SwitchTix

White Paper

Legal Disclaimer

SWITCH, Inc., SwitchTix WHITE PAPER LEGAL DISCLAIMER

1. Investment memorandum

This SwitchTix White Paper (the "White Paper") constitutes an INVESTMENT MEMORANDUM ADDRESSED EXCLUSIVELY TO ACCREDITED INVESTORS who qualify under the US securities regulations to invest in NON-REGISTERED SECURITIES and to investors investing through an SEC-registered intermediary, either a broker-dealer or a funding portal, exclusively under Regulation Crowdfunding. To find out if a broker-dealer or a funding portal is registered with the SEC, please visit www.sec.gov or www.finra.org.

This White Paper has not been reviewed by a legal counsel and does not purport to be all-inclusive or to contain all of the information that a prospective investor may desire in investigating Switch, Inc. (the "Company"), the future SwitchTix application (the "Application") or the future Switch token (the "Token"). Each investor must conduct and rely on its own evaluation of the company, the application and the token, including the merits and risks involved in making an investment decision. NO SECURITIES REGULATORY AUTHORITY IN THE USA OR ELSEWHERE HAVE REVIEWED THIS WHITE PAPER.

Prospective investors are not to construe any statements made in this White Paper as tax or legal advice. This White Paper should be reviewed by each prospective accredited investor and their investment, tax or other advisors, accountants and legal counsel, if any.

THIS WHITE PAPER DOES NOT CONSTITUTE AN OFFER TO SELL OR A SOLICITATION OF AN OFFER TO BUY SECURITIES IN ANY JURISDICTION WHERE, OR TO ANY PERSON TO WHOM, IT IS UNLAWFUL TO MAKE SUCH OFFER OR SOLICITATION IN SUCH JURISDICTION. THE OFFERING DESCRIBED IN THIS WHITE PAPER HAS NOT BEEN REGISTERED OR QUALIFIED UNDER THE SECURITIES LAWS OF ANY JURISDICTION ANYWHERE IN THE WORLD AND IS BEING OFFERED AND SOLD ONLY IN JURISDICTIONS WHERE SUCH REGISTRATION OR QUALIFICATION IS NOT REQUIRED (INCLUDING PURSUANT TO APPLICABLE EXEMPTIONS THAT GENERALLY LIMIT ELIGIBILITY OF PURCHASERS AND IMPOSE RESTRICTIONS ON RESALE).

2. Special cautionary note regarding forward looking statements

This White Paper contains statements that constitute forward looking statements. Forward looking statements include, but are not limited to, statements regarding the company's plans, objectives, intentions, beliefs, expectations and assumptions or future events, performance or results of performance, as well as other statements that are not necessarily historical facts. You are cautioned that forward-looking statements are only predictions and are not guarantees of future performance and involve risks and uncertainties. The company's actual results may differ materially from those described in forward-looking statements due to various risk factors.

3. NOT INDEPENDENTLY VERIFIED

The information in this Whitepaper is solely for informational purposes and has not been independently verified. All information contained is subject to updating, completion, revision and further amendment.

Introduction

A Word from the Founder

Thank you for taking the time to review our white paper. SwitchTix will solve problems that millions of event-goers face when attempting to buy or sell event tickets on the secondary market.

We believe that the events we go to are a reflection of ourselves. Whether it's for business or pleasure, events provide intimate insights into how we view our world and allow us to escape to a place of comfort: a place that engages us, a place where we can be vulnerable, imaginative, and free. It removes our hardened exteriors and daily concerns, and creates a safe place for laughter, hugs, and tears! Events bring us together. They are where we share our lives with the people we love, and create memories that shape the people we become. Going to an event is a gift for our hearts and minds, a privilege that connects us to each other and the world we share. We should be doing everything we can to preserve this feeling. We want to make sure you feel safe, and that the entire experience is enjoyable.

The core questions we asked ourselves when buying or selling a ticket online are as follows:

1. Is the person I'm selling tickets to going to pay me?
2. Is the person I'm buying tickets from going to send them to me?
3. If they do, will the tickets be legitimate?
4. How much is this really going to cost me?

First and foremost, I'm someone who likes going to events: sporting events, music events, festivals, etc. I very rarely buy tickets from a primary ticket seller. Like millions of people, when I buy a ticket, I buy it from someone who has posted their ticket online because they are unable to attend the event. Most of the time, I don't know this person and have no reason to trust them, but my desire to attend the event outweighs logic, and I often send my money to them with no guarantees. If I'm selling a ticket, I will often send the ticket without verifying that I have received the money because, again, my blind faith outweighs my ability to make a logical business decision.

Typically, the transaction goes like this: Once we've agreed to a price, we get into a back-and-forth in terms of who should send their asset first. The very notion of obligated trust in an unknown entity is what fueled this project. Why should we blindly trust people who "seem" trustworthy'? Why should we send our money or our tickets without any verification of trust? We shouldn't, and we don't have to! SwitchTix eliminates this factor through an escrow-based smart contract validating the fact that each user owns the appropriate funds or tickets and will only release them if all terms of the contract are met. No more fake tickets, no more scams, no more uneasiness around transacting with people you don't know!

Not only will this hold your digital assets and help you transact securely and fairly, it will also offer a state-of-the-art marketplace where you can list your tickets and engage in an automatic agreement with a potential buyer or seller. If you are buying a ticket, you can set the price you are willing to pay, and SwitchTix will automatically grab those tickets and initiate a contract for you—or notify you that they are available.

No more searching endlessly online for a ticket that meets your budget. If you are a buyer, you can set a price you'd like to receive. As the event draws closer, you can set a predefined lowest price, and SwitchTix will automatically reduce the price of the ticket to ensure that it reaches the largest audience possible. Then, once it finds a match, SwitchTix will notify you or automatically initiate a contract. No more unsold tickets, and no more time wasted adjusting your buy or sell price.

This application is being built by event-goers, for event-goers. We all like going to events. We all have busy schedules, and often can't make an event. SwitchTix caters to folks so they don't have to worry about cost, security, or transparency.

As blockchain technology matures, and as more use cases are being uncovered, SwitchTix will be the ideal use case for escrow-based smart contracts. This application is taking a very focused approach in a market dominated by centralization — a market that thrives on lack of transparency and takes control of ticket ownership out of our hands. SwitchTix will allow you, the user, to control ownership of the ticket and get exactly what you paid for.

We wanted to build something for everyone to use. It is vital for us to make the application as user-friendly as possible and to demystify the concept that blockchain is a niche solution. We want our users to feel comfortable and safe sending their money or tickets, so we provide a level of transparency that centralized organizations cannot and will not provide.

We'll also be able to provide incentives for platform usage, socialization of the app, and other project participation activities.

We believe we will change the way people buy and sell tickets, and that in our global economy, we will be able to trust the untrustworthy with the backbone of a decentralized application built on the Quorum blockchain.

Thank you, and we look forward to releasing this application to you.

Tom Holmes

About Switch

Switch. Inc. is a company based in Oakland, California. Switch is developing the SwitchTix product, which is an application meant to simplify peer-to-peer digital asset trade/transfer with escrow smart contracts. Our core competency lies in the provision of real-world asset tokenization with safe, fair, fast transfers between individuals in a decentralized environment.

Initially, we are targeting the secondary ticket market, facilitating transfer and sales between individuals who do not trust each other and/or want to secure deal settlement conditions. Because the secondary event ticketing industry is profound and promising, we aim to leverage escrow smart-contract functionality to establish fair and transparent trade conditions.

