**Bytus**

A Private Blockchain-based Cryptocurrency Banking and Retailer System

Payment Management Solutions for Individuals and Businesses

WHITEPAPER

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**Abstract**: Bytus seeks to make cryptocurrency an acceptable payment option as a digital payment platform. The Bytus Private Blockchain has enabled over 1 million retail establishments to accept crypto-based payments for their products or services. This private blockchain has dramatically lowered the necessary bandwidth for block propagation by allowing hundreds of thousands of transactions per second. Bytus has made it simpler to make payments and transactions using several cryptocurrencies by acting as a one-stop shop. This digital wallet estimates the amount of cryptocurrency necessary to conduct a transaction and converts it to fiat cash before making a purchase. At the same time, the Bytus private blockchain network safeguards all of your transactions while also making them visible to public records.

**Disclosure:** The information described in this paper is preliminary and subject to change at any time. Furthermore, this paper may contain a “forward-looking statement”

# TABLE OF CONTENTS

1. **Exclusion of Liability**
2. **Adherence to All Legal Standards**
3. **Overview**
4. **Who we are?**
5. **Our Goals and Objectives**
6. **Company’s Mission**
7. **Aims and Objectives**
   1. Regulations
   2. Loss of Centralized Control
   3. Amendment in Frameworks
   4. Privatized Coin Creation
8. **Bytus Solutions**
   1. Wider Network
   2. Instant Payments
   3. No Transaction Fees
   4. Peer to Peer Transactions
   5. Instant Conversions
9. **What Exactly is a Bytus Token?**

9.1 What is the function of the Bytus in the ecosystem?

1. **What is the Bytus Wallet?**
2. **How does the Bytus Wallet work?**
   1. Acceptance of Cryptocurrency by Merchants
   2. Instant completion of POS Payments
   3. State Channels

12. **How do we apply it?**

12.1 Establishment of State Channels

12.2 Transactions and State Changes

12.3 No Fee for Transactions

12.4 Anytime Fund Withdrawal

12.5 Channel Closure

13. **What is a Private Blockchain, and how does it work?**

13.1 Financial Services on the blockchain

13.2 Processing of Payments

**14. Graphene Chain Framework**

14.1 Explaining Graphene

14.2 Bloom Filters

14.3 Invertible Bloom Lookup Tables

14.4 Graphene

**15. What Is the Graphene Blockchain and How Does It Work?**

**16. Graphene-Blockchain Technology's Advantages**

**17. Graphene Chains on the Bytus Private Blockchain**

**18. Bytus Cryptocurrency Bank**

18.1 Crypto Bank on the GO

18.2 Crypto Bank for Businesses

**19. Acknowledgments**

**20. Disclaimer**

**1. Exclusion of Liability**

This white paper aims to educate potential token holders about Bytus and BYTS Tokens in preparation for the upcoming token sale. The information provided below is not exhaustive and does not imply the existence of any contractual aspects. Its sole purpose is to provide relevant and appropriate information to token holders so they may determine whether to conduct additional research on the company before purchasing BYTS Tokens.

Nothing in this white paper shall be construed as a prospectus or investment solicitation, nor shall it be construed as an offering or solicitation of an offer to purchase securities in any country. This publication is not governed by or subject to any applicable laws or regulations aimed at protecting investors.

BYTS tokens are a type of utility token. This is not a digital currency or any other type of financial instrument. It has not been registered under the Securities Act, any state or country's securities regulations, or any country's securities laws in which a potential token holder resides.

According to the White Paper, the BYTS token may only be used for the purposes specified. This includes, but is not limited to, financial investments, speculative activities, and other financial matters.

The BYTS Token is not intended for sale or use in jurisdictions where digital tokens are forbidden for sale or usage.

The BYTS Token does not confer ownership, distribution (including profit), redemption, liquidation, proprietary (including all kinds of intellectual property), or other financial or legal rights. The White Paper contains more information regarding these rights that are not included in the BYTS Token.

Certain statements, estimates, and financial information contained in this white paper are forward-looking. These forward-looking statements or information contain known and unknown risks and uncertainties that could cause actual events or results to differ materially from the estimated or implied or stated results in such forward-looking statements or information. The White Paper can be customized to provide more details.

This White Paper is the major authoritative source of information regarding the BYTS Token in the English language. The material included herein may be translated into other languages or used in written or spoken discussions with current and future customers, business partners, and others. Some of the information included herein may be lost, distorted, or misrepresented during such translation or communication. Such alternate modes of communication cannot be guaranteed to be accurate.

In the event of any discrepancies or disputes between such translations and communications and this official English-language White Paper, the contents of the original English-language document shall prevail.

**2. Adherence to all legal and regulatory standards**

The purchase of any token involves a high degree of risk, including but not limited to the risks described below. This white paper has a lot of information and risks that people should think about before they buy BYTS Tokens. In particular, they should think about the following risks:

**A. Reliance on information technology infrastructure**

Bytus's dependence on functioning software applications, computer hardware, and the Internet implies that Bytus can offer no assurances that a system failure would not adversely affect the use of your BYTS Tokens. Despite Bytus's implementation of all reasonable network security measures, its processing center servers are vulnerable to computer viruses, physical or electronic break-ins, or other disruptions of a similar nature. There could be problems with computers because of computer viruses, break-ins, or other problems caused by other people. This could cause service interruptions, delays, or suspensions, which would limit the use of BYTS Tokens.

**B. Smart contract restrictions**

Smart contract technology is still in its early stages of development, and its application is experimental. This may carry significant operational, technological, regulatory, reputational, and financial risks. Consequently, although the audit conducted by an independent third party increases the level of security, reliability, and accuracy, this audit cannot serve as any form of warranty, including any expressed or implied warranty that the BYTS Smart Contract is fit for purpose or that it contains no flaws, vulnerabilities, or issues that could cause technical problems or the complete loss of BYTS Tokens.

**C. Regulatory dangers**

In the future, such regulations could then be added to existing regulations or make new regulations about Blockchain technology-based applications. This could conflict with the current BYTS Smart Contract setup and BYTS token concept. BYTS tokens could be lost, and the BYTS Smart Contract could be changed in a big way. BYTS Tokens could be stopped or shut down because of this.

**D. Taxes**

Token holders may be required to pay taxes associated with the transactions involving BYTS tokens. It will be up to the token holders to make sure they follow the tax laws in the countries where they live and pay any taxes that are due.

