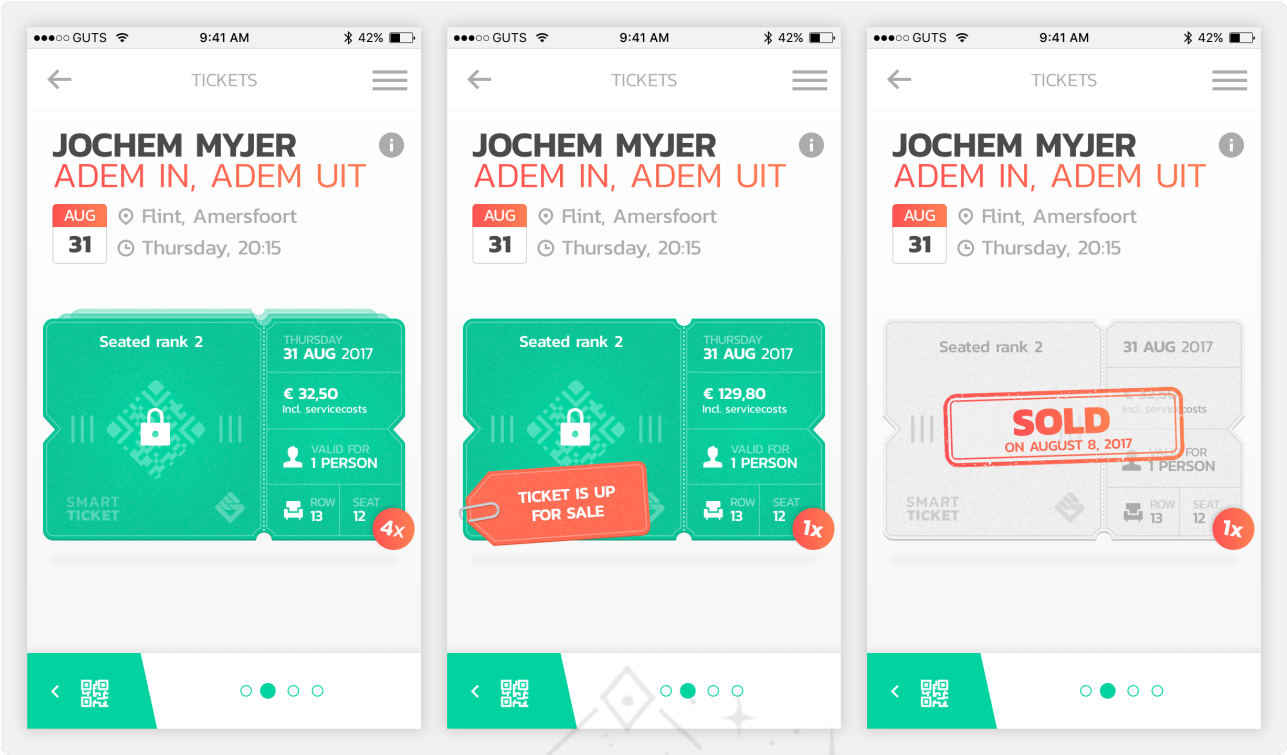


Figure 2: Transferring or trading tickets outside of the protocol is impossible. If a user wants to sell their ticket, cannot do so outside the smart ticket interface. The steps of selling a ticket on the GET Protocol are shown in this series of screen-shots. Note that all actions happen in the browser on the user's phone—no special application or software is required to sell your event ticket on the GET Protocol.

Principle 3. Blockchain has its disadvantages (at least for now)

Large concerts and festivals have multiple entrances and 30+ scanning devices can be in use simultaneously. At this rate, a constant stream of Codes must be scanned and the validity of the tickets verified. After validation, each ticket must be instantly marked as used, to prevent others from sharing the same Code within moments of each other.

Currently, blockchain technology is too slow to accommodate a robust, competitive, and user-friendly instant verification ticketing system at times of such peak capacity. This disadvantage would prevent adoption of a blockchain based solution by the current stakeholders in the market. Until blockchain can accommodate all of the needs of stakeholders—and we believe it will, in time—the GET API fills in the blanks. With this approach, the GET Foundation will bring a competitive ticketing service to the market that will gradually introduce more on-chain solutions over the course of the GET Protocol roll out.

IMPLEMENTATIONS OF THIS PRINCIPLE

- Instant(under 1 second) validation of ticket ownership and validity is now done off-chain with the GET API.
- Critical and sensitive user data is stored on a Postgress database of GET Foundation.
- A theatre seating selection algorithm and interface will run on a GET Foundation server and shall not yet be computed in the blockchain.
- A waiting list application avoids blockchain congestion and acts as a load balancer for surges in API-calls. This makes the GET Protocol ticketing application a hybrid blockchain protocol. Utilizing the established and scalable functionality of AWS with the transparent backbone of the Ethereum blockchain.
- Sale and change of ownership of the smart tickets are registered on the blockchain as soon as the network allows it.

Principle 4. Ease of use for the end user and clients

If you are reading this white paper you probably have at least a basic understanding of concepts like the blockchain and its usage of public and private keys. The average visitor to a concert does not have this

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understanding and in most cases is not interested in learning about these concepts. Similarly, users of the internet love its positive contributions to society but very few are familiar with the theory behind the TCP-IP standard. Blockchain technology and know-how is no different in this respect. The average attendee of an event is purely interested in attending the event with as little effort as possible that should entail no unknown crypto volatility risk.

IMPLEMENTATIONS OF THIS PRINCIPLE FOR END USER

- The UX interface of the GET ticket application works in such a way that the interaction with the GET Protocol is completely obscured from the ticket holder. At no point in the ticket-flow is the user required to have any knowledge of blockchains or tokens.
- A ticket owner will be able to view his or her ticket on the Ethereum blockchain. Additional functionalities and options can be added. Read our roadmap chapter below for more details.

IMPLEMENTATIONS OF THIS PRINCIPLE FOR EVENT ORGANIZERS

- Dashboard with insightful real time data concerning the sale for event organizers and venue holders.
- Next business day payment settlement of the sales revenue to the organizers.
- Audit trail for tickets sold on secondary market, thus generating more reliable data insights for stakeholders.
- Easy reimbursement of funds to customers when an event is cancelled.

After confirming the users unique phone number, an Ethereum wallet will be created and linked to the verified user. The user won't be aware of these back end operations as can be seen in figure 3 below.

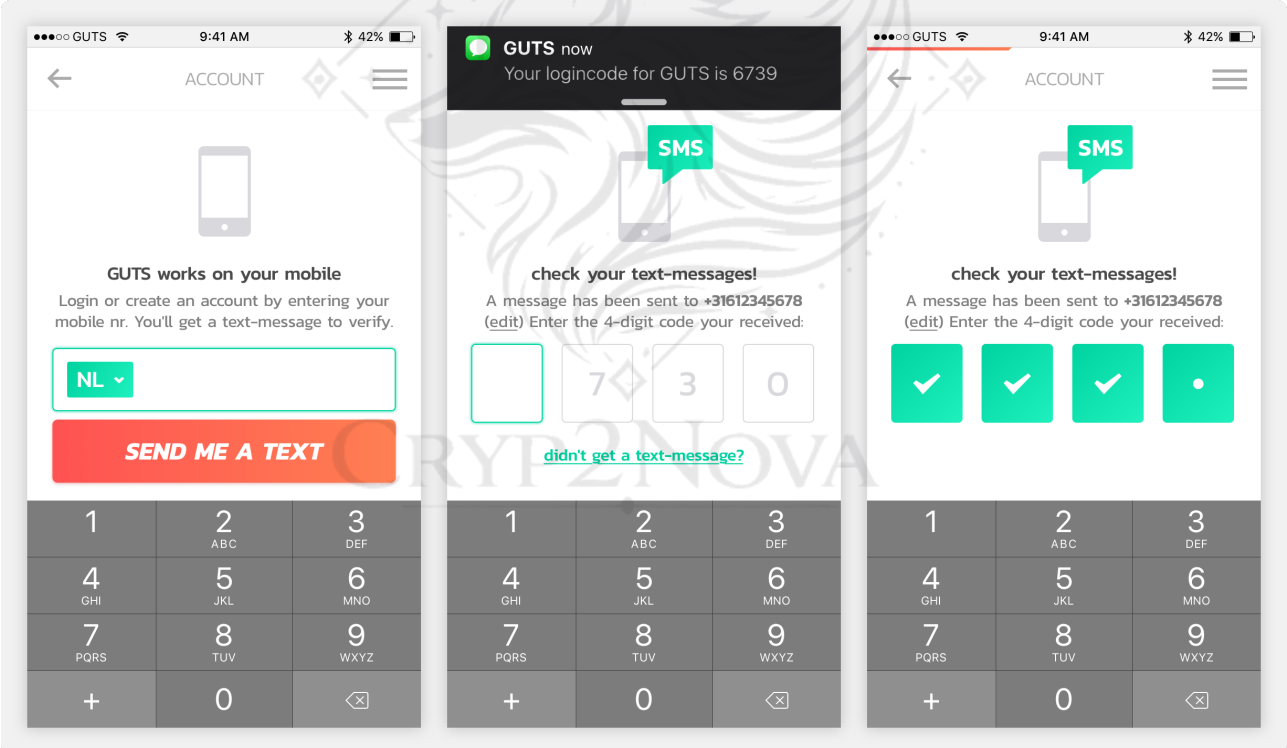


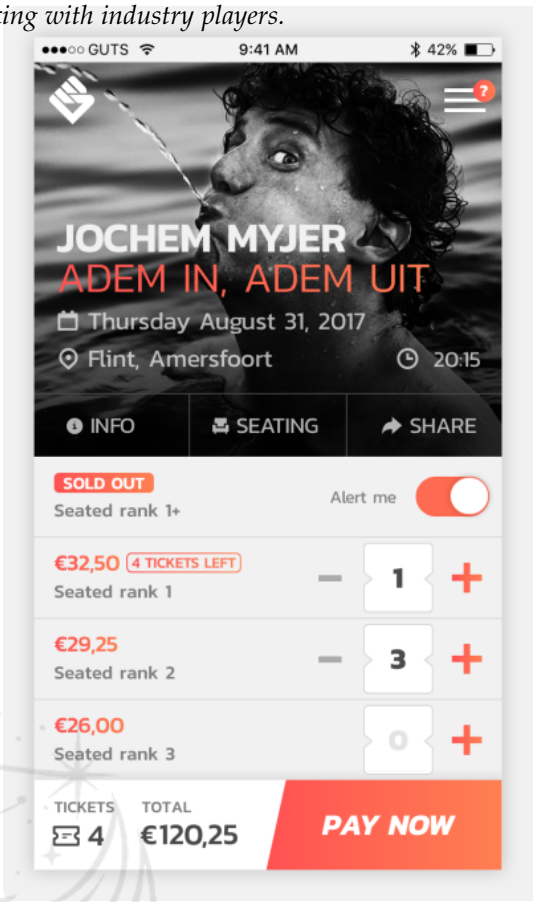
Figure 3: Users will verify their phone number when creating a new account on the platform and when logging in. This measure ensures that only unique users hold tickets, without relying on any crypto complexity.

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Principle 5. Use existing stakeholders to penetrate the market by working with industry players.

While bypassing all current ticketing stakeholders to create a new and completely disruptive platform seems tempting, GUTS Tickets has learned over the last 16 months that this strategy would ultimately fail. The thresholds required to penetrate the market are too great, and adoption of the GET Protocol would be severely limited.

To maximize the chances for adoption, the GET Foundation, supported by launching customer GUTS Tickets, will collaborate with current market stakeholders and will use existing infrastructure in the value chain. GUTS Tickets has partnered, and the GET Foundation will partner, with several powerhouses in the business to build desired features and functions, and these industry experts are helping us avoid mistakes and misconceptions about the market.