Developed as a decentralized blockchain-based application, SwitchTix focuses on P2P transfer of tickets in exchange for fiat or crypto. Our main goal is to make the application as user-friendly and intuitive as possible. This will be beneficial in terms of daily usage, simple P2P tickets, and the transfer of other digital assets. Users will also be able to utilize an escrow smart contract with just a few clicks of a button.

By putting control of deal settlement directly into the hands of the user, we will eliminate the third-party intervention in addition to exaggerated fees and/or speculation. The blockchain environment will grant users transparency during deal settlement. With our blockchain-based escrow service, it will be impossible to send an asset without verification and confirmation of delivery of funds.

No central authority, no third parties, no exaggerated fees. What's more, all operational data will be transparently and securely stored on the blockchain as a hash value.

Current Market State

The secondary ticket-sale industry (also referred to as the resale market) is the trade environment that exists between event attendees, fans, brokers, and resellers who wish to sell tickets after they are purchased by way of the primary market. It often happens that a person can no longer be present at an event s/he had initially planned to attend, and the need arises for return of tickets. This is not normally possible within the primary market industry.

In line with this type of situation, the resale industry has gained a great deal of traction. This has resulted in an array of models such as P2P ticket resale, scalping, and secondary websites.

In accordance with [Business Wire](#), the COVID-19 pandemic continues to transform the growth of various industries, however, the immediate impact of the outbreak is varied. While a few industries will register a drop in demand, numerous others will continue to remain unscathed and show promising growth opportunities. COVID-19 will have a low impact on the secondary tickets market. The market growth in 2020 is likely to increase compared to market growth in 2019.

The growth in online secondary ticketing platforms is one of the major reasons for the secondary tickets market growth. The popularity of online secondary ticketing platforms is growing significantly as it helps in easily connecting buyers and sellers and thus, increasing the allocative efficiency of tickets. In addition, the online secondary ticketing platforms provides convenience in booking tickets and minimizes the time and expenses associated with the purchase of each resold ticket. Moreover, market vendors are offering various deals and discounts on their online ticketing platforms to attract more customers, which will drive market growth during the forecast period.

As per Technavio, the use of blockchain for ticketing will have a positive impact on the market and contribute to its growth significantly over the forecast period. This research report also analyzes other important trends and market drivers that will affect market growth over 2020-2024.

The use of blockchain for ticketing has been identified as one of the key secondary tickets market trends that will drive market growth. The adoption of blockchain is increasing significantly as it helps in making the ticketing process more transparent and efficient throughout the value chain. Blockchain keeps track of buyers and sellers in the secondary ticket market, thereby preventing fraud by scalpers, bots, and touts.

Research analysis on the global secondary ticket market has identified that increased use of **mobile apps** will be one of the major factors exerting a positive impact on the growth of the market.

Technavio's market research analysts predict that this market will grow at a CAGR of around 13% by 2021.

With the global mobile app market currently experiencing extensive growth, many service providers are developing mobile applications to offer **ease of access and use** to customers. Moreover, **growth in the number of sporting events and live concerts** has led to numerous event organizers connecting with **online/offline** and primary/secondary ticket providers to reach audiences through both the platforms.

However, with the rising adoption of mobile devices and increased usage of mobile applications, booking tickets has become increasingly convenient for individuals. This provides **easy payment options** and allows individuals **to select seats according to their requirements**, which, in turn, is likely to support the growth of the market during the period of 2020-2024[1].

The year-over-year growth for 2020 is estimated at 7.58% and the incremental growth of the market is anticipated to be $ 6.96 bn.

In accordance with MarketWatch[2], USA is the largest country of Secondary Tickets in the world in the past few years and it will keep increasing in the next few years. USA market took up about 54.5% the global market in 2018, while Europe and China were about 27.6%, 6.1%. In 2019, The Worldwide Secondary Tickets market size was USD 1510.3 million and it is expected to reach USD 2797.2 million by the end of 2026, with a CAGR of 9.1% during 2021-2026.

Figure X. Global Secondary Ticketing Market Size, 2021-2026
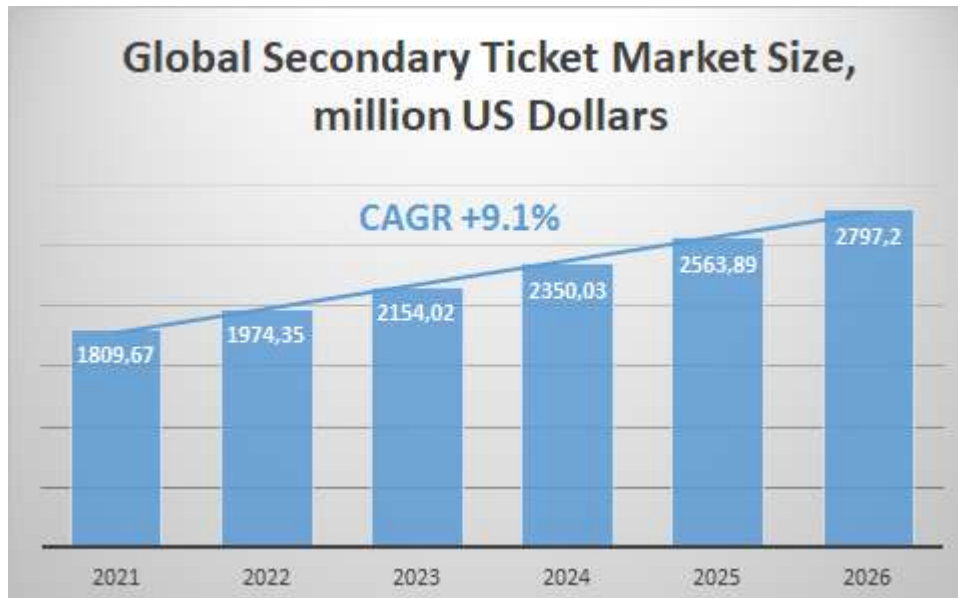
The Asia-Pacific region will occupy a greater market share in the coming years, especially in China. India and Southeast Asia will also be fast-growing regions.

North America, especially The United States, will still play an important role that cannot be ignored. Any changes from the United States will affect the secondary ticket development trend.

---

[1] https://www.businesswire.com/news/home/20191021005527/en/Global-Secondary-Tickets-Market-2020-2024-9-CAGR-Projection-Over-the-Next-Five-Years-Technavio
[2] https://www.marketwatch.com/press-release/secondary-tickets-market-2021-top-countries-data-market-size-share-segmentation-analysis-regional-outlook-and-forecast-to-2026-2021-04-05

Industry Problems

Considering the fact that the primary ticket market doesn't provide buyers with the ability to return tickets or receive refunds, the resale or secondary market has recently gained traction. The problems in the resale market are often related to high costs or increased fees, limitations in terms of geographic location (i.e., face-to-face meetings), limited availability, and fakes. In addition, there exists a lack of trust and transparency that results in misinformation and the absence of control over funds.

Having evaluated the current market state along with the features and functionality of the latest offers, we can outline the following problems:

✕ **Centralization**. Consumers depend upon a centralized entity and are therefore unable to control their funds; nor can they see the full, transparent deal-settlement picture.

✕ **Market exploitation and price inflation.** Within the secondary ticketing industry, consumers are confused about the exact price they should pay to see a concert or attend an event. In addition, there exists a lack of clarity with regard to the best place to buy tickets.

✕ **Lack of information.** In many instances, consumers are dealing not only with exaggerated fees, but also with hidden costs that are not revealed until the late stages in the booking process[3].