**Event of Force Majeure**

Due to force majeure, BYTS performance may be interrupted, suspended, or delayed. For this white paper, "force majeure" shall mean extraordinary events.

Bytus cannot prevent acts of nature, wars, armed conflicts, mass civil disorders, industrial actions, epidemics, lockouts, slowdowns, prolonged shortages or other failures of energy supplies or communication service, acts of municipal, state, or federal governmental agencies, or other circumstances beyond Bytus's control, which were not in existence at the time of the token sale. If such circumstances occur before the issuance of BYTS tokens and Bytus is unable to issue BYTS tokens within 3 months of the projected date, the escrow agent may issue a refund at the request of the BYTS token purchasers. As long as you use the same digital wallet or bank account to send the money, you will get your money back.

**Disclosure of information**

Personal information received from BYTS token holders, information about the number of tokens owned, the wallet addresses used, and any other relevant information may be disclosed to law enforcement, government officials, and other third parties when BYTS is required to disclose such information by law, subpoena, or court order. Bytus will never be held liable for such information disclosure.

**G. The BYTS Token's Value**

Once purchased, the value of the BYTS Token may significantly fluctuate for various reasons. Bytus does not guarantee any specific value of the BYTS token over any specific period. Bytus will not be held liable for any changes in the BYTS token's value.

Assumptions concerning the foregoing involve, among other things, judgments about future economic, competitive, and market conditions and business decisions, most of which are beyond the control of the Bytus team and therefore difficult or impossible to accurately predict. Although the Bytus team believes that the assumptions underlying its forward-looking statements are reasonable, any of these may prove to be inaccurate. As a result, the Bytus team can offer no assurances that the forward-looking statements contained in this white paper will prove to be accurate. In light of the many risks that are involved in forward-looking statements, the inclusion of such information should not be interpreted by Bytus or any other company as an indication that the goals and plans of the Bytus project will be met.

Please note that the Bytus project BYTS token may be subject to other risks not foreseen by its team at this time.

**3. Overview**

With the globalization of markets, technology is uniting the world, and payment methods are evolving in tandem. From barter systems to electronic transfer, there have been endless ways of commencing trade. Today, markets all over the world are turning into one single platform of merchandise. And the payment systems have played a major role in this. The digital revolution has enabled an end-user to buy commodities from the world’s farthest corners. However, there are still so many things to be done concerning ease of purchase. The payment portals have certainly grown, but they haven't yet reached a point where they can solve all of the problems people have at the point of sale.

In the burgeoning market, many payment systems have been introduced, claiming to be superfast and supported by a wide chain of retailers. Even if supported by several retailers, none of the payment apps introduced so far have been able to live up to the expectations of an end-user. Each platform had flaws; some were slow, while others lacked a network. The majority of these payment portals only accept fiat currencies, and none of them have attempted to integrate cryptocurrency into their systems. Since the advent of cryptocurrency, speculation has been high regarding its feasibility in the markets and exchanges. Cryptocurrency has not only emerged as a means of exchange, but it has also expedited the speed of trade.

Blockchains provide a decentralized and open-source distributed ledger. This technology removes all the intermediaries, which add a considerable amount of time and money to a transaction. Using blockchains, companies are not only securing their transactions, but they are also becoming less dependent on centralized and regulatory bodies such as banks for seeking funds. Crypto coins and tokens enable users or companies to start their ventures without any dependency on financial institutions.

Cryptocurrency has paved a new way for trade and it is gradually rooting into the system. Paying through e-wallets that integrate with the bank account and use fiat currency is a trend now. However, they are limited to regions and do not provide a service for exchanges. Since crypto web wallets are based on the very concept of exchange, converting your crypto into another fiat or cryptocurrency becomes extremely easy. Inbuilt exchanges and multiple currencies are the major salient features. It is also bringing relief to small and medium-sized enterprises. It frees the business owner from the control of regulatory bodies and allows them to rely on themselves.

**4. Who we are?**

Bytus wants to revolutionize the payment system as it works today, and blockchain enables us to do that. Point-of-sale transactions are always delayed by fiat payments. Crypto transactions will set this right. The feasibility and speed enable the business, and merchants are highly flummoxed when faced with certain situations regarding payments. Rigid structures and jurisdictions only allow a few traders to bypass the whirl created by voluminous trade. A great number of merchants would like to indulge themselves in innovative methods of payment, but none of the payment processes has succeeded in making the trade agile. The Bytus app has a built-in exchange and is set up to work quickly, which can speed up POS transactions.

Payment apps do not yet provide a stable solution to this global issue. The Bytus app will change this scenario to the traders' and end users’ advantage. This app will instantly make payments with cryptocurrency or fiat currency as per your preference. The most beneficial thing about it is the exchange that it provides. It can convert your cryptocurrency to fiat and vice-versa. With only a few coins, it can create a meta-analysis that helps in optimizing the user base and providing the best possible experience a user can expect. Securing it with blockchain provides the Bytus app with a foolproof shield that secures each transaction. We believe in nurturing technology according to global trends and updating them in time to meet the new challenges. The diversification of the portfolio defines us as a unique service provider.

With avant-garde technology and its spinoffs like blockchain, we can achieve the unprecedented. Regardless of the volatility of the market, the provisions of exchanges are never abided by the majority, which creates a certain level of discomposure among newbies in business. Bytus works at an advanced level of algorithm; it is intricate and logical at the same time. It works in congruity with most retailers and the metrics set by them. The formula set by the macroeconomic theory of progression does take a diverse turn in this equation. Bytus is far ahead of the game when it comes to equating business terms and establishing the fundamentals. We are the coordinators and invigilators of a fragile economy. While supporting the base of consumers, we provide steadfast membership support to our client base.

**5. Our Goals and Objectives**

Bytus' goal is to bring ease to payments worldwide and make cryptocurrency a familiar term with laymen. Blockchain and its significance did create a buzz, but it is still an alien term to most people, besides a limited number of crypto enthusiasts and investors. It is yet to reach a familiarity level as fiat and payment portals can make that happen. A few years ago, web wallets didn't exist, and today they are preferred over cash. Just like this, incorporating cryptocurrency with web wallets is an untried experiment that most people fear without analyzing its benefits. Our motto is to deliver the best with cryptocurrency, with applicability that meets the daily requirements. This type of utility is possible with cryptocurrency, and the Bytus payment app will greatly assist in this endeavor.