Screenshot of the ticket selection page of the Jochem Myjer pilot, in which a 700+ attendee theater show sold out within hours. Changes in ticket ownership on both the primary as the secondary market were registered on the blockchain.

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3 TOKEN TECHNOLOGY

INTRODUCTION

The Guaranteed Entrance Token (GET) will address the broken event ticketing market described in the previous chapters. The GET is an ERC20 token built on top of Ethereum blockchain. In the first phases of development the tokens role will concern as the unit of exchange for the transaction and administration costs incurred during the ticketing process. Thus, in the initial phase of protocol deployment, GET will act as a metric to represent and account for the efforts and added value of stakeholders such as event organizers, payment processors, and ticketing agencies.

THE UTILITY OF GET Within the ticketing ecosystem of the GET Protocol, GET is required for the creation and trading of smart tickets. Without GET, event organizers cannot create events or issue smart tickets, nor can they change the state of a contract. Users of the protocol also need GET assigned to their unique user accounts in order to sell their ticket(s), because the GET pays and accounts for all transaction and processing costs incurred on the protocol.

EVERY ACTOR A WALLET In the GET Protocol every actor and user will be assigned a unique smart wallet, providing the secure storage, transfer, and processing of digital assets to everyone in the GET ecosystem. A consumer's GET Protocol account is connected to its identity, therefore these consumers will use the same smart wallet and GET Protocol account for every event that they attend, regardless of event organizer. These features introduce several disruptive and innovative elements of crypto to the average consumer in an secure and user-friendly manner.

In this chapter we describe the development of the GET Protocol in its first two phases.

3.1 GET UTILITY DIAGRAMS

The following two pages contain two high-level diagrams that illustrate how users and event organizers interact with the GET Protocol, and how GET facilitate these interactions. Figure 4 on page 17 shows the GET utility of the most common protocol case: a consumer buying and using a ticket for an event. Table 6 lists the contracts displayed in the diagram. The bullet points on the next page describes the steps **A-E** that are taken by an end user who buys a smart ticket on the protocol.

The diagram in Figure 5 on page 18 describes the secondary market mechanics happening on the GET Protocol. If an user with a ticket wants to sell their ticket, the smart ticket can be offered to the event-specific secondary market built into the protocol. In this event-specific secondary market, tickets are sold for their original selling price alongside the tickets of the event organizer (also known as the primary ticketing market).

Contract	Description
1	Event Ticketing Contract (ETC) - This contract is owned by the event organizer. In addition to being the instantiator and managing contract of all the smart tickets of the event, this contract is also a wallet that contains GET purchased by the event organizer.
2	Primary / Secondary Market Contract (PSMC) - This contract acts as a central matching market for both the tickets sold in the primary market (by the event organizer) and the tickets sold in the secondary market. After receiving a GET from the USTC contract, this contract will return a valid ticket to the USTC contract.
3	User Smart Ticket Contract (USTC) - This contract manages the GET users with valid tickets and is responsible for serving the QR code to users with these tickets right before the event starts. For providing this service the contract receives GET from those who use the contract.

Table 6: Functions and roles of the three contracts labelled in Figure 4 on page 17.

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Step A-E of Figure 4 explained.

- **A:** An unknown customer enters the protocol with the intention to buy a ticket. If the user's phone (or web browser) is unknown to the protocol after signing in (meaning the user never used his phone to buy a ticket on the protocol), the user will be asked to create an account on the protocol by providing some basic user data.
- **B:** In the account creation phase (A) the user has provided the protocol with a phone number. In the following step, the phone number will be verified by means of an SMS/text message containing a verification code.
- **C:** At this point the user will be shown an interface in which he or she is able to pay for the ticket using the available payment methods. The user will need tokens in order to interact with the protocol, so the price of the GET that the user will need is included in the ticket price. The event organizer (see Contract 1 / ETC) has already purchased GET from the open market. These GET are available for distribution to the event attendees and thus will be sent to the user's wallet when the user completes the FIAT payment via the payment processor.
- **D:** After payment is completed, the API will send the required amount of GET tokens to the USTC contract. At this point in the process, the user will buy the USTC contract. This contract will forward an amount of GET to the PSMC contract, which will transfer the user an available smart ticket object. This object is controlled by the USTC contract.
- **E:** At the event horizon (the moment an event begins) the PSMC contract activates all of the users' smart tickets, delivering the QR codes needed for entry to the ticket owners' verified phones.



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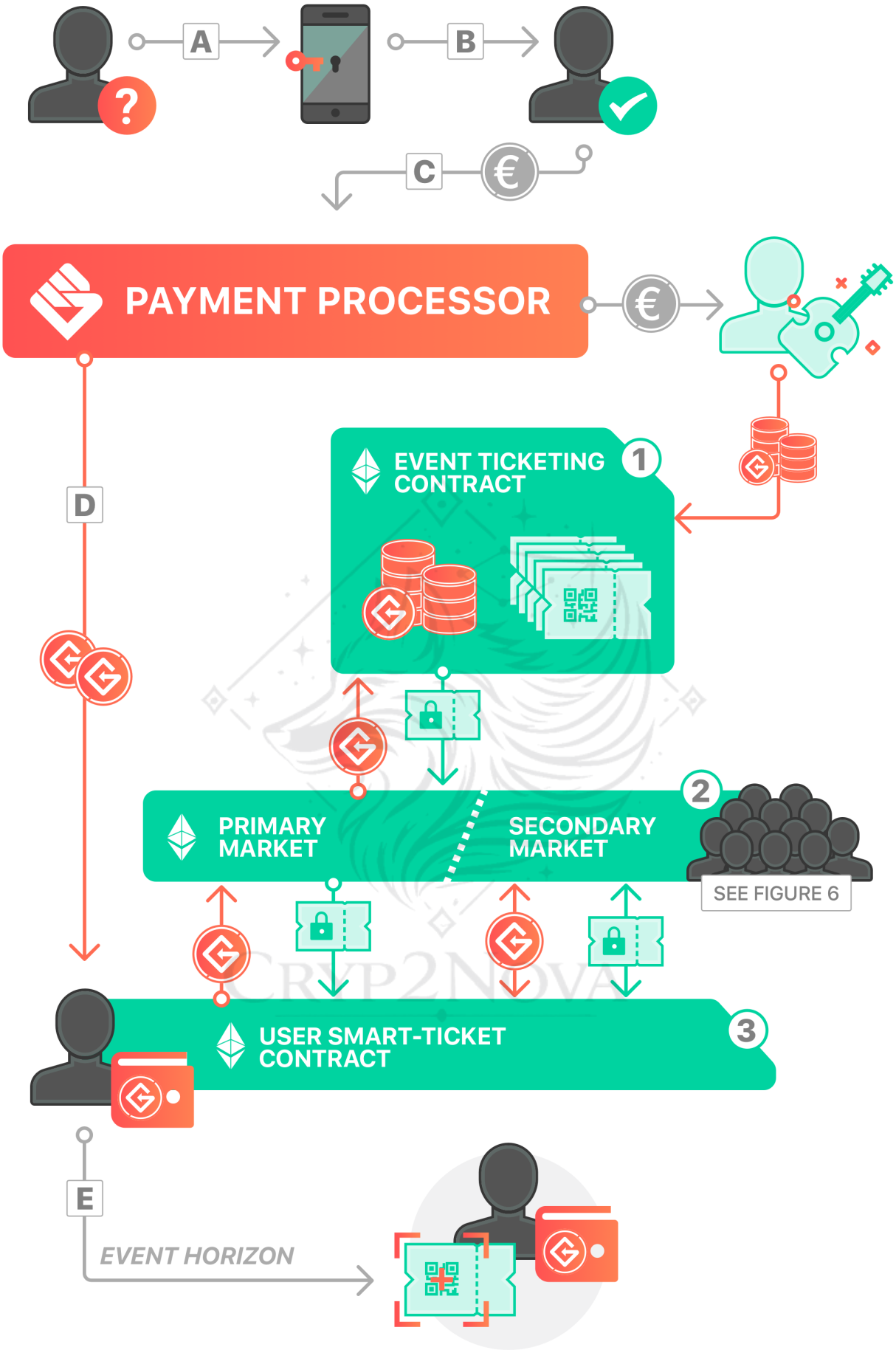


Figure 4: The process of consumer verification and the purchase of a smart ticket on the GET Protocol. Note that the tokens the user receives after purchase of the smart ticket are partially used by different smart contracts of the GET Protocol. This diagram also shows the role of the event organizer within the protocol.

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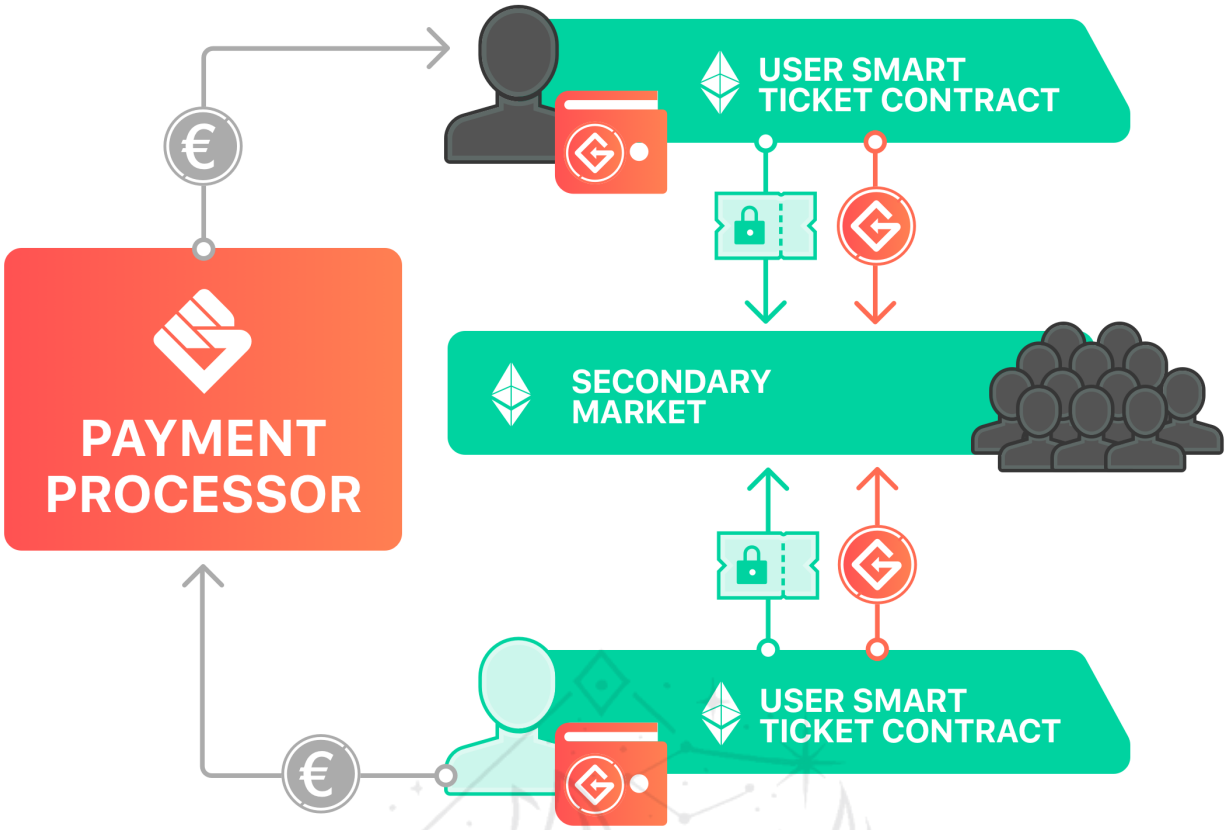


Figure 5: The mechanics of secondary ticketing market. Note that both the seller of the smart ticket as well as the buyer of the ticket pay an amount of GET to the PSMC contract (depicted as 'Secondary market' in Figure 4). For the seller this payment will cover the costs of FIAT settlement of the ticket by the payment processor to his or her bank account. For the buyer this payment will cover the regular FIAT and processing costs also displayed in Figure 4.