✕ **Fraud and invalid ticket sales.** Users often face difficulties with verifying product validity, which, in turn, increases the need for secure deal settlement with reliable means of product verification.

✕ **Poor authentication**. Many applications fail to securely authenticate the user, thus positioning the threat of identity theft.

✕ **Poor user and data security**. User privacy and personal details often aren't stored securely, and can even be sold to third parties. With such poor protection, the threat of hacker attacks and loss of funds becomes even more apparent.

✕ **Limited accessibility.** Many applications are limited to specific regions or locations, thereby limiting the user.

✕ **Inefficient customer support**. Many users don't have access to sufficient functionality due to a lack of technical support.

The Opportunity

The opportunity lies in establishing a safe, secure, and reliable decentralized environment that will allow for transparent deal settlement, increased security, and efficient payment processing in exchange for tickets or other digital assets.

---

[3] According to Professor Michael Waterson's independent review of the market conducted in 2016, almost a quarter (23%) of buyers thought a reseller was an official vendor. 43% of respondents to a consumer survey said that Google was their first port of call to search for tickets, which has led many fans to buy tickets for sporting events, live music, and theatre shows on a secondary ticketing website without realizing they were doing so.

Decentralization. To eliminate issues related to the centralized trust-based model, it is highly beneficial to establish a blockchain-based decentralized environment. As a solution, blockchain technology establishes the highest level of trust and enables P2P asset transfers without third-party involvement. P2P deal settlement within the blockchain environment is based upon cryptographic proof instead of reliance upon a centralized entity, thereby allowing engaged parties to exchange funds and assets directly.

Escrow Smart-Contract Service.

Transactions that are computationally impractical to reverse would protect sellers from fraud; routine escrow mechanisms could easily be implemented to protect buyers[4].

Additionally, the utilization of technology-based escrow smart contracts provides a fairer medium of exchange. Blockchain enables the implementation of escrow smart contracts to automatically ensure that trades are executed in a secure and timely manner. This will allow for safe ticket transfer. All conditions can be pre-written into the smart contract, with the ability to provide details like dates, names, amount, and more.

Asset Tokenization. Any ticket or other digital content (e-books, video or audio courses, and/or data) can simply be tokenized within a non-fungible token standard that represents ownership and information to be sold or purchased within a secure environment. Ledger immutability and our escrow service will grant enhanced safety and deal security.

---

[4] https://bitcoin.org/bitcoin.pdf

9

Value Proposition

SwitchTix Solutions

SwitchTix aims to provide as much functionality and convenience as possible to all users for daily P2P trading activities. Keeping in mind all the potential problems and inefficiencies associated with centralized solutions, we strive to overcome existing issues by providing our community with a secure, easy-to-use P2P ticket/asset trading application with the following features:

- **Blockchain-based environment.** All your data will be securely stored on the blockchain in a hash value, ensuring that no one can steal your personal information or otherwise change or interfere with it.

- **Transparency.** No more dependency on third parties. Transaction history will be written into the blockchain, allowing you to track transaction flow and maintain control of your own funds.

- **Intuitive, user-friendly interface.** SwitchTix is designed with an intuitive interface, allowing anyone to easily buy or sell digital assets with a few clicks of a button.

- **Cost efficiency.** No exaggerated fees due to elimination of third parties. Flat fee for transaction processing or escrow smart-contract use. Obscenely low fees for digital asset acquisition plus undeniable security during transactions.

- **Escrow service.** It is implemented to ensure that all engaged parties receive what they require.

- **Digital asset trade.** With SwitchTix, you will be able to tokenize your tickets and digital content. This is a great use case for secondary ticket sales. With escrow smart contracts, you'll ensure that the buyer automatically gets their ticket(s) while the other receives their funds.

- **Asset verification.** With established partnerships and cooperation with primary ticketsellers, SwitchTix will verify ticket validity to eliminate fakes and forgery. All data will be immutably stored on the blockchain ledger.

- **User rating system.** We are implementing a rating system to incentivize users for fair trade of assets. Compliant users will earn fee discounts and lower transaction costs. Noncompliant users will be penalized through a transparent social blacklisting system.

Competitor Analysis

The competitive landscape is pretty big within the secondary ticket market. However, it should be stated that this is limited by technology or user segment.

As of today, there exists a number of blockchain-based ticketing platforms that provide secure ticket sales. Among them are platforms like GUTS tickets, Blockparty, True Tickets, Upgraded,

BlockTix, and others. These platforms ensure transparent deal settlement, elimination of fraud, and fair pricing.

On the other hand, none of these platforms provide the possibility of escrow service (or escrow smart-contract) use. This is the core benefit that SwitchTix is going to provide to users: simple, intuitive escrow smart-contract utilization on demand. In addition, many current solutions involve a high number of intermediaries (artists, primary selling sources, event agencies), while Switch's goal is to ensure fast peer-to-peer ticket trade. This approach significantly simplifies deal settlement while focusing on daily customers instead of businesses.

	Guts Tickets	**True Tickets**	**Upgraded**	**BlockTix**	**SwitchTix**
Blockchain Platform	Ethereum	Hyperledger Fabric	Ethereum	Ethereum	Ethereum + Quorum
Business model	B2B/B2C	B2B/B2C	B2C mostly/B2B	B2B mostly/B2C	B2C mostly/B2B
Asset Tokenization/ Ownership	Yes	Yes	Yes	Yes	Yes
Automatic Escrow Smart-contract Use	No	No	No	No	Yes
Loyalty Program	No	N/A	N/A	Yes	Yes
Automatic Best-price purchase[5]	No	No	No	No	Yes
Multi-currency wallet	No	No	No	No	Yes

Business Model Overview

Switch Inc. is developing the SwitchTix application with a unique business model that successfully implements blockchain technology. The chosen blockchain provides fast, cheap, transparent operations between users. The platform's UX/UI design offers simple, intuitive access for all potential users.

Gen X and millennials are considered the target audience for our innovative technologies. Nevertheless, the SwitchTix app will be designed with the most comfortable, convenient UX/UI for every customer segment.

We will provide access for interaction between customer segments, including the following:

- Family and friends (simple p2p ticket exchange)
- Fans and event attendees (p2p ticket purchase with escrow smart contract)
- Daily users (easy ticket listing, tokenization, and trade)
- Resellers (ticket sales with escrow services)
- Primary Ticket Sellers

---

[5] Users will no longer need to constantly keep an eye on the lowest prices. Switch provides a feature for setting the best match. As soon as the offer appears, a deal will automatically be executed.

Fast, cheap and secure P2P ticket trade, escrow services, proof of asset ownership, and full transparency of the platform operations are the main competitive advantages of the SwitchTix application.

Switch, Inc. is establishing partnerships with key ticketing platforms. This approach will inspire investor and potential platform user confidence in SwitchTix services.

The SwitchTix application will provide users with the ability to meet their needs with a full scope of features for simple, comfortable P2P ticketing trade. The SwitchTix platform will include the following activities:

- **P2P ticket trade.** The SwitchTix application will provide a safe, private, low-cost way to exchange digital event tickets between users within the Switch Network. This feature will include the SwitchTix wallet, which will offer users the ability to make payments in both fiat and crypto in exchange for tokenized tickets. These payments will be supported by the Quorum blockchain, which will store all data in its ledger.