With the lofty prices of Bitcoin, many other crypto coins are making their way through the markets. The expansion of the crypto market has opened many possibilities in the global economy. The surge of digital assets greatly helps in keeping inflation in check. It also prevents the deterioration of resources due to the pitfalls of the subsequent rise in prices. Following the uptrend, crypto coins could be the major catalysts for economic growth. That is possible only when it reaches every smartphone in the world. Bytus has taken the onus of making it accessible worldwide with functionality and adaptability. Analysis suggests that it is most likely to reach this level in the coming years, providing steady growth and profits. The profits are measurable in gradients on an international scale. The cost included in making such platforms is very small in comparison to the profits that will underlie them in the future.

Our objective is to make the blockchain an all-encompassing component in software related to daily transactions. The very aspect of dealing with cryptos haunts many because of their lack of knowledge. The presence of cryptocurrency in daily transactions will make users friendly with it. Paying with it in stores, restaurants, and hospitals will be possible through Bytus. Imagine the convenience that it will bring into our lifestyle. It is unparalleled. The watchful approach of blockchains takes every transaction under scrutiny and doesn't leave any scope for a breach. This is rather a utopian dream, which will come true through us.

**6. Company’s Mission**

Bytus wants to change the way people pay today, and the blockchain allows them to do it. It came up with a great idea to use a lot of tokens at the intersection of different currencies.

The system, which includes digital currencies, replaces Master Card and Visa payment methods. In the new ecosystem, everyone can be open and work together as quickly as possible. They can also use more currencies in the same application.

Bytus' goal is to assist retailers in presenting digital currencies as legitimate payment options. It entices new customers who want to pay with cryptocurrency, allowing them to explore new marketplaces. It aims to eliminate the need for a large number of plastic cards by allowing payments to be made through the internet.

Exchanging digital money for fiat cash is complicated and frequently necessitates the use of third-party services. Individuals are exposed to platform-specific weaknesses that malware attackers may exploit if security is weak. Bytus wants to make it safe and easy for people to pay quickly and easily both at payment terminals and online using a QR code.

The Bytus app is equipped with the ability to expedite POS transactions and includes a built-in exchange. It will accept payments in cash or cryptocurrency in real-time. Its key benefit is the trade it provides. It can convert fiat currency to digital currency and vice versa. It may be able to do a meta-analysis that helps with the optimization of the user base and gives the best results, too.

**7. Aims and Objectives**

**7.1 Regulations:** Despite being a revolutionary invention, cryptocurrency has baffled the authorities with its decentralized distributed ledger**.** The banks and regulations have been the de facto authoritarians over the currency in every nation for a very long time. A decentralized currency causes them to lose power over it, and it surely brings them discomfort. Such bodies are majorly responsible for the reluctance of many countries towards cryptocurrencies.

**7.2 Loss of Centralized Control:** This once again throws light on the unwillingness of centralized bodies to accept cryptocurrency. The process of creating fiat currency is completely centralized and takes the whole economy into account when minting notes and coins. Cryptocurrency creation is a different process altogether. It can be simply created through computers with some mining skills, and no economic factor influences it. Cryptocurrency advocates decentralization, which goes against the norms of time-honored centralized regulatory bodies.

**7.3 Changes to Frameworks:** Making cryptocurrency legal tender would necessitate significant changes to a country's legal and monetary frameworks**.** This is another reason why some countries are persistent in shunning it. Some may have to even re-evaluate the whole structure of legalities. A few countries that have legalized cryptos had to prepare a draft constituting the usage of this technology. This is a major problem, especially in developing and densely populated countries where enacting a law requires cumbersome back-office work.

**7.4 Privatized Coin Creation:** Mining cryptocurrency is a process that can take place at home as well. As mentioned above, the minting of fiat currency has been a highly regulated and monitored process. The process of crypto mining puts an end to the regulated generation of currency. It allows anyone to create a currency, which is certainly against the millennia-old system of currency generation.

**8. Bytus Solutions**

**8.1 Wider Network:** Bytus will work with a much bigger network of retailers, allowing the maximum number of people to use the app. A wider chain of retailers not only gives credence to Bytus but will revolutionize the usage of cryptocurrency among laymen. So far, cryptocurrency has only been a bookish term for people; it has only been read and heard about in news and articles. The reason for this unfamiliarity is that cryptography is inaccessible in a generic manner. Cryptocurrencies will become more popular as a payment method because they can be used in a lot of big stores.

**8.2 Instant Payments:** The instantaneous payments with Bytus will be another reason for people to love it. This can only be achieved by blockchain technology. The spread of Bytus will certainly manifest the significance of digital assets. For many reasons, a crypto payment is way faster than a fiat payment. The first and foremost reason is its decentralized nature, which opens new possibilities at every juncture of payment. The promptness of payment is animated by the blockchain's integral components. It segregates all the agents that dominate a fiat transaction.

**8.3 No Transaction Fee:** This is the most significant benefit that blockchain has brought tocommerce.Crypto transactions exclude all the gateways and intermediaries that exist in the fiat system. It works on a peer-to-peer architecture, which is nothing but a direct route of coins to the receiver from the payee. And it is not possible on any fiat payment portal. This architecture can only be brought about through digital assets. It is a futuristic and innovative system that has been made possible by Bytus' technology. It will show that people can buy a lot of things at once and not have to worry about extra fees when they pay.

**8.4 Transactions Between Peers:** As mentioned above, this is a mechanism that ousts all the middlemen and allows the two parties to directly engage in trade. Peer-to-peer architecture doesn't only remove the commission, it also expedites the transactions and makes them instant. This system of transfer can indeed reform the ways of trading as we see them now. Faster payments at a swifter pace will be the new face of business through this technology. Not only can it trade, but it can also ameliorate the way of life by bringing ease to day-to-day transactions.

**8.5 Instant Conversions:** Fiat payments always delay point-of-sale transactions. Bytus is embedded with an inbuilt exchange. Besides this, it’s programmed to work fast and thus can fast track the POS transactions. The Bytus app is a game-changer. It will instantly make payments with cryptocurrency or fiat currency as you desire. The Bytus platform ensures efficient conversions. We do everything possible to ensure our customers get the best deal.