3.1.1 *Conclusions on the token's utility*

- A consumer using the GET Protocol to purchase, use, or sell a smart ticket must, regardless of how the user interacts with the protocol pay a certain amount of GET for using the protocol.
- Purchase of GET for users will be combined with the checkout flow when buying a ticket; thus, it can only be done via the ticket purchasing platform of the ticketing company that is using the GET Protocol. This means that the purchase price of the minimum GET amount[1] (or the number of GET needed to top up the user's balance to the minimum GET amount) is added at checkout on the ticketing application. After a consumer pays in FIAT, GET is transferred to the user's wallet and the smart ticket is linked with the user's account. Both of these state changes are registered on chain.
- It is likely for a user to have a 'residual' GET balance (residue) after buying and using a smart ticket for an event. This means that the user will have to pay less transaction costs to the GET Foundation the next time he or she uses the protocol. Besides being a fair cost allocation mechanism these GET residues ensure that the tokens are distributed and benefit users that actually use the protocol.
- Every unique user account that interacts with the GET Protocol by buying a ticket is assigned a wallet to his or her user account. The user keeps this wallet and the funds on this wallet indefinitely.

3.2 WHY THE PROTOCOL NEEDS ITS OWN TOKEN

But why is adding a token to necessary? Why not implement a large-scale smart ticketing protocol with Ether as a metric for event and ticket value? These are valid questions, but there are several important reasons why the GET Protocol needs its own token to provide seamless solutions for the current ticketing market.

1. GET as a stable store of value of the event ticket

GET is both the metric and the vehicle for every value transfer between actors in the GET Protocol during an

[1] The minimum balance of GET needed on a wallet for a specific event varies as it is based on event specific characteristics.

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event ticket cycle. The incentive structure of the GET Protocol ensures that as time progresses, actors within the GET Protocol will use the token to account for a higher volume of transactions while also covering more of the ticket value overall. Due to several event-specific price stabilizing measures—covered in the subsequent chapters – the exposure of end users and event organizers from volatility of crypto markets will be minimized.

2. Funding the GET Protocol development

To develop a GET Protocol which is accessible for every ticketing company in the world, development funds are necessary to actualize the new smart ticketing standard proposed in this whitepaper. It would be an absolute waste if the Dutch market alone was dominated by a GUTS powered smart ticketing GET Protocol. As such, the GET Protocol should be generalized and open sourced so that every company interesting in joining the transparent ticketing revolution can do so. This endeavour requires not only a solid and open code base, but also marketing and sales efforts focused on obtaining key stakeholders in every target market.

3. Providing transparency

GET solves the added-cost "black-box" by using the token to pay for all the state changes the smart contract has to register on the blockchain. This set-up creates a transparent system in which all actors (including the end user) can interact with and verify for themselves how value flows between all actors in the GET Protocol.

4. GET as a gatekeeper of the protocol

GET allow the GET Protocol to monitor and control the GET Protocol wallets and event organizers via the properties assigned to the token. While it is not the intention to restrict actors in the ecosystem indefinitely, some control is needed in early stages of development to guarantee stability and usability at all times.

3.3 BUYING A SMART TICKET

When a user buys a ticket, there are several ways it can be used. Buying a ticket and entering the event is the commonly used route. A user buying a ticket and then selling it with the GET Protocol is an example of a more complex route. An even more complex route is a user who buys four tickets, sells one and uses the remaining three, etc. Different routes mean that users incur different costs. Depending on user behaviour, different costs are applicable. To define and express these cost routes, several abstractions are needed. These abstractions (found on table 7 and 8 on page 20) provide the protocol with a metric to allocate the costs and provides the user with insight into the costs incurred in a ticket route.

3.3.1 *Smart ticket buy-use cost path*

A new user buys a ticket and uses it to enter the event; thus, the user does not resell the ticket with the GET Protocol. All the indicated price points are example data and act as an indicator at each point. The "type" column indicates what kind of cost is incurred at that step.

- **'Gas'** indicates a cost within the protocol that accounts for the gas costs needed to process the state changes and contract instantiation on the ethereum blockchain.
- **'FIAT'** indicates a cost segment of a protocol actor that in denominated (and possibly settled) in FIAT currency.
- **'GET'** indicates a cost that should be paid to the protocol by the event organizer to use the system for an event. The ground level for this cost-segment is hard-coded at €0.50.

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Description	Actor	Type	Var	Price[a]
Ticket platform costs	Ticketing Company	FIAT	f	€1.00
Create Ethereum address for unique user	Ethereum network	Gas	e	€0.02
Ticket Instatiation (initial sale of ticket)	Ethereum network	Gas	i	€0.02
Online Payment Cost (of initial sale)	Payment Processor	FIAT	p_i	€0.15
Ticket creation and distribution	Ethereum network	Gas	c	€0.02
Protocol Cost	GET Protocol	GET >= €0.50	X_p	min €0.50
Assigning ticket to user	Ethereum network	Gas	y	€0.02
User attends the event				
Smart Ticket Activation	Ethereum network	Gas	a	€0.02
Smart Ticket Scanned	Ethereum network	Gas	d	€0.02

Table 7: All the possible cost points a user encounters in the back end of the GET Protocol for the buy-use cost route.

[a] The gas price needed is dynamic over the runtime of an event/contract and can change, therefore a certain comfort margin shall be added for reliability.

3.3.2 *Smart ticket buy-sell cost path*

When a new user[2] buys a ticket and resells the ticket within the internal ticket market of the GET Protocol. All the displayed cost components are example data and should be interpreted as an indication of the costs a smart ticket encounters in the event ticket cycle. The only 'hard coded' cost component for each event ticket is the protocol cost variable. This cost component will charge at the minimum €0.50.

Description	Actor	Type	Var	Price[a]
Ticket platform costs	Ticketing Company	FIAT	f	€1.00
Create Ethereum address for unique user	Ethereum network	Gas	e	€0.02
Ticket Instatiation (initial sale of ticket)	Ethereum network	Gas	i	€0.02
Online Payment Cost (of initial sale)	Payment Processor	FIAT	p_i	€0.15
Ticket creation and distribution	Ethereum network	Gas	c	€0.02
Protocol Cost	GET Protocol	GET >= €0.50	X_p	min €0.50
Assigning ticket to user	Ethereum network	Gas	y	€0.02
User decides to sell the ticket				
Putting ticket for sale on GET Protocol	Ethereum network	Gas	m	€0.02
Ticket is resold				
Assign ticket to buyer	Ethereum network	Gas	y_r	€0.02
OPTION 1 chosen route Paying the seller the amount in FIAT	Payment Processor	FIAT	p_r	€0.15
OPTION 2 Paying the seller in GET	Ethereum network	Gas	g_r	€0.02

Table 8: All the possible cost-points a user encounters in the back end of the GET Protocol for the buy-sell cost route.

[a] The gas price needed is dynamic over the runtime of an event/contract and can change, therefore a certain comfort margin shall be added for reliability.

[2] Meaning a user that doesn't have a GET Protocol account/smart-wallet assigned to their identity.

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Total cost per ticket route and residual

Different ticket holder behaviours result in different costs for the stakeholders. The protocol should keep track of the costs incurred to present this data to the end user in a transparent way when assigning the minimal number of GET required for a user to interact with the protocol. Funds must be set aside by the protocol for the most costly route possible. If a user chooses a cheaper cost route, this results in a residual GET balance that stays on the user 's wallet for future use. This means that the user will have to pay fewer transaction/processing costs to the GET Foundation the next time he or she uses the protocol. Apart from fairly distributing costs, this concept also allows GET to be distributed among a very large user base, which will stimulate community growth.

DYNAMIC PRICING WITH TOKENS GET will also be used by promoters, venues and event organizers as a tool to facilitate dynamic pricing to optimize attendance of events and reward customer loyalty. While the benefits and logic behind dynamic pricing go beyond the scope of this whitepaper the ability of GET to seamlessly and transparently issue value/utility to actors **within** the protocol is one of the reasons why a blockchain back-bone provides the ticketing sector so much room for improvement in both the efficiency of existing functions as well as the addition of totally new and innovative functions.

Cost Route	Total Cost of ticket route for GET Protocol
A. New User - Buy ticket and attend event	€1.27
B. Buy ticket and sell ticket	€1.44

Table 9: Table displaying the total costs for a user. A and B indicate two different cost routes a user can follow when using the protocol. In this particular case, the $P_{buy-sell}$ route is more expensive than the $P_{buy-use}$. This means that the residual Res_{user} for this user will be €0.17. Meaning that if the user buys and uses the ticket, he or she will have a wallet with €0.17 in GET after the event.

TOTAL TICKET VALUE ALGORITHM

FORMULA USED TO CALCULATE THE TOTAL GET AMOUNT ON A PER EVENT BASIS.
OUTPUT OF THIS FORMULA IS USED BY THE GET BUT OPTION CONTRACT. IN THIS EXAMPLE ONLY TRANSACTION AND PROCESSING VARIABLES ARE ACCOUNTED FOR IN THE VALUE OF THE SMART TICKET.

$$P_{buy-use} = GET_{price}^{BUY-USE} = \sum(f, e, i, p_i, c, X_p, y, a, d) \tag{1}$$

$$P_{buy-sell} = GET_{price}^{BUY-SELL} = \sum(f, e, i, p_i, c, X_p, y, m, y_r, p_r, g_r) \tag{2}$$

The costs routes have been formalized the protocol has to establish which of the costs routes is greater.

$$(P_{buy-use} < P_{buy-sell}) \xrightarrow[true]{if} P_{min} = P_{buy-sell} \qquad Res_{user} = P_{buy-sell} - P_{buy-use} \tag{3}$$

$$\vee \text{ (or...)}$$

$$(P_{buy-use} > P_{buy-sell}) \xrightarrow[true]{if} P_{min} = P_{buy-use} \qquad Res_{user} = P_{buy-use} - P_{buy-sell} \tag{4}$$

$$\vee \text{ (or...)}$$

$$(P_{buy-use} \equiv P_{buy-sell}) \xrightarrow[true]{if} P_{min} = P_{buy-sell} \qquad Res_{user} = 0 \tag{5}$$

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3.4 TOKEN ECONOMY

The GET Protocol is more than just a smart ticketing application that solves the inefficiencies of both the primary and secondary ticketing market. The standardizing properties of the protocol also could also allow for further optimizations in the event and ticketing market. Direct settlement of payments, controlled internal markets for event-specific assets (such as beverage and drink tokens), and the ability to securely transact with other actors in the protocol, are all possible because each actor in the protocol has a smart wallet assigned to their verified unique identity. How we currently see development of the GET Protocol and its functionalities, we will describe in the roadmap chapter. Below we will describe the token economy in the first two phases of development:

Actors within the protocol:

- **Event Organizer (EO):** Company organizing the event for which tickets are sold; these companies often hire ticketing companies to handle their ticketing. Such ticketing companies will also be able to use the GET Protocol. For the purposes of this white piper and for sake of simplicity, the definition of EO refers both to event organizers and ticketing companies. EOs will interact with the GET Protocol via a smart wallet contract.
- **GET user (GU):** The consumer buying a ticket for an event. Tickets are bound to a user identity. GUs will interact with the GET Protocol via a smart wallet contract.
- **Payment Processor (PP):** The company responsible for the payment settlement of both the primary as well as the secondary ticket market in FIAT. PPs will interact with the GET Protocol via a smart wallet contract issued to this actor by the protocol.
- **Stability Fund (SF):** The fund will provide instant liquidity for GET needed by the EO (and the GU) and will buy these GET back from the open market. The SF will be a smart contract that functions as a protocol fund.
- **User Growth Fund (UGF):** This fund will promote GET Protocol usage by giving discounts to EO (and UG), as well as promoting usage of the GET inside the token economy by means of proof of processed payments between the GU[, EO] and PP. The UGF will be a smart contract that functions as a protocol fund.
- **Event Cost Fund (ECF):** The ECF is an event specific smart-wallet, that is created and eventually settled for each event cycle, and will collect all the fees paid by both the EO as the GU (to the GET Foundation) during the event-cycle.
- **The GET Price Oracle (GPO):** The function of the GPO is to assess for the stability fund what a fair value for the GET is at the moment a EO needs GET to run an event. The oracle makes this price evaluation on the basis of data input of a set of curated exchanges that list GET. The SF will be a smart contract issued and maintained/controlled by the GET Foundation.
- **Open Market GET holder(OMH):** An individual(possibly event organizer) that has acquired GET via the crowdsale and/or via an (crypto) exchange and is planning to use the GET for creating, buying/trading-tickets or managing an smart ticketed event within the GET Protocol. This individual has full control over the GET token as the token has the properties of every regular ERC20 token. Interaction(i.e. transacting) of the OMH with the GET Protocol can only be done by the Stability Fund (SF). OMH's cannot interact with actors(i.e. wallets) within the protocol as there is a different price-pegging for €-GET every event cycle. GET is held by these parties as an asset needed to perform anything on the GET Protocol.