- **Escrow Smart Contracts**. To facilitate exchange of tickets between two untrusted parties, an escrow smart contract will be utilized. This creates a secure, binding, conditional, low-cost contract that will only deliver the funds (ticket seller) or the tickets (ticket buyer) should all conditions of the contract be met.
- **Switch Marketplace**. The SwitchTix application will allow access to a ticketing marketplace where event-goers can post unwanted event tickets and/or search for events they would like to attend. Once tickets have been found (with buyer and seller established), agreements will be formalized while leveraging a smart contract. Every ticket, which is listed on the Switch Marketplace is automatically tokenized, storing ticket data and owner's credentials in its metadata.
- **Proof of Ownership**. This feature will provide proof of asset ownership with the creation of unique tokenized assets. This includes a unique owner ID, stored in the assets' metadata. All ownership changes will be automatically sent to the event organizer in order to eliminate malicious sellers.

Primarily, we will target the U.S. market. Research has shown that it has been globally significant over the past few years, and that it will keep increasing in the next few years. The U.S. market accounted for about 54.5% the global market in 2018, while Europe and China were about 27.6% and 6.1%, respectively. In 2018, the global secondary ticket market size was $1.260 million U.S., and it is expected to reach $2.320 million U.S. by the end of 2025, with a CAGR of 9.1% from 2019 to 2025[6].

Further, our development plan is to cover South America, Europe, Africa, and Asia, then operate globally. According to Statista, global event ticket market revenues could reach $105.359 million by 2023.

Although SwitchTix will be simple to use, we have dedicated a great deal of effort to making it as functional as possible. In line with this, our consumers will enjoy good communication with each other while always remaining aware of the latest updates, news, and information.

SwitchTix will enable a variety of customer relationship channels:

---

[6] Global Secondary Tickets Market Size, Status And Forecast 2019-2025

1. SwitchTix users will be able to communicate and track recent news via social network channels such as Medium, Facebook, Instagram, Twitter, LinkedIn, and Telegram.
2. Our web page will host a blog with the informative purpose of offering guides, articles, and relevant content.
3. Switch consumers will be offered app support in order to provide clarity on frequently-asked questions and guidance through application functionality.
4. Potentially, we are looking forward to implementing a simple messenger between sender and recipient that will determine whether the assets in question are still available and offer additional details regarding transactions (date, conditions, etc).

Our revenue streams will be based solely upon transaction fees, with no subscription or complicated terms of use. Considering the fact that the two largest secondary ticket sellers in the U.S. charge an average of 15-20% of the ticket's face value in addition to the price, we plan to set a flat transaction fee of $3.98 ($1.99 from each participant).

This will be enabled through the side-chain environment, as it provides extremely cheap transaction fees.

Fair and transparent fees for escrow-service use or digital asset (ticket) trade will be determined.

SwitchTix Technical Overview

Why Blockchain?

What Is Blockchain?

Blockchain is a distributed-ledger technology that allows the storage, management, and sharing of all types of data in a decentralized manner. Blockchain grants data immutability, as once it is written into the ledger, it remains there without the possibility of change or forgery. Our high level of safety and transparency will be especially advantageous in the financial industry. Considering the fact that each block contains all relevant information about users as well as their status and transaction history, it will be easy to verify the validity of data. All blocks are connected to one another in consecutive order.

Blockchain is one of the best solutions for enhancing the P2P payment sector and digital asset exchange because:

- It represents a paradigm shift in how software is written and developed.
- It is an independent consensus-making environment.
- Data is stored in blocks, and all blocks are chained and signed in an immutable manner.
- Blockchain acts as a value transfer system for transferring assets within the network.
- It is an environment that enables contracts with untrusted parties without the traditional method of guaranteeing the legitimacy of agreements.
- Blockchain is a catalyst for building decentralized applications (Dapps).

What Is a Smart Contract?

A smart contract is a digital agreement written in code within the blockchain environment. It ensures that two or more parties will comply with predefined conditions or requirements before receiving funds, assets, or data. As long as these requirements are met by everyone, a triggering event will occur to automatically execute the deal. In this way, everyone receives the desired outcome securely and without the threat of scams.

SwitchTix will provide the option of escrow smart-contract use to ensure that digital asset purchases will be fairer and absolutely safe. This will include a multi-signature feature from involved parties. In addition, there will be an option to set a timestamp within the smart contract, and the funds will be frozen within the escrow until all conditions are met.

Utilization of blockchain within our application will grant users increased:

- **Data transparency.** All parties will be able to track the history of transactions within the blockchain environment, thereby ensuring the safety and security of their transactions.

- **Accountability**. All operational data will be stored on the blockchain in a hash value without the possibility of change or deletion.
- **Decentralization**. With the elimination of third-party involvement, users will have the ability to send money directly to one another. This ensures trust through blockchain transparency and smart-contract utilization.

- **Automatization of processes.** The process of transaction execution and smart-contract application will be performed automatically. This will save time on manual checks and verification procedures.
- **Speed**. The chosen blockchain will grant users a fast, cheap means of peer-to-peer funds transfer.
- **Security**. Our application will allow for digital asset sale and/or purchase. Escrow smart contracts will ensure the trust and security of all exchanges. The deal won't execute unless all parties have met predefined conditions.

Switch has analyzed a range of blockchain solutions in order to find the best environment for peer-to-peer digital asset trade. Our main goal was to find a ledger capable of satisfying the needs of all users in terms of speed, scalability, and decreased transaction fees.

Which Blockchain Platform and Why?

To meet application needs and ensure platform functionality, we have chosen the **Quorum blockchain**, as it provides more beneficial conditions for fast, cheap, and secure transfer of funds or assets.

Quorum was developed by JP Morgan to serve as an open-source private network. It functions on top of Ethereum libraries. As a permissioned blockchain, it grants access only to pre-approved members and serves as a closed environment.

This type of solution provides the opportunity to create public transactions visible to the whole Quorum network as well as private transactions, which are visible only for participants whose public keys are inserted into the transaction parameter.

Utilization of Quorum in SwitchTix development is beneficial because:

➜ It is integrated in a simple manner with the public Ethereum blockchain.
➜ It allows for public and private transaction creation.
➜ It provides flexible consensus approach (PoA will be used in our case).
➜ It offers the ERC20 token standard and Turing-complete smart-contract support.
➜ It is much faster than Ethereum, with hundreds of transactions per second.
➜ It provides significant cost efficiency.

Blockchain Architecture Design

How to List a Ticket in the SwitchTix Marketplace

Once a user is ready to use the SwitchTix application for P2P ticket trade, one of the first things to do for the seller is to list the ticket and let the buyer know that it is available for sale.

This is a simple process that requires a few steps from the user, such as sending a request and passing the KYC (know your customer) procedure. Everything else is done by the application. Every time the ticket is listed on the SwitchTix marketplace, it is represented by the ERC721 non-fungible token standard, which providers the Proof-of-Ownership feature storing all the owner's credentials in its metadata.