**9. What exactly is a Bytus Token?**

The Bytus token is an internal asset that is utilized to fuel all Bytus wallet transactions. Without Bytus tokens, no transactions are possible. The Bytus token is backed by Ethereum, Binance Smart Chain, and Tron Chain and runs on the private blockchain. You may make payments anywhere across the world with the Bytus token. We work with a lot of retailers and are always coming up with new and better ways for our customers to spend their Bytus tokens.

**9.1 What is the function of the Bytus Token in the ecosystem?**

Over the last several years, the popularity of cryptocurrencies has skyrocketed. It is becoming more widely accepted for international transactions. In addition to becoming a worldwide currency, cryptocurrencies have opened up a variety of avenues for traders and investors to make fortunes. The explosive expansion of cryptocurrencies has driven the crypto industry and given rise to a slew of new crypto exchanges and trading platforms. On the other hand, it can be hard to find the right platform for crypto trading in the current climate.

The good news is that Bytus is a one-of-a-kind platform. Because of its amazing features and secure transactions for its users, it has made a mark with its stunning arrival into the world of crypto. Bytus has proven to be a one-stop-shop for all of your crypto needs. Through its innovative, straightforward, and easy-to-use trading platform, Bytus makes it simple to buy, sell, trade, convert, and payout cryptocurrency. Bytus users can easily adapt to the use of cryptocurrency as a payment method. In the Bytus ecosystem, the Bytus token is utilized to make transactions. This makes Bytus a multichain asset because it serves as the Bytus ecosystem's medium of exchange, making Bytus more valuable.

Surprisingly, the more tokens a user has, the more transactions they can perform at any given time. If you have 25 tokens, for example, you can make 25 transactions in 24 hours. The Bytus token can be used with the Bytus wallet, which is an all-in-one network multi-currency that supports a wide range of cryptocurrencies.

Bytus is a scalable and secure ecosystem. In an increasingly competitive business, this ecosystem has helped us to sustain profitability and develop. The system freezes one Bytus token for every transaction for 24 hours before refunding it to the client's wallet address. It's an added benefit for the client.

**10. What is the Bytus Wallet?**

The Bytus wallet is integrated with cutting-edge technology, which will help you to complete transactions faster than ever. This wallet provides functionality that will eliminate the real-time troubles faced at the point of sale for several reasons. Users of the Bytus wallet will never face issues like payment delays or failures in transactions. Instead, they will enjoy a service they have never experienced before. It comes with highly advanced features that will keep its users abreast with the latest technology. With its comprehensive and meticulous algorithm, it would let users perform several other tasks, which would come in very handy at times.

With this wallet, users will be able to enter a new phase of commerce. The user interface of the Bytus wallet is designed carefully to keep all the nuances that make the experience terrible or overwhelming. We have ensured that every subtlety works towards a progressive and constructive trend in daily transactions. This app has been designed to make your life easier, and it certainly does that. The beta version of the Bytus wallet received highly positive reviews and praise, which encouraged us to make it a fully-fledged payment platform that can deal with both crypto and fiat currency. It can store unlimited coins, exchange your coins, and you can spend them almost anywhere as we have tie-ups with all the major retailers.

**11. How Does the Bytus Wallet Work?**

Bytus wallet works in real-time POS transactions. The solutions will be integrated into the wallet. Bytus will work as a state channel, and it will be used to pay for the operating cost of setting up the state channel. The functionality will only be accessible with a Bytus token. Bytus tokens can be changed in value. The price per transaction is calculated similarly to how gas prices are on Ethereum. Bytus will be addressing two significant issues that are faced today.

**11.1 Acceptance of Cryptocurrency by Merchants:** Bytus has teamed up with a payment network that already exists. This means that the cryptocurrency wallet can be used at more than 10 million stores.

**11.2 POS Payments are completed instantly:** Instead of writing each payment transaction to the blockchain, Bytus will create state channels between the customer and Bytus. These channels are secured by blockchain and establish ways to provide real-time transactions. The customer's transaction will be funded through Bytus' liquidity pool to make point-of-sale purchases instantly.

**11.3 What are "State Channels?"**

State channels are Lightning-network style payment channels but for arbitrary state updates. They are two-way pathways opened between two users that want to communicate with each other in the form of transactions. These channels are off-chain and private, known only to their participants, which enables instant and anonymous transactions within them. Upon the closing of one of these channels, the transaction history within it can be uploaded into the blockchain for the outcome to become official. Participants can also close their channel by providing the last updated state of transactions to the blockchain. If the other participant agrees that the state provided is indeed the final one, he lets the channel close. If not, he can upload his version of the most recent state and, since all the transactions are signed and timestamped, the dispute will always be won by the honest party.

**12. How do we apply it?**

**12.1 Establishment of State Channels**

The user loads their Bytus token into the Bytus mobile wallet, which authorizes the creation of a State Channel with the Bytus app. Both the user's device and Bytus keep a local copy of the current state of the channel. The creation of a state channel requires an on-chain operation.

**12.2 Transactions and State Changes**

Upon initiating a Point of Sale transaction with Bytus, they receive a visual prompt in the Bytus wallet which shows the value of the transaction. It is analogous to tap-to-pay mobile applications. The transaction is given the power to send the equivalent cryptocurrency to the Bytus platform at the back end.

The Bytus app receives the signed transaction immediately, counter-signs and stores a copy of that new state off-chain. Bytus then approves its local currency account to pay for the requested purchase through its global payment network rails on behalf of the user. As the transactions take place off-chain, there is no delay besides the time of computation and network latency.

**12.3 No Fee for Transactions**

As long as the State Channel is open, no fee is implemented for conducting transactions, no matter how many there are. In addition to that, there is no fee for keeping the channel open.

**12.4 Anytime Fund Withdrawal**

If the user wants to regain all or part of their Bytus token in the channel that has not been sent to Bytus, they can do it by withdrawing their funds. The user needs to sign and publish a withdrawal request, which requires an on-chain operation. If the user wishes, he or she can also withdraw partially, so the user is always secure in being able to retrieve his or her ether while still keeping the channel open for future transactions with the Bytus network.