In later phases, the following actor may be added:

- **Event Merchant (EM):** Company of business selling drinks, merchandise or food during the event. This smart wallet is instantiated and eventually settled for each event cycle. EMs will interact with the GET Protocol via a smart wallet contract issued to them by the protocol at every event-cycle.

3.5 PILLARS OF THE TOKEN ECONOMY

The system of funds and actors in the GET Protocol have rules and restrictions associated with their smart wallets. The foundation of these rules and restrictions are based on the 5 pillars of the GET Protocol.

1. **Ensure usability for the event organizer**
   Event organizers are in the business of hosting and promoting events. These companies don't have

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any intention in being a crypto speculator as well. Therefore certain levels of GET price stability and availability should be guaranteed by design. **This internal price stability within the GET Protocol is ensured by: the Stability Fund (SF).**

2. **Ensure usability for the consumer/user**
   One of the main selling points of the GET Protocol is the fact that all crypto related details are kept out of sight of the end-consumer. The GET and the user's wallet are there as a means of value storage and to transfer/receive and pay for tickets as well as to provide cryptographic security for the end user. **This internal price stability within the GET Protocol is ensured by: the Stability Fund (SF).**

3. **Overall protocol security** The employees working at an event organizing organisation or at the ticketing company using the GET Protocol don't have any knowledge about crypto and thus are not aware of the high levels of security and rigour needed for securely working with high value digital assets at tokens and ether. The same lack of knowledge is present on the side of the end-user. **GET Protocol solution: Actors within the GET Protocol don't have access to their ethereum wallet's private key and are only allowed to conduct transactions to addresses known/approved by the protocol.**

4. **Transparency and de-central central control by token holders**
   We believe that token holders should have certain voting rights according to their stake in the protocol. **GET Protocol solution: Voting by token holders on the Event Cost Fund (ECF).**

5. **Overall protocol competitiveness** The ticketing market is extremely competitive and although the GET Protocol has several characteristics in which it improves upon existing solutions, being price competitive is a very effective tool in order to gain market share. **GET Protocol promotes protocol usage by means of: The User Growth Fund (UGF) and incentive methods as proof of processed payments.**

3.6 THE USER GROWTH FUND (UGF)

During the initial go-to-market phases of the projects development, the superfluous GET (called the Res_{user} or *residual* of a particular event-cycle) is obtained by the protocol to represent/pay for more expensive cost routes of smart ticket users is sponsored the User Growth Fund(UGF). This means that the *residual* GET between the cheapest cost-route (P_{min})and the most expensive cost route(P_{max}) is funded by the user growth fund. Formally, this means that for the period of time that the user growth fund contains tokens, all users who interact with the protocol and follow the cheapest cost path will have a residual in their wallets after an event ticketed by the GET Protocol. In formula 1-5 the algorithm / formalization used to calculate the Res_{user} on a per event basis is displayed. This subsidizing mechanism forms two functions, it enables the ticketing companies using the GET protocol to be price competitive and be dynamic to tighter margins.

SPREADING THE GET Put simply, the GET Protocol will subsidize the higher cost of events ticketed by the GET Protocol for as long as the User Growth Fund is able to provide this subsidy. This mechanism of distribution among users is deemed effective as it distributes GET to consumers frequenting events. This spreading of GET within the protocol (note: GET on consumers wallets cannot leave the protocol and end up in circulating supply, the residue can only be used as a discount or extra credit boost for the next event the consumer visits). This creates a lock-in effect as it gives these "market-relevant" users a wallet with GET. By giving these users a discount for the transactions costs owed to the GET Foundation the next time they purchase a ticket, the protocol gives these users a peek at the advantages of a more open and transparent ticketing system. At the same time, this subsidy by the UGF makes the GET Protocol competitive, as ticketing companies using the protocol have lower ticketing costs. This competitive edge is quite essential as it is the goal to gain significant market share in the ticketing industry.

3.7 THE GET PRICE ORACLE (GPO)

The function of the GPO will be to assess for the stability fund what a fair value for the GET is at the moment a EO needs GET to run an event. The oracle makes this price evaluation on the basis of data input of a set of curated exchanges that list GET. The price evaluation method and price/volume data input-stream the oracle uses in its price assessment will be made publicly available. The algorithm will include several random variables/components that will make it impossible for both traders, analysts and GET Protocol team members to perform 'unfair' forms of arbitrage. An example of such a randomization present in the GPO is pulling from a uniform distribution between 6-10 days when deciding on the range of price data from a particular exchange to use in the price calculation. The function of the GPO is to set a GET pegging to FIAT(€for simplicity) for each event-cycle that converges/matches the price of GET on the exchanges market.

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3.8 THE STABILITY FUND (SF)

This fund will act as the gateway of the GET Protocol and is a smart-contract that is able to hold both GET and ETH. This fund has a quite prominent role in the GET Protocol as it acts as a funnel for GET from the open market to be bought (exchanged) and used for ticketing by event organizers. In this role as gateway the stability fund achieves two of its functions, firstly providing the event organizers with the GET this actor needs to create smart tickets and account for the underlying ticket value during an event-cycle. Immediately after having sold the GET to the event organizer (for Ether) the contract will open a buy (exchange) contract towards the open market. This buy (exchange) contract will offer to buy (exchange) GET for Ether from the open market. The price (exchange rate) for this buy (exchange) contract will be provided by the GET pricing oracle (GPO).

3.8.1 *Stability fund continuity*

The stability fund will act as a siphon filled with GET and ETH. The has the objective to always restore its original GET balance to 14% of 90 million (thus 12.6 million GET). The role the SF will have in the GET Protocol can be itemized as follows:

- As the SF acts as a siphon the GET in the fund will never **on net** enter circulating supply. Meaning that the mechanisms of this fund have as main goal to maintain an 12.6 million balance of GET available for EOs.
- At initiation of the GET Protocol the stability fund will be minted 14% of all maximally issued GET: 12.6 million GET. These GET will be used to supply EOs with the GET they need to initiate an event ticketing contract, and account for all value in the smart ticket of the consumer.
- The EO buys GET from the SF to cover for the smart ticket value of a specific event cycle. The minimal price of a smart ticket is set at least €0.50 in GET, so the SF will always have the event organizer pay at least €0.50 per 1 GET. This binding is merely a price-bottom offered by the protocol, if the price of GET on the open market is higher than this bottom, the price-oracle will buy the GET back for this higher average price point. As such the stability fund mechanism isn't market-making or influencing the upward momentum of the token on exchanges, it merely provides a price bottom for holders of the token.
- The SF has the objective to always restore its original GET balance to 14%(12.6 million GET) of the total GET issued. Therefore, right after the EO purchased the GET it needed from the SF, the SF will "buy" (exchange) back the GET it has sold to the EO from the open market.
- The SF has no other incentive than provide EOs with instant access to enough GET to use the GET Protocol for smart ticketing as well as provide token holders in the open market with a "price" (exchange rate) bottom and to generate demand for GET from the GET Protocol which creates market liquidity (the "Guaranteed Exchange Rate" as further described below).
- If the SF encounters trading losses and therefore isn't able to regain 14%(12.6 million GET) of the total supply of GET it will receive GET from the UGF until it is replenished and the trading losses are recovered.
- If the SF encounters trading profits (and thus will hold more GET as 14%(12.6 million GET)) the superfluous GET will be transferred to the UGF.
- The SF will not be a completely automated/pre-determined fund from the beginning of the GET Protocol. The GET Protocol team will closely monitor the stabilizing and pricing abilities of the fund and optimize its procedures and programming to ensure that the fund does what it is supposed to do: provide price stability and thus usability for GET Protocol actors.

3.8.2 *GET price on the open market*

The oracle will ensure that the internal pricing of the GET will roughly follow the valuation of the GET price on the open markets/exchanges. In these markets the GET price is completely unrestricted in it's valuation per GET. There is also no restriction in how the token is transferred from owner to owner outside of the GET Protocol. The GPO and the SF act as gatekeepers for GET entering and Ether leaving the protocol. Both mechanisms ensure actors within the protocol(EOs and consumers holding smart tickets with GET attached to

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them) with price/value stability. This mechanism also offers token holders on the open market a guaranteed exchange rate of at least **€0.50 per GET**(settled in ETH) when OMHs trade their GET for Ether with the SF.

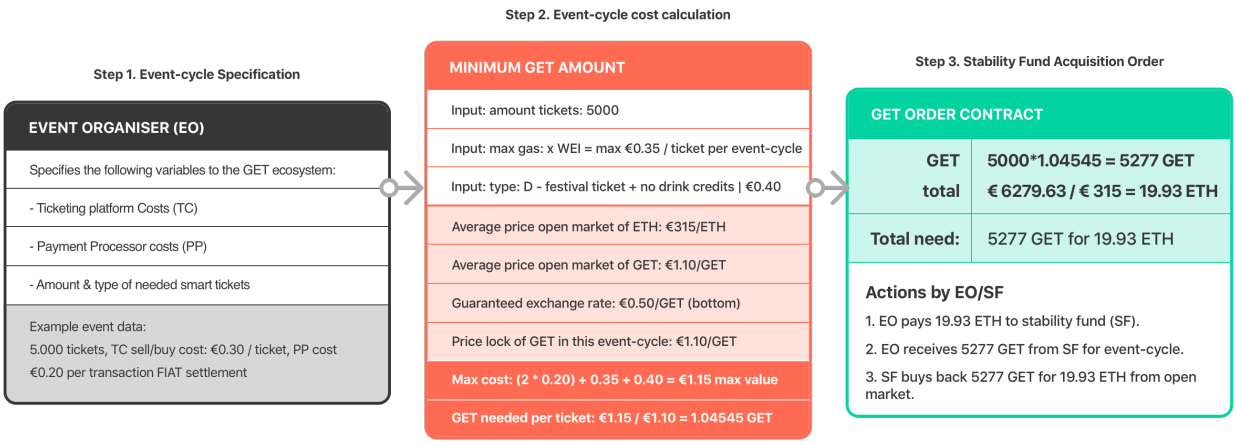


Figure 6: Diagram displaying a simplified overview of the GET acquisition process from the perspective of event organizers. The protocol is set up to ensure that the event organiser will be able to create a smart ticket without having to worry about currency fluctuations, non-liquid or stiff crypto markets.