Asset Listing on SwitchTix Marketplace
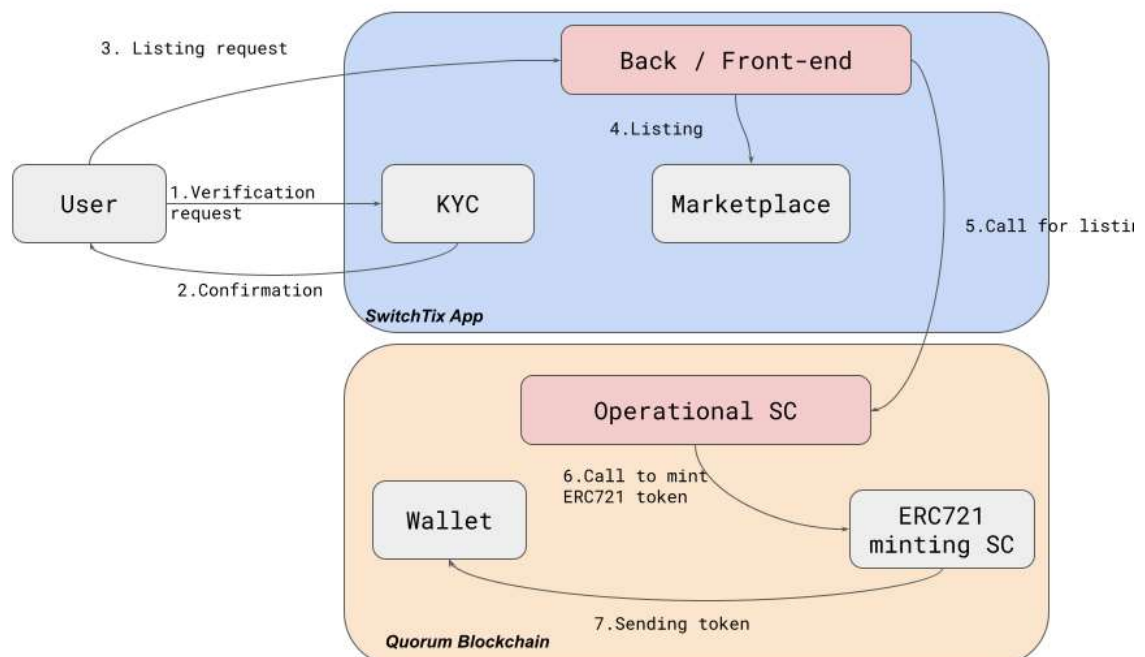
1. First, the user sends a request to SwitchTix in order to pass the process of verification (KYC/AML). This will ensure that all users are verified, and will eliminate any false identities.
2. After successful verification, the user receives confirmation.
3. Then, s/he can send a listing request to the application providing all details regarding the ticket (event name, price, dates, etc).
4. When the listing request is completed, platform back-end receives this information and sends it to the Operational SC.
5. Operational SC receives this data and calls ERC721 minting SC to mint ERC721 token with storing owner's credentials and ticket's data in its metadata.
6. ERC721 token is sent to the user's wallet in the Quorum blockchain

In a situation in which two untrusted parties want to execute a deal, an escrow smart contract is the right solution. It ensures that both parties receive the desired result as long as all conditions are met. The escrow smart contract will be executed automatically to ensure the complete security of all platform deals.

Each ticket will hold certain information, such as owner, price, and event details. In order to ensure the highest level of security, the data will be presented as a digital asset and written into the ERC721 token metadata. When the ticket (asset) is sold, it will acquire a new owner, and all changes will be immutably reflected in the blockchain ledger.

SwitchTix provides our users with convenient payment methods. If you would like to process a payment using USD or EUR (fiat), or perhaps BTC or ETH, you won't encounter obstacles, as the Switch multi-currency wallet supports these types of payments.

In a situation in which the buyer or seller already know that there is a desired ticket for trade, they can establish a deal through SwitchTix that eliminates the marketplace involvement.

According to this scenario, the seller initiates ticket tokenization and finds a buyer through an ID or email to send him/her the request for purchase.

Escrow Purchase Process Flow with Crypto/Fiat
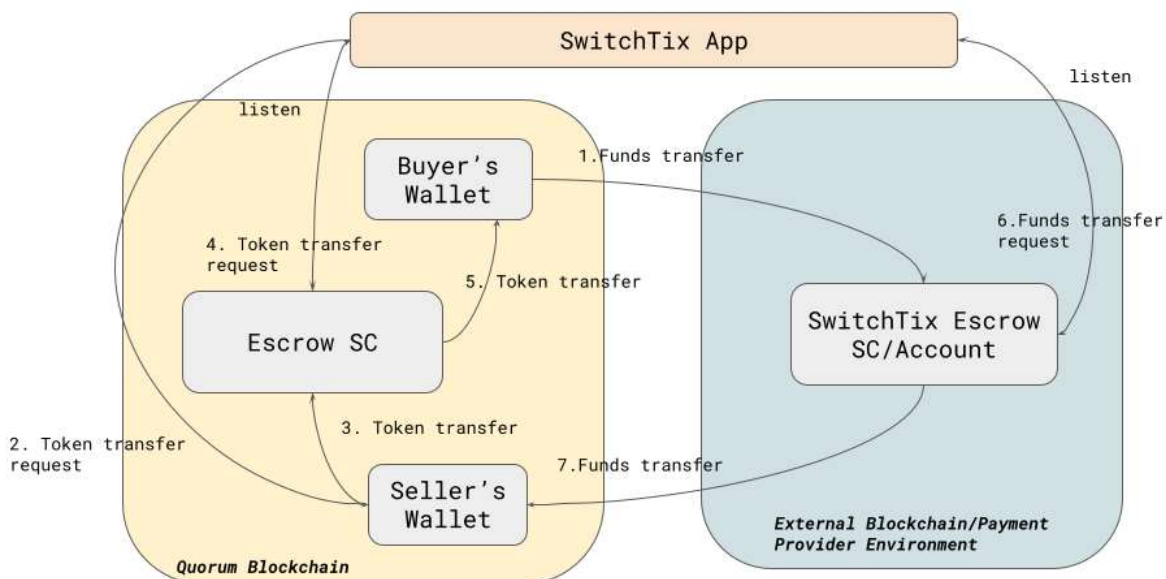
1. In order to buy a ticket using an escrow smart contract, the buyer first sends the asset purchase request to the SwitchTix application, which sends a payment request to the buyer's wallet.

2. The buyer transfers funds from the wallet (crypto/fiat) to the SwitchTix Escrow SC/Account in the External Blockchain/Payment Provider environment
3. SwitchTix platform receives the funds' transfer confirmation and sends the token transfer request to the seller's wallet.
4. Seller receives request and transfer's ERC721 token to the SwitchTix Escrow SC in the Quorum Blockchain.
5. SwitchTix platform receives the token transfer confirmation and sends the funds' transfer request to the SwitchTix Escrow SC/Account in the External Blockchain/Payment Provider environment.
6. At the same time, SwitchTix platform sends the token transfer request to the SwitchTix Escrow SC in the Quorum Blockchain.
7. Funds from the SwitchTix Escrow SC/Account in the External Blockchain/Payment Provider environment are sent to the seller's wallet.
8. ERC721 from the SwitchTix Escrow SC is sent to the buyer's wallet.

Ownership Transfer

As it is already mentioned in current documentation, all tickets in the SwithTix app are tokenized and represented with ERC721 non-fungible token standard, storing the ticket's data and owner's credentials in its metadata.

Furthermore, all platform users are verified via KYC procedure to avoid malicious activities and are assigned with internal Quorum wallet addresses.

In this case, when users send tokenized tickets without a purchase deal, there is an automatic ownership transfer from sender to recipient inside the SwithTix app. It means, that when the sender transfers tokenized ticket, which is represented with the ERC721 token, this token will be redeployed on the Quorum blockchain with the updated owner's credentials.

As an exception, there could be deals with the season tickets on the sporting events when the owner cannot visit one game and want to sell only one visit, but not the whole season ticket.

In this case, the tokenized season ticket will serve as a parent ERC721 tokens and when the purchase deal will be executed, the tokenized one event ticket will serve as a child ticket, storing the credentials of the new owner and reference on the parent ticket. Moreover, all the activities for the season ticket owner for the date, which is in the child ticket will be frozen.