**12.5 Channel Closure**

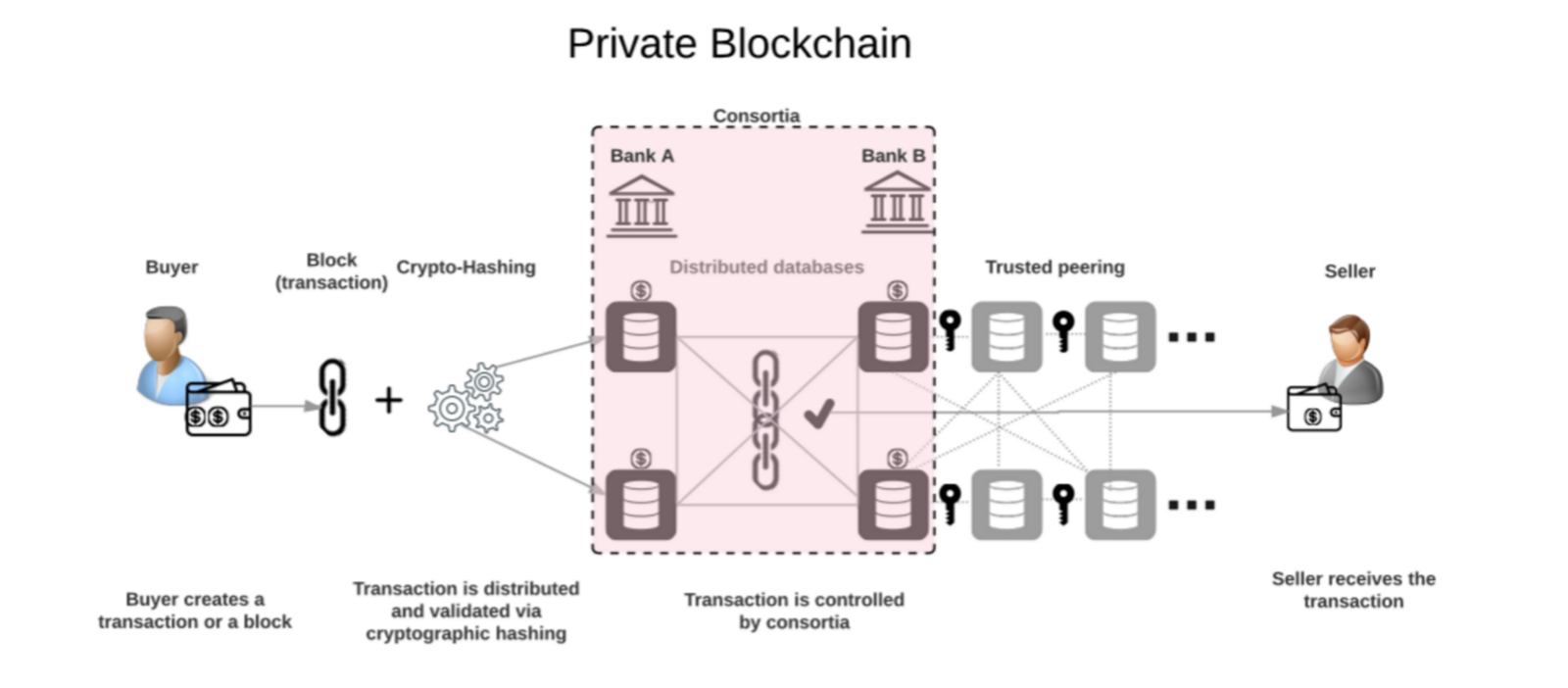
To close the state channel, one of the parties needs to sign and publish a close request to the state channel. When you do this, a period starts in which either party can send in their most recent transactions. This determines the final state of the state channel.

**13. What is a private blockchain, and how does it work?**

Blockchain technology is fundamentally a distributed database that gives a single time-stamped version of the truth. It then relies on an accessible and open user structure to certify everything is in order, rather than relying on third parties to guarantee trust and security. A private blockchain is a sort of database in which control is ultimately retained by a single authority or organization, and no one can access the network without proper authentication. Private blockchains are "permission" by definition, making them better suited to businesses in terms of performance, accountability, and cost. Private blockchains are the ideal option for many firms to preserve their confidential information. When it's not appropriate for everyone to have full access to the database, they're also used for privacy considerations.

A private blockchain's goal is to empower and promote businesses rather than individual users while retaining some overall control to improve privacy and eliminate any criminal activities that are commonly associated with public blockchains and cryptocurrencies. Private blockchains give a higher level of monitoring and regulation, defined and regulated by external administrators by their industry's regulatory norms, allowing businesses to demonstrate full accountability for the management and functioning of their systems and processes.

Importantly, private blockchains are not required to conduct transactions using cryptocurrencies or native tokens, and any link with cryptocurrencies, good or bad, is not a requirement of the private solution.

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**13.1 Financial services on the blockchain**

Blockchain is, first and foremost, a database, similar to the general ledger used by accountants to record transactions and payments. Every transaction on the blockchain is chronologically documented and can be digitally logged throughout the whole life cycle of money. This is automatically recorded. The efficiency of the procedure is greatly improved by blockchain technology, which reduces the time and money required to retain accurate records.

Blockchains are decentralized, which means that each transaction, or set of transactions in a block, is recorded at the same time by numerous independent nodes. Nodes can be found on a smartphone, a computer, or a server, and they retain a complete financial record of every transaction while also preventing fraud.

Blockchains are also immutable, which means that the blocks cannot be changed and that no single node controls the chain. Any attempted alterations are quickly detected and corrected across all nodes via a consensus method. It is mathematically conceivable to break the chain, however, changing more than half of the blocks to reach 51 percent is nearly impossible.