3.8.3 *GET acquisition for event organizers*

1. Event organizer specifies to the price oracle how much monetary value has to be covered by GET per ticket for the specific event the EO is hosting.
2. Price oracle calculates the fair GET price based on external data from several exchanges, based on that assessment GPO will calculate how much GET is needed to account for the total value that needs to be accounted for during the specific event-cycle. It is important to state that the minimal cost **per smart ticket** is at least €0.50 in GET and that the price for a GET sold to the EO by the SF is **at least €0.50 / GET**. This 'hard-coded' pricing rule forms the foundation for the buy-back guarantee.
3. The price oracle will instruct the SF to open a buy contract for the calculated price per GET. This buy contract can only be filled by the smart wallet of the EO that requested the event value coverage from the GPO.
4. Event organizer pays the buy-contract of the SF in ether (if the EO pays with FIAT this is done via an payment processor that transfers the payment to ETH).
5. The stability fund will instruct the protocol to create an smart ticketing contract which is owned by the event organizer. This smart ticketing contract will hold all the GET purchased by the EO and will distribute the GET to all buyers of the event ticket.
6. The stability fund will open a buy contract on the basis of price data provided by the GPO. This buy-contract can be filled by any token holder on the open market for as long as the SF isn't replenished.

3.9 GET EVENT COST FUND (ECF)

This smart wallet collects all of the charged protocol costs for an event cycle paid by the smart tickets. **The ECF charges at least €0.50 of FIAT value in GET per smart event ticket, with the SF assigning this base cost to maximally 1 GET per smart ticket on the protocol.**

After each event cycle the ECF will have collected GET in the smart-wallet. This value of GET collected is always **at least €0.50 multiplied by the amount of smart tickets that where sold during the event.** The amount charged by the ECF per smart ticket depends on the event type and the total value included on the smart ticket in GET. Both the choice in smart ticket type as in how much additional credit/GET should be added to each ticket is made by the EO when creating the event for which the smart tickets are sold. There

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are several ways in which the funds in this smart wallet can be allocated within the protocol. One of these allocation destinations is mandatory when a certain condition has been met regarding the SF. If this condition has not been met there are non-exclusionary options for how the GET from the UCF can be allocated. Which of these to options is options depends on the assessment of the protocol by the GET Protocol team and the opinion of the token holders. This opinion assessment is based upon a token vote that will take place every quarter, the weighing of the vote will be based on the token stake within the protocol.

1. **Mandatory** If stability fund has a net loss due to unfavourable buy back trade all of the GET in the UCF of an event-cycle fund will be issued to the SF, until the point the SF holds the initial 14%(12.6 million) of GET and is thus back 'in balance'.
2. **Option 1**[3] All or an percentage of the proceeds of the ECF will be sent to the user growth fund, sponsoring protocol growth by lowering price barriers for event organizers and stimulating token usage by means of proof of processed payments for transactions between actors of the protocol.
3. **Option 2** Burn all or a certain percentage of the GET collected in the ECF during that specific event-cycle. Burning of GET will raise the price of protocol usage for the ticketing company as well as **lower the circulating supply** of the GET as a token.

3.10 GUARANTEED EXCHANGE RATE

The usage of the GET Protocol by an event organizer costs at least €0.50 per smart ticket. The **minimal/bottom price** for which event organizers are able to acquire this GET at the stability fund is 1 GET for €0.50. As the stability fund is the gatekeeper that acts as a siphon, selling to the EO and buying from the open market the minimal GET price creates a price bottom for the GET token holders.

[3] Token holders will be able to cast a **non-binding vote** on the cost variables of the ECF as well as how the funds in the ECF will be allocated to the UGF or burned.

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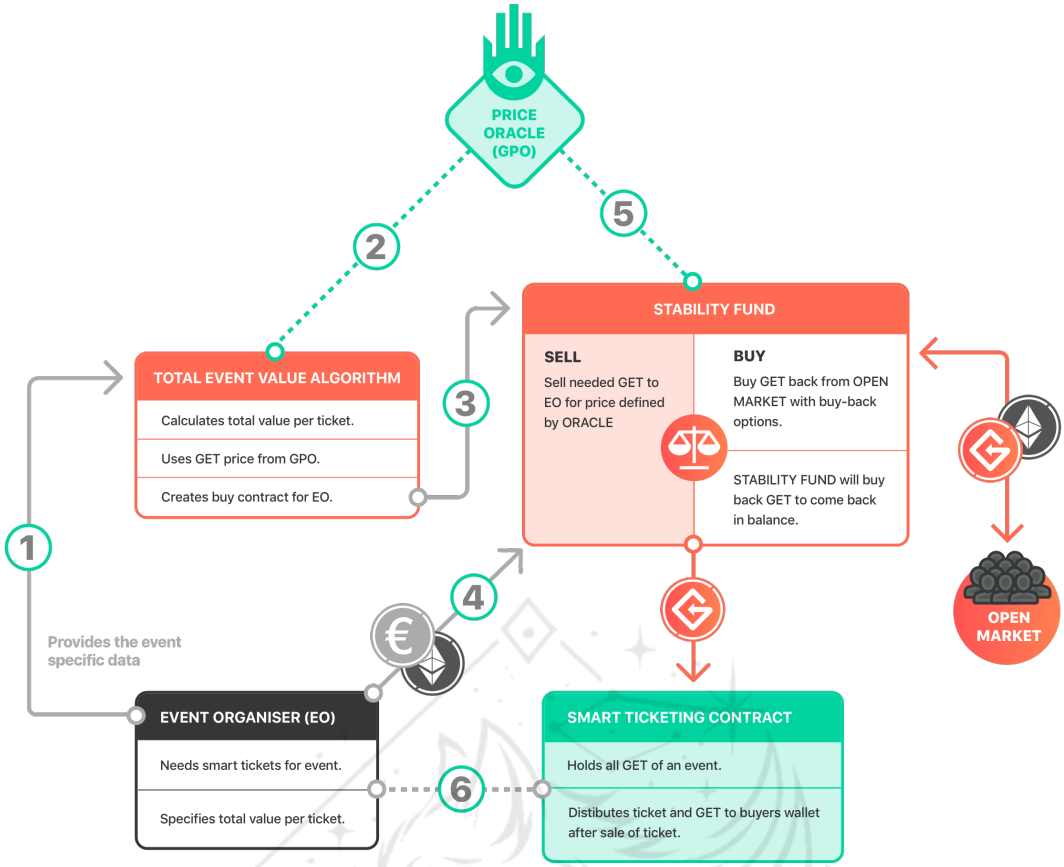


Figure 7: Diagram showing both GET acquisition mechanism for the EO as the buy-back guarantee/mechanism for the token holder on the open market. With this mechanism the GET open token market will always be able to sell to the SF for the set price of at least €0.50. Table 10 details the different steps labelled in this diagram.

Step	Description
1.	Event organizer provides the total event value algorithm with the total amount of value each smart ticket will have to carry for the specific event the EO is organizing.
2.	Total event value algorithm calculates the total amount of GET needed to cover all the value for the event. The conversion from FIAT value to GET is done with the help of the GPO which collects exchange data and calculates a fair GET price.
3.	The total event value algorithm creates a buy-option for the amount of GET needed by the EO. The EO will now be able to pay the SF and acquire GET(see step 4)
4.	The EO pays the buy-contract that was opened in step 3, this buy-contract only accepts ether a payment processor converting from FIAT to ETH might be necessary with a PP if the EO only can pay for the tickets in FIAT.
5.	The SF has to get back in balance after the GET-purchase of the EO. The SF will create a buy-contract for GET from the open market with pricing from the GPO. This contract will stay open for 7 days, if the contract is not filled in this time frame then the SF will close the initial buy-contract and create another buy-contract based on a newly assessed price of the GPO. Repeat until SF is replenished.*
6.	After the GET purchase of the EO the tokens are transferred from the SF to the newly created smart ticketing contract. This contract will create and distribute the ticket and will assign the GET-value per ticket to the wallet GET Protocol user that bought the ticket.
* If the SF makes a trading loss due to a price bull run on the open market after the purchase of the EO the loss of the SF will be replenished by the UGF.	

Table 10: Table detailing the 6 steps shown in Figure 3.10 of the buy-back mechanism of the GET Protocol.

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MAKING SENSE OF THE GUARANTEED EXCHANGE RATE We understand if readers deem this guaranteed exchange rate of €0.50 "too good to be true". Anyone who exchanges Ether to GET will do so at an exchange rate below €0.50, with the result that there is little to no risk of monetary loss. Therefore, this guaranteed exchange rate may not, at a first glance, seem to make any economic sense from the perspective of the GET Protocol.

However, this conclusion is incorrect. The cost payable to the GET Foundation for using the GET Protocol for an EO will be at least €0.50 per smart ticket sold to a GU, which will be passed on to the GU. Accordingly, the SF is able to offer to exchange 1 GET against an amount of Ether equalling €0.50. As the SF will be required to replenish the amount of GET, selling to the EO and "buying from" (exchanging with) the open market against €0.50 at minimum creates a price bottom for the GET token holders.

Token holders do have to keep in mind that although the GET Foundation is able to guarantee an exchange rate for GET the SF offers to "buy" in exchange for Ether, it cannot guarantee whether and to what extent it can offer to "buy" (exchange) GET as this depends on the use by EOs of the GET Protocol. If tickets sales are limited, so will be the need to "buy" (exchange) back GET.

STRATEGIC PARTNERING The ticketing industry is crowded and competitive. Although it is true that the ticketing applications of current ticketing companies create significant market inefficiencies, the companies providing these services have built relationships with event organizers. These relationships and shared history will make it harder to convince event organizers to make the switch to a blockchain-based solution. This means that apart from offering a superior product and having effective sales, competitive pricing is the most effective tool in convincing new clients. Thus our current partners are able to participate in the pre-sale stages of the ICO, enabling them to use the protocol in the future for a discounted price and thereby locking them in.

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4 GET PROTOCOL ROADMAP

INTRODUCTION

In this chapter the planned development phases of the GET Protocol will be outlined. But before the future abilities and functionalities of the GET Protocol, code that is yet to be developed and deployed to market are described in detail, it is important to establish what functionalities of the solution the GET Protocol poses to offer the ticketing sector are already validated by the market. Feedback from end-users and the ability to generate actual demand for the concept/product is key when you are incrementally building, improving and scaling the full spectrum solution as described in previous chapters of the GET Protocol whitepaper.

State of the technology - GUTS Tickets; a operational and competitive smart ticketing company(2016-2017)

The GET Protocol is more than a white paper or a proof of concept. It is already reality. Since 2016 GUTS Tickets has been selling smart tickets registered on the blockchain. GUTS Tickets was officially incorporated in 2016 and ticketed their first blockchain event in Q1 of 2017. The code for this first iteration of the product/proof-of-concept was developed and tested in Q3 and Q4 of 2016. In 2017 the first iteration of the smart ticketing application was ready to be deployed in the market. Under the mantra, fail quick, fail often. The ownership state changes registered on the blockchain of the events GUTS Tickets serviced with their smart ticketing application for can be found in the second tab of the public Google spreadsheet of the BlockTix/Aventus comparison blog published on the GET Protocol Medium blog.

Functionalities of a ticketing application

Throughout this whitepaper the tickets of the GET Protocol have consistently been called 'smart'. What makes a ticket smart? And if there is something as a 'smart' ticket what would be a 'dumb' ticket? The following two paragraphs will establish this difference.