Ticket Ownership Transfer
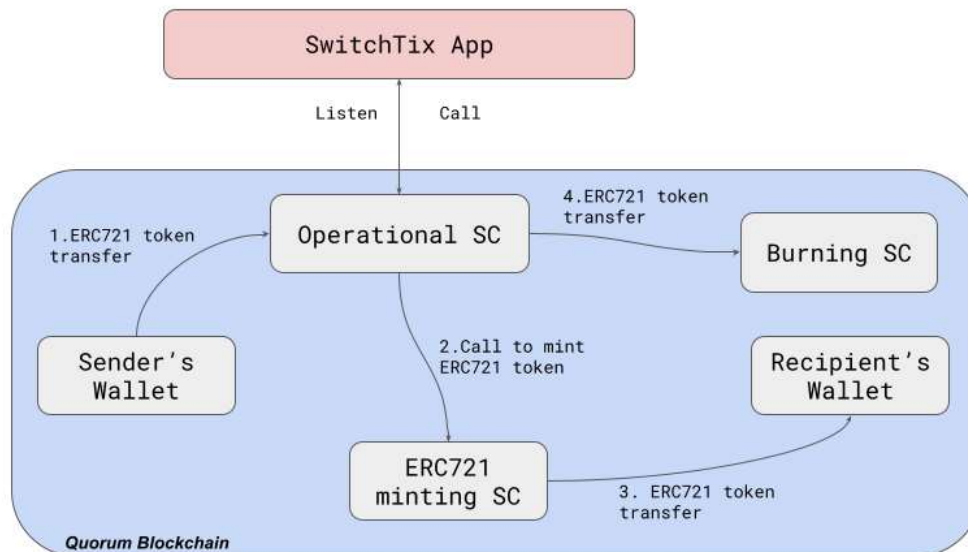
1. When the user decides to transfer the ticket to another user, the ERC721 token is transferred to the Operational SC
2. SwitchTix back-end receives this information and sends a request to Operational SC to call ERC721 minting SC to mint new ERC721 token
3. Operational SC calls ERC721 minting SC to mint ERC721 extracting the ticket's data from the original ERC721 token and storing the recipient's credentials in its metadata.
4. New ERC721 token is transferred to the recipient's wallet
5. Platform back-end check's the transfer confirmation and calls the Operational SC to transfer the sender's ERC721 token to the Burning SC
6. The sender's ERC721 is sent to the Burning SC.

The One Event Ownership Transfer
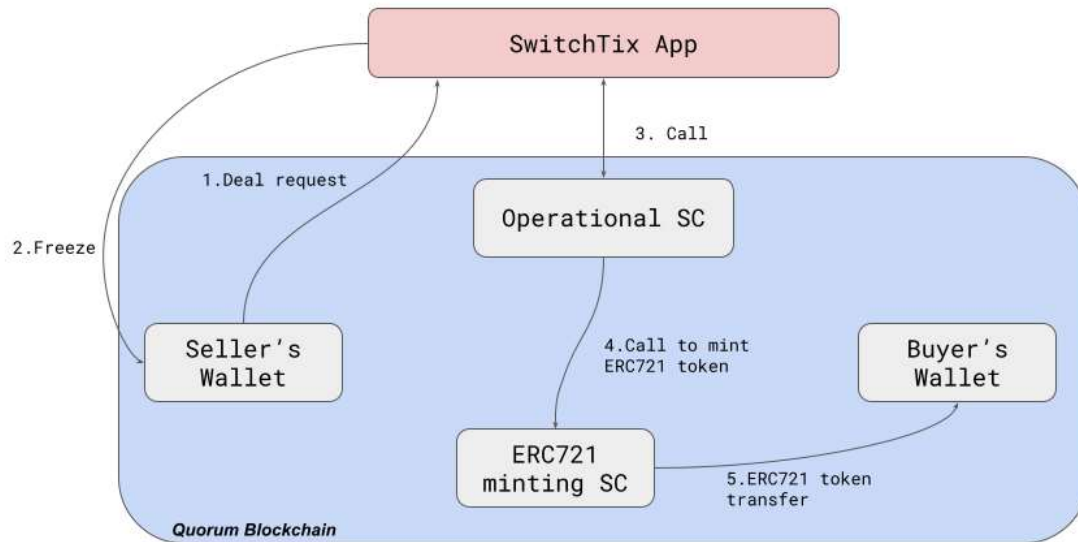
1. The seller sends the deal request to the SwitchTix app to sell one event visit from the season ticket
2. Platform back-end receives this request and freezes user's activities for the event date until the current deal is active
3. At the same time, platform back-end sends request to the Operational SC to call ERC721 minting SC
4. Operational SC calls ERC721 minting SC to mint child ERC721 token which includes event data, owner's credentials and reference to the parent ERC721 token.
5. Child ERC721 token is transferred to the buyer's wallet.

How To Benefit From SwitchTix: Switch Rewards

Switch is looking forward to providing our users with beneficial conditions and a range of incentives to make your experience even more entertaining.

Switch users will be rewarded with additional points (Switch Rewards) for activities like:

- Transactions with Switch
- Increased activity: tiered program
- Using the Switch token as a payment unit (instead of fiat or crypto)
- Positive rating status
- Referrals
- Partnerships

Rewarding Model
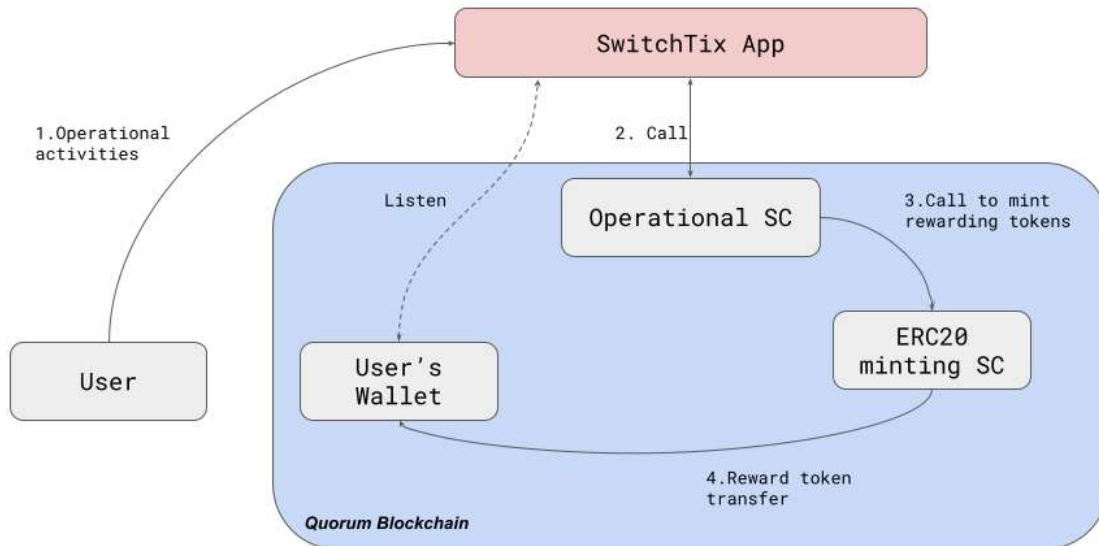
1-2. When the user conducts various operational activities (increased usage, referral, or something else), the SwitchTix application will process this data and call an operational smart contract within our blockchain environment.