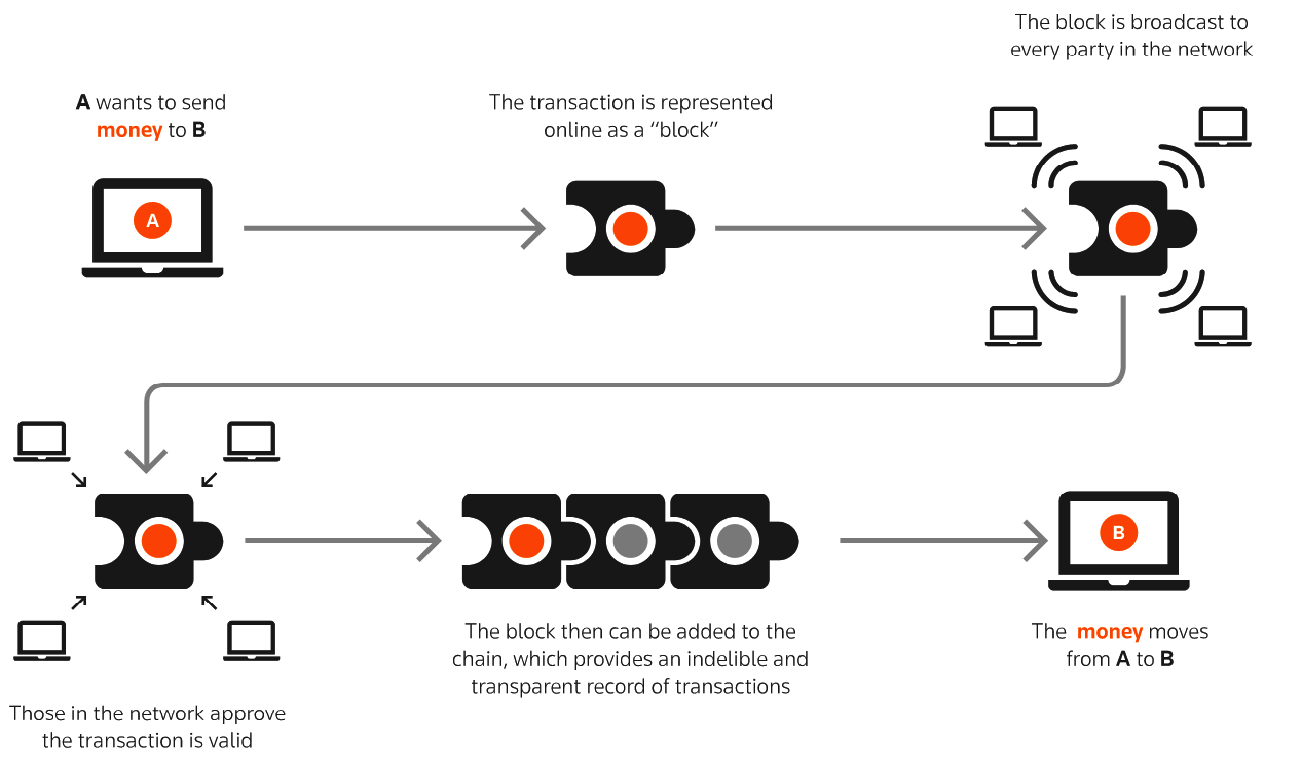
Because of blockchain's better security and automated implementation, the use of third-party intermediaries to validate transactions can be decreased or perhaps removed entirely. From simple merchant shopping to investment banking, every financial transaction requires authentication, and everyone must be compensated for "touching" the transaction. Many fintech disruptors and innovators feel that significant cost and time savings can be realized in this sector.

**13.2 Processing of payments**

Payments are an area of finance where blockchain technology excels—tracking and confirming account payables and receivables, leveraging smart contracts to automate procedures and eliminate third parties, and virtually eliminating duplications and errors. Early public blockchain testing, on the other hand, used bitcoins, which proved to be too sluggish and volatile for any practical solution. Because of the rising value of Bitcoin, the transaction fee – which is paid in coins – has almost become prohibitive. Customers and banks were particularly concerned about value swings during transaction processing, as well as how to keep B2B transactions free of fraud and money laundering.

The conclusion was that for these purchases, fiat currency or credit was still the superior option. However, a permissioned blockchain solution with no tokens but considerably faster transaction per second (TPS) speed, privacy, and regulatory compliance could be the right option. In essence, blockchain technology provides immutable proof that the transaction occurred and was confirmed by both parties. Technology makes it safer, faster, and cheaper for merchants and banks while leveraging the finest components of existing systems and procedures and upgrading areas where step-change gains may be achieved.

With distributed, immutable properties that promote privacy, accuracy, and security, it's hard to imagine a use case in financial services where blockchain wouldn't be beneficial. Banking, lending, insurance, trade finance, and asset management might all profit from the use of technology, which the finance industry agrees would save banks and big financial organizations billions of dollars over the next decade.



**14. Graphene Chain Framework**

**14.1 Explaining Graphene**

A header and a series of validated transactions that spend coins or otherwise modify the status of the system make up a block in a blockchain. The operation of any cryptocurrency benefits from relaying blocks via the peer-to-peer (P2P) network with the least amount of bandwidth and latency. Blocks that can be sent with less bandwidth spread faster, increasing peer synchronization and reducing forks in the chain. Using less bandwidth to relay a block lets more peers who are connected via low-bandwidth networks and routes participate. Finally, a more efficient means of moving blocks allows the maximum block size to increase, allowing for more transactions per second overall.

Consider how the first 8 bytes of each transaction ID can be sent as a basis comparison for relaying a block. The total cost is 16,000 bytes if our block contains n = 2000 transactions. Let's see what we can do to improve.

**14.2 Bloom Filters**

Bloom filters are a probabilistic data structure that can be used to determine whether or not things belong to a given set. The items are the transaction IDs in the receiver's mem pool, while the set is all transactions in the sender's block (really, the set of transaction IDs). A Bloom filter has two distinct features. It doesn't have any false negatives, for starters. To put it another way, if a Bloom filter says a transaction ID isn't in the set, it isn't in the set. Second, there are false positives in the Bloom filters. That is, even if a Bloom filter indicates that a transaction ID is in the set, it may not be. Bloom filters are useful because they allow us to customize the false positive rate (FPR). However, there is a significant trade-off: if the FPR is low and the Bloom filter is therefore accurate, the Bloom filter will be larger in terms of bytes. The Bloom filter will be smaller if we don't mind any incorrect replies about which transaction IDs are in the block.

What if we only used Bloom filters to relay blocks? We could, for example, set the Bloom Filter's FPR to f = 1 m. In that instance, we can expect the Bloom filter to incorrectly report that f\*m = (1/m)\*m = 1 transaction is in the block on average when the receiver checks each of the transaction IDs in her memory pool. To make matters worse, we won't know which transaction is incorrect, and the Merkle root will fail to validate as a result of the extra transaction. We can try to solve the problem by decreasing the filter's FPR. If we set the FPR to f = 1 (144m), for example, we may expect the filter to allow an erroneous answer just once per 144 blocks conveyed (i.e., only about once a day). But keep in mind that this precision will come at a cost in terms of bytes. The size of a Bloom filter with n items and a false positive rate off = 1 /144m is n\*ln (f)/ln2(2) = n\*ln (1/(144m))/(8ln2(2)) bytes. The Bloom filter will be roughly 7,113 bytes for a block with n = 2000 transactions and a mem pool with m = 6000 transactions total.