DUMB TICKETS Selling digital tickets for an event via the internet is as easy as having a web-application that is able to process payments (via one of the many out-of-the-box payment processor integrations available) and deliver a piece of data to the buyer. After confirmation of a completed payment the web-application should be able to generate and serve an unique QR code(or other data-holding object) to the buyer of the ticket. **That's it.** This QR code should be unique as the validity of the ticket should verifiable when scanning the ticket at the entrance of the event. This ticketing process described here is not what where the rubber hits the road when it comes to fighting ticket scalpers or other event ticketing inefficiencies. Companies as Ticketmaster where able to build and deploy these types of web-applications web applications in the late 90's and still do basically the same thing to this day. Replicating such a web-application with all modern programming and hosting tools available in 2017 isn't hard at all. Running such an ticketing web-application completely on the blockchain is technically possible. Languages as Solidity are Turning complete and will be able to make the calculations needed to compute QR codes and process payments swiftly and transparently. With de-central hosting services like IFPS will be able to host a blockchain ticketing application, making centralized servers like AWS unnecessary. While all this decentralization sounds cool and innovative it is also rather inefficient (as a centralized server will be able to better to do this all more cost-efficiently). That's just logic.

SMART TICKETS Smart tickets have all of the same functionalities described in the paragraph describing their dumb counterpart above. The only difference is that smart are aware of **who** owns them and **when** they are being owned. A smart ticket also 'knows' under what circumstances the **who** and **when** of are allowed to be changed. In practice this means that a smart ticket will not allow changing of its ownership when it is being sold for a higher price than is intentional. In a sense you could call a smart ticket 'aware'. In practice this all comes down to the variables and functions set in the smart-ticket contract. A smart ticket cannot be scalped as it will not allow a overpriced transfer. A QR code smart ticket cannot be faked as it will not serve the QR code to the owner before the owner of the ticket needs it.

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Functionalities of the GUTS smart ticketing application

- Assign wallet Ethereum address to new identity : **Functionality DONE**
- Implement dynamic QR code that can't be sold/copied : **Functionality DONE**
- Web based smart ticketing application: Working on smartphone browsers. **DONE**
- Merge primary and secondary ticketing market: **DONE**
- Register ownership changes of smart-ticket on the blockchain **DONE**
- Scalability/ability of the smart ticketing application to handle high number of user request **DONE**

4.1 THE ROAD AHEAD

Rome wasn't built in a day and the same can be said about the GET Protocol. Although development will be incremental, continuous and subject to environmental changes and factors. These factors include; local regulatory constraints, customer feedback and industry trends. Our vision of the four main phases in which the GET Protocol will be implemented can be described as follows:

PHASE 0 - TOKEN MUTINY The GET Foundation further develops the GET Protocol which will be used and tested by launching customer GUTS Tickets on the Dutch Market primarily. The GET Protocol will allow for ticket sales on the primary and secondary market via the blockchain using GET.

PHASE 1 - THE TOKEN INTIFADA (2018) GET becomes the only possible method of payment for the transactional and processing fees in the ticketing cycle. Furthermore, white listed third-party ticketing companies and event organizers worldwide will be able, through the GET Protocol API, to benefit from the GET Protocol for primary market sales. Every actor in the GET Protocol will have a smart wallet added to their uniquely verified identity, the actors, however will not have full control over the private key.

PHASE 2 - THE BOSTON TOKEN PARTY The fully accessible smart-wallet is added to the users' account on the GET Protocol, allowing users to interact with their GET. Actors (especially consumers) are able to use GET to pay for drink and beverages tokens and other products before and during an event. End users and event organizers can choose to hold and use GET as a method to store the value of event tickets. As multiple stakeholders in the event ecosystem would hold and use GET, this would add liquidity to the ecosystem.

PHASE 3 - TICKET LIBERATION The full range of functionalities and full access will be given to all the actors within the GET Protocol. All aspects of the GET Protocol will be completely on-chain and the economics of the ecosystem as a whole will be self-sustaining. In this phase, GET is the sole store and transfer of value used for storing all event related value. All organizers can create events on the GET Protocol via the public and open sourced GET API.

Roadmap Disclaimer We emphasize that this is our vision for the magnificent structure we would like to build. But by no means can we guarantee that the GET Protocol and GET will be developed or will have the functionalities as described above, in particular in relation to the later phases. What has been described so far in this white paper relates to how we perceive development of phase 1 and 2. The GET Foundation intends for the GET Protocol to enter into the last two phases. For these phases we expect that we might need regulatory clearance, because, for example, GET may qualify as electronic money. We will provide updates on a regular basis about the development of the GET Protocol to the stakeholders and the GET community.

4.1.1 *Phase 1 and 2 Protocol development principles*

The four following principles will underpin development in the first two phases:

1. EASE OF USE AND STABILITY ABOVE ALL: The fundamental design principle for a GET Protocol is that it should be easier to use than current non-blockchain ticketing alternatives. At no point in the use flow will users be confronted with confusing hashes or anything of the sort. Users interacting with their smart ticket should never suffer the consequences of the price fluctuations of the volatile token market. It is not our aim to force crypto tokens on people; it is our vision to use the properties of crypto currencies to show the general public the value this technology offers to control their own digital assets.

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2. ensuring get protocol stability and security: In the first two phases of development, only white-listed ticketing companies will be allowed to interact with the GET Protocol. This means that only ticketing companies that apply to publicly available standards set by GET Foundation are allowed to create event contracts on the GET Protocol and thus acquire tokens via the described mechanisms. In Phase 1 only GUTS as launching customer will be white-listed.

3. with great power, comes great responsibility: The white-listing is a necessity for various reasons, one being that that the GET Protocol will be under incremental development and improvement. There have been enough crypto related blunders and failures that the technology has a sketchy and fragile image for the average non-interested consumer. The GET Foundation wants to ensure that visitors, event organizers and ticketing companies have a seamless experience. As soon as the GET Protocol is deemed tested and robust enough for complete open sourcing, this is the route that the GET Protocol will take.

4. minimizing possible attack vectors: In the first phases of the GET Protocol, the tokens are registered not only in the wallets but also in the central and heavily encrypted GET Foundation database. This essentially means that the GET Protocol could act as the central wallet for all transactions to mitigate risks. During the first phases, a user account is not able to handle its private key as it is not known to the user. Users cannot transfer get to wallets that were not created by the GET Foundation. Owners of GET on wallets that were not created by the GET Foundation cannot be transferred to wallets that were created by the GET Foundation. It is our intention to fully decentralize and empower every actor in the system, but this empowerment will happen slowly in controlled and extensively tested steps.

4.2 empowering the get foundation

4.2.1 *GET Foundation Assets - IP*

GUTS Tickets has agreed with the GET Foundation to transfer the all intellectual property rights relating to the "genesis" version of the GET Protocol to the GET Foundation after the ICO has been completed successfully:

GUTS Tickets will provide the GET Foundation with a perpetual, worldwide license to use and further develop the following the "genesis" version of the GET API. The reason for partially transferring and partially licensing technology is primarily the following. Dutch law requires that such a transfer is done at arms' length, meaning that the GET Foundation has to pay the fair market value for these assets.

Instead of opting for an immediate cash-out for the GET Foundation, the GET Foundation and GUTS Tickets have agreed to a licence for the GET API intellectual property, the GET Foundation being required to pay to a modest fee per ticket sold via the GET Protocol, this fee also doubles as variable purchase price for the IP being transferred. This fee will be passed on to the consumer and/or the event organizer. This means that fees are only to be paid if and to the extent tickets are sold via the GET Protocol.

We deem this fair given (i) the investment made by GUTS Tickets in creating and testing the "genesis" version of the GET Protocol and (ii) GUTS will become a customer of the GET Foundation and, accordingly, will be required to pay for using the GET Protocol (as we will explain below, €0.50 per ticket sold at minimum) and (iii) the GET Foundation cannot distribute any profits.

4.2.2 *GET Foundation Assets - Team*

Part of the current GUTS Tickets team that developed the "genesis" version of the GET API and GET Protocol will enter into the employment of the GET Foundation after the ICO has been completed successfully.

4.2.3 *GET Foundation Assets – ICO*

The GET Foundation will obtain the requisite funds for further development of the GET Protocol through the exchange of GET against Ether in the ICO further detailed in chapter 6.

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4.2.4 *GET Foundation Assets - Governance*

The board of the GET Foundation consists of:

- **CEO - Maarten Bloemers - LinkedIn**
- **CCO - Tom Roetgering - LinkedIn**
- **CTO - Ivo van der Wijk - LinkedIn**
- **Frans Twisk - LinkedIn**

The board consists of current employees and directors of GUTS Tickets, supervised by an advisory board, whose members will be appointed after completion of the ICO.

Overview Relation GUTS Ticket and the GET Foundation

Entity	Description / Structure
GUTS Tickets	Legal structure: private company with limited liability (Besloten Vennootschap)
	Mission: Profit maximization for shareholders, meaning sell as much tickets as possible.
	How: GUTS Tickets will use the GET Protocol infrastructure as the backbone of its ticketing application and will therefore be the protocols launching customer.
GET Foundation	Legal structure: foundation (Stichting)
	Mission: Develop an open(source) and transparent event ticketing protocol that will in later phases of development
	How: Develop a smart ticketing protocol based upon blockchain and smart contracts, enables ticketing worldwide to add a blockchain backbone to their service.
Commercial relations	GUTS Tickets will transfer personnel, transfer and licence IP to GET Foundation, to enable it to develop the GET Protocol. GUTS Tickets will pay an arms' length fee per ticket sold for using the GET Protocol, and will not get preferential treatment over other event organizers/ticketing companies. The GET Foundation will pay a per ticket sold fee sold for the transfer and licensing of IP.
Governance relations	Board members of GUTS Tickets also serve as board members of the GET Foundation, the latter being supervised by an advisory board, whose members will be appointed after the ICO.

Table 11: In this table the key relations between GUTS Tickets and the GET Foundation are summarized.

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5 BUSINESS LANDSCAPE

At the moment of publication of this white paper (1 August 2017) there are several blockchain protocol initiatives / smart contract focused start-ups that are trying to broadly solve the same problem. Although these initiatives confirm our assessment that this is a problem worth solving, there are several key differences that distinguish the GET Protocol from existing initiatives.

WORKING WITH THE INDUSTRY The most important difference is that GUTS Tickets— the company issuing this white paper and building this protocol—is active and fully operational in the industry and has gained in-depth knowledge of the nuances present in the ticketing market through first-hand experience. GUTS Tickets has already sold and is currently selling blockchain-registered tickets via its smart-ticketing platform in both 206 and 2017. One of the Netherlands most prominent theater companies, Hekwerk Theaterproducties, has partnered with GUTS and its team, and several prominent artists have also shown their support for the GUTS initiative to cut out middle men.

5.1 COMPETITION

Other blockchain initiatives

There have been several event-focused initiatives in the ICO heavy year of 2017. The most 'prominent' initiatives, Blocktix(TIX) and Aventus (AVT), are both still in the funding / white paper / alpha development phase at the moment of publishing of this white paper. The four main differences between these two initiatives and GET Protocol are:

- The most important difference is GUTS Tickets and the GET protocol have already several launching customers and the project can be considered fully operational and has a team that is experienced in both deployment of software as in the acquisition of the target customer in the ticketing scene.
- The "genesis" version of the GET API has cycled through its alpha and beta phases. Because the GET Protocol will be tied to the tested GET API, it has a significant head start.
- The GET Protocol will use existing market infrastructure for maximum market penetration. It is therefore able to handle an extremely high number of API requests, offer customers features like theatre seat selection, and provides insightful sales dashboards to event organizers and venue holders.
- The GET Protocol will allow users to attend events with the least effort and prior knowledge of crypto as possible. All things crypto are shielded from the regular user, providing them the benefits without the complexity.

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In this **blog post** the GET Protocol is compared with both Aventus(AVT) as with Blocktix(TIX).