3. The ERC20 Minting smart contract will then receive a call for rewards token creation.

4. Finally, the ERC20 minting smart contract will transfer reward tokens directly into the user's wallet.

Increased Activity

There will exist three levels of accelerators for higher-volume users:

- Tier 1 (the Fan): 5-10 Transactions per month: 2X Tokens

- Tier 2 (the VIP): 16-20 Transactions per month: 4X Tokens
- Tier 3 (the Elite): 20+ Transactions per month: 6X Tokens

Positive Rating Status:

Users will earn reward tokens (points) for using the platform in a responsible manner. Users will be able to rate their transaction experience in a very brief 'star rating.'

When a transaction has been completed, the user and the seller will each be presented with a 5-star rating system to rate the person with whom they transacted. Switch will aggregate all the 'stars' and assign an average. This average will be publicly viewable and will influence the comfort level of others doing business with them.

Referrals

Customers can gain reward tokens (points) by spreading the word about SwitchTix and referring other users. There will be a few different ways this will function.

1. Should a user transact with a non-user (therefore forcing the non-user to sign up), this will automatically be considered a referral. They will receive a certain number of rewards tokens.
2. Should a user spread the word about the product on social media (hashtags, blog posts, etc.), they will receive rewards tokens.
3. When a user signs up, there will be an option to refer a username. For this, both parties will receive a certain amount of rewards tokens.

Partnerships

Establish partnerships with other products to initiate the rules of reciprocity. Our loyal customers will be rewarded with pleasant gifts like souvenirs or items that can be conveniently used during events. This will be presented in our "Event Essentials Package".

Collectibles

As an additional incentive, our users will be granted with ability to convert their used tickets into collectibles, providing tools to beautify them with GIFs, animations, and other effects. These collectibles will be represented with the non-fungible ERC721 token standard. As the SwitchTix app is utilizing the Quorum blockchain for the internal operational activities, initially, tokenized collectibles are deployed on the Quorum blockchain, storing all the owner's credentials providing the Proof-of-Ownership feature.

When the tokenized collectible will be transacted to the Public Ethereum Blockchain address, the duplicate of the internal Quorum ERC721 token will be deployed into Ethereum Public Blockchain with the same owner's data in its metadata.

Such an approach is defined to reduce transaction execution fees for the users' comfort and convenience inside the platform, as in the Quorum blockchain environment we charge 0 fees.

SwitchTix tokenized collectibles could be listed and traded on the external NFT marketplaces and for making this experience intuitive and simple we are working on the partnership agreements with such NFT marketplaces, as OpenSea and Rarible to have a possibility of direct collectibles listings on that marketplaces from SwitchTix app with only a few clicks.

Switch Rewards Exchange into Collectibles
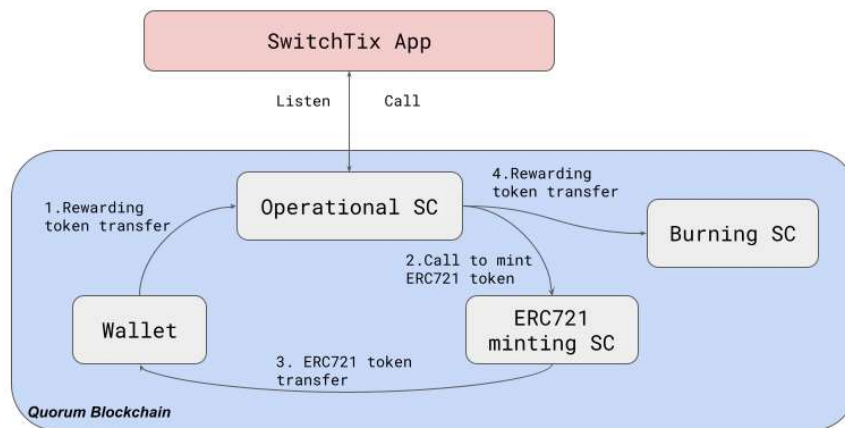
1. When user decides to exchange SwitchTix rewarding tokens into selected collectible, he/she sends rewarding tokens to the platform Operational SC.
2. Operational SC receives transfer and calls ERC721 minting SC to mint ERC721 token to the user's wallet, which represents responsible collectible, storing user's credentials in its metadata.
3. ERC721 minting SC transfers ERC721 token to user's wallet.
4. Platforms back-end receives these data and calls Operational SC to send received Rewarding tokens to the Burning SC.
5. Operational SC sends rewarding tokens to the Burning SC.
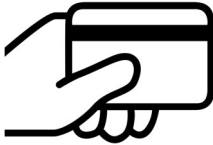
Sending ERC721 token to the Ethereum Public Address
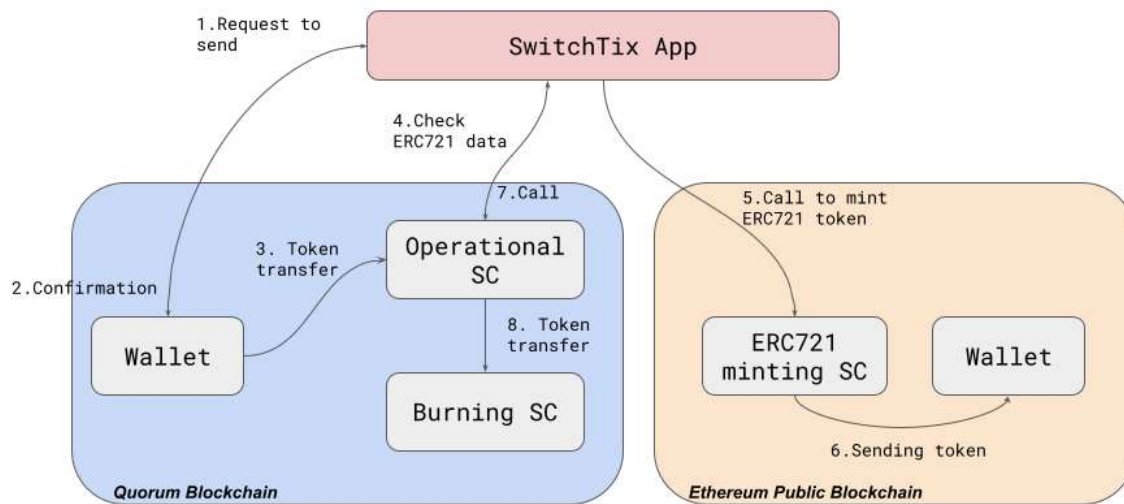
1. User from the wallet creates a request to send an internal ERC721 token to the external Ethereum Public Blockchain address.
2. App back-end receives request and confirms it.
3. ERC721 token is transferred to the Operational SC.
4. Platform back-end checks the user's ERC721 token metadata.
5. App beck-end calls ERC721 minting SC on the Ethereum Public Blockchain to deploy token with the metadata, fetched from the internal ERC721 token.
6. ERC721 SC transfers ERC721 token to the external Ethereum Public Blockchain address.
7. Platform back-end receives transfer information and calls Operational SC to transfer internal ERC721 token to the Burning SC.
8. Internal ERC721 is transferred to the Burning SC.