**14.3 Invertible Bloom Lookup Tables**

Another helpful probabilistic data structure is IBLTs. They're made to help us figure out how to find the symmetrical difference between two groups of objects. For example, we can build an IBLT that has all of the transaction IDs in the sender's block and then another IBLT that contains the transactions in the receiver's mem pool. By subtracting [3] the first IBLT from the second, we can determine which transactions in the mempool are not in the block. Given this functionality, it's tempting to rely solely on IBLTs to transport the block from sender to receiver, but this is inefficient. The size of the symmetric difference retrieved from an IBLT increase linearly with its size in bytes. Because of the symmetric difference, an IBLT uses around 12 bytes per transaction ID, and the overhead of an IBLT (in bytes) is about 140 percent. So, if the mempool has 2000 more transactions than the block (i.e., the symmetric difference is 2000), the sender's IBLT will be around (1.4\*2000)\*12=33,840 bytes. This isn't a good option.

**14.4 Graphene**

The best answer is Graphene's solution, which combines both data structures. First, we run all transactions in the receiver's mempool through a Bloom filter in the sender's block; however, we allow a lot of false positives, thus the Bloom filter is modest. With an IBLT delivered by the sender, we fix up any mistakes caused by the Bloom filter. The symmetric difference has shrunk to the same size as the number of false positives generated by our Bloom filter. We can either make the Bloom filter larger (more accurate), resulting in a smaller IBLT, or we can make the IBLT larger (able to correct more errors), resulting in a smaller Bloom filter. Graphene combines the properties of both data structures such that the total size is as tiny as possible. For example, a sender calculates that an IBLT that can recover a = 27 items and a Bloom filter of n items with an FPR of f = 0.00675 is minimal for n = 2000 and m = 6000. Based on a 715-byte IBLT and a 2601-byte Bloom filter, this yields a total of 3,316 bytes in our test implementation, which is around 1/5 the size of sending 8-bytes each transaction. If a canonical transaction order is not specified, an expression of the transaction order must be given as well, bringing the total to 6,066 bytes (i.e., 38 percent of the cost of sending 8-bytes per transaction). Once every 240 blocks, the IBLT will fail to decode.

As the block size expands, graphene maintains its size advantage. For example, showing 8-bytes of each transaction ID for a block of n = 10,000 transactions would take up 80,000 bytes. Graphene's cost is 14,482 bytes for a mempool with m = 30,000 transactions (or 31,091 bytes without a canonical transaction ordering).

**15. What Is the Graphene Blockchain and How Does It Work?**

Graphene's solution, which mixes both data structures, is the best answer. We correct any errors created by the Bloom filter using an IBLT sent by the sender. Our Bloom filter's symmetric difference has fallen to the same size as the number of false positives it generates. The Bloom filter can be made larger (more accurate), but the IBLT will be smaller, or the IBLT can be made larger (able to fix more faults), but the Bloom filter will be smaller. Graphene uses the advantages of both data structures to get the smallest possible total size.

The blockchain framework employs the delegated proof of stake, or DPoS, algorithm. In this variation of proof of stake, the responsibility for building blocks is passed to third-party nodes known as "witnesses." This algorithm selects trustworthy delegates capable of generating blocks without the need for additional mining. A vote of confidence is used to choose witnesses. Voting for a favored witness is possible for everyone who has the native network money. In Graphene, these votes are tallied after each maintenance period, and the top witnesses are chosen to produce new blocks and keep the ledger up to date. For keeping the ledger up to date, the witnesses are rewarded. Manually set the total number of witnesses and the qualifications for becoming one. Graphene can outperform standard proof-of-work (PoW) blockchain networks as a result of this.

**16. Graphene-Blockchain Technology's Advantages**

The online community that provides valuable information to online social networks should be compensated, and this is the main premise behind the Graphene blockchain platforms: to reward individuals who add value to the social media network. Its purpose is to encourage more people to contribute to the monetization of social media content.

A new block is generated every 3 seconds, unlike Bitcoin, which takes 10 minutes to generate a new block.

On the Graphene platform, commission-free payments are possible. Users have complete control over the transfer of coins from one account to another.

The delegates' PoS approach is utilized instead of PoW. The possibility of getting compensated not only by the miners but also by other system users. Among the many others are creators, senders, curators, shoppers, market builders, entrepreneurs, merchants, bloggers, referrers, community leaders, and online leaders.

**17. Graphene Chains on the Bytus Private Blockchain**

The Bytus ecosystem is a unique digital crypto payment network used to make hundreds of thousands of secure transactions worldwide by over a million retailers. Not only does Bytus have the throughput capacity to do all of these transactions together at near-instant speeds, but it also manages to do this with zero commission, transaction fees, conversion fees, or any other hidden or additional fees. But how is such an incredible feat even possible?

Blockchain is a distributed, decentralized technology in which participants join the network as nodes, each with their cryptographic hash signature, and record transaction information on a long chain of connected blocks known as ledgers. A new transaction signature reported on the ledger depends on previous transactions' signatures in the ledger. To further secure transactions, every time a transaction occurs, the ledger is verified to be correct by employing a consensus strategy like proof of stake, proof of work, etc. Note that all transactions taking place on a blockchain are not just stored permanently and for free, but they also form an integral part of subsequent transactions.

Every time a new transaction takes place, the nodes update their copy of the ledger, so if someone tries to tamper with a transaction, they will have to compute the hashes of every subsequent transaction that has taken place on the ledger and achieve consensus. Given that the encryption itself uses state-of-the-art SHA3 encryption, decrypting signatures, building fake hashes, and winning the consensus strategy is so computationally hard that blockchains are considered tamper-free databases. Also, note that the greater the number of users and nodes in the system, the harder it is to decrypt the ledger, making the blockchain safer.

What separates the Bytus private blockchain network from many other blockchains is that it uses the Graphene Chain Protocol. The Graphene Chain Protocol, which is often called the fastest and most scalable blockchain, is built for speed.

When there is a new transaction on the Graphene chain, the node that has a new block makes two different types of data. First, a Bloom Filter of all the transactions in the block, and then an IBLT (inverse bloom lookup table) of all the block's transactions. In contrast to traditional blockchain networks, the Graphene chain sends only the Bloom Filter and IBLT to all the nodes in the order they were sent. The protocol has been made so that only this can be used to retrace all the transactions, making everything else the same as a normal blockchain.