TicketSwap

TicketSwap is a Dutch company that offers ticket holders interested in selling their ticket a market with a reputation system for both buyers and sellers, creating a trust bond. TicketSwap is successful in the Netherlands, but is merely a form of symptom treatment: TicketSwap is only active on the secondary market and therefore cannot guarantee the authenticity of tickets.

Ticketmaster/Ticketscript etc.

These companies are partially responsible for the problems faced by the public in the secondary ticketing market. In some cases, the ticketing companies have an actual stake in the success of the secondary ticketing platforms. These companies would have to eliminate parts of their own business model to innovate or create a transparent market.

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6 ICO DETAILS

6.1 INTRODUCTION

In previous chapters, we established that in order to develop a GET Protocol that becomes accessible for every ticketing company in the world, development funds are necessary to actualize the new smart ticketing standard proposed in this white paper. That's why we initiated a GET Protocol Initial Coin Offering (ICO). In this chapter we provide further details about the how, when and why of this ICO.

DETAILS OF THE ICO The goal of the ICO is to exchange GET for Ether (ETH) for an equivalent in €15,000,000 at maximum and €2,300,000 at minimum. The exchange of ETH against GET will be smart contract based. Some of the numbers may change with ETH exchange rates and volatility, but the following numbers are best effort estimates as of 1 November, 2017. This blog post goes into details about the choices made and Ethereum / €lockrates that will be used in pricing the contributions and for the amount of GET that is issued per Ether collected.

GUTS/GET Protocol	Euro	Ether Lockprice*	Total GET
Softcap*	€2.3 million	Reached	8.560.800 GET
Hardcap	€15 million	Crowdsale will end on 13/12/17 13:00 CET.	90.000.000 GET
Pre-sale private*	€1.8 million	€258.29/ETH	7.200.000 GET
Pre-sale public*	€0.5 million	€262.17/ETH	1.351.351 GET
General sale	€12.7 million	€275.44/ETH	15,826,432.55 GET*
Unsold tokens	All tokens that will be left unsold during the general crowdsale will be burned. Tokens allocated to the partitions (UGF, Team, etc,) will be burned according to ratio.		
Roadmap GUTS/GET	**2017**	**2018**	**2019 +**
Strategy	B2C - Target: Event Organizer	B2C + B2B Target: Ticketing companies	B2C + B2B Completely open platform
Focus region	Netherlands	Europe + North America	Asia
Tickets sold**	10k tickets	200k-300k	1 million +
* Due to the rise in Ether price GUTS has decided to burn unsold GET to ratio on the half-way point of the general sale. This meant that on 29 November 13:00 CET the ether held by GUTS was re-valued at €418.66. 12.5 million unsold GET where burned from the crowdsale.			

Table 12: Summary of the GET Protocol ICO. Details about the recalibration of the hard-cap on the half-way point due to the increased ether price is described in our blog.

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Crowdsale contract details

- **Total token supply: 90 million GET tokens** - *UPDATE: 33,368,773.40 GET where minted after finalization of the crowdsale.*
- **Maximum financing :** €15.0 million - *UPDATE: In total €6.253.185 was raised during the whole crowdsale period .*
- **Minimum financing :** €2.3 million - *UPDATE: The soft-cap was reached after having completed the private pre-sale of 6968 Ether valued at €258/ETH. Combined with the capped public pre-sale with 809 unique participants collecting 1908 Ether valued at €262/ETH. For more details about these two sales consult this blog post covering both the public and the private pre-sale.*
- **Length of the ICO**: 28 days (4 weeks)
- **Starting-date of ICO :** 15 November 13:00 CET
- **Ending-date of the ICO:** 13 December 13:00 CET
- GET are coded as such that they cannot be transferred/movable to another address until 10.00 CET on the 20th day following the date on which the ICO ended (i.e. if it ended on 13 November 2017, GET can be transferred on 20 December 2017), a period which the Foundation will use to validate whether the ICO was conducted in a fair and orderly way.

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- **Token contract address:** Jan Tooropstraat 1, (1062 BK) Amsterdam, e-mail address: ico@guts.tickets.
- **There will only be one GET Protocol ICO.** The tokens issued during this ICO will be the only GET tokens ever to be issued by the protocol. *UPDATE 20 December 2017. The GET Protocol crowdsale contract is finalized. This transaction link to etherscan shows the calling of the crowdsale contract and thereby definitely ensuring that additional minting/creation of GET by this contract is* ***not*** *possible.*

UPDATE 27 DECEMBER 2017. As of now the GET Protocol crowdsale has been completed (the crowdsale ended on 13 December at 13:00 CET). In this blog you can read more about the finalization of the crowdsale and the about the total amount of GET minted, burned and vested. As of 20 December 16:00 CET the GET token has made movable, meaning that the crowdsale contract cannot mint any more tokens GET tokens as well as it will allow holders/owners of the token to move and trade the token as they deem fit. The token can be found on etherscan at '0x8a854288a5976036a725879164ca3e91d30c6a1b'.

THE DIFFERENT PARTITIONS AND THEIR EFFECT ON CIRCULATING SUPPLY

Partitions	Public Crowdsale	User Growth Fund	Stability Fund	Team	Bounty
Initialy issued Total 90 million	36,900,000	27,000,000	12,600,000	11,700,000	1,800,000
Effects circulating supply	Yes	No	No	Yes, after min. 1 year vesting.	Yes, from mid Jan'18
Total burned	*26,998,608*	*19,755,079*	*0.00*	*8,560,534*	*1,317,005*
Total issued/minted	**9,901,391**	**7,244,920**	**12,600,000**	**3,139,465**	**482,994**
Circulating supply: 10 384 386		**Maximum supply: 33 368 773**		**Total Vested: 22 984 386**	

Table 13: Summary of the circulating and maximum supply of GET. **Check the minting, burning and vesting specifications and subsequent proofs by viewing this public Google spreadsheet.** Monitor the movement of the GET on **etherscan.**

ADDRESS OF THE CROWDSALE CONTRACT The crowdsale contract and its audited code can be found on etherscan. The contract was owned by **'0x8a854288a5976036A725879164Ca3e91d30c6A1B'**.

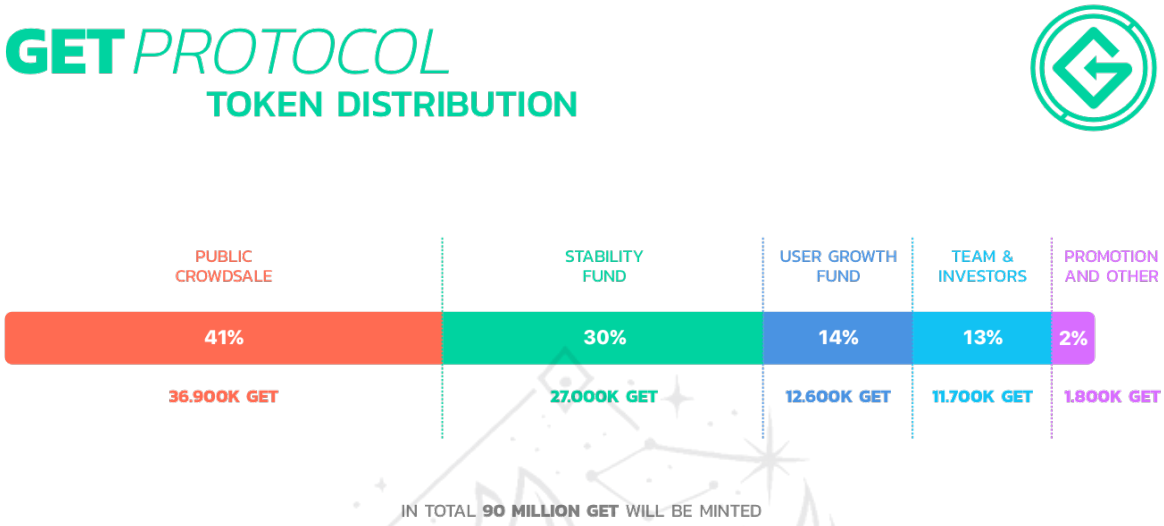
- **Crowdsale:** Directly effects circulating supply. These GET are controlled by crowdsale participants and can be sold for any price in any way these holders deem fit.
- **User Growth Fund:** This partition does not effect circulating supply. GET issued in this partition will be put in a vested contract until 1 April 2018*, after which the tokens issued will be given their function within the GET Protocol as described in chapter 3.6 of the whitepaper.
- **Stability Fund:** This partition does not effect circulating supply. GET issued in this partition will be put in a vested contract until 1 April 2018*, after which the tokens issued will be given their function within the GET Protocol as described in chapter 3.8 of the whitepaper.
- **Team:** This partition not directly effect circulating supply. All tokens issued in this partitions (see spreadsheet tab 2) will be put in vested wallet contracts of minimum 1 year, with larger holder having an additional 1 year linear vesting period attached to their token partition. This means that the team members will not have control of their tokens for at least 1 year and we can therefore state that these tokens will not effect circulating supply in the short term.
- **Bounty:** The tokens in this partition will enter circulating supply. These tokens will be issued mid-January and will then enter circulating supply.

Summary of the circulating and maximum supply of GET. **Check the minting, burning and vesting specifications and subsequent proofs by viewing this public Google spreadsheet.** Monitor the movement of the GET on **etherscan.**

GUTS Tickets will **never** approach and/or provide **crucial** information (especially sensitive instructions like contract addresses) to investors via Slack, Telegram, RockChat or any other messaging application with exception of Intercom. This type of communication will exclusively happen via e-mail or via the GUTS ICO application. **In this blog post** you can read step for step how the self build ICO application will ensure that the crowdsale will be secure, controlled and will follow our planning.

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In total, up to 90 million GET will be minted via a smart contract system. The total number of GET Tokens minted will be divided into five different pools. The figure below shows this division(take note: the percentages in the image shown below assume that the crowdsale will completely sell-out, meaning that all 90 million tokens will be minted).



DYNAMIC AND STATIC PARTITIONS The amount of GET Tokens allocated to the "SF" is fixed (static). This means that that regardless of the result of the crowdsale, 12.6 million GET will be minted into this fund by the crowdsale contract. The amount of GET to be allocated to the other pools are dynamic, the size of "Public Exchange" depending on how many persons participate in the ICO and the size of the "UGF" Pool and "Team & Investors" Pool being calculated using the following formula: ("GET exchanged in the Public Exchange" divided by 36,900) times "UGF" Pool maximum (27,000) [OR] "Team & Investors" Pool maximum (11,700). See also the table below for further clarification:

% of PE maximum exchanged	Size PE Pool	Size UGF Pool	Size SF Pool	Size T&E Pool	Size P&O Pool	Total
100%	36,900,000.00	27,000,000.00	12,600,000.00	11,700,000.00	1,800,000.00	90,000,000.00
90%	33,210,000.00	24,300,000.00	12,600,000.00	10,530,000.00	1,620,000.00	82,260,000.00
80%	29,520,000.00	21,600,000.00	12,600,000.00	9,360,000.00	1,440,000.00	74,520,000.00
60%	22,140,000.00	16,200,000.00	12,600,000.00	7,020,000.00	1,080,000.00	59,040,000.00
50%	18,450,000.00	13,500,000.00	12,600,000.00	5,850,000.00	900,000.00	51,300,000.00
40%	14,760,000.00	10,800,000.00	12,600,000.00	4,680,000.00	720,000.00	43,560,000.00
30%	11,070,000.00	8,100,000.00	12,600,000.00	3,510,000.00	540,000.00	35,820,000.00
23% (Activation Threshold)	8,560,800.00	6,264,000.00	12,600,000.00	2,714,400.00	417,600.00	30,556,800.00
<23%	0.00	0.00	0.00	0.00	0.00	0.00

Description of the partitions

In the list below the different partitions are described as well as the maximum percentage of total maximum supply of 90 million GET is described.