SwitchTix Use Cases

According to the Switch business model, the following application use cases will be in place:

Buyer	• Access to the application
	• Ticket search
	• Ticket purchasing:
	    ○ via the marketplace
	    ○ directly from a seller
	• The ability to automatically buy a ticket at the best price
	• Escrow smart-contract use
	• Token/cryptocurrency/fiat internal P2P transfers
	• In-app messaging between parties
	• The ability to earn rewards
	• Support and assistance
	• Data tracking

Seller/Reseller	• Access to the application
	• Ticket listing within the marketplace
	• Ticket tokenization (asset creation)
	• Ticket sales
	    ○ via the marketplace
	    ○ directly to a buyer
	• Escrow smart-contract use
	• Token/cryptocurrency/fiat internal P2P transfers
	• In-app messaging between parties
	• The ability to earn rewards
	• Support and assistance
	• Data tracking

Payment Provider	• Support of fiat payments within the application • Gateway to users' bank accounts through an API

Application	● Decentralized environment ● Data collection and recording on the blockchain ledger ● Rewards system ● Marketplace ● Proof-of-ownership assurance
Third-party	● Receives the latest state of asset ownership purchased through the SwitchTix marketplace

Token Economy

Switch Token Specifications

Internal ERC721 Token Standard

All assets (tickets) listed in the Switch marketplace or used for direct escrow deals will be tokenized in the internal Quorum environment and be represented by the non-fungible ERC721 token standard. This will serve only in the internal platform environment and will store ticket serial numbers, owner credentials, and other relevant information in the metadata.

Non-Fungible ERC721 token data structure:

```
Header
Token_ID: Ticket SN


Metadata:
∑ Array of strings:
{hash (item 1) event credentials
 hash (item 2) event date...
 hash (item N) other data}



Owner credentials:
Private signature

```

Storing asset credentials in the ERC721 token metadata provides the Proof-of-Ownership feature so no one else can use this token. Tokenized assets represented by ERC721 tokens will be available for transfer until X hours before the event. This approach allows event organizers to track asset ownership data without obstacles, as the event organizer will receive the latest asset (ticket) ownership data information.

User's received collectibles will be also represented by internal ERC721 non-fungible tokens, storing the user's credentials in its metadata and unique asset's ID.

All tokenized assets will be visible in users' platform wallets. In the case of tickets, users will have the ability to delete assets from their wallets after the event or create a unique collectible and transfer it to the external NFT marketplaces.

All ERC721 tokenized assets could be transferred in the internal environment without any fees with the ownership transfer to the recipient.

Furthermore, users will have the ability to send internal ERC721 to the Public Ethereum Network by deploying the ERC721 token standard with the same metadata on the Public Network (this action will require fees for the transaction execution in the Ethereum Public Network).

After sending internal ERC721 tokens to the Public Ethereum Network they will be burned in the private Quorum environment once the duplicate is deployed in the Public Network.

Token Type	ERC721
Purpose	Utility token
Maximum Supply	Uint 256

Public ERC721 Token Standard

This token standard will serve in the Public Ethereum Network and will represent SwitchTix internal ERC721 non-fungible tokens, which were sent to the Public Network.
All the fees for the transaction execution in the Ethereum Public Network will be paid by the user.

Switch Rewards

Switch Reward tokens will be represented with a separate ERC20 utility token which will serve in the internal Quorum environment, be non-transferable into external environments, and be spent only for the platform services or unique benefits within our partner community.

Rewards can be earned for deals with Switch tokens or positive rating status or activities. This will provide additional user traction like referrals and established platform partnerships with different communities/service providers.

All earned rewards will be trackable within the SwitchTix platform environment. After usage, they will be burned.

Token Type	ERC20
Purpose	Utility token
Maximum Supply	Uint 256

Token Specifications

ERC721 Non-Fungible Token on the Quorum Sidechain

The ERC721 non-fungible token on the Quorum sidechain will be used for the following purposes:

1. Storing asset serial numbers

2. Storing the unique user ID (Owner_ID) in ERC721 token metadata
3. Storing asset value
4. Storing other asset data

Key token economics features:

1. Unlimited minting (uint 256) of ERC721 tokens with no additional fees

ERC721 Non-Fungible Token on the Public Ethereum Network

The ERC721 non-fungible token on the Public Ethereum Network will be used for the following purposes:

1. Storing asset serial numbers

2. Storing the unique user ID (Owner_ID) in ERC721 token metadata
3. Storing asset value
4. Storing other asset data

Key token economics features:

1. Unlimited minting (uint 256) of ERC721 tokens with market fees for the transaction execution

ERC20 Utility Rewards Tokens on the Quorum Sidechain

ERC20 utility rewards tokens on the Quorum sidechain will be used for the following purposes:

1. Rewards unit

Key token economics features:

1. An unlimited supply of ERC20 utility tokens within the internal platform environment

RoadMap

Q1 2021	- idea validation - strategy analysis - documentation creation - clickable prototype development - legal compliance - branding - website development
Q2 2021	- clickable prototype finalization - establishment of investor relations - partnership search and identify - team creation
Q3 2021	- seed round campaign - MVP development - Basic functionality - Beta version testing - Introduction to users - Bug resolution
Q4 2021	- marketing campaign - MVP finalization - Expansion of key functionality - Visualization - Improvements - Updates
Q4 2021 (end)	- establishment of the private blockchain environment - blockchain- and non-blockchain-based environment scaling - smart-contract deployment - gradual platform development (to be outlined on our website).

Team

Tom Holmes *Founder* 	As the founder of SwitchTix, Tom overseas the direction of the company. He has been a leader in software development and Managed Services for more than 15 years and has worked with thousands of companies. Tom received his bachelor's degree in Information Science from The University of Wisconsin and has been an event-goer his entire adult life.
Theo Chilicas *Branding Consultant* 	Theo's career in design thinking started over 20 years ago in industrial design while pursuing his passion for science, math, semiconductors and software. He has worked with a range of clients from technology startups to some of the largest brands in the world. By building and extending brands and experiences, Theo is able to reach people on an emotional level and understands how to engage and inspire his audience.
Roger Royse *Corporate & Securities Consultant* 	Roger Royse is a partner in the Palo Alto office of Haynes and Boone, LLP and practices in the areas of corporate and securities law, domestic and international tax, mergers and acquisitions, and fund formation. He works with companies ranging from newly formed tech startups to publicly traded multinationals in a variety of industries.
Anne Tsuei *Branding Consultant* 	Anne has over 15 years of experience in creative leadership, design strategy and startups. With a passion for social impact and working with organizations that inspire change, Anne brings a unique perspective on ways to leverage creativity and strategy in building value, momentum, and growth—with a focus on establishing meaningful brands and creating memorable experiences.
Pavlo Klokov *Blockchain consultant,* 	Pavlo has vast experience in ICO launches, crypto trading, and workflow management. Pavlo has proven expertise in smart-contract implementation, white paper and business-plan development, and solutions to various financial and economic issues in all types of industries development, and solutions to various financial and economic issues in all types of industries.

Roman Maidanskyi,*Blockchain Consultant, BA*	Roman is a software developer with 4 years of experience specializing in backend development. Experienced with all stages of the development cycle for dynamic projects - loving to explore and keep up with the latest technologies. Roman inspires others with his work and through is dedication and curiousity, inpires others. A realist for life.
Roman Tsivka, Blockchain Developer	Roman is a blockchain developer and architect who has rich experience with blockchain (both public and private), Ethereum, Bitcoin, smart contracts, ICO and tokens. He has successfully completed many projects within various sectors including Fortune 500 businesses. Roman has been providing organizations with full cycle web solutions, cryptocurrency exchange systems, cryptocurrency trading bots and other custom Blockchain solutions.

Advisors

Ian Arden *CEO Applicature*	Co-founder and CEO at Applicature. Ihor coaches blockchain companies and helps strategize tokenization across various industries.