But not only is the Bytus ecosystem highly scalable and resilient but also secure. As the blockchain is private, only trusted Bytus officials can access the nodes of the blockchain. Bytus encrypts all identifiable personal information with SHA3 encryption and has some of the best bug bounty programs to ensure safe and secure transactions. It is this technology that enables users to enable cryptocurrency transactions at a massive scale in the Bytus ecosystem.

**18. Bytus Cryptocurrency Bank**

The financial world has already been impacted by Bytus' blockchain-based ecosystem. The concept of such a system has prompted some to ponder whether the blockchain has any restrictions. The people behind Bytus don't think there are any limitations. The creation of the Bytus Crypto Bank is one of the most forward-thinking concepts we've seen in a long time.

Users must download the banking app to their phones to get all of the services offered by traditional online banking. The app is built with cutting-edge functionality that ensures user security. Users can get an overdraft by talking with the Bytus Mobile Wallet using its multicurrency wallet capability. You can quickly convert your Bytus token into fiat currency without paying any transaction fees. The Bytus ecosystem's catch is this conversion feature. Users will also get a virtual credit card that can be used to buy things in both Bytus tokens and real money.

At Bytus, we have been at the forefront of cryptocurrency innovation, and the Bytus Crypto Bank is a crucial component of that. Our blockchain skills make sure that your transactions are completely safe, so there is no risk of fraud.

Crypto exchanges have hitherto only been able to convert one cryptocurrency to another. Not any longer! Users of the Bytus bank can quickly convert their Bytus wallet account balance into fiat currency. The bank is a response to all the bitcoin naysayers, and it has provided solutions to the majority of the issues involved with switching to cryptocurrency as a medium of exchange. Bytus will continue to expand this ecosystem to assist with the global adoption of cryptocurrencies and to contribute to a more secure financial future.

**18.1 Crypto Bank on the GO**

**Mobile payments can be made with the tap of a finger.**

There are no longer any physical bank branches, plastic payment cards, or even bankers in your community. Everything has gone digital, mobile, and contactless in the modern world. Bytus is working on cryptocurrency-related technology. It performs many of the same functions as mobile banking apps, but because it uses cryptocurrency on the decentralized blockchain, it is faster, cheaper, and more secure.

A customer can begin making transactions nearly immediately after downloading the Bytus mobile banking app for VISA or Mastercard. Once you apply for one, you no longer have to wait weeks for a debit card to arrive. Customers will be able to pay for anything at any POS terminal with NFC using the Bytus mobile banking app. To pay for anything, customers will be able to use POS terminals that have NFC chips in them.

It's as though a conventional plastic card is being used in place of Bytus' virtual payment card since it's tokenized using the NFC protocol. Any NFC payment service, such as Apple Pay, Samsung Pay, Google Pay, or a host of others, can now be used to pay with cryptocurrencies, and the merchant or online store is paid in the currency of their payment order. Other regular banking actions, such as cash withdrawals from ATMs and checking accounts, may also be included.

A cryptocurrency is no longer a viable option for purchasing daily necessities like newspapers or coffee in the morning. Cryptocurrency owners can certainly use one of the exchanges to make an exchange, wait for confirmation that it was accomplished, then wait for the money to be sent from their nominated account, and so on. A cup of coffee isn't worth the effort, is it? It's no longer the case when using the Bytus banking app on your mobile device. Everything is taken care of for the consumer using the Bytus mobile banking app. Bytus handles all communication and, in the end, conversion to and payment in fiat from any cryptocurrency that the user has pre-selected in the Bytus App, possibly in different percentages depending on its current trading value. All the user has to do is bring their smartphone to the NFC terminal and press Go. As a means of payment, just the agreed-upon amount of cryptocurrency is exchanged.

**18.2 Crypto Bank for Businesses**

**Payments via QR Code**

There are two equally important aspects of the infrastructure required to ensure the rapid adoption of the crypto economy. The first is the technical infrastructure. The ability to make payments as well as the ability to receive payments are both important. To process the payments, the Bytus Mobile Banking App will make use of the vast resources of the world's largest payment providers by utilizing digital contactless payment technology and supporting POS terminals to accept the payments. Despite this, there are still millions of businesses that are unable or unwilling to connect to this payment network for a variety of reasons, including security concerns.

The Bytus team has more than 10 years of experience in financial technology development, actively developing alternative contactless payment solutions for businesses in a wide range of industries, from key retail sectors such as restaurants and bars to street traders and internet stores. More than 250,000 payment transactions have been processed through payment processing platforms developed by our team in just the last year alone. These resources will be added to Bytus, which will allow it to reach more people than is currently possible in the market.

Bytus's business banking solutions provide merchants with the ability to accept cryptocurrencies as well as other cryptocurrencies. When it comes to point-of-sale contactless terminals, Bytus has developed a universal solution that can either replace expensively and restricted POS contactless terminals or simply act as an alternative to those terminals when a merchant does not have access to them or would prefer a more enhanced experience. To accept cryptocurrency payments, the merchant simply needs to download and install a special Bytus App on their mobile device, such as a tablet, which generates QR payment codes that contain all of the necessary payment information. Scanning the QR code with the buyer's mobile banking app, the payment is almost done right away.

**Bytus offers e-commerce and automated service solutions.**

A QR code generated by Bytus's API can be displayed on any internet store's website, which can then be read by the Bytus mobile banking customer, who can then scan the code and use cryptocurrency to make a payment just like they would at any other contactless payment point that accepts the same method. When the QR code is scanned at the time of purchase, it not only provides the same benefits as the previously mentioned mobile banking apps, but it also streamlines the checkout process by automatically populating necessary payment information such as the delivery address, contact phone number, and so on. All of this is accomplished in real-time at a cost to the merchant that is many times less expensive than what they are currently paying for the same services and products.

**19. Acknowledgments**

Bytus is the outcome of a team effort with people from several areas who worked hard. We are ecstatic to have experts from all around the world working with us. Through their combined efforts, we were able to create Bytus. We appreciate every team member's hard work. We owe a debt of thanks to the development team for their outstanding marketing, in addition to the project team. Thank you very much to the website's designers and developers for making it possible for anyone to use the site to start manufacturing propaganda.

**20. Disclaimer**

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