- **Public Exchange — up to 41%** As the diagram above shows, up to 41% of the maximum amount of GET minted will be exchanged for ETH as part of the ICO.
- **User Growth Fund — up to 30%** The UGF promotes protocol usage by rewarding [both EOs and] GUs for using the GET Protocol. See previous chapters about the role and function of the UGF.
- **GET Stability Fund — 14% STATIC** The SF will act as a stabilizing buffer for EOs to acquire GET so they can use the GET for their events. 12,600,000 GET will be allocated to the SF, irrespective of the amount of GET exchanged in the public exchange. The SF acts as a siphon, and needs to replenish itself

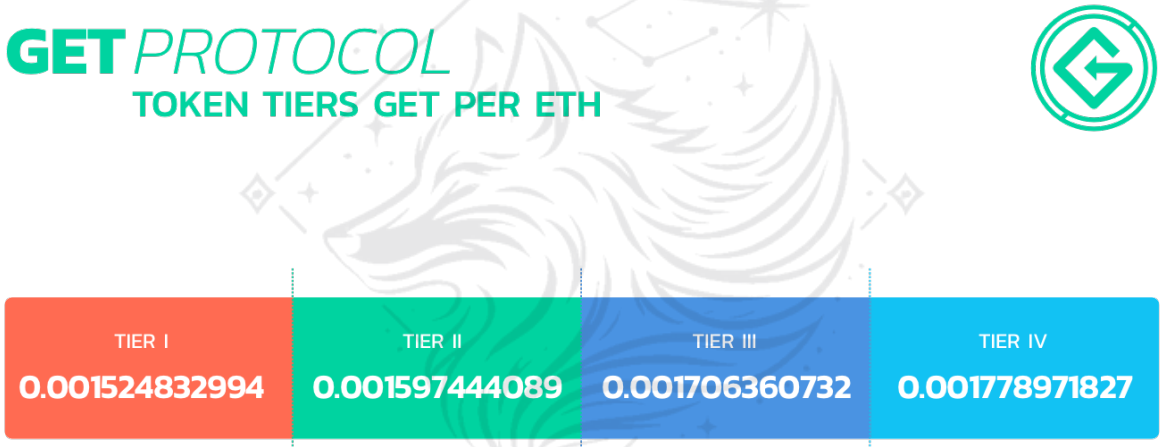
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after any transaction with EOs, with the result that the SF will offer to exchange back GET into ETH from the open market against at least the guaranteed exchange rate. See previous chapters about the role and function of the UGF. **The GET in stability fund will on net never enter circulating supply, as the stability fund will always buy the GET it provided to event organizers within the protocol back from the open market.**

- **Team and advisers — up to 13%** This partition of GET will be made available for the GET Foundation team and advisers. Approximately 6% will be transferred directly to team members and advisers, all with vesting contracts of **at least 1 year.**. The remainder will be held by the GET Foundation may at the sole discretion of the Foundation, be transferred exchanged with future team members and advisers if the Foundation deems this beneficial to the development and success of the GET Protocol. When GET is granted to team members and advisers, a standard lock-up period of 12 months applies.
- **Promotion and others —up to 2%** The GET Tokens will be transferred to third parties in exchange for services in the field of marketing and as a bounty reward for quality control for the integrity and robustness of the code of the GET Protocol.

6.3 TIERS: EXCHANGE RATES

The exchange rate against which GET can be exchanged in ETH denominated in euros is as follows:



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6.4 MECHANICS OF THE CROWDSALE

ICOs in the past have regularly been riddled with chaos and uncertainty. During the GET ICO we want to prevent this type of network cluttering and general chaos from occurring. Therefore, the GET Foundation has decided to self-build a queuing application.

6.4.1 *Dynamic ICO queuing application*

To manage the contributions during the ICO, a custom version of the ticket queuing module will be utilized. This queuing application, which will be a customized version of our own tested and operational smart ticketing application, will serve every contributor with unique contribution instructions at a certain time. By using this application, we are able to showcase our tech while at the same preventing scammers from copying or mirroring our front-end in an attempt to lure contributors. This infrastructure will make sure the ICO will be fully controlled and most of all, safe for both GET, the GET Foundation and persons participating the ICO.

ICO CONTRACT PUBLICATION & AUDIT The contracts used during the ICO will be made public in the weeks preceding the ICO this will be accompanied with a bug-bounty campaign. GET protocol foundation

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will only use audited and tested contracts.

UPDATE: Audit results Matthew Di Ferrante are in.

UPDATE 19 December. Matthew Di Ferrante(security developer at the Ethereum Foundation has conducted an audit of the crowdsale contract. **His conclusion was that the crowdsale contract didn't/doesn't contain any critical vulnerabilities.**

6.4.2 *Details on the GET presale*

The ticketing industry is crowded and competitive. Although it is true that the ticketing applications of current ticketing companies create significant market inefficiencies, the companies providing these services have built relationships with EOs. These relationships and shared history will make it harder to convince EOs to make the switch to a blockchain-based solution. This means that apart from offering a superior product and having effective sales, competitive pricing is the most effective tool in convincing new clients. Thus, our current partners are able to exchange ETH into GET prior to the Public Exchange phase of the ICO, enabling them to use the protocol in the future against a discount thereby locking them in.

A portion of tokens allocated for the public crowdsale have been assigned to strategic partners of GET Foundation. These pre-exchange token contributors share long term goals with GUTS Tickets and in some cases, will only received these tokens if they have delivered on a certain ticketing volume.

The wallet address containing the funds raised during the strategic presale will be made public.

Update 19 December - These 5 multi-sig addresses hold the majority of the raised crowdsale funds

- Etherscan link multi-signature wallet 1
- Etherscan link multi-signature wallet 2
- Etherscan link multi-signature wallet 3
- Etherscan link multi-signature wallet 1
- Etherscan link multi-signature wallet 1

6.5 FUNCTIONALITIES OF ICO GET TOKENS

All GET have the same functionalities, however, only GET Tokens sent from addresses that are "whitelisted" by the GET Foundation may interact with the GET Protocol. The GET Foundation will only "whitelist" addresses that it has created itself for parties such as event organisers, ticketing companies and persons that purchase tickets via the GET Protocol. Such accounts will not accept transfers of GET from accounts that were not created by the GET Foundation. Accordingly, GET obtained as a result of the ICO cannot be transferred to such accounts (wallets) within the GET Protocol. An important reason for this policy are current regulatory uncertainties. In the future the Foundation intends to change this policy, meaning that, for example, GET obtained as a result of the ICO can be used to buy tickets.

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6.6 BUDGET ALLOCATION

The time needed for developing the GET Protocol as currently envisaged in this white paper depends on the number of ETH received in exchange for Get during the ICO. Should the ICO be funded completely, the expectation is that the last phase of the GET Protocol will be delivered 36 months after initiation. Conversely, should only the minimum number of tokens be raised, the development of the GET Protocol would take more time as the size of the development team would be smaller.

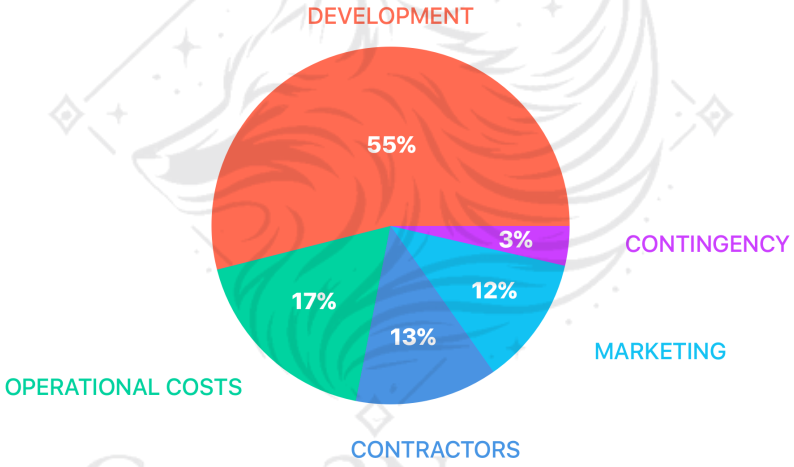
GET PROTOCOL DEVELOPMENT: 55% of the budget. The current development team consists of 6 engineers which will grow, depending on the amount raised in the ICO, the team will grow gradually according to the needs of the tasks to be done. The funds allocated also include the further development of the GUTS application.

OPERATIONAL COSTS: 17% of the budget. Consists of administration costs (legal, security, accounting), hosting costs, an office, and other operational costs.

EXTERNAL CONTRACTORS: 13% of the budget. These funds will be directed to third-party providers like external engineering, PR agencies, growth-hacking and more.

MARKETING AND SALES: 12% of the budget. In short, getting stakeholders in the market to use the GET Protocol.

CONTINGENCY 3% of the budget. Funds set aside for unforeseen costs.



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Figure 8: Pie chart displaying the budget allocation of the funds raised in the ICO.

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MAARTEN BLOEMERS | CEO | LinkedIn

Is the general manager, lawyer and legal specialist of the team. After earning his master's degree in corporate law, Maarten worked for the Dutch central bank and founded an invoicing platform with legal services called KasCo in 2012.

TOM ROETGERING | CCO | LinkedIn

Is the commercial force behind GUTS and is responsible for happy customers at the events. After earning his master's degree in business administration, Tom worked for Rabobank, and founded a comparison platform for body shops called Deukweg in 2013.

IVO VAN DER WIJK | CTO | LinkedIn

Has more than 20 years of experience with software development, open source and Internet technology, and is the technical brain of GUTS. He earned his master's degree at the Vrije Universiteit in Amsterdam, where he continued to work on a global distributed system. After starting a full-service IT company with 15 employees and a freelance career where he tried to continuously reinvent himself by discovering and applying new and disruptive technologies, Ivo has found his latest challenge at GUTS.

FRANS TWISK | UX / FRONT-END DEVELOPER | LinkedIn

Is responsible for the design, user experience, and front-end development. Frans is a designer and a developer "unicorn" with over 11 years of freelance experience with a Master of Arts in Interaction Design. He is also a DJ & founder of EINDBAAS: chip/8bit music events in The Netherlands.

STRAVROS CHAMPILOMATIS | BACK-END DEVELOPER | LinkedIn

Is a full stack developer with a breadth of knowledge. He has experience in back-end and front-end work, contributing to multiple projects using Python, PHP, React, React-Native and Java for Android. Stravros has hands-on experience implementing secure and testable smart-contracts using Solidity.

MARK ARTS | BACK-END DEVELOPER | LinkedIn

Is a passionate and curious back-end developer who has been working as a programmer since the first year of his bachelor of science. Mark's experience developing virtual reality projects with C++ for his thesis, his work at dev-ops / back-end development at full-stack web companies, and his passion for functional programming has given him a broad and unique range of programming expertise.

KASPER KEUNEN | BLOCKCHAIN DEVELOPER | LinkedIn

Holds two bachelor 's degrees (physics and economics/finance) from Vrije Universiteit Amsterdam and is currently on the verge of completing his MSc Computational Science from the University of Amsterdam. In 2015 Kasper co-founded the Bitcoin startup BitStraat, which was an official partner of Bitpay and initiator of Amsterdam Bitcoin City. The company was nominated as a financial innovator at the Dutch Fintech awards in 2015. As an early adopter of blockchain technologies, Kasper has a deep understanding of smart contracts and in particular the Solidity programming language.

SANDER REGTUIJT | COMMUNITY/MARKETING MANAGER | LinkedIn

Is the one to create the buzz around GUTS. Responsible for both valuable international PR campaigns as well as setting up the community channels, Sander is as all-round as a basketball. He has been involved in the blockchain scene since 2013. First as Country Manager of the Netherlands for Swedish bitcoin exchange Safello and has been active later on at various bitcoin projects such as point of sale payment solutions provider BitStraat, where he had a active role in business development.

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